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**BUSINESS
SURVIVAL AND CHARACTERISTICS**
at the core of the



CATALONIA INNOVATION TRIANGLE

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*To Albert, Entrepreneur,
Who has inspired this research
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GENERAL INDEX

1. INTRODUCTION	6
2. THEORY AND RESEARCH HYPOTHESES	8
3. METHODOLOGY	16
3.1. Data	16
3.2. Overview of the C.I.T.	18
4. SURVIVAL ANALYSIS	36
4.1. Econometric model of company survival	36
4.2. Estimation and results	37
5. CONCLUSIONS	42
6. REFERENCES	43
7. APPENDIX	46

INDEX OF FIGURES

Fig. 1. Map of Vallès region and C.I.T. inside Catalonia	7
Fig. 2. <i>Mix</i> of participating companies	17
Fig. 2. Response rate	17
Fig. 4. Gender of the entrepreneurs	20
Fig. 5. Age of the entrepreneurs	21
Fig. 6. Catalan origin of the entrepreneurs	22
Fig. 7. Area of residence of the entrepreneurs	23
Fig. 8. Educational attainment of the entrepreneurs	24
Fig. 9. Field of knowledge of the entrepreneurs	25
Fig. 10. Contribution of the Catalan institutions to the education	26
Fig. 11. Sector of the firms	27
Fig. 12. Time of foundation of the firms	28
Fig. 13. Number of founders of the firms	29
Fig. 14. Number of workers and collaborators of the firms	30
Fig. 15. Proportion of customers outside Catalonia	31
Fig. 16. Company internationalised since its creation	32
Fig. 17. Relationship with Universities by the firms	33
Fig. 18. Application for a patent by the firms	34
Fig. 19. Name of the firm difficult to remember or write	35
Fig. 20. Results of the econometric model of company survival	37

ABSTRACT

Vallès region, situated in Catalonia, is very close to Barcelona, but there are several factors that make this territory unique. The Catalonia Innovation Triangle (C.I.T.) is located there, inside the boundaries of the towns of Cerdanyola, Sant Cugat and Rubí, and this area hosts important business parks (Parc Tecnològic del Vallès, @ Sant Cugat Business Park) and top-quality universities (UAB, UPC, ESADE), with their own company incubators. The present analysis studies carefully the characteristics of 119 companies situated at the core of the *triangle*, with emphasis in Sant Cugat and Cerdanyola, and elaborates an econometric model that determines the average firm survival possibilities, according to several pre-defined properties, verifying the hypotheses formulated according to the academic contributions.

RESUM

La regió del Vallès, situada a Catalunya, es troba molt a prop de Barcelona, però hi ha diversos factors que converteixen aquest territori en únic. El Catalonia Innovation Triangle (C.I.T.) és aquí, a dins dels termes municipals de Cerdanyola, Sant Cugat i Rubí, i aquesta zona acull a importants parcs empresarials (Parc Tecnològic del Vallès, @ Sant Cugat Business Park) i universitats d'alt nivell (UAB, UPC, ESADE), amb les seves pròpies incubadores corporatives. El present anàlisi estudia curiosament les característiques de 119 empreses situades en el nucli del *triangle*, amb èmfasi a Sant Cugat i Cerdanyola, i elabora un model economètric que determina les possibilitats mitjanes de supervivència de les empreses, segons diverses propietats predefinides, verificant les hipòtesis formulades d'acord amb les contribucions acadèmiques.

RESUMEN

La región del Vallès, situada en Cataluña, se encuentra muy cerca de Barcelona, pero hay diversos factores que convierten este territorio en único. El Catalonia Innovation Triangle (C.I.T.) es aquí, dentro de los términos municipales de Cerdanyola, Sant Cugat y Rubí, y esta zona acoge a importantes parques empresariales (Parc Tecnològic del Vallès, @ Sant Cugat Business Park) y universidades de alto nivel (UAB, UPC, ESADE), con sus propias incubadoras corporativas. El presente análisis estudia minuciosamente las características de 119 empresas situadas en el núcleo del *triangle*, con énfasis en Sant Cugat y Cerdanyola, y elabora un modelo econométrico que determina las posibilidades medias de supervivencia de las empresas, según diversas propiedades predefinidas, verificando las hipótesis formuladas de acuerdo con las contribuciones académicas.

1. INTRODUCTION

Western societies are experiencing important changes: from the industrialised capitalist economy are shifting to the knowledge-based capitalism. Here universities have an important role, determining talent, innovation and knowledge. Michael Porter's contribution, introducing the concept of *cluster* in 1990, has made academics re-think the economic relations among agents, focusing in local linkages, that are key factors that enable competitiveness, with effects in the regional scale and even higher levels, depending considerably in the cases (Lawton Smith, 2006).

Europe, as a group of social and industrialised advanced economies, has been advancing in the creation of an integrated space, not only in monetary terms, but also making continentally compatibles higher education systems and research (Gregersen and Johnson, 1997). Despite the strong science base and the efforts done in the last decades, the European Commission itself has considered the situation as the *European paradox*: performance in technological and industrial competitiveness is relatively poor (Lawton Smith, 2006), compared to the United States, that is home of well-known clusters, such as Silicon Valley and Route 128, which are worldwide symbols of technological success, and that depend on strong relationships with local universities (Stanford and MIT), becoming the benchmark to imitate (Bercovitz and Feldmann, 2005).

Catalonia has a region with great potential, considered part of the Metropolitan Area of Barcelona, but with geographical and institutional characteristics that make it special: Vallès, that is separated in two administrative divisions: West (*Occidental*) and East (*Oriental*). Limited by two mountain ranges, the territory is home of 1.3 million inhabitants, and hosts numerous industries, business parks and universities.

Vallès region has a past based in wine agriculture and textile industry. At the beginning of the XIXth century, the territory experienced an important economic change, due to the development of factories that processed imported cotton and wool, and produced textiles, to be sold in the Iberian peninsula and the American colonies. Two main cities increased their size and become the main industrialised centres: Sabadell and Terrassa.

With the end of protectionism and the integration of the country in international markets, the textile sector has lost power in the region, and industrial activities in Vallès had experienced a transition towards the knowledge-intensive economy. At the present day, the Catalan National Museum of Science and Technology (MNaCTec) in Terrassa, situated inside a modernist factory designed by Lluís Muncunill, is the main landmark of the textile past of Vallès region. Also, some chimneys of the industries that in the past polluted the area now are preserved as historic symbols, integrated inside the expanded urban centres of the vallesian cities.

Vallès area has been affected by the economic crisis originated in 2008, due to a speculative boom in the real estate sector. The territory invested highly on it, coinciding with the greater openness of the economy to international markets and the arrival of cheaper foreign products that competed directly with the local industrial agents. The building sector is still remarkable in the economy, and there are concerns of a new construction bubble beginning at the present day.

The consideration of the innovative opportunities that Vallès has, and the empowerment of local entrepreneurs to change the productive patterns that lead to the disaster, may help to protect the territory for the negative consequences that a new construction crisis could produce, and be determinant for the long term economic prosperity and stability.

Fig. 1. The C.I.T. inside the Metropolitan Area.



Vallès region is home of the *Catalonia Innovation Triangle* (C.I.T.), an institution that works for the operativity and success of the companies and institutions situated inside the triangle that is composed among the municipalities of Rubí, Cerdanyola del Vallès and Sant Cugat del Vallès. In this geometrical framework, the biggest incubators in the region (*Parc Tecnològic del Vallès* and *@ Sant Cugat Business Park*) are situated, and also important universities that have their own incubators (*Parc de Recerca de la UAB* and *ESADE Creàpolis*), or not (*UPC* and *UiC*).

Source: Adapted from IERMB-UAB.

According to the C.I.T., the three mentioned cities cover an area of more than 90 squared kilometres, with more than 200,000 inhabitants, and where work 90,000 people in 10,000 companies, and learn 50,000 students in public and private institutions. Further development is expected in the area, as the ALBA Synchrotron Light Source, operational since May 2012, is situated in the middle of the lands that will be able to host numerous high-tech companies, interested in the operational capabilities of such infrastructure, unique in Southern Europe. The Synchrotron has interesting applications in research of new materials and biotechnology.

It is clear that the *triangle* deserves to be accurately studied, not only because the Universitat Autònoma de Barcelona is located inside.

The present analysis focuses on the entrepreneurs and companies based in the incubators and business parks of the C.I.T., in order to assess their characteristics and their relationship with the region. The first part of the study (Chapter 3) will formulate several hypotheses related to firm survival, and provide a descriptive analysis of the primary data gathered at the beginning of 2017, directly provided by 119 companies.

Afterwards, in Chapter 4 some of the variables that had been obtained will be used to elaborate an econometric model of company survival, adding data about the time of foundation of the firms coming from the prestigious *Sabi* database and *Axesor*, originally extracted from the Official Company Registry, and appropriately crossed for each of the participant companies.

Many years ago, my relative and friend Albert decided to create his first company. With high-level studies in Engineering and Business Administration, he was very excited with the project. Albert is an exemplary Catalan entrepreneur, and this research is dedicated to him, as he has inspired the project from the very beginning. I am sure that the discoveries that are presented in this analysis will be useful for him and to all the entrepreneurs and workers that had participated in the survey. To all of them, thank you very much.

Because Vallès deserves an accurate approach.

2. THEORY AND RESEARCH HYPOTHESES

The present study aims at discovering what factors affect the survival of companies at the core of the Catalonia Innovation Triangle. But, why addressing the capacity to survive of firms as a *measure of success*? In fact, academic literature has had historically a trend to associate *success* with the capacity to generate earnings by the firms (Robinson and Sexton, 1994), not considering well enough the concept of *survival* as a natural outcome of success.

The economic crisis in Catalonia, since the burst of the real estate bubble, has influenced, at least in my case, a vision that companies are created to last, not only to generate profits for an established period of time and then disappear. The scope of the *persistence* has been followed by numerous family businesses throughout centuries all over the world, and the majority excel in their territorial and social implications.

Probably, the most appreciated cases are located in Japan, where multinationals founded after the war by resourceful entrepreneurs are striving to continue their personal philosophy, even investing resources at sectors that are not related to the original production of the firms. *To last*, is the true success of a company.

In this study, an *internal view* of the factors that affect the survival of companies is adopted, focusing on the entrepreneur/CEO and the organization. The *external analysis* (the environment), is not covered in the present model, although it would be very interesting to consider institutional and cultural factors, such as political freedom, corruption and individualism-collectivism (Dheer, 2017).

As commented, Chapter 3.2 discusses in detail each one of the variables that were studied using the survey, delivering a *descriptive overview* of the C.I.T. and the compounding municipalities, and here are presented the hypotheses that the empirical analysis will verify statistically at Chapter 4:

The relationship between the main Entrepreneur/CEO characteristics and business survival

Residence in *Western Vallès*

As all companies are located in Vallès Occidental, we expect that a greater relationship with the territory by the entrepreneur, in terms of residence, will be translated in more dedication to the firm and be favourable to the development of local contacts, that will benefit the company in the long run and enhance the life expectancy of the business. According to Dahl and Sorenson (2009), that have analysed the characteristics of an important sample of Danish entrepreneurs, being close to family and friends are key factors when establishing a new venture, even superior than regional features that might influence the performance of the businesses. The exposed relationships can help to recruit personnel and assemble the necessary assets.

Hypothesis 1. *Residence of the main entrepreneur or CEO in Vallès Occidental fosters the survival of the firm.*

Educational attainment

A greater academic background will help the entrepreneur to face the difficulties that may arise more successfully, as he/she has more personal resources and capabilities available, or a better range of skills necessary to run a business (Bruderl, Preisendorfer and Ziegler, 1992). In the present analysis, we will consider that the studies of Master and Doctorate represent the highest educational attainment possible, and Bachelor, Pre-University, Technical or Vocational Training and compulsory secondary schooling, provide a more basic background (*Vid.* Appendix 1, with the questionnaires used).

Also, a higher educational attainment by the entrepreneur contributes to increase a good perception of the firm by the stakeholders, as the CEO has better characteristics of status, having consequences in terms of funds availability, for example (Jung, Vissa and

Pich, 2017), and helping the company to last more time. This possible positive relationship has been appreciated by Saridakis, Mole and Storey (2008), studying companies located in three English counties. Entrepreneurs who are degree holders influence, in a statistically significant manner, the survival probabilities of their firms. By contrast, Taylor (1999) has found that individuals who are highly educated will receive with more ease job offers as employees, thus reducing the living time of firms.

Hypothesis 2. *A greater educational attainment by the main entrepreneur or CEO has a positive and significant relationship with the survival of the firm.*

Studies in Law, Economics and Business

Despite not being the mentioned studies the most extended, among the entrepreneurs or CEOs of the *triangle*, it is very interesting to assess if the educational background that these social sciences offer will provide the adequate knowledge to succeed in the world of business. Also, lots of entrepreneurs with differentiated educational exposure rely on courses elaborated by business schools and university faculties, expecting to obtain a positive return in terms of company performance.

In some countries, majors in economics and business are the only possible source of courses in entrepreneurship, while engineering studies do not have such background, and this fact is determinant in the propensity and attitudes to create new ventures, being business students more motivated (Solesvik, 2013). Contrasting to our positive hypothesis, literature has stated that a major in business administration or economics is not related to company success, when this concept is referred to earnings (Douglass, 1976).

Hypothesis 3. *The studies in Law, Economics or Business by the main entrepreneur or CEO influence positively to the survival of the firm.*

Studies in private institutions

Having studies in private institutions, normally is associated with having greater economic possibilities by the family of origin. In this case, entrepreneurs will have, on average, more resources available to invest in their own projects, and if difficulties are confronted with the business, these extra funds can help them to maintain the company alive for more time, *after the storm has gone*. Also, the studies in private universities allow the future entrepreneurs to have contacts with the *elite members*, that can provide financial support for new ventures in some cases.

Hypothesis 4. *The studies in private institutions by the main entrepreneur or CEO influence positively the survival of the firm.*

The relationship between the Firm/Organization characteristics and business survival

The founding team

Recently, the theory of the firm has orientated its analysis to the so-called *founding teams*, where several individuals with different skills and abilities can complement each other when creating a new business and become, thus, more efficient. By contrast to our initial hypothesis, the experience in some societies with the legal form of Cooperatives has proven the difficulties to reach agreements, when there are several members with divergent interests and different projects for the firm.

Empirical evidence has discovered that single entrepreneurs are guided by personal *self-efficacy*, while founding teams are driven by complementarity in skills, but with no very remarkable differences among both options. For example, networking capabilities are quite similar between a single founder and an entrepreneurial team, and also there is no significant difference in terms of funding possibilities (Abbassi, Fischbach, Schlagwein and Spiegel, 2013).

When founding teams have the positions occupied with members that accomplish a *typical* characterisation (for example, a white man is the CEO, in an European context), there appear lower levels of status conflict, and information sharing is improved, creating more valuable ventures (Jung, Vissa and Pich, 2017), that can have more probabilities to survive.

Hypothesis 5. *A greater number of firm founders have a positive relationship with the survival of the business.*

Internationalisation

Public Administration in Catalonia tends to promote the *internationalisation* of firms, considering it a way to diversify the risks. The *think global* mindset has been implemented easily thanks to the work of the European institutions via the common market policies, creating an integrated economy without borders for the free circulation of goods and services. We can expect that a company with a large proportion of sales outside Catalonia will have a greater life expectancy, than another that relies more on the local market, that will be more vulnerable to a crisis or sudden changes in demand. In our case, we have considered that a high proportion of sells overseas is superior than 25% of the total number of customers of the company.

A high internationalisation of the firm does not mean that such has persisted over time, even since the moment of inception. Some remarkable companies, such as Dell or Zara (Inditex), had developed a gradual strategy, and do not have expanded to other countries until they had gained significant market share in their home market (Karra, Phillips and Tracey, 2008). In the next hypothesis, we will deal with the so-called *born globals*, so as to differentiate well both concepts.

A recent study by Mas-Verdú et. al. (2015), with companies located in the region of València, has discovered that export activity does not emerge as a relevant condition for business survival. A similar conclusion has been reached with companies from Wales, examining their survival rates and their market openness to the rest of the United Kingdom and the world (Huggins, Prokop and Thompson, 2017).

In the case of the Indian IT sector, has been found that new ventures are particularly vulnerable to shocks when they decide to begin export activities, but over time, exporters benefit more from productivity gains than non-exporters, and the hazard that exporters may face is less significant, compared to non-exporting firms (Dzhumashev, Mishra and Smyth, 2016). Dai, Harris, Lu and Liu (2016) have obtained similar results, extracting from Chinese data the conclusion that exporters engaged in different trade regimes are more likely to survive, compared to non-exporters.

Hypothesis 6. *A high proportion of customers located out of Catalonia is positively related with the survival of the business.*

Early internationalisation

The concept of *born global* is relatively recent. It represents a company that since the moment that is created, is orientated towards the international markets. Many decades ago, was difficult for a firm to sell out of the national borders, but the development of the Technologies of the Information and Communications (TICs) and the notable reduction of trade barriers (Andersson, 2011), fostered by international organisations such as the EU and the WTO, has helped entrepreneurs to address their companies to customers from all over the world, since the very beginning.

Early internationalisation strategies had been studied by economic literature, but with divergent results. It has been considered that *born globals* have no greater failure rate than companies that apply an incremental internationalisation strategy (Mudambi and Zahra, 2007; Sui and Baum, 2014). By contrast, Sapienza et. al. (2006) have discovered that the costs of establishing new routines for market entry and building positional advantages in foreign markets are significant and enduring, which decreases prospects for firm survival.

Moreover, in a study focused only in new ventures created by immigrants in the United States, a larger survival rate in their *born global* firms was identified, assuming that the contacts and resources available in the country of origin of the entrepreneurs are helpful for them (Jiang, Kotabe, Hamilton and Winston Smith, 2016).

Hypothesis 7. *The internationalisation of the firm, since the moment it is created, is positively related with the survival of the business.*

Innovation: patents

Some economists advance that the future *will be owned* by the innovative companies, and the ones that will not be able to adapt to the rapid changes of the market, will perish soon. A patent is a legal method to protect a specific innovation to the appropriation by other companies, guaranteeing an exclusivity period for the innovating firm. Thus, we can expect reasonably that firms that have the capacity to register a patent will be able to maintain their market power over a greater period of time, and have a larger life expectancy than firms that are unable to reach this mechanism of protection (Dreyfuss, 2000).

In literature we can identify divergent discoveries. According to Agarwal (1996), entering firms enjoy a higher probability of survival in stages of high technological activity, and in products that are more technical in nature. Despite this affirmation, the *hazard function* (that is, the probability of failure conditional on age), is higher for technical products, which reflects the negative effects of technical uncertainty and the obsolescence of knowledge.

In a different sense, Cefis and Marsili (2006), studying a large sample of firms at The Netherlands with data from the Official Business Register and the Second Community Innovation Survey (by the EU), have considered the concept of *innovation premium for survival*, as Batavian innovative SMEs seem to be *insured* against the risk of failure.

Also, in a study about a large sample of Norwegian firms, Børing (2015) did not identify significant effects of R&D investments (assimilable to patents to detect innovative processes, because both are highly correlated measures), on the probability that the firm would be closed down. Continuing with R&D issues, subsidies to Korean Biotechnology SMEs, orientated specifically to enhance their innovative processes, have a positive and significant effect to the survival rate of the firms (Shin, Park, Young Choi and Choy, 2017).

Hypothesis 8. *A patent obtained by the firm, or simply solicited, influences positively the survival of the business.*

Firm-University links

In Vallès region, the presence of several public and private educational institutions of high level, is sometimes associated to the creation of a business incubator. This is the case of the *Parc de Recerca* of the UAB, and *Creàpolis* business park by ESADE. The majority of the companies that are situated inside these incubators had expressed well their links with the educational institution. In other cases, companies at the C.I.T. can be benefited with the research that is conducted in the laboratories of the universities, especially regarding the most advanced technological and science sectors, or simply obtain *very cheap labour force* via the students that work in apprenticeship regimes.

The practice of licensing has been historically dominant, to transfer technology from universities to the private sector. Since the 1980s, spin-off firms are gaining weight, as institutions and academic inventors are increasingly seeking to capture the benefits that may appear from the commercialization of their activities (Lockett, Wright and Franklin, 2003). The majority of spin-offs have origins in prestigious universities, that are able to conduct research at the knowledge frontier level. In fact, not all high education institutions have the capacity to move towards entrepreneurship (Lawton Smith, 2006).

The entrepreneurial university is fostered by an increasing competitive context, in the high level institutions global scenery, and also by the context of cuts and budgetary discipline, that affects especially public universities, and promotes the search of other sources of funding. Despite the proximity in the location of universities and firms, several studies that have focused in the United Kingdom Science Parks, strikingly have discovered that companies have little contact with the neighbouring university (Lawton Smith, 2006). In fact, knowledge spillovers through research collaboration may travel long distances, and are not bounded to a regional scale, for example, thanks to information technologies (Lundvall and Johnson, 1994), or simply by labour mobility.

Finally, in the case of the United Kingdom, a recent study about survival rates of video-game companies has discovered that a higher supply of specialised graduates from neighbouring universities does not contribute significantly to increase the chances of survivability of firms, but different locations (without considering universities) seem to provide better conditions and higher life expectancy, basically by positive network effects that occur at the local level (Cabras et. al., 2017).

<p>Hypothesis 9. <i>The existence of a relationship between the firm and a university has positive and significant implications for the survival of the business.</i></p>
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Name easy to remember and write

If the business has a name that can be easily written and remembered, customers will have a greater propensity to acquire the output generated by the new venture, and by these means enlarge the living probabilities of the firm. One of the main concerns of experts in advertisement is to create an *impact* to the audience, so as the product can be remembered easily and sold without difficulties.

Also, in a scenario of high competition, a name for a company that can be written fast and without mistakes can help to the endurance of the firm. Green and Jame (2013) studied the *name fluency* of 15,000 companies from the United States, and related it to investor recognition and firm value, discovering that companies with *fluent* names trade at significant premiums, relative to firms with less fluent names. As classifying names is a very subjective matter, and confidentiality of the participating companies has to be necessarily preserved, here are exposed the criteria used to proceed with this assessment, following some of the contributions by Green and Jame (2013):

- The names that appear in the official Company Registry, which are the *legal* names (adding terms like *Co.*, *Corp.*, *Inc.*, *Ltd.*, etc.), had been set aside, and the analysis only observes the names by which the company is presented to customers.
- Names based in *normal use* (or common, familiar) words either in Catalan, Spanish or English had been considered to be of the *easy* category.
- Compounded names, with more than three words, with independence of the *easy* nature of them, had been considered to be *complex*. As an exception, if the company is presented only by the initial letters of such words, and the resulting name can be considered simple, this is labelled *easy*.
- Names with letters that may lead to confusion had been qualified as *complex*. In this case, we can imagine a conversation via phone, and if the name has to be spelled because the interlocutor is unable to write it down well, it is clear the *complex* nature of it. For example, letters *b* and *v*, *c* and *k*, or *i* and *y*, sometimes are difficult to be differentiated. Also, *t* and *tt*, or *s* and *ss*. And moreover, the letter *h* often is not effectively pronounced, and the listener cannot capture it.
- Names similar to words with a negative meaning had been considered *complex*, in order to cover these possible harmful effects (or not, maybe the business will be more popular among customers by these means).

Hypothesis 10. *An easy name for the company is positively and significantly related with the survival possibilities of the business.*

3. METHODOLOGY

3.1. DATA



In nature we can find organisms that live in a state of symbiosis. In the case of the present study, this applies to be true. I have oriented this research as a *win-win* project: the entrepreneurs or collaborators of the firms had provided interesting information for the analysis via the *Vallès Entrepreneurship Survey*, and in exchange, I have compromised myself to send them the completed study of the core of the C.I.T. This information will be useful for both parts, no doubt.

Of course, all data is confidential and no firm nor person is identified in the study, so as to respect the privacy rights of all participants, in accordance with the Spanish Organic Law of Data Protection, 15/1999, of 13th of December. All the questionnaires had been filled anonymously, and had been designed so as not to ask information that could be compromising or uncomfortable for the companies, always in a sense of objectivity.

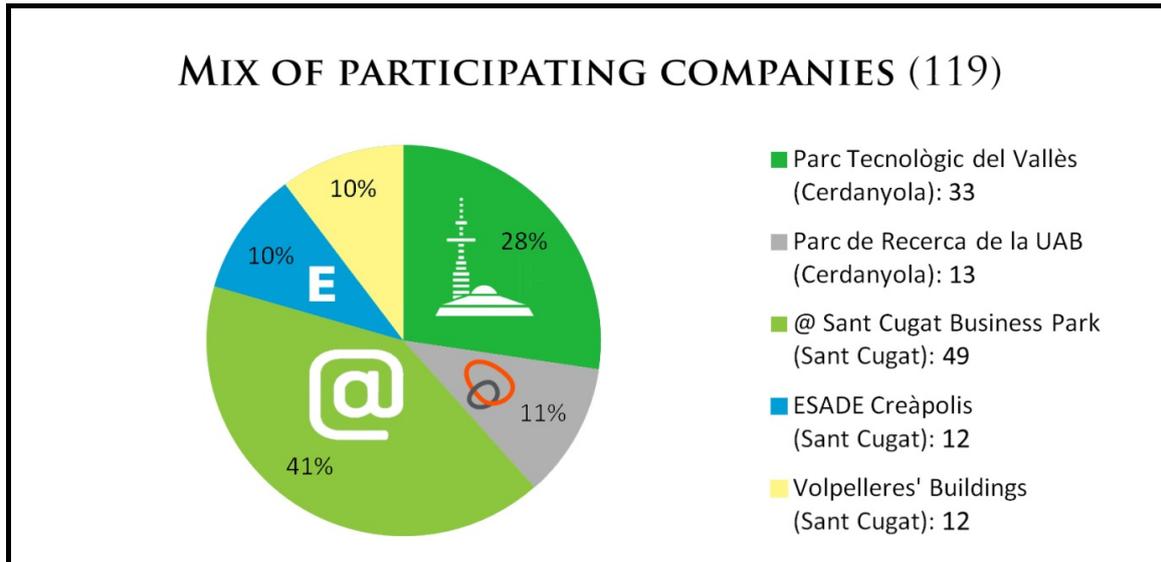
The simplicity of the survey allows it to be answered easily by workers or collaborators, that can provide the required data about the founding team and the main entrepreneur. Also I created a logo (*vid. supra*), to generate the appropriate credibility of the project, and where are schematically represented the three mountains that determine the limits of the region (Montserrat, La Mola and Montseny), cited in the poem by Joan Oliver (Pere Quart): *on tres turons fan una serra (...) Com el Vallès no hi ha res*¹.

During the previous weeks, I have asked hundreds of companies of the Catalonia Innovation Triangle the questions that are presented in the forms situated in the Appendix, either in Catalan, Spanish and English. The survey has been created using Adobe Acrobat LifeCycle Designer, a software that allows to create PDF forms that can be easily filled and sent automatically to an e-mail account, only by pressing a button in the document itself.

As the participation was initially low, only by mailing online the companies, I went personally to the incubators with the questionnaire, but appeared a difficulty that I did not expect: sometimes the access at the buildings is limited. If you are not invited by the company that participates in the survey, you cannot enter inside. Then, I opted to call the firms by phone, and after creating an atmosphere of confidence and mutual understanding, I sent them the questionnaire, with better results in participation.

¹ Literally: *Where three hills make a mountain range (...) Like Vallès there is nothing else.*
Joan Oliver (called Pere Quart): *Corrandes d'exili*, in *Saló de Tardor* (1947).

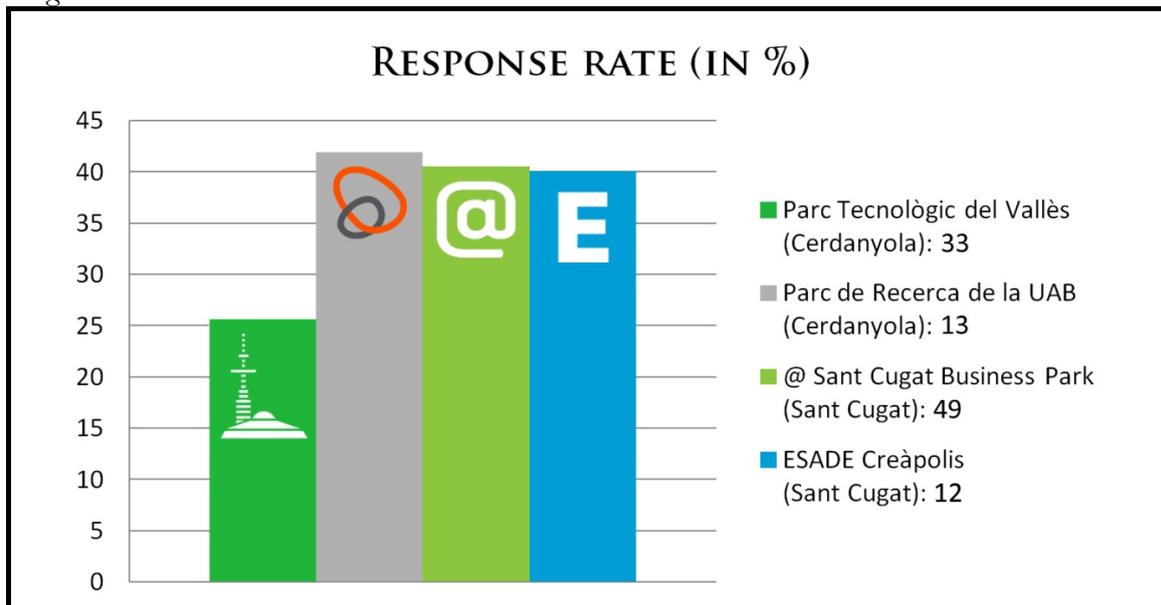
Fig. 2.



The current distribution of the participating companies, is shown in the graph above, identifying each incubator or business park separately for better understanding. Only the case of *Volpelleres* is special, as it is a neighbourhood in Sant Cugat which hosts several office buildings that operate as incubators, and is not a single business park formally.

As the diagram shows well, the majority of participating companies are situated in Sant Cugat del Vallès (61%). The incubator *@ Sant Cugat Business Park* has the largest proportion of firms in the *mix*, up to 41% of the total. Cerdanyola del Vallès is represented in the *mix* with 39% of the companies, where *Parc Tecnològic del Vallès* obtains the largest share of the municipality, with 28% of the total. Another important aspect to be studied is the response rate in each incubator, represented as follows:

Fig. 3.



The higher response rate is achieved in *Parc de Recerca de la UAB*. In this case, companies that were members of the park and did not have office in Vallès region had been dropped from the total (for example, one firm has the office in Barcelona, not in Cerdanyola, nor representation in Vallès). This fact explains partially the high response rate in this incubator. Also, the intimate ties with the UAB make the entrepreneurs or workers more open to collaborate with the study, which is different in the case of *ESADE Creàpolis*, very related to another prestigious university, but still with very high attendance, becoming the third incubator in terms of response rate.

The participation in the case of the business parks is explained by the size of the firms: @ *Sant Cugat Business Park* has smaller firms than *Parc Tecnològic del Vallès*, which makes the entrepreneurs more accessible to participate in the survey. Finally, companies situated in *Volpelleres* are not represented in the last graph, as some of them are inactive but still maintain their symbols at place, being not possible to determine their survival.

Without counting the previously cited neighbourhood in Sant Cugat, the municipal response rate in the survey has been of 28.75% in the case of Cerdanyola, and 40.39% in the case of Sant Cugat, which enables us to reach conclusions that are representative of the core of the Catalonia Innovation Triangle, and that will be carefully analysed in the following pages (*Vid.* Appendix 2, an official map of the C.I.T.).

3.2. OVERVIEW OF THE C.I.T.

This part of the present analysis is based on a descriptive overview of the characteristics exposed by the companies in the survey. Some of the questions are based on studies of international recognition that have a long history, such as the Global University Entrepreneurial Spirit Students' Survey (GUESSS, elaborated by the University of Sankt Gallen in Switzerland), the Panel Study of Entrepreneurial Dynamics (PSED, by the University of Michigan in the United States), and the Global Entrepreneurship Monitor (GEM, by the homonymous consortium).

The rest of the questions are more locally-oriented or are of generalised used in social sciences (*vid.* Appendix 1, with all the forms that had been used in the survey). Here had been summarised the questions of the survey that had been extracted from the cited prestigious studies, and have by these means an appreciated methodology:

- *Fig. 8. Educational attainment of the main entrepreneur.*
Question adapted from the PSED, considering the different educational systems.
- *Fig. 9. Field of knowledge of the main entrepreneur.*
Question literally extracted from the GUESSS.

- *Fig. 11. Sector of the firm.*
Question adapted from the PSED and GUESSS, considering the C.I.T.'s sectors.
- *Fig. 13. Number of founders of the firm.*
Question adapted from the GUESSS.
- *Fig. 15. Proportion of customers out of Catalonia.*
Question adapted from the PSED and GEM.
- *Fig. 17. Application for a patent.*
Question adapted from the PSED.

In order to present the data obtained, this Chapter uses graphical representations in the circular scheme. Three graphs are presented for each variable: on the left, is displayed the global analysis, for all participating companies in the *mix* of the Catalonia Innovation Triangle; On the right, down-side, the case of Cerdanyola del Vallès; and finally on the right, upper-side, the case of Sant Cugat del Vallès.

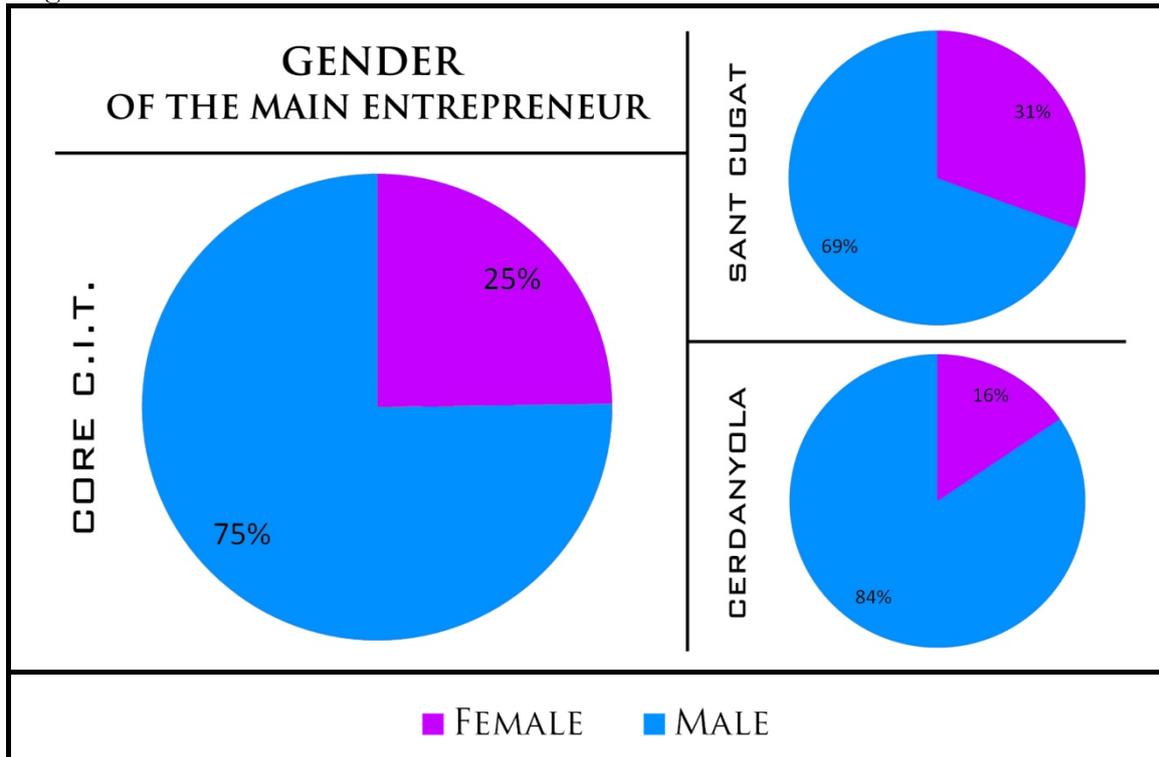
This type of presentation, grouping firms in terms of municipalities, is interesting in a *think-local* sense and provides valuable conclusions for each area of the C.I.T., as a critical mass of companies is guaranteed for each city. In the following pages, the discovered characteristics of the entrepreneur and of the firm are exposed, and several of them will have important applications in the econometric analysis of company survival in the *triangle*, that is elaborated in Chapter 4, and aims at verifying the hypotheses previously formulated.



Alba Synchrotron seems a landed UFO, located between Cerdanyola and Sant Cugat.

Source: Alba Synchrotron light source official website

Fig. 4.

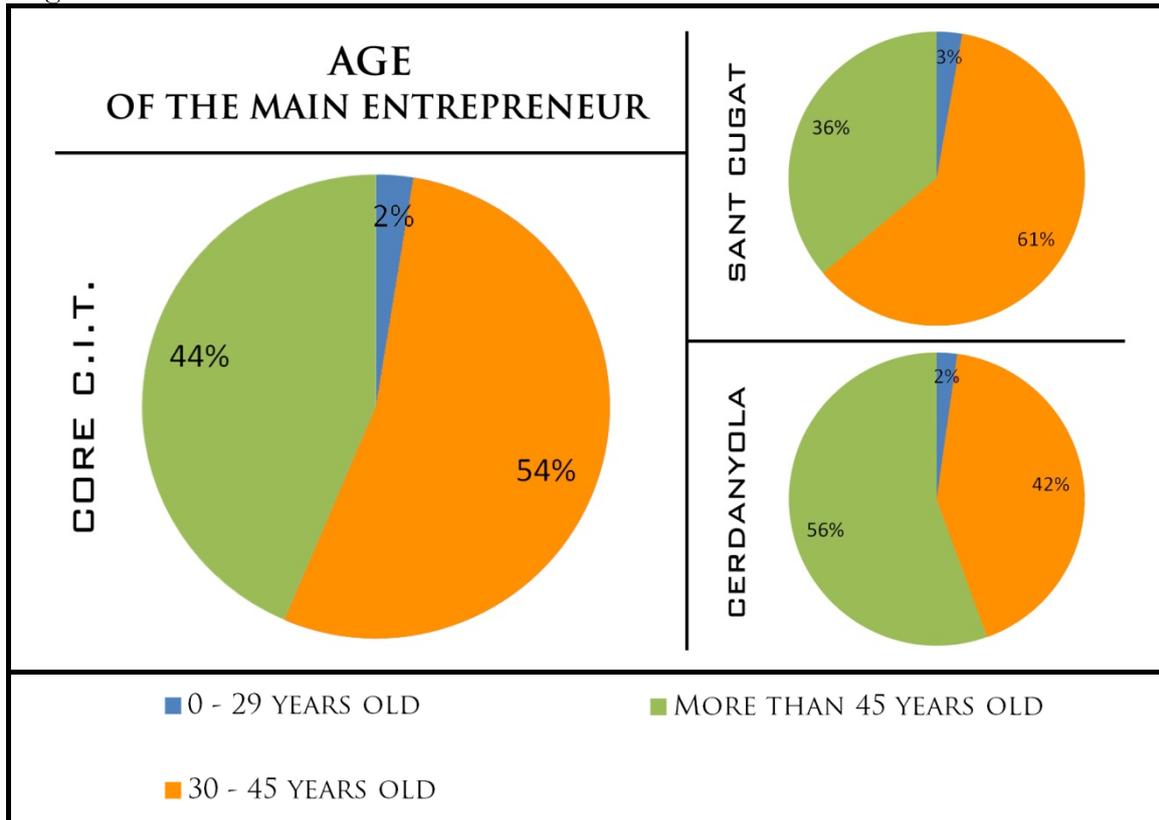


The gender of the main entrepreneur is clearly orientated towards the male group. According to the analysis of the core of the *triangle*, among four entrepreneurs or firm directors, three will be men and one a woman. This determines the existence of cultural and sociological patterns that enforce a *gender gap* for the promotion of women in high responsibility activities. The exposed proportion is very similar to the current trends in advanced market economies, and is partially based in *self-efficacy* (regarding new ventures), which is the self-confidence that one has the necessary skills to succeed in creating a business (Wilson, Kickul and Marlino, 2007).

Observing the differences between municipalities, Sant Cugat obtains the highest representation of women: 31% of them are the main entrepreneurs or directors of the firms (and correspondingly, men represent 69% of the total), while in Cerdanyola this level only reaches 16%, approximately half the proportion of the neighbouring town (and men reach the remarkable level of 84%).

According to the Catalan Institute of Statistics (IDESCAT), in the province of Barcelona, where Vallès region is situated and most of the entrepreneurs or firm directors live (*Vid. Fig. 7*), in 2017, 48.76% of the population were males and 51.24% females. This proportion has not experienced important changes during the last two decades. If we compare this piece of information with the exposed data of the survey, it illustrates well how remarkable is the current situation in the *triangle*, were women are very underrepresented in high responsibility positions at firms.

Fig. 5.

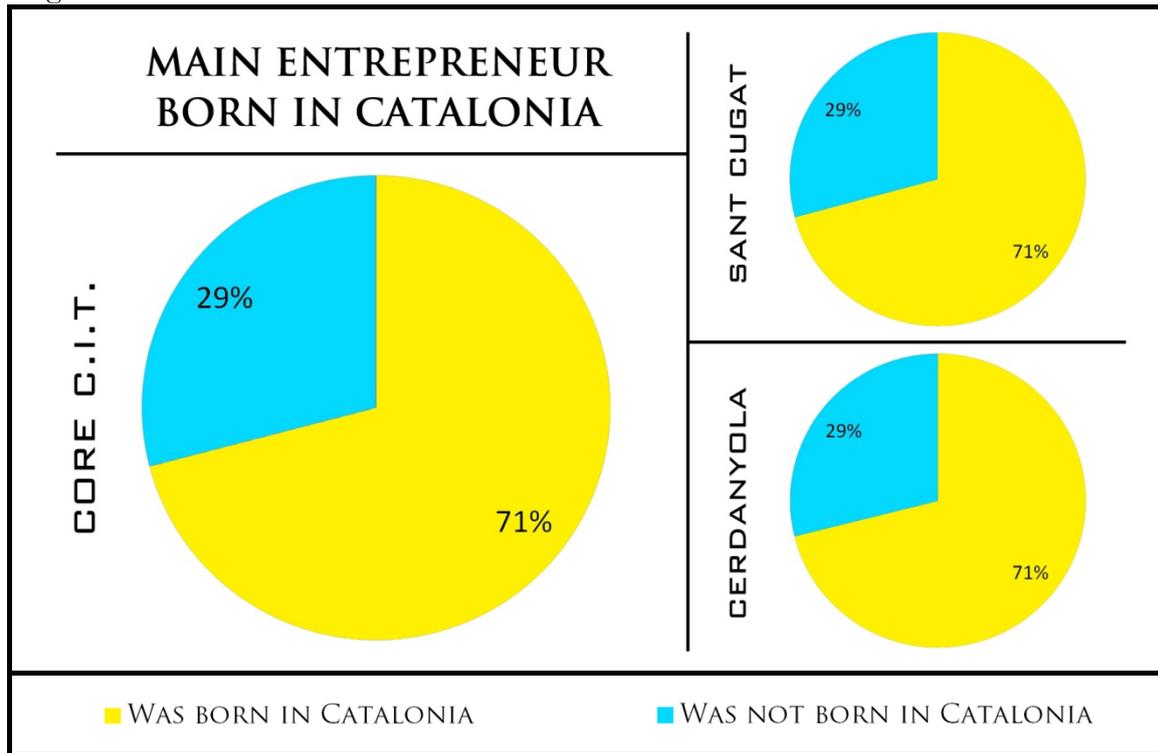


The age of the main entrepreneur or director of the firm is mainly divided into two important groups: between 30 and 45 years old, and more than 45 years old. At the core of the *triangle*, 54% of the entrepreneurs will fit the intermediate profile, while the third type will be satisfied by 44% of the CEOs. The youngest category, represented by individuals up to 29 years old, is marginal with only 2% of the total entrepreneurs, and illustrates well how cultural norms and financial restrictions can limit their projects.

In terms of municipalities, Sant Cugat has a more younger profile, as 64% of the entrepreneurs have an age below 45. Cerdanyola, by contrast, hosts firms with more experienced CEOs, representing them a proportion of 56% in the town. In Fig. 12 is represented the time of foundation of the firms, and we can observe easily that both features are clearly related, having Cerdanyola a more mature group of companies.

The Catalan Institute of Statistics provides interesting data of 2016, regarding the province of Barcelona, that can be used to analyse the dynamics of the *triangle*. Limiting the age groups from 16 years old to 29 the first one, 30 to 45 years old the second one, and 45 to 65 the last one, we can discover respectively for the mentioned groups that the distribution of population is of 21%, 39% and 40%, considering that they represent the total mass of entrepreneurs or CEOs. Hence, it is clear that the younger group of entrepreneurs, up to 29 years old, is clearly underrepresented.

Fig. 6.

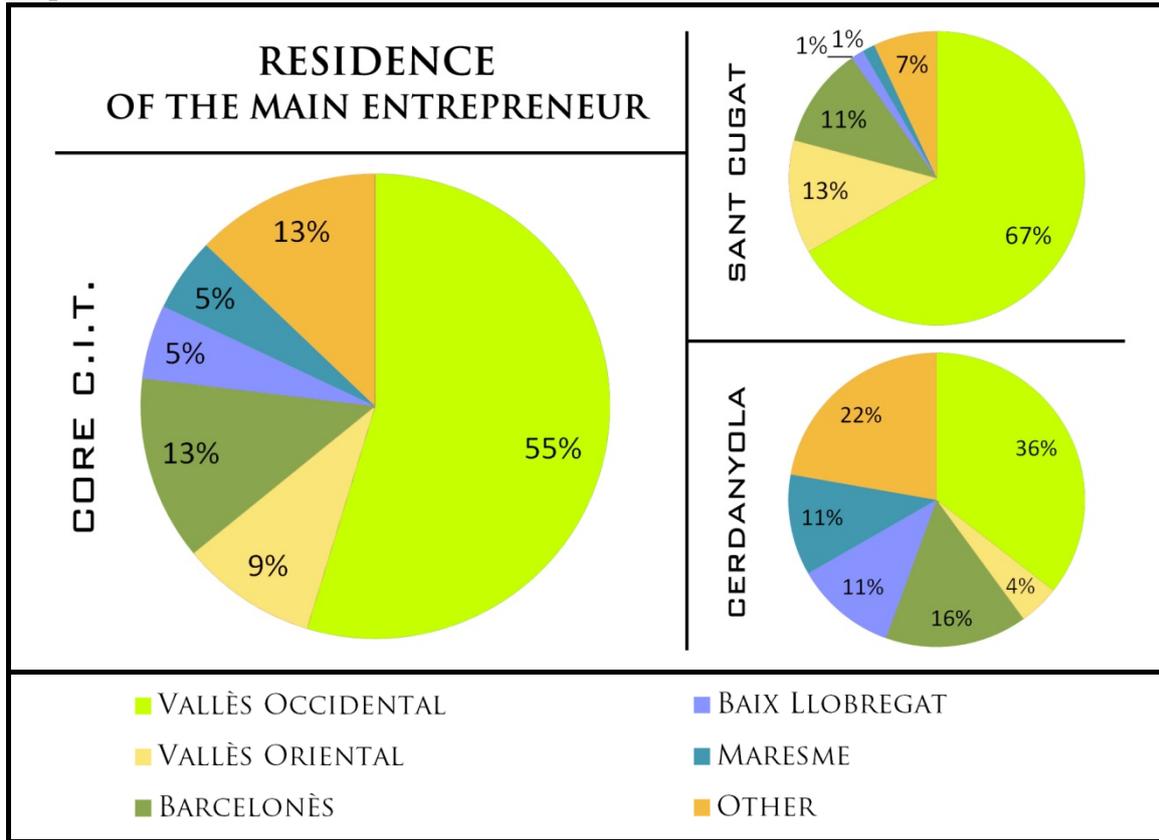


The origins of the entrepreneur can determine a propensity to start new firms or not, as the cultural influence will shape personal preferences towards autonomy, independence, or simply foster a compromise to the long-run operating family business. In the case of the core of the C.I.T., 29% of the entrepreneurs were not born in Catalonia, while 71% have origins in the country. In terms of municipalities, both Sant Cugat and Cerdanyola exhibit exactly the same proportions.

Comparing the previous analysis with the demographics of Catalonia provided by IDESCAT, we can observe that in 2017, at the province of Barcelona, were most of the entrepreneurs and CEOs of the C.I.T. live, the proportion of population that had been born in Catalonia reaches 64.10% of the total.

This information illustrates well that the entrepreneur that operates at the *triangle* is 11% more Catalan, than the current demographic characterisation of the region. Also, we should not forget that the socioeconomic profile of an important fraction of the immigrants that had come to Catalonia in the last decades, is based on a limited purchasing power, as they have origins in countries with less economic opportunities, and will find more difficulties in creating a firm in a place like the C.I.T., where rents and fixed expenses, such as public taxes, tend to be high. According to IDESCAT, Sant Cugat del Vallès is the municipality with more than 5,000 inhabitants that has the highest per capita income in Catalonia, and of course local prices and taxes tend to adjust to these socioeconomic features.

Fig. 7.

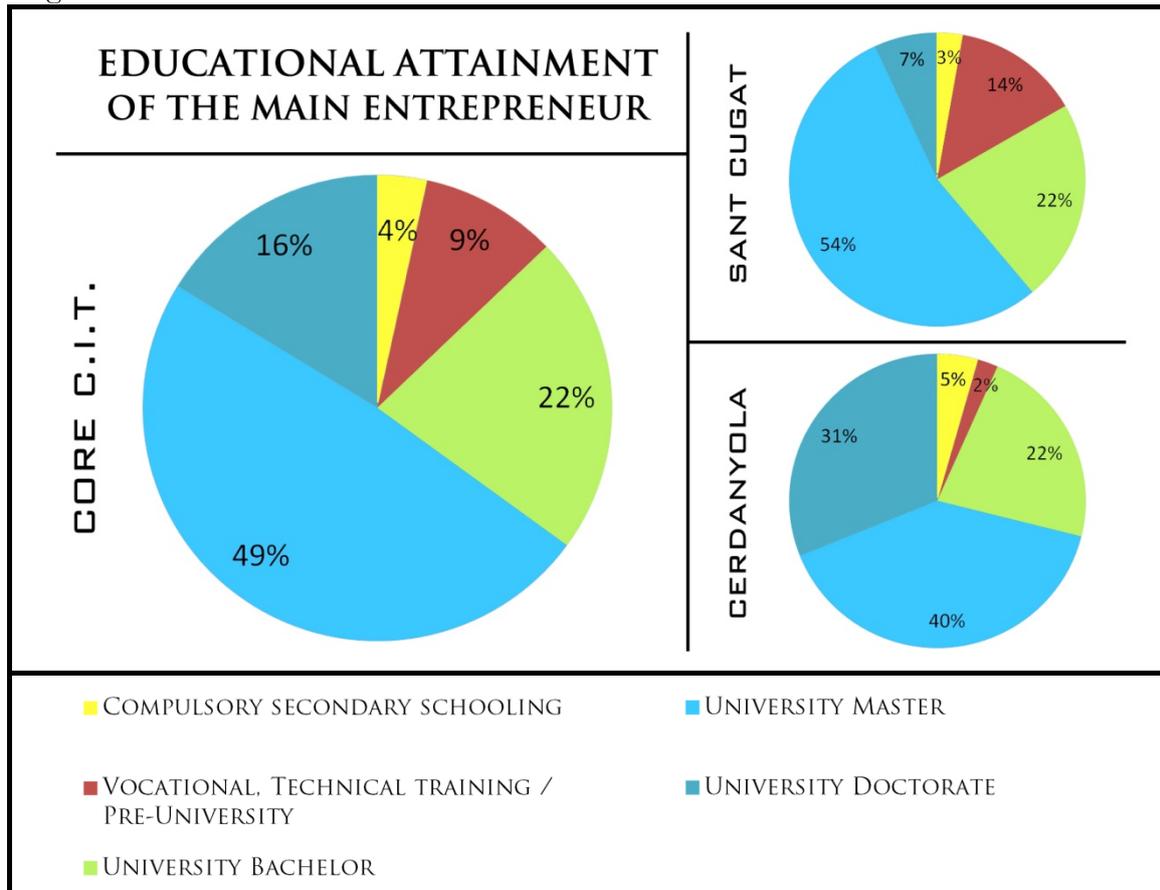


The residence of the main entrepreneur is an important factor: represents the link of the individual with the territory, the place where occur most of the daily activities and routines, apart from labour, that influence in the experiences of the entrepreneur and can determine a greater propensity to start new firms. Also, as commented in the previous section regarding the hypotheses of the study, the local links favour contacts and interesting flows of information that can be useful for companies to develop.

At the heart of the *triangle*, Vallès Occidental is the category with the highest proportion (55%), and with *Eastern Vallès* they achieve 64% of the total residences. At the municipal level, the *vallesian* proportion reaches the highest level in Sant Cugat, where 80% of the CEOs have residence in the region. In the case of Cerdanyola, the numeral of Vallès arrives only at the 40% level, that is, half the neighbouring town, and shows a remarkable presence of other *counties* that are residual in Sant Cugat, such as Maresme and Baix Llobregat. Barcelonès area, which hosts the capital of Catalonia, has still a remarkable proportion in both municipalities.

Finally, under the category of *other* had been situated the entrepreneurs who have the residence out of the previously cited counties, and can be either in Catalonia or out of the country. For obvious reasons, in this case the CEO may delegate its tasks to a local coordinator or team.

Fig. 8.

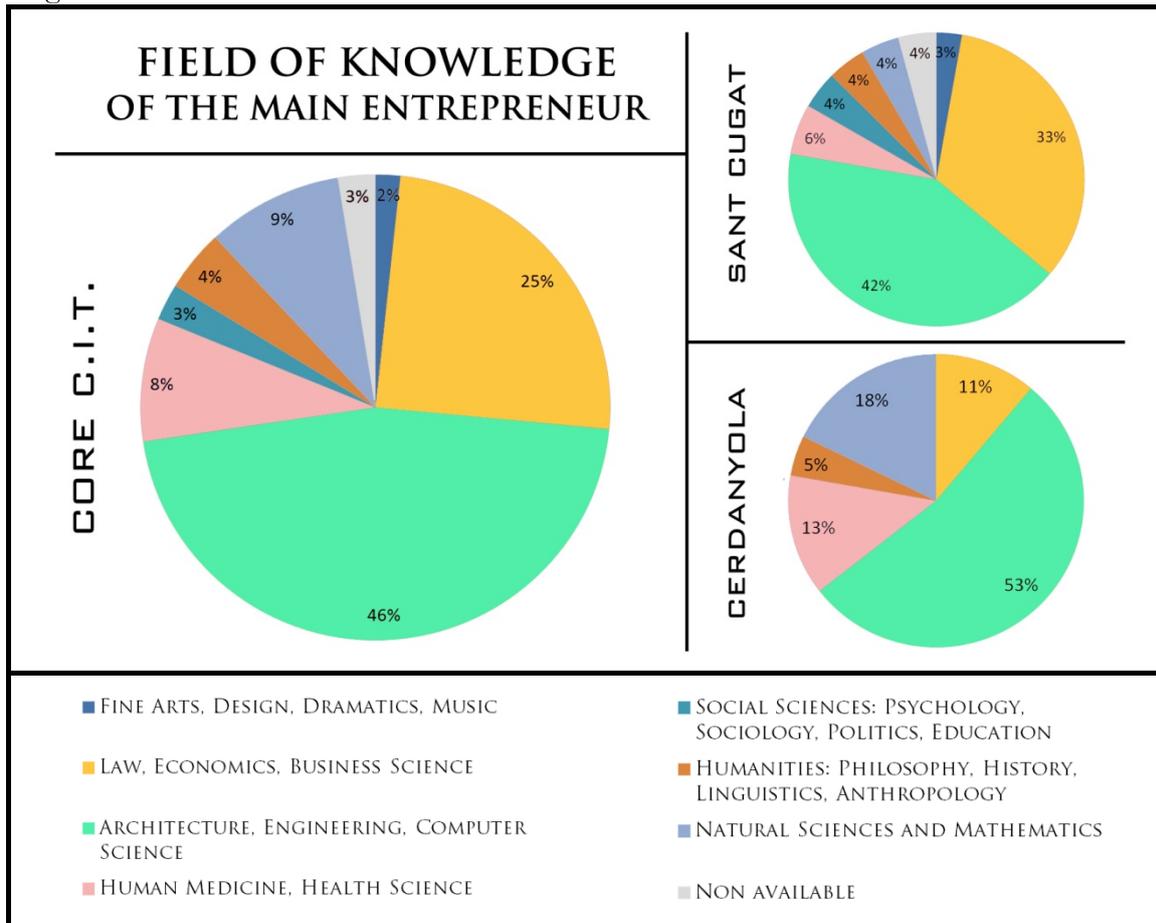


The existence of a greater education by the entrepreneur is sometimes associated with a better performance of the firm. Determining the educational background of the CEOs has thus an interesting outcome, and at the *triangle* is clearly orientated towards highly qualified individuals, being the category of the *university master* the most representative, with 49% of the total, followed by the university bachelor, which holds 22% of the regional analysis, and also reaches the same proportion in each town.

Regarding the study of municipalities, Cerdanyola has more qualified CEOs, in terms of entrepreneurs with Pre-University studies (7%, compared to 17% in the case of Sant Cugat), and very remarkably with Doctors, that represent 31% of the company directors in the town (compared to 7% in Sant Cugat). Sant Cugat compensates this fact with a greater presence of master qualifications (54%, contrasting with 40% in Cerdanyola).

In order to create the questionnaire in the English, Catalan and Spanish versions, the first problem that arose was the equivalence of study plans among countries, and the notable changes that had occurred in the last decade in the case of Catalonia, with the adaptation to the guidelines of Bologna in the European framework. We have considered, for example, that the level of *Diplomatura* was equivalent to a Bachelor. *Vid.* the surveys at the Appendix, to check the appropriateness of other vocabulary used.

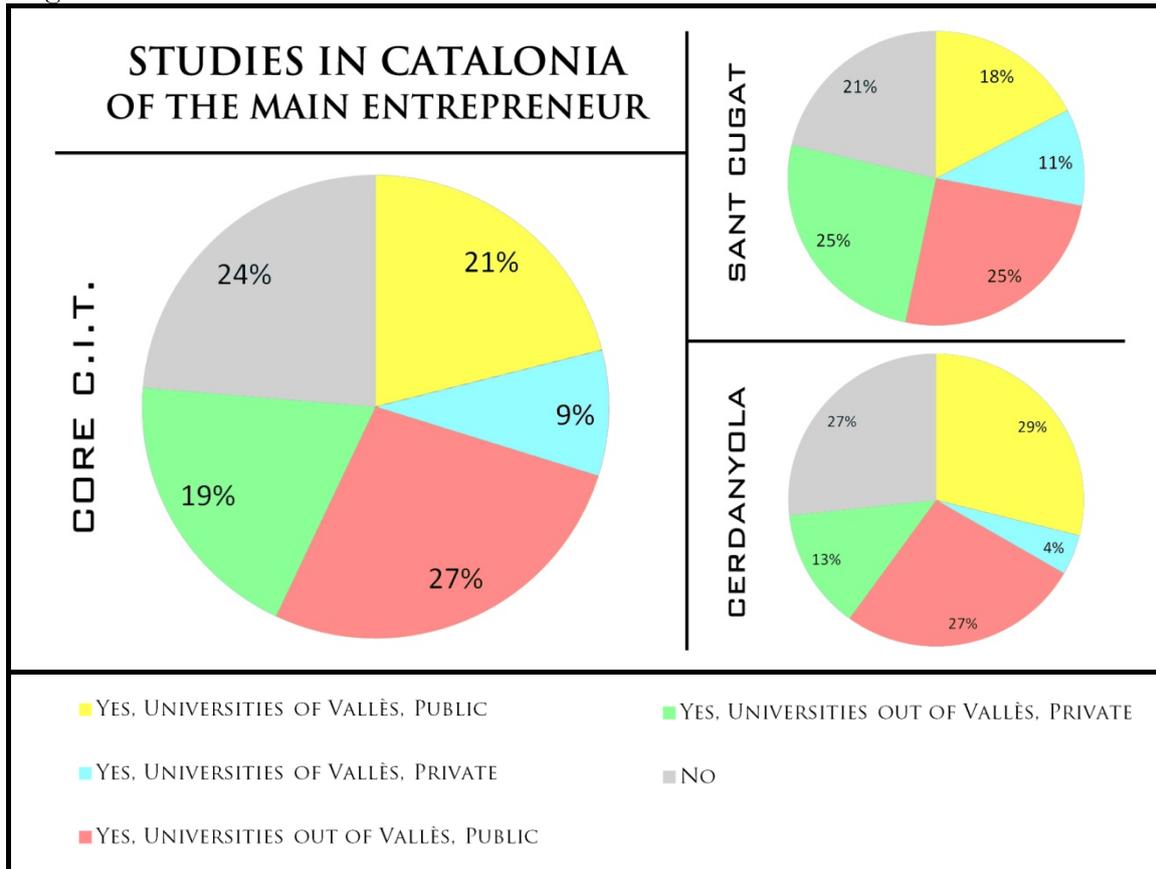
Fig. 9.



The field of knowledge of the education received by the main entrepreneur has a considerable impact in the propensity to create a business, and also in choosing the sector at which the company will direct its activities. At the core of the *triangle*, the studies in Architecture, Engineering and Computer Science have the absolute leadership in the educational background of the CEOs (46% of the total). At second place, and at a certain distance, the studies in Law, Economics and Business Science are also remarkable, with one quarter of the total. At third place, Natural Sciences and Mathematics, also combined with Human Medicine and Health Sciences, shape the profile of a director of a Biotechnology or Pharmaceutical company.

In terms of municipal analysis, Sant Cugat follows the patterns commented previously, but with a reduced incidence of the studies in Architecture, Engineering and Computer Sciences (that represent 42% of the total in town), and more *accents* in Law, Economics and Business Science (that reach one third of the total). Sant Cugat also has a more diversified setting of educational backgrounds, compared with Cerdanyola, with studies of the branches of Humanities and Social Sciences. In the neighbouring Cerdanyola, the education in Natural Sciences and Mathematics is even greater than in Law and Economics, with a level of 18%, and Health Sciences are placed at third position (13%).

Fig. 10.

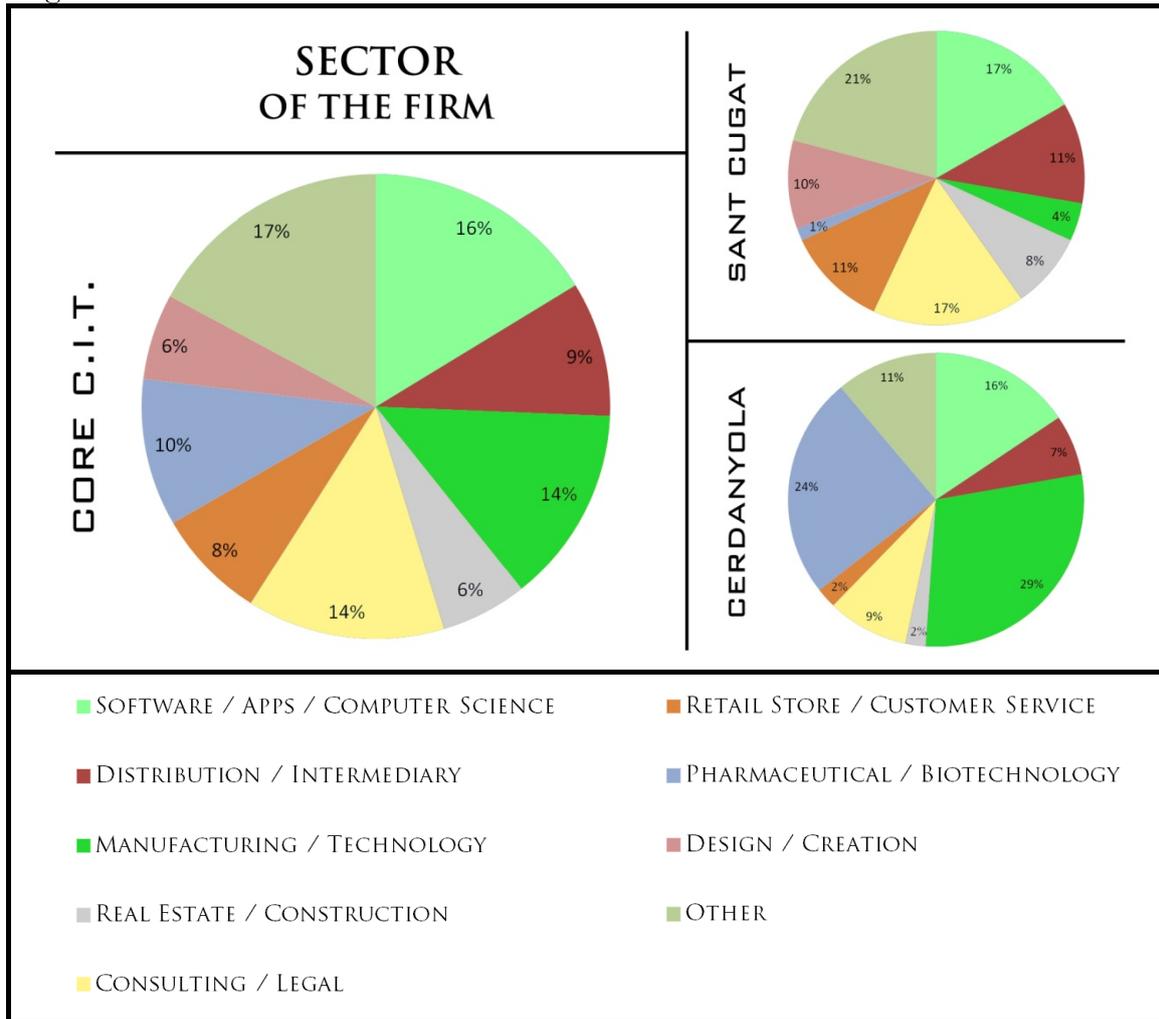


Without asking the specific *alma mater studiorum* of the entrepreneurs, it is possible to know interesting characteristics regarding these institutions, that had influenced the CEOs over years. It is important to acknowledge that the term *university* is referred to any educational institution in general, as some entrepreneurs that did not have superior studies had filled the questionnaire, choosing these concepts.

More than three quarters of the directors had studied in Catalonia, and 48% of the total had chosen Public Universities of the country. In the *triangle*, the weight of public universities situated in Vallès (Autònoma de Barcelona, Politècnica de Catalunya), is of less importance (21%) compared to other Catalan public universities (that represent 27% of the total). In terms of private institutions, the same pattern can be found, as the ones situated in Vallès have a lesser impact (9%), compared to the ones situated in other places in Catalonia (19%).

Regarding the municipal analysis, Sant Cugat has the highest impact of private institutions (36% of the total, compared to 17% in Cerdanyola), and of universities situated outside Vallès (50% of the total, compared to 30% in Cerdanyola). In the neighbouring town, it is remarkable the influence of the Universitat Autònoma to its own Research Park (PRUAB), determining a high proportion of ex-students or *alumni* in Cerdanyola (29%, in terms of the category *public* and *in Vallès*).

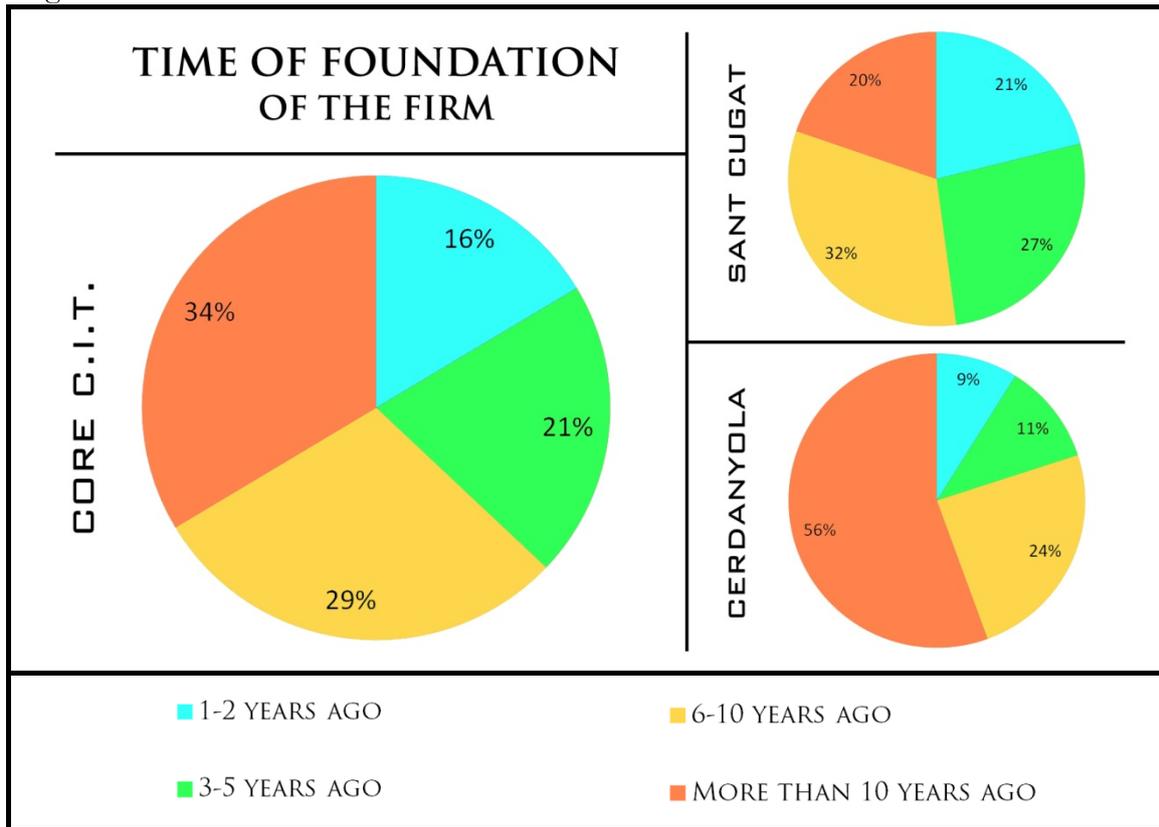
Fig. 11.



As commented in Fig. 9, the studies of the entrepreneur have a considerable impact in defining the sector of the company. At the core of the C.I.T., besides the category *other*, chosen when the established typologies do not fit well with the real activities of the business, the main sector is represented by Software, Apps and Computer Science Services (16% of the total). Not very far away, Manufacturing and Technology, and Consulting and Legal Services obtain the same proportion (14% of the total). At third place, Pharmaceuticals and Biotechnology have one tenth of the total.

One of the main concerns of the study was the importance that the Real Estate and Construction sectors could obtain, as the burst of the construction bubble in 2008 led to serious problems to the local economy. Right now, at least at the heart of the *triangle* and only in direct terms, the situation seems relatively stable (6%). Regarding the local analysis, the proportion of Software and Computer Science firms is approximately the same in both towns, but each municipality has its own specialisations: Sant Cugat is notable in Legal and Consulting Services (17%), and Cerdanyola excels in Technology and Manufacturing (29%), and Pharmaceuticals and Biotechnology (24%).

Fig. 12.



At the core of the C.I.T., approximately one third of the companies were created more than ten years ago, and do not correspond to the category that could englobe *new ventures*. The youngest firms, established between one and two years ago, represent 16% of the total proportion. Companies founded between three and five years, the oldest category of *new firms*, reach 21% of the total, while the intermediate level of companies between 6 and 10 years old is represented by 29% of the firms.

Regarding the municipal analysis, a proportion of more mature companies can be found in Cerdanyola, where 56% of them have more than 10 years old. By contrast, in Sant Cugat the previous proportion only reaches 20% of the total, with an important presence of very young firms (21%, more than doubling Cerdanyola). In the next chapter, will be developed a model of company survival, based in the information obtained of the time of foundation of firms with precision of days, using private (*Sabi*) and public-access (*Axesor*) databases. Here are shown the firms founded between 2000-2017, according to their year of creation, and we can appreciate a lower number near crisis moments:

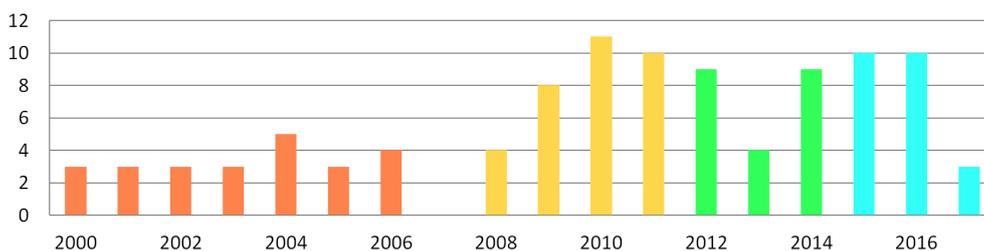
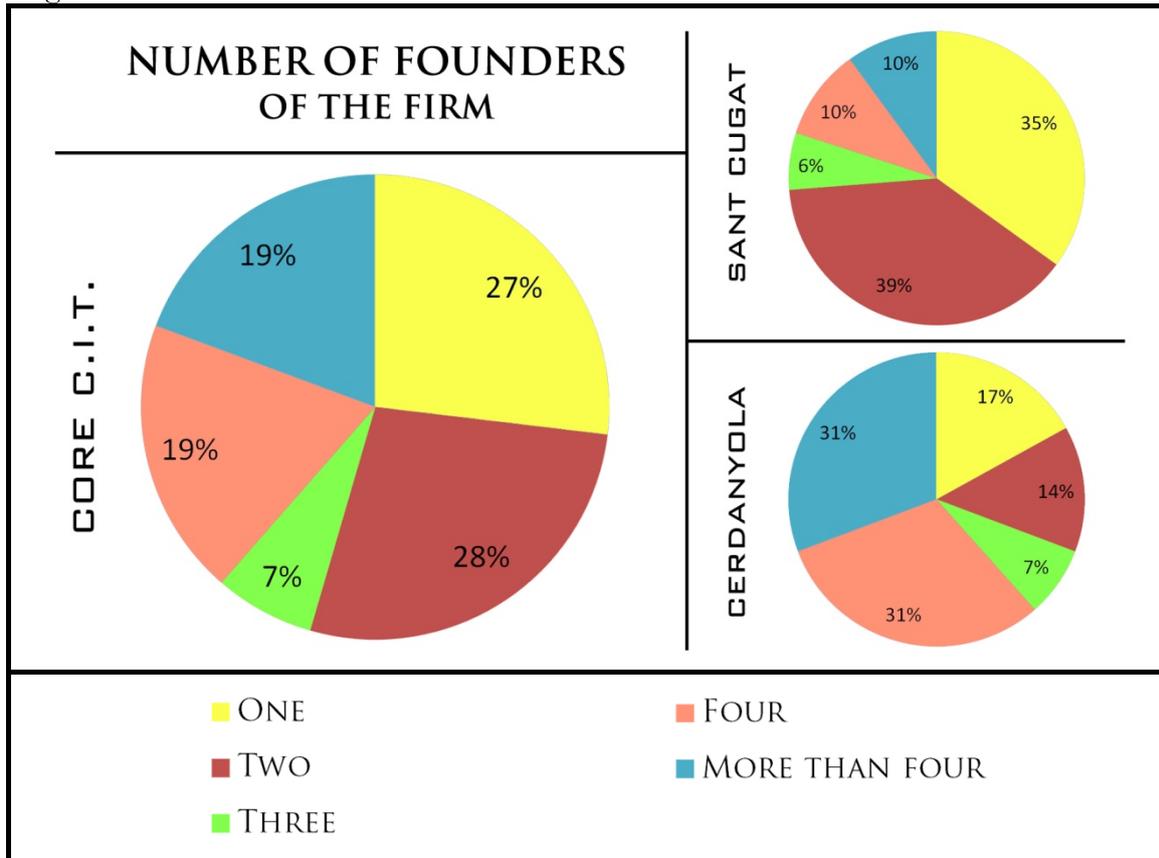


Fig. 13.

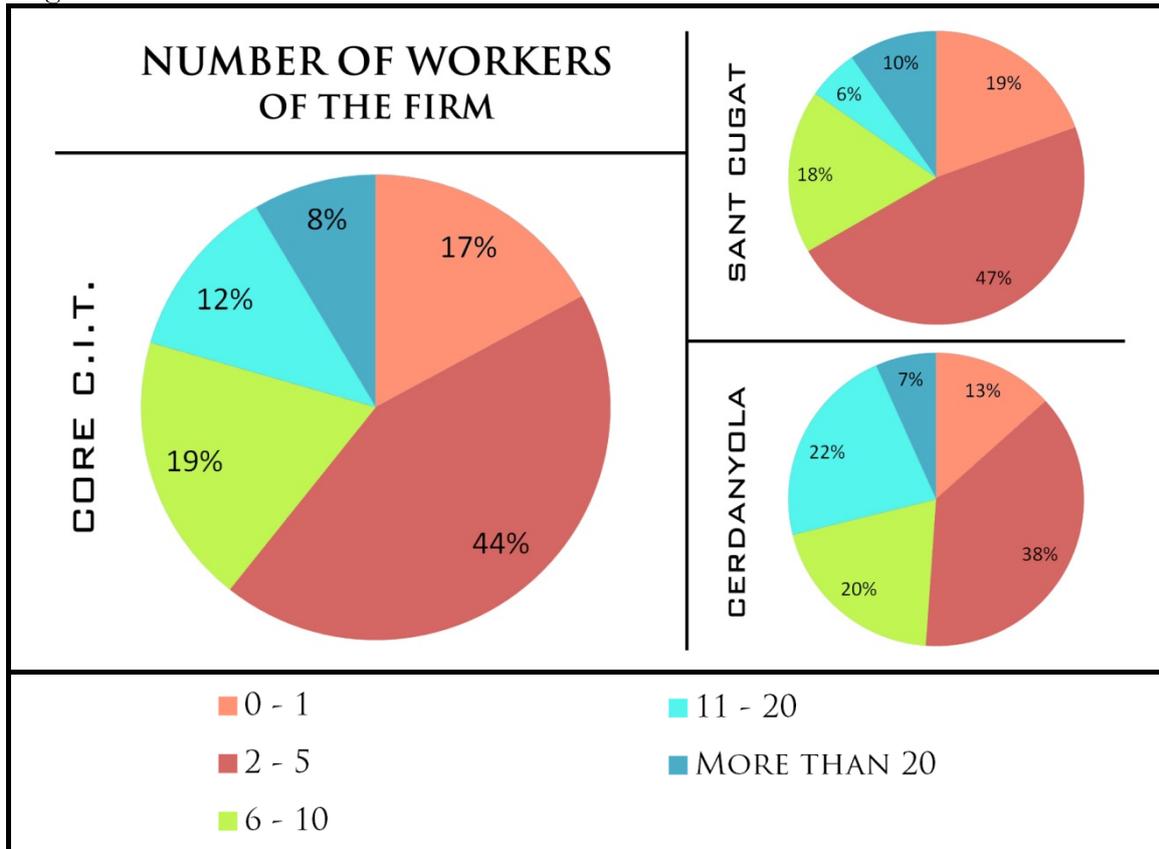


One of the greatest criticisms to Cooperatives is the difficulties that have to face the associates, in order to reach viable agreements and put them into practice. At the core of the *triangle*, the majority of societies have the form of “S.L.”, that is, are with limited-liability to the capital contributed, and the main responsibilities are allocated to one or more founders, but at the majority of the cases are a reduced number of individuals.

At Fig. 13, it is very interesting to observe that the proportion of societies where the number of founders is exactly three is very reduced (only 7%), compared to the other categories. This fact can be explained, of course, in sociological terms and requires further study, but we can advance that a democratic-based system, with only three founders, can lead to a perception of exclusion by the individual that disagrees with the criterion established by the other two, as decisions can be put into practice without its acceptance, determining the rupture of the relationship if this practice is systematic.

The presence of a single founder is more extended in Sant Cugat, with 35% of the total. Also, in this town, is very remarkable the case of two associates creating a firm, being the principal group (39%). In the case of Cerdanyola, the cited categories only represent 31% of the total, and the great proportion is represented by the so-called *founding teams*, being the groups of *four* and *more than four* the most extended ones, with 31% of the total in the municipality each one.

Fig. 14.

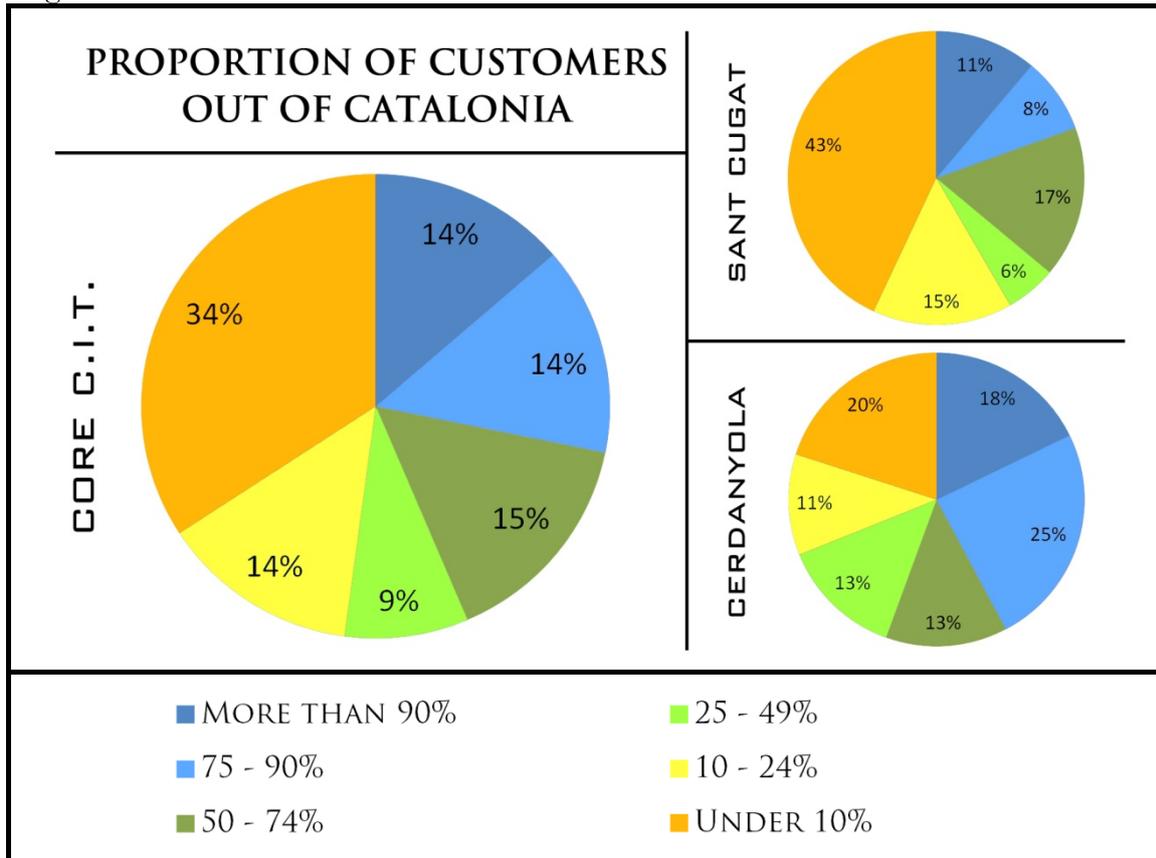


When asking the number of workers of the firm, we have included in the request the concept of *collaborators*, that is, persons that act formally as independent societies or individuals, but in practice have strong ties with the company. Also, it has been crucial the exclusion of the founders of the firm or entrepreneurs in the count, mentioned in the previous analysis at Fig. 13, when asking the companies.

At the core of the C.I.T., firms with five or less workers represent 61% of the total. The ones with a single employee or no one, operating only with the founders themselves, represent 17% of the total. At the opposite level, firms with more than twenty employees are only 8%. Thus, we can define the companies of the *triangle* to be SMEs, that is, Small and Medium-sized firms (*PIMES*, in Catalan language).

Regarding the municipal analysis, companies with less employees have a larger proportion in Sant Cugat (two thirds of the total), and Cerdanyola exhibits firms with greater size (eleven or more workers reach 29% of the total, compared to 16% in the neighbour town, despite the last category, represented in dark blue, is less represented in Cerdanyola). In this city, 51% of the firms have five or less employees. Finally, it is important to consider that small firms had been more accessible to answer the survey, as superior management levels authorised the participation to their workers more easily, or simply filled the document themselves. Results can be slightly *biased* towards SMEs.

Fig. 15.

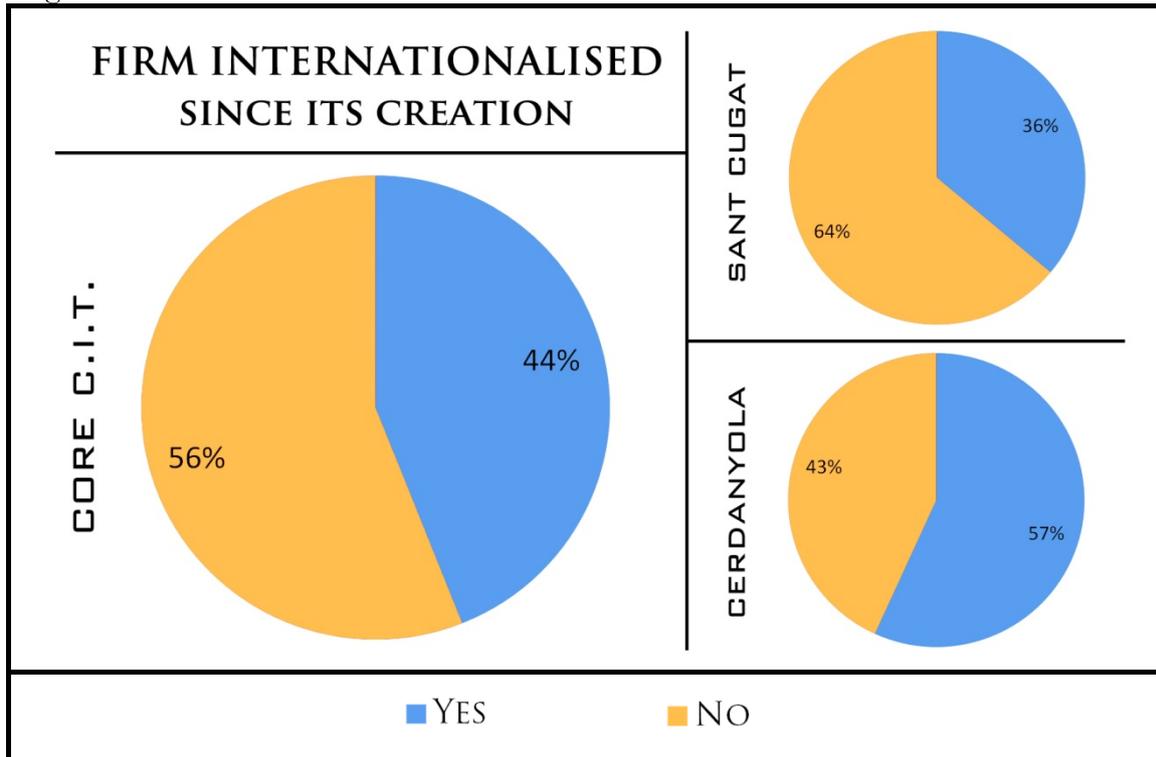


The internationalisation of firms can be evaluated by assessing their dependence on customers that are situated outside the borders of the country. In our case, the concept of *country* has been assimilated to that of *autonomous community*, Catalonia. This scope is motivated by reasons of analysis, not political. The study provides a picture of a balanced distribution in terms of sales at the core of the *triangle*: 43% of the companies sell more than 50% of their output to customers that are situated out of Catalonia.

When observing each municipality separately, Sant Cugat has a more national orientation, with 43% of the firms selling less than 10% of the production outside Catalonia. This magnitude only reaches 20% of the companies in the case of Cerdanyola. When assessing the percentage of businesses that sell more than 50% of the output at foreign markets, Cerdanyola is highly internationalised, reaching 56% of the firms, while Sant Cugat arrives to 36%.

The *last decile*, where more than 90% of the production is sold outside Catalonia, arrives to 18% of the companies in Cerdanyola, while in Sant Cugat is 11%. Despite the remarkable differences that appear among municipalities, we can consider with certitude that the openness of the companies situated in both towns is remarkable, very integrated to the global economy.

Fig. 16.

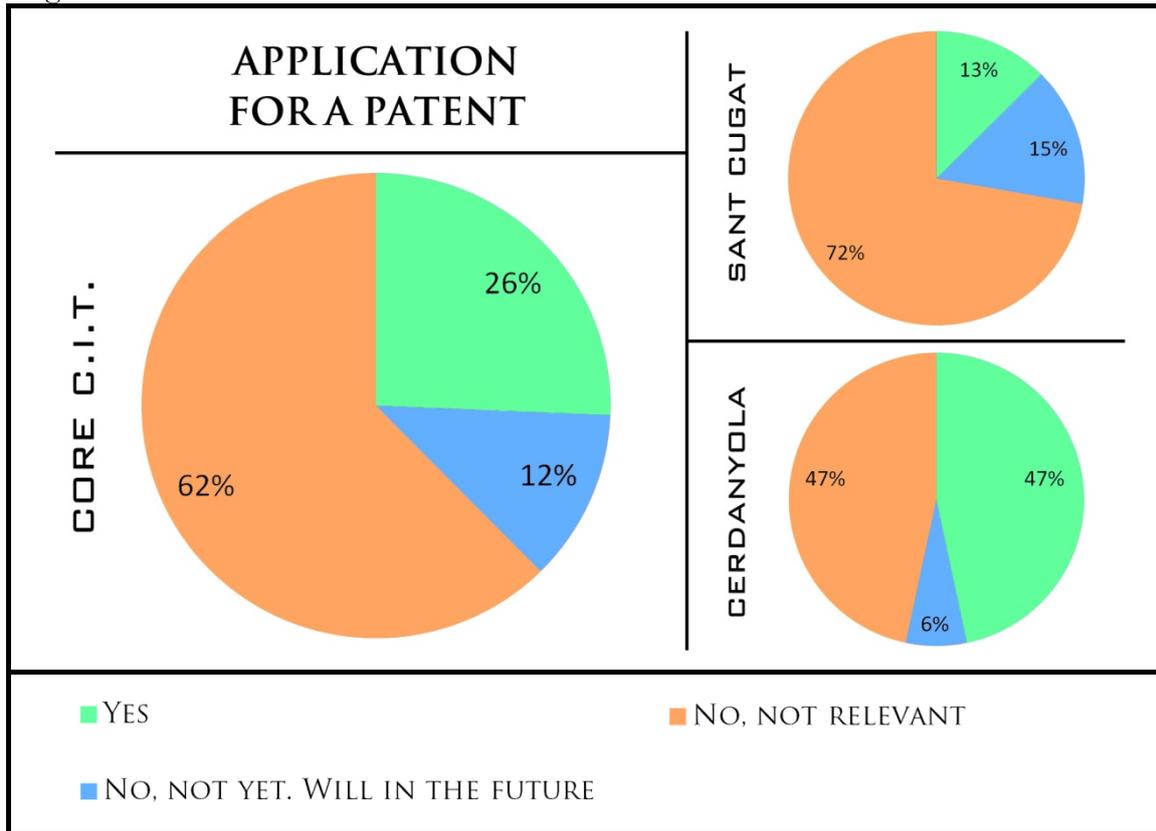


The concept of a *born global* is that of a firm orientated internationally, since the very beginning of its activities. The changes experienced in the last decades in the information technologies and the openness to foreign markets, as regional and global economies had become more integrated, had facilitated to new firms the availability of customers at places that in the past were only possible in *exotic dreams*. These firms have numerous denominations in literature: *micro-multinationals*, *global start-ups*, *instant exporters* and *international new ventures* (Karra, Phillips and Tracey, 2008).

At the core of the C.I.T., we can identify 44% of the firms to be self-considered *born globals*, which is very high, compared to Fig. 15, where the proportion of firms that sell large fractions of their output in foreign markets is more reduced (*Vid.* Appendix 1 with the specific questions that were formulated in the survey, which were designed not to cause confusions). But we should remark that the concepts represented in both figures are not the same, and what is more, do not exclude each other: one firm can be created having an international orientation, and at practice, attend mainly local customers.

When assessing the differences among municipalities, Cerdanyola displays a greater *born global* perspective, with the majority of firms accomplishing this label (57%). By contrast, in Sant Cugat the magnitude reaches 36% of the firms. These findings are consistent with the previous figure, where Cerdanyola's companies showed greater internationalisation of their production.

Fig. 17.

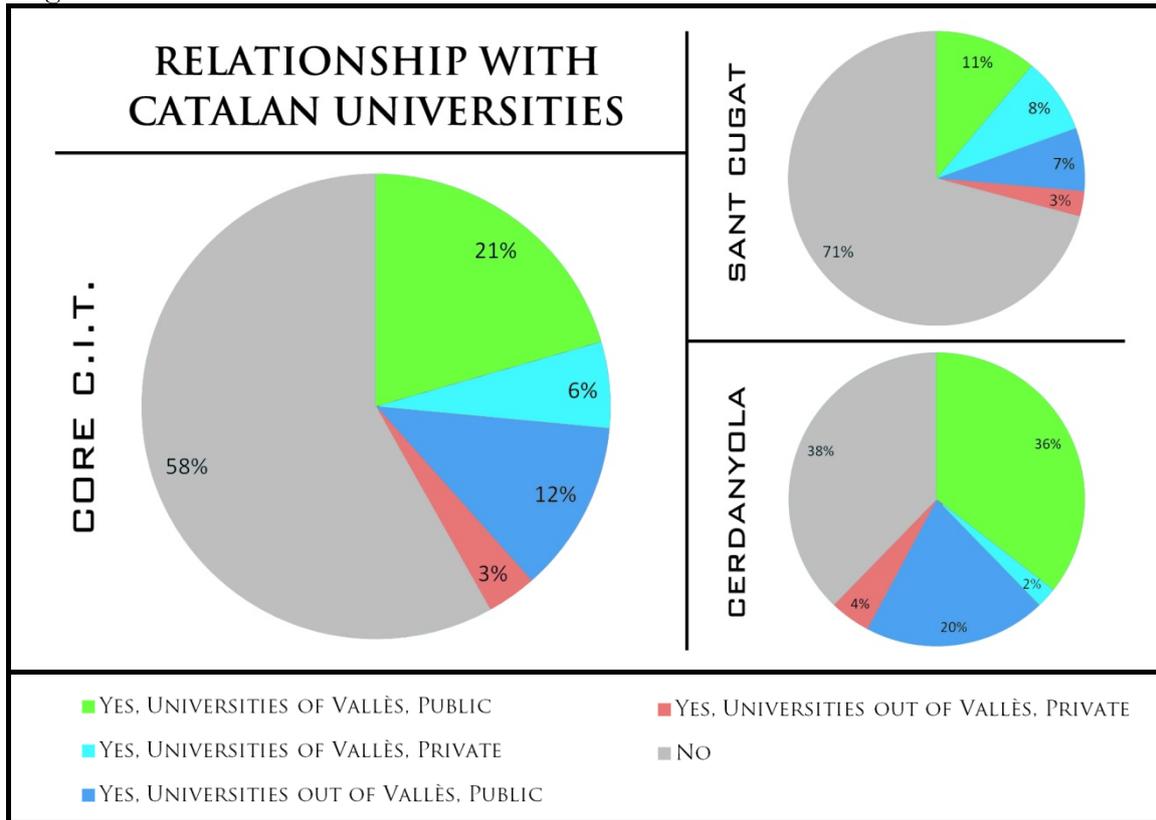


One of the best ways to measure the innovative capabilities of firms is to study the quantities of patents that had been obtained. In the present case, the questionnaire has been adjusted to the structure of the PSED (*Vid.* page 17 and Appendix 1), based on asking if the firm has *applied* or *solicited* a patent, not necessarily implying that the mentioned patent is granted by the public bodies.

At the heart of the *triangle*, more than one quarter of the companies affirm to have solicited at least one patent, which is indicative of a high degree of innovativeness by the established firms. 12% of the surveyed companies indicate that they have not applied for a patent yet, but probably will do so in the future.

Comparing both municipalities, Cerdanyola is clearly the locomotive of innovation in the *triangle*, and thus the technological flagship of Catalonia to the rest of the world. The city has 47% of the companies affirming that have solicited a patent, a very high proportion compared with Sant Cugat, where only 13% of them affirm to have done so. In the case of the latter municipality, the proportion of companies affirming that probably will request a patent in a future is remarkable, even larger than the firms that have solicited a patent in practice, and this is a sign of *leaving the door open*, not to exclude possibilities for the future that could be interesting for the business.

Fig. 18.

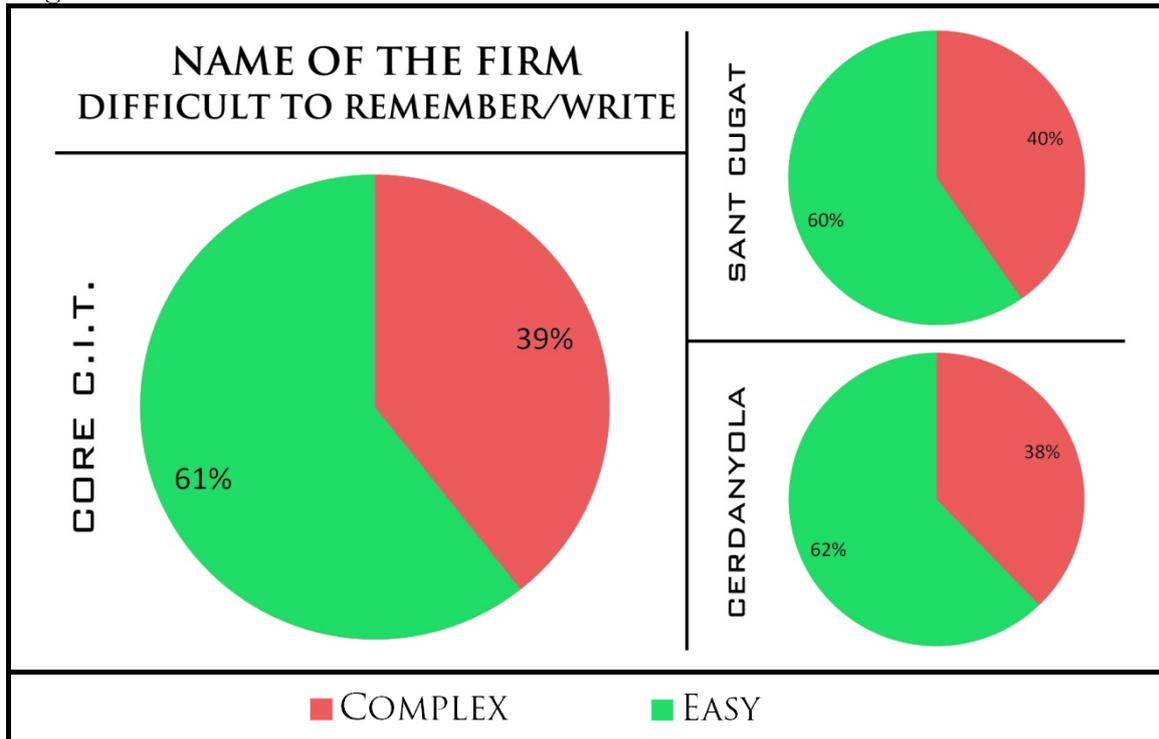


At the core of the C.I.T. the majority of companies do not have relationships with universities. In case they have, public universities of Vallès, like the UAB and UPC, will be the most common link, with 21% of the cases. This fact has of course geographical foundations, as the mentioned universities have buildings or research centres inside Vallès region, and even at the core of the *triangle*. Public universities outside Vallès, having Barcelona as a concentration pole, are situated at second place, accumulating 12% of the reported relationships. With very similar proportions, in the private level, universities in Vallès exhibit the largest fraction (6%), and the ones located outside the region have half of the total private share.

Regarding the municipal analysis, Cerdanyola exhibits the highest proportion of links between firms and educational institutions, with 62% of the companies contributing to these ties. Thanks to the important presence of UAB and its own *Parc de Recerca*, 36% of the relationships are related to public universities in Vallès. If we only take into account public institutions, with independence of their location in Catalonia, 56% of the companies report having a relationship with them.

In the case of Sant Cugat, the fraction of private centres is shown much higher, surpassing half of the companies that have ties with universities. Thanks to ESADE, private universities in Vallès exhibit a larger fraction than public institutions outside Vallès region. The municipality has less implications in the university-firm links.

Fig. 19.



The present analysis is probably the most difficult to put in practice. Determining if a firm has an easy or complex name, is at first sight a subjective assessment, only based in personal criteria. Moreover, I have compromised myself to preserve the confidentiality of all respondents, not revealing the identity of persons nor firms participating in the survey. Publishing the list of companies, or at least some examples to clarify what name is *complex* and what is *easy* could cause an intolerable damage. At page 14, the methodology used to classify appropriately the names is exposed, partially extracted from the contributions by Green and Jame (2013).

At the core of the C.I.T., the majority of names have an *easy* nature, and 39% of the total exhibit a complex constitution. Comparing municipalities, Sant Cugat and Cerdanyola have similar levels of complexity, being the former the city where the names slightly appear to be more difficult to remember and write.

In the following sections we will examine how this characteristic, among others, can affect the survival possibilities of the firms of the *triangle*, thanks to a multivariable econometric model.

4. SURVIVAL ANALYSIS

4.1. Econometric model of company survival

The present econometric model defines as the dependent variable the age of the participating companies, in years. The convenient decimals, to have a precision of days at the numerals, are included. In the table below, all the independent variables that had been used in the regression are described. All of them, with the exception of *Org:NUM-FOUNDERS*, are based in the binary pattern, also called *dummy variables*:

Definition of independent variables	
Ent:RESIDENCE-VALLÈS-OCC	1 if the main entrepreneur or CEO has residence in Vallès Occidental, and 0 otherwise.
Ent:EDUC-ATAINM	1 if the main entrepreneur or CEO has master or doctorate studies, and 0 otherwise.
Ent:EDUC-TYPE2	1 if the main entrepreneur or CEO has studies in Law, Economics or Business, and 0 otherwise.
Ent:EDUC-PRIV	1 if the main entrepreneur or CEO has studied in a private institution, and 0 otherwise.
Org:NUM-FOUNDERS	1 if the company has one single founder. 2 if the company has two founders. 3 if the company has three founders. 4 if the company has four founders. 5 if the company has five or more founders.
Org:EXPORTS-HIGH	1 if the company has a proportion of customers out of Catalonia higher than 25%, and 0 otherwise.
Org:BORN-GLOBAL	1 if the company is considered to be internationalised since the beginning of the activities, and 0 otherwise.
Org:PATENT	1 if the company has solicited a patent, and 0 otherwise.
Org:RELATION-UNIV	1 if the company has relationships with one or more universities, and 0 otherwise.
Org:EASY-NAME	1 if the company has a name that is easy to write or remember, and 0 otherwise.
Cntrl:BORN-CAT	1 if the main entrepreneur was born in Catalonia, and 0 otherwise.
Cntrl:FEMALE	1 if the main entrepreneur is a woman, and 0 a man.
Cntrl:AGE+45	1 if the main entrepreneur has an age over 45 years old, and 0 if he/she is below that age.
Cntrl:SIZE-FIRM	1 if the company has five or less workers/collaborators, and 0 otherwise.
Cntrl:CERDANYOLA	1 if the company is located in Cerdanyola, and 0 if it is located in Sant Cugat.

Using the variables exposed, the following equation summarises the econometric model that the present analysis aims at defining, in order to answer the initial hypotheses:

$$TA_i = \alpha + \sum_{j=1}^4 \beta_j \sum_{j=1}^4 Ent_i^j + \sum_{k=1}^6 \gamma_k \sum_{k=1}^6 Org_i^k + \sum_{l=1}^5 \delta_l \sum_{l=1}^5 Cntrl_i^l + \varepsilon$$

$$1 \leq i \leq 119 \quad 1 \leq j \leq 4 \quad 1 \leq k \leq 6 \quad 1 \leq l \leq 5$$

Definition of the elements of the equation	
TA_i	Time Alive, the age in years of the firm, from the exact date of inscription at the official Company Registry to the present moment (at 13/05/2017).
α	Constant of the regression.
β_j	Coefficient related to a regressor of the hypotheses of the entrepreneur.
Ent_i^j	Regressors of each of the hypotheses of the entrepreneur (4).
γ_k	Coefficient related to a regressor of the hypotheses of the firm or organization.
Org_i^k	Regressors of each of the hypotheses of the firm or organization (6).
δ_l	Coefficient related to a regressor of the control variables.
$Cntrl_i^l$	Regressors of each of the control variables (5).
ε	Error term or disturbance.

4.2. Estimation and results

In order to estimate the commented econometric model, the software STATA 14.1 has been used, which is very extended among professionals of economic analysis. At Fig. 20 the output obtained is presented, and we will comment specifically each of the independent variables, to assure if the hypotheses that we had formulated in Chapter 2 are effectively accomplished.

Fig. 20.

Source	SS	df	MS	Number of obs	=	119
				F(15, 103)	=	6.28
Model	3703.17364	15	246.878243	Prob > F	=	0.0000
Residual	4046.71477	103	39.2884929	R-squared	=	0.4778
				Adj R-squared	=	0.4018
Total	7749.88841	118	65.6770204	Root MSE	=	6.2681

TIMEALIVE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
EntRESIDENCEVALLÈSOCC	-2.296456	1.256857	-1.83	0.071	-4.789135 .1962223
EntEDUCATAINM	-1.209357	1.273932	-0.95	0.345	-3.735901 1.317187
EntEDUCTYPE2	3.997448	1.464033	2.73	0.007	1.093883 6.901013
EntEDUCPRIV	-1.074975	1.478438	-0.73	0.469	-4.007108 1.857158
OrgNUMFOUNDERS	-.8185177	.5018496	-1.63	0.106	-1.813818 .1767826
OrgEXPORTSHIGH	2.713251	1.419017	1.91	0.059	-.1010352 5.527538
OrgBORNGLOBAL	-2.642025	1.41144	-1.87	0.064	-5.441284 .1572332
OrgPATENT	-3.590797	1.738558	-2.07	0.041	-7.038817 -.1427764
OrgRELATIONUNIV	2.784786	1.436612	1.94	0.055	-.0643952 5.633967
OrgEASYNAM	1.346072	1.235938	1.09	0.279	-1.10512 3.797264
CntrlBORNCA	-3.308661	1.380473	-2.40	0.018	-6.046504 -.5708178
CntrlFEMALE	-2.668137	1.500161	-1.78	0.078	-5.643353 .3070796
CntrlAGE45	3.20537	1.230515	2.60	0.011	.7649331 5.645807
CntrlSIZEFIRM	-3.899998	1.315072	-2.97	0.004	-6.508132 -1.291864
CntrlCERDANYOLA	5.730348	1.460084	3.92	0.000	2.834615 8.626081
_cons	13.13212	2.390341	5.49	0.000	8.391444 17.8728

At first sight, we can observe that the regression reaches a remarkable (and very interesting) *R-squared* of 0.4778. Considering that it is an analysis in social sciences and that the number of observations is limited to 119, this magnitude assesses a representative study, by basically assessing internal factors of the firms.

But the quality of the regression does not only depend on a high *R-squared*: with fifteen independent variables, possible collinearity problems may arise. Using the mentioned software, it has been verified that the regression is free of such difficulties, even among the control variables, reaching strong operativity capabilities.

Hypotheses related to the main Entrepreneur or CEO

Hypothesis 1. <i>Residence of the main entrepreneur or CEO in Vallès Occidental fosters the survival of the firm.</i>			REJECTED
Coefficient	Standard Error	<i>t</i>	$P > t $
-2.296456	1.256857	-1.83	0.071

At a significance level of 10%, we can affirm that there is a negative relationship among the residence of the entrepreneur in Vallès Occidental and the survival possibilities of the company that he/she represents, reducing the life expectancy of the firm in 2.3 years, on average, if the condition is accomplished. One of the possible explanations of this surprising discovery is that once the firm is consolidated over time, CEOs may decide to establish their residences in places outside Vallès region, delegating their tasks to their subordinates in the area.

Hypothesis 2. <i>A greater educational attainment by the main entrepreneur or CEO has a positive and significant relationship with the survival of the firm.</i>			NOT SIGNIFICANT
Coefficient	Standard Error	<i>t</i>	$P > t $
-1.209357	1.273932	-0.95	0.345

At first sight, we could consider that the relationship among greater educational attainment and firm survival is even negative, but the current analysis surpasses our minimum level of precision of 10% (at 34.5%), and we cannot reach significant conclusions about this matter. Thus, we can only affirm that holding master or doctorate qualifications by the main entrepreneur or CEO is not proven to be related with longer firm survival. Our findings contrast with the current polarised academic contributions, that defend either a positive effect, either a negative effect.

Hypothesis 3. <i>The studies in Law, Economics or Business by the main entrepreneur or CEO influence positively to the survival of the firm.</i>			ACCEPTED
Coefficient	Standard Error	<i>t</i>	$P > t $
3.997448	1.464033	2.73	0.007

In effect, the studies of Law, Economics and Business provide a suitable educational background to start lasting new ventures. At a significance level of 1%, which is a remarkable level of precision, we can affirm that these studies can add to our survival model, on average, 4 years more in terms of life expectancy. In the case of the *triangle*, the academic contribution by Solesvik (2013) appears to be right.

Hypothesis 4. <i>The studies in private institutions by the main entrepreneur or CEO influence positively the survival of the firm.</i>			NOT SIGNIFICANT
Coefficient	Standard Error	<i>t</i>	$P > t $
-1.074975	1.478438	-0.73	0.469

Initially, we could infer that the relationship among studying in a private institution and firm survival is even negative, but the current analysis surpasses our minimum level of precision of 10% (at 46.9%), and we cannot reach significant conclusions about this issue. By these means, we can only affirm that attending courses in private centres, by the main entrepreneur or CEO, is not proven to be related with an increased firm survival.

Hypotheses related to the Firm or Organization

Hypothesis 5. <i>A greater number of firm founders have a positive relationship with the survival of the business.</i>			REJECTED
Coefficient	Standard Error	<i>t</i>	$P > t $
-0.8185177	0.5018496	-1.63	0.106

With surprise to our initial hypothesis, based on the current trend in the economic literature, at a significance level of 10.6% (at the border of reaching *non significant* conclusions), an extra founder of the firm reduces the life expectancy of the new venture in approximately 10 months, on average. This analysis is up to five members, where an extra founder surpassing this limit will be considered as five. Thus, in the case of the C.I.T., the concept of *founding teams* and their implications to the success of the businesses do not invite to be optimistic.

Hypothesis 6. <i>A high proportion of customers located out of Catalonia is positively related with the survival of the business.</i>			ACCEPTED
Coefficient	Standard Error	<i>t</i>	$P > t $
2.713251	1.419017	1.91	0.059

In accordance with the extended rhetoric of *internationalisation*, promoted by governmental authorities in the last years, a proportion of customers of the firm situated outside the borders of Catalonia greater than 25% is associated with 2.7 more years of life expectancy for the business, on average. Moreover, this magnitude is significant at 10% level, a fact that adds reliability to the present model. This conclusion is in accordance with the findings of Dai, Harris, Lu and Liu (2016).

Hypothesis 7. <i>The internationalisation of the firm, since the moment it is created, is positively related with the survival of the business.</i>			REJECTED
Coefficient	Standard Error	<i>t</i>	$P > t $
-2.642025	1.41144	-1.87	0.064

Interestingly, the patterns of the *born global* firm are not related with the endurance of companies, rejecting the hypothesis that we have formulated previously, at a significance level of 10%. On average, a company internationalised since the beginning of its activities will have 2 years and 8 months less of life, compared with another that is not *born global*.

This situation can be partially caused by the technological and regulatory changes experienced in the last years, that have allowed new ventures to become international since moment zero, a setting that was not possible when the older companies that had participated in the survey started their activities. Thus, these discoveries could be in the line elaborated by Sapienza et. al. (2006).

Hypothesis 8. <i>A patent obtained by the firm, or simply solicited, influences positively the survival of the business.</i>			REJECTED
Coefficient	Standard Error	<i>t</i>	$P > t $
-3.590797	1.738558	-2.07	0.041

In this case, in which the formulated hypothesis has been rejected, we can expect reasonably that a company that has registered a patent, or at least has solicited it, will be competing in a more demanding sector, where mistakes and *slow movements* can cause serious damages to the firm, with greater penalties, than sectors where the path of innovation is not followed.

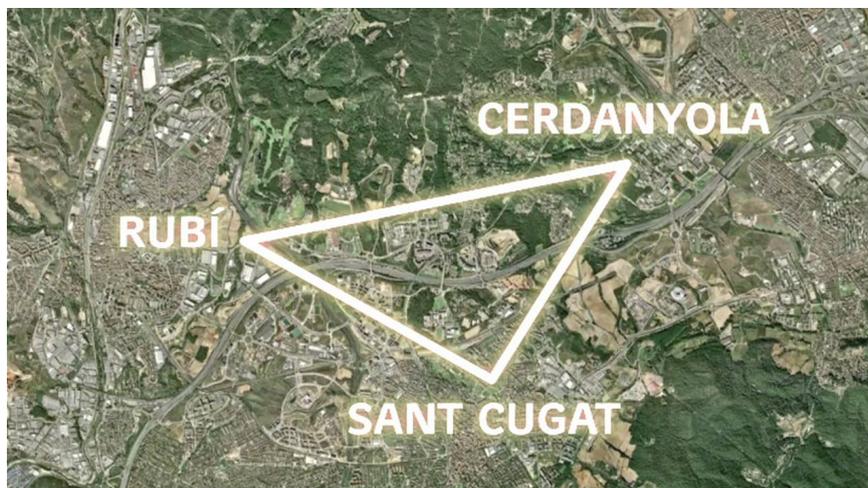
Thus, the possibilities of survival of a firm that has patents are more reduced, decreasing its life expectancy on 3 years and 7 months, compared with the less-innovative companies, on average and at a significance level of 5%. Agarwal (1996) is the best source to explain such results.

Hypothesis 9. <i>The existence of a relationship between the firm and a university has positive and significant implications for the survival of the business.</i>			ACCEPTED
Coefficient	Standard Error	<i>t</i>	<i>P > t </i>
2.784786	1.436612	1.94	0.055

In effect, the relationships among universities and firms are associated with greater life expectancy for the latter ones, concretely 2 years and 9 months, on average. This estimation is significant at a 10% level, becoming favourable to the creation of ties between institutional agents and businesses, for mutual profitability. This discovery opposes the literature previously exposed in the discussion of the hypotheses.

Hypothesis 10. <i>An easy name for the company is positively and significantly related with the survival possibilities of the business.</i>			NOT SIGNIFICANT
Coefficient	Standard Error	<i>t</i>	<i>P > t </i>
1.346072	1.235938	1.09	0.279

At the beginning, we could consider that the relationship among an easy name for the company and firm survival is positive, but the current analysis surpasses our minimum level of precision of 10% (at 27.9%), and we cannot reach significant conclusions about this matter. Only, we can sentence that an easier name is not proven to be related with an increased firm survival.



Source: Catalonia Innovation Triangle Official Website

5. CONCLUSIONS

By means of this analysis, we have discovered that Vallès region, and especially the Catalonia Innovation Triangle, is a unique place that deserved a deep study. The territory is home of very varied firms in terms of sector, that have relationships with the incumbent high level universities of the territory (and in less proportion, with institutions located outside), which even provide them support via incubators or research.

The C.I.T. has a gender gap, regarding CEOs or firm founders, that is similar to that of *advanced* economies, but this should not be an excuse to move towards parity in the near future. The profile of the entrepreneur of the *triangle* is a man, more than 30 years old, that has his permanent residence in Vallès Occidental, that was born in Catalonia, with high educational attainment (Master level studies) in Architecture or Engineering or Computer Science, achieved in a Catalan public university.

About the studied companies, those are SMEs (*PIMEs*, in Catalan) that have an *easy* name, with five or less workers in the majority of cases, founded less than ten years ago by a team of one or two founders, that have a remarkable level of internationalisation and orientation to the foreign markets since the very beginning, also with a notable level of innovative activities and relationships with universities.

Regarding the econometric model and the hypotheses initially formulated, we conclude that among the factors that are significant to enlarge the survival of firms are: studies in Law, Economics and Business by the main entrepreneur or CEO; an important fraction of the total customers out of Catalonia; and at least a relationship with a University.

The factors that have not been qualified as significant for the survival of the firm are: studies of the main entrepreneur or CEO in a private institution; a high educational attainment (that is, to hold a Master o Doctorate) by the main entrepreneur or CEO; and a company name that can be qualified as *easy* to remember or write.

Finally, among the factors that influence negatively to the survival of the firm, or at least are not related with the firms that have longer lives, we can find (with high surprise): a residence by the main entrepreneur in Vallès Occidental; a greater number of firm founders in the new venture team; and the solicitude or application of a patent by the company.

These findings can be of interest to all the participating firms, and will be conveniently communicated to them as soon as possible, thus fostering a relationship *win-win*, where every part is benefited. Vallès region, and the Catalonia Innovation Triangle in particular, are areas with a great potential for the future, and deserve further study and public support.

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7. APPENDIX

Appendix 1

Vallès Entrepreneurship Survey.

Distributed in April-March 2017.

Questionnaires in English, Catalan and Spanish.

Appendix 2

Map of the Catalonia Innovation Triangle (C.I.T.).

Source:

<http://premsa.santcugat.cat/wp-content/uploads/2012/09/PL%C3%80NOL-ZONA-CiT-EIX-B-302.jpg>

VALLÈS ENTREPRENEURSHIP SURVEY (VES)

2017

<p>Select your current LOCATION:</p>	<p> <input type="radio"/> Parc Tecnològic del Vallès <input type="radio"/> Parc de Recerca UAB <input type="radio"/> @ Sant Cugat Business Park <input type="radio"/> ESADE Creàpolis / Volpelleres </p>
<p>Indicate the SECTOR of the company:</p>	<p> <input type="radio"/> Software / Apps / Computer Science <input type="radio"/> Distribution / Intermediary <input type="radio"/> Manufacturing / Technology <input type="radio"/> Real Estate / Construction <input type="radio"/> Consulting / Legal <input type="radio"/> Retail Store / Customer Service <input type="radio"/> Pharmaceutical / Biotechnology <input type="radio"/> Design / Creation <input type="radio"/> Other </p>
<p>Choose the company's TIME of FOUNDATION:</p>	<p> <input type="radio"/> 1 - 2 years ago <input type="radio"/> 3 - 5 years ago <input type="radio"/> 6 - 10 years ago <input type="radio"/> More than 10 years ago </p>
<p>Number of FOUNDERS / OWNERS of the business:</p>	<p> <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> More than 4 </p>
<p>Number of WORKERS / COLLABORATORS in Vallès area:</p> <p>Not counting FOUNDERS / OWNERS</p>	<p> <input type="radio"/> 0 - 1 <input type="radio"/> 2 - 5 <input type="radio"/> 6 - 10 <input type="radio"/> 11 - 20 <input type="radio"/> More than 20 </p>
<p>Has de company one or several OFFICES AT SPAIN, outside the territory Catalonia?</p>	<p> <input type="radio"/> Yes <input type="radio"/> No </p>
<p>Is the company part of an INTERNATIONAL GROUP, or has received FOREIGN DIRECT INVESTMENT in the last years?</p>	<p> <input type="radio"/> Yes, with headquarters outside Spain <input type="radio"/> Yes, with headquarters inside Spain <input type="radio"/> No </p>
<p>Proportion of CUSTOMERS that will normally LIVE OUTSIDE CATALONIA:</p>	<p> <input type="radio"/> More than 90% <input type="radio"/> 75 - 90% <input type="radio"/> 50 - 74% <input type="radio"/> 25 - 49% <input type="radio"/> 10 - 24% <input type="radio"/> Under 10% </p>
<p>Is the company INTERNATIONALLY ORIENTED, SINCE the moment of FOUNDATION itself? Is a <i>Born Global</i>?</p>	<p> <input type="radio"/> Yes <input type="radio"/> No </p>

Has the company RELATIONSHIPS WITH one or several UNIVERSITIES , to develop its activities?	<input type="radio"/> Yes, with Universities of Vallès area, public institutions <input type="radio"/> Yes, with Universities of Vallès area, private institutions <input type="radio"/> Yes, with Universities outside Vallès area, public institutions <input type="radio"/> Yes, with Universities outside Vallès area, private institutions <input type="radio"/> No
Has an APPLICATION FOR A PATENT been submitted, will an application be submitted in the future, or is not relevant for the business?	<input type="radio"/> Yes <input type="radio"/> No, not yet. Will in the future <input type="radio"/> No, not relevant
GENDER of the MAIN ENTREPRENEUR or DIRECTOR of the company:	<input type="radio"/> Female <input type="radio"/> Male
Current AGE of the MAIN ENTREPRENEUR or DIRECTOR of the company:	<input type="radio"/> 0 - 29 years old <input type="radio"/> 30 - 45 years old <input type="radio"/> More than 45 years old
Was the MAIN ENTREPRENEUR or DIRECTOR of the company BORN IN CATALONIA?	<input type="radio"/> Yes <input type="radio"/> No
Indicate the current AREA OF RESIDENCE of the MAIN ENTREPRENEUR or DIRECTOR of the company:	<input type="radio"/> Vallès Occidental <input type="radio"/> Vallès Oriental <input type="radio"/> Barcelonès <input type="radio"/> Baix Llobregat <input type="radio"/> Maresme <input type="radio"/> Bages <input type="radio"/> Anoia <input type="radio"/> Other
Select the specific EDUCATIONAL ATTAINMENT of the MAIN ENTREPRENEUR or DIRECTOR of the company:	<input type="radio"/> Compulsory secondary schooling <input type="radio"/> Vocational / Technical training, Pre-University <input type="radio"/> University Bachelor <input type="radio"/> University Master <input type="radio"/> University Doctorate
Select the PRINCIPAL FIELD OF KNOWLEDGE of the studies of the MAIN ENTREPRENEUR or DIRECTOR of the company:	<input type="radio"/> Fine Arts, Design, Dramatics, Music <input type="radio"/> Law, Economics, Business Science <input type="radio"/> Architecture, Engineering, Computer Science <input type="radio"/> Human Medicine, Health Science <input type="radio"/> Social Sciences: Psychology, Sociology, Politics, Education <input type="radio"/> Humanities: Philosophy, History, Linguistics, Anthropology <input type="radio"/> Natural Sciences and Mathematics
Did the MAIN ENTREPRENEUR or DIRECTOR of the company HAVE STUDIES IN CATALONIA?	<input type="radio"/> Yes, inside Vallès region, public institutions <input type="radio"/> Yes, inside Vallès region, private institutions <input type="radio"/> Yes, outside Vallès region, public institutions <input type="radio"/> Yes, outside Vallès region, private institutions <input type="radio"/> No

VALLÈS ENTREPRENEURSHIP SURVEY (VES)

2017

<p>Seleccioni la seva LOCALITZACIÓ actual:</p>	<p> <input type="radio"/> Parc Tecnològic del Vallès <input type="radio"/> Parc de Recerca UAB <input type="radio"/> @ Sant Cugat Business Park <input type="radio"/> ESADE Creàpolis / Volpelleres </p>
<p>Indiqui el SECTOR de la seva empresa:</p>	<p> <input type="radio"/> Software / Apps / Informàtica <input type="radio"/> Distribució / Intermediari <input type="radio"/> Manufactures / Tecnologia <input type="radio"/> Immobiliari / Construcció <input type="radio"/> Consultoria / Dret <input type="radio"/> Venda al detall / Serveis consumidor <input type="radio"/> Farmacèutica / Biotecnologia <input type="radio"/> Disseny / Creació <input type="radio"/> Altre </p>
<p>Esculli el TEMPS de FUNDACIÓ de la seva empresa:</p>	<p> <input type="radio"/> 1 - 2 anys enrere <input type="radio"/> 3 - 5 anys enrere <input type="radio"/> 6 - 10 anys enrere <input type="radio"/> Fa més de 10 anys enrere </p>
<p>Nombre de FUNDADORS / PROPIETARIS de l'empresa:</p>	<p> <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> Més de 4 </p>
<p>Nombre de TREBALLADORS / COL·LABORADORS a la zona del Vallès:</p> <p>Sense comptar als FUNDADORS / PROPIETARIS</p>	<p> <input type="radio"/> 0 - 1 <input type="radio"/> 2 - 5 <input type="radio"/> 6 - 10 <input type="radio"/> 11 - 20 <input type="radio"/> Més de 20 </p>
<p>Té aquesta empresa una o més OFICINES A ESPANYA, fora del territori de Catalunya?</p>	<p> <input type="radio"/> Sí <input type="radio"/> No </p>
<p>Forma part aquesta empresa d'un GRUP INTERNACIONAL, o ha rebut INVERSIÓ ESTRANGERA DIRECTA en els últims anys?</p>	<p> <input type="radio"/> Sí, amb seu fora d'Espanya <input type="radio"/> Sí, amb seu a dins d'Espanya <input type="radio"/> No </p>
<p>Proporció de CLIENTS que normalment VIUEN FORA DE CATALUNYA:</p>	<p> <input type="radio"/> Més del 90% <input type="radio"/> 75 - 90% <input type="radio"/> 50 - 74% <input type="radio"/> 25 - 49% <input type="radio"/> 10 - 24% <input type="radio"/> Menys del 10% </p>
<p>Està l'empresa ORIENTADA INTERNACIONALMENT, des del mateix moment de la seva CREACIÓ? És una <i>Born Global</i>?</p>	<p> <input type="radio"/> Sí <input type="radio"/> No </p>

Té l'empresa RELACIONS amb una o diverses UNIVERSITATS, per a desenvolupar les seves activitats?	<input type="radio"/> Sí, amb Universitats del Vallès, institucions públiques <input type="radio"/> Sí, amb Universitats del Vallès, institucions privades <input type="radio"/> Sí, amb Universitats fora del Vallès, institucions públiques <input type="radio"/> Sí, amb Universitats fora del Vallès, institucions privades <input type="radio"/> No
S'ha SOL·LICITAT UNA PATENT, es sol·licitarà en un futur, o no és un aspecte rellevant per a aquesta empresa?	<input type="radio"/> Sí <input type="radio"/> No, no encara. En un futur <input type="radio"/> No, no és rellevant
GÈNERE de l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa:	<input type="radio"/> Dona <input type="radio"/> Home
EDAT actual de l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa:	<input type="radio"/> 0 - 29 anys <input type="radio"/> 30 - 45 anys <input type="radio"/> Més de 45 anys
VA NÉIXER A CATALUNYA, l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa?	<input type="radio"/> Sí <input type="radio"/> No
Indiqui l'actual COMARCA DE RESIDÈNCIA de l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa:	<input type="radio"/> Vallès Occidental <input type="radio"/> Vallès Oriental <input type="radio"/> Barcelonès <input type="radio"/> Baix Llobregat <input type="radio"/> Maresme <input type="radio"/> Bages <input type="radio"/> Anoia <input type="radio"/> Altra
Seleccioni la FORMACIÓ ASSOLIDA de l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa:	<input type="radio"/> Educació Secundària Obligatòria / BUP <input type="radio"/> Formació Professional / Batxillerat / COU <input type="radio"/> Grau Universitari / Diplomatura <input type="radio"/> Màster Universitari / Llicenciatura <input type="radio"/> Doctorat Universitari
Seleccioni la BRANCA DE CONEIXEMENT més destacada dels estudis de l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa:	<input type="radio"/> Belles Arts, Disseny, Teatre, Música <input type="radio"/> Dret, Economia, Ciències empresarials <input type="radio"/> Arquitectura, Enginyeria, Informàtica <input type="radio"/> Medicina, Ciències de la Salut <input type="radio"/> Ciències Socials: Psicologia, Sociologia, Polítiques, Educació <input type="radio"/> Humanitats: Filosofia, Història, Lingüística, Antropologia <input type="radio"/> Ciències Naturals i Matemàtiques
Va ESTUDIAR A CATALUNYA, l'EMPRENEDOR/A PRINCIPAL o DIRECTOR/A de l'empresa?	<input type="radio"/> Sí, dins del Vallès, en institucions públiques <input type="radio"/> Sí, dins del Vallès, en institucions privades <input type="radio"/> Sí, fora del Vallès, en institucions públiques <input type="radio"/> Sí, fora del Vallès, en institucions privades <input type="radio"/> No

VALLÈS ENTREPRENEURSHIP SURVEY (VES)

2017

<p>Seleccione su LOCALIZACIÓN actual:</p>	<p><input type="radio"/> Parc Tecnològic del Vallès <input type="radio"/> Parc de Recerca UAB <input type="radio"/> @ Sant Cugat Business Park <input type="radio"/> ESADE Creàpolis / Volpelleres</p>
<p>Indique el SECTOR de su empresa:</p>	<p><input type="radio"/> Software / Apps / Informática <input type="radio"/> Distribución / Intermediario <input type="radio"/> Manufacturas / Tecnología <input type="radio"/> Inmobiliario / Construcción <input type="radio"/> Consultoría / Derecho <input type="radio"/> Venta detalle / Servicios consumidor <input type="radio"/> Farmacéutica / Biotecnología <input type="radio"/> Diseño / Creación <input type="radio"/> Otro</p>
<p>Escoja el TIEMPO de FUNDACIÓN de su empresa:</p>	<p><input type="radio"/> 1 - 2 años atrás <input type="radio"/> 3 - 5 años atrás <input type="radio"/> 6 - 10 años atrás <input type="radio"/> Hace más de 10 años atrás</p>
<p>Número de FUNDADORES / PROPIETARIOS de la empresa:</p>	<p><input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> Más de 4</p>
<p>Número de TRABAJADORES / COLABORADORES en la zona del Vallès: Sin contar a los FUNDADORES / PROPIETARIOS</p>	<p><input type="radio"/> 0 - 1 <input type="radio"/> 2 - 5 <input type="radio"/> 6 - 10 <input type="radio"/> 11 - 20 <input type="radio"/> Más de 20</p>
<p>Tiene esta empresa una o más OFICINAS EN ESPAÑA, fuera del territorio de Cataluña?</p>	<p><input type="radio"/> Sí <input type="radio"/> No</p>
<p>Forma parte esta empresa de un GRUPO INTERNACIONAL, o ha recibido INVERSIÓN EXTRANJERA DIRECTA en los últimos años?</p>	<p><input type="radio"/> Sí, con sede fuera de España <input type="radio"/> Sí, con sede dentro de España <input type="radio"/> No</p>
<p>Proporción de CLIENTES que normalmente VIVEN FUERA DE CATALUÑA:</p>	<p><input type="radio"/> Más del 90% <input type="radio"/> 75 - 90% <input type="radio"/> 50 - 74% <input type="radio"/> 25 - 49% <input type="radio"/> 10 - 24% <input type="radio"/> Menos del 10%</p>
<p>Está la empresa ORIENTADA INTERNACIONALMENTE, desde el mismo momento de su CREACIÓN? Es una <i>Born Global</i>?</p>	<p><input type="radio"/> Sí <input type="radio"/> No</p>

<p>Tiene la empresa RELACIONES con una o varias UNIVERSIDADES, para desarrollar sus actividades?</p>	<p> <input type="radio"/> Sí, con Universidades del Vallès, instituciones públicas <input type="radio"/> Sí, con Universidades del Vallès, instituciones privadas <input type="radio"/> Sí, con Universidades fuera del Vallès, instituciones públicas <input type="radio"/> Sí, con Universidades fuera del Vallès, instituciones privadas <input type="radio"/> No </p>
<p>Se ha SOLICITADO UNA PATENTE, se solicitará en un futuro, o no es un aspecto relevante para esta empresa?</p>	<p> <input type="radio"/> Sí <input type="radio"/> No, no todavía. En un futuro <input type="radio"/> No, no es relevante </p>
<p>GÉNERO del EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa:</p>	<p> <input type="radio"/> Mujer <input type="radio"/> Hombre </p>
<p>EDAD actual del EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa:</p>	<p> <input type="radio"/> 0 - 29 años <input type="radio"/> 30 - 45 años <input type="radio"/> Más de 45 años </p>
<p>NACIÓ EN CATALUÑA, el EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa?</p>	<p> <input type="radio"/> Sí <input type="radio"/> No </p>
<p>Indique la actual COMARCA DE RESIDENCIA del EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa:</p>	<p> <input type="radio"/> Vallès Occidental <input type="radio"/> Vallès Oriental <input type="radio"/> Barcelonès <input type="radio"/> Baix Llobregat <input type="radio"/> Maresme <input type="radio"/> Bages <input type="radio"/> Anoia <input type="radio"/> Otra </p>
<p>Seleccione la FORMACIÓN LOGRADA del EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa:</p>	<p> <input type="radio"/> Educación Secundaria Obligatoria / BUP <input type="radio"/> Formación Profesional / Bachillerato / COU <input type="radio"/> Grado Universitario / Diplomatura <input type="radio"/> Máster Universitario / Licenciatura <input type="radio"/> Doctorado Universitario </p>
<p>Seleccione la RAMA DE CONOCIMIENTO más destacada de los estudios del EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa:</p>	<p> <input type="radio"/> Bellas Artes, Diseño, Teatro, Música <input type="radio"/> Derecho, Economía, Ciencias empresariales <input type="radio"/> Arquitectura, Ingeniería, Informática <input type="radio"/> Medicina, Ciencias de la Salud <input type="radio"/> Ciencias Sociales: Psicología, Sociología, Políticas, Educación <input type="radio"/> Humanidades: Filosofía, Historia, Lingüística, Antropología <input type="radio"/> Ciencias Naturales y Matemáticas </p>
<p>ESTUDIÓ EN CATALUÑA, el EMPRENDEDOR/A PRINCIPAL o DIRECTOR/A de la empresa?</p>	<p> <input type="radio"/> Sí, dentro del Vallès, en instituciones públicas <input type="radio"/> Sí, dentro del Vallès, en instituciones privadas <input type="radio"/> Sí, fuera del Vallès, en instituciones públicas <input type="radio"/> Sí, fuera del Vallès, en instituciones privadas <input type="radio"/> No </p>

CATALONIA INNOVATION TRIANGLE



ZONIFICACIÓ CIT

- CIT 1
- CIT 2
- CIT 3
- CIT 4
- CIT 5
- CIT 6
- CIT 7
- CIT 8
- CIT 9
- CIT 10
- CIT 11

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BUSINESS SURVIVAL AND CHARACTERISTICS

at the core of the



CATALONIA INNOVATION TRIANGLE

ARNAU GUIX I SANTANDREU

May 2017