
How to create international business competences and their impact on firm performance

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Abstract: This work aims to analyse the effect of the holistic view, continuous learning and information technology infrastructure on the creation of international business competences. The study also investigates whether the creation of this type of competence significantly affects firm performance using the structural equation modelling method of hypothesis testing. A survey of 257 companies from the biotechnology and telecommunications industries verifies the mediating role of international business competences. These findings suggest that managers should emphasise the creation of a holistic view, promote continuous learning and improve the information technology infrastructure in order to develop international business competences, because these competences have a positive and significant impact on firm performance.

Keywords: international business competences; firm performance; holistic view; continuous learning; information technology infrastructure.

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1 Introduction

In a globalised context, firm internationalisation is a key strategic choice of growing interest in the fields of management and research. This article uses recent contributions from the knowledge-based approach to examine certain internal variables that determine a firm's internationalisation process. According to this approach the acquisition and use of relevant knowledge is the key to explaining a firm's competitive results. Very few studies, however, use a knowledge-based approach to examine a firm's entry into foreign markets (Li and Cavusgil, 2000; Wang and Olsen, 2002; Morgan et al., 2003).

Several authors (Johanson and Vahlne, 1977; Blomstermo and Sharma, 2003) argue that the accumulation of market knowledge increases a firm's ability to coordinate its international activities and its willingness to commit resources to those activities (Hadjikhani, 1997). In this regard, internal knowledge transfer is very important at both individual and company level. This model assumes that a firm does not have full access to information and that internationalisation is a process of increasing experiential knowledge. It takes into account knowledge management, since a firm's internationalisation process is viewed as the interplay between knowledge development and increasing foreign market commitment.

If the possession of different types of resources provides the base for internationalisation so that a company can spread beyond national borders, then firms should carry out an internal analysis to find out whether they have the strengths to access new markets (Franco and Haase, 2010; Yu et al., 2011). Initially, a company can offset lack of size, scanty international vocation or lack of own resources if it is able to develop other types of competences (Head and Ries, 2004).

An appropriate context in which to examine the effect of knowledge management on the stock of international distinctive competences and their relationship with firm performance is presented by dynamic industries (Liu and Hsu, 2011), where learning and technological innovation have become successful key factors (Cavalcante et al., 2011; Goktan and Miles, 2011). Spanish biotechnology and telecommunications industries are therefore a suitable choice for this empirical work.

The aim of this work is to examine the relationship between international business competences and firm performance. In order to create international business competences in a firm we study the relationship between these competences and three antecedent variables: holistic view, continuous learning and IT Infrastructure. This paper is organised as follows. Section 2.1 reviews the effects of internationalisation from a resource-based approach presenting the motives that explain why some companies are better placed to internationalise than others. Section 2.2 develops the theoretical model, and posits the hypotheses. Section 3 includes all the methodological aspects of the study, explaining the operation of the theoretical constructs in the theoretical model, data collection and other matters concerning the research design. Section 4 shows the results of the hypothesis testing. The work ends with some final considerations in the light of the results of the empirical analysis and recommendations for management and future research.

2 Literature review

2.1 Internationalisation from a knowledge-based approach

In the resource-based approach, possession of resources (Kogut and Zander, 1992; Hitt et al., 1997) and strategic capabilities are key factors in firm internationalisation. This approach highlights the fact that firms need strategic resources (Andersen, 2011) to compete successfully in international markets and in particular, valuable knowledge that can provide a competitive advantage over local firms. If the company can make the most of this advantage from the home market, it will export; otherwise it must exploit the advantage in the target country (Dalli, 1994).

When companies have resources and capabilities such as technology, reputation, brands, and so on, that provide them with a competitive advantage in their local market, they can consider the possibility of exploiting them abroad (Tseng et al., 2007). A limitation of the Resource-Based Approach (RBA) and in particular the Knowledge-Based Approach (KBA) is that they are very static and do not take into account dynamic aspects of the creation and modification of capacities. In fact, we consider KBA is a specific case of RBA, where the key resource is knowledge.

According to KBA, firms can be considered as heterogeneous organisations characterised by a unique knowledge base. Knowledge is a rare and significant intangible asset for the organisation. Furthermore, it is more inimitable when it is maintained tacit in the organisation (Nonaka, 1994). This author states that tacit knowledge is obtained through personal experiences, and when this type of knowledge is collective, it is more difficult to transfer.

KBA holds that sustainable competitive advantage is obtained by having knowledge assets and combining them with other assets (Kohlbacher, 2007). The evolutionary path of an organisation is influenced by the process through which the organisation

accumulates knowledge assets. The importance of knowledge as a key factor in creating competitive advantages is strengthened in knowledge intensive industries, where innovations are continuously developed.

The Uppsala school (Johanson and Vahlne, 1977) or internationalisation theory recognises the importance of a key resource like foreign market information and on the internationalising process itself. Internationalisation theory maintains that the process takes place in successive stages as the firm gains experience in each stage. This theory assumes that only experience can affect management decisions to promote future international expansion; as a firm accumulates experience in foreign markets, its management of resources improves.

Consequently, there is a relationship between a firm's exposure to foreign market conditions and (a) management of its own resources or (b) management of close competitors' resources (Delios and Henisz, 2003). Firms learn during the export process as they discover the characteristics of new markets and how to operate in them, thereby obtaining some of the information they need to make further progress abroad with less uncertainty.

Knowledge management ensures that knowledge becomes business competences which facilitate the task of successfully adapting to the market, and the process helps firms to commit new resources in markets other than the home market (Cumbers et al., 2003; Park et al., 2011). The ability to use existing knowledge enables firms to adapt with new innovations that are both radical and incremental (Hotho and Champion, 2011; Naranjo-Valencia et al., 2011) and to use resources efficiently, which requires greater involvement with the market.

2.2 *Theoretical model*

The limitation with classical approaches to company organisation is that they consider organisations as closed systems. Furthermore, functionalist approaches divide firms into departments and units in pursuit of greater efficiency, often sacrificing the big picture. As firms grow, they tend to diversify their activity (Hitt et al., 2006). A wide variety of different activities appear in firms which disperse in time and space and bring together actors from different places with different cognitive levels.

A firm should have a holistic view that aligns its corporate objectives with the goals that all its members have outlined so that they are committed to generating, sharing and socialising knowledge (Arendt and Brettel, 2010; Krasniqi, 2010). When we use the term holistic view, we refer to the ability of the firm to introduce practices to promote a global vision of the firm. Employees take into account all the firm's departments and its strategic plan, so they take the best decisions for the firm, not for the individuals.

Business structure affects knowledge transfer. A rigid vertical structure will generate barriers to communication and knowledge transfer. Furthermore, an excessive subdivision of work removes the firm's overview (Magnier-Watanabe and Senno, 2010).

When small and medium-sized firms lack resources, other strategies are available such as establishing relations with other firms (Wolff and Pett, 2000; Salavou, 2010). These relations may be with shareholders, as happens when the company capital is open to external shareholders, or involve cooperation through strategic alliances. In these cases, trust is a key intangible asset. Transmitting a holistic overview is a key factor for firms to develop lasting agreements (Chesbrough, 2010).

One of the motivations for internationalisation is growth, because firms want to either enlarge the scope of their products or broaden their geographic reach. However, sometimes firms' collective knowledge disintegrates and hinders the internationalisation process (Sonmez and Moorhouse, 2010; Añón and Driffield, 2011; Aspara et al., 2011). The creation of collective, shared knowledge, through an efficient knowledge transfer system makes possession of specialised export management routines and knowledge fundamental (Visscher and Visscher-Voerman, 2010).

On the basis of the above relations we posit the first hypothesis as follows:

H1: There is a positive and significant relationship between companies that develop a holistic view and the creation of international business competences.

The ability to learn relates to the ability to create, transfer and apply new knowledge, one of the main sources of competitive advantage (Fiol and Lyles, 1985; Grant, 1996). Other studies such as the one by Palacios et al. (2010) have already established a relationship between continuous learning systems and the development of competences. In fact, the above authors distinguish four dimensions for developing a continuous learning system: management commitment to continuous learning; a culture that promotes innovation and learning; the development of internal competences; learning-based business design.

Learning is essential to determine the degree of originality or the specific nature of a competence that fulfils the requirements of being valuable, rare, impossible to imitate perfectly and with no strategically equivalent substitutes (essential competence) as it is one of the reasons that make imitation difficult (Cáceres-Carrasco and Guzmán-Cuevas, 2010). The portfolio of business competences are closely related, so if the firm improves its learning-based distinctive competences, it will indirectly be improving other types of competences such as international business competences. Developing these abilities requires a process of transformation, using and combining standard or available resources in a business context alongside business routines to generate capabilities (Khara and Dogra, 2009).

In organisations that encourage reflection, analysis and change in order to continuously improve, new ideas are valued regardless of the hierarchical level of the human capital that formulates them (Smolarski and Kut, 2011). Besides, if the organisation promotes continuous learning and the acquisition of new abilities through staff turnover or introducing improvements in employee's professional lives, it is also encouraging a culture focused on innovation and learning (Cegarra-Navarro et al., 2011).

Similarly, the business environment must provide favourable conditions for integrating knowledge and applying it to create superior products and services. Demsetz (1991) also maintains that if people specialise in specific areas, efficiency in the acquisition of knowledge increases. Integrating knowledge in different departments makes it easier to apply and creates competences that facilitate internationalisation (Bruneel et al., 2010; Simsek and Heavey, 2011).

One variable to consider in relation to learning is time delay. This variable takes into account the period of time that elapses between the development of knowledge flows and their effect on knowledge stocks. The magnitude of time delay varies in each organisation, influenced by the ease with which firms are able to integrate new knowledge as it arrives (Lindblom and Tikkanen, 2010).

In order to produce positive variations in the knowledge stock, in addition to receiving positive flows, firms must integrate knowledge in an appropriate way (Cassia and Colombelli, 2010). Simon (1991) states that at individual level and as a consequence of the appearance of cognitive problems, the acquisition and use of knowledge requires specialisation.

Therefore:

H2: There is a positive and significant relationship between continuous learning and the creation of international business competences.

Information and Communication Technologies (ICT) facilitate knowledge by capturing, storing and transmitting it (Gururajan and Fink, 2010). The literature on information systems maintains that the introduction of ICT has no direct impact on business performance. In fact, intermediate variables mediate the relationship between these two constructs. In this regard, Byrd et al. (2008) maintain that effects on firm logistics are an intermediate variable which does have a direct impact on business performance. A firm must therefore be able to transform ICT into business performance by identifying conversion effectiveness factors that mediate in the relationship between ICT and performance (Soh and Markus, 1995; Clarke, 2008; Morgan-Thomas, 2009).

The function of production and process-oriented models describe the relationship between ICT investment and business performance from an input-output perspective that sometimes includes intermediate factors such as management decisions and business structure. A key variable for understanding internationalisation is knowledge management. Lee and Choi (2003) consider that information technologies and their abilities enable the creation of new knowledge and so contribute to different ways of managing knowledge: firstly, the technological infrastructure facilitates rapid compilation, storage and exchange of knowledge, thereby facilitating the process of knowledge creation (Nassimbeni, 2001). Secondly, it enables integration of fragmented knowledge flows, eliminating the obstacles to communication between departments within a firm.

On the basis of these relationships therefore:

H3: There is a positive and significant relationship between information technology infrastructure and the creation of international business competences.

The knowledge stock the company creates on the basis of its knowledge management processes increases its ability to adapt to market requirements. The internationalisation literature divides the knowledge stock into objective and experimental knowledge. By operating in the market the firm not only acquires market information but even manages to connect more closely with the market, making it difficult to use the firm's resources for other purposes. Lack of experience has a negative impact on the initial stages of business performance. The acquisition of external knowledge, including the compilation of customer and competitor data is particularly important when dealing with foreign markets.

Customers are a valuable source for developing or modifying products or services. When firms internalise knowledge acquired through relations with their customers, suppliers or competitors, individual learning creates new knowledge that increases the business knowledge base (Majocchi et al., 2005). A company must commit resources to a foreign market, and spend a significant amount of time updating the competences it will use in subsequent international investments (Harris and Li, 2009), which has a positive effect on business performance. Furthermore, dynamic markets demand dynamic responses and strategies, thus requiring explicit commitment and a focus that takes market reality into account.

Therefore:

H4: There is a positive and significant relationship between the creation of international business competences and business performance.

3 Methodology

3.1 Variables

There are five theoretical constructs in the theoretical section. The items for measuring the firm's holistic view and continuous learning come from Palacios and Garrigos (2005) and the items for measuring information technology infrastructure come from Byrd and Turner (2000). The creation of international business competences comes from the work by Knight and Kim (2009) and business performance from the study by Nakata et al. (2008). These scales meet all the sociometric properties required from measurement scales in social sciences. Table 1 describes some features of these measurement scales:

Table 1 Measurement scales

<i>Scale</i>	<i>Number of items</i>	<i>Measurement</i>
Holistic view	9	Seven-point Likert scale
Continuous learning	8	Seven-point Likert scale
IT technical infrastructure	22	Seven-point Likert scale
International business competences	4	Seven-point Likert scale
Firm performance	7	Five-point Likert scale

The empirical study uses two-stage structural equation modelling to validate the measurement scales and establish causal relations. This methodology enables representation of latent concepts of observed variables and study of causal relations with non experimental data, when relations are linear. We use statistical software EQS 5.7b and the default Maximum Likelihood method offering consistent estimators for broad samples with continuous variables and multi-normal distributions (Bollen, 1989).

3.2 Data collection

The study sample comprises companies from the biotechnology and telecommunications industries in Spain. These companies have already begun to internationalise and knowledge is a key competitive factor, there is a high degree of innovation (Blackler, 1995, p.1021) and therefore they are suitable for analysing antecedent factors that improve the creation of international distinctive competences (Ullah et al., 2010). The biotechnology and telecommunications industries were chosen for the research because the management of intangibles is more clearly appreciated than in other types of industry.

Email questionnaires were sent to the general managers of these companies because their holistic view enables them to provide reliable answers. We pre-tested the measurement instrument on 20 companies, 10 from the biotechnology industry and 10 from the telecommunications industry. The field work took place between February 2010

and July 2010. The questionnaire was sent to all the firms making up the population. Elimination of incorrectly completed questionnaires gave 222 questionnaires, with a sample error of 5.7 and a 95% confidence interval.

4 Results

Following Bagozzi (1981) confirmatory factorial analysis was used to analyse the dimensionality, reliability and validity of all the scales, after evaluating the fit of the estimated factorial models.

Table 2 validates the measurement scales for the five theoretical constructs in the theoretical model. We evaluate global fit using measures of absolute fit, incremental measurements and parsimony measurements. The statistical values reach the recommended thresholds.

Table 2 Fit indices for the initial factorial models

<i>Scale</i>	<i>d.f.</i>	<i>Chi²</i>	<i>p</i>	<i>BB NNFI</i>	<i>RCFI</i>	<i>GFI</i>	<i>RMR</i>	<i>NC</i>
Holistic view	9	10.779	0.291	0.954	0.995	0.943	0.034	1.2
Continuous learning	2	2.732	0.255	0.986	0.998	0.975	0.027	1.37
IT technical infrastructure	2	1.794	0.407	0.940	1	0.982	0.040	0.89
International business competences	3	18.801	0.002	0.910	0.954	0.894	0.054	3.76
Firm performance	2	2.847	0.241	0.969	0.997	0.972	0.034	1.42

Composed reliability was used to assess measurement scale reliability. Composed reliability takes into account the standardised loads and measurement errors for each item in the measurement scale. The minimum threshold for composed reliability is 0.7. Table 3 shows high values, all above the recommended threshold and therefore measurement scale reliability is high.

Table 3 Composed reliability value for each measurement scale

<i>Measurement scale</i>	<i>Composed reliability</i>
Holistic view	0.89
Continuous learning	0.84
IT technical infrastructure	0.82
International business competences	0.92
Firm performance	0.91

The content of the measurement scales is valid as they fulfil two conditions. Firstly, the dimensions and items are taken from the literature, that is, from prior theoretical arguments, scales and empirical studies. Secondly, the scales follow procedures accepted in the literature. We based all the measurement scales on previous works, so there is no new ad hoc scale. The references comply with all the sociometric properties required from measurement scales and the statistical tool enables us to validate the hypotheses while also re-testing the measurement scales.

4.1 Empirical hypothesis testing

Relationship between holistic view and international business competences (H1)

The model shows the following fit. The model is over-identified, the chi-square statistic is statistically significant, the GFI index (0.904) is above 0.99 and RMR (0.024) is around 0 which indicates a good fit in absolute terms. BBNFI (0.950) and RCFI (0.991) exceed the minimum threshold levels. The parsimonious fit measure (NC = 1.6) is between 1 and 2. Structural equation reliability is $R^2 = 0.938$. Therefore we can accept the first hypothesis with a structural relation coefficient of 0.89.

Relationship between continuous learning and international business competences (H2).

In this case the fit indexes are also positive. Absolute fit measures (GFI = 0.923; RMSEA = 0.022; chi-square value = 10.584), incremental fit measures (BBNFI = 0.956) and the parsimonious fit measure (NC = 1.32) are all above the threshold levels. Structural model reliability is high ($R^2 = 0.948$). The coefficient for the equation is 0.92 which indicates that the effect of continuous learning on the creation of international business competences is high and therefore the hypothesis is verified.

Relationship between IT infrastructure and international business competences (H3)

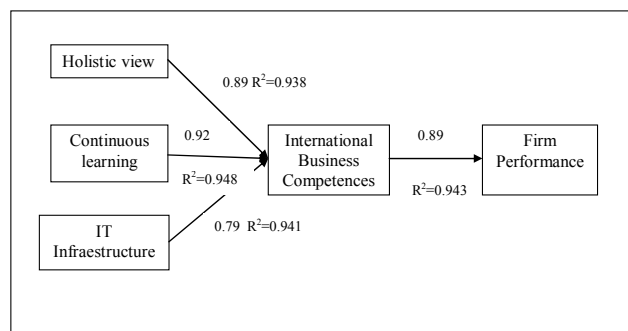
As in the two previous cases, the statistics obtain statistically significant values and the model is also over-identified. Absolute fit measures (GFI = 0.960; RMSEA = 0.010; chi-square value = 11.851), incremental fit measures (BBNFI = 0.983) and the parsimonious fit measure (NC = 1.48) are statistically significant.

Structural model reliability is 0.941. The structural equation coefficient is 0.79 and is the weakest of the three antecedent variables of international business competences. However, the hypothesis is fulfilled and it is possible to infer a direct and significant relationship between IT infrastructure and the creation of international business competences.

Relationship between international business competences and firm performance (H4)

As for the previous hypotheses, we divide fit measurements into absolute fit (GFI = 0.937; RMSEA = 0.030; chi-square value = 25.761), incremental fit measures (BBNFI = 0.951) and the parsimonious fit measure (NC = 1.29). The values are good and corroborate the hypotheses. Structural model reliability is 0.943 and the coefficient of the equation is 0.89.

Figure 1 Hypotheses coefficients and structural equations reliability



5 Conclusions and managerial implications

In this study we examined the impact of three antecedent variables on the creation of international business competences, in particular the holistic view, the promotion of continuous learning and improved information technology infrastructure. The empirical study shows a positive and significant relationship in the three hypotheses. The coefficients in the respective structural equations indicate that continuous learning is the most influential variable in the creation of international business competences (0.92) while information technology infrastructure (0.79) has the least impact although it is still positive and significant. Furthermore, the relationship between international business competences and firm performance shows a positive significant relationship with a coefficient in the structural equation of 0.89.

One aspect to consider is that businesses develop specific capabilities and create competences to respond to changes in the business environment. Competences depend on each firm's individual strategies and its sector of activity. It is particularly interesting to develop international business competences based on joint exploitation of various resources in which the organisation is particularly skilled and which give it a competitive advantage. An appropriate ICT infrastructure enables firms to standardise processes and accumulate knowledge of foreign markets more efficiently.

Companies must propose a learning model that contributes to the development of essential capabilities in a holistic approach. Thus, if a company improves its distinctive internationalisation competences, it will indirectly be improving other types of competences such as, for example distinctive knowledge and innovation competences. Such competences can be generated by transforming standard or available resources and business routines. Developing this type of capacities requires a transformation process, using and combining standard or available resources in a business context, together with business routines to generate capacities.

In view of the rising development costs, biotechnology firms have to generate internationalisation strategies to obtain a return on investment that amortises the cost of research. When a company develops a new patent, it usually has no commercial structure to sell worldwide, so it makes trade agreements with companies from other countries to commercialise the patent. Such agreements are very common between pharmaceutical companies.

Corporate initiatives in the telecommunications sector have been linked to the Internet world, with very aggressive business models leading to excessive regulation, especially the UMTS licence auctions. Some companies use non-organic growth strategies to gain size rapidly. Given the characteristics of telecommunications, internationalisation brings economies of scale and scope, promoting efficiency in service delivery and control in the value chain.

The empirical study examines firms from the biotechnology and telecommunications industries, two knowledge-intensive sectors where intellectual capital has a key role and a clear export vocation. However, according to the theoretical model these relations can be generalised to other industries that intend to internationalise.

Future research must examine other antecedent factors that positively affect the creation of international business competences to further understanding of the way managers can create a culture that develops knowledge of foreign markets and promotes internationalisation. Longitudinal studies would provide further information on how those competences evolve over time.

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