

**THE ROLE OF KNOWLEDGE IN FIRMS' INTERNATIONALISATION PROCESS:
WHEREFROM AND WHERE TO?**

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Twenty-five years ago the business theorists at the University of Uppsala in Sweden assigned knowledge a key role in their explanation of firms' internationalisation. Firms' learning – or, acquisition of knowledge - about foreign markets was pointed out as being determining not only the speed by which firms expand internationally, but also which regions of the world firms enter and what operation methods they employ in the foreign markets (Carlson, 1975; Forsgren and Johanson, 1975; Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977; Welch and Wiedersheim-Paul, 1980). Although challenged by other alleged determinants of firms' internationalisation knowledge is still the centrepiece in theories on firms' internationalisation process. However, the understanding of how internationalisation knowledge is acquired, retained, transformed and transmitted has developed significantly over the past decades. Simplicity and determinism have given way to complexity and managerial discretion in our evolving understanding of the role of knowledge in the internationalisation process of firms.

In this chapter we sketch this exciting development that has taken place since the seminal work of the Swedish business theorists and we suggest some aspects of knowledge that still need to be explored in an internationalisation context. The chapter consists of four sections that are organised in the following way:

In the first section (after this introduction) we describe how the understanding of firms' internationalisation process has evolved. Both in terms of expanding the host of factors explaining firms' internationalisation process (in addition to the knowledge factor) and in relation to the sophistication of knowledge understanding – towards a much more complex modelling of firms' internationalisation than in the original Uppsala model. In the second section we account for the development of internationalisation theory that has taken place since the seventies. In this section it is demonstrated how the original presentation of the firms' internationalisation process as being a rather deterministic one has been replaced by the recognition of managerial discretion as a pervasive element in firms' acquisition and use of knowledge throughout the internationalisation process. In section three we discuss some new aspects of knowledge

emerging from the substantial advances in information and communication technology (including the Internet) that has fundamentally transformed the economy and the behaviour of firms since the seventies. The fourth section of the chapter concludes.

1. From Simplicity to Complexity

An important attribute of the original Uppsala model is its simplifying interpretation of firms' internationalisation process. The model has been respected as axiomatic, largely owing to its intuitive logic and theoretical parsimony, but has also been characterised as almost tautological (Andersen, 1993) and 'simplistic' (Sullivan and Bauerschmidt, 1990). Sullivan and Bauerschmidt (1990) have expressed concern that the simplistic, overt logic of the Uppsala model would 'hamper developing other explanations of internationalisation' (p. 28). Thus, the simplifying interpretation of firms' internationalisation process explains a great deal of the model's thrust. First of all, the theoretical model (Johanson and Vahlne, 1977) assumes market-specific knowledge to be the sole determinant of firms' internationalisation behaviour, although the authors have pointed out that other potentially important factors are at play in the internationalisation process of firms. As such, the modellers explicitly stress the partiality of the model.

1.1 Additional explanations of firms' internationalisation pattern (SUB 2)

The key role status of knowledge in internationalisation theories has not passed on unchallenged since the seminal work of the Uppsala theorists. When introducing their internationalisation model the Uppsala theorists themselves emphasised the partiality of the model (Johanson and Vahlne, 1977). Moreover, Johanson and Wiedersheim-Paul (1975) demonstrated the importance of foreign market size (or sales potential) as determinants of foreign countries in which (Swedish) companies would appoint sales agents or establish subsidiaries. In other words, managers' considerations about sales revenue vis-à-vis operating unit costs of their subsidiaries were acknowledged as being a determinant of firms' internationalisation patterns equally important with knowledge acquisition. Regrettably, IB-researchers (including Uppsala theorists!) have

tended to ignore this duality in their presentations of the Uppsala learning view as being in contrast to a basic economics/strategy view.

In their quest for a comprehensive, total internationalisation process model the Uppsala scholars and their apprentice students have drawn attention to determinants of internationalisation patterns in addition to knowledge and operating cost considerations. Thus, Johanson and Vahlne (1977, 1990) would expect companies 'with large total resources' (1977:30) to be less incremental in their international involvement. Kjell Nordström, in his doctoral thesis on the internationalisation process of firms (1991) extended the explanatory space of his Uppsala mentors. Still acknowledging the importance of knowledge and resource constraints, he found empirical support for the conclusion that market potential and industry structure in particular plays a role in the internationalisation process of firms: 'Market potential and industry structure seem to override the forces promoting incrementalism' (1991:181). Thus, global competition factors, including bandwagon effects (Aharoni, 1966; Knickerbocker, 1973) may also play a role in the internationalisation process. Pedersen and Petersen (1998) identified several factors that, in addition to acquisition of market-specific knowledge, may explain firms' gradual commitment of resources to foreign markets. The data (on Danish multinational companies) indicated that directly, and also indirectly via the global competition and the resource bases of the firms, did knowledge accumulation co-determine firms' resource commitment to foreign markets. Thus, increasing commitment to a foreign market as a response to strategic behaviour of competitors is to some extent contingent on the firms' possession of knowledge about the foreign market – including the activities and suspected intentions of the competitors operating in that market. Conversely, the firms' accumulation of knowledge of foreign markets was found to be associated with their resource base and the competitive environment. The two interaction effects observed in the study may reflect phenomena such as 'absorptive capacity' (Cohen and Levinthal, 1990) and 'imitative learning' (DiMaggio and Powell, 1983), respectively - both of which will be dealt with in the next section. Figure 1 depicts various factors explaining firms' internationalisation pattern. The internationalisation pattern is composed of the resource commitment to foreign markets (including operation methods), the spatial expansion, and the pace by which the firms internationalise. As indicated in the figure 'Knowledge accumulation'

and 'Size of foreign market' make up the two explanatory factors originally forwarded by the Uppsala theorists (Johanson and Wiedersheim-Paul, 1975).

---INSERT FIGURE 1 ABOUT HERE ---

Suffice it to say knowledge is today acknowledged as an important, but far from sole determinant of firms' internationalisation pattern.

1.2 Characteristics of knowledge in the Uppsala Model

In the original model (Johanson and Vahlne, 1977) the knowledge *that is particularly important* in the internationalisation process of firms takes on the following, more or less inter-twined, characteristics. First, the knowledge of crucial importance to firms' internationalisation process is *market-specific*, i.e. the knowledge is about how to do business in the targeted foreign country. Having their individual particularities all foreign markets differ from each other, and only to a limited extent can knowledge acquired in one foreign market be used in another. Secondly, the crucial knowledge is *experience-based*. It originates from the current foreign business activities, and as such the knowledge acquisition is a learning-by-doing process. Thirdly, the crucial knowledge is *embedded in individuals*, i.e. the market-specific knowledge is acquired through *personal* experience and the particular company person appears as a repository of that knowledge. Fourthly, as a logical extension of the second and third characteristics, the individually embedded experiential knowledge does not lend itself easily to dissemination throughout the organisation. The transfer of essential knowledge from one employee to another, and even more so, from one organisational unit to another, is fraught with difficulties.

A fifth suggestion made by Johanson and Vahlne is that international involvement, including commitment of irrevocable resources to foreign markets, increases proportionately with knowledge acquisition.

The development within internationalisation theory and learning theory since the seminal work of Johanson and Vahlne has challenged, supplemented and sophisticated the original presentation of the role of knowledge in the internationalisation process as it is outlined above. Today, the role of knowledge is generally recognised as being far more complex and

intriguing than originally acclaimed by Johanson and Vahlne. But again, this development has been encouraged by the Uppsala scholars themselves.

1.3 Examples of developments in the understanding of knowledge

In the following we shall briefly mention some important developments in relation to each of the knowledge characteristics given in the Uppsala internationalisation model. Since the wealth of new learning literature is overwhelming and space is limited, we will only do the outlining on a very selective, illustrative basis.

Knowledge subject areas

It is now generally recognised (Johanson and Vahlne, 1990; Eriksson *et al.*, 1997; Forsgren, 2000; Pedersen and Shaver, 2000) that the international expansion of firms is contingent not only upon knowledge about the specific, foreign market, but also on knowledge in relation to other facets of internationalisation activity. Thus, knowledge about internationalisation in general seems essential. General internationalisation knowledge concerns the questions of how to operate affiliate networks, how to design incentive structures in relation to local, independent business partners, etc. (Welch and Luostarinen, 1988; Pedersen and Shaver, 2000). In the same vein Padmanabhan and Cho (1996) have branched out mode-specific experiential knowledge as a particular important kind of general internationalisation knowledge of firms. In addition to knowledge about organising internationalisation Eriksson *et al.* (1997) identified two relevant sub-components of market knowledge in firms' internationalisation process: first, knowledge of local business counterparts and their relations, and - second – knowledge about local institutional conditions, e.g. the institutions, values, and culture of the foreign country.

Ways of acquiring knowledge

Inspired by Penrose (1959) Johanson and Vahlne distinguished between 'experiential knowledge' and 'objective knowledge' in their internationalisation model. The two types of knowledge differ in terms of the way it is acquired. Objective knowledge is acquired through standardised methods, i.e. market research, and can easily be transferred to other countries and replicated by other firms. Experiential knowledge, on the other hand, is acquired through the carrying out of

activities – the learning by doing. The emphasis on current business as the source of experiential knowledge, has been challenged – or lessened – recently. The internationalisation process of firms has been analogised with an innovation process (Andersen, 1993) and as such ‘variation’ is a prerequisite of a successful process. Accordingly, Eriksson *et al.* (2000) have suggested variation of a company’s international activities in terms of geographical spread as an important aspect of experience. Moreover, the same group of scholars (Eriksson *et al.*, 1998) has demonstrated that ‘time’ in itself is strongly correlated with internationalisation - even more than the conduction of business activities. Without the necessary time available the company cannot absorb the experience from the current business activities. The issue is closely related to Argyris and Schön’s (1978) discussion of single-loop and double-loop learning.

Knowledge embeddedness

Over the past three decades the development of learning theory has included embeddedness of knowledge as a key issue (Fiore and Lyles, 1985; Levinthal, 1991). It is conceded that knowledge – including tacit knowledge - can be embedded not only in individuals, but also in teams and company organisations as a whole (Levitt and March, 1988). While the Uppsala model focuses on the characteristics of the individual firm and the individuals of the firm in the internationalisation process, network theory (Johanson and Mattsson, 1988; Johanson and Vahlne, 1990/1992; Forsgren and Johanson, 1992) highlights the firm’s business context as an important explanatory factor. The network perspective draws attention to the long-term business relationships that exist between firms and suggests that the development of companies’ operations in foreign markets are influenced by the relationships – including personal networks - formed in the particular markets. Thus, existing relationships can be used as bridges to other networks, for instance, when a customer invites or even demands that a supplier follows the company abroad (Johanson and Sharma, 1987).

Tacitness and transferability of knowledge

It has been pointed out that firms can gain access to the (experiential) knowledge of other firms without necessarily going through the same experiences as these firms (Eriksson *et al.*, 1998; Kraatz, 1998; Lane and Lubatkin, 1998). Initiative learning, i.e. learning via the observation of

other firms' behaviour (including internationalisation behaviour), in particular imitating firms of high legitimacy (DiMaggio and Powell, 1983; Björkman, 1990; Haunschild and Miner, 1997). Furthermore, Huber (1991) has conceded that organisations can learn through conducting a focused search for new information, triggered by a problem or an opportunity, rather than through experience from own activities.

Knowledge and resource commitment

The Uppsala model postulated a monotonically increasing proportionality between knowledge accumulation and resource commitment. As an alternative to this simplified assumption Erramilli (1991) has suggested a U-shaped relationship between experiential knowledge and a firm's inclination to employ high-control modes of entry into foreign markets. The logic is that decision-makers, prior to systematic market investigation, may have overoptimistic expectations about foreign market opportunities. The accumulation of knowledge will confront the decision-makers with hard facts resulting in a temporary reduction of their willingness to engage in high-control, and high-commitment operation modes in foreign markets. Eventually, the knowledge accumulation will make the decision-makers more confident of the competitiveness of their companies vis-à-vis local firms, thereby returning to the initial willingness to undertake investments in high-commitment operation methods.

2. From Determinism to Managerial Discretion

The original Uppsala internationalisation process model (Johanson and Vahlne, 1977) had a flaw of determinism that the authors maintained in later interpretations (Johanson and Vahlne, 1990:12): 'The internationalization process, once it has started, will tend to proceed regardless of whether strategic decisions in that direction are made or not.' An example of the model's determinism is the assertion – as outlined in the previous section - that reduction of decision-makers' uncertainty (via more knowledge) about foreign markets leads to increased resource commitment. Furthermore, decision-making is almost absent in relation to acquisition and transfer of knowledge. On the basis of the new insights outlined in the previous section we can

demonstrate that this is not likely to be the case. On the contrary, managerial discretion is very much in play in these matters.

2.1 Knowledge acquisition at managerial discretion

There exists a number of management choices in relation to knowledge acquisition in the firms' internationalisation process. Among these we would like to point out three questions that managers are confronted with: (1) how much knowledge should be acquired? (2) in which *way* should this knowledge be acquired?, and (3) in which *form* should the knowledge be acquired?

First, the amount of knowledge that a decision-maker requires in order to undertake an irreversible commitment (on behalf of the company) to a foreign market is subject to managerial discretion. In the Uppsala model decision-makers were assumed to be risk averse, indicating that the maximum tolerable risk (a multiply of perceived market uncertainty and the size of the sunk investment being considered in the foreign country) is fairly low. However, risk preferences of decision-makers do differ considerably, and the existing empirical evidence does not support the assumption that decisions in international business are taken by risk-adverse managers. Some studies suggest the opposite; that important decisions in the internationalisation process reflect risk-taking behaviour (Calof, 1993; Andersson, 2000; Petersen *et al.*, 2000). Calof (1993), for example, found that many vital internationalisation decisions taken by Canadian exporters were characterised as being very impulsive with no preceding investigation of alternatives and assumed risks.

Second, the assumption made in the Uppsala model that knowledge acquisition is carried out by the employees of the company is an overt simplification of the realities. Managers can make important 'shortcuts' to acquiring crucial knowledge by recruiting individuals (or even teams) with valuable international knowledge from other companies organisations (Huber, 1991; Barkema and Vermeulen, 1998). The 'born global' phenomenon (Knight and Cavusgil, 1996; Madsen and Servais, 1997) is to a large extent explained by spin-offs of personnel from companies with long international experience starting up their own business.

Third, the manager has to decide in what form the requisite knowledge should be acquired. In the Uppsala model the choice is more or less given: either the knowledge is available

in the form of objective knowledge, or the company has to acquire the knowledge through its ongoing business activities. In the first case, the company can buy the knowledge (or, in some cases, get it cost free from e.g. public institutions). Presumably, the choice between acquiring objective knowledge versus acquiring experiential knowledge is not that straightforward, but very much depending on cost-benefit considerations. The need for time-consuming experiential learning can probably be brought down to a negligible minimum if the company is willing to pay the (considerable) costs, for example, to the use of export consultants. In this situation the managerial discretion is about the trade-off between relatively slow international expansion and fast, but expensive expansion. As will be argued later, the proportion of experiential knowledge needed in the internationalisation process of a company is not given, but determined by economic calculations.

2.2 Knowledge codification at managerial discretion

In the Uppsala model the tacitness of (vital) internationalisation knowledge is predetermined. The knowledge acquired in connection with the international venture is either ‘objective’ or ‘experiential’. Little attention is paid to the possibility of transforming experiential knowledge into objective knowledge, i.e. the process through which tacit skills and knowledge are made explicit. But as Nelson and Winter posit (1982: 82):

“Whether a particular bit of knowledge is *in principle* articulable or necessarily tacit is not the relevant question in most behavioral situations. Rather, the question is whether the costs associated with the obstacles to articulation are sufficiently high so that the knowledge *in fact* remains tacit.” [italics as in original]

In the same vein, Hedlund (1994:76) emphasises the opportunities for – and thereby the managerial choice of – transforming tacit knowledge into explicit knowledge:

“The current, and justified, fascination with the tacit component of knowledge must not cloud the fact that organizations to a large extent are ‘articulation machines,’ built around codified practices and deriving some of their competitive advantages

from clever, unique articulation. In fact, much of industrialization seems to have entailed exactly the progressive articulation of craftsman-like skills, difficult but not impossible to codify.” (Hedlund, 1994: 76).

As Håkanson (2000) points out, most tacit skills of economic interest are at least potentially articulable. These include both simple technical skills as well as more complex ones which also include a tacit cognitive dimension. The notable exception is the creative skills and capabilities of innovation and entrepreneurship. Thus, knowledge codification – the process of conversion of knowledge into messages which can then be processed as information (Cowan and Foray, 1997) – changes some fundamental aspects of the economics of knowledge generation and distribution. The codification process entails high initial, fixed costs but allows firms to carry out distribution/transfer at very low marginal costs. As a consequence, large firms are more likely to allocate many resources to the process of codification because the payoff expectably is better than in small and medium-sized firms (SMEs). SMEs may achieve scale economies by commercialising the codified knowledge in the market, or they can involve themselves in process or quality standardisation. Hence, the codification of ‘internationalisation knowledge’ is subject to a cost-benefit appraisal carried out by the decision-maker.

2.3 Knowledge transfer at managerial discretion

As argued in the previous section managers in international companies have to decide to what extent crucial, experiential knowledge should be made subject to codification in order to distribute this knowledge from the business affiliation where the knowledge has been produced to other relevant units of the organisation. Even though we accept the assertion that experiential knowledge (considered to be crucial to the further international expansion of a company) can be made explicit this does not necessarily guarantee distribution of the knowledge throughout the company organisation. In their original internationalisation model the Uppsala theorists seemed to assume an ‘invisible hand’ transferring the knowledge to the top management of the organisation in the proper way. At best, this idealised model may fit with entrepreneurial firms characterised by hierarchical organisational structures in which the management (ideally the entrepreneur herself) is responsible for the acquisition of knowledge. Having acquired the

knowledge the management will ensure that the relevant knowledge is properly distributed in the organisation. With the important exception of small, entrepreneurial firms, it is uncommon that managers operate in the 'frontline' of the organisation (a foreign subsidiary may constitute such a 'frontline' unit) where one can expect to acquire the market-specific knowledge. In most companies one cannot expect proper knowledge distribution to take place without the presence of appropriate incentive structures (Szulanski, 1996). It is up to the managers of the companies to put in place reward and control mechanisms that incite the employees to spend time passing on relevant knowledge to colleagues in other parts of the organisation. Some organisational structures very much emphasise lateral co-ordination and exchange of information. As an example, Bartlett and Ghoshal (2000) describe an organisational configuration (labelled 'the integrated network') that has as its main objective to ensure immediate and effective diffusion of 'front line' knowledge and innovation. Bottom-up structures and organisations with very 'flat structures' in which the communication lines to management are short and informal may also qualify as organisations with appropriate incentive structures. In loosely coupled organisations (a characteristic that applies to many multinational companies) the existence of proper co-ordination mechanisms is absolutely essential. In this type of organisation very different and sometimes contradictory knowledge may be produced in the various affiliates (Forsgren, 2000). It is therefore an immense management task to sort out what knowledge is of strategic importance and how this knowledge should be transmitted across the organisation.

From what has been said, it is far from being certain that knowledge acquired in one part of the organisation automatically will diffuse to other relevant sections of the international company. In most companies proper knowledge distribution requires the introduction of appropriate incentive structures, which in turn calls upon a great deal of managerial discretion.

3. From Old to New Economy - New Aspects of Knowledge and Internationalisation

The Uppsala internationalisation theory was conceived in a not-very-global business world populated exclusively by 'brick and mortar firms' and with only embryonic information technology. In this section we will address the question of how the understanding of knowledge

in our age of globalisation and information may differ from that of the Uppsala theorists. Is the central role and the characteristics of knowledge as originally described by the Uppsala theorist unaffected by the fundamental changes in the business environment that have taken place since the seventies? Definite answers to these questions are far beyond our reach, but we aim for a grasp of the research agenda in relation to these business environment issues. First, we will look at some general information and communication technology aspects, proceed to some Internet implication aspects, and round off with a discussion of globalisation aspects.

3.1 Information and communication technology aspects

On the face of it, one may not expect ICT (Information and Communication Technology) advances to challenge the Uppsala presentation of knowledge's role in firms' internationalisation process. Obviously, ICT advances enhance the decision-maker's opportunities for retrieving and transmitting 'objective knowledge', whereas the tacit nature of the crucial 'experiential knowledge' makes it less amenable to computerisation processes. There are, however, at least two reasons to be cautious about this reservation. One reason is that the delineation of tacit knowledge is subject to changes, and that information technology may enable, or bring down the costs of transforming tacit knowledge into explicit knowledge. The other reason to be cautious is that ICT advances tend to increase the benefits of codification, inasmuch as ICT expands the (commercial) opportunities for large-scale distribution of codified knowledge, thereby moving the break-even point of when it pays to carry out codification correspondingly. In the balance of the section we shall elaborate the argumentation.

Costs of codification

Codification cannot be considered as a simple transfer of knowledge from the tacit to the codified domain: even the most elaborate process of codification will leave some element of tacit knowledge needed for performing any action; in other words, tacit knowledge is needed to use codified knowledge. Accordingly, codified and tacit knowledge are complements rather than substitutes (Cowan and Foray, 1997). That having been said, the scope of what can be codified seems to be continually expanding and suggests that the ratio of codified to tacit knowledge is increasing. This comes hand in hand with the new 'knowledge-based economy' that is built on

the cumulative expansion of the base of codified knowledge. Technological advances are such that knowledge of still higher complexity is made subject to codification, and advances in the fields of electronics, computer science and scientific instruments have dramatically reduced the costs of articulation (Balconi, 1997). Expert systems and artificial intelligence are spearheads in this development.

To the extent that one finds the above presentation plausible it is difficult to maintain a supposed paramount importance of tacit knowledge in the internationalisation process – in particular as concerns large firms in which the advantages of codification are obvious. It is, at least, difficult to draw distinct lines between experiential and objective knowledge insofar as they are complementary, and because crucial knowledge might emerge as experiential knowledge initially, but transform into objective knowledge subsequently.

Benefits of codification

As argued, the economic value of codification improves because advances in information technology result in lower costs of codifying knowledge. Also, the costs of storing it once codified, and the costs of bringing it into practical use are likely to decrease as a result of ICT advances. The economic value of codification may also increase through ease of diffusion. Codified knowledge can be transmitted over long distances (e.g. via e-mail) and within complex networks (such as EDI, electronic data interchange) at very limited costs and high speed. These changes in the information infrastructure clearly increase the potential value of codified knowledge, which will make it more attractive to allocate resources to the process of codification. As mentioned earlier, the distribution benefits are more obvious for large firms than they are for SMEs, although extended distribution of codified knowledge in networks of firms may enable SMEs to achieve scale economies similar to those accrued by large firms. The distribution advantages are evident not at least in relation to the global breakthrough of the Internet. The effects of the Internet on our understanding of knowledge in the internationalisation process will be discussed below.

3.2 Internet aspects

The Internet is expected to have a major impact on the business world (Business Week, 1996; The Economist, 1999). Unlike other existing media, it has global reach and is predicted to re-define the way business is conducted (Sivadas, Grewal and Kellaris, 1998). This is not only because of the speed and ease with which the Internet conveys information across borders. The Internet is a public and potentially all-embracing, global network. With full utilisation of its network externalities, the Internet's searching properties are immense. As such, the Internet holds the potential of reducing the uncertainty that adheres to doing business in foreign markets. Since the uncertainty about foreign markets (as perceived by decision-makers) has been considered to be a major barrier to foreign market expansion the Internet may, in the hands of international managers, be the instrument that accelerates the internationalisation process of firms. The uncertainty-reducing properties of the Internet may prompt researchers to re-think the role of knowledge as a determinant of the pace with which companies expand internationally. Potentially, the Internet may reverse the conventional role of knowledge as a limiting, slowing factor in firms' internationalisation process to that of being a catalyst. If true, this could pose a major challenge to internationalisation theory as currently understood.

However, the Internet also aggravates the risk of information overload of decision-makers subject to bounded rationality, and gives opportunities for creating a virtual reality that decision-makers misconceive to be actual business life. One could imagine a situation of a temporary, collective overconfidence in the Internet's attributes as an international business transaction medium. The hype surrounding the Internet and e-business may hinder managers as a whole in reaching a balanced assessment of Internet opportunities. A bandwagon effect similar to what has been observed in relation to foreign direct investment behaviour (Aharoni, 1966; Shaver and Flyer, 2000) is indeed thinkable. Di Maggio and Powell's (1983) description of mimicry in the strategic behaviour of firms may also apply to the use of the Internet and international expansion. Firms *en bloc* might be enticed by the Internet to embark on rash foreign market expansion – 'rash' in the sense that the Internet generates rapid, diversified international expansion as a dominant, but chiefly unsuccessful strategy. In addition to bandwagon effects impetuous international expansion may also be a result of the world-wide exposure that the Internet offers firms. As a company links up with the Internet, e.g. through its web site, its

exposure to potential foreign business partners (suppliers, customers, distributors) increases drastically. Although companies have been identifiable to foreign companies through other means than the Internet (export directories, embassies, etc.) the searching efficiency of the Internet is far greater than previous electronic or non-electronic information sources. Unsolicited inquiries have been shown to be important in past export starts (Bilkey and Tesar, 1977; Wiedersheim-Paul, Olson and Welch, 1978). Setting up a web site creates the basis for a company, whether deliberate or not, to be noticed and contacted regarding its products and services. In this way a company may, in a relatively short time, find itself involved in exporting to a large number of foreign markets without having performed any other pro-active export activities. These Internet-mediated contacts and businesses may work out well for market skimming purposes, but do not necessarily lead to any deeper penetration of foreign markets. In order to further penetrate the foreign markets in question companies will often have to establish some physical presence. Even e-commerce companies find it necessary to establish a presence in foreign markets (popularised as ‘clicks and mortar’ different from ‘brick and mortar’). Only at the stage of establishing local presence are the entrant companies confronted with the disadvantage of foreignness to its full extent. Until then, companies may have experienced a false confidence – a psychic distance paradox (O’Grady and Lane, 1996) - conveyed by the unrestrained world of the Internet.

3.3 Globalisation aspects

A major effect of the advances of information and communication technology experienced since the Uppsala scholars launched their internationalisation theory is the greatly improved accessibility of information pertaining to international business conditions. To phrase it in microeconomic terms, the supply curve for *information* has moved down significantly. As it has been argued in the two previous sections it is likely that this also holds true for ‘supply of *knowledge*’ - although probably to a lesser extent.

The advances of information and communication technology coincide with the globalisation trend, i.e. the still more pronounced international division of labour with an concomitant deepening structural interdependence of national economies (Dunning, 1997). The globalisation trend also implies converging national patterns of consumption (Levitt, 1983),

removal of trade barriers, harmonisation of health regulations, industry standards, etc. (OECD, 1996). In other words, as the globalisation unfolds the difference between doing business at home and abroad diminishes and the conduct of cross-border business transactions becomes less problematic. All else being equal, this reduces the requirement for knowledge *specifically* needed for international business ventures. Although the supply conditions for acquiring knowledge specific to international ventures are improved and the knowledge requirements are reduced as a result of the globalisation effect, this does not necessarily imply that the *demand* for specific international knowledge will go down. But firms will be able to achieve a greater level of foreign market penetration with less knowledge acquired for less money. In other words, the pace by which firms internationalise are likely to go up as the knowledge obstacles diminish.

The widespread assumption is that – due to the ongoing globalisation - firms nowadays internationalise much faster than was the case when the Uppsala internationalisation model was introduced. Even though this assumption is very plausible empirical evidence is still lacking – regrettably, but not surprisingly, taking into consideration the considerable methodological problems and data requirements involved in such time series studies. Petersen and Pedersen (1999) have provided an indirect empirical indication of increased speed of firms' internationalisation as a result of the globalisation. They found that the speed of internationalisation (measured as commitment of irreversible resources to foreign markets per time) was significantly higher among (Danish) firms in 'global industries' than among companies in 'domestic industries'. Even though we accept this conclusion at face value, it is still an open question whether the role of knowledge has changed in relation to the globalisation effect. Faster internationalisation of firms may be explained by increasing competitive pressure as a result of the globalisation of industries. With the globalisation of industries (domestic) firms may very well be subject to an increased pressure to internationalise rapidly in order to repel attacks from global competitors. Hence, *despite* their lack of knowledge about international ventures the domestic firms are driven into an internationalisation process.

The knowledge requirements in the internationalisation process are likely to vary with different degrees of foreign market penetration. Some firms may shun foreign market penetration and skim the foreign markets for a global customer segment that only requires a minimum of local adaptation. For firms pursuing such global skimming strategies the Internet

appears to be *gefundenes Fressen*. As an extension of Levitt's (1983) argument about globally converging demands, one may advance the idea that the Internet holds the potential for exploiting this convergence to its full extent. A global skimming strategy works well with those product markets that are characterised by a minimum need for modification when sold internationally. Either because they are very generic and commodity-like by nature (a raw material such as crude oil is an obvious example), because the product market consists of unique, but very universal products (English literature, CDs, etc.). Or because the processing, marketing, transfer and final consumption of the product takes place electronically, i.e. *information goods* not involving any physical transportation. The requirements of specific internationalisation knowledge in relation to these markets are predictably very limited. It is extremely interesting, but equivalently difficult, to estimate the size and importance of these 'global' markets: are they 'special cases', or will they make up a substantial proportion of world trade in the years to come? Seemingly, many services, such as business consulting and higher education, hold great potential for international exchange on the Internet, but to what extent does the exploitation of these opportunities require 'knowledge-intensive modification' to the local needs?

4 Conclusions

In a way, the Uppsala internationalisation process model was a precursor of the wave of learning studies that flooded the general business research literature in the 1980s and 1990s. Although knowledge and learning remain key words in internationalisation theories the days of simplistic internationalisation models are gone for good. In our present understanding of the internationalisation process of firms knowledge is assigned a less free standing and deterministic role – and a far more complex role - than originally submitted by the Uppsala theorists. Table 1 provides a snapshot of the comprehensive developments in knowledge understanding subsequent to the Uppsala theorists' original knowledge presentation.

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On top of the challenging task of incorporating the many new insights of knowledge into internationalisation theory, researchers also have to relate to the current, breathtaking technological development. The advances of information and communication technology hold the potential of fundamentally changing the role of knowledge in firms' internationalisation process. Instead of playing an instrumental role in the international exchange of goods and services knowledge increasingly becomes the very subject of exchange. Furthermore, the role of knowledge may change from being the factor that curbs the international expansion of firms - as was assigned by the Uppsala theorists - to becoming the driver and catalyst of firms' internationalisation.

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Figure 1. Explanations of firms' internationalisation pattern

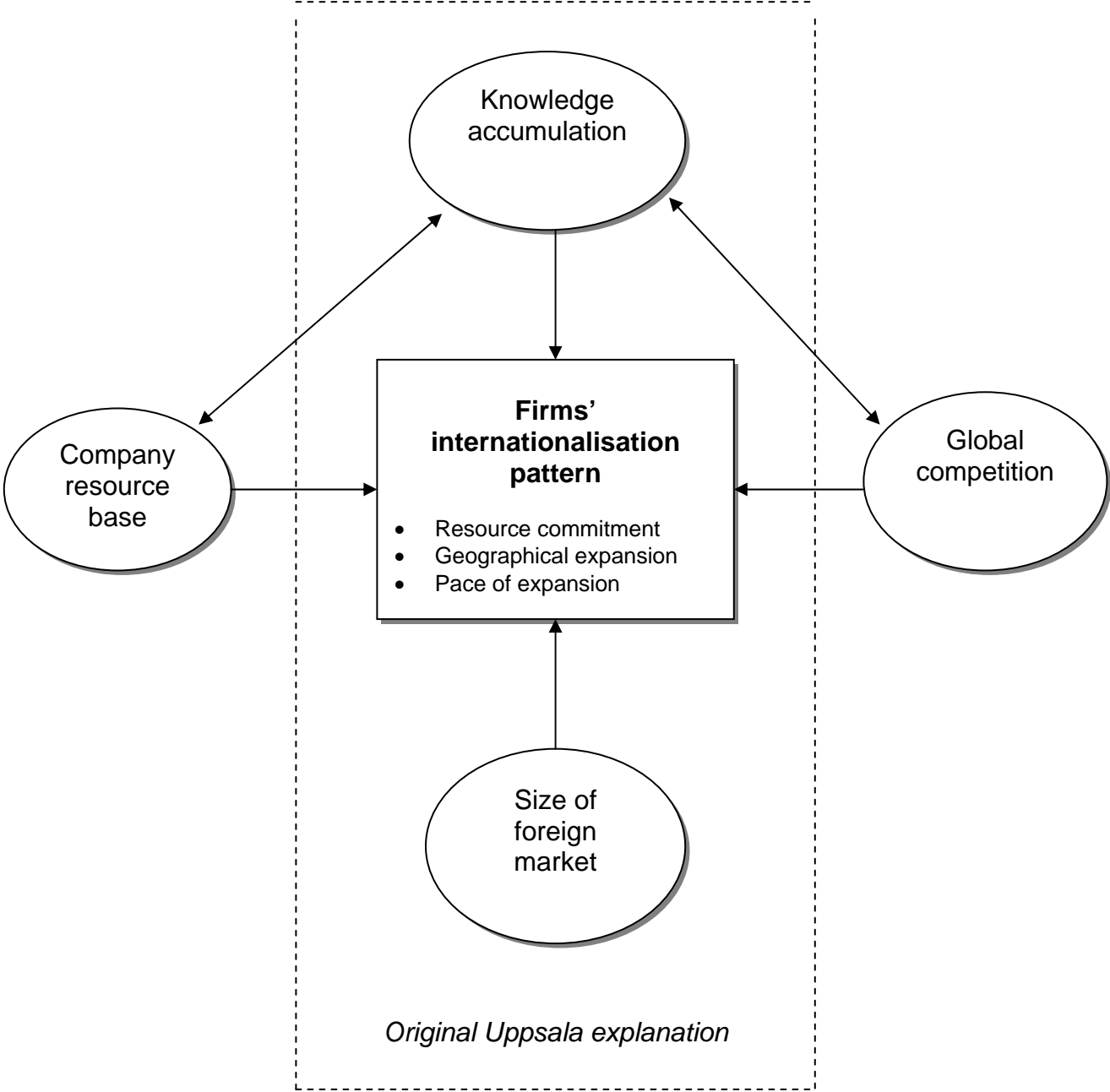


Table 1. Post-Uppsala development of knowledge understanding

Uppsala theorists' original knowledge presumptions	Examples of subsequent developments in knowledge understanding
Crucial knowledge is market-specific	<ul style="list-style-type: none"> • General internationalisation knowledge is crucial • Decomposing of market knowledge • Knowledge about learning processes is crucial (double-loop learning)
Crucial knowledge acquired via conduct of business activities	<ul style="list-style-type: none"> • Learning through mimetic behaviour • Learning via recruitment of knowledgeable personnel • Learning as a function of time and variation
Crucial knowledge is embedded in individuals	<ul style="list-style-type: none"> • Crucial knowledge might be embedded in teams • Crucial knowledge might be embedded in company routines • Crucial knowledge might be embedded in networks
Crucial knowledge is tacit	<ul style="list-style-type: none"> • Codification/articulation of (most) crucial knowledge is feasible • New information technology makes codification less costly • New communication technology makes codification more beneficial
More knowledge increases int'l involvement proportionately	<ul style="list-style-type: none"> • More knowledge may deter resource commitment • Intra-organisational knowledge diffusion requires appropriate incentives • Decision-makers might not be risk averse
Lack of knowledge detains the internationalisation process	<ul style="list-style-type: none"> • Knowledge may propel firms' internationalisation process • Internet opportunities might drag firms into rash international expansion • In the global marketplace firms do not need any specific knowledge