PANORAMA

FEBRUARY 2015

France, a favourable country for the development of start-ups?

COFACE ECONOMIC PUBLICATIONS

By Coface Group Economists

The democratization of the Internet access in the 1990s has led to the creation of many companies. This period of high economic dynamism has seen the intensive use of Information and Communication Technologies (ICTs) through a decline in IT services prices. This breakthrough innovation has quickly become accessible to all economic agents. It has contributed to the rise of Start-ups whose one of their founding principles is innovation. For this reason, a strict definition of the concept start-up does not exist. Externalities generated by the innovations of these "companies" are subject to continuously make the surrounding environment evolve and vice versa. If the innovative feature marks the difference between a conventional company and a start-up, the latter nonetheless remains a fragile entity, particularly in the early years of their lives. In this context, we question ourselves about their health: is their dynamic more favorable comparing to French companies as a whole? Is the French environment more favorable compared to other countries?

We first define the framework within which the concept of start-ups emerged and explain that innovation is a creative destruction vector. As defined by Larousse (a French publishing company), innovation is "a process of influence that leads to social change and its effect consists in rejecting the existing social norms and proposing new ones". Indeed, if the product and process innovations still have a significant weight, marketing and organisation innovations are getting more and more importance. They represent, within French SMEs, 37% of innovations between 2008 and 2010. Then, we look at the dynamics of start-ups creations, their weight in the economy but also the evolution of their failures in France in order to assess the risks related to their very particular status. Are start-ups more fragile players?

We analyse afterwards the French ecosystem using three main pillars, by comparing it with other countries. We place France on its ability to train individuals, specificities related to the behavior of the French population and the access to financial resources. We highlight the importance of public participation and the limits caused by the hexagonal specificity. Finally, we draw a conclusion on the quality of this ecosystem linked to the development of start-ups in France.

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FRANCE, A FAVOURABLE COUNTRY FOR THE DEVELOPMENT OF START-UPS?

BY OUR ECONOMISTS

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INTRODUCTION

The word start-up immediately brings to mind the 2000s (the noughties) and the democratisation of Internet access which led to the creation of many companies. This concept is not limited to companies in the Information and Communication Technologies (ICTs) sector, even though this sector is one of the main innovation catalysts and, hence, at the core of start-up activity today. However, the first years in the life of an enterprise are also characterised by a high risk of failure. This is even truer of start-ups, which gamble on innovation. With no fewer than 120 companies present at CES [1] in 2015, France was the 5th largest global delegation and the largest European one. It seems, therefore, to have a strong foothold in the global start-ups' landscape.

In the light of this, we examine their current state of health: are their dynamics more favourable than those of French companies as a whole? Are they better off than start-ups in other countries?

To answer these questions, we first define the concept of start-up and set out the main stages of a start-up's life cycle. We then look at the dynamism of start-up creation, their weight in the economy, as well as their pattern of failures in France in order to assess the risks inherent in their very particular status. Building on these elements, we analyse the strengths and weaknesses of the environment in which French start-ups operate by comparing it with other countries.

We also focus on the factors conducive to the creation and development of start-ups: innovation, technical as well as public or private financial supports. Finally, we emphasise the obstacles restricting their development.

(1) *Consumer Electronic Show, global tradeshow focusing on technological innovation for the general public*

1 START-UPS: DEFINITION AND STYLISED FACTS

The concept of a start-up invites us to consider newly created businesses with strong potential. In French, the term adopted by the French Economy and Finance Ministry is "jeune pousse" (young shoots) and means a young, innovative, dynamic and fast-growing company. While there is no universal definition, that of Steve Blank, an influential Silicon Valley entrepreneur will serve: "a start-up is an organization formed to search for a repeatable and scalable business model". In other words, it refers to any newly created business developing an innovative offer for new markets and/or needs requiring the search for a viable business model. What differentiates it from a traditional company is its innovative and groundbreaking approach.

At the origin of start-ups are entrepreneurs, whose creativity and ingenuity generate an innovative idea capable of meeting a high demand. In order to distinguish start-ups from their conventional counterparts, one has to understand the innovation on which these young companies are founded. A real challenge, which is accompanied by a significant need for capital to support their exponential growth. But this extreme dynamism is also a factor of increased risk.

France, an average student when it comes to innovation

These young, innovative companies are an essential link in the capitalist economy, whose growth cycles largely depend on innovation. This notion can be found in the term "creative destruction" coined by Schumpeter [2]: the diffusion of innovation in the economy supports growth but it is also a vector of crisis as it requires a reallocation of factors of production. Thus, innovation is vital for developed economies, which struggle to compete on prices with emerging countries, as it allows them to benefit from a competitive advantage. In the linear model of innovation, research leads to development and then to production. But innovation should be seen as transversal with a multitude of interactions within the value chain as posited by Kline and Rosenberg in 1986.

It is useful to distinguish four types of innovation *(table n°1)*. For a long time, public authorities focused on the innovation of process or of product, which was more in line with policies supporting research. However, within French SMEs, 37% of innovations between 2008 and 2010 related solely to marketing and organisation, i.e. one of the highest ratios in the OECD countries, comparable with Israel (39%) and well ahead of Germany (19.6%) or the United Kingdom (26.7%) [3].

The start-up, an old concept

The advent of new technologies in the late 1990s is largely responsible for democratising this concept. But throughout contemporary history, young companies have profited from breakthrough innovations tapping substantial investment flows seeking high returns. Accordingly, the expansion of electricity led to significant speculation, especially in hydroelectric technologies, leading to the bursting of a bubble in 1901.

And then in the 1920s, wireless transmission drew investors towards radio broadcasting companies, which triggered the creation of a bubble known as radio mania.

Table n°1
The four types of innovations, Oslo Manual (OECD, 2005)

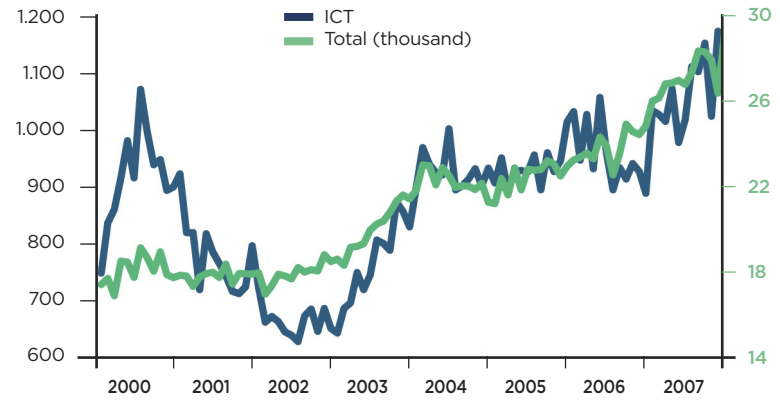
Product	Process
Introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses.	Implementation of a new or significantly improved production or delivery method.
Marketing	**Organisation**
Implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.	Implementation of a new organisational method in the firm's business practices, workplace organisation or external relations.

(2) Schumpeter, "Capitalism, Socialism and Democracy", 1942
(3) OECD, "OECD Science, technology and Industry Scoreboard, 2013", December 2013

The Internet, a breakthrough innovation...

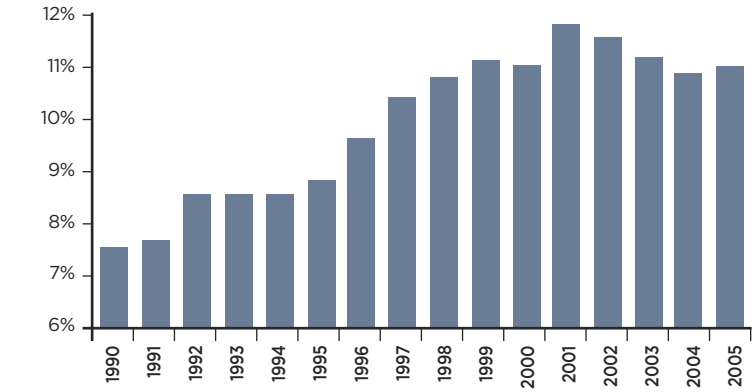
The expansion of domestic Internet access began in 1993 with the launch of the NCSA Mosaic web browser followed in 1995 by Netscape and Internet Explorer. The perspectives offered by this new tool created a veritable El Dorado towards which rushed many entrepreneurs. In France, the number of new companies operating in the ICT [4] sector grew strongly *(chart n°1)*, indicating the keen interest in the sector. Companies benefited enormously from falling prices for IT systems by implementing far-reaching modifications of the information and organisation systems across all economic sectors. This context contributed to the economic momentum of the 1990s, when France recorded average annual GDP growth of 2.4% and the United States 3.4% [5]. This breakthrough opened the way to the "New Economy" which can be defined by the spread of ICT to the whole economy and the consequences of this process in terms of macroeconomic behaviours and organisational changes [6].

Chart n°1
New companies, monthly trend, France



Source : Insee

Chart n°2
Share of investments in ICT stocks, France (% of total)



Source : Insee

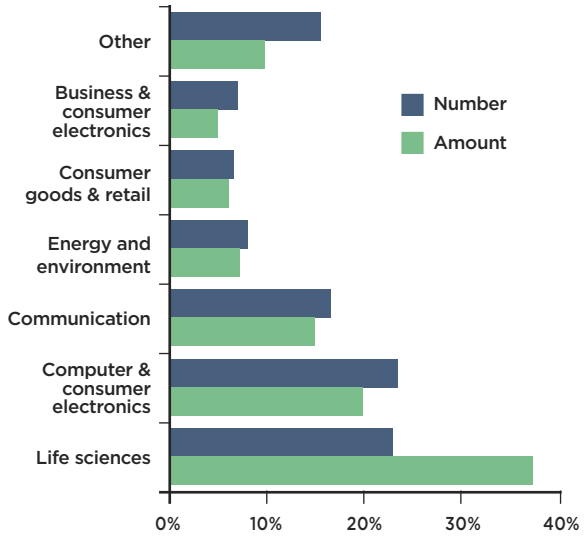
But, in the early 2000s, this craze for ICT companies ended abruptly with a dried up of investment flows and a stock market crashed. We should remember that at the height of the bubble, the PER [7] for tech stocks had climbed to 70 in France and in the Eurozone, and 50 in the United States, whereas a company's average PER ranges between 15 and 25. In September 2000, the CAC40 reached 6,800 points to drop back to 3,000 points in late 2002. Alan Greenspan, the governor of the US Federal Reserve at the time, warned of "irrational exuberance" [8]. But the proportion of investments [9] in ICT stocks in France remained strong even after the crisis, representing more than 10% of total investments *(chart n°2)*.

... but other sectors are also affected

Investments by venture capital companies in Europe admittedly highlight the predominance of companies linked to the Internet, but above all show the growing weight of other sectors such as industry, medical or biotechnology *(chart n°3)*. There has been a shift away from investment in telecommunications, which in 2000 represented 16.6% of total investments, against 0.8% in 2014.

Finally, if start-ups are so difficult to identify, it is because they have so many different traits and the entrepreneurs' ideas are stimulated by a constantly evolving environment. Often pioneers, the risk factor is omnipresent and guides the day-to-day choices made by these entrepreneurs. Can this unstable context make start-ups fragile players?

Chart n°3
Venture capital investments, Europe (% of total, 2013)



Source : EVCA

(4) Insee, NAF codes 58 to 63
(5) For more information, see: A. Quinet, "Nouvelles technologies, nouvelle économie et nouvelles organisations", (New technologies, new economy and new organisations), Banque de France, 2000
(6) Banque de France, "Le financement des entreprises de la nouvelle économie" (Financing new economy companies), January 2002
(7) Price Earning Ratio, ratio of profit to stock market capitalisation
(8) FED, "The Challenge of Central Banking in a Democratic Society", 5 December 1996
(9) Gross fixed capital formation, non-financial, information and communication technology companies

2 START-UPS FAILURES IN FRANCE

To observe the trend in start-ups failures in France, we analyse the relevant period of the Internet bubble (1999-2005) and then that of the financial crisis (2006 to present). We consider here all the companies in the ICT sector (main host sector in terms of venture capital, with 27% of operations in number and 34% in value in 2013 [10]) to which we apply the criteria of age and turnover. The limits of this study chiefly relate to the lack of financial data and the start-up creation dates affected by certain legal procedures.

The effects of the financial crises

It comes as no surprise that the Internet crisis highlighted the high failure rate of ICT companies, peaking three years after the bubble burst (+74% insolvencies in December 2003). Consequently, it makes sense to take a look at companies in the ICT sector to explain the failures of start-ups during this period, especially because of the divergent trends when compared with total failures *(chart n°4)*.

More recently, the 2008 financial crisis had its origins in the US real estate sector. Indeed, if we look at the insolvencies in the ICT sector for this period, we see that the trend is not the same as that observed in the early 2000s, as start-ups failure rate was below that of businesses as a whole *(chart n°4)*. This is because this crisis was not created by ICT sector companies.

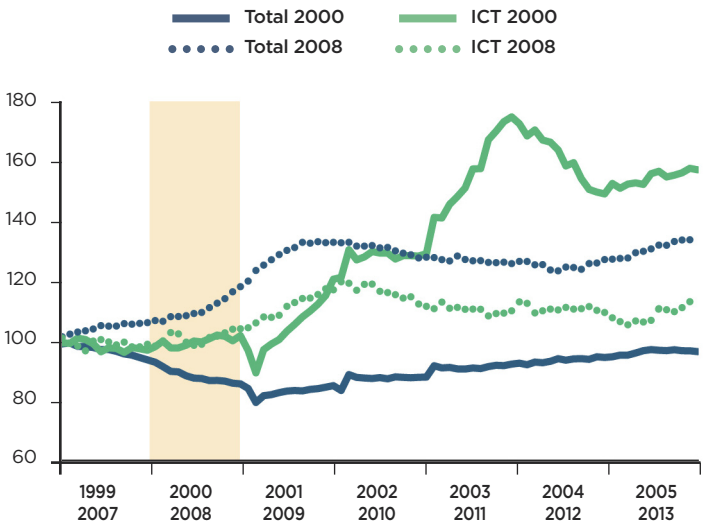
Start-up failures in the ICT sector since 2006

Considering the large number of observations and the limited capacity to extract historical financial data, we have reduced the sample to companies operating only in the ICT sector. A start-up was considered to have failed (restructuring and court-ordered liquidations) if it met the following three criteria:

(i) Less than 6 years in business; [11]
(ii) Turnover above €150,000;
(iii) Sales growth above 50% over the period under review (2006-2014).

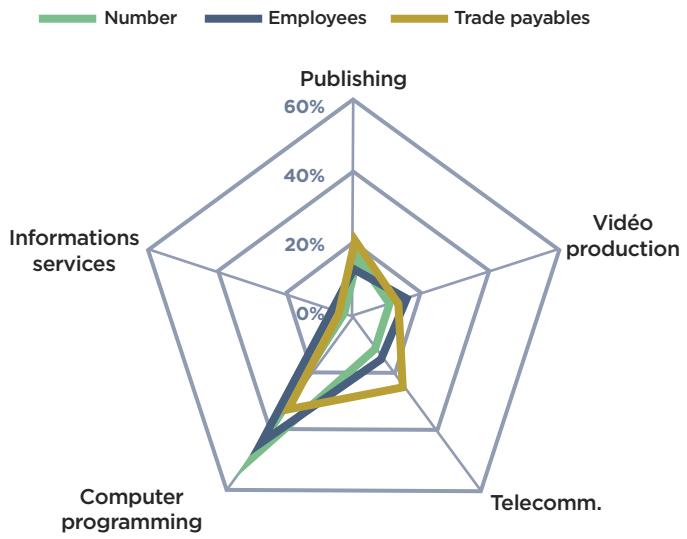
The analysis reveals a sample of 172 start-ups over 9 full years (2006-2014), or about 18 failures a year on average. If we look in detail at the subsectors of the ICT companies, we see strong concentration in activities associated with IT programming and telecommunications. If we add in IT services, the total represents 70% of the total turnover and trade payables of the sample *(chart n°5)*. Meanwhile, the Ile-de-France region is over-represented with 51% of failures in the sample compared with 46% of total failures in the ICT sector for the same period.

Chart n°4
Insolvencies in ICT sector vs. all sectors, France (100=January)



Sources : Scores & Décisions, Coface, Banque de France

Chart n°5
Distribution of sample of failing start-ups in ICT sector, France (% of total, 2006-14)



Sources : Scores & Décisions, Coface

(10) EVCA, venture capital only
(11) Period between starting up and a default-type event. This age limit was chosen in the knowledge that 52% of companies fail after their first 5 years of business (see Court of Auditors, "Measures of support for enterprise creation", December 2012). Equally because the age limit for benefiting from young innovative enterprise (JEI) status is 8 years. This status was introduced in 2004 to provide fiscal support for eligible innovative enterprises (highly R&D intensive and under 8 years old

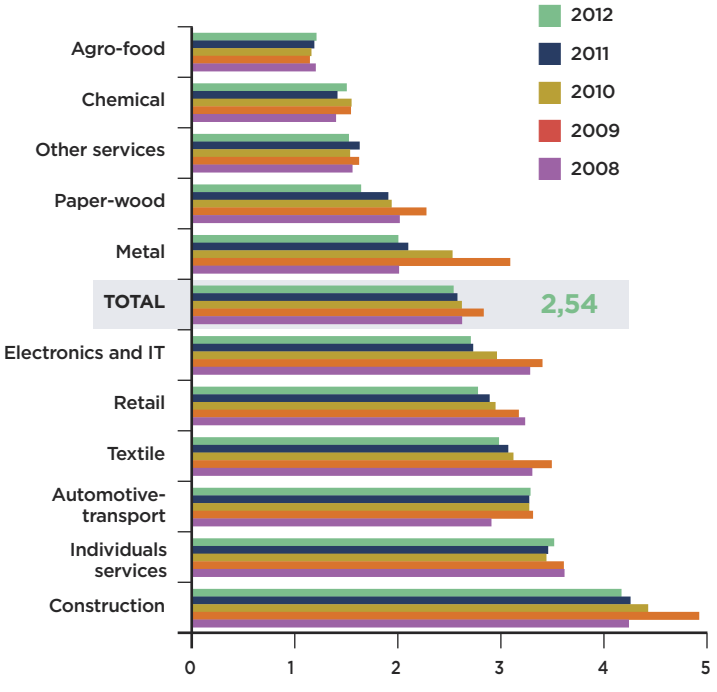
The number of companies in the sample needs to be seen in the context of the number of newly created, innovative enterprises which are similar to start-ups. Several estimates have been performed. We will rely on the one from a report of the Ministry of Higher Education and Research, which puts the number at about 800 a year [12]. The failure rate of our sample is, therefore, 2.25%. If we compare this figure with the rates observed in France, the failure rate of start-ups in our sample is below the average for all insolvencies in France, which was 2.54% between 2008 and 2012 *(chart n°6)*.

This result corroborates to some degree the result set out in the aforementioned report by the Ministry of Higher Education and Research. This study estimates that after the first 5 years in business, the rate of disappearance for young innovative companies is between 10% and 15%, compared with 30% for all new companies. The order of magnitude is different because our sample does not take delisted companies into account but only considers those which have undergone legal proceedings. The lower failure rate for start-ups can also be explained by the way they are financed. Unlike traditional businesses, they have had to submit their business model to investor scrutiny. They can only exist thanks to the support of investors who have approved their prospects of success, even before they legally exist, and so have been through a natural sifting process.

However, start-up failures have increased since 2013, as have total insolvencies. The number of employees concerned varies between 50 and 250, which illustrates the small size of the companies *(chart n°7)*. Regarding average staff numbers, it reaches 7.6 employees. On the other hand, turnover and trade receivables amount respectively to 926,000 and 204,000 euros on average. But considerable disparities can be observed for the period under review, particularly regarding average turnover. While the number of start-up failures has been rising since early 2013, their size has been falling steadily, such that turnover averaged 507,000 euros and employees 3.7 at the end of 2014. So, while start-up failures have been climbing for two years, they mostly concern smaller structures.

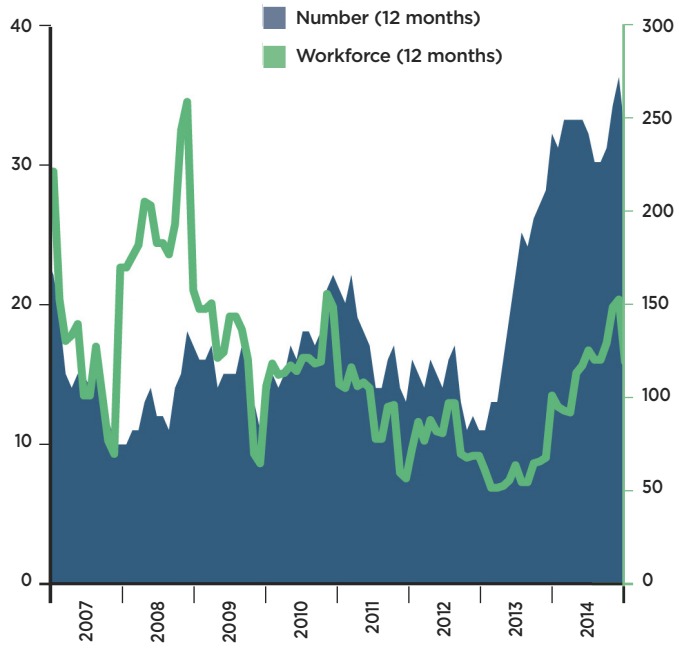
The study of our sample allows us to draw several conclusions. First, the failure rate appears lower than that for all companies. Second, the size of the companies remains very modest and is shrinking. At the same time, the number of start-up failures has been increasing since 2013, as have total company insolvencies in France. Nonetheless, it is worth noting that the high rates of enterprise creations since early 2013 (267,000 new enterprises at end 2014, excluding autoentrepreneurs) automatically lead to an increase in start-up failures.

Chart n° 6
Failure rate by sector, France
(% of total population of businesses)



Sources : Scores & Décisions, Coface, Insee

Chart n° 7
ICT sector start-up failures in the sample, France [13]



Sources : Scores & Décisions, Coface

(12) Barrot et al., "Buyouts of young, innovative technology companies, measurement and analysis" September 2011

(13) Failing companies in the ICT sector (NAF codes 58 to 63), trading for less than 6 years, with turnover in excess of 150,000 euros having risen >50% over the period under review.

3 DEVELOPMENT OF START-UPS: WHAT ARE THE KEYS TO SUCCESS?

As we have seen, creating a start-up is the result of an entrepreneur's ability to bring forth an innovation, implement and develop it. Below we set out three pillars needed for start-ups to develop:

- **A - Training:** public policies are essential to support training and research;
- **B - Behaviour:** despite fertile ground for creation and innovation, the ability to take the risk of doing business can be hampered by a cultural heritage which creates risk aversion;
- **C - Financing:** investments in start-ups should be encouraged so that more of them benefit.

A - Training: a trained population and leading edge research

One of the primary characteristics supporting the creation of young innovative enterprises is the population's level of training. A study [14] carried out in the United States shows that the intellectual level is the chief factor explaining the inequalities between universities when it comes to generating start-ups. Let us put into perspective the stereotype that their directors are young, exceptionally talented students like Bill Gates or Steve Jobs. Another US study [15], based on a large poll of young, innovative companies paints a composite picture of the founder of a start-up. He (or she) is aged 39 and more than 92% of these entrepreneurs have been through higher education (52% have the equivalent of a bachelor degree - 3 years of higher education, 30% an equivalent of a master degree - 5 years of higher education - and 10% have a PhD). Thus, the level of a population's human capital is a crucial vector for the emergence of tomorrow's innovative business leaders.

A high level of education

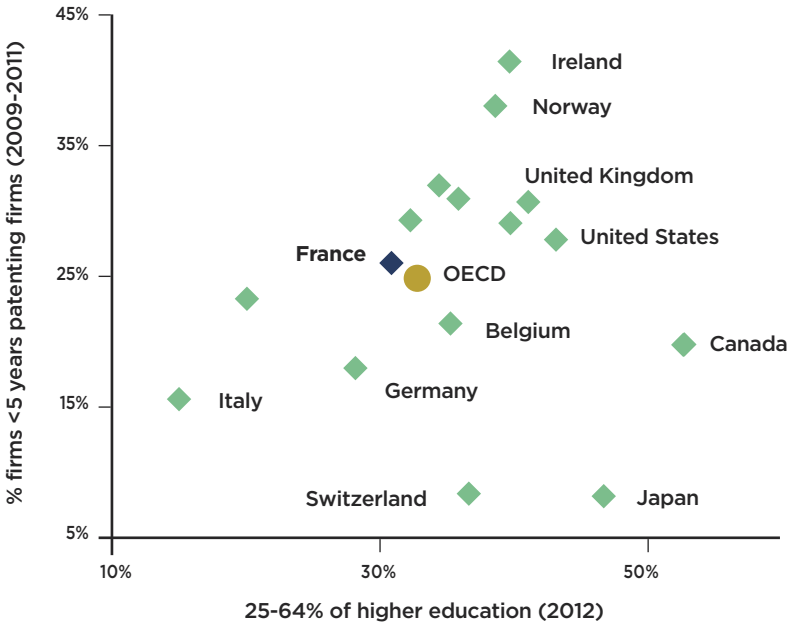
Almost 31% of French people aged between 25 and 64 have been through higher education. This proportion is 43% in the United States, 41% in the United Kingdom, but only 28% in Germany *(chart n°8)*. France is therefore on a par with the OECD average. It should be noted, however, that the training of young people in France yields better results, as the proportion of those aged between 25 and 34 with a higher degree (43%) is well above the OECD average (38%). Although higher levels of training are associated with greater levels of dynamism in terms of innovation, the direction of causality is nonetheless uncertain. If we look again at the indicator of dynamism for start-ups, namely the number of young patenting firms *(chart n°8)*, which we treat as start-ups, we notice that some countries with a high level of education report low numbers of young patenting firms (Japan and Switzerland). Conversely, other countries with education levels similar to France have a higher number of young, innovative enterprises (Ireland, Norway).

So, while training definitely remains key, it does not automatically explain the creative energy of young companies. A substantial research program could be another part of the answer.

The effectiveness of research and development (R&D)

Since the post-war years, the State has repeatedly intervened to encourage R&D. While the ultimate aim is to improve economic and social wellbeing, the goals of a public policy assisting research lie in weighing up the costs for the smallest structures, the dissemination of externalities to the whole economy and the substitution of sometimes deficient credit markets. And, while not necessarily all innovative enterprises undertake R&D, they still benefit from the externalities resulting from the research done by other players.

Chart n°8
Education and young patenting firms



Source : OECD

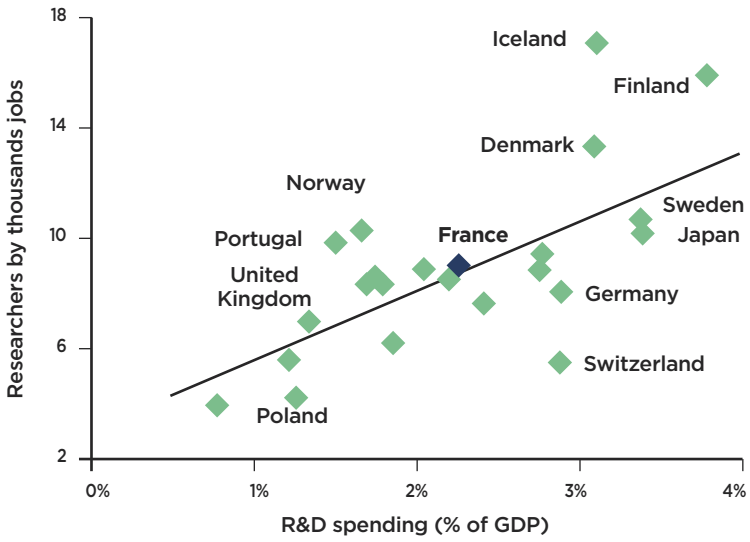
(14) Gergorio and Shane, "Why do some universities generate more start-ups than others?", 2003
(15) Wadhwa et al., "Education and Tech Entrepreneurship", Kauffman fondation, May 2008

In France we have almost 9 researchers for 1,000 inhabitants, which places us in line with the OECD average *(chart n°9)*. In this area, France is more successful than Switzerland or even Germany, which, though spending more (2.9% of GDP), has fewer researchers (8.1 for 1,000 inhabitants). The French environment does encourage R&D. In recent years, public policies have continuously fostered R&D, particularly through incentives such as the research tax credit (2008), the future investment hub (2009) and the law on the autonomy of universities (2010). As a result, among the major countries performing research, France is in third place behind Russia and the United States in terms of tax incentives and direct public finance for research (OECD). Total R&D spending thus rose from 2.1% of GDP in 2008 to 2.3% in 2012.

France's respectable position vis-à-vis the other developed countries should not disguise certain weaknesses. 35% of overall R&D spending is covered by the State, a lower rate than in the southern Europe countries like Spain (43%) and Italy (43%), but well above innovative countries like Israel (12%) or the United States (31%). This throws up the question of how effectively the spending is allocated. According to the OECD, French research topics were the most rigid compared with those of the major "researcher" countries between 2001 and 2011. In other words, the research topics hardly changed and so were unable to respond to changing demand. This is borne out by France's low representation on the global ICT market.

However, innovation is not only generated by R&D departments which are a tool but not the only instrument. This commonly held view could hamper innovation, by putting invention ahead of innovation *(box n°1)*. Though, 30% of innovative French companies do not spend on internal R&D, compared with 40% in Germany and 52% in the United Kingdom [16]. France is thus in 6th place in the world for R&D, but 17th for innovation [17]. So, we can see that the causality between the level of R&D and innovation needs to be kept in perspective without however minimising its importance.

Chart n° 9
Researchers and R&D spending (2009-2011)



Source : OECD

Text box n°1

Frédéric Potter

CEO and Founder Netatmo,
start-up specialising in connected products

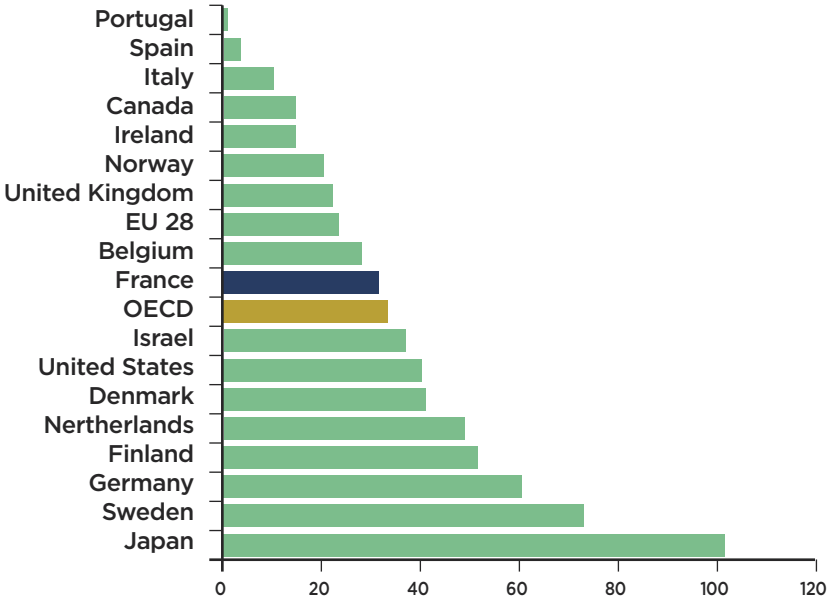
"Most of the innovations created by the Americans in the past 20 years have been gadgets. All my life as an entrepreneur, when I set up a new company, I have had to conceal the product I was intending to make from my suppliers so that they would trust me. Because if you say you are investing 2 million euros in house thermostat connected to the Internet... people will look at you in wide-eyed bewilderment. Even though a whole industry has built up around the connected home and environmental monitoring. [...] So one shouldn't be afraid of making gadgets. Drones started out as toys, the IPhone was a calculator. In France, we find it difficult to make gadgets."

Comments made during the
Coface Country Risk Conference 2015
27 January 2015, Paris

(16) Morand and Manceau, "Pour une nouvelle vision de l'innovation" (For a new vision of Innovation) April 2009
(17) ICC PARIS Ile de France, "Débrider l'innovation : enjeux pour les entreprises et l'emploi, défi pour les politiques publiques" (Unleashing innovation: issues for businesses and jobs, challenges for public policies) January 2015

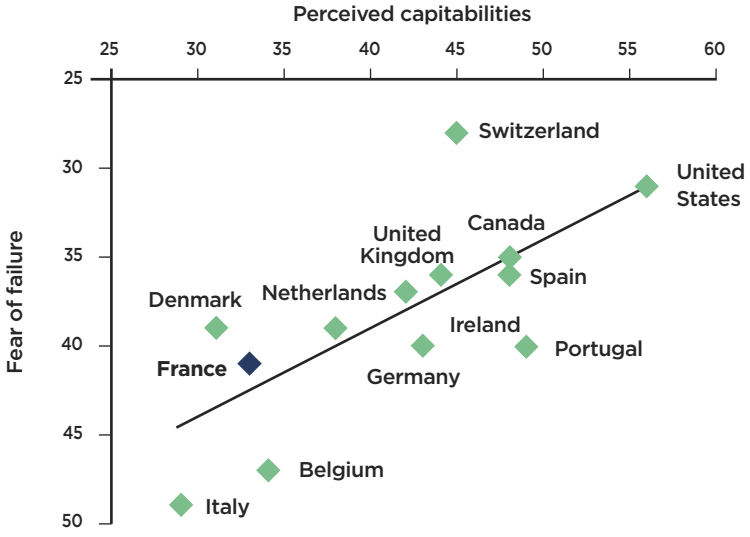
We can also measure a country's innovation capacity by analysing the number of patents filed. On this measure, France is slightly below the OECD average, but above that of the European Union, with 31 triadic patents [18] per inhabitant *(chart n°10)*. Our capacity to innovate would, therefore, seem to be similar to the average of the other developed countries. But innovation cannot be reduced simply to patents as this indicator has several limits: the variable quality of patents between countries, businesses choosing not to file patents or even the significant number of patents with no commercial implications.

Chart n° 10
Number of triadic patents per million inhabitants (2009-2011)



Source : OECD

Chart n° 11
Risk-taking indicators



Source : Global Enterpreneurship Monitor

Equally, although difficult to quantify, creativity is also an essential catalyst for innovation. On the Global Innovation Index [19] rankings (Cornell University, INSEAD, World Intellectual Property Organisation), France has a score of 45.5% for the Creative output pillar and ranks 20th out of 34 OECD countries, behind the United Kingdom (56.6%), Germany (50.4%) and the United States (46.5%). This composite indicator measures, in particular, the level of services with a high degree of creative content from which the populations benefit (audio-visual, arts activities).

Though education and research support innovation, whether these actually bring results also depends on behaviours linked to a more or less risk-adverse cultural heritage.

B - Behaviour: risk aversion - this French weakness

An observation of international cultural differences suggests a sociological aversion to risk in the case of France. This aversion is manifested in the French translation of venture-capital as risk capital, which equates the word adventure with risk.

The same desire but not the same apprehensions

According to Global Entrepreneurship Monitor (GEM), whereas only 23% of French people thought they had favourable opportunities for setting up a company, the percentage is 47% for Americans, 36% for the British and 31% for the Germans. Among those individuals perceiving these opportunities, 41% of French people believed that fear of failure would prevent them from starting their own business. This rate is higher than for their German (39%), UK (36%) or US (31%) counterparts. We must point out that before 2013 failure had a significant impact on an entrepreneur's life. Indeed, entrepreneurs whose businesses were subject to a court-ordered liquidation with no failure of management were put on record by the Banque de France. Since then, an effort has been made to destigmatise failure, but this goes to show that for a long time entrepreneurs may have found it very difficult to access bank credit when wanting launch a new business.

Moreover, the French seem to suffer more from a skills and know-how deficit put at 33% compared with 56% in the United States and 44% in the United Kingdom *(chart n°11)*. The administrative burden may partly explain this figure, although France has tried to simplify procedures, in particular for setting up businesses, by launching an option to register a business online and by abolishing the minimum capital requirement for private limited liability companies in 2005. As a result, the average time needed to

(18) Patents filed with the three main offices: the European Patent Office (EPO), the Japanese Patent Office (JPO) and the United States Patent and Trademark Office (USPTO)
(19) Cornell University, INSEAD, World Intellectual Property Organisation

set up a business fell from 7 days in 2007 to 4.5 days in 2014 [20]. Despite this apprehension and the perceived skills deficit, the entrepreneurial ambitions of the French are similar to those of the Americans.

The paradoxical link between entrepreneurial ambition and French cultural and sociological heritage can be interpreted as a self-selection process for start-up entrepreneurs. Because the fear of failure is very discouraging, only individuals with a robust idea and who are really motivated will get involved in an entrepreneurial adventure. This caution, characterising the French approach, is fuelled by a more specific perception of failure. While, in some societies, failure is seen as an integral part of success and is experienced as an almost essential step in achieving it, the French model has the opposite relationship with failure, in which it is seen as something to be avoided at all costs.

Aversion to risk would, therefore, seem to be very present among the French in the age group likely to be present on the job market. While these fears, this pessimism and these doubts need to be understood and relativized according to the general context of economic slumps or growth in which they arise, the French model would, generally speaking, seem to both benefit and suffer from a cultural heritage which encourages caution.

There are other curbs on the dynamism of start-ups creation. In France, for innovative companies with 10-49 employees, the lack of own funds (OECD) is one of the principal brake on their development. Financing is still a crucial part of their life cycle.

C - Financing: a real stumbling block for the development of start-ups

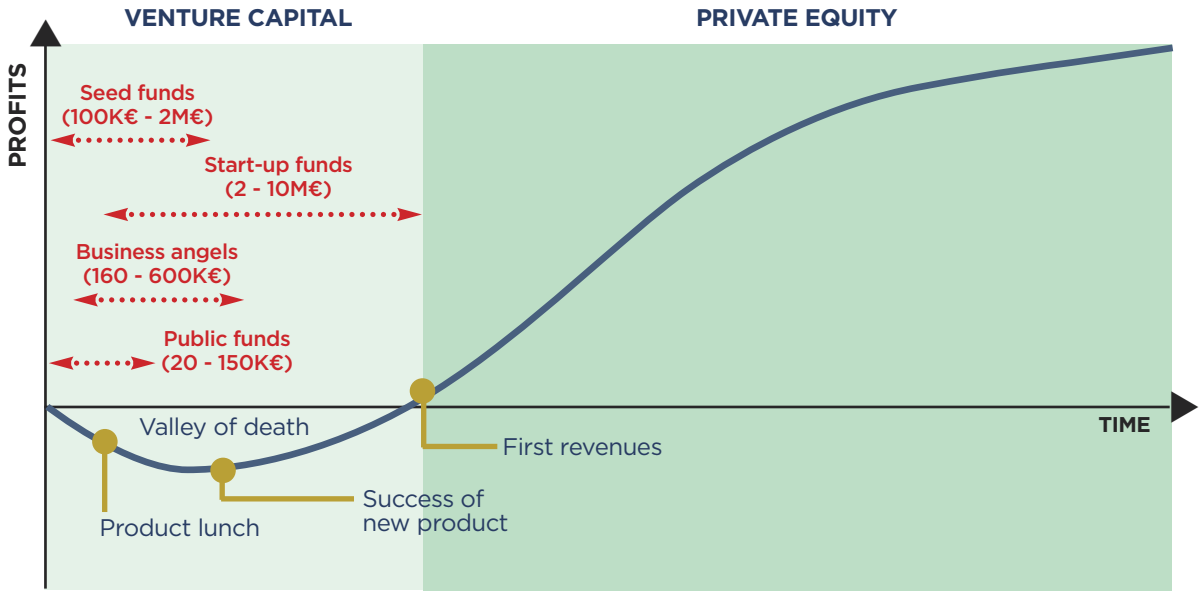
While access to finance is necessary for a start-up's development, assessing its future profitability is very delicate and uncertain. Whether financed through debt or capital, from private or public sponsors, start-ups are dependent on financing for a long period in their life cycle.

The role of incubators

In the early stages of a start-up's life, incubators play a key role particularly in keeping down development costs thanks to the sharing of administrative expenses. Some incubators also offer advice, financial assistance and other services. They can be for- or not-for-profit and are different from hatcheries and accelerators, as they focus solely on innovative projects and are not involved in the same stages of development.

There are so-called Allègre public incubators [21] which support the originators of projects for the creation of innovative new businesses arising out of or directly linked to public research. They have hosted almost 4,000 projects, of which 2,700 have led to the setting up of new businesses. Private incubators associated with engineering and business schools, unlike the public incubators, are driven by a desire for profitability. Generally, one can make a distinction between the extent of public support, the competitiveness clusters or the territorialised networks created in 2005, the SAATs (Société d'accélération de transfert de technologie - Technological Transfer Acceleration Company, created in 2012), and the IRTs (Instituts de recherche technologiques - Technology Research Institutes, created in 2013). The setting up of these incubators facilitates the speedy move from research to innovation and increases the technological transfer to other economic stakeholders. While it is still too early to assess the impact of this policy on the effectiveness of R&D, this commitment is encouraging for the future.

Chart n°12
Life cycle and financing



Sources : Coface, France Angels

(20) "Doing Business 2015", World Bank
(21) Resulting from the law on Innovation and Research of 12 July 1999, maximum incubation period of 24 months

Too few business angels

These are individuals who invest their own money in companies, mainly in their first stages of development. As early investors, their involvement can coincide with love money from family, friends and some State support. In the United States, business angels are closely intertwined in the system of financing start-ups, with some 298,000 investors[22] compared with 8,000 in France, 25,000 in the United Kingdom and between 5,000 and 10,000 in Germany[23]. While the number of business angels is growing *(box n°2)*, they are not as active as in the Anglo-Saxon economies. The dominance of bank credit in the French economy may have atrophied this form of finance.

Text box n°2

Tanguy de la Fouchardière,

Vice-president France Angels, federation of business angels

What is the most significant brake on the development of venture capital in France?

Half of the Business Angels surveyed for the Barometer France Angels/BFM Business in 2014 said that regulatory and fiscal uncertainty was the main brake on the development of their investment. In second place was the legal framework's lack of visibility and insufficient fluidity in the funding chain (for example between the Business Angels and investment funds) which makes it difficult to pass from one to the other.
Among the factors for improvement they would like to see: making it easier to bring investors together (especially Business Angels during the first funding rounds in the life of a company and accordingly establishing relations with Venture Capitalists to finance the development of start-ups) and having a regulatory framework that remains stable over the medium term in order to encourage investments.

Does the ICT sector occupy a dominant position in your investments?

The digital sector and the Business Angels are at the heart of innovation. This is all the more important now that, in an increasingly globalised economy in which digital technology has no borders, it has become indispensable to the emergence of tomorrow's champions. Where the constant search for permanent gains in competitiveness cannot take place without innovation, the latter likewise cannot take place without financial investment. The Business Angels who are members of networks affiliated to France Angels are by definition closely associated with the digital universe (which represented 60% of annual investments in volume and value terms in 2013). This is explained by the fact that the Business Angels are there as guides to innovation before being investors. And that innovation as a concept is not just about technological advances, but has now been superseded by the idea of innovation in use and process.

What key characteristics must a young company have to attract your attention?

The main criteria for attracting a Business Angel include:

(1) The market targeted by the company and its size;
(2) The added value of the offer compared with the existing offer, its innovative nature;
(3) The project's credibility;
(4) The cohesiveness of the team;
(5) The growth prospects;
(6) Exit opportunities for the Business Angels.

It is important to remember that Business Angels intervene at the very start of the marketing phase of the product/service when the projects are still immature and the business model can evolve. This assumption of risk is one of the difficulties of their action.

Do you see appearing specific competition from the new participatory funding modes?

Participatory finance on the whole complements rather than competes with the actions of the Business Angels in serving the business community and developing the local economy. The crowdfunding platforms represent new opportunities for individuals wanting to invest in young innovative companies. They can also offer new methods of co-investment for the Business Angels, as participatory finance is not always positioned on the same types of project as those financed and accompanied by the Business Angels. So, the latter have considerable professional expertise (entrepreneurs, senior managers, engineers, ...), are very focused on innovation and tend to be attracted by projects with a B2B business model. Conversely, individuals investing via crowdfunding platforms are rarely experts and need to see themselves as a potential customer for the product or service proposed by the company before deciding to invest. They thus come in on business projects in which the Business Angels are not necessarily positioned.

However, what basically distinguishes them is in their ability to accompany the businesses they invest in. This role, which is crucial, is not one for the crowdfunders nor the platforms themselves, as they have neither the human capacity nor the expertise. Only the Business Angels, because they are doing it voluntarily, can commit to accompanying a business, especially an innovative start-up with a substantial need for expertise. Participatory finance is a response more suited to companies which are not looking for finance.

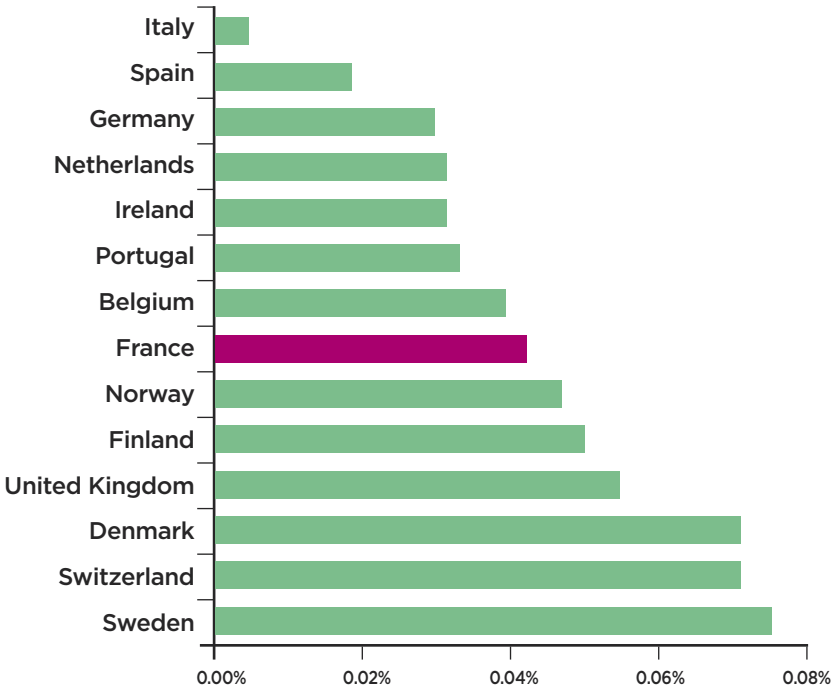
(22) Angel Capital Association, "2014 ACA Background and Statistics", 2014
(23) European Commission, "Evaluation of EU Member States' Business Angel Markets and Policies Final report", Centre for Strategy & Evaluation Services, October 2012

Venture capital as a catalyst for start-ups

This money finances young, high-potential companies. Investors bring equity by taking a share in the business. This financing method has developed since the 1990s. In the United States the increase in the number of start-ups during the Internet bubble was mainly due to the expansion of venture capital.

Raising funds is one of the key features which sets the pace of life for a start-up, but it is still a delicate exercise. Young companies do not have internal resources, which prevents them from financing themselves. The most significant obstacle is the asymmetry of information between the entrepreneur, who wants to protect his innovation, and the investor, who wants to assess the risk/return ratio as exactly as possible. Capital injection from an investor establishes the credibility of the start-up's business model, giving it another status within its ecosystem. Conversely, failure can mean the end of the start-up's life. With a total volume invested of 0.04% of GDP between 2007 and 2013, venture capital in France does not seem to have dried up compared with other European countries *(chart n°13)*. In 2013, these funds invested in 378 French companies, compared with 738 in Germany and 336 in the United Kingdom. But the weaknesses of venture capital can be measured by two main characteristics.

Chart n°13
Funds invested in venture capital (% of GDP, average 2007-2013)



Source : EVCA

First, the public authorities play a significant and growing role in French venture capital, through, in particular, the Public Investment Bank (55% of total funds raised, compared with 20.8% in the United Kingdom and a European average of 33.8%). The over-representation of the public body in financing start-ups could skew the allocation of funds due to a bias in favour of employment and less importance given to profitability. Secondly, finance during the start-up phase, or "seed stage" remains problematic in France. Only 1.9% of venture capital funds were involved in 2013, against 12.4% in Germany and a European average of 7.9%. And this is a necessary stage of a start-up's life, but also the riskiest. Consequently, venture capital seed financing is less developed than the European country average.

While there may be many reasons for this weakness, weak representation of SMEs and medium-sized companies (MSEs) on the stock markets [(24)] does not appear to be the main one. This is because France registers a large number of financed start-ups which are then listed on the Stock Exchange. Indeed, to realise the return on their investment, investors can exit the company either through an acquisition by a third-party or by listing it on the Stock Exchange. Now in France, 27.5% of venture capital funds exited by means of a stock exchange listing, compared with a European average of 7.6% in 2013 (EVCA).

The growing success of crowdfunding

Crowdfunding is a disintermediated participatory form of funding which aims at connecting a large number of investors with companies. There are three types of transaction: donations, loans and the acquisition of stakes. The sector has recently professionalised itself with the adoption of an ordinance in September 2014. Crowdfunding companies can now obtain Crowdfunding Investment Advisor status from ORIAS. At the end of 2014, seven companies were thus authorised in France. This ordinance also fixes a cap of one million euros on the amount of capital that can be raised and a per lender/per project limit of 1,000 euros in order to limit the risk of non-payment for individuals. The success of this form of funding is significant. In the first semester 2014, 66 million euros [(25)] were invested, i.e. 100% increase compared with same period in 2013. Although capital investment made up only 13% of the amounts invested, the amount reached in 2013 represents the amount reached in the first semester of 2014.

(24) Rameix and Giami, "Rapport sur le financement des pme-eti par le marché financier (Report on the financing of SMEs and MSEs)", November 2011
(25) "Baromètre du crowdfunding en France 1er semestre 2014 (Barometer for Crowdfunding in France, 1st semester 2014)", Financement Participatif France, 2014

So venture capital in France has grown but reflects strong State presence which could skew the allocation of funds. Moreover, seed financing performance is weak compared with other European countries. At the same time, there do not seem to be enough business angels to address the problem. To remedy this, new sources of financing are emerging from the shadows. Crowdfunding looks promising, although it should not be over-regulated and its weight remains moderate.

Text box n°3

Vincent Lepage,

**Chief Technology Officer AlephD,
start-up specialised in real-time advertising**

What were the main obstacles to the development of your business?

The online advertising market is quite open, and its stakeholders are often willing to test innovative solutions. It is therefore a market rather easy to penetrate, and we didn't have any trouble opening its doors. However, we are in a niche market with only a few tens of prospects in Europe and a hundred in the world. We have to take great care of each customer, understand its exact needs, or even adapt. There are no real obstacles today, but rather challenges to take up : international expansion, understanding of local markets and product adaptation, recruitment

Have you benefited from public/private supports?

Yes, absolutely. We have received a sizeable repayable advance from BPI. Then, we benefit, as any innovative company, from the CIR and the Young Innovative Company status [(26)]. These financial conditions are very favorable to R&D in France.

In your opinion, are there areas for improvement to support the development of start-ups?

We can always do better! Nothing original: if the level of contribution or tax is relatively low and that we have benefited from several support mechanisms, all of that has an important paper cost... In particular, social obligations are very difficult to understand, it is a full time job (managed by our accounting firm). This topic makes uncomfortable business leaders because we always wonder whether we meet legal requirements. We can also have the feeling that it particularly affects small businesess, which do not have the dedicated resources, even if the thresholds system mitigates this effect.

Common knowledge, the French would be risk averse. What are the elements that actually allowed you to take the plunge into entrepreneurship?

Several factors played a part: it is a second career for the founders, we actually have some experience which allows to have the required maturity to talk to investors or B2B customers. It also enables us to have some financial security, at least in the early stages when it is difficult to get paid. It was the right time as well for this industry, growing and not very yet structured. Furthermore, I am not sure that risk aversion of French people is still as strong: students of the best schools today are dreaming about creating the next Facebook or Criteo, not working in a large bank or a large strategy firm. Accepting failure as a normal step, even rewarding in a CV, also removes a barrier.

Do you consider the French environment favorable to your development? Have you considered the expatriation of your company?

The environment in France is rather favorable, mainly thanks to the skills that one can find, relatively inexpensive in terms of salaries in Silicon Valley. However, our market is not located in France, which has forced us to quickly prospect export markets, first in Europe and in the United States today. In 2015, we should do more than 70% of our turnover from exports. But, the heart of R&D and technology remains in France, where the conditions to recruit and employ are better for these IT and datasciences jobs.

At what point in your development did you have to raise funds? Did you encounter constraints to convince financiers to support you?

The product we wanted to develop was highly technological, with significant need for R&D. At three, we knew that we could not obtain a satisfactory product in a reasonable timing, while the digital advertising industry is very competitive. From a prototype under testing at a client, we immediately sought to raise money from investment funds.
Overall, we have enjoyed a good calendar, with the success of Critéo (from where one of the founders came from) and French technology startups in general. Adtech is an important market, in full growth and favorable to startups. With a product in such a market, a founding team knowing techno and the industry, we meet the main requirements of the funds.

What is your view on the financing by crowdfunding?

This is a method of financing probably suitable for some projects, general use, able to federate enough contributors to collect reasonable amounts. Raising money is quite costly in time and energy, the amount raised has to be significant in regards to the effort. For us, on a very technical niche topic, in B2B, crowdfunding is not suitable.

What is the next step in your development?

We are opening an office in New York in this first semester, to be closer to our US customers, our technology partners, and the market in general.

(26) CIR : research tax credit (crédit d'impôt recherche), Young Innovative Company (Jeune Entreprise Innovante)

4 CONCLUSION

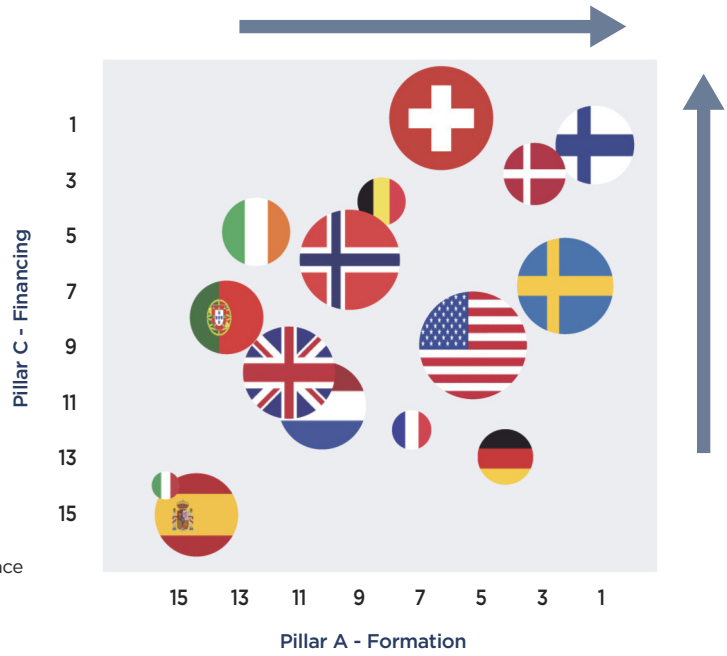
As we have seen the definition of a start-up refers to a concept. Thus, comparing the definition internationally seems tricky. However, a good point of reference to use would be the proportion of companies under 5 years old having filed a patent. According to the OECD (27), the figure for France was 26%, well behind Norway (38.1%), the United States (27.9%) or even the United Kingdom (30.7%) but ahead of Germany (18.1%). Although structurally, France is placed in the middle regarding young innovative enterprises, three pillars seem to us to be crucial to supporting their development. By looking at these pillars, one can assess France's relative position more accurately. Out of a sample of 14 European countries and the United States, France ranks alongside Germany *(chart n°14)*.

France benefits from a trained and qualified population (7th out of 15), which is an evidence of its capacity to innovate (pillar A - Training). This is the result of a transversal process which relies on a broad spectrum of skills, whether these be technical, artistic or organisational, thus falling outside the framework of R&D. It was for example the 3rd nation in the world in terms of the number of companies working in the field of biotechnology in 2011.

But it suffers from low levels of venture capital, especially for the early stages of a start-up (pillar C - Financing). This is because France lacks business angels and venture capital funds to finance the development of start-ups during the seed funding stage (12th out of 15). The public institutions have increased their involvement at the risk replacing the private market. But new sources of funding have emerged, such as crowdfunding which has seen strong growth in activity, even though its weight remains relative.

Finally, risk aversion remains a major hindrance (13th out of 15). Fear of failure would still seem to be stronger than in many other countries (pillar B - Behaviour). A lot of work needs to be done within French society to remove the stigma of failure, but the process seems to be underway.

Chart n°14
Classification of a sample of 15 countries, 1 being the most favourable situation (28) (bubble size = pillar B behaviour, the larger it is the more favourable the behaviour (29))



Sources : OECD, GEM, EVCA, calculation Coface

(27) OECD, "Science, technology and industry: OECD scoreboard, 2013", December 2013
(28) Lecture: France is in 7th place out of 15 for pillar A, 12th for pillar C and 13th for pillar B
(29) Financial (venture capital for seed funding as % of total, venture capital as % of GDP), Training (R&D spending as % of GDP, researchers per thousand inhabitants, triadic patents) and Behaviour (perception of entrepreneurial ambitions, capacity and risk of failure)

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