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Research work

**INNOVATION AND INTERNATIONALISATION.
A FOCUS ON THE SPANISH EXPORTING FIRMS**

Supervisor:

Josep Rialp Criado, Phd.

Student:

Diana-Andreea Filipescu

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TABLE OF CONTENTS

1. INTRODUCTION	4
1.1. Problem statement.....	4
1.2. Objective and research questions.....	5
1.3. Structure of the investigation	7
2. LITERATURE REVIEW	7
2.1. A focus on the innovation of the firm and innovative firms.....	7
2.2. A focus on the internationalisation of the firm	10
2.3. A focus on the innovation and the internationalisation of the firm	14
3. THEORETICAL FRAMEWORKS.....	16
3.1. Gradual internationalisation theory of the firm	17
3.2. Resource-based view	18
3.3. Proposed model.....	20
4. METHODOLOGY	21
4.1. Qualitative methodology: case-study approach	21
4.2. Selection of the cases	22
4.3. Sources of information.....	23
4.4. Validity and reliability of the analysed data	23
5. ANALYSIS OF THE CASES	24
5.1. Individual analysis	24
5.1.1. Case <i>EUROPASTRY</i>	24
5.1.2. Case <i>INDO</i>	25
5.1.3. Case <i>PINTURAS LOBO/ Euroquímica</i>	27
5.1.4. Case <i>COMEXI</i>	28
5.1.5. Case <i>TECNITOYS/ SCALEXTRIC</i>	30
5.2. Cross-case analysis	35
6. CONCLUSIONS	40
BIBLIOGRAPHY	44
ANNEX 1	50
ANNEX 2	54
ANNEX 3	59
ANNEX 4	65

1. INTRODUCTION

1.1. Problem statement

Innovation and internationalisation of the firms are two of the most important factors determining business success today (Buckler and Zien, 1996; Wind and Mahajan, 1997).

The evolution of the international economy has revealed important changes regarding the structure of the relationships among economic agents and in the variables determining the conditions of competitiveness. There are two main factors that stand out over many others: the first is the growing number of elements of economic organisation affected by internationalisation; the second refers to the increasing complexity of the innovatory process. These two features reinforce each other to the extent that today's economic analysis has to consider both of them simultaneously when trying to account for the new dynamic of the firms operating at the international level (Molero, 1998).

Over the years, the internationalisation of the firm has occupied many pages in the most important academic journals.¹ We have begun from the idea that internationalisation processes could mainly take place through direct foreign investments and exports to acknowledge that there is more than these ways to interact in foreign markets.

Internationalisation, commonly understood as the process of adapting firms' operations to international environments, is an issue of importance for firms that often results on vital growth, useful learning outcomes and enhanced financial performance, as Prashantham (2005) reveals in his paper. Furthermore, this author describes the internationalisation as an innovation of the firm that often entails decision-making under conditions of uncertainty, where knowledge is vital.

On the other hand, international markets are characterised by a greater competitive pressure than national markets, as López and García (2005) mention. This demanding competitive environment is reflected both on the demand side, where consumers demand high quality and low prices, and on the supply side, where firms face local competitors along with international rivals. In this way, firms that dedicate part of their efforts to markets abroad have intensified their search for competitive advantages, in order to confront the competition

¹ There can be mentioned here the following journals: *Journal of International Business Studies*, *Academy of Management Journal*, *Journal of International Management*, *Strategic Management Journal*, *Journal of International Marketing*, *International Business Review* among others.

and survive in these markets. In addition, as it is mentioned by Hoffman *et al.* (1998), the firms' innovative capability is a key driver for sustainable competitive advantage in today's rapidly changing markets.

According to Eusebio and Rialp (2002), having competitive advantages allows a firm to compete in an active way in the markets, even more when the firm interacts in different foreign markets. In this context, the technology represents one of the most important factors in increasing the national and international competitiveness of the firms. Technology allows, on one hand, to obtain products, through product innovations, with superior characteristics as the ones offered by the competition and, on the other hand, to reduce the costs of production and, consequently the prices, through process innovation. In this way, the innovative firms obtain some competitive advantages that give them the possibility to compete in an active way in different markets.

Hurley and Hult (1998) affirm that organisations whose cultures emphasise innovation when resources are available tend to implement more innovations and develop competitive advantages.

The disposition of the companies to exploit its innovations internationally, in the external markets, does not always allow them to obtain the best results (Archibugi and Michie, 1995). The success depends mainly on the politics followed by the national governments that sometimes also disincentive the imports of the products that have incorporated the invention, or regulate in any other way the market of the innovations.

Considering a UK sample of manufacturing firms, Wakelin (1998) aims to extend to a firm level the analysis of the influence of innovation on the export behaviour. Basile (2001) analyses the Italian firms in the context of the relationship between innovation capabilities and export behaviour. With the aim of identifying whether innovation causes exports, Lachenmaier and Wössman (2006) investigate a sample of German manufacturing firms.

1.2. Objective and research questions

As it can be observed, the connection among innovation and internationalisation seems to be considered in the literature. However, this connection has not been deeply addressed, and this relationship constitutes the ground for our main research question:

Is there a cyclical relationship among innovation and internationalisation of the firm?

Precisely, the main research objective of this investigation is to evaluate, by means of case-study approach, the Spanish exporting firms in terms of patterns of innovation and internationalisation, in particular, to find out the relationship which exists between these two processes and the factors that influence this relationship.

Innovations have been classified as being either sustaining or disruptive (Christensen, 1997), incremental or radical (Afuah, 1998), established or emerging (Day and Schoemaker, 2000), component-based or architectural (Henderson and Clark, 1990), and competence-destroying or competence-enhancing (Tushman and Anderson, 1986). However, in the present investigation only technological innovation will be analysed. Following the Oslo Manual (OECD, 1997), technological innovation is defined as the generation of new products and processes or of significant technological improvements in current products and processes. More precisely, incremental and radical innovation together with the product and process one, are going to be considered here, due to the fact that they are considered more tangible innovations and more easily observed within a sample.

Having as a purpose to accomplish the objective mentioned at the beginning, there are formulated the following outlined research questions:

- RQ 1:** Does the innovation of the firm lead to the internationalisation of the firm?
- RQ 2:** Does the internationalisation of the firm imply more innovation for the firm?
- RQ 3:** Does the market entry mode of the firm lead to a different type of innovation?
- RQ 4:** Is predominant the innovation in product or in process?
- RQ 5:** Is predominant the radical or incremental innovation?

Therefore, this investigation is trying to fill a gap that exists in the scientific literature, taking into account that, for example, the studies realised in Spain did not treat the reciprocal relationship between the innovation and internationalisation of the firms but the following subjects: patterns of innovation and technological strategy (Buesa and Molero, 1993); patterns of internationalisation of the Spanish innovatory firms (Molero, 1998); technological innovation and the exporter result (Eusebio and Rialp, 2002); and technological export behaviour (López and García, 2005). As for the investigations realised in other countries, there are some that deal with this topic, as it was mentioned before.

The main contribution of this research is the development of a model that will permit understand the relationship between internationalisation and innovation in one firm, and asses the existence of the model in the real world through explorative research.

Therefore, and taking into account that different innovative profiles have been associated to different internationalisation patterns, this research could determine if there is a cyclical relationship between the internationalisation and the innovation. As it was said before, this investigation will fill a gap in the scientific literature but it will also be very useful to managers, as it can be taken as a guide in order to improve their international activities by innovating or improving their innovation by exporting, depending on the results of this study.

1.3. Structure of the investigation

For achieving the mentioned purpose, this research is organised as follows: in the next section, some key theoretical and empirical findings about the innovation and internationalisation phenomena are reviewed followed by the theoretical frameworks that are going to be used in this research, together with a proposed model of the relationship between innovation and internationalisation. Then, the research methodology is described, methodology which is based on a systematic application of the case-study approach in which five Spanish companies are judgmentally chosen. Each case is individually described and a cross-analysis is also presented. Finally, several conclusions and future lines of investigation are outlined.

2. LITERATURE REVIEW

2.1. A focus on the innovation of the firm and innovative firms

Innovation, as it is defined by Acs *et al.* (2001), is the effort to create purposeful, focused change in an enterprise's economic or social potential. According to Terziovski (2002), innovation is a complex process, easily identified as being of critical importance for organisational success yet not easily managed. Successful innovation in new products and processes is increasingly being regarded as the central issue in economic development (Porter, 1998).

The concept of innovation was studied a lot during the years, beginning with Schumpeter (1943) who gave the fundamentals of what can be called the "innovation theory" which was later developed in the neoclassical theory by Arrow (1979), arrived to its actual expression by

the developments of Nelson and Winter (1982). Afterwards Dosi (1984) set the bases of the fundamental concepts of the actual technological innovation, more recently being Pavitt (1984) the one who analysed the innovation process at international level, and Archibugi and Michie (1995) the globalisation of the processes of technological innovation.

Historically, the innovation literature was focused on the role of internal research and development on firm innovation (Griliches, 1979). However, internal R&D expenditures played only a partial role in firm innovation rates². Increasingly, scholars recognise that the ability to exploit external knowledge is critical to firm innovation (Cohen and Levinthal, 1990; Henderson and Cockburn, 1994; Teece *et al.*, 1997). The relationship between a firm's performance and R&D spending is often imperfectly understood, despite the fact that R&D is often a cornerstone of an effective innovation strategy.

According to Rothwell (1994) there are five generations of behaviour in the context of the evolution of innovation. The first of them is the first generation innovation, also known as "technology push". The second generation innovation – "need pull" – represents the innovation that was shifted to a market/ customer focus. The third generation is called the "coupling model" because it represents a coupling of the push and pulls models. The "integrated model" corresponds to the fourth generation innovation and embraces the coupling of marketing and R&D activity, together with strong supplier linkages and close coupling with leading customers. Finally, the fifth generation innovation has brought systems integration and "networking model".

Traditionally, those firms involved in R&D activities through laboratories or through specific units dedicated to the investigation and development of new processes and products, have been considered technological innovative firms.

Molero *et al.* (1998) characterise them as firms that execute activities on a regular basis, formal or informal, pursuing, either the creation of new product and process technologies or their improvement, in order to obtain results –quantitative or qualitative- that could increase their competitive capacity against other firms that work in the same market, or open for them new markets, that is, supporting the growth of the firm. As it can be observed, this definition considers, explicitly or implicitly, the mentioned technological innovation characteristics.

² De Propriis (2002) finds that firms clearly benefit from engaging in co-operation over innovation with either buyers or suppliers; even in the absence of R&D investment, firms are still more likely to be innovators if they co-operate with other firms than if they do not.

Another definition for innovative firm can be found in Mansfield (1968), according to whom, both the firm that introduces new equipment in the market as well as the first firm that uses it are considered innovative. The former for developing the innovation, and the latter, because of the "considerable risk" assumed, for being the first one to use it.

Following the same line, Terziovski (2002) considers the innovative firms those firms that embrace innovation by constantly introducing change, like: new work structures, new work procedures, human resource management strategies, and creation of a work environment to spur innovation.

Strategic change can also be viewed as a process of logical incrementalism, taking into account the opinion of Carnegie and Butlin (1993), according to whom the innovative firms apply their own systematic incremental improvement driven by workplace and training in improvement techniques. So, the innovation involves a step-change improvement in the *status quo* (Hammer and Champy, 1993) as a result of a large investment in new technology and/ or equipment or a radical change in process design using the business process reengineering concept.

Regarding to the innovation process, its measurement is critical for both practitioners and academics, yet the literature is characterised by a diversity of approaches, prescriptions and practices that can be confusing and contradictory. Conceptualised as a process, innovation measurement lends itself to desegregation into a series of separate studies (Adams *et al.*, 2006). The consequence of this is the absence of a holistic framework covering the range of activities required to turn ideas into useful and marketable products.

The innovation process consists of a complex sequence of decisions. Veugelers and Cassiman (1999) structure the decision of a firm on how to innovate as a two-stepped process. First, the firm decides whether or not to innovate and second, the firm decides which innovation strategy to develop and how to acquire the necessary technology to accomplish its innovation goals.

According to De Propriis (2002), it seems that the idea that innovation is a linear and sequential process proceeding through specific steps has been replaced by a systemic approach to innovation. Edquist and McKelvey (2000) and Lundvall (1992) argue that the innovation process should rather be considered as a circular and complex system embracing interactive elements.

De Propriis (2002), who analyses the impact of inter-firm cooperation over innovation, separates the innovation into four types: product, process, incremental and radical innovation. As a matter of fact, in our investigation this classification of the innovation will be taken into consideration. As the author mentions, product innovation corresponds to the introduction on the market of new or improved product, whereas process innovation relates to the sequences and nature of the production process. Process innovation is often more difficult to detect but it is very important especially for buyer-supplier transactions.

Radical innovations are, as Freeman and Perez (1988) define them, discontinuous events, which are the result of a deliberate research and development activity. Fernández (2005) mentions that a radical innovation occurs when the technological knowledge needed, in order to exploit it, is very different of the already existent knowledge. The radical innovations are also called “competence destroyers”. Incremental innovation refers to improvements due to use or experience; it can often take the form of smaller enhancements around major radical innovations. Freeman and Perez (1988) mention that the incremental innovation is crucial for firms’ productivity growth even though it is often underestimated in comparison to radical innovation. In the case of incremental innovation, also named “competence increaser” by Fernández (2005), the knowledge needed in order to offer a product is based on the existent knowledge. Both radical and incremental innovations can be either in product or process.

There are five different situations in which the radical innovation happens, in opinion of Schumpeter (1934), and these are: the introduction of a new product or a new quality of a product, the introduction of a new production method, the opening of a new market, the gaining of a new source of provisioning, and the creation of new organisation. As for the incremental innovation, this is considered as an improvement of the existent technology, put it in another way, the company introduces quite little changes of the products and processes, exploits the potential of the established design and reinforces the domain of the companies that market it.

A resume of the literature review that was made having as a purpose the focus on the investigations that deal with the innovation of the firm and innovative firms can be found in Annex 1.

2.2. A focus on the internationalisation of the firm

The phenomenon of the internationalisation of the firms has been studied quite a lot since the last thirty years (Fletcher, 2001). A resume of what has been investigated in this field can be

observed in Annex 2. In the external international business environment, the adoption of internationalisation is likely driven by two key trends that have substantially reduced the transactions costs of the foreign market expansion. Knight and Cavusgil (2004) talk about the first as being the globalisation of markets, which involves countless firms in international sourcing, production, and marketing as well as cross-border alliances for product development and distribution.

Globalisation is associated with increasing homogenisation of buyer preferences around the world, which has made international business easier by simplifying product development and positioning in foreign markets. As for the second trend, it is characterise as technological advances in information and communication technologies, production methods, transportation, and international logistics, which reduce business transactions costs and facilitate extraordinary growth in international trade. Widespread diffusion of the e-mail, the Internet, and the related technologies have made internationalisation a more viable and cost-effective option.

Molero *et al.* (1998) plead for a definition of the internationalisation that includes the concession of technical assistance to foreign firms, exportation, the concession of licenses that allow the exploitation of assets, the participation in international projects along with other firms, and direct investments in commercial and productive subsidiaries. This definition of internationalisation is close to the one given by Lall (1980), who argues that the level of internationalisation depends on the combination of monopoly advantages with the manner of implication (in foreign markets). However, it differs from the one proposed by Fishwick (1982) which is based on multinational firms with the existence of a significant part of the production abroad.

Fletcher (2001) differentiates two streams of research into internationalisation. The first research stream relates to factors causing internationalisation, which can be categorised according to whether they are management characteristics, organisation characteristics, external impediments or external incentives to engage in business overseas. Research in this area is extensive and has been summarised by Aaby and Slater (1989), Cavusgil and Naor (1987). The second stream has focused on the process of firms' internationalisation. The more accepted process is the one which includes the 'stages' approach, put differently, it views internationalisation as involving changes in the firm as it increases its commitment to foreign markets. Firms start with the entry mode that requires the least commitment of

resources and gradually increase their commitment of resources (Cavusgil, 1980; Reid, 1981).

The most common view on firms and their internationalisation processes is that firms begin to operate at home and then they address to closer markets from their domestic one, and, when time goes by and the managers acquire more knowledge, the firms expand abroad to more geographically and culturally distant countries. Actually, in the opinion of Prashantham (2005), knowledge is at the core of received wisdom on internationalisation. Even more, according to Johanson and Vahlne (1977) and Johanson and Wiedersheim-Paul (1975), the internationalisation of the firm is determined by its market knowledge. Regarding the internationalisation of the firm, there are three dimensions that stand out in the opinion of Jones and Coviello (2005) and these are the international market selection, the entry mode choice and the pace of internationalisation.

Regarding the market selection, Johanson and Vahlne (1977) postulated that psychic distance distorts the acquisition of market knowledge and therefore foreign markets that are initially selected will be psychologically closer to the firm's domestic market. In terms of mode choice, a firm was considered as traversing a sequential set of stages, from indirect exporting at one end of the spectrum, and wholly owned production oriented subsidiaries at the other. As for the rhythm of the internationalisation, the manifestation of this model was anticipated to be as an incremental international expansion following a period of domestic growth. However many empirical studies of firms' internationalisation behaviour, especially in technology-based knowledge-intensive sectors, contradicted all the three predictions (Andersen, 1993). That is, these firms were international virtually from inception, entering psychically distant markets through high-commitment modes from an early stage in their life-cycle.

Furthermore, in recent years, researchers have focused on the time aspect and some results indicate that time may not be the only explanation to why firms start to internationalise (Rialp *et al.*, 2005a). A proof of this is that today many firms internationalise soon after their establishment, which has lead to the emergence of the concept of Born Global firms. These are mainly small and medium sized firms (Saarenketo, 2002). During the past decade, the

phenomenon has been highlighted among researchers who are active in the field of internationalisation processes of firms³.

Born-Global firms can be described in different ways. Since the research area is new there do not exist any common definitions of what constitutes a Born-Global firm. However, some definitions are more recognised than others are. Oviatt and McDougall (1994) describe the Born-Global firms as “business organisations that, since their inception, have sought to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries”. Thus, the rapidity and intensity of the internationalisation are the two key parameters. Two other recognised researchers on the subject, Madsen and Servais (1997), describe the Born-Global firms as the ones that “adopt an international or even global approach right from their birth or very shortly thereafter”. A more exact definition is offered by Knight and Cavusgil (1996). They state that Born-Global are firms that have reached a share of foreign sales of at least 25% after having started export activities within three years after their birth. These firms have, in particular, been described as especially innovative in their internationalisation (Oviatt and McDougall, 1994; Knight and Cavusgil, 2004).

The time between the moment of the first international sale and the moment of the firm’s founding is a common criterion to use when establishing if a firm is a Born-Global or not. However, it is also an area of controversy and the time span used differs from two to six years. It is important to establish a generally accepted definition of a Born-Global firm because, otherwise, it will continue to be difficult to compare researches about the phenomenon. In the present investigation, the definition of Born-Global firms that is considered is the one by Oviatt and McDougall (1994).

The ability to internationalise early and succeed in foreign markets is a function of the internal capabilities of the firm (Autio *et al.*, 2000; McDougall *et al.*, 1994; Zahra *et al.*, 2000). The importance of internal capabilities is rooted in evolutionary economics (Nelson and Winter, 1982), wherein innovation processes are explicitly described. The evolutionary economics view implies that the superior ability of certain firms to sustain innovation and, as a result, create new knowledge, leads to the development of organisational capabilities, consisting of critical competences and embedded routines. These firm resources lead in turn

³ Rialp *et al.* (2005a) investigate the phenomenon of Born-Global firms, also called early internationalising firms, realising an inquiry into this field of investigation with a focus on the decade 1993-2003.

to superior performance, particularly in highly competitive or challenging environments (Nelson and Winter, 1982).

To summarise, previous international experience of the managers, focus on niche markets, high technology products with focus on quality, service and marketing and committed managers are recognised characteristics of the Born-Global firm. Also, the use of different distribution channels, aggressive international strategies and high involvement in networks characterise it.

2.3. A focus on the innovation and the internationalisation of the firm

There has not been written too much concerning both the concept of innovation and internationalisation of the firms. However, there are some investigations, as it can be observed in Annex 3, which stand out and help us understand the relationship that exists between these two processes.

Internationalisation supposes gaining entry to new country markets. It may, therefore, be described as a process of innovation in the opinion of Andersen (1993) and Casson (2000). This is also coherent with the idea of Bilkey and Tesar (1977) who consider that the fact that knowledge is a necessary driver in the successful internationalisation of the firm is becoming evident when internationalisation is considered to be a form of innovation in which knowledge is a vital source.

According to López and García (2005), technological resources can generate a double competitive advantage for a firm. On the one hand, they can confer competitive advantages in costs, via the development of new and more efficient productive processes. And on the other, they can confer competitive advantages based on differentiation, by means of product innovations, allowing the firm to tailor products according to customer requirements, or develop products of a higher quality. In this regard, Styles and Ambler (1994) point out that product strength, in terms of quality and uniqueness is one of the key elements in export success.

Faced with increasing international competition, innovation has become a central focus in firms' long term strategies. Firms competing in global markets face the challenges and opportunities of change in markets and technologies. According to Veugelers and Cassiman (1999), one important aspect within innovation management is the optimal integration of

external knowledge, since innovation increasingly derives from a network of companies interacting in a variety of ways.

Considering Eusebio and Rialp (2002), different research-works from the last years, focused on the area of innovation and internationalisation, tend to collect the activities of technological innovation realised by the firms taking into account the percentage of billing that these are investing in R&D activities. Although this is the measure more used in the main investigations in order to capture the innovative activities carried out by the companies, the certain thing is that the concept of technological innovation could be wider than the simple formal realisation of activities of R&D. Consequently, the use of the investments in R&D as the only explanatory measure of the innovative effort carried out by a company could generate partial and/or not very exhaustive results.

The role of innovation in trade behaviour is of particular interest in the case of UK, as Wakelin (1998) mentions, innovation having a positive influence on the trade performance. The author finds that the number of innovations used at the sector level is positively and significantly related to the probability of exporting, and is negative and significant for the propensity to export of the exporting firms. To put it in another way, the author finds that the number of innovation has a positive impact on the probability to export (and no relationship to the propensity to export. Moreover, it is observed that firms with a large number of innovations are more likely to export, indicating heterogeneity even within the group of innovating firms.

Following the same line of investigation, Basile (2001) analyses and compares the relationship between innovation capabilities and export behaviour of Italian firms in different exchange rate regimes. He also investigates the specificity of export behaviour of firms localised in the south of the country over the same period of time. The results of his study show that innovation is a very important competitive factor and helps explain firm heterogeneity in export behaviour among Italian firms. The product innovation strategies have a positive effect on the export intensity only after the currency (Lira) devaluation. It was also found that the relationship between innovation strategies and export behaviour of southern Italian firms is weaker than that found for the national average.

Being aware of the need for disentangling the direction of causality between exports and measure of firm performance, Lachenmaier and Wössman (2006) have the possibility to directly test whether innovation causes exports, having a German sample. Actually, the

authors mention more than once that a causal relationship between innovation and export is expected, focusing on the product-cycle features and the endogenous growth models. However, their results can only show one part of the relationship, the one that stands out the fact of being innovative causes firms to have substantially larger export shares than non-innovative firms in the same sector. So, considering this, it is obvious that more extent research is needed in order to accomplish the objective of analysing the causal relationship between these two factors.

Nowadays, the concept of “techno-globalism” is more and more used in the scientific literature, referring to the relationship between technological innovations and internationalisation of the firms (Archibugi and Michie, 1995), put differently, this concept means that the reach of the generation, transmission and diffusion of the technologies is more and more international.

Globalisation is understood as the international connectivity of markets and the interdependence of national economies, as it is defined by Acs *et al.* (2001). This connectivity means a firm’s competitors, suppliers, and customers are to be found throughout the world. An interesting synonym of globalisation, given by the Austrian School, is the one of “creative destruction”, meaning that firms compete to create new technologies, new products, and new uses for old products. Put differently, the first successful innovator is growing rapidly and his competitors are remaining behind due to the fact that they do not have any more customers.

3. THEORETICAL FRAMEWORKS

Today there exist many theories that explain the internationalisation process of the firm. A resume of some of the articles that deal with this field of investigation, published in important journals⁴, is presented in Table 1, with a focus on the theoretical frameworks used by the authors in order to reach the objectives of their investigations.

The different theories about the internationalisation of the firms analyse the selection among the various ways on which the firm can execute international activities, summarised in direct investments, exporting of goods and services, and the concession of licenses for the exportation of assets, generally intangible. According to Fletcher (2001), the election between

⁴ It was considered the impact factor of the journals according to ISI Web of Knowledge: www.accesowok.fecyt.es

one or several ways of developing international activities depends on various factors related to the firm as well as to the sector on which it works. Also, it is necessary to mention that the decision is closely linked to two circumstances, that are, the growth strategy of the firm and the technology it develops.

Table 1. Traditional theoretical frameworks analysing the phenomena of internationalisation and innovation of the firm

Author (Year)	Main objective of the investigation	Theoretical frameworks
<i>Johanson, J. and J. Vahlne (1977)</i>	Identify elements shared in common by the successive decision situations and develop a model of the internationalisation process.	Empirical observations at the University of Uppsala
<i>Anderson, O. (1993)</i>	Realise an inquiry into two ways of describing the firm's internationalisation process	U-Model and I-Related Models
<i>Molero, J. (1998)</i>	Contribute to the debate about the factors determining the growing internationalisation of small and medium firms originating from intermediate countries.	Theory of innovation; Technological foundation of foreign trade; U-Model
<i>Fahy, J. (2002)</i>	Examine the question of how firms attain a sustainable competitive advantage in a global environment.	Resource-based view of the firm
<i>Knight, G.A. and S.T. Cavusgil (2004)</i>	Focus on the phenomenon of early internationalisation and the capabilities that Born-Globals leverage for achieving superior performance in international markets.	Evolutionary economics view; Resource-based view of the firm
<i>Lopez, J. and R.M. García (2005)</i>	Analyse the effect of technology on firms' export behaviour.	Resource-based view of the firms
<i>Rialp et al. (2005b)</i>	Investigate the most critical differences shown by recently established Spanish SMEs in Catalonia.	Gradualist approach to internationalisation (U-Model and I-related Models)

Source: Self-elaborated

3.1. Gradual internationalisation theory of the firm

The internationalisation theory of the international activities explores the transferring of the international operations inside the firms, with the purpose of exploiting efficiently the capacities obtained by them. Also known as the Uppsala model, the gradual internationalisation theory (Johanson and Vahlne, 1977, 1990) develops the advantages of the firms, emphasising the knowledge of international markets which can be considered as an advantage against the competitors, and the level of compromise with them from a perspective of greater personalisation of the managers of the firm.

This theory explains why firms generally initiate internationalisation processes later in their development and why such processes generally proceed slowly once initiated. According to Oviatt and McDougall (2005), knowledge is at the core of the traditional process of internationalisation. They mention that Johanson and Vahlne (1977, 1990) viewed the lack of foreign market knowledge as an impediment to international expansion, postulating that firms tend to operate in the vicinity of existing knowledge and remain domestic unless provoked, pushed, or pulled by an event such as unsolicited export orders. With time, the firm gradually progresses through a series of learning and commitment stages, as it follows: no regular export, export through agents, founding of an overseas sales subsidiary, and overseas production. Their model suggests that, once initiated, internationalisation proceeds incrementally, regulated by the experience-based accumulation of “foreign organising knowledge”. Johanson and Vahlne (1977, 1990) proposed a more dynamic conception of the firm’s internationalisation process, stressing the continuous interaction between both the development of knowledge about markets and foreign participation and an increasing commitment of resources regarding international markets.

3.2. Resource-based view

As it can be observed in Table 1, many investigations concerning the theme of innovation and internationalisation of the firm consider also the resource-based theory, which has its origins in Penrose’s (1959) seminal work. The resources approach suggests that the best way of regarding a firm is as a collection of productive resources, imperfectly imitable and specific to each firm, which allows it to compete successfully against other firms.

Thus, according to this perspective, every firm is heterogeneous, since it possesses resources that other firms cannot easily imitate, and moreover these resources allow it to generate and sustain competitive advantages, which means it can earn above-normal profits and maintain them in the long run. The capacity of firms to generate sustainable competitive advantages depends on their particular set of resources. Barney (1991) mentions that resources that generate competitive advantages must fulfil four conditions: they must be valuable, scarce, inimitable and non-substitutable.

According to Fahy (2002), resources have been generally categorised on the basis of barriers to duplication and a broad distinction is made between assets and capabilities. Assets can be thought of as being either tangible (Wernerfelt, 1989) or intangible (Hall, 1992), as for the capabilities, they have been described by a variety of terms, such as skills (Klein *et al.*, 1991),

invisible assets (Itami, 1987) and intermediate goods (Amit and Schoemaker, 1993). Intangible resources are of a great significance from their strategic perspective, being considered the key resources for business success (Itami, 1987).

Consequently, the resource-based view helps to explain how, in the context of an innovative culture, knowledge and resultant organisational capabilities are developed and leveraged by enterprising firms (Knight and Cavusgil, 2004). Knowledge, understood by these authors as the capacity of the company to learn and use the relationships among informational factors in order to achieve its purposes, is the most important resource, and the integration of individuals' specialised knowledge is the essence of organisational capabilities (Nelson and Winter, 1982). So, the most important knowledge resources are unique, inimitable, and immobile, reflecting the distinctive pathways of each company (Grant, 1991)⁵. As for the organisational capabilities, these reflect the ability of the company to perform repeatedly, and represent the main source of the company's performance advantage (Grant, 1991).

As regards intangibles, the resource-based view lends great importance to the firm's technological capability. It points out that innovative capability does not come from skill in exploiting external technologies, which are easily accessible for competitors and therefore insufficient for sustaining a competitive advantage (Barney, 1991). It rather comes from the generation of internal innovation, which implies the possession of heterogeneous and specific technological resources, and the capability to generate other new resources and to build basic technological competences.

So, in order to realise this investigation, the gradual internationalisation theory and the resource-based view are taken into consideration, together with the existent literature on innovation concepts. It can be interpreted that the first one shows "when" a firm decides to export – regarding the Uppsala Model stages - , and the second one can be translated as "how" a firm can use its resources in its activities, the innovation being an important resource in order to gain more international markets.

Taking into account the objective of this investigation, which is to find out the relationship existent between innovation and internationalisation processes and the factors that influence this relationship, it can be affirmed that both internationalisation theory and the resource-based view complement each other; furthermore, they are the theoretical basis of this

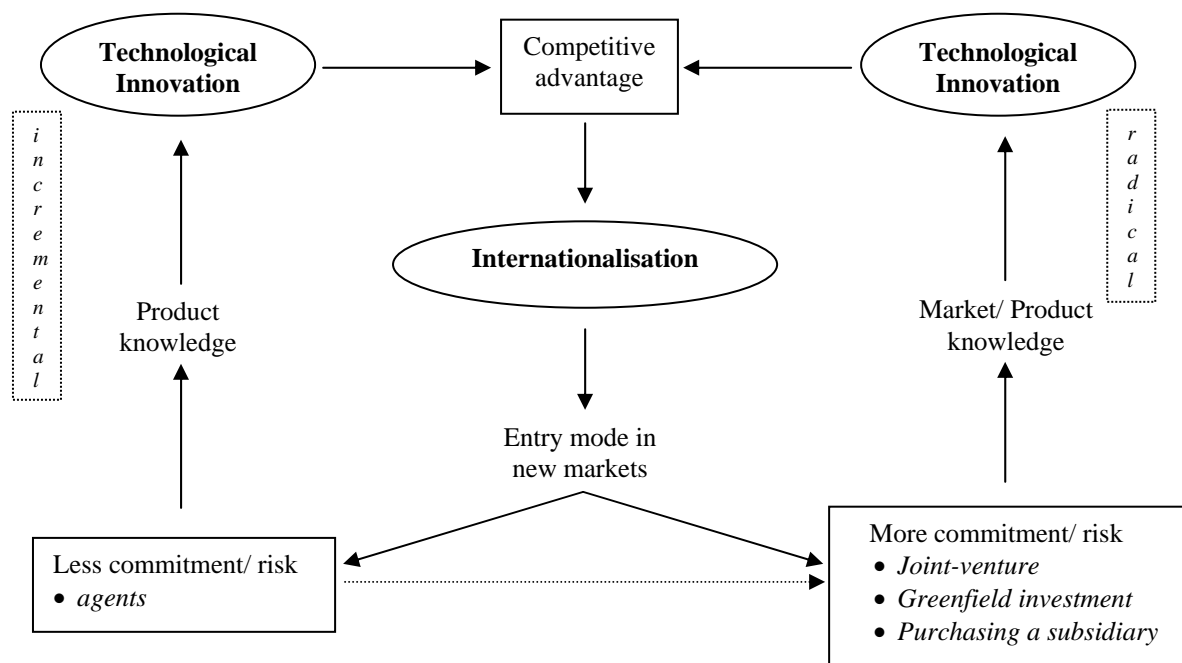
⁵ Nevertheless, the international business literature attributes importance to country-specific resources or comparative advantages as well as to firm-specific resources (Dunning, 1977; Ghoshal, 1987).

empirical study. Moreover, these theoretical frameworks seem pertinent taking into consideration other investigations (see Table 1).

3.3. Proposed model

Considering all the above mentioned, it is proposed a model (Figure 1) which is based on the assumption that innovation and internationalisation exist in an interdependent relation. Due to its technological resources (innovation), a firm gains competitive advantages in order to extend itself to new markets, this process of internationalisation being realised by different modes of entry into the foreign countries, which can be made by agents (less commitment to the markets) and/or by joint-venture, Greenfield investment, purchasing a subsidiary (more commitment to the market). Depending on the entry mode chosen, the firms gain product knowledge or product and market knowledge, these types of knowledge leading to a continuous technological innovation process.

Figure 1. A first approximation of the relation between innovation and internationalisation



Note: As time passes by, the firm can use other entry modes, parting from less commitment till more commitment to the market.

Source: Self-elaborated

More precisely, this model proposes the following: when a firm chooses less commitment in the new markets there is a bigger probability to get product knowledge and develop incremental innovations, and when it chooses more commitment there is a bigger probability to get product and market knowledge and develop radical innovations. Of course, as the model also suggests, the innovations that the firm realises, help it to reach new markets so they lead to a continuous process of internationalisation. To say it in other words, the more markets the firm gets, the more innovations it realises, and the more innovations the firm realises, the more markets it gains. Reinforcing the idea of cyclic phenomenon, Edquist and McKelvey (2000) and Lundvall (1992) argue that the innovation process should rather be considered as a circular and complex system embracing interactive elements.

4. METHODOLOGY

4.1. Qualitative methodology: case-study approach

Consistent with several qualitative methodologists (Maxwell, 2005; Eisenhardt, 1989; Yin, 1994), multiple case-based investigations serve as a basis for either empirically testing previous theories or building new theoretical explanation of the researched phenomenon.

According to Eisenhardt (1989), this methodology is defined as “an investigation strategy directed to understand the present dynamics in singular contexts”. Also, the author highlights the applicability of the methodology of the case-study in the first stages of an investigation, when the information on a concrete phenomenon is poor, or when the existent theories have little empiric justification. Moreover, Yin (1989) refers to the cases as being a methodology that “investigates a contemporary phenomenon in its real context, when the frontiers between the phenomenon and its context are not clearly evident”. Bearing in mind this, the present investigation could be judged as a singular phenomenon for which it would be appropriate to have a first approach by means of the case-studies, since we are in a first exploratory phase of the investigation.

As any other methodologies of investigation, the case-study approach has its limitations and disadvantages in comparison with other methodologies. As it is collected in Rialp (1998), it produces a bias introduced by the same investigator in the collection process and analysis of the information. In order to minimise this effect, the triangulation was introduced in the process of obtaining the data of the analysed cases. The critics to the lack of both statistical validity and representativeness are also assumed (Rialp, 1998), but it is considered that the

objective of the investigation is not the one to generalise but rather to deepen the knowledge of the thematic of the study, and, therefore, the used methodology is assumed to be correctly applied.

4.2. Selection of the cases

Considering the firm as the main unit of analysis, this empirical research is based upon a systematic application of the multiple case-study approach to an export context in which five Spanish exporters⁶ were first judgementally chosen and then individually examined. The selection of the sample was made taking into consideration two important facts: firstly, the firms should be leaders in their international activity, and secondly, they should be innovative. The selected number of cases supports the point of view of Eisenhardt (1989), who establishes that, in order to analyse multiple firms, there does not exist an ideal number of cases. However, she recommends that the number should be between four and ten cases. The author argues that, with less than four cases, it is very difficult to generalise the theory, while, with more than ten cases, the volume of information makes its analysis difficult.

The five companies that represent the object of this investigation are presented in Table 2, where their main activity, the person of contact and the information about the interviews are briefly resumed.

Table 2. Companies selected for the case-study

Nº Case/ Company	Area of activity	Interviewed person/ Position	Date of the interview/ Extent
1. EUROPASTRY	Baking industry	Mr. Jordi Gallés/ General Manager	31.10.2006/ 25 min
2. INDO	Optical industry	Mr. Juan Carlos Dürsteler/ R&D&I Manager	07.11.2006/ 25 min
3. PINTURAS LOBO/ Euroquímica	Chemical industry	Mr. Ramon Poll/ General Manger; Mr. Xavier Codina/ International Division Manager	30.10.2006/ 55 min
4. COMEXI	Converting sector	Mr. Ramon Jonama/ Comercial Manager Mr. Ignacio Fernández/ Responsible Corporate Marketing	02.11.2006/ 1h 50m
5. TECNITOYS/ SCALEXTRIC	Toy industry	Mr. Sergi Pastor/ General Manager	07.11.2006/ 35 min

Source: Self-elaborated

⁶ The author expresses her gratitude to COPCA - *El Consorcio de Promoción Comercial de Cataluña* – for the kindness it showed in offering her the possibility to use its data base.

4.3. Sources of information

The main source of information in order to realise the case-studies was the semi-structured interview with general managers, export/ commercial department managers and R&D managers of the selected firms. The contact was carried out by the means of a telephone call, the potential interviewees being informed about the characteristics of the investigation and being asked for the collaboration. Later on, an e-mail was sent with detailed information about the investigation and, also, the protocol of the interview was attached (see Annex 4).

The interviews, with an extent of forty minutes in average, were recorded with the consent of the interviewees, and afterwards full write-ups were constructed on each company in the form of a detailed case study, focusing on the specific characteristics of each case situation. As a requirement to achieve construct validity (Rialp *et al.*, 2005b), a combined use of multiple secondary sources of information was made such as information from the company website, internal documentation provided by the company, product and firm brochures, etc. Also, reliability requirements were assured by the use of the same protocol for each specific company and by the development of a complete database in the data collection phase. The transcription of the interviews being done, a resume of each of them was sent to the interviewees having as an objective the approval of the received information and also the revelation of the company's name.

4.4. Validity and reliability of the analysed data

All the data sources applied for each company were used in order to edit only one report with all the information of the company, to obtain, by this way, a clearer analysis, and to allow the comparison of the different cases (Eisenhardt, 1989).

Using sources of multiple data, as Yin (1989) proposes, it is tried to achieve the effect of the triangulation that guarantees the internal validity of the investigation. According to Rialp (1998), it should be guaranteed, any moment, the quality of the design of the study by introducing a series of methods and tests of validity and reliability along the methodological phases.

The methods used in this investigation so as to guarantee the validity and reliability of the data analysed are the following:

- Different sources of data were used in the obtaining of the information.
- A previous report of each case was edited, summarising the in-depth interviews, and sent to the interviewees in order to avoid possible interpretation errors.

- An investigation protocol was established in order to guarantee that, in the case of a replication of the study, the obtained results would be similar.

5. ANALYSIS OF THE CASES

The analysis is focused on two parts: the individual analysis of the companies and the crossed analysis among the companies. In the first place, the analysis of each company is carried out, studying the information that each company provided us with. In second place, the cross-case analysis allows us to see similarities or differences among the results of all the interviewed companies.

5.1. Individual analysis

In this section, a resume of each interview is presented. In order to accomplish this, every case study will be described following the same order of the items that were taken into consideration in the interview, according to the protocol of the interviews.

5.1.1. Case *EUROPASTRY*

This is a family business which has begun its activity in the baking industry since the 50s. Nowadays, the company aims to transform the baking industry, providing agile solutions to satisfy the requirements of professionals and of customers through the use of new refrigeration technologies. Frozen dough offers an optimum, non-perishable product, achieving high quality at the best price with maximum simplicity of use. This simplifies the organisation of production processes and allows professionals to concentrate on sales. The company is the Spanish market leader in frozen dough.

The company is an innovative one due to the fact that it has introduced in the markets a variety of new and very competitive products, having an R&D department. First, it was the innovation within the firm, and afterwards, the company began to have international activities, more exactly in 1998, when the exporting department began to operate.

Due to the fact that it has been innovative since its beginning, the firm has had a propensity to become international, having the possibility to select the entry modes in every foreign market, depending on the grade of maturity of the markets (entry modes by agent, delegation, buying an existing firm). The motivation of exporting has come together with the necessity of surviving in a global world. The first countries where the firm exported were Germany, France and Portugal, and it can be said that both the geographical and the cultural factor were

important. 15% of the firm's total sales are outside the Spanish market. The firm possesses a great knowledge of the foreign markets and it is able to adapt its products immediately to every market, since good product range adaptability is vital for success in these markets.

In this case, two types of entry modes in the new markets are observed: buying a firm and organic growing toward international markets. Considering the effect that an entry mode in a foreign market could have on the innovation process within the firm, it can be said that the first one discourages investments in R&D since the firm buys an existing company together with its innovation and/or its knowledge. In this case, the company needs to absorb the innovation of the bought firm and integrate it within its own innovation. The second entry mode compels to a greater innovation in order to entry into a specific market where competition exists and, in this way, the innovation is longer and more effective. The fact of developing internal R&D allows a firm to be more flexible and to have greater barriers to the imitation.

It is unquestionably confirmed by the interviewee that the fact of being an international firm has helped it to innovate more and more, being very competitive; by adapting its products to the necessities of every market the firm is forced to innovate (in spite of the fact that the commodities are sold in the same way all over the world, the specialisation for every country is a very important factor in order to be competitive). The innovation within the company is a product and an incremental one; in other words, the firm changes the basis product, adding innovative improvements.

With regard to the commitment of the entry modes in new markets and the relationship it has with the innovation process of the firm, it can be commented that, as the most frequent entry mode is the one by agents, the firm chooses less commitment to the market so it has the opportunity to acquire more product knowledge and develop incremental innovations.

5.1.2. Case INDO

This is a company from the optical industry which was founded in 1937. After a couple of years of activity, it began manufacturing its own products, which included optical lenses as well as eyewear. The company also implemented its own ambitious policy of technological and scientific development. The first industrial facilities for the production of frames and sunglasses were built, and the manufacture of the first fused bifocal lenses began. A great challenge for the business came when it began to export. Considering that the domestic market share of the company was very high, it was quite vulnerable to new competitors, so

exporting became important for the company in order to maintain the stability and to grow. Also during that time, it took the first steps in the fusion of optical glass. During the 1960s, the firm lived a time of considerable growth in all areas of ophthalmic optics and technological development. Afterwards, it began a process of decentralising its productive structure, as the first step toward becoming a multinational company.

The company is an innovative one due to the facts that it has introduced in the markets, along the years, a variety of new and very competitive product, and it also has two R&D&I departments for two of the three business units. For the third business unit it has a group of design and innovation. Part of ongoing R&D work focuses on finding ways to cut costs, adapt technology and improve the performance of their equipment so as to maximise the competitiveness of their existing range. In the middle 50s it began to extend its markets, due to the fact that the Spanish market share was high and the management of the company realised that it was not enough for the firm to rest in the local market. For each of three business units (lenses, eyeglasses and equipment-goods) operates a specific exporting department whose role is to reach the markets where neither the subsidiaries nor the distributors reach.

Due to the fact that the company has been an absolute leader in the home market and innovative since its inception, it has had a propensity to become international, having the possibility to select the entry modes in every foreign market (a great emphasis has been put on the differentiation of the product). The markets are selected depending on their economic potential, not so much on the geographical or cultural factors, the first countries where the firm exported being Germany, France and Morocco. 30% of the firm's total sales are outside the Spanish market, and it is in a slowly continuous growth. Besides these, the company has distribution agreements in other many countries, and, in the rest of the countries where it does not have either proxies or distribution agreement, it has exporting clients. In Spain there are two factories (one of lenses and the other of eyeglasses), and in Thailand, China and Morocco other three.

As for the grants that the firm receives from public organisms, they are very well-valued. The firm has learnt from its international activity that there is not a success formula for entering foreign markets but the capacity to adapt its product to each market. The company becoming international, has helped it in obtaining a larger vision, a greater competitiveness, and a greater power of innovation, say it differently, more propensity to the changes and more agility.

In this case, it is also unquestionable that the fact of being an international firm has helped it to continue innovating, bringing into the markets different and competitive products. The innovation within the firm is both in product and process since the process often determines the final product; both incremental and radical innovations are applied by the firm. For instance, the company has two special materials of lens which nobody has and it puts an emphasis on the design geometry of the eyeglasses. These are examples of product innovation. As for the process innovation, the firm differentiates itself from the others by having an anti-reflex treatment whose properties are different from others. In most cases, the company realises its own innovation, but there are also other institutes that are hired by the company in order to realise part of the innovation that cannot be done within the firm.

As it was commented before, the firm acts in the international environment by having different levels of commitment, in this way acquiring product knowledge and market and product knowledge. The product knowledge helps it to improve its products little by little, by incremental innovation, while the market and product knowledge help to realise radical innovations.

The key success factors of this company are the innovation that is realised, the proximity to the client, and also a large product experience since the firm has been working in the optical industry for a long time and has been a leader in the local market.

5.1.3. Case PINTURAS LOBO/ Euroquímica

This is a company from the chemical industry that began its activity in 1972. In 1998 it was purchased by Euroquímica which kept its ideology, meaning that the employees continued to be the shareholders of the firm. As the products of the two firms were complementary, the buyer realised that if the range of products was commercialised in a higher way, then new markets were to be opened. The company began to export immediately after being purchased, that is in 1998. The motivation for its becoming international came with the idea of being competitive in the domestic market both economically and qualitative. There were also some outside stimuli which showed their interest in the products.

The first country where it exported was Portugal but only due to the fact that the Portugal person was speaking Spanish, put differently, the company had no intention to become international until its purchase. The company created an international department and endowed it with different specialised persons in whom it invested, all of them belonging to the company. As the product is a very specific one, it is very difficult to find a market which

needs it or which does not already have a supplier. So, the selection of the markets is done through the creation of some concentric circles, but also taking into consideration the geographical distance. If the firm had exported around 0.5% before being purchased, nowadays it has reached 15%, being expected to arrive at the level of 30% in the next years. As for the grants that the firm receives from public organisms, they are very well-valued.

In terms of market share, in spite of the fact that the company is a small one, it has always been a leader due to two reasons: own R&D (it has never depended technologically on someone), and self-financing capacity (it has never depending on any financial entity). An R&D department has existed within the company since its foundation so, it can surely be affirmed that it is an innovative company; even more, the fact of being an innovative firm has helped in achieving new markets and become an international one. For this reason, the firm also has the capacity to select entry modes taking into consideration the characteristics of every foreign market, the most common ones being by agents. So as to say, the company acts in the international markets not only by choosing less commitment to them but also more commitment in some cases.

Considering this, the firm is acquiring product knowledge and market and product knowledge, developing incremental and radical product innovations. For instance, the company knows that in the market exists a niche and investigates it in order to introduce a new product (radical innovation), but it also takes into account the clients' opinion regarding the improvements that can be done to one product (incremental innovation). The main product that is commercialised has three innovation factors which, together with the price, are the competitive advantages of the company and define the innovation within it.

There is no doubt about the fact that the innovation within the company has helped it in achieving new markets, and also the fact of being an exporter has made the firm to be more innovative.

5.1.4. Case COMEXI

This is a family company⁷ with leader spirit in the converting sector and specialised in printing and converting flexible packaging materials. Since its foundation, more than fifty years ago, it has been characterised by the development of innovative and highly reliable technologies, adapted to client needs and market demands. The expansion of the company

⁷ This company is referred to as a family business and also as a group on the grounds that it is a family company with international leadership vocation which has become a leading group of companies very soon after it has begun its international activity.

has never stopped since its foundation, becoming very quickly a leader at international level and having only one serious competitor (Windmüller&Hölscher, Germany).

The firm began to export in the 60s and rapidly achieved a level of 50% of the production in the international markets. The first countries where the company exported were France and some countries of South America. As the founder had no skills for foreign languages, the selection of the markets was done taking into consideration the semblance of the languages, but also the geographical proximity. The motivation of exporting has come together with the necessity of having a stable activity and regular sales, taking into account that the flexo-press is quite small comparing to other printing systems. The level of international sales became 90% of the firm's total sales in 2006.

Once being present in many markets with an aggressive strategy, it was indispensable to introduce to the product an innovation component to be able to continue in those markets and to keep the image of leaders. The company has always followed a policy of innovation, growth and leadership in the world market. The innovation has been achieved with creativity and flexibility. Being a leader implies continuous innovation, the R&D team of the company having a very important role in this effort. The most intelligent and "crazy" ideas of the team – as they confess – are developed: "in the company we listen to everybody; the future depends on the ability to get ahead of it; our team has been the developer of many of the latest milestones of recent years in the sector". Actually, the company has a responsible person for the innovation that coordinates all the innovation processes of the firm. As we are talking here also about a group, every firm inside the group has an R&D department, but the responsible person for the innovation belongs to the group and his/her tasks are to peek from the markets the necessity to develop things, to coordinate the firms inside the group regarding the similar challenges, and to direct the formality of the innovation process.

As the company has been a leader at international level, it has had the possibility to select different entry modes in foreign markets, taking also into consideration the characteristics of every market. So, the main tool that it has worked with is through agents who are independent and who are paid for their services. In the case of one market, the company has created a plant there because the customs fees of that country were so high that it was impossible for it to export there. The company also works with proxies in some cases; however the greatest part of the exports is realised through agents distributed in the entire world. Regarding the grants from public organisms, the company separates them into:

assistance at the development of the innovation level, and assistance at the commercial level. Both of them are well-valued by the firm.

The internationalisation that the company has begun has forced it to innovate, to react regarding the technological level. Of course, once the company has an innovative product that has already been in the external market, it can take advantage of it by reaching new markets, so it is unquestionable confirmed in this case, also, that the fact of being an innovative firm has helped it to extend its markets more and more, being very competitive. Recently, the firm has realised innovation in the internal processes but also in products, these last ones representing products for the customers. The company has helped its clients to be more effective regarding their products by creating first the processes. This type of innovation is an incremental one due to the fact that a process is made not a technology. But it also realises radical innovation, as it happened in 1996 when, by introducing in the process another way of work, it produced a totally revolution in the whole park of engines.

As it can be seen, this firm is developing both incremental and radical innovations and both product and process one, depending on the knowledge that it acquires during its international activities, implying the entry mode used for every market. Till now a mechanic innovation has also been realised, but from now on, the company is focused on electronic innovation.

5.1.5. Case TECNITOYS/ SCALEXTRIC

This company began its activity in the toy industry in 1990 and, since 1992 it has become international once it purchased a well-known international brand from the same activity, SCALEXTRIC. The motivation to become international came with the phenomenon of globalisation, so exporting becomes important for the company in order to maintain the stability and to grow. To put it briefly, the size of the firm cannot be obtained only by supplying a single market but a global one.

Due to this and also to the fact that the firm introduces into the markets around fifty new and competitive products (which imply a great work, especially in the field of the technology as the firm has to adapt it) every year, it is considered an innovative firm. Actually, it fulfils a quality rigor meaning that not only its products are high-quality, but they also respect the environment. The company has also had an R&D department since the beginning of its activity, two important characteristics of this department being that the people that work there have been hired since the 90s (so they have a great experience inside the firm) and also they are very fond of the product (the interviewee emphasise the importance of this last factor).

It is difficult to locate the moment of the beginning of the innovation process, since both the innovation and the internationalisation began about at the same moment. In its first two years of activity, the firm's objectives were to create products for the local market which was in a continuous growth, not to sell internationally. It is considered that once the firm purchased the international brand it was compulsory to innovate, even though modestly, because the boom in the international market due to the innovation within the firm happened three years ago; nowadays the firm has in its organisation chart an export department.

Due to the fact that the firm has been a leader in the home market and innovative even since its beginnings, it has been able to select the entry modes in every foreign market, entry modes that are especially through agents and distributors. Since the company only offers a new and high-quality product in the markets where it enters, it is important to have a high innovation level, put differently the innovation helps in achieving new markets. As for the grants that the firm could have received, they are so few that they have not been taken into consideration.

As it is a brand that can exist or not in other markets, the strategy of entering is different: in the case that the brand already exists, the firm is changing the name and competes directly through the high-quality; in the case that the brand does not exist but it is known, the firm competes through the brand; in the case that neither the brand exists nor it is known, the firm makes itself publicity by means of competitions for the public. The selection of the international markets depends on both geographical and cultural distance, and the knowledge acquired in other markets has helped the firm extrapolate in new ones, as the consumer has a global behaviour. 25% of the firm's total sales are outside the Spanish market.

Thanks to the agents the firm has all over the world, it has been able to internalise information which has helped it to keep innovating, that is, also in this case, the fact of being an international firm has helped it to continue innovating, bringing into the markets different and competitive products. The innovation within the firm is both in product and process, and both incremental and radical innovations are developed by the firm. The commitment that the company has to the markets depends on its entry modes, but, considering the above mentioned, it can be affirmed that it acts with both less and more commitment, helping this in realising the different types of innovations. The basis of these innovations stands out in the knowledge acquired, which can be product knowledge and market and product knowledge. For example, the digital version of the main product represents an incremental innovation since it is an improvement of the product. The radio controls that the firm has just introduced into the market represent a radical innovation. In most cases, the company realises its own

innovation, but there are also other institutes that are hired by the company in order to realise part of the innovation that cannot be done within the firm.

A synthetic table with all the information gathered about the five companies taken under consideration in this investigation is presented in Table 3.

Table 3. Case-studies results

	Case EUROPASTRY	Case INDO	Case PINTURAS LOBO/ Euroquímica	Case COMEXI	Case TECNITOYS/ SCALEXTRIC
1. Area of activity: products	Baking industry: frozen dough	Optical industry: lenses, eye wears, equipments, decorations	Chemical industry: technical paintings	Converting sector: flexo-press	Toy industry: circuit cars
2. Foundation/ Export/ Innovation	It was founded in the 50s. It began to export in 1998. It has always been an innovative firm.	It was founded in 1937. It began to export around 1950. It has always been innovative.	It was founded in 1972 and began to export in 1998. It has always been innovative.	It was founded in 1954, it began to export in 1960 and afterwards began to innovate.	It was founded in 1990 and began to export in 1992 when it also began to innovate.
3. Innovation	It has an R&D department for every product family. The innovation allowed the firm to select the entry modes in different markets. The innovation realised is a product and an incremental one.	It has an R&D&I department. The innovation allowed the firm to select the entry modes in different markets. The innovation within the firm is both in product and in process, both incremental and radical.	It has an R&D department which allows it to achieve new markets and different entry modes. The innovation realised is a product one, both radical and incremental.	It has an R&D department for every firm inside the group and a responsible person for innovation. It has the possibility to select different entry modes. It realises process, product, incremental and radical innovation.	It has had an R&D department since the beginning of its activity. The innovation allowed the firm to select the entry modes in different markets. It realises product and process innovation, incremental and radical one.
4. Motivation to begin exporting	Necessity to survive in a global world.	Necessity to survive in a global world.	Desire to be competitive in the domestic market.	Necessity to have a stable activity and regular sales.	Important for the stability of the firm.
5. Foreign sales	15%	30%	15%	90%	25%
6. Grants	Non-significant	Very well-valued	Very well-valued	Very well-valued	Non-significant

Source: Self-elaborated

Table 3 (continuation)

	Case EUROPASTRY	Case INDO	Case PINTURAS LOBO/ Euroquímica	Case COMEXI	Case TECNITOYS/ SCALEXTRIC
7. Export	Export department since its beginning. Both the geographical and the cultural factors have been important. It uses different modes of entry (buys a subsidiary, by agents).	Three export departments. The markets are selected depending on their economic potential. Emphasis on product differentiation. The most used entry mode is by an agent and sometimes through proxies.	Export department since its beginning. Geographical distance is important in order to select new markets. The most common entry mode is by agents.	Export department since its beginning. Both cultural and geographical proximity are important. The entry modes are by an agents, proxies and own plants.	Export department since its beginning. Both geographical and cultural distances are taken into account. The modes of entry used are through agents and distributors.
8. Knowledge/ Adaptation	The knowledge acquired in foreign markets enables it to adapt its products.	The firm has a great knowledge of the markets and it adapts its product immediately to every market.	The firm possesses a vast knowledge about the markets. The product cannot be adapted too much because of its specificity.	Being for so many years on the international market, it has gained experience which helps in the creation of the new products.	The knowledge acquired in other markets has helped the firm extrapolate in new ones.
9. Commitment/ Type of knowledge	Less commitment. Product knowledge.	Less and more commitment. Product knowledge and market/ product knowledge.	Less and more commitment. Product knowledge and market/ product knowledge.	Less and more commitment. Product knowledge and market/ product knowledge.	Less and more commitment. Product knowledge and market/ product knowledge.
10. Cyclic relation	Confirmed both relationships.	The innovation that a firm realises is not an indispensable condition for it to become international but it is a very important factor; confirmed both relationships.	Confirmed both relationships.	An already innovative international product has more possibilities to enter new markets; confirmed both relationships.	Confirmed both relationships.

Source: Self-elaborated

5.2. Cross-case analysis

The five companies under analysis do not show marked contrast regarding the innovation and international phenomena. On the contrary, in spite of the fact that their activity is developed in completely different industries (baking, optical, toy industry, converting sector and chemical industry), they share almost the same opinion about the importance of the innovation for becoming international and also the importance of being international for continuing the innovation process.

Three companies from the five taken under consideration in this investigation were created around the middle of the past century and were leaders in the local market, two of them being also extremely innovative (it is the case of EUROPASTRY and INDO); the other two firms are more recent, one of them having the innovation process highly developed (COMEXI), and the second beginning to innovate immediately after being present in other foreign markets. This last case is the one of TECNITOYS that, due to the fact that it became international almost immediately after its foundation by buying an existing international brand (SCALEXTRIC), it is difficult to affirm that the innovation had something to do with the internationalisation process of the firm. Nevertheless, it was emphasised that if the initial firm had been innovative it surely would have helped more in beginning the international activities. As the international activity of the innovative firms from the chemical, optical and baking industries has begun after many years since its foundation, it can be affirmed that the fact of being an innovative firm has helped in achieving other markets.

All the five companies in this study have well-developed R&D departments which have appeared since the beginning of the innovation process of every company. This is an important issue due to the fact that, analysing the impact of innovation on export behaviour, different firm level studies have used R&D expenditure as proxy to innovation (Kumar and Siddharthan, 1994 cited by Basile, 2001). The persons working in these departments are well-prepared, have superior qualifications, and experience in the firm; put differently, the rate of personal rotation is quite low.

The fact of being innovative has had a strong influence on their international activities, especially on the selection of the entry modes of each of the five cases. Step by step, considering their international activities, the firms have become more innovative and this fact determines the commitment that they are willing to have towards the foreign markets. This fact is consistent with one of the results of Eusebio and Rialp's (2002) investigation,

according to which the realisation of innovations, both product and process, is positively related with the export behaviour.

As it can be seen in Table 3, all the firms innovate more in the products not in the processes, and incremental not radical. So it can be said that the firms prefer to develop more their product step by step, being this in conformity with the aspects revealed by the interviewees who put an emphasis on the customers' reactions and opinions about every new product in order to improve it.

Table 4. Types of innovation within the companies

Company	Innovation			
	Pd. + R.	Pd. + I.	Pc.+ R.	Pc. + I.
EUROPASTRY		x		
INDO	x	x	x	x
PINTURAS LOBO	x	x		
COMEXI	x	x	x	x
TECNITOYS	x	x	x	x

Source: Self-elaborated

Where,

Pd. + R. = product and radical innovation

Pd. + I. = product and incremental innovation

Pc. + R. = process and radical innovation

Pc. + I. = process and incremental innovation

Following this, the firms from the optical and toy industries and also the one from the converting sector develop a complete innovation process, meaning both radical and incremental, as in product and process. In the other cases, the innovation process is a more specific one, with o focus on the product innovation. Moreover, it seems that, EUROPASTRY realises only product and incremental innovation. According to Hewitt-Dundas (2006), the development of radical new products is dominated by large, and typically, multinational enterprises. Our results coincide with this affirmation, since all the three companies from this study, which realise radical innovation, are multinationals, although only

INDO has had a traditional process of internationalisation, both TECNITOYS and COMEXI being the so called Born-Global firms.

In four cases, the motivation to begin the international activities is quite the same: in a global world it is compulsory to be global and have a stable activity in order to survive. Only PINTURAS LOBO has begun to export thinking about its competitiveness in the domestic market. The selection of the markets is predominant due to the cultural and geographical distance (four cases from five); as for the other case, INDO, the economic potential of the market is more important, although it sometimes considers also the geographical distance.

The entry modes most used by all the five companies are the ones by agents. Two of the five companies (INDO and COMEXI) also use proxies in order to enter one market. Besides this, in the case of COMEXI, it is also used the purchase of some other companies or the opening of a plant in countries where it is difficult to export. TECNITOYS also uses distributors for its products, depending on the markets. As for PINTURAS LOBO, it is common to select markets through the creation of some concentric circles; therefore the selection of entry modes is quite different.

With regard to the relationship between the commitment that the firms have to the new markets and the knowledge they acquire, only EUROPASTRY chooses modes of entry which imply less commitment, obtaining in this way only product knowledge and realising incremental improvements to the products. In all the other four cases, it is observed that firms entry in the new markets by modes with less commitment and, when time goes by and/or the markets are different, they choose to act with more commitment to the markets. By this way, they obtain both product knowledge and market and product knowledge, being able to develop radical product and process innovations.

As for the grants that the companies under analysis could have received, only two of the five cases (EUROPASTRY and TECNITOYS) have never received such grants, the other ones valuating the grants in a very positive way.

Taking into consideration the theory of internationalisation, more precisely the Uppsala Model (Johanson and Vahlne, 1977, 1990), it can be argued that two of the five companies have not followed a traditional process of internationalisation, beginning to export in the very following years after its foundation. We are talking about COMEXI and TECNITOYS, the firms whose main products are the flexo-press and the circuit cars. The first one started its international operations in 1960, only six years after being founded. As for the second firm, it

has started to export after two years since its foundation. Both of them have sought to get significant competitive advantage from its exporting activities, putting a great emphasis on the quality of the product and, implicitly, on the innovation process. Based on the previous research made in the area regarding this phenomenon of internationalisation⁸, it can be affirmed that we are dealing with two Born- Global firms.

In the first three cases, all the steps of Uppsala Model (Johanson and Vahlne, 1977) were made: beginning to export to a country via an agent, establishing a subsidiary, beginning production in the host country. Therefore, the processes of internationalisation of these firms are totally traditional ones.

Once they have internationalised, the five firms have obtained a great knowledge – product knowledge and market and product knowledge, as a consequence of the mode of entry in new markets that has been chosen, mode which can imply less and/or more commitment to the market – , and they have gained experience with the competition; these types of knowledge have been very important in order to adapt their products so they become more competitive and obtain a greater share market. As it is mentioned by one of the interviewees, good product range adaptability is vital for success in these markets, and only knowing the environment, the adaptability is possible, thus being in conformity with Oviatt and McDougall (2005), who consider knowledge to be the core of the internationalisation process of the firm.

Concerning the percentage of the export sales on the total sales, it can be observed that in only one case this number is extremely high (COMEXI), representing almost the entire benefit of the firm. The other four companies show indeed a good level of the export activity, this being 15-30%.

Having in mind the objective of this investigation – if there is a cyclic relationship between the innovation and internationalisation processes of the firms – it can be answered that in all the cases this relationship is observed and confirmed, although one of the interviewees adds that the innovation is not an indispensable condition for a firm to become international but it is a very important factor. This affirmation coincides with Hall's (1992), who emphasises the importance of innovation as a source of competitive advantage

⁸ In the chapter dedicated to the literature review focused on the internationalisation of the firm, the phenomenon of the Born-Global firm was commented, according to the academicians.

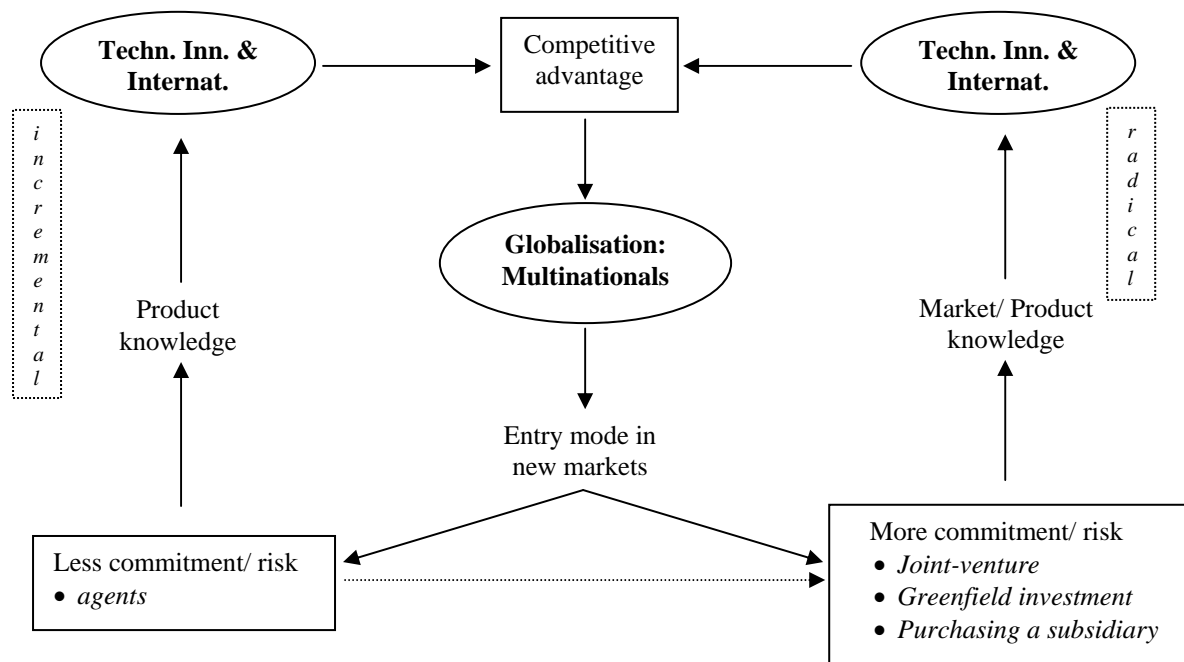
However, considering our proposed model (Figure 1) and also the results from the cross-case analysis, it is observed that in only three cases this model describes, in an appropriate way, the relationship between innovation and internationalisation, considering the moment when a firm enters a new market, these being the three traditional international companies (the companies in the baking, optical and chemical industries). For the Born-Global cases (companies in the toy industry and the converting sector), this model does not work, considering that both innovation and internationalisation start together, to put it another way, in these cases the initial idea of innovation leading to internationalisation does not apply. The companies COMEXI and TECNITOYS have become global/multinational firms which, since their foundation, have sought competitive advantage and considered as normal the fact of being present and achieving markets all over the world.

As Pla and León (2006) define, this type of companies does not only belong to a global sector, but rather it represents global firms. A company is considered global when it has extended its presence to all the significant markets of the planet, it generates value in a great number of countries and it coordinates constant flows of knowledge, capitals and products among its interrelated branches.

According to Acs *et al.* (2001), firms become multinationals because they see and capture profitable international opportunities. For a multinational to compete abroad, it needs an advantage of its own to offset local firms' home court advantage. Actually, a very important issue highlighted by Acs *et al.* (2001) is that multinational firms can quickly and simultaneously introduce an innovation in many countries, greatly magnifying the innovation's return, being able to do this without exposing or losing control over their intellectual property. Once established, multinationals have a threefold advantage in creating and marketing further innovations.

For this reason, our model will suffer some changes when considering the Born-Global firms, meaning that the innovation together with the international activity of the firm will lead to a global, multinational firm. This argument can be observed in Figure 2.

Figure 2. A relation between innovation and internationalisation. The Born-Global case



Note: As time passes by, the firm can use other entry modes, parting from less commitment till more commitment to the market.

Source: Self-elaborated

6. CONCLUSIONS

The purpose of this investigation is to analyse the existence of a relationship between the innovation and the internationalisation processes of the firm, since it is assumed that there is a cyclic one, having as a theoretical background the internationalisation theory of the firm (Johanson and Vahlne, 1977, 1990), the resource-based view of the firm (Barney, 1991), and also the literature on the innovation phenomenon of the firm.

From the perspective of the resource-based view, generating and sustaining competitive advantages resides in the set of strategic resources and capabilities available to the firm, among these strategic resources being the intangible ones. Among intangible resources, technological resources are particularly significant (López and García, 2005). These provide the firm with an innovative capacity, for both products and processes, and are important for the creation of competitive advantages based, especially, on the differentiation which give a firm a superior competitiveness to act in the international markets.

Concerning the technological resource of the firms in this study, all the five showed and/or agreed with a propensity to the internationalisation due to the innovation within their companies. On the other hand, the fact of developing international activities has influenced, in a positive way, the innovation; put differently, the first two research questions – if the innovation leads to internationalisation of the firm and vice-versa – have an affirmative answer. Actually, Basile (2001) emphasises the role of technology and innovation as one of the main factors contributing to facilitate entry into international markets, at the same time as boosting the firm's export performance. As it is mentioned by Molero (1998), in the cases of Italy and Spain, the presence abroad of non-innovatory firms suggests the existence of a relative divorce between the processes of innovation and internationalisation. Therefore, the results of our study are in line with the ones of Basile (2001) and Molero (1998), although, this idea is not supported by Wakelin (1998) who finds that being an innovative firm in the UK has a negative impact on the probability of exporting, concluding that innovative firms are more inclined to use their innovation to exploit the domestic (UK) market rather than to enter foreign markets.

Regarding the third research question – if the market entry mode of the firm lead to a different type of innovation – the answer is affirmative since it is observed that the firms use different entry modes, beginning with an agent, subsidiary and ending with the purchasing of a plant. In this last case, it is emphasised that it discourages the investments in R&D since the firm buys an existing company together with its innovation and/or its knowledge. It was confirmed that when the firm chooses an entry mode which implies less commitment to the market, it is more common that an incremental and product innovation will be realised. This is the case of all the five companies here analysed. On the other hand, when more commitment is chosen then the radical innovations in products are more probably, and this happens to four from five companies, the only exception being the first one, EUROPASTRY. Anyway, it can be noticed that the predominant entry mode chosen by the firm is through agents, representing the first step of the internationalisation process of the firm as it is explained by Johanson and Vahlne (1977, 1990). Actually, three of the five firms have followed a traditional process of internationalisation, the remaining two being the so called Born Global firms, due to the fact that they have begun to export very soon after their foundation. However, it would be convenient to study more in-depth this phenomenon due to the fact that it is not easy to establish an order of the entry modes.

As it was mentioned in the cross-case analysis, the innovation that all the five firms realise without any exception is the incremental product one. As Fernández (2005) describes, this kind of innovation is based on the improvement of the current components of the product, maintaining the same structure of relationships among the components of the products. The incremental innovation is not usually visible, since the external aspect of the product and the functions that it carries out are the same ones. However, it can have a fundamental incidence in the production costs, providing to the company that develops it an important competitive advantage in costs that, in general, it will take in being detected by the competitors.

All the companies in this investigation show a propensity to realize incremental innovations, by adapting their products from the international markets and expand these markets due to the product knowledge they gain. Actually, the need to acquire foreign product and market knowledge and the importance of organisational learning for entering or expanding in the international marketplace were recognised by several scholars, as Andersen (1993) and Zahra *et al.* (2000), among others. It is also important to mention that the motivation in most of the cases to extend the market has appeared from the necessity of surviving in a global market and to have a stable economic situation.

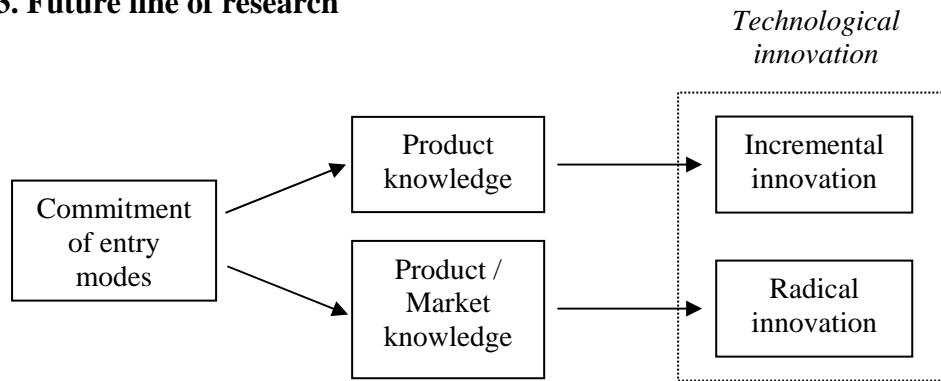
Nevertheless, the main idea that is highlighted in the results of this investigation is that once the firms have entered the foreign markets through different entry modes, depending on the level of the commitment to the markets, they have gained experience but, most of all, they have acquired knowledge – product and market knowledge – and with that knowledge the firms are able to realise more technological innovation. Furthermore, depending on the entry mode, the companies acquire a certain type of knowledge which leads to a certain type of technological innovation. For instance, if one company chooses less commitment to a market, it will gain product knowledge which will imply more incremental innovation. On the contrary, if a company chooses more commitment to a market, it will gain not only product knowledge but also market knowledge which will imply more radical innovation. This argument is pointed out in Figure 3.

Thus, besides the traditional sources of information for the technological innovation⁹, there are also new sources among which the commitment of entry mode in a new foreign market is considered. In other words, the internationalisation of the firm, more precisely the commitment of the entry modes in the new markets, is considered to be an important source

⁹ According to Amara and Landry (2005), the sources of information for the technological innovation are internal sources, market sources, research sources, and generally available sources of information.

of innovation. Actually, this idea is proposed to be more developed through quantitative methodology, as being the continuation of this investigation.

Figure 3. Future line of research



Source: Self-elaborated

Moreover, as future lines of research, quantitative tools are going to be used too, having as a sample a large number of Spanish exporters in order to obtain two models – for both traditional and Born-Global firms – that can be generally applicable.

Referring to the limitations of this investigation, there stand out those fundamentally characteristics of the methodology of the case-study. As it is collected in Rialp (1998), this methodology produces a bias introduced by the same investigator in the collection process and analysis of the information. The critics to the lack of both statistical validity and representativeness are also assumed (Rialp, 1998), but it is considered that the objective of the investigation is not the one to generalise but rather to deepen the knowledge of the thematic of the study, and, therefore, the used methodology is assumed to be correctly applied.

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ANNEX 1

Literature review. A focus on the innovation of the firm.

Nº/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
1. Teece (1986)	To explain why innovating firms often fail to obtain significant economic returns from an innovation, while customers, imitators and other industry participants benefit. Literature review	Appropriability regimes; Evolutionary theory; Complementary assets.	Not applicable.	The boundaries of the firm are an important strategic variable for innovating firms. The complementary assets help establish who wins and who loses from innovation.
2. Damanpour (1992)	To specify the strength of the association between organisational size and organisational innovation and to delineate the role of various moderators of this association. Empirical study.	Innovation literature with a focus on the concept, the size-innovation relationship and moderators of the size-innovation relation.	Meta-analysis review of existing empirical studies of size-innovation relationship.	Size is more positively related to innovation in manufacturing and profit-making organisations than in service and non-profit-making organisations. The association between size and innovation is stronger when a non-personnel or a raw measure of size is used. Types of innovation do not have a considerable moderating effect on the relationship between size and innovation. Size is more strongly related to the implementation than to the initiation of innovations in organisations.
3. Rothwell (1994)	To discuss the evolution, during the post World War II period, of changing perceptions of what constitutes the dominant model of best practice in the innovation process. Literature review.	Technology-push model of the 1850s; Integrated model of the 1980s.	Not applicable.	Innovation in certain consumer products has a strong market-pull flavour. In the case of innovations involving the development of a major new technology, it would be unwise to opt initially for a fully parallel process. The balance between technology-push and need-pull as a motivation for innovation might vary considerably over the industry cycle.

Source: Self-elaborated

ANNEX 1 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
4. Teece, Pisano and Shuen (1997)	To identify three existing paradigms and describe aspects of an emerging new paradigm that the author label dynamic capabilities. Theoretical literature review.	Competitive forces; Strategic conflict; Resource-based view; Dynamic capabilities approach.	Not applicable.	The private wealth creation in regimes of rapid technological change depends in large measure on honing internal technological, organisational, and managerial processes inside a firm.
5. Veugelers and Cassiman (1999)	To characterise the innovation strategy of manufacturing firms and to examine the relation between the innovation strategy and industry specific characteristics. Empirical study.	Transaction cost economies; Property right theory	The sample is formed by 734 Belgium manufacturing firms. There are used Bivariate Probit in order to establish the innovative firms and Multinomial Logistic Regression in order to establish the determinants of the innovation strategy.	The Make and Buy strategies are complementary; firms that find high risks and high costs an obstacle to innovation, are more likely to innovate
6. Breschi, Malerba and Orsenigo (2000)	To estimate the impact of technological regime variables on Schumpeterian patterns of innovation as defined by the specific combination of entry, stability and concentration. Empirical study.	Schumpeter's theory: there are two main patterns of innovation in industries - creative destruction (<i>widening</i>) and creative accumulation (<i>deepening</i>).	EPO-CESPRI database (European Patent Office) with a focus on Italy, Germany and UK. Questionnaire survey to 713 business units (555 valid responses). Logit model. Dummy variables.	Sectoral patterns of technical change are related to the nature of the underlying technological regime. <i>Deeping</i> patterns are related to high degrees of cumulateness and appropriability, high importance of basic sciences and relatively low importance of applied sciences as sources of innovation. <i>Widening</i> patterns are related to low degrees of cumulateness and appropriability, and high importance of applied sciences and increasing role of external sources of knowledge.

Source: Self-elaborated

ANNEX 1 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
7. De Propriis (2002)	To test the link between innovation performance and inter-firm co-operation in association with production networks; to ascertain the role of internal and external innovation inputs on firms' innovation performance as defined by the four types of innovation: radical, incremental, product and process innovation. Empirical study.	Innovative milieu model.	Primary data was collected as part of the Regional Innovation Strategy for the West Midlands (UK) project by means of a postal questionnaire. 435 valid responses. Probit model.	Process innovation is significantly related to co-operation over innovation with suppliers (positive), to production networking with suppliers (negative) and size (positive). Product innovation is positively related to co-operation with suppliers, co-operation with client firms and R&D expenditure. Incremental innovation is positively related to co-operation over innovation with suppliers and R&D expenditure. Radical innovation is positively related to co-operation over innovation with client firms and with suppliers, as well as to R&D expenditure.
8. Terziovski (2002)	To compare the effectiveness of radical, incremental, and integrated innovation strategies on performance excellence. Empirical study.	Evolution of innovation according to Rothwell (1992). Literature review with focus on continuous incremental improvement, integrated innovation strategy and radical innovation strategy.	Mail survey of manufacturing site managers by the Australian Manufacturing Council, Australian Bureau of Statistics, and the Manufacturing Advisory Group (New Zealand). Total sample is 1,289 sites. Factor analysis and multiple regression analysis.	A "bottom-up" continuous improvement strategy is the preferred strategy to improve customer satisfaction and productivity in Australian and New Zealand manufacturing firms. A "top-down" strategy is appropriate for increasing relative technological competitiveness. An integrated strategy has the least explanatory power on performance excellence.

Source: Self-elaborated

ANNEX 1 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
9. Adams, Bessant and Phelps (2006)	To collate and synthesize the measures, better reflect the needs of academics and practitioners. To what extent do they adequately populate and dimensionalise a comprehensive analytic framework? Literature review.	It is proposed a seven-dimensional conceptualisation of the innovation management phenomenon and applied it to an examination of the measurement problem.	Not applicable.	Practitioners will be able to conduct an evaluation of their own innovation management activity, identify gaps, weaknesses or deficiencies, and also improvement potential. Organisations applying the framework will be able to tease out areas where innovation is only nominally adopted in their processes and identify areas where attention and resources might be focused. From the perspective of its management, it is no longer sufficient to treat innovation as a linear process where resources are channelled at one end, from which emerges a new product or process.
10. Galende (2006)	Review the main approaches used by business economics and management to deal with the analysis of the phenomenon of technological innovation and clarify their main contributions. Theoretical literature review.	Industrial organisation; Transaction cost economy; Positive agency theory; Resource-based view; Evolutionary theory.	Not applicable.	The innovative process has been defined not as a single way, but rather as diverse, since it admits a wide variety of forms of development. It is also a dynamic process, since there are frequent variations in time as the firm carries out its innovative activity.
11. Hewitt- Dundas (2006)	Examine those resources and capabilities that firms identify as constraining their innovation activity, the difference in these for small and larger plants and the actual impact of these perceived constraints on the probability of innovating and the degree of innovation success. Empirical study.	Resource-based view.	Longitudinal study of innovation in Ireland with data from two postal surveys, the 1997 and the 2000 Product and Process Development Surveys. The total sample reached 348 plants.	Constraints to innovation tend to persist from one period to the next; Resource and capability constraints to innovation are similar for small and large plants; The probability of plant's undertaking innovation is strongly influenced by their inherited resource and capability constraints; The resource and capabilities constraints that prevent plants from innovating are different for small and larger plants; Legislative and regulatory requirements and a lack of external partners as significant constraints to innovation, negatively effect innovation success in both small and larger plants.

Source: Self-elaborated

ANNEX 2

Literature review. A focus on the internationalisation of the firm.

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
1. Johanson and Vahlne (1977)	To identify elements shared in common by the successive decision situations and develop a model of the internationalisation process. Conceptual study.	Empirical observations at the University of Uppsala (firms develop their international operations in small steps)	Not applicable.	Market knowledge and market commitment are assumed to affect both commitment decisions and the way current activities are performed. These in turn change knowledge and commitment. Commitment to a market affects the firm's perceived opportunities and risk. Commitment decisions are based on several kinds of knowledge. The change aspects considered are current activities and decisions to commit resources to foreign operations. The experience has to be acquired through a long learning process in connection with current activities. Decisions to commit resources to foreign operations depend on what decision alternatives are raised and how they are chosen.
2. Anderson (1993)	To realise an inquiry into two ways of describing the firm's internationalisation process. Conceptual study.	Uppsala Internationalisation Model and Innovation-Related Internationalisation Models	Not applicable.	The delineation of theoretical boundaries, ensuring the explication of assumptions which bound the theory should be amplified. The models are lacking explanatory power, implying vagueness in the purpose of the models. More attention should be paid to the congruence between the theoretical and operational level. The internationalisation process models represent a substantial and pioneering research in the field of international business.

Source: Self-elaborated

ANNEX 2 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
3. Fletcher (2001)	To show that internationalisation is no longer just an outward-driven activity and that firms also become internationalised by undertaking import-led activities and activities in which "inward" and "outward" activities are linked. Empirical study.	Stages approach; Learning approach; Contingency approach; Network approach.	Quantitative methodology: questionnaire developed in 1992 addressed to exporters in the state of New South Wales (Australia). Total sample is 541 firms. Qualitative methodology: interviews with 17 executives and officials involved in international activities in Sidney (realised in 1999). Statistical tools: descriptive, chi square, ANOVA.	Internationalisation is multifaceted, does not relate to outward activities. All factors - exception of size - predict outward internationalisation. With firms' characteristics, those factors that predicted outward internationalisation also predicted inward internationalisation as well as internationalisation overall. Concerning incentives to internationalise, both factors that predict outward internationalisation also predicted overall internationalisation. Regarding impediments to internationalisation, those that are related to outward internationalisation and also to internationalisation overall are, with the exception of 'strong marketing by overseas competitors', related to inward internationalisation.
4. Jones (2001)	To examine the first steps of firms in the process of internationalisation as a first step towards the identification and categorisation of the internationalisation behaviours of entrepreneurial firms. Empirical study.	Considering the existent literature, first steps in internationalisation will occur in response to both internal and external factors in addition to foreign market factors. The types of cross-border activities undertaken are likely to correspond to the firm's own imperatives and influences from its industry or cluster rather than exclusively from the foreign market.	Data collected through a structured questionnaire. Final sample of 213 high-technology firms. Analysis at two levels, the first at the level of the cross border link or business activity type, and the second at the level of the small firm.	Level-one results confirm that trade-related activity is reported more frequently than other types of business activity and therefore support the idea of a gradual internationalisation process. At level two, the way in which firms combine, or simultaneously establish different cross-border link types, especially when examined according to value chain function, gives some indication of each firm's focus, or area of priority at that time. Internationalisation is a process of geographical diversification.

Source: Self-elaborated

ANNEX 2 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
5. Fahy (2002)	To examine the question of how firms attain a sustainable competitive advantage in a global environment. Empirical study.	Global business strategy; economic perspectives of global competitive advantage; resource-based view of the firm.	Data from USA, Japan, UK and Ireland. Sample of firms in automotive industry. Confirmatory factor analysis, discriminant analysis.	Capabilities are the most important within the firm-specific group. Tangible assets are perceived as being more important than intangible assets. In the context of the overall resource pool, mean importance ratings for firm-specific resources were significantly higher than for country specific resources. Barriers to duplication can also be seen to be important within the country-specific resource group. The emphasis on country-specific resources may be misplaced.
6. Malhotra, Agarwal and Ulgado (2003)	To examine the internationalisation process of firms on the basis of entry mode and timing strategy from a multitheoretical perspective and to propose a conceptual framework that captures various entry modalities and moderating influences. Conceptual study.	International product life cycle theory; Market imperfections theory; Strategic behaviour theory; Resource advantage theory; Transactions cost analysis theory; Eclectic theory of international production; Internationalisation theory; Network theory.	Not applicable.	The framework proposed is believed to help in a better explanation of why firms deviate from the expected trajectory of internationalisation. It can serve as a useful conceptual repertoire for the researchers and practitioners.

Source: Self-elaborated

ANNEX 2 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
7. Chetty and Campbell-Hunt (2004)	To explore the extent and locus of differences in the two theories of the internationalisation process by examining firms that should bring these differences into sharp relief. Empirical study.	Traditional and Born-Global theory of internationalisation.	Qualitative methodology: 16 in-depth case histories on New Zealand firms.	Many attributes of the born-global model also characterise firms that began their internationalisation along traditional lines but were radically transformed in the process of achieving global reach. The distinctive character of the born-global model stems from the transformation of the global economic system as well as the heightened relevance of the born-global internationalisation path into globalised markets and competition. There are identified the consequences of rapid international growth, referred to as “the gusher,” among these firms and the destabilising effects of the experience as the firm is taken in unexpected directions.
8. Oviatt and McDougall (1994)	Develop a framework that explains the phenomenon of international new ventures by integrating international business, entrepreneurship, and strategic management theory	MNE theory (multinational enterprises)	Describe four sufficient and necessary elements for the existence of international new ventures: organisational formation through internalisation of some transactions; strong reliance on alternative governance structures to access resources; establishment of foreign location advantages; control over unique resources.	Types of international new ventures: new international market makers; geographically focused start-ups; global start-ups.

Source: Self-elaborated

ANNEX 2 (continuation)

Nº/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
9. Jones and Coviello (2005)	To identify core concepts common to internationalisation and entrepreneurship research; to use those concepts as points of integration between the fields; to develop integrative conceptual models relevant to the emergent field of international entrepreneurship in order to provide a sound basis for empirical examination. Conceptual study.	Focus on the classic approaches to internationalisation and import insight from entrepreneurship as a separate and distinct field of study.	Not applicable.	Multi-theoretical perspectives are useful in understanding complex social phenomena such as entrepreneurial internationalisation behaviour. Internationalisation is established as a firm-level entrepreneurial behaviour manifested by events and outcomes in relation to time. There is a cyclical effect of time in respect of how the environment, firm and entrepreneur interact and learn to impact on internationalisation behaviour. Entrepreneurial internationalisation is linked, directly and cyclically, to various aspects of firm performance.
10. Rialp, Rialp and Knight (2005a)	To review and evaluate the most contemporary academic literature (both theoretical and empirical) concerning the newly established, highly international entrepreneurial firms in order to identify the key empirical findings and suggest further theoretical development to explain this emerging phenomenon. Literature review.	A focus on international entrepreneurship.	Not applicable.	The majority of the literature on early internationalising firms has been largely exploratory, descriptive, and focused on particular industries or international locations. Emphasis on the development of theory, constructs, and conceptual frameworks is essential. More focused research based on case studies is needed to better understand the nature and processes of early internationalising firms, as well as the organisational structures and designs appropriate for such businesses.
11. Rialp, Rialp, Urbano and Vaillant (2005b)	Investigate the most critical differences shown by recently established Spanish SMEs in Catalonia. Empirical study.	Gradualist approach to internationalisation (Uppsala model and Innovation-related models).	Qualitative methodology: 4 in-depth, semi-structured interviews with Spanish entrepreneurs, founders, and/or managers deeply involved with decision-making process in their companies.	Both the gradual development pattern abroad - the traditional stage model - and the early internationalisation process - Born-Globals - have been found to constitute two consistent and distinctive patterns of firm's international expansion.

Source: Self-elaborated

ANNEX 3

Literature review. A focus on the innovation and internationalisation of the firm.

Nº/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
1. Archibugi and Michie (1995)	To review, from a critical point of view, the existing literature upon the "technoglobalism". Conceptual study.	Resources for inventions and innovations;	It was applied an analytical distinction between three different processes: international exploitation of the technology, international technological collaboration, and the international generation of technology.	Although the exploitation of the innovations has increased in the international markets, as well as the international collaboration, it seems that the technology production continues in good measure bounded to the national frontiers.
2. Molero (1998)	To contribute to the debate about the factors determining the growing internationalisation of small and medium firms originate from intermediate countries. Empirical study.	Theory of innovation; technological foundation of foreign trade; reviewed versions of international investment-Uppsala model	Two sources of information: data bank of innovatory firms (814 companies) and a survey (205 valid cases). Discriminant analysis and logit models.	Learning through trade is neither a determinant nor a precondition for firms to develop further more complex strategies. Only for discriminating against levels of internationalisation arise regular exports. Technological tasks developed abroad have some effects on acceding to the complete form of internationalisation.
3. Wakelin (1998)	To extend to a firm level the analysis of the influence of innovation on the export behaviour. Empirical study.	Characteristics of innovation at the firm level and review of empirical work concerning the determinants of export at the level of the firm.	Microeconomic data set of UK firms which covers 320 firms for a period of 5 years and accounts for over half of total UK manufacturing output over the 5 years. Descriptive statistics. Tobit model (Cragg's specification). Probit model.	There are considerable differences in the reactions of innovating and non-innovating firms, and in the determinants of their behaviour. Given their size, innovating firms are less likely to enter export markets than non-innovating firms. Large innovative firms are likely to export, and the more innovations they have had, the higher the probability that they will enter export markets.

Source: Self-elaborated

ANNEX 3 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
4. Golder (2000)	To examine new product development practices in an international context; to focus on the broad-based perspective of senior executives representing multiple industries; to focus on the practices of multinational companies that have significant market share in their categories; to uncover novel insights about international innovation; to provide new directions for researchers to investigate and validate about international innovation. Empirical study.	Discovery-oriented approach.	In-depth interviews with 64 executives in 5 countries.	Leveraging knowledge around the world is a key success factor. Leading-edge companies incorporate new product ideas from everyone. Companies often require product development groups to secure the support and participation of the operating unit that will introduce the new product. The high cost of developing new technologies is driving companies to share development costs and to limit the number of potential alternatives considered. Standardisation is not driven primarily by the increasing similarity of customers; it is simply a better way to manage an international company. Unless companies are well established in a foreign market, there is a tendency to introduce innovations with a local partner. An international brand custodian is the best way to manage standardisation and transfer knowledge.
5. Acs, Mork and Yeung (2001)	To examine the impact of governmental policies in firms influencing the path of internationalisation of SMEs. Conceptual and empirical study.	Theory of multinational	Examined a Canadian state-owned enterprise that provides Canadian exporters with financial assistance such as trade credit arrangements and default insurance (Export Development Corporation).	Radical innovations are more likely to show up in SMEs. SMEs also tend to search for innovations in less crowded areas of research. SMEs and multinationals can have a synergistic relationship in globalisation.

Source: Self-elaborated

ANNEX 3 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
6. Basile (2001)	To analyse and compare the relationship between innovation capabilities and export behaviour of Italian firms in different exchange rate regimes. To analyse the specificity of export behaviour of firms localised in the south of the country over the same period of time. Empirical study.	Microeconomic model of export behaviour.	Data collected by Mediocredito Centrale (Italy). The sample (more than 4000 firms) is random and stratified according to the size of the firms, in terms of number of employees, sector and region. Multivariate analysis. Tobit model (Cragg's specification). Probit model.	Firms that introduce product and/or process innovations either through R&D activity or through investments in new capital equipment are more likely to export. Firms that are part of a business group are more likely to export, while firms localised in southern regions are less likely to export. Non-innovating firms have been more able to export in 1994 than in 1991. 90% of the firms that have introduced product innovations over each period were also exporters. R&D related product innovation strategies have a positive effect on the export intensity only in 1994 and 1997. Innovation is a very important competitive factor and helps to explain firm level heterogeneity in export behaviour among Italian firms.
7. Eusebio and Rialp (2002)	To identify those factors that approach, in a more exhaustive way, the activities of technological innovation that a company carries out. Empirical study.	Empirical evidence on the effect of the technological investments in the added export flows.	Data from the Survey of Managerial Strategies (Spain), 1998. Total sample of 173 manufacturing firms. Descriptive analysis, lineal and logistic regression.	There is a positive and significant effect of the investments in R&D on the probability that a Spanish company of the textile sector begins to export. There is a positive effect of the investments in R&D and of some variables on the export intensity. Also, the product and process innovations have a positive effect on the export intensity.

Source: Self-elaborated

ANNEX 3 (continuation)

Nº/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
8. Hurmerinta-Peltomäki (2003)	To analyse the role of time in criticism of internationalisation research; to analyse how time is related to internationalisation research according to time-theory literature; to analyse how changes in the length of time challenge the theoretical basis for studying the internationalisation process. Conceptual study.	Innovation-adoption models based on the theory of innovation diffusion; Learning theory approach.	Not applicable.	Two dimensions of time are relevant to the development of internationalisation: linear and cyclical time. The innovation perspective is the only approach to internationalisation that addresses the timing of export adoption. The individual aspect should also be included in export-adoption studies. It is useful to consider innovation in terms of knowledge. The innovation-adoption model in the export context has lost some of its explanatory value. Cyclical internationalisation may be perceived on an organisational level in a forward-backward-forward form. There is a clear need for an experience-based, entrepreneurial-oriented theory of small-firm internationalisation.
9. Knight and Cavusgil (2004)	To focus on the phenomenon of early internationalisation and the capabilities that Born-Globals leverage for achieving superior performance in international markets. Empirical study.	Evolutionary economics view; resource-based view of the firm	Qualitative methodology: in-depth interviews with 33 professionals. Quantitative methodology: sample of 203 manufacturing USA firms; exploratory factor analysis; confirmatory factor analysis, formula of composite reliability.	Born-Globals are likely to be formed by entrepreneurs who pursue foreign ventures with a strong marketing orientation. The strongly innovative nature of Born-Globals supports them in developing particular types of knowledge. The importance of specific key organisational capabilities that engender international success in Born-Globals is confirmed.

Source: Self-elaborated

ANNEX 3 (continuation)

N°/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
10. Cho and Pucik (2005)	Examine the relationship between innovativeness, quality, growth, profitability, and market value at the firm level by testing whether the reporters' success stories were firm specific or valid across firms in general. Empirical study.	Intangible resources from a resource-based view of a firm (Penrose, 1959; Wernerfelt, 1984), various innovation and quality literature, and exploration and exploitation from organisational learning (March, 1991).	The Fortune Reputation Survey (1983); Structural Equations Model	Direct relationships between innovativeness and three firm performance measures, as well as between quality and three firm performance measures. The innovativeness had a direct relationship with market value, and the mediation effect of quality existed in the relationship between innovativeness and market value. The mediation effect of profitability existed in the relationship between growth and market value.
11. Flor and Oltra (2005)	To study the effects that firm' technological capabilities, as an expression of their technological innovation strategy, have on their international competitiveness. Empirical study.	There are used concepts derived from the literature on technological innovation to identify different capabilities that the firms may develop to manage their innovation process	88 Spanish exporting firms belonging to the ceramic tiles industry-postal survey directed at firm managers. Multiple linear analyses.	Technological innovation capabilities have a positive impact on export performance. Specifically, investment in internal non-R&D innovative activities exerts a positive influence on export performance. Production capabilities have a positive effect linked to both improvement and imitation of products and processes. Export performance is related to capabilities that derive from co-operation with universities and research institutes rather than co-operation with other companies.
12. Lopez and García (2005)	To analyse the relationship between the firm's technological capacity and its export behaviour from a double perspective: the decision to export and the export intensity. Empirical study.	Resource-based view.	Data from Survey of Business Strategies (Spain). Descriptive and parametric test statistics and multiple regression models. Total sample of 1234 manufacturers.	Innovations in products and processes as well as the use of patents have a positive and significant effect on the likelihood a firm will start to export and on its export intensity. The R&D spending intensity has a positive effect only on export intensity.

Source: Self-elaborated

ANNEX 3 (continuation)

Nº/ Author (Year)	Main objective/ Type of research	Theoretical frameworks	Empirical methodology	Main results and conclusions
13. Prashantam (2005)	To integrate the internationalisation process model and international new venture perspective. To strengthen its integrative approach by considering the role of network relationships in internationalisation. Conceptual paper.	Knowledge-based view; Social capital theory.	Not applicable.	It provides direction for extending the internationalisation literature through an eclectic approach combining knowledge-based and social capital theories.
14. Salomon and Shaver (2005)	To analyse if exporters can often access diverse knowledge inputs not available in the domestic market, meaning that knowledge can spill back to the focal firm fostering in this way increased innovation.	Depart from the existing literature and focus on innovative outcomes rather than productivity measures.	Data from a survey initiated in 90s by Fundación Empresa Pública. Sample is formed of 3,060 firms and 14,282 firm-year observations. Descriptive statistics, nonlinear GMM estimator for exponential models with panel data that allows for predetermined regressors and linear feedback.	Exporting is related to ex post increases in two measures of firm innovation: product innovation and patent applications. Exporters increase their patent applications subsequent to exporting, this effect being more pronounced with further lags. Exporters increase product innovations. Technological information received from foreign sources takes longer to spill back for patents than for product innovations.
15. Lachenmaier and Wössmann (2006)	To identify whether innovation causes exports among German manufacturing firms. Empirical study.	Product-cycle trade model; Global-economy growth models.	Data from 2002 Ifo Innovation Survey (Germany). Sample: 981 manufacturers. Descriptive statistics, ordinary least-square estimations, alternative instrumental variable regression, and Tobit regression.	The results support the prediction of the product-cycle models that innovation is a driving force for industrialised countries' exports. Being innovative causes firms to have substantially larger export shares than non-innovative firms in the same sector. The fact the firm performance mainly tends to precede exporting may be due to the causal effect of innovative activity on exports.

Source: Self-elaborated

ANNEX 4

In-depth interview's structure

