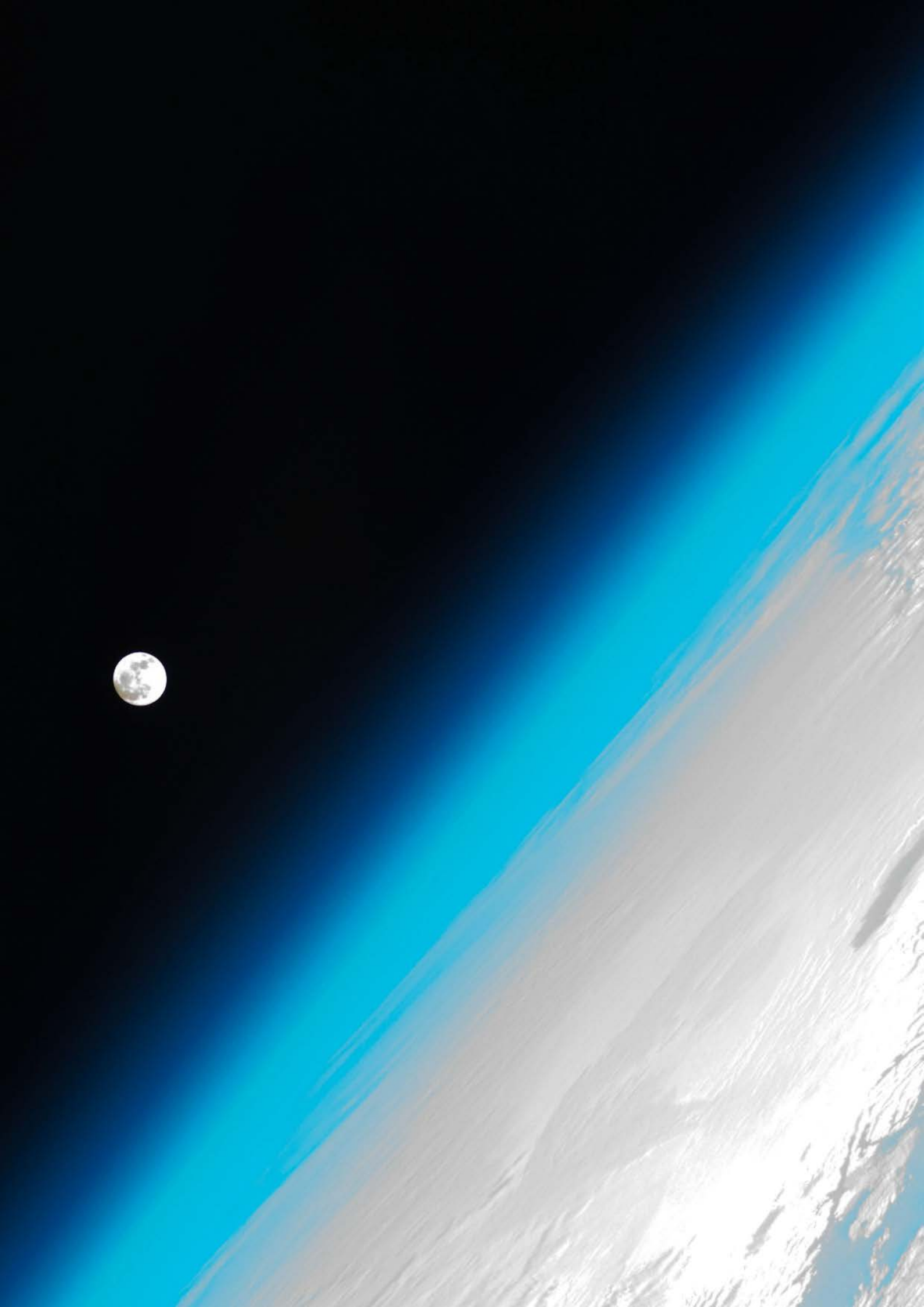
UNIVERSITÀ DEGLI STUDI DI PADOVA

SCENT PADOVA SCHOOL OF ENTREPRENEURSHIP

ITALIAN STARTUP MONITOR 2016

MORENO MUFFATTO
MICHAEL SHERIFF
FRANCESCO FERRATI
ALI RAZA
SAADAT SAEED



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Foreword

The enactment of a law on innovative startups (Decree-Law 179/2012, converted into the Law 221/2012) and the creation of a special section in the Italian business register has helped to give impetus to the startup phenomenon that has generated interest in understanding the dynamics of such firms.

The presence of innovative startups is a good sign of the vitality of an economic system since innovative companies have the potential to open new technological, economic and employment horizons.

Despite the burgeoning interest in the phenomenon, the level of knowledge about innovative startups in Italy is still quite low and research is limited. This has prompted the researchers at the School of Entrepreneurship of the University of Padua (SCENT), to initiate research that will shed light on the phenomenon from various perspectives.

This report, is in its second edition and take into account all the firms registered up to the end of 2015. It represents an effort to examine the different types of innovative ventures in key sectors throughout Italy. It also sheds light on the management, operations and financial aspects of these ventures using an official dataset. It also provides the results of a survey conducted by SCENT to understand the profiles of both founders and companies.

This report is a snapshot of the state of innovative startups at the end of 2015 that can give the readers a wide spectrum of information about the dynamics of innovative startups in Italy.

The research for this report was conducted in cooperation with InfoCamere and the Chamber of Commerce of Padova. Special thanks to Dr. Luigi Marangon and Dr. Antonio Benfatto, Dr. Silvia Corsini, Dr. Daniele Monteforte, Dr. Enrico Sottovia of Infocamere. And to Dr. Liana Benedetti of the Chamber of Commerce of Padova.

The founders that responded to the Survey deserve also praise for their role in shaping this report.

Padova, July 2016

The authors

Summary

Innovative startups represent a growing emerging phenomenon. This report aims at creating an accurate profile of this kind of companies in order to provide data for entrepreneurs and policy makers useful in making plans and taking decisions.

In order to examine the phenomenon as a whole the research is divided in two main parts. The first part involves the analysis of a startups dataset provided by InfoCamere. The dataset includes data about all startups in the special section of the Italian business register. The analysis include 5,145 firms registered up to December 31, 2015.

The second part of the study consists of an online survey administered by SCENT. The survey was made in order to gather important qualitative information not otherwise available. In total 128 startups replied the questionnaire. Even though the number of responses was not high the findings show some interesting aspects about Italian innovative startups.

A very preliminary comparison of the startup phenomenon in different European countries has been also carried out. Some key figures and aspects for three European countries (Germany, United Kingdom and France) are briefly described in the introduction.

As in other nations, the number of Italian startups is growing rapidly. In fact, while at the end of 2014 the companies registered in the special section of the business register were 3,138, this figure increased to 5,145 at the end of 2015, with an increase of 64% in just one year. Considering the headquarters location, 55% of the innovative startup is based in the North of Italy (22% in Lombardy), 22% in the Center and 23% in the South.

The Limited Liability Company is the most popular legal entity (80%). Concerning the operating sector, the three most active fields for innovative startups are “software and ICT” (41%), followed by “professional activities” (28%) and manufacturing (20%).

To be part of the Italian startup business register, companies must fulfill at least one out of three main requirements: 1) a specified amount of R&D expenditure, 2) a specified amount of highly qualified staff and 3) ownership or exploitation of patents. From the analysis, only 3% of startups fulfills all the criteria. The most fulfilled requirement is R&D expenditure (52%), followed by qualified staff (19%) and patent ownership or exploitation (12%). Some startups fulfill a combination of the three criteria.

Female entrepreneurship in innovative startup is still a marginal phenomenon. Startups that are owned/run by women are only 4% of the total and only 12% of the companies has more than 50% of women among share capital owners and/or administrators. Only 9% of startups is exclusively owned/run by young people (35 years old or less). If the number of immigrants that own/run a

startup is a result of the business attractiveness of a country, in Italy only 2% of the startups has a strong predominance of immigrants.

The overall production value of startups is 365,036,096.00 EUR and the main activity is “Software Production and ICT” contributing 37% of the production value. Manufacturing and professional activities contribute for 27% and 25% respectively.

Thanks to the online survey administered by SCENT, more data were collected. A section of the survey was dedicated to the knowledge and exploitation of the opportunities given by the legislation e.g. fiscal incentives for investments, tax credit deriving from R&D investment, equity crowdfunding etc. The results show that the Italian startups seem to be not well prepared to exploit these opportunities. On the other hand, the most interesting incentives for startups are those concerning the discipline of work and compensation.

An entire section of the survey was devoted to the evaluation of the entrepreneurial ecosystem in which startups live. Most of the respondents seems to disagree that the Italian entrepreneurial ecosystem is favorable, especially as regards funding. An important aspect is the willingness to create a wider network for their business (both involving Universities and large companies). Almost 80% think that it would be a good choice to broaden their contacts and cooperate with other startups. As regards education programs, among those who did not follow any training, 52% is planning to follow one in the future, confirming the importance of developing an entrepreneurial culture.

Trying to make a profile of Italian innovative entrepreneurs, it emerges that they are typically individuals owning a Master’s degree (45%) and a wealth of either managerial or entrepreneurial experience (56%). They are motivated mainly by a desire of independence (90%) and by intellectual challenges (87%). They also believe in the value of the business idea (more than 60% declared that who first proposed the business idea must have a relevant equity share).

A first important step should be a reduction of bureaucracy, especially considering the startups lean corporate structures. An easier access to funding capital should be encouraged in order to support growth and attract foreign entrepreneurs. A more collaborative context should be promoted, in terms of partnerships with both Universities and large companies. Then a greater cooperation between the startups themselves would be an important step forward. To make it easier for a new entrepreneur to start an innovative company, major efforts should be made in education too.

Introduction

The research

To carry out a thorough examination of the phenomenon, different sources of information have been used. The primary source is the InfoCamere database. These data are collected during the registration of innovative startups in the special section of the business register and it is mandatory for startups to update such data at regular intervals. The analysis of these data was carried out using SPSS software. The survey was conducted online using the Survey Monkey platform. The analysis of the questionnaires was predominantly qualitative.

The dataset

The dataset contains data on the innovative companies registered in the special section of the business register. A wealth of information is available related to the operations and management including financial variables such as production value, operating income, net income, net assets and equity. Data from 2009 to 2015 were analyzed. To ascertain the quality of the data provided, checks were made by inspection of randomly selected individual companies' registration documents. These checks confirmed the reliability of the dataset.

The survey

The main aspects investigated are the following:

- Knowledge/exploitation of the incentives provided by the legislation
- The Italian Entrepreneurial Ecosystem
- The startups profile
- The founders profile
- Investments and financing

Data for the survey were collected during December 2015 and January 2016.

Innovative startups in Europe

In the 21st century the innovative startups phenomenon has captured the interests of policy makers, researchers, entrepreneurs and other stakeholders because of their contribution to the economic development of societies. Innovative startups can contribute in reviving stagnant economies, generate employment and introduce new products/services and also new sectors. However, the success of these types of firms depends on many factors that may vary from one country to another. To critically understand the phenomenon, it is necessary to examine innovative startups across spatial and temporal dimensions. In the following paragraphs, we shall look briefly at startups in three major European countries.

Startups in three major European countries

Finding data and statistics on startups is complicated because the phenomenon is not yet well defined. Existing definitions show national or regional variance and, because of that, it is not easy to find reliable and updated data for comparisons. Nevertheless, it is worth noting what is happening in other European countries before attempting to make a thorough analysis of the Italian situation. Recently, the European Startup Monitor (ESM) was launched to present the development and significance of startups and to understand European founders. It also aims at identifying and comparing country specific and common challenges that innovative startups face in Europe.[1] The European countries compared in this report are Germany, France and the United Kingdom.

Germany

Germany is one of the European countries with the highest number of startups. Most of them are based in Berlin (31.1%), and in Munich (11.5%).[2] In 2015, there have been many founding rounds for innovative startups and recent reforms have created a self-nurturing ecosystem that has created a unique opportunity to attract Venture Capital funds. The total amount of financing for the Berlin area is EUR 1.97 billion putting it above London which raised EUR 1.35 billion in 2014.[3]

There are many sectors in which innovative startups are launched in Germany but the dominant activities are:

- Software services (15.3%)
- E-commerce (10.1%)
- Software development (8.6%)

In Germany, there is a general positive atmosphere and enthusiasm among entrepreneurs. In a survey conducted by KPMG 3.DSM (Deutscher Startup Monitor)[4], more than 75% of the

[1] European Startup Monitor (2015)
[2] ESM (2015) Germany Country Report
[3] Ernst & Young (2015) Venture Capital and Start-ups in Germany
[4] Deutscher Startup Monitor (2015)

respondents affirm that their business is sound and will be better in the future. From the survey findings, the German entrepreneur's identikit is predominantly male (87%) and 45% of them are not in their first entrepreneurial experience. Only 13% are women and they tend to opt for safer areas and with less ambitious goals. Another interesting fact is that about 10% of the entrepreneurs are foreigners and were attracted in Germany because of the favorable conditions.

Regarding investments, 80% of German entrepreneurs said they used their savings to establish their businesses, while the second source of funding (32.7%) is family and friends. The funding from angel investors and venture capitalists are well below 30%. The number of businesses that are financed through reinvestment from the proceeds of the activities are 20% in 2015, whereas in 2014 they were 14.5% a good sign of growth for German startups.

United Kingdom

In the UK, there is a distinction between new businesses (Low Innovative Firms) and innovative startups (High Innovative Firms) but the two are not easily distinguishable.[5] It is therefore difficult to estimate the number of active innovative startups launched in a year which makes comparison with other European countries difficult.

From the Startup tracker of the StartUp Britain website[6], 440,600 startups were launched in 2011, 484,224 in 2012, 526,446 in 2013, 581,173 in 2014 and 608,110 startups in 2015. This trend shows that the number of startups is always increasing. These high numbers are also due to a policy that strongly promotes the innovative startups phenomenon. In 2011 StartUp Britain was launched and was the first national campaign run by entrepreneurs to celebrate businesses in the UK, which has inspired many people to start a business.

Another campaign for the promotion of a more entrepreneurial culture is "Government backed Business for You" which uses stories of successful entrepreneurs to illustrate how an idea can turn into a business. These programs have succeeded in promoting small businesses. Successful small businesses have now captured a lot of attention from the public.

Besides increasing the desire to launch new innovative startups, these programs also tackled the problem of funding especially during economic downturn periods. In 2012, the "Start Up Loans Company" was started. Initially it was offering small loans, of about £ 5,000, to people with a valid business plan. The initial request was extraordinary: more than 6,500 loans were granted for a total value of 39.2 million Pounds in the first year. The age range of the entrepreneurs to access these loans was between 18 and 25 years. However, given the great success, Start Up Loans persuaded the government to remove the age limit and increase the amount of funding. At the end of 2014, the data of this project were encouraging with more than 25,000 activities funded for a total amount of 131 million Pounds.[7] As a consequence, 33,000 new jobs were created in three

[5] Department for Business Innovation & Skills (2014) *UK Innovation Survey; Innovative firms and Growth*
[6] StartUp Britain (2016) Startup Tracker
[7] StartUP Loans UK (2016)

years. Start Up Loans Company also offers support, advice and mentoring, for the first year of operations. Events and seminars to support the new companies are regularly organized.

The results of a survey, conducted last year, focusing on founders of startups, found out that 84% agree that being independent means greater happiness and enthusiasm at work. Only 27% state that they launched a startup to escape unemployment.[8] This shows that the increase in startup activities and entrepreneurship can be attributed to a widespread desire rather than necessity. The survey also demonstrates that over half of British entrepreneurs are less than 35 years old and almost 30% of these are women. In addition, 34% of startups founders are immigrants (20.7% from the rest of Europe and 13.3% from outside Europe). Another interesting result from the survey regards the "Startup DNA". It shows that in Britain, and throughout the world, the digital industry is undoubtedly the most popular. About 79% of British entrepreneurs claim to be in the "digital Startup" sector.

France

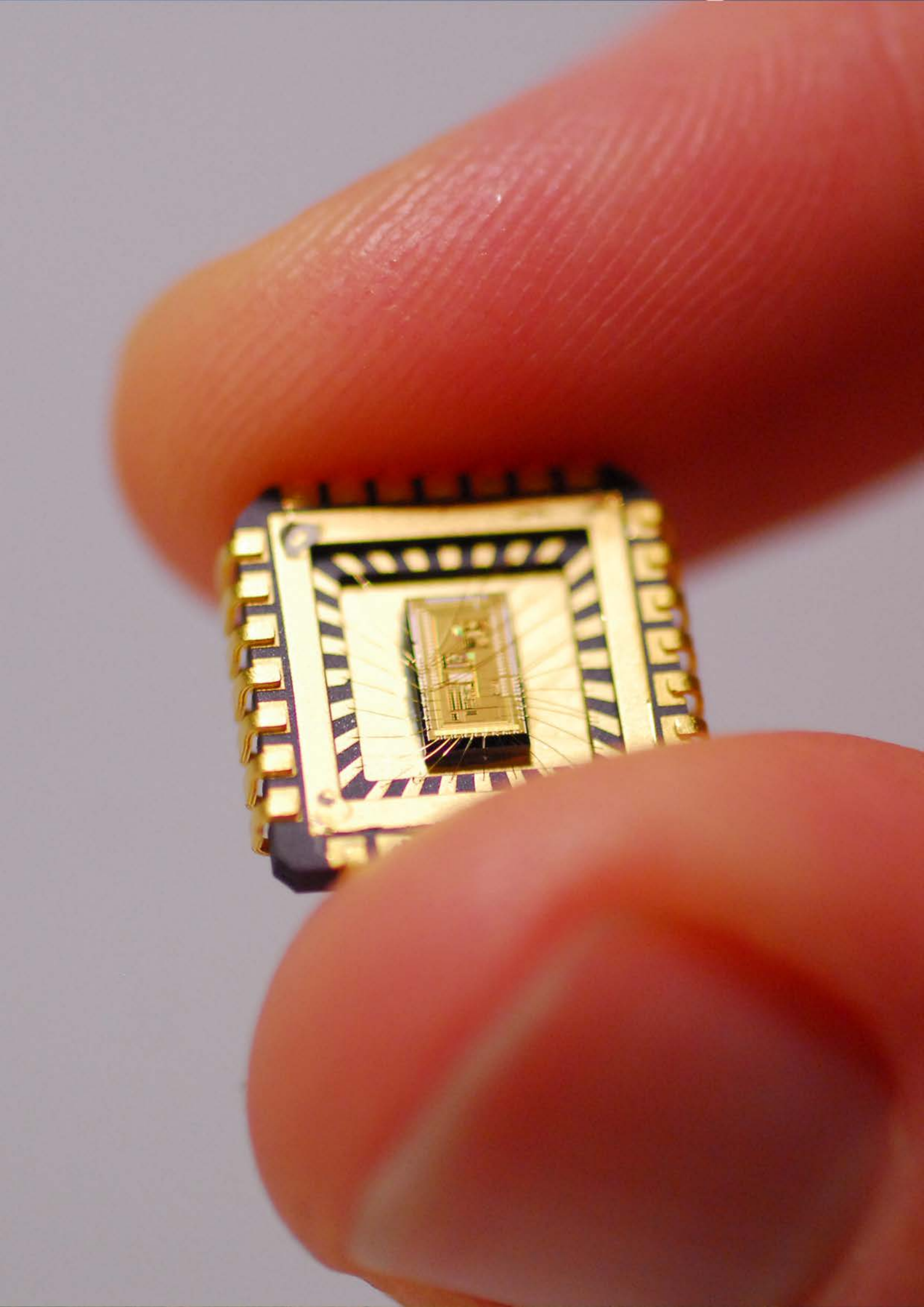
Every year, between 5,000 and 10,000 startups are founded in France. The French Government considers startups a priority and initiated a cohesion policy with over 40 measures which include the freezing of all tax measures to support innovation, the entrepreneur Visa and a law on Crowdfunding that allows startup to collect up to 1 million Euros with this tool. To date, 81% of startups have benefited from tax deduction, from the Tax Credit for Competitiveness and Employment (CICE) which was created in 2014. In addition, another 71% benefited from other tax deductions for research such as (CIR) and innovation (CII).[9]

Besides these benefits those who want to start a company in France are further encouraged by the speed of the process. The process to establish a startup is just 5 days long, compared to 6 days in the UK and 15 days in Germany. The costs to establish a startup are 0.9% of per-capita GDP while in the UK the costs are 1.2% of per-capita GDP and in Germany they are 8.8% of per-capita GDP. Another advantage that favors the growth of new businesses in France is the presence of one of the largest incubators in the world, Halle Freyssinet, which supports more than 1,000 startups.

The continuing increase in the number of startups in France is also reflected in the staff employed in this type of companies which has grown by 30% between 2013 and 2014 and it is expected to continue to grow in the coming years. This translates into more than 1,476 new jobs in France and 756 abroad.[10] Although it is widely believed that those who work in a startup have a fixed-term contract, the findings discard this myth, in fact more than 90% of the contracts are open-ended.

[8] Lord Young (2015) The Report on Small Firms 2010-2015.
[9] http://www.thelocal.fr/20150922/french-tech-start-ups-in-seven-key-stats, 2015.
[10] The Local (2015) *Inside France's startup world*: Seven key stats.

The Italian startups



Innovative startups in Italy

The Decree Law 179/2012 on "Further urgent measures for Italy's economic growth", converted into the Law 221/2012 aims at creating favorable conditions for the establishment and support of innovative companies that will contribute significantly to economic growth and employment. To reach these goal, the Italian Government has made efforts since 2012 for the creation of a comprehensive legislation focusing on the development of an innovation driven ecosystem.

Italy has a great history of innovation. For example between the period of 1953 and 1973, the country's GDP per-capita grew by an average of 5.3% and industrial production by 8.2% per year. This outstanding performance was attributed to the introduction of several innovations with the 'Made in Italy' brand. However, from the 1980s onwards, Italy experienced a sharp decline in both economic growth and productivity. The reasons attributed to this slowdown included the lack of an innovation driven ecosystem able to accommodate the shock introduced by the rapidly growing technological revolution. The 2011 OECD report for Italy, pointed out that the Italian efforts to engage in innovative activities were minimal.

The government has implemented various measures to increase innovation. An example is the High-Tech fund established in 2005 but unfortunately, the program faced many difficulties. There was also the SME policy of which "Industria 2015" was a part aiming at supporting SMEs expenditure on R&D in innovative projects. Most of these reforms faced bureaucratic hurdles that slowed down implementation.

Since 2012 Italy has developed a number of initiatives to support and promote innovative startups. These initiatives include:

- *The Italia Startup Visa and Italia Startup Hub.* To attract innovative start-ups to Italy, the government introduced a special fast-track mechanism for granting entry visas to self-employed persons and to those who intend to set up an innovative startup . The hub was launched in December 2014, to assist non-EU citizens who already have a valid residence permit and want to remain in the country after expiry of the permit to establish an innovative startup. It allows applicants to convert a residence permit to a "self-employment startup permit" without having to leave Italy.
- *The Investment Compact Decree-Law,* which was passed into law in March 2015, allows entrepreneurs to establish innovative start-ups online with the use of digitally-signed articles of incorporation.
- *Supporting venture capital investments.* To encourage more investment in high-growth companies, on 29 January 2015 a decree was passed to create the Italia Venture fund of €50 million ($55m) managed by *Invitalia Ventures*. The fund co-invests with other funds in high-growth companies.
- *Zero-interest loans*. Invitalia's Smart&Start Italia scheme was launched in 2015 to grant zero-interest loans to start-ups.

- *Research and development tax credits.* With the Stability Law of 2015, the government introduced significant tax benefits for companies that co-operate with research centers, laboratories and startups to conduct research and development (R&D).
- *Guarantee Fund finance.* Italy's Guarantee Fund for SMEs (*Fondo di Garanzia*), which has been in operation since 2000, also assists startups by guaranteeing 80% of a bank loan.
- *Tax incentives for corporate and private investments in startups.* The Growth Decree 2.0 allows individuals who invest in innovative startups to deduct 19% of the amount invested from their taxable income, up to a maximum amount of €500.000. Companies can deduct 20% of the amount invested in share capital from their taxable income, subject to a maximum of €1.8 million. The deduction rate for persons increases to 25% and that for companies increases to 27% for investments in those innovative startups defined as having social goals, or those that exclusively develop and market innovative high technology products or services for the energy sector.

At the end of 2015 the startups registered in the special section of the business register were over five thousand (5,145). At the end of 2014 there were 3,138 startups, which means that in one year the number of startups has grown by 64%. These numbers show clearly the scope of this phenomenon and the speed with which it is happening. To understand the dynamics of the startup phenomenon in Italy, it was decided to carefully analyze Italian startups on an annual basis to follow the trend and verify the changes that occur annually.

Demographics

Age of startups

To evaluate the age of the companies registered within the special section of the business register, the date of the formation of the company has been taken into account. In fact, this date is usually earlier than the date of registration in the special section. The majority of companies (59%) were founded in the last two years. The oldest companies, dating back to 2009 are 34 and just 1 company was founded in 2000.

From Table 2.1 it is clear that there was a leap in the number of startups created in 2013 as the number doubled that of 2012. This means that the law started to have a positive effect on the startup landscape since 2013. This is also reflected in the years that followed with almost an equal number of startups created in 2014 and 2015.

Legal structure

Table 2.2 shows the startups different legal structures. The Limited Liability Company is the most popular legal entity among Italian startups with as many as 80% of companies belonging to that category. The remaining are divided mainly between companies with Simplified Limited Liability (15%), Limited Liability companies with a sole shareholder (3%), cooperative societies (2%) and joint stock company (2%). There were only 2 companies incorporated under the laws of another State. This shows a substantial absence of foreign companies in the innovative startup landscape of Italy.

Geographical distribution and sectors

As shown in Figure 2.1 the regions with the highest number of startups are Lombardy, Emilia-Romagna and Lazio. These three regions alone account for 2,207 startups (42.89%) of the total. However, there is a big difference between the first and the second place. In fact, Lombardy accounts for 1,126 startups (21.88%) while Emilia-Romagna has only 578 startups (11.25%). The regions that occupy the last positions of the ranking are Basilicata, Molise and Valle d'Aosta.

Considering the field of activity and their geographical distribution (Table 2.3), in all the regions, "Software and ICT" is the prevalent sector accounting for 2,122 (41.2%) of the total number of startups. The remaining 58.8% of startups are distributed among other 4 sectors: professional activities, manufacturing, services and commerce.

Table 2.1 Startup creation per year

Year of company foundation	Frequency	Percentage
2000	1	0.0%
2009	34	0.7%
2010	174	3.4%
2011	325	6.3%
2012	535	10.4%
2013	1,040	20.2%
2014	1,512	29.4%
2015	1,522	29.6%
No information available	2	0.0%
Total	**5,145**	**100%**

Table 2.2 Legal structure

Legal structure	Frequency	Percentage
Limited Liability Companies	4,088	79.5%
Simplified Limited Liability Company	732	14.2%
Limited Liability Companies with a Sole Shareholder	129	2.5%
Cooperatives	105	2.0%
Public Limited Companies	67	1.3%
Limited Liability Companies with Reduced Capital	15	0.3%
Joint Stock Company	6	0.1%
Companies Incorporated Under the Laws of Another State	2	0.0%
Social Cooperatives	1	0.0%
Total	**5,145**	**100%**

Figure 2.1 Number of startups per region

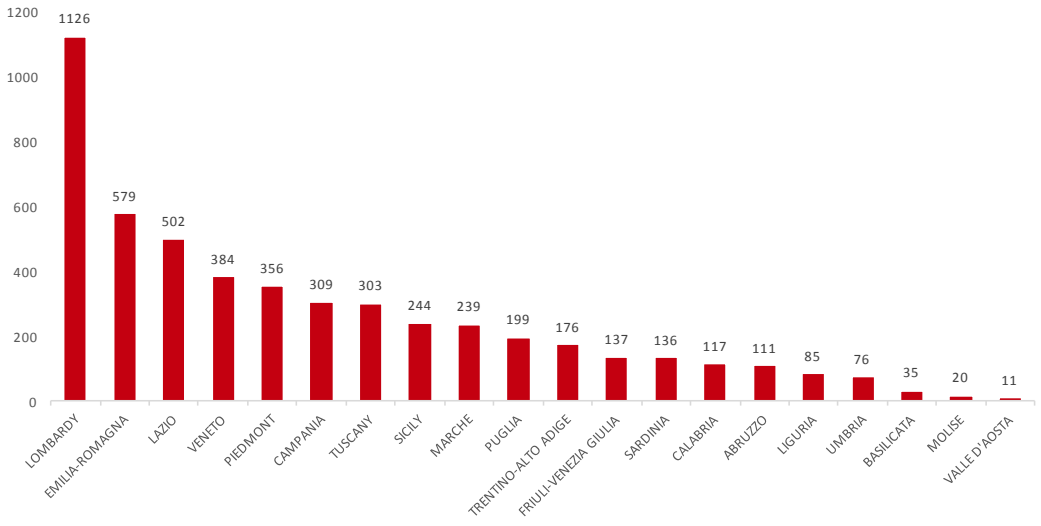


Table 2.3 Geographical distribution and sectors

Regions	Software and ICT	Professional activities	Manufacturing	Services	Commerce	Total
Lombardy	523	307	157	82	57	1,126
Emilia-Romagna	194	171	150	39	25	579
Lazio	245	142	53	40	22	502
Veneto	151	96	93	25	19	384
Piedmont	145	88	87	17	19	356
Campania	132	86	43	31	17	309
Tuscany	126	98	59	11	9	303
Sicily	97	66	53	16	12	244
Marche	70	70	76	18	5	239
Puglia	88	44	45	18	4	199
Trentino-Alto Adige	56	54	60	3	3	176
Friuli-Venezia Giulia	41	44	48	1	3	137
Sardinia	78	31	14	10	3	136
Calabria	43	45	16	7	6	117
Abruzzo	39	27	26	11	8	111
Liguria	38	28	14	3	2	85
Umbria	28	23	19	5	1	76
Basilicata	15	11	5	2	2	35
Molise	7	8	4	1	0	20
Valle d'Aosta	6	4	1	0	0	11
Total	**2,122**	**1,443**	**1,023**	**340**	**217**	**5,145**

Startup density

In analyzing the startups density (Table 2.4), the number of inhabitants in each region has been considered. Population data for the analysis was extracted from the ISTAT data on the Italian population. In this ranking, Trentino-Alto Adige tops all the regions with an innovative startup every 6,000 inhabitants, closely followed by Marche. The last positions are occupied by Puglia and Sicily with an innovative startup every 20,000 inhabitants and both regions are located in the South of Italy. It's useful to notice that Lombardy has the highest number of startups but a density of one startup every 9,000 inhabitants.

Table 2.4 Startup density per region

Region	Number of Firms	Population	Density
Trentino-Alto Adige	176	1,055,934	6,000
Marche	239	1,550,796	6,489
Emilia-Romagna	579	4,450,508	7,687
Lombardy	1,126	10,002,615	8,883
Friuli-Venezia Giulia	137	1,227,122	8,957
Valle d'Aosta	11	128,298	11,663
Lazio	502	5,892,425	11,738
Umbria	76	894,762	11,773
Abruzzo	111	1,331,574	11,996
Sardinia	136	1,663,286	12,230
Tuscany	303	3,752,654	12,385
Piedmont	356	4,424,467	12,428
Veneto	384	4,927,596	12,832
Molise	20	313,348	15,667
Basilicata	35	576,619	16,475
Calabria	117	1,976,631	16,894
Liguria	85	1,583,263	18,627
Campania	309	5,861,529	18,969
Puglia	199	4,090,105	20,553
Sicily	244	5,092,080	20,869

Activities

The main activities in which the startups are engaged in are illustrated in Table 2.5. The activities are described according to their ATECO (Economic Activities) code.

Startups belong to 67 categories of activities and the dominant one is "Production of Software and ICT Consulting" (29.9%). This may be attributed not only to the fact that software production is a widespread industry but also to the variety of activities grouped under this unique ATECO code. The second position is occupied by “Scientific Research and Development” with the 15.5% of startups.

Table 2.5 Startup activities

Code	Activity	Percentage
J62	Software production and ICT consulting	29.9%
M72	Scientific research and development	15.5%
J63	Other ICT services	8.1%
C26	Manufacture of computers and electronic products	4.0%
M74	Other professional, scientific and technical activities	3.8%
M71	Architectural and engineering activities	3.6%
C28	Manufacture of machines and components	3.4%
M70	Management consulting	2.9%
G47	Retail (except vehicles)	2.4%
C27	Manufacture of electrical appliances	2.2%
J58	Editorial activities	2.1%
G46	Wholesale (except vehicles)	2.0%
N82	Office support services	1.9%
M73	Market research and advertisement	1.7%
C32	Other manufacturing industries	1.2%
D35	Supply of utilities (electricity, gas etc.)	1.2%
C30	Production of other means of transportation	0.9%
C20	Chemical products	0.8%
F43	Special construction works	0.7%
N79	Travel and tourism services	0.7%
P85	Education	0.7%
C10	Food industries	0.6%
C22	Rubber and plastic products	0.6%
C25	Manufacture of metallic components	0.6%
C29	Production of vehicles and trailers	0.5%
J59	Other production activities	0.5%
J61	Telecommunications	0.5%
N77	Rental and leasing services	0.5%
C33	Repairs, maintenance and installation of machines	0.4%
E38	Waste management	0.4%
C16	Timber industries	0.3%
C17	Manufacture of paper and paper products	0.3%
C23	Other manufacturing activities	0.3%
C31	Furniture production	0.3%
F41	Building construction	0.3%
I56	Foods and beverages	0.3%
Q86	Health care	0.3%
Q88	Social assistance	0.3%
S96	Other social services	0.3%
A01	Agriculture and animal husbandry	0.2%
C13	Textile industries	0.2%
C14	Production of packaging for clothing	0.2%
C15	Leather industries	0.2%
C21	Pharmaceuticals industries	0.2%
C24	Metallurgy	0.2%
R90	Artistic activities and entertainment	0.2%
R93	Sports and leisure	0.2%
	Other	1.0%
	Not available	0.4%
Total		**100,0%**

Registration in the special section of the business register

Eligibility requirements

According to the Law 221/2012, a startup must have at least one of the following characteristics to be considered an innovative startup:

- Research and Development. At least 15% or more of the turnover (or production value) should be allocated to Research and Development (R&D);
- Qualification of people. The total workforce is made up of at least 1/3 of PhD students, holder of PhD or researchers. Alternatively, at least 2/3 of the staff members must hold a Master's degree;
- Patents. The startup is the holder, depositary or licensee of at least one registered patent or is in the process of registering one.

Satisfaction of criteria for eligibility is shown in Table 2.7 and Figure 2.2.

The majority of companies fulfill only one requirement. The most fulfilled requirement is the R&D expense (65% of startups). Considering the high-technology profile of a startup, innovation driven activities are quite a must. However, it is important to notice that despite a large number of companies investing in R&D, the patent ownership is not proportional (20%). This could be caused by the large number of companies operating in software development, a particular sector concerning patents. Instead, more than 1,800 startups (35%) declare not to invest in R&D.

In addition to the R&D case, 1,000 startup declare to have high-qualified people in their staff while 628 are patent owner. It is worth to note that only 2,6% of the startups satisfy all the criteria.

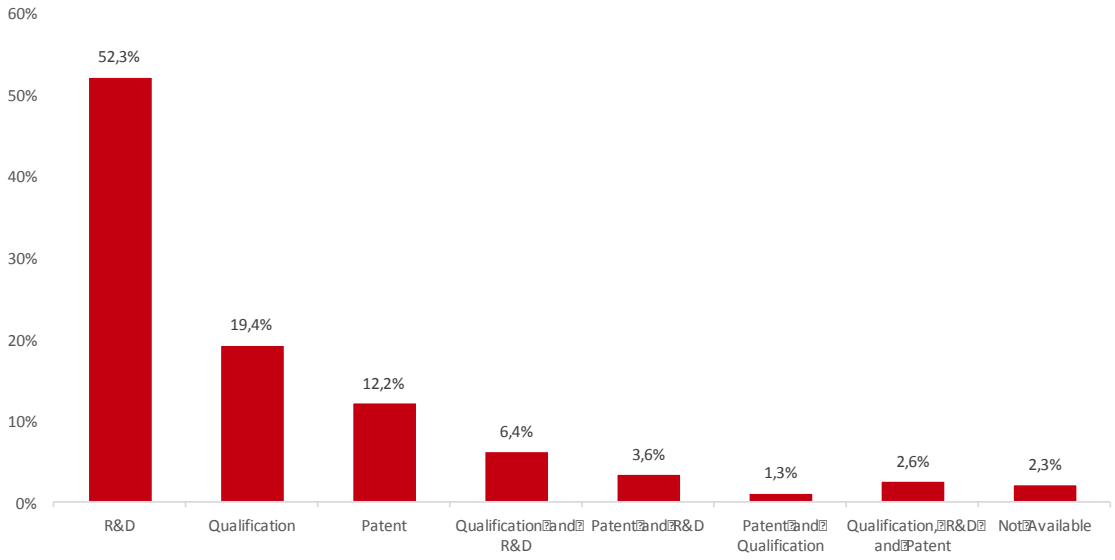
Table 2.6 Startup registration in the special section of the business register

Year	Frequency	Percentage
2012	7	0.1%
2013	1,228	23.9%
2014	1,627	31.6%
2015	2,282	44.4%
No information available	1	0.0%
Total	**5,145**	**100,0%**

Table 2.7 Fulfilled eligibility requirements

Fulfilled requirement	Frequency	Percentage
R&D only	2,689	52.3%
Qualification only	1,000	19.4%
Patent only	628	12.2%
Qualification and R&D	327	6.4%
Patent and R&D	183	3.6%
Patent and Qualification	65	1.3%
Qualification, R&D and Patent	136	2.6%
Not available	117	2.3%
Total	**5,145**	**100,0%**

Figure 2.2 Fulfilled eligibility requirements



Websites information

Having a website is a mandatory requirement to be registered in the special section of the business register. The startups are expected to furnish their website address but a dataset analysis shows that about 49% of these companies did not declare any website. A further check found that although many startups seem not to have a website, they own a working one indeed.

Table 2.8 Internet website availability

Website	Frequency	Percentage
Yes	2.634	51.2%
No	2.511	48.8%
Total	**5.145**	**100,0%**

Partners, administrators and staff

Partners

The total number of partners and their frequencies are shown in Table 2.9. The mode of the distribution is 2 partners per company followed closely by 3 partners. The combined percentage of these two categories is 49.1%. In some cases, one or more partners are already existing companies but two thirds of the startups (66.9%) do not have companies as partners (Table 2.10).

The number of individual partners is shown in Table 2.11. Here again the mode of the distribution is 2 individuals as partners followed closely by 3. Their combined percentage is about 50%.

Of the 211 companies without individuals as partners 105 are cooperatives and 80 have only companies as partners.

Governance

The most common types of governance is that of an individual as top manager usually referred to as CEO and the Board of Directors headed by a Chairperson. Both categories hold specific executive powers given by the shareholders. As shown in Table 2.12, the majority of startups (58%) have a CEO. Only a few startups 1.5% have more than 5 individuals in the Board of Directors.

Table 2.9 Total number of partners

Total number of partners	Frequency	Percentage
1	599	11.6%
2	1,461	28.4%
3	1,063	20.7%
4	622	12.1%
5	422	8.2%
6	276	5.4%
7	168	3.3%
8	93	1.8%
9	70	1.4%
10	49	1.0%
11-50	213	4.1%
51-100	6	0.1%
101 and more	3	0.1%
No information available	100	1.9%
Total	**5,145**	**100,0%**

Table 2.10 Number of companies as partners

Number of companies as partners	Frequency	Percentage
0	3,441	66.9%
1	949	18.4%
2	370	7.2%
3	136	2.6%
4	76	1.5%
5 and more	73	1.4%
No information available	100	1.9%
Total	**5,145**	**100,0%**

Table 2.11 Number of individuals as partners

Number of individuals as partners	Frequency	Percentage
0	211	4.1%
1	742	14.4%
2	1,534	29.8%
3	1,027	20.0%
4	554	10.8%
5	348	6.8%
6	218	4.2%
7	107	2.1%
8	68	1.3%
9	50	1.0%
10	36	0.7%
11-50	141	2.7%
51-100	6	0.1%
101 and more	3	0.1%
No information available	100	1.9%
Total	**5,145**	**100,0%**

Table 2.12 Governance

Number of individuals in governance	Frequency	Percentage
1	2,958	57.5%
2	685	13.3%
3	923	17.9%
4	234	4.5%
5	269	5.2%
6 and more	76	1.5%
Total	**5,145**	**100,0%**

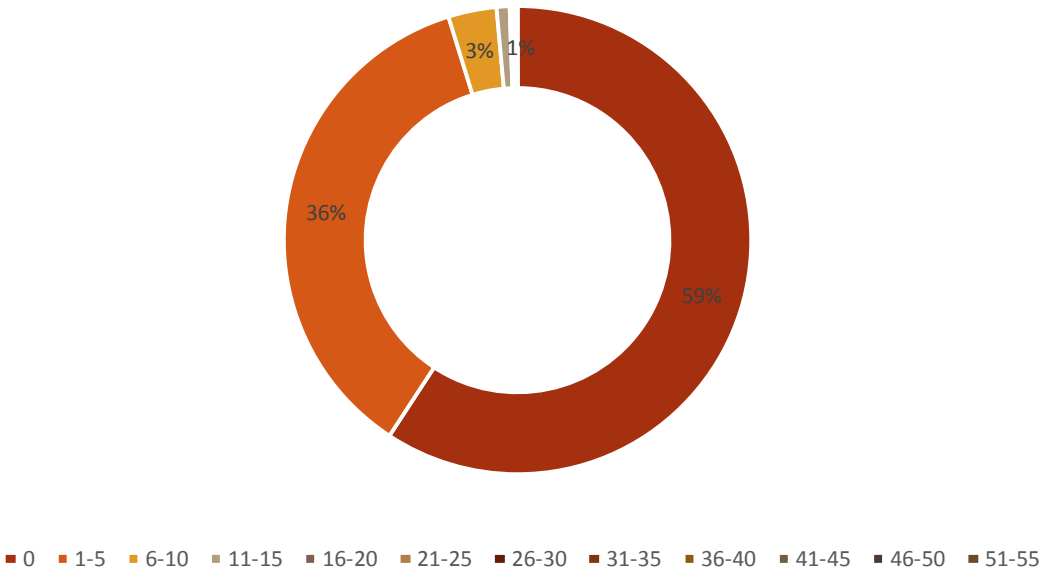
Employees

Because of the age and the lean approach of innovative startups, the number of employees is usually very low. As shown in Table 2.13 and Figure 2.3, about 59% of the startups have no employees while 36% have 1 to 5 employees. There are only 18 startups with more than 20 employees.

Table 2.13 Number of employees

Number of employees	Frequency	Percentage
0	3,048	59.2%
1-5	1,851	36.0%
6-10	172	3.3%
11-15	46	0.9%
16-20	10	0.2%
21-25	8	0.2%
26-30	3	0.1%
31-35	2	0.0%
36-40	1	0.0%
41-45	2	0.0%
46-50	1	0.0%
51-55	1	0.0%
Total	**5,145**	**100,0%**

Figure 2.3 Number of employees



Predominance of female, youth, immigrants

Particular attention has been paid to the emergence of startups run by female, youth and immigrant founders. In order to understand their predominance, the share capital ownership and the number of administrators have been considered. The average of these two parameters determines how dominant are female, youth or immigrant entrepreneurs. The four categories and their associated value are illustrated in Table 2.14.

Table 2.14 Predominance criteria

Predominance	Algorithm
Exclusive	[% Share capital + % Executives] / 2 = 100%
Strong	[% Share capital + % Executives] / 2 > 66%
Majority	[%Share capital+ % Executives] / 2 > 50%
No predominance	[%Share capital + % Executives] / 2 <= 50%

Female predominance

The results in Table 2.15 show that female entrepreneurship in innovative startups is still marginal in Italy with only 12% of companies with a significant presence of female entrepreneurs. The startups exclusively owned/run by women are only 3,5%.

Youth predominance

The Italian startups are not led by young people, but mostly by mature and experienced people as illustrated in Table 2.16. In fact, only 9.3% of the companies are owned/run exclusively by young people (under 35 years old).

This figure could be viewed from both positive and negative perspectives. On the positive side, a young entrepreneur is usually able to elaborate fresh ideas and is provided with a higher risk tolerance. On the negative side, the lack of experience could hinder the survival of many startups.

Immigrants predominance

The heavy burden of bureaucracy, taxation, and the high cost of labor mean that Italy is not particularly attractive to immigrant entrepreneurs. As shown in Table 2.17, only 1% of the companies have a strong presence of immigrants and another 0.5% have a majority of immigrants.

Table 2.15 Female predominance

Predominantly female	Frequency	Percentage
Exclusive	180	3.5%
Strong	301	5.9%
Majority	145	2.8%
No female predominance	4.098	79.7%
No information available	421	8.2%
Total	**5,145**	**100,0%**

Table 2.16 Youth predominance

Predominantly youth	Frequency	Percentage
Exclusive	481	9.3%
Strong	472	9.2%
Majority	184	3.6%
No youth predominance	3,601	70.0%
No information available	407	7.9%
Total	**5,145**	**100,0%**

Table 2.17 Immigrant predominance

Predominantly immigrant	Frequency	Percentage
Exclusive	22	0.4%
Strong	47	0.9%
Majority	27	0.5%
No immigrant predominance	4,667	90.7%
No information available	382	7.4%
Total	**5,145**	**100,0%**

Financial values

Production values

This section looks at the financial data of companies in order to analyze the state of health and the progress of the startup from a financial and an economic point of view. This implies that only startups that submitted financial data for at least one year were subject to this analysis. This means that all those founded in 2015 were excluded.

Looking at the figures of 2014, 20% of startups have a zero production value, and 21% are in the EUR 100,001 - 500,000 range (Table 2.18). Only a few startups (2%) have a production value of more than EUR 1 million. Table 2.19 shows production values per sectors while Table 2.20 focuses on the top 10 activities.

Table 2.18 Production values

Value of production (EUR)	2009	2010	2011	2012	2013	2014
0	11	53	96	179	375	615
1-1,000	0	11	22	51	105	177
1,001-5,000	1	14	39	55	123	209
5001-10,000	0	11	30	54	104	192
10,001-25,000	1	23	52	116	209	346
25,001-50,000	0	21	60	111	224	359
50,001-100,000	3	11	62	126	229	366
100,001-500,000	0	14	65	200	379	636
500,001-1,000,000	0	2	9	13	51	92
1,000,001 and more	0	0	3	13	27	57
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Table 2.19 Production values per sector

Code	Sectors	Value of Production (EUR)	Percentage
J	Software Production, ICT and Internet	134,726,993	36.9%
C	Manufacturing	99,013,812	27.1%
M	Professional Activities	90,475,203	24.8%
G	Commerce	23,378,812	6.4%
N&S	Services or Other Type Of Services	7,302,962	2.0%
F	Construction Building	4,352,656	1.2%
D	Utilities	1,947,652	0.53%
P	Education	826,375	0.23%
Q	Health Care	718,567	0.20%
E	Waste Treatment In Water Management	713,450	0.20%
H	Transportation	638,437	0.18%
A	Agriculture Products	596,901	0.16%
R	Entertainment In Museum	326,193	0.09%
I	Hotel and Restaurant	17,358	0.005%
K	Finance and Insurance	725	0.0002%
Total		**365,036,096**	**100,0 %**

Table 2.20 Production values for the top 10 activities

Code	Top 10 Activities	Startups	Percentage	Production Value (EUR)	Percentage
J62	Production of Software and ICT Consulting	1,538	29.90%	119,255,510	32.67%
M72	Scientific Research and Development	795	15.50%	40,723,821	11.16%
J63	ICT Services	418	8.10%	9,564,835	2.62%
C26	Computers and Electronic Appliances Manufacture	204	4.00%	27,374,641	7.50%
M74	Other Professional, Scientific and Technical Activities	196	3.80%	10,490,574	2.87%
M71	Architecture, Engineering and Testing Activities	186	3.60%	17,895,761	4.90%
C28	Manufacture of Machines and Components	175	3.40%	23,815,553	6.52%
M70	Management Consulting	151	2.90%	6,535,115	1.79%
G47	Retail Sales (Except Vehicles)	121	2.40%	12,018,276	3.29%
C27	Manufacture of Electrical Appliances	111	2.20%	13,352,356	3.66%
	All other activities	1,250	24.20%	84,009,654	23.01%
Total		**5,145**	**100%**	**365,036,096**	**100,00%**

Operating income

From Table 2.21, a majority of the startups (56%) shows a negative operating income and the most common operating income is in the range EUR (1) to (10,000) for all periods. On the other hand, only 2 startups show an operating income in the range EUR 500,001 - 1,000,000 in 2014.

Net income

One third of the companies shows a minor loss in the range EUR (1) and (10,000) and most of them (56%) produced a loss in 2014. Only one startup has a net income between EUR 500,000 and 1,000,000 in 2014 (Table 2.22).

Total assets

For all periods between 2011 and 2014, the most common value (29%) for Total Assets of companies is in the range of EUR 100,001 – 500,000. Values of Total Assets lower than EUR 50,000 show also a slower increase than values over EUR 50,000. Even though the Total Assets values are heterogonous as shown in Table 2.23, they are a key indicator of the robustness of the startups that potential investors usually consider.

Table 2.21 Operating income

Operating income (EUR)	2009	2010	2011	2012	2013	2014
(1,000,001) and more	0	0	0	4	9	13
(100,001) to (1,000,000)	0	6	20	59	96	180
(10,001) to (100,000)	1	23	74	141	324	555
(1) to (10,000)	13	74	142	296	601	963
0	0	6	11	11	33	59
1-1,000	0	11	30	61	112	190
1,001-5,000	1	22	59	133	251	390
5001-10,000	0	8	28	50	133	243
10,001-25,000	1	8	37	93	144	242
25,001-50,000	0	2	21	38	69	113
50,001-100,000	0	0	10	18	31	52
100,001-500,000	0	0	6	14	23	47
500,001-1,000,000	0	0	0	0	0	2
1,000,001 and more	0	0	0	0	0	0
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Table 2.22 Net income

Net income (EUR)	2009	2010	2011	2012	2013	2014
(1,000,001) and more	0	0	0	4	9	12
(100,001) to (1,000,000)	0	6	19	50	85	162
(10,001) to (100,000)	1	20	71	140	318	547
(1) to (10,000)	13	75	159	321	631	1,013
0	0	5	10	13	31	64
1-1,000	0	16	41	106	205	323
1,001-5,000	2	25	58	118	266	436
5001-10,000	0	5	30	64	108	201
10,001-25,000	0	5	28	60	97	170
25,001-50,000	0	2	16	19	44	58
50,001-100,000	0	1	3	15	24	40
100,001-500,000	0	0	3	8	8	22
500,001-1,000,000	0	0	0	0	0	1
1,000,001 and more	0	0	0	0	0	0
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Table 2.23 Total assets

Total assets (EUR)	2009	2010	2011	2012	2013	2014
0	0	0	1	1	0	1
1-1,000	0	0	1	2	25	66
1,001-5,000	2	12	14	40	103	182
5001-10,000	2	10	28	44	108	186
10,001-25,000	4	46	77	155	266	453
25,001-50,000	2	30	85	153	321	421
50,001-100,000	4	20	78	151	328	540
100,001-500,000	1	33	119	287	502	889
500,001-1,000,000	1	7	20	51	104	183
1,000,001 and more	0	2	15	34	69	128
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Share capital

The EUR 10,000 is the most common Share Capital value. This is confirmed in Table 2.24 which shows the values of Share Capital and the relative frequency. Table 2.25 and Table 2.26 show the values of shares owned by companies and individuals respectively.

Table 2.24 Share capital

Share capital (EUR)	Frequency	Percentage
1	64	1.2%
2-5,000	891	17.3%
5,001-9999	74	1.4%
10,000	2,159	42.0%
10,001-15,000	441	8.6%
15,001-20,000	314	6.1%
20,001-25,000	108	2.1%
25,001-100,000	698	13.6%
100,001-500,000	226	4.4%
500,001-1,000,000	39	0.8%
1,000,001 and more	28	0.5%
No information available	103	2.0%
Total	**5,145**	**100,0%**

Table 2.25 Share capital owned by companies

Share capital owned by company (EUR)	Frequency	Percentage
0	3,449	67.0%
1-1,000	248	4.8%
1,001-5,000	489	9.5%
5,001-9,999	264	5.1%
10,000	102	2.0%
10,001-15,000	100	1.9%
15,001-20,000	55	1.1%
20,001-25,000	32	0.6%
25,001-100,000	206	4.0%
100,001-500,000	78	1.5%
500,001-1,000,000	13	0.3%
1,000,001 and more	9	0.2%
No information available	100	1.9%
Total	**5,145**	**100,0%**

Table 2.26 Share capital owned by individuals

Share capital owned by individuals (EUR)	Frequency	Percentage
0	217	4.2%
1-1,000	714	13.9%
1,001-5,000	408	7.9%
5,001-9999	569	11.1%
10,000	1,631	31.7%
10,001-15,000	408	7.9%
15,001-20,000	238	4.6%
20,001-25,000	108	2.1%
25,001-100,000	577	11.2%
100,001-500,000	141	2.7%
500,001-1,000,000	20	0.4%
1,000,001 and more	14	0.3%
No information available	100	1.9%
Total	**5,145**	**100,0%**

Equity

A negative value of Equity shows that startups are certainly facing financial difficulties and 10% of them are in this position.

The most common range of Equity is between EUR 10,001 and EUR 25,000 for almost all years, and it was for 23% of startups in 2014. There are very few startups (1.2% in 2014) with a value of Equity of more than EUR 1 million (Table 2.27).

Table 2.27 Equity

Equity (EUR)	2009	2010	2011	2012	2013	2014
(1,000,001) and more	0	0	0	0	1	0
(100,001) to (1,000,000)	0	0	1	3	9	19
(10,001) to (100,000)	0	4	8	25	55	106
(1) to (10,000)	1	7	17	37	100	176
0	0	0	1	0	0	2
1-1,000	1	0	5	20	71	173
1,001-5,000	1	23	47	110	261	429
5,001-10,000	6	40	79	135	254	371
10,001-25,000	3	46	130	256	418	696
25,001-50,000	2	15	56	119	228	349
50,001-100,000	1	11	44	91	184	275
100,001-500,000	1	13	37	100	190	358
500,001-1,000,000	0	1	8	15	31	57
1,000,001 and more	0	0	5	7	24	38
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Liabilities

Liabilities is calculated in an indirect way as Total Assets minus Equity. All the startups have liabilities as shown in Table 2.28. The range with the highest number of startups in 2014 is EUR 100,001 to EUR 500,000. There are a few startups (2,5% in 2014) with liabilities of more than EUR 1 million.

Table 2.28 Liabilities

Liabilities (EUR)	2009	2010	2011	2012	2013	2014
1-1,000	0	12	21	38	90	167
1,001-5,000	8	28	52	95	213	351
5001-10,000	1	17	40	86	156	281
10,001-25,000	1	31	88	137	288	452
25,001-50,000	3	23	65	136	275	413
50,001-100,000	2	15	55	152	265	429
100,001-500,000	1	23	92	213	405	719
500,001-1,000,000	0	3	11	30	68	112
1,000,001 and more	0	2	7	18	34	75
Startups per year available	**16**	**160**	**438**	**918**	**1,826**	**3,049**

Bankruptcy and liquidation

The life of a high risk innovative startup is in some case characterized by voluntary closure or bankruptcy. This phenomenon requires careful attention and in depth investigation. At the moment in our dataset 145 out of 5,145 and so 2,81% of startups are facing closure.

Startup incubators and accelerators

Startup incubators and accelerators both act as business centers whose mission is to support emerging high profile startup companies during their first period of life. The services offered usually include not only office space but also business support, in the form of business plan implementation, team building, professional networking and bureaucracy. The current total number of incubators and accelerators is 109 and almost all the Regions have at least one center.

If we consider the number of incubators as a proxy variable for the identification of the most business oriented area, it is evident that Lombardy acts as the main player (25.7% of the total), followed by Emilia-Romagna (10.1%), Tuscany (9.2%), Piedmont (8.3%) and Lazio (8.3%), as shown in Table 2.29.

Certified incubators vs uncertified incubators

Even though a great number of incubators provides a series of important services for the startups development, only one out of three (35%) is a so called “Certified incubator”.

In fact, in order to be considered as a “Certified incubator”, the center must fulfill some requirements concerning his ability to effectively support the business development of a startup. In particular, five requirements are mentioned by the Italian law:

1. It has facilities, including real estate, able to accommodate the startup (e.g. it has dedicated spaces to install test equipment, offices etc.);
2. It has all the adequate facilities necessary to promote the startup’s activity, such as access to the ultra wideband, meeting rooms, testing and prototyping machinery;
3. It is managed by people of recognized competence in the field of entrepreneurship and innovation, and has a permanent staff of technical and managerial advisors;
4. It has regular relationships with universities, research centers, public institutions and financial partners that carry out activities and projects related to innovative startups;
5. It has adequate and proven experience in supporting innovative startups.

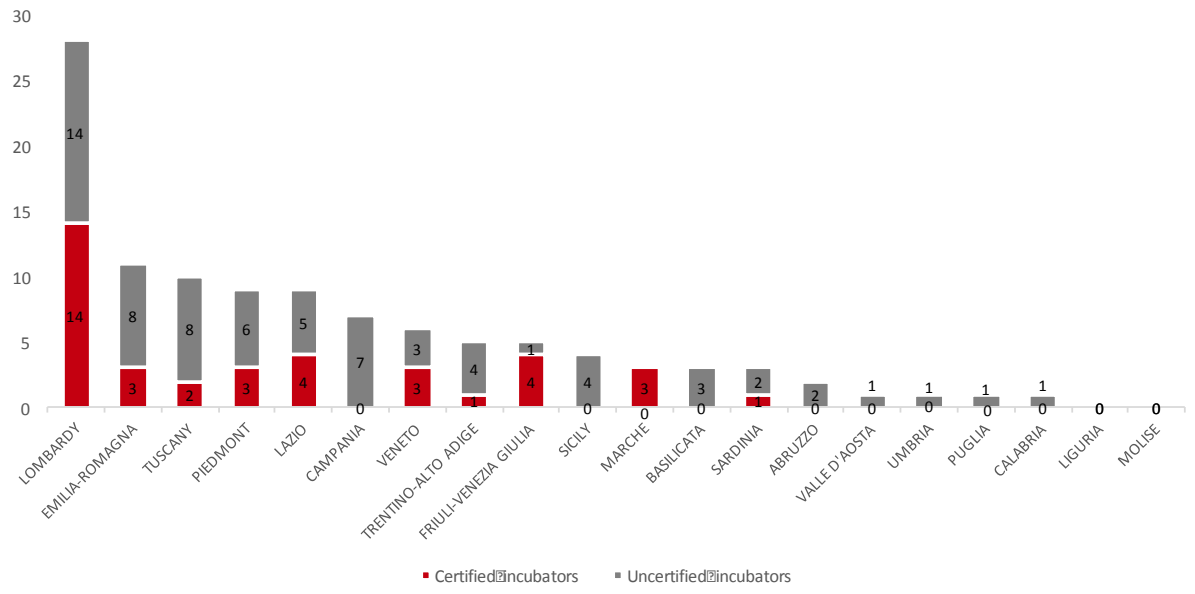
Incubators who are interested in being titled as “Certified incubators” can benefit from some financial instruments provided by the law (e.g. they can use stock options, as if they were start-ups themselves).

As shown in Table 2.29 and Figure 2.4, the total number of certified incubators is 38 and they are located in only 10 Regions (one in two). In particular, Lombardy owns more than 35% of the total number of certified incubators, followed by Friuli-Venezia Giulia (10.5%) and Lazio (10.5%).

Table 2.29 Number of incubators per region

Geographic region	Certified incubators	Uncertified incubators	Total	Percent
Lombardy	14	14	28	25.7%
Emilia-Romagna	3	8	11	10.1%
Tuscany	2	8	10	9.2%
Piedmont	3	6	9	8.3%
Lazio	4	5	9	8.3%
Campania	0	7	7	6.4%
Veneto	3	3	6	5.5%
Trentino - Alto Adige	1	4	5	4.6%
Friuli - Venezia Giulia	4	1	5	4.6%
Sicily	0	4	4	3.7%
Marche	3	0	3	2.8%
Basilicata	0	3	3	2.8%
Sardinia	1	2	3	2.8%
Abruzzo	0	2	2	1.8%
Valle d'Aosta	0	1	1	0.9%
Umbria	0	1	1	0.9%
Puglia	0	1	1	0.9%
Calabria	0	1	1	0.9%
Liguria	0	0	0	0.0%
Molise	0	0	0	0.0%
Total	**38**	**71**	**109**	**100.0%**

Figure 2.4 Number of incubators per region



The survey on innovative startups


Messages
Settings
Contacts
Calculator

In order to get specific information about the innovative startup phenomenon in Italy, an online survey has been carried out. The study was conducted using the Survey Monkey platform and the analyses of the questionnaires was predominantly qualitative in order to collect not only numerical data but also information regarding the entrepreneurs' experience.

The main investigated topics are the following:

- knowledge and exploitation of the incentives provided by the legislation;
- the Italian Entrepreneurial Ecosystem;
- the startups profile;
- the founders profile;
- investments and finance;

The data were collected in December 2015 and January 2016.

Incentives provided by the legislation

This part of the survey was meant to analyze the exploitation of the incentives deriving from being registered in the special section for innovative startup of the business register. The following elements were considered:

- Tax incentives for corporate and private investments in startups
- Tax credit for R&D
- Tax relief on income from intellectual property exploitation (Patent Box)
- Tailor-made labor law
- Tax credit for the employment of highly qualified staff
- Remuneration through stock options
- Remuneration through work for equity
- Equity crowdfunding
- Access to the Guarantee Fund for small and medium-sized enterprises
- Special categories of shares

The provided options for the responses are the same for all the questions:

1. The opportunity has already been exploited
2. There is a plan to exploit the opportunity in the course of next year
3. At present there is no need to exploit the opportunity
4. Access to the opportunity is quite complicated
5. Legislation is not sufficiently clear
6. No knowledge about the opportunity

Fiscal incentives

Investment from individuals (income tax deduction of 19% of the investment up to a maximum invested amount to 500 thousand EUR) or legal entities (deduction from taxable IRES of 20% of the investment up to a maximum investment of 1.8 million EUR).

Table 3.1 Tax incentives for corporate and private investments in startups

	Percentage
The opportunity has already been exploited	24%
There is a plan to exploit the opportunity in the course of next year	16%
At the present there is no need to exploit the opportunity	32%
Access to the opportunity is quite complicated	13%
Legislation is not sufficiently clear	8%
No knowledge about the opportunity	8%
Total	**100%**

Tax credit for R&D is recognized for companies who invest in Research and Development, up to a maximum annual amount of 5 million EUR. The credit comes to measure 25% of incremental annual costs for R&D compared to the average of spending over the 3 previous fiscal periods.

Table 3.2 Tax credit for R&D

	Percentage
The opportunity has already been exploited	3%
There is a plan to exploit the opportunity in the course of next year	31%
At the present there is no need to exploit the opportunity	33%
Access to the opportunity is quite complicated	13%
Legislation is not sufficiently clear	11%
No knowledge about the opportunity	8%
Total	**100%**

Companies can exclude from taxation 50% of the income deriving from commercial exploitation of intangible assets (industrial patents, copyrights, commercial brands, trademarks).

Table 3.3 Tax relief on income from intellectual property exploitation (Patent Box)

	Percentage
The opportunity has already been exploited	2%
There is a plan to exploit the opportunity in the course of next year	24%
At the present there is no need to exploit the opportunity	36%
Access to the opportunity is quite complicated	12%
Legislation is not sufficiently clear	4%
No knowledge about the opportunity	22%
Total	**100%**

Discipline of work and compensation

Innovative startups can hire staff on temporary contracts lasting a minimum of 6 months and a maximum of 36 months. Within of this period, contracts may also be fixed-term and can be renewed several times.

Table 3.4 Tailor-made labour law

	Percentage
The opportunity has already been exploited	9%
There is a plan to exploit the opportunity in the course of next year	26%
At the present there is no need to exploit the opportunity	50%
Access to the opportunity is quite complicated	3%
Legislation is not sufficiently clear	2%
No knowledge about the opportunity	12%
Total	**100%**

Startups may have a tax credit equal to 35% of the total cost for open-ended contracts, also as apprentices in the first year of the new employment relationship.

Table 3.5 Tax credit for the employment of highly qualified staff

	Percentage
The opportunity has already been exploited	11%
There is a plan to exploit the opportunity in the course of next year	27%
At the present there is no need to exploit the opportunity	49%
Access to the opportunity is quite complicated	2%
Legislation is not sufficiently clear	2%
No knowledge about the opportunity	9%
Total	**100%**

Innovative startups may remunerate their management, employees and suppliers by offering them shares (stock options) by way of additional remuneration.

Table 3.6 Compensation through stock options

	Percentage
The opportunity has already been exploited	3%
There is a plan to exploit the opportunity in the course of next year	13%
At the present there is no need to exploit the opportunity	59%
Access to the opportunity is quite complicated	10%
Legislation is not sufficiently clear	4%
No knowledge about the opportunity	11%
Total	**100%**

Innovative startups may remunerate external services providers through the allocation of equity in exchange for work and services (work for equity).

Table 3.7 Compensation through work for equity

	Percentage
The opportunity has already been exploited	4%
There is a plan to exploit the opportunity in the course of next year	12%
At the present there is no need to exploit the opportunity	59%
Access to the opportunity is quite complicated	6%
Legislation is not sufficiently clear	5%
No knowledge about the opportunity	14%
Total	**100%**

Raising capital

Innovative startups can raise capital (also from abroad) by launching campaigns through certified web portals (equity crowdfunding).

Table 3.8 Equity crowdfunding

	Percentage
The opportunity has already been exploited	3%
There is a plan to exploit the opportunity in the course of next year	17%
At the present there is no need to exploit the opportunity	56%
Access to the opportunity is quite complicated	18%
Legislation is not sufficiently clear	2%
No knowledge about the opportunity	5%
Total	**100%**

Innovative startups can access the Guarantee Fund for SMEs (Fondo Centrale di Garanzia). The guarantees covers 80% of the bank loans up to a maximum of 2.5 million Euros.

Table 3.9 Access to the SMEs Guarantee Fund

	Percentage
The opportunity has already been exploited	11%
There is a plan to exploit the opportunity in the course of next year	21%
At the present there is no need to exploit the opportunity	40%
Access to the opportunity is quite complicated	21%
Legislation is not sufficiently clear	1%
No knowledge about the opportunity	6%
Total	**100%**

Governance

Innovative startups in the form of limited liability companies can create categories of shares with special rights (for example, they may provide for categories of shares that do not attribute right to vote or with a right not proportional to the participation).

Table 3.10 Special categories of shares

	Percentage
The opportunity has already been exploited	3%
There is a plan to exploit the opportunity in the course of next year	9%
At the present there is no need to exploit the opportunity	44%
Access to the opportunity is quite complicated	2%
Legislation is not sufficiently clear	5%
No knowledge about the opportunity	37%
Total	**100%**

Conclusions on the startup legislation and its implementation

Italian startups seem not to be well prepared to exploit the opportunities introduced by the law. Concerning to fiscal incentives for investments in innovative startups (Table 3.1) , for example, more than 60% didn't exploit this incentive.

Considering tax credit deriving from R&D (Table 3.2), more than 65% didn't exploit this incentive. Comparing this result with the information in the dataset, in which more than 65% of the startups declare to be involved in R&D activities, it is clear that better results could be accomplished.

The answers relative to the Patent Box (Table 3.3) are in line with the information in the dataset.

As regards the discipline of work and compensation, it clearly emerges that, at present, startups do not plan to enlarge their teams (Table 3.5). Moreover, only 16% declared to have used or being about to use a work for equity solution (Table 3.7). These results are consistent with the exploitation of the special categories of share. In this case 88% of the respondents declared not to be interested in this kind of practice (Table 3.10).

Finally, considering equity crowdfunding (Table 3.8), only 20% have already exploited the opportunity or is going to do it. This result can be explained by the novelty of this kind of fund raising method. On the other hand, a greater percentage (32%) is interested in having access to the Guarantee Fund for SMEs (Table 3.9).

The Italian Entrepreneurial Ecosystem

This part of the survey for innovative startups was meant to track the quality of the Italian entrepreneurship ecosystem. The following elements were considered:

- Funding availability
- Entrepreneurship education and training
- Access to new research and technology
- Collaboration with large companies
- Mutual exchange of knowledge
- Incubators/accelerators
- Ease of hiring skilled people

Funding

Financing entrepreneurial activities has been one of the constraints identified by entrepreneurs across different countries.

Table 3.11 Funding availability

	Percentage
True	8%
Neutral	48%
False	34%
Missing	10%
Total	**100%**

Table 3.12 Search for external funding

	Percentage
Yes	79%
No	17%
No answer	4%
Total	**100%**

Table 3.13 Preferred areas to look for external funding

	Percentage
Italy	42%
Europe	47%
USA	7%
Other	4%
Total	**100%**

Entrepreneurial education and training

Table 3.14 Benefits from entrepreneurial education and training

	Percentage
True	36%
Neutral	41%
False	13%
Missing	10%
Total	**100%**

Table 3.15 Attended entrepreneurship education programs

	Percentage
Yes	37%
No	63%
No answer	0%
Total	**100%**

Table 3.16 Planning to attend entrepreneurship education programs

	Percentage
Yes	52%
No	41%
No answer	7%
Total	**100%**

Access to new research and technology

Table 3.17 Access to new research and technologies

	Percentage
True	23%
Neutral	48%
False	19%
Missing	10%
Total	**100%**

Table 3.18 Future engagement in research projects with universities and research centers

	Percentage
Yes	68%
No	29%
No answer	3%
Total	**100%**

Cooperation with large companies

Table 3.19 Cooperation with large companies

	Percentage
True	5%
Neutral	39%
False	46%
Missing	10%
Total	**100%**

Table 3.20 Planning to cooperate with large companies

	Percentage
Yes	69%
No	27%
No answer	4%
Total	**100%**

Mutual exchange of knowledge

Table 3.21 Mutual knowledge exchange among startups

	Percentage
True	12%
Neutral	46%
False	30%
Missing	12%
Total	**100%**

Table 3.22 Perceived need to cooperate with other startups

	Percentage
Yes	79%
No	20%
No answer	1%

Incubators and accelerators

Table 3.23 Support from incubators and/or accelerators

	Percentage
True	26%
Neutral	42%
False	21%
Missing	11%
Total	**100%**

Table 3.24 Perceived benefits from incubators/accelerators

	Percentage
Yes	35%
No	62%
No answer	3%
Total	**100%**

Table 3.25 Planning to join incubators/accelerators

	Percentage
Yes	39%
No	57%
No answer	4%
Total	**100%**

Talent pool

Table 3.26 Availability of skilled people

	Percentage
True	15%
Neutral	43%
False	31%
Missing	11%
Total	**100%**

Table 3.27 Planning to hire skilled employees

	Percentage
Yes	82%
No	15%
No answer	5%
Total	**100%**

Table 3.28 Service companies support

	Percentage
True	21%
Neutral	42%
False	25%
Missing	12%
Total	**100%**

Conclusions on the entrepreneurship ecosystem

In order to evaluate the Italian entrepreneurship ecosystem, some variables have been considered. In particular, the availability of funds, the education and training for entrepreneurs, the access to new research and technology, the collaboration with large companies, the support received by incubators/accelerators, the easiness of hiring skilled people, the support from service companies, the mutual exchange of knowledge between startups.

As regard funding (Table 3.11), only 8% of the respondents think that funding is actually available in Italy and about 30% are pessimistic. Nevertheless, nearly 80% of the respondents have tried to access to external funding, especially in Italy (42%) or in Europe (47%). Only 7% have tried to rise capital in the USA (Table 12 and Table 3.13).

Considering the benefits deriving from entrepreneurial education and training (Table 3.14), 36% consider it to be an important asset, while 41% don't have a specific opinion. This values are consistent with the number of entrepreneurs who have followed a specific program in entrepreneurial education (37%), as shown in Table 3.15. Among those who did not follow any training program, 52% still plan to follow one, confirming the importance of education in this field (Table 3.16).

An important aspect is the willingness of startups to create a wider network for their business. In fact, more than 65% is planning to join common research projects with universities or research centers in the future (Table 3.18), and almost the same percentage is planning to cooperate with large enterprises in the future (Table 3.20). At present only 5% of the respondents is already cooperating with large companies (Table 3.19).

Another form of networking derives from the support provided by incubators and accelerators and 35% of the respondents thinks that this partnership can really give the startup a concrete support in developing its business (Table 3.24), while 39% is planning to join an incubator/accelerator in the future. About 57% do not plan to utilize incubators/accelerators in the future (Table 3.25). Even though the trend in innovative startups in other countries show that the utilization of these entities is increasing.

Consistently with the data collected from the previous part of the survey (about benefit from being registered in the special section of the business register), more than 80% of the respondents is planning to hire skilled employees in the coming year (Table 3.27). Unfortunately, only 15% think that skilled people are already available on the job market (Table 3.26).

As regards mutual knowledge exchange, about 30% disagree about the existence of any kind of collaboration among startups while 46% are neutral (Table 3.21). However, almost 80% think that it would be good to broaden their contacts and collaborate with other startups (Table 3.22).

In conclusion, we can summarize that the majority of the respondents seem to disagree that the entrepreneurial ecosystem is effective in supporting the creation and growth of new technology based ventures.

Startups profiles

This part of the survey was meant to draw a profile of the considered startup. The following elements were considered:

- Sectors and activities
- Startup output: products and/or services
- Target markets
- Employees

Table 3.29 Sectors and activities

Sector	Percentage
Software	29%
Internet	27%
Other sectors	27%
ICT	21%
Engineering	20%
Health care	20%
Manufacturing	19%
Energy	17%
Communications	16%
Electronics	16%
Environment	11%
Transport	8%
Process technology	8%
Agriculture	7%
Entertainment	7%
New Materials	7%
Biotechnology	5%
Nanotechnology	5%
Chemicals	4%
Computer	4%
Robotics	4%
Aerospace	1%
Nuclear	1%

The percentages do not add to 100% as some startups work in multiple or complementary sectors

Table 3.30 Startup output

	Percentage
Products	47%
Services	80%

The percentages do not add to 100% as there is an overlap of outputs for some of the startups.

Table 3.31 Target markets

	Percentage
B2B	83%
B2C	52%
B2G	27%

The percentages do not add to 100% as some startups target more than one market.

Table 3.32 Presence of employees

	Percentage
Yes	56%
No	43%
Refused	1%
Total	**100%**

Table 3.33 Number of employees per startup

	Percentage
1	19%
2	23%
3	16%
4	12%
5	5%
6	7%
7	2%
8	5%
9	0%
10	5%
11	2%
16	2%
18	2%
Total	**100%**

Table 3.34 Qualifications of the employees

	Percentage
Ph.D.	12%
Master's degree	48%
Bachelor's Degree	13%
High School Diploma	27%
Total	**100%**

Table 3.35 Type of employment contract

	Percentage
Open-Ended	58%
Fixed-Term	14%
Project	10%
Internship	7%
Other	11%
Total	**100%**

Conclusions on the startups profile

A profile of the involved startups has been drawn by a series of questions about their activities.

One of the most challenging aspect of this part of the survey, is to identify the sectors in which innovative startups operate. Since the phenomenon is relatively recent, established sectors and codes normally used to classify new ventures seems to be insufficient to clearly classify innovative startups. For example, a high number of innovative startups are grouped under software production, Internet and ICT because these sectors are quite wide and encompass a number of categories. In an attempt to identify sectors in which startups operate, one of the questions asked the respondents to select their sector from a list. As shown in Table 3.29, the most common sectors are software development and Internet services with more than 20% of the respondents operating in each of these sectors. Other populated sectors are: health-care (20%), manufacturing (20%), energy (17%), communications (16%), electronics (16%).

As regards the kind of output, more than 45% offer a product to the market, while more than 80% offer a service (Table 3.30). The percentages do not add to 100% highlighting an overlap of outputs for some of the startups. Most startups are active in the B2B market (82%) while 52% is oriented towards a B2C activity. An relevant percentage (26%) operate in the B2G market. Also these data show that some startups target more than a single type of market (Table 3.31).

To understand fully understand the activities of the involved startups, an analysis of their employees has been done. More than 55% of the companies in the survey has at least one employee (Table 3.32), 19% have only one employee, while more than 55% have between 2 and 5 employees; 19% have between 6 and 10 employees and only 6% have more than 11 employees (Table 3.33). As regards their education, almost 50% have a master's degree and 12% have a Ph.D. 27% have a high school diploma (Table 3.34). Considering the type of contract, almost 60% own an open-ended contract (Table 3.35).

Founders profiles

This part of the survey analyzes some specific aspects for the founders. The following elements were considered:

- Gender
- Qualification
- Previous work experience
- Previous managerial experience
- Previous entrepreneurial experience
- Previous shared work experience among founders
- Previous shared entrepreneurial experience among founders
- Time commitment to the startup
- Shares allocation
- Motivations for founding

Table 3.36 Founders gender

	Percentage
Male	80%
Female	20%
Total	**100%**

Table 3.37 Founders qualifications

	Percentage
Ph.D.	22%
Master's degree	45%
Bachelor's Degree	12%
High School Diploma	21%
Total	**100%**

Table 3.38 Founders previous work experience

Number of years	Percentage
1-3	15%
4-6	15%
7-9	11%
10	6%
more than 10	53%
Total	**100%**

Table 3.39 Founders managerial experience

	Percentage
Yes	56%
No	41%
Refused	3%
Total	**100%**

Table 3.40 Founders previous entrepreneurial experience

	Percentage
Yes	56%
No	44%
Total	**100%**

Table 3.41 Previous shared work experience among founders

	Percentage
Yes	66%
No	34%
Total	**100%**

Table 3.42 Previous shared entrepreneurial experience among founders

	Percentage
Yes	51.90%
No	48.10%
Total	**100%**

Table 3.43 Founders full-time commitment to the startup

	Percentage
Yes	70%
No	29%
Refused	1%
Total	**100%**

Shares allocation

The allocation of capital is not only a very complicated task but it can be a determining factor for the cohesion of the team and consequently for the success of a startup. To understand the process for the allocation of share capital, the respondents were asked to rank the following factors in terms of their importance regarding share capital allocation.

Table 3.44 Shares allocation

Factors	Very important	Fairly important	Important	Slightly important	Not important
Idea conception	64%	17%	17%	1%	0%
Entrepreneurial experience	28%	28%	29%	12%	3%
Managerial experience	17%	33%	24%	20%	5%
Financial contribution	41%	21%	26%	11%	0%
Technical expertise	23%	30%	28%	5%	4%
Future work contribution	33%	30%	26%	5%	4%

Motivations for founding

To understand the main factors that motivate an individual to embark on entrepreneurship in Italy, a list of factors was provided.

Table 3.45 Motivations for founding

Factors	Percentage
Independence	90%
Intellectual challenge	87%
Economic and financial benefits	50%
Job dissatisfaction	38%
Admiration of successful entrepreneurs	21%
Power and influence	15%

The percentages do not add to 100% as some founders are motivated by more than one factor

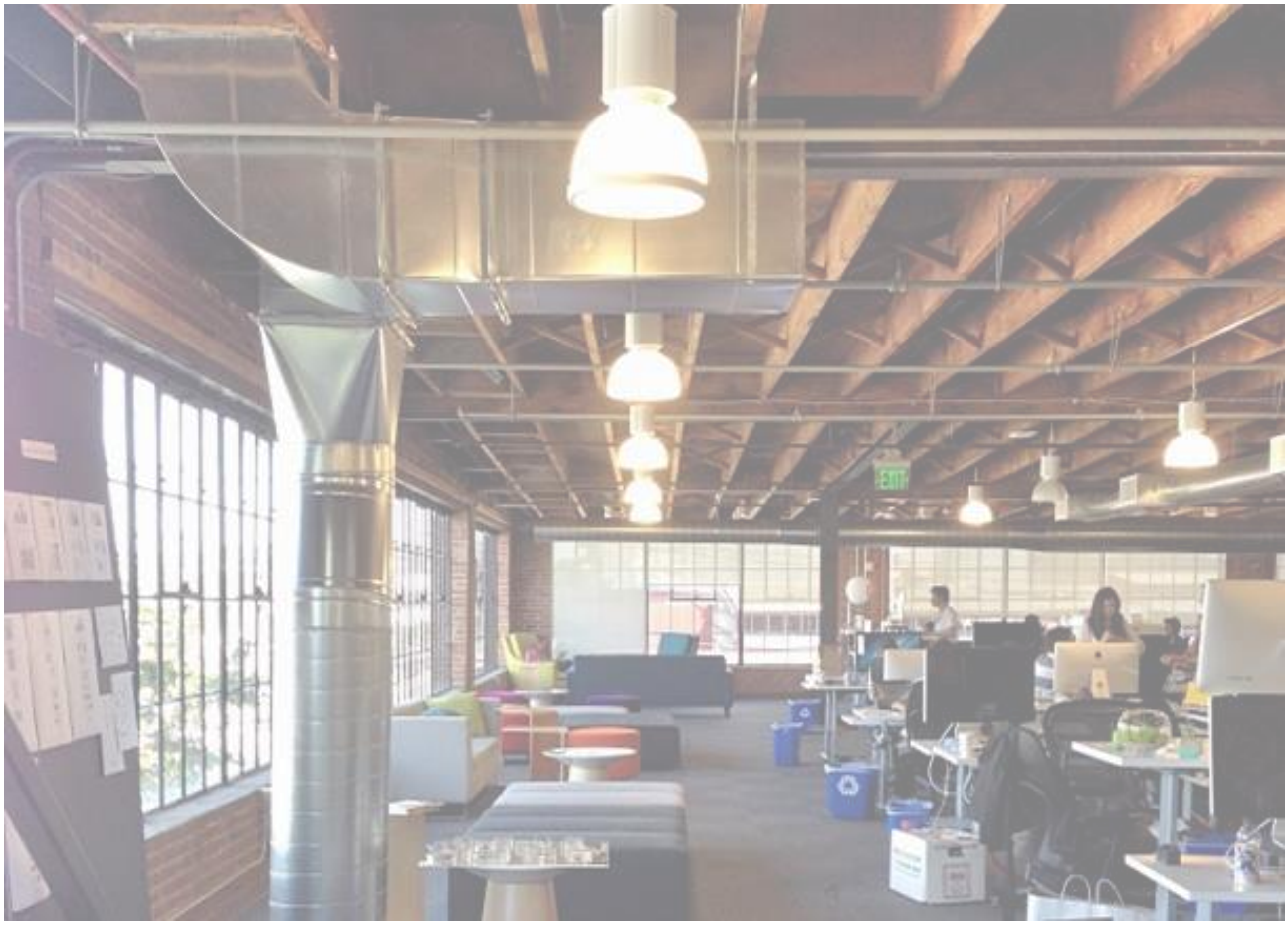
Conclusions on the founders profile

The analyzed profiles show that Italian entrepreneurs are in general male individual (80%) with a level of education at the Master's Degree (45%) and a wealth of entrepreneurial or managerial experience (56%) (Table 3.36 – Table 3.39).

Contrary to what one might think, most of them are not young and on their first work experience, but instead professionals with over 10 years of experience in business. As shown in Table 3.41 and Table 3.42, the founding team is generally made of people who have already previously worked together (66%) and have already shared entrepreneurial experiences (51%).

More than 70% of the founders are dedicated full time to their startup (Table 3.43) and they are motivated mainly by a desire of independence (90%) and by the intellectual challenges provided by entrepreneurship (87%). Power and influence impact only for the 30% of their choice while the economic and financial benefits are the main driver for 50% of them (Table 3.45).

Considering the main factor that determine the share allocation within the team, more than 60% declared that the person who first proposed the business idea must have a relevant equity share. Other primary aspects for equity distribution are the financial contribution from founders (41%) and the future time commitment (33%), as shown in Table 3.44.



Investment and finance

This part of the survey analyzes the main sources of financing for the involved startups. The following elements were considered:

- Sources of share capital
- Sources of funding
- Multiple rounds of funding

Table 3.46 Sources of share capital

Source	(1-20)%	(21-40)%	(41-60)%	(61-80)%	(81-100)%
Founders	11%	0%	4%	12%	73%
Family	47%	29%	12%	0%	12%
Friends	50%	17%	0%	0%	33%
Angels	33%	33%	11%	11%	11%
Others	22%	22%	22%	0%	33%

The table shows the relative importance of the different sources in specific ranges of the share of capital.
Share capital is divided into different ranges. The lowest range being (1-20)% of shares and the highest range being (81-100)% of shares.

Table 3.47 Sources of funding

Source of Investments	Public sources	Angel investors	Venture Capital
Yes	31%	12%	1.40%
No	68%	88%	97.20%
Refused	1%	0%	1.40%
Total	**100%**	**100%**	**100%**

Table 3.48 Multiple rounds of funding

	Percentage
Yes	18%
No	82%
Total	**100%**

Conclusions on investment and finance

Considering the sources of funding most of the respondents declared the founders as the main financial providers followed by family and friends (Table 3.46). However, while the founders generally provide the most of the capital (80%-100%), family and friends contribute only for the 20%. Almost all respondents stated they had not received any investment from venture capital funds; 12% received contributions from Business Angels mainly in the order of 11,000-100,000 EUR, while about 30% benefited from investments from public sources mainly in the order of 11,000-50,000 EUR or 101,000 - 200,000 EUR (Table 3.47). Only 18% had multiple rounds of funding (Table 3.48).

Conclusions and future perspectives

From the findings of our research several interesting results have emerged. The Country appears to be divided from North to South also from the innovative startup perspective. Regions in the North of Italy have a higher density of startups per inhabitants than those in the South. This result requires a deeper analysis of the local entrepreneurial ecosystems to highlight strengths and weaknesses.

Overall the entire entrepreneurship ecosystem of Italy does not seem to be very favorable for startups compared to that of other large European countries. The number of startups that are foreign owned is very low compared to other large countries in Europe. The attractiveness of the business environment in Italy is still low for startups even though a bunch of new policies has been launched in recent years. Concerning the innovative startup legislation only some startups seem to take advantage of the incentives and benefits offered to them. This requires a careful observation of the dynamics of incentives acceptance from the startup and from the policy makers point of views.

One positive aspect is the presence of many entrepreneurs with a wealth of either managerial or entrepreneurial experience. In Italy, as in other countries in Europe, a lot of experience means entrepreneurs above the youth age bracket. Despite this observation, the rate of youth entrepreneurship stands at a respectable 24%.

So far our analysis has been limited to companies registered in the special section for innovative startups of the Italian business register, but more technology-based companies are active and voluntarily not registered in the special section. This requires a further effort to spot these companies and to find out the reasons why they seem to discard the incentives provided by the legislation.

We need also to increase the knowledge of the profile of startups and founders using better tools of data collection and analysis.

For the future our aim is to continue monitoring the creation and growth of startups comparing and contrasting data from multiple sources. A longitudinal analysis of startups may also highlight the multiple aspects that could make some startups growing and succeed and, instead, some others decline and fail.

We hope also to expand the SCENT partnerships in order to be able to produce an even more accurate and comprehensive analysis of the startups and the entrepreneurial ecosystems.

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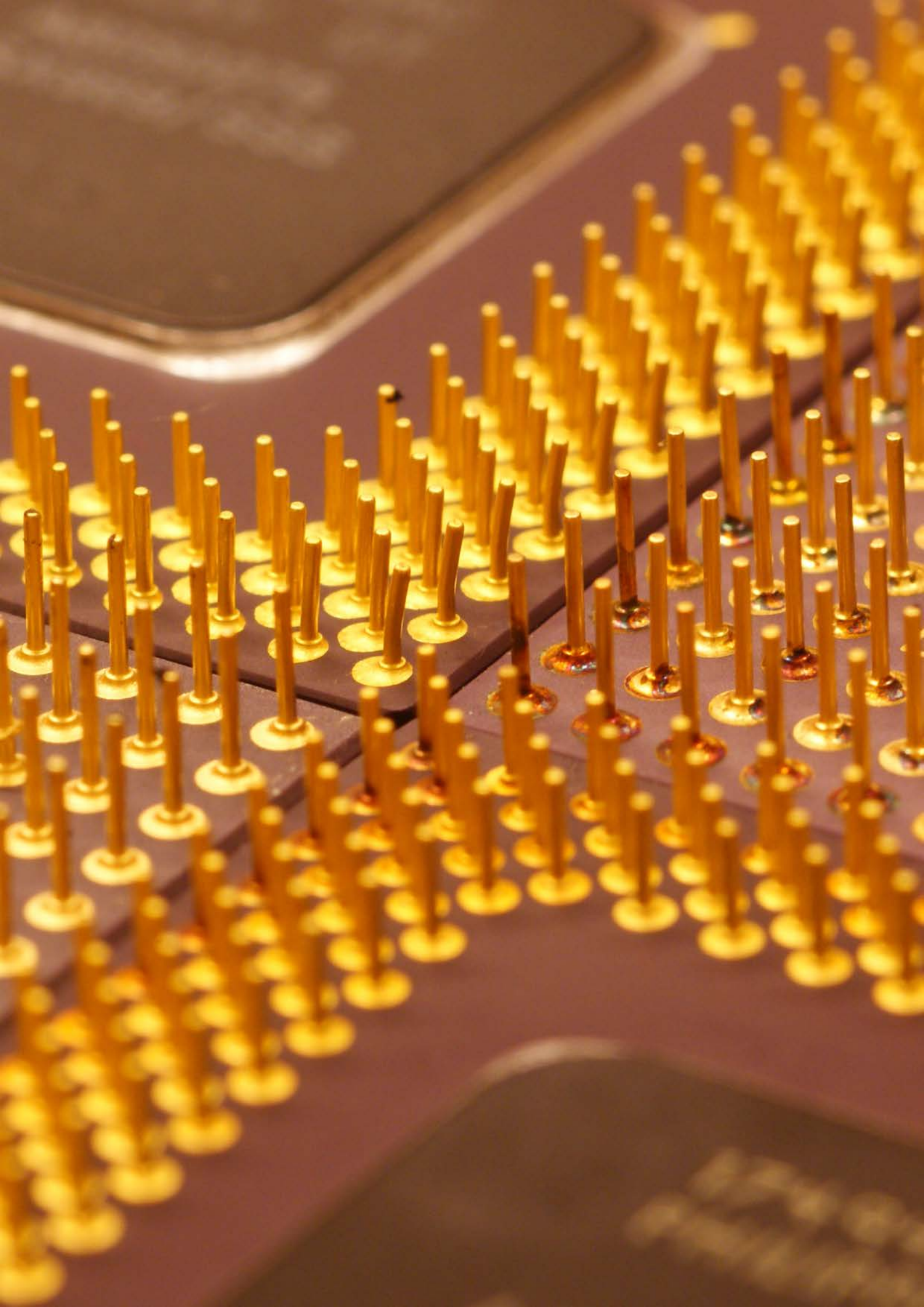
Appendices



Startups that participated in the survey

AD2014	EASYHOLIDAYS	JOS TECHNOLOGY
ADEGA	EKUOTA	KEPLERO
AERROBOTIX	EVJA	L.C.M. INDUSTRIES
AG3	EXOSOMICS SIENA	L'IMPRENDITORE
AJILE	EZ LAB	LOCLOC
ANTEO	FABLESSY	LOLIETTOOIL
APPFACTORY	FACILE AIUTO	LOVEITALY
ATEMENERGIA	FAST4WARD	MAILWORK ECOSOSTENIBILI
AUTO-EVOLUTION	FLOCKIN	MOBIIX
AVANIX	FLUID-A	MOBYPLANNER
BABYLON CLOUD	GALATEA BIO TECH	MODOM
BADAPLUS	GBOARD	NES
BADEGGS	GEI MACCHINE	NEXT ENERGY
BELKA	GEOBEYOND	NEXTWIN
BESHARP	GEOLUMEN	NOXI
BIOTECHWARE	GIOTTO BIOTECH	OPTIONFACTORY
BITBULL	GLASSUP	PEOPLE4FUNDS
BLACKBOX GREEN	GLOWAPP	PROESYS
CANAVISIA	HELIVGROUP	SDS
COING	HIGH MAT INNOVATION	SERENGEO
CONFORT TECH	HOLAB	SFRECCIANDO
COOP SOC ESERCIZIO VITA	HYPERLEAN	SILK BIOMATERIALS
DATATELLERS	IBRANDPLUS	STOORM5
DBS	INNOVENTUALLY	SWHARD
DESIGN ITALIAN SHOES	INSENSUS SOLUTIONS	TAMALACÀ
DOMOTRICK	IRIS	THE TOTAL TRAINING
DRIVER2HOME	ISTERRE	TRAPEZITA
E-ITALY	ITL	VSR
E2D	JONIX	ZEGO

The School of Entrepreneurship (SCENT)

The School of Entrepreneurship (SCENT) was established in January 2014 with the mission to study and promote entrepreneurship and innovation. In order to reach his goal, SCENT dynamically operates on three different levels:

- Producing new knowledge on innovative startups and early stage entrepreneurship
- Developing education programs in technology-based and innovative entrepreneurship
- Creating a community to share entrepreneurial expertise

1. Research

There are three main lines of research within the School:

The Global Entrepreneurship Monitor (GEM) Italy

GEM is the most important global research on early stage entrepreneurship with more than 70 countries involved in 2015. We are active since 2012.

The monitoring of technology-based startups in Italy

We analyze innovative startups in Italy using official data and data collected from surveys. In 2014 we started the first analysis of technology based startups at the Country level.

Innovation and entrepreneurial ecosystems

Recently we have added a new stream of research on innovation and entrepreneurial ecosystems.

2. Education

Universities have a great enterprise creation potential that is still underexploited. The **SCENT Venture Program** aims at providing researchers, PhD and graduate students, with an entrepreneurial orientation, a focused training course and appropriate support for the development of entrepreneurial skills.

School of Entrepreneurship (SCENT)

Department of Industrial Engineering
University of Padua
Via Venezia, 1 – 35131 Padova

Website: http://scent.dii.unipd.it
Email: info@scentproject.org

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