

Alejandro Campos Sánchez
Universidad de Guadalajara (Mexico)

The Study of the Entrepreneur's Values and Knowledge: Influence in Growth Expectations

Abstract

This study examines how entrepreneur's values and knowledge can influence growth expectations in new technology-ventures. The study analyses six Spanish cases with different level of growth expectations in their first years and with different characteristics in the entrepreneurial team. Our research reveals that entrepreneur's knowledge is not a factor that helps to differentiate the level of growth in this specific sector. However, we found certain values present in those new ventures with a higher growth expectations, mainly independence and wealth. The values that were not related are the need of exploitation and security. Finally, we draw a model to understand the relationship between entrepreneur's values and knowledge and their impact on new technology venture growth expectations.

Keywords: Knowledge; Values; New-Technology Venture; Growth Expectations

Introduction

The regional development as a result of entrepreneurship, is being driven mostly by technology (Mitra 2012). According to Alvarez and Marin (2013) the right combination of technological capabilities and external factors create competitive advantages for regions.

Corresponding author: a.campos@cucea.udg.mx

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This is how new technology-based firms (NTBFs) play a key role on development and competitiveness of regions; (Audretsch 1995; Colombo and Grilli 2010).

This reason has led scholars to be interested in studying the main factors behind growth and success of this type of companies (Collombelli, Krafft and Quatraro 2012; Breznitz and Taylor 2014; Love and Roper 2015); in fact one of the most studied drivers of growth in academic literature is the role of the entrepreneur. Although growth is generally agreed as a good indicator of success and one of the aim of all the firms, not all the new ventures choose to grow (Edelman et al. 2010; Wiklund and Shepherd 2003).

In this sector, companies are created by a particular type of entrepreneurs, usually with very high levels of technical knowledge and skills. Sometimes it is even scholars and researchers who create spin-off companies (Prodan and Drnovsek 2010). In this line, some authors argue that technical entrepreneurs need a correct combination between technical and managerial skills in order to be able to exploit such expertise (Oakey 2003; Keil, Koo Lee and Deng 2013). When the company starts growing it is crucial that the founder has a support in finance, marketing and personnel areas (Oakey 2003). But, is really the managerial knowledge what can make the difference between a success and non-success technological entrepreneurs?

Usually, entrepreneurs in this sector possess high-technical training; in many cases come from university environments and they have been researchers for many years. In the case of Spain, many research centers and universities provide funding to researchers in order to turn the patents and innovations they are working with into real business projects. However, it is not unusual that these researchers had never thought about funding a company but they find this option the only way to continue developing their professional career. In this sense authors

such as Elizur and Sagie (1999) or Evans, Carney and Wilkinson (2013) have highlighted the importance of the compatibility between life and work values.

Few researches have been found in terms of the role that personal values play when an entrepreneur set the growth expectations for new ventures.

Under these circumstances, the objective of this research is to analyze the influence of entrepreneur's personal values and knowledge in the growth expectations for new technology-ventures. This influence will affect the way in which individuals manage their new technology-ventures and how knowledge and values influence the intention of growing. This research was carried out through the analysis of six different cases.

Following this introduction, the next section presents the theoretical framework and the propositions. The first theoretical chapter reflects on the role of entrepreneur's knowledge in the context of new technology ventures and in the next one, the role of entrepreneur's values is developed from a theoretical point of view. The methodology of the empirical study is then described. The main results obtained from the case study analysis are then presented. The study concludes with a summary of the main findings, implications, limitations and future research topics.

Theoretical framework and research propositions

Entrepreneur's knowledge in the context of new technology-ventures

Firms are considered by a great number of researchers, sets of resources systematically exploited and inter-related for producing and trading goods or services. For more than three decades now, scholars have explored firms and organizations' phenomena basing their

researches on the analysis of resources (Wernerfelt 1984; Grant 1991; Conner and Prahalad 1996; Barney 2001; Lin and Wu 2014).

From the wide variety of resources and capabilities that give birth to a firm, knowledge is undoubtedly one of the most explored assets in academic literature. In the last years knowledge has been strongly related to the study of business creation and performance in several ways and nowadays there exist as much academic papers about this issue, as topics relating human beings and entrepreneurship.

Knowledge related topics in entrepreneurship have been studied at different levels (Campos and Hormiga 2010); the entrepreneurs' knowledge at the individual level (Dimov and Shepherd 2005; Arthurs and Busenitz 2006; Parker 2006, Roxas 2013), the group of entrepreneurs' knowledge level (Moreno-Luzon and Lloria 2008; West 2007; Friar and Mayer 2003; Watson et al. 2003; de Mol, Khapova, and Elfring 2015), the knowledge within the organization -organization level- (Deeds et al. 2000; Collinson, 2000; Corbett et al. 2007; Junkunc 2007; Sharder and Siegel 2007; Van Geenhuizen 2008; Palacios et al. 2009; Lyles 2014) and the inter-organization level referring to the knowledge flowing and being constructed amongst groups of organizations (O'Gorman and Kautonen 2004; Schildt et al. 2005; Biggeiro 2006). Particularly, the study of the entrepreneur's knowledge –at the individual level- is the dominant topic in academic literature of the field during the last decade. Individual level as the name implies, will refer to the creation or exploitation of all kinds of knowledge or sources of knowledge performed by an individual.

Undoubtedly, entrepreneur's knowledge has been a reference topic for researchers when measuring variables related to the performance and growth of nascent business. Most of the times factors of success and growth of new businesses have been strongly related to the

possession, acquisition, development and implementation of entrepreneur's knowledge indicators such as skills, information, foreign languages domain and the most common knowledge indicators, education and experience (Almor and Lerner 2002; Kundu and Katz 2003; Williams and Chaston, 2004; Van Gelderen, Thurik, and Bosma 2005; Poon et al. 2006; Dutta and Thornhill 2008; West and Noel 2009).

As mentioned, education and experience have been the most commonly used entrepreneur's knowledge indicators for measuring their impact on new businesses development. Constantly these two indicators are found together as demographical variables affecting some other dependent variable of the firm (see table 1).

Table 1. Dependent variables measured taking education and experience as knowledge indicators

Author	Dependent variable
Lin et al (2000); Arenius and Minniti (2005); De Clerq and Arenius (2006); Kim et al (2006); Vinogradov and Kolvereid (2007); Thomas (2009); Thompson et al (2010)	Self-employment and entrepreneurial activity
Honig (2001); Watson et al (2003); Williams (2004); Lee and Osteryoung (2004); Peña (2004); Ven Gelderen and Bosma (2005); Asterbro and Berhardt (2005); Dimovand and Shepherd (2005); Van Gelderen et al (2005); Zartutskie (2010)	Profitability, success, income and performance
Cowling and Taylor (2001); Ferrante (2005); Koellinger and Minniti (2006); Ucbasaran et al (2008); Hyytinen and Ilmakunnas (2007); MacDonald et al (2007); Backes and Werner (2007); Seawright et al (2008)	Ability and attitudes to create jobs, opportunity identification, aspirations
Nziramasanga and Lee (2001); Peña (2004); Marvel and Lumpkin (2007)	Duration of business, innovation, economic growth.
Hindle and Cutting (2002); Van Praag (2003); Chrisman and McMullan (2004)	Job satisfaction, risks and hazards, probability of survival

Source: Own elaboration.

As stated, knowledge plays a critical role on business creation, existence and prevalence in the market; actually there are certain sectors where specialized knowledge determines the

length and width in the life cycle of a new venture. Technology-based businesses require by nature greater and more specialized amounts of knowledge to be created and to be managed.

In this sense we present the next research proposition:

Proposition 1a: *The presence of high levels of technical knowledge implies high growth expectations in new technology ventures.*

Besides all we have mentioned regarding the importance of technical knowledge in technology-based new firms, there has been a debate in academic literature about the real need for technological entrepreneurs of acquiring or not business management skills and if so, to what extent.

In this sense, Oakey (2003) argues that it is not the best choice that scientists entrepreneurs with strong technical expertise and that have succeed in the market so far, refuse to acquire management training in order to grow the business. This author considers important for entrepreneurs either to acquire this knowledge or even better, to hire or associate to someone who holds specialized business management skills, especially if financial assistance becomes an unavoidable need.

In high-technology sector, companies are mostly created by a particular type of entrepreneurs, usually with high levels of technical knowledge and skills. Sometimes it is even scholars and researchers who create spin-off companies (Prodan and Drnovsek 2010). In this line, Oakey (2003) argued that technical entrepreneurs need a correct combination between technical and managerial skills in order to be able to exploit such expertise. When the company starts growing it is crucial that the founder has a support in finance, marketing and personnel areas (Oakey 2003). But, is the managerial knowledge what can really make the difference between a success and non-success technological entrepreneurs? Trying to shed some light on this

issue we present proposition 1b as follows:

Proposition 1b: *The presence of high levels of management knowledge implies high growth expectations in new technology ventures.*

In order to understand in a deeper way this phenomenon, it is important to consider what lies behind it; it is crucial to consider the presence of many other factors that also influence the entrepreneur's desire to make his business grow and how to do it. This important decision relies not only on the amount and specialization of technical and/or managerial knowledge that the entrepreneurs possess, but also on the personal and individual characteristics that guide his/her motivational aspirations.

Entrepreneurs' values and new technology-ventures growth

There has been substantial investigation related to why individuals create a business (Cassar 2007). The motive that drives founders to develop business projects can either mean added value for the firm or have a negative effect on it. Various authors have studied the influence of motivations on the subsequent success of the firm and on organisational processes (Gatewood et al. 1995; Van Praag 2003; Van Praag and Cramer 2001; Peña 2002; Collins-Dodd et al. 2004). Most of those authors draw the conclusion that the fact the owner is driven by intrinsic motivation -putting a personal idea into practice-, or by the need to be his/her own boss is an asset for the firm, which will have greater chances of surviving and obtaining future utilities than if he/she is driven by the impossibility of finding a job.

The characteristics of the market in which high technology firms operate may influence the specific motivational tendencies (Oakey 2003). Oakey (2003) found that there were three major motives for beginning a new technology business: independence, wealth and exploitation; the desire for independence is divided into two, freedom and control. In this

sense, the frequently noted strong desire for control among many founders may negatively influence the capacity of growing or even lead to the death of the firm. This necessity can be higher in this sector in which knowledge properties are enormously important and where many competitive advantages are based on technical specific knowledge. Cassar (2007) found that the need of independence of the entrepreneurs was not a motivation that helps firms to grow; but does this value influence the growth expectation of founders?

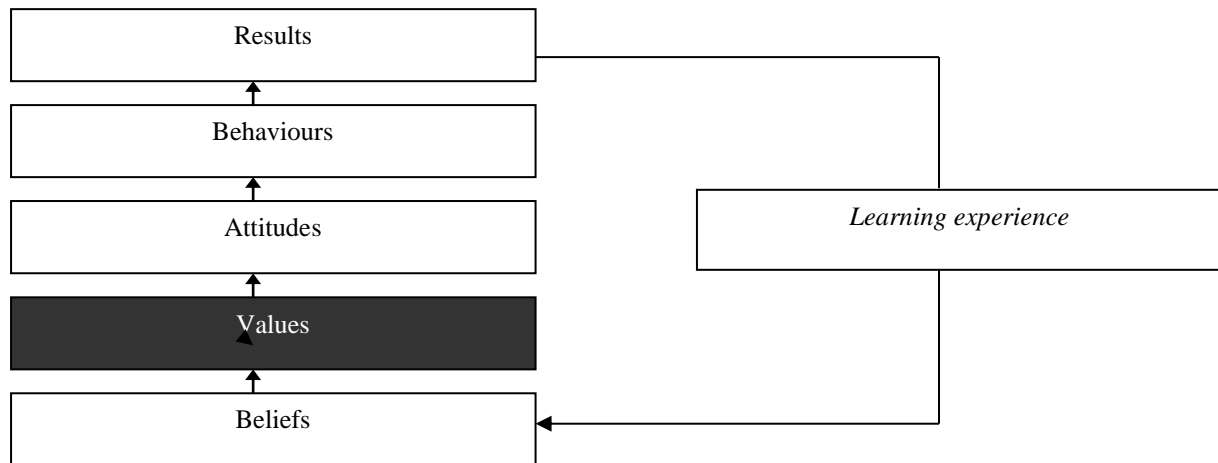
The other group of motivations is the one based on wealth. Cassar (2007) found that financial success motivation was a key determinant for new venture's growth. This results were contradictory to some others studies that suggest that non-economic concerns were more important than financial outcomes in determinants of entrepreneur attitudes and expectations of growth (Amit et al. 2000; Wiklund et al. 2003), after all in this sector, the necessity of exploitation is one of the founders' values commonly identified. Most of the entrepreneurs in this sector have very high levels of technical knowledge and discover new ways of doing and improving their environments. Because of the characteristics of the products or services, the need to exploit this opportunity and communicate to society these technological advances moves many of these individuals in a higher rate than in other sectors.

There are many theories that have tried to explain the motivational process. Theories focused on expectancy for success, theories focused on task value or theories that integrate expectancies and values (Eccles and Wigfield 2002). In the last group of theories we found a modern expectancy value theory which both these components - expectancy and value- are more related to social/cultural determinants and positively related to each other (Feather 1988; 1995). Feather's work on values is an extended of Atkinson's original expectancy-value model in important ways by broadening the conceptualization of value. He argued that values

are one class of motives that lead individuals to perform acts they think should be done (Feather 1995). This author assumes that values function like needs to influence goal directed behaviour and can influence the choices that are made between alternative activities and the way situations are constructed.

Trying to shed some light on this issue we focus on a topic that has been usually related to work in academic business research: values. Rokeach (1973, 5) defines values as “an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode or conduct or end-state of existence”. García and Dolan (2003, 63) assume that value is a “strategic learning relatively stable about a way of acting is better than the opposite to obtain our goals or to make the things go well”. Depending on the level of analysis we can find different levels such as (Roe and Ester 1999): country, group, and individual. Cultural values represent the implicitly or explicitly shared abstract ideas about what is good, right, and desirable in a society (Williams 1970). Although culture values will influence individual values, in this research we will focus on the individual level, specifically in the figure of the entrepreneur.

Before that, it is important to understand which the precedence of these values is and how they influence in the behaviors. The beliefs are structures of thinking, developed through a learning process that helps individuals to explain the reality. The attitudes are consequences of the values and are tendencies to evaluate, positively or negatively, a person, thing or fact. The attitudes predict our tendency to act in a specific way (García and Dolan 2003). In this sense, to modify behaviors it is necessary to change beliefs and values more than only the attitudes (García and Dolan 2003).

Figure 1. Sequence between beliefs and results

Source: Adapted from García and Dolan (2003, 72)

Rokeach (1973) divided values into two sets: terminal and instrumental. Terminal values are existential objectives, which are end states of existence or ultimate modes of living, what has been idealized as “good life”. Instrumental values are those values that represent the way of acting necessary to get the existential values.

There are some personal values that it is quite clear what kind of behaviors or situations they are relevant to (e.g. money or good friends), but there are other values a little more diffuse such as meaningful life or work (Elizur and Sagie 1999). Traditionally, general life values and work values have been investigated independently (Elizur and Sagie, 1999; Roe and Ester 1999) but most researchers seem to assume that work values do somehow derive from general values even though they are not very explicit about the causal nature of this process. In some cultures, work values could be a source from which general values arise, for example multinational corporations can play a role in the transmission of values but this is an approach with little empirical evidence (Schwartz 1999).

In this research, we focus on those values that can influence in new ventures’ growth

expectations –see figure 2-. First referring to terminal values, the importance and significance of work in a person's life will be crucial for the entrepreneurs' and for new venture management as well as for the growth expectations.

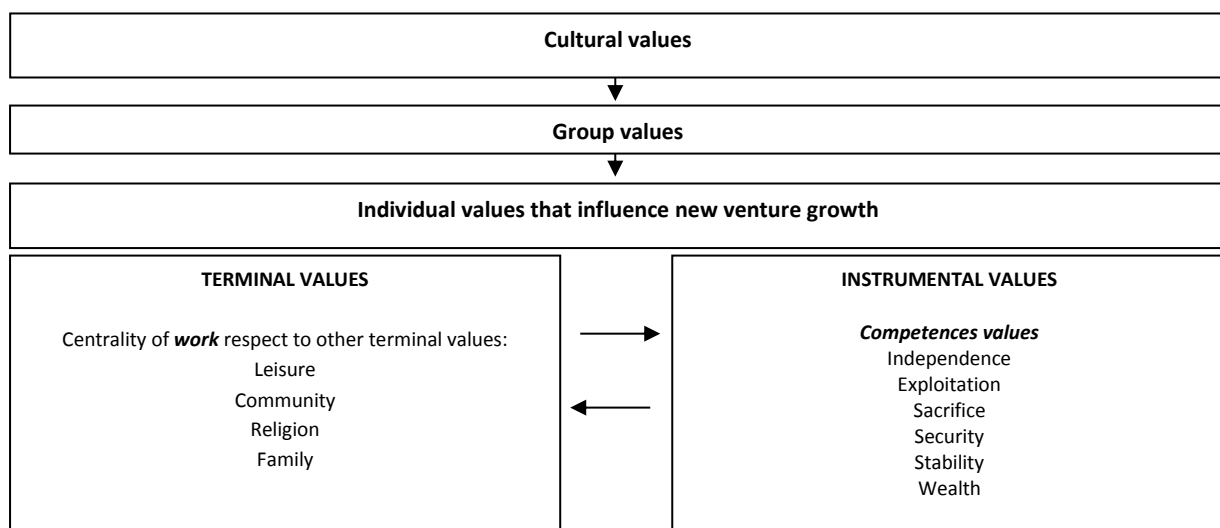
Since most of the times the initial stage of the firm lacks of stability, routines and processes are not formally established and it is necessary for the entrepreneur to be completely involved to overcome that deficiency. A high level of personal commitment by the entrepreneur contributes added value to the firm and may mark the difference between some entrepreneurial initiatives and others (Timmons 1990). According to this, authors such as Cooper et al. (1994) state that greater commitment from the entrepreneur has a decisive influence on the survival of the firm. Other authors like Peña (2002) and Collins-Dood et al. (2004) state that there is a positive relation between the level of founder's dedication to the business and the level of success of the business and those founders with higher expectations of growth will present higher levels of commitment to the company. Therefore, hard work as well as strong commitment has been highlighted as important elements for the smooth running of newly-created firms (Rodríguez 2003). Schwartz (1999) compares the importance of work relative to four other life areas – leisure, community, religion and family. We propose that a greater importance the individual gives to work lead to greater expectations of growth and greater opportunities to devote his efforts to be successful.

Proposition 2: *The presence of entrepreneur's terminal value "centrality of work" is related to high levels of growth expectations in new technology ventures.*

Instrumental values are divided into moral and competences values and competence values (Rokeach 1973). Moral values have two particular characteristics: they are related to other people and when there are no-connection between values and behavior they cause feelings of

guilt and shame (García and Dolan 2003). The competence values are more individualistic and they have no direct relation to culpability and moral feelings. For example, honesty implies a feeling that you are acting morally while creativity implies that you are acting according to a competence. In our analysis we focus on these values –competences- that can influence the growth expectations of new ventures -independence, exploitation, sacrifice, security, stability and wealth-.

Figure 2. Entrepreneur’s values that influence new venture growth



Source: Own elaboration.

This study tries to understand how knowledge and values of new technology-ventures’ founders are related to their growth expectations and why the entrepreneur is willing to grow or not.

Based on previous assumptions we proposed the following propositions:

Proposition 3a: *The presence of entrepreneur’s instrumental value “independence” is related to high levels of growth expectations in new technology ventures.*

Proposition 3b: *The presence of entrepreneur’s instrumental value “sacrifice” is related to high levels of growth expectations in new technology ventures.*

Proposition 3c: *The presence of entrepreneur's instrumental value "wealth" is related to high levels of growth expectations in new technology ventures.*

Proposition 3d: *The presence of entrepreneur's instrumental value "exploitation" is not related to high levels of growth expectations in new technology ventures.*

Proposition 3e: *The presence of entrepreneur's instrumental value "security" is not related to high levels of growth expectations in new technology ventures.*

Proposition 3f: *The presence of entrepreneur's instrumental value "stability" is not related to high levels of growth expectations in new technology ventures.*

Method

Research design

According to several qualitative methodologists multiple case-based research may serve as a basis for either empirically testing previous theories or building new theoretical explanation of the phenomenon being researched (Eisenhardt 1989; Yin 1989; 1998).

To achieve the objectives of the research we followed a qualitative methodology -case study- (Yin 1989; Eisenhart 1989), following different steps. First, the theoretical framework of the research was developed from a literature review. Second, we use this framework as guide to organize our data collection and to analyze them. In this sense, the relationship between the theoretical perspective and the empirical findings is very close (Yin 1989). To obtain the data we used primary and secondary sources. Through the performance of deep interviews we gathered information related to their knowledge and personal values and how these two factors were affecting the management of the new venture.

By adopting the founder/s as the main unit of analysis, our empirical research is based upon a systematic application of the multiple-holistic case study approach to new technology context

in which six new ventures created in Catalonia (Spain) were first judgmentally –not randomly- chosen and then comparatively examined. This conceptual sampling design allowed us to introduce some degree of variance in our case selection criteria by including differences in entrepreneur's gender and origin and individual entrepreneurs versus entrepreneurial teams. However, to be consistent with previous research on entrepreneurial firms which are regarded as typically young and small in size (Zacharakis 1997), all firms in the purposeful sample had to be small, and independently managed.

Case selection and data collecting

Six cases were selected to make a deep analysis of the entrepreneur/s leading these new technology ventures. The six entrepreneurial stories for this study were selected in order to make a deep analysis of the entrepreneur/s leading these new technology ventures. These companies were selected based on the number, sex and the nationality of the founders. Specifically, some characteristics of the entrepreneurs in this study are the following:

- Three of them are entrepreneurial teams and three are individual founders.
- Two companies have female components in the entrepreneurial team and four are male teams.
- Two companies have at least one immigrant member in the entrepreneurial team and four were native teams.

Initial contact with these companies was made by telephone. During the initial telephone discussion with at least one of the founders, the aims and objectives of the case study were outlined. Also our requirements about who should be interviewed and the approximate duration of the interview were explained. Some of the company's founders were concerned

about confidentiality issues, while other founders had no problems to talk about their personal stories. The interest to use the case study for publication was also revealed at the first contact. Our data collection consisted on deep personal interviews conducted using semi-structured questionnaires as a guide. As mentioned, the interview content was drawn from literature and also guided by previous studies.

The interviews included questions about general characteristics of the company and the founder's characteristics.

Table 2. Interview structure

General structure	Discussion topics
General characteristics	Company's features Entrepreneur's features
Knowledge	Education Experience Type of knowledge Perception of knowledge
Personal values	Terminal values Instrumental values
Growth expectations	Company's future

Source: own elaboration.

During the visit to the companies, extended interviews were conducted with at least one of the founders of each company. Each case company lasted approximately 2 hours. In addition to the interviews, we used secondary sources to verify the statements and to obtain supplementary information. The information gathered from each organisation was written up as a case study and the principal observations extracted.

Firm and interviewees characteristics

As explained above, the data explained in this article refers to six technology-ventures. Table 3 presents a profile of these cases. The sample is composed of companies with some diversity

within the industry although most of them correspond to young sectors: IC technologies and biotechnology.

According to European Commission Recommendation (2003/361/EC), in terms of headcounts as main criterion, three companies (3, 5 and 6) were micro enterprises, employing fewer than ten people, whereas the other three (1, 2 and 4) belonged to the small enterprises category.

Table 3. Sample profile

Cases	Economic sector	No employees	Annual sales (€)
1	Biotechnology	16	900,000
2	IC Technologies	27	1,000,000
3	Environmental technology	2	0
4	IC Technologies	14	3,600,000
5	Biotechnology	6	510,000
6	Biotechnology	4	170,000

Source: own elaboration.

In table 4 we present our findings relating the characteristics of the new technology-ventures' founders. The management of the firm consisted of a small team although in some cases only one of the founders took this role. Only one out of six companies had a single female founder.

Table 4. New technology-ventures' founders characteristics

Cases	Gender	Nationality	No founders	Previous position
1	Males	Spanish	2	Students
2	Female	Spanish	1	Skilled worker
3	Males	Argentinean	2	Skilled workers
4	Males	Spanish	2	Skilled worker / Professor
5	Female/ Male	Spanish	2	Skilled worker
6	Male	Italian	3	Student / Professors

Source: own elaboration.

Regarding the nationality of the teams, four of them were formed only by Spanish people and two by an immigrant founder, which co-founded the company with native people. Finally, concerning the previous position of the founders, we found that most of them were skilled

workers in other companies, only in case one the company was founded by students without professional experience and two companies had at least one university professor involved.

In this study the units of analysis are founders of high-technology based companies that have received any support from a specific public institution from Catalonia.

Findings and discussion

Knowledge

Regarding founders' knowledge we found differences amongst the profiles of interviewees; even if all of them hold technical graduate degrees in at least one field close to the main company's core business there are some of them that also have completed some business-related graduate program, some others just have attended certain management courses and one of them hold on to experience as the only source of management knowledge (see table 5)

Table 5. Founders' knowledge

Type of knowledge	Cases identified	1	2	3	4	5	6
Informal	Experience	x			x		x
Formal	High technical knowledge, PhD	x		x	x	x	x
	Management courses			x		x	
	MBA	x	x		x		

Source: Own elaboration

If we look at entrepreneurs' informal knowledge, we found that cases number 1, 4 and 6, have some previous experience in managing business either if this experience come from business in the same sector or not. In these cases -1, 4 and 6- we found some evidence of the contribution of their informal knowledge to management skills and intentions of growing. As an illustrative example of one of these experienced founders, in case 1 founder reveals that he has been in contact with successful entrepreneurs and since childhood he used to listen to

conversations among them; he admitted: *“I’ve been my whole life preparing myself to be an entrepreneur”*.

Concerning formal knowledge of the entrepreneurial teams, there are many different situations. In the sample, only case 2 does not have technical education at a higher level than undergraduate, while others have at least one of the members holding a doctoral degree, being university professors or even persons awarded with international academic prizes. We also found that in the four companies -1, 2, 4 and 5- that stated to have strong intentions to growth at least one of the founder members has some type of management knowledge either acquired through formal higher education or through the attendance of some management courses (see figures 3.1, 3.2, 3.4 and 3.5)

On the other hand, high technical knowledge characteristic does not imply the existence of growth intentions; case number 2 shows a strong intention to grow even without higher levels of technical education.

According to data collected, case 6 is the only one that supplies the lack of managerial skills with the incorporation of another company in the company’s capital that contributes with funding and with management advice. The owner of this company does not state intentions to grow; he reveals to be happy with the actual situation of the company; not closed to some minimum growth in the future though (see table 5).

It is worth to mention that all of them agreed that their knowledge at the beginning of company’s life was not enough to manage it, although most of them recognized that only experience provides the right scope to complement other formal learning like courses or master degrees.

Individual values

Individual values are other factors that affect entrepreneurial activity and we have analyzed the influence of these values on the way individuals manage their companies and the intention of growing. We took into account both terminal and instrumental values and these were the results of each case analysis:

Table 6. Individual values

Individual values	Cases identified	1	2	3	4	5	6
Terminal values	Strong centrality of work	x		x	x		x
Instrumental values	Willingness to sacrificing	x		x	x		x
	Security		x	x			
	Stability		x			x	x
	Independence		x		x	x	
	Wealth	x			x		x
	Exploitation			x			

Source: Own elaboration

Regarding terminal values, most of the founders positioned work as the main priority in their spending-time-in list. Only in cases 2 and 5 founders consider job as a mean to enjoy life, but family, friends and health were priority. By contrast, cases 1, 3, 4 and 6 have committed their life to work and have renounced to many aspects of their life, although one of the founders in cases 3 and stated that they would like to reduce the importance of work as soon as the company's situation make it possible.

Sacrifice, security, stability, independence, wealth and the ethical need of exploitation were the instrumental values we analyzed for each one of our cases. Half of the cases (2, 5 and 6) looked for stability when they became entrepreneurs, as they perceive that there is more risk of loosing their jobs if they work in a multinational or someone else's company; although surprisingly only case 6 also recognized the scarify made for starting-up the company; cases 2 and 5 do not find this strictly necessary due to a proper management of the company.

Moreover, we found a relationship between those cases with high levels of sacrifice and without looking for security, stability or ability to earn money, and companies that grew up and have higher future growth expectation. The following quotes of a founder in case 1 is illustrative:

“We renounced to youth”

“I haven’t stepped on a discotheque since I was 24”

Independence as an instrumental value is factor for creating the new technology-ventures in half of the cases (2, 4 and 5). The sensation of freedom and not depending on other’s businesses or research lines is really important for some of the entrepreneurs. Those founders with this need for freedom presented higher growth expectations (see figures 3.2, 3.4 and 3.5). Some comments illustrate perfectly how this instrumental value had significant influence on founding the company:

“I want things to depend on myself”

“You are the master of your destiny”

But if we look at founders with terminal values more related to wealth (cases 1 and 6), we notice that there are different personal objectives. Case 1 likes generating business and get earnings for it; in this case growth expectation is strong (see figure 3.1); founder in case 6 needs a job with intellectual stimulation however, growth expectations in this case don’t go further than survival or perhaps a minimum future growth (see table 6).

Finally, only case 3 showed a strong need of exploiting his knowledge (see figure 3.3). This founder gave up the academic field to investigate “*practical things*”, although this is the case with the worst business performance. He defines himself as “an inventor with an ethical goal of sustainability” and wants his invents to be used.

Growth expectations

Comparing the situation of the six cases, we do not find clear differences between the way they manage their companies or even their growing expectations. Only case number 3 recognizes the willingness to sell out the company if the technology developed is used; this shows a greater interest in survival in the meantime waiting for a good offer. Case 6 recognized not having special interest on growing a big company as long as he achieves to market their products.

When we asked the interviewees about their vision of the company 5 years in the future they showed different levels of growth expectations:

Table 6. Growth expectations

Case	Growth expectations
1	“Unlimited growth expectations”
2	“A bigger company, but with a higher role of the management team and more free time for me”
3	“I may sell the company if my technology is used”
4	“A big company with international reputation. We want to do something great, with great people!”
5	“A company with 60-70 employees, in London. If someone wants to buy it, we’d sell it and start another business”
6	“A company just slightly bigger than now to earn some more money, but I’m happy with the actual situation anyway”

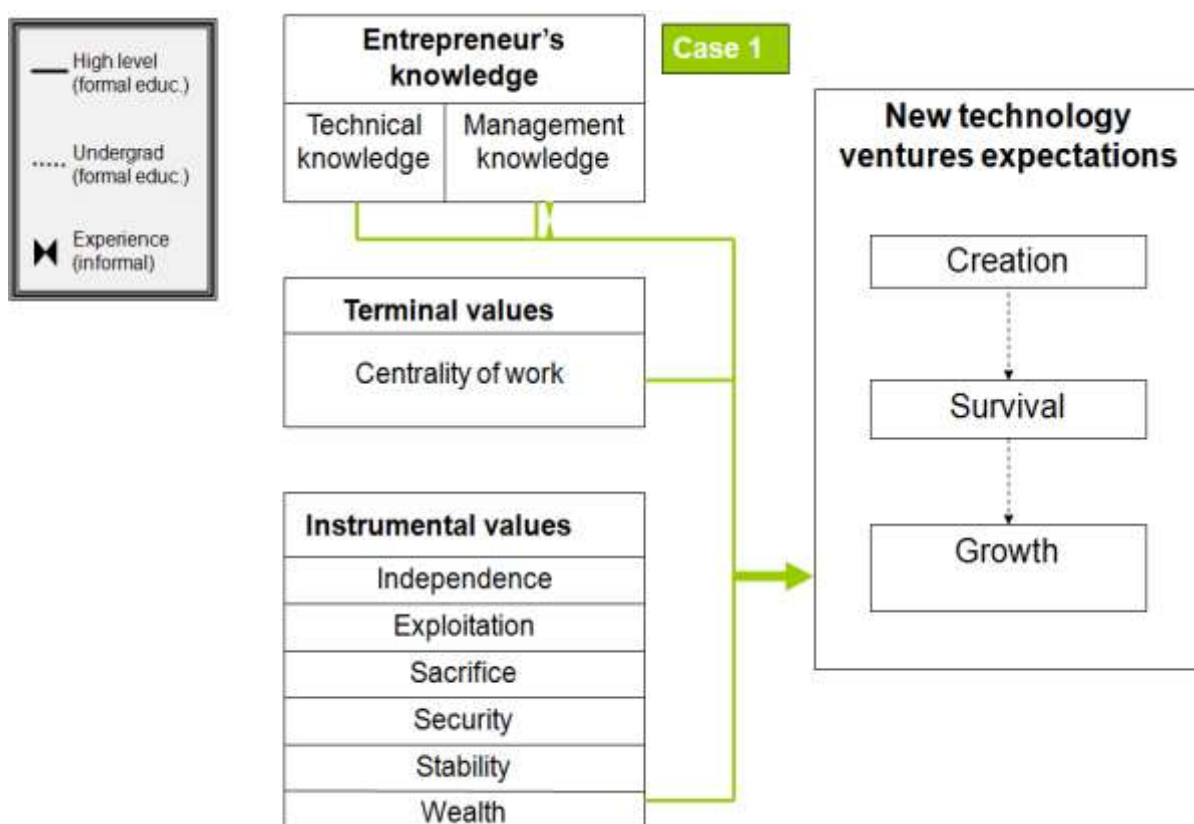
Source: Own elaboration.

In cases 1, 2 and 4 founders have the highest growth expectations, and we check that these three companies have had a very successful activity. Specifically, in cases 1 and 4 one of the founders has strong managerial skills and experience; these founders have “business spirit” and have always wanted to be entrepreneurs. Nevertheless, the other founders in 1, 2 and 4 had never thought about being entrepreneurs as a career choice and they expect to have more leisure time, but they were encouraged to start the business by their co-founder or partner.

Concerning cases 3 and 5, we found that founders are willing to sell out the companies, however case number 5 have clear intentions to grow before that while case 3 would sell the company as soon as their technology is used and they receive a good offer.

Before presenting final remarks of this work, we present next a brief individual analysis for each case:

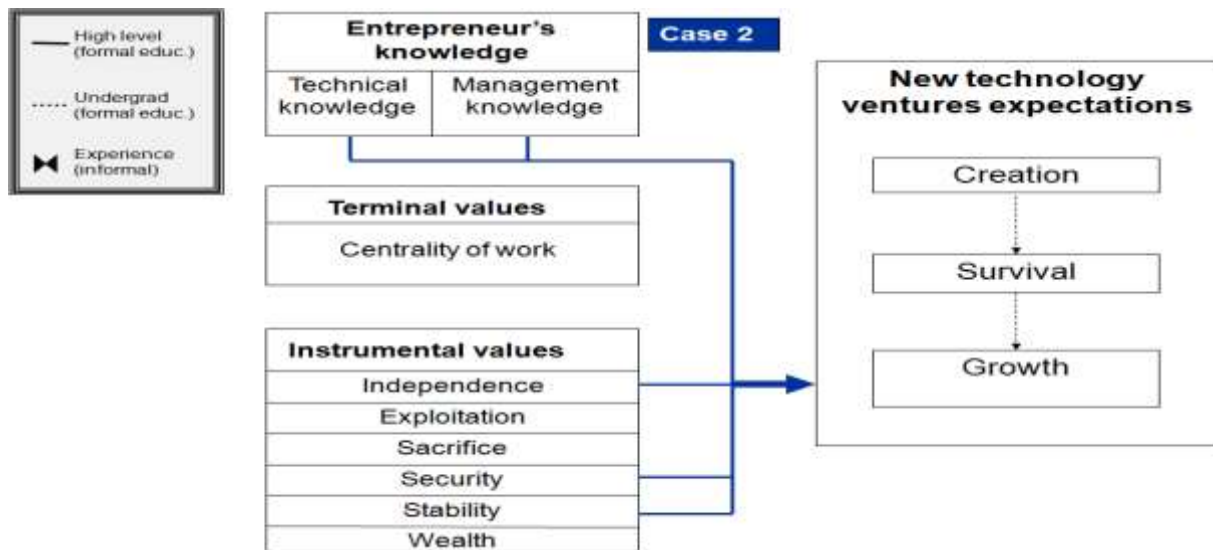
Figure 3.1. Influence of entrepreneurs' knowledge and values in growth expectation -Case 1.



Source: own elaboration.

In case one we find that founder(s) possess high levels of both technical and managerial formal knowledge as well as experience. Centrality of work is strong and company looks for wealth and the highest growth expectations of the sample are identified.

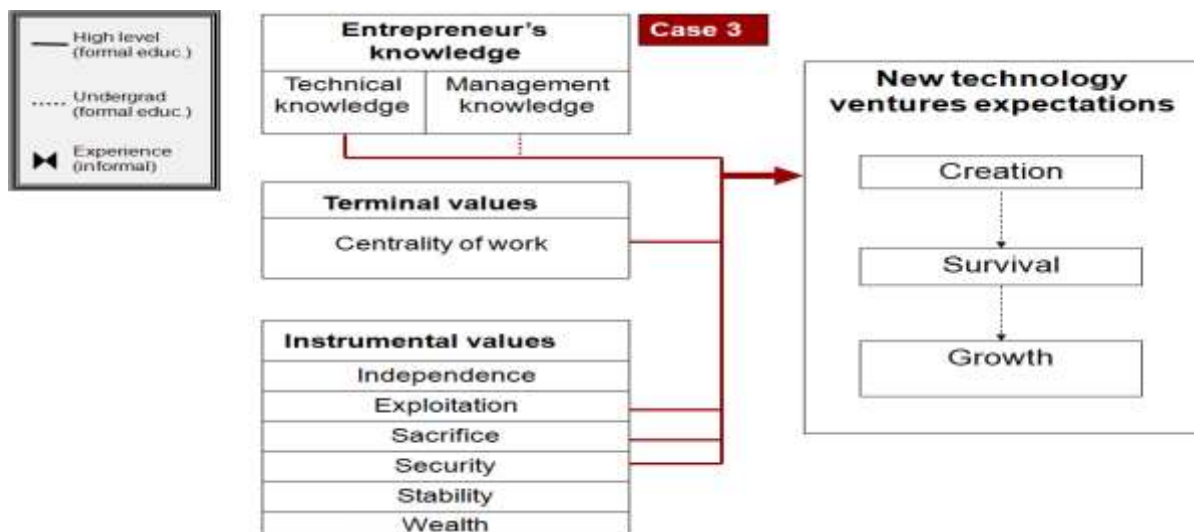
Figure 3.2. Influence of entrepreneurs’ knowledge and values in growth expectation -Case 2.



Source: own elaboration.

In case two we find that founder(s) possess undergraduate level technical formation and high levels of managerial formal knowledge. Independence, security and stability are the most important instrumental values for this company; even though this company seeks for growth, they consider family, friends and own life more important than business among their priorities.

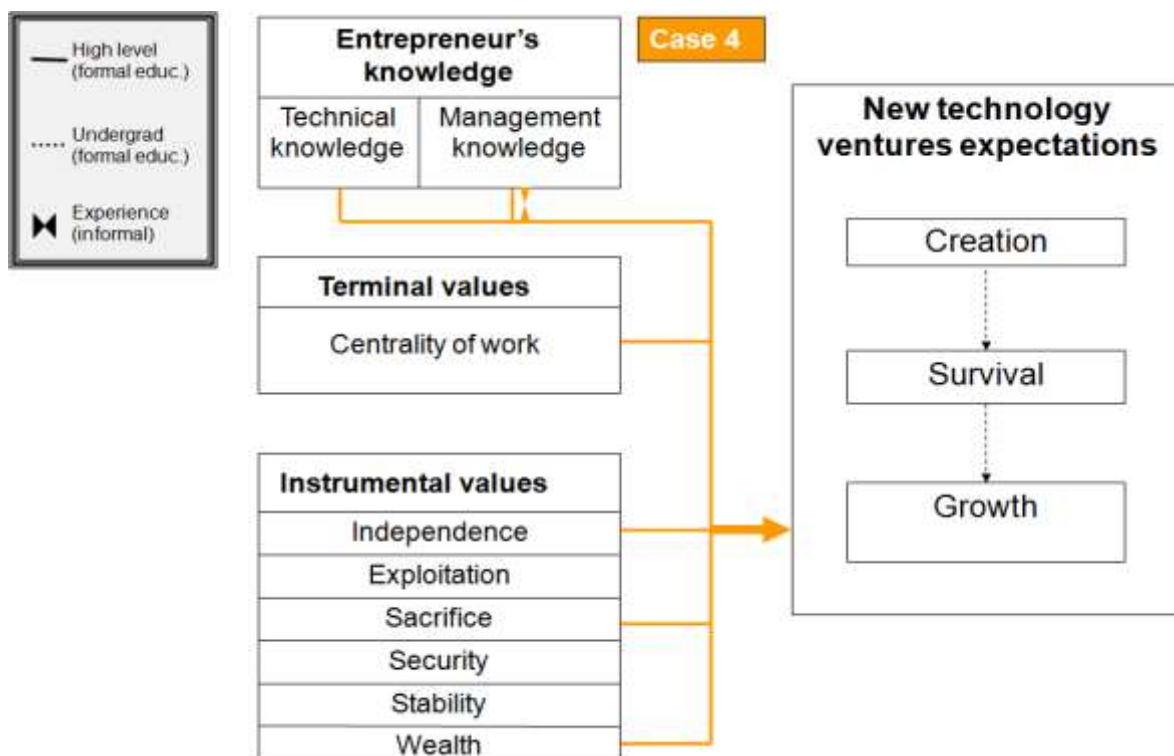
Figure 3.3. Influence of entrepreneurs’ knowledge and values in growth expectation -Case 3.



Source: own elaboration

Case three shows that founder(s) possess high levels of technical knowledge and basic levels of managerial knowledge acquired by course or seminars attendance. Work is the priority for founder(s), they are eager to sacrifice free time and other activities for the company, they feel secure of what they do and feel the major need of exploiting their expertise in the field. They are willing to sell out the company as soon as the technology developed is used and receive a good offer. Growing is not a priority for them.

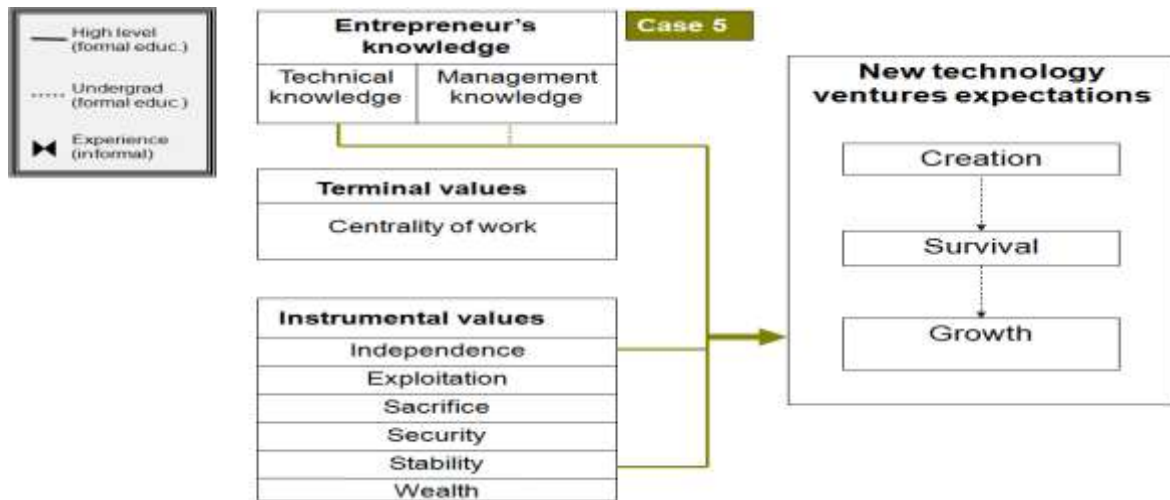
Figure 3.4. Influence of entrepreneurs' knowledge and values in growth expectation -Case 4.



Source: own elaboration.

In this case –number 4- we find that founder(s) possess high levels of both technical and managerial formal knowledge as well as experience. Centrality of work is strong and company looks for wealth; founder(s) want to be independent and they are eager to sacrifice other activities to work and produce more richness; growth expectations are high.

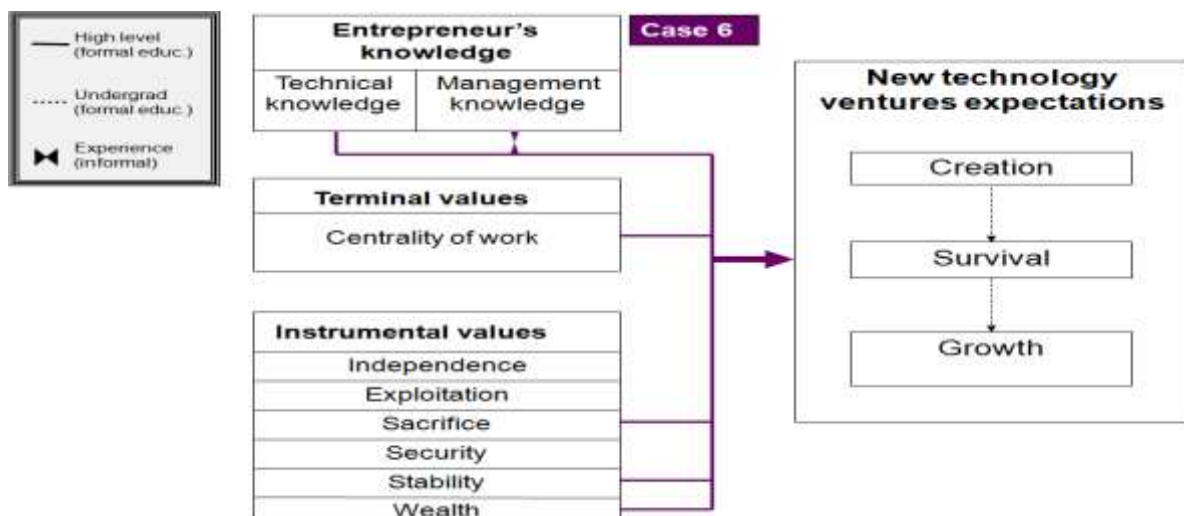
Figure 3.5. Influence of entrepreneurs’ knowledge and values in growth expectation -Case 5.



Source: own elaboration.

Case number five shows that founder(s) possess high levels of technical knowledge and basic levels of managerial knowledge acquired by course or seminars attendance. Work is important for founder(s) but not as much as family, friends or personal interests; personal stability is very important for them; they have a clear idea of growing and if there's a good offer, they wouldn't hesitate in selling out the company to start a new one.

Figure 3.6. Influence of entrepreneurs’ knowledge and values in growth expectation -Case 6.



Source: own elaboration.

Last case –number 6- shows that founders have high levels of technical knowledge and some managerial experience. They are committed to work seeking for stability and richness, they sacrifice personal activities for the company and don't have high expectations for growth; they seem to be happy with what the company is at the moment.

Conclusions, implications and limitations

After analyzing the six cases we could extract some conclusions.

First, in all the cases at least one of the entrepreneurs had never thought about being entrepreneurs as a career choice. Those entrepreneurs that have partners with “business” spirit had a very successful company performance and high growth expectations. However, those entrepreneurs with brilliant technical knowledge but no managerial skills did not perform well even if they tried to fulfill this lack of managerial knowledge joining well recognized management masters or courses. Curiously these entrepreneurs were pretty much alone or their partners were “technical”. These entrepreneurs argued that what they really liked in their job was “discovering new things” or “see the impact of their new technologies on the environment” but they had been forced to receive training and learn management basics to keep doing what they like.

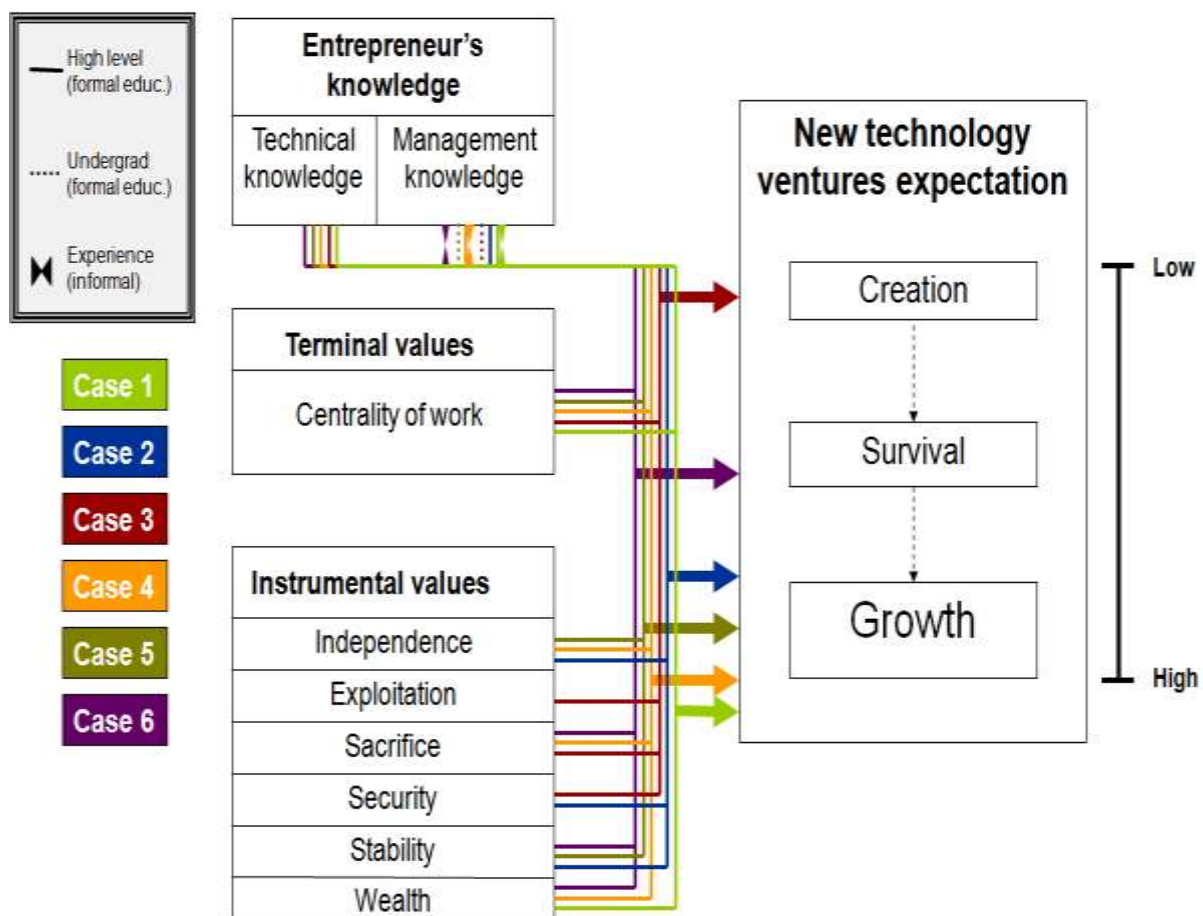
While performing the analysis of the cases we could identify some of their personal values such as security or money related values struggling with some other values considered important to develop an entrepreneurial activity.

Centrality of work is a terminal personal value that allocates work over any other activity in terms of importance and commitment on behalf of the entrepreneurs. This value according to the analysis is strongly related to higher levels of growth expectation. In terms of instrumental values we recognize that the seeking for wealth and independence are the most related to a

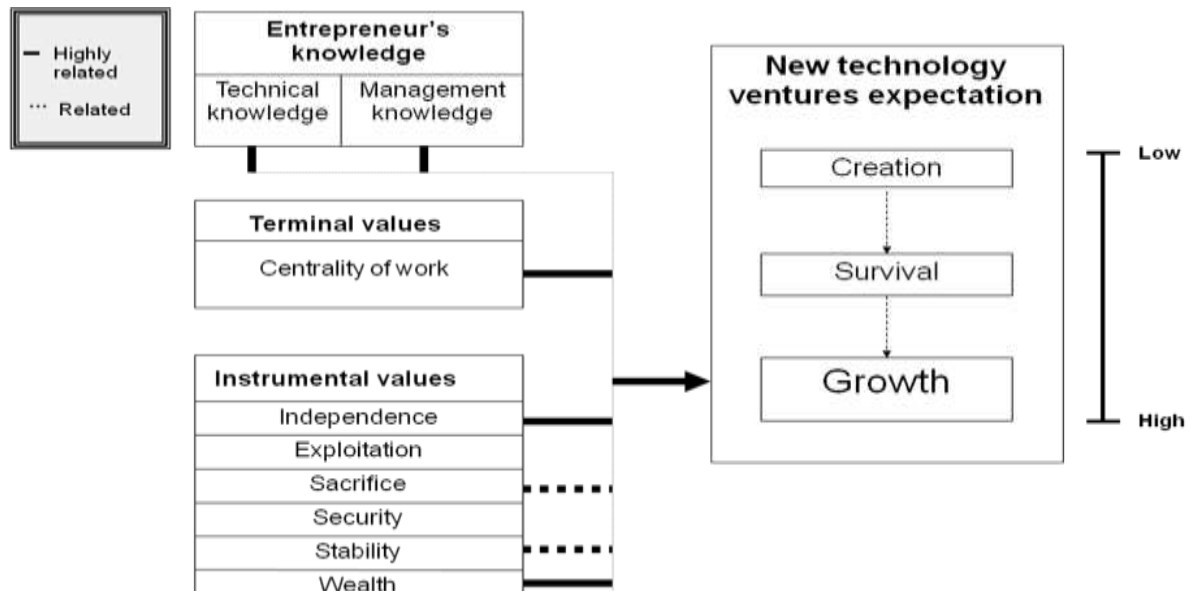
high expectation of company's growth, while the feeling of security and the ethical need for exploiting certain expertise presents lower levels of relatedness to growth intentions (see figure 5).

Three out of the four cases that presented higher levels of growth intention, were founded by entrepreneurs with high levels of technical knowledge and the other one just professional level of this knowledge; however in all of these cases exists managerial knowledge in one of the founders (see figure 4).

Figure 4. Overall impact of knowledge and individual values in new technology-business expectations



Source: own elaboration.

Figure 5. Influence of entrepreneurs' knowledge and values on growth expectations

Source: own elaboration.

According to the model proposed as a result of our findings, we finally conclude stating that both managerial and technical high levels of knowledge are related to higher growth expectations –proposition 1a and 1b-. This supports what Cheraghi, Zetti, and Schott (2014) state about the presence of knowledge as one of the key predictors of growth expectations.

In the same way, terminal value “centrality of work” is strongly related to high growth expectations –proposition 2-. This is also supported by Gorgievski, Moriano, and Bakker (2014) who demonstrated a positive relation between hard work (work engagement) and the pathway to growth and success.

Despite the findings published by Douglas (2103), who stated that growth intentions and independence intentions are driven by different cognitive aspects, in our research we found that instrumental values “independence” and “wealth” are highly related to higher growth expectations –propositions 3a and 3c-.

Regarding the rest of the instrumental values, “sacrifice” and “stability” were found to be partially related to a high expectation of growth -3b and 3f-, while instrumental values “exploitation” and “security” didn’t show a significant relation to high growth expectations – propositions 3d and 3e-.

Implications of this work contribute to further understanding the relationship between entrepreneurs’ knowledge and their values in the expectations of companies in a sector with a key role in regional economic development. In addition, the use of these case studies allowed us to access interesting data to be processed and understand the way the entrepreneurs’ personal values influence in new ventures management practices and performance. In accordance to Cheraghi, Zetti, and Schott (2014), results of this research prove that growth expectation derives from a variety of factors including knowledge and motivational beliefs. Moreover, these insights lead us to some recommendations for policy-makers. Nowadays, a lot of efforts and public budget is invested on new technology companies and, especially oriented to turn research funding at universities into real business. Besides the product and the market, it is important to look at the individual behind this new venture and to know if this person really wants to create a company or this is just a good way of continuing developing their technical tasks. The understanding of the individuals’ values will help institutions to understand why some of them have a very fast growth and others are stagnated even if they have the same level of technical and managerial knowledge.

Limitations of this study are on one hand that only six cases were analyzed in an emerging sector with an enormous role in regional development; due to this, it is difficult to generalize the model proposed; on the other hand only personal values were taken into account for the analysis putting aside cultural and sector values. Future lines of research regarding this topic

include analyses of a greater amount of cases, the inclusion of cultural and sector values for the analysis and exploring deeper the impact of each type of knowledge in firms' performance. Moreover, the study of the new ventures' real growth in a longitudinal analysis represents very interesting additional information to contribute to this study.

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