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POLITECNICO
DI TORINO

**sustainability
report**

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Quote from the Rector

We believe that fostering sustainable development is an imperative today, acknowledging the pivotal role that higher education institutions and scientific research organizations should play in supporting responsible development, both at global and local levels. With reference to what the Brundtland Commission defined as Sustainable development, as the one “that meets the needs of the present without compromising the ability of future generations to meet their own needs [...]”, Politecnico di Torino is working hard to encourage actions for current environmental, economic, and social challenges, to find solutions for reducing inequalities in the benefits distribution, and to protect the planet ensuring identity protection and prosperity for the widest us.

The sustainability is a core value already outlined in our 2014 strategic plan; a specific focus was on sustainable university campus and the role of knowledge exchange and urban outreach initiatives. We pursue the Sustainable Development Goals by the United Nations, interpreting them in our local environment, via our triple mission: education, research and knowledge exchange.

This Sustainability Report outlines how we integrate the principle of sustainability into the core of our activities, promoting energy efficiency, shrinking our carbon footprint and focusing on reducing, reusing and recycling actions. Besides our progresses in the classical environmental topics, the report shows how our University is changing its culture to respond to the wider challenges of our time, focusing on ethical and social aspects as well as on inclusive governance models.

We invite you to read this report and support us in this effort, for co-creating a better world for us and the generations to come”.

The Rector
Marco Gilli

The reporting methodology

This is the second social reporting activity of Politecnico di Torino - PoliTO from now on – but the first focusing on sustainability, taking the cue from, but not entirely complying with, the requirements of the Global Reporting Initiative (GRI), the ISCN/GULF Sustainable Campus Charter and the Green Metric Initiative reporting frameworks.

This report composes all the sustainability aspects exposed in previous scattered report like “PoliTO at a glance”, the EUA Self-Assessment Report, the ISCN-GULF 2015 report, mobility/ user satisfaction surveys and many others, covering the calendar years 2015 and 2016.

The topics cover a broad range of sustainability metrics related to economic, environmental, and social performance, which are applicable to various industry sectors. Based on previous reporting experiences, the reporting process itself was designed to integrate stakeholder views from all areas relevant to PoliTO. This was an opportunity for a critical reflection on current sustainability initiatives not yet labelled as “green” or still undisclosed, while at the same time it was a chance to refine and update previous database, ultimately resulting in an account on those topics considered most relevant.

The publication of the report was preceded by a methodological three-step process:

STEP Mapping of internal stakeholder

1

The creation of a Green Team Office (see paragraph 3.1) has been the first step to consolidate a detailed stakeholder map for PoliTO. Stakeholders were primarily categorized by their position (internal or external) and then according to PoliTO's five strategic action fields in sustainability: Energy and Buildings, Mobility and Transport, Food, Water and Waste, Urban Outreach and Green Procurement, supported by Communication and Program Office Structure.

STEP Stakeholder involvement

2

Overall, stakeholders were interviewed to capture and integrate internal and external sustainability actions undergoing at PoliTO. Interview partners were selected based on their familiarity or acquaintance with PoliTO (for example, graduates of PoliTO with thesis related to sustainability) or for having a professional or academic background related to sustainability (in the case of internal stakeholder representatives). Inviting stakeholders to manage each of the five sustainability action field, and therefore making them collecting all volunteer ideas and current projects of campus operations and research, also gave an indication on how the content of the upcoming report would be defined, allowing for a critical discussion and fresh feedback on the university's existing sustainability strategy. While not fully reflecting a representative sample of stakeholders, this initiative can still be regarded as an important aspect of stakeholder interaction on sustainability, bringing momentum for mutual learning, internal mark in the University (above all during the first Sustainability Week, connected to the diffusion of this first report) and a socket for future progresses in the sustainability field.

STEP Defining the content and scope of the report

3

Apart from the standard reporting aspects, topics believed particularly important to emphasise the PoliTO's current actions in the five sustainability fields have been illustrated. In those areas where stakeholders asked for more detailed information, the topic in question was given a stronger emphasis in the report at hand with the “highlight” boxes.

The report is structured in three main sections: first an institutional introduction is provided, followed by a short description of the main campuses, and, finally, a presentation of the five sustainability action fields. Unless stated otherwise, information disclosed in this report refers to the two main locations of Politecnico di Torino in the City of Turin, Italy: “Corso Duca degli Abruzzi”, “Cittadella” and “Castello del Valentino”, as well as the smaller satellite locations at “Mirafiori” and “Lingotto”.

1

PolI TO: history and overview

For over 150 years, PolI TO is one of the most prestigious technical universities for education, research and technology both at national and international level.

It was founded as School for Engineers in 1859, and then it became Regio Politecnico di Torino in 1906. As all Humboldtian Universities, it was founded to educate the new leaders of the new born industry sector and national State, meaning to drive the sustainability of a different society at that time. Its long history has turned PolI TO into one of the top-twenty European technical universities, with about 32.000 students overall and a teaching body of over 800 professors.

PolI TO is a Research University, which takes part in top-qualified international scientific research. In the first three years of the Horizon 2020 European funding program 91 projects were financed with 32 million Euro. PolI TO takes part in the two ICT Fet Flagships program (Human Brain Project, Graphene), as the only Italian partner and 9 PolI TO's researchers got an ERC grant in the same program. Moreover, the research conducted within our university was granted by another 57,5 million Euro, in the period 2012-2016. Specifically, by 112 projects at National level, by 36 projects at international level and 319 projects at regional level.

PolI TO focuses on internationalization: it includes 16% of foreign enrolled students coming from more than 120 countries. Over the years, about 900 international agreements and projects have been signed by PolI TO, which partakes in the principal university clusters and networks worldwide (Cesaer, Cluster, EUA, Sefi, T.I.M.E.).

European technical universities today play a crucial role: the best international universities are required to become key attracting poles of qualified human capital (talented students, researchers and businessmen) and strategic industrial investments.

With a rigorous approach and a scientific methodology, these actions will support a sustainable growth and will meet the big challenges that our society has to face in the coming years on main topics such as energy, health, population, food and climate. In this context, PolI TO focuses its strategies on an even greater commitment in the social and economic field, in order to turn its campuses into central hubs of an international network of academic, industrial and institutional partners, with the aim of sharing agreements and projects for an even more collaborative and cross curricular research.

As a result, our University issued its Horizon 2020 – Strategic Plan where the two key concepts, mission and vision, are defined together with the consequent objectives and the priority actions to be implemented in the short and medium term. Merit and talent are some of the keywords of the Plan. For this purpose, PolI TO creates and disseminates new scientific and high-tech content knowledge, and trains architects and engineers to face the challenges of our constantly changing society with skill and social responsibility.

In this context, sustainability is a key topic, as PolI TO gives a strong contribution to the cultural progress and the competitive and sustainable development of its territory and its Country.

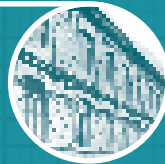


1861
Unification
of Italy

1859
Technical School
for Engineers



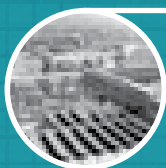
1862
Italian
Industry
Museum



1906
Regio
Politecnica
di Torino



1958
Corso Duca degli Abruzzi
Campus opening



1991
Cittadella Politecnica
Campus: site
construction opening



2009
150 years of
"Polytechnic culture"

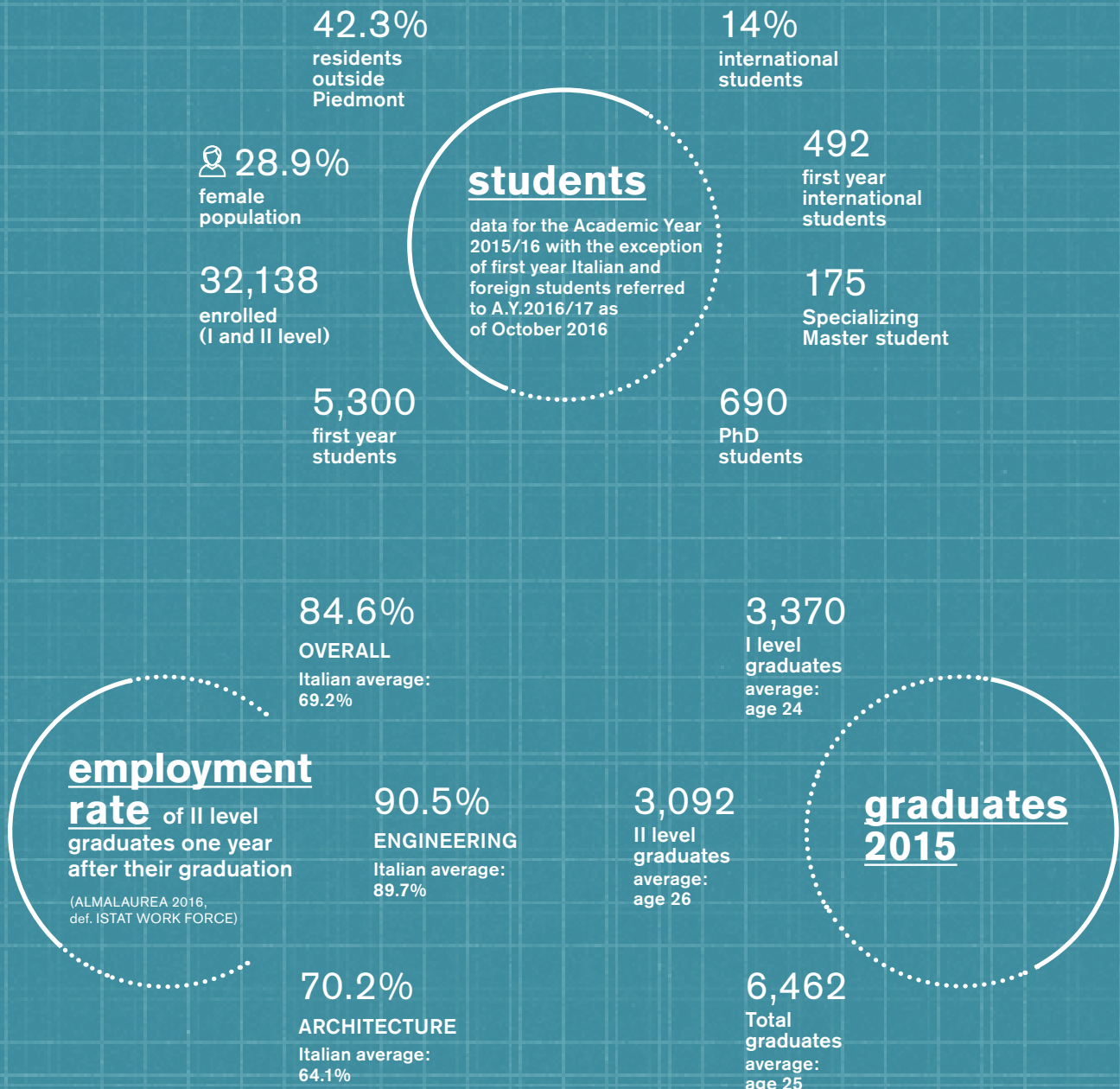


TODAY

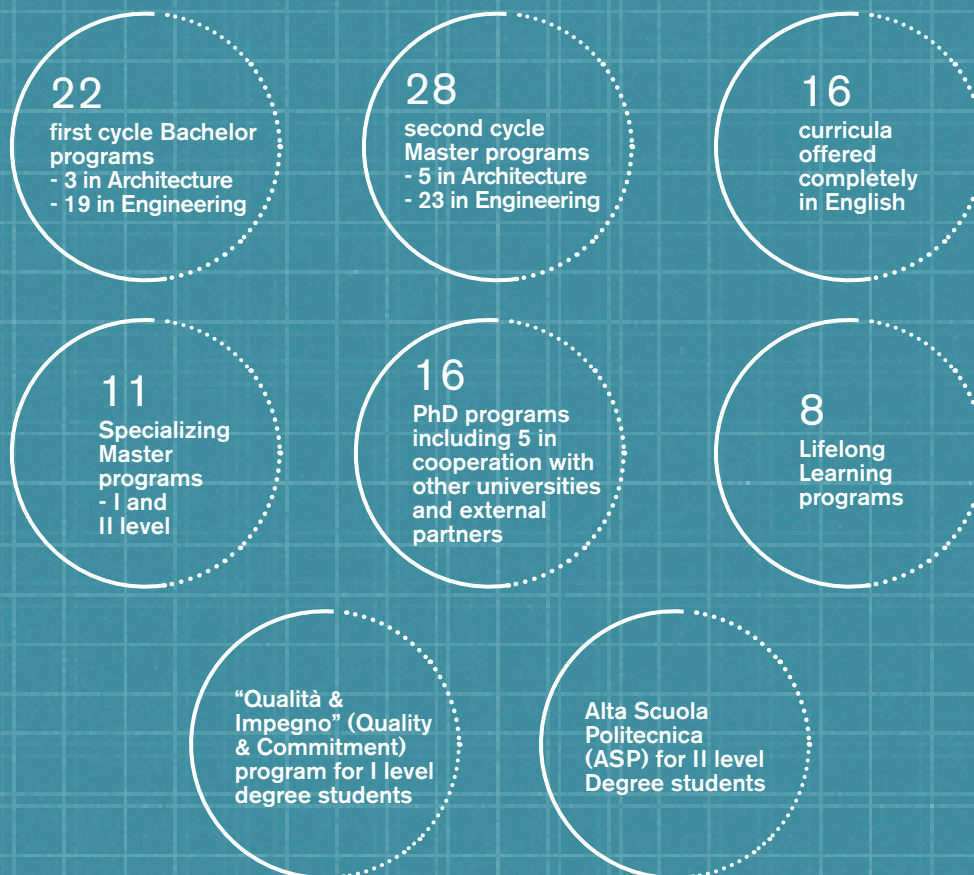
1.1.1 Students and teaching

PoliTO is one of the most attractive Universities in Italy: out of the 10,000 students that apply every year, about 5,300 are the students that can enroll in PoliTO each year. As is common in the best technical universities in Europe, PoliTO has a comprehensive range of programs in Architecture and Engineering (22 Bachelor-first level programs and 28 Master-second level programs in the Academic Year 2016/2017), 16 are offered entirely in English. The educational opportunities are enriched by first and second level Specializing Masters, by the third level training of the Doctoral School (16 courses for the XXXII cycle) and by the programs of the School of Specialization in Heritage Architecture and Landscape.

Merit, talent and commitment are the heart of the student development policies: the Alta Scuola Politecnica merges the great traditions of Politecnico di Torino and Politecnico di Milano, with its joint high-level teaching program, held in parallel with the Master's degree program. Moreover, "Quality & Commitment" is a project developed for the best Bachelor of Science students. It is an integrated academic path aimed at fostering Bachelor of Science students' personal growth, with a mentor's tutoring, in order to strengthen their cross curricular abilities, to encourage study and methodological debate and to allow training experiences abroad, as well as to ensure financial facilitations.



1.1.2 Course catalogue Academic Year 2016/2017



1.1.3 The human capital

Human capital is the main value of PoliTO. Its qualification and the involvement of the entire University community are at the heart of the University development policies. The attraction of young talented researchers is part of the guidelines proposed by the Strategic Plan of PoliTO, which intends to develop quality and to promote the culture of evaluation, in a shared vision of growth. The European Commission conferred the PoliTO the HR EXCELLENCE IN RESEARCH logo, awarding the commitment of the University in the implementation of the principles of the European Charter for Researchers & Code of Conduct for the Recruitment of Researchers.



827 27.3%

204 Full Professors

380 Associate Professors

243 Assistant Professors



859 59.5%

1.1.4 The individual at the center of personnel and welfare politics

At PoliTO there is a constant sensibility leading to the achievement of a better quality of life at the University, through series of initiatives for the employees. The solutions adopted from this “family friendly” institution, establish a “business’ welfare project”: a set of services / real benefits, projected on the base of workers’ needs. Many of the adopted actions are intended to balance the time spent for working and the time dedicated to private life and to the family. The overall project provides for large range operations:

WORKING SHAPES AND TIMES

- Tailored working time
- Smartwork projects addressed to the staff who returns from maternity leave and in case of family issues, according to current regulations.

WORK AND PRIVATE LIFE TIME RECONCILIATION

- Childcare:
 - Baby Parking “Policino”
 - Business’ MICRONIDO “Policino”
 - Baby-sitting service at home
 - Summer camps for employees’ children (managed by Polincontri)
 - Children at PoliTO with mum and dad
- Care and support services for elderly or disabled

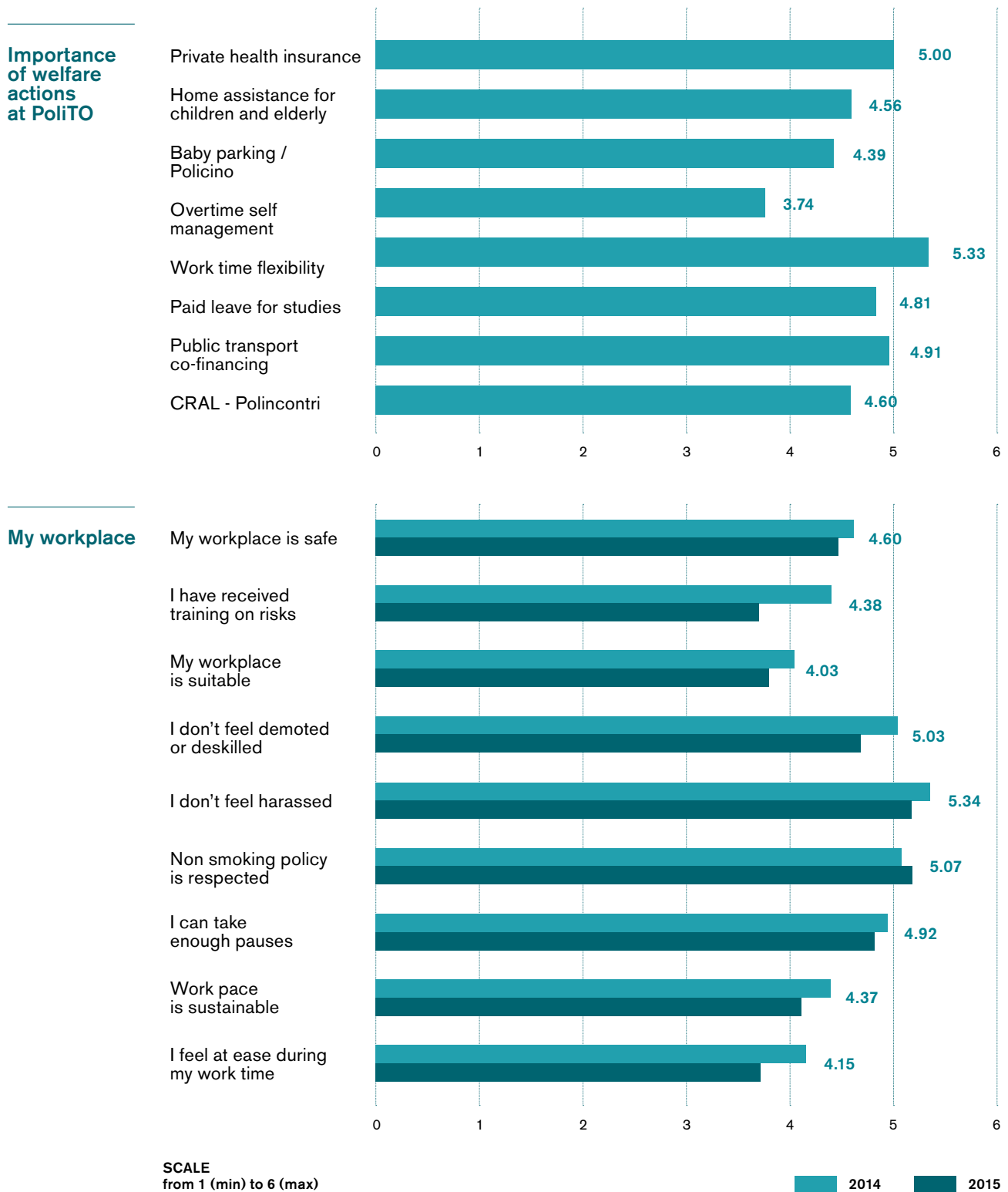
OTHER PROJECTS

- Cofinancing public transport tickets for all employees
- Annual employee survey on organizational welfare
- Health insurance for all employees

From 2014 at the University works the “Law Committee of Guarantee of Equal Opportunity” (CUG), which replaced and integrated the former CPO - Equal Opportunities Committee, whose activities are directed at ensuring that all employees and students of the university have a serene work and study environment, where interpersonal relations are characterized by fairness, mutual respect for the freedom and dignity of the individual. The Politecnico’s CUG has joined the city network and the UnWomen’s “HeForShe”. Furthermore, it is part of the CESAER international network for issues of gender / gender planning. Concretely the Politecnico di Torino has adopted a Positive Action Plan with the CUG.

A detailed description of the CUG activities can be found on the website: <http://www.swas.PoliTO.it/services/cug/default.asp>

Here below some results from the “Annual survey on perception of organizational welfare – 2016”, focusing on physical work place and specific PoliTO welfare actions. The full Survey analysis can be downloaded at: http://www.swas.PoliTO.it/services/operazione_trasparenza/?id_documento_padre=101996





CUS

At CUS (University Sport Center)-Torino we believe sport has the power to inspire anyone at every level, from daily gym to agonistic level sports.

We want to encourage all those who wish to engage with sport to do so, whether they are an elite athlete or an amateur enthusiast; we want to be able to support them in achieving their goals and fulfilling their sporting dreams; we want to enable our students and local community to lead active and healthy lives.

We have a fantastic range of sport, fitness and wellbeing facilities open to students, university staff and members of the public. You can access a wide range of indoor and outdoor sports facilities, including rugby and soccer fields, basketball, volleyball and tennis courts, golf and athletics fields, and more.

Please contact our instructors directly to get more information about specific activities.

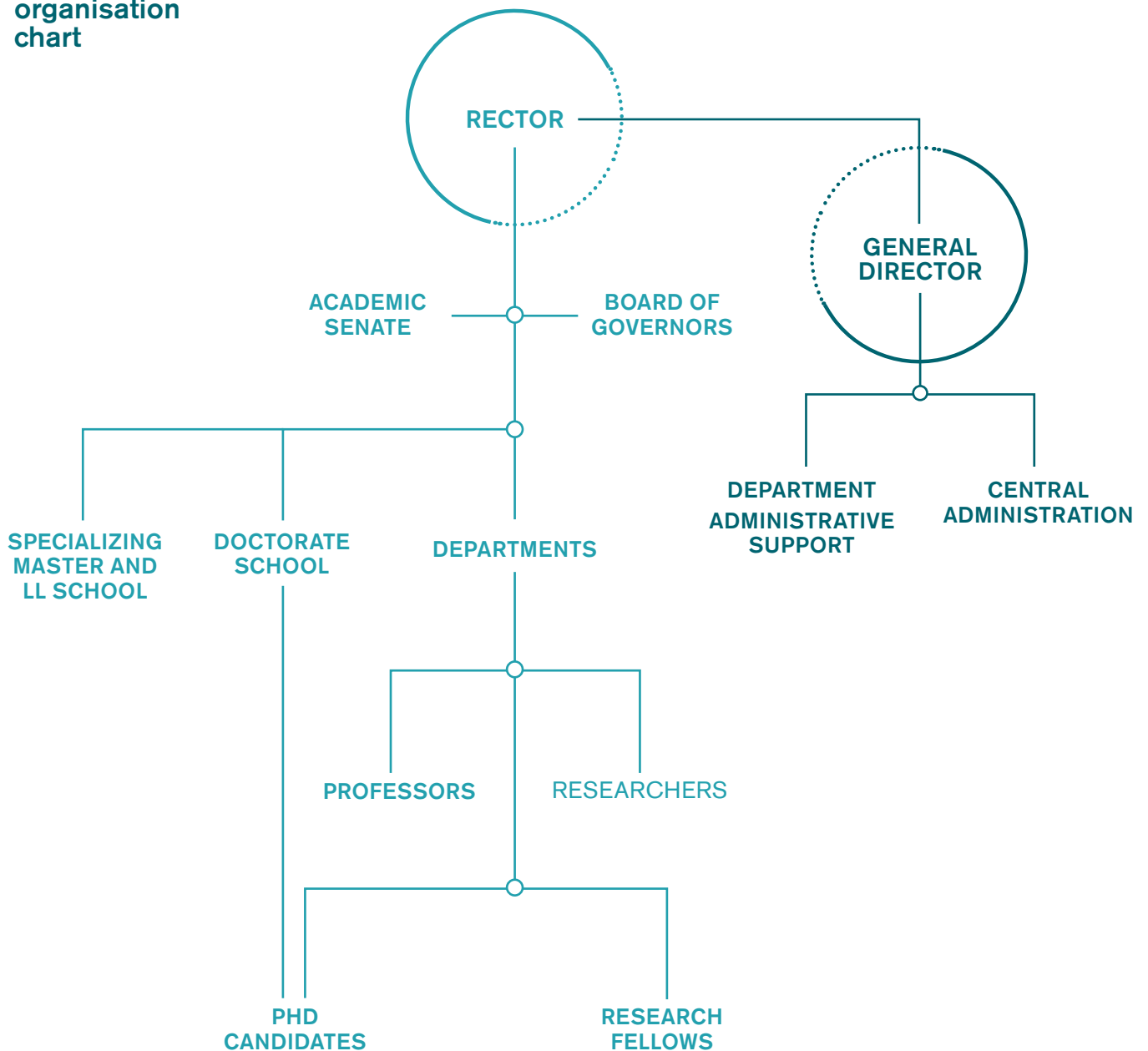
Sport and sport events can have symbolic as well as practical significance to build a sustainable community. Joining CUS for PoliTO staff means to promote active lifestyles and help leverage community resources for a diverse range of vulnerable groups.

If you need information on membership matters or other enquiries, please contact: internationalstudents@custorino.it or info@custorino.it.

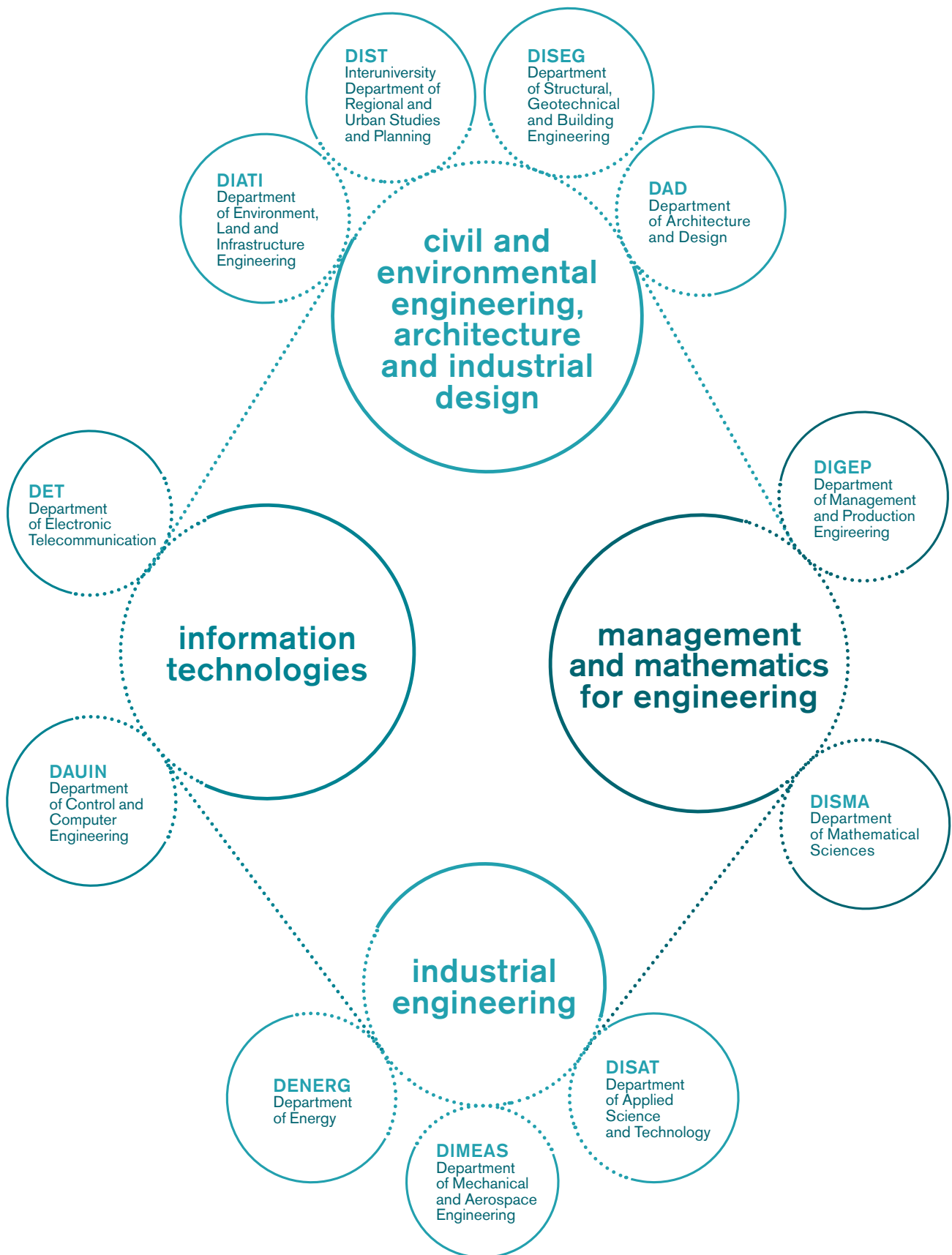
1.2 The governance model

The 11 Departments at PoliTO coordinate research and promote the sharing of results and organize and manage teaching activities. All of them are involved in research activities that attain to the five action fields of Sustainability identified by the University, as better described in section 3.

University organisation chart



1.3 The Departments



1.4 The social responsibility and accountability

1.4.1 Values, principles, codes

PoliTO has a long tradition of serious attention toward sustainability and social responsibility, that has been constantly renewed and reinforced through years. Clear references can be found in its main codes and main official documents, as:

Statuto di Ateneo Art. 2.7

“... The Politecnico di Torino contributes, through its teaching and research, to a development process based on the principles of social cohesion and sustainability, also from an environmental perspective. In particular, it promotes cooperation among institutions, in order to encourage growth in the cultural, scientific and professional community.”

Strategic Plan Horizon 2020 mission

“Aware of its role of Public university, the PoliTO works to create and disseminate innovative highly qualified scientific and technological content knowledge and to train Architects and Engineers with professional skills and social responsibility able to face the challenges of a continuously changing society. This is put into effect in order to contribute to the cultural progress and to a competitive and **sustainable development** of the local Community and of the Country.”

Codice Etico della Comunità Universitaria – Ethical Code

shared with the other two Universities existing in the Regione Piemonte.

Codice di comportamento del Politecnico di Torino – Code of Conduct

disciplines the behaviour rules for public sector employees.

Piano triennale di prevenzione della corruzione

identifies risks and defines rules and guidelines for transparent and correct operations.

PAP (Piano Azioni Positive) 2015-2018

del «Comitato Unico di Garanzia per le pari opportunità, la valorizzazione del benessere di chi lavora e contro le discriminazioni» (Action plan of the Committee for equal opportunities, non-discrimination and anti-harassment).

1.4.2 Self-assessments and events

PoliTO considers the principle of sustainable development as a central paradigm of its activities in research, education and management and encourages various activities aiming at developing the knowledge and awareness of environmental sustainability.

Several events and self-assessment initiatives have been promoted through years:

2009

G8 University Summit, where an international declaration, fostering sustainable and responsible development in society, has been signed.

2010

set-up of the Living Lab, a fully equipped room for monitoring buildings performance in terms of energy consumptions

2010

Social Responsibility Report

2012 and 2015

EUA Self-Assessment Reports

2015

ISCN Report and affiliation to the network

2015

formal set-up of the Green Team

2016

member of the Steering Committee of RUS, Network of Italian sustainable universities

1.4.3 Rankings

PoliTO is a well-known and reputed institution, among best technical University in Europe and in the World, also thanks to its results recognized by main international University rankings, such as QS, U-multirank, Greenmetrics, ARWU, Times Higher Education, with particular regards to its core fields.



Architecture / Built Environment	16
Civil & Structural Eng.	9
Electrical & Electronic Eng.	10



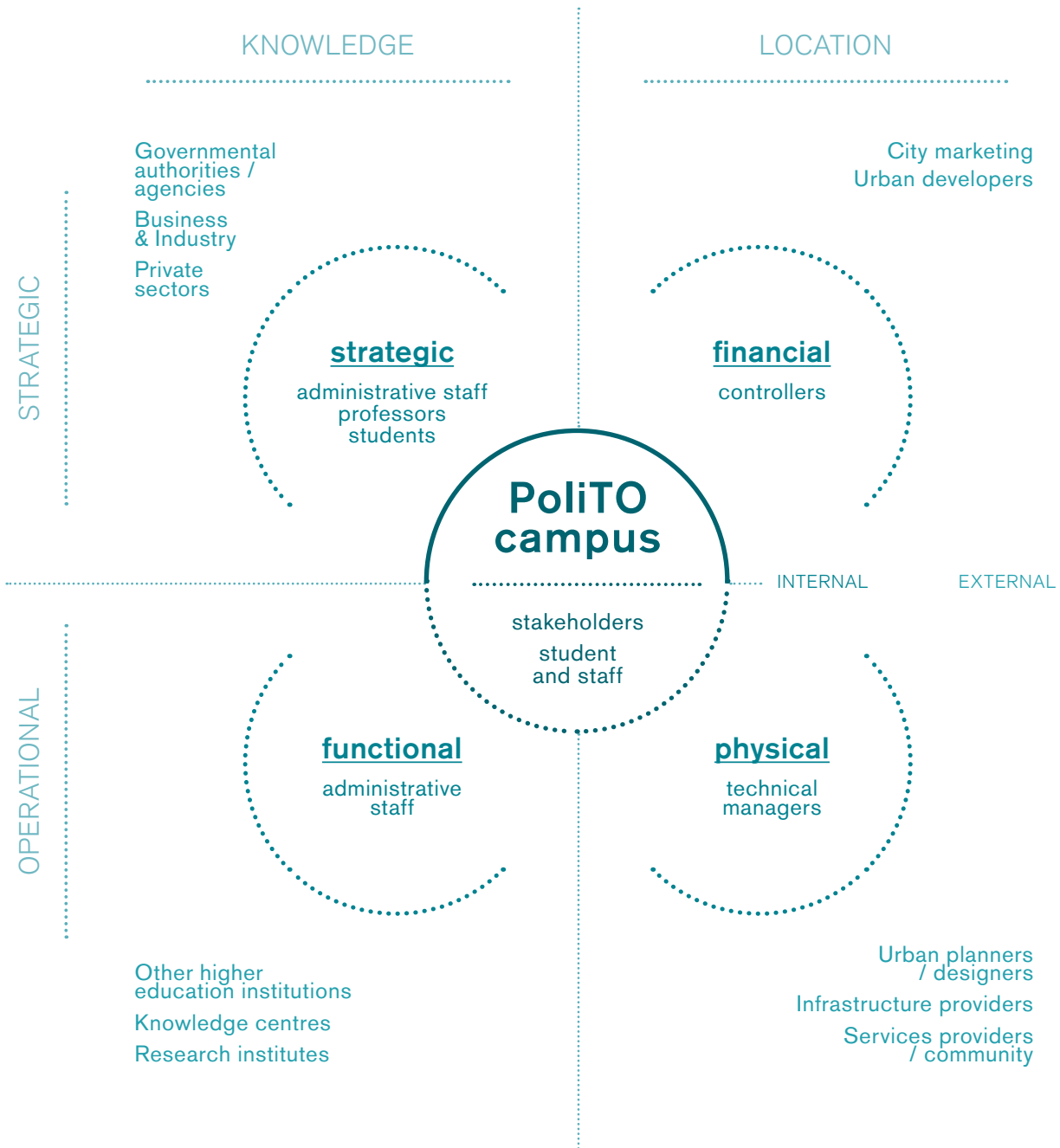
Architecture / Built Environment	50
Civil & Structural Eng.	37
Electrical & Electronic Eng.	40

1.5

The PoliTO stakeholders wider map

PoliTO has a consolidated history of openness toward external stakeholders, playing an active role both in the local Community and in the International arena, working closely both with the socio-economical world and with Institutions, having constantly in mind the opportunities offered by the protection of the environment and the diffusion of all the benefits to the widest part of the population. PoliTO collaborates with other institutions, outside academia, taking its local environs as a 'living

laboratory'. Such private-public-people (PPP) partnerships guarantee a big variety of knowledge involved, different interests, different approaches to collaboration and innovation. Community engagement, crowdfunding, internal collaboration strengthened, fund raising with research projects, new allocated human resources on sustainability fields are only a few of many naturally positive results after PoliTO's open doors to external stakeholders.



1.6

The economic impact

PoliTO attracts and distributes a consistent amount of economic resources from and to its main stakeholders. The 2015 balance sheet sums-up to about 251 million €.

1.6.1 The attraction of economic resources

From the incomes point of view, the PoliTO can count on the revenues coming from its triple mission: education, research and knowledge exchange, that include transfer from central government, students fees, incomes from research project and applied research for industry.

<p>52%</p> <p>Ministry's funds (research funds excluded)</p> <p>129,550,886 €</p>	<p>1%</p> <p>Commissioned by public authority and private companies</p> <p>2,254,873 €</p>
<p>12%</p> <p>Students fees</p> <p>30,100,231 €</p>	<p>2%</p> <p>National research funds (several ministries)</p> <p>3,933,547 €</p>
<p>7%</p> <p>On-demand research and technology transfer</p> <p>18,110,872 €</p>	<p>4%</p> <p>Other funds</p> <p>8,867,843 €</p>
<p>9%</p> <p>European and international research funds</p> <p>22,466,269 €</p>	<p>11%</p> <p>Education projects commissioned by public authority and private companies</p> <p>27,174,283 €</p>
<p>3%</p> <p>Region and local research funds</p> <p>8,556,180 €</p>	

1.6.2 The direct distribution of economic resources

From the costs point of view, the PoliTO distributes resources to remunerate its production factors, meaning mainly personnel costs, operational costs (goods and services from suppliers, rents and other costs) interests and taxes.

<p>36%</p> <p>Professors and researchers salaries</p> <p>87,685,765 €</p>	<p>2%</p> <p>Research and editing activities</p> <p>4,213,077 €</p>
<p>16%</p> <p>STAFF salaries</p> <p>38,092,061 €</p>	<p>7%</p> <p>Transfers to other research partners</p> <p>16,901,364 €</p>
<p>2%</p> <p>Other personnel expenses (Services, Board Fees..)</p> <p>4,568,138 €</p>	<p>27%</p> <p>Suppliers (goods and services)</p> <p>65,317,328 €</p>
<p>7%</p> <p>Student support (scholarships, prizes, part time collaborations..)</p> <p>18,198,978 €</p>	<p>1%</p> <p>Interests on capital</p> <p>1,897,892 €</p>
	<p>4%</p> <p>Taxes</p> <p>8,653,640 €</p>

1.6.3 The indirect redistribution

PoliTO generates an indirect economic impact on local area thanks to student expenses for their day by day life. The "Osservatorio Regionale per l'Università e per il Diritto allo Studio Universitario del Piemonte" (Regional office for university trends analysis) has conducted a phone interview with a significant number of students studying in Torino to understand the costs they face.

The following results are the output of this work. It is easy to see that the PoliTO attractiveness for students that relocate Turin is a key for stimulating local economy.

Tab. 1 Average yearly cost for a university student living in Turin
Data from: Osservatorio Regionale per l'Università e per il DSU - Piemonte

	Spesa	Students living in Turin (euro)	Students living in Piedmont (euro)	Students relocated in Turin (euro)
BASIC COSTS	Books and other consumables	633	664	580
	Food	1,429	1,344	3,430
	Accommodation	-	-	2,997
	Transport	227	484	525
EXTRA COSTS	Clothing	592	566	515
	Other education/languages	54	77	49
	Sport and leisure	893	909	682
	Totale	3,827	4,044	8,777

The economic impact can be estimated by multiplying the three cost categories by the number of students enrolled at PoliTO and articulated in the above mentioned categories: living in Turin with their families, living in Piedmont with their families, relocated in Turin.

PoliTO students induce a yearly estimated spending of over 200 million euro (referred to A.Y. 2015/16)

Tab. 2 Indirect Spending generated by Politecnico di Torino in the A.Y. 2015/16
Data from: Osservatorio Regionale per l'Università e per il DSU - Piemonte; n° of students: data from the University

Spesa	Annual expenses pro-capite (euro)	N° enrolled A.Y. 2015/16	Total spending (euro)
Students living in Turin	3,827	4,895	18,735,243
Students living in Piedmont	4,044	10,050	40,643,588
Students relocated in Turin	8,777	16,457	144,450,505
		31,402	203,829,336

1.7 The local environment

PoliTO is based in a city with an historical industrial vocation that has seen over the years its manufacturing tradition transforming from the model of one-company town to a more complex environment. With their 100,000 students (about 15 % of the population living in Turin) the two local universities have become a key driver of local economic growth. Universities are linked directly to the local and international business sectors (providing talent, skills and research) and are important hubs attracting students, lecturers and researchers from all around the country and the world, who can contribute significantly to the economic and cultural life of the community, boosting its international dimension and steering it firmly to become a society based on the knowledge economy.

Torino, in recent years, has invested heavily in making attractive the city for students and researchers coming from other area of the country and from abroad; major policy initiatives have been launched to attract national and European funding.

Linkages with the business segment are strong, despite the unfavorable market and economy situation, and addresses research and technological innovation. In this context, the activity of I3P is remarkable: I3P is the Innovative Enterprise Incubator of PoliTO, one of the main European University Incubators. It supports the creation of new science-based companies, founded by university researchers and by other entrepreneurs, providing them with offices, strategic and specialist consultancy and a continuous stream of networking opportunities with investors and corporate clients.

Founded in 1999, I3P is located in Cittadella Politecnica and has supported around 300 startups in industries such as IT, Internet, Cleantech, Medtech, other industrial applications, and Social Innovation. These startups have raised over 40 million euros in equity and employ over 1500 people. On average, every year I3P receives 400 applications, develops about 150 projects and business plans and launches 30 new startups.

1.7.1 The Innovative Enterprise Incubator



Global Top 25 UBI index
University Business Incubator of 2014



400
ideas



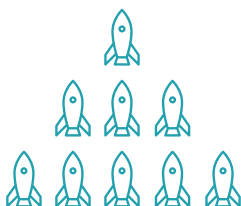
150
business plans - MVP



30
start-ups



1,500+
jobs



296
start-ups

since 1999

each year

The activity of I3P is integrated in the global strategies of the Piedmont Region in the field of research, innovation and high-tech entrepreneurship. PoliTO, particularly, focuses on the balanced development of basic and applied research. The new frontiers of scientific and technological research and higher education require a cross curricular and collaborative approach, which involves all university areas and their partners in the social and economic system. Developing this type of research and promoting the exchange of knowledge with industrial partners are therefore strategic objectives. Technology transfer is intended as a real “knowledge sharing”, a relationship based on the complementarity of competences, which is reinforced by the presence of joint laboratories on the campus and by the participation through partnerships in research projects, besides the traditional activities of knowledge sharing.

PoliTO offers companies interested in innovation: its own scientific skills, research and consulting services with an interdisciplinary, multiservice and customer oriented approach, a support for lab tests and analysis and in particular the possibility of sharing laboratories and services within the Business Research Center located within the Cittadella Politecnica.

1.7.2 The social engagement

Not only applied research and technology transfer. Over the last years, our Institution increased the number of actions aimed at the public engagement to the benefit of the local community. (for more details see **3.4.3 Urban outreach**)

1.7.3 Relations with industrial context

About 700 applied research contracts are signed on a yearly basis for over 12 M €. Among others PoliTO interacts with:

Alenia Aermacchi	GE-Avio	ENI Corporate	Telecom Italia	FCA Fiat Chrysler Automobiles	Ferrari
General Motors Powertrain Europe	HP	IBM	Indesit	Italdesign Giugiaro	Michelin
Microsoft Italia	Nokia	Philips	Piaggio	Pininfarina	Pirelli
Siemens	SKF	STMicro- electronica	Telecom Italia	Thales Alenia Space	

1.8

The international environment

Accordingly to the Strategic Plan, the internationalization has become a renewed priority in order to reach a better compliance and integration with research and technology transfer policies. With this purpose, three editions of the Bando Internazionalizzazione della Ricerca (Call for internationalization of Research), have been launched and funded for a total amount of 800,000 with the aim of easing the long-term cooperation with the most prestigious universities in the world thanks to the support of incoming and outgoing mobility of the research groups involved in the projects.

New partnerships have been therefore started with academic and non-academic subjects located in several countries (Korea, Singapore, Japan, Canada, U.S.A., Russia, India, Malaysia, Vietnam, countries belonging to the Gulf, Mediterranean and South-East Asia areas). 69 new framework agreements and 10 new Double Degrees with foreign universities have been signed.

Furthermore, our institution is committed to make grow and strengthen its international campus in Uzbekistan at the Turin Polytechnic University in Tashkent.

In compliance with the objectives defined in the institutional Strategic Plan "Horizon 2020", PoliTO is aimed to extend its presence in some countries considered to be strategic, with the establishment of local "competence centres" aiming at fostering a direct relationship with local companies, research institutes and government bodies.

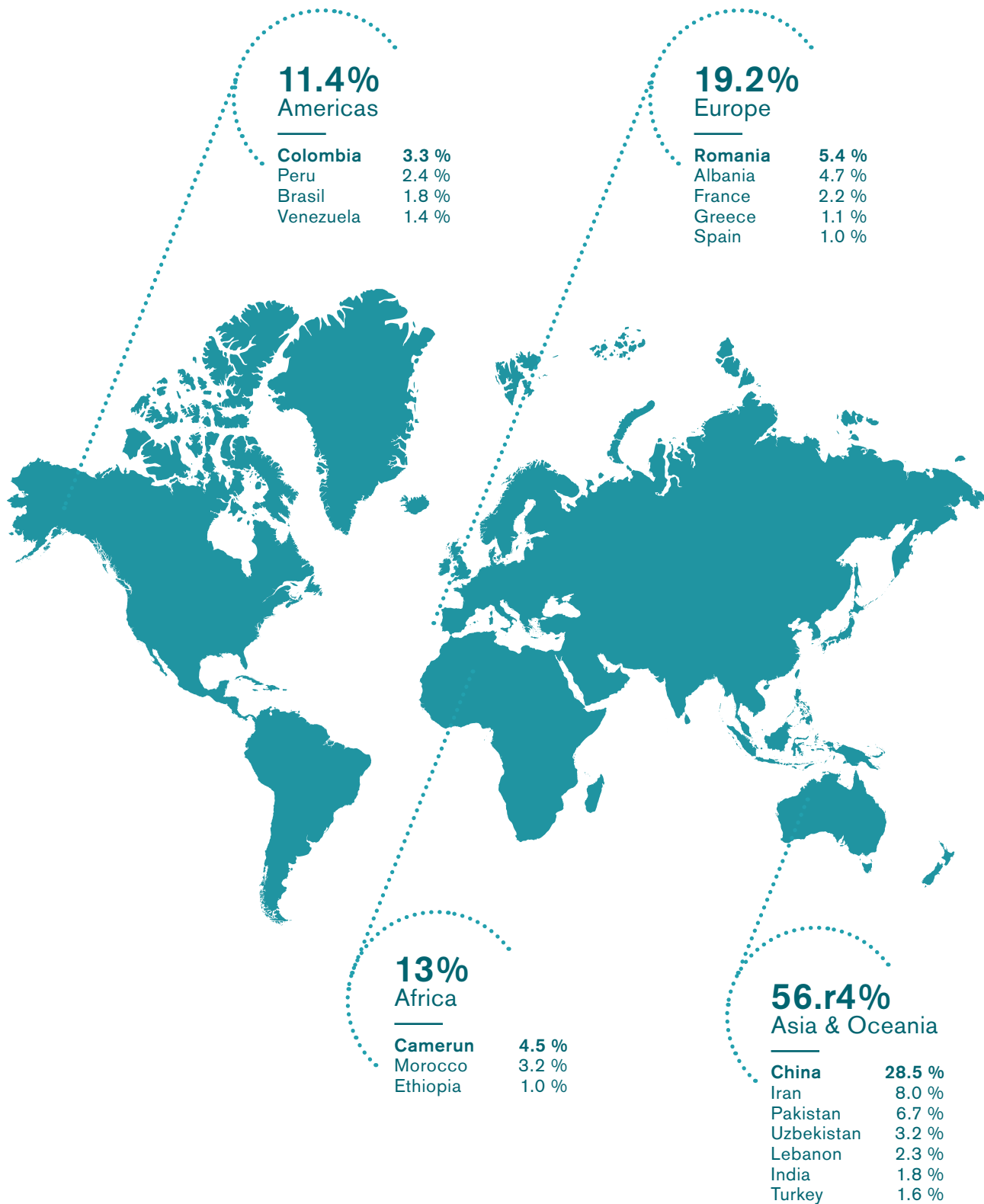
They will be located at the partner institution by building a multidisciplinary platform where research, education and industry converge and combine competences, services and resources to implement common projects in a win-win perspective.

The first of these competence centres, officially opened in May 2015, is the South China-Torino Collaboration Lab, at the South China University of Technology (SCUT) in Guangzhou. This centre will operate in the fields of Automotive and Mechanical Engineering, ICT, Architecture and Urban Planning and will move in parallel within the framework of cooperation with industry, research, education and consultancy activities. On the occasion of the official opening of the centre, the first meeting of the Industrial Advisory Board of the Collaboration Lab took place, in which representatives of several companies such as De Longhi, Luxottica, FCA, STMicroelectronics, COMAU, Magneti Marelli, Piaggio, and the Italian Chamber of Commerce in China participated.

Regarding education, since 2016 the entry test for enrollment has been conducted "in loco" in China, Chile and Argentina.

Finally, among the high prestige collaborations, it is important to note that PoliTO has recently become member of an international and interdisciplinary institute of collaborative research in the field of energy, the "Siebel Energy Institute" together with the consortium composed of top level reputed institutions: UC-Berkeley, MIT, Princeton, Carnegie Mellon University, University of Illinois at Urbana Champaign, École Polytechnique de Paris, Tsinghua University and University of Tokio.

International students



Siebel Energy Institute

Application of Data Science and Analytics to Energy Systems, Mobility and Smart Cities





International context

443

INTERNATIONAL AGREEMENTS

29	Africa
86	Latin America
108	Asia
5	Australia
9	Canada
155	Europe
26	Middle East
25	USA

453

ERASMUS + EU PROGRAMME COUNTRIES AGREEMENTS

118

DOUBLE DEGREE AND STUDENT MOBILITY AGREEMENTS

791

STUDENT MOBILITY A.Y. 2014/15

1,163

Incoming students
Outgoing students

2

The Campus setting

The main site of Corso Duca degli Abruzzi opened in November 1958, and was then extended in the the 90's with the Cittadella Politecnica, with new classrooms, laboratories, education, research and open public facilities. PoliTO celebrated the 150th academic year since its foundation in 2009: through years it has increasingly becoming a truly international school, where traditions and future, past and modernity are all interlinked.

The PoliTO five sites in the city are:

- 1 The historic and representative base of PoliTO is in the city, along the River Po: the **Valentino Castle**, a 17th-century residence of the House of Savoy. It is the main teaching campus for Architecture and Design, with an area of 23,000 sqm.
- 2 The main extended complex in **Corso Duca degli Abruzzi** – 122,000 sqm, the head campus for Engineering – was opened in 1958.
- 3 The **Cittadella Politecnica**: a modern complex of 170,000 sqm adjacent to the main building, including areas set aside for students, research activities, technological transfers and services.
- 4 The newest campus is the **Cittadella of Design and of Sustainable Mobility**, in an area next to the manufacturing establishment of Mirafiori, the remodelled former FIAT manufacturing facility now mainly devoted to the Automotive degree and Master degree courses.
- 5 The **Lingotto**, located in an old FIAT manufacturing complex, currently hosting Masters and sites for the national public transport regulation authority.

Corso Duca degli Abruzzi

190,000 sqm

Cittadella Politecnica

125,000 sqm

Valentino Castle

41,000 sqm

Cittadella of Design and of Sustainable Mobility

15,000 sqm

Lingotto School of Specializing Masters

3,200 sqm

This is the break-down of sqm assigned for each activity

2.1

The significance of PoliTO in reusing and maintaining Turin urban icons

The PoliTO' campus model is similar to the AngloAmerican Universities model, with five main locations in Turin, featuring multi-purpose facilities for teaching, for basic & applied research activities and student services. PoliTO also has a regional network of technology centres, dedicated to research, technology transfer, specialized training and local services. The University, much like other international universities, has activated campuses beyond national borders, like the Tashkent Campus in Uzbekistan and the Tongji University Campus in Shanghai.

Over the last years, PoliTO has been characterized by its choice/decision to create open campuses, such as the Cittadella Politecnica, which host laboratories and research centres of companies and other research bodies. This decision created a fruitful environment for the development of new projects and joint activities among the different participants in development and innovation. Some overall revisiting actions of the spaces of the metropolitan campus and of the other buildings, also including rehabilitation and restoration, to improve energy and environmental sustainability.

The project for enlarging our main seat has included the creation of new green areas; many areas have been converted as lawns or places for socialization, relax and study. The idea is to see our university campus no longer as a mere educational establishment, but as a laboratory for promoting innovation and capitalizing on the social, economic and environmental value offered by an on-going transformation.

“Laboratory” means that eventually we, as campus users and researchers, can take advantage of gathering together, listen to those who are looking after same problems/database/software/business models/methods, and share energies and ideas to improve our communities and its resilience study.

The locations themselves are often heritage sites that either maintain their original aspect while hosting PoliTO Department (for example the Valentino Castle) or which have been renovated (the Mirafiori site, former industrial site of the FIAT group), leading to significant processes of urban renewal. It is remarkable that in the case of Mirafiori and Lingotto sites PoliTO's facilities were adapted to the surrounding factory environment, combining innovation and functionality, but giving continuity to the investment in the future of the automotive and transport industry, research, innovation and design.

Valentino Castle has been subject to actions enhancing its value, as well as to promotion actions, both from a cultural and touristic point of view. A virtual tour is available for the public (<http://castellodelvalentino.PoliTO.it/>) and several official meetings have been hosted there, including a number of United Nations events. In September 2016 it was the main location for Terra Madre. The Valentino Castle has been opened to the public, who can take part in educational exhibition itineraries.

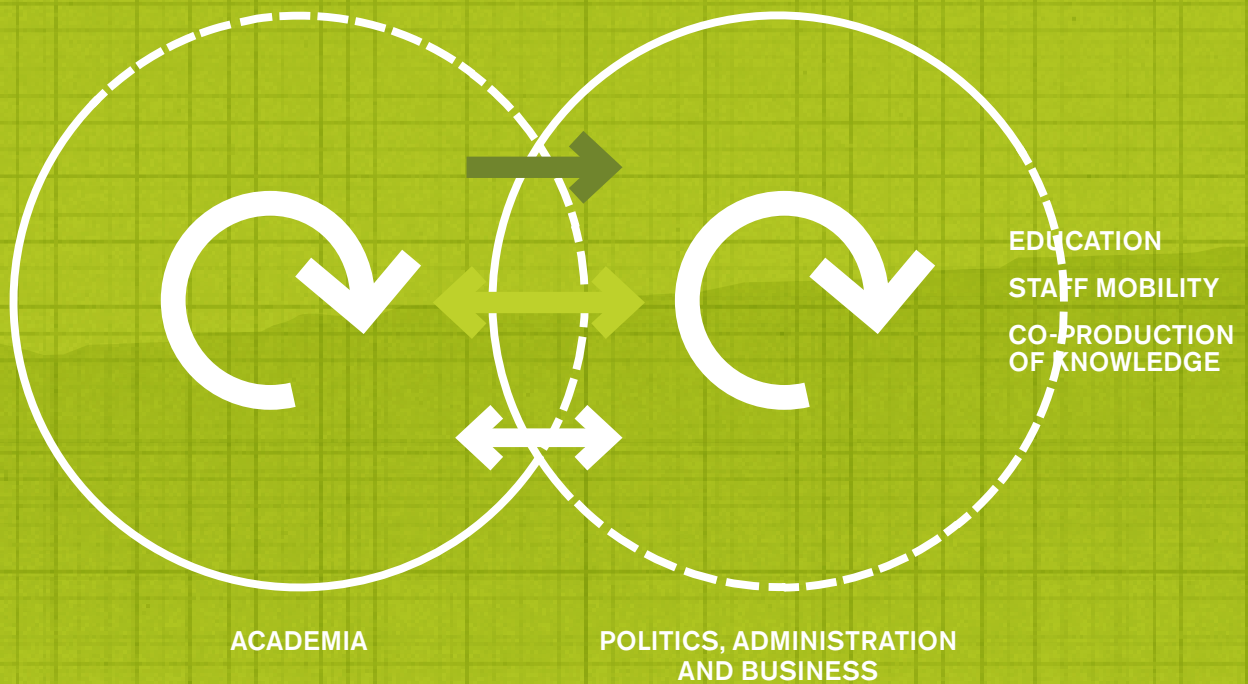
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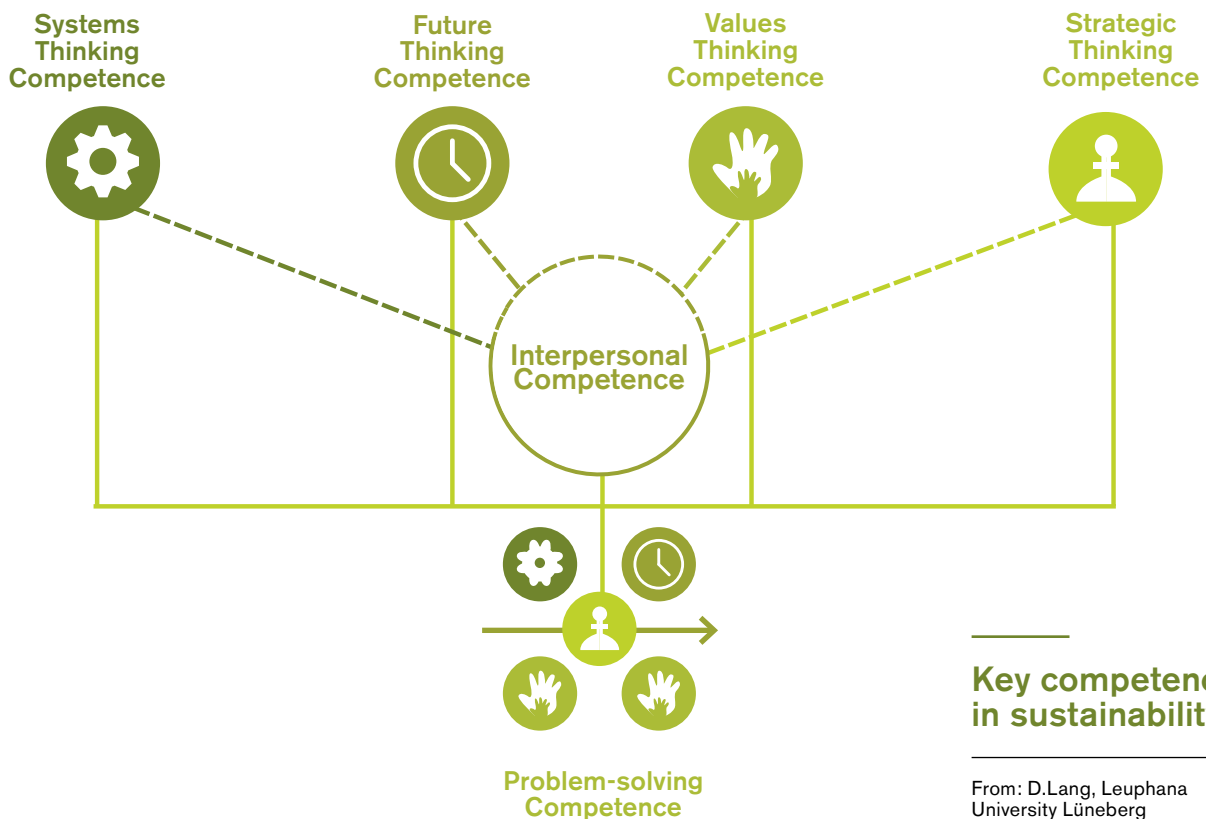
Sustainability @PoliTO

Innovations also
by their contribution
to societal goals

From Peter Edwards, Director, Future
Cities Labs, Singapore-ETH Centre

SUPPORTING
SOCIETAL
TRANSFORMATION





Key competencies in sustainability

From: D.Lang, Leuphana University Lüneberg

3.1 The project

Today we act as if Earth resources were bottomless. Energy transition strategies are on the table of the latest political debates all over the world, while population is continuously increasing. City metabolism is pushed to its limit by our consumption styles, so that being sustainable is not only a matter of urgency, now, but also a duty for a public administration willing to lead the way toward a post-carbon society.

For PoliTO, **Sustainability is about “futuraity”, critical and value thinking and long term environmentally and social responsiveness.**

It represents an extraordinary journey and an opportunity to develop a strategy for disseminating environmental responsiveness and sustainability culture across society.

As all the top international universities, one of PoliTO aims is indeed to **increase the awareness of its social role** in the city and the whole, as individuals and institution able to drive the change toward a more sustainable future.

Being already sustainable in the fields of research, education and administration, PoliTO wishes to develop a campus model that addresses global challenges via solutions in harmony with nature, technology and human beings, leveraging on collective knowledge and transmitting the results into the urban connective tissue nurtured by the presence of PoliTO in the Torino metropolitan context.

Bottom-up participation in the University governance, integrated environmental education in our campus management, resources optimisation for our buildings and facilities, care about the environmental performance of the whole campus: all these represent valuable grounds to test sustainable solutions to be transferred to the citizens of today and the decision makers of tomorrow who are part of our community.

PoliTO has prized and preserved its environment since the very beginning of its foundation.

Tangible actions in this direction have been several and under our eyes: the energy efficient strategies carried on all over the last 20 years, the choice of refurbishing historical buildings for educational purposes; the continuous fostering of leadership and innovation in sustainable technologies, providing students and staff with relevant environmental awareness skills; the strategic partnership with R&D departments of industries and local authorities, focused to the sustainable revolution on going since years by the time; the informed stewardship of beautiful campus sites encompassing parklands, UNESCO heritage sites and former industrial environments, and many other actions not labelled as green but very much talkative about the wise resources use as a central sustainability paradigm, just to cite few.

3.2 The path

In this track, PoliTO hosted the second G8 University Summit in 2009 and signed an international declaration, pledging to foster sustainable and responsible development in our society. This event was followed by the Green Mobile Campus strategy, launched in 2010, in connection with the Wifi4Energy Project, which provided the opportunity to set up the Living Lab, a fully equipped room for monitoring all energy consumption in the main campus. In 2012, a EU Marie-Curie funded project, titled “UNI-metrics”, Value Metrics and Policies for a Sustainable University Campus, provided a first opportunity to review our activities and metrics towards sustainability.

The PoliTO Sustainable path was embraced in 2015 by PoliTO when, in the Horizon 2020 Strategic Plan, it expressed its will to side with the best international universities in raising awareness of its role in society, through the sustainability education. Then, PoliTO moved towards the international accreditation as ‘sustainable campus’, promoting synergetics actions with similar institutions. PoliTO is one of the promoter of the Italian Network of Sustainable Universities (RUS – Rete Italiana Università per la Sostenibilità), endorsed by the Italian Conference of Universities’ Rectors (CRUI). In 2015 PoliTO joined the ISCN (International Sustainable Campus Network) and the Green Metric Ranking, being part of a global forum that sustains academic institutions in brainstorming activities, information and best practices to comply with the sustainability aspects of their activities.

The long term project entails the implementation of policies and actions related to sustainability (energy, mobility and accessibility, waste cycle, water and wildlife, urban integration and social inclusion, green procurement), in addition to the implementation of the established consumption monitoring activities and the introduction of measures for the reduction of CO2 emissions. In order to encourage and increase the awareness of being and acting already sustainably in most of its projects, strategies and actions, PoliTO has set aside a series of dedicated facilities and human resources for the sustainability management and communications. The Green Team office and the Living Lab, and the sustainability report you are reading, work as a formal and structured commitment to account our efforts to embrace a truly sustainable path with the help and the energies of all.



In 2015, a project for the internationalisation of research, funded by Compagnia di San Paolo and coordinated by Politecnico di Torino in synergy with the University of Cambridge, aimed at fostering the mutual learning on sustainability management in universities. Following up the Marie-Curie funded project “UNI-metrics”, which saw both Politecnico di Torino and University of Cambridge already partners in the definition of indicators and stakeholder analysis in the evaluation of sustainability frameworks, the PoliTOWARD project put in practice management consulting actions that reimagine old ways of managing the campus systems. The working group collected and connected all on going researches but also practical expertise and case studies in the field of campus sustainability at PoliTO.

Our scientific partner for this project was the University of Cambridge, where in 14 months of incoming and outgoing mobility the PoliTOWARD group studied closely their internal organisation for the overall sustainability management, the coordination among waste, mobility, energy and food activities, policy effectiveness strategy and of course margins for mutual benefits and collaboration. The output has been a sort of roadmap for metrics and strategies toward a portion of city more and more sustainable, and hopefully resilient in the creation of happier and wiser places and communities. At the end of this project, PoliTO hosted the first international summer school on sustainable campuses, organised with several institutions (like The Hong Kong Polytechnic University, CN, the Hokkaido University, JP, the Universidad Autónoma de Tamaulipas, MEX, and many others) to share common problems and good practices to be discussed horizontally during the summer school sessions.



The logo

The “PoliTO sustainable path” logo was created following the request for a brand that combined and represented all the activities undertaken by PoliTO to increase the University sustainability, in a wide range of possible fields.

Research into communication projects and into logos on the same theme has also been undertaken in other universities, highlighting all how the concept of sustainability is too often explained in a rather bucolic sense, concerning the respect and protection of the environment.

The sustainability project, instead, contemplated a wider idea of sustainability which also included the liveability of a campus and the activities on offer to students, professors, researchers and technical-administrative staff. The project has been managed following a methodology that characterises Design and Visual Communication courses at PoliTO, divided up into:

- Analysis of the current state, or rather survey phase of the project case and area
- Definition, classification and analysis of the case study
- Identification of the new project scenarios and concepts
- Planning, engineering production: executive phase.

The graphic solution considers the idea of a pathway in the letter “S” of sustainability. The colour communicates the positivity of the project and the focussed way in which it is undertaken. Two versions of the logo have been created, depending on its use. One is linked to PoliTO logo and another is used alone. Furthermore, a pattern has been designed for large applications and to increase the graphic application potentiality.

3.3

The Green Team and the governance model



A dedicated team, named “Green Team”, an internal group of professors, students, administrative staff and researchers that encourages PoliTO to address environmental and social challenges, was established in 2015.

This team is intended to lead the PoliTO towards the university sustainability mission, as stated in the Horizon 2020 strategic plan: a comprehensive integration of sustainability into the university research, teaching, outreach and operations that prepares students, faculty and staff to be sustainability leaders in their professional, personal and civic lives.

The Green Team:

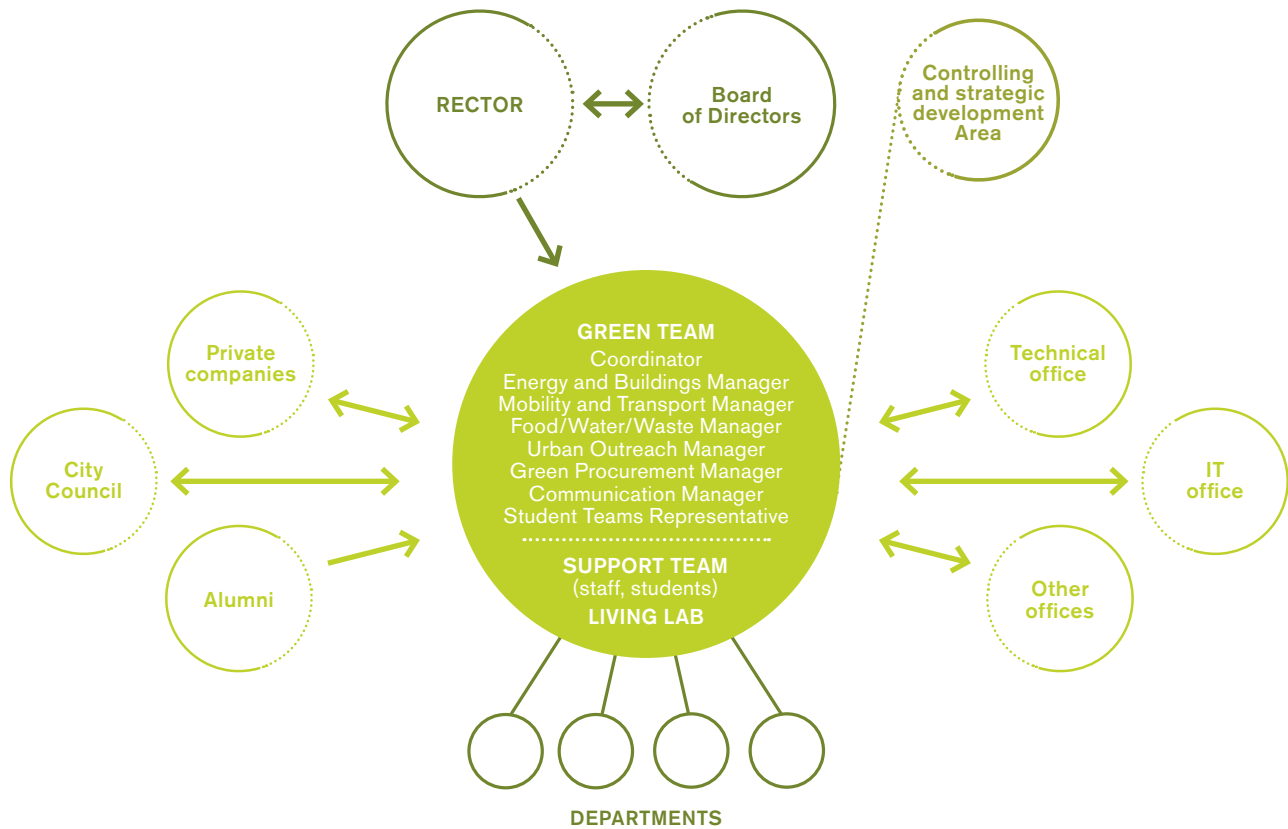
- is composed by experts - action field coordinators - coming from different Departments, some of them with a previous formalized role, that are now part of an ad-hoc group for an integrated sustainability management
- has a general coordinator that is also one of the field coordinator and can count on an administrative office
- serves as the executive board for strategic decisions associated with sustainability in the PoliTO campus
- serves as consultancy board for the board of Governors, the Rector and the General Director, on matters related to sustainability
- derives set of data and work closely with all administrative areas for solutions implementation;
- has its own data management center within the Living Lab, which also monitors and collects data related to resource use, trends and students thesis up on sustainability issues.
- can counsel Departments and any associated task forces and working groups willing to encourage resource conservation and behaviour change in the PoliTO community
- is in charge of the PoliTO' Sustainability Management Roadmap
- fosters the national and international best practice exchange through active participation to networks (ISCN, RUS, EUA, UNI-SET...) and initiatives.

Although recently born, the Green Team acts as a collector of a variety of services in order to fulfil its mission of promoting sustainability by engaging and connecting members of the PoliTO community.

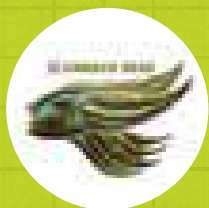
Through institutional support, communications, events, information flow, programs and projects, and providing resources, the Green Team Office greenteamoffice@PoliTO.it is the directory for getting involved with PoliTO sustainability plan.

The dedicated website <http://www.campus-sostenibile.PoliTO.it/> is the first step to get in contact with the Green Team activities and the output related to presentations, reports, thesis, open data and project related to sustainability at PoliTO.

Recent initiatives include awards to students for thesis written in 2015 and concerning sustainability innovations; the open meeting every first Thursday of the month and the recognised role of catalyser for sustainability researchers inside PoliTO.



The Sustainability Week



The 1st Annual PoliTO Sustainability Week is a series of events - from November 21 to 26, 2016 - designed to promote sustainable actions throughout the PoliTO campus sites. This weeklong series of events is coordinated by the PoliTO Green Team. This collection of events will serve as a platform for action by leveraging the connections among PoliTO sustainability stakeholders, to promote and catalyse campus sustainability efforts, and ultimately work toward building a more sustainable, eco-centric community.

Events are hosted by a variety of groups in various PoliTO campus sites, and may take many forms along the five actions fields of the Green Team.

To this extent, we planned the week together with students, professors and staff, to promote ideas, workshops, seminars, showcases, hackathon in synergy with all the PoliTO community and the external stakeholders. The Sustainability Week happens in the same week of the UNESCO DESS week and benefits of the logo.

3.4

The five action fields of sustainability

The members of the Green Team manage the five dimensions of sustainability defined and pursued by PoliTO:

3.4.1 Energy and buildings

Pursuing energy sustainability at Politecnico di Torino means reducing and rationalizing energy use and its environmental impact on campus reality.

PoliTO's energy consumption in 2014 accounted for 5,064 toe, while in 2015 the total decreased by the 2%, reaching 4,967 toe.

The carbon foot print is 2,217 tons of CO₂, as 100% of electric energy comes from renewable sources. In 2015 we consumed 4.0 kwh per cubic metric and 166 kwh per student.

While providing the quality/comfort of indoor spaces, plus the security and the affordability of the supply, PoliTO aims to make its building structures more efficient, and to produce and/or to buy energy from renewable sources.

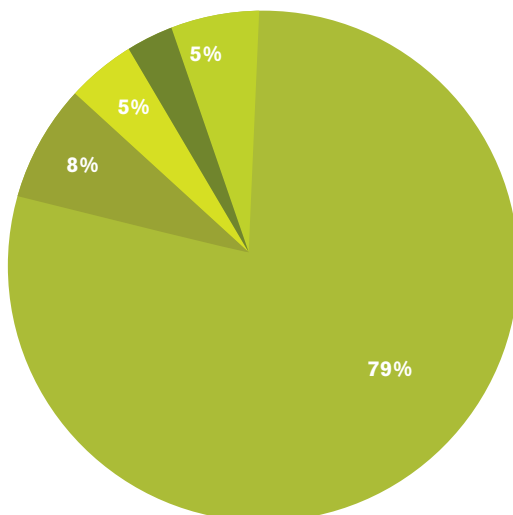
Energy sustainability of the University therefore concerns plants, buildings and sources.

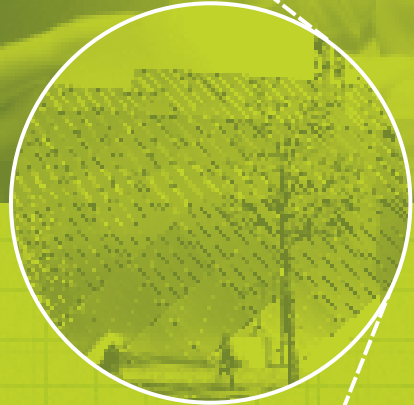
This dimension, besides all action aimed at saving energy and fostering the widespread use of renewable sources, includes the monitoring of all resources, the real-time control of these flows (with the Living Lab facility) and the adoption of new management methods for energy saving. Therefore, the PoliTO priorities in the energy action fields are twofold: to reduce the energy demand as much as possible, while trying to pursue the principle of self-sufficiency.

Following these premises, here is a list of the main initiatives PoliTO pledged to pursue in the next future:

- Increase the amount of heat purchased from the city district heating provider;
- New photovoltaic system of 600 kWp to increase the electricity self-production;
- Gradual replacement of conventional lamps with LEDs;
- IT-controlled management of the lighting system;
- Gradual replacement of old windows with new high-efficiency fixtures;
- Systematization of data collection and monitoring of energy consumption of major carriers through the Living LAB structure;
- Communication and information to users through the Energy Manager of the university and the web portal: "Smart and Green Building Management Services";
- Involvement of staff and users with awareness campaigns for energy saving.

TEP consumption per site





Living LAB

PoliTO has implemented a series of measures in order to reduce emissions and improve energy efficiency; it also invested in renewable energy through the construction of a photovoltaic plant system in 2010. In the same year, the Living Lab was established, as a centre towards which all the data of measurement and control systems, converge and afterwards are stored and analysed in order to optimize the efficiency of plants. The portal http://smartgreenbuilding.PoliTO.it/gt_splash.asp has been created with the aim of spreading the culture of the energy and environmental sustainability and providing all the PoliTO community with information, useful contents, technical manuals and "good practices" for an individual or departmental use, as well as making available the data related to the consumption monitoring in order to encourage good behaviour. An Energy Manager has been appointed as representative of the Rector in the field of energy sustainability.

District heating

A district heating power stations are currently supplying a large part of the city of Turin, including PoliTO's headquarters and the Cittadella.

3.4.2 Mobility and transport

Sustainable mobility from and to the university campuses and its five metropolitan poles means to guarantee to all PoliTO's employees and users the availability of various transport modes. PoliTO is not only committed to propose new vehicles, services and systems, technologies, innovative ICT applications for urban mobility plans, but also to promote them in mobility management activities of Turin City Council.

Solutions including new transport modes, alternative energy sources beyond fossil fuels, the collection and the dissemination of information to help mobility are believed to be the path for sustainable mobility actions, in collaboration with the Turin delegated public authority, essential interlocutor when planning the public transport services satisfying the university needs and the latest solutions for shared transport systems.

Turin and its hinterland is the only area in Italy, one of very few in Europe, to engineer, design and implement the various transport systems and vehicles (by road, rail, rope, air and water), along with the relative road and multimodal control (for road, rail, rope, aircraft) using a strong component of technological innovation, ICT, recognisable in ITS (Intelligent Transport System). On the basis of Turin's mobility conditions in terms of energy dependence and resulting emissions, the impact of innovative solution born after PoliTO's mobility actions can affect positively the industrial territorial context in which it operates, by gradually move away from our nearly full dependence on oil still pursuing the efficiency, quality and safety of the current transport system.

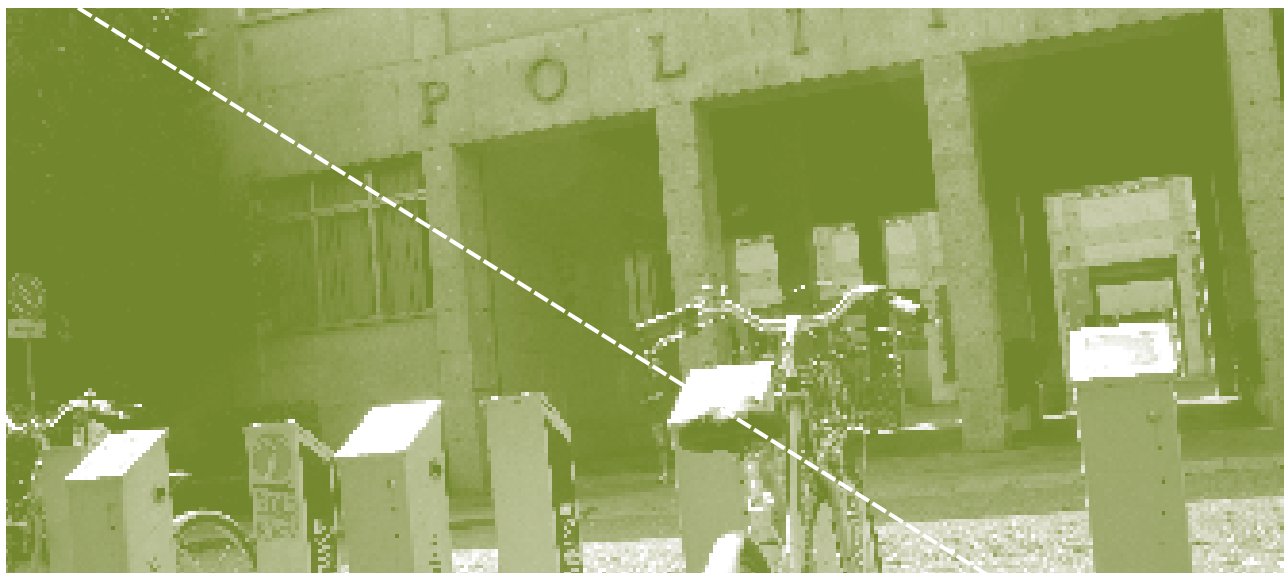
Based on these premises, monitoring the movements of PoliTO users is the first step to understand what to do for:

- the promotion of quality, safety, efficiency and awareness inside and outside of the campus;
- regulating cycle paths and car parking areas, creating suitable parking for cars and motorcycles, and possibly expanding bicycle racks;
- improving relations between all poles of the campus and the City of Turin.

The function of the Mobility Manager of the Politecnico di Torino includes activities mainly related to:

1. Analysis of the demand of mobility: data and questionnaires.
2. Analysis of the supply of transport systems: public and private transport, internal parking areas, bike racks, charging spots for plug-in vehicles, accessibility through the transport networks.
3. Management of activities related to the matching of transport supply with the demand of mobility: fleets of vehicles, public transport services and subsidies, pooling and shared mobility.
4. Coordination with local authorities, agencies, national and international academic mobility management and initiatives.

Among the examples of recent noteworthy activities, we may quote the recent installation (July 2016) of black boxes on motor vehicles of one Department, used as a test area. The goal is to manage the fleet with remote control systems integrated with on line modules for the booking of the vehicles and for filling in missions made outside the university, aimed also in the future to quantify the energy consumption according to the actual use of the vehicles and possibly the kind of traction, either electric or by internal combustion engine.



3.4.3 Urban outreach

This actions field includes two fundamental focuses: a first one, towards the city and the society, and a second one, directed to PoliTO's internal community.

With regard to the first one, a strategic point of the urban outreach strategy of PoliTO is the preservation of existing facilities and buildings as well as to increase the recognition of urban places used by university users (buildings, paths, bars, study rooms etc.) and to strengthen of the sense of belonging in the city of Turin. PoliTO' sites are located all over the metropolitan area, offering a widespread and multi-polar system of services, which are highly interconnected and permeable with the local resources, including public and private companies and institutions of all levels. The dialogue between university and local authorities is encouraged by PoliTO's board of directors in order to support the development of common strategies to feed local service companies and services to the city users, especially the students enrolling every year from many different countries.

In relation to the aspects outlined in the "campus settings" section, the reuse of historical building like the Valentino Castle, as well as the refurbishment of former industrial sites, like Mirafiori and Lingotto campuses, outline the importance of PoliTO in the urban valorisation of green, brownfields or restricted areas, now available to the citizens, including students, employees and local residents.

The action field directed to PoliTO's internal community is a second important focus of Urban outreach strategy. In line with recent trends in the sustainability science, great attention is paid to quality of life and environmental responsibility of PoliTO's campus operations.

For the PoliTO's community, being sustainable means focusing not only on the environment but also on the welfare of those who live inside the university (students, faculty, technical – administrative employees). PoliTO develops projects to improve its employees' recreation and physical well-being, to promote safety, health and welfare, education and awareness and equal opportunities; to provide tax assistance and cultural services, to optimize the use of public and green areas.

Finally, PoliTO believes that a major role of university in contemporary society is to make people aware of human impacts in contemporary climate change. Therefore, a vital role is played by the teaching, training and the knowledge exchange activities delivered by our academic staff, spreading sustainability culture at local, national and international levels.

In this regards, PoliTO encourages participation to the **La Notte Europea dei Ricercatori** (European Researchers' Night) on the last week-end of September and many other open events inside the city.





POLiPOssibile

is a project by the student team of: form, which was created thanks to the call for Student Project 2015-2016 by the Politecnico di Torino. POLiPOssibile is a path of cultural events related to the collective design of public spaces, aimed at reactivating the places for the student community at the Politecnico di Torino. POLiPOssibile proposes an interactive teaching system, where the university is a “living laboratory” with students, faculty working hands on the design and maintenance of their areas of study and work in multidisciplinary teams, putting in practice the knowledge acquired within their academic journey.

Polincontri Classica

Every Monday at 18:30, since more than 25 years, the Main Hall at PoliTO hosts classical music concerts, free for all PoliTO staff and students, and at a very convenient tariff for all music lovers passing by the Corso Duca campus site. Polincontri Classica offers a rich concert season organized by a leisure association of the PoliTO staff and supported by the institution. For more info: <http://www.policlassica.PoliTO.it/>

POLIETNICO

is not a typo, but it is the name chosen for the choir born within the university’s students and staff of music lovers. The name underlines its goal to act as a pole of integration and be the voice of the several ethnic groups existing in our Institution. For more info: <https://www.facebook.com/coropolietnico/>

Policino

offers the “micronido” kindergarten service and the child parking. The micronido welcomes children aged between 13 months and 36 months; the baby parking welcomes children aged between 13 months and 6 years. It is open to all University components: administrative staff, professors and researchers, contractors, graduate students and students enrolled in the Politecnico courses, affiliated companies / organizations staff of PoliTO.

Valentino Castle

the historical seat of our School, part of the UNESCO World Heritage, being one of the Savoy Residences, has been subject to actions enhancing its value, as well as to promotion actions, both from a cultural and touristic point of view. Several official meetings have been hosted there, including some United Nations events. In September 2016 it was the main location for Terra Madre. The Valentino Castle has been opened to the public, who can take part in educational exhibition itineraries.

Top Experiences

a cycle of meetings with top managers, businessmen and innovators, which provide students with the opportunity to learn about concrete professional experiences of former students of Politecnico di Torino and qualified professionals.

3.4.4 Food, water and waste

This dimension is twofold: on the food and wellness side, PoliTO is committed to promote the sustainability of the agro-food chain (energy saving, re-use of surplus) and local and traditional products and to encouraging guidelines for catering providers within the university in terms of contract and procurement (materials used). About waste management, PoliTO is committed to reduce/rationalize waste production, thus reducing its environmental impact following the “reuse-recycle-reduction” approach. To this end, PoliTO aims to increase the efficiency of both disposals and purchases, looking towards a full closure of the life cycle of the product in a sustainable way.

This dimension of a sustainable university represents the reality of the campus in terms of environmental impact concerning waste; an entity such as PoliTO has an important influence on the city from this point of view and on users themselves (primarily students) who often are not educated or aware enough in terms of disposal and recycling.

Based on the current conditions, one of the PoliTO's absolute priorities is to face the situation trying, on one hand, to reduce the quantity of material where possible, while on the other hand continuing along the road of awareness and informative campaigns, creating ecological islands for recycling and other activities in order to educate generations of students and young adults living in the university and properly train the adults of tomorrow towards sustainable development.

Following these premises, the actions included in the sustainability dimension of the campus have to also pursue results in terms of efficiency, efficacy and quality. Here is a list of the main steps that PoliTO is undertaking:

- Training and awareness campaign for staff on waste management
- Creation of eight ecological islands with four types of container divided by type of waste;
- Improvement of special waste collection system: internal assembly points (empty toner cartridges, Waste Electrical and Electronic Equipment (WEEE), printers, PCs and other equipment related to the electronic world, but also wood, foliage, iron etc.



3.4.5 Green procurement

- Widespread distribution of paperless online educational services: class registers, applications, exam registration, thesis modules etc.
- Introduction of “door-to-door” collection services and the creation of an awareness campaign aimed also at the “on-campus population”.
- Monitoring and management of drinking water consumption and progressive upgrading of the lines of supply and wastewater collection;
- Monitoring and management of water flows (IN and OUT) to identify potential waste
- Valorisation of public water fountain located inside the Campus
- Quality Monitoring and management of food distributed by dispenser, canteens and bars in order to identify the best ratio between sustainability and cost.
- Measurement of food quantity consumption and reduction of alimentary disposal.

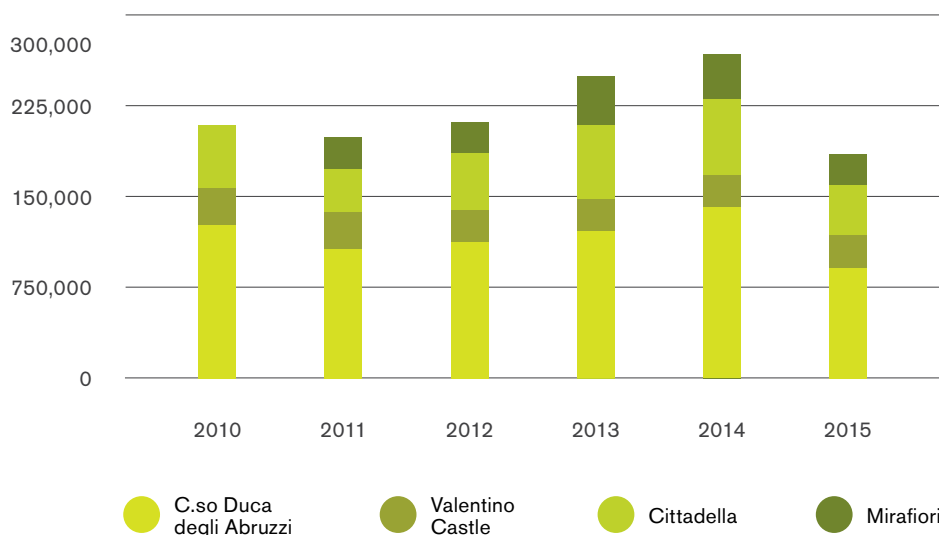
Materials for the university and its employees are bought following the green public procurement guidelines, in order to respect the environment without forgetting the cost effectiveness of supply. The sustainability of Politecnico in this regards refers indeed to all its purchases - i.e., paper, food and beverages, cleaning products, IT products and goods of any kind - and part of the waste.

The related offices (AQUI and EDILOG) are obliged to do the best possible sustainable choice according to two protocols: one of the Ministry of Environment ([http://www.minambiente.it/pagina/criteri-ambientali-minimi - CAM](http://www.minambiente.it/pagina/criteri-ambientali-minimi-CAM)) and one born from an initiative of the Province of Torino with ARPA, which is also joined by the City of Turin (<http://www.comune.torino.it/ambiente/ape/index.shtml> Public Procurement Ecological, EPA).

The university spent about 10 M € in 2015, of which over the 54% is conform to EPA protocols or CAM ones. The actions included are:

- GPP Protocol adherence (Green Public Procurement), promoted by the Province of Turin and the purchase of “green” equipment;
- Use of ecological cleaning products;
- Use and purchase of “green” information technology products; Consip convention;
- Initiatives to recover and reuse printed paper;
- Training courses for staff on the use of “green procurement”.

Water consumption m3 per year various PoliTO' sites



Annexes

[GREENMETRIC 2016](#)

[ISCN 2016](#)

[APE Survey 2016](#)

A.1 Greenmetric 2016

Num	Question/Title	Options
1	Setting and Infrastructure	
1.1	Type of higher education institution	(1) Comprehensive (2) Specialized higher education institution
1.2	Climate	(1) Tropical wet (2) Tropical wet and dry (3) Semiarid (4) Arid (5) Mediterranean (6) Humid subtropical (7) Marine west coast (8) Humid continental (9) Subarctic
1.3	Number of campus sites	
1.4	Main Campus Setting	(1) Rural (2) Suburban (3) Urban (4) In city center (5) High rise building area
1.5	Total main campus area [meter square)	
1.6	Total main ground floor area of building [meter square)	
1.7	Total main campus buildings area [meter square)	
1.8	Total main campus smart building area [meter square)	
1.9	Total parking area [meter square)	
1.10	Total area on campus covered in vegetation in the form of forest [percentage)	
1.11	Total area on campus covered in planted vegetation [percentage)	
1.12	Total area on campus for water absorption beside forest and planted vegetation [percentage)	Retention: non-retentive surfaces on campus as percentage of total area (where non-retentive surfaces incl. earth, grass, con-block etc, and retentive surfaces incl. concrete, tarmac) for water absorption
1.13a	Total number of regular student [part time and full time)	Number of students (include both part time and full time students)
1.13b	Total number of online students [part time and full time)	
1.14	Total number of academic and administrative staff	
1.15	University budget for sustainability effort within a year [percentage)	
2	Energy and Climate Change	
2.1	Energy efficient appliances usage are replacing conventional appliances	(1) None (2) less than 20% (3) 20% - 40% (4) 40% - 60% (5) 60% - 80% (6) 80% - 100%
2.2	Smart Building program implementation	(1) None (2) Program in preparation (e.g. Feasibility Study or Detailed Engineering Designed phase) (3) Program in initial implementation (e.g. Builder already appointed) (4) Implemented in less than 30% of the total building area (5) Implemented in between 30% - 70% of the total building area (6) Implemented in more than 70% of the total building area
2.3	Renewable energy produce inside campus	[1] None [2] Bio Diesel [3] Clean Biomass [4] Solar Power [5] Geothermal [6] Wind Power [7] Hydropower [8] Combine Heat and Power
2.4	Electricity usage per year (in kilo watt hour)	
2.5	Ratio of renewable energy production towards total energy usage per year	(1) None (2) less than 20% (3) 20% - 40% (4) 40% - 60% (5) 60% - 80% (6) 80% - 100%
2.6	Elements of green building implementation as reflected in all construction and renovation policy	[1] None [2] Natural Ventilation [3] Full-Day Natural Lighting [4] Existence of building energy manager [5] Existence of Green Building
2.7	Greenhouse gas emission reductions program	(1) None (2) Program in preparation (3) Program in initial implementation (4) Implemented in HVAC System / Refrigerator / Laboratory Gases
2.8	Please provide total carbon footprint (CO2 emission in the last 12 months, in metric tons)	

Changing requirements	2012	2013	2014	2015	2016
	1	1	2	2	2
	-	-	5	5	6
	10	10	9	9	5
*	3	3	3	3	4
	267,586	267,586	267,586	267,586	267,586
	116,372	116,372	116,372	116,372	116,372
New 2016	-	-	-	-	193,851
New 2016	-	-	-	-	0
New 2016	-	-	-	-	36,152
	0	0	0	0	0
	16%	16%	18%	18%	18%
	24%	24%	24%	24%	24%
	32,056	31,946	32,942	33,356	34,153
New 2016	-	-	-	-	0
	1,665	1,672	1,652	1,629	2,069
	0%	0%	0%	2.5%	3.2%
*	Fully employed	Fully employed	Fully employed	Fully employed	6
*	-	-	-	2	5
*	4 5	4 5	4 5	4 5	4 5 8
	16,000,000	18,081,612	16,599,730	16,685,358	17,475,000
	-	-	-	-	2
*	1	1	1	2 3	2 3 4
*	Fully empl.	Fully empl.	Fully empl.	Fully empl.	4
	-	-	-	2,583	1,800

Num	Question/Title	Options
3	Waste	
3.1	Policy to reduce the use of paper and plastic in campus	[1] None [2] Double sided-printed policy program [3] The use of tumbler [4] The use of reusable bag [5] Print when necessary
3.2	Recycling program for university waste	(1) None (2) Partial (less than 25% of waste) (3) Partial (25% - 50% of waste) (4) Extensive (more than 50% of waste)
3.3	Toxic waste handled	(1) Not managed (2) Partly contained and inventoried (3) Completely contained, inventoried and handled
3.4	Organic waste treatment	(1) Open dumping (2) Partly composted (3) Partly composted and compost used (4) Fully composted, compost used (5) Fully composted, compost used internally and externally
3.5	Inorganic waste treatment	(1) Burned in open are (2) Taken off campus to a dump site (3) Partially recycled (less than 50%) (4) Fully recycled (more than 50%)
3.6	Sewerage disposal	(1) Disposed untreated to waterways (2) Treated individually in septic tank (3) Centralized treatment before disposal (4) Treatment for recycling
4	Water	
4.1	Water conservation program	(1) None (2) Program in preparation (e.g. Feasibility Study and promotion) (3) Program in initial implementation (e.g. initial measurement of potential water conserved) [3a] Implemented in Rain Harvesting System [3b] Implemented in Ground Water Tank [3c] Implemented in Lake or Pond
4.2	Water recycling program implementation	(1) None (2) Program in preparation (e.g. water efficient appliances selection priority are identified) (3) Program in initial implementation (e.g. initial measurement of potential water recycle) [3a] Recycled water is used for garden sprinkler system [3b] Recycled water is used for toilet flush [3c] Recycled water is used for cooling system
4.3	Water efficient appliances usage are replacing conventional appliances	(1) None (2) Program in preparation (e.g. water efficient appliances selection priority are identified) (3) Water efficient appliances installed is less than 25% (4) Water efficient appliances installed is 25%-50% (5) Water efficient appliances installed is 50%-75% (6) Water efficient appliances installed is more than 75%
4.4	Treated water consumed (percentage)	

Changing requirements	2012	2013	2014	2015	2016
*	Preparation	Preparation	Initial impl.	Initial impl.	$\frac{2}{5}$
*	Partial	Partial	Partial	Extensive	4
	1	1	1	1	3
*	Dump site	Dump site	1	1	4
	2	2	2	2	4
	1	1	1	1	3
*	3	3	3	3	3 + 3a
*	-	-	-	2	3
*	-	-	-	Conventional	3
	100%	100%	100%	100%	100%

Num	Question/Title	Options
5	Transportation	
5.1	Number of cars owned by your university	
5.2	Number of cars entering the university daily	
5.3	Number of motorcycles entering the university daily	
5.4	Number of campus bus operated in your university	
5.5	Average passengers of each campus shuttle	
5.6	Total trips for campus shuttle service each day	
5.7	Number of bicycles that are found on campus on an average day	
5.8	Parking area type	(1) Open space or horizontal type (2) Combination of open space and building (3) Building or vertical space (4) Parking is not permitted
5.9	Parking area reduction for private vehicles within 3 years (from 2013 to 2015)	(1) None (2) Program in preparation (3) Program in initial implementation (4) less than 10% decrease (5) between 10% - 30% decrease (6) more than 30% decrease
5.10	Initiatives to decrease private vehicles on campus	[1] None [2] High charging parking fee [3] Car sharing [4] Metro/tram/bus station on campus [5] Metro/tram/bus services inside campus
5.11	Campus shuttle service	(1) Shuttles use not possible or practical (2) Shuttles service is available, but paying service (3) Shuttles service is available and free service
5.12	Bicycle and pedestrian policy on campus (reflects the extent to which bicycle use or walking is supported)	(1) Bicycle and pedestrian way is not available (2) Bicycle use not possible or practical, but pedestrian way is available (3) Bicycle and pedestrian way are available (4) Bicycle and pedestrian way are available, and bicycles provided freely by university
5.13	The approximate travel distance of a vehicle each day inside campus only (in kilometers)	
6	Education	
6.1	Number of courses related to environment and sustainability offered	
6.2	Total number of courses offered	
6.3	Total research funds dedicated to environmental and sustainability research (in US Dollars)	
6.4	Total research funds (in US Dollars)	
6.5	Number of scholarly publications on environment and sustainability published	
6.6	Number of scholarly events related to environment and sustainability	
6.7	Number of student organizations related to environment and sustainability	
6.8	Existence of a university-run sustainability website	(1) Not available (2) In progress or under construction (3) Available
6.9	Sustainability website address if available	http://www.campus-sostenibile.PoliTO.it/ http://smartgreenbuilding.PoliTO.it/ (old)

Changing requirements	2012	2013	2014	2015	2016
	28	24	28	26	26
	800	800	800	800	800
	-	-	-	100	100
	-	-	-	0	0
	-	-	-	0	0
	-	-	-	0	0
	N.A.	N.A.	1,000	1,000	1,200
New 2016	-	-	-	-	1
*	1	1	3	3	4
New 2016	-	-	-	-	3 4
*	1	1	1	1	2
*	Pedestrian way	Pedestrian way	Pedestrian way	Pedestrian way	3
	-	-	-	0	0,2
	86	88	100	90	132
	2,361	2,042	1,736	1,926	1,913
	\$552,006		\$6,985,264	\$6,527,579	\$8,355,301
	\$62,448,768	\$52,270,521	\$55,789,760	\$60,583,819	\$62,796,595
	n.p.	203	237	318	340
	12	15	17	21	6
	10	15	5	5	26
	3	3	3	3	3
					ok

A.2 ISCN 2016

Energy and building

Indicators	2014	2015	2016
Percentage of renewable energy used for end-use on total produced internally by PoliTO	0,01%	0,2%	0,2%
Ratio between the number of computers switched on overnight and the maximum number of computers during the day	0,132	same as 2014 values or slightly higher	Adoption of Power Save policies and monitoring of Interactive/Non interactive use of users' PC
Substitution of single plants with more highly efficient central air-conditioning systems	New refrigerating unit at Valentino site	Second refrigerating unit at PoliTO headquarters	Third central at PoliTO headquarters
Percentage of total lamps replaced with LED	0.8%	1.5%	4.5%
Percentage of district heating heated volume vs total	81%	81%	81%
Percentage of new windows vs total window surface	6.6% (windows) / 757 sqm (shades)	20.5% (windows) / 2,264 sqm (shades)	28.5% (windows) / 3.000 sqm (shades)
Primary energy consumption on average per each site (kep/m3)	4	8	less than 4
Primary energy consumption (toe)	5,064	4,967	2% less than 2015

Mobility and transport

Indicators	2014	2015	2016
Dissemination about PoliTO Mobility Management	1 Local Seminar in the international context (EU mobility during Week)	1 Seminar (National Meeting of University MM) 1 regional meeting with University MM and the Piedmont Region	Consolidation of national and international networks
Percentage of employees with local public transport seasonal ticket	n.d.	14%	14%
Number of department vehicles (including hybrid or electric) shared among PoliTO users	25	25	25 (maybe 2 hybrid)
Car-pooling service for students	-	Activation of car-pooling initiative for students	
Number of recharging stations for rechargeable vehicles – hybrid or full electric - inside PoliTO	-	-	YES - 1 station
Number of [To] Bike (bike sharing) stations nearby the Campus	Headquarters: 4 Valentino Castle: 1	Headquarters: 4 Valentino Castle: 1	Headquarters: 4 Valentino Castle: 1
Stalls for bicycles nearby PoliTO	233	317 - use: 80%-85%	320 - use: 85%-90%

Urban outreach

Indicators	2014	2015	2016
Number of beds available for students	-	17 million	240 beds expected
Number of businesses born in the Politecnico di Torino (I3P) Incubator	Enterprises hosted: 49 Enterprises born: 14	Enterprises hosted: 41 Enterprises born: n.a.	Enterprises hosted: 45 Enterprises born: 14
Rate of joint use of facilities and cultural opportunities offered to campus users	Year 2014-2016: +20 concerts (classical music), +10000 annual appearances on average (concerts), +500 subscriptions to museums, +100 agreements with businesses in Turin, + 11 scholarships, +100 CUS (sport) initiatives		
Number of courses on Sustainability for post-graduate students (PhD, specialization and permanent courses)	5 (no PhD)	15	20
Number of courses on Sustainability for Bachelor and Master degree students	85	85	90
Number of remote-workers	3.650	2.374 (March 2015)	3.000
Number of student association	18 / 29	18 / 30	18 / 32
Italian language courses for international students	Level 2 e 3 + online course (level 1)	Level 2: 640 Level 3: 276	Level 2: 700 Level 3: 250
Percentage of classrooms with disabled access	100%	100%	100%
Support to elderly relatives (CUG)	YES	YES	YES
Support for families: Policino – Playschool and Babyparking	23/157	24/34 (partial)	24/160
Babysitting services	8	2 (partial)	7
Support for disabled and dyslexic people	YES	YES	YES

Green procurement

Indicators	2014	2015	2016
Initiatives for recycled printed paper		Student initiatives	Official agreement with copy shops for reuse
Percentage of “green” goods purchased	Copy paper: 98% IT equipment: 44%	Copy paper: 98% IT equipment: 45%	Copy paper: 98% IT equipment: 47%

Food, Water and Waste

Indicators	2014	2015	2016
Percentage of local food products vs total amount	Staff canteen: 50% Students Canteen: 13% (meat, bread, fruit and vegetables)	Staff Canteen: 50% Students Canteen: 13% (meat, bread, fruit and vegetables)	Staff Canteen: 50% Students Canteen: 13% (meat, bread, fruit and vegetables)
Special menus (vegetarian, ethnic, celiac)	YES	YES	YES
Use of recyclable tableware	YES	YES	YES
Number of semi-automatic defibrillators	1	7	7
Number of computers donated to third parties	330/1900	200/1900	200/1900
"Door to door" waste collection	Introduction at headquarters	Expansion at Mirafiori	Expansion at Valentino castle
Quantity of water delivered from the SMAT distribution point installed inside the Campus	198,400	210,000	235,000
Drinking water consumption overnight vs total	0.468	0.461	0.402

Trasversal

Indicators	2014	2015	2016
Awareness campaigns and employee training about sustainability issues	YES – 1 initiative	YES – 2 initiatives in March/April	YES – Sustainability week
Dedicated "Green Team" from the coordination of all PoliTO sustainability initiatives and actions	-	Green Team establishment	Completion of the first initiatives, creation of new working groups
Dedicated "Living Lab" for the collection and monitoring of data	Normal activities (see sheet EB_9)	Monitoring activity and involvement in GT	ISCN data collection centre and monitoring activities + new location, increase in number of activities for students, researchers and managing of electric and thermal plants
Funding for the implementation of sustainable policies	-	150,000	150,000
Communication Plan	-	Special Brochures / Informative panels / Web portal / Educational initiatives	Special Brochures / Informative panels / Web portal / Educational initiatives (first 2016 sustainability week)

A.3 APE Survey 2016

			TOTALE		APE		Acquisti centralizzati / in convenzione	Spesa APE /Spesa complessiva [%]
			Quantità acquistata o in leasing	Spesa complessiva [€]	Quantità acquistata o in leasing	Spesa per acquisti APE [€]		
CARTA PER COPIE	risme da 500 fogli		250	378	250	378	Acquisto centralizzato (Consip, SCR, ...)	100,00%
	Formato A4	risme da 500 fogli	14935	30.876	13960	28851	Acquisto centralizzato (Consip, SCR, ...)	93,44%
	TOTALE CARTA PER COPIE		15185	31.254	14210	29229		93,52%
CARTA STAMPATA	Carta intestata, buste per corrispondenza, ecc.	n°	72250	11.892	500	250	Acquisto autonomo tramite MEPA	2,10%
	Pubblicazioni (volumi, riviste)	n°	6971	36.033	6000	30390	Acquisto autonomo tramite MEPA	84,34%
	Brochures, depliant, manifesti, ecc	n°	61841	34.582	1200	2196	Acquisto autonomo tramite MEPA	6,35%
	TOTALE STAMPATI		141062	82.507	7700	32836		39,80%
ATTREZZATURE INFORMATICHE PER UFFICIO	Desktop	n°	565	360.760	180	55838	Acquisto centralizzato (Consip, SCR, ...)	15,48%
	Monitor	n°	527	79.902	181	15854	Acquisto centralizzato (Consip, SCR, ...)	19,84%
	Portatili	n°	518	457.304	259	128852	Acquisto centralizzato (Consip, SCR, ...)	28,18%
	Stampanti	n°	98	25.619	41	9730	Acquisto centralizzato (Consip, SCR, ...)	37,98%
	Fotocopiatrici	n°	24	16.803	18	10675	Acquisto centralizzato (Consip, SCR, ...)	63,53%
	Apparecchiature multifunzione	n°	107	56.145	54	42157	Acquisto centralizzato (Consip, SCR, ...)	75,09%
	Altro		585	706.464	47	70202	Acquisto centralizzato (Consip, SCR, ...)	9,94%
	TOTALE ATTREZZATURE INFORMATICHE		2424	1.702.997	780	333308		19,57%

MOBILI PER UFFICIO	Tavoli e scrivanie	n°	290	142.608	81	31345	Acquisto centralizzato (Consip, SCR, ...)	21,98%
	Armadi	n°	145	52.591	54	15919	Acquisto centralizzato (Consip, SCR, ...)	30,27%
	Scaffalature	n°	212	40.198	183	28975	Acquisto centralizzato (Consip, SCR, ...)	72,08%
	Cassettiere	n°	72	8.872	2	670	Acquisto centralizzato (Consip, SCR, ...)	7,55%
	Sedie, poltroncine, ecc.	n°	1762	165.406	305	46143	Acquisto centralizzato (Consip, SCR, ...)	27,90%
	Altro		84	40.469	12	2084	Acquisto centralizzato (Consip, SCR, ...)	5,15%
	TOTALE MOBILI			2565	450.144	637	125136	
AUTOVEICOLI		n°	3	65.446	3	65446	Acquisto centralizzato (Consip, SCR, ...)	100,00%
EVENTI E SEMINARI		n° partecipanti	N.D.	55.985	N.D.	0		0,00%
COSTRUZIONE E RISTRUTTURAZIONE EDIFICI	Nuove costruzioni	m2	415	904.982	0	0		0,00%
	Ristrutturazioni	m2						n.a.
TOTALE EDIFICI			415	904.982	0	0		0,00%
ALIMENTI E SERVIZI DI RISTORAZIONE	Alimenti	kg	0	-	0	0		n.a.
	Servizi di ristorazione	n° pasti	78347	467.732	78.347	467.732	Acquisto autonomo	100,00%
TOTALE SERVIZI RISTORAZIONE			78347	467.732	78.347	467.732		100,00%
PULIZIE	Servizi di pulizia	superficie pulita (m2)	205000	2.136.500	0	0		0,00%
	Prodotti per pulizie	litri/quantità	370	1.500	0	0		0,00%
TOTALE SERVIZI PULIZIE			205370	2.138.000	0	0		0,00%

PRODOTTI TESSILI	Biancheria piana	n°	0	-	0	0	n.a.
	Vestiaro	n°	0	-	0	0	n.a.
TOTALE PRODOTTI TESSILI			0	-	0	0	n.a.
ENERGIA ELETTRICA		kWh	17500.981,00	3.272.974	17500.981,00	3.272.974	Acquisto centralizzato (Consip, SCR, ...) 100,00%
AMMENDANTI DEL SUOLO		kg	0	-	0	0	n.a.
TOTALE PER PRODOTTI E SERVIZI DEL PROTOCOLLO APE 2015				9.172.020,96		4.326.661,17	47,17%
SERRAMENTI ESTERNI – CAM				1.415.687		1.415.687	100,00%
SERVIZI ENERGETICI PER GLI EDIFICI – CAM							n.a.
GESTIONE DEL VERDE PUBBLICO – CAM							n.a.
ILLUMINAZIONE PUBBLICA – CAM							n.a.
CARTUCCE TONER E A GETTO D'INCHIOSTRO – CAM							n.a.
GESTIONE DEI RIFIUTI URBANI – CAM							n.a.
ARREDO URBANO – CAM							n.a.
TOTALE CAM 2015				1.415.687,00		1.415.687,00	100,00%
TOTALE COMPLESSIVO APE + CAM 2015				10.587.707,96		5.742.348,17	54,24%

2%
reduction in
Total Energy
Consumption
(2014-2015)

Gradual
equipment
of study rooms
with plugs
(35% in 2016)
and improved
wifi hotspots

100%
Electric
Energy from
renewables

Bike/car sharing
services in
all the PoliTO
surroundings

50
new differentiated
waste collectors
areas in the
PoliTO campus
sites

Free water
dispenser in
the PoliTO
courtyard

Selection
of Zero-Km/
green certified
food for PoliTO
canteen

PoliTO sustainable path



Incentives
for PoliTO
staff for public
transport use

New
stalls and
parking
areas for
bikes

New
photovoltaic
plant of 600 kWp
(under construction)

40%
of Corso Duca
Buildings renewed
with high-efficiency
windows

Use of recycled/
reused paper and
green certified
cleaning products

Coordination
of Energy
managers RUS
network at
national level

First PoliTO
sustainability
week

@ **Politecnico di Torino**
November 2016

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Green Team

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Green Team Office

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Developing a sustainable strategy to disseminate environmental awareness and sustainability culture

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