



The influence of entrepreneur characteristics on the success of pure dot.com firms

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Abstract: The growing popularity of the Internet, accompanied by falling access costs, is provoking an increase in the number of users and buyers on the net, and the appearance of new organisations that commercialise their products and services exclusively on the net. At present, this type of firms, known as dot.coms or cyber-traders, is playing an increasingly significant role on the internet, although the majority have not yet achieved much success. Despite this, there have been few studies focusing on the factors that affect the success of these companies. This current work attempts to determine if the characteristics of the entrepreneur may constitute a success' factor for such firms, and if so, to what extent. With this in mind, 23 cases of Spanish dot.coms were analysed and a model to explain the influence of the entrepreneur characteristics on the success of pure dot.com firms was proposed.

Keywords: cyber-trader; digital entrepreneur; e-entrepreneurship; electronic commerce; entrepreneurship; information technologies; internet; success factors.

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1 Introduction

The increasing development of information technologies (IT) has significantly affected both firms and markets. Meanwhile, the tool that is currently having the most significant effect in the business world is the internet. As a trade infrastructure, the internet is a framework where people can interchange information at a speed never seen before (Schwartz, 1997). Nowadays, there are two types of firms using this new IT. On the one hand, firms with physical presence (traditional companies) use the internet as a new distribution channel or alternatively as a logical extension of their traditional business. On the other hand, there are the pure dot.coms (internet start-ups or cyber-traders) (European Commission, 1997), which have been specifically conceived to operate in this new environment. These firms are now taking on a significant role in the internet, although the majority have yet to achieve much success, and their contribution to both wholesale and retail sales is still not quantitatively significant.

The entrepreneurship literature examines some particular factors affecting the success of new ventures, generally concentrating on traditional companies (Ballantine et al., 1992; Lewis et al., 1984). This literature suggests two approaches to measure the success of start-ups (Chandler and Hanks, 1993): *objective measures* and *subjective measures*. Although entrepreneur characteristics have been very widely studied in general terms (Morel d'Arleux, 1999; Sandberg and Hofer, 1987); there are no studies that focus on the characteristics of the digital related entrepreneurs. There are some studies comparing entrepreneurs from the IT sector with those starting up dot.coms (Colombo and Delmastro, 2001), but there is very little research referring specifically to the success factors of pure dot.coms.

This paper offers some explanation about how the whole entrepreneur characteristics influence the success of new start-ups measured as a combination of objective and subjective indicators. This work has two main objectives:

- to describe the main socio-demographic aspects of the dot.com entrepreneur and its motivations to create their own companies
- to build a model to determine the extent the entrepreneur's characteristics may affect the success of pure dot.coms.

2 Theoretical framework and hypotheses

Many studies have attempted to examine the factors causing firms to succeed or fail. Some of these studies have concentrated almost exclusively on financial data and ratios, and others have focussed on market-based variables. All this literature includes descriptive studies, conceptual models, case studies, surveys, longitudinal studies and so on. Among

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the variables regarded as critical for the success of new ventures, the most significant are the market and product strategy, the entrepreneur characteristics and the financial aspects. At a second level of importance, human capital, the origin of the start-up, the technology and production aspects, and the social and environmental variables are found. These variables should be considered as 'some' of the factors that may be relevant in the success of new firms, but the list does not end there. Moreover, most of these variables differ in their degree of importance according to the study or author, with the second-level variables sometimes being considered of prime importance, and *vice versa*. The specific factors of the main success variables that have been examined most in the literature are shown in Table 1.

2.1 *Entrepreneur characteristics*

The literature on the entrepreneur's background as success factor can be classified into three broad areas (Stuart and Abetti, 1990):

- the entrepreneur's personality (Collins and Moore, 1964)
- the entrepreneur's biographical background (Cooper, 1981, 1993; Timmons, 1994; Vesper, 1989)
- the type of firm created (Birley, 1987; Bygrave, 1989).

Neither the research on the entrepreneur's personality nor the type of firm created have demonstrated a decisive influence on company results, but both dimensions have been generally regarded as a key factor in understanding success or failure. The psychological approach of the business starts from the basic assumptions that the entrepreneur has a different profile from the rest of the population, and that the successful entrepreneur has a different psychological profile from the other entrepreneurs (Veciana, 1999). As far as the background of the entrepreneur is concerned, the literature stresses the following aspects: gender, age, education, incubator organisation, experience in the sector, and experience in starting up firms, motivations, planning capacity, and managerial skills.

Concerning *gender (GE)*, it could be expected that women have had fewer opportunities to develop the necessary experience, more difficulty gathering the resources required or fewer contacts with other people able to help them to create their firm (Sexton and Robinson, 1989). The evidence in the case of internet start-ups shows that men founded the most successful dot.com firms (Amazon, Virtual Vineyards, Peapod, etc.). According to this, the following could be postulated:

Proposition 1 (P1): The gender of the founder is positively related to the internet start-up's success

In line with Cooper (1993), the entrepreneur's *age (AG)* may be related to the venture success. Lussier and Corman (1996) said that younger people who start a business have a greater chance of failure than older people do. In a dynamic market such as the internet, 'knowledge' is a basic requirement and young entrepreneurs may have the skill to adapt better to the environment. The Internet entrepreneurs are generally younger than other types of entrepreneur (Colombo and Delmastro, 2001).

Table 1 Most studied factors of the main variables affecting firm success

<i>Variables</i>	<i>Factors studied</i>
Entrepreneur characteristics (entrepreneurship)	<ol style="list-style-type: none"> 1. Leadership capacity 2. Ability to delegate and form good team 3. Ability to work in team (networking) 4. Ability to assume risks and take decisions 5. Have ambition of economic and professional independence 6. Be confident about the business 7. Be right age (not be too young) and have entrepreneurial parents 8. Have right creative and marketing skills 9. Ability to select right colleagues (team of entrepreneurs is better than one) 10. Be highly tolerant of ambiguity and persistent 11. Be dynamic and enthusiastic 12. Have experience and knowledge about the industry, products and market 13. Be trained in starting up firms
Market and product strategy	<ol style="list-style-type: none"> 1. Thoroughly study market from client's perspective (specifications, design, distribution channels) 2. Be oriented to market needs (niches well identified and big enough to be profitable) 3. Have unique and differentiating innovation 4. Have defensive and offensive strategies allowing firm to survive 5. Choose right market for product (should be dynamic and attractive) 6. Compatibility of new venture with entrepreneur's image, culture and product experience 7. Continuously innovate product
Industrial structure	<ol style="list-style-type: none"> 1. Choose right strategy in function of industry 2. Maintain good relations between strategy and industrial structure in function of stage of industry and firm's objectives
Financial aspects	<ol style="list-style-type: none"> 1. Accept firm needs to make minimum investment possible in assets 2. Stock control 3. Obtain payments from clients as soon as possible 4. Negotiate payments with suppliers 5. Achieve right level of financial independence 6. Get right funding, taking into account delayed client payments and financial costs 7. Design financial structure that minimises fixed costs 8. Promote high-margin products

Source: Adapted from Lussier and Corman (1995, 1996) and Magaña (1998).

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P2: The entrepreneur's age is positively associated with the success of the pure dot.com start-up

The *educational level (ED)* is one of the most studied variables and relates with knowledge, skills, problem solving, discipline, motivation and self-confidence. All this provides the entrepreneur with the ability to face numerous problems, hence influencing the success of the company (Cooper et al., 1994). Previous research has found a relationship between educational level and firm success (Magaña, 1998). Therefore, education is one of the factors cited in the literature that most influences the success of new ventures (Cressy, 1996; McDougall et al., 1992; Sandberg and Hofer, 1987; Stuart and Abetti, 1987).

P3: The entrepreneur's educational level is positively associated with the success of the internet start-up

The term *incubator organisation (IO)* refers to the nature of the organisation where the entrepreneur has worked or studied previously. These organisations (firms, universities or research centres) determine not only the number of new firms generated, but also their characteristics (Veciana, 1999). This organisation seems to play an important role in the success of high-technology firms (Cooper, 1981; Feeser and Willard, 1988), because it provides the expertise needed to produce the firm's products and services efficiently, the contacts with potential partner-founders, and the experience (Cooper, 1981). The incubator organisation may also give entrepreneurs the necessary knowledge of the industry in which they wish to operate. According to Kotha (1998), knowing the *industrial structure of the sector (EXS)* in which they wish to operate is vital for the entrepreneurs' success in their ventures. It is noteworthy that this factor was critical to the success of Jeffrey Bezos (the founder of Amazon) compared to Darryl Mattocks (the founder of Internet Bookshop in the UK). Bezos made a better study of the industrial sector, which gave him a competitive advantage over Mattocks.

P4: Experience in the sector of operation is positively associated with the success of the pure dot.coms

P5: The incubator organisation where the entrepreneur studied or worked previously positively influences the success of cyber-traders

Experience in the firm's creation (EXF) measures the number of companies created previously by the entrepreneur. This variable has been studied in a number of models of success and failure. It integrates the psychological approach with the institutional, the socio-cultural, and other perspectives. This experience provides the entrepreneur with advanced managerial skills and problem-solving capacity. McMillan (1986) in Starr and Bygrave (1991) suggests that there is an experience curve of entrepreneurship, which allows start-up firms to overcome obstacles in their early stages. However, Starr and Bygrave stress that veteran entrepreneurs may encounter other types of difficulty.

P6: Previous start-up experience is positively associated with the success of a new pure dot.com

Sapienza and Curtis (1997), starting from Shapero's model on the determinants of start-up success (Shapero, 1975; Shapero and Sokol, 1982), agree on the importance of the *precipitating condition (motivations, MOT)* as the key factor to help us understand the decision to start up a company. Sapienza and Curtis (1997) conclude that most businesses

are founded motivated by negative inducements (e.g., loss of employment, conflicts in the workplace, etc.), and not because of opportunities detected. From this perspective, there are two different types of precipitating condition (Alstete, 2002; Watson et al., 1998). The first are the *push* factors (also called negative inducements), for example loss of employment, conflicts in the workplace, frustration, and so on. The second type of precipitating condition are the so-called *pull* factors, which are generally due to a perceived opportunity, being your own boss, independence, use of creative skills, or a chance to earn more money. According to Alstete (2002) and Littunen (2000), personal relationships and the entrepreneur's personality itself appear to be changing in the wake of the internet boom, and this should be studied. In this context, the motivations of entrepreneurs in creating their own businesses take on particular importance. A significant proportion of the entrepreneurs who have been successful on the internet founded their firms after detecting a business opportunity, a characteristic that does not appear to be so common in the physical world.

P7: Triggering events are positively associated with the success of pure dot.com firms

Planning capacity and managerial skills (PC) have been recognised as a success' factor for new ventures. These managerial skills have been amply studied with respect to the managerial approach of the business function and firm creation (Argenti, 1976; Cooper, 1979; Houston, 1972; Keeley and Roure, 1990). The theories of this approach start from the assumption that founding a business is the result of a rational decision-making process in which the knowledge and techniques employed in the fields of economics and business administration are decisive (Veciana, 1999). The business plan forces the entrepreneur to think about the different elements involved in the firm (for example, the competitive environment, financial aspects, human resources, etc.). Sharma and Mahajan (1980) maintain that almost 90% of failures in new business ventures are due to the entrepreneur's poor managerial skills. However, Planellas (1999) thinks that the importance of business plans should not be exaggerated.

P8: The entrepreneur's planning capacity positively influences the success of cyber-traders

2.2 Indicators to measure the success of pure dot.com firms

The fact that the majority of dot.com firms are at an early stage of their lives and are not profitable yet, makes it extremely difficult to evaluate their success. However, the criteria for evaluating these firms should not differ very much from those measuring the success of new ventures in the 'tangible world'. Some authors (Brush and Vanderwelf, 1992; Chandler and Hanks, 1993; McDougal et al., 1992) stress that measuring the success of start-ups is particularly difficult, since they lack historical information, are not generally very profitable in their first years of operation, and tend to lack standardised accounting measures. Moreover, managing to get access to the founder for sufficient time to gather data is a further difficulty that scholars must face, as indeed is judging the veracity of their responses (Brush and Vanderwelf, 1992). The entrepreneur literature suggests two approaches to measure the success of new ventures: objective and subjective measures. Objective measures refer to indicators that can be measured quantitatively, such as ROI, cash flow, profits, sales and so on. Brush and Vanderwelf (1992) detected more than 35

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different objective indicators to evaluate the success of a start-up. These indicators sacrifice the precision of other measures to some extent, but at the same time they resolve problems such as the difficulty in gaining access to the founder, and his reluctance to offer information about their businesses. The subjective measures have followed two tendencies. The first approach is to measure the satisfaction of the entrepreneur/manager with the firm's performance (Cooper, 1984; Dess and Robinson, 1984; Gupta and Govindarajan, 1984). In addition, satisfaction with the results of the firm may be influenced by the entrepreneur's expectations, which may diverge substantially from the objective results. The second tendency is to measure the results of the firm with respect to the competitors (Brush and Vanderwelf, 1992; Dess and Robinson, 1984; Sapienza et al., 1988; Stuart and Abetti, 1987). In these studies, the information entrepreneurs have about their rivals may distort their responses and so cast doubt on the findings. On the other hand, Morel d'Arleux (1998) defined, using a combination of subjective and objective measures, three dimensions to cover all aspects of entrepreneurs' success. These were *professional success (PRS)*; which refers to the business results and the growth of the firm); *personal success (PS)*; which refers to aspects of the entrepreneur's personal life, the achievement of individual happiness); and *family success (FS)*; which refers to the implications that the firm has for the entrepreneur's family life). Thus, the author concludes that success is a global concept (*total success, TS*) that should be studied at the individual level and that it comprises three dimensions.

3 Methodology

The variables analysed in this study, according to the previously mentioned propositions were: gender (GE), age (AG), education (ED), incubator organisation (IO), experience in the sector of operation (EXS), experience in founding companies (EXF), motivations or triggering events to create the venture (MOT), and planning capacity (PC). This combination of measures was used in the study (see Figure 1).

3.1 Sample selection

In order to determine the group of firms/entrepreneurs to participate in our study the criterion sampling technique was used (Quin, 1990). Due to the current stage of development of e-commerce in Spain, it is practically impossible to determine the total population of firms that operate exclusively on the internet. According to a study by the Spanish Association of Electronic Commerce (AECE-FECEMD, 2003), e-commerce in Spain moved 1.53 billion euros in 2003, 31.5% more than in the previous year. However, the situation in Spain is behind that of other European countries, not to mention the USA.

This study focussed on firms in Catalonia and the Malaga region due to its high concentration of dot.com firms in comparison to the rest of Spain and because of the resources available for doing this work. There is only one database of Spanish cyber-traders, which is edited by the magazine Ganar.com (Recoletos Group), with around 1200 entries. Access to the database of technological firms located in the Andalusian Technology Park, in Malaga was also useful. After segmenting those databases, using the five sample segmentation criteria (see Table 2), an analysis was carried out of each of the websites of the pre-selected firms, with the following aims: to ensure that the firms actually existed

and were operative, to detect the founder and entrepreneur of the firm, and to update the contact details. As is well known, there is no way of deciding the precise optimal number of participants in a qualitative study. Creswell (1997) and Quinn (1990) estimate that the optimal number of interviews will be the number that finally ‘saturates’ the theory – i.e., the number after which subsequent interviews no longer provide new evidence to contribute to understanding the phenomenon under study. Consequently, 23 interviews were conducted and these techniques were used to improve validity: persistent observation and prolonged engagement, triangulation, negative case studies, review of reports by interviewees and in-depth descriptions.

Table 2 Technical specifications of the study

<i>Technical specifications</i>	
Type of study	Exploratory, qualitative using ‘grounded theory’ and ‘case study’ techniques
Number of entrepreneurs interviewed	23
Sources of information	Primary and secondary
Mean duration of interviews	95.74 min
Sample segmentation criteria	<ol style="list-style-type: none"> 1. Proportion of sales turned over on internet >95% 2. Geographic situation: Barcelona, Girona and Malaga 3. Age of operation: <5 years 4. Belongs to already-existing business group: subsidiaries of already-existing groups eliminated 5. Main activity of firm: attempt to include widest range of activities, at most two firms from each activity
Subsamples of analysis	<p>Group 1: 7 firms from Girona province and Barcelona, to test research protocol</p> <p>Group 2: 6 firms from Malaga province</p> <p>Group 3: 10 firms from Girona province and Barcelona</p>

3.2 *Estimators of success*

A combination of objective and subjective indicators to measure the success of the new ventures, as Stuart and Abetti (1987) recommend, was used. However, in view of the reluctance of most interviewees to give data on objective measures, and the fact that these firms operate in different sectors and are very different in size, which makes them very difficult to compare, another type of estimator was needed. Guided by the mentioned Morel D’Arleux (1998) proposal, the following subjective estimators of total success (TS) were used: professional success (PRS), personal success (PS) and family success (FS).

3.3 Data analysis

Two different data treatments were used: first, a Multiple Correspondence Analysis (MCA) followed by a Cluster Analysis, using the software SPAD v.4, and second, a Univariate Descriptive Analysis analysing the relation of each variable of the study with the clusters.

4 Results and discussion

After conducting a MCA and cluster analysis, using each of the variables included in the model and the indicators of success, five significant eigenvalues were detected, which can explain up to 66.88% of the variance of the data. There were two very clear eigenvalues representing 33.21% of the data, although the five first factors can eventually be explained. The main factor separates entrepreneurs as a function of their educational background, age and triggering events. In the negative part of the axis were the youngest entrepreneurs with university studies, who have founded their firms with external help and were motivated by push triggering events. In the positive part of the axis were the entrepreneurs between 30 and 39 years old, with postgraduate studies, who have created their internet start-ups without any external help and were motivated by pull factors (perceived opportunity, professional freedom, etc.).

The second factor separates the entrepreneurs as a function of their business experience and entrepreneurial experience. In the negative part of this axis were the entrepreneurs experienced in the sector, who have founded a firm previously and who are motivated to found their internet start-ups indistinctively by both push and pull factors. The positive part of this axis represents entrepreneurs with university studies, without experience either in the sector of operation or in founding their own firm, and who have been motivated by pull factors.

The factors axes three, four and five could also be defined, but they are not as representative as the first two. Despite this, the following trends were observed: the younger entrepreneurs with university studies, who have founded their firms with external help and motivated by push triggering events tend to have a very low personal success (very low PS) and, to a lesser extent, a very low total success (very low TS). Entrepreneurs experienced in the sector, who have previously created a firm and who are motivated indistinctively by push and pull factors, tend to have a normal personal success (normal PS). Moreover, no specific profile can be recognised for entrepreneurs with a high or very high level of success.

As far as the cluster analysis is concerned, a hierarchical cluster analysis with the agglomerative method was applied, and subsequently the dendrogram was analysed. Three clear groupings were detected.

Class 1 (experienced entrepreneurs) puts together 26.09% of the entrepreneurs of the sample. Analysing the active variables, the most common characteristic, with fully 100% of the class members, were that the entrepreneurs have had previous experience in starting up their own firms. Their motivations for founding their companies have been indistinctively push or pull factors. In *Class 2 (young graduate entrepreneurs)*, which comprises 21.74% of the entrepreneurs, the most common characteristic (100%) is an age of the entrepreneur between 20 and 29 years old. Entrepreneurs between 30 and 39 were not found in this cluster. This second cluster has no illustrative variable that is

representative of success, although it does appear to be associated with a very low total success (very low TS). With regards *Class 3 (opportunistic, planner entrepreneurs)*, and analysing the active variables of this cluster (52.17% of the sample) the most common characteristic (100%) were that the firms were created motivated by pull factors (perceived opportunity). The entrepreneur of this group is between 30 and 39 years old and their educational level is postgraduate. This third cluster has no illustrative variable that is representative of success.

The descriptive analysis of the entrepreneur dimension of our model was based on the data and transcriptions of the interviews with the founders. As far as *gender (GE)* is concerned, female entrepreneurs in our sample have been more successful and employ many more workers than average; they have been able to attract funding rounds and come from prestigious incubator organisations (see Table 3). Nevertheless, very few women decide to start up their own pure dot.com firms (6.3% of the sample), perhaps because of the educational background required to undertake a project of these characteristics. A large part of our sample of entrepreneurs had a markedly technical profile and mainly men in Spain historically demand these technical qualifications.

Table 3 Success in the businesswomen of the study

<i>Variables</i>	<i>Case 3</i>	<i>Case 23</i>	<i>Mean</i>	<i>The others (Mean)</i>
Total success	7.57	8	7.79	6.61
Professional success	7	7	7	6.14
Personal success	8.5	9	8.75	7.24
Family success	8	10	9	7.26
Total employees	53	26	39.5	20.35

With respect to *age (AG)*, 91.30% of the entrepreneurs participating in this study were between 20 and 40 years old. The cluster analysis suggests that the younger entrepreneurs (depending on other variables such as educational level, external help or triggering events) achieve very poor personal and total success. This fact may indicate that in this early stage of the development of e-commerce young people have best been able to adapt themselves to the new environment, perhaps because they have grown up in an age when computers have become ubiquitous. However, despite this initial enthusiasm, the bursting of the dot.com bubble has hurt these firms, and now another profile of entrepreneur making the jump from the real to the virtual world is emerging. They are individuals who have profound knowledge and experience in the markets where they intend to operate. Perhaps many of the dot.coms failed due to the founders' lack of professional and managerial experience in the markets where they intended to operate.

With regards *educational level (ED)*, 82.60% have at least a university education. About 52.17% of the entrepreneurs interviewed have reached postgraduate level. Only 17.39% have primary or secondary-level educations only. These data indicate that the entrepreneurs who have started pure dot.coms have a very superior educational level to that of the rest of the population of entrepreneurs (only 2–5% of these tend to have postgraduate qualifications). However, the study has not been able to detect a direct statistical relationship between the variable 'educational level' and firm success. More

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than half of the entrepreneurs had started up a venture previously. It is noteworthy that the dot.com entrepreneurs, although they are a very young sample, have been very enterprising in the sense of creating firms. The survival rate of these companies is, however, only 25%. It would be interesting to analyse the survival rate of traditional non-dot.com start-ups and compare with the results of this study.

With respect to *experience in the sector of operation (EXS)*, almost 70% of the entrepreneurs have had previous experience of the sector in which they are currently operating, with an average of 7.16 years and a median of 5 years of experience. The study has not been able to determine whether this variable individually affects firm success. However, it was determined that this variable, along with experience in internet start-up creation and triggering events, does affect success. As far as the *incubator organisation (IO)* is concerned, more than 82% of the entrepreneurs interviewed affirmed that their incubator organisation had positively affected their project of starting up a dot.com. However, the previous MCA seems to indicate that the incubator organisation is not relevant for success. The main incubator organisations of the sample entrepreneurs are traditional firms (40%), followed by technological firms (36%), and universities and research centres (24%). Among the technology firms, Intercom is of note, because it has helped to produce 44% of the entrepreneurs coming from this firm. Intercom (<http://www.grupointercom.com>) is a business incubator, founded in 1995, whose mission is to find out talented entrepreneurs to carry out its businesses providing them with the technical and financial resources they need. In October 2004, Intercom was managing 16 different businesses in the internet and had already sold five ventures. The main benefits that the entrepreneurs have obtained from their incubator organisations have been 'experience in management and in founding firms' (*EXF*) (32.5%), followed by 'contacts and clients' (25%). 'Experience in the technology and in internet projects' (15%) and 'sector knowledge' (15%) were considered less importance. Some other interesting contributions of these incubator organisations to the entrepreneurs, from the statements of some interviewees were:

"... Intercom taught me to listen, organise and present a project that is meaningful to the client..." (Entrepreneur no. 20)

The incubator organisation provided experience in internet projects.

"... Sitting next to the CEOs of the biggest companies in Spain and you learn a lot. Perhaps not technical stuff, very little of that, but you do learn management skills or how to run a company, that's what I learnt..." (Entrepreneur no. 23)

The incubator organisation provided management skills.

As for their *motivations (MOT)* for creating their own firms, 73.91% of the entrepreneurs decided to create their own company because of positive inducements. Only 13.04% were forced to undertake the venture. It is also worth pointing out that 13.04% of entrepreneurs were motivated to start up their own pure dot.coms indistinctively due to push or pull factors. The main pull aspects detected were desire to do something and/or work for themselves (37.14%); perceiving a market opportunity (22.86%); and doing something new/something I like (22.86%). The main push factors on the other hand were: to find a job for my spouse; find work while doing my doctorate; have more time for my family; and my family pushed me into it. By means of the MCA, it was found that pulls factors tend to affect success positively. On the other hand, the push factors affected firm

success negatively. From the transcriptions of the interviews, it was observed that various entrepreneurs already had the idea of creating their own firm and internet was simply a catalyst. Perhaps this was due to the euphoria of the moment, or to the fact that creating a dot.com required so few initial resources compared to creating a traditional company in the real world.

Finally, about *planning capacity (PC)*, an 82.61% of the entrepreneurs had made efforts to plan, which eventually resulted in the elaboration of a business plan. These plans were very varied in terms of their level of detail. Entrepreneurs who have had external help (26.09% of the total number of entrepreneurs, or 31.58% of those who have produced business plans), or who have needed a plan to close a funding round, produced more detailed business plans and dedicated much more time to preparing it. In the cluster analysis, it was found that not having planned the start-up negatively affects their success. Some of the entrepreneurs' comments with respect to this question were:

- initially this entrepreneur did not write the business plan, until the entry of a capitalist partner forced him to do so (Entrepreneur no. 5)
- this entrepreneur was forced to write down a business plan in order to win a space in a business incubator (Entrepreneur no. 8).

“... we needed it to come here, we had to do it, it was as simple as that. Because this place is a business incubator, so they demand a number of things...”

5 Conclusions

The results of the study show that the Spanish pure dot.com entrepreneur is on average a male of about 33 years old with a university degree and a postgraduate qualification. The entrepreneur has had previous experience in the industrial sector where the firm operates and has created another firm previously. The incubator organisation from which the entrepreneur comes has provided him with experience in management and firm creation as well as access to contacts and clients. In contrast to what is found in most studies on traditional entrepreneurs, this study found that the dot.com entrepreneurs created their new ventures motivated by positive *pull* factors such as a desire to work for themselves and the perception of a market opportunity. It was noticeable that various sample entrepreneurs had had the idea of starting up their own company some time before actually doing so, and that the Internet was simply a catalyst. A profile or cluster of very successful dot.com entrepreneurs was not found. However, it was observed that younger entrepreneurs with university studies, who had created their own firm with external help and motivated by *push* factors tended to be personally very unsuccessful (very low PS), and to a lesser extent very unsuccessful as a whole (very low TS). Although this qualitative study has not been conducted with the aim of confirming the propositions established in Section 2, it builds theory in the sense of Eisenhardt (1989) and some evidence was found. Hence, educational level, experience in the sector, and triggering events are entrepreneur variables that are positively associated with the success of these new pure dot.com companies and should be further studied by a quantitative approach (see Table 4).

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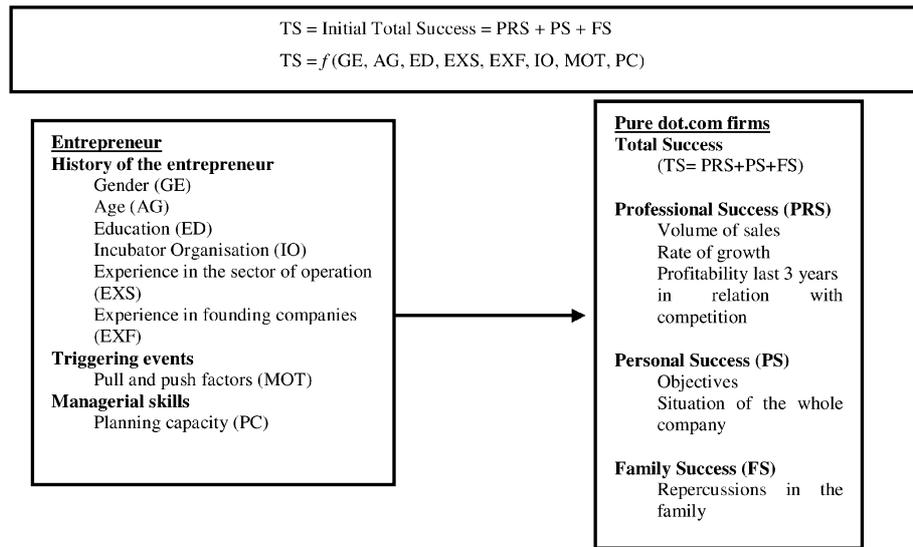
<i>Propositions</i>	<i>Main findings</i>
P1: Gender (GE)	Dot.coms founded by women are more successful than average, but there are very few female dot.com entrepreneurs
P2: Age (AG)	There is no direct relation between entrepreneur's age and dot.com success. Age variable seems to be related with technological adaptation
P3: Education (ED)	Seems to be suggestion that the more educated the more successful. Presumably, the higher the educational level, especially MBAs, the more successful the firm
P4: Sector experience (EXS)	This variable, with experience in creating firms and triggering events, affects success
P5: Incubator organisation (IO)	Any direct relation between the incubator organisation and firm success was not observed. However, 82% of entrepreneurs interviewed affirm their incubator organisation has helped them
P6: Start-up experience (EXF)	Whether this variable affects firm success individually was not determined. However, more than half entrepreneurs in the sample had created their own firms previously
P7: Triggering events (MOT)	This pull variable tends to affect firm success positively. But the push aspects affect success negatively. Various sample entrepreneurs already had the idea to start up the firm and the appearance of Internet was merely a catalyst
P8: Planning capacity (PC)	Does influence, since it was detected that not having planned previously tends to affect success of firms negatively

The study has two main limitations. First, the researchers found it difficult to detect and select pure dot.coms companies. For this reason, this sample may not fully represent the entire population of pure dot.coms in Spain. Second, the methodology used helped the researchers only to explore the initial explanation of the phenomenon, but more in-depth and quantitative studies are necessary in order to find statistically valuable evidence about our propositions.

The implications of this study for future research in entrepreneurship are to a certain extent exploratory and aimed at opening up new lines of research for the study of the success factors of firms operating exclusively on the internet. Firstly, our model, $TS=f(GE, AG, ED, EXS, EXF, IO, MOT, PC)$, suggests that the entrepreneurs' characteristics and their motivations for creating their firms play an important role in the success of pure dot.coms. However, the literature on the success factors for traditional firms suggests that success may also have something to do with the market, the type of product and product strategy, the industrial structure, the human capital and financial aspects, among other factors. Future research should amplify our model to include these variables, as well as be able to analyse differences between pure dot.com entrepreneurs

and traditional entrepreneurs. Secondly, future research should aim to develop adequate indicators to measure the success of these firms, further than the use of subjective measures or the observed satisfaction.

Figure 1 Theoretical model of cyber-traders success



References

- AECE; FECEMD (2003) 'Estudio comercio electrónico'. Available at: <http://www.aece.org/recursosclasifica.asp>, accessed May 15 2004.
- Alstete, J.W. (2002) 'On becoming an entrepreneur: an evolving typology', *International Journal of Entrepreneurial Behaviour and Research*, Vol. 8, No. 4, pp.222–234.
- Argenti, J. (1976) *Corporate Collapse: The Causes and Symptoms*, London-New York: McGraw-Hill.
- Ballantine, J.W., Cleveland, F.W. and Koeller, C.T. (1992) 'Characterizing profitable and unprofitable strategies in small and large businesses', *Journal of Small Business Management*, Vol. 30, No. 20, pp.13–24.
- Birley, S. (1987) 'New ventures and employment growth', *Journal of Business Venturing*, Vol. 2, pp.155–165.
- Brush, C.G. and Vanderwelf, P.A. (1992) 'A comparison method and sources for obtaining estimates of new venture performance', *Journal of Business Venturing*, Vol. 7, pp.157–170.
- Bygrave, W.D. (1989) 'The entrepreneurship paradigm (II): chaos and catastrophes among quantum jumps?', *Entrepreneurship: Theory and Practice*, Vol. 14, No. 92, pp.7–30.
- Chandler, G.N. and Hanks, S.H. (1993) 'Measuring the performance of emerging businesses: a validation study', *Journal of Business Venturing*, Vol. 8, pp.391–408.
- Collins, O.F. and Moore, G. (1964) *The Enterprising Man*, East Lansing: Michigan State University Graduate School of Business Administration.
- Colombo, M.G. and Delmastro, M. (2001) 'Technology-based entrepreneurs: does internet make a difference?', *Small Business Economics*, Vol. 16, pp.177–190.

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- Cooper, A. (1981) 'Strategic management: new ventures and small business', *Long Range Planning*, Vol. 14, No. 5, pp.39–45.
- Cooper, A. (1993) 'Challenges in predicting new firm performance', *Journal of Business Venturing*, Vol. 8, pp.241–253.
- Cooper, A., Woo, C.Y. and Gimeno-Gascon, F.J. (1994) 'Initial human and financial capital as predictors of new venture performance', *Journal of Business Venturing*, Vol. 9, No. 5, pp.351–395.
- Cooper, R.G. (1979) 'The dimensions of industrial new product success and failure', *Journal of Marketing*, Vol. 43, pp.93–103.
- Cooper, R.G. (1984) 'How new product strategies impact on performance', *Journal of Product Innovation Management*, Vol. 1, pp.5–18.
- Cressy, R. (1996) 'Small firm failure: failure to fund or failure to learn by doing', *Electronic Proceedings of The International Council on Small Business Conference*, Stockholm, June 16–19, pp.1–7.
- Creswell, J.W. (1997) *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*, California: Sage Publications.
- Dess, G.G. and Robinson, R.B. (1984) 'Measuring organizational performance in the absence of objective measures: the case of privately held firm and conglomerate business unit', *Strategic Management Journal*, Vol. 5, pp.265–274.
- Eisenhardt, K. (1989) 'Building theories from case studies research', *Academy of Management Review*, Vol. 14, No. 4, pp.532–550.
- European Commission (1997) 'A European Initiative in Electronic Commerce'. Available at <http://www.ispo.cec.be/ecommerce>, accessed October 5 1999.
- Feeser, H.R. and Willard, G.E. (1988) 'Incubators and performance: a comparison of high and low growth high tech firms', *Frontiers of Entrepreneurship Research*, pp.549–563.
- Gupta, A.K. and Govindarajan, V. (1984) 'Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation', *Academy of Management Journal*, Vol. 27, pp.25–41.
- Houston, B. (1972) 'Let's put more spirit in the corporation', *Harvard Business Review*, Vol. 70, pp.25–42.
- Keeley, R.H. and Roue, J.B. (1990) 'Management strategy and industrial structure as influences on the success of new firms. A structural model', *Management Science*, Vol. 36, No. 10, pp.1256–1267.
- Kotha, S. (1998) 'Competing on the internet: the case of Amazon.com', *European Management Journal*, Vol. 16, No. 2, pp.212–222.
- Lewis, J., Stanworth, J. and Gibb, A. (1984) *Success and Failure in Small Business*, Aldershot, UK: Gower Publishing.
- Littunen, H. (2000) 'Entrepreneurship and the characteristics of the entrepreneurial personality', *International Journal of Entrepreneurial Behaviour & Research*, Vol. 6, No. 6, pp.295–309.
- Lussier, R.N. and Corman, J. (1995) 'There are few differences between successful and failed small businesses', *Journal of Small Business Strategy*, Vol. 6, No. 1, pp.21–33.
- Lussier, R.N. and Corman, J. (1996) 'A business success versus failure prediction model for entrepreneurs with 0–10 employees', *Journal of Small Business Strategy*, Vol. 7, No. 1, pp.21–35.
- Magaña, M. (1998) 'Factors affecting success and failure of new firms', *European Doctoral Programme on Entrepreneurship and Small Business Management (97/98)*, Barcelona.
- McDougall, P., Robinson, R.B. and Denisi, A.S. (1992) 'Modeling new venture performance: an analysis of new venture strategy, industry structure and venture origin', *Journal of Business Venturing*, Vol. 7, No. 4, pp.267–289.

- Morel D'arleux, C. (1998) *Proposition of a Conceptual Framework for a Better Distinction between de Notions of Performance, Growth and Success*, Lyon, France: Rent XII.
- Morel D'arleux, C. (1999) 'Proposition of conceptual framework for a better distinction between the notions of performance, growth and success'. Paper presented at the *Kauffman-Babson Entrepreneurship Research Conference*, Columbia, SC.
- Planellas, M. (1999) 'Influencias de las características del empresario, la estructura del sector y la estrategia empresarial en el Éxito inicial de las nuevas empresas'. *Paper Esade*, No. 167.
- Quinn, M. (1990) *Qualitative Evaluation and Research Methods*, California: Sage Publications.
- Sandberg, W.R. and Hofer, C.W. (1987) 'Improving new venture performance: the role of strategy, industry structure and the entrepreneur', *Journal of Business Venturing*, Vol. 2, pp.5–28.
- Sapienza, H.J. and Curtis, G. (1997) 'The founder, start-up process, strategy/structure variables as predictors of shorttime railroad performance', *Entrepreneurship: Theory and Practice*, Vol. 22, No. 1, pp.5–24.
- Sapienza, H.J., Smith, K.J. and Gannon, M.J. (1988) 'Using subjective evaluations of organizational performance in small business research', *American Journal of Small Business*, Vol. 12, No. 2, pp.45–53.
- Schwartz, E. (1997) *Webonomics: Nine Essential Principles for Growing your Business on the World Wide Web*, New York: Broadway Books.
- Sexton, E.A. and Robinson, P.B. (1989) 'The economic and demographic determinants of self-employment', in R.H. Brockhaus et al. (Eds) *Frontiers of Entrepreneurship Research*, Wellesley, MA: Babson College, pp.28–42.
- Shapiro, A. (1975) 'The displaced, uncomfortable entrepreneur', *Psychology Today*, Vol. 9, pp.83–88.
- Shapiro, A. and Sokol, L. (1982) 'The social dimensions of entrepreneurship', in C.A. Kent, D. Sexton and K. Vesper (Eds) *Encyclopedia of Entrepreneurship*, Prentice Hall, pp.72–90.
- Sharma, S. and Mahajan, V. (1980) 'Early warning indicators of business failure', *Journal of Marketing*.
- Starr, J.A. and Bygrave, W.D. (1991) 'The assets and liabilities of prior start-up experience: an exploratory study of multiple venture entrepreneurs', *Frontiers of Entrepreneurship Research*, pp.213–227.
- Stuart, R.W. and Abetti, P.A. (1987) 'Start-up ventures: towards the prediction of initial success', *Journal of Business Venturing*, Vol. 2, pp.215–230.
- Stuart, R.W. and Abetti, P.A. (1990) 'Impact of entrepreneurial and management experience on early performance', *Journal of Business Venturing*, Vol. 5, No. 3, pp.151–162.
- Timmons, J.A. (1994) *New Venture Creation*, Boston, MA: Irwin.
- Veciana, J.M. (1999) 'Creación de empresas como programa de investigación científica', *Revista Europea de Dirección y Economía de la Empresa*, Vol. 8, No. 3, pp.11–36.
- Vesper, K. (1989) *New Venture Strategies*, Englewood Cliffs, NJ: Prentice Hall.
- Watson, K. et al. (1998) 'Small business start-ups: success factors and support implications', *International Journal of Entrepreneurial Behaviour & Research*, Vol. 4, No. 3, pp.217–238.