



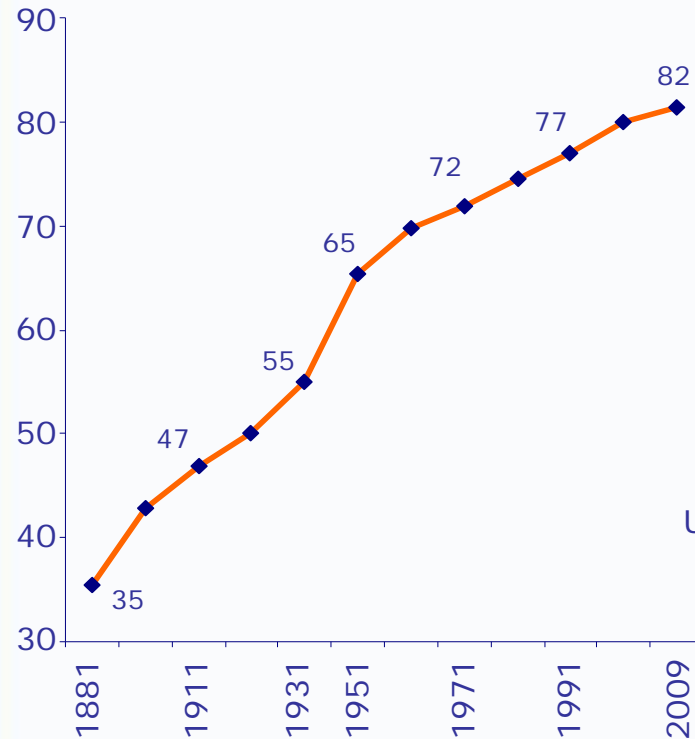
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Health and the Value of the Pharmaceutical Sector in Italy

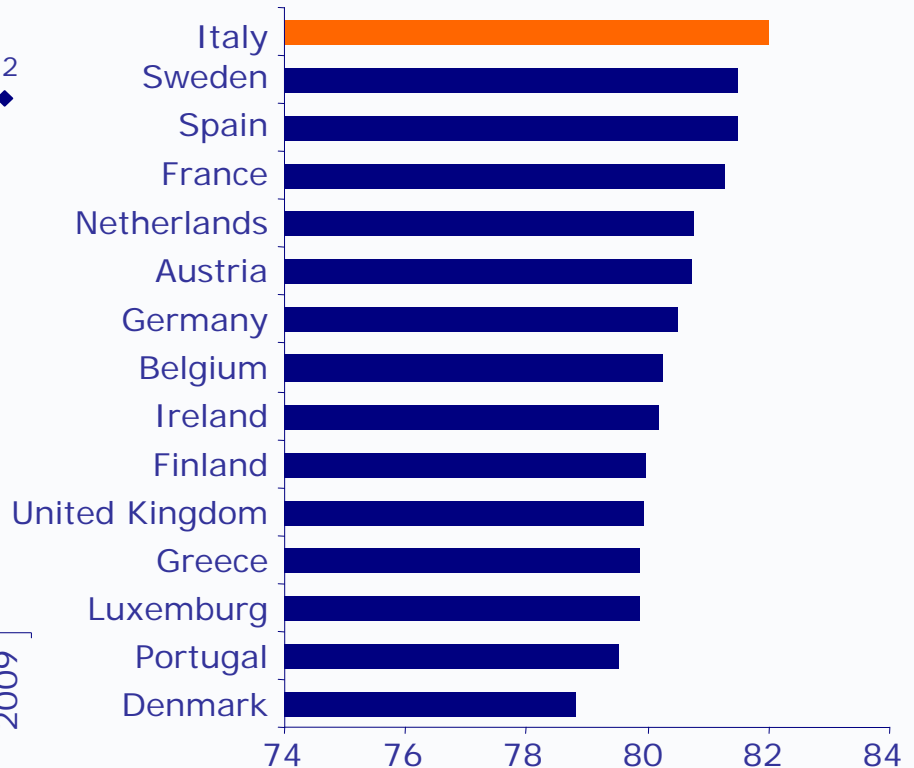
July 2010

Ever-increasing life expectancy

Italy: life expectancy at birth
(average for men and women)



Europe: life expectancy at birth
(average for men and women)



Since 1951 Italians have gained a month of life for every four lived. Like in all advanced economies, pharmaceutical research is credited with 40% of this success



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Source: Istat

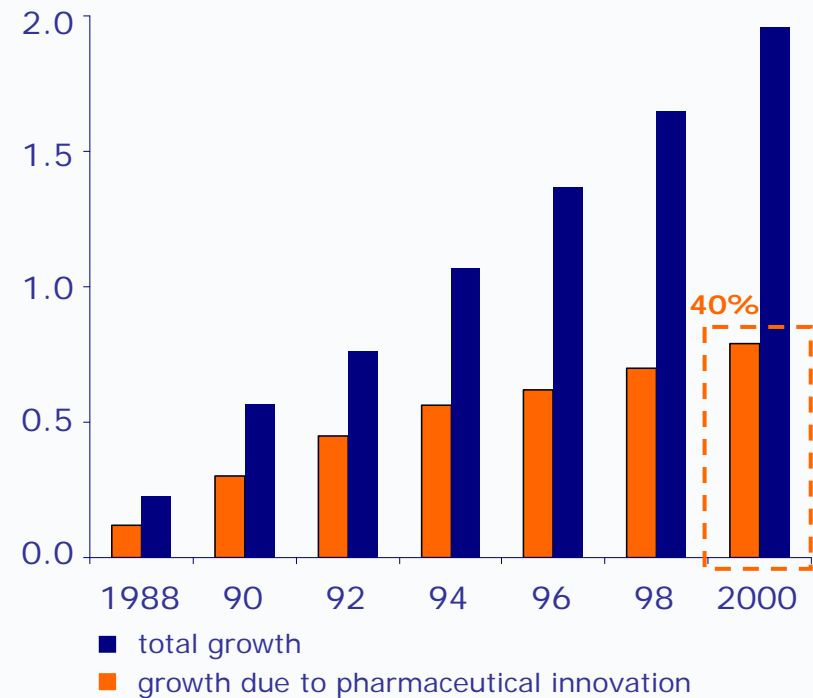
Medicines improve health and life expectancy

Respondents agreeing that pharmaceuticals help primarily...
(% of total)

	2002	2008
Live with chronic pathologies	54.5	80.4
Improve quality of life	60.2	75.9
Defeat deadly diseases	39.5	53.8

Source: Censis

Average life expectancy increase in OECD countries and the contribution of pharmaceutical innovation
(growth since 1986, in years)



Source: International Journal of Health Care Finance and Economics, Lichtenberg (2003)



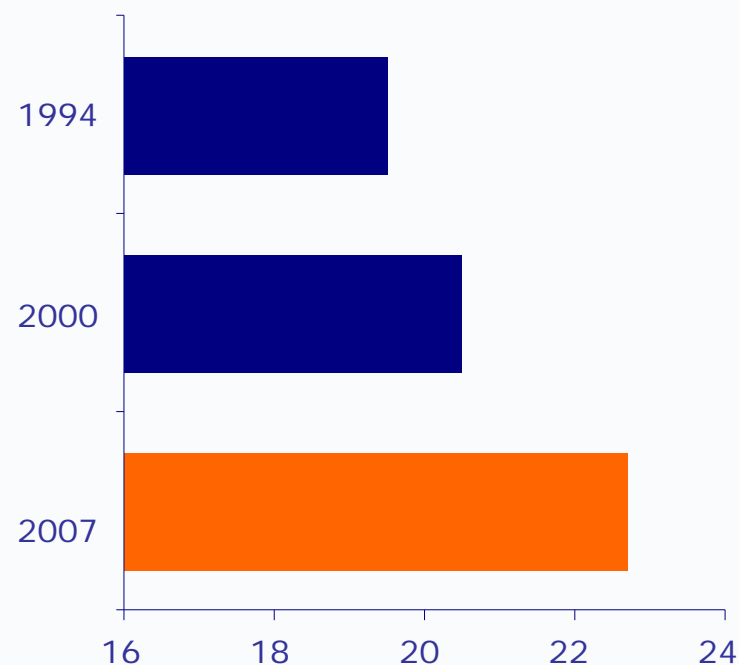
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A longer and healthier life

Italy: fall in standard death rate
(deaths per 100 thousands inhabitants)

	since 1994	since 1978
All causes	-25.1%	-43.9%
Cardiovascular	-35.6%	-59.6%
Cancer	-17.6%	-14.6%
Respiratory	-23.1%	-52.8%
Digestive apparatus	-40.5%	-60.2%
Other causes	-10.6%	-39.1%

**Italy: % of over-65 reporting
their health to be good**



A healthier life for 900 thousand
over-65 people

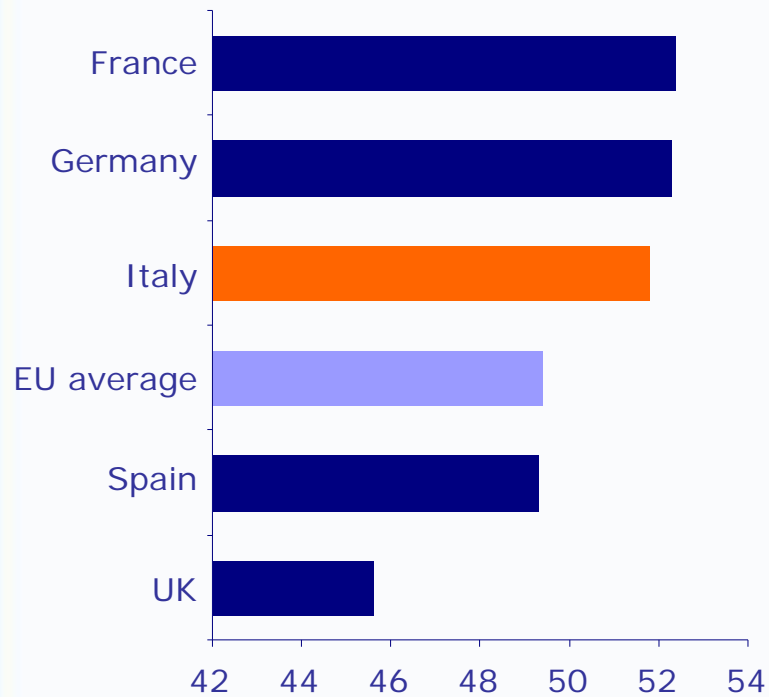


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Source: Istat, OECD

Important results in oncological therapies

5-years relative survival rate (%)
for oncological pathologies
(diagnosed between 1995 and 1999)

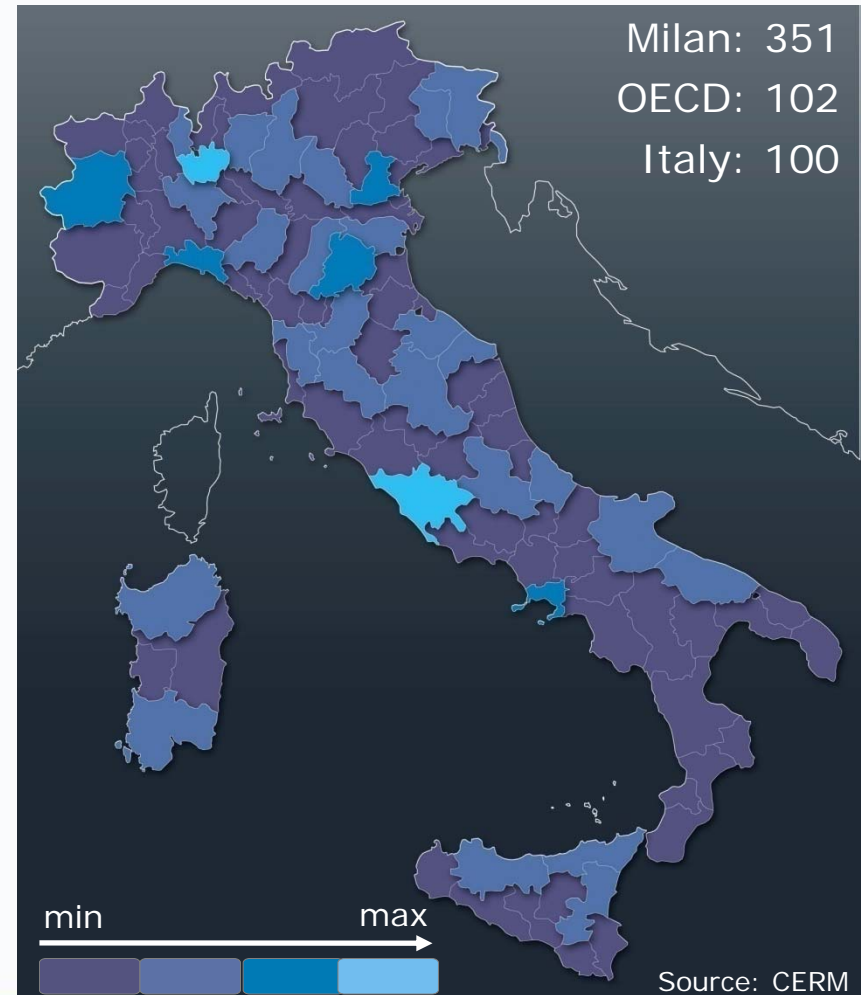


Source: European Observatory on Health Systems (2008)



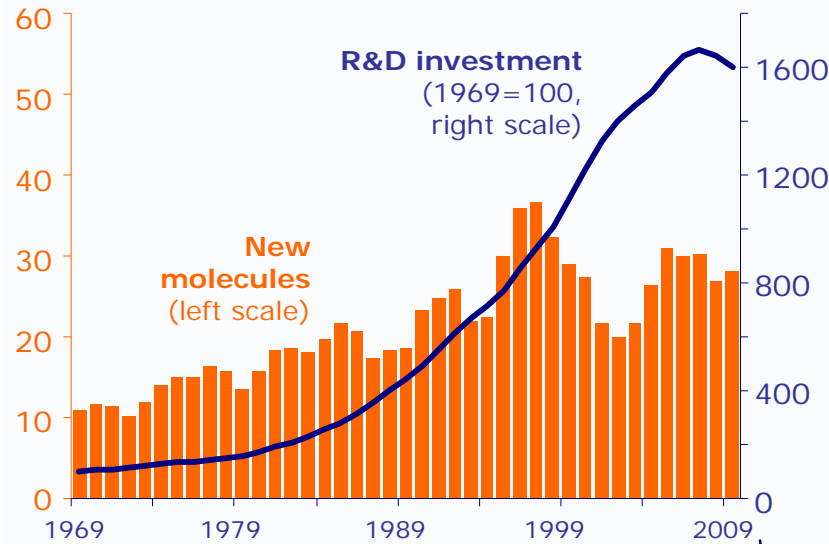
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Oncology publications
(index per mln inhabitants Italy=100)



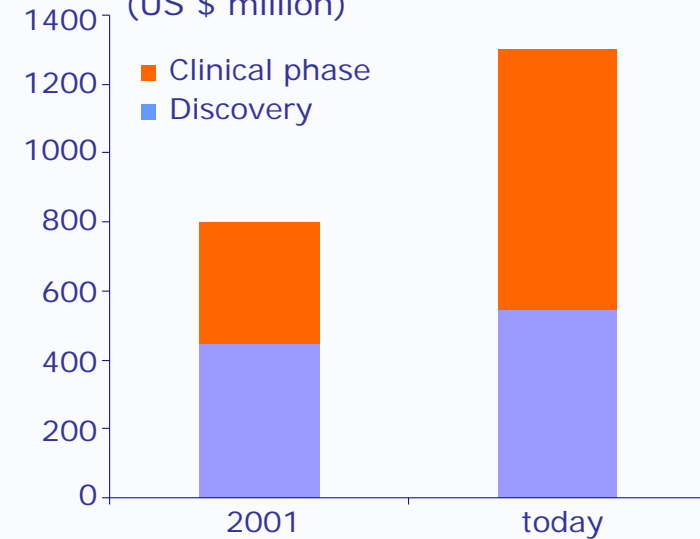
A changing R&D scenario triggers a revolution in the sector

R&D investments and number of approved molecules



Growth in R&D investments for innovative medicines (US \$ million)

Growth in R&D investments for innovative medicines (US \$ million)



Growing complexity of clinical trials (% change since 1999)

Clinical trials procedure	+65%
No. of personnel involved	+67%
Length of trial (days)	+70%
Recruitment difficulties	+21%



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Source: FDA, EFPIA, PhRMA, Tufts University

A network of research increasingly focused and integrated

- Increased research costs, more complex R&D projects and new scientific discoveries lead to higher specialisation and division of innovative work
- The drive to excellence in specific areas encourages the interdisciplinary nature of Research, multiplying opportunities and changing R&D structure of Big Companies into more flexible and specialised units
- Increasing *Research hunting*, by identifying innovative ideas to develop thanks to the know-how of Big Companies

The source of innovation deemed the most efficient for the future of pharmaceutical R&D at international level

(% of the total of responding companies)

Outsourcing	41%
Biotech corporate acquisitions	39%
In-house research	20%

(survey among leading international pharmaceutical Companies)

Source: SCRIP



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A network of research increasingly focused and integrated

In the new Research model, new technologies offer the opportunity to do cutting-edge science while drawing from pharmaceutical companies the skills, know-how and resources to make innovative therapeutic tools available

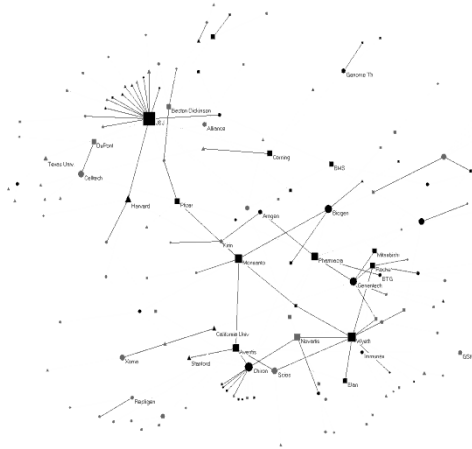


Until recently critical mass was indispensable

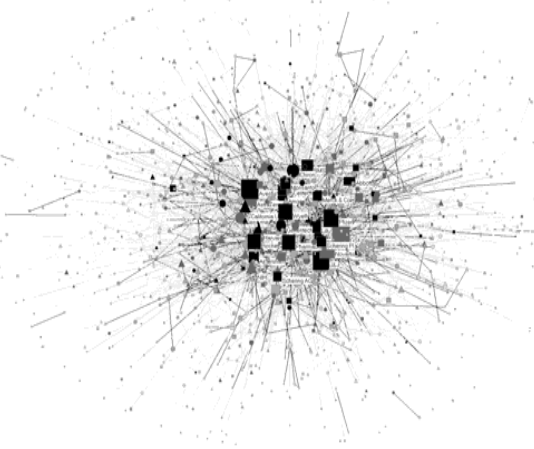
Today the competitiveness of the network, and no longer size alone, is decisive

The evolution of a Research network

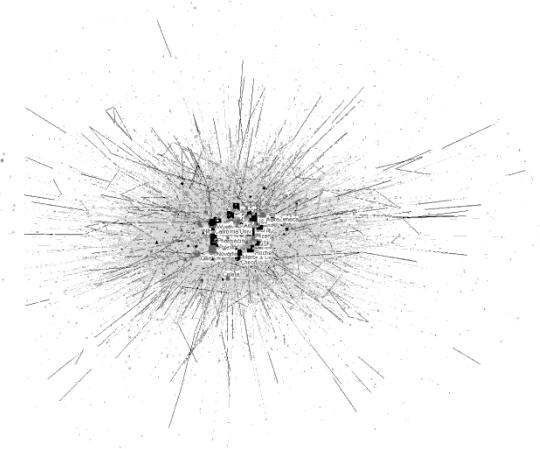
1985



1995



today



Italy can benefit from this scenario to export know-how



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Source: CERM

The growing commitment to pharmaceutical research in Italy

Italy: R&D activity in the pharmaceutical industry

	Investment (€ million)	Employees (units)
2002	883	5,360
2009	1,220	6,150
% change	+38%	+15%
% of manufacturing industries	12.4%	9.4%

- The pharmaceutical industry is the leading sector in Italy in terms of R&D intensity (it accounts for 1.5% of employment and 12.4% of R&D investment as compared to manufacturing)
- More than 90% of pharmaceutical research is funded by companies
- R&D spending is growing faster than revenues

Source: estimates on Istat



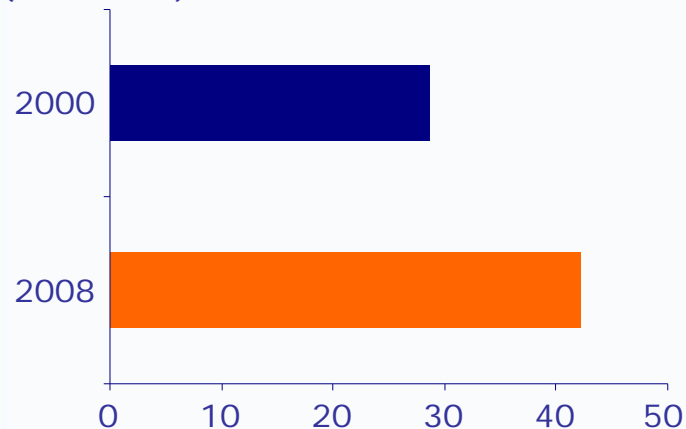
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Clinical trial growth in Italy

Growth in clinical trials between 2000 and 2008 in Italy

Total	+51%
Phases I and II	+123%

Phase I and II clinical trials (% of total)



- Clinical trials are vital for industrial growth, because - especially in the translational model - excellence in clinical practice can create a decisive competitive edge by transferring R&D results more effectively from the laboratory to therapy and to manufacturing

- Since the clinical phase can generate a competitive advantage, it should be encouraged with incentives (e.g. R&D tax credits), so strengthening cooperation between public and private research (NHS, University, Industry)

Wall Street Journal, April 13, 2010

COMPETITIVE CARE

The Lombardy Region has recently been cited by the WSJ as an example of particular excellence in healthcare systems worldwide

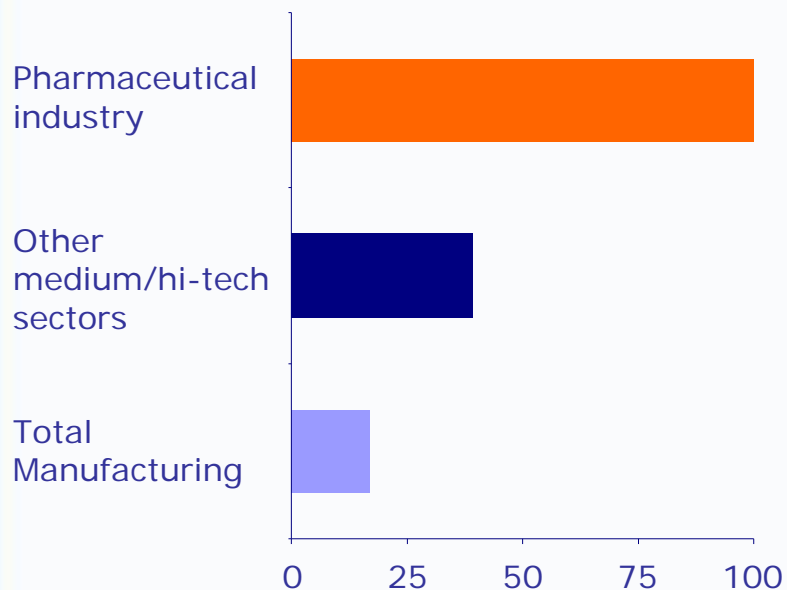


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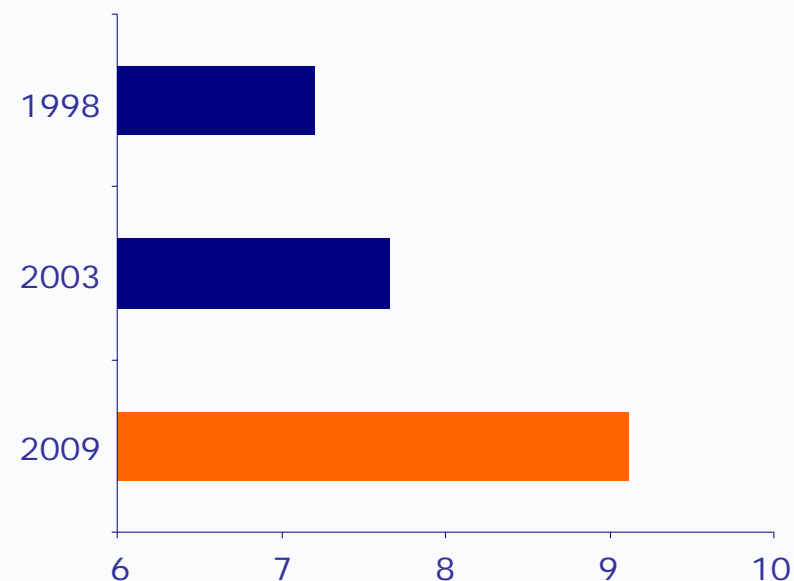
Source: Aifa (National Observatory on pharmaceutical Clinical Trials)

A dominant role for corporate pharmaceutical research in Italy

Intensity of R&D activities by sector
(pharmaceutical industry=100)



Pharmaceutical industry: R&D employees as % on total



In Italy pharmaceutical industry ranks 2nd in terms of absolute value of R&D investment (after "aeronautics and transport vehicles"), but 1st for R&D/sales ratio. R&D is 90% funded by the companies



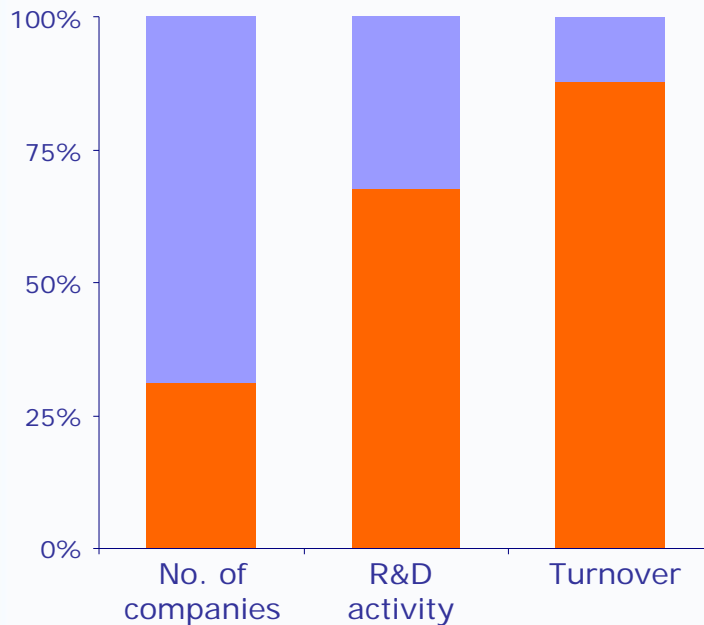
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Source: estimates on Istat

Growing synergy between pharmaceutical companies and biotech R&D in Italy

Italy: Biotech for health in 2009

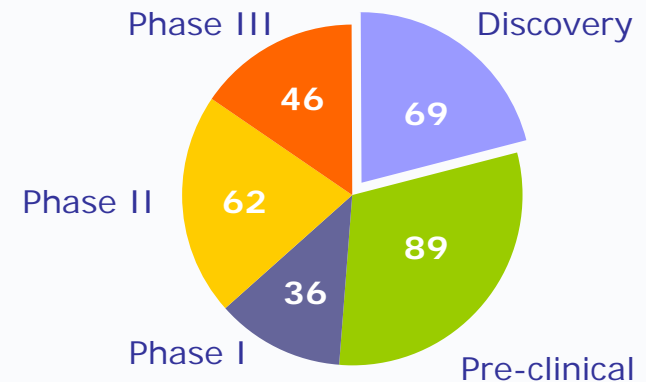
Pharma companies "Pure"-biotech companies



The pharmaceutical companies operating in Italy are generating increasingly greater value from biotech products

The number of employees in "pure" biotech in Italy is still below the EU average. But the overall productivity of Italian operators, with 233 products under development, is on par with their main competitors abroad

Italy: biotech medicinal products under development

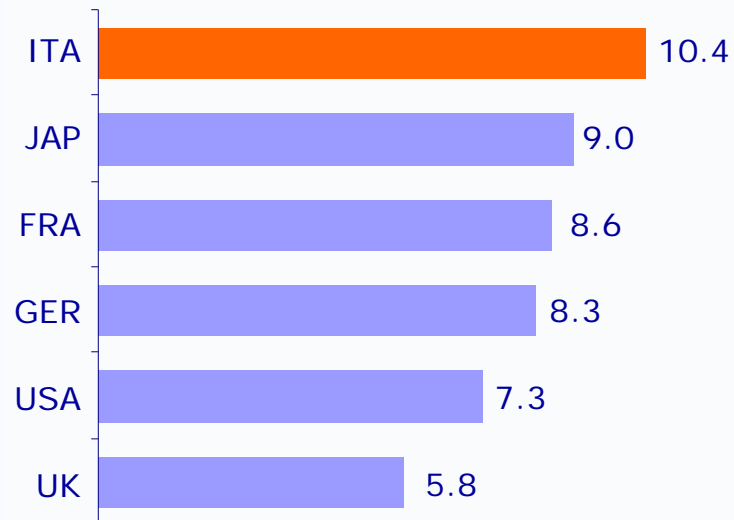


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Source: Ernst & Young-Assobiotec

Rare diseases: a Life Science R&D area of excellence in Italy

Specialisation index referred to publications on rare diseases
(% of Life Science publications in 2000-2008)

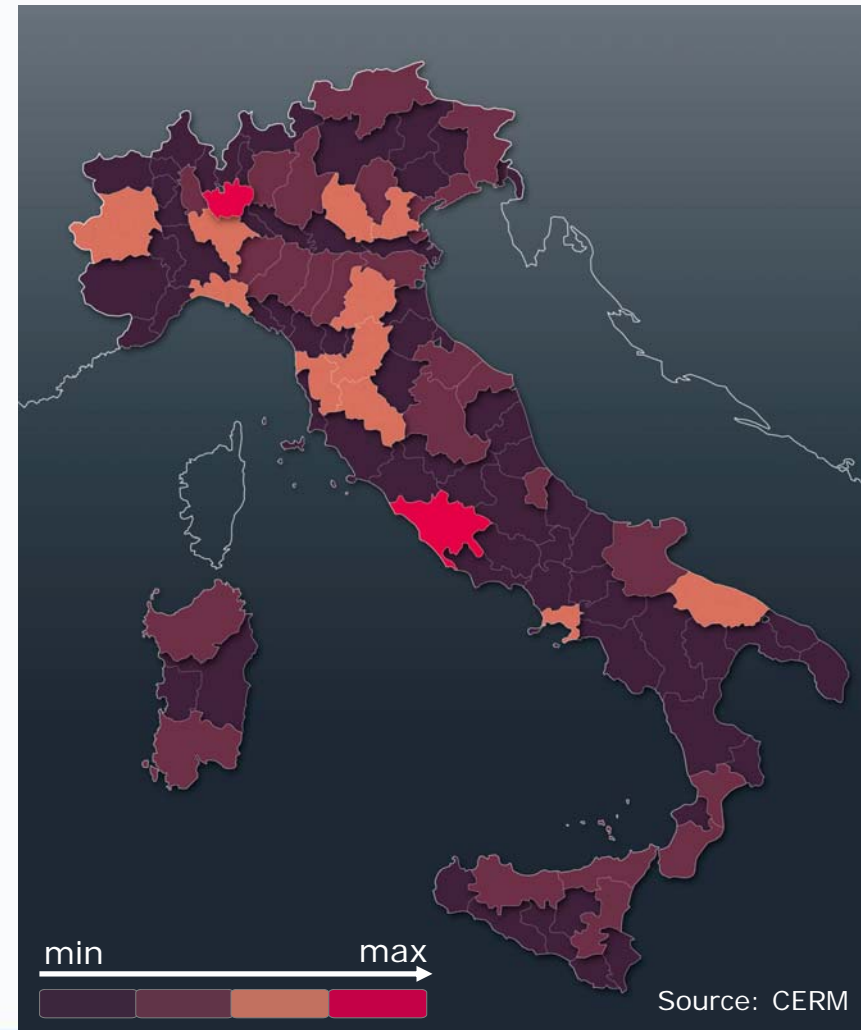


15 companies operating in Italy have at least one orphan drug designation. Total products are 31



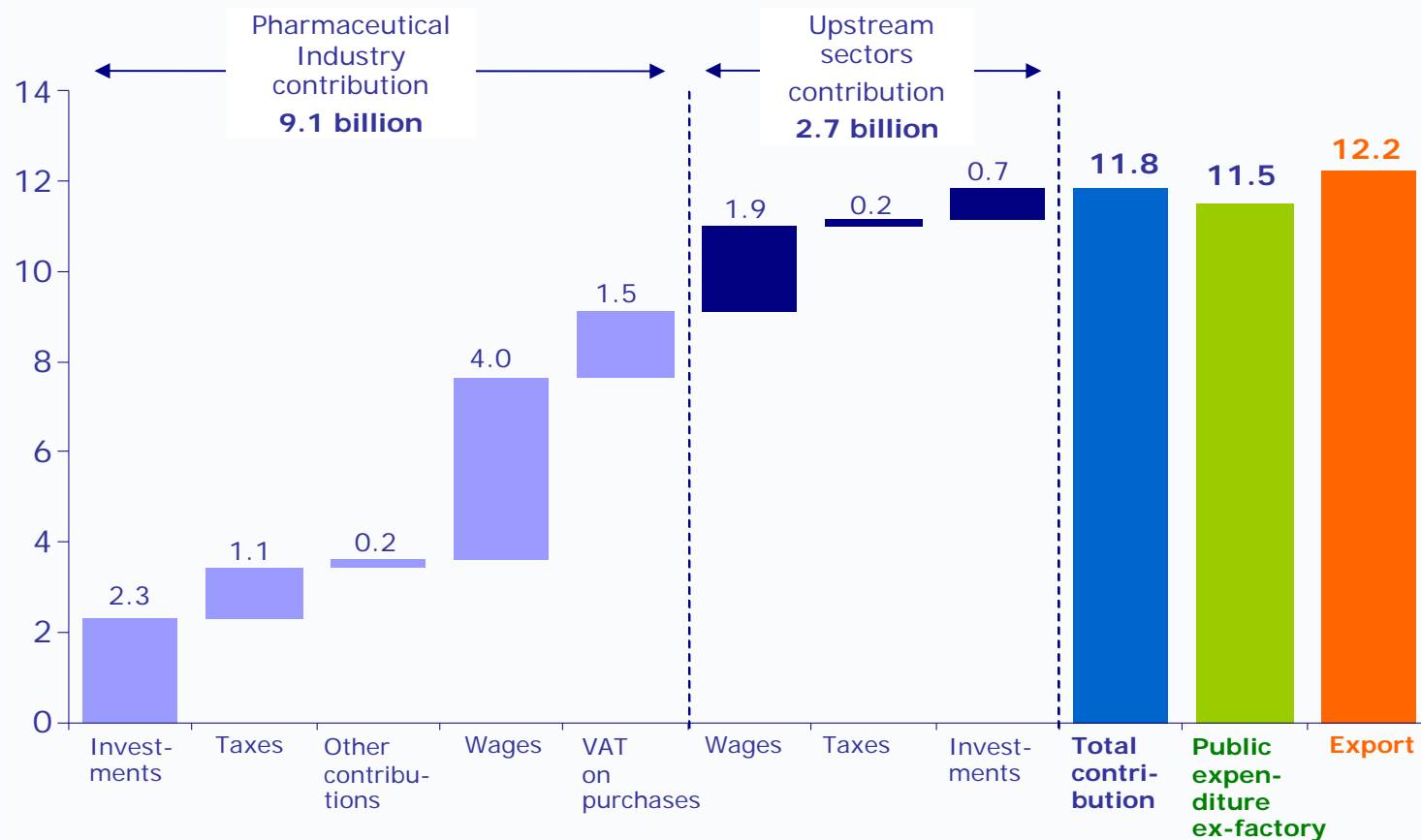
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Publications on rare diseases



The pharmaceutical industry and upstream sectors: a fundamental contribution to Italy

€ billion in 2009



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Source: estimates on Aifa, Farmindustria, Istat

A sector at the centre of the knowledge economy

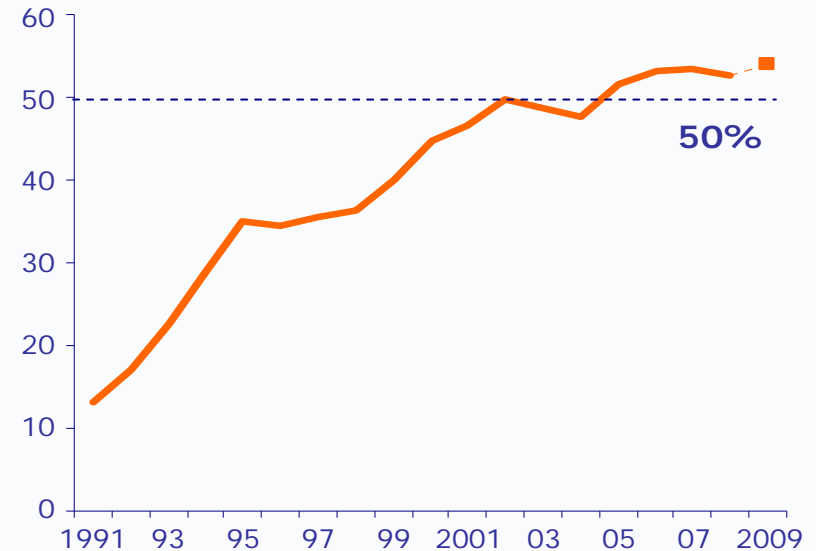
Key statistics of the pharmaceutical industry in Italy in 2009

- 67,500 employees, 90% graduates or with high-school diplomas
- 6,150 R&D employees (9% of total, as compared to industrial average of 1%)
- € 23 billion of turnover, 54% for export (12 billion)
- € 2.3 billion invested in manufacturing (€ 1.1 billion) and R&D (€ 1.2 billion)
- € 4.1 billion in directly-generated taxes and social security costs



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Pharmaceutical industry in Italy: export as a % of turnover

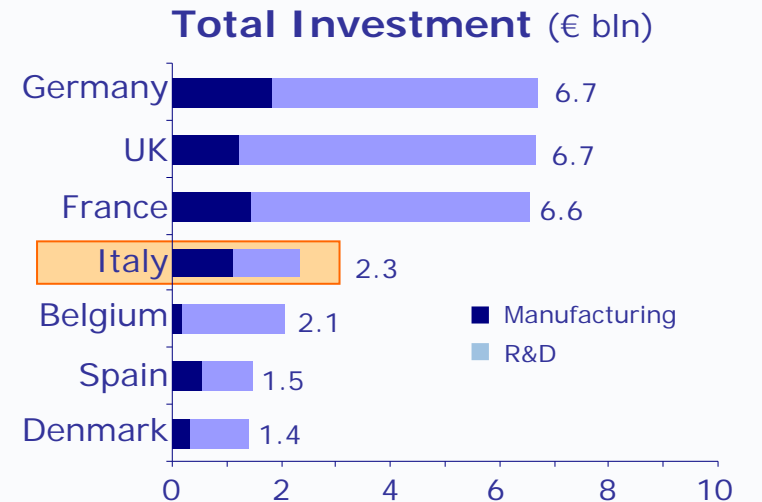
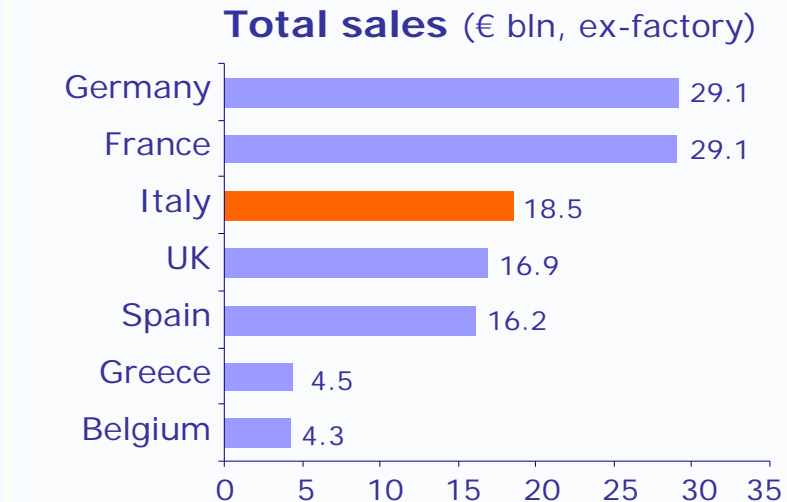
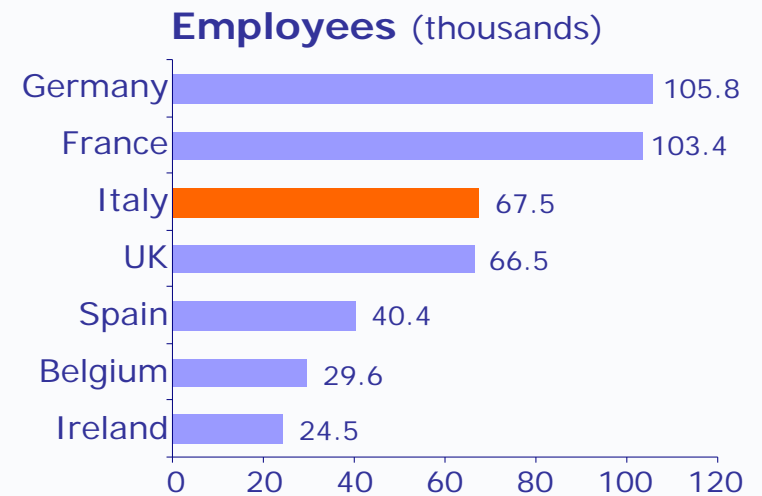


In the European Union Italy ranks:

- 2nd for number of companies
- 3rd for number of employees
- 4th for investments
- 1st for the presence of SMEs

Source: estimates on Eurostat

Pharmaceutical industry: the ranking of Italy out of the first 7 EU countries



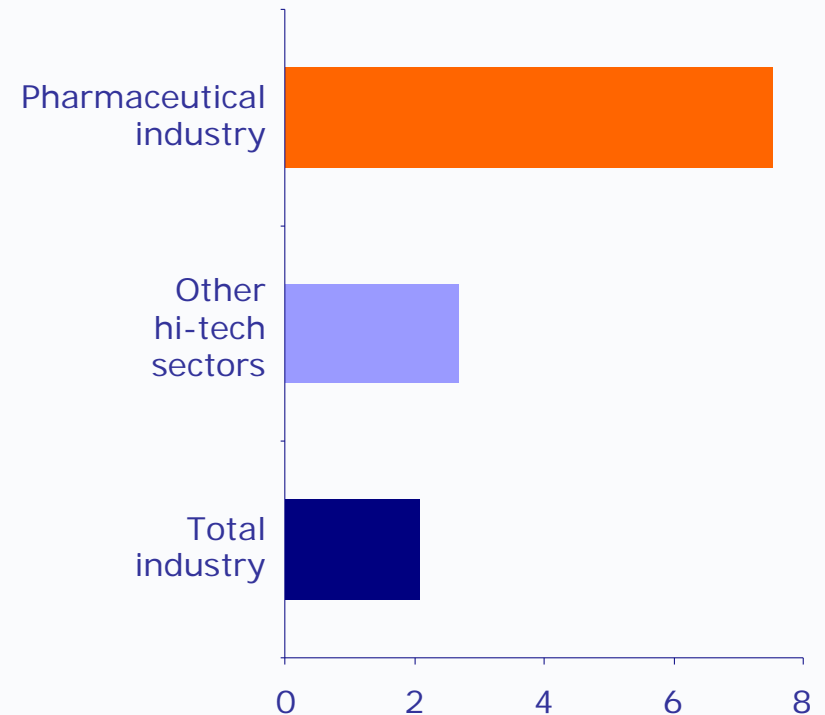
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Source: Efpia, Eurostat, IMS

Internationalisation as an engine of growth

- in 2009 pharmaceutical exports amounted to € 12.2 billion, well above public pharmaceutical expenditure at ex-factory prices
- the export/turnover ratio is 54% (13% in 1991 and 45% in 2001)
- export per employee ratio is 3 times the manufacturing average
- the pharmaceutical industry generates 4.4% of total manufacturing export (1.3% in 1991 and 3.4% in 2001)
- pharmaceuticals account for 43% of Italian science-based exports
- around 40 acquisitions abroad by Italian operators since 1999 (more than 200 industrial facilities)

Italy: growth of export 1999-2009
(constant average growth rate)



Exports determined 84% of the total growth in turnover of the pharmaceutical industry in Italy between 1999 and 2009

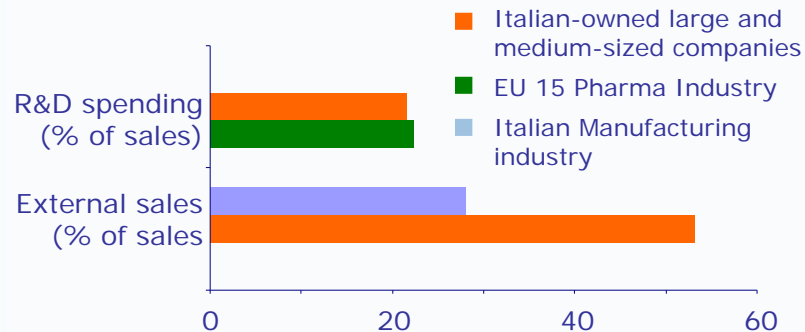


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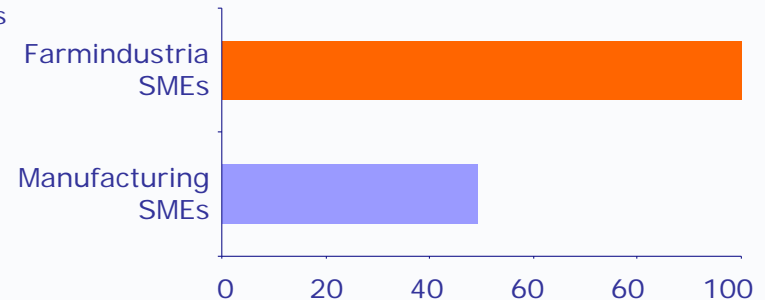
Source: Farmindustria, Istat, EntER Bocconi

A varied landscape where every part is important

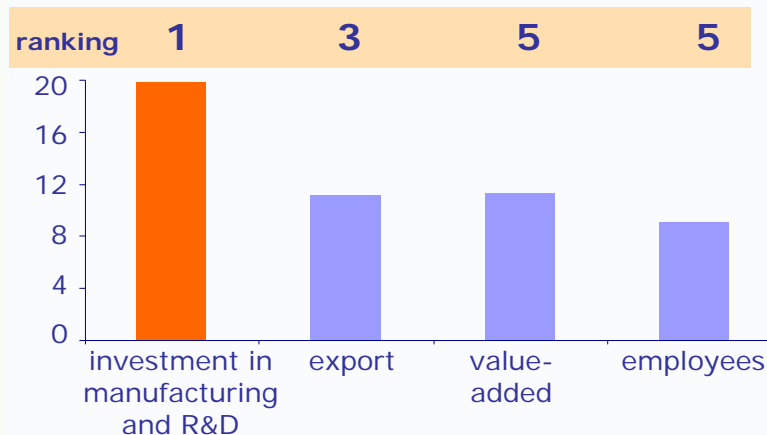
Characteristics of Italian-owned large and medium-sized pharmaceutical companies



Investment per employee in manufacturing and research (Farmindustria SMEs index=100)



Foreign-owned companies: role of pharmaceuticals and sector positioning (% of foreign-owned total industry)



Sector results depend on the sum of the different growth strategies adopted by all the companies operating in Italy

There is a reasonable balance in industrial presence and turnover.

Combining the two parameters, Italian-owned companies represent 35%, foreign-owned companies 65%



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Source: Istat, Farmindustria, Efpia

Why foreign companies invest in Italy

Competitive advantages of the Italian system

(Survey submitted to managers of chemical and pharmaceutical Multinational Enterprises based in Italy)

- **Human Resources**

Flexibility, creativity, problem solving
Adaptability and reaction to change
Orientation for continuous improvement
Capability to work under pressure
Know-how in specific areas

- **Excellence in upstream sectors**

- **Size and characteristics of the market**

- **Research and Development**

High level graduates
Cost/quality competitiveness
Ability to interpret market needs
Applied research and product development

**Are you satisfied
with your company's
investments in Italy?**
(% on total)

YES 75%

NO 25%

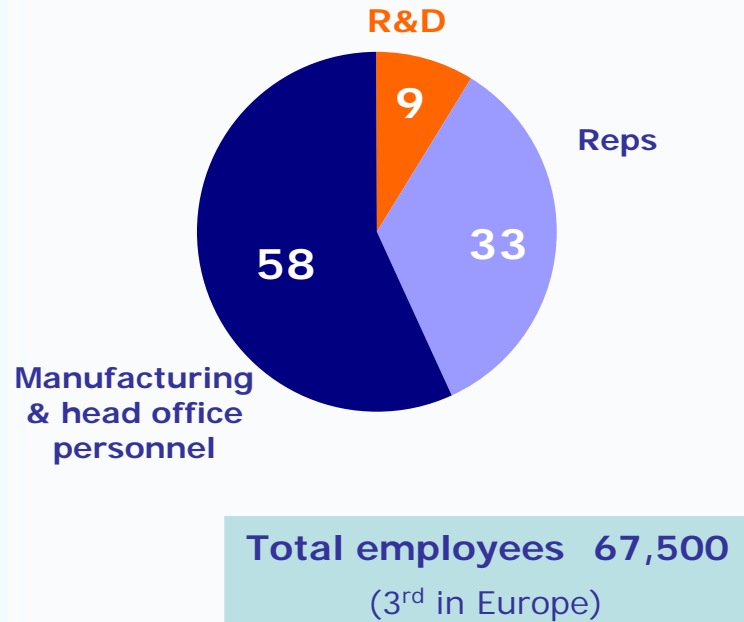


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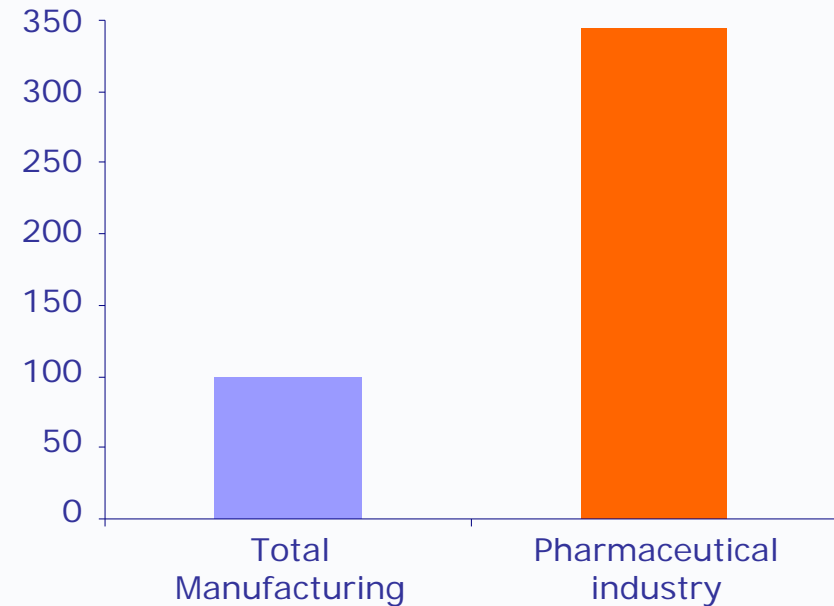
Source: Confindustria, Federchimica, World Economic Forum

Pharmaceutical employment in Italy

Pharmaceutical personnel
by function in 2009 (% of total)



Total investment per employee
(manufacturing industry index = 100)



Medicines have not only tangible content - with very high quality standards – but also an intangible one; the knowledge and research value. For this reason Human Resources play a decisive role.

At international level, the pharmaceutical industry is undergoing a major change. This phenomenon, with worldwide repercussions on employment, impacts on Italy as well (-10% between 2006 and 2009)

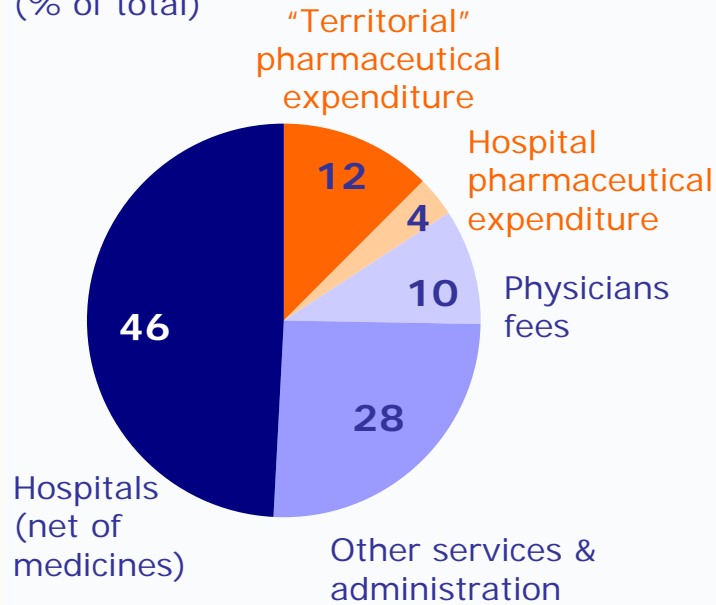


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Source: Istat, Farmindustria

Pharmaceuticals and Italy's National Health System

Public National Health System expenditure in Italy in 2009
(% of total)



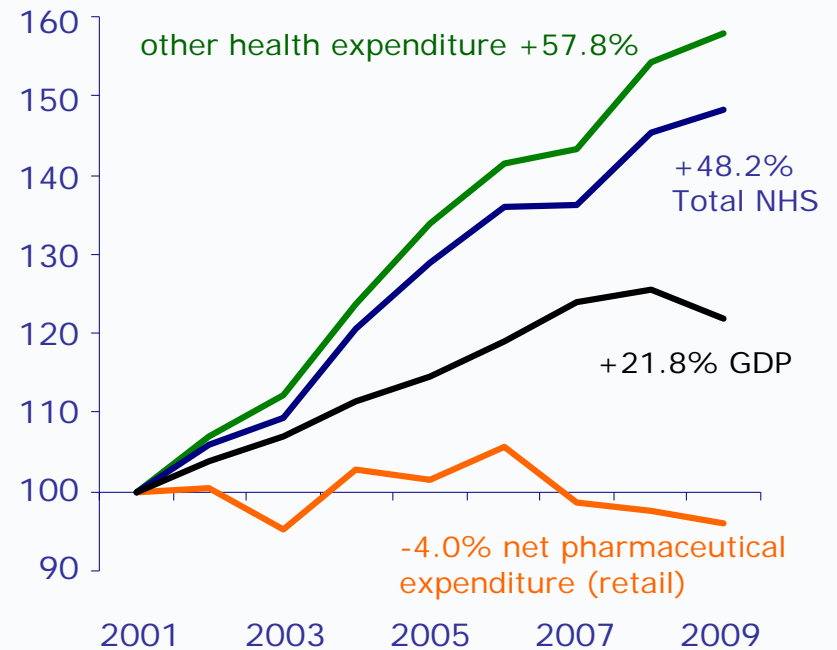
€ million

Total NHS	110,588
"Territorial" pharmaceutical expenditure	12,819
Hospital pharmaceutical expenditure	4,314



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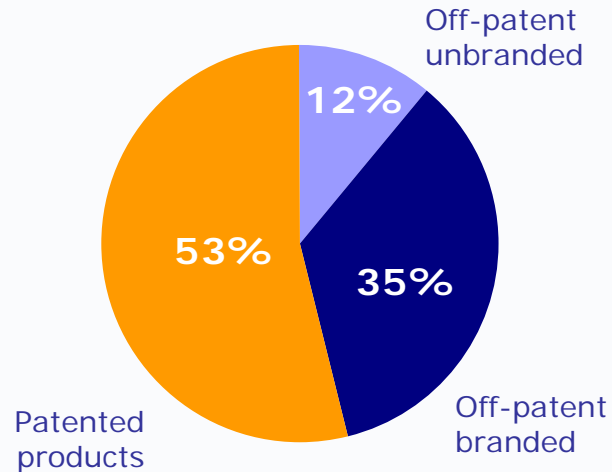
Overall National Health System and pharmaceutical expenditure
(index 2001=100)



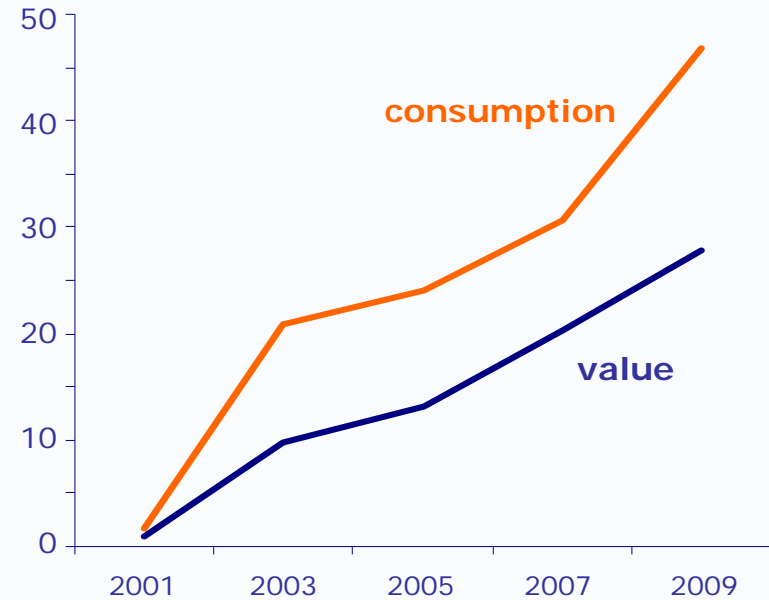
Source: estimates on Istat and Aifa

The off-patent market in Italy

Consumption of reimbursed medicines in 2009
(% of total)



Off-Patent: % of total expenditure on reimbursed medicines
(referred to the "transparency lists")



Source: Aifa

Savings from generics must be reinvested in the pharmaceutical system:

- without creating "protected" markets
- recognising **the value of brands and patents**, reflections of the industrial commitment, the research and the investment in building patient trust made by companies
- in compliance with physician prescriptions



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Medicines and vaccines are an investment in efficient and sustainable well-being

- Through prevention
- By reducing the need for surgery (e.g. gastro-duodenal ulcers)
- By slowing down degeneration and attenuating the symptoms of diseases linked to ageing, such as Parkinson's or Alzheimer's diseases
- By shortening hospital stays (e.g. for chemotherapy) or avoiding hospitalisation for certain chronic diseases
- By reducing the risk of disabling diseases

Italy: Yearly cost reductions for NHS due to the appropriate use of medicines for chronic diseases

(cardiovascular, respiratory, depression, Alzheimer's)

€ billion/year

Public pharmaceutical expenditure	6.3
--	-----

Avoided health costs	6.1
-----------------------------	-----

(shortened/avoided hospitalisation, reduced surgery, slowing degeneration of diseases)

Avoided non-health costs	5.6
---------------------------------	-----

(fewer working days lost, lower social support payments)

Source: CER-Nib



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On balance: the pharmaceutical industry in Italy in 2009

Public pharmaceutical expenditure

In 2009 expenditure was € 16.9 bln. at retail price* (€ 11.5 bln. at ex-factory prices)

Public incentives for R&D

The pharmaceutical industry receives approximately € 50 mln. of public funding for R&D

Direct and indirect employment

67,500 direct employees (of whom 90% university graduates or with high-school diplomas), more than 128,000 counting upstream sectors

Fiscal and export contribution

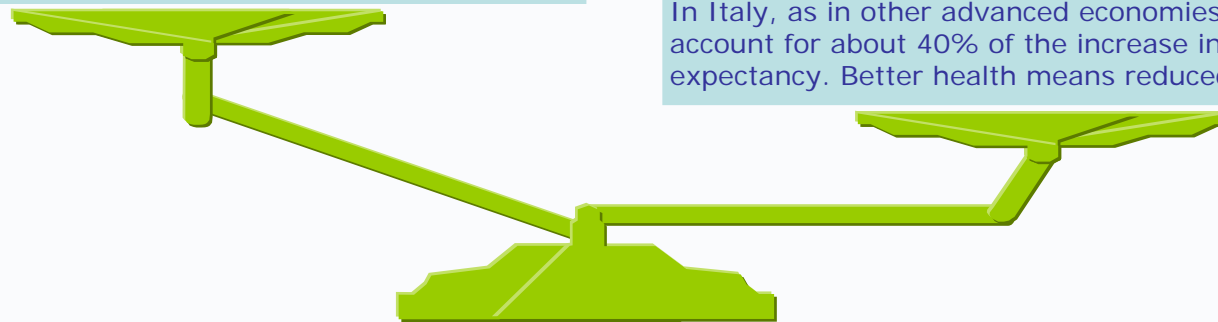
€ 4.1 bln. in directly generated taxes and social security costs (€ 4.8 bln. if upstream sectors are included). Export=€ 12 bln. (54% of turnover)

Innovation and Research

€ 2.3 bln in manufacturing investments (€ 1.1 bln) and research (€ 1.2 bln). Top sector for R&D intensity. Companies finance over 90% of R&D

Benefits for Public Health

In Italy, as in other advanced economies, medicines account for about 40% of the increase in life expectancy. Better health means reduced health costs



* Net of claw back

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Italy facts and figures in 2009



Source: Eurostat, IMS, Farmindustria



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Population

60.0 million (20.1% over 65)

GDP

€ 1,521 billion (4th in EU, 7th worldwide)

GDP per capita:

Euro area=100; Italy=94

Total Health Expenditure

€ 140 billion (9.2% of GDP)

79% Public: € 111 Bln (7.3% of GDP)

21% Private: € 29 Bln (1.9% of GDP)

Medicines total sales

€ 25.3 bln (retail+hospital)

74% public, 26% private

of which pharmacies

€ 19.2 bln (1.26% of GDP)

€ 319 per capita

Other macroeconomic and health data

OECD World Economic Outlook

A statistical annex providing in depth coverage of the main macroeconomic data

http://www.oecd.org/document/61/0,3343,en_2649_34573_2483901_1_1_1_1,00.html

OECD Health Data 2010

An excel file to access a sample of key indicators that can be found in OECD Health Data 2010 (June 2010)

http://www.irdes.fr/EcoSante/DownLoad/OECDHealthData_FrequentlyRequestedData.xls

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