

Impact of the Spanish Innovation Policy and the European Union in the creation of new technology-based companies in the ICT sector Spanish on the Universities for the period 2000-2012.

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1. Introduction

This research tries to explain the impact of the Spanish Innovation Policy of the European Union and the creation of new technology-based companies in the ICT sector Spanish Universities for the period 2000-2012 , in this sense also attempts to present the knowledge and have the same relevance for some companies in this sector.

Policies promoting research , development and innovation (R + D + I) are all those intentional actions taken by governments , regional, national and supranational , in order to support, promote or influence the development of systems science and technology (science Act , 2011).

In Spain, Law 14 /2011 of Science , Technology and Innovation , the Law on Science , Technology and Innovation Act repeals the Scientific and Technological Research , 1986 , establishing a general framework for the promotion was approved and coordination of scientific and technical research in order to contribute to sustainable development and social welfare through the generation and dissemination of knowledge and innovation. It establishes plans Scientific and Technical Research and Innovation as essential for the development by the Central Government of the Spanish Strategy for Science , Technology and Innovation , which have been designed 2013-2016 .

In the same vein is the Spanish Strategy for Science , Technology and Innovation is the framework instrument that established the general objectives are to be achieved during the period 2013-2020 related to the promotion and development of R + D + i in Spain . These objectives align with marking the European Union under the new framework program for financing the R + D + i "Horizon 2020" for the period 2014-2020 , helping to encourage the

active participation of agents System Spanish for Science, Technology and Innovation in the European area. This implies for companies commissioning of instruments that can raise levels of participation in the financing of R & D and encourage attraction of R & D investment by foreign companies , in addition to increasing the number of researchers incorporated in enterprises (Ministry of economy and competitiveness of Spain , 2013).

These policies and strategies have been motivated and driven by EU policies in R + D + i , for research and innovation are high on the political agenda in Europe , since it is essential in the operation of industrialized countries, such as the Member States of the EU. The competitiveness of businesses and employment that is generated depends heavily on R & D but is also essential for the support of many other policies. In short, the individual and collective welfare of citizens depend on the quality and relevance of R + D + i . These policies involve the European Research Area , the union for innovation, competitiveness councils and the Framework Programmes for Research and Technological Development (Ministry of economy and competitiveness of Spain , 2013).

Currently the Framework Programme for Research and Technological Development of the European Union (PM) is the main legal and economic instrument to finance research community . It sets out the priorities adopted by the EU in this area and the budget allocated to each of them for a period of seven years are defined. The 7th Framework Programme (FP7) pays transnational research projects in cooperation with selected competitive calls the fundamental criterion of scientific excellence and there are no pre-established quotas for each country, this ends in 2013. The bulk of the research funded by the PM is carried out by universities , research centers , enterprises and other organizations , through transnational research projects (FP7 , 2013) .

Horizon 2020 is the financial instrument implementing the Innovation Union , a Europe 2020 flagship initiative aimed at securing Europe 's global competitiveness . Running 2014-2020 , with a budget € 80 billion , the new EU program for research and innovation is part of the campaign to create new growth and jobs in Europe, it offers further simplification through a single set of rules. All research and innovation funding currently provided through the Framework Programme for Research and Technical Development Program combines the innovation activities of the Competitiveness and Innovation Framework Programme (CIP) and the European Institute of Innovation and technology (EIT) (H2020 , 2013) .

On the other hand the Spanish Universities have made their contribution from innovation policies and created technology parks, business incubators , business centers are examples of government initiatives and some with private capital aimed at creating an enabling environment for companies with significant technology base, but with possible deficiencies in infrastructure networks of relationships and / or lack of management resources , find add-ons to their distinctive skills necessary to get the technology project eventually becomes a commercial success. Success stories in this regard , especially how technology parks Silicon Valley in California, Route 128 in Massachusetts and the Research Triangle in North Carolina, have been widely documented. From them have been justified similar initiatives in other parts of the world , but the results are far from conclusive as to the actual impact that this infrastructure has had to boost entrepreneurial activities of success (Ortin et al , 2010).

These policies and programs of the Spanish universities, the Spanish government and the European Union have been the basis for the past 13 years to the creation of companies,

some have used the same ignorance no other . Business creation and entrepreneurship therefore , have occupied a central place in the economy, both theoretically and in practice. One of the possible areas in which companies can arise is the university . Therefore it is relevant to explain why the importance of entrepreneurship from the university, we will explore the characteristics of entrepreneurship within the university environment primarily technological base (Rodeiro , D. et Al, 2008).

These new companies are not only a source of job creation, but also conducive to the creation and implementation of technological innovations in society. Due to their characteristics these small technology companies have great flexibility (Fernández and Nieto , 2001) , which provides many advantages in today's competitive environments , this allows fast response to the market and ability to adapt and innovate (Fernández and Rodeiro , 2003).

From the second half of the nineties developed economies have been characterized by the progressive introduction of Information Technology and Communication (ICT) in all economic activities, both production and distribution and consumption . A wide range of process innovations and product information and telecommunications field has led to the emergence of new productive activities , the ICT sector with the transformation of the traditional content industry to new digital formats , has led to a new production sector : the information industry . The emerging information industry is overcoming its own technological development and , at present, all the goods and services resulting from the informational production is used as a productive factor in other sectors of the economy. Thus, it is building a network of synergistic relationships between the information industry

and other sectors , whose main element visible incorporation of knowledge into the productive structure of advanced economies (Villaseca et . H , 2002) .

Therefore in this research the relevance of innovation policies in the creation of new technology-based companies will be displayed , especially the ICT sector and taking into account that they have been influenced by the universities of the Community of Madrid for its creation and growth are those that are found in the same incubator . Ultimately the show as in the period 2000-2012 according to statistics this sector grew in number and quality of new businesses, although knowledge about the impact of such policies is unknown in some cases by the business sector.

2. Justification

Innovation is the engine and the result of the technical, organizational , social and cultural human progress , generally innovations in companies pursuing troubleshooting (Dosi , 1988). Policies of Spanish innovation and Union European implemented in the last 13 years in Spain have influenced the creation of new technology-based companies in the ICT sector and therefore to increased innovation , as the same condition the environment and become more suitable or not. For through the years and with the input of the various laws , state plans, agreements with the EU, and others have noticed changes in the number and characteristics of the technology-based companies in this sector and could be estimated that reason for this is the wave generated by these new laws may be positive or negative. In this sense technology companies based ICT sector created in this specific period features and analyzing their results will be displayed , to see the match with new laws or new programs of innovation and R & D.

3. Objectives

Demonstrate the positive impact of the Spanish Innovation Policy and the European Union in Spain for the creation of new technology-based companies in the ICT sector in the Spanish Universities for 2000-2012. For it is to be understood that the adoption of new policies for innovation and R & D has a direct impact on the creation of new companies in this sector in universities , therefore attempt to demonstrate and Spain this process has contributed positively, negative or had no relevance to the creation of these new companies.

4. Theory of Technology-Based Companies

Small technology companies are defined as entities that seek to develop and commercially exploit a technological innovation that involves high uncertainty (Storey and Tether, 1998). The group formed by these firms is a relatively heterogeneous business unit, made by expert companies technologically highly specialized fields , which tend to be the first on the market rather than to protect their innovations , that specialize in activities that do not require a high R & D and make use of advanced technologies in niche markets in which they operate (Fariñas , 2006).

In situations where the technological regime favors the creation of technology-based companies are major two types of processes known in the jargon of this literature , with the name of spin -out and spin- offs . The first refers to enterprises created by workers with professional experience in large companies that leverage this experience to develop a project or idea to create their own company . Sometimes it is the company itself that secretes a division that move items of intellectual property rights , technology, etc. . The second are companies created by research groups from public research centers and

universities. In recent times , they are increasing their importance in national innovation systems, the spin- offs from universities and partnerships and cooperative agreements between firms and public research centers. Moreover, it has been progressively extended the idea of settling the creation of technology-based companies in technology parks as a vehicle for policy innovation (Fariñas , 2006).

There is an academic field or an area of public policy that exposes commonly accepted definition of technology-based companies through the years have proliferated multiple names for the same . In this sense some of the names have been assigned : New Technology Based Firms , Small Business Technology-Based , High-Tech SMEs , Innovative SMEs and the like. Given this disparate set of names , it is useful to begin by reviewing some of the definitions given to technology-based companies . One of the first definitions of the group of New Technology Based Firms (NEBT) is A. Little (1977) , who defines such companies as follows:

" Companies independently owned , not more than 25 years of age , based on the exploitation of an invention or technological innovation that involves substantial technological risk "

Another definition that follows similar criteria is given by C. G. Shearman and Burrell (1988) :

" New and independent companies whose activity is related to the development of new industries "

The two definitions are, by D. B. Storey and Tether (1998), examples of narrow definitions or restricted the group of technology companies . They reviewed the literature of sixteen countries where broad definitions of the following type are used :

" Independently owned small businesses and recently created operating in high-tech sectors "

A study by the European Commission (2002) notes that SMEs operating in high and medium-high technology are around 750,000 units employing about 5 million people, or 4 % of employment in industrial and service companies private . Its quantitative importance and weight in terms of employment or value added in the production structure are modest. What makes these companies is relevant to their contribution to the development of new technologies and products , and indirect effects of this technological progress has on the rest of the economy (European Commission, 2002) .

In 2004 Spain CCD explained that the number of these enterprises amounted to 3.1% of all companies . By sector, the activities with the highest number of companies are manufacturing medium to high technology followed by high-tech services . The contribution of these activities to total employment was higher. Together they employed 1,327,800 people, representing 7.3% of total employment. The number of SMEs in the sectors of high and medium-high technology that , according to the Survey of Technological Innovation INE made approaching innovation expenditure in 2004 to 4,500 companies . This represents approximately 10 % of all companies operating in these sectors. The areas of high and medium -high technology represent 3% of the total number of firms in the

Spanish economy, companies with spending on innovation in sectors of high and medium - high technology represent approximately 0.3 % of all Spanish companies. These percentages summarize the initial estimate of the weight of technology-based companies in the whole population of Spanish firms (INE, 2004) approach .

5. Creating technology-based companies from the Spanish Universities

The literature regarding business creation in the last 20 years has presented research from two perspectives on the new role played by the university. In a broad sense, technology companies can be defined as organizations producing goods and services, committed to the design , development and production of new products and / or innovative manufacturing processes through the systematic application of scientific and technical knowledge .

These companies are mainly in areas such as computing, communications , precision engineering , biotechnology , chemistry , electronics , instrumentation, etc. . In many cases , their origins are in spin- offs of projects carried out by universities or research (Simon , 2003). These differ from the others as shown in the box below.

The idea of the Triple Helix model is based on the nature of knowledge in emerging industries is different from traditional industries, and this difference makes it necessary to create a new institutional setting. The intertwined helices are represented by the university, government and industry (Eun , Lee and Wu , 2006). The university and industry, once relatively separate and distinct institutional spheres , in recent times are beginning to take on tasks that were largely made by the other party. Governments provide incentives and encourage academic institutions to go beyond the traditional roles of research and teaching,

and make a more direct contribution to the creation of wealth (Etzkowitz and Leydesdorff , 1997).

The other research perspective , is concerned about the integration and the close ties that exist between the university and industry. Moreover, the so-called New Economy Science was defined by (Dasgusta & David , 1994) warns that short-term policies aimed at transferring resources to commercial applications of scientific knowledge may jeopardize the ability of a country to benefit from scientific advances. Dasgusta notes that open science (academic) and the owners of the technology (industry) is clearly organized and are functionally distinct fields, the appropriate division of labor between the two must be maintained in order to maximize the social benefit .

Dasgusta The model is based on a triangle where the government exercises indirect relationship between demand and supply of knowledge possible . The system accepts business you have to pay a number of taxes that are transferred by the state to the academic system. The latter, in turn , administers the system of open science by providing incentives for the generation and eventual dissemination of knowledge through lectures for the most creative scientists measuring the creativity of scientists through its publications (Antonelli , 2008) .

According Dasgusta , the academic system has proven to offer a viable institutional framework combined with incentives for generation and dissemination of new knowledge. Universities facilitate the operation of open science , ie , the incentives to generate new knowledge and to disseminate economic knowledge (Dasgusta & David , 1994).

Whether relying on one or another stream , the reality is that in the last twenty years the role of universities has evolved and adapted to the changes that have occurred in society and in the environment. Traditionally the fundamental mission of universities has focused on teaching and research, but in recent decades have added to them a third activity focused mainly on the development of the regional economy (Etzkowitz and L. Leydesdorff , 1999) . This traditional investigative function , is added with increasing force transfer activity and entrepreneurship which, together with the generation of knowledge , are of crucial importance for the demands of competitiveness and innovation present in our day. Then taking into account the new role that is attributed to the university as an entity that promotes entrepreneurship in the same order and the creation of new businesses and approaching the concept of " entrepreneurial university " .

Following the incorporation of the objectives of universities in economic and social development of their environment concept has been called Entrepreneurial University arises . Many Spanish Universities within the strategic planning processes that have been or where they are immersed , have been proposed as being an Entrepreneurial University mission , there are a number of generic definitions about (Rodeiro , D. et Al, 2008) . But the most successful is the University of Twente , Van Vught who defines your institution as an entrepreneur , as adapted research efforts to the benefit of society at large , in addition to science and society approach allowing respond to changes that occur (Van Vught , 2003).

Start-ups from laboratories and departments of European universities began to gain acceptance from the nineties as a method of technology transfer. During those years is being recognized university entrepreneurship as a tool for innovation (European Commission , 1998, 2000) , this was a major change for European university where this

had not been considered a function of the university (Owen -Smith et al . , 2002) and the level of entrepreneurship was not as high as that already existed in the U.S. (OECD , 1999).

This venture gives rise to the creation of a spin -off originating in college is a business initiative with the participation of members of the university community to take advantage and commercially exploit the knowledge gained in the research results (Beraza , 2010). According to (Ortín , Salas, Trujillo, and Vendrell, 2007) are companies whose founders have a contractual relationship with the university , which in turn provides products and services developed and / or patented in laboratories and university research centers .

Creating Innovative Technology-Based Firms (EIBT) as spin- offs from research institutions and higher education , is increasingly important for the development of innovation systems in Spain and across Europe link. In fact, a number of European policy forums to promote innovation are at the center of analysis the need to stimulate the creation of these companies, a step beyond the simple pursuit of technology transfer from the centers theoretically "producer" of this companies potential " users " of it (Madri + d, 2007).

Interest in this type business in the U.S. and Europe in recent years , according to (Camacho et al, 1999), usually lies in the following factors:

- Strengthen the regional R & D as a driver of the regional economy.
- Improve inter-institutional relations in the system of R & D , especially in relation to the context of university-industry interaction .

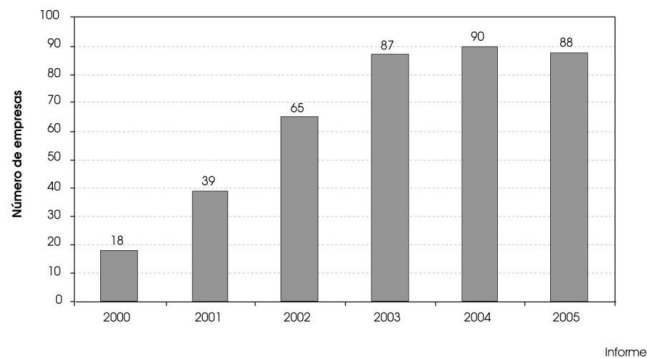
- Promote the transfer of technology as the core of competitiveness and social welfare , where SMEs , apart from large companies, hold a key place in the structure of the business and therefore require a leading place in the regional innovation strategy (asheim and Isaksen , 2001) .

- Promote self-employment as an attractive alternative for professional development.

According to Farinas and Lopez (2006) in 2004 only 3% of the Spanish population developed its business activities in the areas of high and medium-high technology. If this sample is delimited in turn according to their size and the development of any innovative activity , only 10 % of firms in the high tech and media meets the new requirements. It further restricting the sample and identifying those companies which are also independently owned SMEs , with domestic expenditure on R & D and whose activity is based mainly on the commercial exploitation of an innovation, the authors reduce the collective to 1.6% . 's say , within the community of 43,425 companies operating in the areas of high and medium technology, only 688 units are technology companies . In line to identify the group of EBTs , right now , the APTE mentioned has 70 members , located in different regions being some germinal stage .

Regarding the activity was counted in 2004 hosted 2,010 companies operating in the parks (APTE 2004). According to the "Report on Building Technology Based Firms from Technology Centres » FEDIT (2003) , the creation of EBTs by these centers began with the launch of the company in 1986 TEKNIKER . From then until 2003, they have managed to make a total of 91 technology -based firms (FEDIT 2003). According to the TTO Red evolving business creation agency in Spain 2000 and 2005 was as follows:

**EVOLUTION OF TOTAL NUMBER OF SPIN-OFF CREATED
AT UNIVERSITY LEVEL (Source: RedOTRI (2006))**



One can see that had improved the number of technology-based companies that were created in those six years , the most significant rise between 2002 and 2003. Although it has gained importance these businesses and has fostered innovation in Spain intensively in recent years, or even take advantage adequately laws and programs that support the creation of the EBT .

Regarding the spin- offs originating from other corporations, which start college are characterized by the involvement in the same university staff and knowledge transfer that occurs as a result of research carried out in this college . Besides the spin- offs are not only university-based technology companies , as college knowledge in various fields are generated , but for the most proportion if (Beraza , 2010).

5.1 Science and Technology Parks as a strategy of the Spanish universities for the creation of technology-based companies

A science and technology park is part of the R + D + I with specific targets . As part of the system, a park aims to promote and strengthen research and development, and to promote

innovation. more specifically , the parks are agents seeking the transfer of technology and knowledge from other agents in the system. These are mainly companies and research organizations (technology centers, universities , research centers , etc. .) . Several models of parks ranging from the purely technological to scientists through those realities that combine both results of one or the other are radically different , but whatever the park the same objective is pursued , the potentiation of I + D + I and durable and sustainable economic development of their environment (European Commission, 2006) .

The objectives defined as such for a Technology Park , according to the IAP can be summarized in three points

- Establish strong functional connections with universities , research centers and overall higher education institutions .
- Encourage the creation and growth of knowledge-based industries and tertiary specialized firms capable of generating high added value.
- Encourage Technology Transfer to the lessee companies forming the Space Park.

Site characteristics are an essential location for consolidation and development factor , the science and technology parks seek to create spaces which are a pleasant working environment. In this sense , are locations with domains of green spaces , landscaped areas , das , etc. . This is complemented by a wide range of services , both technological and specific to place workers hence the importance of the location of the park in an environment characterized by the existence of the following factors:

- Proximity to universities, research centers , or other training centers capable of providing skilled and specific work.
- Advanced Telecommunications Services .
- Good communications (transport) .
- Environment rich in services, especially business .
- Instruments to create creative synergies oriented SMEs
- Offer appropriate floor, ceiling and internal services.
- Parkland , quality of building design , etc. .

The first technology parks appeared in Spain in the mid- 80s , promoted by the autonomous communities , which then had just been created , the overall situation was grave economic crisis , with a very technologically retarded industrial fabric , competing in the world market based on the low cost of labor. In this environment , some of the most industrialized communities Autonomous Technology Parks saw an instrument to promote the modernization of traditional industrial base and diversify into new industries, and thus contribute to regional economic development , following Romera (2003) we can distinguish three stages in the evolution of Spanish science and technology parks :

1) Initial Phase (1985-1992)

In this period the first Spanish technology parks were created in the autonomous community of the Basque Country , Madrid , Catalonia , Valencia , Andalusia , Castile and Leon , Galicia and Asturias. The first was the Technological Park of Zamudio, Vizcaya

town near Bilbao , founded in 1985, the initiative of the Basque Development Agency (SPRI) . The same year he also created the Technology Park in the town of Madrid Tres Cantos , north of Madrid. the creation of this park was promoted by the Madrid Institute for Development (IMADE) . Before disappearing due to loss of its legal personality (once sold all the plots was not transformed into community owners) , Technology Park Three songs took the initiative to begin a collaborative process formalized by the creation in 1988 of the Association Technology Parks of Spain (APTE , 2011).

In this first stage was sought primarily featuring advanced technology companies , often multinationals, to function as innovative players in the regional environment (Romero , 2006).

2) Development phase (1993-1998)

In 1993 came new initiatives linked to other promoters beyond the strictly regional model and created a type of Park, the Science Park , which is characterized by the central role given to the commercialization of R & D public and private .

During this time I began to universities interested in the business use of knowledge, and to engage in projects such as scientific - technological Alcala de Henares Parks, submitted in 1993 , or PCB , created in

1993 and has since served as a reference to most scientists Parks subsequently created in Spain . For the first time , the central government was involved in the ownership of a Park with its participation in the Scientific - Technological Park Cartuja 93 . And new agents were promoting Parks, as the City of Gijón , which created the scientist Technological Park of Gijón .

In addition two new Technology Parks in the Basque Country , one in Álava and Guipúzcoa another , being now (2006) the Basque Country Autonomous community that has the largest area of operational Parks (Romero, 2006) were created.

3) expansion phase (from 1999)

From 1999 there was a great economic growth, and business parks filled . In addition , there was a significant development of science parks , promoted predominantly by universities. In this period the central government , through the Ministry of Science and Technology (MCYT) , supported for the first time explicitly such initiatives , publishing the first call for aid to scientific and technology parks (which became known as the Parquetazo) in December 2000 since then the ministry annually launches a call for aid to Parks .

All this has caused a boom in the growth of the Spanish science and technology parks . In late 2005 there were 22 operating parks in 11 autonomous communities , and nearly 50 other parks projects also included another 4 more Autonomous Communities (Romero , 2006).

Ultimately Parks are a policy that encourages entrepreneurship and most come without directed by universities, but in the same systemic synergy Government - University- Industry (Private Sector) is given . In 2011 the parks in Spain increased by 8.9 % the number of entities , reaching more than 6,000 companies located in its precincts 244 of these companies are foreign owned companies and 931 companies are less than 3 years are in the process incubation . Turnover has also increased significantly reaching 8.2% above the previous year's values and marking a record high of 23.254 million euros billed . The

turnover of enterprises of Spanish farms accounts for about 2% of the Spanish GDP (APTE , 2012).

Employment has also grown over the past year and stands at 154,187 people , 6% more than in 2010. 18.4% of employees in science and technology parks are engaged in R & D. In total , 28,384 individuals representing approximately 13 % of R & D employment in Spain . This represents about 9% of the investment in R & D in our country. If we analyze the data on the sectors , we note that the information technology and communications and engineering firms, consulting and advisory productive sectors continue to lead in science and technology parks , reaching 23% and 14% respectively. Third sector organizations engaged in medicine and health, with 6% (APTE , 2012) are located.

6. methodology

This research hypothesized that Spanish Innovation policy and the European Union in Spain have helped create new technology-based companies in the ICT sector Spanish universities during the period 2000-2012 , but nevertheless this the sector has little knowledge about them so the laws and programs do not work the way they should. As research methodology I selected the case study , this because the available statistics related to the creation of new businesses in the ICT sector are insufficient to perform other research method that can test the theory . The reason for selecting the ICT sector is one of the most innovative sectors in recent years , in addition to entrepreneurship in universities goes hand in hand with the needs in society. It is a vital research tool in the area of social sciences as well as in administration. However, because of its usefulness , it has expanded to other fields such as economics or marketing. The case study analyzes current issues ,

contemporary phenomena , that represent some sort of real-life problems , in which the researcher has no control. By using this method, the researcher tries to answer the how and why, using multiple sources and data. According to Martinez Carazo, the case study is:

" A research strategy aimed at understanding the dynamics present in unique contexts , which could be the study of a single case or several cases , combining different methods for collecting qualitative evidence and / or quantitative in order to describe , verify or generate theory . "

The function in the academic environment of the case study is to promote credible analysis to understand phenomena present in order to provide tools and theoretical concepts that help understand or solve the problem.

The case is to investigate how they impact innovation policies Spanish and European Union in the creation of new companies in the Spanish ICT Sector Universities for the period 2000-2012. For this we will follow the history of the topic will discuss the different laws of the past 13 years and in turn carry out a study on the creation of the ICT sector companies from the universities to give context to these laws or programs. Similarly we will address concepts and theories related to the topic pointing out the main points of the research.

Data analysis will be performed that will be related to new technology-based firms the ICT sector that were created between 2000-2012 , the increase or decrease in the number of these , their characteristics , age, seeing it as relevant impact structure is analyzed , this through INE statistics for 2003-2011 . There will also be a schedule of which have generated more impact these policies in the area of time studying . Finally 10 technology companies in the ICT sector that Madrid have been created from the Spanish Universities in

the last 5 years and an analysis of its success will be held will be selected , along with a survey to 1 or 2 executives two levels different to see the opinion they have these policies on innovation and Spanish EU existing and whether or not support the creation and retention of these businesses hierarchical.

6.1 . New Technology Base ICT sector in Spain 2000-2012

The concept of new technology-based company presents ambiguities and there is no widely accepted definition . It is introduced by Little (1977) , a company can be considered a technological base if it was created less than 25 years, bases its business on the exploitation of a fully developed and very risky invention, founded by individuals with a technical background , but not required .

Another similar defining criteria is given by Shearman and Burrell (1988), new and independent companies with a related activity development of new industries . Both are narrow and restricted the group of technology-based firms (Storey and Tether, 1998) definitions. Storey and Tether (1998), suggest a more broad definition , small businesses are independently owned , newly established and operating in high-tech sectors .

There are three basic requirements for the proper definition of the concept of NEBT . First, be startups . Second, operating in high-tech sectors . Finally , be independently owned . Moreover, in certain sectors discussed circumstances under which the creation and development of new businesses are particularly suitable are given :

- The connection between basic research , industrial development and marketing are much closer than I could have ever course in the past , being able to bring products to market in ever-shorter periods of time.

- Investments for the implementation of the activity are limited. The necessary equipment has high costs or may subcontract services Scientific and technological parks .
- The products sold on the market have a high degree of added value and integration , with high rates of innovation , so that investment to accelerate the innovation process are very high , facilitating incoming EBTs specialization in niche less capital-intensive and labor .
- The sectors and niche markets to target that EBTs have not reached full maturity in many cases , so there is a high rate of new entrants, disappearance of companies , mergers and acquisitions, although there is a shortage of human resources highly qualified , are generally available in the public sector (universities , technology centers and research centers) so that it is possible to accelerate the innovation process (Diaz et al. , 2013) .

Creating a company is the visible expression of an individual or collective initiative that aims to obtain a "reward" for promoters arises from the conviction to offer the market a few goods or services that deserve the confidence of potential customers to point of being willing to pay a price for them . The process of creating an EBT is complex and should be studied together with the characteristics of the entrepreneur. Not only must you identify a specific application for the technology, also relate a potential market , identifying the sector that will target the product or service (Diaz et al. , 2013) .

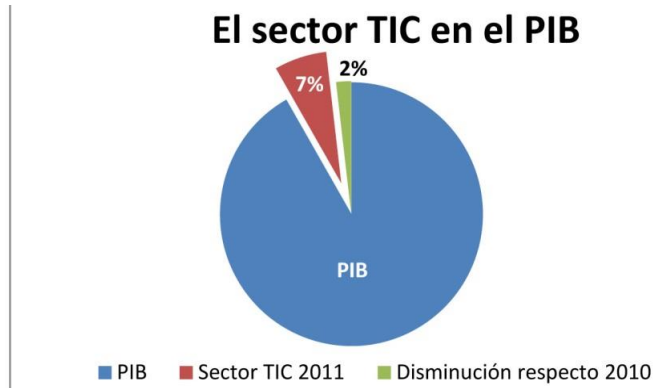
The operation of these enterprises by entrepreneurs is especially difficult. The obstacle most frequently cited by the authors for its pickup is , as noted storey and tether (1998) , the lack of external financing , which in turn is a consequence of another set of problems , for example, the lack of business experience and commercial the novelty of the product

offered , and the lack of credibility in the business . The EBTs lacking collateral for its loans to dominate its assets intangible items.

In recent years, Spain has created new technology-based companies in the ICT sector, these influenced by the thrust of innovation, as well as new programs and legislation on these issues. The 2009 OECD definition adopted for this sector as the following: "ICT industries, will be those whose products (goods and services) involve play or allow information processing and communication by electronic means , including transmission and presentation visual " . In turn, the OECD presents the ICT sector divided into two main areas of activity: Manufacturing and Services. In general , the principles for classification in one of the two branches of the ICT sector are:

- In the case of manufacturing area , the products must be directed to process and communicate information , including the transmission and presentation.
- In the case of services, must allow the process and communication of information by electronic means. They break down in different industries : Manufacturing, Trade and Other (composed of Computer and Telecommunications Activities) (Conetic , 2012).

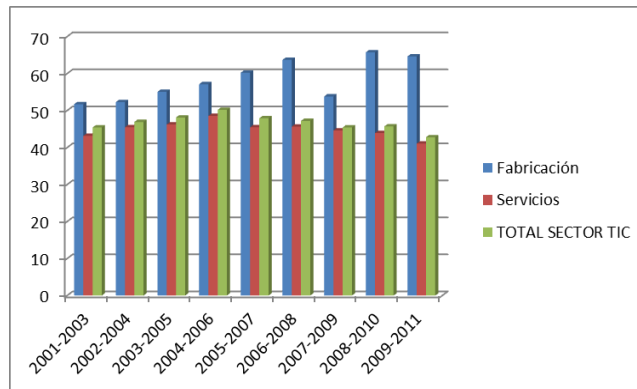
The ICT sector in Spain in 2011 accounted for almost 7% of GDP , this figure has decreased from last year by almost 2% , which shows that nationally the ICT sector is one of the most relevant . Despite this lightweight and posed to the GDP , the sector has a strong investment and innovative activity making it the benchmark in both innovation and the creation of new businesses as NEBTs (Conetic , 2012) .



Source: Conetic, made with information from Orange Foundation

The creation of new technology-based companies in the ICT sector has been increasing in recent years and can be determined that the new National and European legislation have influenced this, the increase in the number of firms is observed between 6% and 9% year to year, although this sector is the largest contributor to GDP Spanish is one of the most innovative and fastest growing. Similarly between 2001 and 2011 the number of companies in the ICT sector is technology based on percentage increases each year as seen in the graph presented below.

Innovative companies (EBTs) in the ICT industry of Spain by industry and the ICT sector 2001-2011



6.2 . Case studies of ten new Spanish companies Based Technology ICT sector

Ten companies of technological base of the ICT sector of the Community of Madrid that were created in the nurseries of the Spanish Universities in the last 5 years were randomly selected , with these analyzes its success is through a survey one or two executives two different hierarchical levels , ie for the opinion they have these policies on innovation and Spanish EU existing and whether or not these foster the creation and maintenance of these businesses . These companies have common characteristics that are detailed below :

- ICT Business Sector
- SMEs
- In recent creation
- Produced from Universities
- You Influenced by the new laws of innovation
- Innovative
- Success

Companies are in their most creative devices and software technologies related to information and communication. These will be presented below with the description of the type of work they do , companies belonging to one of the most innovative sectors .



Air Electronics specializes in the design of the electronics and software needed to control drones (UAVs) company. With our customers have full control aircraft and unmanned helicopters, from takeoff to landing the flight is 100% automatic system being able to follow pre-programmed flight plans.

Our system also controls the sensors and onboard cameras giving the user a real-time aerial view of the theater of operation. Typical missions are both on the civilian market as military observer missions, surveillance, environmental monitoring, fire extinguisher, aid to agriculture.

To achieve maximum performance and maximum safety work with the most advanced electronic technology based on FPGA parallel processing. At the same time we have an open attitude to collaboration with universities and all types of institutions.



BETCARS is an online platform where individual users can buy and sell their vehicles through the auction process with the tools available to industry professionals .

PRODUCTS AND SERVICES: Betcars.com integrates a variety of elements that "professionalize" the sale, eliminate fraud and allow individuals to have the guarantees and security that can give a dealer. To make this possible the model is based on technology and customer service:

- Multiple auction rules to suit the needs of the customer or the market.
- Advice on pricing . Integration with industry pricing (Eurotax and others)
- Compulsory inspection of all vehicles published . Management expert online with cabinets and Booking concerted workshops.
- Verification of compulsory administrative vehicles (free of charges, liens, etc.) .
Integration and agencies on- line
- Possibility to buy aftermarket warranties. Integration with insurance companies
- Possibility of funding. Integration with financial institutions, etc. .
- Coordination of appointments for final testing and closing the sale . Integration and agencies .
- Multi- language and multi - currency.



INNOCV SOLUTIONS specializes in technology lines with two distinct and complementary business enterprise at once :

- Logistics Innovation was founded with the goal of identifying, evaluating and implementing logistics technology solutions that increase the productivity of workers, reduce the execution times of tasks to maximize the available physical resources (storage , transport, machinery, etc. .) , facilitate control (traceability , rotation) and provide tools that help to exploit the information generated.
- CodeVocation mainly specialized in application development . NET and Java as .

PRODUCTS AND SERVICES:

- Consulting to identify areas of opportunity in logistics offering customized solutions according to your needs.
- Analysis and implementation of new technologies (developed in-house or third party) Logistics companies (WIFI , RFID, voice picking , barcodes , slotting ...) .
- Definition and implementation of Warehouse Management Systems technologies that enable management in Real Time (SGA / WMS) .
- Support services and maintenance of SGA / WMS .
- All types of custom development , mainly . NET and JAVA, HTML5 UI and Architecture DDD Microsoft.NET .

- Web Development for all terminals, including mobile devices.
- Creating Architectures Development , ALM (Application Lifecycle Management and TFS (Team Foundation Server) , freeing the programming language and ensuring integration.

MAJOR ACHIEVEMENTS :

- Silver Partner of Microsoft Application Development



IMIRA ENTERTAINMENT is a Spanish company specialized in the production and international distribution of feature films and animated series and designed for children and youth fiction.

PRODUCTS AND SERVICES:

- Production and distribution with the Children's high quality content , incorporating the latest technologies to its cross holding on all platforms : TV , video games, online, mobile , products (licensing / merchandising) and editorial .
- catalog of over 110 titles of animation and fiction, spread over 85 animated series , drama series 18 and 7 animated feature films, with more than 4,000 half-hours .

- Among the new features the new own series called "Lucky Fred" has been sold in more than 165 countries and in 26 languages folded : tv series , consumer products , app , web , publishing, etc. .

-

- It also has a new series in distribution as are Mouk , Smurfs , Dance Academy , Me and My Robot, among others.

MAJOR ACHIEVEMENTS :

- Productions sold in over 200 countries with the support and recognition of several international awards such as the Investor of the Year of the contest Cartoon Forum 2006.

- Artistic quality recognized by the European Union on several occasions in the form of grants , through the MEDIA program, the Lola & Virginia, Sandra , The Fairytale Detective , Lucky Fred and Yan Mondo series.



Agencia Digital con 10 años de experiencia que tiene como filosofía la constante evolución.

Participes de una nueva forma de hacer marketing a través de medios digitales.

PRODUCTOS Y SERVICIOS:

- **SOCIAL MEDIA:** Focus Media, Social Boost y Social Media Performance.
difusión de campañas a través de Social Ads.

- **MOBILE MARKETING:** Diseño y desarrollo de apps para dispositivos móviles inhouse en cualquier plataforma: Aplicaciones multiplataforma, Web móviles, Analítica, Smart QR Codes y Publicidad móvil.
- **MULTIMEDIA:** Creación de contenido para diversas plataformas digitales: Motion graphics, web, Realidad aumentada, Multitouch y New Media.

PRINCIPALES LOGROS:

- Desarrollo del portal glosariodigital.com, sitio dedicado a la definición de términos de MKT digital. (2009).
- Mejor campaña móvil 2009 en los premios IAB conecta. Con "Rayuela" para iPhone.
- Mejor campaña en Marketing interactivo de los Reader's Choice Awards 2011 de la revista Merca 2.0. Lotería para iPad.



Founded in 2011 , Naysel Entertainment is a production company animation whose main idea is to do that through animation the world know your ideas. These ideas can be your products , services , promoting your company, campaign communication, project explanation , a video reinforcing objectives, the introduction of a course and its contents , for example.

Using animated videos , training or corporate , layout , graphic design or computer graphics, you can reach your potential customers in a very visual and innovative way.

We also encourage our own ideas. For example with our first series "Heavenly Hell" with which we become partners in the social network Tuenti . O webcomic animation "Rabbit Frustrated " created by Mike Bonaes .

We are a young but experienced company and industry knowledge , so we adapt both large projects and to make small diffusion and have the same great quality .

Passive S.L Prevention Systems

Development of preventive systems to combat explosions, fires and graffiti . Its use can increase the security and cost savings in materials and maintenance.



The draft Scan In Blue specializes in automatic identification, traceability and mobility of people through new information technologies and telecommunications. They are leaders in managing sales of identification and classification of materials and offer excellent solutions to businesses. Their services include:

- Coverage studies
- Installing software as devices
- Geo-

- Rescue data in real time

The experts that make up this project are behind a career of over 15 years that supports its competitiveness in the market. They are a great addition and the Business Incubator Vicálvaro is delighted to have them with us people.



Artdinamica is a development agency specializing in online advertising and the following services:

- Consulting and development of online projects, web development.
- Consulting and project development of e-commerce, online store.
- Consulting and mobile application development.
- on-line for the catering industry solutions.
- online marketing strategies.
- Development of corporate image and graphic design.



Technological and creative development and marketing of non-conventional technologies for simulation software, interfaces, 3D image man and machine company.

6.3 . Results of surveys .

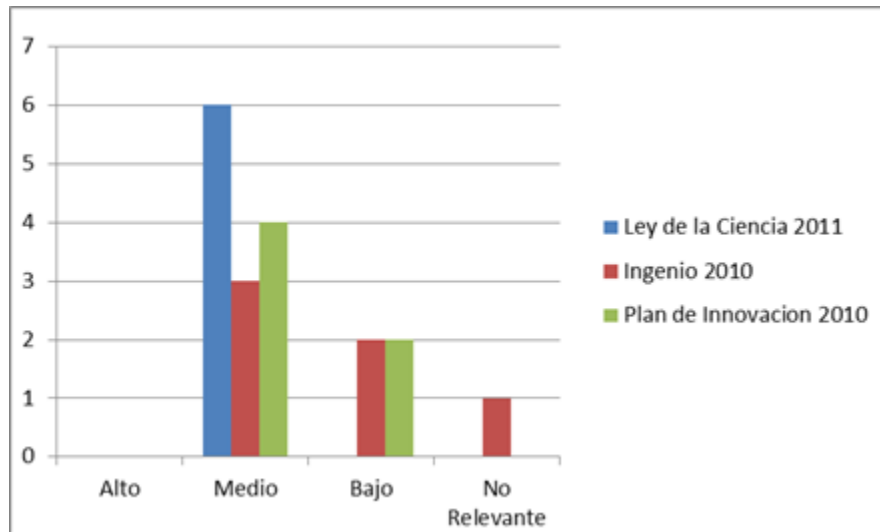
The results from the surveys to 10 technology companies the ICT sector show an approximate picture of business sentiment from this sector on policies and laws related to innovation in Spain and the European Union. 15 surveys filled by executives of different levels were obtained in 5 companies answered two and the rest just one, but most agree they do not know fully the laws and Spanish programs in innovation but know that if further the European Union , thus reflecting poor adaptation or dissemination policies of National innovation in technology-based companies in the ICT sector Spain .

Below (Figure) the graph of the first question in which we were interested to know whether executives knew Spanish laws and programs related to innovation at the national level , the same can observe that 60 % of respondents were unaware shown of these laws and program and only 40% had any idea of the same .



Was deemed appropriate to further investigate this question, so if the answer was affirmative executive should select the level of impact it had considered three Spanish initiatives in innovation for the last 2 years, the results below (Figure 1.1) :

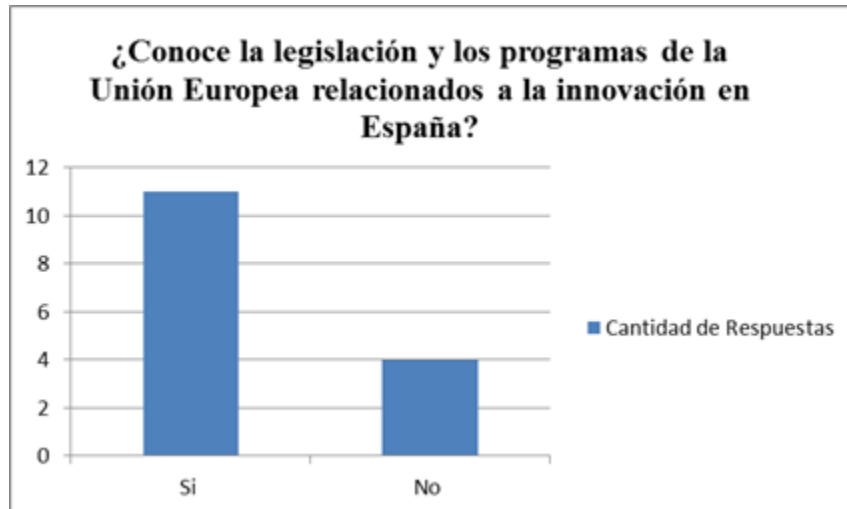
Affirmative on knowledge of laws and programs relating to the Spanish innovation in Spain



Source: Prepared

In it is shown that there is a greater awareness of the Science and Technology Act 2011, but despite this they consider a medium level of impact. Executives of technology companies the ICT sector consider that the Spanish Innovation Plan 2010 and the Ingenio 2010 program are of medium importance further , others understand that they are of low importance or are irrelevant. As you can understand calling it a higher level of importance and impact is the Science Act of 2011 from which a series of recent programs and high-impact initiatives emerge .

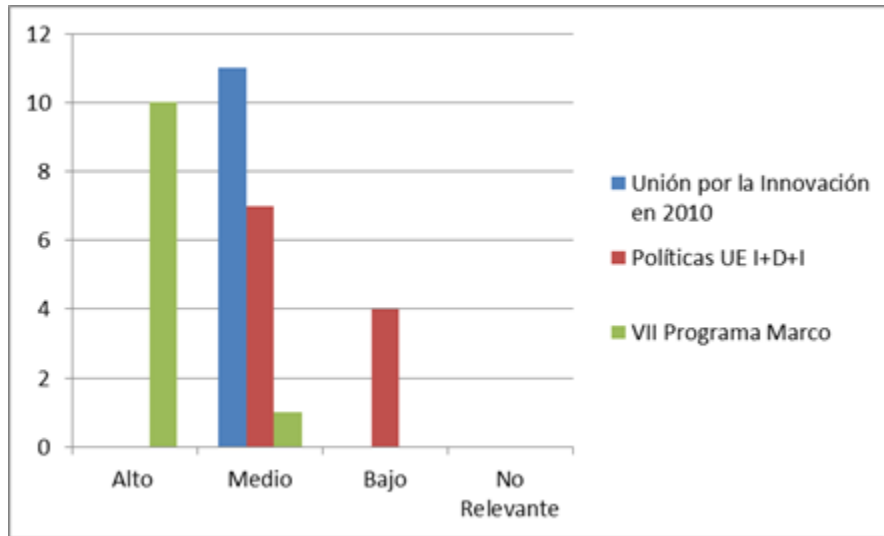
The second (Figure 2) question is related to knowledge among executives surveyed about the laws and programs of the European Union relating to Spain on Innovation 11 affirmative and 4 negative responses so most executives know were obtained these initiatives.



Source: Prepared

Innovation Union 2010 , EU Policy I: Given the knowledge expected by the executives surveyed on Policies of the European Union in terms of innovation , the follow-up question (Figure 2.1) in which three initiatives have considered relevant + D + i and VII Framework Programme and in this sense these were to determine the level of impact of these initiatives their companies . Which was considered the most important was the VII Framework Programme where the 11 respondents so the 90.90 % agreed that having a high impact while only 9.09 % considered the program a medium impact. However the other two initiatives were considered less impact as the Innovation Union in 2010 at 100% of average impact and Policies predominated overall than this level , although 36 % considered low impact .

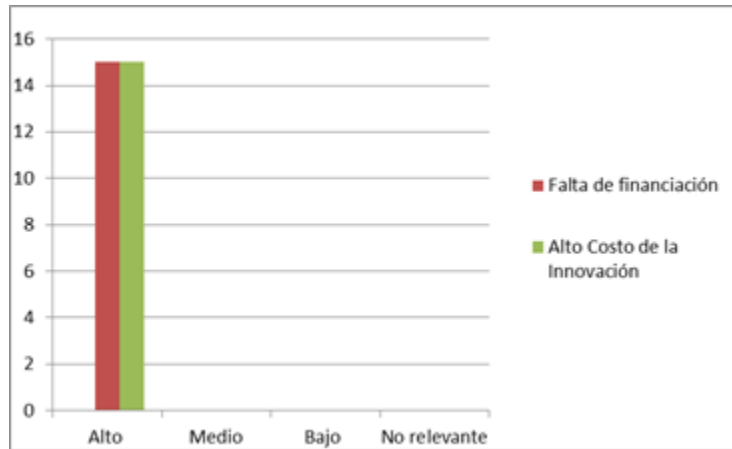
Affirmative on the knowledge of the policies and programs of the European Union innovation in business between 2007-2012



Source: Prepared

Within the same survey there is one last question which seeks to understand what factors respondents considered executives could hamper innovation in ICT sector NEBT in Spain for the period 2007-2012, in this sense have been chosen three categories of factors to analyze the economic, internal (organizational) and external. The responses of the executives were based on the level of importance that they had considered these factors to achieve innovation in their companies. In this sense the 15 executives interviewed considered highly important economic factors (Figure 3) lack of funding and the high cost of innovation, which constitute an obstacle to the progress of innovative companies.

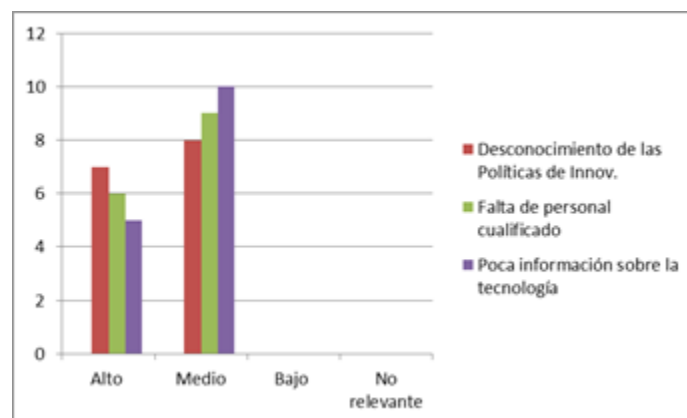
Economic Factors



Source: Prepared

On the other hand in terms of internal or organizational factors and their importance for innovation executives differ, with the factor of highest obstacle but ignorance of Innovation Policy, followed by lack of qualified staff and is controlled little information about technology in general these factors are considered of medium importance for innovation in enterprises.

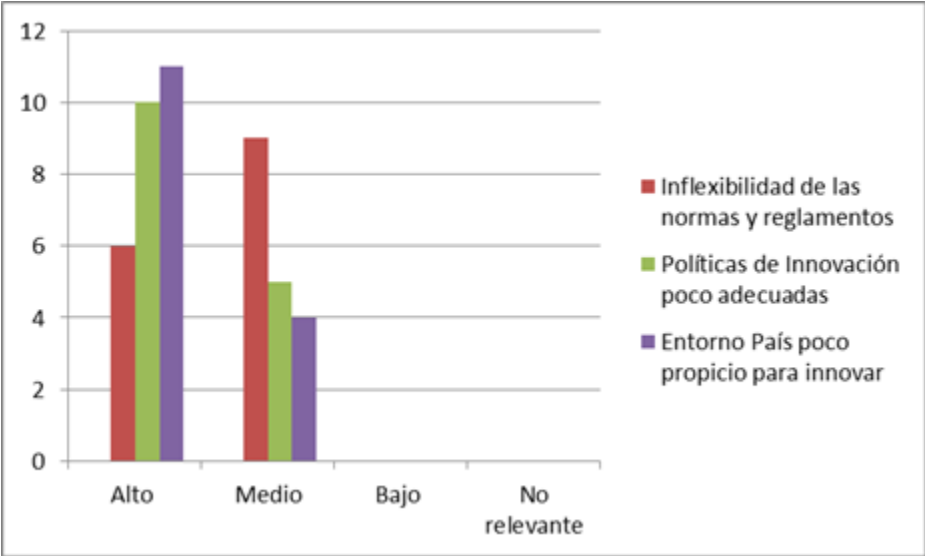
Internal Factors



Source: Prepared

Finally, there are external factors that usually have a decisive influence on the innovation of technology-based companies in the ICT sector, where the most influential factor as executives is the country setting in the case of Spain is hardly conducive to innovation, having this level of high importance in a 73.33%. It also highlights that innovation policies unsuitable 66.6% have a high importance and one half percent making it the second important factor that may hinder innovation. Along the same factor inflexibility of the rules and regulations that exist in the country is considered by most respondents as medium importance.

External Factors



Source: Prepared

7. Conclusions

The technology company thrives in Spain , like the rest of the industrial fabric of micro and small enterprises. The measure, therefore, is the first factor to try to improve , because it is intended that the companies in this field are able to follow a model of high growth in sales, employment , innovation and competitiveness .

Training, promotion of entrepreneurship in university departments directly related to technology and science is one of the actions that can have the greatest impact and should not be delayed . Spain is quite similar to that of other developed countries in this regard situation, but because of it, should be speeded up the process of incorporating these materials in the official curriculum and take the opportunity to achieve pioneering bookmark this difference in Europe .

The rise of ICT-based NEBTs has meant that between 2007 and 2010 a higher percentage of NEBTs in high technology or tip has doubled and their total number has tripled in absolute values. At the other extreme , the share of manufacturing sectors NEBTs in medium to high technology has halved in the period and its absolute value has been maintained or slightly reduced . The trend for the whole of EBTs is similar in each of these sectors , but less pronounced than among younger women.

The creation of new technology-based companies in the ICT sector has seen moose in recent years and can be determined that the new National and European legislation have influenced this, the increase in the number of firms is observed between 6% and 9% year to year , although this sector is the largest contributor to GDP Spanish is one of the most

innovative and fastest growing . Similarly between 2001 and 2011 the number of companies in the ICT sector is technology based on percentage increases each year.

The protagonists for excellence in creating technology-based companies in the ICT sector universities Spain are through technological park or nurseries thereof , which have been one of the most relevant policies through the years and which have been able to create more than 2,000 businesses in this sector.

According to the survey conducted for this research we can conclude that 60 % of executives have no knowledge of the laws and Spanish programs in innovation , only 40% had any idea of the same . A better understanding of the Science and Technology Act 2011, but despite this they consider a medium level of impact.

The study found that most executives know the laws and programs of the European Union relating to Spain on Innovation , yielding 11 affirmative and 4 negative responses. The EU initiative was considered most relevant where the Seventh Framework Programme of the 11 who responded yes the 90.90 % agreed that having a high impact while only 9.09 % considered the program a medium impact.

On the other hand 100% of executives surveyed considered highly important economic factors of lack of funding and the high cost of innovation , which constitute an obstacle to the progress of innovative companies . As for the internal or organizational factors differ executives , with the factor of highest obstacle but ignorance of Innovation Policy , followed by lack of qualified staff and little information about the technology is controlled , these factors are generally considered of medium importance for innovation in enterprises.

As for external factors have a decisive influence on the innovation of technology-based companies from the ICT sector , where the most influential factor as executives is the country environment in the case of Spain is not conducive to innovation. It also highlights that innovation policies unsuitable 66.6 % have a high importance and one half percent making it the second important factor that may hinder innovation .

Despite having timely statistics for research that prove the hypothesis and provide answers to the research question , the most current is 2010 which leaves a small gap of two years which has been covered on the basis of theoretical information . Finally, it is important to note that the study allows to derive quantitatively the importance given by the executives of technology companies in the ICT sector in Spain , and the impact of the same but it is not conclusive although it may be representative for Madrid since the sample was taken 10 companies in the technology park . This condition leaves room for future conduct more extensive research on the number of the sample.

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