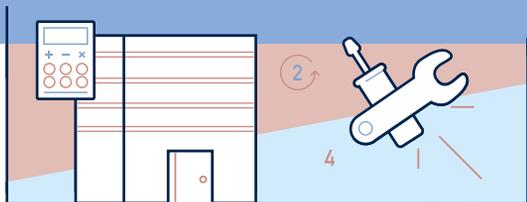


THE ENVIRONMENT FOR INNOVATION: DRIVERS FOR THE GROWTH OF ITALIAN COMPANIES AND ITALY



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FOREWORD

In Italy, the first quarter of this year closed better than it began, but low-key compared with the expectations at the end of 2015.

Growth remains slow and has not spread in all sectors from north to south. We are still quite far from a development path which could return us to pre-crisis levels within a reasonable time frame.

Our consultants have calculated that at the current rate, we will not reach pre-crisis levels of GDP and (public and private) investment before 2022, creating a “hole” of lost growth of over 15 years in the economic history of this country.

In the fifth year of activity of the Innovation and Technology (InnoTech) community, we continue to believe that science, technology, research and innovation represent the way out of this impasse.

This community, launched in 2011 under the aegis of the Ambrosetti Club which brings together 350 members of top management of national and multinational companies and organizations operating in Italy, is designed to offer all public and private sector players in the country a high-level platform for discussion and sharing knowledge to promote innovation as a strategic driver for development in Italy and to create a strong and successful innovation ecosystem.

The recent statement by President of the Italian Republic Sergio Mattarella clearly expresses the message the InnoTech community has been promoting since 2011: *“We must innovate to be able to grow and compete. [...] To return to growth requires an effort in terms of innovation and investment—an area in which Italy remains below that of other industrialized nations—in order to bring itself up-to-date with new technologies, take advantage of the skills of individuals and support competition.”*

Over these last five years, many steps forward have been taken. The Italian economic system has developed a growing awareness of the benefits of innovation and the importance of promoting an ecosystem capable of fostering it. Numerous measures to promote research and innovation have been introduced, measures that also provide support to companies from the standpoint of stimulating cooperation with universities, research organizations and start-up companies.

This direction must be vigorously maintained, and attention focused on the priority areas that require improvement:

- First of all, we must increase both public and private investment in research and innovation, which still remains too limited compared with our European and international competitors.
- We must accelerate measures that promote innovation (there are many valid “recipes”; what is needed is the capacity to implement and quick response times).

- We must work to reduce geographical discrepancies (the Italian economic system is like a train: it can only travel at the rate of speed of its slowest car).

Philippe Aghion, Professor of Economics at the Collège de France who will speak at our 42nd “Intelligence on the World, Europe, and Italy” forum (Cernobbio, September 2-4, 2016), provides this exceptionally perceptive and succinct description of an innovation-based economy: *“An economy whose growth is based on innovation requires a ‘Smart State’ that focuses its resources on education, health, and universities, and which supports small- and medium-sized companies that provide innovation.”* We fully agree with this statement.

This report contains the results of the work the InnoTech community has carried out over the last twelve months. It offers a wealth of data, comparisons, benchmarks and considerations designed to support policy-makers and business leaders in identifying a trajectory for innovation.

In particular, I would like to mention the annual update of the Ambrosetti Innosystem Index (AII), a summary index that compares the innovation performance of the world’s major ecosystems with Italy’s, as well as the update of the Ambrosetti Regional Innosystem Index (ARII) that measures innovation results in 89 macro regions in Europe, including in Italy. These instruments represent a progress report the country’s decision-makers can refer to in order to identify the critical “worksites” and anticipate the best actions and policies to close the gaps affecting Italy.

I would also like to note the study of innovation in Italian companies to which an entire chapter, Chapter 5, is dedicated. Through analysis carried out on a European and Italian level and a series of interviews with the top management of some of the groups and companies that make innovation a key factor in their development, it not only demonstrates the strong correlation between investment in research and innovation and growth, but also identifies the best areas and levers for managing innovation processes and strategies.

Before inviting you to read this document, I would like to express my heartfelt gratitude to Whirlpool R&D, ABB, Citrix and Pirelli that have given their undivided support to this initiative, as well as Assobiotec, Banca Ifis, Cisco, Electrolux, Ericsson, Banca Finint, Talent Garden, Dassault Systèmes and CastelBrando.

Finally, my thanks go to The European House - Ambrosetti working group comprised of da Federica Alberti, Nevia Andrisani, Rossana Bubbico, Marta Gobbo, Cetti Lauteta, Giovanna Menna, Sara Milani, Paola Pedretti and Lorenzo Tavazzi.

Valerio De Molli

Managing Partner

The European House - Ambrosetti

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EXECUTIVE SUMMARY



The Innovation and Technology Community was created in 2011 under the auspices of the Ambrosetti Club which, founded in 1999, brings together the top management of national and multinational groups and organizations operating in Italy (currently more than 350).

The mission of the Innovation and Technology Community is to build up a dialogue and relations between the industrial, scientific-technological, financial and institutional communities, with a view to promoting opportunities for growth and a widespread culture of innovation.

The Community is an **open system** that gathers the contributions of a myriad of public and private players in Italy, giving voice to those with actual experience while pooling solutions and approaches, and sharing the areas and modalities in which action can be taken, within a positive and constructive approach.

The cornerstones of its activity are:

1. Discussing in a pragmatic way the aspects relevant to innovation as a growth factor.
2. Exploring the concrete business opportunities offered by innovation and its transfer.
3. Sharing the most significant experiences.
4. Studying the knowledge behind cutting-edge innovations and technologies.
5. Communicating the Community's observations to the nation as a way of stimulating debate and action.

From its inception, the Community has chosen to concentrate on **across-the-board actions** involving the basic elements for an efficient system. Its orientation is intentionally non-sectoral, and proposes approaches and initiatives to be taken “upstream”. In line with this, its activity is focused on large-scale contexts in which to create the preconditions for the promotion and efficient functioning of innovative mechanisms.

Its working method involves **periodic meetings** of the Community on issues of current interest (the role of research in relaunching the country, ingredients for a “vibrant” innovation ecosystem, and digital transformation), special study sessions (financing instruments offered by Horizon 2020, innovation in the automotive sector, and smart materials) with leading figures within the Italian and international innovation spectrum and interviews to CEO and experts.

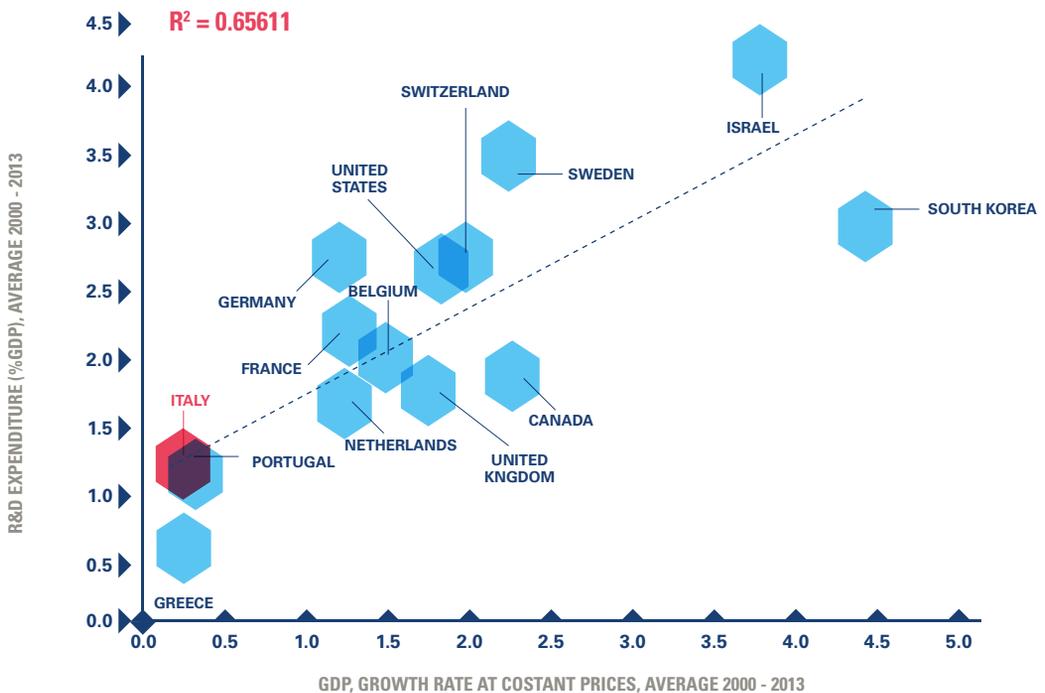
The project is overseen by The European House-Ambrosetti Working Group, comprised of: Federica Alberti, Nevia Andrisani, Rossana Bubbico, Marta Gobbo, Cetti Lauteta, Giovanna Menna, Sara Milani, Paola Pedretti, and Lorenzo Tavazzi.

1. INNOVATION REPRESENTS A FUNDAMENTAL COMPETITIVE DRIVER FOR NATIONS AND THEIR ECONOMIES

Innovation pertains to the implementation of productive processes of goods and services, or the development of new products with an ample margin of improvement over existing technologies.

Therefore, every national economy produces an innovation *performance* that **strongly impacts on the national competitive outcome** in terms of growth, occupation and improved living standards. According to European Commission estimates, **50% of the growth in the EU economy** is linked to innovation processes.

Those countries which were the first to grasp the importance of the positive cycle of innovation/productivity/growth are those that are best positioned in terms of long-term systemic competitiveness and have demonstrated greater resilience in the current crisis.



■ Figure 1 – Correlation between research and development (R&D) spending and GDP growth, in constant US\$ adjusted to 2000 (Source: TEH-A elaboration of OECD and IMF data, 2015)

2. THE INNOTECH COMMUNITY HAS IDENTIFIED FIVE PRIORITY WORKSITES ON WHICH TO BUILD THE INNOVATION COUNTRY-ECOSYSTEM

In its first year of activity (2011-2012) and through in-depth discussions with main national stakeholders and detailed research into international best practices, the InnoTech Community identified **five** priority “**worksites**” in which policy-makers and innovation community players must orient their efforts:

1. **Organization of the innovation country-ecosystem** by which is meant the regulatory structure, instruments and policies that define the framework within which public and private stakeholders operate. Innovation is, in fact, a “national action program” and, unlike the most competitive situations abroad, Italy has yet to finalize its own systematic national approach.
2. **Innovation financing.** Innovation is a high-risk activity with uncertain returns. As all the best international practices show, what is needed is an efficient support system, including on a fiscal level, which provides incentive and support.
3. **Cooperation between research and industry.** Technology transfer is key to finalizing how much research produces from a market-oriented standpoint. Italy has an excellent research system but, also due to significant fragmentation, it struggles to create optimal links with industry.
4. **Development of innovative companies** (and not just start-ups). Innovators, in the broadest sense, are the backbone of our economy in terms of export and development capacity. These companies must be supported in their activity through targeted action.
5. **Attractiveness and innovation country culture.** Innovative capacity is the function of a mentality and widespread orientation towards it. This also involves the ability to attract talent and resources from abroad. Although Italy has numerous attributes, it is having to atone for a “cultural” gap that must be filled.

For these areas, the InnoTech Community has developed over time a series of recommendations and detailed proposals that represent a reference “map” to orient the nation’s strategic choices in the area of innovation. The quality and extremely concrete nature of these proposals have resulted in the fact that, today, many of them have won the favor and approval of the Italian government and its ministries.

ORGANIZATION OF THE INNOVATION ECOSYSTEM	INNOVATION FINANCING	RESEARCH-INDUSTRY COOPERATION	DEVELOPMENT OF INNOVATIVE ENTERPRISES	ATTRACTIVENESS AND INNOVATION COUNTRY CULTURE
<ul style="list-style-type: none"> • National Innovation strategy • National Innovation Group 	<ul style="list-style-type: none"> • Aid for private research and release of non-commercial PA debt • New public-private intervention schemes • “Bank for Industrial Development” model 	<ul style="list-style-type: none"> • “Theme-related universities” • National TransferLab, governance and non-traditional tools for technology transfer • Simplification and reduction on the basis of objective evaluation of merit, number of public research bodies and technology • Intellectual property regime for public sector research 	<ul style="list-style-type: none"> • Detailed definition of “innovative enterprise” (to which special aid can be connected) • Promotion of mixed public-private intervention schemes to finance innovative enterprises • Stimulate venture capital through harmonization of fiscal and regulatory measures with international best practices 	<ul style="list-style-type: none"> • Education for innovation and entrepreneurship • Crash program to take advantage of young research talent in Italy • Revision of recruitment processes in the public sector research system (direct recruiting) • Institutionalization of the “3rd mission” for universities, including explicit goals for technology transfer, awards systems and greater autonomy for universities

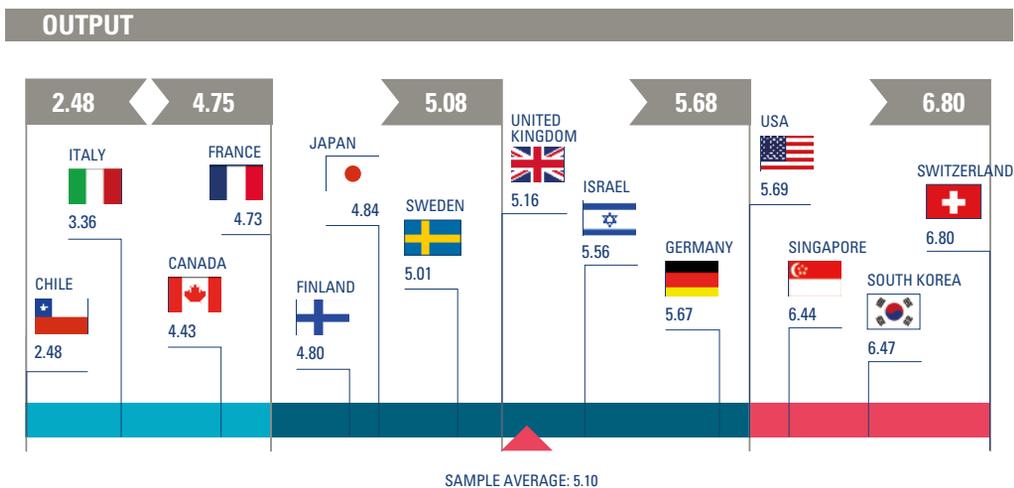
■ Figure 2 – InnoTech Community proposals from 2012 to the present

3. ITALY'S INNOVATIVE OUTPUT MEASURED BY THE 2016 AMBROSETTI INNOYSTEM INDEX REMAINS LOW, BUT IS IMPROVING

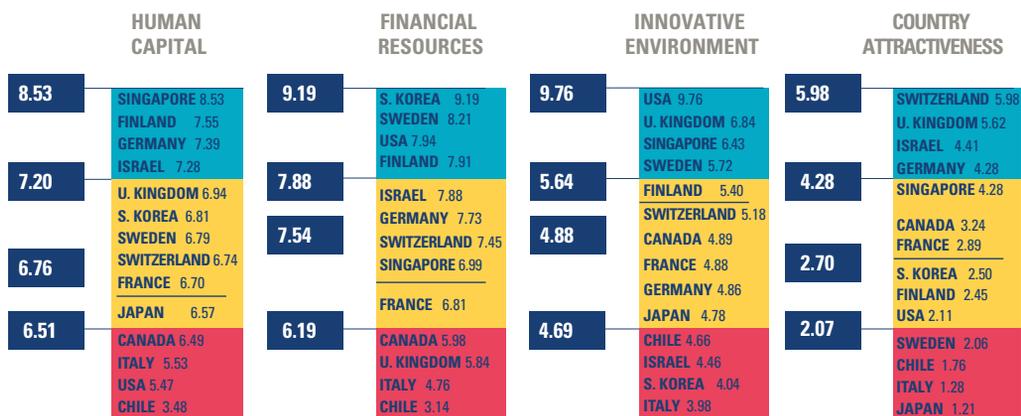
Today, the innovation challenge is played out among **integrated innovation ecosystems** in which the results of innovation are determined by the interaction between key players (academia, government and business).

The Ambrosetti Innosystem Index (AII), developed by the InnoTech Community starting in 2012, is an orientation tool for strategic decision-making using a **summary index** that identifies the overall performance of every ecosystem on the basis of uniform values that can be compared over time, and a progress report that measures the innovation results in terms of key factors that determine performance.

Once again in the 2016 rankings, **Italy remains next-to-last** in the international reference sample of country-ecosystems, with a rating of 3.36. In the lead of this year's rankings are Switzerland (6.80), South South Korea (6.47) and Singapore (6.44).



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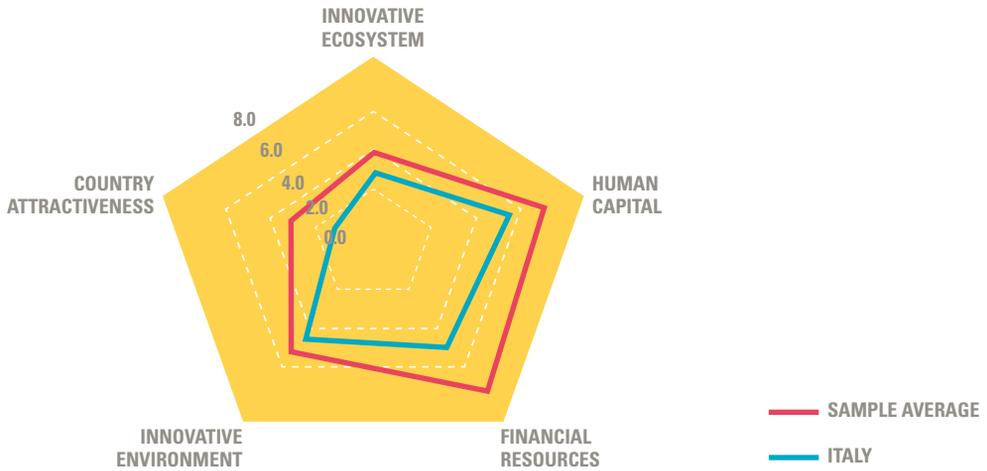


■ Figure 3 – Ambrosetti Innosystem Index 2016, overview (Source: The European House-Ambrosetti data elaboration, 2016)

If we take an in-depth look at Italy's performance, a number of problematic areas emerge which involve:

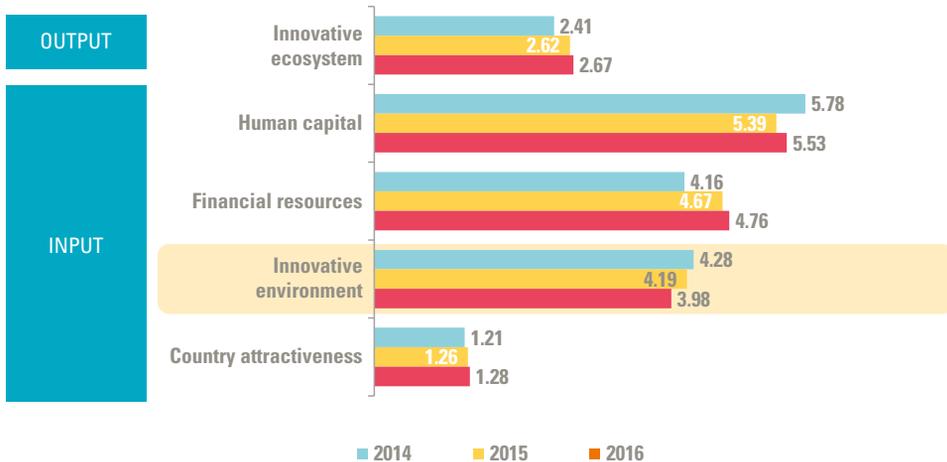
- The **number of patents** registered per thousand inhabitants of working age (0.24 vs. 1.59 sample average).
- **Export of high-tech products** (9.2% of the total vs. 19.4% sample average).
- **Skills of young people**, measured using the PISA test (with an average score for Mathematics and Science of 487.7, compared with a 507.6 sample average).
- **Development of venture capital** (attractiveness 23% less than the average score of sample countries).
- **Private sector R&D investment** as percentage of GDP (0.7% vs. 1.8%).
- The share of **R&D in doctoral programs financed by the private sector** (1.3% vs. 6.1%).
- The **ability to attract foreign students** (net level of student mobility is 1.6% vs. the sample average of 4.7%).

Comparing Italian results with the sample averages, it can be seen that the major gaps involve “**Financial Resources**” for innovation (the gap between Italy and the sample average is 2.2) and “**Country Attractiveness**” (here, the gap between Italy and the sample average is 1.9).



■ Figure 4 – Comparison between the performance levels of Italy and the sample average in all AII 2016 categories (Source: The European House-Ambrosetti data elaboration, 2016)

Compared with the 2015 findings, Italy has seen a **reduction in its score only in the area of “Innovation Environment”** caused, above all, by a regression in the ability to protect intellectual property.



■ Figure 5 - Comparison of 2016, 2015 and 2014 scores for Italy in each of the AII input and output variables categories (Source: The European House-Ambrosetti data elaboration, 2016)

One fundamental aspect that is extremely critical for Italy is the **significant disparity between its various geographical areas**, including in terms of innovation.

The Ambrosetti Regional Innosystem Index (ARII) shows a **major North-South gap** involving Italy's southern Mezzogiorno regions, which not only register worse performance levels, but are also among the worst performers on a European level. Lombardy, with a score of 44.3, is the only Italian region present in the top 20 of the most-innovative regions in Europe (in the 2016 Ambrosetti Regional Innosystem Index, it was in 18th place).



Figure 6 – Ranking of Italian regions in the Ambrosetti Regional Innosystem Index (Source: The European House-Ambrosetti, 2016)

Compared with previous findings, **the number of Italian regions included in the Top 50 of the rankings has increased** (from 2 to 4). Lazio and Friuli Venezia Giulia have made the greatest strides forward, rising a full 8 positions and moving, respectively, from 53rd to 45th, and 75th to 67th place. Worrying, on the other hand, the lag in the worst performing Italian regions whose position has deteriorated.

	2015	2016	2016 vs. 2015
Lombardia	19	18	+1
Emilia-Romagna	44	42	+2
Lazio	53	45	+8
Piemonte	50	46	+4
Veneto	54	57	-3
Toscana	65	66	-1
Friuli-Venezia Giulia	75	67	+8
P.A. trento	70	68	+2
Liguria	68	70	-2
Marche	72	71	+1
Campania	69	72	-3
Abruzzo	76	74	+2
Umbria	74	77	-3
Molise	79	79	0
Basilicata	82	81	+1
Sicilia	78	82	-4
Puglia	80	83	-3
P.A. Bolzano	81	84	-3
Valle d'Aosta	84	85	-1
Sardegna	85	87	-2
Calabria	88	89	-1

■ *Figure 7 - Comparison between the 2015 and 2016 rankings of Italian regions in the Ambrosetti Regional Innosystem Index (Source: The European House-Ambrosetti data elaboration, 2016)*

Analysis of regional innovative performance highlights **tremendous variability in the performance of individual local ecosystems**. Therefore, emphasis must be placed on the lower-performing areas of the country because it is the speed of the slowest that determines the country's overall speed.

Closing the gap with other countries is **complicated** and requires considerable organizational and economic effort. But if, as we have seen, innovation is essential for allowing the country to grow and create quality jobs, this is a step which must be taken.

It should be noted that the Italian economic system has matured in recent years **a growing awareness of the benefits of innovation and the importance of promoting an ecosystem** (rules, instruments and players) capable of fostering it. Proof of this is Italy's commitment to promoting major initiatives to improve the research system, support innovative companies, and rationalize the regulatory framework and structures.

4. AGAIN THIS YEAR ITALY LAUNCHED A NUMBER OF MEASURES TO PROMOTE INNOVATION, AND THIS MUST CONTINUE

Over the last year, **the nation's commitment has continued** to improve the research system, support innovative companies, and rationalize the regulatory framework and structures.

1. As has been said, innovation is “a national action program” that requires comprehensive strategies aimed at specialization and optimization of the national innovation ecosystem. In the last year, Italy launched a number of national programs, and one of these which deserves major attention is the **National Research Plan** (Piano Nazionale della Ricerca) which calls for €2.5 billion to be destined to 4 priority sectors (health, agrifood, space and industry 4.0).

In terms of system-wide initiatives and projects, also of note is the **Human Technopole**, the project involving the new research pole following on Expo Milano 2015. The project's goal is to make Italy a world leader in the sector of long-life and human technologies.

2. Innovation is a risk investment that requires capital and support measures. In recent years, Italy has launched a number of measures to create a system of incentives that could reduce the gap that separated it from current best practices on a European and international level. Again this year, this effort has continued with the **new tax credit** (March 16, 2016) involving 25% of the incremental expenditures borne compared with the average of the same investments in the three fiscal years precedent to the one ending December 31, 2015. Among the other R&D incentive measures passed by the government is also the **Patent Box** (July 29, 2015) which provides for a tax break on income from intellectual work.
3. A crucial element in innovation support is the protection of intellectual property. In this area, Italy launched for SMEs the “**Disegni 3+**” **Initiative** (December 3, 2015) to foster the promotion and economic exploitation of industrial drawings/models on domestic and foreign markets, and the “**Marchi 2+**” **Initiative** (December 3, 2015) to foster innovative capabilities, including through concession of incentives to extend their brands into foreign markets.

4. In addition, the Italian Ministry of Economic Development (MiSE) and the Directorate General against Fraud-Italian Patents and Trademarks Office, through the **Protection of Intellectual Property in Technology Transfer Offices** program (December 19, 2015), financed projects to promote focus within Technology Transfer Offices on the protection and transfer of property rights.
5. In terms of innovative start-ups, Italy has done much over recent years and, in fact, Italian legislation is used as an example for other European countries. In the last year, Italy has launched **new procedures for the creation of an innovative start-up** (February 19, 2016) introducing the possibility of creating an innovative start-up through a standard model with digital signature, without having to register it through a notary public.
6. In recent years, Italy has promoted a series of initiatives to finance projects aimed at providing the country with the technological infrastructure required for complete digitalization of the society, in recognition of a widespread deficiency that is also a constraint on innovative and technological capacity. Over the year, the government has continued its initiatives and among these is the **Smart City Program** (March 10, 2016), launched by the MiSE as an initial effort towards Smart Cities. The program aims to reinforce the infrastructures of cities through broad band-connected smart grids and boost the ability of industry to answer the need for innovative services inherent in the Smart City.
7. Another area of activity that is very relevant and current and one in which the government has recently been active are the new skills required by the production system. In this, the national educational system plays a key role. This question is at the center of three major reforms.
8. **“La Buona Scuola”** (The Good School) reform passed on July 10, 2015 earmarked a further €3 billion when fully operational for instruction and a special hiring plan. The measure includes specific resources for teacher training and refresher courses, and school curricula for students that combine traditional subjects with those of the future.
9. The **Programma Operativo Nazionale** (National Operational Program) “Schools – Skills and Environments for Learning” for the period 2014-2020 (October 23, 2015) allocates over €3 billion to upgrade school curricula, improve student skills, and renew classrooms and the learning environment.

10. The **Piano per la scuola digitale** (The Digital School Plan) passed on October 27, 2015 launches a multi-year strategy that includes innovation in Italian schools and a new place for the country's educational system in the digital age. The plan includes 35 initiatives to be implemented up through the year 2020, all already financed through funding made available under "La Buona Scuola" reform and European structural funds (Education NOP 2014-2020) for a total of €1 billion.

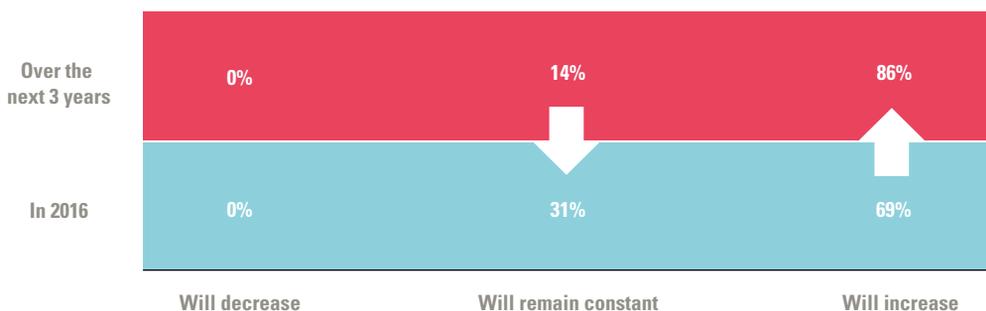
5. THE 2016 SURVEY OF THE INNOTECH COMMUNITY SHOWS AN IMPROVEMENT IN SENTIMENT REGARDING INNOVATION IN ITALY, TOGETHER WITH SUGGESTIONS REGARDING INNOVATION MANAGEMENT IN COMPANIES.

Starting in 2014 the InnoTech Community launched an observatory on the sentiment of Ambrosetti Club companies regarding innovation trends. These companies are leaders in their respective fields of activity and those responding to the survey represent top management, guaranteeing the authoritativeness and importance of the results gathered.

The survey covers four areas of study, three of which form a permanent part of the survey in order to create a data base that will reflect changes over time. A fourth, always new, area of study is added each year to analyze aspects of special interest and/or questions of current relevance regarding the Italian innovation ecosystem. This year, the theme chosen for in-depth study was **innovation within Italian companies**.

From the results of the 2016 survey, there are some elements which indicate **signs of improvement** in the Italian innovation ecosystem.

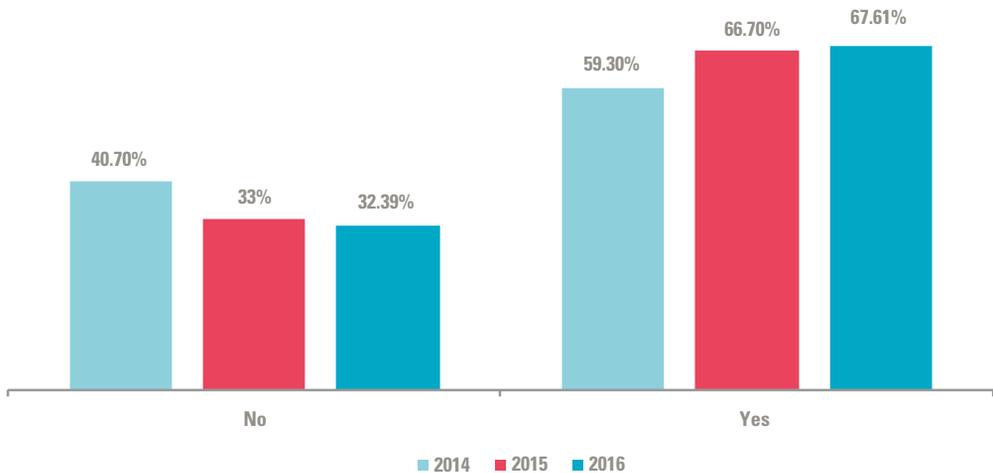
There is unquestionably a positive orientation towards innovation investment: 69% of the managers interviewed stated that in their companies the innovation budget for 2016 would increase, and this percentage rises to 86% over a three-year perspective.



■ Figure 8 – Responses (%) to the question “How will you modify the overall budget of your company in terms of innovation and/or Research and Development for the current year and for the coming three years?”

(Source: The European House - Ambrosetti data elaboration, 2016)

The increase in the budget dedicated to innovation follows hand-in-hand with the intention to hire personnel dedicated to innovation and R&D. In 2016, as many as 67% of the managers responded in the affirmative, in line with 2015 results.



■ Figure 9 – Responses (%) to the question “Does your company plan to hire personnel dedicated to innovation or R&D?” (Source: The European House - Ambrosetti data elaboration, 2016)

Within this context, it would seem the Italian ecosystem is taking up the challenge to re-launch recovery through a number of clear signs of improvement compared with the results of the 2015 survey. The main ones include:

- Although the majority of R&D activity is carried out in-house, there is some progress in the number of companies that collaborate fruitfully with other companies and universities. This positive result can be explained by the value managers see in being able to measure their activity against other situations, in sharing expertise and the possibility of finding innovative solutions.
- The number of companies that have not utilized any instrument aimed at protecting the results of R&D has decreased, indicating greater awareness of the value of innovation and R&D in corporate performance.
- The increase in the percentage of companies who utilize external sources for financing R&D activity (although the amounts involved remain modest), also indicates enhanced access to local, national and European public funding.

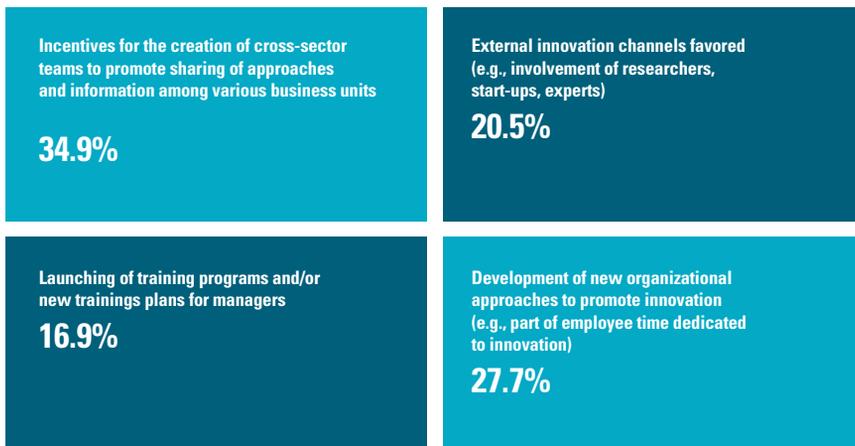
More generally, what emerges is a net improvement in perception regarding the **quality and efficacy of the innovation ecosystem** in Italy (the negative view dropped to 29% from 32.4% in 2015) and regarding government efforts over the last 12 months, with a favorable view expressed by 72% of the managers sampled.

Emerging clearly from the survey are four types of problems that represent four factors that impede innovation, as shown in the figure below.



■ *Figure 10 – Synopsis of the responses to the question “From your standpoint, what are the main barriers to innovation within your company?” (Source: The European House - Ambrosetti data elaboration, 2016)*

Thanks to the survey, it was also possible to identify a number of the ways in which companies can **organize themselves to provide incentive to disruptive innovation**. The answers given by participants made it possible to identify four major modalities which are not mutually exclusive, but can rather coexist within the same company and can even result in the development of synergies if they are used contemporaneously.



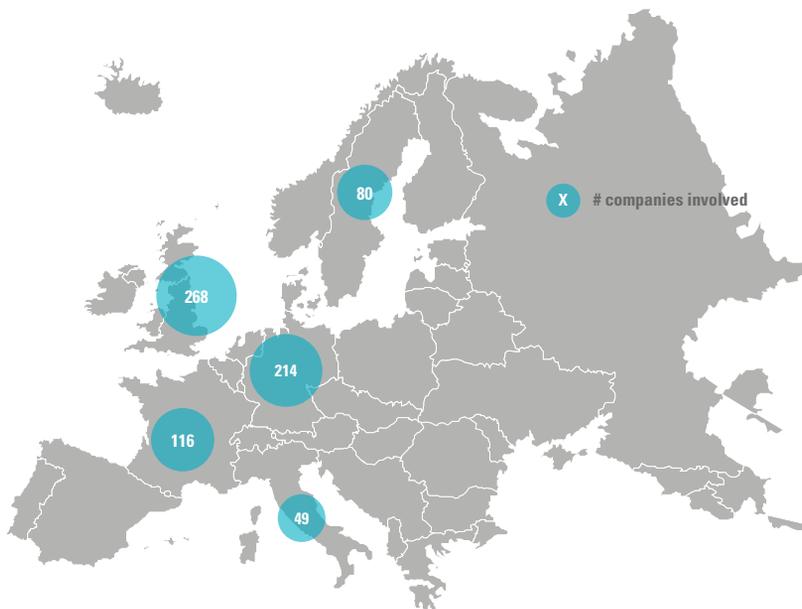
■ *Figure 11 – Responses (%) to the question “In the last three years, to promote disruptive innovation, your company has primarily...” (Source: The European House – Ambrosetti data elaboration, 2016)*

6. THE ROLE OF INNOVATION INVESTMENT IN DETERMINING CORPORATE PERFORMANCE

Over the last 10-15 years, technological acceleration and the advent of the Net and digitalization have had significant impact on the way companies operate, both because they find themselves having to face much more rapid obsolescence in their business models than in the past, and because the requisites required to remain competitive have changed. The speed with which a company can completely change what it offers becomes a distinguishing element, reflecting the need for companies to innovate their products, services and production processes ever-more frequently.

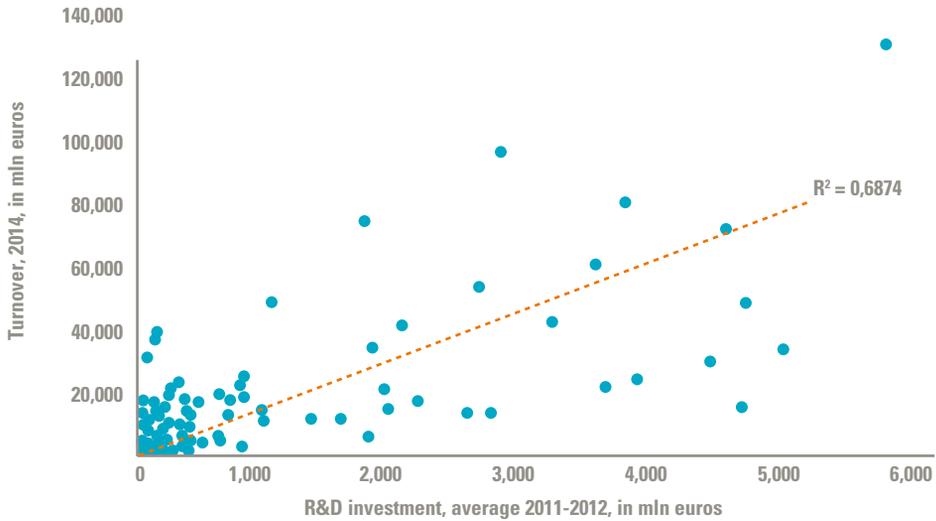
For companies to be able to remain competitive in a scenario such as this, they must **dedicate a significant part of their resources to innovation activities**.

Focusing on a European perspective and looking at the top 1,000 companies in Europe in terms of R&D investment, the preponderance of certain countries that reflect a similar number of country-models is clear, and together these represent over 70% of the top investor companies in the EU-28 (see the figure below).



■ Figure 12 – Top five European countries for number of companies with the highest R&D investment, 2014 (Source: The European House – Ambrosetti elaboration of European Commission JRC data, 2016)

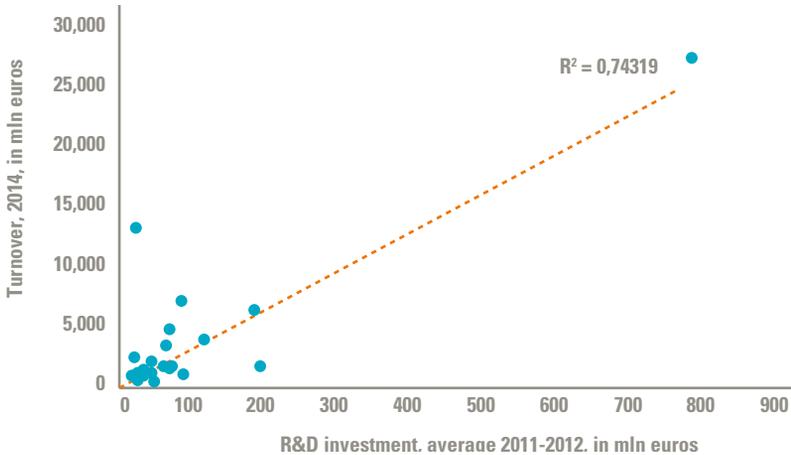
If we look at the European manufacturing sector, and if we compare the average R&D investment in 2011 and 2012 with turnover in 2014,¹ a **concrete and significant correlation** emerges between these two figures.



■ Figure 13 – Correlation between R&D investment and turnover in European manufacturing companies (Source: The European House – Ambrosetti elaboration of European Commission JRC data, 2016)

If we carry out the same analysis for Italy, despite the more limited number of data points available, a correlation between these two variables remains and reinforces awareness of the fact that investment in innovation is an important strategic lever for corporate growth.

¹ The decision to use the average of the amounts for 2011-2012 was based on the need to assure a reasonable interval of time between when the R&D investment was made and when this investment could actually have had an impact on company turnover.



■ Figure 14 – Correlation between R&D investment and turnover in Italian manufacturing companies (Source: The European House – Ambrosetti elaboration of European Commission JRC data, 2016)

A further element in support of the role of innovation investment in the economic growth of companies is provided by comparing the growth in total turnover of manufacturing companies which invest most in R&D and the growth in turnover of the manufacturing sector as a whole for the period 2012-2014.

Despite a decrease in turnover for the manufacturing sector, during the same period R&D top spender manufacturing companies saw a growth in aggregate turnover, further reinforcing the point that **investing in innovation is a driver for the growth** of companies.

This holds true on both a European and Italian level, with a discrepancy between the percentage variations that is even more evident for the latter: 9 percentage points for Italy compared with 4 percentage points for Europe.

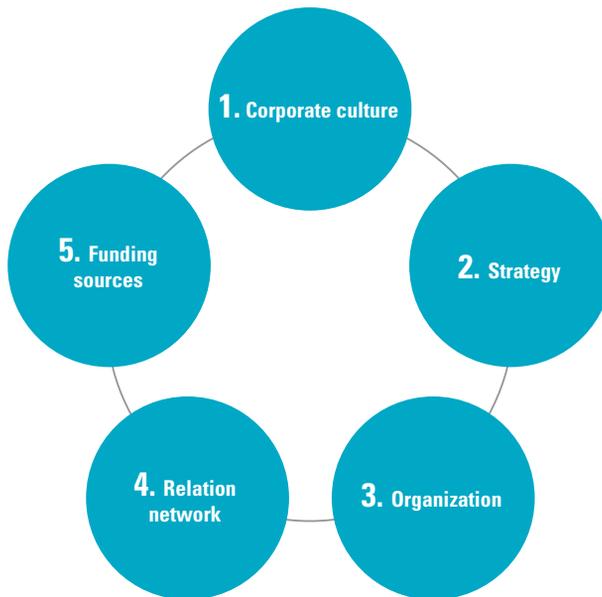
Geographical area	Entire sector - 2012 turnover	Entire sector - 2014 turnover	Variation 2012-2014	Top R&D spender - 2012 turnover bln euros	Top R&D spender - 2014 turnover bln euros	Variation 2012-2014
EU	7.080,00	6.984,46	-1,35%	2.196,47	2.255,02	2,7%
Italy	906,17	883,58	-2,49%	178,73	190,50	6,6%

■ Figure 15 – Comparison between the variation in turnover for the entire manufacturing sector and the variation in total turnover for the companies that invest most in R&D (Source: The European House – Ambrosetti elaboration of European Commission JRC, and Eurostat data, 2016)

7. CORPORATE INNOVATION: STRATEGIC LEVERS AVAILABLE TO MANAGEMENT

The section above talked about the importance of R&D and innovation for companies looking to remain in the market and be competitive. The next one considers the ways and means companies can use to **organize and manage innovation** internally.

The desk research and analysis carried out with corporate management has allowed us to identify **five strategic levers** available to companies to support and promote innovation, and stimulate competitiveness in their respective reference markets.



■ *Figure 16 – Strategic levers available to companies (Source: The European House - Ambrosetti data elaboration, 2016)*

Corporate culture plays a fundamental role in supporting and promoting innovation within companies because it sets behavior and procedures and, as a consequence, the way in which the entire company approaches innovation itself. Today (and increasingly in the

future), specific ways of operating and approaches will be asked of the various levels of a company, and such approaches will help to create a climate that fosters innovation.

In order to avoid potential, gradual marginalization, companies are called upon to develop an **integrated innovation strategy** that can unite corporate choices across-the-board, and make it possible to guide and manage innovative processes in the desired direction, without allowing them to be haphazard or left up to chance. While on one hand companies must be able to grasp what is happening outside them by developing “innovation antennae”, at the same time they must make strategic choices regarding how innovation is managed internally. Within this context, there are at least four main ways this can be done:

- create an in-house R&D department;
- create corporate incubators;
- manage a structured plan to acquire innovative start-ups;
- create completely innovative (“greenfield”) business projects.

Defining an innovation strategy (for production and management) is unquestionably the fundamental starting point for every company, but it is not sufficient. The subsequent step—which is closely interrelated—is the creation of an **organizational structure what will provide support for the innovation strategy**. Once again here, there are approaches that Italy’s most innovative companies share. Many companies include within their organizational structure a Chief Technology Officer (CTO)/Chief Innovation Officer (CIO) who has a pivotal role in innovation and R&D and to whom all managers of R&D activities in the company’s various divisions or functions report. The model generally employed to manage what is known as disruptive innovation is diverse. This is managed using **cross-company or flanking structures** to allow for the application of approaches or ways of working that are very different from those traditionally utilized in the company.

As was also seen in the survey findings presented in section 5, Italian companies are increasingly involved in **collaborative R&D activities**. This tendency, which is becoming increasingly widespread, indicates heightened awareness of the benefits ensuing from a more open approach to innovation. Companies are exhibiting a greater tendency towards creating relation networks, the types of which can vary on the basis of the specific nature of the company itself.

The last strategic lever identified through analysis and the interviews conducted with corporate management is **innovation financing**. A wide range of financing methods emerged and, once again, they are not mutually exclusive. In fact, in most cases, they co-exist within the same company. There are two levels to be analyzed regarding this: the level at which funds for innovation are managed (centrally vs. on a divisional or functional basis) and sources of funding.

Each of the strategic levers identified has a series of aspects that can be selected by companies on the basis of their structural characteristics and their long-term strategic perspective. Once again, it should be stressed that these levers and their various aspects should not be interpreted as preconditions for a company to innovate, but rather as a series of best practices from which to draw inspiration and utilize according to its needs and the phase of the life cycle in which the company finds itself.

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