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Internationalising Small and Medium Sized Enterprises (SMEs): A Learning Approach

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Abstract

This thesis investigates the learning processes of internationalising small and medium sized enterprises (SMEs). Although there has been a growing recognition of the role of organisational learning in the internationalisation of firms, research into knowledge acquisition and learning by SMEs is an area where there have been few empirical studies. This research seeks to fill this gap by gaining rich insights into the learning processes of international new ventures and incrementally internationalising SMEs. Based on a framework of *absorptive capacity* the research explores and examines: i. types and sources of new knowledge acquired by firms, ii. assimilation of new knowledge within firms, iii. exploitation of new capabilities gained and iv. outcomes of the new knowledge and learning.

This research adopts a qualitative approach based on 12 longitudinal case studies of internationalising firms which were participating in the Scottish Enterprise Global Companies Development Programme. Multiple semi-structured interviews with the chief executive officers were carried out over a three year period and access was gained to Scottish Enterprise records and consultancy reports on the firms.

Internationalisation process theory has emphasised the importance of experiential market knowledge acquisition to explain the gradual internationalisation of firms. International new venture theory highlights the importance of technological knowledge to explain the early and rapid internationalisation of new firms. This research provides new insights into the nature of knowledge used by internationalising firms and has clarified distinctions between different types of knowledge. Findings suggest that three types of knowledge; market, internationalisation and product/technological were acquired depending on decisions facing firms at the time. Internationalisation knowledge was the most frequent new knowledge needed. This was knowledge which is *specific* to the internationalisation process or *generic,* which is applicable to overseas and domestic operations. Specific internationalisation knowledge is often developed by combining market and product knowledge. New insights are given into how firms acquire new knowledge from external, internal, experiential and objective sources of knowledge. To increase absorptive capacity it was important for firms to create internal procedures and systems to convert tacit and individual knowledge to explicit and shared knowledge. The impact of new knowledge and learning on firms' capabilities, decision making, competitive advantage and performance, and the constraints faced by firms are explored. This thesis concludes with a discussion of the implications for theory, management and policy makers.

Acknowledgements

I would like to express my sincere thanks to Professor Stephen Young, my supervisor, for his invaluable guidance and continued support and patience throughout this research. Thanks are also due to friends and colleagues who have provided advice at various points along the way; Simon Harris, Pavlos Dimitratos and Marian Jones. Thanks to Kwan Yee Tang who, with Steve has shared this journey with me.

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Thanks to Colleen MacDonald an excellent transcriber who, from her home on the Isle of Skye, prepared the transcripts, and my long standing friend Judith Brown who conscientiously proof read the thesis. Any outstanding errors are purely mine.

Finally, a big thanks to my husband Richard and children, Alexander (10) and Emily (7), who have never complained at my distraction. Thanks to my parents, Lewis and Mary Smith who have supported me throughout my studies. Sadly, my father did not live to see the completion of this project.

Declaration of Originality

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

I declare that the thesis embodies the results of my own work. Following normal academic conventions, I have made due acknowledgement of the work of others.

Copyright Statement

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Chapter One

Introduction

1.1 Background to the research

This thesis investigates the learning processes of internationalising small and medium sized enterprises (SMEs). A growing number of SMEs are pursuing opportunities in overseas markets and governments have turned their attention in recent years to encouraging more SMEs to internationalise to promote wealth creation and international competitiveness (OECD, 1997). There is evidence that small firms are internationalising more rapidly than before, some from inception (OECD, 1997; Oviatt and McDougall, 1994). Although there has been a growing recognition of the role of learning in the internationalisation of firms, research into internationalisation knowledge acquisition and learning is an area where there have been few empirical studies, and these have been mainly quantitative (Eriksson *et al.*, 2000; Sapienza *et al.*, 2004; Zahra, 2004). This research seeks to fill this gap by gaining rich insights into the learning processes of both international new ventures and incrementally internationalising SMEs as they acquire new knowledge and learn to internationalise.

A review of existing literature relevant to an understanding of the role of knowledge and learning in the internationalisation process of firms suggests two broad groups that derive from international business theory and organisational learning theory. Relevant international business theory, namely internationalisation process theory (Johanson and Vahlne, 1977, 1990) and international new venture theory (Oviatt and McDougall, 1994), has identified knowledge accumulation and learning by firms as a key influence on their internationalisation. A review of the international business literature identified three types of knowledge that were important in the internationalisation process of firms: market, internationalisation and product/technological knowledge (Eriksson *et al.*, 1997; Yli-Renko *et al.*, 2002; Oviatt and McDougall, 1994). Internationalisation process theory (IPT) identifies market and internationalisation knowledge. International new venture theory (INV) highlights the importance of product/technology knowledge. However the types of knowledge are not clearly distinguished in the literature.

Internationalisation process theory (IPT) emphasises the importance of market knowledge, which is acquired experientially by firms operating in the market place. IPT suggests that learning about internationalisation is a cumulative, path dependent process and focuses on a firm's increasing involvement in a specific market (Johanson and Vahlne, 1977). IPT explains a firm's internationalisation based on a process of managerial learning, where internationalisation is gradual and incremental (Coviello and McAuley, 1999). It has been criticised as it neglects international knowledge which is generalisable from market to market and enables firms to transfer knowledge to other markets and expand into new markets (Eriksson *et al.,* 1997, 2002; Forsgren, 2002). The idea that internationalisation can be driven by a firm's technological knowledge can be traced back to the pioneering work of Hymer (1976). However IPT pays little attention to product/technological knowledge. International new venture (INV) theory highlights the importance of a firm's unique technological/product knowledge which can create competitive advantages. In increasingly efficient international markets, where knowledge can be quickly copied and transferred across borders, new ventures must internationalise from inception in order to compete (Oviatt and McDougall, 1994, 1999). However little is known about what and how INVs learn in the global market place (Zahra, 2004).

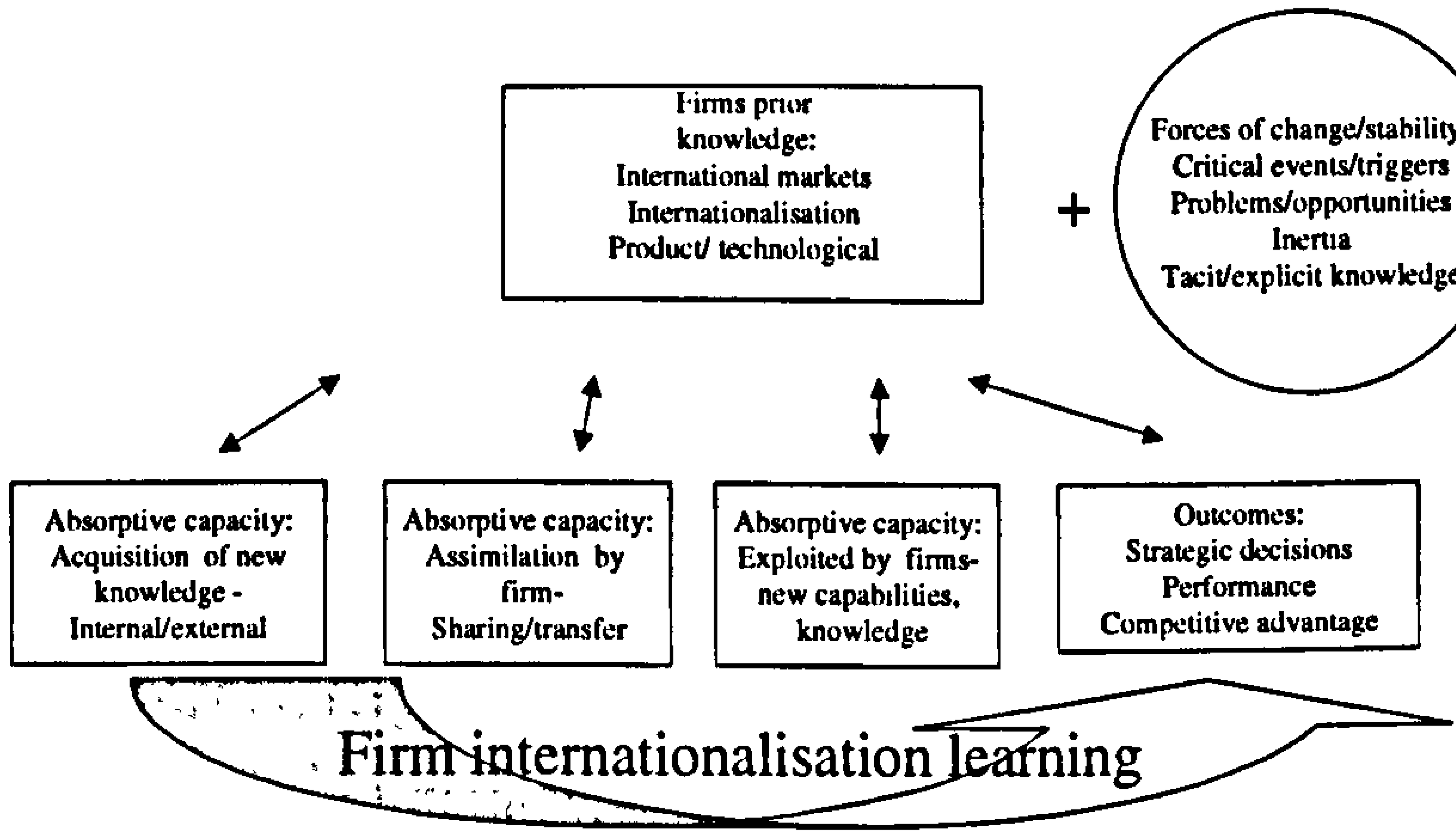
In conclusion, although extant theory has highlighted the importance of knowledge and learning, there is ambiguity in the literature of the importance of different types of knowledge used by internationalising SMEs. IPT focuses on the acquisition of *market knowledge* in driving internationalisation, neglecting internationalisation and product knowledge. INV theory highlights the importance of unique *product knowledge* and *technological* learning by technology-based/intensive firms, thus much of the recent research into learning by international new venture firms has focused on technological learning (e.g. Zahra *et al.,* 2000). There has been little empirical research into the acquisition of general *internationalisation knowledge* and learning by firms (Eriksson, *et al.,* 1997; Cavusgil, 2004; Zahra, 2004). IPT, by focusing on the acquisition of experiential market knowledge, has neglected other sources of knowledge and pays little attention to issues of assimilation of this knowledge, assuming that knowledge "stored and reasonably retrievable" (Johanson and Vahlne, 1977, p26). This research seeks to fill these gaps by exploring and examining the different types and sources of knowledge and learning processes of both INVs and incrementally internationalising SMEs. Finally, the outcomes of learning are investigated to provide new insights into how new knowledge and learning help SMEs to compete in the international market place.

1.2 Research framework and research objectives

This research takes an integrated approach to investigating the learning processes of internationalising firms by combining internationalisation process theory, international new venture theory and organisational learning. The research develops a framework shown in figure 1.1 below based on a firm's *absorptive capacity,* where organisational learning is a result of a firm's ability to acquire, assimilate and exploit new knowledge (Cohen and Levinthal, 1990; Zahra and George, 2002). Organisational learning and absorptive capacity suggest that a firm's learning is dependent on its prior related knowledge (Cohen and Levinthal, 1990). Thus a firm's internationalisation behaviour is dependent on the firm's prior knowledge which includes market, international and product/technological knowledge (Cohen and Levinthal, 1990; Eriksson *et al.,* 2000; Yli-Renko *et al.*, 2002; Autio *et al.,* 2000). Critical events, problems and new opportunities expose the firm to and prompt the firm's search for new knowledge (Johanson and Vahlne, 1977; Oviatt and McDougall, 1994; Zahra and George, 2002; Bell *et al.,* 2001).

Absorptive capacity emphasises a firm's acquisition of external knowledge which enables firms to do new things and to innovate (Cohen and Levinthal, 1990). Organisational learning theory has shown that firms acquire new knowledge from external and internal sources (Forsgren, 2002; Huber, 1991). An important aspect of absorptive capacity is the assimilation of new external knowledge by firms through sharing and transferring that knowledge (Cohen and Levinthal, 1990). However, a firm's ability to learn will be influenced by the extent to which knowledge is tacit or explicit and will be constrained by inertia (Zahra, 2004; Grant, 2002). New knowledge is exploited by internationalising firms as they develop new skills and capabilities for example, making decisions about products, markets, entry modes, resource commitments and general management functions and structures (Luostarinen, 1980). The final dimension of the research framework considers the outcomes of absorptive capacity and the influence of new knowledge and learning on a firm's strategic decisions, performance and competitive advantage (Zahra and George, 2002).

Figure 1.1: Research framework of learning processes of internationalising SMEs



In this context, the specific aims of the thesis are to investigate how firms acquire new knowledge as they internationalise and the outcomes of new knowledge and learning.

The two objectives of the study are to explore and examine:

i. The development of absorptive capacity by firms through the acquisition, assimilation and exploitation of new knowledge.

ii. The outcomes of the new knowledge and learning in terms of strategic decisions, performance and competitive advantage and the constraints faced by firms.

The research explores and examines; 1. the types and sources of new knowledge acquired by firms, 2. the assimilation of new knowledge within firms, 3. the exploitation of new capabilities gained and 4. the outcomes of the new knowledge and learning, constraints faced by firms and barriers to learning.

1.3 Research approach

This research adopts a qualitative approach to investigate the learning processes of internationalising firms. The study is based on an interpretative paradigm where the philosophical assumptions are that the phenomena being researched are subjective (Easterby-Smith *et al.,* 1991). Thus the study is concerned with qualitative phenonema which are rich in context, focusing on deep meanings and aims to understand what is happening in the totality of each situation (Godfrey and Hill, 1995; Saunders *et al.,* 2003). The research adopts a case study method, which allows an exploratory, descriptive and explanatory approach to be adopted. The main focus of the research is exploratory, allowing deep insights to be uncovered into the learning processes of internationalising SMEs. Through a process of induction, the research aims to engage in theory building. The case study method allows a holistic approach to be taken where organisational processes are embedded in their context (Pettigrew, 1979, 1992). The longitudinal nature of the study has enabled the study of the change of the firms over time, reflecting the complexity and dynamic nature of firms' internationalisation behaviour and thus learning processes (Andersen, 1993; Welch and Luostarinen, 1988; Knight, 2000).

Twelve longitudinal case studies of internationalising firms that were participating in the Scottish Enterprise Global Companies Development Programme (GCDP)[i] were selected. The programme was developed as a result of the Global Companies Enquiry (Scottish Enterprise, 1999a) which analysed the importance of globalisation to the Scottish economy but highlighted the limited extent of globalisation amongst Scottish firms. In collaboration with Scottish Enterprise, this study is part of a wider research and evaluation project of the Global Companies Development Programme. Multiple, semi-structured interviews with the chief executive officers (CEOs) of the firms were carried out over a three year period and access was gained to Scottish Enterprise records and consultancy reports on the firms.

The case studies were analysed using both within-case and cross-case methods as recommended by Miles and Huberman (1994). Matrix and text tables are used to undertake and present the analysis of the learning processes of the firms.

1.4 Structure of the thesis

Both internationalisation process theory and international new venture theory identify knowledge and learning as important resources and capabilities influencing the internationalisation of firms. Internationalisation process theory has explained the incremental internationalisation of firms, however INV theory has challenged this approach as it does not explain the growing phenomenon of early or rapidly internationalising INVs and SMEs. This thesis integrates aspects of internationalisation process theory, international new venture theory with knowledge and organisational learning theory to investigate learning processes of internationalising SMEs.

This thesis contains six chapters which are structured as follows:

Chapter one introduces the background to the research, the relevant international business and organisational learning literature, the research framework and research objectives, research approach and structure of the thesis.

Chapter two presents a review of international business literature considered most relevant to the investigation of learning processes of internationalising SMEs, namely international process theory (IPT) and international new venture (INV) theory. The chapter presents a review of the establishment chain and Uppsala model developed by Johanson and Vahlne (1977, 1990) and other process models of internationalisation. Criticisms of the Uppsala model are considered in terms of the implications for knowledge and learning and the limitations of the model to explain internationalisation. A review of international new venture theory considers the role of technological knowledge and learning to explain early and rapid internationalisation of firms.

Chapter three reviews the literature on knowledge and organisational learning deemed to be relevant to the research aims and objectives. The role of knowledge resources and learning capabilities are considered in terms of the Penrosian theory of the growth of the firm (Penrose, 1959) and the resource based view (Wernerfelt, 1984; Barney, 1991). These emphasise the importance of management and learning capabilities and firm specific advantages as a source of competitive advantage. The knowledge based view presents a dynamic view of the firm, where knowledge and the capacity to create and utilise knowledge is seen as the most important source of a firm's competitive advantage. It provides insights into the nature of knowledge and the transfer of knowledge within firms relevant to this study (Kogut and Zander, 1993; Nonaka, 1994). Organisational learning theory explains the processes involved in how firms learn and distinguishes between internal and external sources of knowledge (Argyris and Schon, 1996; Huber, 1991). Absorptive capacity presents a framework that links knowledge acquisition, assimilation and the exploitation of knowledge whereby firms develop new capabilities and change behaviour (Cohen and Levinthal, 1990). The chapter concludes with the presentation of the research framework and the research objectives.

Chapter four presents the research methodology and approach adopted for this research. The research adopts a subjective approach based on an interpretivist paradigm using a process of induction to derive deep and new insights into the learning processes of internationalising SMEs. The research design sets the context of and background to the study, providing a discussion of the economic development policy issues facing Scotland and the launch of Global Companies Development Programme (GCDP) in response to these issues. The rationale for the selection of the case study method and selection of the sample of GCDP firms is discussed. Data collection methods include a discussion of the issues of validity and reliability of the data. These relate to the interview process involving the CEOs of the case study firms, the role of the researcher, triangulation of data and the longitudinal design of the study. The case study process of analysis and abstraction involved within-case and cross-case methods and followed the recommendations of Miles and Huberman (1994) and Yin (1993). This involved a process of identifying themes, trends and patterns in the data. Finally a profile of the case study firms is provided which includes types of firms, identification of four groups (start-up firms, manufacturing firms, technology-based firms and inactive internationalisers), internationalisation history of the firms, and sales levels and growth of firms during the research.

Chapter five presents the findings of the research using the case study analysis methods discussed in chapter four. The findings of the cross-case analysis by group and across all groups are presented in the main body of chapter five. The within-case analysis of each individual case is presented in an annex to the chapter. The findings are presented in three main themes:

A. *Prior overseas activities, initial knowledge base, triggers and responses* – This theme sets firm learning in the context of the internal and external environment of the firms and prior knowledge.
B. *Absorptive capacity and learning* – This theme identifies the elements of learning through the acquisition, assimilation and exploitation of knowledge.
C. *Outcomes* – This theme identifies the outcomes of new knowledge and learning in terms of strategic decisions, performance and competitive advantage and constraints faced by firms.

These themes are developed in the main body of chapter five. Cross-case analysis is presented to identify trends and patterns within groups and across all groups. The cross-case group analysis first provides an overview of the growth issues, the types of new knowledge acquired and the results of this on firm international growth and performance, constraints and opportunities faced by the firms. *Potential* absorptive capacity i.e. the knowledge acquisition and assimilation process by the groups, is examined followed by an examination of *realised* absorptive capacity i.e. the exploitation of knowledge, and the outcomes of the new knowledge. Cross-case learning processes are examined to establish patterns across all firms in the acquisition, assimilation, exploitation of knowledge and the outcomes. Constraints facing firms and resultant barriers to learning are considered.

Chapter six discusses the findings of the research in relation to the aims and objectives of the study. It draws heavily on theory and the research framework to discuss the findings and develop conclusions. Finally, the chapter concludes with a discussion of the implications of the research for the international business literature, management and public policy and the limitations of the study.

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[i] The Global Companies Development Programme was launched in 2000 by Scottish Enterprise as a result of their strategy to grow more global companies from Scotland. The programme targets SMEs and provides a tailored strategic review of the company's needs and development of an internationalisation strategy and action plan with advice from the GCDP team and an external consultant appointed by the GCDP. Ongoing support is provided through seminars, workshops and peer group events, attended by participating managers and CEOs. Each year between 15 and 20 Scottish companies participate in the programme.

Chapter Two

Knowledge, learning and the internationalisation of SMEs

2.1 Introduction

Until recently much of the study of international enterprises focused on large mature corporations and multi-national enterprises (Johanson and Wiedersheim-Paul, 1975; Oviatt and McDougall, 1994). The dominant theories of internationalisation, for example product life cycle (Vernon 1966), market imperfections (Hymer, 1976), transaction cost (Williamson, 1975) and eclectic paradigm (Dunning, 1977), were focused on the activities of large multi-national enterprises - MNEs (Ibeh, 2000). A growing body of work on the international activities of small firms is now emerging (e.g. McDougall, Shane and Oviatt, 1994). Recent studies suggest that small and medium sized enterprises (SMEs) are increasingly active in international markets (Errammilli and De Souza, 1993; Haahti, Hall and Donchels, 1998). Furthermore there is evidence that small firms are internationalising more rapidly than before, some from inception (OECD, 1997). McDougall, Shane and Oviatt (1994) highlight the increasing prevalence of international new ventures (INVs), including start-ups that from inception engage in international business.

Theoretical perspectives to explain the internationalisation of smaller firms have evolved, these include internationalisation process theory (the establishment chain, the Uppsala model or stage models), international new venture theory, network theory (Johanson and Vahlne, 1977; Oviatt and McDougall, 1994; Johanson and Mattsson 1988; Coviello and McAuley, 1999). All of these theories focus on knowledge in different ways. A review of these theories identified that knowledge accumulation and learning by firms is one of the key influences on their internationalisation. Three types of knowledge were identified as important in the internationalisation process of firms; market, general internationalisation and product/technological knowledge (Johanson and Vahlne, 1977; Eriksson *et al.*, 1997; Yli-Renko *et al.*, 2002; Oviatt and McDougall, 1994).

This chapter presents a discussion of internationalisation process theory (IPT) and international new venture theory (INV) and their role in knowledge accumulation and learning in the internationalisation of small and medium sized enterprises (SMEs). The chapter is structured as follows:

2.1 Introduction
2.2 Internationalisation process theory (IPT)
2.4 International new ventures (INVs)
2.4 Conclusions

2.2 Internationalisation process theory

This section presents a discussion of internationalisation process theory. It considers the establishment chain, Uppsala model and other process models, collectively they are often referred to as process or stage models. Limitations of and challenges to the process models are considered with detailed reference to the Uppsala model. The role of market and general international knowledge acquisition, through experiential learning and other sources of knowledge is discussed.

2.2.1 The establishment chain

In their seminal work on the process of internationalisation, Johanson and Wiedersheim-Paul (1975) recognise that many firms start their internationalisation when they are comparatively small. Johanson and Wiedersheim-Paul's (1975) pioneering work challenged the previous research which concentrated on American multi-national corporations. They found that most Swedish firms internationalised gradually, often while still small, rather than making large spectacular foreign investments. Johanson and Wiedersheim-Paul (1975) conclude that not only does this model apply to other countries with small domestic markets, but that the pattern has been observed in firms in the US. They suggest that firms develop operations in individual countries in a stepwise extension of operations. Four different stages, referred to as the *establishment chain*, are identified;

transferability of money, and those things vary from country to country and time to time" (Johanson and Vahlne, 1977, p27).

Johanson and Vahlne (1977, p26) emphasise the importance of experiential market knowledge. Although the model acknowledges that market knowledge can be experiential or objective, market or general, following the rationale of Penrose (1959), the model assumes that experiential knowledge is critical and objective knowledge is of minor importance (Johanson and Vahlne, 1977, p26). Experiential knowledge is implicit and tacit and is acquired through operating in the market place (Penrose, 1959). It cannot be as easily acquired as objective knowledge. Objective knowledge is acquired through standard methods of collecting and transmitting information such as market research, whereas experimental knowledge is more costly to accumulate and cannot be transferred between firms (Eriksson *et al.*, 1997). Johanson and Vahlne (1977) acknowledge implicitly that market knowledge exists within the firm in tacit and explicit forms but pay little attention to issues of how tacit/experiential knowledge is assimilated within the firms. They comment "by market knowledge we mean information about markets, and operations in those markets, which is somehow stored and reasonably retrievable – in the mind of individuals, in computer memories, and in written reports" (Johanson and Vahlne, 1977, p26). By focusing on experiential market knowledge the model ignores the role of objective and explicit knowledge. No distinction is made between tacit and explicit forms of knowledge.

Johanson and Vahlne (1977) see knowledge about a market as a resource, where better knowledge of the market increases the commitment to a market. Johanson and Vahlne (1977) argue this is especially true of experiential knowledge, which is usually associated with the particular conditions in the market and thus cannot be transferred to other individuals or other markets.

Johanson and Vahlne (1977) argue that in foreign operations, firms lack the basic life long experiences that exist in domestic activities, to which they can add specific experiences of individuals, organisations and markets. It must be gained successively during operations in the country. It is argued that an important aspect of experience is that it generates business opportunities. Objective market knowledge allows the

1. no regular export activities,
2. export via independent representatives (agents),
3. sales subsidiary,
4. production/manufacturing.

This sequence of stages, the establishment chain, reflects the increasing degree of involvement in terms of commitment of resources by the firm and information channels to and from the market. This was later extended to include pre-export stages (Wiedersheim-Paul *et al.*, 1978) and thus seeks to explain the whole process of a firm's internationalisation. The model assumes that the most important obstacles to internationalisation are lack of knowledge and resources. The authors postulate that firms initially target neighbouring psychically close countries, where psychic distance refers to a country's closeness in terms of geography, language, culture, political systems, level of education, level of industrial development, etc. Johanson and Wiedersheim-Paul (1975) accept that a firm's market development might not always follow the whole chain as markets might not be large enough to require resource commitment and firms may jump stages where they have extensive experience from other foreign markets. In summary, the model suggests a firm internationalises slowly, starting from a domestic base, enters closest markets first (reducing psychic distance) and uses simplest entry modes first in a market, for example exporting via independent representatives (agents) then progressing to sales subsidiaries followed by production and manufacturing. However as Johanson and Vahlne (2006, p166) point out later "the model is not the establishment chain.......This was the empirical phenomenon we observed giving impetus to construct the model. The model is on learning and commitment, or more precisely, on the interplay between knowledge development and increasing foreign commitments". The development of the model by Johanson and Vahlne (1977, 1990) is considered in the next section.

2.2.2 Market knowledge and the Uppsala model

The internationalisation process described by Johanson and Wiedersheim-Paul (1975) is extended by Johanson and Vahlne (1977, 1990) and is often referred to as the Uppsala model. It suggests that the firm ultimately expects to take ownership of its activities through foreign direct investment (FDI). The model "focuses on the gradual acquisition, integration and use of knowledge about foreign markets and operations, and on the incrementally increasing commitments to foreign markets" (Johanson and Vahlne (1977, p23). A firm adopts an incremental approach, gradually deepening its knowledge and building commitment within the firm to foreign markets as it develops relationships that cross international boundaries (Johanson and Vahlne, 1977). Market knowledge and market commitment (resources committed and degree of commitment) are assumed to affect both decisions regarding the commitment of resources to foreign markets and the way current activities are performed. According to Johanson and Vahlne (1977) commitment decisions are concerned with the decisions to commit current resources to foreign operations. These decisions are made in response to perceived problems and opportunities in the market. Current business activities are the prime source of experience, and commitment decisions depend on this experience and are related to the operations currently performed in the market. Learning about internationalisation is seen as a cumulative path dependent process, in which each step abroad adds to a firm's knowledge and previous knowledge has an important impact on the process (Johanson and Vahlne, 1977, 2006; Eriksson *et al.*, 2000). Firms move from purely domestic operations to establishing foreign country production, based on a process of managerial learning; the process is gradual, incremental and outward (Coviello and McAuley, 1999).

Following the ideas of Aharoni (1966), Johanson and Vahlne (1977) view internationalisation as a consequence of a process of incremental adjustments to changing conditions of the firm and its environment. These changes expose the firm to new problems and opportunities. The firm uses limited search behaviour and searches in the area of the problem (Cyert and March, 1963). Thus the firm deals with problems and opportunities in their contexts. The model expects that internationalisation will tend to proceed regardless of whether strategic decisions in that direction are made or not (Johanson and Vahlne, 1990). It is not a result of a firm's strategy for resource allocation, where alternative ways of exploiting foreign markets are compared and evaluated. The model focuses on a firm's increasing involvement in the individual market; however the successive expansion into new markets is not the focus of the model. The establishment of operations in a new country is explained by the psychic distance between the home and host country. Lack of knowledge due to differences between countries with regard to, for example, language and culture, prevents firms acquiring market knowledge, i.e. "information about markets and operations" in international markets (Johanson and Vahlne, 1977, p26). It is suggested that these differences constitute the main characteristic of international, as distinct from domestic operations. The model assumes firms will reduce uncertainty by initially targeting neighbouring psychically close countries. Psychic distance was defined initially as "factors preventing or disturbing the flows of information between firms and market" (Johanson and Wiedersheim-Paul, 1975, p18). This original definition was updated to "factors preventing or disturbing firms learning about and understanding a foreign environment" (Nordstrom and Vahlne, 1992, p3). This re-definition emphasises the view of internationalisation as a dynamic, learning process, whereby managers must not simply accumulate information, but must learn to interpret it correctly in order to generate an understanding of the market and adapt to it (O'Grady and Lane, 1996). An inability to learn about important differences hinders adaptation and affects performance outcomes (Nordstrom and Vahlne, 1992).

Johanson and Vahlne (1977, 1990) identify three exceptions to incremental stages. First, big firms with large resources will make larger steps as consequences are small. Second, where market conditions are stable and homogeneous relevant market knowledge can be gained in other ways than through experience. Third, a firm may be able to generalise experience from markets with similar conditions to the specific market.

Market knowledge

Johanson and Vahlne (1977) highlight the direct relationship between market knowledge and a firm's market commitment. The more a firm knows about a market the lower the perceived risk and higher the investment. Lack of market knowledge is a major obstacle to internationalisation. The model assumes that commitment decisions are based on several kinds of knowledge. Knowledge of opportunities or problems initiates decisions whereas evaluation of alternatives is based on knowledge about the market environment and about performance of various activities. Using Carlson's (1974) definition, market knowledge "relates to present and future demand and supply, to competition, and to channels for distribution, to payment conditions and the transferability of money, and those things vary from country to country and time to time" (Johanson and Vahlne, 1977, p27).

Johanson and Vahlne (1977, p26) emphasise the importance of experiential market knowledge. Although the model acknowledges that market knowledge can be experiential or objective, market or general, following the rationale of Penrose (1959), the model assumes that experiential knowledge is critical and objective knowledge is of minor importance (Johanson and Vahlne, 1977, p26). Experiential knowledge is implicit and tacit and is acquired through operating in the market place (Penrose, 1959). It cannot be as easily acquired as objective knowledge. Objective knowledge is acquired through standard methods of collecting and transmitting information such as market research, whereas experimental knowledge is more costly to accumulate and cannot be transferred between firms (Eriksson *et al.,* 1997). Johanson and Vahlne (1977) acknowledge implicitly that market knowledge exists within the firm in tacit and explicit forms but pay little attention to issues of how tacit/experiential knowledge is assimilated within the firms. They comment "by market knowledge we mean information about markets, and operations in those markets, which is somehow stored and reasonably retrievable – in the mind of individuals, in computer memories, and in written reports" (Johanson and Vahlne, 1977, p26). By focusing on experiential market knowledge the model ignores the role of objective and explicit knowledge. No distinction is made between tacit and explicit forms of knowledge.

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Johanson and Vahlne (1977) argue that in foreign operations, firms lack the basic life long experiences that exist in domestic activities, to which they can add specific experiences of individuals, organisations and markets. It must be gained successively during operations in the country. It is argued that an important aspect of experience is that it generates business opportunities. Objective market knowledge allows the formulation of only theoretical opportunities whereas experiential knowledge makes it possible to perceive concrete opportunities.

Johanson and Vahlne (1977, p29) argue that a firm's current activities (i.e. internally acquired experiences) are the prime source of experience. Although it is recognised that experience could be gained through hiring people or from advice from people with experience, it is argued that the firm's experience is required to interpret information from inside the firm and the market, and integrate information into the firm. Thus both firm and market experience are essential, it is difficult to substitute personnel or advice from outside for current activities. Johanson and Vahlne (1977) accept that it will be easier to substitute personnel or advice from outside where activities are production oriented i.e. where there is less interaction between the firm and its market environment. In this case it will be easier to start new operations that are not incremental. However it is argued that even production activities depend on general business climate which is assessed through current activities. The hiring of new personnel with market experience and using them in marketing activities is delayed by the need for them to gain the necessary experience in the firm. Johanson and Vahlne (1977) argue that although firms could quickly obtain and use market experience by hiring sales staff or buying a firm, in many cases this kind of experience is not for sale, or at the time of market entry may not exist. Thus experience has to be acquired through a long learning process in connection with current activities and the internationalisation process proceeds slowly.

The model distinguishes between market specific and general knowledge. Johanson and Vahlne, 1997, p28) define market specific knowledge as "knowledge about characteristics of the specific national market - its business climate, cultural patterns, structure of the market system, and, most importantly, characteristics of the individual customer firms and their personnel". Recent research has identified two types of market knowledge: business and institutional knowledge (Eriksson *et al.*, 2000; Eriksson *et al.*, 1997). Foreign business knowledge means experiential knowledge of clients, competitors and market conditions in a particular market. Foreign institutional knowledge refers to experiential knowledge of government, institutional frameworks, rules, norms and values in particular markets. Johanson and Vahlne (1977, p28) define general knowledge as "marketing methods and common characteristics of certain types of customers, irrespective of their geographical location". The Uppsala model assumes that market specific knowledge is gained mainly through experience in the market, and is related to conditions in the market. General knowledge of the operations can often be transferred from one country to another and its diffusion facilitates lateral growth into new foreign markets. The way in which general knowledge is gained is not explicitly explained (Forsgren, 2002). Whilst they conclude that both market specific and general knowledge are important for firm internationalisation, the model emphasises the former as the main driving force.

In conclusion, by focusing on experiential market knowledge, the Uppsala model has neglected the role of objective knowledge in the internationalisation of firms. The model assumes that both tacit and explicit knowledge are reasonably retrievable and does not consider issues of how firms assimilate experiential knowledge. The model also neglects the role of general knowledge, which is dealt with in the next section.

Internationalisation knowledge

The Uppsala model has been criticised as it focuses on specific market knowledge, neglecting experience relevant to all markets and more generic internationalisation knowledge (Eriksson *et al.*, 1997; Li *et al.*, 2004). Eriksson *et al.* (1997, 2000) identify general *internationalisation knowledge* which concerns accumulated experience gained from operating in the international environment. It is neither specific to country or mode of entry. It is firm specific, for example may include a particular firm's "way of going international" (Eriksson *et al.*, 1997, p345). It concerns a firm's knowledge of its capabilities in engaging in international operations and of its resources for doing so. These are embedded in a firm's routines, procedures and structure (Eriksson *et al.*, 2000). Eriksson *et al.* (1997) argue that accumulated experiential knowledge exerts an influence on the future internationalisation of the firm through its influence on information search processes, i.e. type and sources of information. Eriksson *et al.* (1997) argue that such knowledge is generalisable from market to market and impacts on the firm's ability to gain experiential knowledge about foreign markets and institutions as well as the cost of internationalisation. The more firms lack business and institutional knowledge, the higher the cost of their internationalisation process (Eriksson *et al.*, 1997). Furthermore, firm experience from current activities in specific markets and from multiple past business deals in various countries, develops institutional knowledge, which is used by firms to understand both formal and informal institutional differences between countries (Chetty, Eriksson and Lindberg, 2006). Firms develop institutional knowledge from both multiple diverse country experiences and experience in the specific ongoing business, for example of a customer, rather than experiences at the level of the country (Chetty, Eriksson and Lindberg, 2006). By focusing on market specific knowledge in individual markets, the Uppsala model neglects the impact of general knowledge at higher levels in the hierarchy of an organisation that could influence strategic behaviour (Forsgren, 2002). Forsgren (2002) argues that organisation learning that leads to general knowledge can increase a firm's alternatives and function as a driving force to take steps in new directions. Indeed, the case of global start-ups discussed by Oviatt and McDougall (1995) highlights the existence cross-border international experience of founders and top managers, and development of general international experience obtained from the global operations of firms. The different types of knowledge are summarised in figure 2.1 at the end of this chapter.

2.2.4 Sources of knowledge

The Uppsala model emphasises the acquisition of experiential market knowledge through current activities, in determining a firm's internationalisation. However, research over the last two decades has shown that firms can acquire market knowledge in other ways, highlighting a weakness of internationalisation process theory. Firms can learn through imitative learning by observing other firms, by acquiring or hiring people with the necessary knowledge, company acquisitions, licensing, strategic alliances and by conducting focused research for new information rather than through experiences from their own activities (Welch and Welch, 1996; Forsgren, 2002). Recent research on smaller firms confirms that knowledge based resources critical for foreign market entry do not have to reside within firm. They can be acquired from specialist organisations, such as export intermediaries or "traders" (Peng and Ilinitch, 1998), or relevant alliances and networks (McDougall *et al.*, 1994) which can help facilitate internationalisation amongst smaller firms. Oviatt and McDougall (1994) argue that since the mid 1970s the flow of information from foreign markets has increased, reducing psychic distance and promoting greater integration between markets.

Firms can acquire experiential market knowledge by "grafting-on" the new knowledge (Huber, 1991). This can be from acquiring new employees or larger units. Although Johanson and Vahlne (1977) suggest this knowledge may not be available or exist, Oviatt and McDougall (1994, 1995) argue that international managerial experience has become more widely available, enabling firms to quickly acquire such knowledge through initial resources endowment and recruitment. Foreign direct investment (FDI) by acquisition, as opposed to greenfield investment, may broaden a firm's knowledge base and decrease inertia, possibly leading to better performance in the long run (Vermeullen and Barkema, 2001). Peng (2001) discusses how knowledge based resources are acquired by firms which use export intermediaries. The firm for example, will be concerned with whether the intermediary performs as promised. The intermediary on the other hand, needs to use the information asymmetries between the firm and the foreign markets and assure the firm its knowledge based resources will be used to the firm's advantage.

Learning from partners in strategic alliances facilitates local knowledge acquisition and strengthens firm performance in host countries (Luo & Peng, 1999). Learning can occur in different types of strategic alliances, from formal joint ventures to agreements to co-operate. Not all partners are adept at learning, the process more than the structure is important in determining learning outcomes (Hamel, 1991). Learning and network development are important drivers and outcomes of foreign market expansion (Welch and Welch, 1996). Through existing business relationships and networks, firms can gain access to another firm's knowledge without going through the same experiences (Johanson and Mattsson, 1988; Johanson and Vahlne, 2003; Eriksson *et al.*, 1997), enabling them to enter new markets and expose themselves to new opportunities (Chetty and Blankenburgh Holm, 2000). Johanson and Vahlne (2003) developed the Uppsala model to include business relationship learning by a large number of firms, and so a firm can imitate this behaviour and take action, without having to wait until its own market specific knowledge has reached a certain level (Forsgren, 2002). In conclusion, the above discussion highlights that market specific knowledge is not only acquired by a firm's own experience but can also be acquired through interaction with other firms, i.e. from the experiential learning of others commitment, firms learn in business relationships and networks, which enable them to enter new markets, develop new relationships and in turn, enter other country markets. Firms have been found to mimic the behaviour of other competing firms (Di Maggio and Powell, 1983; Levitt and March, 1988). An example is when practices have been legitimised because actions have been taken.

Information can be acquired though scanning and focused research (Huber, 1991). Empirical studies in the export marketing literature have reported a wide range of sources of marketing information used by firms (Leonidou and Adams-Florou, 1998). These studies report mixed findings of the uses of these sources by firms, nevertheless they serve to illustrate the variety and importance of information sources available to firms. Reid (1984) identifies six information sources; government programme usage, international media publications, export publications, trade associations, attending international trade fairs and exhibition, managers' international predisposition. He concludes that decision makers make selective use of institutions, facilities and informal sources when making new market entry export decisions. Leonidou and Adams-Florou (1998) review fifteen studies of export information sources used by firms and identify over twenty-five sources. These studies were grouped into six categories, which include internal and external sources of information; company efforts, other firms/individuals, commercial associations, information providers and government outlets. The studies show variation in the sources of information used by firms and suggest that firms must strike a balance between traditional/personal and non-traditional/formal methods of gathering foreign market information. Leonidou and Adams-Florou (1998) conclude that although personal sources are useful in gaining experiential market knowledge, they do not provide sufficient basis for making internationalisation decisions. For example, managers have been found to use information in a prejudicial manner, using information which confirmed pre-conceived views and ignoring other relevant data. (Chaudhry and Crick, 1998). Researchers conclude that government has a role promoting external information sources and improving government sources (Reid, 1984; Leonidou and Adams-Florou, 1998; Chaudhry and Crick, 1998).

The Uppsala model focuses a firm's learning about international markets through the acquisition of direct market knowledge. However, the studies discussed above show that firms can learn in other ways. The Uppsala model neglects other sources of knowledge. For example, firms can acquire experiential knowledge externally from outside the firm, and from internal and external objective sources of information. These other sources of knowledge have implications for how firms acquire knowledge which is discussed further in chapter three.

2.2.5 Other process models of internationalisation

Although it could be expected that the Uppsala model's validity is limited to countries like Sweden, which is rather small and highly industrialised, Johanson and Vahlne (1977, 1990) and Johanson and Wiedersheim-Paul (1975) point out that research from other countries has supported the model. Other process models, also referred to as behavioural approaches, largely support the stages approach as suggested by the Uppsala model (Andersen, 1993). These models take an innovation-related perspective, where the internationalisation decision is seen as an innovation for the firm presenting export development as an innovation adoption behaviour, where managers evolve from having no interest in international markets to becoming increasingly committed to international growth (Andersen, 1993). Reid (1981) and Cavusgil (1980, 1984). The pull mechanism or internal factors such as managerial ambitions and excess capacity, explain why a firm moves to the next stage. Others, such as Bilkey and Tesar (1977) and Czinkota (1982) highlight the importance of managerial learning and see internationalisation behaviour as a learning curve influenced by some kind of push mechanism or external stimuli, such as unsolicited foreign orders. The various stages reflect changes in the attitudinal and behavioural commitment of managers and the firm's resultant international orientation (Reid, 1981; Cavusgil, 1984; Bilkey and Tesar, 1977 and Czinkota, 1982). The models argue that the perceptions and beliefs of managers both influence and are shaped by incremental involvement in foreign markets (Coviello and McAuley, 1999). This involvement results in a pattern of evolution from little or no interest in foreign markets to operations in psychically close markets then active expansion into more challenging and unknown markets and increasing commitment to international growth (Coviello and McAuley, 1999). Thus in agreement with the Uppsala model, the other process models emphasise the acquisition of experiential market knowledge. The gradual pattern of the firm's internationalisation process can mainly be attributed to the lack of knowledge by the firms, especially experiential knowledge and uncertainty associated with the decision to internationalise (Andersen, 1993). Like the Uppsala model, internationalisation is a gradual, learning through experience process. Andersen (1993) concludes that the differences between the stage models reflect semantic differences rather than real differences about the internationalisation process.

2.2.6 Challenges to the process models and stage approach

The contingency approach suggests that a firm's internationalisation may be influenced by a wide range of market specific and firm specific characteristics (Reid, 1983). According to Reid (1983) a firm's choice of market entry mode and expansion is more selective and context specific than the stages model. Firm internationalisation can be explained by heterogeneous resource patterns and market opportunities. External situations or opportunities cause firms to leapfrog stages, enter markets that are psychically distant from the home country, stages or stop internationalisation prior to full commitment (Reid, 1984; Turnbull, 1987; O'Farrell and Wood, 1994; Gankema *et al.*, 1997). Firms have been found to pursue multiple strategies at each stage (Dalli, 1994). Turnbull (1987) and have found combined sales methods were employed in some British industries in a single foreign country. Firms did not progress in a phased way from sales methods using least resource commitment towards methods requiring more commitment. Companies reported a reversal of stages for example, where an overseas sales office is closed in favour of direct selling from the UK. Turnbull (1987) concludes that internationalisation is determined by the operating environment, industry structure and a firm's marketing strategy. Export strategies of domestically orientated British firms may be different from the more internationally orientated Swedish companies on which the Uppsala stages theory was based. Johanson and Vahlne (1990) acknowledge that the process model of internationalisation neglects strategy. They accept that internationalisation processes involve a mixture of strategic thinking, strategic action, emergent developments, chance and necessity. Julien (1996) notes that there is a lack of agreement on stages, firms may stick at one stage or jump to the end and concludes that the stages approach is too static and does not explain how firms move from one stage to another. Bell and Young (1998) conclude that it fails to adequately explain the process involved.

The term internationalisation has been defined as "the process of increasing involvement in international operations" (Welch and Luostarinen, 1988, p36). This reflects a broader concept of internationalisation that includes both inward and outward aspects of the process (Welch and Luostarinen, 1988). The stage models have viewed internationalisation as an outward, export led perspective but firms can become internationalised by undertaking import led activities where inward investment might precede outward investment (Korhonen *et al.*, 1996). Inward activities such as manufacturing might precede and influence the development of outward sales activities (Korhonen *et al.*, 1990). Inward and outward activities might be linked, as with strategic alliances, co-operative manufacturing, countertrade (for example, pure barter, buy back arrangements) and off set policies (Fletcher, 2001; Welch and Luostarinen, 1988). Both outward (e.g. exporting) and inward (e.g. importing) activities have become more closely linked with the dynamics of international trade. This recognises the dynamic nature of the internationalisation processes of small firms. Coviello and McAuley (1999) highlight the Beamish (1990, p77) definition of internationalisation as; "the process by which firms both increase their awareness of the direct and indirect influence of international transactions on their future, and establish and conduct transactions with other countries". Coviello and McAuley (1999) argue this definition provides a holistic view of the internationalisation concept. Beamish's definition (1990) integrates behavioural (internal learning) and economic components, the dynamic and evolutionary nature, inward activities and the influence of relationships. Jones (2001) supports this broader view of internationalisation. Jones (2001) found that many high technology firms' first steps to internationalisation involved importing rather than exporting. Value chain activities other than trade, were also found to exist suggesting internationalisation is resource driven as well as market lead. Thus firms' first steps in internationalisation may include a much broader range of cross border activities than traditional theories suggest (Jones, 2001). The different types of cross-border links formed by firms, indicates that internationalisation kicks off in different ways for different firms. Furthermore, firms may de-internationalise then internationalise (Luostarinen, 1994).

Bell, McNaughton and Young (2001) highlight the growing evidence of another phenomenon, the emergence of 'born-again global" firms. These are firms that have been well established in their domestic markets, with apparently no great motivation to internationalise. They suddenly undergo rapid and dedicated internationalisation which has been influenced by critical events that provide them with additional human or financial resources, such as changes in ownership/management, being taken over by another company with international networks, or themselves acquiring a company. These findings support Oesterle's (1997) arguments that some firms experience 'epochs' of internationalisation. This is in contrast to traditional firms which have slow internationalisation, which is often ad-hoc, reactive and opportunistic. Born-again global firms appear to exploit new networks and resources gained as a result of particular 'critical episodes'. Bell *et al.* (2003) present an integrative model which recognises the different pathways and patterns of internationalisation amongst 'traditional', 'born global' and 'born-again global' firms.

The concept of psychic distance has been challenged. Other factors influence a firm's activities and choice of market such as market opportunity, unsolicited orders, following clients and government initiatives to break down barriers (Bell and Young, (1998). The implicit assumption in internationalisation process theory is that firms follow a sequence of market entry starting with psychically close markets which is related to performance in that market. However it may be difficult for firms to enter these markets because decision-makers are not prepared for differences that exist. Assumptions of similarities can prevent managers from learning about critical differences (O'Grady and Lane, 1996). Johanson and Vahlne (1992) accept that as the world becomes more homogeneous, new businesses are willing and able to enter directly into larger markets as they become culturally closer to the host country. The enhanced flow of information from foreign markets has reduced the psychic distance and promoted greater international integration between markets (Oviatt and McDougall, 1994).

Andersen (1993) presents other inherent weaknesses of the stage models. Previous studies lack the ability to delineate boundaries between stages. In terms of unit of analysis they fail to distinguish between large and small firms, which reduces generalisability. Problems of design result in the lack of explanatory power which explains why or how the process takes place and how to predict the movement from one stage to another. Andersen (1993) suggests critical events in the firm's development and factors that affect export behaviour should be identified using different research methods such as case studies and longitudinal analysis. Overall, the studies tend to be cross sectional and do not address the dynamic nature of internationalisation (Fletcher, 2001). In terms of theory development few studies have clarified the concepts, variables of models at different levels of abstraction and relationships connecting them. This has resulted in the direction of causation not being clear. Tests of validity or reliability have not been presented on the studies, and should be included in future research to develop these models (Andersen, 1993).

Despite the criticisms outlined above, it had been argued that the stages model is useful as a framework for classification purposes, rather than understanding of the internationalisation process (Turnbull, 1987; Bell and Young, 1998). The latter requires an understanding of the environment within which a firm operates, which determines their strategy (Turnbull, 1987). The stages approach has directed attention to the process of internationalisation; why and how firms internationalise and develop over time (Wilson, 2000). Although it neglects the internationalisation patterns of some firms, those that leapfrog stages, INVs, high technology and service firms (Bell and Young 1998; Madsen and Servais, 1997), it provides a reference point when researching SMEs that have serviced the domestic market prior to developing international sales. Regarding market entry, Johanson and Vahlne (2006) recently reject the "establishment chain" aspects of the Uppsala model, stating that these were the empirical phenomena that were observed. These latter authors conclude that the model is based on learning and commitment building; on the interplay between knowledge development and increasing foreign commitments.

2.2.7 Conclusions - Internationalisation process theory and learning

In conclusion, the central issue of the Uppsala model is knowledge acquisition, how organisations learn and how their learning affects their investment behaviour (Forsgren, 2002). The model focuses on experiential market knowledge by firms, concentrating on the extension of operations by firms to individual markets. It has neglected the role of general knowledge which can be applied to all markets (Eriksson *et al.*, 1997). However recent developments in organisation learning theory suggest the model applies a narrow interpretation of learning. This limits the ability of the model to explain certain forms of internationalisation behaviour (Forsgren, 2002). The model neglects that firms can learn in other ways as described above. For example firms have access to knowledge through business relationships, by conducting focused search for new information, acquiring people or business with the knowledge or imitative learning. Thus the model has neglected the importance of external sources of knowledge. Although Johanson and Vahlne (2006) later argue that experiential knowledge generates absorptive capacity (Cohen and Levinthal, 1990), the model does not address how firms acquire, assimilate and exploit new external knowledge within the firm.

The model implicitly recognises that knowledge is tacit or explicit, but it does not distinguish between internal knowledge that is tacit or explicit within the firm. It assumes that knowledge is "somehow stored and is reasonable retrievable" (Johanson and Vahlne, 1977, p26), thus it does not distinguish the complexities of organisational learning from individual knowledge that is tacit and implicit (Nonaka, 1994). The accumulation of experience and a company's ability to retain and update knowledge and expertise, especially if key staff exit the firm, are important organisational learning processes (Welch and Welch, 1996). The model's assumption that market knowledge is stored and retrievable allows for a more incremental and path dependent internationalisation process (Forsgren, 2002). This implies that a firm develops collective memory and its ability to convert and store tacit information. However, changes in personnel over time, where tacit knowledge and lessons from history are lost, will reduce the proposed stability, continuity and path dependent character of the internationalisation process (Huber, 1991; Forsgren, 2002).

By focusing on specific experiential market knowledge, internationalisation process theory does not explain how general knowledge is gained (Forsgren, 2002). This is an important omission. Johanson and Vahlne (1977) suggest general knowledge is transferred from one country to another and influences a firm's lateral international expansion. It is used by Johanson and Vahlne (1977) to explain that internationalisation might not be incremental where a firm is able to generalise experience from markets with similar conditions to the specific market. This aspect is not developed in the model.

Recent work on learning in organisations has added important insights into learning processes in firms. It is discussed more fully in chapter three. Finally, the internationalisation process theory has focused on market and, to a limited extent, general knowledge. It has neglected the role of technology and product knowledge in the internationalisation process. Product and technological knowledge, in particular the case of international new ventures, is considered in the next section.

2.3 International new ventures (INVs)

This section presents a review of international new venture theory development. This is followed by a discussion of the role of product and technological knowledge and learning in the internationalisation process of firms with particular emphasis on international new ventures. The findings of empirical studies of INVs' success factors are considered, followed by a discussion of international entrepreneurship as a new field of academic enquiry. The section concludes with a summary of the role of product and technological knowledge in the internationalisation of INVs.

2.3.1 International new ventures – definitions

In the early study comparing domestic and international new ventures, McDougall (1989, p387) referred to the concept of international entrepreneurship "as the development of international new ventures or start-ups that, from their inception, engage in international business, thus viewing their operating domain as international from the initial stages of the firm's operation". The most common terms used in the academic literature by researchers to investigate this phenomenon are *international new ventures, INVs* (Oviatt and McDougall, 1994) and *born globals* (Rennie, 1993; Knight and Cavusgil, 1996; Madsen and Servais, 1996). Oviatt and McDougall (1994, p31) refine the early definition of an international new venture "as a business organization that, from inception seeks to derive significant competitive advantage from the use of resources and the sale of outputs in multiple countries". Born globals have been viewed as tending to adopt a global focus from birth, or shortly afterwards, and embark on rapid and dedicated internationalisation (Rennie 1993; Madsen and Servais 1997). Global start-ups are classified by Oviatt and McDougall (1994) as the most extreme type of international start-up, where they have many activities co-ordinated across countries and are involved in many countries.

Researchers have often used measures of foreign sales efforts in the period of a firm's formation to identify international new ventures and born globals (Oviatt and McDougall, 1997). However they have been defined differently in various studies. For example researchers have defined a venture to be new if it is eight years old or less (McDougall *et al.*, 1994), seven years olds or less (Jolly *et al.*, 1992) and six years or less (Brush and Vanderwerf, 1992). Whilst the selection of any period is arbitrary, Oviatt and McDougall (1997) conclude the first six years seems to appear a crucial period for firm survival and this appears to have been adopted as standard in recent studies. INVs have been defined as achieving more than 40% international sales within two years of start-up (Roberts and Senturia, 1996), 5% international sales within eight years (McDougall, 1989). Rennie (1993) defines born globals as exporting 75% of their total sales less than two years after start-up. Tyebjee (1990) identifies the limitations of only including export sales as a measure of international involvement. Firms, particularly in high technology industries, internationalise through a variety of entry modes and other value chain activities such as licensing, foreign manufacturing, sourcing for resale, joint ventures and strategic alliances. Thus Tyebjee (1990) argues total revenue from sales made directly or indirectly into foreign markets is a better measure of international involvement.

2.3.2 International new ventures – challenge to process theories

One the main challenges to the stages approach has been the work to develop a theory of international new ventures by McDougall (1989) and Oviatt and McDougall (1994). Much of the recent literature provides evidence that international new ventures (INVs) and born globals, firms that are international from their inception, are becoming increasingly common (Oviatt and McDougall, 1994). INVs go straight to overseas markets, from inception, rather than incrementally, enter psychically distant markets and use advanced entry modes (Oviatt and McDougall, 1994). Rennie (1993) notes the sharp rise of SME born globals in a study of Australian high value added manufacturing firms. Linqdqvist (1997) found firms which have rapidly internationalised from inception, with operations and value chain activities in multiple countries. In the UK, some firms export from the outset and may generate more sales from exporting than from domestic sales (Westhead *et al.,* 2001). It is increasingly recognised that new venture development is non-linear and chaotic (Stevenson and Harmeling, 1990). McDougall, *et al* (2003) conclude that INVs appear to be a relatively new phenomenon and exist in many countries. These are small entrepreneurial firms and their main source of competitive advantage is often related to a sophisticated knowledge base (Bell *et al.*, 2003). Oviatt and McDougall (1994) argue the stages model does not explain the formation process of international new ventures. For example, it is argued that although the stage theory best applies to the early stages of internationalisation with only three exceptions (Johanson and Vahlne, 1990), these do not explain the rapid internationalisation of INVs (Oviatt and McDougall, 1994). First, the stages model predicts firms with large resources take big steps, yet an INV's resources are constrained by its young age and size. Second, rather that operate in stable and homogeneous markets where learning is easier, an INV's markets are among the most volatile. Third, where firms have experience of similar markets they may generalise that experience to new market, however INVs by definition have little or no experience in any markets (Oviatt and McDougall, 1994).

Some authors on the other hand, argue that the theoretic reasoning behind the stages model is relevant when studying born globals and international new ventures. Madsen and Servais (1997) in their discussion of born globals, conclude that the pre-export behaviour model developed by Wiedersheim-Paul *et al.* (1978) and Welch and Wiedersheim-Paul (1990) is important in explaining the start of the internationalisation process. However the founder characteristics of born globals (for example where they have global networks) and market conditions, which pull these firms into many markets very fast, are different than for firms which gradually internationalise (Madsen and Servais, 1997). Autio (2005) argues that an INV perspective complements internationalisation process theory because it addresses aspects that Johanson and Vahlne (1977) ignored, such as the influence of the history of the founder on international commitment decisions.

2.3.3 International new ventures – toward a theory

Oviatt and McDougall (1994, 1997) establish the elements of a theory of international new ventures which challenges the received internationalisation process theories. This challenge has established a new research theme of international entrepreneurship (Autio, 2005). Oviatt and McDougall (1994) argue that although cases of international new ventures have existed for centuries, the study of the multi-national enterprise (MNE) has focused on large mature corporations. It is only since the late 1980s that the business press and academics have been reporting on INVs. Oviatt and McDougall (1994) argue that changes in the international environment challenge the view that firms must go through stages of evolution before venturing into foreign markets and that large size is a requirement for multi-nationality.

Oviatt and McDougall (1994) develop the foundations of a theoretical framework based on an integrative approach comprising aspects of traditional MNE theories, business strategy and entrepreneurship. MNE aspects include transaction cost analysis, market imperfections and the international nature of transactions. Strategic management aspects focus on how competitive advantage is developed and sustained, in particular the resource based view of the firm (Barney, 1991). Entrepreneurship aspects deal with how ventures gain influence over resources without owning them. Four elements are identified in the framework (Oviatt and McDougall, 1994):

Element one - Internalisation of transactions takes place, where firms internalise some transactions (or accumulate resources), at the start-up stage. This is based on traditional MNE theory that organisations are formed where economic transactions are inefficiently governed by markets' prices, there are market imperfections (Williamson, 1985). This theory explains the internationalisation of MNEs in terms of cost of economic transactions, the choice by firms of an ownership/organisation form and location where costs are minimised (Buckley and Casson, 1976). Transaction costs arise in an imperfect market because firms need to devote efforts to organising, carrying out and controlling transactions among independent actors (Johanson and Mattsson, 1991). A firm may earn higher economic rents by internalising transactions rather than having arms length transactions across borders. Transactions are likely to be internalised through FDI, where transaction costs are high, transactions are perceived to be high risk, require significant management time and other resource commitments. Firms choose the least cost location and grow by internalising markets up to the point where the benefits are outweighed by the costs (Buckley, 1988). Oviatt and McDougall, (1994) note that ownership of foreign assets is not a defining characteristic, but both MNEs and INVs will own some assets.

Element two – New firms often suffer from resource and power constraints (Vesper, 1990; Storey, 1994). Entrepreneurs must rely on alternative modes of controlling vital assets. Thus INVs use alternative governance structures, such as network relationships, alliances, licensing or franchising, due to lack of sufficient resources to control many assets through ownership i.e. internalising further. Although there are risks of appropriation of their assets and proprietary knowledge by partners, new ventures will use these structures due to poverty of resources and power.

Element three – Traditional MNE theory argues that firms are international because they find advantage in transferring some moveable resources across national borders to be combined with less mobile resources or opportunities (Dunning, 1988). Firms require foreign location advantage to overcome the advantages of indigenous firms such as trade barriers, language and foreign business practices. Large MNEs traditionally often used scale to overcome such obstacles (Dunning, 1988). Oviatt and McDougall (1994) argue that an INV's knowledge, for example as acquired in software development, can be copied and used with insignificant additional costs, is transferable to a foreign location and can be sold in multiple countries. A firm's unique knowledge can create differentiation or cost advantage for MNEs and INVs. However, in increasing efficiency of international markets, competitors will try to uncover the secret or produce alternative knowledge, therefore new ventures must internationalise from inception in order to compete. Early internationalisation will occur in particular in knowledge and technology intensive firms (Oviatt and McDougall, 1999).

Element four - The final aspect of the framework is derived from the resource based view of the firm (Barney, 1991). It argues that a firm is required to possess unique resources to sustain competitive advantage (Barney, 1991). The transferability of knowledge as described in element three, means that the knowledge base of an INV may not remain unique for long. Oviatt and McDougall (1994) argue that firms prevent the appropriation of knowledge through direct means (e.g. patents, copyrights, trade secrets), imperfect imitability (so that competitors do not see how the product was achieved), licensing and network relationships and alliances with complementary organisations.

Oviatt and McDougall (1994) suggest that the elements described above for sustainable international new ventures manifest themselves in a variety of ways. They identify different types of INVs which are distinguished by the number of value chain activities that are co-ordinated and the number of countries entered (Porter, 1985).

1. *Export/ import start-ups* have few activities co-ordinated across countries and are involved in few countries.
2. *Multinational traders* have few activities co-ordinated across countries and are involved in many countries.
3. *Geographically focused start-ups* have many activities co-ordinated across countries and are involved in few countries.
4. *Global start-ups* have many activities co-ordinated across countries and are involved in many countries.

These groups identify firms at the extremes, but the authors acknowledge mixed types of firms appear in between and that firms will change over time. Export/import start-ups and multinational traders are termed as new international market makers with a small number of value chain activities, and inbound and outbound logistics are co-ordinated across countries. Direct investment in other countries is minimal. Geographically focused start-ups engage in international co-ordination of many value chain activities to service the needs of a geographical region, the input activities are unlimited and the outputs are geographically concentrated. Global start-ups have no geographical constraints.

Challenges for INV theory

Oviatt and McDougall (1994) established the foundations of a theory of INVs. Firms own certain valuable assets, use alliances and network structures to control a relatively large percentage of vital assets, have a unique resource that provides a sustainable advantage and is transferable to a foreign location. McDougall and Oviatt (2003) accept that although their model established the elements of a theory of INV, these elements are static and contain no description of the dynamic process by which INVs are formed. Oviatt and McDougall (1999) have identified some important parts of a process theory. The foundation was rapidly changing computer communications and transport technology, political economy, industry conditions, the effects on or of the firm and management team, but these ideas need further development and testing (McDougall and Oviatt, 2003). For example, McDougall and Oviatt (2003) suggest that static and dynamic concepts need to be combined and the ideas of the INV theory need to be tested. Autio *et al.* (2000) agree that international new venture theory has not been tested widely. Indeed Oviatt and McDougall (2005a) accept that their 1994 theory does not fully explain modes of entry. Recent research on INVs suggests that some firms may use licensing and network alliances less than the theory suggested (Shrader *et al.*, 2000; Shrader, 2001). Oviatt and McDougall (2005a) posit that this may be because the firms in their research may have been sufficiently wealthy that they could internalise important resources and depend upon uncertain imitability to protect their knowledge. They suggest further research is required to investigate these issues.

The INV model has been criticised because although it has not been limited to technology-based firms, much of the discussion relates to technology-based firms (Wilson, 2000). Oviatt and McDougall (1994) argue that although previous studies have been mainly of high-technology firms, some studies represent businesses in a wide range of industries. Some researchers agree that the INV conceptual approach seems best to explain early internationalisation patterns of smaller knowledge-intensive firm (Autio and Sapienza, 2000; Bell *et al.*, 2003; Jones, 1999). Technological knowledge is a unique resource that can be transferred to a foreign location, with insignificant additional costs and sold in multiple countries. This enables firms to gain foreign location advantage over indigenous firms (Oviatt and McDougall, 1994). As the model has not been limited to such industries, empirical work on more diverse industries is required (Wilson, 2000). Many studies have associated early internationalising firms with knowledge-intensive firms (Autio and Sapienza, 2000; Bell *et al.*, 2003; Jones, 1999). However some studies provide evidence that early internationalisation is not necessarily attached to new, high technology sectors (Madsen and Servais, 1997; Rennie, 1993). Madsen and Servais (1997) suggest that that born-globals originating in countries with large home markets are mostly found in high-technology sectors, while born globals in smaller countries are more often found in other sectors. Bell *et al.,* (2003) distinguished between knowledge-intensive firms and knowledge-based firms. A knowledge-based firm's core competence is related to the emergence of new technologies. These firms internationalise early to take advantage of new technologies. Their core competence is their sophisticated knowledge base (Oviatt and McDougall, 1999). In contrast, knowledge-intensive firms can make use of knowledge to develop new products, improve or introduce new production methods or improve service delivery, but are not inherently knowledge-based firms (Oviatt and McDougall, 2005b; Rialp *et al.,* 2005). Rialp *et al.,* (2005) observe that this latter firm behaviour is happening in a number of industrial sectors, not only high technology sectors. Rialp *et al.,* (2005) conclude that as firms take advantage of technology to improve processes, firms in industries with more diverse technological content will develop knowledge intensity. Oviatt and McDougall (2005b) recognise the differences in knowledge and suggest three types of firms may be observed that differ in their reliance on knowledge and speed of internationalisation; traditional firms, knowledge-intensive and knowledge-based firms. Oviatt and McDougall (2005b) suggest the "traditional" firms adapting well understood technologies to new foreign markets usually internationalise incrementally, and the Uppsala model may best apply to these firms. "Knowledge-intensive firms" internationalise faster because they usually hold a competitive advantage that can be exploited in multiple countries. "Knowledge-based" firms depend on novel complex knowledge and are likely to have the most accelerated internationalisation because of unique sustainable advantage that may be in demand in a number of countries. Oviatt and McDougall (2005b) recognise that the Oviatt and McDougall (1994) model focused on the latter, i.e. knowledge-based firms. In conclusion, international new venture theory would benefit from further empirical testing (Oviatt and McDougall, 2005a; Autio *et al.,* 2000).

2.3.4 Product and technological knowledge

The idea that internationalisation is driven by a firm's technological knowledge assets can be traced back to the pioneering work of Hymer (1976). In this theory of direct foreign investment, Hymer highlights that firms are unequal in their ability to operate in a particular industry (Hymer, 1976, p25). Where a firm has advantages over other firms in the production of a particular product, it may be profitable to undertake the production of the product in a foreign country. Associated technical knowledge, i.e. "ability and technique", usually accompanies international operations (Hymer, 1976, p217). This is supported by research into internal determinants of export marketing behaviour. For example Bilkey (1978) and Cavusgil and Nevin (1981) found that a firm's products and technology are part of a firm's unique differential advantage. These include competitively priced products, technically superior products, and technological intensiveness of the firm's production. Thus, a key component of a firm's overseas investment decision is the nature of the product or service the company offers as well as the technology in its products or processes (Luostarinen, 1980). Technology is an important factor in a firm's product mobility across national boundaries (Kogut and Zander, 1993).

Internationalisation process theory pays little attention to product knowledge. The only reference to it by Johanson and Vahlne (1977) is to posit that the less a firm needs to integrate its production knowledge with its market knowledge, the greater international steps a firm should be able to take (Autio, 2005). Wiedersheim-Paul *et al.* (1978) in the pre-export model briefly discuss a firm's product line, suggesting that the complexity of a product determines the international buying behaviour of firms. A firm's first international order is often for uncomplicated products. Where products are complex, this favours already established business connections and decreases the possibility of an outside firm getting the order.

Following on from the work of Hymer (1976), Kogut and Zander (1995) highlight the nature of firm specific advantages and their transfer across borders as a central issue in the theory of foreign direct investment. This is supported by Spender and Grant (1996) who argue that sustained competitive advantage depends on a firm's knowledge and the ability of competitors to replicate that knowledge. Kogut and

Zander (1993) argue the multinational corporation arises not only out of the market failure of the buying and selling of knowledge, but out of the firm's superior efficiency as an organisational vehicle to transfer this knowledge across borders. International growth requires not only the accumulation and creation of new knowledge, but the replication of existing knowledge in multiple locations (Penrose, 1959; Rugman and Verbeke, 2002).

The internalisation theory of foreign direct investment (ownership/organisation form and location) argues that firms can undertake foreign direct investment by exploiting the knowledge based assets available to them (Buckley and Casson, 1976; Caves, 1971). Knowledge based assets, unlike physical or financial assets, have a public good characteristic, such that they can be replicated and transferred to other national markets without incurring the full cost of recreating the asset with every transfer (Buckley and Casson, 1976; Caves, 1971). Buckley and Casson (1976) argue that the public good characteristic of knowledge means that knowledge is easily transferred and is hard to protect and its exploitation drives internationalisation. Caves (1982) argues that companies need to offer superior products to overcome the liability of foreignness and to achieve competitive advantage over rivals. Thus the accumulation of knowledge based assets increases the likelihood of foreign direct investment.

2.3.5 INVs, product and technological knowledge

The issue of a firm's knowledge intensity has become of increasing interest to researchers in the field of new venture internationalisation (Yli-Renko *et al.*, 2002; Autio *et al.*, 2000; Zahra, *et al.*, 2000). Technical resources are the tangible and intangible technical assets of the firm. Technology intensity is typically indicated by a high research and development expenditure and provides the firm with unique technological knowledge which often promotes the expansion of the firm (Dhanaraj and Beamish, 2003). Autio *et al.* (2000) define knowledge intensity as "the extent to which a firm depends on the knowledge inherent in its activities and outputs as a source of competitive advantage (Autio *et al.*, 2000, p913). Recent research findings suggest greater technological and knowledge intensity has been associated with a greater degree of internationalisation (Dhanaraj and Beamish, 2003) and with faster international growth of entrepreneurial firms (Autio *et al.*, 2000). Technical learning has been found to enhance a new firm's performance (Zahra *et al.*, 2000). Without technological learning a firm's skills become outdated, its products obsolete, for example, it provides a base of knowledge upon which innovations can be developed (Leonard-Barton, 1995).

International new venture theory as developed by Oviatt and McDougall, 1994, challenges the incremental approach to internationalisation found in the process models. International new ventures were technology-based firms in knowledge–intensive sectors, often operating in volatile markets. Rapid internationalisation is facilitated by the knowledge intensity of a firm's core resources and essential to its growth. Knowledge is a key resource driving the international growth of technology based firms (Yli-Renko *et al.*, 2002). International new venture theory suggests that the inherent mobility of knowledge allows for an earlier and more rapid internationalisation for INVs and born globals (Oviatt and McDougall, 1997). The accumulation of product and technological knowledge allows firms to recognise and exploit new productive opportunities. Technological knowledge is inherent in an INV's activities and outputs (McDougall *et al.*, 1994). Oviatt and McDougall (1995) identify unique products or service knowledge as one of the success factors for INVs. Thus INV theory highlights the importance of knowledge intensity of the firm's resources, and views it as an important facilitating condition for INVs (Oviatt and McDougall, 1994; Autio, 2005). It supports the view that the mobility of knowledge and its combination with less mobile resources in multiple countries drives internationalisation (Buckley and Casson, 1976; Caves, 1982; Rugman, 1982). This is in contrast to the process theory of internationalisation, which seems to assume that resources invested in any given country market cannot be easily deployed elsewhere (Autio, 2005).

2.3.6 INVs, knowledge and learning

Knowledge and learning plays an important role in INVs theory development (Oviatt and McDougall, 1994). INV theory highlights the role of unique knowledge and learning for INV success (Oviatt and McDougall, 1995; Zahra *et al.*, 2000). Founders of INVs have been found to be alert to new international opportunities because of the previous knowledge and learning acquired in earlier activities (McDougall *et al.*, 1994). Unique knowledge, products and services, international experience of managers, global vision and the existence of strong international networks, are seen as key characteristics of successful global start-ups (Oviatt and McDougall, 1995). The INV process is started early because of the entrepreneurial vision and capabilities of the management team (Oviatt and McDougall, 1997). This is supported by other studies of new firms. Christensen and Jacobsen (1996) and Madsen and Servais (1997) report that firms have different routes to internationalisation based on prior contacts and knowledge acquired before the establishment of the new venture. International skills can be obtained from market knowledge, personal networking, international contacts, and experience transmitted from previous occupation, relationships and education. This challenges international process theory which, by focusing on the firm not the individual, assumes in foreign markets, that firms have no basic experiential knowledge to start with (Johanson and Vahlne, 1977).

Knight and Cavusgil (2004) highlight the role of innovation culture, knowledge and capabilities in born global firms showing superior performance. Knight and Cavusgil (2004) argue that young, innovating firms, such as born globals, are likely to develop their own unique knowledge and capabilities. This results in new products and markets, market expansion, and improvements to their competitive position and performance. Knowledge includes the capacity of the firm to understand and use relationships among informational factors (Autio *et al.,* 2000; Knight and Cavusgil, 2004). Cavusgil and Zuo (1994) highlight the amount of learning required that has to take place for successful international marketing operations, suggesting that a long-term approach to cultivating international market opportunities is appropriate. Companies must "institutionalise" international operations to cultivate international competence and ensure consistent commitment to international operations.

INV theory suggests that by going international early, INVs are often unfettered with inertia that limits established companies' ability to learn and thus may outperform competitors (Oviatt and McDougall, 1994; Autio *et al.*, 2000). Autio *et al.* (2000) introduce the concept of "learning advantages of newness", which represents a counterpoint to the concept of "liability of newness" for young organisations (Oviatt and McDougall, 2005b). Organisational learning theory suggests that new knowledge is best developed where there are little or no existing organisational routines to unlearn (Autio *et al.,* 2000 and Cohen and Levinthal, 1990). Thus Knight and Cavusgil (2004) argue that young firms may be better able to acquire international knowledge, and that the increasing internationalisation facilitates further learning. Their unique environment and competitive situation will result in enhanced performance. Knight and Cavusgil (2004) conclude that early internationalisation will benefit firms in terms of knowledge acquisition and how to succeed in international markets. Bureaucracy hinders innovation in larger older firms, whereas smaller and younger firms are more flexible and less bureaucratic which can encourage innovativeness (Lewin and Masini, 2003). Well established firms must unlearn embedded routines in domestic operations before new international routines can be established. These routines can be costly to change and can constrain a firms future behaviour (Utterback and Abernathy, 1975 and Teece and Pisando, 1994). Zahra (2004) contests the assumption that older firms are unable to learn and adapt, and suggests that it is how firms compete once they enter global markets that determines competitive advantage. Indeed Oviatt and McDougall (2005b) suggest that learning advantages of newness deserve additional empirical testing and conceptual development so that the advantages and liabilities of young firms can be understood and compared. Furthermore, in a review of INV research Zahra (2004) highlights the importance of learning for an INV's successful performance in the extant literature. Zahra (2004), however identifies a gap in the literature i.e. that little is known about what and how INVs learn in the global market place. For example, given their inexperience and resource poverty as suggested in the literature, future studies should investigate how INVs decide which new knowledge is important and how they develop their absorptive capacity.

2.3.7 International new ventures - success factors

The findings of empirical studies that focus on success factors of INV or born global firms will now be considered. Rialp *et al.* (2005) examine thirty-eight studies within the emerging field of international entrepreneurship which have been undertaken in the last decade. The study illustrates the objectives and types of research which have been carried out over the period. The review found that these studies include a mixture of theoretical and empirical studies. Empirical studies were found to have either limited high-technology sectoral focus, or overall sectoral focus, but much of the literature developed has focused on high technology firms (Rialp *et al.*, 2005). This section serves to illustrate the factors that have been deemed important for firms, in particular INVs, to compete globally. A selection of empirical studies is presented. These include Jolly *et al.* (1992), Oviatt and McDougall (1995), Rennie (1993), Tybejee (1990), Lindqvist (1990) and Johnson (2001). Most of the studies have a high technology focus except Rennie (1993) which reports that Australian born globals were found in all sectors.

Jolly *et al.* (1992) conducted a longitudinal study involving case studies of four high technology companies which became significant global players in a relatively short time. The companies overcame liabilities of being a start up and competing against established global players with investments in place, established markets and distribution networks. Jolly *et al.* (1992) show how these INV companies overcome these drawbacks to successfully compete globally. INVs typically depend on a single product in the beginning making market development more costly as they lack economies of scale. Large MNEs have the cost advantage of adopting a mixed approach to internationalisation where appropriate, behaving globally in some regions and adopting a country-oriented strategy elsewhere, thus amortising some fixed costs. Jolly *et al.* (1990) found each of the companies competed in international markets from the beginning and co-ordinate many value chain activities across geographically dispersed countries. Jolly *et al.* (1992) identify seven success factors; companies have a global vision from the start. They have high quality innovative and standardised products, lead market success, build volume quickly through broad and rapid market access often using alliances, have selective functionally specialised investments abroad, follow on products, breadth of competence and create a tightly networked global organisation. Whilst each of these elements is important it is the combination of all of them that helped the companies to globalise successfully. A policy of globalisation was undertaken as a means of competing with incumbent firms. Although this study focused on INVs there are lessons for established companies to compete globally. The authors suggest a need for greater functional focus. For example, the companies studied, made wholly owned investments as soon as their products were ready and separated the decision concerning market entry from production. Their manufacturing plants were sourcing points for the world market. This is applied to other functional areas, research and development (R&D),

procurement, finance and marketing were concentrated in one or two locations and serve the global market. This is in contrast to earlier MNE behaviour whereby companies tended to locate two or more functions in a major market. The research suggests existing international firms need to restructure to increase this functional focus. For a company to be global, the major functions of each strategic business unit need to think globally.

Oviatt and McDougall (1995) highlight the changing nature of international business in a study of 12 case studies of successful high technology start-ups. The authors argue that competitive advantage has shifted away from firm advantages gained from large size and long experience towards firms with unique knowledge and swift response capabilities. Technology and competitive forces are making slowly staged efforts risky for an increasing number of firms. Oviatt and McDougall (1995) identify a pattern of seven characteristics associated with the survival and growth of firms, which are consistent with recent theoretical developments in the management of MNEs and INVs. Having a global vision from inception, internationally experienced managers who understood cross border business conduct and the culture of the countries were important. Having strong international business networks can compensate for the resource poverty, strong network relationships, can result in successful strategic alliances or co-operative agreements. These findings have been supported by other studies (Coviello and Munro, 1997; Hara and Kanai, 1994; Reuber and Fischer, 1997). Being first to market with pre-emptive technology allows firms to have an advantage over indigenous firms and large firms with economies of scale. Having a unique intangible asset such as unique knowledge or tacit know-how, enables firms to sustain distinctiveness. Successful firms have product or service extensions (i.e. follow on products) which are closely linked to their unique assets allowing innovative ventures to build a lead over competitors. Finally, the co-ordination of the firm world-wide, with a strong management team, is required to co-ordinate the functional activities in disperse locations. This requires a communication infrastructure which supports employee, as well as management commitment, to the global vision and the nurturing of international business associates.

Rennie (1993) reports on an extensive study involving over 300 high value-added manufacturers in Australia. The firms took part in a detailed survey and 60 firms were involved in focus groups and in-depth interviews. The study was set against a background where Australia has the second largest manufacturing sector in Asia and high export growth. Two groups of very different types of exporting firms were identified; traditional exporters and born global firms. The traditional exporters were domestic based firms, where their core business is well established, with strong skills, solid financial capability and a sound product portfolio. Having achieved a sustainable domestic base these firms look to exporting to achieve growth. The born global firms by contrast began exporting on average only two years after their foundation and achieved 76% of their total sales through exports, compared to 20% by traditional firms. Born global firms were found in all sectors. The key competitive advantages identified by the companies were; quality, technology, marketing, production capability, cost and unique product. The firms were exposed to low cost competition from inception, to be successful they needed to compete on superior quality and value, with value created through innovative technology and product design. Cost competitiveness is necessary but not sufficient. Technology was seen as a critical competitive lever. The firms had a strong customer focus, they set out to create new markets with virtually no competitors, compete in niche markets, are flexible and have the ability to move fast.

Tybjee (1990) in a study of 105 high technology start-ups in eight industries, distinguishes between factors which lead a firm to first enter international markets and factors that explain the level of success achieved in those markets. In the study, a substantial number of firms, including very young firms were found to be involved in international transactions other than exporting. The study identifies three aspects which explain variations in international involvement after firms become involved in international markets; industry conditions, management actions and strategy adaptation. Firms in industries with high scale economies and R&D intensity had higher international involvement. High product obsolescence rates influenced firms to start internationalisation but once they have begun, firms with slow obsolescence rates were are able to expand their level of international involvement. Barriers to entry, such as ease of customer switching and speed of competitor response, were found to be insignificant influences. Management time planning and management of foreign markets, increases in international transactions or relationships as well as integrating international sales into formal budgeting processes, were found to be conducive to building international involvement. In terms of strategy, the adaptation of the product to international markets builds involvement, although the adapting of advertising and sales literature were found to have no effect.

Lindqvist (1990) conducted a mail study of 95 small, young independent high-tech Swedish exporters and included 15 interviews. The companies had at least 20% turnover attributed to foreign exports. Performance was measured by export intensity, perceived profitability of foreign activities and growth in export sales. Success factors identified were; having international vision firm wide, foreign commitment in terms of resources invested in foreign operations, unique products with technological leadership, the opportunity to charge high margins and continuous innovation minimising the reliance on the initial product.

Johnson's (2001) study of small high technology international start-ups identified factors influencing early internationalisation of firms and firm specific success factors. The study combined quantitative and qualitative methods, with the emphasis on the former. Performance was assessed by subjective and objective measures of international sales growth, international profitability and the achievement of international strategic objectives (Madsen, 1987; Aaby and Slater 1989; Cavusgil and Zou, 1994). The international vision of the founder(s), the desire to be an international market leader, the identification of a specific international opportunity and the international competitiveness of the firm's industry were the most influential factors in the early internationalisation of firms. Johnson's (2001) study identified the specific founder, organisation, product and marketing characteristics correlated with the higher performance of the firms. The success factors found were the international commitment of the founder, having an entrepreneurial and goal driven internal organisation behaviour, applying customer-driven product design, having unique and innovative products, engaging in continuous innovation and targeting similar customer segments world-wide. The founder's commitment included vision, willingness to commit resources, international open-mindedness, and commitment to be an industry leader. These are more likely to be possessed by founders with international experience, which was viewed as a critical success factor. Although start-ups possessed the required innovative and technical skills, it was found that lack of business and international marketing knowledge can result in a long, arduous and costly learning process. Enhanced success entails the creation and sustenance of an ambitious, goal driven entrepreneurial and customer focus culture which the founders and managers of small high technology international start-ups need to create and maintain firm wide. In terms of product and marketing strategies, the study found that these start-ups compete in niche markets with innovative products and target homogeneous customer groups located in key industry markets throughout the world. Firms overcome problems of short product life cycles by embarking on continuous innovation from the beginning (Johnson, 2001).

The findings of these studies identify success factors of international new ventures. Organisation characteristics (including founders' characteristics for INVs), product and marketing strategies are identified as firm specific success factors. Successful INVs display global vision and commitment. A strong management team is important, where by founders and managers have international experience, develop and manage this global vision and commitment firm-wide amongst employees. The organisation is developed world-wide to support this vision, through formal planning, budgeting, tight co-ordination and managing foreign operations, markets and relationships. INVs have strong international business and social networks which compensate for resource poverty through for example, developing strategic alliances and co-operative agreements. These firms have a strong customer focus, are flexible, compete in niche markets, have aggressive market entry with first mover advantages and pre-emptive technology or marketing

In conclusion, the above discussion of INV success factors illustrates the importance of technology and product knowledge as a firm specific advantage for the success of international new ventures. Firms have unique, innovative, quality products, often based on technology. Investment in R&D and product design is important. Unique products often derive from technical leadership and firms may have unique knowledge. Where products have short life cycles, investment in R&D allows firms to innovate, emphasis is on continuous innovation and the development of follow on products. On the other hand, firms can expand their internationalisation where they can benefit from products with slow obsolescence rates. Other successful product strategies identified include developing standardised products for niche markets and product adaptation to international markets.

2.3.8 International entrepreneurship

Oviatt and McDougall (2005a), in the retrospective commentary on their 1994 Journal of International Business Studies (JIBS) decade award winning article, argue that their early research on INVs was part of a new field of enquiry into international entrepreneurship. Oviatt and McDougall (2005a, p.6) state "more than any other article we have written ...our JIBS article stands as an unmistakable example of international entrepreneurship research". It has been recognised as a newly emerging research arena by international business scholars (Wright and Ricks, 1994). The field of international entrepreneurship has broadened from the early view of international new ventures, into two main streams;

1. the comparison of entrepreneurial behaviour in multiple countries and cultures and
2. the study of organisational behaviour that extends across national borders and is entrepreneurial (Oviatt andMcDougall, 2005b).

Oviatt and McDougall (2005b, p540) recently widen the definition to "international entrepreneurship is the discovery, enactment, evaluation, and exploitation of opportunities – across national borders – to create future goods and services". This definition widens the McDougall (1989) early focus on new venture internationalisation theory. The new definition highlights business opportunities, which is reflected in the entrepreneurship literature (Shane and Venkataraman, 2000). The study of firms' cross border activities has evolved from its early studies on new firms' internationalisation to include for example, corporate entrepreneurship (Birkinshaw, 1997; Zahra and George, 2002). Studies have discussed the accelerated internationalisation of both new ventures and small and medium sized entrepreneurial firms (Oviatt and McDougall, 1999; Knight and Cavusgil, 1996; Madsen and Servais, 2000).

Multi-country comparisons of entrepreneurial activity have been evident in the international business literature (Oviatt and McDougall, 2005a). The creation of the global entrepreneurship monitor (GEM) studies in 1999 illustrates the interest in comparative domestic entrepreneurship (GEM, 2006). GEM studies entrepreneurial activities in thirty-five countries around the world each year. The results are used as key bench-marking indictors by regional, national and supranational authorities around the world. Although Oviatt and McDougall (2005b) recognise the two branches to the study of international entrepreneurship, cross-national border behaviour and comparisons, they recognise their work focuses on the former, cross–national-border behaviour and in particular accelerated internationalisation. Oviatt and McDougall (2005a) refute recent concerns of international business scholars that international entrepreneurship has imported ideas from other disciplines and does not provide sufficient exports of its own (Buckley, 2002; Peng, 2004). Oviatt and McDougall (2005a) cite the citations of the 1994 JIBS article by entrepreneurship scholars in entrepreneurship journals as evidence of the export of international business scholarship to the discipline of entrepreneurship. However Oviatt and McDougall (2005b) note that the authors of the majority of articles are either exclusively international business scholars or entrepreneurship scholars. Oviatt and McDougall (2005b) suggest a need for greater understanding by academics of the other discipline and call for more collaboration between entrepreneurship and international business scholars. As the award of the JIBS accolade suggests, the study international entrepreneurship has been embraced by international business academics. However it has been argued that the article by Oviatt and McDougall (1994) and related work by the authors, is a self-sufficient complement to IPT, adding new insights into the phenomenon of internationalisation (Autio, 2005). It is questionable whether a new, fuller theory of new firm internationalisation is possible.

2.3.9 – Summary

Previous research has highlighted the importance of product and technological knowledge for the internationalisation of firms (Hymer, 1976; Kogut and Zander, 1993). INV theory emphasises the role of unique knowledge and the knowledge intensity of the product or service offered by firms (Oviatt and McDougall, 1995; Yli-Renko *et al.*, 2002). This unique knowledge is transferable across national borders and drives the early and rapid internationalisation of INVs (Oviatt and McDougall, 1994; 1997). INVs are often knowledge based firms with technology based assets. An INV's ability to learn is seen as an important success factor (Oviatt and McDougall, 1995). Much of the discussion has focused on the knowledge intensity of a firm's resources and the importance of technological learning (Dhanaraj and Beamish, 2003; Leonard-Barton, 1995; Zahra *et al.,* 2000). Of critical importance to an INV's internationalisation is the transfer of technological knowledge across national borders. It has been argued that the efficiency with which a firm transfers knowledge and the replication of existing knowledge in multiple locations drives growth (Kogut and Zander, 1993; Penrose, 1959). By focusing on technology based/intensive firms much of the recent of research into knowledge and learning by international new venture has focused on technological learning (e.g. Zahra *et al.,* 2000). However, international skills influence a firm's internationalisation route (Madsen and Servais, 1997). This implies the requirement for an INV to acquire internationalisation knowledge. Furthermore, a lack of business and international marketing knowledge will be costly to firms and may result in an arduous and long learning process (Johnson, 2001). Thus, although recent studies have highlighted the importance of internationalisation learning for INVs there is a lack of research in the area (Knight and Cavusgil, 2004; Zahra, 2004).

2.4 Conclusions – market, internationalisation and product/technological knowledge

In conclusion, the accumulation of knowledge and learning are important drivers of foreign market expansion for firms that follow traditional incremental approaches to international expansion and for INVs that internationalise early and rapidly (Johanson and Vahlne, 1977; Oviatt and McDougall, 1995). Three types of knowledge have been identified in the international business literature as market, internationalisation and product/technological. Internationalisation process theory (IPT) has emphasised the importance of specific market knowledge acquisition and learning from current activities, whereby firms gradually acquire, integrate and use knowledge about foreign markets and operations and incrementally increase their foreign market commitment. The assumption is that experiential knowledge is critical and objective knowledge is of minor importance. The weaknesses of IPT are that by focusing on the acquisition of knowledge through a firm's current activities, IPT neglects the development of general internationalisation knowledge relevant to all markets (Eriksson *et al.*, 1997) and ignores the role of product/technological knowledge. Furthermore, by emphasising the acquisition of experiential market knowledge, IPT has neglected other sources of knowledge. As well as internally acquired experiential knowledge from operating in the market, recent research suggests that firms acquire knowledge externally from recruiting staff, acquisitions, past experience of chief executive officers (CEOs), investors, networks, trade missions, government sources, joint ventures and inward activities such as licensing (Forsgren, 2002; Vissak, 2005). Thus new knowledge can be obtained from experiential or objective sources but IPT has ignored the role of the latter. IPT pays little attention to the issues of assimilating tacit and experiential knowledge, assuming that knowledge is stored and reasonably retrievable (Johanson and Vahlne, 1977).

INV theory recognises the importance of product and technological knowledge and its transfer across borders, thus it emphasises international expansion by transferring knowledge to multiple markets. The inherent mobility of knowledge drives the early and rapid internationalisation of technology-based firms (Oviatt and McDougall, 1997; Yli-Renko *et al.*, 2002). However by its emphasis on technology-based/intensive firms, recent research into learning by international new ventures has focused in technological learning (Zahra *et al.*, 2000), suggesting that there is a lack of research on internationalisation learning (Knight and Cavusgil, 2004; Zahra, 2004).

Thus, international process theory emphasises the role of experiential market knowledge and international new venture theory highlights knowledge-intensity and technological knowledge (Yli-Renko *et al.*, 2002). Learning has been identified as important for INV success, however there has been little research into how INVs learn (Zahra, 2004). There are few empirical studies of the importance of different types of knowledge used by internationalising firms and they are not clearly distinguished in the literature. Figure 2.1 below summarises the types of knowledge, how they are defined in the international business literature and the prediction of the knowledge on firms' internationalisation behaviour.

Figure 2.1:Types, definitions of knowledge and internationalisation			
Theory	*Knowledge type*	*Definition*	*Prediction*
IPT – Johanson and Vahlne, 1997; Eriksson *et al.*, 2000, 1997.	Market knowledge	Experiential. Market specific, cannot be transferred to other markets. Foreign business and institutional knowledge.	Experiential market knowledge drives internationalisation in current markets. Incremental, path dependent internationalisation
Eriksson *et al.*, 2000, 1997; Madsen and Service, 1997; Forsgren, 2002.	Internationalisation knowledge	Experiential. Firm specific. Knowledge of capabilities, resources and entry modes. General knowledge that is transferable to other markets.	Firm's way of going international. Driving force to take steps in new directions.
INV theory – Oviatt and McDougall, 1994. Kogut and Zander, 1995. FDI theory - Hymer, 1976. Bilkey, 1978; Cavusgil and Nevin, 1981.	Product/ technological knowledge	Firm specific. Product/ Technological knowledge part of a firm's unique differential advantage.	Technology-intensity increases a firm's product mobility across borders. INVs internationalise early and rapidly in increasing efficient international markets.

This research investigates the knowledge acquisition and learning processes of both INVs and incrementally internationalising SMEs. Chapter three presents a review of the resource based view of the firm, knowledge based view of the firm and organisation learning theory to support this investigation into the process of learning in internationalising SMEs (Huber, 1991; Senge, 1990). Absorptive capacity refers to a firm's ability to acquire, assimilate and exploit knowledge that exists in their external environment (Cohen and Levinthal, 1990). This concept has been used to examine the technological innovative learning processes of firms and is thus particularly useful to investigate learning in INVs, however it has been argued it is relevant in a wider context (Lane *et al.*, 2006). Based on a framework of absorptive capacity this research explores and examines the learning processes of internationalising firms. This framework is developed in the next chapter.

Chapter Three

Knowledge and Organisational Learning

3.1 Introduction

This chapter reviews the literature on knowledge resources and learning capabilities, organisational learning and absorptive capacity. Firstly it introduces the concept of knowledge and the growth of the firm, the resource based view and the knowledge based view of the firm. It considers why knowledge is important, the nature of knowledge, the process of knowledge creation and learning and how it enables a firm to promote superior value. A discussion of organisation learning theory and absorptive capacity is presented and how they influence a firm's knowledge creation and learning. The implications of the role of organisational learning and the growth of small and medium sized firms (SMEs) is considered. The chapter concludes with a discussion of how knowledge and learning are important for the internationalisation of firms.

The chapter is structured as follows:

3.1 Introduction
3.2 Knowledge and learning
3.3 Organisational learning
3.4 Absorptive capacity
3.5.Organisational learning and SMEs
3.6 Organisational learning and internationalisation process theory
3.7 Conclusions
3.8 Research framework

3.2 Knowledge and learning

3.2.1 Knowledge, learning and firm growth

Penrose's (1959) theory of the growth of the firm, suggests that a firm's knowledge and capabilities to integrate resources into organisational capabilities determine its growth. Firm expansion requires a balanced use of internal and external resources and managerial learning is an important aspect of a firm's growth process. Penrose views the firm as an evolving collection of resources, whereby a firm's growth rate is limited as a result of managerial constraints i.e. the "Penrose effect" (Rugman and Verbeke, 2002). Penrose (1971) argues that growth is limited by the firm's ability to build up the effective management team that would enable it to expand as a co-ordinated unit. Effective co-ordination would enable firms to do more with less, provide more services with the same or fewer resources. Management experience and learning by doing, are seen as a prime sources of learning in organisations (Penrose, 1959). Learning by doing captures the idea that knowledge emerges subsequent to activity, adds to the firm's previous knowledge and changes the firm's ability to use the knowledge. Arrow (1962, p156) highlights the importance of learning by doing. Drawing on the work of Wright (1936) on learning curves, Arrow (1962) points to the "Horndal effect", a reference to a Swedish firm which although it had no new investment for a period of 15 years, increased productivity on average by 2% per year. Arrow (1962) attributes this steadily increasing performance to learning from experience. Many authors have shared Penrose (1959) and Arrow's (1962) interest in learning by doing (Cyert and March, 1963; Argyris and Schon, 1978; Nelson and Winter, 1982). As Spender (1994) argues firms do not only learn about how to design products and make processes work, they also learn about co-ordination, both between its constituent activities and with its external environment. The importance of managerial knowledge is extended by Spender (1994) who argues that a firm's collective knowledge to co-ordinate resources explains competitive advantage.

3.2.2 Resource based view of the firm

The resource based view of the firm is based on the business strategy framework for understanding how competitive advantage is achieved and sustained over time

(Wernerfelt, 1984; Barney, 1991; Hitt *et al.*, 2001). The resource based view (RBV) assumes that an organisation has a collection of unique resources and capabilities that provide the basis for its strategy and source of returns (Hitt *et al.*, 2001). The model argues that performance is driven by the unique resources and capabilities that are acquired and developed over time, they are not mobile across firms. Thus a firm's internal environment is more critical to the determination of strategic actions than the external environment. Differences in resources and capabilities form the basis for a strategy which allows the firm to best exploit its core competencies relative to opportunities in the external environment (Hitt *et al.*, 2001). This is opposed to the industrial organisation (IO) model which specifies that the industry a firm competes in has a stronger influence on performance than the choices managers make within their organisations (Schendel, 1994). Thus the IO model focus is on a firm's accumulation of resources to implement strategy dictated by the external environment i.e. general, industry and competitor environments (Porter, 1980; Hitt *et al.*, 2001). It has been argued that a resource based view of the firm is complementary to the traditional emphasis of strategy on industry structure and strategic positioning within the firm (Eisenhardt and Martin, 2000; Rugman and Verbeke, 2002). Rugman and Verbeke (2002) argue the resource based view focuses on a firm's strength and weaknesses, but treats demand as exogenous, whereas a strategic positioning approach is the cornerstone of opportunity and threats i.e. analysis with little emphasis on the individual firm's resources to respond to the environment.

In the resource based view, resources and capabilities have the potential to become a source of competitive advantage when they are valuable, rare, costly to imitate and non substitutable (Barney, 1991). Resources can be physical, human and organisational capital for example production processes, skills of employees and managers, patents and finances (Barney, 1991). They can be tangible or intangible in nature. A capability is the capacity for a set of resources to be integrated effectively within of the firm. Over time capabilities become stronger and more difficult for competitors to understand and imitate. As a source of competitive advantage they are not highly imitable and not too complex to control (Schoemaker *et al.*, 1994). Core competencies are resources and capabilities that serve as a source of competitive advantage for a firm over its rivals (Hitt *et al.*, 2001). They can be managerial, product, or marketing related. For example, a firm's managerial competencies have been shown to be critical to successful foreign market entry (Madhok, 1997).

Knowledge resources can be unique, inimitable and immobile reflecting the distinct pathways of each firm and can become a key strategic asset, embedded in its routines (Nelson and Winter, 1982). Firms acquire idiosyncratic knowledge from their unique pathways, which give rise to organisational capabilities (Teece *et al.*, 1997). Capabilities emerge from competencies and routines. Competencies can be knowledge-intensive skills within the firm and routines are the firm's practices which embeds the capabilities into the firm (Knight and Cavusgil, 2004). As the business environment changes, firms need to adapt their strategy to extend the firm's performance into new markets, products and ways of doing business (Teece *et al.*, 1997).

Recent advances in the resource based view highlight the role of capabilities (Eisenhardt and Martin, 2000; Teece *et al.*, 1997; Winter, 2003). Competencies may need to be under continuous development to keep up to date, for example dynamic core competencies are especially important in rapidly changing environments such as in high technology industries (Teece *et al.*, 1997). This view is supported by Fiol (2001) and Eisenhardt and Martin (2000) who highlight the role of dynamic capabilities, suggesting that sustained competitive advantage is not possible in dynamic, rapidly changing markets. In dynamic changing markets, firms require dynamic capabilities, i.e. a firm's resources, capabilities and competencies need to change (Eisenhardt and Martin, 2000; Teece *et al.*, 1997). Fiol (2001) argues that in competitive markets, the duration of competitive advantage is temporary and firms must constantly change. In these markets competitive advantage is likely to be derived from a firm's ability to destroy and rebuild specialised, inimitable resources or routines over time, rather than to build up a stock of inimitable unique competencies. Fiol (2001) questions whether it is possible to gain a sustainable competitive advantage based on a particular set of core competencies no matter how inimitable they may be. For example human resources, believed to be most likely to lead to sustainable advantage (Pfeffer, 1994), may not provide competitive advantage if they leave the firm, are not aligned with the firm's goals, get stuck in outdated routines, or become rigid and prevent change. However, Barney *et al.* (2001) argue that this is consistent with the resource based view (RBV) theory and suggest that dynamic capabilities may not be a source of sustained competitive advantage, for example where rapidly changing markets become stable, flexibility may no longer be valuable. Winter (2003) argues that exercising dynamic capabilities carry a cost, the need for a firm to change and the cost of change will determine whether it engages in dynamic capability behaviour.

Barney *et al.* (2001) conclude that a firm's ability to learn and change are likely to be amongst the most important capabilities, and suggest further research into how these capabilities generate competitive advantage is required. Learning is a capability that can be nurtured and developed within an organisation and it has been viewed as a dynamic capability (Teece *et al.*, 1997; Zahra and George, 2002). Winter (2003) distinguishes between routines and capabilities; routines are behaviours that are learned, whereas a capability is a higher level or collection of routines. Spender (1994) argues that resource based theory has focused on the acquisition and protection of core resources and has overlooked the collective knowledge and skills required to co-ordinate the resources into a viable bundle. It is this co-ordinating capacity, he argues, which is the essence of sustained competitive advantage and the growth of firms. Thus it is argued that the knowledge based view (discussed below) extends the resource based view of the firm by focusing on the firm as the intended outcome of co-ordinating a set of resource based activities (Spender, 1994). In particular, the ability to learn by doing, a firm's collective knowledge (implicit and embedded in organisational practice) and remembering capabilities, give rise to the synergistic aspects of a firm as a system of practice. Organisational learning, in particular the development of collective knowledge, rather than acquired resources, is crucial to a firm's competitive advantage (Spender, 1994).

3.2.3 The resource based view and internationalisation

Peng (2001) argues that the resource based view has become an influential theoretical perspective in recent international business research. It has played an important role in the emergence of international entrepreneurship and addresses how firms succeed rapidly abroad, without going through the different stages suggested by the stages model (Peng, 2001). Peng (2001) argues the identification of idiosyncratic international knowledge and experience gained by firms (Johanson and Vahlne, 1977) are valuable, unique and hard to imitate resources, which gives firms a competitive advantage. Successful firms have tacit knowledge about global opportunities and capabilities to use this knowledge (Peng *et al.*, 2002; Peng and York, 2001). McDougall (1989) found that venture strategy distinguished between domestic and international ventures much more than industry structure did. This is supported by Barney *et al.* (2001) who conclude that although there is some variation across industries, firm effects seems to be larger than industry effects.

Oviatt and McDougall (1994) argue that unique resources that are transferable to foreign locations explain how competitive advantage is developed and sustained in international new ventures. The resource based view provides useful insights into the role of knowledge and learning as unique resources and capabilities of internationalising firms. It has been used to uncover unique resources and competencies that affect the internationalisation of small firms (McDougall *et al.*, 1994). Shane (2000) highlights the key role of the entrepreneur, whereby idiosyncratic interpretations of a new technology's capabilities were found to create new opportunities from different applications of a patented technology. Westhead *et al.* (2001) identify key resource based factors associated with the decision by new and small firms to export sales abroad. For example businesses with older principal founders, with more resources, denser information, contact networks and considerable management know-how are more likely to internationalise. Industry know-how and previous experience of selling goods and services abroad are key influences encouraging firms to export.

Reid's (1983) criticisms of the stage models supports a resource based view of the firm. A firm's choice of entry and expansion modes is selective and context specific which can be explained by heterogeneous resource patterns and market opportunities (Reid, 1983). Firms will use multiple modes of international transfers. This is supported by Bell and Young (1998) in an integrative perspective on SME internationalisation that suggests internationalisation decisions (e.g. country selection, entry mode, product strategies) are made in the context of firms' specific resources and capabilities. Young *et al.* (2000, p94) argue the principal contribution of the resource based view is derived from its holistic view of firm behaviour.

Internationalisation was found to be "integrally bound up with overall business strategy,..... new product development, process development and marketing policy". Young *et al.* (2000) highlight the dynamic nature of the resource based view and competence based competition. Their findings support the emphasis placed on continuous organisational learning, where competencies are built from resources and capabilities, which may derive from inside or outside the firm. Bell *et al.* (2003) argue the nature and pace of internationalisation is conditioned by contingencies derived from the RBV i.e. external environmental variables (e.g. industry and product) and firm specific factors (e.g. resources and knowledge). Thus the firm's internationalisation decisions are made in a holistic way incorporating product decisions, market choice and entry modes (Bell *et al.*, 2003).

3.2.4 The knowledge based view of the firm

A knowledge based view (KBV) of the firm emphasises the role of knowledge and learning as a vital resource (Grant, 1996, 2002). Knowledge resources can reflect distinct pathways of each firm (Nelson and Winter, 1982). A knowledge based view of the firm (Nelson and Winter 1982; Kogut and Zander, 1993) views firms as social communities which specialise in the creation and internal transfer of knowledge. This creates organisational identity which lessens the fear of individual opportunistic behaviour and creates an effective environment for communication and learning within the organisation (Kogut and Zander, 1995). This knowledge creating view of the firm assumes that human and organisations are dynamic beings, and it focuses on processes within the firm (Nonaka *et al.*, 2000). The knowledge based view sees the firm as a knowledge creating entity, where knowledge and the capacity to create and utilise knowledge are the most important sources of a firm's competitive advantage (Nonaka, *et al.*, 2000; Spender, 1994). A firm continuously creates knowledge. Through its set of knowledge and skills it is able to innovate new products, processes and services, or improve existing ones more efficiently and effectively (Nonaka, *et al.*, 2000). Spender (1994, p355) sees the firm "as a dynamic body of knowledge in action". Nonaka *et al.* (2000) and Nonaka and Toyama (2003) point out that traditional organisation theory of the firm takes a static and passive view of organisations which fails to capture the dynamic process of knowledge creation through which an organisation interacts with its members and environment. For example transaction cost theory is based on the view of an organisation as an information processing machine that processes information from the environment to solve problems (Nonaka, *et al.*, 2000). The knowledge based view posits that instead of merely solving problems, the firm creates and defines problems, generates and applies new knowledge to solve problems, and then further generates and applies new knowledge through the interaction of problem solving (Cyert and March, 1963; March 1991; Levinthal and Myaat, 1994). Kogut and Zander (1992) distinguish between knowledge that is information and that which is know-how. Information is know "what" that exists for example in fact and can be transmitted without loss of integrity. Know-how is a practical skill that must be learned and acquired.

3.2.5 Tacit and explicit knowledge

An important aspect of the knowledge based view is the nature of knowledge. Knowledge resources can be viewed as a system of codifying information which enables it to be made useful (Kogut and Zander, 1995; Autio *et al.*, 2000). Knowledge can be implicit i.e. tacit, or explicit (Polanyi, 1966). Tacit knowledge is embedded in individuals and cannot be expressed explicitly or codified in written form (Nonaka, 1994). It is subjective, experiential and hard to formalise, it is in the form of beliefs, perspectives, mental models, and ideals (Nonaka *et al.*, 2000). Due to its unconscious nature and embeddedness in the specific context, tacit knowledge it difficult to articulate in a meaningful and complete way, from one individual to another (Teece 2000; Kogut and Zander, 1996). It relates strongly to the argument that individuals know more than they can say and manifest that knowledge through their actions Polyani, 1966; Spender, 1994; Simonin, 1999). It is acquired mainly through experiential, learning-by-doing. It is this tacit knowledge acquired experientially from current activities which Johanson and Vahlne (1977) argue generates business opportunities and drives internationalisation. Learning-by-doing theories posit that learning takes place through problem solving and it takes place during an activity (Arrow, 1962). Experiential learning, is learning that is achieved though reflection upon everyday experience and is the way that most individuals learn. The literature on experiential learning captures the dynamics of individual learning (Kolb, 1984). It is about learning from primary, concrete experience and has excluded the idea of secondary experience and alternative learning such as objective information assimilation and memorising (Jarvis, 1995).

Explicit knowledge on the other hand, is objective information and is diffused through the organisation. It can be scientific knowledge or more localised in, for instance company rules or operating guidelines (Spender, 1994). It can be in the form of quantifiable data, coded procedures, universally accepted principles, scientific formulas, specific actions and manuals. Explicit knowledge is codifiable and thus transferable (Nonaka, 1991; Nonaka *et al.*, 2000). Thus the transfer of knowledge is low for tacit knowledge and high for explicit knowledge (Grant, 2002). By assuming market knowledge is stored and is reasonably retrievable, Johanson and Vahlne (1977) ignore the complexities of the internal assimilation and transmission of knowledge by firms.

3.2.6 Tacit knowledge and the multi-national firm

Kogut and Zander's (1993) evolutionary perspective of the multi-national firm posits that the extent and manner by which a firm expands internationally depends on the tacitness of its knowledge based assets. However the replication of knowledge in foreign locations cannot be taken for granted. Tacit knowledge has advantages and disadvantages for international investment. The build up of tacit knowledge is inherent in the accumulation of organisational know-how that underpins technology and other knowledge based assets (Nelson and Winter, 1982; Dosi, 1988). It protects against imitation by other firms in various locations (Dierickx and Cool, 1989). Due to its novelty and difficult imitation, knowledge that is tacit can be expected to embody the advantages of the firm to grow and expand in the future (Kogut and Zander, 1993). By recombining knowledge a firm exploits its current knowledge for expansion into new markets (Kogut and Zander, 1992). Through its "combinative capabilities" a firm synthesises and applies current and acquired knowledge by a process of internal and external learning (Kogut and Zander, 1992, p384). However tacit knowledge when not embodied in well-defined physical artefacts can be difficult to replicate accurately (Nelson and Winter, 1982). Thus tacitness will affect the desirability of transferring a production technology to a foreign location. The more tacit the technology, the greater the additional cost incurred in a transferring the technology to a foreign location (Teece, 1977, 1981).

Kogut and Zander (1993) discuss the transfer of knowledge within the firm. In order to speed up the internal transfer of knowledge firms invest in ways to reduce the tacitness of technology by encoding it. Competition amongst firms is based on their differential capabilities and abilities to expand by creating and replication of new knowledge faster than the imitative and innovative efforts of competitors. Buckley and Casson (1976) argue the importance of a firm's ability to create an integrated team of skills and information transmission network explains a firm's advantage. Kogut and Zander (1993) conclude that technology transfer lies at the heart of the issue of the growth of firms, domestically and internationally. This notion of firm's ability to transfer knowledge internally within the firm also lies at the heart of a firm's absorptive capacity (Cohen and Levinthal, 1990) and is discussed in detail in section 3.4 below.

3.2.7 The process of knowledge creation

Nonaka (1994) proposes a knowledge spiral to explain the process of knowledge creation within a firm, whereby organisational knowledge is created through a continuous dialogue between tacit and explicit knowledge. The process is described by Nonaka and Toyama (2003) in four stages. It involves interactions between individuals, groups, the organisation and the environment. Knowledge creation starts with *socialisation* which is the process where the individual acquires tacit knowledge through shared direct experiences in day to day social interactions. Tacit knowledge is shared and created through direct experience. Through a process of *externalisation and articulation*, tacit knowledge is made explicit to so that it can be shared by others to become the new basis of new knowledge such as concepts, images and written documents. Tacit knowledge is articulated through dialogue and reflection. Through a process of *combination*, explicit knowledge is collected from inside and outside the organisation and then combined, edited or processed to form more complex and systematic explicit knowledge. Through a process of *internalisation*, explicit knowledge created and shared throughout an organisation is then converted into tacit knowledge. Knowledge is applied and used in practical situations and becomes the basis for new routines. Explicit knowledge must be actualised through action, practice and reflection so that it becomes individual knowledge. Through this process learning takes place and new knowledge is acquired (Nonaka and Toyama, 2003). However this discussion neglects the problems associated with tacit knowledge which are discussed in the next section.

3.2.8 Tacit knowledge, learning and competitive advantage

The above discussion highlights the importance of tacit knowledge in organisational learning. Tacit knowledge is more likely than explicit knowledge to be a unique, inimitable and immobile resource (Barney, 1991). It reflects distinct pathways of firms and reduces the threat that proprietary knowledge will be disseminated to rivals (Nelson and Winter, 1982). Tactic, idiosyncratic knowledge can become a key strategic asset and source of competitive advantage (Nelson and Winter, 1982). However when knowledge is not embodied in well-defined physical artefacts, it can be difficult to replicate accurately (Nelson and Winter, 1982). Tacit knowledge can be difficult to encode and constantly changing in high technology industries (Li *et al.*, 2004). Tacit knowledge may prevent change in formal and informal groups or "communities of practice" in organisations (Hendry, 1996). Tacit knowledge is not easily transferable, it is not copyable because it is it not wholly transparent (Grant, 1991). It may be only half visible to the members of a group and include unexamined assumptions. Communities of practice can therefore carry cultural conformity which can impede change and innovation in the face of new problems (Hendry, 1996). Thus although tacit knowledge may be a source of competitive advantage it may impede learning in firms.

In conclusion, the above discussion of Penrosian theory, the resource based view and the knowledge based view of the firm, highlights the importance of knowledge and learning to firms' competitive advantage and growth. Management experiential learning is an important source of a firm's ability to learn, add to its knowledge base and change its ability to use that knowledge (Spender, 1994). Penrose (1971) emphasises that management co-ordination capability is a determinant of a firm's growth. The resource based view highlights the role of a firm's unique organisational knowledge and learning as important resources and capabilities (Barney *et al.*, 2001).

However the RBV is a theory of the firm not internationalisation, and it has been criticised as being tautological using concepts such as resources, competencies and capabilities for what is essentially the same thing (Foss, 1997; Young *et al.*, 2000). The knowledge based view extends the RBV, focusing on the resource and capability outcomes of a firm's activities, and views the firms as a dynamic body of knowledge creation and learning (Spender, 1994). The KBV highlights the notion of the firm as specialising in the transfer of and recombination of knowledge which is argued is the foundation to an evolutionary theory of the multi-national firm (Kogut and Zander, 1993).

3.3. Organisational learning

3.3.1 Organisational learning definitions

Organisational learning has been described as the development of new knowledge or insights that have the potential to influence behaviour (Huber, 1991; Fiol and Lyles, 1985). Huber (1991, p89) states that organisation learning widely assumes that "an organization learns if any of its units acquire knowledge that it recognizes as potentially useful to the organization". Learning theory presumes that it facilitates behaviour change that leads to improved performance (Fiol and Lyles, 1985; Garvin, 1993; Senge, 1990; Slater and Narver, 1995). Argyris and Schon (1978) highlight the link between learning and improving action and introduce organisational learning as the process by which organisation members detect errors or anomalies and correct them by restructuring their activities. Kim (1993, p43) supports this view and defines organisation learning as "increasing an organisation's capacity to take effective actions".

Organisational learning theory recognises that learning begins at the individual level (Kim, 1993). Organisational learning takes place when new individual knowledge is incorporated into organisational knowledge. Therefore, organisational learning must take into account the interplay between action and interaction of individuals and of higher level organisational entities such as departments, divisions, or groups, (Argyris, 1999). Levitt and March (1988) highlight the importance of encoding knowledge into organisation routines that guide behaviour. These routines include rules, frameworks, procedures, cultures and belief structures. Levitt and March (1988) describe this learning as learning from direct experience and experience of others. Huber (1991) focuses on the sharing of information and knowledge and its assimilation into organisational routines, documents and practices. An organisation learns when any of its components have acquired information and have this available for use by other components or by itself on behalf of the organisation. Fiol (1994) highlights that organisational learning unlike individual learning, involves developing consensus in organisations around interpretations embedded in content and in the framing of communications for organised actions to result.

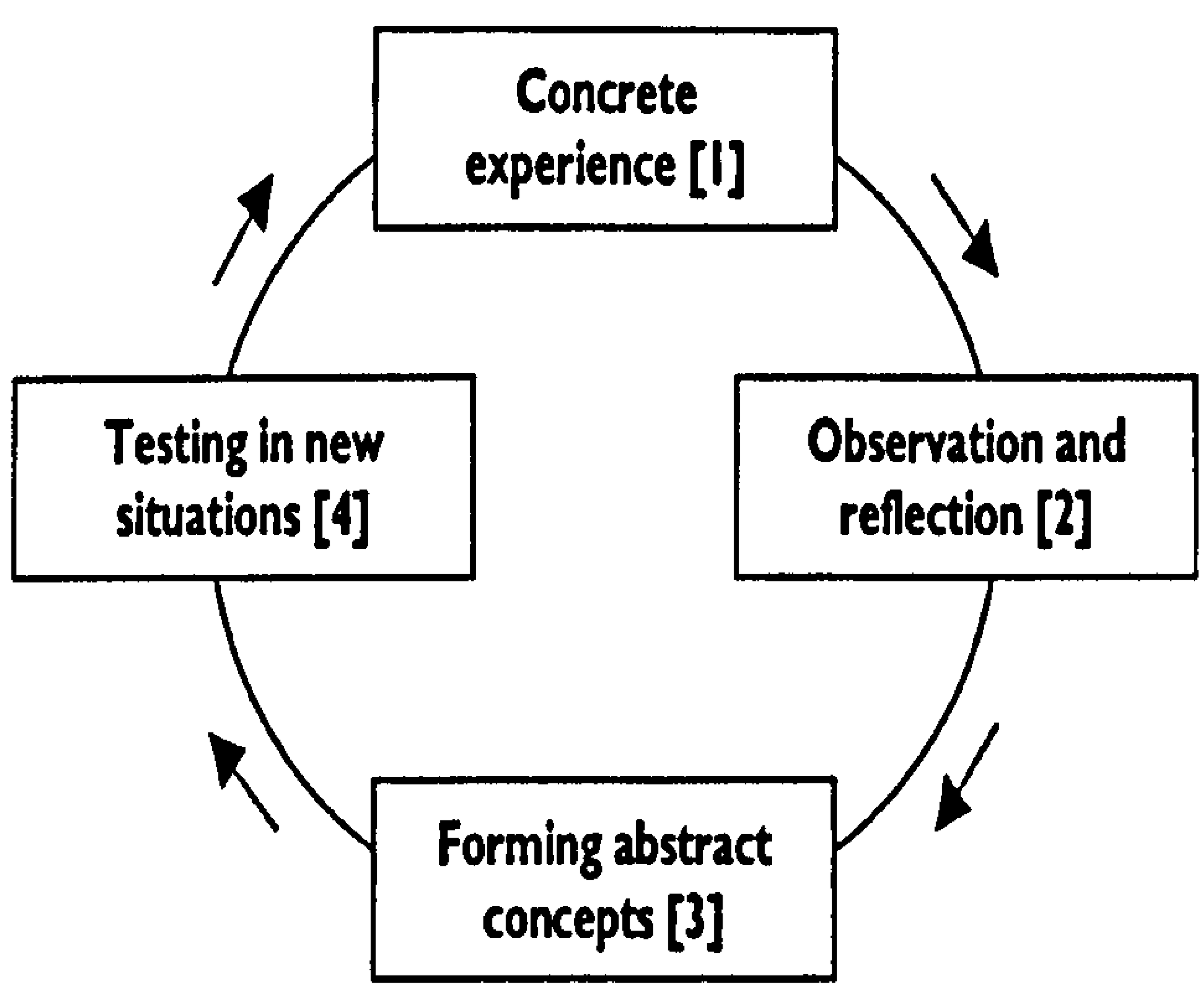
It can be argued that all organisations learn as it is a fundamental requirement of their existence (Kim, 1993). However some firms will deliberately advance organisational learning whilst others do not make a focused effort. Weick (1992) questions the extent to which organisations learn. For example, learning may be rare where organisations strive for the efficient exploitation of knowledge and competencies (Levinthal and March, 1993). The notion of the *learning organisation* sees learning as a theory of planned organisational change (Hendry, 1996). Pedler *et al.* (1991) use the concept of the *learning company* to describe an organisation that facilitates the learning of all its members to continuously transform itself. Senge (1990) concludes that learning organisations are places where people continually expand their capacity to create the results, new and expansive patterns of thinking are nurtured, where collective thinking is set free and where people are continually learning how to learn together.

In summary, learning at the individual and group level is interrelated. Learning theories at both levels can be broadly divided into behaviourist and cognitive theories (Huczynski and Buchanan, 1985) linked by the principle of feedback (Hendry, 1996). In behavioural theory feedback works to reinforce responses and in cognitive theory, people form plans and images, act on these, obtain feedback about the effects or consequences and then modify perceptions, plans and behaviour (Hendry, 1996).

3.3.2 Individual to organisational learning

This section considers how individual experience and knowledge and learning theory contribute to organisational learning. Organisations ultimately learn from their individual members, hence theories of learning are crucial for understanding organisational learning (Kim, 1993). Drawing on the work of learning theorists (for example; Lewin, 1951), Kolb (1984) develops a model of cyclical learning which explains how people learn. Kolb's model has four elements: concrete experience, observations and reflection, the formation of abstract concepts and testing in new situations. These steps form the experiential learning circle, which is a process of continuous spiral shown in figure 3.1 below. Although learning can begin at any one of the four points, Kolb (1984) suggests that the learning process often begins with a person carrying out a particular action and then seeing the effect on a particular situation. The second step is to understand these effects in the particular instance so that if the same action was taken again in the same circumstances it would be possible to anticipate what would follow from the action. The third element is the understanding of the general principle under which the particular instance falls. The last step is the application through action in a new circumstance within the range of the action. This model stresses the role experience plays in learning, where concrete experience is used to test ideas. Learning is a complex process of trial and error.

Figure 3.1: Experiential Learning Model, adapted from Kolb, 1984, p21



An important part of the experiential learning model is the link between thought and action. Argyris and Schon (1978) argue that learning takes place only when new knowledge is translated into different behaviour that is replicable. Kim (1993) identifies this as operational (know-how) and conceptual (know-why) learning.

There are limitations of the experiential model, for example it does not address the role of memory which plays a critical role in linking individual to organisational learning. Learning and memory are interconnected, where memory can be viewed as a storage device where active structures affect thinking processes and actions (Kim, 1993). Senge (1990) describes these structures as individual mental models which represent a view of the world including explicit and implicit understandings. They are a collection of ideas, memories and experience and they provide the context in which to view and interpret new information and determine how it is relevant. Mental models can help individuals make sense of a situation and restrict our understanding (Senge, 1990). Mental modes capture operational learning in routines and conceptual learning in frameworks. Kim (1993) develops a model of individual learning where a cycle of conceptual and operational learning informs and is informed by these mental models.

Organisational learning is more complex and dynamic than a magnification of individual learning (Kim, 1993). In the early stages of an organisation's life, organisational learning may be synonymous with individual learning where it consists of a small group and has minimal structures. However, as an organisation grows a distinction between individual and organisational learning emerges and a system for capturing the learning of its individual members evolves. This process is explored in the subsequent sections. First the differences between different types of learning are discussed, then the processes of organisational learning through information acquisition, sharing and interpretation. The concept of how firms increase the absorptive capacity is presented as a framework of how firms increase their learning capability.

3.3.3 Types of organisational learning

Organisational learning theory identifies two levels of learning. Single loop (Argyris, 1977) or adaptive learning (Senge, 1990) occurs within the learning boundary of the firm; a set of recognised and unrecognised constraints. Double loop (Argyris, 1977) or generative learning (Senge, 1990) occurs when the firm questions long held assumptions. Single loop learning allows things to be done better, whereas double loop learning concerns the capability to do new things and problem solve. Argyris (1976) defines learning as occurring under two main conditions when an organisation achieves what is intended. It occurs either when there is a match between action and the outcome, or where there is a mismatch between intentions and outcomes that is identified and is corrected. Argyris (1976) developed his theory about the two main types of organisation learning and explains how individuals and groups solve problems and make choices.

Single loop learning

Argyris (1976) argues that single loop learning occurs when an error is detected and corrected without questioning or altering the underlying values of the system. Senge (1990) suggests that adaptive learning, the most basic form of learning, occurs within a firm's learning boundary i.e. a set of recognised and unrecognised constraints. A firm's learning boundary reflects its assumption about its self and its environment. Businesses can be managed effectively using a dominant general management logic that guides the development of core capabilities (Prahalad and Bettis, 1986), however if left unquestioned they can become core rigidities that can inhibit innovation (Leonard-Barton, 1992). Existing organisational knowledge is reinforced as knowledge accumulates and becomes increasingly embedded in a firm's routines and practices which can result in inertia (Barkema and Vermeulen, 1998). For example, firms that focus on optimising activities within traditional functional areas is characteristic of adaptive learning, these strong functional commitments can become core rigidities (Stalk, 1988).

Double loop learning

Argyris (1996) argues double loop learning occurs when mismatches are corrected by examining and altering the governing variables that determine what individuals are trying to achieve and their actions. Generative learning (Senge, 1990) requires the development of new ways of looking at the world. It is based on an understanding of the systems and relationships that link key issues and requires the organisation to focus on interrelationships and dynamic processes of change rather that on linear cause-effect chains (Senge, 1990). For example some companies focus on systems of business practices and re-define the way business is conducted (Stalk, 1988). Thus generative learning is frame-breaking and more likely to lead to competitive advantage than adaptive learning, however revolutionary periods of generative learning that lead to competitive advantage are unlikely to be sustained (Slater and Narver, 1995). Bringing about fundamental change or higher level learning (double loop) is difficult for organisations and the adoption of new knowledge involves the unlearning of old (Nonaka, 1994).

Bateson (1972) argues that a third variety of organisational learning, *deutero-learning,* occurs where organisations "learn how to learn". Organisations engage in discovering what has facilitated or inhibited learning and invent new strategies. This can be viewed as double loop learning, through which members of an organisation may discover and modify the learning system that conditions prevailing patterns of organisation enquiry (Argyris and Schon, 1996).

3.3.4 Processes of organisational learning

A process approach to organisational learning conceptualises learning in terms of information processing (Huber, 1991; Slater and Naver, 1995). Huber (1991), in the seminal article, identifies four constructs related to organisational learning as; knowledge acquisition, information sharing or distribution, information interpretation and organisational memory, and describes and critiques the literature related to each. These aspects are considered below and the section concludes with a consideration of the influence of organisational learning on firm behaviour.

3.3.4. i Knowledge acquisition, organisation memory and unlearning

Information may be acquired from direct experience, the experiences of others or organisational memory (Huber, 1991; Slater and Narver, 1995). It may be acquired formally, for example, customer surveys, research and development (R&D), performance reviews and analysis of competitors products, or informally, for example reading newspapers (Huber, 1991). Learning can be internally or externally focused, termed exploitation and exploration by March (1991). Exploitation creates reliability in experience through refinement, routinization, production and implementation of know-how. Exploration creates variety in experience through search, discovery, novelty, innovation and experimentation (Holmqvist, 2004). Externally focused learning has been found to involve learning from others by encompassing common practices such as bench-marking, forming joint ventures, networking strategic alliances, working with lead customers and providing education or training (Slater and Narver, 1995). Huber (1991) identifies from the literature five internally or externally focused processes through which organisations acquire knowledge; congenital learning (knowledge acquired at or prior to its birth), experiential learning, vicarious learning, grafting and searching. These are considered below.

Internally focused knowledge acquisition

Organisations do not begin their lives with a clean slate, congenital knowledge is a combination of knowledge inherited at its conception from its members and the additional knowledge acquired prior to its birth during the starting or setting up period (Huber, 1991). Huber (1991) argues that an organisation is greatly influenced by the nature of its founders and its founding. What it knows at birth will determine what it searches for, what it experiences and how it interprets what it encounters. Thus congenital learning influences future learning. After their birth organisations acquire knowledge through direct experiential learning. It is internally focused learning which can be as a result of intentional, systematic efforts or acquired unintentionally and unsystematically (Huber 1991; March and Olsen, 1979). Intentional efforts include organisational experiments which can be formal or informal post hoc analysis of natural experiments (Huber, 1991). It involves firms facilitating organisational learning to increase the accuracy of feedback about cause and effect relationships between action and outcomes and to ensure the collection and analysis of such feedback (Argyris, 1983). Other intentional efforts include where firms operate organisational self-appraisal methods such as action research to gather information within the organisation, problem solve and induce change. Where firms learn within an existing frame of reference it involves singe loop learning related to the routine and immediate task. Learning new frames of reference involves double loop learning and requires the re-examination and change of governing values (Argyris and Schon, 1974, 1978). Firms can operate as experimenting or learning organisations which continuously change structures, processes and goals etc., to enhance adaptability (Starbuck, 1993; Senge, 1990; Hendry, 1996). Experiential based learning curves or models have been used by firms to predict the impact of experience on performance. For example as manufacturing firms gain experience in producing a new product, the production cost will decrease (Arrow, 1962; Huber, 1991).

Externally focused knowledge acquisition

Huber (1991) refers to vicarious learning, acquiring second hand experience which includes gathering corporate intelligence about competitors, from trade shows, publications, vendors and suppliers, consultants and professionals, and imitating others. Organisations can also increase their knowledge by "grafting", acquiring new members who process knowledge not previously available within the organisation. This can be by recruiting individuals or on a larger scale, such as acquiring a whole organisation. Huber (1984) and Drucker (1988) posit that the quicker organisations need to assimilate new knowledge, the more frequently grafting will be used to acquire new knowledge quickly.

Firms acquire information through searching and noticing in three forms; scanning, focused research and performance monitoring (Huber, 1991). These can be internally or externally focused. Scanning refers to the relatively wide ranging sensing of the organisation's external environment. Focused research occurs when an organisation searches in a narrow segment of its internal or external environment (Huber, 1991). Huber (1991) argues focused research is largely reactive to problems (Cyert and March, 1963) at lower levels of an organisation but that in autonomous organisations and at higher organisational levels a significant proportion of search is as a consequence of proactive managerial initiatives. Firms will also carry out search by performance monitoring. Managers formally and routinely assess how well they meet both their own standards and the expectations of external bodies such as stakeholders, and informally monitor conditions in their organisation (Mintzberg 1975; Huber, 1991).

Huber (1991) suggests that although various information acquisition processes can be substitutes for each other, they have characteristics that favour their use in certain situations. Vicarious learning and grafting would be faster than experiential learning for obtaining technical know-how. However certain types of information such as those associated with product and process innovation is firm specific and cannot be bought and quickly integrated into the firm (Cohen and Levinthal, 1990), due to time lags associated with the integration of new technical staff (Lee and Allen, 1982). Cohen and Levinthal (1990) argue that to integrate certain types of complex and sophisticated technical knowledge successfully, existing internal staff are required who possess knowledge of the firm's idiosyncratic needs, procedures, routines, complementary capabilities and extra-mural relationships. Much of the knowledge of a firm's routines and objectives that permit a firm and its R&D laboratories to function are tacit (Nelson and Winter, 1982). Thus such complementary knowledge may only be acquired experientially (Cohen and Levinthal, 1990). Huber (1991) argues that for double loop learning to occur, where an organisation changes its frame of reference, vicarious learning, grafting and searching rather than experiential learning is necessary. Alternatively, experiential learning might be necessary to convince an individual that an externally observed frame of reference is valid for the organisation.

Organisational memory is an important part of organisational learning. It captures an organisation's prior knowledge into its knowledge base. Without it, learning would have a short life span due to personnel turnover and the passage of time (Levitt and March, 1988 and Sinkula, 1994). The effectiveness of organisational memory will be influenced by staff attrition, information distribution, interpretation of information (e.g. cognitive maps and frames of reference), methods for storing and retrieving information (Huber, 1991). Organisation learning involves the codification or recording of knowledge into information systems, operating procedures, white papers, mission statements, organisation stories or routines (Holmqvist, 2004). Routines reflect what is regular and predicable in a firm's behaviour providing a trade off in the use of resources between efficiency and flexibility (Grant, 1991). Organisations will acquire and mentally store "soft" non routine information (Mitzberg, 1975). Huber (1991) argues it is not well understood the extent to which non-routine information is stored by firms and used for future decision making.

Organisational memory can constrain a firm's learning and a traditional capability can become a core rigidity (Leonard-Barton, 1992; Levitt and March, 1988). Although a new capability may be more effective than old ones, a firm may be unable or unwilling to reject the capability and unlearning is required to enable change (Schein, 1990). Organisational learning involves the process of assimilation of new knowledge into the organisation's knowledge base and that learning is most efficient in areas close to an existing knowledge base (Cohen and Levinthal, 1990). Firms learn best when new knowledge is related to prior knowledge and when firms devote intense effort to processing new external knowledge (Autio *et al.*, 2000; Cohen and Levinthal, 1990; Zahra and George 2002). However new knowledge is best developed when there are little or no existing organisational routines to unlearn knowledge (Autio *et al,*. 2000; Cohen and Levinthal, 1990). The adoption of new knowledge involves not merely the learning of new but unlearning of old (Nonaka, 1994). Existing routines can be costly to change and can constrain a firm's future behaviour (Utterback and Abernathy, 1975 and Teece and Pisano, 1994). Thus, prior embodied knowledge can act as an inhibitor of new ideas and the acquisition of new knowledge (Attewell, 1992).

Organisational forces can cause inertia which limits a firm's ability to adapt strategies, firms having a general tendency to preserve their strategies rather than change them (Quinn, 1980). Learning competence means that firms become better at what they do repeatedly and successfully and that they become less competent at what they do infrequently and unsuccessfully (Holmqvist, 2004). Thus an organisation is prone to sustain its current focus, whereby stable behaviour is produced, creating "lock-in through learning" and "competence traps" (Arthur, 1989 and Levitt and March, 1988) which can cause inability to achieve organisational change. Thus although prior knowledge and organisational memory are important antecedents of firm learning, they can cause inertia and constrain learning. However Quinn (1978) argues that effective managers search beyond their organisation's formal information systems to obtain objective information about their enterprise and its environment. Zahra (2004) supports this argument and contests the assumption that older firms are unable to learn and adapt.

3.3.4.ii Information sharing and interpretation

An important difference between individual and organisation learning is that organisational learning depends on communication and knowledge sharing between individuals, which results in cross fertilisation between ideas and knowledge (Huber, 1991). For organisations to learn there must be a consensus on the meaning of the information and the implications for the business (Day, 1994). Although firms may experience disagreement, effective conflict resolution can result in new insights leading to generative learning in a positive atmosphere (Slater and Narver, 1995).

Recent organisational learning theory presumes a necessary relationship between the learning and the employee's active involvement in the organisational learning process, rather than managed top-down by the entrepreneur or senior management team (Spender, 1996). Lower level employees have an important role. Organisational learning is constrained by the flow of information between individuals. Organisation size and structure influence a firm's ability to learn (Lewin and Masini, 2003; Van den Bosch *et al.,* 1999). Bureaucracy hinders innovation in larger older firms, whereas smaller and younger firms are more flexible and less bureaucratic which can encourage innovation (Lewin and Masini, 2003). In comparison with larger firms, it can be argued that SMEs are unrestrained by bureaucracy, hierarchical thinking and expensive existing information systems (Liao *et al.*, 2003). They are often more innovative and customer-oriented and have quick response time when implementing changes (Liao *et al.*, 2003). Additionally, they are able to adapt, internalise and crystallise information more efficiently across the entire firm (Pelham, 2000). International new ventures are often unfettered with inertia that would limit established companies ability to learn and develop their operations (Zahra, 2004).

3.3.4 iii Influence of learning on firm behaviour

Behaviour change is an essential link between learning and performance improvement, however there is debate in the organisation literature as to whether behavioural change is part of the learning process or a separate and distinct activity (Slater and Narver, 1995). Learning in the organisational learning and marketing literature is usually defined as a three stage process that includes information acquisition, information dissemination and shared interpretation (Huber, 1991; Sinkula, 1994 and Slater and Narver, 1995). Slater and Narver (1995) argue that although the action oriented use of learning to problem solve may involve change, learning may not result in an immediate change but produces the foundation for future revolutionary change. It may increase satisfaction or reduce dissonance with a change that has already been made. Thus direct and immediate behaviour change may not result from new knowledge. A limitation of the organisational learning literature is that by focusing on the process of learning, theorists have neglected the changes in behaviour. The notion of a firm's absorptive capacity (Cohen and Levinthal, 1990; Zahra and George, 2002) extends organisation learning theory by including the exploitation of learning, such as changes in organisational behaviour and competencies, as part of the learning process. Absorptive capacity is discussed in the next section.

3.4 Absorptive capacity

Cohen and Levinthal (1989, p569) introduce a firm's *"learning"* or *"absorptive" capacity* and refer to a firm's learning processes. They suggest a firm's R&D not only generates new information, but also enhances the firm's ability to assimilate and exploit existing information. Thus, a firm's ability to acquire knowledge from its external environment is a by product of its own R&D. Cohen and Levinthal (1989, p569) argue that while R&D generates innovations, it also develops the firm's ability to "identify, assimilate and exploit knowledge from the environment". Cohen and Levinthal (1990, p128) define absorptive capacity as the "ability to recognise the value of new external information, assimilate it, and apply it to commercial ends". It is a function of a firm's prior related knowledge (Cohen and Levinthal, 1990). They argue that the ability to exploit external knowledge is critical to a firm's innovative capabilities. These three dimensions are confirmed by Lane *et al.* (2006) in a review of absorptive capacity literature. Zahra and George (2002) distinguish between a firm's *potential* (acquisition and assimilation of information) and *realised* (transformation and exploitation) absorptive capacity. The three dimensions identified by Cohen and Levinthal (1990) and Lane *et al.* (2006) are discussed below.

Acquisition

Acquisition refers to a firm's capability to identify, value and acquire externally generated knowledge (Cohen and Levinthal, 1989, 1990; Zahra and George, 2002). The accumulation or failed accumulation of knowledge is critical a firm's innovation capability and to its later growth (Cohen and Levinthal, 1990). A firm's ability to evaluate and utilise outside knowledge is a function of its prior related knowledge and intensity of effort (Cohen and Levinthal, 1990; Kim, 1998). The development of absorptive capacity is history or path dependent (Cohen and Levinthal, 1990). When a firm wishes to expand its prior knowledge it must intensify its learning effort to create absorptive capacity (Kim, 1998). Absorptive capacity requires learning capability, develops problem solving skills and the capacity to create new knowledge (Kim, 1998).

Assimilation

Assimilation refers to the firms' routines and processes that allow it to analyse, process, interpret and understand the information obtained from external sources (Kim, 1998). Absorptive capacity does not simply depend on the firm's direct interface with the external environment, it depends on transfer of knowledge across and within units. Thus a firm's absorptive capacity is not resident on any single individual but depends on the links across a mosaic of individual capabilities (Cohen and Levinthal, 1990). Furthermore, Cohen and Levinthal (1990) highlight the importance of the assimilation and the internal development of absorptive capacity due to the firm specific nature of innovation. The authors question the extent to which a firm may buy absorptive capacity, for example by hiring new personnel, use consultancy service or through corporate acquisitions.

Exploitation

Exploitation of new information is the third dimension of absorptive capacity and emphasises the application of knowledge (Cohen and Levinthal, 1990; Lane *et al.*, 2006). It is only when absorptive capacity is *realised* (transformed and exploited) can competitive advantage and performance be assured (Zahra and George, 2002).

Transformation denotes a firm's capability to combine new, acquired knowledge within a firm, to allow it to be used in new ways (Zahra and George, 2002). A firm's routines allow it to exploit knowledge. Firms can then refine, extend and leverage existing competencies or create new ones to utilise and exploit the new knowledge. Absorptive capacity emphasises the presence of systematic routines which provide structural, systemic and procedural mechanisms that allow firms to sustain the exploitation of knowledge over extended periods of time (Zahra and George, 2002). The outcomes of exploitation include the creation of new goods, systems, processes, knowledge or new organisational forms (Spender, 1996). Exploitation is evident where firms create new competencies, establish new routines that target and use knowledge to enhance existing initiatives or encourage new initiatives (Rumelt, 1987). Absorptive capacity can be viewed as a dynamic capability, where relationships between a firm's innovative output and other outcomes create competitive advantage (Zahra and George, 2002).

Absorptive capacity encompasses a firm's ability to combine both internal and external knowledge. It is a type of learning that is different from "learning by doing" where firms become more practised and efficient at what they are already doing. With absorptive capacity a firm may acquire outside knowledge that will permit it to do something different (Cohen and Levinthal, 1989). Firms need to combine learning from exploration and exploitation behaviour, and manage a balance between both types (March, 1991; Levinthal and March, 1993). Too much reliance on exploration, where firms engage in new research, is expensive and may result in too many underdeveloped concepts and ideas, whereas too much emphasis on exploitation is unlikely to lead to generative learning (March, 1991). Indeed this supports the argument that the optimal growth of the firms involves a balance between exploitation of existing resources and the development of new ones (Penrose, 1959; Rugman and Verbeke, 2002).

Internal influences on a firm's absorptive capacity

Knowledge complexity has implications for a firm's absorptive capacity. It is defined as the number of interdependent technologies, routines, individuals and resources linked to a particular knowledge or asset (Simonin, 1999). As knowledge becomes more complex, organisations need to absorb more areas of knowledge content and understand the inter-linkages between the different content areas (Garund and Nayyar, 1994). Thus simple knowledge is easier to absorb than complex knowledge (Lane *et al.*, 2006). Other influences include organisational structure, such as the presence of cross functional teams and formal integration mechanisms within the firm (Meesus *et al.*, 2001), levels of centralisation and organisational flexibility (Lane *et al.*, 2006). However there have been few studies which specify the role of organisational structure and processes in affecting how organisations leverage and exploit their knowledge base (Lane *et al.*, 2006). The structure of a firm is related to its scope i.e. the relatedness of its products, markets and capabilities. When a firm diversifies into related areas to its knowledge base, it will have higher absorptive capacity and will be expected to perform better (Barkema and Vermeulen, 1998). Thus when it wishes to expand into a new industry or market in which it has relevant knowledge it is able to do so independently. However when a firm lacks sufficient prior knowledge it may acquire it through alliances or acquisitions (Anand and Delios, 1997). In the international context, greater geographical experience has been hypothesised to increase absorptive capacity related to foreign investments (Denison *et al.*, 1996). Too rapid an expansion may not allow a firm enough time to absorb the new knowledge, assimilate it and exploit it (Barkema and Vermeulen, 1998). Continued expansion by company acquisition may affect absorptive capacity negatively where a firm fails to undertake and develop its own absorptive capacity (Lei and Hitt, 1995).

Critique of the absorptive capacity concept

In conclusion, extant absorptive capacity research has tended to focus on R&D and innovation capability of a firm (for example, Mower *et al.*, 1996; Meesus *et al.*, 2001). Lane *et al.* (2006) argue this has led to "reification" of absorptive capacity, limiting the generalisability of these studies insights, and call for the construct to be broadened. Recent analysis of previous research by Lane *et al.* (2006) has shown that there has been inconsistency in how studies have characterised absorptive capacity; some as a resource (knowledge base), others as a capability (a process). Some studies have not characterised it at all. The focus of R&D and knowledge acquisition has led to over-emphasis on technological and scientific knowledge acquisition at the expense of the process knowledge that firms need to assimilate and exploit. Focus on the content of a firm's prior knowledge has led to an over-emphasis on research on inventions and innovation output rather than process knowledge (Lane *et al.*, 2006). It has also been argued that absorptive capacity research has focused on exploitation rather than exploratory learning (Zahra and George, 2002; Lane *et al.*, 2006). Lack of attention to the process aspects of absorptive capacity has led researchers to overlook the role of individuals in developing, deploying and maintain absorptive capacity, which is a key component of Cohen and Levinthal's logic (Lane *et al.*, 2006). Cohen and Levinthal (1990) argue that broad, well developed absorptive capacity allows a firm to predict more accurately the nature of future technological advances. A process approach to absorptive capacity sees it as an expanding spiral, where absorptive capacity leads to more learning, which leads to more absorptive capacity (Van den Bosch *et al.*, 1999). With regards to outcomes of absorptive capacity, research has generally focused on innovation related or overall performance, neglecting the general commercial applications of acquired knowledge discussed by Cohen and Levinthal (1989, 1990). Lane *et al.* (2006) call for absorptive capacity to be broadened and empirically explored in non R&D contexts. Research should capture all three dimensions (identify, assimilate and apply), reflecting different processes required for each within an organisation and interrelationships among them.

3.5 Organisational learning and SMEs

Although much of the above discussion applies to large organisations it is argued here that the concept of organisation learning applies to small and medium sized firms as they grow. It is proposed that the process of change from entrepreneurial, individualist management style to businesses involving a group which requires delegation, co-ordination and decentralisation (Scott and Bruce, 1987), will involve the processes of organisational learning. Little is known about the entrepreneurial learning and growth processes in small and medium enterprise and extant research has focused on the individual learning of the entrepreneur, neglecting organisational learning processes in SMEs (e.g. Deakins and Freel, 1998; Cope and Watts, 2000). Much of the learning in SMEs has been found to be internally focused, experiential (Deakins and Freel, 1998), from "trial and error" decision making processes (Matlay, 2000), as a result of critical incidents (Cope and Watts, 2000), learning by doing (Gibb, 1997), opportunity taking and problem solving (Gibb, 1997; Deakins and Freel, 1998). Other sources have been identified which include learning from peers, customers, copying, and networks (Gibb, 1997; Deakins and Freel, 1998). Although Minniti and Bygrave (2001) posit that entrepreneurs make decisions based on specific market, product and industry knowledge and general knowledge, their model of entrepreneurial learning focuses on the latter. General knowledge refers to how an individual or organisation can be entrepreneurial. They suggest that this can be acquired through learning-by-doing or direct observation. Entrepreneurial learning is path dependent and includes experiential learning from successes and failures in the activities of the firm (Minniti and Bygrave, 2001).

The limited research into entrepreneurial learning in SMEs supports the proposition of this thesis that firm learning requires new product, market and general knowledge which is acquired from external and internal sources. However by focusing on entrepreneurial learning previous research neglects the influences of the organisation. This weakness is recognised by Minniti and Bygrave (2001) who agree with Simon's (1991, p126,) observation that "human learning in the context of an organization is very much influenced by the organization, has consequences on the organization, and produces phenomena at the organizational level that go beyond anything we would simply infer by observing learning processes in isolated individuals". This research, whilst recognising the importance of individual learning, focuses on organisational learning processes of internationalising SMEs.

3.6 Organisational learning and internationalisation process theory

Organisation learning theory has distinguished between learning to increase a firm's effectiveness and learning to increase a firm's awareness of opportunities (Huber, 1991). The former emphasises learning within existing activities and the latter emphasis potential activities. Described by March (1991) as *exploitation* and *exploration* behaviour, firms need both types of behaviour in organisational learning. Argyris and Schon (1978) distinguish between single and double loop learning and Senge (1990) describes these different types of learning as adaptive and generative learning. By focusing on current activities, the Uppsala model of internationalisation over-emphasises exploitation behaviour, where firms invest over time in a specific market. It overlooks exploitation behaviour where firms invest in new markets and operations that are unconnected to market specific, current activities (Forsgren, 2002). It has been argued that market specific knowledge acquisition can be single loop or adaptive learning (Forsgren, 2002). It develops at the operational level and keeps the firm within its current business. By contrast, general internationalisation knowledge acquisition involves double loop or generative learning. It accumulates at the higher level in the firm's hierarchy and is a driving force to the firm to do new things (Forsgren 2002). The Uppsala model's emphasis is on adaptive or single loop learning where, as a result of experiential knowledge, the firm deals with problems and opportunities in their context (Cyert and March, 1963). Recently Johanson and Vahlne (2006) review the opportunity development aspects of the model but this discussion is limited to activities within a country market. It is proposed by Johanson and Vahlne (2006) that opportunity development is related to relationships with firms in the market and the partners' network embeddedness in the market.

3.7 Conclusions

In conclusion, the discussion above highlights the importance of knowledge, organisational learning and absorptive capacity of internationalising firms. Speedy application of knowledge is imperative for the success of firms in the knowledge economy which is characterised by rapid technological development, growing globalisation and competition, and increasing sophistication of consumers (Woods, 2002). A firm's knowledge and learning capabilities can be viewed as a key determinant of growth (Penrose, 1959). Firm expansion requires a balanced use of internal and external resources and managerial learning is an important aspect of a firm's growth process (Penrose, 1959). Indeed the knowledge based view presents a dynamic view of the firm that sees firms as social communities specialising in the creation of knowledge, which is the foundation of an evolutionary theory of the multinational firm (Kogut and Zander, 1993). A discussion of organisation learning theory emphasises the processes involved in how firms learn and distinguishes between internal and external sources of knowledge (Argyris and Schon, 1996; Huber, 1991). A firm's absorptive capacity emphasises how firms acquire, assimilate and exploit new external knowledge (Cohen and Levinthal, 1990). Finally, it is argued that organisational learning theory has important implications for the international growth of small and medium sized firms, but that it is an under researched area.

Figure 3.2 below summarises the different aspects of knowledge identified in the literature in this chapter.

Figure 3.2: Theoretical aspects of knowledge and learning

Theory	*Aspect of knowledge*	*Characteristics of learning*
Growth of the firm – Penrose, 1959; Arrow, 1962, Cyert and March, 1963.	Organisational and managerial capabilities.	Learning by doing, experiential knowledge acquisition.
Resource based view – Barney, 1991.	Routines and capabilities.	Routines are behaviours that are learned, a firm's ability to learn and change is an important capability.
Knowledge based view – Nelson and Winter, 1982; Kogut and Zander, 1993; Spender, 1994; Nonaka *et al.*, 2000.	Creation and transfer of knowledge.	Distinguishes between tacit and explicit knowledge. Transfer of technology and other knowledge assets. Involves information acquisition and know-how.
Organisational learning – Huber, 1991; Senge, 1990; Argyris and Schon, 1978; March, 1991.	Development of new knowledge.	Single loop/adaptive or double loop/generative. Process of internal/ external acquisition, sharing and interpretation of knowledge. Organisational memory forms knowledge base but can constrain learning. Exploitation/exploration. Know-how and know-why.
Absorptive capacity – Cohen and Levinthal, 1990; Zahra and George, 2002.	Acquisition of external knowledge.	Identify/acquisition, assimilation and exploitation/utilisation of new knowledge. Potential and realised ACAP. Focus on R&D and innovation.

3.8 Research framework

3.8.1 Introduction

A research framework is developed by integrating the literature on relevant international business theory discussed in chapter two, namely internationalisation process theory and international new venture theory, and knowledge, organisational learning and absorptive capacity which is presented in chapter three. The discussion in chapters two and three have shown that much of previous internationalisation process theory research has focused on the importance of market knowledge whereby firms internationalise gradually and incrementally as they increase foreign market knowledge (Johanson and Vahlne, 1977; Eriksson *et al.,* 1997; Forsgren, 2002). Recent research has highlighted the importance of general internationalisation knowledge (Eriksson *et al.,* 1997; Li *et al.,* 2004). International new venture theory highlights the role of knowledge intensity of a firm's resources, whereby the inherent mobility of knowledge facilitates early and rapid internationalisation of INVs and born globals (Oviatt and McDougall, 1997; Zahra, 2004; Autio *et al.,* 2000; Zahra *et al.,* 2000). The research on knowledge transfer and absorptive capacity has focused on the external acquisition of new knowledge and internal transfer of technical knowledge and innovation capability (Cohen and Levinthal, 1990; Lane *et al.*, 2006).

By integrating aspects of internationalisation process theory, INV theory and organisational learning, this research takes an integrated approach to how market, internationalisation and product/technological knowledge is acquired, assimilated and exploited by firms. This research aims to investigate the importance of these types of knowledge which are not clearly distinguished in the literature. It provides new insights into the sources of knowledge and learning processes of internationalising SMEs. Although there is growing interest in entrepreneurial and SMEs' learning, this literature has focused on the individual, neglecting the influences of the organisation (Minniti and Bygrave, 2001). This research extends this literature by focusing on organisational learning processes of internationalising SMEs.

In conclusion, although extant research has highlighted the importance of knowledge and learning, this is an area where there have been few empirical studies, and these have been mainly quantitative (Eriksson *et al.*, 2000; Sapienza *et al.*, 2004; Zahra, 2004). IPT has focused on experiential market knowledge neglecting internationalisation, product/technology knowledge, external sources of knowledge and issues of assimilating experiential and tacit knowledge. INV theory's emphasis on technology-based/intensive firms has led the focus of recent research on technological learning. By integrating aspects of the knowledge based view of the firm, organisational learning and absorptive capacity, this study seeks to gain rich insights into how both INVs and incrementally internationalising SMEs acquire new knowledge, learn and develop absorptive capacity during the internationalisation process.

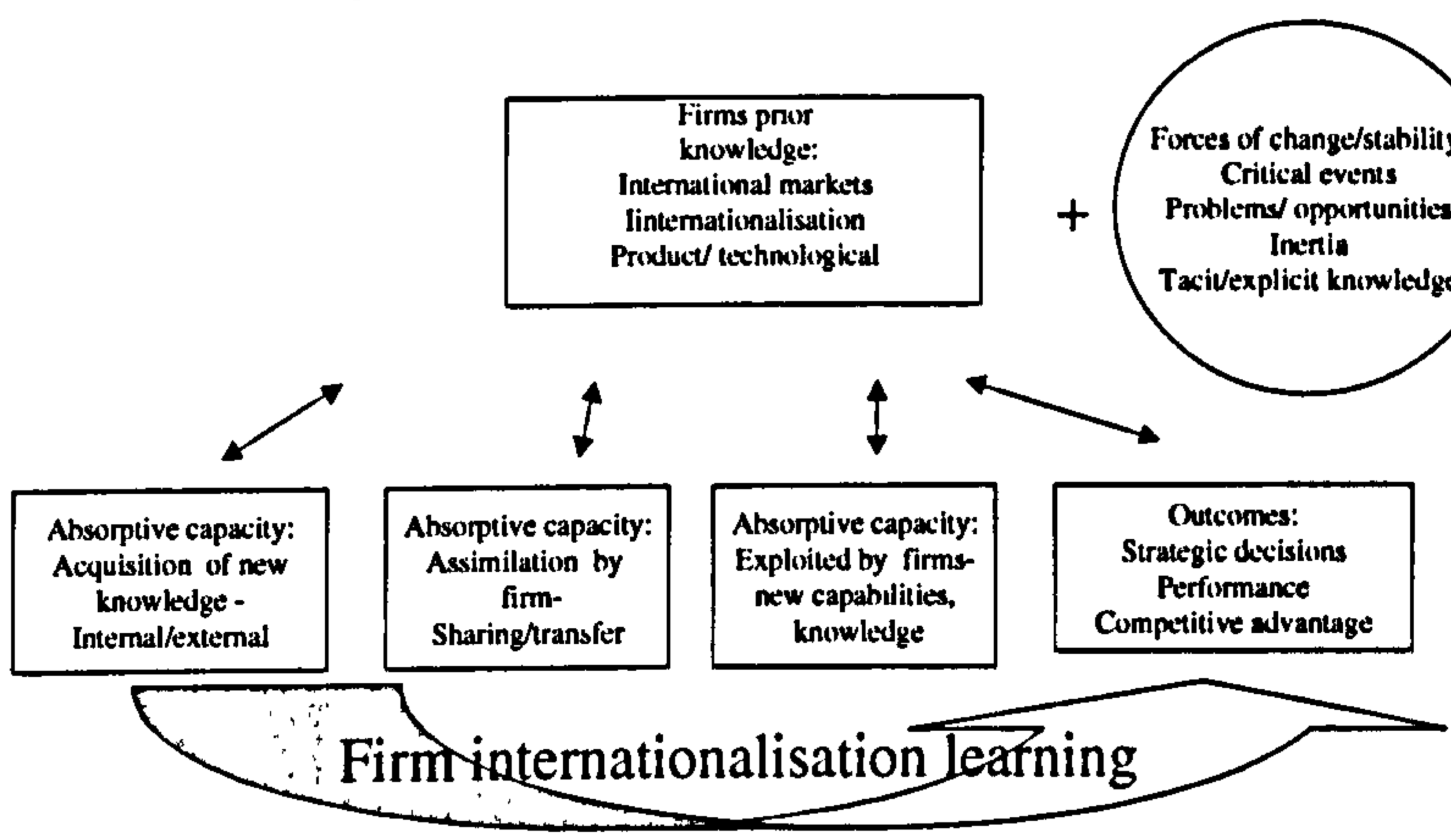
3.8.2 Research framework

Derived from the literature and research questions above, the research uses a framework based on a firm's absorptive capacity. This framework was selected to include the whole learning process which includes the acquisition, assimilation and exploitation of knowledge. Furthermore it focuses on the external acquisition of knowledge which IPT neglects. The research framework is presented below in figure 3.3. A firm's internationalisation learning and absorptive capacity is dependent on the firm's prior knowledge which includes market, general international and product/technological knowledge (Cohen and Levinthal, 1990; Eriksson *et al.*, 2000; Yli-Renko *et al.*, 2002; Autio *et al.*, 2000). Critical events, problems and new opportunities expose the firm to and prompt the firm's search for new knowledge (Johanson and Vahlne, 1977; Oviatt and McDougall, 1994; Zahra and George, 2002; Bell *et al.*, 2001). There are forces of change or stability which promote or inhibit a firm's learning. For example, a firm's ability to learn and change will be constrained by inertia (Zahra, 2004). However, young firms and INVs may enjoy "learning advantages of newness", which enables them to embrace internationalisation more rapidly and completely than older internationalisers (Autio *et al.*, 2000; Autio, 2005). The absorption of knowledge within firms will be influenced by the extent to which it is tacit and thus less easily transferred than explicit knowledge (Grant, 2002).

A firm's absorptive capacity involves its ability to acquire, assimilate and exploit new knowledge (Cohen and Levinthal, 1990; Zahra and George, 2002; Lane *et al.*, 2006).

Organisational learning theory has shown that a firm acquires new knowledge from external and internal sources (Forsgren, 2002; Huber, 1991). New knowledge is assimilated by firms through sharing and transferring that knowledge (Cohen and Levinthal, 1990). It is then exploited by internationalising firms as they develop new skills and capabilities for example, making decisions about products, markets, entry modes, resource commitments and general management functions and structures (Luostarinen, 1980). Finally, the outcomes of learning influence a firm's strategic decisions, performance and competitive advantage (Zahra and George, 2002). Strategic decisions facing internationalising firms include whether to grow internationally or focus on domestic markets, not internationalise further or de-internationalise.

Figure 3.3: Research framework of learning processes of internationalising SMEs



3.8.3 Aims and objectives of the research

The overall aim of the research is to investigate the learning processes of internationalising SMEs. The two specific objectives of the study and research questions are:

Objective 1.

1. To explore the development of absorptive capacity by internationalising firms through the acquisition, assimilation and exploitation of new knowledge.

Research Questions

a) What are the types and sources of new knowledge acquired by internationalising firms?

b) How is new knowledge assimilated within the firms?

c) How is new knowledge and learning exploited and new capabilities acquired by firms?

Objective 2.

2. To explore and examine the outcomes of new knowledge and learning by internationalising firms in terms of strategic decisions, performance and competitive advantage and the constraints faced by firms.

Research Questions

a) What is the impact of learning by firms on strategic decisions, performance and competitive advantage?

b) What are the problems and constraints faced by firms and how do firms overcome the barriers to learning?

3.8.4 Conclusions

The discussion thus far has highlighted the importance of knowledge acquisition and learning in the internationalisation processes of SMEs but that extant research is limited and has mainly been quantitative. This research aims to fill this gap by building on the limited existing research and adopts a qualitative, in-depth approach to investigate knowledge acquisition and learning processes of internationalising SMEs. It aims to uncover the importance of the different types and sources of knowledge and the processes by which knowledge is acquired, assimilated and exploited by firms. The methodological approach adopted is presented next in chapter four.

Chapter Four

Research Methodology

4.1 Introduction

This section presents the research methodology used in the study to investigate the learning processes of internationalising small and medium sized enterprises. First there is a discussion of the research philosophy and approach which underpins the research methodology used. The research design is presented which includes a discussion of the background to the research and the Global Companies Development Programme (GCDP), the selection of the case study method, data collection and data analysis techniques used. The section concludes with a profile of the case study companies that participated in the research.

This chapter is structured as follows:

4.1 Introduction
4.2 Research philosophy and approach
4.3 Research design
4.4 Profile of case study companies
4.5 Summary

4.2 Research philosophy and approach

This research adopts a qualitative approach to investigate the learning processes of internationalising firms, whereby the philosophical assumptions are that the phenomena being researched are subjective, rather than objective (Easterby-Smith *et al.*, 1991). Qualitative research is defined as

"*an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not frequency of certain...phenomena in the social world*", Van Maanen (1983, p9).

This study is based on an interpretivist paradigm which stems from an ontological view that the world and reality are socially constructed and given meaning to by people (Easterby-Smith *et al.*, 1991). This is in contrast to a positivist paradigm which considers that the social world exists externally, is objectively determined thus its properties can be measured objectively (Easterby-Smith *et al.*, 1991). An interpretivist approach is concerned with subjective, qualitative phenomena which are context rich (Godfrey and Hill, 1995). A subjective approach focuses on deep meanings and aims to understand what is happening in the totality of each situation (Saunders *et al.*, 2003). Crucial to the interpretivist epistemology is that the researcher adopts an empathetic stance. The approach recognises that the researcher is part of the research process and seeks a subjective insider view of the phenomena (Saunders *et al.*, 2003). An interpretivist paradigm is suitable to this research as it recognises that business situations are complex, unique and a function of a particular set of circumstances and individuals (Saunders *et al.*, 2003). This is supported by Pettigrew (1979, 1992) who argues the organisational processes are embedded in context. The exploration of change in the firm calls for holistic rather than linear explanations of the process (Pettigrew, 1992). A holistic approach is thus appropriate to this study which investigates the acquisition of knowledge, learning processes of internationalising firms and the changes in firms' behaviour due to the outcomes of that learning.

Although an interpretivist approach raises questions of the generalisability of such research, it is argued that as the aims of the research are to capture rich complexities of social situations, generalisability is not of crucial importance (Saunders *et al.*, 2003). A subjective stance to research often involves the use of multiple methods or investigates small samples over time (Easterby-Smith *et al.*, 1991). It can be flexible and allow changes in the research emphasis as the research progresses. In order to provide rich insights of the learning processes of firms, an in-depth qualitative approach to data collection is taken which emphasises the use of rich, non-numerical data or data that has not been quantified (Saunders *et al.*, 2003).

The approach adopted is inductive, rather than deductive, and aims to understand deep meanings of the phenomena (Miles and Huberman, 1994). With induction, theory building takes place after the data has been collected, and is concerned with the context in which events take place (Saunders *et al.*, 2003). It involves developing ideas though induction from the data that are subsequently related to the literature. In contrast, an objective approach is based on deduction where theory is used to develop hypotheses based on the literature, which are then tested. It is based on a positivist paradigm of the natural sciences where generalisations are the end product (Saunders *et al.*, 2003). Theory is used to indicate how variables are measured and focuses on explaining causal relationships between variables. The assumption is that the researcher is independent of the research and neither affects nor is affected by the subject. The main characteristic of this approach is generalisation, using a highly structured methodology to facilitate replication. Data collected is usually survey based and it is necessary to select samples of sufficient size in order to generalise conclusions. The two approaches are summarised in figure 4.1 below.

Figure 4.1: Research philosophy and approaches

Paradigm:	Interpretivist	Positivist
Approaches:	Qualitative Subjective Inductive	Quantitative Objective Deductive
Characteristics:	Less structured.	More structured.
	More flexible.	Operationalisation of concepts to ensure clarity of definitions.
	Gains an understanding of the meaning humans attach to events and close understanding of research context.	Based on scientific principles, testing, fact and reason and need to explain causal relationships.
	Theory building.	Theory testing of hypotheses.
	Recognises researcher is part of research process.	Researcher is independent of what is being researched.
	Less concerned with the need to generalise.	Sufficient sample size to generalise conclusions.
	Collection of qualitative data.	Collection of quantitative data.

Adapted from Saunders *et al.* (2003)

This study adopts a subjective approach based on an interpretivist paradigm, using a process of induction to derive deep insights into the learning processes of internationalising firms over time. This approach suits this research as it allows the researcher to explore in depth the nature of the different types and sources of knowledge used in the process of firms addressing context specific problems, opportunities and decision making with regards to their internationalisation. The processes that firms use to acquire and assimilate new knowledge within the firm, and the outcomes of the learning on firms' behaviour are explored and examined. Thus it enables new insights to be developed, the extension of existing theory and new theory to be built.

4.3 Research design

4.3.1 Background - The Global Companies Development Programme (GCDP)

As a growing number of SMEs are pursuing opportunities in overseas markets, governments have turned their attention in recent years to encouraging more SMEs to internationalise to promote wealth creation and international competitiveness (OECD, 1997). Scotland is a small open economy which is strongly linked to the global economy and exports a high proportion of its gross domestic product - GDP (Scottish Chamber of Commerce, 2006; Star, 2002). In terms of economic growth, although Scotland has grown at a similar rate to that of other European countries like Denmark and Switzerland, it has performed less well than Ireland, Finland, Singapore and other UK regions (Star, 2002). It is widely acknowledged that Scotland lags behind the UK average for new business start-ups per capita. It lies well behind nations such as the US and Canada (Levie and Steele, 2000). Overall, Star (2002, p56) summarises Scotland's comparative economic performance:

"Scotland can be described as open to global markets, slow growing, of average prosperity. Its labour markets perform well, with strong performance in higher education, but less so at intermediate levels. It is moderately entrepreneurial, and in common with other parts of the UK, productivity it low. Its R&D performance is mixed with higher education doing well but business poorly."

Although over the last 50 years Scotland has attracted significant levels of inward foreign direct investment, recent projects have been smaller involving lower capital expenditure, fewer job and smaller scale property requirements (Young and Brown, 2002). In response to this Scottish Enterprise, the regional development agency in Scotland, launched a research enquiry into indigenous Scottish companies. The global companies enquiry analysed the importance of globalisation for the economy, but highlighted the limited extent of globalisation among Scottish businesses (Scottish Enterprise, 1999a). There was concern that Scotland lacks a critical mass of larger businesses and that a key challenge is growing and sustaining businesses of scale. Only 16 Scottish global companies achieved 0.8% of Scottish GDP and 1.2% of Scottish employment (Scottish Enterprise, 1999b). The enquiry identified that some of these companies are relatively small, concluding that global companies do not need to be big (Scottish Enterprise, 1999a). Barriers to internationalisation in Scottish firms were identified. Scottish Enterprise identified key global criteria to measure the extent of company globalisation as the extent of world wide operations, control over foreign activities, overseas production and foreign direct investment, number of countries in which a firm does business, degree of similarity between foreign and home markets and pro-active search for international opportunities. The research identified three groups of Scottish firms; fully global, emerging and potential global companies and produced a strategy to grow and support these firms (Scottish Enterprise, 1999b). Fully global companies were deemed to meet all of the criteria set out by Scottish Enterprise. Emerging global companies meet some of the criteria and potential global companies meet a limited number of the criteria.

The Scottish industrial base is characterised by a large number of SMEs. In 2003, SMEs with fewer than 250 employees made up 99% of all registered enterprises in Scotland (259,790 firms) and provided 53% of jobs. However the 2,270 larger enterprises provide more that half of turnover (Scottish Executive, 2006). Scottish economic policy makers have argued that the growth and internationalisation of SMEs plays a vital role in developing the Scottish economy and sees the SME sector playing a major role in developing Scotland's global business activity (Scottish Executive, 2001). Although compared within the UK, Scotland performs well in generating growth companies, the research enquiry found that firms appeared to be focused on domestic rather than international markets (Scottish Enterprise, 1999a). Furthermore, Scotland produces lower levels of high growth start-up firms than the rest of the UK. The Scottish Executive (2003) concluded that one of the challenges facing the Scottish economy is to raise the proportion of new start businesses that go on to achieve high growth.

In response to the concerns discussed above that Scotland does not have enough high growth start-ups and global firms, Scottish Enterprise developed a strategy to grow more global companies from Scotland. The Global Companies Development Programme (GCDP) was launched in 2000 as part of this strategy. The programme aims to enable companies that are controlled from Scotland to achieve significant global presence (Scottish Enterprise, 2003). It targets SMEs as a key group of indigenous firms that are emerging and potential global companies. The programme provides a tailored strategic review of a company's needs and develops an internationalisation strategy and action plan with advice from the GCDP team and external consultants appointed by the GCDP. On-going support, the linking of companies with each other and forums for exchanging information are provided through seminars, workshops and peer groups events, attended by participating managers and CEOs. Since its launch in 2000, each year between 15 and 20 Scottish companies have participated in the programme (Scottish Enterprise, 2003).

This PhD research study was developed in co-operation with Scottish Enterprise and is part of a wider research and longitudinal evaluation of the Global Companies Development Programme. Access was gained to firms that participated in the GCDP and associated archival data retained by Scottish Enterprise. The methodology was partly pre-determined but not wholly. A group of firms were selected to participate in the PhD research. The sample of firms in the PhD research is derived from GCDP firms and is discussed further in the next section.

4.3.2 The case study method

This study adopts a case study approach based on firms that participate in the GCDP. Case study research is used to investigate a contemporary phenomenon within its real life context, especially when boundaries between phenomena and context are not clear and when the focus of the research is on current phenomena (Yin, 2003). It is useful to gain insights and for developing hypotheses or propositions for further research. It can be qualitative, quantitative or combine methods, inductive (to generate/build theory) or deductive (to test theory) and usually uses prior theory (Eisenhardt, 1989). Although early identification of the research questions and possible constructs is helpful, they are tentative in theory building research (Eisenhardt, 1989). Yin (2003) suggests four types of case study design; holistic single case, embedded single case with multiple units of analysis, or multiple case with multiple units of analysis or multiple case with one unit of analysis. The unit of analysis is related to the research questions of the study (Yin, 2003). In this study the unit of analysis is the firm, as the study investigates the learning processes within each firm. A qualitative methodology was undertaken based on interviews with the CEOs of the participating GCDP firms in order to secure a deep understanding of the knowledge required by firms and uncover the learning processes within the firms and outcomes of that learning. Thus this research adopts an inductive, qualitative approach based on multiple case studies, where each firm is a unit of analysis (Yin, 2003). This approach suits this study which is exploratory and theory building and aims to provide deep insights into the learning processes of internationalising firms. This interpretivist approach recognises the complexity and uniqueness of individual business situations (Saunders *et al.*, 2003). Furthermore, the use of multiple comparative case studies enables within and cross-case comparisons, search for patterns, and general explanations to be developed (Eisenhardt, 1989; Yin, 2003; Pettigrew, 1992). Following Yin (2003) separate case studies on each firm were developed from interviews, database information and archival records.

Case studies can be exploratory, descriptive and explanatory (Yin, 2003). In this study all three approaches are used. The exploratory aspects allow the researcher to answer "what" questions; what were the issues facing the firms and what new knowledge was required? A descriptive approach is taken to portray an accurate profile of the events and situations (Yin, 2003). An explanatory approach seeks to establish causal relationships between variables and answer "how" and "why" questions (Yin, 2003). The use of multiple case studies allows the researcher to search for cross-case patterns and themes to provide accurate and reliable theory and capture novel findings that may exist in the data (Eisenhardt, 1989; Miles and Huberman, 1994). The flexibility offered in case study design allows aspects such as number of cases, scope of cases, purpose and research questions to be modified over time (Eisenhardt, 1989 and Miles and Huberman, 1994). This flexibility was important for this study given the inductive and longitudinal nature of this research, it allows emergent issues to be explored.

Selection of case studies

Ghauri *et al.* (2002) suggest that cases in a multiple case study investigation should be selected to serve a particular purpose in the study. Representativeness is not the criteria for selecting cases. In this research it was not known in advance if the firms had common characteristics (Stake, 2000). The firms were different types of Scottish firms wishing to expand internationally. The firms were from a mixture of manufacturing/service industries, high/low technology intensive firms and international new ventures/incrementally internationalising SMEs. The criteria used for selection of the cases were richness of data and replication logic, not sampling logic (Perry, 1998). There can be *literal replication* where similar results are found for predictable reasons or *theoretical replication* where contrary results are found for predicable reasons, (Perry, 1998). Thus the selection of cases is "purposeful", not random sampling (Patton, 2002), involves using replication logic and is dependent on the conceptual framework developed from the prior theory (Perry, 1998). Validity is enhanced through emergent relationships being confirmed, theory can be refined or extended where cases disconfirm the relationship (Eisenhardt, 1989). Case studies are generalisable to theoretical propositions, not to populations as in survey research (Yin, 2003).

The firms selected for this research had participated in the first GCDP commencing 2001/02. They had completed the GCDP in the previous twelve months before the first interview in 2003 and were in the process of implementing an internationalisation strategy and action plan that had been devised during the programme. The selection of the case studies was based on all SMEs that participated in the programme during that period. All firms, except one, had less than 250 employees (the size of firms is discussed fully in section 4.4.2 below). To be selected onto the programme the firms had to be team-managed, Scottish owned, independent firms with the potential and desire to expand overseas. This ensured the selection of firms that were in the process of internationalisation and thus fitted the aims of the research (Ghauri *et al.,* 2002). The advantage of selecting these GCDP firms is that they had international growth "aspirations" (Storey, 1994, p119). Most small firms do not grow and for many small businesses, growth is not an objective (Curran, 1986; Curran 2000; Storey, 1994). Furthermore some firms which do not seek growth may be reluctant to admit this to outsiders or will be constrained from achieving that growth (Storey, 1994). Thus the selection of GCDP firms ensured that firms had the aspirations and potential to internationalise and were thus actively in the process of internationalisation. Another advantage of selecting GCDP firms is the access to Scottish Enterprise records and expertise which allowed multiple sources of evidence (Yin, 2003). This provides corroboration and triangulation of the data which improves construct validity and is discussed further below. A disadvantage of selecting these firms is that the results might be subject to "selection effects" that would not be present if non GCDP firms were included (Shane, 2000). However, it is argued that firms in general can be exposed to many different sources of external advice and the GCDP is only one such source.

Although there are no precise rules as to the number of cases that should be selected in multiple case study research, Eisenhardt (1989, p545) suggests that four to ten cases work well. With fewer than four it is difficult to generate theory. Miles and Huberman (1994) suggest the number of cases selected depends on how rich and complex the within-case sampling is. With high complexity, a maximum of 15 cases is recommend by Miles and Huberman (1994). With more than this a study "can become unwieldy.... there are too many data to scan visually and too many permutations to account for" (Miles and Huberman, 1994, p30). With too many case studies the data becomes thinner and depth will be lost (Miles and Huberman, 1994). With is in mind, all of the firms that participated in the programme were approached and fifteen out of eighteen agreed to participate in the research. Three firms then dropped out during the research period, one was taken over, a second re-located its business to the USA and a third was not an SME and felt the programme was not relevant. The research was based on the twelve remaining firms which were selected as case studies. This is towards the upper limit of optimum number of cases recommended due to the complexities and volume of data generated by case studies (Eisenhardt 1989; Miles and Huberman, 1994) and suits the research strategy to carry out comparative multiple case study analysis.

4.3.3 Data collection

The interviews

The research involved three in-depth, semi-structured interviews with the CEOs of the case study firms carried out each year over the three years (2003, 2004 and 2005). Other key informants in four of the sample firms were interviewed. In one firm the interview involved both the managing director and marketing director. In three firms, a second informant became involved in the research due to changing responsibilities within the firm. In one case the original interviewee left the firm during the research. Each interview lasted approximately one hour. The interviews were taped and transcribed. The CEOs were the prime focus of attention as the key informants, as they are the key decision makers in the firms. Interviews are an important method of undertaking qualitative research. It allows the interviewer the opportunity to "probe deeply, to uncover new clues, open up new dimensions of a problem" (Burgess, 1982, p.107). In the first year the interviews explored the firms' past internationalisation experience, pattern and process. In the second year the interview focused on the firms' internationalisation experience during the previous year, the internationalisation process and implementation of the internationalisation strategy developed during the GCDP. The final interview focused on the new knowledge acquired and learning processes within the firms in order to implement the internationalisation strategy.

Reliability was established through the development of a case study protocol for each case and a case study database to ensure that the same information was collected for all the cases (Yin, 2003). The case study protocol in this research included an overview of the case study project, its aims, objectives, case study issues, interview schedule. The case study interview schedule was prepared containing background details of the case, questions prepared in advance of each interview phase and summary details of financial information (appendix one). To save time during the interview and enable the researcher to focus on the key issues emerging, a review form was sent requesting the financial information in advance of the interview; it was then discussed during the interview (appendix two). A case record (appendix three) for each firm was prepared to record data. This ensured the data collection was focused on the aim of the research, i.e. knowledge acquisition and learning. The case record verified that all of the relevant information was collected for each firm and aided in the data analysis. Computer databases were maintained for each firm which contained the GCDP application form, consultants' report, transcripts of annual interviews, baseline and annual financial figures. Other records included minutes of meetings with Scottish Enterprise (SE) executives, memos of telephone conversations and e-mails from other informants, such as SE executives and SE account managers (Miles and Huberman, 1994). Field procedures are particularly important for case study research. Yin (2003) recommends when interviewing key persons that one must cater for the interviewee's schedule and availability to help secure full co-operation. Explicit and well planned field procedures helped the interviewer to be prepared for the interview, manage the interview process and cope with unexpected events. In this study introductory e-mails were sent in advance by both Scottish Enterprise and the researcher, explaining the research and timetable. Scottish Enterprise executives and account managers were contacted by the researcher to provide recent information about the firms. Also, Scottish Enterprise records and general sources of information were accessed.

The interview schedule was prepared, using open questions and the process questioning language of "what, who, where, why, when and how" recommended by Pettigrew *et al.* (2001). This supported the exploratory and inductive nature of the research. An example is given to illustrate the nature of the questions in figure 4.2 below. The complete CEO interview schedule is in appendix one (CEO Interview Schedule, Phase III, 2005).

Figure 4.2: CEO interview questions extract – learning processes

1. What were the main issues in your firm's international activities over the last year?
2. What were the triggers for these?
3. How has this changed what you are doing now?
4. What did you find you needed to know more about to do each of these activities?
   - What areas of knowledge were needed?
   - Where did you learn or acquire this knowledge?
   - Who in the business has the expertise now?
   - Have others picked up on or used that knowledge?
   - How has this influenced what the firm is capable of doing now?
   - Are there aspects of this knowledge where you have not been able to do what you want to do?

The role of the researcher

It is recognised that the role of the researcher is vital to the interview process. To ensure validity the researcher is required to understand the received information, be a good listener and understand what is meant by what is said (Ghauri *et al.,* 2002). To assist with this process, background reports on the companies were consulted before each interview. The semi-structured interview schedule was prepared in advance of the interviews, which helped the researcher to control the situation, ask the right questions, adapt to new or unexpected situations and develop trust (Ghauri *et al.,* 2002). A key aspect of enhancing the reliability of the research was to secure "vivid and accurate inclusive accounts that are based on personal experience" of the CEOs (Burgess, 1982, p107). The following procedures were taken to ensure this. The relevance of the research to the interviewee is a factor that can affect the quality of the data provided (Easterby-Smith *et al.,* 1991). This research was part of a wider evaluation study and it was emphasised to the firms that their independent views were important. Furthermore, the firms were advised that the research and evaluation findings would inform policy makers and thus would have an impact on the provision of support provided to internationalising firms in Scotland. The CEOs were assured that the researcher was independent from Scottish Enterprise and that their responses were confidential and individual comments would not be attributed to firms unless they wished this to be the case. The longitudinal nature of the study enabled the researcher to develop trust and relationships with the interviewees. Preparation from background reports and previous interviews assisted the interviewer to develop trust, to probe and confirm responses (Easterby-Smith *et al.,* 1991). Using appropriate language helps develop trust and care was taken to use language that the firms would be familiar with (Easterby-Smith *et al.,* 1991). Interview bias is a concern, whereby the interviewer can impose their own reference frame on the interviewees, both when questions are asked and as the answers are interpreted (Easterby-Smith *et al.,* 1991). Using open ended questions helped avoid bias and the use of leading questions. Supporting probes to clarify points were used where it was necessary (Easterby-Smith *et al.,* 1991).

Triangulation

The use of multiple sources of evidence helps to improve the validity of case study research (Yin, 2003). Triangulation can be used to strengthen a study by combining methods or using several kinds of data (Patton, 2002). Through triangulation the accuracy of judgements and results can be improved and enhance the validity of the research (Ghuari *et al.*, 2002). Denzin (1978) identifies four different types of triangulation: data triangulation, where different sources of data are used; investigator triangulation involves the use of different researchers, theory triangulation uses multiple perspectives and methodological triangulation uses multiple research methods. The research used multiple sources of data allowing *data triangulation* (Denzin, 1978; Yin, 2003), which helps to address concerns that subjective judgements are used to collect the data (Yin, 2003). Corroboration of the interviews through the use of Scottish Enterprise archival records and other secondary data was used to validate the interview data (Yin, 2003). These included four main sources of data. First consultants' reports on the firms when they completed the programme where consulted to provide background details about the firms, their experience on the programme and internationalisation action plan developed. Second, Scottish Enterprise data on each firm included financial baseline figures and annual financial statements which were used to verify figures provided by the firms. Third, expertise within Scottish Enterprise, the GCDP executives and Scottish Enterprise account managers who worked with the firms during and after the programme. Fourth, public sources of information gathered from newspapers and other publications and company web sites. This enhanced the validity of the research through corroboration, cross-checking and provided a more complete and holistic portrait of the phenomena (Ghauri *et al.*, 2002).

Longitudinal design

The study adopts a longitudinal design. The main strength of longitudinal research is that it enables the study of the change and development of firms over time (Saunders *et al.*, 2003). Cross sectional studies on the other hand, usually involve selecting a large number of organisations or people and investigating how factors vary across these units (Easterby-Smith *et al.*, 1991). Cross sectional designs, especially where they use questionnaire and survey techniques, do not explain why correlations exist and have difficulty eliminating external factors (Easterby-Smith *et al.,* 1991). International business researchers have called for more longitudinal research into firms' internationalisation behaviour that reflect its dynamic nature (Andersen, 1993; Welch and Luostarinen, 1988; Knight, 2000). Welch and Luostarinen (1988) suggest a longitudinal approach is required to unravel the complexity of the dynamic foreign investment decision process. Westhead *et al.* (2001) found that longitudinal studies focusing on export behaviour are rare and argue that regular and real time observations (Van de Ven, 1992) will provide additional insights into actual factors that encourage firms to internationalise.

Pettigrew (1992) recommends that research into organisational change should focus on change processes within the broader economic, social, political and competitive context surrounding each firm. The study of processes in the past, present and future and gaining an understanding of the sequence and flow of events is crucial to research organisational process (Pettigrew, 1992). Longitudinal organisational process research can link process to outcome (Pettigrew, 1992). Pettigrew (1992) argues that a longitudinal comparative case study approach allows the search for holistic explanations, rather linear or singular explanations. Causal processes can be explored within and between cases and examined directly in context (Pettigrew, 1992). Huxham (2002) argues that longitudinal research means that data collected in earlier settings provides the context for the interpretation of later events and data collected later provides confirmation about the new insights into the interpretation of data collected on earlier occasions. This aids the establishment of construct validity and forms part of a chain of evidence recommended by Yin (2003) which links the questions asked, data collected and conclusions.

Thus a longitudinal approach matches the goal of the study to investigate learning processes of internationalising firms, a phenomenon with a dynamic and process nature in which the unfolding events play an important role in building explanations (Pettigrew, 1992). This approach is appropriate to this research study due to the path dependent assumptions of organisational learning (Cohen and Levinthal, 1990) and the complex and dynamic nature of firms' internationalisation behaviour (Andersen, 1993; Welch and Luostarinen, 1988; Knight, 2000). Time is captured in the study through a combination of retrospective and real time analysis (Pettigrew, 1992).

4.3.4 Analysis

The case study analysis uses both within-case and cross-case methods as recommended by Miles and Huberman (1994) and Yin (2003). Miles and Huberman (1994) describe a process of *analytical abstraction*, which involves three levels. This is summarised in figure 4.3 below. In level one, data is summarised and packaged; coding categories are tried out to find a set that fits. Level two involves repackaging and aggregating the data, identifying themes and trends in the data overall. Relationships in the data are looked for, emphasis and gaps in the data are identified. The third level involves developing and testing propositions to construct an explanatory framework. Hypotheses may be tested and data reduced to allow analysis of trends in it. Tentative findings are crossed checked and matrix analysis of the major themes in data is carried out. Miles and Huberman (1994, p91) point out that there is no clear boundary between describing and explaining, stating

"the researcher typically moves through a series of analytical episodes that condense more and more data into a more and more coherent understanding of what, how, and why".

Analysis progresses from establishing what has happened in a specific situation or case (i.e. "a story"), to formalising the elements of the story, locating key variables and building the theory or model of how the variables are connected and how they influence each other. This results in the construction of a deeper story that is both variable and process oriented.

Figure 4.3: Levels of Analytical Abstraction

Level 3
Develop and test propositions.
Test hypothesis, reduce data for analysis of trends, and delineate the deep structure.

⇑

Level 2
Repackage and aggregate the data.
Identify themes, trends and patterns in overall data.

⇑

Level 1
Summarise and package the data.
Create text, coding and categories

Adapted from Miles and Huberman, (1994)

In the study, a case record was prepared for each firm. Data from the three interviews, archival and secondary data was summarised and recorded on the case record. Next, an analytical framework was constructed to undertake the analysis. Within-case analysis was undertaken for each firm to explore and describe the phenomena in a bounded context that makes up the single case (Miles and Huberman, 1994). The case data was categorised into variables and content analysis summary tables and matrices were created to undertake and present the analysis (Miles and Huberman, 1994). Yin (2003) refers to these as word tables which display data from individual cases according to a uniform framework, identify variables, reflect processes and outcomes. The tables were created for the three themes identified during the analysis and are found in the annex to chapter five:

1. Prior overseas activities and initial knowledge base, triggers, responses and decisions.
2. Absorptive capacity and learning: acquisition, assimilation and exploitation of knowledge.
3. Outcomes: strategic decisions, performance and competitive advantage.

Categorising the data into variables and establishing measures was a complex and lengthy process. Prior activities of the firms were used as proxies to determine the initial knowledge base, which was categorised into the three types of knowledge; market, internationalisation and product, identified from the literature. The classification of the knowledge types is discussed below. The decisions facing the firms are described in terms of two process variables: *triggers* of their search for new knowledge and the resulted *responses* by the firms.

The constituent elements of the learning processes where categorised into five components using the absorptive capacity framework. Figure 4.4 below shows the components of absorptive capacity, their classification into variables and definitions of the variables.

Figure 4.4: Classification used for knowledge and learning variables		
Components of absorptive capacity	*Classification for variables*	*Definitions of variables*
Acquisition	Type of knowledge	**Market knowledge:** Specific business and institutional knowledge of a country market. **Internationalisation knowledge:** General knowledge which is transferable from country to country, includes internal management processes and market entry modes. **Product/technological knowledge:** Specific knowledge to develop and supply products including the research and development of technology.
Acquisition	Source of knowledge	**Internal sources:** Experiential (tacit knowledge) and objective (explicit knowledge). **External sources:** Published (explicit knowledge) and vicarious (tacit knowledge).
Assimilation	Who in the company gained expertise	**Process variable:** Describes how new knowledge was initially acquired by the firm.
Assimilation	Transfer process	**Process variable:** Describes how new knowledge was shared within firm. Tacit or explicit knowledge.
Exploitation	New capabilities gained	**Process variable/intermediary outcome:** Describes how new capabilities were gained by the transformation and utilisation of new knowledge. Single and double loop learning. Exploration/exploitation behaviour.

The types of knowledge acquired by firms were classified into market, internationalisation and product/technological knowledge. Market knowledge is defined as the acquisition of business and institutional knowledge of a specific market. Internationalisation knowledge is general knowledge that is not market specific and is transferable from market to market, such as management processes and market entry modes. These may be general processes such as head office administration or for example, knowledge of sales operations acquired in a market but can used world-wide. The in-depth nature of this research enabled these different types of knowledge to be distinguished. Product/technological knowledge is the acquisition of specific technical knowledge to develop and supply products including and the research and development of technology. For example, this may include the knowledge to manufacture products and supply services or the use of external manufacturers.

The source of each knowledge type was analysed and described. This was categorised into internal and external sources (which were dichotomous). Internal sources can be experiential or objective sources of knowledge and external sources include published information and vicarious (externally acquired experiential knowledge). The assimilation of new knowledge is measured by two process variables; how new knowledge was 1. initially acquired by the firm and 2. shared within the firm. The exploitation of new knowledge was measured as a process and intermediary outcome variable. This describes the new capabilities gained and how new knowledge was transformed and utilised to create capabilities.

Figure 4.5: Classification used for outcome variables and constraints	
Classification for outcome variables	*Definition of variables*
Strategic decisions	**Process and outcome variable:** Describes decision making by firms and strategic decisions made.
Performance	**Performance objective:** *Sales growth*: Firms focus on expansion by entering new markets or penetrating existing market. *Profitability*: Firms focus on improving efficiency and consolidation in existing markets. **Performance outcome:** Impact of knowledge and learning on firm performance in terms of objectives, sales and profitability.
Competitive advantage	**Process and outcome variable:** Describes the competitive advantages and how they were acquired or maintained by firms.
Constraints	**Management and financial resources:** Describes the nature of the constraining management capacity, capability and financial resources. **Market:** Identifies constraining external market conditions. **Product and technology:** Identifies constraints faced by firms in R&D and manufacturing.

The outcomes of the learning were categorised as strategic decisions, performance and competitive advantage and are shown in figure 4.5. Strategic decisions are measured as a process and outcome variable which describes the decision making by firms and the decisions made as a result of learning. Performance was categorised in terms of sales and profitability objectives and outcomes. Sales growth objective is defined as expansion by entering new markets or penetrating existing markets. Profitability objective is where firms focus on improving sales and operational efficiency of sales and operations as well as consolidating operations in existing markets. The performance outcome variable describes the impact of knowledge and learning on the firms' sales and profitability as well as on performance compared to the objectives. The competitive advantage variable describes the competitive advantages and how they were acquired or maintained by firms as a result of new knowledge and learning. Constraints to firms' internationalisation were categorised as management and financial resources, which described the nature of the constraining management capacity, capability and financial resources, constraining external market conditions and product and technology constraints, faced by firms, in R&D and manufacturing.

Cross-case analysis was undertaken whereby four groups of firms were identified: start-up firms, internationalising manufacturing firms, internationalising technology-based firms and firms that were not actively internationalising. The selection of these groupings is discussed below in section 4.4. Word tables and matrices were prepared to perform cross-case analysis. This analysis condenses the data further and begins the process from describing to explaining. Themes and patterns are identified and presented across groups. Relationships in the data, consequences and outcomes are developed. Overall analysis is performed using matrix analysis of the major themes. Finally, an explanatory framework is constructed.

4.4 Profile of the case study companies

4.4.1 Types of firms

The twelve companies involved in the research were from a variety of industry contexts shown in table 4.1 below. All firms had some international experience when they joined the programme and were team managed. They were all independent Scottish firms, except for one firm. This firm was a technology-based SME that merged with a foreign company. It was included in the study as it retained the original business unit in Scotland which was the focus of the GCDP. Three of the firms were start-ups that were spinouts from other organisations. One was a spinout from an SME, another was a university spinout and a third was a GCDP participating manufacturing firm that went into liquidation during the research (the CEO started an international new venture which was a spinout of the old business). The firms were categorised into groups which is discussed in section 4.4.2 below.

Table 4.1: Types of firms and sector		
Firms	*Business Type*	*Sector*
SU1	Education provider	Service
SU2	Aviation software development	Technology
SU3	Clothing manufacturer	Technology/Manufacture
MAN1	Alloy processing manufacturer	Manufacture
MAN2	Hi Fi manufacturer	Manufacture
MAN3	Oil and gas product manufacturer	Manufacture
MAN4	Clothing manufacturer	Manufacture
TECH1	Optical eye testing technology/manufacture	Technology/Manufacture
TECH2	Digital media technology	Technology
TECH3	Biotechnology – diagnostic testing products	Technology/Manufacture
IN1	Mobile telephone repairer	Service/repair
IN2	Advertising agency	Service

4.4.2 Identification of groups

The twelve firms were categorised into four groups and were given names to maintain anonymity as follows: three start-up firms (SU1, SU2, SU3), four manufacturing firms (MAN1, MAN2, MAN3, MAN4), three technology-based firms (TECH1, TECH2, TECH3) and two firms that were inactive internationalisers (IN1, IN2). The division of firms into groups was largely to simplify the case study analysis, rather than to provide a basis for comparison in the thesis. The firms' internationalisation history shown in table 4.2 did not facilitate a grouping based on for example, internationalisation process theory and international new venture theory. This is discussed in detail later below.

The categories chosen were deemed as the most appropriate groups as they reflected similarities within the firms in terms of the organisational changes in firms which are associated with growth (Storey, 1994). These changes have been presented in stage models which emphasise the crises and problems firms face as they go through various growth stages, and the resulting change in internal organisation (Starbuck, 1971; Griener, 1972; Scott and Bruce, 1987; Churchill and Lewis, 1983). The movement from one stage to another may be triggered by a crisis (Scott and Bruce, 1987; Churchill and Lewis, 1983; Greiner, 1972) or in responses to a firm's search for new growth opportunities (Chandler, 1962). The models generally distinguish between inception/survival and growth (Scott and Bruce, 1987; Churchill and Lewis, 1983). Other research has highlighted the problems that new ventures face as they grow and that problems differ by industry (Block and McMillan, 1988; Storey, 1985). Kazanjian (1988) highlights industry differences and identifies the dominant problems faced by technology-based new ventures at different stages of growth. Kazanjian (1988) supports the stage models' focus on organisational change and views the transition from stage to stage as an organisational learning process. Structures and processes that were not previously required are instituted and elements of the organisation may be altered, for example types of employee or reward systems may change.

Thus it was felt that in this study the types of firm and different stages of growth would influence the new knowledge and learning acquired by the firms. The start-up firms were in the early stages of product/service development and had little or no international sales. The manufacturing and technology-based firms were at more advanced levels and had already obtained international sales. The inactive internationalisers did not internationalise further, focusing on domestic growth.

The firms did not fit expected patterns indicated by the internationalisation process theory and international new venture theory. Table 4.2 shows the firms' year of start-up, year of commencing international activities, market entry mode and pace of internationalisation, distinguishing between international new ventures or incremental internationalisers (Oviatt and McDougall, 1997; Johanson and Vahlne, 1977). A further distinction is made between traditional manufacturing/service, technology-intensive and technology-based firms which is highlighted in the literature (Oviatt and McDougall, 2005b; Bell *et al.*, 2003; Rialp *et al.*, 2005).

Following the recommendations of Oviatt and McDougall (1997) firms in this study were considered to be international new ventures where they engaged in international business from inception, or were entering overseas markets within six years of starting up. Firms were identified as internationalising incrementally where they began international activities after more than six years of domestic trading. Some traditional firms were categorised as knowledge-intensive reflecting the growing technological sophistication of firms in non-technology based sectors (Bell *et al.*, 2004). Although these firms may have some quite sophisticated knowledge-intensive processes, for example they may use the latest computer technology in design and production, they are not inherently knowledge-based firms (Bell *et al.*, 2004; Bell *et al.*, 2003). This is in contrast to the firms that were grouped as knowledge-based. They existed because of the emergence of new technologies without which they would not exist (Bell *et al.*, 2003).

Seven firms were international new ventures and five internationalised incrementally (table 4.2). The firms that were international new ventures included all of the start-ups, which would be expected as they joined the GCDP at inception. However one was not a technology-based or knowledge-intensive firm as suggested in the INV theory. The manufacturing group was made up of traditional manufacturing firms i.e. alloy metal processing, hi-fi manufacturer, oil and gas products and clothing manufacturer (table 4.1). Two of the manufacturing firms were international new ventures and had gone straight to overseas markets. One firm, the hi-fi manufacturer, was categorised as knowledge-intensive as it used complex knowledge to design new products, however the other was a traditional alloy metal processing manufacturer. The other two traditional manufacturing firms followed an incremental, stage approach as suggested in the internationalisation process literature. Two technology-based firms were international new ventures but one technology-based firm served only its domestic market for nine years after starting-up and was not considered to be an international new venture. Both inactive internationalising firms internationalised incrementally, although the mobile phone repair firm was knowledge intensive. Thus the expected pattern of rapidly internationalising knowledge-based or knowledge-intensive INVs or incrementally internationalising, traditional firms as suggested by the literature was not chosen as it did not reflect these firms' internationalisation patterns (Oviatt and McDougall, 2005b).

Table 4.2: Internationalisation of firms				
Firms	*Start year*	*Internationalisation year and market entry mode*	*Pace of international growth*	*Knowledge based/intensity*
SU1	2002	2002 exporting	INV	Knowledge Intensive
SU2	2001	2001 joint venture	INV	Knowledge based
SU3	2005 *(1969)	2005 joint venture *(1970s exporting)	INV *(Incremental)	Knowledge intensive *(Traditional)
MAN1	1996	1996 exporting and subsidiaries	INV	Traditional
MAN2	1973	1973 exporting 1996 subsidiaries	INV	Knowledge intensive
MAN3	1979	1986/87 exporting	Incremental	Traditional
MAN4	Acquisition 1960s	1980s exporting	Incremental	Traditional
TECH1	1993	1999 exporting and subsidiary	INV	Knowledge based
TECH2	1991	2000 exporting	Incremental	Knowledge based
TECH3	1987 (1993 float/merge)	Pre 1993, exporting	INV	Knowledge based
IN1	Acquisition 1992	2000 exporting and subsidiary	Incremental	Knowledge intensive
IN2	1979	1990s exporting	Incremental	Traditional

* Liquidated business

Another category for analysis could have been the size of firms. Using number of employees, firms could have been grouped as micro firms where they have less than 10 employees, small firms with less than 50 employees and medium sized firms with less than 250 or 500 employees (EC, 2001; Scottish Executive, 2006). However it was felt the size differences reflected the types of business and categories above (SU, MAN, TECH, IN) which were used for the groupings. The start-ups have the least number of employees and manufacturing firms have the highest. Table 4.3 shows the number of employees during the research, namely, the Scottish Enterprise baseline figures collected in 2001 when the firms joined the programme and the figures from 2003 to 2005. At the beginning of the research three firms were small in size with less than 50 employees (two of which were micro firms). Eight were medium sized firms of which seven had less than 250 employees. One firm, MAN2, had experienced high growth in the previous few years and had increased its employees to 320 employees. Most of the firms were medium sized. Only the start-up firms and one technology company have fewer than 50 employees. The number of employees was not considered an appropriate way to categorise the firms. The number of employees changed during the research as the firms grew or contracted. One of the eight medium sized firms went into liquidation, then was re-launched as a start-up with four employees.

Table 4.3: Change in number of employees

Year	*2001*	*2003*	*2004*	*2005*		
Firms	*No. of Employees*	*No. of Employees*	*No. of Employees*	*No. of Employees*	*Employees Growth (%)*	*Employees Growth (N)*
SU1	1	44	39	37	3600.0	36.0
SU2	2	20	25	24	1100.0	22.0
SU3	90*	60*	4	4	-95.6	-86.0
MAN1	80	116	130	180	125.0	100.0
MAN2	320	390	322	292	-8.8	-28.0
MAN3	100	246	214	226	126.0	126.0
MAN4	63	200	204	215	241.3	152.0
TECH1	58	115	170	132	127.6	74.0
TECH2	45	36	27	27	-40.0	-18.0
TECH3	81	87	96	115	42.0	34.0
IN1	196	120	246	724	269.4	528.0
IN2	70	50	60	60	-14.3	-10.0

* Figures from participating liquidated firm.

4.4.3 Sales and growth of firms

In terms of measuring international performance, studies have included international sales, export ratio (international to total sales), growth and profitability (Madsen, 1987; Crick *et al.,* 1994). This study uses the first three and excludes profitability measures. The use of annual profitability figures is problematic. Profit objectives may be firm specific, for example firms may forgo short term profits for long term growth, and may be developing competitive advantage in the markets in which they operate (Buckley, 1988). Tables 4.4 and 4.5 show the total and international sales, export ratios and growth (or decline) of the firms during the research. Table 4.4 shows the total sales level and growth of the firms. Baseline figures provided by Scottish Enterprise in 2001 when the firms joined the programme and sales figures collected during the research for 2003, 2004 and 2005 are given. The growth percentage and sales increases are based on the change from 2001 to 2005. Table 4.5 shows the total sales, international sales and international sales ratio each year from 2003 to 2005. Scottish Enterprise did not collect this information at as part of their baseline in 2001.

Where this figure is an estimate, an indication of change in international sales is given from discussions with the CEO during the interview.

Two of the start-up firms began trading during the research. One start up firm (SU1) had overseas sales of 67% in its first year. Another start-up firm's (SU2) income came from a UK partner for which it was initially developing the product, with a view to use this R&D as a launch pad for its overseas market. The third start-up (SU3) was still in the process of developing the new idea and had no sales. Two manufacturing firms (MAN1 and MAN4) increased both total and international sales throughout the period. After a period of high growth from 2000, MAN2 suffered a fall in sales in 2005 due a fall in domestic income but continued its overall trend to increase international sales. Similarly, after a period of high growth during 2002 and 2003, MAN3 experienced a fall in subsequent total sales and international sales but showed an overall growth from 2001. The two INV technology firms (TECH1 and TECH3) grew the businesses mainly by increasing international sales, domestic sales increased marginally. After an initial period of high growth, the third technology firm (TECH2) experienced a decrease in total sales with no growth in international sales.

The two inactive internationalisers did not internationalise further in order to focus on the UK business. One of these (IN2) maintained its previous level of international business but focused on expanding its domestic business in other UK regions to halt a decline in domestic sales. The other firm (IN1) after an initial period of high growth, de-internationalised by closing down its overseas subsidiary which was under-performing, to focus on turning around the ailing UK business. The firm then experienced high domestic growth.

Table 4.4: Change in Sales						
Year	*2001*	*2003*	*2004*	*2005*		
Firms	*Sales £m*	*Sales £m*	*Sales £m*	*Sales £m*	*% Sales Growth*	*£m Sales Growth*
SU1	0.1	2.5	1.9	2.2	2720.5	2.1
SU2	0.1	1.0	1.5	2.0	1900.0	1.9
SU3	6.0*	6.7*	N/a	n/a	n/a	N/a
MAN1	14.0	12.0	18.0	34.5	146.4	20.5
MAN2 (2000 Sales £20m)	36.0	42.0	38.0	32.2	-10.6	-3.8
MAN3	7.5	25.0	13.0	14.4	91.5	6.9
MAN4	36.0	37.0	40.0	40.5	12.5	4.5
TECH1	1.0	3.6	8.9	16.6	1607.8	15.6
TECH2	4.9	9.0	6.2	7.7	57.1	2.8
TECH3	4.1	5.2	7.4	9.8	139.0	5.7
IN1	3.8	10.0	8.0	18.9	397.4	15.1
IN2	7.0	4.8	5.0	4.6	-34.3	-2.4

* Figures from participating liquidated firm.

Table 4.5: Change in International Sales										
Year	*2003*			*2004*			*2005*			
Firms	*Sales £m*	*Int. sales £m*	*IS %*	*Sales £m*	*Int. sales £m*	*IS%*	*Sales £m*	*Int. sales £m*	*IS%*	*Overall change in int. sales*
SU1	2.5	1.7	67	1.9	**	*67	2.2	**	*67	+
SU2	1.0	0.0	0	1.5	0.0	0	2.0	0.0	0	N/a
SU3		N/a		n/a			n/a			n/a
MAN1	12.0	8.0	67	18.0	11	61	34.5	22.0	64	+
MAN2	42.0	7.5	18	38.0	20.0	53	32.2	12.0	37	+/-
MAN3	25.0	14.5	58	13.0	5.9	45	14.4	5.7	40	+/-
MAN4	37.0	19.0	51	40.0	20.5	51	40.5	25.0	62	+
TECH1	3.6	3.0	83	8.9	7.8	87	16.6	15.6	94	+
TECH2	9.0	1.0	11	6.2	1.0	16	7.7	*1.0	13	-
TECH3	5.2	3.6	*70	7.4	5.3	72	9.8	7.7	79	+
IN1	10.0	2.0	20	8.0	0.0	0	18.9	0.0	0	-
IN2	4.8	1.0	21	5.0	1.0	20	4.6	1.0	22	=

IS% - Percentage of international to total sales
N/a - not applicable
*Approximate estimate
** Unavailable

4.5 Summary

This chapter describes the research methodology selected in this study in order to investigate the learning processes of internationalising SMEs. The methodological approach used is summarised in figure 4.6 below.

Figure 4.6: Summary of research methods	
Paradigm	Interpretivist
Approach	Qualitative Subjective Inductive
Research design	Longitudinal case studies of GCDP firms.
Data collection	Multiple sources of evidence provide data triangulation: • Interviews with CEOs. • Company financial figures. • Scottish Enterprise records, archival data and expertise. • Public sources of information; newspapers, company WEB sites.
Analysis	Within-case and cross-case analysis. Data categorised into variables. Content analysis to identify themes, trends and patterns.

The study takes an interpretivist stance which recognises that reality is socially constructed, rather than objectively determined, and appreciates the different constructions and meanings that people place on their experience (Easterby-Smith *et al.,* 1991). The research uses a qualitative approach based on longitudinal, multiple case studies of internationalising firms. The firms selected participated in the Scottish Enterprise Global Companies Development Programme. The background to the research and the GCDP is given. Data collection involved in-depth interviews with the CEOs of internationalising firms over three years and other key informants in several firms. Other sources of data enhanced the validity of the research through corroboration. Access to archival data and expertise within Scottish Enterprise and other secondary information provided triangulation of the data. The data analysis involves within-case and cross-case techniques. The data was categorised into variables and content analysis was performed to identify themes, trends and patterns. These methods support the inductive approach. This chapter concludes with profiles of the participating case study companies. The next chapter presents the analysis and findings of the research.

Chapter Five

Findings – Cross-case analysis

5.1 Introduction

An analytic framework was constructed based on the four groups of companies that were identified; start-up firms, internationalising manufacturing firms, internationalising technology-based firms and inactive internationalisers. Using within-case and cross–case methods, analysis of each individual case was performed case-by-case, cross-case by group and across all groups. The findings for each firm and for each of the four groups are presented in terms of three major themes which where identified during the research. These are outlined below.

A. Prior overseas activities and initial knowledge base, triggers and responses

This section identifies the prior overseas activities of the firms and the prior knowledge assumed to derive from that overseas experience. The decisions that firms face as they internationalise and the triggers which underpin these are identified, as well as the responses made by the firms.

B. Absorptive capacity and learning

This section explores the areas of new knowledge and learning required by the firms in order to deal with the issues identified above. It examines how new knowledge was *acquired* by firms in terms of the types and sources of this knowledge. How this new knowledge was *assimilated* by firms is explored in terms of who gained the knowledge and how it was shared within the firm. Finally, how this new knowledge was *transformed* and *exploited* into new capabilities or insights by firms is examined.

C. Outcomes: strategic decisions, performance and competitive advantage

The research explores and examines the outcomes of new knowledge and learning by firms in terms of strategic decisions, performance and the competitive advantages they have gained. The strategic decisions were made by the firms as a result of this learning, and the impact of this on the firms' internationalisation and performance is presented. The nature of competitive advantage gained as a result of learning by firms is examined. Constraints to internationalisation are presented. Future growth opportunities are examined and the resulting learning needs of the firms to be addressed in the future are explored.

Due to the high volume of data and to aid presentation, the individual within-case analysis is presented in an annex to this chapter. The cross-case analysis by group and across groups is contained in the main body of this chapter, which is structured as follows:

5.1 Introduction
5.2 International start-ups
5.3 Internationalising manufacturing firms
5.4 Internationalising technology firms.
5.5 Inactive internationalisers
5.6 Cross-case learning processes
5.7 Constraints to internationalisation
5.8 Summary
Annex – Individual case study analysis

Comparative cross-case analysis is presented for each of the four groups. The analysis builds on the individual case analysis in the annex to this chapter and is presented in four sections for each group as follows:

1. Prior overseas activities, initial knowledge base, triggers and responses

    Growth strategy

    Growth issue

2. Types of new knowledge, growth and performance

Market knowledge

Internationalisation knowledge

Product/technological knowledge

Growth opportunities and constraints

3. Potential absorptive capacity; acquisition and assimilation of knowledge
4. Realised absorptive capacity and outcomes

The prior activities, triggers and responses of the firms are summarised. Learning processes are then examined showing the new types of knowledge acquired for growth, future growth opportunities and constraints. Further analysis shows the processes involved in how firms increase potential and realised absorptive capacity. *Potential absorptive capacity* is explored showing how the new knowledge was acquired and assimilated within the firms. *Realised absorptive capacity* explores how firms exploit that learning in terms of new capabilities acquired and outcomes for the firms. Areas of further learning required for continued internationalisation are discussed.

Finally, this chapter presents the learning processes and constraints to internationalisation across all firms and discusses the implications of these barriers to firm learning.

5.2 International start-ups: Cross-case analysis

SU1, SU2 and SU3 are three international start-ups. SU1 was a university spin-out that started up in 2002 during the GCDP. It provides distance learning courses in partnership with Scottish universities to overseas academic institutions. SU2 was a spin-out idea from an existing small firm that became the focus of activities for participating in the GCDP. SU2 developed a new air traffic control and flight planning system and planned to sell it internationally. SU3 was started up during the programme when the participating firm, a clothing manufacturing, went into liquidation in 2004. The new idea involves the production of electronic interactive garments.

5.2.1 Prior overseas activities, initial knowledge base, triggers and responses

All three of these firms were in the process of starting international new ventures. The ideas spun out of previous activities. SU1 was a company formed to provide educational programmes from a network of Scottish universities and colleges to overseas institutions. The CEO developed an overseas programme at a Scottish university and created a company to develop and extend the idea to become a Scottish-wide business initiative. SU2 developed a new product from an idea which was generated while working with an existing customer. It planned to spin-out a new company. The firms embarked on the GCDP to help them launch these new ventures internationally. SU3 was a new company formed by the CEO when the previous company went into liquidation. The head-office activities of the previous businesses were based in the UK. The businesses or CEOs had some experience of prior overseas activities. SU1 had some existing overseas partners from its overseas work at the university, SU2 had worked on overseas contracts in different sectors, the previous firm run by the CEO of SU3 had exported manufactured goods and sourced raw materials from abroad.

Manufacturing and R&D was based in the UK for two of the new firms. SU1 sourced the teaching materials and developed software applications in Scotland. SU2 set up a project team in its existing offices to develop the new idea. A key part of the SU3's business plan was to locate all manufacturing and product design to China and the Far

East, through finding overseas partners. The technology R&D and IP was retained in UK. SU3 initially developed its product for the UK market. SU1 and SU2 were concerned with developing overseas markets. SU1 developed a sales team of account managers to build relationships with overseas educational institutions. SU2 initially developed the product in the UK, then entered into a sales agreement with a US firm to serve this market.

Growth strategy

Two of the firms, SU1 and SU2 started trading and increased sales over the period. SU3 had not started trading as it was in the process of developing the new product. The two firms, SU1 and SU3 were planning overseas market expansion to develop their growth.

SU1 changed its business model to work with fewer, larger overseas educational centres. It developed relationships with strategic partners, rather than growth by large increases in volume with smaller partners. It entered new strategic agreements in Egypt, Jordan and China. It established partnerships with several Scottish universities but growth was limited by the delays in recruiting Scottish partners. SU2 continued to develop its relationship with its US sales partner, it planned to develop the Far East market, with limited expansion into Europe. SU3 established overseas design and manufacturing partners and sales agreements with UK importers. It planned to expand into the US and European markets when the product was successfully established in the UK.

Growth issue – Building relationships, using networks and market development.

Building strong overseas relationships was vital to the growth of the firms. SU1 worked closely with its new overseas "strategic" partners, which involved accessing overseas and Scottish networks and gaining government support. SU2 worked very closely with its US partner to establish and maintain its sales agreement. A new high profile director helped it open doors to various international authorities and contacts in the aviation sector. SU3 established very close working relationships with its overseas manufacturers, putting effort into understanding their business practices and culture. It used Scottish Enterprise (SE) contacts abroad to establish these partners and used ongoing consultancy to understand the culture and develop relationships. Contacts in the Scottish electronics industry were used to develop the technology and products.

5.2.2 Types of new knowledge acquired, growth and performance

Table 5.1 shows the types of new knowledge acquired by the start-up firms and the results of this on growth and performance. Further growth opportunities and constraints are considered. The number of items of new knowledge acquired from the different types of knowledge used by each firm are collated from the individual within-case analysis of each firm. This is presented in the annex to this chapter in tables 5.A.1b, 5.A.2b and 5.A.3b.

Table 5.1: Types of new knowledge, growth and performance

Firms	*Growth*	*Performance Objective*	*New knowledge acquired*	*Growth opportunities and constraints.*
SU1	Developed strategic partners in new markets. Recruited partners in Scottish Universities.	Achieve International sales growth.	MK (2) IK (1)	Potential to become world wide market leader. Recruit 2/3 strategic partners per year and service high volume of overseas students. Delays recruiting Scottish universities.
SU2	Product launch in the UK. Established sales partnership in the US.	Establish UK sales and US market profile.	MK (2) IK (2) PK (1)	Expand into Middle and Far East markets and Europe. Use US experience to develop sales and marketing for other markets. US partnership slowed down by legal aspects. Constraints/internal competition of core business for staff time and investment.
SU3	Created new innovative product idea. Established overseas design and manufacture. Agreements with garment	Raise finance to develop new product and start-up firm.	MK (3) IK (1) PK (2)	Once established in UK market plans to expand into Europe and the US. Longer time to develop new product, raise finance and develop UK market than expected.

	importers.			

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge
( ) – Number of new knowledge types

Market knowledge

The firms were involved in acquiring both *business and institutional market knowledge* which they used to enter the markets and develop selling approaches. SU1 required knowledge of potential institutions to develop relationships in the different countries and knowledge of overseas government agencies. This had been done by the CEO and management team. However as the firm expanded, sales employees were recruited and trained to gather this market knowledge, develop and manage overseas relationships. SU2 acquired market knowledge of the international aviation market and specific knowledge about the industry in the US. An outcome of its research during the GCDP, was the decision to enter the US market with a sales partner rather than directly. It acquired knowledge about potential partners and gathered further market knowledge from the partner that was chosen. This market knowledge was used to develop specific sales and marketing aspects of the product for the US, as the product had previously been developed using UK market knowledge. This process would be used to develop sales and marking aspects for other international markets. SU3 developed the product based on market knowledge of UK consumers. It used garment importers to service the UK market and acquired knowledge about their marketing activities to support this firm.

Internationalisation knowledge

The *internationalisation knowledge* required by the firms was concerned with how to manage partnerships. SU1 was concerned with developing the organisation structure and business model to recruit Scottish Universities to become part of SU1 as providers. This required forming the new company, establishing payment terms, establishing availability of courses that could be provided, accessing and developing material. This was a key component to establishing the new firm and implementing its overseas expansion strategy. SU2 acquired internationalisation knowledge on how to establish its US overseas sales partnership. SU2 learnt about the process of managing the relationship and sales processes. In addition, legal aspects of setting up the partnership and product liability issues were important. In order to establish overseas manufacturing capabilities, SU3 acquired knowledge about eastern cultures and how to manage its overseas partnerships.

Product knowledge

Two firms, SU2 and SU3 were involved in developing new innovative products to launch the new venture. SU1 on the other hand, did not need new product knowledge as it did not develop the materials, however it applied the software to the materials provided by its Scottish university partners. Product development was not a major area of new knowledge required by the firm to develop the business internationally. Both SU2 and SU3 developed the new products based on UK market knowledge. SU2 had the technology skills and expertise from its main business and acquired product knowledge working closely with a UK partner to develop the product. SU3 researched consumers preferences in the UK and acquired technology knowledge from industry networks in Scotland to develop the product and design and manufacturing expertise from its suppliers in the Far East. It acquired knowledge about media applications to develop the product. Knowledge of intellectual property (IP) to protect the product ideas from being copied in the East was collected from publications and by observing competitor practices in the Far East and China when the members of the company visited these markets.

Growth opportunities and constraints

The firms acquired new *market, internationalisation and product* knowledge (where applicable) to launch their new business ideas. The two firms, SU1 and SU2, that had started trading, acquired international business and institutional *market knowledge* to establish overseas partners. SU3 had not started trading and acquired UK market knowledge of consumers, importers and retailers. The *internationalisation knowledge* required by the firms was concerned with establishing and managing relationships with overseas partners. Overseas educational partners were developed by SU1, sales partners by SU2 in the US, and design and manufacturers in the China and the Far East by SU3. *Product knowledge* was acquired by SU2 and SU3 to developed new innovative products. This was acquired from UK customers and consumers. When SU2 entered the US market it changed marketing and sales aspects to address different US market needs. New *product knowledge* was not required by SU1 directly as the Scottish universities provided the materials.

5.2.3 Potential Absorptive Capacity - Acquisition and assimilation of new knowledge

Table 5.2 below shows the potential absorptive capacity of the start-up firms. The acquisition of new knowledge shows the type of new knowledge acquired and where it was sourced from; UK or abroad, internal or external. The assimilation of that new knowledge within the firms and the transfer process is presented.

Table 5.2: Acquisition and assimilation of new knowledge

Firm	*Type*	*Source*	*Assimilate*	*Transfer process*
SU1	MK	Internal – market experience. External – recruit direct sales team, SDI and British Council.	CEO, management team, overseas sales team and support staff.	Overseas partners attend seminar in Scotland. Overseas sales teams attend sales conferences in Scotland. Sales teams and support staff given marketing materials developed by CEO.
	IK	Internal – CEOs experience of recruiting universities. External – Scottish Enterprise, Scottish Executive.	CEO and management team.	Meetings and presentations to Scottish universities. Government support.
SU2	MK	External – Recruited high profile director. Internal – market experience in US with partner. External – Scottish Enterprise US offices.	MD and aviation team. All SU2 management team.	Learn by experience of working with new director. Firm "run collectively" – all information is shared and teams are informed.
	IK	External – GCDP Internal – visit to US partner. External – lawyers.	SU2 management and US partner. Commercial director	Recruit partner. SU2 presents to US managers and trains sales teams. Partner visits Scotland.

	PK	Internal and external - Expertise applied to product with UK partner.	SU2 management and technical staff	Expertise gained from customer used to apply technology to develop product
SU3	MK	Internal – CEO experience. External – SE networks and GCDP. Market research.	Shared with garment importers.	Advising importers how to take product to market.
	IK	External – Scottish Enterprise contacts abroad, seminars, Consultants, books.	All directors and employees of the firm	Directors attend first meeting with partners. Partners visits UK. Close contact with SE contact in China. All directors have access to consultants.
	PK	External – Overseas Suppliers. Scottish electronics industry. Books on patenting Internal – market visits. CEO's prior product experience.	CEO and directors.	Visits to overseas suppliers and regular communication. Directors formulate protection strategy.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

The firms' sources of new knowledge were a combination of internal experiential and externally acquired *market knowledge.* SU1 and SU2 spent time in the new overseas markets and gained experiential market knowledge. This was supplemented by using British support networks broad to gain market information. The CEO of SU1 initially visited countries to recruit new partners. Market knowledge was gained from the government support agency, Scottish Development International (SDI) and the British Council. Overseas sales teams were recruited to develop the marketing activities with support from the CEO and other staff within SU1. This required the CEO to develop marketing materials to aid the transfer of knowledge to the sales teams. Knowledge was shared through conferences and seminars run by SU1 for both the SU1 sales teams and overseas partners. SU2 visited the US market and used the Scottish Enterprise offices there to support their market research activities. SU2's new director brought new knowledge of international aviation markets to the firm. The US market knowledge and aviation industry knowledge was shared throughout the firm by working with the new director and keeping all teams well informed. SU3 visited overseas markets to acquire knowledge about design and manufacturing suppliers. The CEO's existing knowledge of merchandising and retail was combined with direct market research of consumers in the UK and published market research was accessed using Scottish Enterprise and GCDP networks. This knowledge was shared with the UK garment importers to help them target UK retailers. The CEO of SU3 was involved providing a greater consultancy type support to the garment importers than had been expected.

The *internationalisation knowledge* acquired by the firms involved learning how to set up and manage various partnerships. Firms acquired in-depth knowledge of partners, working closely with them and providing hands on support. SU1 needed to recruit Scottish Universities and set up an organisational structure to attract them to join. They acquired this knowledge from experience of trying to recruit the universities and government knowledge of the university sector. With government support, they attended meetings and did presentations to senior management and departmental levels within the universities. SU2 recruited its US partner from visits to the US market. It used lawyers to advise on legal aspects of the partnership agreement. Knowledge about the partner was assimilated by the management team on an ongoing basis and involved a process of transferring knowledge through visits, presentations and sales training about SU2 and the product, to build the relationship. SU3 acquired new knowledge about Far East culture. This knowledge was shared with the directors by meeting the partners, having close contact with the Scottish Enterprise advisor abroad and regular contact with a consultant on Chinese culture.

Two firms acquired new *product knowledge*. SU2 had internal technical expertise and acquired practical knowledge from working with its UK customer closely. The knowledge was shared between technical staff and management and applied to develop the new product. SU3 combined technological knowledge it gained from the Scottish electronic industry and design and manufacturing expertise from its overseas suppliers and the CEO's prior experience to develop its new products. This knowledge was shared amongst all directors who visited overseas suppliers and had regular communication with them. Knowledge about patenting and protecting ideas was acquired through published sources and combined with visits to the Far East where copying is a problem. This information was shared by directors and an ideas protection strategy was formed which involved an emphasis on constant innovation rather than IP. They felt IP would be difficult to enforce in the Far East.

In conclusion, these firms combined internal experiential and external sources of new knowledge to acquire new market, internationalisation and product knowledge. Firms assimilated this knowledge by sharing it with all directors, managers, sales, technician and support staff. It involved acquiring in-depth knowledge of partners and sharing market expertise with them. The firms provided partners with hands on assistance where required to support sales and marketing activities through training, presentations and advice.

5.2.4 Realised Absorptive Capacity - Exploitation of new knowledge and outcomes

Table 5.3 below shows the realised absorptive capacity of the firms, how the new knowledge acquired by firms was exploited in terms of the new capabilities gained. It shows the outcomes of these new capabilities and the new areas of knowledge and learning required to achieve longer term international growth by the start-ups.

Table 5.3 Learning and outcomes

Firms	*New knowledge*	*New capabilities; Transform/exploit*	*Outcomes: strategic decision making, performance, competitive advantage.*	*Growth outcome and new learning*
SU1	MK	Sales teams build relationships with strategic partners. Work in partnership with local institutions.	Strategic partners recruited adds scale, potential to service high volume of students.	Change business model to a two way partnership (IK).
	IK	Working at strategic level with Scottish universities to increase speed of recruiting new partners.	Recruited Scottish partners, though delays caused lower levels of income than target. New model adds value.	Need to help universities improve quality and availability of materials (IK).
SU2	MK	Increased knowledge of and access to world-wide aviation markets. Targeted sales message and raised profile of US market.	Plans to expand into the middle and far east Expanded UK sales. Established sales channel and gained	Target product and sales messages to market to other countries (MK and PK).

	IK	Established US partnership and built relationships.	market profile in the US.	
	PK	Launched and established product in the UK.	Can adapt product to meet word-wide market needs.	
SU3	MK IK PK	Established partnerships with importers. Established design and manufacturing partners in China and the Far East. Incorporated electronic technology into new product design.	International expansion planned to the US and Europe, avoiding the East. Strategy of continuous innovation to protect firm from copying. Using technological innovation to add value to garment manufacturing.	Media – Plan to recruit someone with knowledge of TV advertising (MK).

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

The new capabilities acquired by the firms involved establishing and building long term partnerships both internationally and in the domestic markets. These partnerships were a result of, and resulted in, increased *market, internationalisation and product knowledge*. SU1 and SU3 used increased market knowledge to built sales relationships. SU1 management and sales teams entered agreements with overseas educational institutions to become strategic partners. SU3 entered agreements with UK garment importers.

There was a close relationship between the acquisition of the three types of knowledge. Requirements for initial market knowledge were replaced by the acquisition of internationalisation knowledge to transform the knowledge into capabilities. SU2 identified a potential sales partner in the US through acquiring market knowledge. It then increased its internationalisation knowledge of how to establish the partnership. This involved building relationships with managers at different levels in the organisation, negotiating legal aspects of setting up the partnership and product liability responsibility and training sales staff. SU3 increased its internationalisation knowledge of how to set up design and manufacturing agreements in China and the Far East. SU1 developed a model to attract Scottish universities to become partners and an awareness campaign to recruit, involving both senior management and departments to help speed up the process. As SU1increased its market knowledge and applied its new strategy, it recognised the opportunity to develop its business model in the longer term, to a two-way provision of educational programmes by Scottish and international partners. Through increasing its knowledge of Scottish universities, SU1 learned that there would be a need to assist the universities to improve the quality and availability of materials in the longer term.

The firms acquired *product knowledge* to develop new products based on integrating market knowledge with technical expertise. SU2 developed the new product in collaboration with its UK customer then adapted it for the US, based on acquiring US market knowledge. Combining both resulted in SU2 developing a world-wide strategy to provide product "add-ons" and different sales messages to different world regions. It realised that new market and product knowledge would be required. SU3 used electronic technology to integrate media application into its garments. The firm realised it would require more knowledge of media to grow the firm and planned to recruit someone with media knowledge. The knowledge it acquired to protect its ideas influenced it strategy of continual innovation to reduce the impact of ideas being copied. This knowledge influenced its international growth strategy to target the US and European markets where it could protect its ideas more easily than the East.

In conclusion, firms developed strategies to increase their international growth and acquire competitive advantage from the new knowledge gained. SU1 changed its strategy to recruit strategic partners which added value of increased scale to both partners. SU2 identified the Middle and Far East as potential markets and developed a model of product adaptation and targeted sales messages to serve world-wide markets. SU3 devised a strategy of continuous innovation to maintain the added value of its products.

5. 3 Internationalising manufacturing firms: Cross-case analysis

This section presents the findings of four medium-sized manufacturing firms that attained a high level of internationalisation. These four firms had previously internationalised and expanded internationally during the research; MAN1, MAN2, MAN3, MAN4. MAN2 maintained its international growth level, although recent figures show a drop in sales due to a fall in domestic revenue. Both MAN1 and MAN2 became international shortly after start-up. MAN1 is an alloy metal processing manufacturer with a European subsidiary that aimed to expand into the US and Europe. MAN2 is a provider of high value audio equipment with world-wide exporting and subsidiaries in the US and Germany. MAN3 and MAN4 internationalised incrementally from an established domestic base. MAN3 is an oil and gas product manufacturer with world-wide operations, serviced through overseas regional "hubs". MAN4 is a clothes manufacturer and retailer.

5.3.1 Prior overseas activities and initial knowledge base, triggers and responses

All of these firms had UK based head-office functions. The firms' prior general *internationalisation knowledge* was in all cases initially based on UK head office operations and functions. Prior *market knowledge* had been gained from overseas sales operations. MAN2, MAN3 and MAN4, had operated initially through agents and distributors, then overseas offices or subsidiary. MAN1 was the exception that serviced sales from the UK. Its initial overseas expansion involved opening overseas manufacturing processing facilities, then an overseas sales subsidiary. In terms of *product knowledge,* all firms started with UK manufacturing activities, MAN2 and MAN4 retained manufacturing in the UK. MAN4 has retail experience in the UK and planned to expand this in the UK and abroad through franchising. MAN3 expanded overseas by using overseas contract manufacturers.

Growth strategy

All firms were continuing with their international growth strategy. After a period of high growth, two firms, MAN2 and MAN3 were consolidating their previous growth and focusing on improving efficiency of their operations due to under-performance.

MAN1 and MAN4 were continuing with their expansion. After focusing on the US, MAN1 planned to turn its attention to Europe. European expansion had been neglected as it focused on its US operations. MAN4 was investigating expansion through retail franchising.

Growth issue - Management structure

The firms' international expansion was influenced by participating in the GCDP, during which they prepared an international growth strategy. This involved the restructuring of their management function. Part of the outcome of the GCDP was a requirement to restructure the management function to support overseas expansion and establish delegation to UK and overseas managers for all firms. This restructuring was one of the main action points for the two firms, MAN1 and MAN2, with overseas subsidiaries. MAN3 and MAN4 were concerned with increasing delegation to head-office staff in the UK. The CEO of MAN4 had previously been involved in all decision-making and all projects. MAN3 recognised the need to change from entrepreneurial to corporate management and to share head-office information with its overseas employees.

5.3.2 Types of new knowledge, growth and performance

These firms had prior knowledge of overseas markets, products and general internationalisation. Their *internationalisation knowledge* was based on head-office managerial functions, *market knowledge* was based on exporting, and *product knowledge* was based on domestic manufacturing. As the firms increased their level of internationalisation, the new knowledge acquired was determined by their growth phase and performance. Table 5.4 shows the growth strategy pursued by the firms to achieve their performance objectives and the new knowledge areas acquired to achieve this. The number of items of new knowledge acquired from the different types of knowledge used by each firm are collated from the individual within-case analysis of each firm. The detailed analysis is presented in the annex to this chapter in tables 5.A.4b, 5.A.5b, 5.A.6b and 5.A.7b.

Table 5.4: Types of new knowledge, growth and performance				
Firms	*Growth*	*Performance objective*	*New knowledge acquired*	*Growth opportunities and constraints*
MAN1	Expansion: New markets.	Achieve high growth.	MK (2) IK (1)	Slower growth in other markets. Need product development to continue to grow and develop new management structure.
MAN2	Consolidation	Improve under-performance of sales and profitability.	IK (2) PK (1)	Need new product development to continue growth.
MAN3	Consolidation	Improve under-performance of sales and profitability.	IK (3)	Focus on project management function to improve profitability.
MAN4	Expansion: Penetration of existing markets.	Continue growth.	IK (5)	Previous market expansion resulted in slower growth in existing markets. Focus on improving existing operations.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge
( ) – Number of new knowledge types

Market knowledge

Market knowledge is required by firms when entering new geographical markets. For these, MAN1 required intense effort which resulted in slower expansion in other markets. MAN1 needed increased market knowledge in the US to expand in that market, opening manufacturing and sales subsidiaries. This new knowledge acquired included both business (customers and suppliers) and institutional (local regulations and conditions). Acquiring market knowledge to set up its US subsidiary, resulted in slower expansion in other overseas markets. Thus acquiring specific market knowledge was required to open in new markets. This was more consuming of management time than had been expected and has resulted in slower expansion in other markets. This was also the case for MAN4 which required new market knowledge when it opened its US sales subsidiary previously.

Internationalisation knowledge

The most frequent area of new knowledge for these firms was found to be *internationalisation knowledge*. This includes knowledge of functions, technology, market entry mode and development methods. It was found that all firms were concerned with acquiring new knowledge about international management structure, whereby domestic and overseas managers became involved in decision-making within the firms. MAN1 recognised that it would require to re-structure again to continue its growth.

Other areas of new *internationalisation knowledge* acquired included developing overseas sales and marketing processes, project management, proposals tracking, and a franchising model. These were dependent on the specific growth and performance issues identified by each firm. After a period of expansion, MAN2 and MAN3 experienced under-performance in some area of business management, sales and profitability performance of hubs (MAN3) and sales and marketing (MAN2). To improve its sales and marketing performance MAN2 focused on developing management processes to support its sales efforts company wide. MAN3 focused on project management to improve the performance of its overseas hubs. MAN3 had taken longer to establish its overseas hubs than planned, due to longer time required with customers to explain the technology. This contributed to the sales under-performance of its hubs. Low sales and profit performance resulted in it turning its attention to increasing its internationalisation knowledge of management structure, project management, and information systems development to improve its efficiency.

After a previous period of expansion (when it opened a US subsidiary) MAN4 turned its attention to franchising and brand development to continue its growth. To support sales efforts, MAN2 and MAN4 identified new WEB design as important area where new *internationalisation knowledge* was required. This was triggered by consultancy reports produced by Scottish Enterprise recommending changes. After opening its US subsidiary, MAN4 continued its growth by turning its focus to expansion in existing overseas markets where new internationalisation knowledge was required to support the creation of franchising systems, improved brand profile, and overseas sales efforts.

Product knowledge

Only one of the firms identified product knowledge as an area where new learning was required. MAN2 created a new product development function in order to increase its product development expertise. This was done by integrating existing internal expertise within the firm with expertise acquired externally by recruiting new employees. Product development became part of its growth strategy. MAN1's market expansion strategy was based on selling existing products, however it recognised that new product development might become a strategy in the future to continue its growth. MAN3 was still working to establish its existing products based on its "tore" technology in the market place. MAN4 continued to develop new products for its wholesale and retail operations but this was not an area where new knowledge was identified a requirement for the firm's growth.

Growth opportunities and constraints

Firms increased their *internationalisation, market and product knowledge* but this depended on strategic decisions, growth phase and performance at a point in time. Internationalisation knowledge was the most frequent new knowledge needed and was acquired externally and internally. This involved for example, acquiring new knowledge on project management, franchising and sales and marketing processes. They were inter-related whereby firms converted market knowledge to internationalisation knowledge and converted specific market knowledge to other markets or general operations. *Market knowledge* was needed when firms expanded into new markets, but this was time consuming and resulted in slower expansion in other markets. Where firms under-performed attention was paid to acquiring general internationalisation knowledge. Manufacturing firms did not acquire new product knowledge where they had well developed product ranges and focused on internationalisation by developing overseas markets for existing products. However where new technology was involved new product/technical knowledge was important or where new product development became important for future growth.

5.3.3 Potential Absorptive Capacity – Acquisition and assimilation of new knowledge

Table 5.5 below shows the *potential absorptive capacity* of the manufacturing in terms of the type and sources of new knowledge acquired. The assimilation of that new knowledge within the firms and the transfer process is presented.

Table 5.5: Acquisition and assimilation of new knowledge				
Firms	*Type*	*Source*	*Assimilate*	*Transfer process*
MAN1	MK	Internal – Overseas market visits by management. External – GCDP, SE, US agencies.	US and UK management	Country visits.
	IK	External – GCDP	US and UK operational, administration and management.	Delegation to overseas managers.
MAN2	IK	Internal – Chairman as mentor. External – UK, GCDP, consultants.	Overseas and UK sales and marketing management.	UK expertise extended overseas. Shared between teams UK and abroad. Delegation to overseas managers.
	PK	Internal – UK managers. External – overseas customers and SE.	Overseas and UK – production and management.	Management share information with production team.
MAN3	IK	Internal – Create project team, senior management, overseas visits, External – Recruit overseas sales staff, UK employees, New NED.	UK management technical, commercial and project management teams and overseas sales employees.	Management meetings. Cross team working. Sharing of overseas customer information. Overseas sales employees train agents. Authority delegated in UK.
MAN4	IK	Internal – UK employees and managers. External – new overseas and UK employees, external consultants, SE.	Project teams and senior management	Internal teams work with external experts. Sales employees support agents and distributors. More formal structures. Authority delegated in UK.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

New management processes were set up by firms to enable them to acquire and assimilate new knowledge within the firm from internal and external sources. This was necessary to assimilate overseas expertise into what had previously been domestically focused head office function. MAN1 and MAN2 which have overseas subsidiaries, combined overseas and UK expertise, incorporating that expertise into UK management teams. All firms were concerned with improving the sharing of knowledge within UK teams, and increasing delegation. MAN1 and MAN2 increased delegation to their subsidiaries and MAN3 and MAN4 to UK and overseas management teams. The firms were also concerned with the assimilation of UK and overseas sales and marketing expertise. MAN3 shared the expertise through electronic reports by sales teams and MAN4 brought overseas sales employees to the UK for sales conferences. MAN1 created its first sales subsidiary in the US near an existing manufacturing subsidiary. Previously management of all sales and marketing had been retained in UK. MAN2 extended its UK expertise overseas and shared expertise between UK and overseas teams.

5.3.4 Realised Absorptive Capacity - Exploitation of new knowledge and outcomes

Table 5.6 below shows how the new knowledge areas required by firms were exploited in term of the new capabilities acquired. It shows the outcomes of these new capabilities and the new areas of knowledge and learning required to continue their international growth.

Table 5.6 Learning and outcomes

Firms	*New knowledge*	*New capabilities Transform/exploit new knowledge*	*Outcomes: Strategic decision making, performance, competitive advantage*	*Growth outcome and new learning required*
MAN1	MK	New strategy selling more to existing customers.	High growth	May need new products (PK)
	IK	Increased flexibility.	Competitive advantage.	
	IK	New business model can be replicated to other markets.	Support growth strategy.	New management structure needed (IK)
MAN2	IK	New sales model. Customer focus, sales teams have improved knowledge.	Improved sales	Extend model to all existing markets (MK).
	PK	New product development expertise.	Customer focused product development. Supports future growth	
MAN3	IK	New market information sharing system. New expertise on markets and projects.	Improved sales performance.	Improve computer information system (IK).
	IK	Better costing and planning. "sufficing"	Improved profitability and cash flow.	Improve project management expertise (IK).
	IK	New management systems.	Improved decision-making.	Manufacturing/ market entry strategy.
MAN4	IK	New sales employees, created	Improved sales in	Implement

		franchise model, higher brand profile.	existing markets support future growth	franchise model (IK). New WEB design.
	IK	New management systems.	Strategic approach to decision-making.	

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

New *internationalisation knowledge* was acquired by all firms at this phase of the firms' international growth. A new business model created by MAN1 can be transferred to other markets and allows supply flexibility which provides competitive advantage. MAN2 has created a sales model which has resulted in improved sales performance. The new company-wide customer focus strategy has been incorporated into the new product development function to support future growth. MAN3's new sales and management information sharing, and costing and planning systems, project management have resulted in improved sales performance, profitability and cash flow. New project management expertise informs future market entry decisions. MAN4 has continued its growth by improving sales in existing markets. It recruited new sales employees, created a franchise model which can be replicated to different markets and increased the brand profile. Only MAN2, the technology–intensive manufacturing firm acquired new product/technological knowledge to support its growth.

Firms identified new areas of learning that would be required to continue their internationalisation growth. Firms mainly required an increase in *internationalisation knowledge*. MAN1 will need a new management structure to extend its model to new markets to continue its growth. It may require a change in its strategy to include new product development and at that stage will require new product knowledge. As MAN2 extends its sales model to other markets, it will need to monitor performance and adapt this where it is not working. MAN3 needs to improve its computer information system and project management expertise further. MAN4 will face new challenges when it implements its franchise model and redesigns its WEB operations which will require further investment.

5.4. Technology-based internationalising firms: Cross-case analysis

This section presents the findings of three technology-based firms, TECH1, TECH2 and TECH3. TECH1 and TECH3 were international new ventures which launched their new products into overseas markets soon after they were developed. TECH2 on the other hand was established in the UK market before deciding to expand overseas as part of its growth plans. TECH1 develops optical eye testing technology and manufacturer of testing machines. It planned to expand in its main market the US and into Europe. TECH2 develops and manufactures photographic products using digital imaging technology. After several years of operating in the domestic market, it planned to grow the company by internationalising. TECH3 developed and produced medical diagnostic products. It merged with a Norwegian company. The group CEO is based in Norway and decision making responsibilities for the diagnostic business unit remained in Scotland. Cross-case analysis is presented below.

5.4.1 Prior overseas activities, initial knowledge base, triggers and responses

These are technology-based firms where scientific knowledge is embedded in the products. Although the firms had UK-based head offices, they had managers with international business experience. TECH1 had recruited a foreign CEO and TECH2's CEO had experience with an international MNE. After the merger with the Norwegian company the TECH3 diagnostics unit was run independently by internally experienced managers but made decisions fitting into the group strategy.

Manufacturing, research and development (R&D) was initially based in the UK for all firms. TECH1 used UK subcontractors, TECH2's initial manufacturing was in the UK later using overseas designers and manufacturers as part of its internationalisation strategy. TECH3 continued to undertake its R&D and manufacture in the UK after its merger with the Norwegian company and recently transferred all manufacturing to the UK from Norway to reduce costs.

The firms used different market entry modes to serve their overseas markets. TECH1 opened its first sales subsidiary in the US to service its main market when its product was launched in 1999. TECH3, on the other hand, serviced its overseas market from the UK using overseas distributors and direct contact with original equipment manufacturers (OEMs). TECH2 serviced global companies directly from its Scottish UK office by managers, technical staff and a small sales team. Employing senior sales people in London had been unsuccessful.

Growth strategy

The firms continued with their international growth strategy. Over the period, TECH1 achieved very high growth after launching its product in the US. It planned to continue its expansion in the US and Canada, and to target new European markets. It planned to raise additional funds from the public markets with an initial public offering (IPO). After initial high international growth, TECH2's sales declined and it suffered cash flow problems which resulted in a review and change of its overseas expansion strategy. It changed its business model to sell components and software rather than whole systems. As a result of research into the market during the GCDP, TECH3 sold the auto-immune part of its business and started a strategy of new product development. This resulted in partnership with a new OEM customer which contributed to its international growth.

Growth issue - Product Development, commercialisation and marketing

For all the firms, new product development through research and development was a key growth objective for the firms. However it was important for firms to increase the commercialisation of their research and improve sales and marketing aspects. TECH2 and TECH3 changed their business models to create products which had more direct market opportunities. All the firms suffered delays in the development of new products. Developing sales and marketing strategies was important for the firms. Firms developed marketing strategies or business models to improve sales operations and the way that technical product knowledge and sales and marketing knowledge were combined.

5.4.2 Types of new knowledge acquired, growth and performance

Table 5.7 shows the types of new knowledge acquired by the technology-based firms and the results of this on growth and performance. Further growth opportunities and constraints are considered. The number of items of new knowledge acquired from the different types of knowledge used by each firm are collated from the individual within-case analysis of each firm. The detailed analysis is presented in the annex to this chapter in tables 5.A.8b, 5.A.9b and 5.A.10b.

Table 5.7: Types of new knowledge, growth and performance

Firms	*Growth*	*Performance objective*	*New knowledge acquired*	*Growth opportunities and constraints.*
TECH1	Penetration in US market. Expand into new markets. Develop new products.	Achieve high growth.	MK (2) IK (2) PK (1)	Use German model to expand into to other European markets. Planning IPO to finance continued growth. Problems regarding resistance to change in US subsidiary Constrained by resource limitations.
TECH2	Penetration of existing markets. Develop new products.	Commercialise research. Improve cash flow. Increase profitability.	MK (1) IK (2) PK (1)	New business model to produce components and achieve growth through licensing. Needs more international marketing knowledge to access to new markets for further growth.
TECH3	Penetration of existing markets. Develop new products.	Achieve growth through increase technology capability and commercialisation of new products.	MK (2) IK (1) PK (2)	Further growth opportunities through new product development for EOM and through distributors. Lack of expertise within company: sales and marketing , new technology skills, regulation.

MK – Market Knowledge
IK – General Internationalisation Knowledge
PK – Product Knowledge
( ) – Number of new knowledge types

Market knowledge

The firms were concerned with acquiring new market knowledge. TECH1 required new business and institutional market knowledge to enter the German market (its first

European market). It faced different issues from its US market operations. Recruitment in Germany was difficult, and language and local knowledge were required to develop the technology applications. TECH2 acquired new market knowledge from its customers and suppliers to support its attempts to penetrate their existing overseas markets. It changed the business model to supply components and set up an overseas manufacturing license agreement in the Far East. TECH3 continued its expansion through penetration of existing markets. It acquired knowledge of customers' requirements to feed into new product development, distributors' practices and general industry knowledge to support management decision making.

Internationalisation knowledge

The internationalisation knowledge required by the firms varied. TECH1 was concerned with re-structuring the operations of its sales subsidiary in the US to penetrate the market further. Improving head office administration, for example overseas invoicing, was required to support the growth in this market. There were problems implementing changes in the US subsidiary. The firm developed a new model to expand into Germany and then other European markets. TECH2 was concerned with developing and implementing a new model of producing components and manufacturing, using an overseas licensing agreement, to increase the profitability of its operations. The new model required the firm to change its R&D focus to that of commercialising products. It used business analysis tools to monitor the impact of this change on sales and marketing performance. TECH3 experienced difficulties recruiting new senior staff and undertook a review of its human resource management (HRM) to reflect the change in responsibilities and growth in the number of employees. It introduced a management development programme to include market knowledge into business planning processes where function managers were involved in decision-making to achieve a greater market focus within the firm.

Product knowledge

All firms were involved in research and development of new technology-based products to support their growth. TECH1 needed to develop the management function of R&D to improve internal controls and manage external contractors to prevent delays in product development. TECH2, as part of its strategy to increase commercialisation of its R&D, changed its R&D operations to focus on converting ideas into sales. To reduce working capital and improve profitability, TECH2 transferred manufacturing under license to an overseas contractor but continued to manufacture some aspects in the UK to protect intellectual property (IP). TECH3 embarked on a strategy of new product development using new technologies, working closely with its new OEM customer. This required the firm to develop expertise of the new technologies and undertake more regulatory work.

Growth opportunities and constraints

All three firms continued with their growth plans through market penetration and new product development, and TECH1 entered a new overseas market. They required to increase *market, internationalisation and product knowledge.* Business and institutional *market knowledge* were required when TECH1 entered a new market. TECH2 and TECH3 were concerned with incorporating market knowledge acquired from customers into their R&D and new product development. The firms converted this market knowledge into general *internationalisation knowledge.* TECH1 created a market entry model based on its German experience. TECH2 developed a new business model with support from customers. TECH3 improved business planning and product development by integrating market knowledge into general business planning and management. Other aspects of internationalisation knowledge acquired included sales and marketing operations, head office administration, HRM, business planning and monitoring. *Product knowledge* was concerned with improving R&D management. TECH1 aimed to reduce delays in production whereas TECH2 and TECH3 aimed to increase commercialisation of R&D.

5.4.3 Potential Absorptive Capacity - Acquisition and assimilation of new knowledge

Table 5.8 below shows the *potential absorptive capacity* of the technology-based firms. It presents the acquisition of new knowledge in terms of the type and sources of new knowledge acquired. The assimilation of that new knowledge within the firms and the transfer process is presented.

Table 5.8: Acquisition and assimilation of new knowledge

Firms	Type	Source	Assimilate	Transfer process
TECH1	MK	External – UK recruited manager carried out market research.	Managers spend time in new market.	Managers based in HO communicated overseas market knowledge back to management team.
	IK	Internal – CEO.	CEO and Senior management in UK.	Integrated roles of technical and clinical staff, retrained and replaced staff, communicated changes to all staff.
	PK	External – UK recruited technical director.	Communicated to all staff.	Weekly staff lunch meeting video conference linked with US.
TECH2	MK	Internal – visits to overseas markets, customers and suppliers.	Management and technical and sales employees.	Performance management programme for all employees.
	IK	Internal – New chairman, management External – GCDP consultants.	Management team.	Shared with employees – use business analysis tools to monitor.
	PK	External – GCDP consultants Lawyers.	Management team and employees.	Re-training of employees in new product design. Change in structure, technical director focuses on selling.
TECH3	MK	External – GCDP, sales conferences, recruited sales and marketing staff.	All managers, sales and marketing staff, distributors.	Management development programme. Sales and marketing staff work with distributors.
	IK	Internal project teams. External – HRM consultants.	Internal project group created.	Consultants work with internal project group work.
	PK	Internal – Experienced project leaders, existing regulations staff. External – customers, recruit staff.	Internal project leaders. Existing employee transferred to new role to take over from retiring employee.	Project leader have new role work with technical staff across several projects. Staff work closely with customers to in new product development process. Staff learn new regulatory requirements experience of new projects.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

All firms required new *market, internationalisation and product knowledge.* They acquired this knowledge from internal and external sources, often combining them. TECH1 recruited a director responsible for the European expansion to gather *market knowledge*; external market research (*business knowledge*) and local employment conditions (*institutional knowledge)* to build a sales team in Germany. TECH3 acquired market and industry knowledge from the GCDP consultants, by attending sales conferences and recruiting sales and marketing staff to increase existing efforts. TECH2 on the other hand relied on existing managers, technical and sales staff to make visits to customers and suppliers. This market knowledge was transferred within the firms by sharing the knowledge amongst management and employees. TECH1's new European director transferred market knowledge back to UK head office. TECH2 launched a performance programme focusing on sales and marketing for all employees. TECH3 set up a management development programme, to share market knowledge amongst managers, sales and marketing staff and distributors.

TECH2 and TECH3 increased *internationalisation knowledge* by integrating external and internal expertise within the firms. TECH2 shared its new strategy with employees and monitored its implementation by using analysis tools developed with the GCDP consultants. TECH3 set up an internal project group to work with the human resource management consultants. TECH1 relied on the experience of the CEO and UK senior management to develop the new strategy. It was communicated to all staff in the UK and the US to overcome resistance to change.

A key issue for the firms was managing the new product development process and sharing *product knowledge* within the firm. TECH1 was concerned with time delays in the R&D process and recruited a technical director to manage operations. Product knowledge was shared with all staff through weekly meetings. TECH2 retrained staff and changed the roles of technical staff to support new product design using the GCDP consultant and lawyers to develop overseas licensing agreements. TECH3 used existing project leaders to develop the technical expertise to develop products for its new customers and shared this knowledge amongst the firms by working with project teams.

5.4.4 Realised Absorptive Capacity - Exploitation of new knowledge and outcomes

Table 5.9 below shows the *realised absorptive capacity* of the firms; how the new knowledge areas acquired by firms was exploited in term of the new capabilities acquired. It shows the outcomes of these new capabilities and the new areas of knowledge and learning required to continue their internationalisation.

Table 5.9 Learning and outcomes

Firms	*New knowledge*	*New capabilities: Transform/exploit new knowledge*	*Outcomes: strategic decision making, performance, competitive advantage*	*Growth outcome and new learning required*
TECH1	MK	Focus on sales rather than administration, built German sales team.	Increased growth in Germany. Will use model to open in other European markets.	Assess effectiveness of model (IK).
	IK	Stronger management team in US subsidiary, more effective sales operations. Improved head office administration support.	Achieved high growth in the US and Canada.	Need to raise finance to increase growth (IK).
	PK	Stronger team approach to R&D and improved management. Integrated R&D to whole company.	Launched new product for world-wide market.	Manage production to support increased volume (PK).
TECH2	MK	Focus on commercialisation of R&D. Combining customer input in product development.	Achieve growth in existing markets.	Need international marketing capabilities to enter new markets (MK).
	IK	New business model focuses on marketing of products to achieve scale in operations.	Less reliant on few customers.	Maintain focus (IK). Monitor impact of strategy, may need to switch back to R&D focus (IK).
	PK	Overseas licensed manufacturing, firm retains IP and increased flexibility, can switch suppliers.	Reduced working capital requirement and achieved higher margins.	Monitor Efficiency of licence manufacturer (IK).
TECH3	MK	Customer focused product development process. Closer relationship with	New business model, small product range for fewer OEMs.	Lacking marketing management expertise, no sales

		distributors.	Increase sales and profitability.	and marketing director (MK).
	IK	Improved HRM and staff recruitment.	Recruited staff to support growth plans.	But still has difficulties. Recruiting senior staff (IK).
	PK	Developed new technologies and product range. Increased regulatory work.	Met objectives for new product development.	Product development management (PK).

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

Firms identified the new knowledge that would be required to continue international expansion. The firms increased marketing capabilities by building a sales and marketing focus to achieve market growth. When it entered a new market TECH1 built a sales team, managed from the UK by a European direct, rather recruit a general manager in Germany. TECH1 planned to use this market entry model for future market expansion and would require to monitor and assess its effectiveness. TECH2 and TECH3 changed business models to develop products with greater sales potential, working closely with customers to develop existing markets. Both TECH2 and TECH3 recognised that they required new international marketing expertise to expand into new markets, TECH3 did not have a dedicated marketing director.

The firms increased their *internationalisation knowledge.* TECH1 developed and implemented a new business model which aimed to achieve scale in its operations in the longer term. The model would enable it to sell to more customers in the market place and be less reliant on a few customers. TECH3 became more profitable by reducing its product range and amount of OEM customers, focusing R&D to their needs. The experience of opening its US subsidiary meant that TECH1 realised its growth was constrained due to problems with staff in the US subsidiary. It lacked the resources to support the lengthy time it took for the US subsidiary to break-even. TECH1 developed a low cost model for expansion into Germany and decided further expansion into other markets would be financed through an IPO. TECH2 required to develop a business model to commercialise its R&D but realised it might need to increase "blue sky" R&D in the future to develop new innovative products. TECH3 had problems recruiting staff, improved human resources management (HRM) enabled it to recruit staff to support its growth, though staff recruitment and retention was an ongoing problem.

New product development was an important part of the firms' growth strategies. The firms were concerned with integrating customer feedback into the new product development. Production management was a growth issue for firms for their future expansion. TECH1 had problems with quality and delays by UK contract manufacturers which would be a production management issue for its expansion. TECH2 had protected its IP but would require to monitor the performance of its overseas contract manufacturer. TECH3's new product development had taken much longer than expected and it required to continue improving its product development management.

In conclusion, a major pattern emerging from the findings from these technology-based firms is the need to integrate marketing, internationalisation and product processes. Firms were acquiring new *internationalisation knowledge* by developing business models and management systems to link *marketing and product knowledge* to develop market focused new products.

5.5 Inactive internationalisers: Cross-case analysis

IN1 and IN2 are two firms that did not internationalise further in order to focus on the UK business. Both are service based businesses. Their main markets were domestic and they planned to internationalise as part of a growth strategy. IN1 is a UK based mobile phone repair firm. It expanded into Europe and established a subsidiary in Holland to service European customers. IN2 is a design, advertising and media company. Most of its business was UK based. It had some international business which it acquired opportunistically when it was approached by overseas firms. IN2 embarked on an internationalisation strategy due to a declining Scottish market. Cross-case analysis is presented below.

5.5.1 Prior overseas activities, initial knowledge base, triggers and responses

Both firms had prior overseas activities. IN1 serviced overseas work in the UK and owned a foreign repair subsidiary and sales office. IN2 serviced overseas work from the UK and engaged in overseas alliances. All senior management was UK based. When one of the founding directors left, the internationally experienced chairman became managing director. IN1 initially achieved high domestic and international growth. As a result the experience of under-performance of its existing subsidiary, it embarked on a strategy to continue its growth by acquiring additional foreign subsidiaries. It was not successful. It developed an extensive due diligence process and could not find suitable firms to acquire. IN1 had two options, to continue with its internationalisation strategy or to respond to changes and new opportunities in the UK market. It changed its strategy to focus on turning around the ailing UK business and de-internationalised by closing down its subsidiary. IN2 on the other hand, planned to expand overseas to counteract a falling domestic market. However it did not continue its international expansion plans. It focused on succession, management issues and domestic business opportunities fuelled by an upturn in the British economy.

Growth Strategy

Both IN1 and IN2 focused on domestic operations. IN1 de-internationalised and IN2 maintained its previous level of international business but did not expand internationally. IN1 plans to re-embark on a new internationalisation strategy to reduce production costs and expand its overseas customers. IN2 increased its knowledge of the UK market outside of Scotland and developed a new branding consultancy. It plans to continue to expand its UK market outside of Scotland but has not implemented its overseas expansion strategy.

Growth issue - Management practices, customer focus and product/service development

Changes in decision-making and internal communication were important for both firms to improve the management of the business. IN1 was concerned with changing its culture from non-participative to one of delegation and empowerment. IN2 created a new decision-making structure and staff appraisal system, and invested technology to improve working conditions for staff. These changes helped improve staff motivation in a declining and competitive market. Both firms increased UK *market knowledge*. IN1 and IN2 developed new services. IN1achieved high growth in the UK and IN2 expanded outside Scotland. IN1 developed sales and marketing processes, creating a new complete repair and customer management service for its customers.

5.5.2 Types of new knowledge acquired, growth and performance

Table 5.10 shows the types of new knowledge acquired by the firms and the results of this on growth and performance. Further growth opportunities and constraints are considered. The number of items of new knowledge acquired from the different types of knowledge used by each firm are collated from the individual within-case analysis of each firm. The detailed analysis is presented in the annex to this chapter in tables 5.A.11b and 5.A.12b.

Table 5.10: Types of new knowledge, growth and performance

Firms	*Growth*	*Performance objective*	*New knowledge acquired*	*Growth opportunities and constraints.*
IN1	Developed new product and services for customers.	Achieve high UK Growth	MK (1) IK (3) PK (1)	Opportunity to expand into overseas markets. Needs overseas low cost repair operation, as costs higher than competition.

				Limited expansion due to funding structure.
IN2	Expanded large customer base in the UK. Developed new branding service.	Achieve increase in UK market outside Scotland.	MK (1) IK (3) PK (1)	Succession plan in place. New MD brings opportunities for further UK expansion. Lack of internationalisation strategy.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge
( ) – Number of new knowledge types

Market knowledge

Both firms acquired *market knowledge* to improve the performance of the firm. IN1's turnaround involved the development of relationships with customers. From this experience it developed new products and services for its existing UK customers. IN2 opened a London office serviced initially from its Scottish office, recruited a marketing consultant in England and employed a new member of staff based in a client's office in Liverpool to work closely with clients in this region.

Internationalisation knowledge

Acquisition of general *internationalisation knowledge* has influenced the domestic operations of both firms. The experience of its unsuccessful overseas FDI influenced IN1's UK expansion. It used joint ventures rather than set up new business units. New business and management structures, developed as a result of the GCDP, have contributed to IN2's UK growth. Both firms increased knowledge to improve the general management of the businesses. IN1 changed general management practices, business culture, increased delegation, improved financial control and operational efficiency. IN2 developed internal management practices, increased delegation, improved internal communication, improved large firm procurement and negotiation competency.

Product/service knowledge

Firms acquired new *product and service knowledge* to support their growth plans. IN1 developed a complete post-sales service package and software based on customers needs. It used consultants and SE to develop the software system to support the new service. IN2 recruited a new employee to developed a new "brand" consultancy service.

Growth opportunities and constraints

The firms continue to focus on their domestic expansion. The focus of this expansion has been on increasing general knowledge to improve domestic organisation and business operations. IN1's experience of an unsuccessful overseas expansion by FDI influenced its future overseas expansion plans. IN1 is not pro-actively planning to expand into overseas markets. Future overseas market expansion will be reactive to retain its existing customers which have overseas operations. IN1 plans to invest in a low cost repair operation in Eastern Europe, as its current operating costs are higher than competitors which have already established these overseas facilities. This has been delayed due to caution as a result of its unsuccessful FDI experience. Although the IN1's investors have been supportive of the turnaround, it operates within the constraints of the investment company's focus, which is retail rather than service. IN2 continues to service its overseas business in the same opportunistic way that it did in the past and has not implemented a proactive internationalisation strategy. A succession plan is in place and the new MD brings opportunities for further UK expansion rather than international business opportunities. *Internationalisation knowledge* acquisition influenced the strategy and domestic operations of both firms.

5.5.3 Potential Absorptive Capacity - Acquisition and assimilation of new knowledge

Table 5.11 below shows *potential absorptive capacity* of the inactive internationalisers. It presents acquisition of new knowledge in terms of the type and source of new knowledge acquired. The assimilation of knowledge within the firms and the transfer process is presented.

Table 5.11: Acquisition and assimilation of new knowledge				
Firm	*Type*	*Source*	*Assimilation*	*Transfer process*
IN1	MK	Internal – market experience. External – New sales and marketing team, customers.	CEO, new management team.	Senior management communicate with middle management.
	IK	Internal – CEO External- IIP*, SE, consultants, mentor, recruited function teams.	Functional managers, middle managers, all staff.	Managers communicate to all staff, formally and informally. Training of managers, mentoring for senior team.
	PK	External – SE and consultants.	Managers and technical staff.	Staff worked with SE and consultants to develop new service and systems.
IN2	MK	External – Marketing consultant, new sales employee.	CEO, directors, management boards.	London based marketing consultant recruited to advisory board, new employee located in customer's office.
	IK	Internal – CEO, directors, management boards. External – GCDP, Advisory board, customers, consultants, trainers, lawyers.	CEO, directors, advisory board, management boards.	Expertise shared with CEO, directors and management boards.
	PK	External – Recruited employee.	CEO, Directors, and creative teams	Combined consumers and corporate branding creative teams.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge
* IIP – Investors in people consultancy

Both firms acquired *market knowledge* from external sources to help grow their UK business. IN1 employed sales and marketing staff and created a new function to develop customer relations. IN2's new market knowledge acquired from its London office, marketing consultant and new employees, is assimilated through the various board meetings at head-office and sales staff visiting the London office.

The firm combined the CEO and directors' expertise with external support to increase *general knowledge.* IN1 recruited function specialists where there were knowledge gaps and IN2 created an advisory board. Both firms used mentoring to support the senior management, IN1 by employing a consultant and IN2 through the advisory board. Scottish Enterprise, the GCDP, external consultants and trainers were used by the firms to acquire new management expertise. An important part of the change in management practices was increasing delegation and participation in decision-making to middle managers and junior members of staff for both firms.

The firms increased their *product knowledge* to develop new services. IN1 identified customers needs and developed new product and services. Technical staff and managers worked with Scottish Enterprise and consultants to acquire the new knowledge to provide the service. IN2 employed a new team leader and combined consumer and corporate teams to combine branding expertise and create a new consultancy service.

5.5.4 Realised Absorptive Capacity - Exploitation of new knowledge and outcomes

Table 5.12 below shows the *realised absorptive capacity* of the inactive internationalisers; how new knowledge acquired by firms was exploited in terms of the new capabilities acquired. It shows the outcomes of these new capabilities for the firms. New areas of knowledge required for future domestic or international growth and new learning requirements are discussed.

Table 5.12: Learning and outcomes				
Firms	*New knowledge*	*New capabilities Transform/exploit of new knowledge*	*Outcomes: strategic decision making, performance, competitive advantage.*	*Future growth and new learning requirements*
IN1	MK	Develop a customer focus throughout firm.	De-internationalise to focus on domestic market.	Cautious planning overseas expansion due to past experience (MK/IK).
	IK	Change in business culture, empowerment, devolved decision making and delegation.	Achieve high UK growth.	Firm needs new knowledge to resume internationalisation to enter new markets and establish production facility (IK).
	PK	Develop new services and diagnostic software to support services.	New service allows firm to address a much bigger market.	
IN2	MK	Opened sales office in London and new employee based in Liverpool.	Focus on expanding in English market, targeting large firms.	Non-internationalisation due to focus on UK market and lack of commitment to overseas expansion (IK).
	IK	New decision-making, management and team structure and succession plan in place. Improved staff motivation through changes in internal communication and work environment	Increase UK business outside Scotland. Specialist teams competing in wider UK market than smaller local design firms.	Develop business to gain market strength and protection against erosion of profits by customers (IK).
	PK	Develop new "branding" service.	New service supports domestic expansion	

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

Both firms have expanded in the UK market and have acquired new *market knowledge.* IN1 developed a customer focus which resulted in new services being developed allowing it to address a bigger market. It has met the needs of expanding customers which has resulted in rapid UK growth of the firm. IN2 has increased its market commitment in England by recruiting new staff and opening a sales office. This is reflected in the succession plan. IN2's new managing director has market knowledge of English firms. There is no increased commitment to overseas expansion.

IN1 plans to enter international markets again though it is been cautious due to its previous FDI experience. It plans to acquire more extensive market knowledge this time, employing local senior management. It plans to resume its international expansion by acquisition rather than set up a production facility run from the UK as it did before. Its previous overseas location was chosen to service overseas customers, as it was close to the UK. IN1 plans to establish overseas production facilities to reduce costs and retain is competitive position. As result of its unsuccessful FDI, it has learnt to chose a location which offers advantages to the firm.

As a result of acquiring internationalisation knowledge both firms have improved the management structures, decision-making processes, delegation, motivation of staff and communication to support the UK growth. New *market knowledge* has been acquired and was important for firms to develop new products and services to support the growth.

Maintaining profitability is a challenge for both firms as they continue to expand. IN1 has the challenge of entering new markets and establishing overseas production facilities to continue its growth. IN2 has successfully targeted large clients but is suffering from pressure to reduce its margins which have eroded profitability due to market power of its large clients. This resulted in the CEO being heavily involved in contract negotiation and procurement with large customers. Both IN1 and IN2 did not pursue a strategy of overseas expansion in order to focus on the UK business. IN1 withdrew from overseas markets and closed it production facilities as it was not performing well. IN1 is aware that to maintain its growth and competitiveness it requires to open a low cost production facility overseas and open a sales operation in Europe to service its international customers. Its overseas expansion has been constrained as the firm has been cautious as a result of it previous unsuccessful experience. As a medium sized firm, it has found a lack of support available from both the public and private sector to help with its planned international expansion and medium to large firm growth in general. There was a lack of expertise in private sector consultants for medium sized companies that require very specialist knowledge. Support seemed focused on smaller firms and technology start-ups.

IN2 succeeded in increasing the level of business outside Scotland but has not expanded internationally. IN2 continues to service overseas business reactively (about 20% of total sales) and has not implemented a strategic approach to international expansion. It reduced its commitment to internationalisation due to an upturn in the English market and management attention has been focused on internal succession planning and management issues. The firm focused on domestic problems, which threatened future viability, rather than on international strategy.

These firms embarked on the GCDP to help them internationalise. Both firms faced challenges and problems in their UK markets which resulted in firms focusing their attention there. The firms have limited managerial capacity to deal with both challenges at the same time. IN1 found there is a lack of specific public and private sector support to help it acquire new markets, internationalisation and product knowledge. This has contributed to the delay in resuming international activities. IN2 did not implement its international strategy developed on the GCDP. There was a lack of commitment by senior management as they focused on domestic issues.

5.6 Cross-case learning processes

This section presents a discussion of the learning processes across the different groups of firms and highlights the differences between the groups. This discussion uses the absorptive capacity framework; the types and sources of knowledge, the assimilation and transfer processes, the exploitation of new capabilities and outcomes of the new knowledge.

5.6.1 Types and sources of new knowledge

Table 5. 13 summarises the types and sources of new knowledge used by firms across all groups. The three types of new knowledge; *market, internationalisation and product/technological* acquired by the firms are discussed below. These were often inter-related and are explained fully in the discussion below.

Table 5.13: Types and sources of new knowledge							
Firms	*KB, KI, T*	*Market Knowledge*		*International Knowledge*		*Product/Technological Knowledge*	
		I	E	I	E	I	E
SU1	KI	√	√	√	√		
SU2	KB	√	√	√	√	√	√
SU3	KI	√	√		√	√	√
MAN1	T	√	√		√		
MAN2	KI			√	√	√	√
MAN3	T			√	√		
MAN4	T			√	√		
TECH1	KB		√	√			√
TECH2	KB	√		√	√		√
TECH3	KB		√	√	√	√	√
IN1	KI	√	√	√	√		√
IN2	T		√	√	√		√

KB – Knowledge-based firm
KI – Knowledge-intensive firm
T – Traditional firm
I – Internal sources
E – External sources

Market knowledge

Firms were involved in acquiring new business and institutional *market knowledge* when they entered new overseas markets. The start-up firms acquired market knowledge to establish and build overseas relationships, adapt new products for the overseas markets and gain market presence. Entering new overseas markets required intense effort by the manufacturing firms and one technology-based firm, resulting in slower expansion into other markets. As a result, the firms continued to grow through penetration in the new market or existing overseas markets. For example, MAN4 found entering the US market to be more time consuming and costly than expected. It planned to enter other markets once the US became profitable. TECH1 developed a new low cost market entry model for Europe as a result of the time it had taken to enter the US market and to break-even, and problems it experienced with its US subsidiary.

Where the manufacturing firms had under-performed overseas there was a period of consolidation before continued expansion. This resulted in the focus on internationalisation knowledge rather than market knowledge acquisition, and the conversion of specific *market knowledge* to *internationalisation knowledge* and management know-how. For example, MAN3 improved overseas project management skills, MAN2 developed world-side sales and marketing processes, and MAN4 developed an overseas franchising model and improved WEB design. Only MAN1 was concerned with continued acquisition of market knowledge as it opened a new US subsidiary.

The technology-based firms were concerned with the acquisition of market knowledge to develop and commercialise new products and adapt existing products to support growth. For example TECH1 embarked on market research to adapt the product for the European market and TECH3 worked with customers to develop new a new product range. SU2 was concerned with adapting its aviation technology for the US market and global markets.

Inactive internationalising firms acquired *market knowledge* of UK customers to develop new products and services resulting in high domestic growth for IN1 and entering new UK regional markets by IN2.

Internationalisation knowledge

Acquiring *internationalisation knowledge* was important (and the most frequent new knowledge) for all firms. Some firms were concerned with how to manage and improve overseas partnerships and relationships. This included legal aspects (SU2), licences, overseas contract manufacturers (SU3, TECH2), distributors and agents (TECH3, MAN2).

As firms grew internationally both traditional and knowledge based/intensity firms, acquired new *internationalisation knowledge* of how to improve management structures and delegation in order that both UK and overseas managers became involved in decision making within the firms. MAN1, MAN2 and TECH1 restructured the management function and established delegation in their overseas subsidiaries. MAN3 and MAN4 increased delegation in the UK. Firms acquired knowledge to improve UK management functions for example TECH1 improved head-office administration, MAN3 a marketing information system. The inactive internationalisers acquired knowledge to improve communication, delegation and decision making in the UK.

The firms also acquired specific functional knowledge, MAN3 acquired new *internationalisation knowledge* of international project management, MAN2 of the management of overseas sales and marketing processes and TECH 3 reviewed human resource management practices.

Internationalisation knowledge was important for expansion when firms embarked on new market entry modes within existing or new markets. For example MAN4 acquired international franchising knowledge to continue expansion in its existing European markets and TECH1 devised a new low cost market entry mode to enter European markets for the first time as a result of its US subsidiary experience.

Product/technological knowledge

Most companies, except the manufacturing firms and a service start-up, acquired new *product knowledge.* The start-up firm, SU1, developed a service to supply existing products by its UK partners to overseas academic institutions and was not concerned with new *product knowledge* at this stage. The two other start-up companies SU2 and SU3, were developing new innovative products to launch the new ventures. The start-up firms had prior product and market knowledge they brought to the new ventures from previous businesses and the products were initially developed based on this knowledge. The technology-based firms were involved in research and development of new technology products to support their international growth. Improving the efficiency of R&D, commercialisation and profitability of the ideas was an area of new knowledge acquired by the firms. *Product knowledge* was combined with *internationalisation knowledge* acquisition. For example, TECH1 needed to improve the management UK sub-contractors. Another firm, TECH2 transferred manufacturing under licence to overseas contractors to reduce costs, acquired knowledge on how to protect its intellectual property and set up a licence agreement. The technology-intensive manufacturing firm, MAN2 was concerned with acquiring new product expertise and created a new product development function to combine product and market knowledge. The traditional manufacturing firms had well defined product ranges and focused on developing overseas markets for existing products. MAN4 continued to introduce new consumer products from its existing knowledge base but did not require new expertise. The inactive internationalisers identified and acquired new product or service knowledge to develop new products and services to support their UK expansion. For IN1 the new service and technology developed was the main source of it domestic growth and business turnaround.

Sources of knowledge

Firms acquired new knowledge from both internal and external sources. New knowledge was acquired internally from individuals and groups within the firm, for example, creating cross functional project groups, CEO prior expertise and experientially thought visits to overseas markets. All firms combined these internal sources with external knowledge sources from the UK and abroad such as suppliers, competitors, customers, local community, government sources, published reports, partnerships and the recruitment of new employees with knowledge and experience. Combining internal and external knowledge sources was the most common knowledge source. There were some occasions where firms used only external sources of new knowledge and there were very few occasions when firms only used internal, experiential sources of new knowledge.

Most firms used both internal experiential and external sources to acquire *market knowledge*. The start-up firms were most concerned with acquiring new market knowledge from both internal and external sources. They combined experiential market knowledge from operating in and visiting overseas markets, with external expertise by recruiting sales and marketing staff, accessing UK government support and overseas networks, consultants and other advisers and published sources. Only one manufacturing firm, MAN1 acquired new market knowledge as it expanded into a new region in the US. It acquired new market knowledge of the different US states experientially by its UK senior managers visiting the market, to develop its new US sales subsidiary and used external sources from US local agencies and Scottish Enterprise. Two of the technology-based firms recruited staff externally to acquire *market knowledge* to increasing the sales and marketing expertise within the firms (TECH3) or to carry out market research (TECH1). The aim was to integrate the new market knowledge into the firm. TECH2 however, acquired market knowledge experientially.

All firms acquired *internationalisation knowledge,* mainly by combining internal and external sources knowledge. This involved firms combining internal expertise from both management and employees with external sources of knowledge from the GCDP, consultants, partners, recruiting new management, training staff, mentors, Scottish Enterprise and other public sector support. Only one, firm TECH1 used only internal knowledge. In this case the CEO and management relied on their previous experience and did not acquire external help to advise on problems with the management of the US subsidiary. Acquiring new *internationalisation knowledge* was very important for manufacturing firms, whereby they used external sources to support the development of overseas operations. For two firms MAN2 and MAN3, this was important to improve the performance of overseas operations where they had experienced poor profitability. The inactive internationalising firms used both internal and external sources to improve the general management structures and procedures of the businesses. For example, a CEO with international experience was recruited to turnaround IN1 and a new external advisory board was created by the CEO in IN2.

Where firms required new *product/technological knowledge* they acquired it externally, sometimes combining it with internal sources of knowledge acquired by staff experientially. The firms acquired the new knowledge from the market, working closely with customers to develop the new products. To acquire technical and specialist knowledge externally, firms sourced market and industry reports, expertise from local networks, consultants, Scottish Enterprise and recruited employees. The inactive internationalisers acquired new *product knowledge* externally to develop new products and services for the domestic market. IN1 acquired technological knowledge from SE, and consultants. IN2 recruited a specialist in "branding" to set up a new service.

5.6.2 Assimilation and the transfer process

The CEOs and top management teams were very important to the assimilation of the new knowledge within the firms. The transfer process involved sharing new knowledge internally amongst functional, technical and commercial managers, project teams, overseas managers, and overseas sales employees. Sharing knowledge and communicating with middle managers and all employees was important as firms grew and became medium-sized for both internationalising and inactive internationalising firms. For example, one firm is run collectively so that all information is shared and teams are informed, ensuring that one person does not have all the knowledge in a particular area. Thus it was important that firms made tacit knowledge explicit through knowledge sharing. The assimilation of tacit and explicit knowledge is presented in table 5.14.

Table 5.14 Assimilation of tacit and explicit knowledge

Tacit/explicit Knowledge	*Market Knowledge*	*Internationalisation knowledge*	*Product/technological Knowledge*
Tacit knowledge	Country visits. Working closely with agents and distributors. Location of staff in customers' offices. Sales employees support agents.	Visits overseas to subsidiaries. Mentoring. Cross-team working. Combining internal and external project teams. Management boards.	Create project teams. Cross team working and transfer of project team leaders. Combining internal and external project teams. Visit and work with customers.
Explicit knowledge	Seminars for staff and customer. Production of marketing materials by CEO for sales employees. Train agents and partners.	Train staff in management and delegation. Business analysis tools. Create management boards/ formal management structure. Employee seminars and presentations.	Retrain technology staff. Creation of product development function. Management shares information with product development team.

Sharing *marketing knowledge* involved a two-way process of firms' assimilating market knowledge from and transferring knowledge to overseas sales employees to support their activities. The CEO of SU2 developed marketing materials for the new overseas sales team from his experience. Internal marketing information systems and formal structures were developed to transfer overseas market information to management and project teams, for example manufacturing firm, MAN3 set up a company wide computer information system.

Firms worked closely with overseas agents, distributors and partners to share knowledge to support overseas activities. SU1, MAN4 and TECH 3, recruited and trained sales employees to support overseas agents and distributors. Firms brought partners to the UK for meetings and conferences and visited overseas markets regularly. Inactive internationalising firms shared market expertise through improved communication and regular management and team meetings.

Internationalisation knowledge sharing was similar within the different groups of firms and there were some cases of issues being important across the groups. The start-up firms were concerned with learning how to manage overseas partners and transferring knowledge to these firms. This involved presentations to partners, regular visits and providing high levels of support for the partners. One start-up firm, SU2 provided sales training for its US partner and another start-up, SU3 providing hands on consultancy to help an importer market to UK retailers. The manufacturing firms set up formal management systems and increased delegation to UK and overseas operations to share knowledge. Firms shared UK head office expertise and knowledge with overseas employees. This was supported by firms making frequent visits to their overseas markets. The managers worked closely with the management teams in the overseas sales subsidiaries. Knowledge was shared in the UK through cross-team working and project groups were created. The technology-based firms were concerned with increasing *internationalisation knowledge* to manage sales operations abroad, improving monitoring of sales and marketing processes. For example, this involved TECH1 communicating regularly with staff in the UK and abroad by weekly conferences to share reasons for changes in procedures and strategy. Inactive internationalising firms shared knowledge by improving communication with all staff, increasing delegation and participation in decision making. IN1 used a consultant as a business mentor, which he shared with other senior managers, to help them implement changes in order to turn-around the firm. Managers had access to consultants and were trained in communication skills to support the knowledge sharing.

Product/technological knowledge was shared by firms to integrate new external and internal technical, product and market knowledge. New knowledge from customers and suppliers was absorbed to support new product development. Firms often made regular overseas visits to customers and suppliers to develop new products. The formal assimilation of new *product knowledge* involved the creation of internal project teams, combining internal staff and external consultants, retraining of staff, changing product development function structure to facilitate the assimilation of existing expertise within the firm.

Barriers to the assimilation of new knowledge - Inertia

Two firms, an INV and an incremental internationaliser, experienced problems assimilating the knowledge. This resulted in the firms engaging in processes to communicate this knowledge throughout the firm to overcome inertia. Resistance to change resulted in staff leaving the firms. For example, TECH1 (an INV) had problems implementing a new strategy and technological changes in its US subsidiary. It held weekly conferences for all staff video linked to its US subsidiary to improve communication. Technical directors and project leaders were appointed, and staff were trained in new technologies, others were encouraged to leave the firm. IN1 changed its international acquisition strategy to develop the domestic market, this resulted in one of the founding directors leaving. The new CEO improved communication throughout the company and implemented changes in management style and culture to support the company's turn-around and growth plan.

Further constraints experienced by firms are considered below in section 5.7.

5.6.3 Exploitation and outcomes of new knowledge

Firms exploited the new *market, internationalisation and product knowledge* by acquiring new capabilities which resulted in changes in how things were done and problem solving. These in turn influenced firms' strategic decisions, competitive advantage and performance. The new knowledge and capabilities gained, and outcomes in terms of competitive advantage and firm performance are summarised below in table 5.15.

Most firms increased their performance as a result of the learning. Performance was mostly focused on sales growth, with some firms combining both sales and profits. However three firms MAN2, MAN3 and TECH2, after a period of international growth, experienced falling profitability (and cash flow problems for MAN3 and TECH 2). These firms focused on profitability rather than sales growth and are shown in bold in table 5.15. Performance is discussed further in section 5.6.4. How the firms exploited the new market, internationalisation and product knowledge and the outcomes are now considered below.

Table 5.15: New capabilities, competitive advantage, performance

Firms	*New Capabilities*	*Competitive advantage*	*Performance Objective*		*Performance Outcome*
			Sales Growth	Profit	
SU1	Sales team build relationship with partner (MK). New business model of strategic partnerships (IK).	Larger more profitable projects.	√	√	Increased International sales
SU2	Greater knowledge of world-side market (MK). Established US partnership (IK). Launch/adaptation of product in UK and US (PK).	Market entry in US. Created world-wide product.	√		Starting-up
SU3	Establish relationships with UK importers (MK). Create overseas manufacturing alliances (IK). Incorporate electronic technology in garment design (PK).	Created new technology product to launch firm.	√	√	Starting-up
MAN1	Expansion in US (MK). New operational model and market entry mode (IK).	Increased supply flexibility.	√		Increased International Sales
MAN2	New world-wide sales model (IK) Integrated product development (PK).	Efficient sales model. Customer focused product development.		√	Decreased international sales. Increased profitability.
MAN3	Market information system, project management capabilities and management decision making system (IK).	Expertise in overseas processing.		√	Decrease in international sales. Increased profitability.
MAN4	Sales team supports agents, new franchise model, management systems (IK).	Sell a large product range globally.	√		Increased International Sales.
TECH1	Market knowledge of German market (MK). New market entry mode (IK).	Adaptation of product for world-wide	√	√	Increased International Sales.

	Improved management of operations (IK). Integrated R&D (PK).	market.			
TECH2	Customer focus products (MK). New business model focused on commercialisation (IK). Overseas manufacturing alliances (PK)	New model enables product development, targeted to larger volume of customer.		√	Decreased International sales and Falling profitability.
TECH3	Customer focused R&D (MK). Improved HRM (IK). Developed new technology capabilities and product range (PK).	Larger volumes of smaller and more profitable product range.	√	√	Increased international Sales.
IN1	Customer focused new product development (MK). New business culture and decision making (IK) New service and technology developed (PK).	One of market leaders in provision of complete customer service.	√ Domestic		Increased Domestic Sales.
IN2	Market presence in other UK regions (MK). Improved decision making and management structure (IK). New service (PK).	Market leader in Scotland and growth in the rest of the UK	√ Domestic	√	Overall sales maintained. Increased Regional Sales.

MK – Market Knowledge
IK – Internationalisation Knowledge
PK – Product Knowledge

Market Knowledge

New *market knowledge* resulted in the start-up firms acquiring and building close relationships with overseas partners, customers, suppliers, manufacturers, distributors and agents. For example, increased knowledge of overseas markets helped SU2 to raise its profile in the US, and SU1 to develop larger scale strategic partnerships in overseas markets. MAN2 developed customer-focused sales models and processes throughout the firm which could be transferred to other markets. Customer-focused product development processes were created to support future growth by the technology-based firms. This *market knowledge* resulted in new product development, whereby TECH2 and TECH3 focused on commercialisation of new ideas. New *market knowledge* enabled TECH1 to develop and launch the product into the German market. Overall, the new *market knowledge* enabled firms to increase international sales by penetrating existing or entering new overseas markets. Inactive internationalising firms formed domestic partnerships, developed customers and sales focus and increased sales operations in the UK. IN1 developed a new customer focused service which enabled it to provide a complete post sales service to meet the needs of expanding customers. IN2's new *market knowledge* acquired from its London office and regional employee, enabled it to increase its proportion of UK sales outside of the Scottish market.

Internationalisation knowledge

Increases in *internationalisation knowledge* resulted in improved management of the firms, for example strategic approaches to decision making and new management systems were introduced. MAN3 changed its management reporting and created a market information sharing system. There was improved project management and planning, costing and control which resulted in improved cash flow and profitability. MAN4 created a management information system which enabled improved strategic decision making.

TECH1 built a stronger team in the US and achieved high growth in the US and Canada. TECH3 reviewed its human resources function and implemented changes which enabled it to improve human resources management and recruit more staff to support its growth. Inactive internationalising firms' changes in management practices supported their UK growth. Improvements in management in IN1 supported its high growth with the introduction of new technology to develop a new service for existing and new customers.

New *internationalisation knowledge* enabled firms to develop strategies which enabled them to compete world-wide. For example, MAN1 increased supply flexibility giving it a competitive advantage over large firm competitors, resulting in increased sales. New strategies were often developed from specific market knowledge. MAN2 created a new customer focused sales model for its distributors and agents in the US which was replicated world-wide. This resulted in improved international sales. SU2 and TECH2 developed intellectual property protection strategies. New market entry models were developed that could be applied to new markets and existing markets. MAN4 developed a franchise model to help it penetrate existing overseas markets. However strategies were influenced by a firm's performance. As a result of cash flow problems, TECH2 created a new business model to enable it to achieve profitability through scale of operations and less reliance on few customers.

Product knowledge

New *product and technological knowledge* enabled firms to develop new innovative products. The start-up firms used new *technology knowledge* to develop, adapt and launch products to meet world-wide customer needs. SU2 developed its technology to create a new aviation product in the UK and adapted it to target the world-wide market. SU3 applied technological innovation to clothes manufacturing to create new added value products.

Integrating R&D company-wide was important for some firms. MAN2's new company-wide customer focus strategy was incorporated into a new product development function to support future growth. TECH1 created a team approach to integrate R&D into the whole company. This enabled it to launch new products for the world-wide market.

TECH2 created a new flexible manufacturing model with the use of overseas licensed manufacturers enabling it to reduce working capital requirements and achieve higher margins. When TECH3 disposed of its mature product range, it acquired new *technological knowledge* which enabled it to develop a new product range to support its strategy of new product development. This resulted in the growth of the firm. IN1 acquired new *technological knowledge* to develop the new service and technology to meet changing customer needs.

5.6.4 Summary - Cross case patterns

Acquisition

The types of knowledge acquired was influenced by the problems, opportunities and decisions facing firms as they internationalise. The start-up firms, which were in the early stages of internationalising, were concerned with acquiring *market knowledge* to establish overseas relationships to help them enter new markets. *Product/technology* *knowledge* was important where firms were developing new products and *internationalisation knowledge* was acquired to help them to build and maintain relationships. The manufacturing firms were mainly concerned with acquiring *internationalisation knowledge* to help them develop new business and market entry models to expand in existing markets and enter new markets. Internationalisation knowledge was important where, after a period of high growth, firms focused on improving efficiency and profitability to sustain previous growth, rather than continued sales growth. New market knowledge was less important in these cases. Similarly, product knowledge was not acquired for international growth, where traditional manufacturing firms had well established mature products. The technology-based firms acquired all three types of knowledge, acquiring internationalisation knowledge to integrate market and product/technology knowledge to commercialise technology through new product development and to enter new markets. The technological-intensive manufacturing firm and start-ups, were also concerned with integrating market knowledge to develop new products. The inactive internationalisers acquired all three types of knowledge to turnaround the firms in ailing domestic markets.

A key finding across all cases is the importance of acquiring knowledge externally. This enabled firms to acquire market knowledge at a faster pace than by acquiring knowledge experientially. For example only one firm, TECH2 did not acquire market knowledge externally and it not achieve rapid internationalisation. Internationalisation knowledge helped firms recognise the need to increase management capabilities and change organisational and decision making structures to support international growth and develop new market entry modes. The acquisition of technological knowledge from external sources was important for all firms engaged in R&D and innovation.

Assimilation

Across all firms the assimilation of new external and internal knowledge within firms was important in the development of absorptive capacity. The development of formal processes by firms to assimilate market and product knowledge was an important aspect of internationalisation knowledge for the technology-based/intensive firms. It was important for all groups of internationalising firms; start-ups, manufacturing and technology-based firms, to work closely with their overseas agents, distributors and partners. Inactive internationalisers worked closely with customers to develop new products, services and markets. Most firms acquired internationalisation knowledge by combining internal and external expertise. Although much of the external knowledge was acquired from participating in the GCDP, firms also acquired this knowledge through other sources such as mentoring, training and consultancy. Only one firm, TECH1 relied on management experience of the US subsidiary operations and did not source external knowledge. The problems took much longer to resolve than expected and delayed the firm's expansion into other markets.

Exploitation and outcomes

Table 5.15 above shows how firms exploited the new knowledge in terms of new capabilities gained, and the results of this learning on competitive advantage and performance. Most firms achieved increased growth and improved performance as a result of the learning. Five firms, SU1, MAN1, MAN4, TECH1, TECH3, increased international sales and MAN2 and MAN3 improved profitability. The start-ups, SU2 and SU3, had established overseas activities. The inactive internationalisers improved their domestic performance. IN1 increased its domestic sales and IN2 increased its market position in the UK maintaining sales in a falling Scottish market. Only one firm, TECH2 did not improve its international performance. This firm had knowledge gaps in international marketing and it did not acquire this knowledge externally to support its internationalisation. It seems that relying only on the experiential acquisition of market knowledge was not sufficient for rapid international growth. To achieve international growth it was important that firms maintain a focus on sales growth. Where focus was only on profitability, international growth declined, however it may be important for SMEs, with resources constraints, to forsake growth in the short term to support future growth.

5.7 Constraints to internationalisation

The analysis above shows the constraints and problems experienced by internationalising SMEs. Table 5.16 summarises the growth constraints faced by all the firms. The nature of these constraints and implications for firm learning are considered below.

Table 5.16 Constraints faced by firms

Firms:	*Constraints: Management and financial resources*	*Constraints: Market*	*Constraints: Product and technological*
SU1	Delays recruiting Scottish university partners.	Commitment of UK partners to project.	
SU2	Internal competition from other projects.	Delays developing US partnership due to legal liability contractual aspects and internal personnel changes in partners.	
SU3	Lengthy process to raise finance. Resistance to change by management team in previous business.	Time spend in UK market development.	Lengthy time spent in product development
MAN1	Capability to enter one new market at a time. Next growth phase needs new management structure		
MAN2	Need to develop product development function to continue growth. Lack of delegation to overseas subsidiary.	Increased global competition.	Problems recruiting technical director and engineers for UK manufacturing.
MAN3	Lack of internal skills in overseas project management resulted in poor profitability. Need improved information system. Cash constraints and reluctance to acquire external finance.		
MAN4	Limited managerial capacity means new market entry resulted in slower growth in	Increased global competition.	Difficulties recruiting designers and engineer for UK manufacturing

	existing overseas markets.		operations.
TECH1	Market expansion limited due to management and financial resources constraints. Internal resistance to change.		Lack of ability of Scottish subcontractors to meet quality and capacity.
TECH2	Limited financial resources means firm must focus on commercialisation rather than R&D. Limited international marketing expertise within firm.		
TECH3	Inexperienced management team. Staff recruitment difficulties. No sales and marketing director.		Lengthy product development process. Difficulties recruiting technical staff.
IN1	Overseas expansion constrained by firms' caution as a result of previous failure. Investment preferences of shareholders.	Changes and increased competition in the domestic market.	Lack of technical consultancy expertise and public sector support for medium sized firms in Scotland.
IN2	Lack of management commitment and strategic approach to international growth.	Erosion of profits due to market power of large firms.	

Constraints to internationalisation

The constraints to international growth experienced by firms were found to be due to a lack of management and financial resources, external market conditions and product/technological resources. International expansion by all groups was most frequently limited due to lack of management capacity, capability and financial resources. This resulted in a limited number of markets that firms could expand into at a time.

Entering new markets was lengthy and costly, and resulted in firms restricting overseas expansion to one new overseas market at a time. Firms had limited managerial capability and were, as one CEO commented (MAN1) "only able to fight on one front at a time". Opening in a new market also resulted in slower expansion in existing markets. The managerial and financial constraints resulted in the inactive internationalising firms abandoning their overseas expansion to focus on an ailing UK market. The larger firms, the manufacturing firms in particular, were limited by their organisational capabilities and structures as they grew, and acquiring internationalisation knowledge to improve management capabilities was a major focus of the GCDP. In addition, two technology-based firms (TECH2 and TECH3) did not have dedicated marketing directors and did not acquire this expertise externally by recruiting, thus leaving gaps in their marketing knowledge.

Some firms, but not all, experienced constraints due to market conditions. Increased global competition was a constraint to growth in two manufacturing firms (MAN2, MAN4). Time taken in negotiation and developing relationships with overseas partners caused delays in internationalisation for the start-ups. Adverse market conditions in the domestic market resulted in the inactive internationalisers abandoning overseas expansion to focus on the UK business. External market constraints were not found to be constraining the growth of technology-based firms.

Where expansion involved new product development, this often took longer than expected. The technology-based/intensive firms suffered constraints due to delays in R&D and new product development, and problems with suppliers and partners. Firms (particularly technology-based/intensive) had problems recruiting technical staff and thus were constrained when acquiring external technological knowledge. The inactive internationaliser (IN1) had difficulty acquiring external consultancy advice of sufficient quality, in particular for technical expertise, as it grew domestically.

Barriers to learning

These constraints have implications for firms' learning. Barriers to learning are considered in terms of absorptive capacity; acquisition, assimilation, exploitation of new knowledge. Barriers to learning resulted from the lack of availability and inability of the technology-intensive or technology-based firms to recruit external technological expertise. They had difficulties recruiting technical managers and accessing consultancy. Acquiring *marketing knowledge* was constrained where these firms did not have or did not recruit specialist marketing staff.

The GCDP was a source of *internationalisation knowledge*, however firms needed to review and change organisational structures and systems to continue their international growth. Lack of reporting systems were barriers to firms assimilating knowledge. Two firms (TECH1 and IN1) experienced resistance to change by staff which constrained new knowledge assimilation and organisation learning. There was resistance to change by overseas employees in a technology-based INV (TECH1) and an inactive internationaliser (IN1) which resulted in employees leaving the firms. Inertia in the firm was one of the main reasons the clothes manufacturer was put into liquidation by the CEO and the new firm (SU3) was started.

The Global Companies Development Programme aimed to help firms learn about internationalisation. It was a source of new *market, internationalisation and product* knowledge and helped firms exploit new knowledge by devising an action plan and internationalisation strategy. An importance part of the new internationalisation knowledge acquired was creating management systems and structures to enable firms to assimilate the new product and market knowledge acquired. Firms developed this expertise from combining managerial experience with external advice, of which the GCDP was one source. Limited managerial and financial resources are the main constraints and reason that firms were not able to exploit new learning. Inability to acquire external technological knowledge and expertise was a constraint for technology-based and intensive firms and the GCDP had little impact in helping firms acquire that expertise.

5.8 Summary

This chapter has presented the learning processes involved in SME internationalisation. It highlights the differences within and between the different groups of firms: start-ups, internationalising manufacturing firms, technology-based internationalising firms and inactive internationalisers. The analysis is presented using a framework based on a firm's absorptive capacity; the acquisition, assimilation and exploitation of new knowledge. The research examines the prior knowledge and opportunities and constraints facing firms as they internationalise. Findings suggest start-up firms were concerned with building relationships, using networks and market development. Internationalising manufacturing firms were concerned with improving management structure and operations to support the growth. Technology-based internationalising firms focused on product development and commercialisation of research and international marketing. Inactive internationalisers focused on improving management practices, developing a customer focus and new products/services. The different objectives have clear implications for types of knowledge developed and learning processes and are discussed more deeply in the discussion and conclusions which follow.

Findings suggest that all three types of knowledge; *market, internationalisation and product/technological*, were acquired depending on decisions facing firms at the time. *Internationalisation* knowledge was the most frequent new knowledge needed. This was knowledge which is *specific* to the internationalisation process or *generic*, which is applicable to overseas and domestic operations. Firms combined external, internal, experiential and objective sources of knowledge. To increase absorptive capacity it was important for firms to create internal procedures and systems to convert tacit and individual knowledge to explicit and shared knowledge. It is important for firms to recognise what they don't know and develop internal learning processes. The knowledge acquired is often firm specific to the individual company. *Internationalisation knowledge* is often developed from market and product knowledge. Learning was constrained by the lack of expertise within firms, and their inability to acquire this expertise by recruiting staff or acquiring external advice. New knowledge resulted in new capabilities, improved problem solving and decision making, the creation or sustaining of competitive advantages and improved performance.

Chapter Five - Annex

Findings – Individual within-case analysis

5.A.1 Introduction

This section presents the individual within-case analysis of each firm, case by case. The analysis of each case study is presented following the three themes identified in the research:

A. Prior overseas activities and initial knowledge base, triggers and responses
B. Absorptive capacity and learning
C. Outcomes: strategic decisions, performance and competitive advantage

The annex is structured as follows:

5.A.1 Introduction
5.A.2 Case SU1
5.A.3 Case SU2
5.A.4 Case SU3
5.A.5 Case MAN1
5.A.6 Case MAN2
5.A.7 Case MAN3
5.A.8 Case MAN 4
5.A.9 Case TECH 1
5.A10 Case TECH2
5.A.11 Case TECH3
5.A.12 Case IN1
5.A.13 Case IN2

The analysis of each case is presented in tables a, b and c, following the three themes outlined above.

5.A.2 Case SU1: International start-up

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.1a presents the prior overseas activities, initial knowledge base, triggers, responses of the firm.

Table 5.A.1a: CaseSU1 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
SU1	University head office function. CEO/academic with experience of overseas partnerships.	IK	Developed start of international business within university. Aimed to extend to include other Scottish universities.	Spun-out of university to grow. Recruiting other partners to join.
	University had 30+ international partners.	MK	Develop overseas partners and revenues.	Move from large number of small centres to fewer larger centres.
	Teaching material developed by university departments, IT interface added by IU.	PK		

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

SU1 was a spinout from a Scottish university. The chief executive officer (CEO) had spent several years building international partners for the university to provide distance learning academic programmes overseas. It works in partnership with local institutions abroad which provide tutorial support, infrastructure, local marketing and recruitment of students. The SU1 provides the course development, materials and the universities have responsibility to set and mark examinations. SU1converts the material for use using technological animation and simulations, and provides business and learning services to customers. The business aimed to grow to include other universities and colleges within Scotland. It received support from Scottish Enterprise to do this and began to recruit other universities to join and recruited more overseas partners. The company was set up by guarantee and a board of non executive directors were appointed to support and oversee the activities of the CEO and management team. It operated from offices within the university then relocated to commercial offices.

B: Absorptive capacity and learning

Table 5.A.1b presents the absorptive capacity and learning processes of the firm.

Table 5.A.1b: Case SU1 – Absorptive capacity and learning

Acquisition: Types of new Knowledge	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
Market: Business and institutional Develop strategic partners. Develop overseas sales operations.	Experience of recruiting overseas partners. Recruit direct sales team which worked with SDI* abroad and British Council.	CEO, management team SU1 support staff and overseas sales team	Held seminar for overseas partners in Scotland. Sales team brought back to UK for sales conferences to reinforce new strategy. Sales team and support staff given marketing materials developed by CEO.	SU1 support staff and sales team are more focused on sales targets and type of partners to recruit. Sales team building relationships with customers, become account managers.
Internationalisation: Develop organisation structure and business model to attract Scottish universities to join	CEOs knowledge and experience of recruiting universities. Scottish Enterprise. The Scottish Executive.	CEO and Management team.	Meeting and presentations to other Scottish universities at department level and senior management. Government support.	Working at a more strategic level, collaboratively with Scottish universities. New model of strategic partners abroad adds value.

*SDI=Scottish Development International

Acquiring new knowledge

As the new business developed, SU1 was concerned with acquiring marketing and international knowledge. It required *business and institutional market knowledge* about recruiting and working with overseas partners. As they expanded to develop the new business, more smaller overseas partners were initially recruited. The recruitment of partners is a lengthy process. Overseas sales operations were developed by recruiting sales employees and further market knowledge was acquired with help from Scottish Development International, and the British Council. The Scottish executive helped provide overseas contacts and introductions. Experience showed that a high volume of smaller partners were less effective than fewer larger partners. It was an equally lengthy and costly process to establish these small partnerships as for the larger ones. It was more difficult to assure quality with large volumes of small partners. Larger partners provided the volume more cost effectively. The recruitment costs and effort are the same for larger partners which have larger student numbers and require a wider range of academic programme. Larger overseas partners provided the opportunity to offer more programmes from different Scottish universities.

A key part of the general *internationalisation knowledge* required was developing the organisation structure to include other Scottish Universities. The business created a company and fee structure of royalties for the Scottish university partners. The CEO's previous knowledge of the university sector and experience of recruiting universities to join, coupled with advice from Scottish Enterprise and the Scottish Executive, was the main source of knowledge. At this point SU1was not concerned with acquiring new *product knowledge.*

Assimilating and sharing knowledge within the firm

The CEO promoted changing the marketing strategy to target larger overseas partners. This was reverting back to the original aim that had changed as the business developed. A new strategy emerged where strategic partnership would be formed with larger institutions and colleges in a region. The CEO developed this idea and tested the model before it was accepted by senior managers. There was a changing over period where smaller partnerships were maintained as larger ones were developed.

The model was adopted and support staff and sales staff were advised. The overseas sales teams were brought back to UK for sales conferences to reinforce the new strategy. Support staff and the sales team were provided with marketing materials developed by CEO. The new model was required to develop the role of the sales team, recruiting, developing and managing relationships with new strategic partners. An event was held in Scotland for overseas partners to share practices between the partners and SU1.

Recruiting other Scottish universities to join was problematic. There were often delays due to bureaucracy. The CEO and management team embarked on a programme of presentations and seminars to university and college departments and senior management. The government agencies helped support and promote the initiative.

Exploiting new knowledge

SU1 support for staff and sales teams became more focused on sales targets and the type of partners to recruit. Sales teams became account managers and became more involved in building relationships with partners, which previously had been done by the CEO. This has strengthened the development of these relationships, reduced the risk of losing the partnerships where it depended one person only in each side. The new model of strategic partners abroad adds value to the service as both the overseas university and Scottish universities have access to multiple partners and programmes. The firm is now working at a more strategic level, collaboratively with Scottish universities. Thus is it less likely that one person will slow things down as they have recruited several Scottish universities.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.1c presents the outcomes of the learning for the firm; strategic decisions made, performance and competitive advantages acquired.

Table 5.A.1c: Case SU1 - Outcomes				
Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
SU1	Change business model to target larger strategic partners.	Achieved many of the objectives set. New agreements established in several overseas countries. Growth in sales lower than target.	Works in partnership with local institutions. Overseas partners and Scottish universities have access to multiple partners. Potential large scale of university involvement with overseas partners.	Potential to service high volumes of overseas students. Longer term change in business model, Overseas universities become providers. Need to maintain sales team focuses on new strategy Delays in income due to slow bureaucratic process of Scottish universities. Lack of quality and availability of course materials from universities.

When SU1 changed its strategy, it had over 30 overseas partners, but is now focusing on large strategic projects in overseas regions. It has established several new larger partnerships over the last year, such as in Egypt, Jordan and China. This required a large commitment by the local partners often with government backing, for example investment in a new building. Strong relationships with good communication were developed. There is a long lead time for income to be generated due to bureaucracy in Scottish universities and the timing of the academic year. Sales income has grown but at a lower level that targeted, due to delays in Scottish universities becoming involved. Other targets have been met, such as marketing and overseas partner recruitment. SU1 works in partnership with the local institutions abroad which it views as a unique selling point. Local institutions retain 50% of the income generated. The SU1 adds value whereby both overseas partners and Scottish universities have access to multiple partners through the model. The new model provides the potential to service high volumes of overseas students but there is the need to maintain sales team focused on the new strategy. This initiative has the potential to offer a unique network of universities, where Scotland is the world-wide market leader. It offers the opportunity for universities to work with overseas partners on a large scale and an innovative, overseas partnership model.

The quality and availability of course materials from Scottish universities was problematic, though this did not cause delays, but more work was involved than anticipated by the universities. In the longer term as overseas partners are recruited which are as prestigious as the Scottish universities, the business model could change to a two way process, where overseas universities become providers.

5.2.3 Case SU2: International start-up

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.2a presents the prior overseas activities, initial knowledge base, triggers, and responses of the firm.

Table 5.A.2a: Case SU2 – Prior overseas activities, initial knowledge base, triggers, responses				
Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
SU2	Spin-out from SME with head office in Scotland.	IK	Decision to internationalise new business idea	Contacting larger firms to find increase understanding of international aviation markets.
	UK sales and overseas work serviced from Scotland.	MK	Strategy to enter US market first. Needed to establish a channel to US market	Entered partnership agreement with US firm.
	New product developed with UK partner.	PK		

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

SU2 is an SME which develops technology applications for industrial users. One of its applications was in the aviation sector in the UK where it developed air traffic control and flight planning systems. A new business idea was identified when working with a UK airport authority for mathematical modelling to predict passenger flow through airports. The firm began to develop the idea with their collaboration and support. At this time the opportunity to participate in the GCDP was pursued and the firm focused the activities to internationalise this new project. A project team was established with the view that a new company could be spun out. The firm previously serviced overseas work in other sectors from the UK, occasionally sending staff overseas for short periods of time. International work was reactive to enquiries from overseas. The firm initially contacted larger companies involved in the aviation sector to increase its understanding of the international aviation markets. As a result of this the firm decided to target the US airport authorities initially as it was a big market. This came out of the strategic planning done on the GCDP. After several visits to the US, attending conferences and exhibitions, the firm's view was that a small firm from

Scotland would not be able to make an impact on the USA Federal Aviation Authority. It decided the best route to market was to find a partner in the US to sell the product through existing market channels. SU2 identified three possible partners and entered an agreement with one of them, a large US firm with market presence.

B. Absorptive capacity and learning

Table 5.A.2b presents the absorptive capacity and learning processes of the firm.

Table 5.A.2b: Case study SU2 – Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
SU2	Market: International aviation markets.	Employed high profile director.	MD and aviation management team.	Learning by experience of working with new director.	Firm has access to new contacts. Firm has greater knowledge of new world-wide investment areas.
	Enter and increase visibility the US market.	Attending exhibitions and conferences with partner. Used Scottish Enterprise offices in the US.	All SU2 Management.	Firm is run collectively, all information is shared with employees and teams are well informed.	Gained new US market knowledge and made contact with US airports. Improved focus of sales message to customers.
	Internationalisation: Process building relationship to set up a partnership in US.	GCDP. Visit to partner in US.	SU2 Management and US partner.	Presenting ideas to US managers, training partner's sales teams. Partner visits to Scotland.	Set up US partnership and built relationship with partners.
	Legal aspects of setting up partnership and product liability.	Firm's lawyer in UK used partner in US.	Commercial director.	Commercial director worked directly with lawyers.	Management more knowledgeable about legal aspects.
	Product: Product development with UK partner.	Worked with UK airline authority.	Management and technical staff.	Expertise is gained from customer needs and used to	Have launched product in the UK. Created "Add on". Ability to adapt to

				develop product.	customer requirements in different countries.

Acquiring new knowledge

To launch its new business internationally, SU2 acquired market, internationalisation and product knowledge. In order to acquire *market knowledge* the managers targeted the US and made several visits. To enter the US market, it decided to form a sales partnership. These decisions resulted from worked done with the GCDP consultants. They used the Scottish Enterprise offices in the US as a base to gain market knowledge. The US partnership helped increase the firm's visibility in the market place. It gained access to the partner's networks. It attended exhibitions, taking space at the partner's stand and writing and presenting papers at conferences with the partner. Although they had access to aviation industry networks, they need to increase their knowledge of the international aviation markets further. They employed a new director with extensive networks and government connections and with a high profile and knowledge of the industry. He had been the managing director of a large firm and was chairman of the airports group.

The firm required general *international knowledge* to set up the international partnership. Operational aspects of setting up and managing the partnership involved the visiting the partner in the US throughout the process. The firms used its lawyers which collaborated with a US legal firm to deal with the legal aspects of setting up the partnership and product liability. The firm developed the new product initially with support from the UK airport authority. It worked closely with the firm's human resource department to acquire *product knowledge* to develop the product. Aspects of the product involved staff resources required by airports.

Assimilating and sharing knowledge within the firm

The new market knowledge brought to the firm by the new director was shared with the managing director and the aviation team in the firm. The managers learnt from the new director by working with him directly and his expertise was shared at meetings. All of the management team were involved in attending exhibitions and conferences in the US. The teams in the firm are well informed and information is shared amongst employees. The firm is run with what management call a collective approach, so that one employee does not have all of the knowledge on a particular topic. SU2 worked closely with the US partner and invested time developing the relationship. This involved presentations to managers at different levels in the firm and training the partners sales teams in product knowledge. Several of the partners' managers left and SU2 had to be proactive in keeping the relationship going. A strong relationship has been established with a US project manager who visits Scotland.

The commercial director of SU2 worked with the firm's legal advisors to deal with contract and liability matters. Staff combined knowledge gained from working with the customer about how airports work (security, check-in, retail), and combined this with the technology knowledge of the product. This knowledge was shared by management and technical staff and used to develop the product.

Exploiting new knowledge

The new market knowledge and access to contacts brought by the new director has enabled the firm access contacts and "open doors" in the industry that previously they were not able to. It has also brought greater market knowledge of the world-wide markets and the firm has now changed its strategy to include the Middle and Far East markets. The firm has increased its visibility in the US market and interest in the product has been expressed from US airports. The relationship with the US partner has helped the firm to develop targeted sales messages for the US markets. The US sales message focused on airport security advantages of the product. This strategy will be applied to different countries. The product was developed initially by working closely with the UK customer, the main selling point being the reduction of staff costs. This close relationship resulted in developing an "add-on" to the product which deals with a specific a European issue concerning staff working restrictions. The firm can use this knowledge to develop "add on" products for other international markets and develop targeted sales messages.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.2c presents the outcomes of the learning for the firm; strategic decision made, performance and competitive advantages acquired.

Table 5.A.2c: Case SU2 – Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
SU2	Developed international market so that they are not dependent on UK customer. Entered partnership in the US. Looking at other new markets in middle and Far East.	Launch of new product in UK and achieved sales. Achieved objectives of international development of new business. Improved sales and profit performance of existing business	Innovative new product with different focused sales message for each major world region.	Potential for global dominance of new product. Plan to spinout a new business for SU2. Legal aspects of US partnership and changes in personnel slowed down US market entry. Limited internal resources to focus on developing markets.

The business idea was created by SU2 when working with a UK customer. The new product has been successfully launched in the UK and has been established in several airports, where sales have been achieved. The firm decided to develop an international market so that they are not dependent on one major UK customer. It targeted the US as it viewed it as an important market. After visiting the US the firm decided the best route to market was finding a US partner to sell the product and so a partnership with large US firm in the industry was established. The firm is looking at other new markets in the Middle and Far East, with the view to establishing global dominance of the new product. The firm achieved its objectives of international development of the product. The firm launched the new product and will develop different focused sales messages for each major world region. It plans to spinout the ideas into a new company venture. There appear to have been indirect benefits for the existing business which has experienced increased sales and profits.

Legal aspects of the US partnership and changes in personnel slowed down US market entry. This could have been a major problem if the firm needed quick entry to be first to the market. It was not a problem as there was a long window of opportunity with the product. There are some market expansion activities into Europe (to target internationally focused airports) but the firm did not followed through with a major sales effort in Europe. US and Eastern markets appear more attractive and easier to enter. Overall, the firm's efforts to internationalise were limited by internal resources, time and investment available to focus on the new business idea. Although there were increases in overseas marketing visits, this is limited due to limits of available investment and committing staff time away from other projects to develop the new business.

5.A.4 Case SU3: International start-up

A. Prior overseas activities and initial knowledge base, triggers, responses

Table 5.A.3a presents the prior overseas activities, initial knowledge base, triggers and responses of the firm.

Table 5.A. 3a: Case SU3 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
WT	UK clothes manufacturer, factory and head office in Scotland.	IK	Lost Marks and Spencer contract and initial down sizing but old business not viable.	Liquidation of old business, CEO sets up new venture focusing on technology applications and brand development.
	Limited exporting.	MK		
	Manufacturing of clothes in the UK, material fabric sourced from abroad.	PK	Intense competition and change in global supply chain structure and procurement.	New business idea to design electronics in garments and transfer manufacturing aboard.

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

SU3 is a start up company that was formed by the CEO of a Scottish clothes manufacturing SME that went into liquidation whilst participating on the Global Companies Development Programme. The previous company was based in Scotland. Over the years it sourced materials from different countries abroad and manufactured the garments in its factory in Scotland. Most of its sales were UK based, where it was a supplier to Marks and Spencer (M&S) and to other well know brands, exports were 10-20%. The firm lost its M&S contact as M&S and other brands changed to global procurement and there was intense retail competition and pressure on prices. The firm initially downsized to accommodate the reduction in income. It joined the GCDP to try and reposition the company by developing new products that could be marketed internationally. During the programme a number of initiatives were embarked on. However during 2003 increases in the exchange rate resulted in the firm becoming very uncompetitive, the CEO decided to cease manufacturing and the firm was put into liquidation. The CEO felt that running the old firm stifled the creativity he needed to start the new firm and the existing managers did not have the capabilities required to develop the new venture.

The CEO started up the new business from an idea which was developed during the GCDP to create a new innovative product by integrating electronics into garments. The new business produces electronic interactive garments using media characters from television and films. Design and manufacturing would be transferred abroad under licence and the intellectual property (IP) would be retained by the new firm. The new company's activities are to add value by identifying business opportunities and marketing the new products, undertaking research and development of ideas, arranging trading agreements with manufacturers, packaging and distribution. The new business is based in an office in an innovation centre which is supported by the local enterprise support agency. It was set up and run by the CEO and three other employees who are directors. The firm is in the early stages of the start-up process and has not launched a product. It has established a partnership with a Chinese manufacturer and a design/manufacturer in Taiwan. It plans to use intermediaries, garment importers, to sell the products to large retailers.

B. Absorptive capacity and learning

Table 5.A.3b presents the absorptive capacity and learning processes of the firm.

Table 5.A.3b: Case SU3 – Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
SU3	Market: Consumer preferences. Importing and merchandising. Media to be used in products.	CEO's previous experience with supplying brands. SE networks/ GCDP. Market research.	This knowledge is shared by the firm with the garment importers who supply retailers.	Advising importers how to take the product to market.	Building partnership with importers. Developed marketing consultancy style approach to support importers.
	Internationalisation: Developing relationships with and understanding	Scottish Enterprise contacts abroad.	Shared with CEO and all 3 employees (directors) in	All directors attend first meeting with new potential	Have established two partners in the Far East. Increased

	the business culture of overseas partners.	Support agency event. Consultants/ Mentor. Books on culture.	the firm.	partner. Partners visit UK. All staff have access to consultant.	knowledge about eastern cultures and how to manage with overseas partnerships. A location in the innovation centre increased credibility with overseas firms.
	Product: Application of electronic Technology to product development.	Suppliers in the Far East. Networking with technology companies in Scotland. Universities.	CEO and the directors.	Visit is to Asia and constant communicatio n with suppliers.	Firm has learned about electronics industry and applied new technology to product development.
	Protecting ideas through patenting	Visits to Far East mainly China to observe the market. Books on how to create patents.	CEO and other directors.	Experiences of overseas visits shared with director to formulate protection strategy.	Developed IP protection strategy; registered patents, brand and design.

Acquiring new knowledge

As part of the start-up process SU3 acquired *market knowledge* about consumers requirements (end users of the product), garment importers and merchandising practices of retailers. The firm acquired the retail knowledge from the previous experience of the CEO with M&S. Further research was carried out. Secondary data market research was acquired from Scottish Enterprise networks, the GCDP executives, participating companies, and the internet. Primary research was carried out on consumers' preferences on the use of interactive media on the garments. At this stage the market knowledge collected was about UK customers, as overseas expansion was planned after its launch in the UK. The firm required *internationalisation knowledge* about developing trading agreements with overseas designers and manufacturers. Market knowledge about suppliers provided the basis for the firm to develop more general internationalisation knowledge. This required developing relationships and learning about Eastern business culture. The main source of knowledge and help with finding partners came from a Scottish Enterprise contact based in the Far East. This was a Chinese national who had studied in Scotland and acted as an intermediary. He had good local knowledge and was in regular contact with the CEO. The directors attended a seminar run by the local enterprise agency on Chinese culture and met with a consultant there who became a mentor to the CEO. The CEO also read books on Chinese culture. New *product knowledge* required integrating electronic technology to the garments and protecting the innovation through patenting. This involved acquiring knowledge from the designers and manufacturers in the east and electronic technology experts in companies and universities in Scotland. Knowledge on protecting the new ideas was acquired by visiting China and the Far East to observe the market and by reading books on how to create patents.

Assimilating and sharing knowledge within the firm

SU3's strategy was to sell to garment importers who then supply large retailers. An important part of the learning process has been the need to work closely with importers and advise them how to take the product to the market. SU3 worked with importers to share and transfer their expertise and new knowledge. This has involved advising importers which retailers to target and helping them to prepare sales presentations to retailers about the innovative new products and market trends. Knowledge of how to develop relationships and understand the business culture of overseas partners was acquired by the CEO and shared with the other directors in the firms. All directors attend the first meeting with new potential partners. Staff have access to the culture consultant and phone her up when they have a situation with an overseas partner they don't know how to handle. The overseas partners visit the firm in Scotland. All directors share the product and technology knowledge. They visit Asia and have constant communications with their overseas suppliers. The experiences of overseas visits by the directors have been shared to formulate the IP protection strategy of the firm.

SU3 has built relationships and established agreements with importers to sell their new products when they are launched. This resulted in the firm developing marketing consultancy capabilities to support these customers. The firm has increased its knowledge about eastern cultures, established two complementary manufacturing agreements and learnt how to manage these relationships. The Chinese firm provides cheap manufacturing and the Taiwanese firm specialises in the design and outsource production. Locating the new firm in the innovation centre has helped establish credibility with overseas firms. The firm has learnt about the new technology in the electronics industry and applied it to develop the product. The firm has added value to garment manufacturing in a very low cost, competitive market. These products were protected by registering the patents, brands and designs. The firm has developed a protection strategy where it plans to use them as bargaining power to negotiate with customers and lead through constant innovation, rather than try to sue companies. It plans to use patents as a deterrent to copying in European markets however as result of its knowledge and experience gained in the eastern markets, the firm expects the idea to be copied in China and other Asian countries and have little control over this.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.3c presents the outcomes of the learning for the firm; strategic decisions made, performance and competitive advantages acquired.

Table 5.A.3c: Case SU3 – Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
SU3	Sourced overseas manufacturers and designers. Agreements with garment importers who then sell to retailers.	No sales yet. Patents, brand and design registered. Raised two rounds of funds required.	Model developed on innovation and creating patents. Adding value to garment manufacturing through innovation. in low margin, competitive sector.	Plans to expand to Europe and USA. New product design takes much longer than expected. Length of time to raise finance. Time spent advising importers.

SU3 is in the early start-up stages of launching a new venture. It has developed the business idea, sourced two overseas manufacturers and entered sales agreements with garment importers who will buy the products and sell on to the retailers. The start-up firm has not yet launched the new products but has created patents, a brand and registered its designs. It has raised two rounds of capital from external funders to finance the new business. The previous UK manufacturing business had become uncompetitive due to unfavourable changes in the supply change structure resulting in low margins and little market strength. The new business sought to gain market strength by adding value to garment manufacturing through innovation. Although ideas, brands and design have been protected legally, the emphasis is on constant innovation. The firm will use this model to develop relationships with customers which are based on constant innovation rather than relying on IP protection. Once the product is launched in the UK the firm plans to expand to Europe and the USA. The business plan progressed slower than planned. New product design has taken much longer than expected, raising finance was a lengthy process, and the CEO has spent time more time promoting to and advising importers about the new products.

5.A.5 Case MAN1: Internationalising manufacturing firm

A. Prior overseas activities and initial knowledge base, triggers and responses

Table 5.A.4a: Case MAN1 – Prior overseas activities and initial knowledge base, triggers and responses				
Firm	*Prior activities*	*Initial Knowledge base*	*Triggers*	*Responses*
MAN1	UK head office functions UK manufacturing, And manufacturing subsidiaries. Overseas exporting then sales subsidiary.	IK PK MK	Expand in US as main market, then Europe which is smaller. Ambitious growth plan developed on GCDP to compete with large firm competitors in US.	Expanded US production subsidiaries and opened sales office. Research in European market Business model to sell same products to existing and new customers.

IK – Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

Table 5.A.4a shows the prior overseas activities, triggers and responses for case MAN1 The firm had overseas manufacturing subsidiaries in Europe and China and sales and senior management functions were in the UK. MAN1 planned its expansion by increasing its manufacturing in the USA and Europe. Its strategy was based on its previous experience of opening an overseas processing facility near to existing customers to service that customer. It extended this strategy by then using that facility to supply addition customers word-wide. Its international growth strategy was to sell existing products to existing and new customers. MAN1 prioritised the USA market, and opened new processing facilities there in several states, as the USA was its main market. It then opened its first overseas sales subsidiary in the USA. It planned to research European markets but did not open there at the time as it believed it is a smaller industry there with less opportunity.

B: Absorptive capacity and learning

Table 5.A.4b: Case MAN1 – Absorptive capacity and learning					
Firm	*Acquisition: Types of new Knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities Gained.*
MAN1	Market: business and institutional.	Overseas visits to: Customers	USA and UK management teams.	All information is shared by UK and USA	Increased capacity to operate in world-wide

	Customers and regulations in different US states.	and suppliers, Local agencies, customers, Scottish Enterprise.		team visits to each country.	market. Increased supply flexibility. Faster customer responsiveness.
	Internationalisation: Management structure	GCDP	USA operational teams, UK administration and UK and US senior management	Overseas management team self sufficiency but operate as one company, flat structure.	Business model can be replicated to other countries.

Table 5.A.4b shows the new knowledge acquired by MAN1, how it was assimilated, transformed and exploited by the firm. The numbers in the table show this process for each aspect of new knowledge acquired.

Acquiring new knowledge

At this phase of its growth MAN1 acquired new market and international knowledge and focused on its US market. Although it already had a manufacturing subsidiary there, it required new market knowledge as it opened new manufacturing and sales subsidiaries in different US states. It required business market knowledge about customers and suppliers and local conditions in order to put new contracts in place in the US and institutional knowledge about different legislation requirement and business controls. It found every state in the US to be different. It acquired this knowledge from existing relationships with customers and suppliers, used local US support agencies in the new US markets and Scottish Enterprise. It gathered this information directly by making overseas visits.

In terms of new general *internationalisation knowledge* required, an outcome of the work undertaken on the GCDP was that MAN1 needed to restructure its management structure in order to support its growth The senior management team was extended to include six UK and four US directors. This included senior managers from commercial, engineering and operations across the company. Business, financial and administration functions were retained in the UK. A senior management team and local operations management teams were set up in the USA.

Assimilating and sharing knowledge within the firm

The new expertise was assimilated by both the USA and UK management teams. Most of the UK management team had been to the USA and had input and activity with the US operations. US staff had visited the UK. Although the US operations have self contained management teams, where self sufficiency has been increased, the company operated as one company, with a flat structure where information is shared throughout. This process was facilitated by frequent visits to the UK and USA by the management teams.

Transforming and exploiting new knowledge

By expanding in the USA, MAN1 has increased capacity to operate in the market world-wide. It created a business model based on its previous experience of opening near a customer in Europe, but extended it to the USA. MAN1 opened new facilities to service customers in the location, then used spare capacity to transfer other production there serving both customers in the USA and world-wide. This created greater supply flexibility world-wide, enabling faster customer responsiveness.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.4c: Case MAN1 - Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
MAN1	Exploit US market. Sell existing products to existing and new customers. Business model: open near customer, use spare capacity to service customers world-wide. Plan to sustain growth, model will be transferred to other countries.	High international growth	Compete with large firms by increased service and adding value to customers. Providing local service, flexibility and quicker delivery than competitors.	Slower progress in Europe. Growth may require product development. Need to restructure management again to achieved next level of growth

Table 5.A.4c presents the outcomes of the new knowledge for MAN1. It focused its expansion on the USA, its biggest market, and achieved high international growth by

selling more products to existing customers and finding new customers. Its new business model developed in the USA is to open a facility near a customer to increase sales to that customer and use spare capacity to serve customers world-wide. This model can be replicated to other countries and will form the basis of its strategy of continued geographical expansion. The model has enabled it to compete with large firms by providing increased service and added value to its customers. By providing a local service close to its customers in the USA it has greater flexibility and quicker delivery times than its large competitors.

Its US expansion has had an impact on management resources. Senior management time commitment was greater than expected and resulted in slower progress in Europe. The firm has still to develop its European supply base and plans to open in another European country to sustain its growth. However it is recognised by management that to achieve the next phase of growth, management will have to be restructured again to support the growth. It is also recognised that in the longer term, its growth strategy to sell more to existing and new customers will need to be extended to new product development.

5.A.6 Case MAN2: Internationalising manufacturing firm

A. Prior overseas activities and initial knowledge base, issues and triggers

Table 5.A.5a: Prior overseas activities and initial knowledge base, triggers and responses

Firm	*Prior activities*	*Initial knowledge base*	*Triggers*	*Responses*
MAN2	UK head office functions. Overseas exporting, distributors, then sales subsidiaries. UK manufacturing.	IK MK PK	Recent low sales and marketing performance. Increased competition. GCDP growth strategy.	New executive top team and MD. Previous CEO becomes non-executive chairman. Creation of overseas management structure and delegation. New product development

IK - Internationalisation knowledge
MK - Market knowledge
PK - Product knowledge

MAN2 was experiencing increased competition as it embarked on its international growth. Its high value audio equipment status was being challenged by the commoditisation of competitor's products. After a period of high growth and international expansion it was experiencing lower sales than planned and the under-performance of marketing efforts. It was implementing a new overseas management structure for its subsidiaries, with more delegation but was finding difficulty recruiting and training the right people overseas especially in the USA. During the process the CEO and founder retired and became the non-executive chairman, a new MD was promoted internally. A new executive management team was created. The new team were keen to continue the international development to take the business forward. In order to continue with its growth, it turned its attention to sales and marketing processes and product development, with the creation of a new production management function.

B. Absorptive capacity and learning

Table 5.A.5b: Absorptive capacity and learning					
Firms	*Acquisition: Types of new knowledge.*	*Acquisition: Source of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities Gained.*
MAN2	Internationalisation: -Sales and marketing processes. -Web design	Consultants, Scottish Enterprise and Web consultants.	Management and sales teams, world-wide account managers, direct sales force. Marketing department.	Extend to key distributors. Experienced staff support sales force.	Sales teams improve knowledge and implement sales strategies.
	Internationalisation: -Management structure.	Ex CEO/ Mentor. GCDP.	Senior management and managers.	Extensive management training programme. Top management develop managers and increase delegation.	All business activities focused on customer satisfaction.
	Product and technology: R&D of new technology intensive products.	Staff recruitment. Global Scot network.	Management and new production team.	Management team share information with production teams, become experts.	Creation of new product development function with input from customers.

Acquiring new knowledge

MAN2 required new internationalisation and product knowledge to consolidate its growth. In order to improve its sales performance, new sales and marketing management processes were required. The need to develop internal processes, monitoring and planning, were identified as part of the GCDP. Improved Web design was also required to support the sales and marketing efforts. Management structure and increased delegation were also identified as areas where changes were required to support the new business level. Outside consultants were used to provide a sales accelerator programme and training. External human resource consultants were used to improve the management processes. The retired CEO became the non executive chairman and provided mentoring support.

MAN2 also needed to increase its product knowledge. It created a new production management function to marry its technology expertise to the market. It appointed internal managers and recruited externally using a specialist recruitment agency. It received help from the Scottish Enterprise "Global Scot" network to recruit in the USA.

Assimilating and sharing knowledge within the firm

Training was undertaking by all sales account managers and direct sales force in the USA, Germany and Australia. This was then extended to key world-wide distributors. Knowledge is shared by experienced managers who help sales teams to go out and organise sales efforts, run events and support sales. Scottish Enterprise provided consultancy advice working with the marketing team on how to select a Web supplier. This was useful experience gained and shared with top management.

There was a realisation by the executive team that there was a need to develop the people in the business. An extensive company wide management training programme was implemented. New management processes and delegation were instigated by the top management team and implemented by managers. A leadership development training programme was introduced for all staff and managers.

The top management team worked with the new production management team to combine the technological expertise with knowledge about market and customers. Expertise is shared with the production management team through processes that were created to communicate the information. This feeds into product development.

Transforming and exploiting new knowledge

Sales teams world-wide have improved their knowledge of how to implement sales strategies. Training has focused them on how to sell, how to plan their sales activities and what to focus on to increase their sales performance. They know how to implement and launch sales strategies instead of in the previous ad-hoc manner. There is better focus by the sales teams on the right customers who share the firm's vision. A previously successful strategy to demonstrate products and hold events for end users had not been maintained as the firm grew. The sales accelerator programme re-emphasised this, going back to the original strategy. This resulted in higher growth in markets where this new strategy was implemented. There was less growth in markets where this strategy was not introduced, where the firm was still building relationships in these markets. An important aspect of this was the re-working of sales analysis information by the management team and improved presentation of this to the sales teams, allowing them to focus more on the right trade i.e. customers who share the firm's vision. All business activities within the firm are now linked to customer satisfaction and support the sales teams. The new Web site was about to be commissioned.

The executive team formed a new managerial line across the business which helps develop the new vision throughout the firm. This has increased focus, clarity and responsibility amongst employees. Daily interactions were found to be more effective throughout the whole firm world-wide and the new vision has resulted in improved relationships with external contacts such as bankers and distributors.

As part of the new product development function, structured product maps have been developed, with input from customers. Information is communicated explicitly, discussed and shared. Previously product knowledge had been shared informally, arbitrary and on an individual basis. There is structured decision-making and review, which enables strategic thinking to be followed through operationally.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.5c: Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
MAN2	Global strategy developed focused on sales activity and demonstrations. New product development strategy.	High international growth, followed by under performing sales and profits. Recent renewed international sales growth.	Integration of customer feedback to product development.	Less growth where new sales strategy has not been implemented. Difficulties recruiting in the USA and product function leader in the UK.

MAN2 has developed a global strategy on focused sales activities and customer demonstrations in individual countries. It is planned that this model is applied world-wide unless it is found that desired growth rates are not achieved. Higher growth has been obtained in markets where the sales strategy has been implemented. After several years of high growth, the company experienced lower sales and profit performance. Due to the changes in sales and marketing operations and strategy, there has been renewed sales growth. A new product management function has been created and a new product development strategy is now operational. This aims to marry the technology and expertise to the current and future market requirements. Customer feedback has been the integrated into product development.

The firm continues to build relationships in some markets focusing on trade customers that share the company's vision rather than customers that don't. The implementation of the strategy is ongoing and the firm has experienced less growth where the new sales strategy has not been implemented. Recruitment has been a problem for the firm. It has not been able to recruit staff in the USA, finding that the USA is domestically focused. They had not been able to recruit a product function leader in the UK.

5.A.7 Case MAN3: Internationalising manufacturing firm

A. Prior overseas activities and initial knowledge base, triggers and responses

Table 5.A.6a: Prior overseas activities and initial knowledge base, triggers and responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
MAN3	UK head office functions. Exporting , agents, then creation of overseas sales offices. UK manufacturing, then contract manufacture.	IK MK PK	Growth plan developed on GCDP to increase overseas presence by creation of overseas hubs. Developed new product using "Tore" technology. Cash flow constraints due to expanding from internal resources.	Overseas offices under-performing in sales and profits. Use local manufacturers as it is difficult to predict volumes and a local government requirement but quality not good enough. Need to change to corporate management style and share information.

IK - Internationalisation knowledge
MK - Market knowledge
PK - Product knowledge

MAN3 created regional overseas "hubs" (overseas offices) with local employees, to increase its overseas presence. These hubs were under-performing, and the firm turned its attention to improving efficiency of its overseas operations, by increasing sales and profitability rather than continuing with creating more hubs. These issues were compelled by the firm's limited internal cash resources. It had financed its expansion through its bank overdraft rather than raise external finance. MAN3 developed a business model using local contractors for its overseas manufacturing rather than subsidiaries. This was because it thought it didn't have the volumes and couldn't predict demand for foreign direct investment (FDI). Contract manufacturers would offer more flexibility. In Nigeria government regulations required that the work was undertaken by indigenous firms. However the quality of overseas contractors was found not to be good enough, even in the USA where a local contractor was recommended by a large customer. Lower wage cost countries (e.g. Indonesia) were found not be cheaper due to low quality of work, which required to be re-worked and extra project management resources were required. Problems with lack of quality of local contractors resulted in variations on contracts and higher costs that anticipated. In addition, overseas local tradesmen trained by MAN3 were taken off projects by overseas contractors, delaying project completion.

B. Absorptive capacity and learning

Table 5.A.6b: Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Source of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities Gained.*
MAN3	Internationalisation: Overseas project management.	Experience overseas. Recruit new sales staff.	Top managers and project managers.	Share knowledge and experience through regular meetings.	Information and new expertise informs how to address new markets and projects. Built a team of experienced project managers.
	Internationalisation: Sharing information; Proposals, Sales and marketing.	Create new proposals team, relocation of staff to head office and recruit new proposals engineers	Technical and commercial teams.	Project managers and proposal engineers work together. Customer information shared between management and overseas sales employees. Sales employees train agents.	New system integrating proposals and production plan. Cost jobs better. New information sharing and management information.
	Internationalisation: Management structure	New non-executive and senior directors	Delegated authority.	Monthly management meetings with 8 teams.	Rigorous procedure for decision making.

Acquiring new knowledge

MAN3 required new knowledge on how to manage its overseas operations, improve the management of its proposals, marketing and sales information and develop its management structure. It needed to learn about overseas project management to improve the performance of the overseas hubs.

It also needed to develop systems to share information throughout the firm in order to improve production management and sales performance. This involved two aspects tracking proposals and sharing sales and marketing information. This need was observed by a new senior manager who joined the firm. The new manager had been a consultant with Scottish Enterprise. The senior manager and new non executive director also recognised the need to help the owner change from an entrepreneurial to corporate management style to support its overseas grow.

Assimilating and sharing knowledge within the firm

MAN3 reviewed its project management practices in the UK in order to learn lessons for its overseas operations. Top management worked with project managers to share information experiences through regular meetings. New expertise was developed, which was used to inform managers how to address new markets and projects.

In order to share information through the firm a new proposals team was created. Top management head office expertise was combined with other staff relocated to head office, an external proposal engineer was also recruited. Management brought technical teams (project managers, proposal engineers) and commercial teams, (including overseas salesmen) together to share information. Knowledge was shared by teams working together, located in the same building.

The firm has also developed its sales and marketing information sharing. It has invested in its overseas sales teams, replacing sales agents with employees in the hubs. Sales employees train agents in product knowledge. To develop sales and marketing processes, senior UK and overseas managers and salesmen were involved in the creation of an information group. All customer information is shared with all management and salesmen in all countries. An e-mail group was set up and salesmen submit a weekly report providing market intelligence about who they have seen and project progress.

The CEO, an owner manager of the firm, recognised the need change the management structure. Senior managers and a new non-executive director, appointed by the bank due to cash flow issues, embarked on this change. A monthly management team meeting was set up. Monthly reports to the CEO are submitted by eight sections which were created; proposals, manufacturing, process design, sales, business development, finance, machine shop and testing services.

Transforming and exploiting new knowledge

The firm built a team of overseas project managers with the knowledge and expertise of working overseas, leading to lower project management costs. This has resulted in the firm investigating manufacturing and project management resources required in a new territory before sales and marketing is developed.

The new proposals system integrates proposals and production planning, resulting in better information on costing and tracking proposals. This has led to improved knowledge on how to cost proposals and jobs and improved information on products, to help sales teams in hubs. The firm has greater knowledge about its performance, for example success rates on new proposals by hub and product. The firm has improved its knowledge about how competitive it is and learnt about "sufficing", where an aspect of a proposal needs only to reach a sufficient standard – quality above this level is not required to win the tender, thus costs can be reduced.

The sales and marketing information system has created information sharing between the UK units and overseas hubs. There is better marketing communications where connections made between project and customers and better ideas development. The new overseas sales employees work with and train sales agents which has resulted in better product knowledge.

The new management structure has resulted in improved decision-making. A new procedure for decision making has been established. All managers have delegated authority. Previously management meetings involved issues being discussed, then responsibility allocated on an ad-hoc basis.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.6c: Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
MAN3	Improving performance of overseas Hubs. Focused sales strategy, overseas sales employees. Manufacturing capability informs market entry decisions.	High growth, the period of under-performing sales and profits. Recent improved profitability.	Better knowledge of how competitive firm is in market place.	Need to improve project management. Limited finance. Limited computer information system.

Due to under-performance in sales and profitability, MAN3 is focusing on improving the performance of its existing overseas hubs, rather than expanding further. Its sales strategy is to focus sales efforts in hubs where there is the biggest opportunity. It uses overseas sales employees who train and support agents. The increased project management costs incurred when using overseas contract manufacturers has resulted in a strategic decision that manufacturing capability of a country will inform future market entry decisions. The firm may not enter a market where the local skills are not deemed sufficient. There has been improved profitability in the last year and improved sales where the new sales strategy has been implemented. The new proposals tracking system gives the firm a better knowledge of how competitive it is in the market place and enables it to produce more competitive tenders.

Project management is an area where the firm needs to improve its skills further and it is considering using external project management training, however finance is limited and a constraint. The firm found that some project managers were not able to cope with the overseas environment. The manage information system uses e-mail and spreadsheets and is not an integrated computer management system, which would be preferred.

5.A.8 Case MAN4: Internationalising manufacturing firm

A. Prior overseas activities and initial knowledge base, triggers and responses

Table 5.A.7a: Prior overseas activities and initial knowledge base, triggers and responses

Firm	*Prior activities*	*Initial Knowledge base*	*Triggers*	*Responses*
MAN4	UK head office functions.	IK	Increased competition; in-store retailers and consolidation in market.	Expansion in existing domestic and overseas markets through retail, franchising and wholesale. Introduction of new products.
	UK retail outlets, overseas exporting, agents and distributors, then US subsidiary and royalty agreement in Japan.	MK		
	UK manufacturing.	PK	Saw growth potential through GCDP. Unexplored markets.	Focus on US subsidiary. Expansion in new overseas markets.

IK - Internationalisation knowledge
MK - Market knowledge
PK - Product knowledge

MAN4 was facing highly competitive markets and consolidation in the market place both at home and overseas. It believed there was potential for geographic growth in terms of new markets and to expand existing markets. This view was reinforced by its participation in the GCDP and seeing other firms' growth. Its wholesale operations involved using sales distributors and agents abroad but introduced sales employee (UK language graduates) to support and find new ones. It opened a sales subsidiary in the US and entered a sales royalty agreement in Japan, whereby the firm received a parentage of income from sales of its product by a local firm. In the UK its retail operations involved some of its own retail outlets and in-store sections of high-street stores. It was facing increased competition for clothes rail space in high street stores. In response to this MAN4 planned to increase its retail operations through franchising in the UK and abroad, and opened new retail outlets and large "flagship" stores in the UK. It continued to introduce new products to support its growth.

B. Absorptive capacity and learning

Table 5.A.7b: Absorptive capacity and learning					
Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Source of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities Gained.*
MAN4	Internationalisation: Franchising.	Franchising consultants And managers.	Internal project team appointed by MD.	Consultants work with firms' lawyers, marketing and design managers.	Created franchise model.
	Internationalisation: Shop design.	Employed new people and consultants.	Appointed new team.	Internal team, new employee and consultants.	Restructuring wholesale and retail operations.
	Internationalisation: Web.	Report from SE and consultants.	New project team	New team	Restructuring wholesale and retail operations.
	Internationalisation: Overseas sales effort.	Recruited language graduates.	Language graduates trained as sales employees.	Sales employees assist distributors and agents.	Sales employees having impact on sales.
	Internationalisation: Management structure.	GCDP executives, other companies, seminars.	Two levels of management created.	Informal ethos, but more structured approach. Senior and functional managers share expertise with project teams.	Strategic approach to business, separate projects identified and prioritised. Delegation, teams involved in decision making

Acquiring new knowledge

MAN4 spent a great deal of effort launching a subsidiary in the USA. It was now turning its attention to other overseas markets and UK expansion. It required new knowledge to increase its wholesale and retail sales. It planned to expand its overseas retail operations through franchise and improved shop design. This would be supported by improved Web design to inter-link the retail and wholesale operations. It acquired this knowledge though a combination of internal expertise, employing new staff and engaging consultants. It also needed new knowledge to improve the performance of distributors and agents which serviced existing overseas markets. It employs UK language graduates as overseas sales employees, supported by country managers.

MAN4 operate with very informal management structure and it required the introduction of a more strategic approach to decision making and more formalised management processes. New knowledge about how to structure the business and improve the strategic decision making to support its expansion was acquired from Scottish Enterprise, other companies facing the same challenges and the GCDP network companies. Scottish Enterprise executives were used as a sounding board for strategic development.

Assimilating and sharing knowledge within the firm

MAN4 created new project groups comprising external consultants and internal employees with expertise to lead each of the projects. The CEO adopted an overseeing role. Before this he had been more hands on with all projects. External franchising consultants worked with the firm's lawyers and marketing and design managers who combined their day to day knowledge with the consultants to create a new franchising model. A project team was created where existing and new staff were employed and consultants were used to improve shop design. A report was made by Scottish Enterprise which prompted the review of IT and Web systems and a project team was set up to look into this issue.

UK language graduates were recruited as sales employees to support the existing network of overseas sales agents and employees. Sales conferences are held in the UK to bring the new sales employees together with management to share knowledge and experiences.

In order to support the growth of the firm, two levels of management were created; a senior management team and functional managers in for example; importing, sales and marketing, design and manufacturing. Country managers support the operations in overseas territories. The firm retained its informal ethos with flat structure, open plan offices and informal communications. However, some management structures were introduced where authority was delegated. Managers and staff were consulted and involved in decision making.

Transforming and exploiting new knowledge

MAN4 created a new franchise model which it will use to expand internationally. It has created new shop design, which provided a higher brand profile and better image resulting in increasing sales. It plans to invest in new IT and Web systems to integrate the wholesale and retail operations. The investment in new sales employees took some time (two years) before the benefits were realised. Direct sales employees and country managers support and find new overseas distributors and agents and distributors, which is having an impact on sales.

There is a more strategic approach to the business. Projects which need to be undertaken are identified and prioritised. Management and project teams are involved in decision making and there is more delegation. Although the informal ethos has been retained, there are more management structures.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.7c: Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
MAN4	Retail development; franchising model, shop design. Integrated Web design for retail and wholesale. Sales strategy – employing country managers and UK trained sales people.	International sales growth. Expansion in overseas wholesale and UK retailing.	Competing successful with larger firms.	Slower overseas expansion than would like. Limited cash for competing projects. Recruiting overseas employees expensive. Difficult to recruit UK designers and engineers.

MAN4 had opened a sales subsidiary in the USA to service this market. It planned to increase its overseas presence in existing and new markets by franchising and created a franchise model. Improved retail shop design supported this. The CEO plans to redevelop the Web design to integrate wholesale and retail operations. However there is resistance in the company to this, due to the cost involved and limited cash availability for competing projects. It was a major investment for the firm to recruit UK sales employees to support agents abroad. It took two years for the benefits of this strategy to be seen, however it had resulted in increased sales. The firm was continuing its overseas expansion by increasing sales and competing successfully with larger firms in a very competitive and fast changing environment.

Due to focus being on the US expansion, the firm experienced slower overseas expansion in other markets than it would have liked. The firm is limited to the amount of projects it can do at any one time, due to limited management time and cash. In terms of market expansion the firm does not have the resources to fight on every front at one time. It has no external funding. Another constraint is that the firm finds it difficult to recruit good designers and engineers for its manufacturing which is based in the UK.

5.A.9 Case TECH1: Technology-based internationalising firm

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.8a presents the prior overseas activities, initial knowledge base, triggers, and responses of the firm.

Table 5.A.8a: Case TECH1 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge base*	*Triggers*	*Responses*
TECH1	UK Head office function. New CEO with overseas experience.	IK	High growth in USA and Canada. UK growth slow.	Re-organise sales teams and administration to support growth.
	Manufacturing in the UK using subcontractors.	PK	Continue market expansion. Product expansion part of strategic objectives.	Continue market penetration in US and Canada. Launching new world-wide products.
	Sales subsidiary in USA	MK	Market expansion part of strategic objectives.	New market development in Germany and other European countries.

IK – Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

TECH1 was started in 1993, its founder developed a new product involving retinal mapping technology. The technology development was funded by considerable sums of private investors' money. Its product came to the market in 1999 and it opened a sales subsidiary in the USA at this time. Its main markets were the USA and UK. In 2001 a new CEO with previous experience as the Vice President for a European medical company was recruited. TECH1 has experienced high growth in the USA and Canada, its quick expansion put strain on its overseas sales operations, head office administration and IT. Sales support teams were re-organised to improve the structure to support further growth. The back office operations and IT were reviewed to make sure they supported the growth. TECH1 has continued its growth through research and developing and launching new products. It is planning further market expansion into the European markets and opened its first European subsidiary in Germany.

B: Absorptive capacity and learning

Table 5.A.8b presents the absorptive capacity and learning processes of the firm.

Table 5.A.8b: Case TECH1 – Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
TECH1	Market: Business and institutional e.g. Customers, need to learn language in Germany, employment laws.	Market research carried out in German market. Local experience gained on how to recruit people in Germany.	Recruited high quality manager in Europe. UK based, spends 50% of time on Germany.	Manager communicates marketing knowledge back to UK head office.	Manager has built German sales team to speed up expansion. Focus on sales rather than building overseas administration.
	Internationalisation: Re-structure and change profile of overseas sales operation. Re-organise head office back office administration.	Experience of CEO	CEO and senior management	Technical and clinical staff were re-trained and some replaced. Changes were communicated to all staff.	Combined technical and clinical role reduces number or people in front of customer. Stronger management team in the US. Improve UK administration.
	Product: New product development management.	New technical director recruited.	All staff.	Weekly lunch open to all personnel, managers, engineers, marketing, IT R&D. Linked with video conferencing in USA.	Integrated R&D with whole company, now has stronger team approach. Full confidence in team, expect surprises and delays in R&D.

Acquiring new knowledge

To support its high growth TECH1needed new markets, internationalisation and product knowledge. Market expansion continued with plans to enter new markets. Initial focus was on Germany with plans to expand to other European counties. The sales rather than a general manager where the focus would be to build up administration.

Exploiting new knowledge

The changes in sales structure in the USA, combining the technical and clinical roles reduced the number or people in front of customers, which resulted in a better interface with customers. The changes resulted in a stronger management team in the USA, with more unity and cohesion of the all the teams in the USA and UK.

The R&D function has been integrated within whole company. There is a stronger team approach. The CEO has full confidence in the team. The nature of R&D means that surprises and delays are expected but these must be justified.

The focus on sales rather that building an overseas administration in Germany has resulted in the expansion speeding up. Recruiting a UK based director rather than a German manager ensured that the director gained first hand market knowledge which is assimilated and retained within the company.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.8c presents the outcomes of the learning for the firm; strategic decision made, performance and competitive advantages acquired.

Table 5.A.8c: Case TECH1 - Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
TECH1	Will use market expansion model developed in Germany for entry into other countries.	High international growth in USA and Canada Germany sales increasing.	Has integrated product knowledge throughout company to R&D. Better customer interface.	Plans IPO to continue growth. Lost time and increased cost of R&D because of poor quality of work by UK subcontractors. Limited expansion to one new market at a time due to resource constraints.

firm needed both business and institutional *market knowledge.* The firm undertook market research in Germany. It had trouble recruiting local staff in Germany because TECH1 was a small unknown Scottish firm. It also needed to know the language in order to develop in German, local knowledge was needed to develop the German interface and translate computer menus.

The new CEO brought *international knowledge* through his previous experience in running overseas operations. He changed the overseas sales structure in the USA, and the UK administration to support continued market penetration in the USA and Canada. Previously three groups, technical, clinical and sales staff, had interfaced with customers. This was reduced, the technical and clinical roles where combined thus reducing the number of people dealing with the customer. There was resistance to this change by some employees who then left the firm and were replaced.

New product knowledge was needed in product development management to support R&D. The role of technical director was created in order to support product development. The nature of the R& D and engineering function resulted in delays in plans and scheduling which the company needed to control. Under performance by sub-contractors to build prototypes created delays.

Assimilating and sharing knowledge within the firm

The CEO and senior management of TECH1 implemented the changes in the US sales operations. This required that technical and clinical staff were re-trained. Changes were communicated to staff. All staff within the company were involved in product development. Product knowledge is shared through a weekly lunch meetings open to all personnel, integrating the expertise of managers, engineers, marketing, IT, R&D. External experts also are invited to attend the meetings to give presentations. The meetings were linked with video conferencing to the US. It was not mandatory but most staff attended. A high quality European director was recruited to develop the European expansion. The director is UK head office based and spends 50% of the time in Germany. The director successfully set up a subsidiary and recruited a sales team in Germany. Due to resource constraints, the focus was on a sales team to build

TECH1 has achieved high growth by expanding further into the US market and entering the German market. There is continued product development and R&D and it has successful launched a new product suitable for world-wide sales. However increased volumes resulted in problems with UK sub-contractors meeting the required capacity. This resulted poor quality which meant the firm lost time and suffered increased R&D costs and delays.

The UK and overseas management teams have been strengthened and sales operations improved resulting in better interface with customers. The back office administration has been improved to support the overseas growth. The firm is constrained by cash and management resources. Cash constraints resulted in the development of the European expansion model where the new subsidiary focusing on sales growth is directed from the UK. This model will be used for expansion into other European countries, unless it is found not to achieve desired results. Expansion has been limited to one market at a time due to financial, personnel and time constraints. This decision was influenced by the firm's experience that entering new markets generated losses for two years. There are limits on management time available to focus on developing new markets. For example, changes in sales operations in the USA, its main overseas market, was resisted internally and required a lot of management attention to implement the changes. It was found the German expansion required finance and personnel resources to translate the product for a German interface the translation. The firm plans to raise funds for the first time in the public markets by an Initial Public Offering (IPO) to finance its growth further.

5.A.10 Case TECH2: Technology-based internationalising firm

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.9a presents the prior overseas activities, initial knowledge base, triggers and responses of the firm.

Table 5.A.9a: Case TECH2 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
TECH2	UK head office functions.	IK	Full systems were project based and did not result in repeatable revenue.	Change in business model to focus on product components rather than full system products.
	Initial UK sales operations, then developed US sales to global customers from the UK base.	MK	New strategy to reduce costs, working capital dependency and gain higher margins.	Develop overseas manufacturing capabilities and licensing strategy.
	Initial UK manufacturing, then using overseas design teams and manufacturers.	PK		

IK – Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

TECH2 are a technology company which develops and manufactures photographic products using digital imaging technology. All operations were initially UK based. In 2000 they developed some relationships in the USA with global firms that they had sold to in the UK. They decided to target the USA as it was one of the main markets for the industry and tried to develop an alliance with a firm in the USA to sell their product to the market. This was unsuccessful as the other firm went into liquidation. TECH2 then developed international sales by expanding their sales channels; attending trade shows and targeting retailers and distributors. TECH2 continued to develop relationships with other firms in the US market and develop products for the UK market. All research and development was carried out in the UK. The firm worked with graphic designers in the USA and designers and manufacturers in Taiwan to develop its products for the UK. TECH2's strategy was to develop relationships with potential customers to develop new products for them. However this was R&D intensive and did not always result in a new product being sold to the customer. This was a drain on working capital resources and resulted in cash flow problems for the firm. To improve profitability and reduce working capital requirements, the firm implemented a new strategy to develop components and software, rather than complete systems for customers. The firm changed from having a strategy to develop whole project based products for customers to developing technology products and that customers apply themselves to their projects. This enabled it to expand its market by continuing to supply to existing customers and sell components to new customers that previously were competitors. In line with this strategy, it set up a manufacturing licence with a partner in Taiwan which provides a design royalty fee to TECH2. It sourced some components from the Far East and continued to manufacture some of the components in the UK. The licence manufacturer was introduced directly to the customer and this reduced costs. This has resulted in reduced working capital requirements and increased margins for the firm.

B. Absorptive capacity and learning

Table 5.A.9b presents the absorptive capacity and learning processes of the firm.

Table 5.A.9b: Case TECH2 –Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
TECH2	Market: Marketing capability.	Adapting management's previous experience. Staff travel overseas to meet customers and suppliers.	Management and employees in firm.	Performance management programme with employees.	Change in emphasis to combine customer engagement and product development.
	Internationalisation: New strategy. Business analytical tools to stop distraction from strategy in firm.	New chairman, management, GCDP consultants agree strategy.	Management team.	Shared with all employees. Management use strategy tools learnt on GCDP.	New model can be replicated so scale can be achieved. Focus to maximise return on existing market before accessing new markets.
	Product: Product design. Retaining core IP.	GCDP consultants to construct new	Management team and all employees.	Re-training of employees. Internal	Suppliers assemble components

	Contract issues with partners to develop overseas licensing agreements.	business model. Local lawyers advised.		structure changes: role of chief technical officer and reporting lines.	which are then shipped to licence partner. Firm owns tools to make moulds, to protect IP.

Acquiring new knowledge

TECH2's new business model was to focus on producing components rather than complete systems and set up manufacturing licensing agreements with suppliers abroad. This was part of the firm's new strategy to keep it focused on commercialising its products, rather than continue its high levels of research and new idea development. This would reduce working capital requirements. In line with this new business model, TECH2 required to continued to obtain new market knowledge from its customers and suppliers. Its managers and staff travelled to the USA to meet customers and the Far East to meet suppliers. This extended the previous international experience of some managers. In terms of general internationalisation knowledge, attending the GCDP helped the firm develop the new business model and learn business analytical tools to help its business planning, and setting and achieving its objectives for international growth.

The new strategy required the integration of marketing knowledge and product knowledge to create the components that customers required. These changes were supported by a new chairman and external board of directors which comprised the funders of the business. The new strategy required changes to how products were manufactured and the firm needed to learn how to transfer manufacturing to suppliers but retain intellectual property. The GCDP consultants helped the firm acquire this product knowledge and legal advice was provided on contractual issues by the firm's lawyers.

Assimilating and sharing knowledge within the firm

The assimilation of internationalisation knowledge was initiated by the management team, and then shared throughout the whole company. The new business model required the integration and sharing of the new strategy within the firm to develop new products. The aim was to involve all employees in the transition, so that everybody understood the new strategy and participated in it. In terms of marketing knowledge, a performance management programme was implemented which involved all employees. Sales objectives were set and measured. Changes in the internal structure of product management operations were made in order to bring about the full change to the new product strategy. The development engineers previously reported to the technical director. This was changed and they reported to the operations director. The technical director changed his role to focus on business development i.e. converting the existing ideas into sales. It was recognised that this may change back when the focus is to develop new ideas again. Staff were re-trained to support the new business model.

Exploiting new knowledge

The firm changed its emphasis from being product research and development driven to having a greater market focus. It had previously invested in designing new products for complete projects to which customers might not commit. It learnt to combine product management with a market focus. It now designs components rather than complete systems. TECH2 has changed its business model from manufacturing and supplying to having suppliers do the system assembly and ship directly to a licensed manufacturing partner. TECH2 supplies the tools for the partner to use in the manufacturing, thus retaining the intellectual property.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.9c presents the outcomes of the learning for the firm; strategic decision made, performance and competitive advantages acquired.

Table 5.A.9c: Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
TECH2	Firm has new business model: - Designs components rather than complete systems. - Uses overseas	Continued international sales growth. Achieving higher gross margins.	Component design means firm is less reliant on larger fewer, customers. Ability to exploit R&D more to serve	Need more international marketing capability to access new markets. Limited resources

	licensed manufacturer.	Reduced working capital requirements.	existing markets.	means firm must focus on commercialisation rather than R&D at this stage.

TECH2 have moved from a project to product strategy, designing components rather than complete systems. This new business model, combined with using a licensed manufacturer, reduces the working capital requirements of the firm. It has continued its overseas growth although its new model of licensing to overseas manufacturing means it will receive royalties and higher margins rather than high sales growth. Its design focus on components reduces it reliance on few larger customers and it can sell it components to more customers and supply firms that had previously been competitors. Thus the firm can exploit existing markets. The firm's growth is limited by its resources. It is focusing on penetrating existing markets, and recognises it needs more international marketing knowledge to access new markets for its products. The drain of high R&D on the firms working capital has resulted in the need to commercialise ideas at this stage.

5.A.11 Case TECH3: Technology based internationalising firms

A. Prior overseas activities and initial knowledge base, triggers, responses

Table 5.A.10a presents the prior overseas activities, initial knowledge base, triggers and responses of the firm.

Table 5.A.10a: Case TECH3 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
TECH3	UK head office. Merger with Norwegian company.	IK	Biggest overseas customer bought manufacturing supplier in USA. Review of business of GCDP found lack of long term market for its auto-immune products.	Decision to sell off auto-immune business. Focus on new product development
	International sales through OEMs and regional distributors. Direct UK sales force.	MK	Overseas manufacturing expensive.	Consolidation of laboratory division in UK, by transfer of overseas R&D and manufacturing to the UK
	R&D and manufacturing in UK and Oslo factory.	PK		

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

TECH3 was formed as a result of a merger between a UK international new venture and a Norwegian company. The merged firm floated on the UK and Norwegian stock exchanges in 1993. This research report the learning processes of the UK based management team within the UK division as they embark on their plan to expand its overseas activities. The division produces medical diagnostic products. TECH3 in the UK operates as a separate business unit with decision making responsibility, but its strategy must fit into the overall group strategy. Although the merged firm's head office is Dundee, Scotland, there is a senior management team in Norway where the Group CEO is based. Its main R&D and manufacturing is in head office in the Scotland, with an additional small manufacturing unit in the south of England. The group had manufactured some products in Norway. The UK diagnostics unit will be referred to as TECH3 in the analysis.

TECH3 had produced its auto-immune products for many years and planned to develop these overseas markets. In response to its biggest customers buying a manufacturing firm, TECH3 embarked on a review of its auto-immune business unit as part of the GCDP. However the review of this product range identified limited long term market opportunities and the firm decided to sell this part of the business. As result of this and the spare capacity created in UK, a decision was made to consolidate new product development. TECH3 operates as a contract manufacturer to original equipment manufactures (OEMs), which sell the products as their own brands, as well as manufacturing and selling its own branded products. Its main overseas marketing activities were to sell directly to OEMs in the USA, and through distributors and to OEMs in Europe. It has a direct sales force in Cambridge for UK sales. After the sale of the auto-immune business, the firm changed the marketing focus to produce directly for larger OEM companies and reduce the use of distributors to target a large number of firms. They still use distributors for TECH3 brand products. As a result of this TECH3 entered a contractual agreement to supply a large OEM which accounts of the majority of sales. The sale of the auto-immune business resulted in the number of old product lines being reduced, allowing the firm to invest in new product development, predominantly for its main OEM customers.

B. Absorptive capacity and learning

Table 10b presents the absorptive capacity and learning processes of the firm.

Table 10b: Case TECH3- Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
TECH3	Market: Improve industry, and market knowledge. Develop a sales and marketing focus.	GCDP consultants and top managers identified lack of marketing focus. Staff attend external sales conferences. Recruited and	All managers, marketing and sales staff and distributors.	Top managers created management development programme for functional management. Marketing programme created, sales staff work with	Change in sales and market focus to concentrate on two main OEM customers. Functional managers, technicians and sales and marketing sharing specialist knowledge.

		trained sales and marketing staff.		distributors to increase their knowledge of products.	Better, closer relationship with distributors.
	Internationalisation: Human resource management and recruitment.	Consultants to review staffing structures and training.	Consultants and a project group created.	Consultants work with project group to review HRM practices.	Review of job descriptions, grading, salaries and staff structure. Some success recruiting staff.
	Product: New technologies for product development for new customers.	Existing experience and recruited new staff. Customers.	Internally experienced project leaders developed new technology and products working with customers.	Project managers have delegated their project and new broader based role working across projects.	Focusing on new technological products. Changed from developing wide range of products to identifying specific opportunities.
	Increase knowledge on drug regulations.	Existing Employee. Experience from each new project.	New staff transferred to support role.	New staff learn from existing employee and experience of new projects.	Doing more of the regulatory work for new customers.

Acquiring new knowledge

The GCDP highlighted that TECH3 needed to become more sales and marketing focused rather than product focused. The sales team and other function managers were required to improve their knowledge of their products and industry. Managers underwent an internal development programme to improve their product market knowledge and staff attended more sales conferences. TECH3's new strategy was to focus on working closely with a few OEM customers to develop new products using new technologies. This approach is to develop new products based on opportunities developed with new customers. Much of the learning focused on acquiring new product/technology knowledge to develop products for their major OEM customer, it is at the early stages of this. Twelve products are planned, seven were being researched, one new product was about to come to the market. This new product development resulted in the firm having to learn about new technologies and undertake more regulatory work. R&D project leaders worked closely with the customer at each new stage of the product development. TECH3 have learnt more about the regulatory matters, as their previous customers did more of this work. An existing employee replaced the employee responsible for this area, who was retiring, but realised it needed more resources in the area as the regulations are increasing.

TECH3 is continued sell indirectly their "own brand products" through distributors. New marketing knowledge was required to support distributors. TECH3 embarked on a marketing recruiting programme to increase marketing resources. New staff were recruited to work with existing staff to enhance the firms marketing resources.

The changes in TECH3 resulted in many organisational structure changes within the company. The firm had difficulties recruiting staff in both marketing and diagnostic technology functions. In terms of new general internationalisation knowledge, the firm reviewed its human resource management (HRM) practices. The firm employed external consultants to review staffing structures and training requirements. The firm looked at its pay reward systems to see if they are competitive. This involved a review of job descriptions, grading systems, internal and external salary comparisons and structure.

Assimilating and sharing knowledge within the firm

TECH3 embarked on a management development programme to share and integrate the knowledge of the different specialist areas and improve the product industry knowledge of sales staff. They also embarked on a marketing recruitment programme to increase its marketing support of overseas distributors. The enhanced marketing team worked with distributors to increase their product marketing knowledge and confidence in TECH3 brand products. Initially, three experienced product development project leaders worked on the new projects for the large OEM customer. They worked closely with the customer to develop the new technological expertise required. In order to share this knowledge and expertise among other staff, the project leaders delegated their project and took on a broader role working across several projects. The new OEM contract required that TECH3 took on more responsibility for drug regulations. An employee took on this role and learnt from the retiring employee. The HRM knowledge was assimilated within the firm, an internal project group was appointed to work with the consultants to review the HRM function.

Exploiting new knowledge

TECH3 has increased the market focus of the firm by working more closely with its distributors and customers. The marketing programme of appointing employees to work closely with overseas distributors has resulted in increased sales performance. The new strategy of working closely with a few OEMs means that they have changed from developing a wide range of products, some of which produced poor sales, to developing fewer products for fewer customers but with specific market opportunities. TECH3 have developed new technologies and become more expert in regulatory aspects of new product development. By reviewing its human resource management the firm has recruited staff and improved staff structure and reward systems.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.10c presents the outcomes of the learning for the firm; strategic decision made, performance and competitive advantages acquired.

Table 5.A.10c: Case TECH3-Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
TECH3	Sale of mature product range. New strategy to develop new technological products in collaboration with OEMs. Relocation of manufacturing to UK head office. New marketing strategy to work closely with overseas distributors.	High sales growth. Increased profitability. Met objectives of new product development.	Smaller product range but with specific market potential. Lower manufacturing costs due to transfer of production to the UK.	Planning for continued high growth and expect opportunistic growth. Inexperienced management team, e.g. no dedicated director of sales and marketing, increased resources for regulation work needed. Difficulties recruiting staff to come to UK head office location.

				New product development took much longer than expected.

TECH3 sold its mature product range and implemented a new strategy to develop new technological products in collaboration with OEMs. This has resulted in a smaller product range but with new specific market potential. The new marketing strategy to work closely with overseas distributors has resulted in increased sales performance. The sale of the auto-immune business freed up the production capacity which allowed the transfer of production to the UK and lower manufacturing costs. Overall TECH3 has experienced high sales growth and increased profitability. They have met objectives of new product development and have introduced a new product development process.

TECH3 plans to continue its growth and expects this to be supplemented by additional opportunistic growth. However the firm realised continued improvement is required on several aspects. It recognised the Dundee management team were inexperienced and had been concerned with short-term operational management rather strategic and business management of the firm. For example sales and marketing needed to be developed further but no dedicated director of sales and marketing had been appointed. The director with sales and marketing experience and industry networks has become group managing director and has not been replaced. Increased staff resources had not been provided for regulatory work. This was partly due to location, there were difficulties recruiting senior staff to relocate to the Dundee head office. The new product development took much longer than expected. The initial project leaders were spread too thinly at first when they took on their new role of managing several projects. It took longer to transfer skills to other product development staff than expected. The regulation function requires further resources. The change of staff and increased responsibility and new regulations all contributed to slowing down the R&D process.

5.A.12 Case IN1: Inactive internationaliser

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.11a presents the prior overseas activities, initial knowledge base, triggers and responses of the firm.

Table 5.A.11a: Case IN1– Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge Base*	*Triggers*	*Responses*
IN1	Scottish head office. New CEO with MNE experience.	IK	Overseas subsidiary under-performing.	De –internationalise, close overseas subsidiary and sales operation.
	Scottish head office and sales operation in Germany.	MK	Ambitious overseas acquisition strategy unsuccessful.	Focus on UK business
			UK Business deteriorating. Loss of a large customer.	Re-invest in UK business.
	Repair mobile phones. Overseas repair subsidiary in Holland.	PK		

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

IN1 was formed in 1993 when a small mobile phone repair company was taken over. The firm is owned by two entrepreneurs who have other related businesses which form an "investment group" of companies, of which IN1 is part. They were assisted in running IN1 by a general manager and a small team of functional managers, comprising finance and production managers. The "group" had overseas activities. IN1 started its expansion into overseas markets in 2000 and established a repair subsidiary in Holland to help serve European markets. It also established a sales operation in Germany. It continued to ship most of the work to the UK to service it from its Scottish plant. The overseas subsidiary was established rapidly without undertaking sufficient planning and research. The firm suffered from lack of institutional market knowledge about local legislation, conditions and culture in Holland. The subsidiary was run from the UK with no senior management employed in Holland. The management assumed culture and markets in Holland were similar to the UK. The subsidiary under-performed because it had focused on its technological capability and neglected customer relations. It was recognised that the firm needed to improve operations and human resource management in both its plants.

IN1 had two growth options. Firstly, it could continue its overseas expansion by building the European market to increase output in its Dutch plant and open in more markets in Europe and the USA. Secondly, following discussion with a major OEM customer, it could develop a complete service of repair and logistics management. This would involve establishing a "repair hub" in Scotland. They had the experience of repair and the new operations would require providing customer service call centres. The management focused its efforts on its overseas expansion. They tried to expand its operations overseas but the company was unsuccessful in its plans to acquire overseas subsidiaries and to expand overseas through alliances. The firm then suffered a deterioration is it UK business, in a competitive, consolidating market sector. It lost two large customers which decided to do the repair work themselves. A new CEO was recruited with overseas experience to support the internationalisation but decided to focus his efforts to turn around the failing business and to concentrate on new opportunities in the UK. The CEO felt the UK business needed to be focused on, there was no spare management time or energy to look at other overseas projects. The general manager left the firm and the CEO closed the overseas subsidiary in Holland and the German sales operation. The CEO felt a major mistake in Holland had been opening a subsidiary without good local senior management and that the firm had not invested sufficiently in building overseas customer relationships.

B: Absorptive capacity and learning

Table 5.A.11b presents the absorptive capacity and learning processes of the firm as it embarked on its new strategy to turnaround the business.

Table 5.A.11b: Case IN1 – Absorptive capacity and learning

Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
IN1	Market: Sales and marketing	Internal – CEO	Function head and new team	Senior management	Developed proactive

	processes.	External – sales and marketing team. External – Customers. Scottish Enterprise.		team communicate with and support and middle management.	customer focus. Developed new diagnostic, logistic and refurbishment service.
	Internationalisation: Change in culture of business management. Financial control and operational efficiency.	Internal – CEO External – Investors in people. Consultants. Mentor /business coach. Recruited new functional teams. Scottish Enterprise.	Function managers, middle managers and all staff.	Managers communicate new culture with all staff, presentations in shop floor, social events. Training middle managers in people management. Mentor used to support CEO and senior team.	Change in culture throughout business, responsibility given at all levels. Empowerment of management team to be involved in decision making, delegation and review. Increase in efficiency of work processes.
	Product: New diagnostic product/ service operational system for call centres.	Scottish Enterprise. Consultants.	Managers technical staff.	Worked with SE and consultants to advise and help develop system.	Develop new software system to support new services.

Acquiring new knowledge

Order to turn around, the firm needed to increase the investment in its sales and marketing, improve financial control and change the hierarchical, dictatorial culture. The firm acquired *market knowledge* and experience in order to become more marketing orientated rather than operational. It built close relationships with customers and developed a complete post sales process to offer additional services. Previously the company offered only a batch repair service and acquired new product knowledge to develop a diagnostic system to support is new services. The firm acquired general knowledge that wasn't specific to UK or overseas markets. It required to change the culture within the firm and to become more efficient. The CEO was an internationally experienced manager and he drove the turnaround within the firm using external support. He spoke to customers to find out what their plans were and learn what new services were required and recruited sales and marketing staff to increase the firm's expertise in this area. The firm embarked on the government sponsored "Inventors in People" (IIP). He used external consultants and recruited a personal business mentor/coach. He created a new management structure, employed new senior management function heads and teams for sales and marketing and a finance director to improve financial control. New software for the diagnostic system was developed with help from Scottish Enterprise, specialist consultants and customer feedback.

Assimilating and sharing knowledge within the firm

The CEO embarked on a major programme to change the culture throughout the whole firm. New sales and marketing staff developed customer relationships and fed the information into management teams. The functional management heads supported junior and middle managers as part of the process of changing the culture. Managers communicated with all staff formally and informally with presentations and social events. Middle managers were trained in people management and presentation skills. Outside consultants and a business mentor were used to support the CEO and senior management team. The managers and technical staff worked with Scottish Enterprise and consultants to help develop the new diagnostic service.

Exploiting new knowledge

The business developed proactive customer focus, working with customers to identify their new product and service needs. This information was combined with the firm's technical expertise to develop a complete post sales service for customers. The original mobile repair service was added to, to provide new diagnostic, logistic, return management and refurbishment service. The new diagnostic system which was developed underpins the delivery. The firm runs call centres for customers, where the new diagnostic system is used for consumers to book repairs. It has established alliances with a logistics operator and a call centre. One of the call centres is in India. There was a change in culture throughout the business as responsibility was given to all levels of staff. The management team was empowered with more delegation. A process of review was instigated where rather than top management making decisions, staff are consulted and involved in decision making. There was change in the attitudes of staff at all levels, from a "them and us" approach, which was evident in the IIP report.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.11c presents the outcomes of the learning for the firm; strategic decisions made, performance and competitive advantages acquired.

Table 5.A.11c: Case IN1 - Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints.*
IN1	Withdraw from overseas activities. Focus on domestic market.	Business turnaround – achieved very high domestic growth.	Addressing much bigger market. Service entire post sales process and provide software.	Domestic expansion – market leader in UK. But lack of support and consultancy advice. Resume overseas market expansion. Slow to open overseas factory in Eastern Europe to reduce production costs – could have been earlier. Missed some growth opportunities because of focus of group.

IN1 decided to withdraw from its overseas activities to focus on the domestic business. The overseas subsidiary was not performing well. There were concerns over the firm's survival when it suffered from losing customers in the domestic market. It had limited management resources to tackle both domestic and overseas businesses and it withdrew from both its Dutch and German operations. It saw opportunities to develop the service for existing UK customers and to service customers that had high growth plans. It developed an entire post sales service for its OEM mobile phone producers, which involved developing new software to support the diagnostic service and provide call centres. The firm has expanded the potential market, the previous mobile phone repair activities were only 15/20-% of the new service. The firm has achieved very high growth. The turnaround involved three phases. Firstly, understanding the problems and agreeing a course of action, secondly, winning more business and finally, delivering the service and optimising efficiency. The final phase is ongoing. A major challenge for the firm is to reduce costs in a very competitive market. The firm is continuing its domestic expansion. It has moved from being a small firm to medium sized and continues its growth plans to become a market leader.

The firm plans to resume its overseas expansion and is evaluating overseas markets. It plans to re-enter the overseas markets to retain its existing UK customers that have international activities by servicing their overseas work and to attract new customers from other European countries. The firm was in the process of looking at resuming overseas repair in Eastern Europe in order to reduce costs. Its UK labour costs are high and most of its competitors already have plants in Eastern Europe where labour costs are lower. The firm recognises it has been slow to re-establish an overseas plant due to the time spent evaluating options. This is a result of the experience gained from its previous overseas operations and "due diligence" procedures it now has in place. The firm is considering either an acquisition or joint venture. The firm missed some growth opportunities because of the nature of how it is financed. It is part of an investment group that focuses on retail and the CEO was reluctant to request large sums of additional finance from the investors.

As a medium sized firm, IN1 experienced difficulties acquiring government support and advice to help with its continued growth. The firm needed specific help rather than the more generic assistance that is provided to smaller companies. For example, there was little assistance to help the firm recruit and train high numbers of employees, and it found difficulty finding appropriate consultancy expertise. It has also found difficulty acquiring support and advice as a medium sized firm looking to internationalise. The firm found that this support was more orientated to start-up and technology firms.

In conclusion, the firm established a successful business model in the UK and now plans to develop internationally. It has a better understanding of the UK and international business sector and of the advantages that international expansion will bring.

5.A.13 Case IN2: Inactive internationaliser

A. Prior overseas activities, initial knowledge base, triggers, responses

Table 5.A.12a presents the prior overseas activities, initial knowledge base, triggers and responses of the firm.

Table 5.A.12a: Case IN2 – Prior overseas activities, initial knowledge base, triggers, responses

Firm	*Prior activities*	*Initial knowledge base*	*Triggers*	*Responses*
IN2	Scottish head office. UK acquisitions.	IK	Previous opportunistic international work.	Develop a plan to identify and target overseas markets.
	Franchise in Turkey, alliance in New Zealand. Service overseas clients from UK.	MK	Market place becoming more competitive and a shrinking Scottish customer base.	Target large international customers.
	UK Staff provide service from Scottish office.	PK	Three directors left firm to establish their own business.	Firm focused on succession planning and organic UK business growth.

IK - Internationalisation knowledge
MK – Market knowledge
PK – Product knowledge

IN2 is a design, advertising and media company that was set up in 1979 by the CEO. The firm's head office is in Scotland. It grew organically and through domestic acquisitions. During the 1990s it expanded its service from being a design company into six businesses including design, advertising, branding, Web design, property design and corporate annual company reports.

The firm has worked overseas since the 1990s. This work was opportunistic, it tended to be one off projects or as a result of a short term relationship with one person. It was serviced from its Scottish head office location. An overseas franchise was a result of the firm being approached by a people in Turkey to set up an office under their umbrella. The firm also has an alliance in New Zealand.

In early 2000 the Scottish market became increasingly competitive. IN2's main target client group, large Scottish based firms, was shrinking as indigenous Scottish firms were taken over and head offices were located elsewhere. The firm was experiencing falling sales and profits and it was intended that internationalisation and expansion in England would fuel the growth of the firm. The firm embarked on a strategy of overseas expansion. It joined the GCDP and began a process of investigating possible overseas markets to target and identifying large national and international firms. This would involve following existing clients as they internationalise. IN2 planned to target Amsterdam and looked at acquiring a firm there but decided against it due to the costs involved and concerns over how to retain the people in the business once it was acquired. A senior director was appointed internally to head international work, however he left the firm although worked occasionally on a part time basis. Another director was appointed to take over his responsibility for internationalisation.

The business was restructured and an advisory board was set up, this included a consultant from London to help the firm increase business in the South of England and internationally. However, the firm did not internationalise further but concentrated on the domestic business. As the business environment improved due to an upturn in the English economy, the firm expanded in the UK organically, by working with customers, rather than buying another business. A small Scottish business was acquired when an opportunity arose.

The firm experienced a growing pressure from clients to reduce costs. This resulted in the disillusionment within its "creative" design staff and within the sector generally. This pressure to reduce costs resulted in the CEO's role changing as he became more hands on, spending time on price negotiation with large customers. Another major issue for the firm was succession. When three senior directors left the firm to set up in competition, the CEO and directors became increasingly concerned with succession. The firm had introduced leadership training for younger managers but a successor for the CEO had not been agreed.

B. Absorptive capacity and learning

Table 5.A.12b presents the absorptive capacity and learning processes of the firm.

Table 5.A.12b: Case IN2 – Absorptive capacity and learning					
Firm	*Acquisition: Types of new knowledge.*	*Acquisition: Sources of new knowledge.*	*Assimilation: Who gained expertise?*	*Assimilation: Transfer process.*	*Exploitation: New capabilities gained.*
IN2	Marketing: Business clients.	External – Marketing consultant. Customers. New employees.	CEO, Directors, advisors and management boards. Employee.	Marketing consultant recruited to advisory board. Employee working in client's office.	Increase in UK business outside Scotland.
	Internationasition: Internal management structure and succession.	Internal - CEO and senior management External- GCDP New advisory board.	CEO, Directors, advisors and management boards.	Combine expertise of external advisors, internal directors and management boards.	Increase in UK business outside Scotland. Recruited new management director.
	Staff motivation and internal communication.	Internal – Creative board. External - Interior designers, staff training.	Creative board.	Shared with CEO, directors board and three management boards.	Improved work environment, invested in IT, introduced formal staff appraisal , better communication.
	Procurement procedures and negotiation.	Internal – Experience of dealing with customers. External – Negotiation training. Consultants. Occasional use of lawyers.	CEO and directors.	Shared with the CEO, directors and three management boards.	Knowledge of procurement of large firms. Focus on profitability of clients.
	Product/service: Branding.	External – Recruited employee.	CEO, Directors, and creative teams.	Combined consumers and corporate branding creative teams.	Increase in branding consultancy

Acquiring new knowledge

IN2 focused on developing its domestic market. It continued its reactive overseas work to follow existing customers into international markets. After several years of falling sales and profits, the firm acquired new general knowledge to stop the decline and improve performance. There were three inter-related areas of general knowledge that were acquired by the firm. First, one of the main changes that resulted from the GCDP was that the firm re-structured in order to support its growth. To improve its decision making, the six existing business groups were abandoned and replaced with three management boards comprising creative, business and operations teams. The advisory group was created comprising external advisors and internal directors. Second, after several years of working in a declining market and the pressure to reduce the costs of creative work, the firm addressed issues of staff morale; these included investment in the office environment and technology, training and communication procedures. The ideas for changes were lead by the creative team.

The third area where the firm acquired new knowledge was the procurement practices of its large customers and how to negotiate fees charged. The firm experienced changes in large customers' practices. Previously the work and prices were agreed with customers' marketing departments. This changed and in the last few years the procurement departments negotiated the prices independently, putting pressure on IN2 to reduce costs and cut its margins. The CEO and senior directors became involved in this process and they undertook external negotiation training to help them. The CEO obtained advice from consultants on the profitability and expected margins in the sector. The firm seldom used its lawyers as it found there was little they could do and it was costly to use them.

An integral part of the creation of the new management structure was for the firm to acquire new market knowledge. IN2 opened a sales office in London, appointed a new employee in Liverpool and a marketing consultant based in London to help increase English and international work. The employee in Liverpool was based in the Liverpool client's office which was the first time the company experienced this.

The firm developed its design service to include branding consultancy by recruiting a new member of staff to acquire this new knowledge within the company.

Assimilating and sharing knowledge within the firm

The firm created a new structure of decision making to help the firm grow. The CEO and directors formed the company board. The CEO, directors and advisors formed a new advisory board bringing in external experts to advise the CEO and directors. Three management boards were created as a forum to encourage and involve all staff in the management and decision-making of the company. This allowed a process which combined the expertise of external advisors, internal directors, management boards and project teams. As result of the new structure the creative board led the initiative to increase motivation of the staff by improving the working environment. These ideas were shared with CEO, directors and three management boards within the company. The management group was required to make a case to the company board and finance director, for the investment in the offices and equipment. Through this new structure wider aspects of staff communication were improved including the introduction of more formal staff appraisals.

The changes in procurement practices by large companies became an important issue for the firm. The CEO became more "hands on", working closely with the senior directors and helping staff to provide information required by customers and to negotiate terms with them.

Market knowledge was acquired by the firm from the London based marketing consultant and was then shared with the CEO, directors, other external advisors and management teams at the advisory board meetings. The employee in Liverpool was appointed from the London office and reported directly there.

The new branding employee worked closely with the directors, creative teams and project leaders to develop branding consultancy as a new service. Separate consumer and corporate branding teams were merged.

Overall, the firm has not grown since it embarked on its international strategy. It has increased its UK business outside Scotland which has enabled it to maintain its company sales levels in a falling, increasingly competitive Scottish market. IN2 has developed its services to include offering a brand development consultancy to new and existing customers.

A succession plan is in place whereby a new managing director has been recruited to replace the CEO when he retires in several years. This involves a process of the CEO sharing his knowledge of the firm and its clients with the managing director. The managing director brought additional UK market knowledge of the North of England. Staff motivation and morale have increased due to the creation of the new working environment and investment in new technology. A formal staff appraisal system was in operation and overall there is better communication between staff and management.

The firm has increased knowledge of cost cutting procurement practises of large firms. However this pressure on the firm to reduce costs but maintain quality, has undermined its profitability. The firm has begun to focus on the profitability of its clients.

C. Outcomes: strategic decisions, performance and competitive advantage

Table 5.A.12c presents the outcomes of the learning for the firm; strategic decisions made, performance and competitive advantages acquired.

Table 5.A.12c: Case IN2 Outcomes

Firm	*Strategic decisions*	*Performance*	*Competitive advantage*	*Growth opportunities and constraints*
IN2	Target large, non Scottish firms. Extended service.	Increase in % of sales from non Scottish markets.	Specialist teams allow it to compete in wider UK market.	Continue to expand in English market. No increase in international activities market. Reduction in profits due to procurement practices of large firms.

IN2 has targeted large, non Scottish based firms and extended its service to include brand consultancy. It is large compared to its smaller Scottish design competitors and has developed and maintained its dedicated specialist teams. This has resulted in an increase in its sales from outside Scotland as it successfully competes in the rest of the UK market. This has stopped the rapid decline in sales it experienced in early 2000. The firm has opportunities to expand into other UK regional markets, it has recruited a new managing director with experience of these markets and plans to open new offices in other regional English markets. However the firm's plan to expand internationally has not been achieved, it has not increased its international activities. The firm has experienced difficulties maintaining profitability due to the strong market power of its large customers. Time spent by the CEO and directors negotiating with large customers, succession planning and coping with the upturn in UK business have detracted from the international strategic development of the firm.

Chapter Six

Conclusions

6.1 Introduction

The overall aim of this research is to investigate the learning processes of internationalising SMEs. Although previous international business theory has identified the importance of organisational learning for internationalisation (Johanson and Vahlne, 1977; Eriksson *et al.,* 1997; Forsgren, 2002) there have been few empirical studies and these have been mainly quantitative (Eriksson *et al.,* 2000; Sapienza *et al.,* 2004; Zahra, *et al.,* 2004). By exploring the learning processes of internationalising firms this chapter aims to extend extant literature by allowing deep insights to be uncovered. This study develops a research framework combining international business and organisational learning theory. The research uses an inductive approach to uncover the deep meanings of the phenomenon. This involves the examination of the nature of knowledge acquisition, assimilation and exploitation by firms and the outcome of organisational learning. The study employs a case study methodology to examine the learning processes of firms in the context of their internal and external environment as recommended by Pettigrew (1979, 1992).

This chapter addresses the two specific objectives of the research presented at the end of chapter three:

1. To explore the development of absorptive capacity by internationalising firms through the acquisition, assimilation and exploitation of new knowledge.

2. To explore and examine the outcomes of new knowledge and learning by internationalising firms in terms of strategic decisions, performance and competitive advantage and the constraints faced by firms.

Implications of the research for the literature, management and public policy are considered, followed by the limitations of the study.

This chapter is structured as follows:

6.1 Introduction.

6.2 Context of firm learning; internal and external environment and responses by firms

6.3 Absorptive capacity; acquisition, assimilation and exploitation of knowledge

6.4 Outcomes of new knowledge and learning and constraints

6.5 Implications for the literature

6.6 Implications for management

6.7 Implications for public policy

6.8 Limitations of the study

6.9 Recommendations for future research

6.2 Context of firm learning; internal and external environment and responses by firms.

This research has examined the learning processes of internationalising firms in the context of prior overseas activities and the existing knowledge base of firms. Prior knowledge was analysed in terms of market, internationalisation and product/technological knowledge. International business literature, namely internationalisation process theory (IPT) and international new venture (INV) theory suggests that internationalisation is driven by problems and opportunities which firms respond to (Johanson and Vahlne, 1977; Oviatt and McDougall 1994). IPT emphasises constraining influences and INV theory emphasises enabling effects (Autio, 2005). This research has shown that firms have different learning needs depending on internal and external conditions that influence decision making. Internal influences include prior knowledge and experience, growth objectives, performance and internationalisation activity the firm is engaged in at the time. External influences include the nature and competitiveness of the global market in which the firm operates, location of firm's main markets and technology-intensity of the firm and its industry.

Patterns of internationalisation

IPT theory suggests that a firm's internationalisation will be path dependent, whereby its existing stock of knowledge and a firm's operating environment direct its internationalisation (Eriksson *et al.*, 2000). These factors are unique and firm specific. Knowledge acquisition is gradual and thus internationalisation is incremental, in which each step adds to a firm's knowledge and prior knowledge (Johanson and Vahlne, 1977). INV theory suggests that international new ventures are formed by entrepreneurs who have prior knowledge and experience of international markets which facilitates early internationalisation (Oviatt and McDougall, 1994). Oviatt and McDougall (2005b) suggest that it is differences in knowledge which explains speed of internationalisation. IPT best applies to "traditional firms" adapting well understood technologies to international markets, whilst INV theory has focused on explaining the faster internationalisation of knowledge-based/intensive firms. This study found that sample firms had a range of different internationalisation patterns, some of which did not fit with the patterns of internationalisation suggested by IPT and INV theory.

Table 6.1 below shows the firms' internationalisation patterns, highlighting in bold the firms with different patterns than those suggested by IPT and INV theory. International new ventures were found to be from traditional as well as technology-based and technology-intensive industries. One traditional firm, MAN1, was found to internationalise early and to operate in a globally competitive market, in contrast to the incremental approach suggested by IPT. The firm, a traditional alloy metal processing manufacturing firm, internationalised rapidly, serviced overseas markets and opened an overseas manufacturing plant shortly after start-up. Prior overseas managerial experience seemed important for success; the CEO had previously worked for a large international firm in this industry.

As suggested by INV theory, prior international experience was important in the early internationalisation of the technology-based/intensive firms (Oviatt and McDougall, 1994). For example in this study, the CEOs' of international start-ups (SU1, SU2, SU3) all had previous knowledge of overseas operations. However two knowledge firms internationalised incrementally rather than rapidly as suggested by INV. IN1 was a technology–intensive firm that operated in the UK for more than six years before internationalising. From its domestic base in the UK, it expanded internationally by establishing an overseas mobile phone repair subsidiary in Holland assuming that the Dutch market would be similar to the UK. However the CEO and management team had no prior international experience. Due to this lack of experience and knowledge of the overseas market, internationalisation was unsuccessful and the firm de-internationalised. Furthermore this case also supports findings by O'Grady and Lane (1996) that operations in psychically close countries are not necessarily easy to manage. Assumptions of similarity prevented the firm from learning about cultural differences. TECH2 founders did not have prior international business experience and it internationalised incrementally from a domestic base, engaging in internationalisation as part of a later growth strategy.

Table 6.1 Different patterns of internationalisation

Firms	*Category of firm*	*Pattern Fast/Early - INV*	*Pattern Incremental – IPT*
SU1	KI	√	
SU2	KB	√	
SU3	KI	√	
MAN1	T	√	
MAN2	KI	√	
MAN3	T		√
MAN4	T		√
TECH1	KB	√	
TECH2	KB		√
TECH3	KB	√	
IN1	KI		√
IN2	T		√

KB – Knowledge-based firm
KI – Knowledge-intensive firm
T – Traditional firm

Much of the extant research into INVs, early and rapidly internationalising firms has been limited to technology-based/intensive firms (Oviatt and McDougall, 1994; Sapienza *et al.*, 2006). *An important suggestion from this study is thus that additional research is required on a wider range of internationalising firms, thus supporting, for example, the study of Bell et al. (2001) of "born-again global" firms.*

6.3 The development of absorptive capacity by internationalising firms through the acquisition, assimilation and exploitation of new knowledge.

Acquisition - types and sources of knowledge

The fundamental argument of IPT is that new flows of knowledge are related to a firm's existing knowledge base through their the current strategies (Madhok, 1997; Johanson and Vahlne, 1977, 1990; Eriksson *et al.*, 2000). IPT emphasises the experiential accumulation of market specific knowledge, where firms invest incrementally over time in a specific market. Thus past experience of a market leads to the commitment of resources and is seen as the driving force. IPT has been criticised recently as is it neglects experience that is relevant to all markets (Eriksson *et al.*, 1997; Li.Li and Dalgic, 2004). Indeed, it has been argued that more general managerial knowledge and the co-ordination of activities explains firm growth (Penrose, 1959) and competitive advantage (Spender, 1994). Researchers have highlighted the importance of a firm's internationalisation knowledge i.e. experiential knowledge of a firm's capabilities and resources to engage in international operations such as organisational routines, procedures and structures (Eriksson *et al.*, 1997). It includes knowledge of functions, technology, market entry mode and development methods (Eriksson *et al.*, 1997). Internationalisation knowledge makes up a firm's knowledge assets, and is not specific to a country or mode of entry. It has been suggested that this general knowledge can function as a driving force to take steps in new directions (Forsgren, 2002). Thus it may explain a firm's lateral expansion into new markets. It was found in this study that all firms were concerned with acquiring new internationalisation knowledge about the management of international operations to support their growth. Not only is it important for lateral expansion into new markets, but it is also important for expansion in existing markets. *Firms acquire internationalisation knowledge in order to support their current overseas activities, and hence it is an important driver of internationalisation overlooked by IPT.*

This study extends the idea of general *internationalisation knowledge* suggested by Eriksson *et al.* (1997) and proposes that internationalisation knowledge can be of two types. First, it can be specific to the internationalisation process and transferable to different markets, for example knowledge of market entry modes, managing overseas agents and partners, overseas franchising and overseas project management. Second, there is generic knowledge which is applicable to overseas and domestic markets. This includes for example, knowledge sharing systems, WEB design, delegation and management structure, where domestic and overseas managers become involved in decision making within the firms to support international growth. Internationalisation knowledge is dynamic and thus changes as firms expand internationally.

As firms were limited in the number of new markets they could enter at a time due to managerial and financial constraints, acquiring internationalisation knowledge was important to establish international operations in a new market. Time taken would influence a firm's continued expansion and delays resulted in slower expansion into new markets. All firms except one looked to external sources to acquire internationalisation knowledge. The exception was TECH1, which did not look for external advice and relied on management experiential knowledge only. The firm suffered delays in the establishment of its US subsidiary due to management and organisational issues which suggest that *external advice might have helped the firm acquire internationalisation knowledge quicker and prevented delays in its internationalisation.*

Whilst this study supports the view of IPT that firms acquire market knowledge experientially from operating in the market (Johanson and Vahlne, 1977), it was found that when firms were expanding in an existing market and/or entering new markets they looked to both external and experiential sources of market knowledge. Where firms acquired market knowledge externally, it can be experiential or objective knowledge. By recruiting staff that have the market knowledge, firms acquire experience; for example TECH3 obtained external market knowledge by recruiting sales and marketing staff to work with overseas distributors, attended sales conferences and acquired market knowledge from the Global Companies Development Project (GCDP). TECH1 employed a new European marketing director to undertake market research in Germany before entering the market. Firms also used external published sources, for example MAN1 acquired information from a public authority in the US and government bodies, when it was setting up a subsidiary, although it was already operating in the market. *These findings suggest objective and* *vicarious experiential knowledge are important external sources of knowledge overlooked by IPT.*

Recent research suggests that firms' knowledge base is a key resource driving the international growth of technology-based new firms and that technological knowledge is inherent in an INVs activities and outputs (Yli-Renko *et al.*, 2002, McDougall *et al.*, 1994). This research identified the importance of new technological knowledge for INVs. It supports the view suggested by absorptive capacity and organisational learning that firms acquire new technical knowledge from external sources (Cohen and Levinthal, 1990; Huber, 1991). All technology-based/intensive firms were concerned with acquiring new technological and/or product knowledge externally. Although this knowledge is integrated where firms have existing prior knowledge, the acquisition of the new knowledge externally was important. Thus although previous knowledge and learning acquired in earlier activities alerts founders of INVs to new international opportunities (McDougall *et al.*, 1994), *the findings suggest that both experiential and new external product/technological knowledge is required for firms to launch new ventures and compete in the international market place.*

IPT largely ignores product/technological knowledge (Johanson and Vahlne, 1977). *In support of IPT, this research found that new product knowledge was not always important for a firm's international growth.* Product/technological knowledge was found to be less important for the traditional manufacturing firms (that have non knowledge-based/intensive products) as they internationalise. They were adapting well understood technologies to new foreign markets (Oviatt and McDougall, 2005b). These traditional manufacturing firms were focused on entering new markets and expansion in existing markets with existing products. Only one manufacturer, the technology-intensive firm MAN2, acquired new product/technology knowledge to support its growth.

However, the research found that the lack of importance of new product knowledge is irrespective of whether the firms are rapid or incremental internationalisers. For example, traditional manufacturers MAN3 and MAN4 experienced incremental internationalisation as suggested by IPT, whereas MAN1 embarked on rapid internationalisation. The firm operates in a global market and the CEO had prior international experience; this traditional new venture experienced rapid internationalisation. New product development in traditional firms was found to be gradual and did not involve greater intensity of effort to increase organisational learning (Kim, 1998). Thus although these findings support the view of Bell *et al.* (2003) and Oviatt and McDougall (2005b) that technological knowledge is an important driver of internationalisation, *this study found that traditional manufacturers with non technology-based/intensive products, may also embark on early and rapid internationalisation.*

Previous empirical research suggests that knowledge-based/intensive firms focus on new product development on international markets and traditional companies design products for the home market first (Bell *et al.*, 2004). In contrast, this research found that some knowledge-based/intensive INVs developed products for the home market first. For example SU2 developed its new aviation product with a UK partner for the home market before adapting it for the overseas market in co-operation with a US partner. SU3 developed the new product with overseas manufacturing partners and combined this knowledge with new technology expertise acquired from the UK. However it plans to sell the new product initially to the domestic market. *What is evident is that the domestic market and environment is a source of new market and product knowledge which is useful for overseas expansion through new product development.*

Internationalisation process theory highlights experiential market knowledge which suggests internally focused, single loop learning and exploitative behaviour (Huber, 1991; March 1991). Researchers have recently suggested internationalisation knowledge requires double loop learning and is the driving force to do new things (Forsgren, 2002). A critical assumption of IPT, is that objective knowledge and externally acquired experience are of minor importance in a firm's internationalisation (Johanson and Vahlne, 1977). Internally and externally focused market knowledge acquisition is not clearly distinguished by Johanson and Vahlne (1977) in the Uppsala model. Furthermore absorptive capacity has highlighted the importance of the acquisition of external knowledge to a firm's innovation capabilities which has implications for product/technological knowledge neglected by the Uppsala model. This research investigates in-depth the nature of the sources of knowledge used by firms. The research found that firms acquire new knowledge from external and internal sources. *The acquisition of all three types of knowledge externally is important for firms to embark on new activities and enables double loop learning.* For example, the acquisition of market knowledge externally from published sources, US and UK government agencies was important for MAN1 to expand its activities in the US market by setting up a subsidiary and expand into new states in the US. SU2 acquired its technological knowledge to develop its new product from externally published research and expertise from local institutions. MAN4 used consultants to acquire general internationalisation knowledge of international franchising. *An important finding is that firms required double loop learning to expand in existing markets as well as enter new markets.* Table 6.2 presents a framework below which distinguishes between external/internal and experiential/objective knowledge sources of the types of knowledge used by firms. Examples of the sources of knowledge used by firms are given in the table.

Table 6.2: Dimensions of knowledge sources used by internationalising firms

Source of knowledge		*Market Knowledge*	*Internationalisation knowledge*	*Product/technological Knowledge*
Internal	Experiential	Operating in overseas markets.	Cross functional project teams.	Working with customers/partners.
Internal	Objective	Market information system.	Management information system.	Formal internal product knowledge management system.
External	Experiential	Acquiring staff with the experience.	Acquiring staff with the experience, using consultants.	Acquiring staff with the experience, using consultants.
External	Objective	Published market research	Publications, books.	Published scientific/ technological research.

Thus, this research found that firms acquired market, internationalisation and product/technological knowledge and has highlighted the importance of these different knowledge types for firms. Learning is a result of acquiring different types of knowledge from internal and external sources. Although IPT and absorptive capacity question the extent to which external experience can be bought in, for example via hiring new personnel, buying or using outside organisations (Johanson and Vahlne, 1977; Cohen and Levinthal, 1990), *the lack of ability to acquire this external experiential knowledge is a barrier to learning for firms.* This research has highlighted the importance of external knowledge sources in the acquisition of all three knowledge types. This study has shown that the acquisition of knowledge from external sources is important for current and new activities; for example, acquiring market knowledge externally helps firms to both expand in existing overseas markets and enter new markets.

This study found that firms often combined external and internal sources supporting the knowledge based view of the firm that highlights the importance of combinative capabilities in the internationalisation of firms and the accumulation of organisational know-how (Kogut and Zander, 1992, 1993). This involved firms in combining internal and external sources of knowledge and market and product knowledge to acquire general internationalisation knowledge. For example, MAN4 created cross-functional internal marketing and product design teams to work with external consultants to acquire internationalisation knowledge of overseas franchising.

Assimilation and knowledge

Absorptive capacity highlights the importance of assimilation of new external knowledge within the firm for organisational learning to occur (Cohen and Levinthal, 1990; Kim, 1997). However IPT does not address the difficulties of knowledge assimilation. For example, Johanson and Vahlne (1977) assume that market knowledge is reasonably retrievable, whether it is held in tacit or explicit form (Polanyi, 1966). Tacit knowledge has advantages and disadvantages for international investment (Kogut and Zander, 1993). Although tacit knowledge may be a source of competitive advantage because it is less copyable by rivals, it may impede learning in firms where it is difficult to transfer (Grant, 1991; Hendry, 1996). A lack of transparency may prevent change in firms (Grant, 1991; Hendry, 1996). Recent developments in the knowledge based view of the firm have highlighted the dynamic nature of tacit and explicit knowledge in the knowledge creation process as firms interact with their members and the environment (Nonaka and Toyama, 2003).

This research has shown that assimilating new knowledge and converting tacit to explicit knowledge is very important to internationalising SMEs. This involves firms developing processes to share market and product knowledge internally, amongst different units within the firm, in the UK and overseas. Thus, a key aspect of developing absorptive capacity is internationalisation knowledge acquisition by firms. New management processes were set up by firms to transfer new knowledge to and from external partners, customers, suppliers, distributors and agents. It was important for firms to develop systems to assimilate this new external knowledge as recognised in the absorptive capacity concept (Cohen and Levinthal, 1990); but also to transfer internal knowledge and expertise to different departments, for example transferring marketing expertise into new product development. The findings of this research show how tacit and explicit knowledge is assimilated by internationalising firms. This involved SMEs using and developing formal systems to acquire and assimilate this new knowledge, for example creating cross functional project teams and management boards, rather than the reliance on informal management structures as suggested by the literature (Storey, 1994). *This research thus highlights the importance of the acquisition and assimilation of objective knowledge from internal and external sources by firms, a process which also involved converting tacit to explicit knowledge.*

Exploitation and knowledge

Absorptive capacity emphasises the exploitation or application of knowledge (Cohen and Levinthal, 1990; Zahra and George, 2002). Exploitation is an organisational capability based on routines that allow firms to extend existing competencies or create new ones (Zahra and George, 2002). The outcome of exploitation includes new products, systems, processes, knowledge and organisational forms (Spender, 1996). By focusing on specific *market knowledge* acquisition from current activities, IPT emphasises exploitation behaviour in a specific market, thus learning involves improving competency and skills within activities that are already known (Forsgren, 2002). It overlooks exploitation behaviour of firms in new markets and operations which involve creating new competencies (Forsgren, 2002). Thus it neglects *internationalisation knowledge* which explains how knowledge is transferred from one country to another and influences lateral international expansion (Eriksson *et al.*, 1997; Forsgren, 2002). Forsgren (2002) suggests that market knowledge acquisition involves single loop/adaptive learning whereas internationalisation knowledge acquisition involves double loop/generative learning by firms. Organisational learning theory suggests it is the latter which results in new capabilities, changes in how thing are done and problem-solving (Argyis, 1999; Senge, 1990).

This research has shown that acquiring internationalisation knowledge is key to absorptive capacity development and the exploitation of new knowledge by firms. However the results of this study extend existing literature that emphasises the importance of general internationalisation knowledge for lateral expansion (Johanson and Vahlne, 1977). *Internationalisation knowledge acquisition and thus double loop learning, was important for firms to exploit existing market knowledge and develop competitive advantage in existing markets and to expand into new markets.* For example, internationalisation knowledge acquisition helped firms improve performance and develop competitive advantage in current markets. New competencies developed from market knowledge that support lateral expansion included the manufacturing firms creating new business models that could be replicated in other markets (for example improving costing and international project management, increasing global supply flexibility, developing a new sales model to support agents and distributors in one market which was then transferred to other markets).

Internationalisation knowledge was also important for the knowledge-based/intensive firms to exploit product knowledge. For example internationalisation knowledge whereby TECH1 created a stronger team approach enabled the firm to integrate R&D into the whole company. Improved processes through internationalisation knowledge acquisition helped firms to integrate market knowledge to create customer focused products/services, which was important for both current market activities and expansion and for new market entry.

Market knowledge was important to help the start-ups to establish overseas relationships. This enabled SU1 and SU2 to enter new markets and SU3 to establish design and manufacturing alliances in China and the Far East. However internationalisation knowledge was developed to enable firms to sustain the exploitation over extended periods of time (Zahra and George, 2002). SU1 developed a new business model which involved recruiting strategic partners to achieve economies of scale in its operations across markets. SU2 combined market knowledge gained from working closely with its overseas partner in the US, with external expertise acquired from recruiting a global industry expert to expand its product worldwide. Furthermore, this supports INV theory which suggests that the increased availability of international managerial experience has enabled firms to quickly acquire market knowledge (Oviatt and McDougall, 1994; Autio, 2005). SU1 developed an international intellectual property protection strategy based on continuous innovation to support its future expansion.

The development of internationalisation knowledge helped the inactive internationalisers to expand domestically. IN1 engaged in double loop learning to change management practices, in new product development and to target new markets. Much of this resulted from its international expansion. As a result of its failed overseas foreign direct investment, the firm embarked on a change programme to improve the management of the business and implement the development of new products to expand its domestic business. It needed new general knowledge to exploit market and product knowledge to support its high domestic expansion. IN2 on the other hand developed its business within its current activities. Although IN2 did not expand internationally, the acquisition of international knowledge to restructure the business and support its international expansion helped improve its performance in the domestic market.

6.4 The outcomes of new knowledge and learning by internationalising firms in terms of strategic decisions, performance and competitive advantage and the constraints faced by firms.

Absorptive capacity is a learning process by which knowledge is acquired, assimilated and absorbed and is important for decision making, performance and competitive advantage (Zahra and George, 2002). These three outcomes were found to be inter-related and are discussed below. Constraints faced by firms and resultant barriers to learning are considered.

Decision making

Strategic and organisational decision making has been viewed as an organisational capability which influences competitive advantage and involves fundamental decisions which shape the course of a firm (Eisenhardt and Zbaracki, 1992). Indeed in rapidly changing environments, strategic decision making can be viewed as a dynamic capability (Eisenhardt and Martin, 2000) and, it has been argued, is the fundamental dynamic capability in excellent firms (Eisenhardt, 1999). Learning and absorptive capacity are important influences on decision making capabilities. Cohen and Levinthal (1990) argue that problem solving and learning capabilities are similar. Thus learning capabilities involve the development of skills to assimilate existing knowledge, while problem solving skills represent that capability to create new knowledge. It has been argued that IPT has focused on adaptive or single loop learning, where the focus on experiential knowledge acquisition is on problem solving in the area of the problem (Forsgren, 2002). For firms to invest in new markets and operations, double loop learning is required (Forsgren, 2002). The organisation learning literature suggests that for double loop learning to occur firms will require externally focused knowledge acquisition (Huber, 1991; Cohen and Levinthal, 1990).

This research has investigated the new knowledge acquired by firms in the process of decision making and the resultant choices. The research has found that the acquisition and development of internationalisation knowledge is important for improved problem solving and decision making capabilities by firms. However it can be developed from both internal experiential knowledge and external sources. Most firms acquired internationalisation knowledge externally, usually combining it with internal knowledge. However one firm, TECH1, developed new internationalisation knowledge from its market experience. Due to the experience of operating difficulties with its US subsidiary, TECH1 devised a new market entry mode to enter the German market. Most firms acquired new internationalisation knowledge from external sources. As a result of external consultancy advice sourced from the GCDP, new management information systems resulted in improved operational decision making in MAN3 and a more strategic approach to decision making in MAN4. *Thus, internationalisation knowledge from internal or external sources enabled firms to improve decision making as they grew.*

Performance

Zahra and George (2002) discuss performance as an outcome of absorptive capacity and focus on how a firm's profitability contributes to its competitive advantage. Zahra and George (2002) argue that profits are created through a firm's *realised absorptive capacity* in terms of its capabilities to transform and exploiting new knowledge. It is a firm's efficiency at converting *potential* (acquisition and assimilation) to *realised* absorptive capacity that improves its performance (Zahra and George, 2002). Growth and profitability are two distinct dimensions of a firm's financial performance (Murphy, Trainer and Hill, 1996) which correspond respectively to a firm's effectiveness versus efficiency (Venkatraman and Ramanujam, 1986) or exploration versus exploitation (March, 1991). Furthermore, Huber (1991) highlights the role of performance monitoring by a firm to assess its effectiveness in meeting its goals. It is a source of information and organisational learning. Thus, performance is an important influence on a firm's learning process and is an outcome of that process.

This study examines the influence of performance on firm learning and as an outcome of learning. Performance influenced strategic and operational decision making within the firms. Where firms are increasing growth by entering new markets or penetrating existing markets the focus is on acquiring new market knowledge. Similarly where firms were increasing growth by new product development, they focused on acquiring new product/technological knowledge. Both of these learning behaviours involve exploration (March, 1991). However, where firms are concerned with improving profitability the focus is on developing internationalisation knowledge, for example by improving project management (MAN3), commercialising research (TECH2) or improving market information systems (MAN2) and involves exploitation (March, 1991).

Competitive advantage

Zahra and George (2002) argue that absorptive capacity can be a source of competitive advantage which they identify as strategic flexibility, innovation and performance. For example, exploitation capabilities are likely to influence firm performance through product and process innovation (Zahra and George, 2002).

Much of the discussion of competitive advantage in the international entrepreneurship literature explains how early internationalisation influences competitive advantage which underpins international growth. Knowledge and learning are important determinants of new firm growth and early internationalisation, and greater knowledge-intensity has been associated with faster international growth (Autio *et al.*, 2000). Autio (2005) suggests that early internationalising firms and INVs have three potential sources of international competitive advantage. First, these derive from exploiting value resources across national borders (Oviatt and McDougall, 1994). Second, knowledge regeneration and technological learning advantages which are associated with international diversity will be important for technology-intensive new ventures seeking to distinguish themselves from their competitors (Zahra *et al.*, 2000). Third, the dynamic capability effect of early internationalisation is a potential source of competitive advantage as it may help establish a more innovative and dynamic strategic posture for a new venture and strengthen its organisational abilities (Autio *et al.*, 2000). However, this is an under researched area, leading researchers to call for better understanding of the source and effects of international competitive advantage (Zahra, 2004; Autio, 2005). Zahra (2004) suggests that the effect of age and size on the competitive advantage that INVs derive from early internationalisation is open to question and that it is how firms compete once they have entered the global market that is important.

The findings of this research support previous studies which found that early internationalisation is associated with higher growth in technology-based firms (Autio *et al.*, 2000; Sapienza *et al.*, 2006). Both INVs, TECH1 and TECH3 developed competitive advantage and grew faster than TECH2, the late internationalising technology-based firm. All three firms established their technology in the market place, TECH1 and TECH3 internationally and TECH2 in the domestic market but TECH2's international growth was constrained by its lack of internationalisation experience and knowledge. TECH2 experienced difficulty developing competitive advantage and suffered from falling sales and low profitability. In an effort to improve performance it turned its technological focus from exploration to exploitation (March, 1991). This exploitation behaviour required the firm to acquire internationalisation knowledge to develop a profitable business model to reduce working capital requirements and increase margins. It developed a business model to enable the firm to profitably exploit the technology and transfer it across international borders. This led the firm to embark on acquiring new product knowledge through overseas license manufacturing, which in turn required the monitoring of its efficiency through increased internationalisation knowledge. This suggests that the firm's lack of prior knowledge and experience of international operations resulted in problems in developing a competitive advantage and slower international growth. Whereas, although TECH1 took almost six years of product development to launch its product, it was internationally focused from inception and subsequently achieved higher international growth.

The requirement to embark on exploitative/efficiency seeking behaviour to sustain competitive advantage was evident in the manufacturing firms. After a period of high international growth, both MAN2 and MAN3 suffered a drop in growth and profitability. The firms turned their attention to acquiring internationalisation knowledge to become more efficient in their international operations. For example MAN2 acquired new internationalisation knowledge to improve the management of overseas sales operations in order to improve profitability and efficiency. MAN3 acquired internationalisation knowledge of overseas project management to improve its profitability. This knowledge acquisition was irrespective of whether they internationalised at inception or incrementally. MAN2 was a knowledge-intensive firm that had internationalised at inception in 1973 whereas MAN 3 was a traditional firm that internationalised incrementally. Thus due to poor performance it was important for these firms to focus on acquiring internationalisation knowledge to improve profitability to support future growth.

MAN1 and MAN4 both continued their international growth. MAN1 sustained its high international growth by combining exploration and exploitation behaviour. It continued to acquire new market knowledge in the US and to develop its internationalisation knowledge to improve its US and UK operational and administrative management. However its exploration was limited due to managerial time constraints and it did not expand to other overseas markets at that time. Although MAN4 maintained its profitability, its growth slowed and it focused on acquiring internationalisation knowledge. In contrast to MAN 2 and MAN3 which focused on improving profitability performance, MAN4's internationalisation knowledge was growth focused, and combined exploration and exploitation behaviour. New sales employees were recruited to improve the efficiency of sales in existing markets (exploitation) and a new overseas franchise model was created (exploration). *Overall findings highlight the importance of both exploitation and exploration behaviour for all three knowledge types for firms' international growth.*

Autio (2005) proposes that the creation of dynamic capabilities that result from early internationalisation may cause firms to pursue domestic growth opportunities more proactively and be better equipped to take advantage of such opportunities. This is supported by findings by Sapienza *et al.* (2004) that early entry in foreign markets promotes learning effort in international and domestic markets. *Whilst this research supports the proposition that international learning can be transferred to the domestic market, it is not limited to early internationalising INVs.* In this study the benefits of gaining international market experience and internationalisation knowledge in terms of managerial capabilities and organisational skills resulted in improved domestic performance by the inactive internationalisers. For example the lessons learnt by IN1 as result of its unsuccessful FDI market entry, influenced the firm's development of managerial capabilities and its decision to expand in the domestic market through joint ventures rather than creating new business units. These lessons also influenced the planning of future internationalisation activity.

In summary, this section has discussed the outcomes of absorptive capacity in terms of decision making, performance and competitive advantage. The acquisition of market, internationalisation and product/technological knowledge were found to be influenced by a firm's performance. This is illustrated in table 6.3 below. Where firms focus was on improving profitability and efficiency, they adopted exploitation behaviour. Where firms maintained a focus on growth, they adopted exploratory and exploitation behaviour. *The development of internationalisation knowledge was important for both exploitation and exploration.* Where firms were growth focused they were concerned with penetrating existing markets and entering new markets, market and internationalisation knowledge were important. Where firms were profit focused they acquired market knowledge of current activities and internationalisation knowledge to consolidate and improve efficiency in existing markets. Where growth involved the development of new technological products, new technological knowledge was acquired. However when firms focused on profitability, the new knowledge involved developing the commercialisation of research to exploit existing technology knowledge to create products and internationalisation knowledge to improve efficiency.

Table 6.3 Performance and knowledge acquisition				
Firm Performance Focus	*Behaviour*	*Market Knowledge*	*Internationalisation knowledge*	*Product/ Technological Knowledge*
Growth	Exploration	Experiential and external market knowledge used for penetration of existing markets.	New market entry modes in new markets. New operations in existing markets.	New technological research.
Profits	Exploitation	Experiential market knowledge used for consolidation.	Organisational and project management Market/management information systems. Licensing/overseas manufacturing.	Product development focused to exploit existing technology.

Constraints and barriers to learning

Although INVs can experience liabilities of newness, size and foreign-ness (Zahra, 2002), researchers have suggested that young firms may enjoy "learning advantages of newness" whereby young firms may be able to embrace internationalisation more rapidly and completely than older internationalisers (Autio, 2005; Autio, *et al.*, 2000). This assumes that INVs do not suffer from the same inertia forces that limit established firms' ability to learn and stifle adaptation (Oviatt and McDougall, 1994; Zahra, 2004). However this is an area where there is little empirical evidence (Zahra, 2004; Autio, 2005). Furthermore, another little researched issue is how older internationalisers shed domestic rigidities to embrace international growth opportunities (Autio, 2005). This research has investigated the development of absorptive capacity and learning processes of both international new ventures (at start-up and at a later stage of internationalisation) and incremental internationalising SMEs. *Findings of this research study suggest that both INV and incremental internationalising SMEs can suffer from inertia; what is important is the steps that firms take to overcome resistance to change and learning constraints on growth.* The commitment of the CEO and management team to internationalisation and to overcome these constraints is important. Improved communication and training is important for firms to overcome inertia. TECH1, an INV, suffered resistance to change amongst its employees in its US subsidiary. Intense effort by the CEO and UK management team to implement change was required and constrained its growth into other markets. Efforts by firms to implement change could result in slower entry or growth into other markets. Inertia not only affected internationalising firms. The de-internationalising firm, IN1 suffered resistance to change in its strategy as it withdrew from overseas to focus on domestic markets. The CEO embarked on an intense change programme to support its high domestic growth. Although SMEs tend to have informal management structures (Storey, 1994), all of the manufacturing firms needed to change organisational structures and introduce delegation, abroad or in the UK, to support international growth. The GCDP played an important role helping firms to recognise this need and implement the changes.

Overall conclusions

In conclusion, this research has shown that to achieve high/rapid international growth, it is important for firms to acquire external market, international and product knowledge rather than relying on internally acquired experiential knowledge. But, it is important that firms develop the capabilities to assimilate the new knowledge within the firm. Findings suggest that the external acquisition and assimilation of knowledge enables faster growth of both INVs and late internationalisers. The assimilation of knowledge involves transferring new knowledge between sections and different levels of management and staff within the firm, and from external partners and stakeholders. The new knowledge acquired depends on the opportunities and problems, and the resultant decisions facing firms at the time (Johanson and Vahlne, 1977; Oviatt and McDougall, 1994). In general, to support international growth, start-ups were concerned with building relationships and overseas market development, manufacturing firms on improving management structure and operations, technology–

based firms focused on product development and commercialisation of research; whereas inactive internationalisers focused on improving management practices and domestic market development. Overall, firms acquire new market knowledge when expanding in existing markets and entering new markets or new product/technological knowledge when engaging in new product development to support growth objectives. Of particular importance to all firms is the development of internationalisation knowledge to integrate marketing and product/technological knowledge within firms, and to develop management and operational capabilities to assimilate and exploit knowledge in existing and new overseas markets. Performance influences decision making and learning, and improved performance and decision making is an outcome of that learning. New capabilities acquired helped firms to achieve competitive advantage, which often required firms to engage in generative or double loop learning (Cohen and Levinthal, 1990; Argyris, 1996; Senge, 1990). Inertia can be a barrier to absorptive capacity for both INVs and older internationalisers. The steps that firms take to overcome resistance to change as well as the commitment of the CEO and management team to overcome these constraints is important. Finally, the domestic market is an important source of new knowledge for technological and product innovation and internationalisation knowledge is useful for domestic market development.

6.5 Implications for the literature

This section synthesises the main findings and discusses the implications for the literature.

Types of Knowledge

Findings:

- Most firms acquired market, internationalisation and product knowledge, but the types of knowledge depended on strategic decisions, growth objectives, performance and knowledge intensity of products.
- The different types of knowledge were often inter-related.

- Market knowledge was acquired when firms expanded in existing markets, entered new markets and adapted products to overseas markets.
- Internationalisation knowledge was the most frequent knowledge type. This involved both internationalisation *specific* knowledge (for example international sales and marketing processes) and *generic* knowledge (for example management structures and delegation).
- Product/technological knowledge was continuously acquired by most firms, except traditional manufacturing firms. The technology firms were concerned with R&D, commercialisation and profitability to support growth. The manufacturing firms did not acquire new product knowledge where they had well defined product ranges and were developing overseas markets for existing products.

Implications for the literature:

The distinctions between the types of knowledge are blurred and not clearly distinguished in the literature (Johanson and Vahlne, 1997; Eriksson *et al.*, 1997). This inductive, in-depth approach has helped to unravel these complexities and provide additional insights into the nature of knowledge acquired by internationalising SMEs. For example, this study has distinguished between specific market knowledge and general internationalisation knowledge (such as the development of marketing processes) that can be transferred by firms to other markets. The study explored the importance of product/technological knowledge of internationalising firms, which was largely ignored by IPT and limited to technology-based/intensive firms in INV theory (Johanson and Vahlne, 1997; Oviatt and McDougall, 1994). Furthermore this research has given insights into the managerial knowledge and co-ordination activities of internationalising SMEs that explain firm growth and competitive advantage (Penrose, 1959; Spender, 1994).

Sources of knowledge

Findings:

- New knowledge was acquired internally (experientially and from objective sources) and externally (objective knowledge from published information, grafting and vicarious sources).
- Acquiring knowledge externally was important for all three knowledge types.
- A lack of ability to acquire external knowledge is a barrier to firm learning which limits international growth.

Implications for the literature:

By focusing on the acquisition of knowledge internally through a firm's current activities, IPT applies a narrow definition of experiential learning (Johanson and Vahlne, 1977; Forsgren, 2002). By empirically examining sources of knowledge used by SMEs in the processes of internationalisation, this research has distinguished between and highlighted the importance of other sources of knowledge. For example, this research suggests that firms can increase the pace of internationalisation through the acquisition of external experiential knowledge by recruiting staff, and using external consultants and overseas government agencies. The research has highlighted the importance of objective sources of knowledge in the form of published research and information used by firms, which is largely ignored by IPT.

Assimilation of knowledge

Findings:

- To increase absorptive capacity it is important for SMEs to acquire generic internationalisation knowledge to develop systems and procedures to assimilate new knowledge within the firm to convert tacit and individual knowledge to explicit and shared knowledge.

Implications for the literature:

IPT ignores problems associated with assimilating experiential and tacit knowledge within firms (Johanson and Vahlne, 1977). The knowledge based view of the firm has highlighted the importance of tacit knowledge and the internal transfer of technological knowledge for internationalising firms (Kogut and Zander, 1993). The acquisition of external knowledge and its assimilation within the firm has been emphasised in the organisational literature for firms to develop absorptive capacity (Cohen and Levinthal, 1990). This research highlights the need for SMEs to acquire general international knowledge to establish assimilation processes to convert experiential (tacit) knowledge to objective (explicit) knowledge.

Exploitation and outcomes of knowledge

Findings:

- Internationalisation knowledge acquisition is important for firms to develop new capabilities. It is often derived from combining market and product/technological knowledge. Thus, the acquisition of internationalisation knowledge is important for firms to exploit knowledge to support international growth, improve performance and gain competitive advantage.
- This research examined the nature of competitive advantage gained by SMEs operating in the international market place and the learning required by firms to improve performance in terms of sales growth and profitability. Performance was found to both influence and is an outcome of absorptive capacity development. Improved decision making is also an important outcome of development of absorptive capacity.
- Internationalisation knowledge and know-how can be applied by firms to support domestic growth, and the domestic environment is a source of new product/technological knowledge for internationalisation.

Implications for the literature:

This research has examined the use of internationalisation knowledge by firms, which has been neglected by IPT (Johanson and Vahlne, 1977; Eriksson *et al.*, 1997, Forgren, 2002). This research has shown how internationalisation knowledge enables firms to exploit new market and product knowledge and to engage in exploitation and exploration behaviour (March, 1991), both of which are important for firms to sustain international growth. The acquisition of internationalisation knowledge is often integral to and derived from specific market and product knowledge.

This research extends previous theory by showing how knowledge generated through international activities is useful for domestic business development and vice versa. For example, new market and product knowledge from domestic markets was found to be useful for overseas expansion through new product development. However it is not limited to early internationalisers as suggested by the literature (Autio, 2005). The acquisition of internationalisation knowledge can help late internationalisers to take advantage of domestic opportunities.

Constraints and barriers to learning

Findings:

- This research found that both international new ventures and incremental internationalisers can suffer from inertia, which stifles international growth.

Implications for the literature:

Researchers have suggested that young firms may not suffer the same inertia forces that constrain established firms' internationalisation (Autio, 2005; Autio, *et al.*, 2000). Furthermore there is little known about how firms overcome domestic rigidities (Zahra, 2004; Autio, 2005). This research found inertia was a constraint to international growth for both INV and incremental internationalisers and examined the nature of this inertia. Furthermore, resistance to change was found in overseas as well as domestic operations. To support growth it is important that firms overcome barriers to learning. Internationalisation knowledge has an important role to play helping firms overcome these rigidities.

In conclusion, the above discussion has shown that knowledge has a significant influence on SME internationalisation. In order to take the literature forward it is suggested that a new approach is developed, incorporating existing frameworks (such as IPT), where the knowledge based view and absorptive capacity have a more critical role. Given that knowledge and capabilities are often context and firm specific, an understanding of the different types of knowledge, and how they are used by firms and influence different strategies, is important for developing a more holistic, theoretical perspective of internationalising firms. It is proposed that frameworks such as those developed from the knowledge based view and absorptive capacity concept are linked to the different types of knowledge identified in this study.

6.6 Implications for management

To increase absorptive capacity and hence learning, firms acquired external experience by recruiting people or using consultants. This was important for both incremental internationalisers and INVs seeking international growth. Firms often combined these external knowledge sources with internal experience. To assimilate new external knowledge firms need to create internal procedures and systems to absorb this knowledge and to convert it from tacit knowledge to explicit knowledge.

It is important that firms recognise what they don't know and to develop generative learning processes to help them develop opportunities and problem-solve. This was important for firms developing overseas operations within an existing overseas market and extending into new markets. For example, the acquisition of internationalisation knowledge can help firms develop appropriate management structures and organisation to support their growth.

This study found that both incremental internationalisers and INVs can suffer from inertia which can hinder change. The steps that CEOs and management teams take to overcome this inertia are important. External advice and consultancy is valuable to help firms implement the changes.

Learning is constrained by the lack of expertise within firms and their inability to acquire this expertise by recruiting staff or acquiring external advice and suggests a public sector role which is discussed below.

6.7 Implications for public policy

The GCDP successfully provided specific market, internationalisation and product/ technological knowledge to meet the individual companies' needs. External knowledge and support gained by participating in the GCDP helped firms increase their absorptive capacity. This was particularly important when new knowledge is unrelated to its on going activity i.e. when absorptive capacity is not a by-product, firms must dedicate effort exclusively to creating absorptive capacity (Cohen and Levinthal, 1990).

Rapid internationalisation offers potential high growth for both traditional and knowledge based/knowledge intensive firms; however it is a high risk activity. The GCDP involved targeted provision, tailored to meet the individual companies' needs. Whilst the knowledge required was often firm specific market, internationalisation and product knowledge, it also involved general aspects that were important for general business management. For instance, knowledge generated during the programme was useful for domestic operations. Thus, although the international focus of the programme was important for the firms, there are general aspects involving organisational and management development which could be provided through generic management development or growth programmes that could offer cost-saving advantages.

The GCDP played an important role helping firms recognise what they don't know; however the GCDP is not about learning processes within firms. It is suggested that learning capabilities should be included in the programme, explicitly recognising the importance for firms to increase their absorptive capacity to support their growth. These learning processes include the establishment of internal procedures and systems to covert tacit to explicit knowledge and the development of generative learning processes within firms to help them problem solve. To increase learning, firms accessed additional sources of public sector support especially in the early stages of implementing their strategy as ongoing GCDP support tended to be ad-hoc. It is important that firms continue to increase their absorptive capacity as they implement and sometimes modify their strategy, in the short-term and for longer-term survival and growth. Building and maintaining relationships is important to help these firms identify their ongoing learning needs and for the public sector to provide timely and appropriate advice and support. The public sector has a role to play ensuring the availability of staff and consultants with appropriate skills, experience and knowledge to support the growth of internationalising SMEs.

6.8 Limitations of the study

The sample selected were firms that were participating in the Global Companies Development Programme. This allowed good access to the firms and to a variety of sources of data, but limits the generalisability of the findings to firms actively engaging or having engaged in internationalisation. Although the collaboration with Scottish Enterprise enabled good access to the firms and other data, the different objectives of policy makers and academic research presented challenges during the study. For example policy objectives influenced the number of cases and method of data collection.

The number of cases selected was at the top end recommended by case study researchers (Eisenhardt, 1989; Miles and Huberman, 1994). Managing the associated high volume of data was a challenge during the research. The large number of cases selected enabled the identification of different groups from a variety of different industrial sectors, stages of business and international growth. However, inevitably the high volume of data generated by the number of cases meant that some richness was lost in the presentation of the findings. For example in order to manage the data analysis and present the findings a structured approach was followed using text tables as recommended by Miles and Huberman (1994); richness was lost where direct quotes from the CEOs were not used to supplement the discussion. It is recommended that the maximum number of ten cases as recommended by Eisenhardt (1989) is used in case study research.

A further limitation of the research is that there was generally one informant per company rather than multiple interviews as is often recommended for case study research. This was due to limitations of time and volume of data that would be generated from multiple informants. As the study was longitudinal it was deemed important to build a relationship with an individual and secure their continuing co-operation over time. It was felt that the CEOs were most important informants as they were committed to developing the internationalisation strategy of the firm. Furthermore, Scottish Enterprise records and knowledge were accessed to validate the interview data.

Finally, there is the usual limitation that the findings are relevant to firms based in small open economy countries.

6.9 Recommendations for further research

This research has highlighted the importance of combinative capabilities as suggested by Kogut and Zander (1992). It is suggested that further research is undertaken into how firms develop these capabilities and know-how and the role of general internationalisation knowledge in this process. The knowledge based view of the firm distinguishes between tacit and explicit knowledge and the implications for the transfer of knowledge within the firm (Nelson and Winter, 1982; Kogut and Zander, 1993; Nonaka and Toyama, 2003). Future research could examine further the processes used by SMEs to assimilate new knowledge and the factors which determine and explain the change from informal to formal structures.

A major finding of this study is that the conventional models (IPT and INV theory) omit many different types and characteristics of firms. Further study of the contingencies and moderating factors influencing internationalisation is required, for example market, country, industry and firm-level influences (Reid, 1983; Turnbull, 1987). In addition, as suggested by some researchers, a more holistic, integrative approach to the analysis of SME internationalisation using an approach linked to, for example, the knowledge based view, would be advantageous (Kuivalainen and Bell, 2004; Coviello and Martin, 1999; Jones, 2001).

The research involved a high level of exploratory analysis within each case and group. This was a lengthy process. It is anticipated that further analysis will be carried out involving more examination of findings between groups and pattern matching across all groups which will enable explanatory findings to be developed further. Computer software for qualitative research such as N*Vivo could be applied to extend the analysis.

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Appendix One (a)

SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – Phase III - 2005

Research Objectives:

1. Explore the strategic and operational processes related to the growth of internationalised Scottish firms.
2. Explore the role of organisational learning and the internationalisation process of Scottish firms.
3. Evaluate the impact of the GCDP on internationalised small firms in Scotland.

Interview record:

Company:
Address:
Contact details:
Name of interviewee and position:
Business founder (s):
Interviewer /date:

SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – Phase III - 2005

1. Internationalisation process/ learning		
Introduction: I would like to focus on the main issues in your international activities over the last year, and I would like to focus on one or two that are the most important to you. I am interested in the things that were your main attention last year regarding your international activities.		
1.1 From our talk last year it looks like these issues are: Were these the main ones or have other things (events) happened in the last year? Please explain?	A.	B.
1.2 Could you recap on what were the triggers for these? - Internal - External		
1.3 How has this changed what you are doing now? E.g. on spending/investment, products, marketing, staff, how you organise and manage you international efforts.		
1.4 I would like to explore what you found you needed to know more about to do these. I would like to dicuss:		

- Areas of knowledge, capabilities, learning needed to do A:

What areas of knowledge were needed:	Where did you learn/acquire this?	Who in the business has the expertise for that now?	Have others in the business picked up on or used that knowledge?	How has this influenced what the firms is capable of doing now/ how has this changed from what was before?	Are there aspects of this knowledge where you have not been able to do what you wanted to? Why?
a.					
b.					

c.					
d.					
e.					

- Areas of knowledge, capabilities, learning needed to do B:

What areas of knowledge were needed:	Where did you learn/acquire this?	Who in the business has the expertise for that now?	Have others in the business picked up on or used that knowledge?	How has this influenced what the firm is capable of doing now/ how has this changed from what was before?	Are there aspects of this knowledge where you have not been able to do what you wanted to? Why?
a.					
b.					
c.					
d.					
e.					

2. Internationalisation experience over the past year	
2.1 Have there been any changes in your markets since last year, e.g. in countries of your companies key overseas markets? Why – any critical events?	
2.2 Have there been any changes in how you service your foreign markets? What changes and why? (Any new assets/FDI – what is your proportion of total assets overseas)	
2.3 Have you introduced any new products or services? Why?	

2.4 Have any of the overseas operations changed in the last year, e.g. R&D, production etc. or any changes in where you obtain other inputs e.g. raw material, technological know-how, capital, management, labour. Why?	
2.5 Have there been any changes in competition, domestic and international?	
2.6 Have there been any changes in the basis of how you compete e.g. price, cost, quality, USP, strategic approach, any new products/services introduced?	
2.7 Have there been any critical events/major factors affecting the internationalisation of your company over the last year? (internal/external) How did you respond to them?	
2.8 What have been the major facilitating factors/barriers in the international development of your firm over the last year – internal and external? E.g. expertise of staff/mgt, product development, new opportunities, economic conditions, availability of finance, external networks and relationships.	
3. Objectives/Future projections	
3.1 Have you met your objectives for international sales, profits and operations in the last year? What are they for the next 1. One year 2. Five years. Where will this come from (geographically/sectoral)	

3.2 Were there any changes to your staffing levels in relation to internationalisation in the last year? What are your staffing plans in relation to internationalisation for the next 1. One year 2. Five years Where will this come from (geographically/sectoral)	
3.3 How do you plan to achieve your objectives? 1. One year 2. Three years Do you have any contingency plans in place? If so what?	
3.4 What are the major challenges you foresee in achieving these goals in the next 1. One year 2. Three years	
4. GCDP Evaluation	
4.1 How has the GCDP plan progressed in the last year? Please explain for each action point: ………………. ………………. ………………. ……………….	
4.2 What assistance have you had with the implementation of your internationalisation plan through the GCDP in the last year? Please explain?	

4.3 What support if any, have you received from the following: - Your SE local enterprise company/account manager - SEN - SDI - Other SE or other public support/advice - Private sector advisors/consultants E.g. Accountant, lawyer, NED? What did they do?	
4.4 What new markets have you entered or new projects undertaken as a result of the GCDP? Can you estimate the effect on sales and number of employees, in the last year (compared to what they might have been without having participated)? - Increase by 10%, 11-25%, 26-50% etc.	
4.5 Please explain how the GCDP has influenced your approach to do things generally in the business. (Attitude to risk, access to funding, development of management capabilities, access to know-how).	
4. 6 How has as the GCDP affected your international activities e.g. - Timescale, scale of operation, quality, markets and modes. - Business models, management structures, approaches to strategy and planning, access to information, advice.	
4. 7 In the light of your experience over the last year please give any limitations and improvements, which could be made to the programme.	

5. Financial details update	
5.1 Have there been any changes in CEO or other key managers in the last year e.g. senior directors, non-executives? Why?	
5.2 Number of employees Total/Scotland/rest of UK/overseas Changes since last year?	**Total** **Scotland** **UK** **Overseas**
5.3 Sales Are they increasing/decreasing/constant in the last three years? Changes since last year?	**Total** **Domestic** **International** £ %
5.4 Profits Changes since last year?	**Total** **Domestic** **International** £ %

Thank you

Appendix One (b)
SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – Phase II June 2004

Research Objectives:

1. Explore the strategic and operational processes related to the growth of internationalised Scottish firms.
2. Identify the company and environmental factors enhancing superior performance across successful internationalised Scottish firms in a variety of industry contexts.
3. Evaluate the impact of the GCDP on internationalised small firms in Scotland.

Interview record (to be completed in advance and checked):

Company:
Address:
Contact details:
Name of interviewee and position:
Business founder (s):
Interviewer /date:

SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – June 2004
Section 1

1. Background details update	
1.1 Have there been any changes in CEO or role of founder (s). Why?	
1.2 Have there been any changes in the role of other key managers in the last year e.g. senior directors, non-executives, family employees? Reason for changes.	
1.3 Number of employees Total/Scotland/rest of UK/overseas Changes since last year?	**Total Scotland UK Overseas**
1.4 Sales Are they increasing/decreasing/constant in the last three years? Changes since last year?	Total Domestic International £ %
1.5 Profits Changes since last year?	Total Domestic International £ %
2. Internationalisation experience over the past year	
2.1 Have there been any changes in your markets since last year, e.g. in countries of your companies key overseas markets? (Entered new markets or withdrawal) Why – any cititical events?	

2.2 Have there been any changes in how you service your foreign markets? e.g. exporting, licensing, franchising, IJVs, FDI, officies abroad, manufacturing, strategic alliances, networks, R&D alliances. What changes and why? (Any new assets/FDI – what is your proportion of total assests oversears)	
2.3 Have any of the overseas operations changed in the last year, e.g R&D, production etc - increases or decreases? Why?	
2.4 Are there any changes in where you obtain other inputs e.g. raw material, technological know-how, capital, management, labour.	
2.5 Have there been any changes in competition, domestic and international?	
2.6 Have there been any changes in the basis of how you compete e.g. price, cost, quality, USP., strategic approach, any new propducts/services introduced?	
3. Internationalisation process/implementation of strategy	
3.1 Have there been any critical events affecting the internationalisation of your company over the last year. (Internal and external) How did you respond to them?	
3.2 What have been facilitating factors in the international development of your firm over the last year? (internal and external)	

3.3 What have been barriers/ limiting factors in the international development of your firm over thelast year? (internal and external)	
3.4 What have been the major factors that have influenced your international activities in the last year? How have these been handled?	
3.5 Have there been any changes in the roles of the management of the firm in relation to its international activities? e.g. - who has key international responsibilities - who is involved/consulted in decision making.	
3.6 Have there been any changes in how you make decisions in relation to your international activities? e.g. formality, proactiveness, consultation process with in the firm.	
3.7 Are there any critical strategic alliances which have influenced internationalisation in the last year. (e.g. collaborations in terms of knowledge sharing and transfer such as licencing or co-operation in markting , production etc) How?	
3.8 Are there any critical relatonships or networks which have influenced internationalisation in the last year e.g. customers, suppliers, distributors, strategic partners. How?	
3.9 Have there been any changes in how the business has financed its internationalisation activities? Reasons for these changes.	

3.10 Are there any critical financial or funding issues which have influenced internationalisation in the last year? (eg. facilitating or inhibiting aspects) Please explain?	
3.11 Do you expect any changes in financing for future planned expansion?	
3.12 Overall, what have been the major challenges in implementing your internationalisation strategy and how have you dealt with them?	
4. Objectives/Future projections	
4.1 Have you met your objectives for international sales, profits and operations in the last year? What are they for for the next 1. One year 2. Three years. Where will this come from (geographically/sectoral)	
4.2 Were they any changes to your staffing levels in relation to internationlisation in the last year? What are your staffing plans in relation to internationalisation for the next 1. One year 2. Three years Where will this come from (geographically/sectoral)	
4.3 How do you plan to achieve your objectives? 1. One year 2. Three years Do you have any contingency plans in place? If so what?	

4.4 What are the major challenges you foresee in achieving these goals in the next 1. One year 2. Three years	
5. GCDP Evaluation	
5.1 What progress have you made with the implementation of your international strategy and action plan developed on GCDP? How? Please explain for each action:	
5.2 What assistance have you had with the implementation of your internationalional strategy through GCDP? Please explain?	
5.3 What support have you received from your SE local enterprise company/account manager, SEN, SDI ?	
5.4 Have you used other public sector support/advice in the last year to assist with the implementation of your internationalisation strategy. Please specifiy, name types. What for?	
5.5 Have you used external private sector advisors or consultants in the last year? E.g Accountant, lawyer, NED? What did they do?	

5.6 What is the effect on sales, profits, and number of employees, if any, from participating in the GCDP in the last year (compared to what they might have been without having participated)? Can you give examples of projects which went ahead or are planned because of GCDP?	
5.7 Please explain how participating in GCDP has influenced your international activities or capabilities. (attitude to risk, access to funding, development of management capabilities, access to know-how).	
5. 8 In the light of your experience over the last year, please give any limitations and improvements which could be made to the programme.	

Thank you

Appendix One (c)
SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – Phase I June 2003

Research Objectives:

1. Explore the strategic and operational processes related to the growth of internationalised Scottish firms.
2. Identify the company and environmental factors enhancing superior performance across successful internationalised Scottish firms in a variety of industry contexts.
3. Evaluate the impact of the GCDP on internationalised small firms in Scotland.

Interview record (to be completed in advance and checked):

Company:
Address:
Contact details:
Year started the GCDP:
Year of foundation:
Interviewee:
Position of interviewee:
Business founder (s):
Type of business/Sector
Interviewer:
Date:

SE GLOBAL COMPANIES DEVELOPMENT PROGRAMME
CEO Interview Questionnaire – June 2003

1. Background details	
1.1 Background and current role of CEO/founder (s)	
1.2 Background and current role of other key managers, e.g. senior directors, non-executives. Have there been any changes? Reason for changes.	
1.3 Number of employees Total/Scotland/rest of UK/overseas At start of programme	
1.4 Sales Are they increasing/decreasing/constant in the last three years? At start of programme?	Domestic International Total £ %
1.5 Profits Are they increasing/decreasing/constant in the last three years? At start of programme?	Domestic International Total £ %
2. Internationalisation experience/pattern	
2.1 In what countries are your companies key overseas markets? Why?	
2.2 In what countries are the key overseas markets in your industry? Why?	

2.3 How do you service the foreign markets? How has the mode evolved over time? Mode* 1.Exporting (agent, distributor etc.) 2. International licensing agreements 3. International franchising 4. International joint ventures (equity?) 5. FDI, owned foreign subsidiaries 6. Overseas offices (sales and marketing) 7. Overseas manufacturing 8. International strategic alliances 9.International networks 10. R&D alliances 11. Others: please explain	Country - Year - Mode* - Reason
2.4 What critical events influenced these activities? How?	
2.5 Explain if you have other overseas operations, type of operations and where are they based (R&D, production etc.). What key roles do they have in the operation of the company?	
2.6 Where do you obtain other inputs e.g. raw material, technological know-how, capital, management, labour. What are the reasons for these choices?	
2.7 List your main competitors, domestic and international, and where they are located.	
2.8 How do your compete (e.g. cost, quality, USP, strategic capabilities)	
3. Internationalisation process	
3.1 When did you first internationalise? Please explain why and in what form?	
3.2 Have there been any critical events affecting the internationalisation of your company. How did you respond to them?	

3.4 What have been facilitating factors in the international development of your firm? (internal and external)	
3.5 What have been barriers/ limiting factors in the international development of your firm? (internal and external)	
3.6 What have been the major factors that have influenced you international activities in the last year? How have these been handled?	
3.8 How would you describe the roles of the management of the firm in relation to its international activities? Who has key international responsibilities?	
3.9 How do you make decisions in relation to your international activities?	
3.10 Please describe any networks and alliances you are involved with personally and as an organisation (formal and informal: e.g. suppliers, customers, trade associations, chambers of commerce).	
3.11 Are there any critical networks/alliances which have influenced internationalisation. How?	
3.12 How has the business financed its internationalisation activities? Reasons for this choice.	
3.14 Do you expect this to change for future planned expansion?	
3.15 Are there any critical financial or funding issues which have influenced internationalisation? Please explain?	
2. Future projections	

4.1 What objectives do you have for international sales, profits and operations for the next 1. one year 2. five years. Where will this come from (geographically/sectoral)	
4.2 What are your staffing plans in relation to internationalisation for the next 1. one year 2. five years. Where will this come from (geographically/sectoral)	
4.3 How do you plan to achieve these objectives? Do you have contingency plans in place? If so what?	
4.4 What are the major challenges you foresee in achieving these goals in the next 1. one year 2. 5 years	
5. GCDP Evaluation	
5.1 Have you used external advisors, consultants (private or public sector), public sector support, before joining GCDP.	
5.2 What did they do?	
5.3 Why did you join GCDP? What were your expectations, have they been met?	
5.4 Have you internationalised differently as a result of participating in the GDCP (timescale, scale of internationalisation, quality of activity, modes)? How?	
5.6 What is the effect on sales, profits, and number of employees from participating in the GCDP (compared to what they might have been without having participated)?	

5.7 Please explain how GCDP has influenced your international activities (risk, funding, management capabilities, know-how).	
5.8 Explain the most/least important aspects of the programme to your internationalisation to date. Do you expect some of this to change in the future?	
5.9 Are there any unexpected outcomes of the programme (positive or negative)? What are they?	
5.10 Will participating in the programme influence your international activities in the future. How?	
5. 11 In the light of your experience, list any limitations and improvements which could be made to the programme.	

Thank you

Appendix Two – Company Financial Review Form

Company:
Date:
Year Ended:

General	**Total**	**Scotland**	**Rest of UK**	**International**
Total no of employees				
- Management				
- Production				
- R & D				
- Admin				
- Other				
	Total	**Domestic**	**International**	
Sales/turnover/revenue				
	Total	**Domestic**	**International**	
Profits (losses)				
	Total			
E-commerce (% sales on-line)				
R & D spend				
Marketing spend – UK - Foreign				
No of products (new or adaption of existing)				
No of customers				
No of markets (UK, EU, US, RoW)				

Case Specific (examples)	**Total**			
No production facilities				
No of new markets				
No of new products (new or adaption of existing)				
No of product ideas awaiting R & D				
No of target customers for new /existing products				
Increase in market penetration (share, sales)				
Product margins – product A - product B (etc.)				
No. of new international investments (by type, e.g. Subsidiary)				

Summary				
Over the last three years are :	**Total**	**Domestic**	**International**	
No of employees increasing (+), decreasing (-) or constant (=)				
Sales increasing (+), decreasing (-) or constant (=)				
Profits increasing (+), decreasing (-) or constant (=)				

Appendix Three - Case Record - Internationalising SMEs: A Learning Approach.

Research Objectives:

1. Explore the strategic and operational processes related to the growth of internationalised Scottish firms.
2. Explore the role of organisational learning and the internationalisation process of Scottish firms.

Case record: Source e.g. SE case studies, interviews

Company/sector:
Location:
Contact details:
Name of interviewee (s) and position:
Business founder (s):
Internationalisation history:

Prior Knowledge: Source		
1. Internationalisation process/ learning. **Introduction:** I would like to focus on the main issues in your international activities over the last year, and I would like to focus on one or two that are the most important to you. I am interested in the things that were your main attention last year regarding your international activities.		
1.1 From our talk last year it looks like these issues are (interview two, 2004): Were these the main ones or have other things (events) happened in the last year? Please explain?	A.	B.
1.2 Could you recap on what were the triggers for these? - Internal - External		
1.3 How has this changed what you are doing now? E.g. on spending/investment, products, marketing, staff, how you organise and manage you international efforts.		
1.4 I would like to explore what you found you needed to know more about to do these. I would like to discuss:		

- Areas of knowledge, capabilities, learning needed to do A:

What areas of knowledge were needed: What & why?	Where did you learn/ acquire this?	Who in the business has the expertise for that now?	Have others in the business picked up on or used that knowledge? How?	How has this influenced what the firms is capable of doing now/ how has this changed from what was before?	Are there aspects of this knowledge where you have not been able to do what you wanted to? Why?
a.					
b.					
c.					
d.					

- Areas of knowledge, capabilities, learning needed to do B:					
What areas of knowledge were needed:	Where did you learn/acquire this?	Who in the business has the expertise for that now?	Have others in the business picked up on or used that knowledge?	How has this influenced what the firm is capable of doing now/ how has this changed from what was before?	Are there aspects of this knowledge where you have not been able to do what you wanted to? Why?
a.					
b.					
c.					
d.					

Outcomes:
Exploited by firm (operational/capabilities) – Decisions on products, markets, resource commitments etc.:

Outcomes:
Competitive advantage -
Performance -
Strategic decisions – Internationalisation, non-internationalisation, de-internationalisation: