



Integrated models of teaching, research and technology transfer at Politecnico di Torino

*INDUSTRY AND TECHNICAL UNIVERSITIES:
NEW AND OLD MODES OF COLLABORATION
Zurich, July 5-6, 2007*

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- 26,000 students
- 680 PhD students
- 4,150 new students annually (+5% in 2006/07)

124 courses:

- 38 Bachelor degree courses
- 35 Master degree courses
- 24 PhD courses (clustered in 4)
- 27 Post-graduate courses

867 Professors/Researcher

400 Research Assistants

1,000 Administrative and technical staff

Awarded students:

- 2,400 Bachelor of Science
- 2,300 Master of Science
- 180 PhD

82 % of students employed within 1 year (*national average: 61%*)
92 % of students employed within 2 years (*national average: 71%*)

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FACTS AND FEATURES

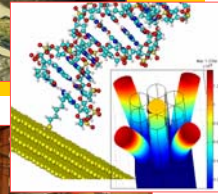


The research oriented university

FACTS AND FEAGURES

Fields of research:

- Industrial Engineering
- Information Technologies
- Civil/Building Engineering
- Environment Engineering
- Management Engineering
- Architecture

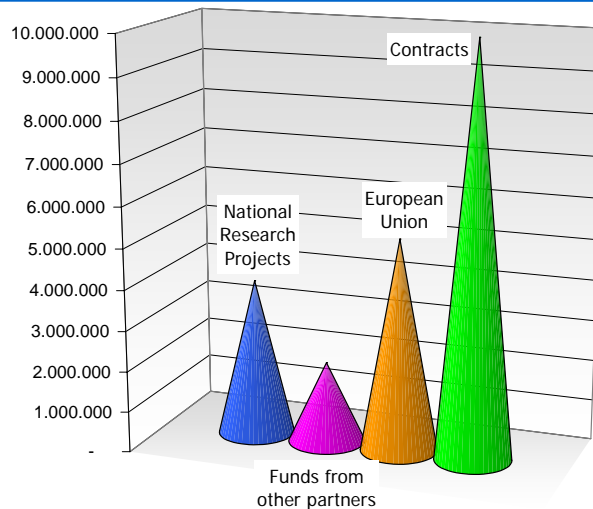


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Fund-raising of departments for research projects - 2006

FACTS AND FEAGURES



Cash-flow of research funds 2006 : more than 21,500 k€
 Active Research Project : about 50,000 k€ (more than 500 contracts)



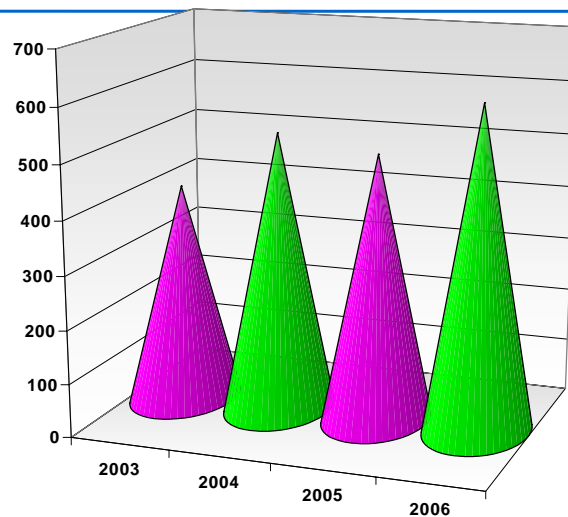
The VI EU Framework Program

- *Projects Funded:* 83 (more than 18 Million€), of which:
 - 30 Information Society Technology
 - 15 Sustainable development, global change, ecosystem
 - 13 Aerospace
 - 11 Nanotechnologies and nanoscience
 - 8 Marie Curie fellowships
 - 6 other programs' acronyms
- *Projects Coordinated:* 9
- *Success Rate:* 22%
- *Partners:* more than 750

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ISI Publications



About 600 ISI publications in 2006 and an 100 of other high quality printed outputs



Patents and licensing

- 64 patents registered or positively evaluated by EU Commission in the period 2002-07:
 - *23 in Electronics and Telecommunications*
 - *22 in Chemicals and Materials Science*
 - *19 in Aerospace and Mechanics*
- 9 international extensions in 2006
- In 2006, 7 patents licensed and 6 now under development with big industrial partners

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The "big" partners of Politecnico in the period 2000-07

- **FIAT Group** (Fiat Auto, Powertrain, CRF, Iveco, Magneti Marelli, ...) (208 contracts)
- **Pirelli Group** (Telecom, Olivetti,...) (97 contracts)
- **Avio S.p.a** (80 contracts)
- **Alenia Group** (56 contracts)
- **Piaggio S.p.a** (26 contracts)
- **ST Microelectronics** (25 contracts)
- **Vodafone and Omnitel** (17 contracts)
- **GM PowerTrade Europe** (15 contracts)
- **ENI Corporate** (8 contracts)
- **Other** (HP, IBM, Ferrari, Italdesign Giugiaro, Michelin, Microsoft, Motorola, Nokia, Philips, Pininfarina, Siemens, STMicroelectronic)



Traditionally these relationships were managed through departments' multi-contracts, while the actual strategy is to sign institutional agreements



Mission of the Politecnico

Joint the roles of:

- (A) a *research technical* oriented university
- (B) a *public teaching university*, highly integrated with the territory, and strongly social responsible
- (C) a *promoter and supporter of innovation*, and technical progress, also sponsoring venture capital
- (D) an *active actor inside the knowledge economy*, competing and collaborating with the best European/International universities

[Strategic Plan 2007-2017]

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A "tangible" (or building) strategy

- Since 1990s a new approach to **knowledge transfer**, inspired by integration with businesses and local community, based on a **high quality research** and strong partnerships for **financial support** (venture capitalists)
- In 1998, a **pluriannual agreement** with local governments and the city for "**Cittadella Politecnica**" – a Campus with spaces for research, teaching and knowledge transfer
- In 1999, the **Incubator (IP3)** was located inside "Cittadella Politecnica" and started to host start-up and spin-off
- Since 2003 participation to the **technological district** of ICT
- Since 2006, **new spaces** are available and Politecnico has opened a "**call of interests**" and signed an agreement with **GM** for hosting businesses' research lab inside "Cittadella"
- At the end of 2008, **1,300 new private jobs** inside "Cittadella"

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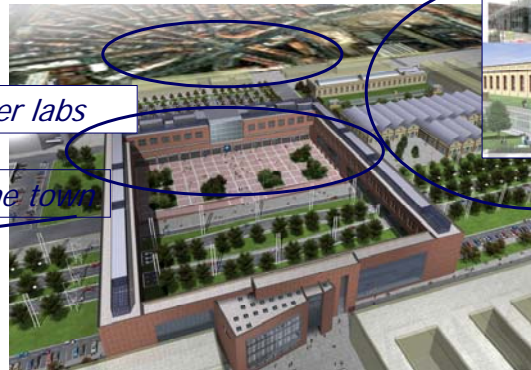


The Cittadella Politecnica

Students' residences

GM and other labs

Bridge over the town



Incubator

The old students' campus



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Incubator

A joint initiative with FinPiemonte, Province of Turin, City of Turin, Chamber of Commerce, CRT Bank Foundation

- Localized near research labs and departments of Politecnico - new spaces from 2007
- Highly integrated with other local initiatives helping new businesses' development
- Since now 84 new businesses inside the Incubator - 42 are still inside, while 37 finished the maximum period of three year of hospitality and 5 left before.
- More than 400 new jobs created, an annual business cash-flow of 20 Million€ with a high private investment
- In 2004 awarded as the "Best Science-Based Incubator" among 50 participants (3rd edition)

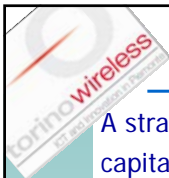
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Spin-off

- Incubator hosts also Spin-off of Politecnico (considerably increased after the new internal Patents' regulation of 2004):
 - 11 Spin-off participated by Politecnico (average share of 10%)
 - 5 Spin-off hosted inside spaces of Politecnico and scientifically supported

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Technological district of ICT

A strategic mix of research promotion, businesses' support and venture capital for Piedmont start-up and SME with a high technological orientation

- Activated in 2003 inside a Ministerial initiative to promote technological districts (pluri-annual agreement), with the aims to reach within 10 years 6,000 researchers in the area (now 2,000), a ICT BER's share of 10% (now 5%) and to help at least 50 start-up
- Politecnico is involved together with other universities of the territory and other partners (as Alenia Aeronautica SpA, FIAT, Motorola, STMicroelectronics srl, Telecom Italia, ...)
- Since now the district has activated 120 Million€ of investment and 182 collaborations, involving more than 8,200 employees, supported 51 requests of patenting
- The district has sponsored the constitution of two venture funds

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New spaces and GM

In 2008 General Motors Powertrain will establish inside "Cittadella" its primary research centre for the development of diesel engines and electronic control systems

- The agreement entails advanced research in areas of the reduction of emissions and fuel consumption. Collaboration and exchange of researchers, graduate, undergraduate and PhD students for dissertations, internships and joint seminars
- About 650 researchers will work in this lab (20,000 m², equipped with laboratories, 16 test cells)

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New spaces and interests' call

January 2007: the first call, more than 70 business applied during the first two weeks. The call is still open for future spaces, in the meantime the seven accepted are:

- **Asja Ambiente** (international group in the industry of renewable energy)
- **Huawei Technologies Italia** (Chinese company in the industry of telecommunication)
- **Intelligence Focus s.r.l** (Italian company focused on Information Security)
- **Jac – Italy Design Center s.r.l** (Chinese company leader in the automotive industry)
- **Microsoft**
- **Metecno Industrie S.p.a** (Worldwide leader for building structural material)
- **Vishay Semiconductor Italiana S.p.a** (one of the biggest producer of electronic engine)

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Financial support to new businesses

The Venture Capital Pole initiative:

- Settled inside the Torino Wireless initiatives with the involvement of Politecnico and FinPiemonte
- Composed by 13 funds (7 Italian and 6 International) with a portfolio of about 1,000 Million€
- The Pole is located inside Cittadella
- The aim is to communicate with entrepreneurs and the most dynamic businesses in order to identify the most promising highly-technical projects and in order to choose the most suitable projects, in accordance with national and international financial markets

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