

The emergence of dynamic capabilities in SMEs: A critical realist study

by

Lorcán Ó hÓbáin B. Comm., M.B.S.

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Supervisor: Professor Colm O’Gorman

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Abstract

How do dynamic capabilities develop in small firms? More specifically, what mechanisms account for the emergence of dynamic capabilities in SMEs? The dynamic capabilities perspective synthesises evolutionary theory, the resource based view of the firm and organisational learning to explain how firms sustain competitive advantage. However, the literature tends to focus on larger firms and assumes the existence of routines and processes, particularly those needed to assimilate new knowledge. The manner in which dynamic capabilities evolve may be different in the small firm context as routines and processes associated with seeking out and assimilating new knowledge will differ from those of large firms.

This research draws on a single case study using a critical realism perspective to study the emergence of dynamic capabilities. The case firm is a small Irish owned print firm that has evolved into an international brand and artwork management business. The study draws on interviews, company records and documents, and notes from 186 meetings between the author and the CEO over a seven year period. The case data is analysed using the framework of critical realism's ontological strata of the Empirical, the Actual and the Real to interpret the data captured and to explore the underlying mechanisms present in order to provide defensible explanations for the phenomenon observed.

Analysis of the case data suggests that dynamic capabilities developed as a consequence of (i) the focus on firm performance, (ii) capacity building (people and technology), (iii) the evolution of higher order learning, (iv) managerial purposefulness, and (v) the use of third parties. Adopting a critical realist perspective suggests that dynamic capabilities emerged as a result of the interaction of the CEO's capacity to engage in higher order learning and the CEO's knowledge and networks as they relate to the business that allow the CEO identify, assimilate and exploit new knowledge. Contributions include a description and explanation of how dynamic capabilities emerged in an SME; the application of the dynamic capabilities perspective to the small firm context; and the use of the critical realist perspective to study dynamic capabilities in the context of small firms.

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1. Introduction

The management capability of small and medium sized enterprises (SMEs) is the subject of constant discussion in the literature. In particular, the means by which such capability can be increased is of keen interest to policy makers, academics and business professionals alike. Despite this, the literature on dynamic capability, which has attracted increasing attention over recent years for its potential to contribute to the strategic management literature, has failed to empirically examine the SME context in any detail. In addition, this literature has focused more on nuances of definition and debates on whether dynamic capabilities might directly or indirectly influence firm performance rather than considering how such dynamic capabilities might emerge in practice and thereby providing some useful advice to practitioners.

This thesis examines the emergence of dynamic capabilities in an Irish SME in the print and packaging industry. The context is of an industry segment in turmoil as a result of technological and market changes. The transition in the firm and in particular in the strategic perspective of the owner-manager over the nine years from 2002 to 2010 is considered in the light of the literature. The data demonstrates the emergence of a dynamic capability in the firm during this period. Using a critical realist perspective, and the ontological framework of the strata of reality of the Empirical, the Actual and the Real, this emergence is considered in relation to the empirical data which was observed but more fundamentally in terms of the underlying mechanisms, which were not empirically observable but which gave rise to the emergence of the dynamic capability.

Having identified these underlying mechanisms a theoretical explanation for the emergence of the dynamic capability identified in the firm is developed. The explanation posits a critical interaction between learning (including aspects of tacit knowledge), social capital and absorptive capacity to support the emergence of dynamic capabilities in SMEs.

1.1 SMEs in Ireland

SMEs are a central element of most developed economies. Small and medium sized enterprises (SMEs) are defined as enterprises with less than 250 employees and with sales of less than € 50 million p.a. or with balance sheets valued at less than € 43 million (Enterprise Ireland 2008). Small businesses are defined as those with less than 50 employees (Small Business Forum 2006). The OECD (2003), in considering the issue of management development in SMEs, reported that in 1994 in Germany, SMEs accounted for 99% of enterprises and 50% of sales and that in Japan 78% of employment was in SMEs which accounted for 99.1% of all enterprises. By 2009, SMEs accounted for 53% of employment in 99% of UK enterprises (Department for Business Innovation and Skills 2010).

SMEs are a critical element of the national economic framework in Ireland. Small businesses in Ireland employ 54% of the non-agricultural workforce in 97% of the businesses registered in the state (Small Business Forum 2006). 92% of businesses employ less than ten people and yet account for 36% of industrial employment (DKM Consultants 2006). They contribute almost € 25 billion in gross value added in construction, services and manufacturing in Ireland, along with 50% of VAT on services, € 530 million in corporation taxes and 37% of income taxes (Small Business Forum 2006). In addition to the empirically evident economic contribution, small firms also form an essential element of the supply chain for larger organisations and are a key element of the local infrastructure required to attract and retain foreign investment in Ireland.

Small businesses have a higher rate of failure than their larger counterparts (OECD 2003, Storey 2004). Whilst there are a number of explanations for this higher failure rate, research has indicated that management development, or lack of management development to be more precise, is an explanatory factor (Betcherman, Leckie and McMullen 1997, Baldwin et al. 1997, Fuller-Love 2006). The report of the Management Development Council in Ireland, a body charged with advising Government on supporting the development of world class management skills within Irish SMEs found “... that improving management capability within SMEs through management development can lead to significant returns to the State in terms of

increased Gross Value Added, increased employment, better business survival rates, and a more skilled workforce” (The Management Development Council 2010 p. 5).

1.2 The literature gap

The concept of dynamic capability (Teece, Pisano and Shuen 1997, Eisenhardt and Martin 2000, Helfat et al. 2007) is founded on the resource based view of the firm (Penrose 1959, Barney 1991, Peteraf 1993) and evolutionary theory (Nelson and Winter 1982). The focus on routines and capabilities of the latter and the focus on how resources may be configured for better competitive impact of the former lead to the consideration of how firms develop the capacity to “purposefully create, extend or modify its resource base” (Helfat et al. 2007 p. 4) which is the definition of dynamic capability used herein.

The literature on dynamic capability is generally focused on larger firms (Teece 2007, Wang and Ahmed 2007, Barreto 2010). The literature is also generally focused on describing and debating what dynamic capabilities are, rather than describing how they may emerge. Consideration of this emergence tends to focus on organization learning (Zollo and Winter 2002), knowledge management (Verona and Ravasi 2003), leadership (Rosenbloom 2000) and sensing and seizing opportunities for change (Teece 2007).

SMEs are not smaller versions of larger firms (Penrose 1959, Gibb 2000). There are significant differences in their structure, their systems and their need for coordination. Smaller firms are less likely to have the routines and procedures of larger firms in relation to the identification and integration of new knowledge (Jones and Macpherson 2006), yet the literature is effectively silent on how dynamic capabilities may emerge in SMEs. This is the gap which this research seeks to address.

The research question which this research addresses is: how do dynamic capabilities emerge in small firms? This question is addressed by examining a single case firm, the Perigord Group. Specifically, the study asks the following questions:

- 1) Did dynamic capabilities emerge in the Perigord Group?
- 2) If so, what caused that emergence?

- 3) Are there underlying mechanisms which were not empirically observable which facilitated that emergence?

To explain the emergence of dynamic capabilities the analysis draws on three concepts, organisational learning(Huber 1991, Crossan, Lane and White 1999, Fiol and Lyles 1985), absorptive capacity(Cohen and Levinthal 1990) and social capital(Bourdieu 1986, Nahapiet and Ghoshal 1998). Extant literature explores theories related to these concepts in considerable depth. That there is a relationship between learning and absorptive capacity is understood and the subject of on-going research. However, extant literature has not explored the interaction of these three factors in the emergence of dynamic capability.

1.3 Philosophical perspective and rationale for methodology

This research has been conducted using a critical realism perspective. Critical realism uses a layered ontology (Bhaskar 1975, Lawson 1997)which holds that researchers should attempt to incorporate the hidden mechanisms, powers and tendencies at play into plausible causal explanations for the phenomena studied. Critical realism does not conflate ontology and epistemology as it recognises that what may be known goes beyond what can be measured(Sayer 1984, Fleetwood 2004). The researcher should not consider what cannot be measured in a speculative vacuum, rather he must be informed by the literature and by the data in constructing plausible explanations. It is a basic tenet of critical realism that the causal explanations developed are not offered as universal laws but are causal tendencies which are open to change and development as context and circumstances change over time(Tsoukas 1989, Reed 2005a).

The methodology chosen was an in-depth case study of one firm over the nine year period from 2002 to 2010. The philosophical perspective requires a methodology which allows a thick description of the context to be developed(Yin 2003, Easton 2010). It requires a methodology which allows a deep level of understanding of the firm and its development to be gained so that the researcher may begin to understand the underlying mechanisms at play(Bhaskar 1975, Ackroyd 2004).

The case data draws on interviews with four senior executives, firm data on investment in training and development and most centrally on records of 186 meetings

with which I was involved over the nine year period. These meetings related to my business relationship with the firm and were not conducted for the purposes of this research. The majority of these meetings included the Chief Executive of the firm. The information gathered allowed a detailed description of the firm's evolution during the period and the changing strategic priorities of the Chief Executive.

I have been actively engaged with this firm as a business consultant since 2002. I address the issue of my effective insider researcher (Brannick and Coghlan 2007) status in Chapter 2. From a critical realist perspective, once I am careful to recognise and challenge my own assumptions about the firm, my close relationship is an aid to understanding the depth of context in which it operates.

1.4 Contributions

This thesis makes a number of contributions to the literature:

The emergence of Dynamic Capabilities in SMES

This research extends the concept of dynamic capability into the context of small firms. Extant literature on dynamic capability tends to be based on empirical studies of very large firms. The small firm represents a different context, in that typically the routines and processes that might explain the emergence of dynamic capabilities in larger firms, will not apply to the smaller firm.

Specifically, this research suggests that the emergence of a dynamic capability in the Perigord case is explained by (i) the focus on firm performance, (ii) capacity building (people and technology), (iii) the evolution of higher order learning, (iv) managerial purposefulness, and (v) the use of third parties. This explanation is consistent with the limited extant literature on the emergence of dynamic capability which posits four factors which enable the emergence of dynamic capabilities. These are (i) developments in organisational learning, (ii) developments in the firm's capacity to identify, assimilate and exploit new knowledge, (iii) the role of the leader and (iv) the influence of the owner-manager's network of social contacts.

The research, following a critical realist methodology, suggests, that in addition to the existence of the five themes identified, that dynamic capabilities in SMEs emerge as a

result of the interaction of three factors; the interaction of the CEO's capacity to engage in higher order learning, the CEO's knowledge and networks, and the ability of the CEO to identify, assimilate and exploit new knowledge. The emphasis is on this interaction as it is argued that developments in any one factor in isolation from the others may not result in the emergence of dynamic capabilities.

The critical realist perspective

This research applies the framework of the critical realist strata of reality to the case data. This is a contribution to critical realist methodology as the literature contains few empirical studies which explicitly follow a critical realist ontology or which apply the ontological strata to the data. The practical problems as how best to present the research in terms of the evolving research question, the multiple analysis of the data, and the constant engagement with the literature is also highlighted. The use of critical realism in this research and the manner in which the research is presented is a contribution to knowledge as it reveals the process by which the research evolved and provides insight to the iterative and reflexive nature of that process. Specifically, by presenting the case data in the context of the initial literature and subsequently re-interpreting the data in the light of the second literature chapter the reality of the research process followed is revealed.

The use of the critical realist perspective is also a contribution to the entrepreneurship and small business literature, in that it outlines how a critical realist perspective might offer an alternative way of studying aspects of small firms.

The triggers of higher order learning

The transition to higher order learning is an important determinant of the emergence of dynamic capabilities in SMEs. Extant research on learning suggests that this transition is often triggered by a crisis. This research suggests that the trigger for the transition from lower to higher order learning may not occur in the context of a time compressed, single event. A triggering crisis, like the transition, may emerge over an extended period of time. The addition of this temporal perspective provides a more detailed specification of how the transition to higher order learning might be triggered in the context of an SME. It is also suggested that it might be possible for firms to avoid crisis-induced triggers. This might be achieved in the context of an explicit

effort by a CEO to develop new knowledge through enhancing and leveraging his network of contacts.

The training debate

This research suggests that attempts to establish direct causal links between training and developing capabilities and outcomes, such as firm performance, will not produce conclusive evidence either in favour, or against, the case for supporting training and management development in smaller firms. This study suggests that such approaches fail to capture either (i) some important outcomes of training, e.g. the possible gradual transition towards higher order learning in an owner-manager, and (ii) the temporal and path dependent nature of how resources and capabilities emerge in smaller firms.

1.5 Format of the thesis

This thesis is organised to provide the reader with the philosophical context initially. This context is important as the remainder of the thesis is structured in a manner to reveal the approach which was followed in the research which led to the contributions to method claimed. The format of the remainder of the thesis is as follows.

Chapter 2 discusses critical realism as a philosophical perspective and describes its basic tenets and its ontological and epistemological stance. As positivism is the more mainstream choice in entrepreneurship research, the chapter also explores this perspective and outlines some of its drawbacks in the context of this research. The methodology followed in the research is explained in detail, including the sources of the data used.

The initial question which informed this study was “how to increase the level of planned investment in training by SMEs?” The relevant literature was identified as relating to training and learning. Chapter 3 is a review of the literature on learning. It considers the policy background to investment in training and differences between training and learning and the range of definitions which are in use. A model for organisational learning is explored, before discussing the distinction between orders of learning and their potential impact on the organisation. Chapter 3 also explores the literature in relation to the appropriate level of investment in training in small and medium sized enterprises.

The empirical element of this research is based on a single case study of the Perigord Group. Chapter 4 discusses the data in the context of the industry within which this firm was operating and then in relation to the development of the firm and its investment in learning. Three themes emerged from the analysis of the data; (i) the focus of the CEO on the firm's performance, (ii) capacity building in terms of people and technology and (iii) the evolution of higher order learning in the firm. These outcomes partially explained the developments which occurred in the business during the period under review (2002-2010). However this explanation was incomplete, requiring farther exploration and analysis. As the data had revealed some issues relating to resource and capability development, it was necessary to re-visit the literature.

Chapter 5 discusses the literature on dynamic capability and a number of associated theoretical elements. Tracing the antecedents of dynamic capability through the resource based view of the firm and the area of evolutionary theory allows a comprehensive understanding of capabilities and dynamic capabilities to be developed. A review of the dynamic capability literature suggests that four factors might be important in understanding how dynamic capabilities emerge in SMEs. These factors are (i) developments in organisational learning, (ii) developments in the firm's capacity to identify, assimilate and exploit new knowledge, (iii) the role of the leader and (iv) the influence of the owner-manager's network of social contacts.

Chapter 6 is a re-examination of the case data in the light of the literature discussed in the previous chapter. The changing strategic priorities of the CEO are examined to reveal the transition from an operational to a more strategic focus. The themes of Chapter 4 are re-visited and expanded in the context of the literature in Chapter 5. Two additional themes are added (iv) managerial purposefulness and (v) the use of third parties in the firm's development. In analysing the data, the first research question is answered in establishing that dynamic capabilities exist in the firm and emerged during the period of this research.

Chapter 7 is divided into two parts. Firstly, it builds on the analysis of the data in Chapter 6 and reveals the underlying mechanisms of the tacit knowledge of the CEO,

the capacity to identify, assimilate and exploit new knowledge and the use of the CEO's network of contacts which caused the emergence of the dynamic capability observed. Secondly, it considers the data and literature at a more abstract level and develops a theoretical explanation for the emergence of the dynamic capabilities in the Perigord Group. It is argued that it is in the interaction of the factors of organisational learning, absorptive capacity and social capital that dynamic capabilities will emerge.

Finally, Chapter 8 draws out the contributions of the research to both the literature and to methodology. The limitations to this research are explored and some suggestions for future research made. Finally, the implications for public policy and practice are considered.

2. Philosophy and Methodology

Critical realism is a philosophical perspective which holds that reality is made up of a number of strata. What we can see may only be a portion of what is happening. What is happening may be a result of underlying mechanisms. Critical realist researchers seek to uncover such underlying mechanisms to provide context rich theoretical explanations of the phenomenon being studied. This research began with my interest in exploring the reasons why some SMEs might invest more in training initiatives. My engagement with the philosophical issues led me to the conclusion that my perspective was most closely aligned to critical realism. This was particularly influenced by my desire to seek explanation over correlation. Much of the research into training levels in SMEs has tended to be in relation to return on investment issues or on the desirability of introducing management development programmes. This has been predicated on applying the same perspective applied to larger firms to SMEs rather than the research making more of an effort to genuinely understand the SME perspective on training issues. My experience of business and in particular my experience at a senior management level since 1995 also encouraged me to seek a philosophical and methodological approach which would allow me to examine issues both in depth and in context. I believe that firms do not always consciously choose the courses of actions they follow and that even where deliberate decisions to act or not to act are taken, that these decisions frequently involved many interacting and potentially competing factors. Consequently, I sought an approach which would allow me explore this depth in a meaningful manner.

The following sections give a brief overview of critical realism and then discuss in detail the ontological, epistemological and methodological issues relating to critical realist research. Ontology is the study or theory of being. It relates to our perspectives or beliefs about reality and the nature of reality. Epistemology is the enquiry into the nature of reality. It relates to our knowledge of reality. Methodology refers to the processes and methods used to uncover that knowledge. Critical realism may also be considered from a social theory perspective which is subsequently explored. However, critical realism is not a commonly used perspective in research into entrepreneurship or organisational studies in general. The subsequent sections discuss alternative philosophical perspectives and explore why the mainstream approach of positivism would not have been an appropriate choice for this research.

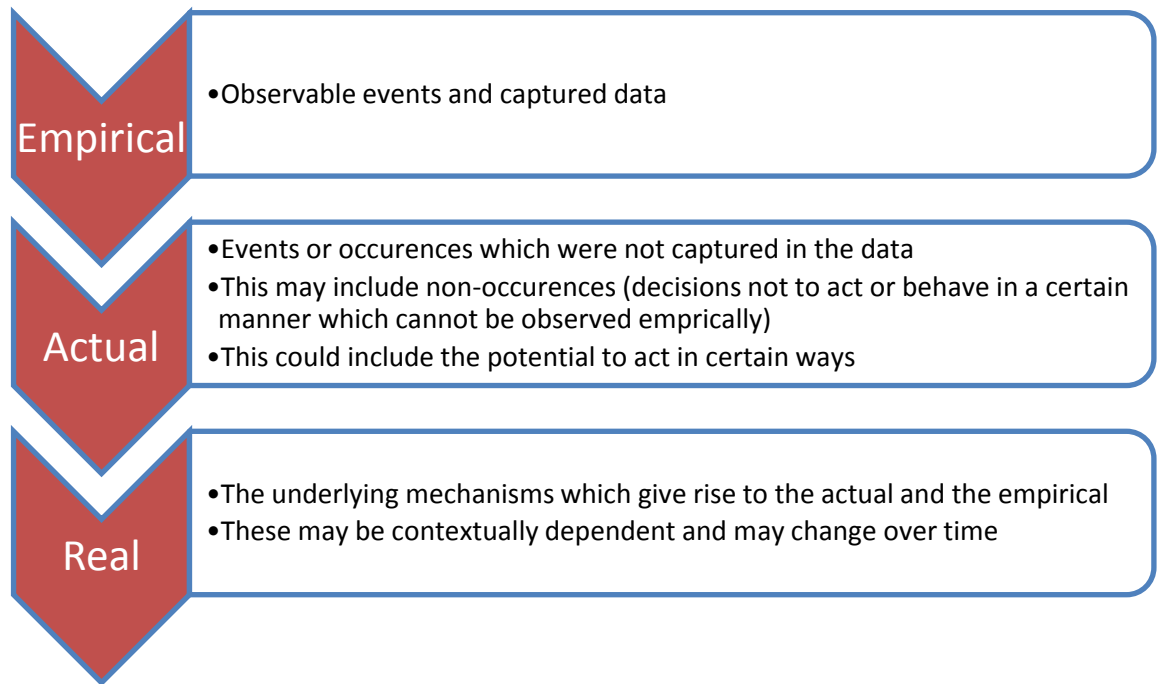
2.1 The critical realist perspective

Critical realists begin from an ontological foundation which holds that there is a reality to be discovered which exists independently of our knowledge of it (Sayer 2004). Critical realists regard “the surface appearance of things as potentially misleading as to their true character” (Benton and Craib 2001 p. 120). Critical realists seek to explore phenomena that can be observed and to explain the factors which may have given rise to those phenomena. Critical realists believe that the underlying factors cause the phenomena to occur. In addition, critical realists hold that our knowledge is always open to correction in the light of further research. The principle reason for this is that critical realists argue that our knowledge is informed by our own experiences and perspectives which means that we cannot separate ourselves from these events. In contrast, positivism holds that a researcher must strive to isolate oneself from the research process and thus strive to identify the true nature of universal laws. This distinction between critical realists and positivists is not related to the appropriateness of measures or techniques, it is to recognise that the researcher is entwined with the world being studied. That is not to say that the critical realist researcher can ignore his prejudices or assumptions. On the contrary, the approach calls for the researcher to consider them fully in a deliberate reflexive process to ensure that assumptions and relevant experiences are surfaced and stated and thus included transparently in the theorising which follows. The critical realist perspective is described in detail in the following sections.

2.1.1 Central tenets of Critical Realism

Bhaskar (1975) is credited with the development of many of the core tenets of critical realism. Whilst accepting that there is an objective reality which can be identified, he describes three strata of that reality. At the foundation is the “Real” which are the mechanisms which exist which a researcher seeks to discover. The “Actual” describes the events to which the “Real” mechanisms give rise. Finally, the “Empirical” is the set of events which are actually observed. The following diagram depicts the layered nature of reality.

Figure 1. Strata of reality



This conceptualisation of stratified reality is central to critical realism where mechanisms may operate at different levels and need to be considered at these levels (Benton and Craib 2001, Miller and Tsang 2010). Under a stratified reality it is possible for an observed event to be only a subset of a broader range of phenomena resulting from an underlying mechanism which may not itself be directly observed. Following Bhaskar, Lawson (1997 p. 21) described mechanisms as being “a way of acting or working of a structured thing”. Easton (2010) cautions that the term “mechanism” is problematic as it implies a sense of clear structure and invariance in its operation. He posits that this might imply an inevitability of outcome, which would suggest no scope for individual agency, which is not the perspective of critical realists.

2.1.2 Ontology and epistemology of critical realism

Critical realism’s ontology reflects the depth implied in Bhaskar’s (1975) strata of the Real, Actual and Empirical. Critical realism rejects the conflation of epistemology and ontology (Sayer 1984, Miller and Tsang 2010, Fleetwood and Ackroyd 2004). This is because critical realists have a theory of being which recognises a complexity and depth where things may exist independently of our ability to identify them

(Fleetwood 2004). Fleetwood's terminology is useful in that he refers to our ability to identify something as opposed to something existing independently of our knowledge of it. This distinction allows us differentiate critical realism from the perspective of both social constructionists and positivists. Social constructionists rely heavily on the interpretations of events or objects by respondents which requires the respondent to have identified the object or event in some manner. Positivists seek to answer questions about known events or objects, narrowing the field of enquiry and explanation to that which can be identified. In contrast, critical realism allows the researcher to consider what may exist which we have not been able to identify. Easton (2010 p. 3) posits that critical realism directs our attention to the "fundamental nature and capabilities of the things we research rather than simply their measurable properties" and that as a result we must focus more on ontology than epistemology and methodology. Therefore, the epistemology chosen must recognise the depth of the knowledge being sought, and the potential implications of the epistemological approach on the matter being explored.

Critical realism also recognises that "this concept-dependence of social phenomena means there is therefore a 'double hermeneutic' rather than merely a single one as in natural science" (Sayer 2004 p. 12). Giddens (1984 p. 374) described double hermeneutic as "the intersection of two frames of meaning", namely the meaning constituted by lay actors in their social world and the frameworks derived by social scientists and used in describing the social world studied. In effect, it is an interpretation by the social scientist of the interpretation of the respondents of their world which is involved. This concept recognises that social science research has the capacity to change the views, knowledge or actions of those involved in the research, as a direct result of their being involved with the research itself (Giddens 1990). Asking questions about a respondent's view of an issue may cause them to reflect on the issue and to change or develop their perspective in some way. Alvesson and Skodberg (2000) describe a triple hermeneutic which calls on researchers to consider the ideologies and underlying structures at play in the situation being researched. By reflecting on and highlighting these ideologies in the context studied, researchers may influence change in those ideologies or in the acceptance of those ideologies which would not have occurred without the research. This is discussed below in the context of critical realism as a social theory. Recognising this dimension of critical realism

research requires the researcher to be cognisant that the research itself can have an impact on the mechanisms being studied to the extent that those mechanisms or their impact may change or be caused to change.

Critical realism also recognises the fallibility of theories which may be developed and that our knowledge is always open to revision and reformulation (Reed 2005b). This fallibility is grounded in our approach to research which necessarily brings our experiences and world-view to bear. Critical realist researchers recognise that the explanations developed should be defensible and plausible in the context of the process followed, but that the findings should not claim to be infallibly true. Rather than this fallibility being seen as any weakening of the realist ontology of critical realism “it is the experience of the fallibility of our knowledge, of mistaking things and being taken by surprise, that gives us the realist conviction that the world is not merely the product of thought, whether privately or socially ‘constructed’” (Sayer 2004 p. 6). There is a significant degree of agreement between critical realists and what might be termed “mild” social constructionists in this regard, where these constructionists do not deny the existence of an independent reality, but stress that it may be interpreted in different ways (Newton, Deetz and Reed 2011 p. 10).

Hodgkinson and Rousseau stated that “adopting critical realism means that scientific knowledge, although general, is also conditional, lacking a true/false dichotomy”(Hodgkinson and Rousseau 2009 p. 540). Whilst this position is consistent with the fallibility argument above, it has more to do with the nature of demi-regularities as opposed to universal laws. This fallibility also reflects the potentially non-regular effects of causal powers due to temporal or contextual factors (Sayer 2004) which give rise to concept of demi-regularities (Lawson 1997). Lawson (1997) in describing events which occur spontaneously in social interactions recognised that similar situations tend to evoke similar patterns of interactions. However, in the social sciences, in contrast to the natural sciences, both external influences and the influences of the actors can change the interactions. As a result, Lawson termed these events as demi-regularities in recognition that the regular tendency could be disrupted over time. In effect, we can only identify processes and relationships which hold for a specific context and temporal space. Changes in

circumstances and time may change the tendency of that which might otherwise have been considered a universal law.

The double hermeneutic referred to above may also cause a change in the nature or impact of the causal mechanisms. Tsoukas (1989 p. 557) described “countervailing mechanisms” which may impede other mechanisms from delivering the result which might have been expected. An example might be where a productivity bonus system fails to provide the expected increase in output as a result of a prevailing employee attitude to acceptable output levels and a reluctance to enhance that level for fear of exploitation or for some underlying view of an employee’s role in contributing to increased output levels. In this instance, the lack of result has less to do with the productivity improvement system and more to do with perhaps the employees self-perception, or their past experiences and prejudices. By drawing attention to these countervailing mechanisms, in effect, opposing forces, there is the potential to address them in a meaningful manner. In this way, it is also possible to understand that the process of researching an issue may cause the participants to reflect on the mechanisms revealed to the extent that those mechanisms may be subject to change or to the instigation of new countervailing mechanisms such that the result initially observed may no longer exist. Indeed, it is possible that the process of illuminating the mechanisms involved may have the result of participants deciding to completely amend the related processes to the extent that the mechanism disappears altogether.

Critical realism makes no universal truth claims in the manner of several other philosophical approaches. Critical realism explicitly recognises that the explanations it makes are fallible (can be disproved or amended by subsequent research) and that causal mechanisms can be impacted by other factors which may adjust the tendencies to which the conjunction of the mechanisms would more normally give rise. These “countervailing mechanisms” (Tsoukas 1989 p. 557) may override that which might have been expected or predicted by the theory developed. This would not necessarily disprove the theory. Indeed, the exploration and explanation of the countervailing mechanisms might add even greater depth to the proposed theory. The objective of critical realism is to provide robust, defensible explanations which “supports modesty in regarding verification and falsification alike” (Miller and Tsang 2010).

Given the ontological depth of critical realism and the non-conflation therein of epistemology and ontology, it is critical that the methodology chosen is compatible with the philosophical perspective. The following section discusses methodological approaches which are consistent with this ontological and epistemological perspective.

2.1.3 Methodology

Critical realism can validly draw on a wide range of methods for data collection.

Sayer (2000) stated that critical realism is compatible with a wide range of research methods, in contrast to positivism and interpretivism, but that it is the nature of the object of study and that which the researcher seeks to learn which should influence the choice of methods.

A central methodological component in critical realism research is retrodution.

Retrodution is an inferential process whereby one can start with an observed phenomenon and ask a Kantian, transcendental question “what, if it existed, would account for this phenomenon” (Reed 2005b p. 1631). While the answer to this question is not necessarily logical, it “provides a rational process for candidate explanations” (Benton and Craib 2001 p. 185). Retrodution is a core tool of the critical realist. It “implies that social research should place much more emphasis on conceptualisation and description than positivism assumes” (Sayer 2004 p. 11).

Clarke and Blundel (2007 p. 48) posit that retrodution “involves a type of scientific generalization that is concerned with the isolation of fundamental structures whose powers can be said to act ‘transfactually’ (i.e. continuing to exist, even though their operations may not be manifested at the level of events or observations)”. Lawson (1997 p. 236) describes retrodution as the movement from “a conception of some phenomenon of interest to a conception of a different kind of thing (power, mechanism) that could have generated the given phenomenon”. The researcher is free to consider alternative explanations which *might* have given rise to the observed phenomenon, and is free to include mechanisms for which there were no observed events in the possible explanations generated. Therefore, the researcher can draw on the literature to suggest possible explanations. In contrast, Grounded Theory (Glaser and Strauss 1967) suggests that the researcher should develop theory without reference to the extant literature.

Critical realists can comfortably make use of both quantitative data for descriptive purposes as well as more qualitative data which might be expected to add meaning, context and perspective (Fleetwood and Ackroyd 2004). The critical realist is not bound by the limits of data observed. The data gathered through quantitative or qualitative methods is useful to the extent that it is suggestive of underlying mechanisms which give rise to the observed event. Olsen (2005) holds that it is not the method used but the manner in which it is used and the resulting data interpreted which matters. She proposes that it is methodologically acceptable for critical realists to use the most complex of statistical techniques as long as the basis for interpreting the results is consistent with the philosophical perspective. There is a role for the use of quantitative data in the description of the Empirical stratum of reality. In the Perigord case study, quantitative data was used to identify and describe the level of investment in training in the company. Analysis at the strata of the Actual and the Real will more likely be qualitative in nature as they involve teasing out unobserved phenomena.

Critical realist methodology is concerned with identifying the underlying mechanisms which cause the phenomenon observed. It goes beyond measuring the observable and seeks to understand and explain the causal processes at play through an intensive exploration of the context and issues. Quantitative and qualitative data can provide empirical evidence of a phenomenon. Qualitative approaches are then required to illicit a greater depth of knowledge of the context and of underlying factors which may be at play. This qualitative data feeds the process of retrodution which allows the researcher to develop the theoretical explanations offered. The specific methodology followed in this thesis is described in detail in section 2.4.

2.1.4 Critical realism as social theory

So far, I have considered critical realism predominantly through a philosophical lens. However, critical realism can also be examined through a social theory lens. Social theory considers interactions in the social world and how, perhaps unseen, factors influence the choices and behaviours of individuals and organisations. The interaction between structure and agency are key concepts in the literature which considers the extent to which structure determines the actions of individuals or the extent to which individuals may exercise agency (choice) in the light of the prevailing structures or

indeed the extent to which they may change or form new structures as a result of their agency.

Critical realism can be classified as a “middle ground” theory. It sees structure and agency as separate, independent concepts, which are interrelated but which do not conflate either into individualism or into structuralism (Archer 1995). Social structures are not independent of the activities which relate or give rise to them, nor do structures exist independently of agents’ conceptions of their actions (Mingers 2004). Social structures also exist in specific contexts and in specific temporal spaces. Some structures will be more universal than others and may indeed be sustained for long periods of time. For example, the capitalist economic system has been sustained in western countries for many years and facilitates or determines a series of economic choices for individuals. Yet this economic system is not the only possibility. The economic events which led to the worldwide economic crisis of 2008-2010 led many commentators to question the validity of some of the capitalist system’s practices.

Critical realism does not conflate agency and structure but seeks to examine the interaction between the two. Archer (1995) holds that there are three types of conflation which must be avoided. Upwards conflation which suggests that structures are the outcomes of the actions, or combined actions, of individuals and any point in time. Downwards conflation suggests that structures determine the actions of people. Central conflation is where there is equal weight given to structure and agency. Critical realists hold that some aspects of structure may pre-exist either the agent’s awareness of or conceptualisation of the structure. This allows agents to act and cause changes to structures inadvertently. It also allows for agents to be unconsciously limited in the range of perceived choices as a result of a structure of which they are either unaware or of which they are aware but which they unconditionally accept. A social example relates to the institution of marriage as it exists in Ireland. The accepted cultural norm for many years was that a couple in love would marry and then live together. This structure was reinforced by a sense of public morality which discouraged breaches. Over the past thirty years, this cultural norm has changed to the point where marriage is still perceived as perhaps the conventional choice for couples in long term relationships, yet the actions of many individuals over that period has

meant that the structure of the institution of marriage has changed to the point where it is only one of the culturally acceptable options available to couples.

The critical realist perspective recognises that mechanisms may change over time or as contexts change. Managerial agency (the ability of managers to make choices) is of central importance to this debate in the context of entrepreneurship research. The review of the literature on dynamic capability and also on leadership below, explores the potential impact which individual actors can have. It also discusses the constraining nature of the structure within which individual actors operate. It considers the myopia of organisations in relation to learning and how assumptions may be made in a structural sense which effectively limit the perceived choices of the individual manager. The literature and case data are also considered in relation to the image which individuals may hold either of themselves or their firms which limit the options which they can perceive. Critical realism allows an in-depth study and explanation of such phenomenon where it can also be shown that other organisations or individuals faced similar issues, yet seemed to choose different paths.

Critical realism is a philosophical approach which has as one of its underlying aims the improvement of social conditions in some way (Bhaskar 1986). Bhaskar argues that if we identify some of society's understandings as being false, it follows that actions which are informed by those understandings are falsely based. Other things being equal, the beliefs, actions and conditions which tended to encourage them should be changed (Sayer 2004). This approach means that critical realism can and should be normative in its judgments. The research and conclusions are not value free as with some other philosophical traditions.

As discussed above, research in the social sciences involves a double hermeneutic where the process of engaging in research can cause changes in the beliefs, intentions and actions of social actors. All critically founded approaches seek to cause change or at least to deliver some element of emancipation. Habermas (1986) proposed that for humans to achieve autonomy that we "need to know about objects in our world, we need to be able to understand the people around us, and we need to be able to understand what we ourselves are doing" (Benton and Craib 2001 p. 114). Critical realism is a philosophical approach which is entirely consistent with this concept of

identifying objects and understanding the mechanisms at play around us. By adding to the understanding of issues in this manner, research can lead to emancipation of this nature.

Ackroyd (2004 p. 159) posits that the “realist view of research suggests that much knowledge (and data derived from research) is flawed because it is under-theorised or otherwise ill-founded and inadequate, often coming to conclusions that serve the interests of the powerful”. If entrepreneurship research is positivist in the main as a result of the requirements of those funding the research (discussed below), it raises the possibility that research which is contrarian to the accepted policy norms will be restrained or prevented altogether. Any such restriction is unlikely to be in the best interest of the field or society in general. One objective of critical realist research can be to seek more in-depth explanations which reveal the mechanisms and demi-regularities involved in a phenomenon and thus expose them to the potential for change.

In summary, critical realism examines the relationship between structure and agency. It considers them as separate but related factors. Critical realism exhorts the researcher to consider the structural context within which the individuals act, whether the individuals are aware of the structure or not. Critical realism holds that individual actors may cause changes to structures, consciously or unconsciously. Research must examine the relationship between the two factors and must also consider the awareness and perception of the structure which the individual holds. One of critical realism's contributions can be to reveal the structural mechanisms at play to involved parties which may allow a greater range of choices to the individuals.

2.2 Alternatives to critical realism

Although critical realism has been chosen as the most appropriate underlying approach for my research, it is by no means dominant in the field of entrepreneurship research. On the contrary, this field has been dominated hitherto by positivism. The following section presents a brief overview of the nature of this positivist entrepreneurship research. The aim is to reinforce the argument for critical realism as a more comprehensive approach with which to explore entrepreneurship processes.

A number of authors have claimed that entrepreneurship research remains pre-paradigmatic (Grant and Perren 2002, Watkins-Mathys and Lowe 2005, Ireland, Reutzel and Webb 2005). Their use of the term “paradigm” is more in keeping with the definition of Burrell and Morgan (1979 p. 23) of a “commonality of perspective which binds the work of a group of theorists together” than with that of Kuhn (1970 p. viii) who defined a paradigm as “universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners”. Crook et al(2010) in their study of ten years of entrepreneurship research examined 238 published articles in six journals considered to be leaders in the field of entrepreneurship research. Their analytic purpose was to establish if previous criticisms of the quality of entrepreneurship research remained valid. Although, their findings suggest that quality had indeed improved, the basis for this assessment was predicated in a fundamentally positivist framework. Their measures of the quality of research included reliability, validity, use of correlation matrices and a considerable discussion of construct measurement. These findings were based on a broad sample of articles published in peer reviewed journals. The unstated but obvious conclusion to be drawn from the research is that research from a positivist perspective dominates entrepreneurship research. There are many examples of attempts in entrepreneurship research on training to identify generalisable cause and effect relationships between various inputs and outputs (Storey 2004, Jones and Goss 1990, Goss and Jones 1992, Sadler-Smith, Down and Lean 2000, Henry, Hill and Leitch 2004, Martin and Halstead 2004, Gray and Mabey 2005, van Gelderen, van der Sluis and Jansen 2005, Clarke, et al. 2006).

It is not clear why positivism has become the norm in entrepreneurship research. Many published papers do not address the philosophical stance adopted therein at all. This is not unusual when a “common perspective” as described by Burrell and Morgan (1979) has been adopted by a group of researchers. The approach is understood within the community and does not require elaboration. Schultz and Hatch (1996) and Grant and Perren (2002) suggest that the reason for this dominance of approach has little to do with philosophy and is largely directed by the nature of the funding of most entrepreneurial research. Their argument is simply that if Government (or quasi governmental) agencies are funding research into entrepreneurship, that they do so with the intention of identifying causal relationships which will inform and propose suitable policy interventions.

The positivist approach of seeking universal laws which will assist in predicting the likely outcomes of known inputs is attractive in concept but has significant limitations (see below). Positivism is fundamentally seeking to answer questions of a “what” nature in an effort to advance knowledge through the description of law like correlations which will have universal application. Positivism entails a realist ontology which seeks to reveal an objective reality through the discovery of laws and relationships which are universal and which exist separately from the language, theories and frameworks used to describe it (Benton and Craib 2001). There is an assumption that reality is objectively identifiable and that the researcher can independently access this reality through appropriately controlled research. Positivism strives to identify universal laws which describe cause-effect relationships which will persist over time and in different contexts. The nature of the cause and effect relationships sought are such that the universal law will have a predicative capacity for the positivist such that a similar combination of causes will yield the same result consistently over a protracted period of time and in differing contexts.

In positivist research the focus is on the description of phenomena for the purpose of describing a generalisable cause and effect relationship which can then be used in some fashion to predict future outcomes. The process followed is to develop a number of hypotheses which are subsequently tested in the empirical element of the research. These hypotheses are generally developed from a review of the literature identified as being relevant to the area being investigated. The data gathered is then interrogated to

prove or disprove the hypotheses previously developed. One difficulty with this approach is that hypotheses are normally developed to test causation. In developing hypothesis a theoretical explanation is typically presented. Explanations tend to be specified as correlations between factors and are then tested as such. However the resultant data will frequently not reveal an explanation of *how* the cause generated the effect identified. Ackroyd¹(2004) holds that this failure to include a theoretical explanation of the complex mechanisms that connect the inputs and outputs is problematic. Theories often utilise a black box element to their explanation to describe, or indeed to avoid explaining, the causal processes at play. Easton (2010 p.1) summarises the positivist approach as being “simply an atheoretical statement about the world. It doesn’t answer the question why?”

Positivism has a number of well-defined criteria by which it judges the value and accuracy of research. Reliability in positivist research considers the extent to which another researcher would make the same deductions from the same data, whereas replicability considers the extent to which the same results would be found if the study were to be repeated over time or in different contexts. Validity can refer to issues of measurement where the researcher must demonstrate that the terminology used in questions has a shared understanding between the respondents and between the respondents and the researcher. Validity also refers to the extent that the proposed cause and effect relationship was in fact the cause of the result identified and that some other factor had not influenced the result. Validity may also refer to the external consistency of the hypothesis which is in effect a test of its generalisability beyond the particular setting researched (Seale 1999). All of these measures of the quality of positivist research emanate from the fundamental perspective that research is scientific and that more rigorous research will bring us closer to discovering the universal laws which apply. In positivism the researcher strives to be independent from the research and must ensure that the research is designed in a manner which does not allow personal prejudices or experiences to influence the data gathering or analysis. This is a significant point of departure from critical realists who hold that the researcher can and should use their experiences and knowledge in a rigorous manner to advance the explanations offered of the phenomenon studied.

¹Ackroyd (2004) was discussing positivism in Human Resources, but the criticisms apply equally in other business disciplines.

However, there are a number of philosophical criticisms which can be made of the positivist approach. A fundamental difficulty with the positivist approach is the Humean dilemma. Named after the Scottish philosopher, Hume, from the eighteenth century, the dilemma arises because the search for universal laws is based on the process of identifying causal statements from theorizing and the testing of those statements. What are actually being tested are the cause and effect relationships postulated in the specific instances chosen. The Humean dilemma is that while testing for cause and effect relationships, we are actually testing for the co-presence of these variables. Hume held that because we cannot see causality in action, then we have no empirical basis upon which to assume that a correlation which is found to hold now will continue to hold into the future.

The positivist approach is fundamentally empiricist in nature. What is measured is that which can be observed (Benton and Craib 2001). The researcher is believed to be able to be completely objective in relation to the data gathered. In its purest form, empiricism would also require that any hypothesis be capable of being tested empirically if it is to contribute to knowledge. While this may seem to be rational, it requires the identification of units for measurement which could reasonably be argued to be evidence of the phenomenon to be studied. In certain cases, this may be easy. For example, testing for the level of structured training conducted by an organisation could be achieved by measuring the financial and time resources invested in formal, structured training programmes. However, in other cases the development of suitable measures is less simple. For example, testing the efficacy of training programmes would require a more subtle range of measures, some of which might need to be proxy measures for factors such as the change in attitude of participants. The introduction of these proxy measures introduces judgements which the researcher must make. This introduces a level of subjectivity which starts to erode the requirement for the complete objectivity of the researcher. Whilst a positivist might argue that some testable differences are required to assist in choosing between competing theories, the difficulty with this is that in practice, this tends to mean that potentially valuable and relevant information is excluded due to its relative inaccessibility. That which can be measured more easily may be given an unwarranted precedence over that which is either difficult or impossible to measure.

The need for the researcher to be objective presents other problems. Social science is not the same as the natural sciences in this regard. It is possible in the natural sciences for a researcher to conduct an experiment which will not in itself influence the phenomenon being studied. For example, a chemist studying the nature of chemical interactions will not change the nature of those interactions as a result of his study. A social scientist must be more sensitive to the fact that the research itself may in fact change the phenomenon being studied as the actors may become more conscious of the issues involved and may choose to alter their behaviours (the double hermeneutic referred to above). For a positivist, seeking to establish generalisable cause and effect relationships, this has the potential to be a significant problem as the relationships may be altered as a direct result of the research. This may mean that the empirical results of the research and the hypotheses established may cease to be valid as the participants reflect on the process and potentially change their behaviour or beliefs in some way.

Another significant criticism of positivism is that the nature of any causality is not always clear. It may be possible to establish that there is a correlation between two variables, but correlation is not the same as causality. Explaining causality can be made more problematic by the presence of multiple variables. Statistical techniques like multivariate analysis have been developed to assist in the explanation and to identify the interaction between variables as the causal factors may not be independent of each other. Multivariate analysis either requires the researcher to theorise in advance of what the explanation may be and how the variables may interact (most commonly practised as structured equation modelling) or to engage in data mining to ascertain what correlations exist between variables and how they might interact. Data mining can be a time consuming process and is ultimately a more inductive form of research as the researcher attempts to develop a theoretical explanation from the data rather than the espoused positivist approach of having the data verify or nullify a previously developed hypothesis. The difficulty with the positivist tradition in this regard is the assumption that more and more sophisticated tools applied more and more rigorously will yield better measures. Measures will always be limited to that which can be observed empirically and therefore this limits the potential to explain. This does not completely negate the power and usefulness of positivism to

hypothesise and to test those hypotheses. The difficulty relates to its exclusion of non-observable events and its assumptions that better methods and more sophisticated measures will yield what positivists would see as better results.

A related difficulty with the positivist approach to seeking cause and effect relationships is that its inability to identify a causal relationship does not in fact establish that no such relationship exists (Hesketh and Fleetwood 2006). A positivist approach seeks to measure that which is observable. Whilst it is methodologically acceptable for positivist research to include qualitative as well as quantitative work (Mason 2002), it is recognised that the dominant approach in entrepreneurship research is the use of surveys and questionnaires to develop quantitative data (Grant and Perren 2002, Watkins-Mathys and Lowe 2005, Clarke, et al. 2006, Hesketh and Fleetwood 2006, Chell and Allman 2003, Bygrave 2007). The data which this methodological approach can elicit is limited in nature. The structural requirements of the data gathering process to allow consistent analysis across usually large, data sets means that there is little scope to seek out alternative explanations. The positivist researcher is generally seeking to test pre-developed hypothesis. The fact that the researcher fails to find data which supports the hypothesis developed does not establish anything beyond the fact that the hypothesis were not supported by the data. For example, in the return on investment debate in the training literature, the fact that no linkage is found in a piece of positivist research between the investments made and the performance of the firm leaves open the question as to whether there is in fact any link. All that has been established is that the specific hypotheses developed have not been proven. Whilst this is clearly the theoretical understanding of the positivist approach, in practice, the assumption is frequently made that a failure to prove the hypothesis actually proves that there is no link. The difficulty inherent in this unfounded deduction is that potentially worthwhile investments might be terminated to the detriment of the firm.

Positivism marginalises “accounts of humanity that begin from and feature what is unique and distinctive about human capabilities” (Ackroyd 2004 p. 142). Positivism by definition seeks to generalise. To achieve this it makes assumptions that human behaviour and agency can be reduced to measurable variables. Positivism makes no allowance for the individual’s ability to choose to act in one manner or another.

Sandberg and Tsoukas (2011 p. 10) hold that such approaches “disconnect knowledge from its social context and reduces human existence into cognitive knowledge”. Ackroyd (2004) describes scenarios where research might seek correlations between employee satisfaction and levels of absence from work. He suggests a scenario that employees in what might be considered mundane roles might consider the opportunity to be absent from work to be a positive thing which would lead them to be satisfied with their roles. In this case, high levels of job satisfaction could be correlated with absence! Similarly, positivist researchers often argue that insecurity is an outcome rather than a cause of unemployment and so seek to distinguish between voluntary and involuntary unemployment. However, it is possible that an employee may feel very insecure in his or her employment and as a result seek unemployment as a route to something better. In both of these scenarios, Ackroyd (2004) argues that positivist research lacks the tools and sensitivity to consider such human tendencies. Consequently, the outcomes of such research could be seriously misleading. Similarly, Fleetwood (2001) proposes in his review of unemployment measures that greater cognisance is required of the nature of employment to really understand the concept of unemployment. For example, he cites the range of types of employment which exist today compared to fifty years ago. Part time work, contracts with minimum hours, people who routinely hold two jobs simultaneously are all different types of employment which may have differing values placed on them by the employee. Therefore any measure which simply attributes them all the same status of employment, misses considerable depth and may lead to misrepresentation of the value of increasing employment levels in an economy.

There are also some difficulties with the methodological approaches often adopted by positivists in relation to studies in the area of entrepreneurship in small firms in particular. Such studies are often subject to response bias as larger firms are more likely to respond than smaller ones (Goffee and Scase 1995). Additionally, Curran (2000) states that, as small firms are more sensitive to external influences, many studies are flawed as the intervention being measured may only be one of many factors influencing firms’ performance. While it is common for positivist studies to recognise their limitations in relation to demonstrating causality or indeed to fully explain any relationships identified (Sadler-Smith, Down and Lean 2000, Henry, Hill and Leitch 2004, van Gelderen, van der Sluis and Jansen 2005), positivism itself

cannot elaborate on causality beyond correlations. For explanations which will provide a rich context and a detailed, plausible explanation of a phenomenon an approach like critical realism is required.

Weber (2004) suggests that the criticisms directed at positivists often include a level of rhetoric and attributions of meta-theoretical positions which many positivists would find ludicrous as they reflect a “naïve, archaic view of positivism” (p. xi). It is clear that establishing how general something is or being able to show how frequently different acts are related could have a value (Ackroyd 2004). Such research can identify phenomena or issues which may warrant greater research or theoretical explanation. A robust piece of positivist research can be useful to correct popular perceptions about the frequency of certain events. However, the limitations of positivism outlined above are significant for research which seeks to provide theoretical explanations for the phenomenon studied.

Even though positivism is the norm in entrepreneurship research, there are a growing number of non-positivist research papers being published. There are a number of reasons why some researchers have moved away from positivism. These reasons are related to some of positivism's significant limitations but also relate to fundamental differences in ontological positions. Many researchers do not accept one basic tenet of positivism, namely the existence of a reality which is independently identifiable. Some researchers also feel that the exclusion of the experience of the researcher in its entirety, which is espoused in positivism's subjective-objective divide, is neither possible nor desirable for quality in-depth research. Finding a mechanism to allow this experience to be an integral part of the process in a robust manner, rather than attempting to bracket it off as in positivism, is another general reason for seeking non-positivist approaches.

There have been relatively few non-positivist studies in the field of entrepreneurship. Work by Cope and Watts (2000), Kisfalvi (2002) and Macpherson et al (2010) are studies related to the topic of this research, which adopted a research approach that could be considered outside of the norm in the entrepreneurship domain. Some advantages of the approaches adopted, for example, are: Macpherson et al deliberately provided feedback to respondents to enrich data collection; Kisfalvi

privileged the entrepreneur's world view over that of the academic in her discussion of strategy in terms of the entrepreneur's life experience; Cope and Watts selected a sample for its potential to yield interesting data and could draw on the respondents' emotional state.

The purpose of the research in this thesis is to explore a phenomenon within the chosen firm where it was known, a priori, that the firm invested in training to a greater extent than its peers. I was interested in explaining why this might be so. My explanation would be based on the exploration of this firm and would not seek to establish widely generalisable, prescriptive statements for practice. The research needed a philosophical approach which would allow an in-depth exploration of the firm and its circumstances in a manner which looked beyond the superficial, observable data for explanation.

Critical realism has an ontological depth which allows the researcher to look beyond the empirical to seek understanding of what has been observed. Critical realism exhorts the researcher to seek out the underlying mechanisms which are at play. The researcher is encouraged to consider the interplay between structure and agency in the context studied, whether the respondents are aware of the structures or not. Indeed, a central contribution of critical realism research can be the revelation of the structures which are influencing or potentially constraining the actions of agents, thereby enlarging the range of perceived options available to the individuals involved.

Critical realism also encourages the researcher to make use of their own experiences and knowledge in the research process. This must be done in a careful manner to ensure that the researcher's personal perspectives are properly and robustly challenged. For a practitioner engaged in research, it provides the potential to incorporate personal knowledge and experience to enhance the descriptions and explanations offered.

As a result of all of these factors critical realism is considered an appropriate perspective to adopt for this research. The following section describes the methodological approach taken in this research and provides detail on the nature and sources of data gathered for use in the analysis subsequently presented.

2.3 Methodology:

2.3.1 Introduction

This section describes the methodological approach used in this research and the theoretical support which exists for that approach. The data gathered is from a single case study of the Perigord Group with the primary focus on its CEO Alan Leamy. The appropriateness of using a case study approach is considered in general and specifically in the context of critical realism research. The application of critical realism to the context of this case study is discussed. The issue of my effective insider research status is examined and how this integrates into the critical realism perspective is considered.

2.3.2 Case study approach

The research strategy adopted in this research is that of a single case study to explore the phenomenon under review. Easton (2010) holds that a case study approach is entirely consistent with critical realism where the intention is to examine complex phenomenon like organisations and organisational relationships. Tsoukas (1989) concurs in stating that in-depth realist case studies are epistemologically valid as they focus on describing the structures and the associated mechanisms which were capable of giving rise to the observed event. Siggelkow (2007 p. 23) proposes that case research can usually get much closer to the “causal forces than broad empirical research”.

Case study research is a well-established research strategy in the social sciences which focuses on “the dynamics present within single settings” (Eisenhardt 1989 p. 534). Yin (2003) holds that case studies are the preferred strategy when questions of a how or why nature are being addressed. Yin (2003 p. 13) defines a case study as being an empirical inquiry that “investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. This definition expresses the importance of the contextual conditions to the case. In addition, Yin describes the case study as incorporating an all-encompassing method which includes the design logic, the data collection techniques and also how the data may be analysed. Because the case study seeks to deal with the phenomenon and its contextual conditions, the data sources are likely to be multiple

and may include material such as archives, interviews, questionnaires and observation (Eisenhardt 1989). Harrison and Easton (2004 p. 195) posit that the use of the case study method allows the researcher to “tease out ever-deepening layers of reality in the search for generative mechanisms and influential contingencies”. The philosophical approach of the critical realist is that any phenomenon being studied does not exist independently of the contextual conditions and that many types of data may yield insight into the phenomenon. In this context, the case study approach sits comfortably within critical realism research.

This research is based on a single case study. Intuitively, one might consider that a multiple case study strategy would provide more robust findings for the research. Eisenhardt (1989) does not state exactly how many cases are required to build good theory, but there is a recommendation for between four and ten cases. This proposition is inherently positivist in approach as Eisenhardt (1989 p. 545) proclaims that research with less will find it “difficult to generate theory with much complexity and its empirical grounding is likely to be unconvincing”. Eisenhardt and Graebner (2007) repeat this exertion suggesting that research from multiple cases will be more robust and generalisable. These assertions are valid in a positivist piece of research, but are sweeping in their claims for what might be developed in terms of complex and useful theory. Mintzberg (1979) suggests that much of value can be lost through the unnecessary addition of volume without purpose. He proposes that samples of one are acceptable if they yield in-depth, interesting findings.

Yin (2003) proposes a number of rationales where a single case study is an appropriate choice including the scenarios where the case to be studied is an extreme case or where the case to be studied is longitudinal and the situation is to be studied over a protracted period of time. Critical realist research requires the researcher to achieve a significant level of depth in the description of the context and the analysis of the data. This depth of analysis is required to explore the contextual conditions and their interaction with the causal mechanisms at play. The primary benefit of multiple case studies is that the researcher can compare across cases and draw inference from similarities and differences to develop the theoretical explanation or to test pre-developed hypothesis. The depth of description and analysis in critical realist case studies, in addition to the interaction of the contextual conditions and the causal

mechanisms, is likely to reduce the value of cross case comparisons. In addition, the purpose of critical realist research is not to produce a set of prescriptive recommendations based on cause and effect relationships. Its objective is to describe a situation in sufficient detail and with sufficient sensitivity to explain what might be the underlying causal mechanisms involved. This proposition may be of a general benefit to other firms but not in the manner which positivist research would attempt to develop a generalisable rule for firms to follow. The limitations of single case studies are outweighed by the value of the in-depth analysis (Macpherson, Jones and Zhang 2004). The longitudinal aspect of many case studies means that the approach is consistent with critical realism. The study of the development of a process over time can be a “crucial advantage in being able to assign causality, a central tenet of the critical realist approach” (Harrison and Easton 2004 p. 195). The passage of time can also allow greater analysis of observed events and mechanisms which might underpin them.

Case study designs can be flexible and may require adjustment during the course of the research (Yin 2003, Eisenhardt 1989). This flexibility is not an indication of a lack of planning or casualness in research design. Both Eisenhardt and Yin concur that the data which can be uncovered during the data collection phase may yield critically important insights which require an amendment to the original research design. Equally, both authors admonish the researcher not to use such flexibility lightly and to consider the implications of any proposed amendments in the context of the entire piece of research. Eisenhardt (1989 p. 539) proposes that this flexibility is “controlled opportunism in which researchers take advantage of a specific case and the emergence of new themes to improve resultant theory”. This emergence is a central element of critical realist research as the goal is to explain what underlying causal mechanisms might explain the phenomenon being investigated.

2.3.3 Critical realism in practice

Having decided on a philosophical approach to adopt, I proceeded with the research on the following basis. The literature on training was reviewed to establish the object surface knowledge related to the subject. The purpose of this was to inform myself of the issues and debates in that literature and to provide some basis for the interviews to be conducted (Yin 2003) as I moved towards gathering the subjective knowledge.

The review of this literature revealed data on the average level of investment in training for manufacturing firms in Ireland. It also revealed similar information on the printing industry in Ireland and overseas. This provided the context for recognising whether the level of investment in training by firms was noteworthy. This literature also explored the orders of learning which can exist. This opened a field of enquiry in relation to the nature of learning within the firm and the possible outcomes from different types of learning.

The section on Data Collection below describes the process by which the data was gathered. It also reveals the process by which this research evolved. The process began by examining the levels of investment in training by the firm. Through the process of engaging with the literature and the data gathered in the early stages of the research, it became apparent that other mechanisms were at play in the firm. This led to an engagement with the literatures discussed in Chapter 5 on dynamic capabilities. The retroductive process of moving from the literature to the expanding firm data set allowed the formulation of my core research question as - How do dynamic capabilities emerge in small firms?

To address this research question the study asks the following questions in the context of the Perigord Group:

- 1) Did dynamic capabilities emerge in the Perigord Group?
- 2) If so, what caused that emergence?
- 3) Are there underlying mechanisms which were not empirically observable which facilitated that emergence?

The first question posed could be addressed by a number of research approaches. It would have been possible to formulate some construct or model which could have been used as a valid measure of the existence or otherwise of dynamic capabilities. Such a construct would also have been capable of describing when such capabilities emerged if sufficient longitudinal data were available. Where critical realism has added to the richness of the explanations offered is through the examination of the data and the views of the respondents and comparing that to the extant literature or to gaps in that literature. In addition, the critical realist approach allowed me to both

recognise and include my own experiences of the firm and the industry in my explanation of the firm's development. The use of an interpretivist approach might not have yielded the same insight as the research would have privileged the perspective and interpretation of the respondents without being able to incorporate the structures within which the firm operated to the same extent.

2.3.4 Insider researcher issues

I have worked as a consultant to the Perigord Group for over nine years, working closely with the CEO. In addition, I have worked for twenty years in the printing industry where I have a position of relative prominence and influence as President of the Irish Printing Federation; as the Network Manager of the Design, Print and Packaging Skillnet, the leading facilitating agency for training initiatives in the sector; as a founding member of the Print and Packaging Forum, which is the industry representative body charged with developing the sector in conjunction with the social partners and state agencies; and as a Director of the National Print Museum. Brannick and Coghlan (2007) discuss the issue of insider research and the hurdles to be overcome. These authors define inside research as "research by complete members of organizational systems and communities in and on their own organizations," (Brannick and Coghlan 2007 p. 59). Using this definition suggests that while I am not strictly an insider researcher, there are sufficient similarities in relation to matters which these authors referred to as preunderstanding, role duality and organisational politics for their approach to be useful in properly recognising and addressing potential biases and influences.

Preunderstanding refers to the knowledge, insights and experiences of a researcher before they engage with a research programme. These factors relate to the researchers general life experience but also more particularly to his experience of the organisation or situation to be researched. Nielsen and Repstad (1993), referenced in Brannick and Coghlan (2007), hold that using one's preunderstanding is a matter of moving from closeness to distance and back again. In my research, it was clear that there was a significant advantage in knowing the terminology of the company and the industry. My understanding of the general development of the organisation and the industry over twenty years allowed me an insight into issues which might have been difficult to achieve otherwise. This was very consistent with Nielsen and Repstad's (1993)

experience. The difficulty with preunderstanding is that the researcher can be too close to the data and may not challenge the assumptions inherent in the situation. “They may think they know the answer and not expose their current thinking to alternative reframing” (Brannick and Coghlan 2007 p. 69).

Role duality refers to the reality that the researcher has both organisational and researcher roles. This can be an issue as the researcher may have conflicts between these roles and may also have to consider the post-research implications of actions taken during the research or the potential consequences of the findings of the research being unwelcome. Bell (1999) warned that the researcher is often watched as much as watching. In the context of role duality, this can have implications for both roles of the researcher. In my research, the role duality took on a different emphasis. I am not an employee of the organisation. However, I provide a range of services to the organisation on a contractual basis which gives rise to similar potential conflicts of interest.

Organisational politics refers to the need for the researcher to consider the political implications of the research involved. This is closely aligned to the role duality issue and may require the researcher to “work the political system” through balancing the organisation’s interest in the research project and the researchers own research objectives and priorities (Brannick and Coghlan 2007 p. 71). In my research this issue was generally not very relevant. Access to the business was established through the Chief Executive and owner of the business, Alan Leamy. The organisation had no specific interest in the research project and was not expecting any particular outcome from it. The main political dimension to the process arose when other key managers were being interviewed about the organisation. These conversations inevitably involved comment on the development of the organisation and the role played by its senior management and owners. To address this political reality, all contributors were assured that their comments were being sought to inform the research and would not be reported back to the owner or to other managers. As the research developed, the importance of these interviews with the second tier managers as a data source reduced. It was apparent that the insider researcher issue was not a negative factor in relation to data collection. None of the respondents had any hesitation in agreeing to be interviewed and none appeared to have any reservations in answering the questions

posed. Rather than presenting a difficulty, having a thorough knowledge of the industry, its historical development and its terminology meant that interviews flowed easily with few interruptions for clarity of terminology or technology.

Brannick and Coghlan (2007) recommend an approach to dealing with the conflicts which arise for the insider researcher. The initial recommendation is for the researcher to recognise the reality which exists and to consider the implications of it. This is the starting point for a reflexive process which requires the researcher to consider his or her insider status at various stages of both the data capture and data analysis process. The researcher is urged to engage in “rigorous introspection, integration and reflection on experience to expose underlying assumptions and unreflected action to continuous testing” (Brannick and Coghlan 2007 p. 69). This process of continuous reflection and the exhortation to examine underlying assumptions fits well with the approach of critical realism. In the context of my research, the research dangers inherent in the insider researcher’s existence are managed in the approach taken and the philosophical underpinnings applied. The advantages of the access provided both before and throughout the research period and the data which this access provided were unlikely to have been available to a non-insider. In addition, my knowledge and experience of the firm and sector were a positive factor in my ability to reflect on the data gathered in the context of the literature and the market developments encountered by the firm.

The review of the literature on methodology allowed me considerable confidence in the use of the case study method for this research. The method is consistent with my philosophical perspective. I can make use of my experience of the firm and the industry to develop the depth of explanation and context required in a critical realist case study. Having established the usefulness and appropriateness of the case study method the following section describes, in detail, the methodology followed in the case study of the Perigord Group.

2.4 The Perigord case study methodology

2.4.1 Choice of company

This research was conducted in the printing industry in Ireland as I am a practicing business consultant with twenty year's experience in the sector. The initial general objective of the research was to examine investment levels in training in SMEs with a view to finding ways to encourage owner-managers of those SMEs to increase their level of investment in training. A number of companies were identified where research access might be possible. These companies included companies who were known, a priori, to have higher than average levels of investment in training and some who appeared to have lower levels of training. As the research strategy was to develop an in-depth case study, a high level of access would be critical. In addition, I decided that an organisation with a higher than average level of training would be more appropriate as there would be an observable action to investigate rather than the absence of action (although not necessarily the absence of a decision on training investments) in the firms with lower than average investment in training. This is consistent with Siggelkow (2007 p. 20) who holds that it is often desirable to "choose a particular organisation precisely because it is very special in the sense of allowing one to gain certain insights that other organisations would not be able to provide".

Specifically, the Perigord Group was chosen for a number of reasons. First, the company was known to have an above average investment in training relative to its peers. Second, I had access to the organisation as a result of an on-going business relationship with the owner. I have acted as a consultant to the company since 2002 and have been actively involved in the development of a number of projects within the group including the sourcing of funds for investment in training. Third, I have a strong and open relationship with the owner and felt confident that access would be granted on the basis of the trust which had been established. This basis for selecting this case is entirely consistent with Yin (2003).

2.4.2 Document analysis

The data analysis makes considerable use of secondary data which fits with Webb and Weick's (1979) description of unobtrusive data (measures which do not require the intrusion of the researcher). It is well established that the use of well planned interviews and questionnaires are valid forms of data capture in the social sciences.

Such methods must be used with care as there is the danger of reporting bias on the part of the respondent. In addition, there is the danger that the presence of the interviewer in interview situations affects the truthfulness of the respondent in some way which might lead to unconscious or entirely conscious misrepresentations. Webb and Weick (1979 p. 651) state that although investigators regularly detail “the limits of self-report they also regularly say that despite these limits, the methods are good enough”. The use of more unobtrusive measures reduces the risk of self-reporting techniques and can provide robust complementary data (Webb and Weick 1979, Lee 2000, Saunders, Lewis and Thornhill 2003, Myers 2009). Webb and Weick (1979) describe unobtrusive data quite broadly and basically in terms of alternatives to self-reported data.

Saunders, Lewis and Thornhill (2003) posit that secondary data can be used to reveal the espoused reasons for managers’ decisions and/or to allow a longitudinal study with comparable data being examined for a protracted time period. Such data can also be used to add depth to the context being examined. Like any data collection method, the use of secondary data is not without difficulty. Saunders et al (2003) caution that the researcher must allow for the fact that the data may not have been gathered for the purpose of the research in hand. Consequently, the researcher must consider whether this has implications for the quality of the data in relation to its intended use.

Webb and Weick (1979) explore a number of aspects of unobtrusive data which sit comfortably with the critical realist approach to research. They propose the utility of such data to encourage researchers to consider unexpected findings, to be more sensitive to what might be considered noise in the field and for researchers to be at least as interested in variances as the mean. The concept of an unexpected finding was exemplified by the authors in relation to the Cuban Missile Crisis. One would normally expect a Chairman to be appointed to any meeting where decisions of consequence were likely. Yet President Kennedy did not appoint a Chair of the deliberations on this crisis. This unexpected finding can only be of interest if one has an initial expectation of a certain nature. The unexpected is, in effect, the absence or contrary of what was expected. This is worthy of investigation to assist in the understanding of what happened. Similarly, an overly defined measurement tool might miss important data. Webb and Weick (1979) describe the aftermath of an

aircraft accident at a major airport. A measure of increased anxiety which took sales at an airport bar as a proxy measure might have considered all non-alcoholic sales as noise in the data. However, the authors suggest that increased sales of soft drinks, snacks, cigarettes and aspirin might just as likely be measures of increased anxiety on the part of those present.

Some types of secondary data are easily accessed by researchers. Such sources include government reports, industry reviews and the publicly available data on companies. Whilst such data can be useful in terms of overall context or in terms of describing a policy context within which a firm operates, it is unlikely to provide the depth and detail for use in a detailed case study. The secondary data which is of use in this context might include internal company documentation such as minutes of meetings, plans for expenditure, strategic business plans, proposals to external parties and a variety of company records which reveal expenditure on different categories of items (Lee 2000, Saunders, Lewis and Thornhill 2003, Myers 2009). The issue for most researchers is how to negotiate sufficient access to the data for it to be of use in the analysis.

My research has taken the form of a single in-depth case study of the Perigord Group. The negotiation of access for secondary sources of data was simple. As described above, I have a long established business relationship with the CEO of Perigord. This relationship began in 2002 but became more substantial from 2004. I have worked closely with him on matters related to training initiatives and the sourcing of funding from Enterprise Ireland² in particular. The documents which formed this set of secondary data included detailed training plans over a number of years, applications to Enterprise Ireland for funding related to training, capital investment and research and development. In addition, another principle source of data for my research was notes of meetings between the author and the CEO over the period 2004 to 2010. Initially this involved working directly with the CEO on training issues and accessing finance for training. This role then developed into what might be described as a more general business advisor and ‘sounding board’. The projects included activities such as a plan to install print equipment on a client site, a strategic business plan for the firm and a

²Enterprise Ireland is the government organisation in Ireland responsible for the development and growth of Irish enterprises in world markets. It can provide a range of supports to firms including funding of various types.

management team development plan. Over this seven year period 186 such meetings took place. These meetings occurred on average every two weeks and lasted for an average of two hours each. I kept notes of these meetings for the purposes of the business relationship rather than any plan to use them as a data source for research purposes. These notes were able to reveal the development in the priorities of the firm over the period. They revealed the areas in which the owner was focused. As I played a central role in the development of various submission and proposals, the data was considered both valid and robust enough for use. The following section provides more detail on the extent of these meetings and the evidence of their occurrence.

2.4.3 Data collection

The literature on case studies concludes that a number of sources of data are both acceptable in case studies and indeed to be expected if the complexity of the situation being researched is to be understood (Yin 2003, Eisenhardt 1989, Harrison and Easton 2004). There were a number of sources of data used in this research. These were:

- 1) Company records on training, training plans and submissions made for training grants
- 2) Interviews with key executives
- 3) Notes from 186 business meetings over the period 2004-2010
- 4) Business plans produced in the period 2004-2010
- 5) Applications for grant assistance (other than training) produced between 2004-2010

1) Company records on training, training plans and submissions made for training grants:

The company developed a number of detailed training plans which were related to grant submissions made to Enterprise Ireland in the period 2004-2007. Specifically, the company applied for and received funding for a range of training programmes which were designed to increase the skill level of production operators as well as to address some management training needs. The company had entered a period of transition and needed to migrate the skills of the workforce from more traditional skills towards a range of skills which were more digitally based and software related.

The plan submitted to Enterprise Ireland in 2005 detailed a range of training which was planned for the period 2005-6. At the operator level, the plan specified a series of training programmes which needed to be undertaken and the employees who should participate in each programme. The training mostly involved production software (Artpro, Nexus, Preps), which were being increasingly used in the industry, as well as some workflow software (ApogeeX, Webworks) which facilitated the flow of work to and from clients. From a more management perspective, this plan required the delivery of training in a wide variety of programmes. Some of these programmes were quite market focused in that they focused on pharmaceutical industry knowledge and some related to attendance at conferences. Much of the management training was around core people management skills such as team building, presentation skills and project management skills. The majority of this training was indeed carried out in the 2005-6 period. The plan had also proposed some management development training for Alan Leamy, but this did not happen at this time for a number of reasons.

A second training plan was submitted to Enterprise Ireland in 2006 as part of a successful application to the Productivity Improvement Fund. This fund was designed to assist companies in generating significant improvements to their operational productivity. As a consequence, this plan focused exclusively on production operators and contained broadly similar elements to the first plan. The funding allowed the company to accelerate the process by which operators were retrained in order to use new technologies. A key feature of this funding mechanism was that training by internal trainers was considered a valid form of expenditure. This facilitated the company in designating a small number of key operators as trainers to ensure that the skills being developed were not only theoretically robust but that they also were firmly focused on the company's clients' needs.

In addition to these company training plans, the company also engaged with the Print and Packaging Skillnet over the period 2006-2010. The Print and Packaging Skillnet is an enterprise led learning network which is funded by the Irish government through the Department of Education and Skills. Data from the company's engagement with the network was made available to me with the permission of Alan Leamy. This data revealed participation in a range of programmes which included cost reduction workshops, employment law updates, project management and sales skills training.

The data also revealed participation in more strategic skills development through participation in a pilot lean programme, the diploma in packaging technology and an internal human resources management competency development programme which was undertaken in Fine Print.

The company's financial data in relation to training also revealed the participation of Alan Leamy and Anne Cooke³ in the Enterprise Ireland sponsored Transform programme in 2006-7. This programme involved the two key managers in a series of workshops over a ten month period. This facilitated their review of the business model and allowed them to consider some alternative ways of developing opportunities. Finally, this data also revealed the decision of Alan Leamy to participate on the Leadership for Growth programme with Enterprise Ireland in late 2010. This programme is Enterprise Ireland's premier management development programme which utilises an internationally recognised faculty to deliver it. The programme also involves several week long programmes in Stanford University in California which were to take place in 2011.

The quantitative data was reviewed and summarised into a table which showed the investment level in training initiatives in Perigord in comparison to their sales, labour cost and added value. No case is made in relation to the adequacy of this level of investment as there are significant philosophical assumptions underpinning the appropriateness (or otherwise) of these measures. However, they are useful in the context that they demonstrate a trend in the company's investment level and also offer some comparison with national data. This data made it clear that this company had an investment level in training which was significantly in excess of the industry norm and considerably more than the national average for manufacturing firms. This confirmed the a priori impression that the company had a noteworthy level of investment in training on these measures.

This data also showed a clear evolution from a focus on largely technical, production operator focused training and managerial training which was task specific towards a focus which was more holistic in terms of continuing to include technical operator

³ Anne Cooke is the Managing Director of Fine Print Ltd which is a wholly owned subsidiary of the Perigord Group. Anne reports to Alan in his role as the CEO of the Perigord Group.

training as well as engaging with more comprehensive and strategic learning opportunities.

2) Interviews with key executives

The interviews were conducted during the summer of 2008 in the offices of the company. Interviews were conducted with Alan Leamy, the CEO of the Perigord Group on the 15th July 2008; with Paul Leamy who is a brother to Alan Leamy and who fills the role of Chief Technology Officer with the Perigord Group and is a co-owner in the business on the 6th October 2008; with Anne Cooke, Managing Director of Fine Print Ltd a wholly owned subsidiary of Perigord Group on the 2nd September 2008 and finally with Michael Fleming, General Manager of Perigord Premedia Ltd which is a wholly owned subsidiary of the Perigord Group on the 8th September 2008. The sequence of the interviews was not significant and reflected the availability of the respondents rather than any purposeful scheduling for the purposes of the research.

Each interviewee was provided with a letter informing them of the broad purpose of my research and assuring them of the confidentiality of the process and of their complete freedom to participate or not without any concern for repercussions internally. All four of those invited to participate agreed to do so and signed letters of consent to participate. The interviews generally lasted approximately forty five minutes and were recorded with a digital voice recorder with the full consent of the participant. The interviews were then transcribed verbatim. Notations were added to the text to capture obvious emphasis or humour. This written text became the source data for the analysis. The interviews were very informal in nature. The participants seemed very relaxed and comfortable. All have known me for a considerable period of time and have worked with me in various professional and voluntary capacities related to the company and the industry at large. The interviews were intended to be exploratory in nature and were designed to establish the lifeworld of the participants as they interpret it. Unstructured interviews allow the greatest flexibility to the participant in this regard. There were five core questions asked of each participant to introduce various discussion topics.

These questions were:

- a) Can you tell me a little about the company's history?
- b) How did you get into the business yourself?
- c) How does the company learn about new developments in the sector?
- d) How do you get new ideas yourself?
- e) How does the organisation encourage people to learn new skills?

These questions were deliberately phrased in an open manner to allow the participants to follow whatever line of thought occurred to them. In general, participants answered the questions freely. In many instances the discussion around a topic covered more than one of the question areas. I was conscious of my insider status with this organisation and made efforts to ensure that the participants did not assume my knowledge of particular instances or decisions.

The purpose of these questions was to initiate a conversation about the company, the individuals involvement with the company and what their impression of how the process of learning worked within the firm. The fact that I was effectively an insider researcher in the context of this research was positive for the purposes of the flow of dialogue in the interviews. The respondents were aware of my industry and company knowledge. This allowed references to specific technological developments and trends within the industry that did not require considerable elaboration for understanding. I was careful to seek clarification on any issue where I felt that the respondent was assuming a level of knowledge on my part on a matter which was not more objectively verifiable. For example, the change in the use of digital technology is clearly established in the sector and has been the subject of many reports and industry debates. Knowledge of these developments did not require any privileged access in the context of Perigord.

Once the interviews had been transcribed verbatim, I commenced a thematic analysis of the data. The interview transcripts had line numbers added for ease of reference to specific passages of text. Initially, I read the interviews several times to re-familiarise myself with the content in detail. This allowed me to see commonality in topics raised across the interviews and the comparative regularity with which some issues were raised. My objective was to identify themes which might emerge from the responses.

I would then consider those themes in the context of the literature reviewed to that point (the literature on training and organisational learning). As I read through the interviews I coded sections of text which seemed to represent discrete codes. I noted in the margin what I felt such a comment might relate to in a thematic sense. Entries at this stage included themes such as change, people and people development, training (formal and informal), technology, research and development, leadership and vision, clients, firm performance, intermediaries, educational experience (particularly regret) and entrepreneurial experience. Many of these initial codes were common to all respondents although the codes of educational regret and entrepreneurial experience were generally confined to two respondents.

These twelve codes were then grouped into five core themes of performance focus, capacity building (people and technology), the evolution of higher order learning, managerial purposefulness and the use of third parties. The first three are expanded upon in Chapter 4 with the final two being introduced in Chapter 6. A spreadsheet was constructed which showed the specific interview references for each theme from each respondent. The following is an excerpt which shows some comments on firm performance from each respondent.

Themes:	Performance:
Alan	58 "we were very successful in the 1980s"
Anne	46 "a Mir Day was a miracle day!"
Michael	110 "if we hadn't, I suspect that we might not still be around today" on leading technological change
Paul	648 "I would have an idea and to see how it worked and how we could do it and then Alan would kind of see - he'd twig how we could make a living out of this"

The number reference in each quotation is the line number in the interview transcript referred to.

Performance was referenced by all respondents and included reference to the profitability and growth of the firm. The emphasis on performance was most noticeable from two respondents in particular who could be considered the most entrepreneurial in terms of their revealed experiences. Organisational change was generally discussed in the use the firm made of technological developments to drive

the business in addition to leveraging key individuals at various times. Upper echelons factors arose in the comments made on senior management's or indeed Alan Leamy's central role in decision making. Capacity building recognised the conscious efforts which were made to build and add skills to the organisation over time. This has been a core attribute of the organisation over most of its life. The use of intermediaries by the company arose in the context of the benefits of working with third parties in the development of business plans and applications for funding. Personal learning was discussed by all respondents and described both the structured and unstructured manner in which they had gained useful knowledge over time. There was also an element of regret in some responses where the respondent lamented missed educational opportunity. Two respondents in particular raised issues of an entrepreneurial nature which revealed their own experience of and approach to entrepreneurial activity. Both revealed a number of examples of previous ventures prior to their involvement with the Perigord Group.

It was the case that the numbers of responses on the various themes differed between the respondents. Yet each theme identified had responses from each respondent, with the exception of entrepreneurial experience. One respondent was considerably more reflective than the others and as a result had more entries in the personal learning and entrepreneurial experiences section. These themes were then carried into the initial data chapter with the emphasis on the organisational change which had been experienced from 2002, the emphasis on the development of people's skills and capabilities and the focus on company performance. The interview data also facilitated the description of the industry context in which the firm was operating and the internal developments which had taken place.

However, it also became clear at this stage in the research that the data did not yield any particular insights of theoretical value in the context of the literature reviewed at that stage. The focus at this point had been on the training and organisational learning literature and it became obvious that something else must be involved if a theoretical explanation of the developments in Perigord was to be developed. Having reviewed the literature on dynamic capability, intermediaries, the role of leadership, absorptive capacity and social capital, I re-visited the data from the interviews and was able to interpret some of the comments made in that context. Indeed, having gathered,

assimilated and interrogated the data to the extent I had prior to reading this new literature, my reading of it was effectively in the context of the data already to hand. This allowed the re-interpretation of the data presented in Chapter 6.

3) Notes from 186 business meetings over the period 2004-2010

As described above I have acted as a business consultant to the Perigord Group since 2002 initially, but in earnest since 2004. My role with the company has been to work with Alan Leamy, the CEO, on a range of matters. In particular, I have managed the company's relationship with Enterprise Ireland and have prepared almost all grant applications made by the company since 2004. As will be described in more detail below, many of these applications were of a strategic nature and central to the development of the company at that time. In the course of this relationship, I made notes of my meetings with or on behalf of the company (I would occasionally meet with third parties on Alan Leamy's behalf). These notes were made for the purposes of my business relationship rather than for any research purpose. All meeting notes were made contemporaneously and generally at the meeting concerned. In some cases I made formal notes of the meetings or sent follow up emails as an aid to action.

In the seven year period up to and including 2010, I have a record of 186 such meetings. I created a table which listed each meeting between me and Alan Leamy or between me and others on his behalf. Initially, this list of meetings was constructed from a review of my business diaries. I record all meetings held in these diaries as a record of activity which has occurred. I maintain a separate diary for planning activities and actions. These diaries were reviewed for meetings held in each week of the seven year period. Entries were made to the list for the date and where possible the names of those in attendance. I then consulted my notes of the meetings for this period which amount to six lever arch files of documentation. These meeting notes are interspersed with the documentation relevant to the projects underway at any given time. The table was then updated for more accurate information of those who attended the meetings and a brief note was added to describe the purpose of each meeting. Examples of the entries are shown in the following extract:

Date	Duration (hrs)	Present (in addition to Lorcan)	Purpose
30/01/04	1.00	Alan + John Shaughnessy Enterprise Ireland	Re Training plans across Litho, Precision Multimedia and Precise Data Solutions
18/05/09	1.50	Alan	Discussion of management structure and responsibilities.

Although it was not possible to provide a note of every meeting recorded in my diary, there were only 19 such gaps in the data. In these cases it was possible to review emails to and from Alan Leamy which show the nature of the business between us at that time. In effect, I was able to produce evidence on 90% of the meetings in the period. No claim is being made in relation to the notes of the meetings other than their ability to document the key issues which were being worked on at the time. The reality is that major projects such as the application for an Enterprise Stabilisation Fund grant dominated the agenda for the twelve months to July 2010. The meeting notes show constant references to this issue over many meetings. As a result, the very minor gaps which exist in the meeting documentation is not considered significant in terms of the analysis of the key strategic issues facing the business as Alan Leamy perceived them.

Over the seven year period there were 186 meetings. This means that there was slightly more than one meeting every two weeks over the entire period. There was a remarkable level of consistency in the number of meetings in each year. The number of meetings ranged from as few as 23 in 2004 to as many as 30 in 2009. The remaining five years had a much narrower range of between 25 and 28 meetings per annum. This demonstrates the consistent engagement which I had with the company in that period. While there was considerable fluctuation in the length of individual meetings which ranged from one hour to four hours, the average length of the meetings over the entire period was slightly more than two hours. In effect, this means that I spent an average of one hour per week for seven years in the company of the CEO of the Perigord Group reviewing the business, considering strategic options and preparing submissions for grant applications. It should also be noted that these meetings, whilst central to the business relationship and a core element of my data, were only the beginning. After each such meeting either Alan Leamy or I would have taken away a series of tasks to be undertaken prior to our next meeting. I have no basis for claiming a specific time for this aspect of our work as I did not maintain a record of this time in a sufficient condition for inclusion in this research. It is

however, reasonable to assume that the time involved was at least equal to the time involved in the meetings when one considers the time required to research various possibilities, draft reports, seek information from Alan Leamy's colleagues within the business etc. Even such a conservative estimate suggests that the total time commitment over the seven year period approached two hours per week.

Having created the table of meetings with the associated notes of the general theme of each meeting, I reviewed the data to summarise the activity in each year of the period under review. This analysis resulted in Table 10 in Chapter 6 which listed the changing strategic priorities of Alan Leamy in the period under review. The division of some priorities between periods is more for ease of presentation purposes than any precise reflection of the time spans involved. By their nature some issues span more than one calendar year. However, the table shows each issue in the year in which it was the primary focus of the agenda. The detailed discussion of the evolving priorities is contained in Chapter 6.

4) Business plans produced in the period 2004-2010

A number of business plans were produced for the Perigord Group of companies in the period 2004 to 2010. In summary, detailed plans were prepared for Precise Data Solutions as part of its application for significant funding from Enterprise Ireland under the High Potential Start Up scheme. A similar plan was produced for the Perigord Group as part of its application for funding under the Enterprise Stabilisation Fund. I was heavily involved in the production of these plans from a number of perspectives. In my capacity as a business consultant I met with Alan Leamy and other key executives as required to tease out the issues underlying the company's performance. Standard tools like SWOT analysis were used to generate discussion on the different perspectives which existed in relation to the business and its potential. The business plans included detailed sections on the market, on operations, on staff requirements and developments, on research and development capability and on financials. As well as being actively involved in the generation of the data and concepts to be included in the plans, I was the person charged with writing the documents. I would draft a section or chapter of the plan. Alan Leamy would then review it and either make changes to the draft directly or discuss with me changes which he would like to see made. I met with the company's financial director on

many occasions to discuss the financial projections required and to agree the base data which were consistent with the sales and operational projections being made. I liaised with the company's auditors on aspects which they had to produce in relation to consolidated accounts for the Perigord Groups businesses. Each document went through at least ten iterations prior to being submitted as part of the funding applications. As well as the role they played in securing funding for the company, the value in the documents was their contribution to clarity of purpose for the company's executives.

5) Applications for grant assistance (other than training) produced between 2004-2010
As has been described above, a large number of applications were made and secured for grant assistance for the Perigord Group of companies between 2004-2010. As well as the major projects described above a number of smaller proposals were also made and secured. Chronologically, the applications were:

- Consultancy grant proposal in 2004
- Training grants in May 2005
- Productivity Improvement Fund for Litho Studios (subsequently re-branded as Perigord Premedia) - early 2006
- Productivity Improvement Fund for Fine Print - April 2006
- R&D stimulation grant for Litho Studios - February 2008
- HPSU application for Precise Data Solutions - 2007-2008 concluded March 2008
- Business Accelerator Programme for Precise Data Solutions for the USA market - March 2008
- Key Person Recruitment grant for Precise Data Solutions - October 2008
- Employment Subsidy Scheme for Perigord Premedia (formerly Litho Studios) - December 2009
- Employment Subsidy Scheme for Fine Print - December 2009
- Enterprise Stabilisation Fund for Perigord Group - 2009-2010 concluded July 2010
- R&D grant proposal - late 2010 on going

All of these applications required a combination of application forms and explanatory documents to be completed and submitted. In some cases, the process was relatively

simple in terms of a short application form with a supporting one or two page explanatory note. In others, as has been described above, full scale business plans with full financial projections for the following three years were required. With the exception of the Business Accelerator Programme for the USA office, I completed all of the applications and supporting documentation on behalf of the company. I managed the process of interaction between Enterprise Ireland and the company and attended all meetings between the agency and the company's executives.

2.4.4 Review and use of data

Methodologically, it was clear that the themes which emerged from the interview process did not yield very much in the context of the themes in the literature reviewed to that point. The data confirmed that the general technological and market trends which had been reported for the printing industry. The data confirmed that the company had a higher than average investment level in training. The data revealed some issues of interest in relation to the types of learning which had taken place. The data showed considerable fit with the upper echelons theory in the sense of the centrality of the senior management or of the senior executive in relation to firm decision making. However, the data did not reveal much in terms of any useful explanation of what might be underpinning the behaviour of the firm. This led me to re-visit the literature and to explore the capability theme which had emerged in more detail. This led to the substantive review of the literature on dynamic capability presented in Chapter 5.

The data from the interviews was then re-analysed in the context of this literature. It was at this point that the data gathered from the notes of meetings between me and Alan Leamy was included for analysis. In re-analysing the data I drew on core themes from the literature, explored in Chapter 5, of resources, routines and competencies, core competencies, dynamic capabilities, and literature related to managerial agency. This allowed me to focus on the data in a more theoretically robust manner and to link what was emerging from the data to a strong theoretical base.

The core purpose of critical realism is to answer the question of "what, if it existed, would account for this phenomenon" (Reed 2005b p. 1631). Having re-presented the data in the context of the literature on dynamic capability, absorptive capacity and

social and intellectual capital I considered the explanations which might have underpinned the phenomenon being studied. This research seeks to establish if dynamic capabilities emerged in the Perigord Group. If so, as a critical realist, I wish to explain the emergence of any such dynamic capability in a defensible theoretical manner. Chapter 7 discusses these issues in detail and addresses the questions posed herein.

3. Literature Review: Learning

Why don't SMEs invest more in training? This question dominates the literature on training in SMEs. The reasons for the perceived under-investment in training by SMEs, particularly in relation to management development, are the subject of constant discussion by policymakers and academics alike. However, this literature also raises other questions - what is training or more specifically, what is learning in an organisational context? How do organisations learn and how do SMEs in particular learn? This chapter addresses these questions in the following manner. The training debate is discussed from a policy context and an academic perspective on learning. A model of organisational learning is discussed before exploring the orders of learning which exist. Finally, the specific context of learning in small firms is examined.

3.1 The training debate

There has been substantial investment by national governments in training in SMEs. The Bolton Report (1971), in recognising the importance of SMEs to the UK economy, began a public policy era which encouraged training in smaller companies. The underlying assumption in public policy on training is that investment in training is positively related to improved business performance. In Ireland, Government funding of training initiatives in 2003 amounted to € 173 million for those in employment and almost € 270 million for the unemployed (Expert Group on Future Skills Needs 2005a). The investment of almost € 442 million is a clear demonstration of importance of training in Irish public policy.

The Expert Group on Future Skills Needs (EGFSN) was established by the Irish government in 1997 to advise on the current and future skills needs of the economy and on other labour market issues that impact on Ireland's enterprise and employment growth. The government of Ireland adopted the recommendations of the EGFSN report "Towards a National Skills Strategy" (Expert Group on Future Skills Needs 2007). This report recommended that the projected requirements of Ireland's economy by the year 2020 necessitated a substantial continuing investment in training to increase the level of educational attainment of 500,000 people by at least one level on the National Framework of Qualification (NFQ). (The NFQ is Ireland's framework of accredited training and education awards which operates on a scale of 1 to 10 with a doctoral qualification at 10. The Leaving Certificate, which is the normal

school exit exam at eighteen years of age, and many national craft certificates are at level 5 or 6). The skills strategy adopted has significant implications not only for the level of investment required in training, but also in the nature of the training required as it places such a heavy emphasis on accredited training programmes.

Government policy on interventions in the training marketplace through public provision and grant support assumes ignorance on the part of SMEs in particular in relation to the benefits of training, which in turn leads to a market failure (Storey and Westhead 1997). The ignorance theory assumes that there are significant benefits to training in relation to enhanced firm performance. The benefits are assumed to be such that any SME which was aware of them could not fail to invest in training initiatives. As there is a perceived under-investment in training by SMEs (OECD 2003), it is therefore assumed that if the ignorance issues could be overcome, then firms would invest more in training, thereby resolving the market failure. This gives rise to publicly funded programmes which reduce or eliminate the cost to firms to participate in training and also to programmes of intervention which encourage firms to engage with training more generally. The alternative view is that there is in fact no market failure in the training market. SMEs invest at the current level because there is in fact no automatic linkage between investment in training and firm performance. Market forces result in a level of spending on training consistent with the perceived economic return to the firm. Storey and Westhead (1997) found that SMEs also work to shorter payback timescales for investment than larger firms, and so might be more reluctant to invest in programmes (like management development) which might take longer to provide a return to the firm.

Neither the market failure nor the market forces propositions adequately explain the perceived under-investment in training by SMEs. Both positions suffer from a philosophical and methodological bias which seeks to narrow the debate to causality in a manner which regularly results in flawed research (Storey 2004, Gibb 2000, Curran 2000, Storey and Westhead 1997). Equally, the arguments tend to consider the issue in relation to training as an isolated process, rather than considering training as a key component in the delivery of specified objectives. Training interventions should be used as part of a planned process of actions to meet coherent business objectives which are clearly identified (Sels 2002). The market failure debate also effectively

considers all training to be of a similar nature which is capable of being assessed in short term measures.

Government reports consistently show a lower investment level in training for SMEs than their larger counterparts. The OECD (2003) reporting on levels in five countries, found a lower level of investment along a number of criteria which was almost perfectly correlated with firm size.

Table 1: Investment in training by firm size

<i>Firm size</i>	<i>% of Managers on external courses this year</i>	<i>Days training per person p.a.</i>
1-9	37	2.2
10-24	44	2.4
25-49	51	2.7
50-99	57	2.7
100-249	66	2.4
250-499	75	2.8
500+	82	2.9
Source: OECD 2003		

This table shows a very significant disparity in the number of managers who undertook external courses in larger and smaller firms. However, the statistics are silent on the benefit of the programmes undertaken and the purpose for which the programmes were chosen.

The OECD report, along with other research on training levels, focused on external and structured programmes (Gibb 2000, Storey and Westhead 1997, Westhead and Storey 1996) and excluded more informal programmes. This is not surprising given that the costs associated with external programmes are more easily identified than those with internal programmes and that cross firm comparisons of internal programmes are open to difficulties of interpretation and certainty in comparators. However, we also know that entrepreneurs prefer to learn from their peers in more informal settings. If entrepreneurs do not consider informal training to be training at

all (Gray and Mabey 2005, Barry and Milner 2002) then it is possible that there is an under-reporting of training levels in smaller firms relative to larger firms based on interpretation alone. The impact the inclusion of less formal training activities may have had on the OECD comparison between larger and smaller firms is unknown.

In Ireland, the Expert Group on Future Skills Need (2005b) described a number of reasons that SMEs offered for lower levels of engagement with management development training in particular. Most respondents specified time (the ability to release staff from their normal duties for training), financial cost (the absolute cost of the training being too high) and the relevance of the training itself (many programmes are designed too generically to be of real benefit to an SME). Storey and Westhead (1997) found similar reasons and suggested that these issues are more significant in smaller companies. This is because the proportionate impact of one staff member in say six being on a training programme is more significant than one in sixty or one in six hundred for larger companies. Similarly, Storey and Westhead argue that the cost is proportionately higher for smaller companies in terms of the overhead required to manage the identification of training needs and the procurement process. The financial costs may also be higher and the training may be less relevant as the smaller firm will tend to have to settle for the generic programme available from trainers. As larger companies may have sufficient numbers of employees to completely fill a training programme, they will be better placed than smaller companies to have a programme tailored to their specific corporate needs. In addition, Storey and Westhead (1997) also found that the lack of an internal labour market in SMEs restricted promotional opportunities for employees and therefore dampened demand for management training from staff. These authors also found an additional internal labour market difficulty where employees did wish to engage with management training. Owners were often reluctant to invest in the training as the expectation was that trained staff would leave, thereby negating any gain to the organisation possible.

Other less commercial or economically based reasons may exist for the low take up by entrepreneurs of formal structured training programmes. Martin and Halstead (2004) in a study of a programme to attract entrepreneurs back to training in the UK found that entrepreneurs cited poor experience in school as reasons to avoid engagement with formal training situations. It seemed that the bad experience the entrepreneurs

had as children still greatly affected their willingness as adults to engage with structured training programmes which were considered to be like school. The Expert Group on Future Skills Needs (2005b) went further to suggest that some of the more economic or commercial reasons given were in fact excuses offered by owners who did not wish to engage in the development of their staff for fear of exposing their own educational deficiencies. In addition, some owners were concerned that if they engaged in management development training for their employees, that they would be challenged in terms of the strategy being followed or in having to explain decisions made. There was a clear reluctance to engage in this process. The implications of this suggestion are significant. If owner-managers refrain from investing in management development to avoid self-exposure in some way, then any interventions in this area need to recognise this fact and take steps to ameliorate it.

Since the Bolton Report (1971) there has been an assumption in public policy that investment in training is positively associated with firm performance. Despite this assumption, there is a significant debate in the literature on the link (if any) between training and firm performance.

Hambrick and Mason (1984) suggested that management development training would only result in a reduction in the variation of performance between firms rather than influencing the performance per se. Their contention was based on the premise that most management development training emphasised mistake avoidance rather than anything else. Fuller-Love (2006) in a thorough review of the literature in this area, suggests that at the very least there is a correlation between management development training and the reduction in failure rates in SMEs. This is supported by Curran et al (1996) who suggest that management training leads to growth and reduced risk of failure. This concept of the impact on survivability is supported by OECD (2003). The OECD report quotes two Canadian studies which stated that “the main reason for failure is inexperienced management. The managers of bankrupt firms do not have the experience, knowledge or vision to run their businesses” (Baldwin et al. 1997 as quoted in OECD 2003 p 7) and “even after controlling for other establishment characteristics, we found that establishments with the strongest commitment to training were significantly more likely than other firms to report positive revenue and productivity trends over the previous two years” (Betcherman, Leckie and McMullen

1997 as quoted in OECD 2003 p.7). Henry, Hill and Leitch (2004) in a longitudinal study of Irish entrepreneurs during and following their participation in an entrepreneurship training programme suggest that there is some benefit, in relation to performance, to targeted training on a range of issues prior to start-up. Whilst this study may suffer from some selection bias, at the very least, the confidence levels of the participating entrepreneurs were enhanced. Equally, there was some evidence that some potential entrepreneurs were dissuaded from start-up, which might be seen as a positive outcome from a macro-economic viewpoint (as they may well have failed).

Storey (2004) states that despite substantial research attempting to demonstrate a causal link between training and improved business performance and return on investment from training that there is in fact little evidence to support the claims made. This article draws on research from the UK and five other OECD countries (Canada, Finland, Germany, Japan and the USA) and argues that the accepted low take up of training by small firms (defined as under 500 employees in some countries and under 250 in others) is as a result of the key decision makers being unconvinced of any return on investment. This lack of causality is largely supported by Gibb (2000) and Curran (2000). These contributions to the literature are positioned in a debate on governmental policy in the UK in relation to training supports. The appropriateness of training interventions being promoted by the UK government to the SME sector and the relevance of homogenous programmes for SMEs which are heterogeneous in nature may be key reasons for the failure of such programmes to yield any improvement in business performance (Curran 2000, Gibb 2000). Storey (2004) robustly and properly challenges studies which purport to demonstrate the performance link in a variety of ways, saying that "...their methodology is unable to disentangle, even if a positive correlation existed, whether it is small firms that train which perform better or small firms that perform better which can afford to train" (Storey 2004 p.123). However, his view of the requirements for a comprehensive study to establish the link between performance and training seem excessive when there is ample evidence of well-structured impact measurement studies of individual training programmes (Phillips 2003).

There is a substantial gap in the literature relating to return on investment in training. Planned training interventions should be preceded by an assessment of some

performance gap which relates to an organisational objective or aspiration (Sels 2002, Rowe 1996, Mabey and Finch-Lees 2008). Yet the literature tends to focus on the period after the training programme (for formal programmes) and seeks to identify attributable results. It would be useful to see more research which introduced an assessment of the pre-training planning and the clarification of the desired learning outcomes as a key factor in improving business performance. It is also the case that many companies do not in fact plan their training in such a manner. Sels (2002 p. 1285) in his research into training in Belgium found that “the companies which systematically translate strategic changes of direction into a decision of new training needs form a small minority”. He argues that unless there is a clear linkage between the firm’s strategy and the training identified, then increasing the level of investment in training is misguided. Any investment which is not tied to specific objectives related to a firm’s strategy is less likely to result in a worthwhile return on the investment than an investment carefully planned with specific business objectives and measures of performance in mind (Sels 2002).

The debate in relation to the return on investment on training is part of a larger similar debate in the human resources management field (Harney 2009). Hesketh and Fleetwood (2006) are one of the few authors questioning the validity of the quest for an empirical causal link between human resources management initiatives (including training) and performance. Part of their concern is that the absence of a demonstrable link may cause worthwhile activity to be terminated – i.e. not proving the linkage does not equate to there being no linkage present. These authors understand the “real world” of corporate life and the competition for scarce resources which exists. They recognise the boardroom is unlikely to be the location for philosophical debate, yet they propose that a more in-depth analysis of the issues and relationships which exist in organisations is required for a better understanding of what actually happens. As one respondent put it “When I want to know, ‘Well, what do we actually in fact “do”?’ I have to lift up the stones and have a look underneath.” (Hesketh and Fleetwood 2006 p. 691). The critical realism approach adopted in this thesis is appropriate to answering questions of this nature.

Rowe (1996) found that despite the significant levels of investment in developing less autocratic styles of management that “especially when the going gets tough, the

dictatorial, autocratic style (stemming from scientific management) remains the dominant form (of organisational approach)” (p. 19). In other words, despite significant investment to engender what has been deemed by some to be a more appropriate style of management, tension and stress tend to see managers revert to a more blunt form of management. This type of finding suggests that the investment in training by firms in developing management styles may be ineffective.

Mabey and Finch-Lees (2008) in their discussions on management training hold out the possibility that larger companies may invest significant sums of money in management development in order to indoctrinate managers into the company way of thinking. Ezzamel and Wilmott (2001) posit that employees may resist training as it can be an attempt by management to impose a way of thinking and acting which is fundamentally exploitative of the employees. Rusaw (2000) agrees specifying that training can be emancipatory if allowed to develop freely but that organisations frequently constrain the content and direction of training and also limit access in an attempt to control behaviour. Kamoche (2000) in his study of a multi-national organisation found evidence of the use of the management development programme to promote and continue organisational ideology. Whether one agrees with the exploitative propositions of many critical theorists in this area or not, it is clear that large organisations can and do use management development programmes to promote the firms ideology and processes and adherence to established routines. For policy to then suggest that a similar level of investment is warranted in smaller companies when the same issues and breadth of organisation are not involved is misguided.

Progression in larger companies can be based on performance on internal development programmes which by their nature are based on what the company believes is the right way to manage and develop the business. By the company determining what is right in this fashion, it may be inadvertently restricting the learning which may be possible. At the very least, it is possible to imagine circumstances where a company invests significantly in training and actually achieves a negative long term result through inadvertently restricting the options considered by its developing managers. In this situation, the higher level of investment in training by larger firms is not worthy of emulation by SMEs.

3.2 A model of organisational learning

The training debate has also suffered from a lack of clarity in definitions and terminology which hampers discussion and often conflates very disparate issues into falsely homogenous terms. A comprehensive discussion of training issues should reflect the complexity of the topic in terms of the nature of delivery of material, the nature of the learning sought and the potential significance of that learning to the individual or organisation.

The word “training” is used so commonly in every day speech and referenced so commonly in organisational dialogue that it may be taken for granted that its definition is commonly agreed and understood. Training may include technical issues ranging from a demonstration of how to use a new fax machine to a comprehensive programme of training on the operation of a multi-million euro printing machine; it may be on communication style in relation to telephone sales skills; or it may be on strategic planning and the tools by which a company may assess and plan for its future.

The Oxford dictionary defines training as to “teach (a person or animal) a particular skill or type of behaviour through regular practice and instruction”. This definition allows the manner in which one shows a dog how to perform certain tasks to be equated in terminology with how humans may be shown how to perform new skills. Such instruction may be formal and structured in a classroom style environment or it may be less formal and structured in the sense of the traditional apprenticeship system where an experienced technician demonstrates over time and during the execution of the task to the apprentice. Such an approach to the instruction of an individual is valuable in many circumstances. However, to limit the acquisition of knowledge to such a structure would be very restrictive.

A more useful term to use to capture the role of the person engaged with the process of acquiring new skills is “learning”. The Oxford dictionary defines learning as to “acquire knowledge of or skill in (something) through study or experience or by being taught” or to “become aware of by information or from observation”. This definition allows a much broader scope in how an individual might acquire knowledge in that it allows for experience, observation, self-study as well as being taught in a more formal

manner. Beach (1980) defines learning as “the human process by which skills, knowledge, habit and attitudes are acquired and altered in such a way that behaviour is modified” This has become the accepted academic definition of learning (Gibb 1997, Sullivan 2000). The definition relies on the necessity for behaviour to be modified for learning to have been deemed to have occurred. This transfer of learning is critical and is also learner focused rather than teacher focused. Learning is based on what the learner already knows not on what the teacher knows (Gibb 1997).

However, Huber (1991 p. 89) defined learning as “an entity learns if, through its processing of information, the range of its potential behaviours is changed”. This is a broad interpretation as it does not require actual behaviour to have changed. There is no requirement for improvement in performance, nor is there necessarily any requirement for intentionality as an entity may process information involuntarily. Indeed, Huber (1991) expressly states that his definition holds for humans, animals, groups, organisations, industries and societies. In other words, an entity learns if its range of potential behaviours changes as a result of processing information it encounters. There is no value judgement inherent in this definition, as an entity may process the information encountered incorrectly or make erroneous conclusions and thereby learn something which is in fact incorrect. Equally, that which has been learned may cease to be true if circumstances or the environment were to change. However, Huber’s definition remains useful as it also recognises the breadth and encompassing nature of learning. In relation to people and organisations it allows for unintended consequences where people may learn from the actions of others. It allows for learning to occur which is entirely appropriate in the prevailing circumstances, but which ceases to be so when the environment changes. It allows for intentional, deliberate learning in formal and semi-formal educational environments.

Building on Huber (1991), Crossan, Lane and White (1999) developed their 4I model of organisational learning. This model expressly addressed the realm of individual and organisational learning. The model recognises that there are three levels in an organisation (individual, groups and the organisation) and proposes four processes in relation to learning (Intuiting, Interpreting, Integrating and Institutionalising). Intuiting is defined as the recognition of patterns or possibilities in personal experience. However, Crossan et al (1999) posit that unless that individual engages

with another individual on the subject, that it remains a personal and individualistic issue. Interpreting is the process of explaining to oneself or others of the insight or idea garnered at the Intuiting stage. Integrating is the process where a shared understanding is developed between individuals and where an agreed set of coordinated actions occur. If these actions are recurring and significant in an organisational context, the Institutionalising may occur. This is the process by which routinized actions are ensured in the organisation. This model has considerable value as it explores the process of learning in an organisational context and builds from the individual to the organisation. The authors recognise that while the processes are built on each other sequentially, there is not necessarily a clear delineation from one process to the next as these processes form the bridge from one organisational layer to the next.

Crossan, Lane and White (1999 p. 532) state that “organisational learning is a dynamic process”. What has been learned may influence future actions and what has been previously learned influences how people act and think. One’s ability to intuit is based on the ability to recognise patterns or possibilities in experience. This ability is itself dynamic as experience evolves. The ability to articulate an idea to another requires an ability to explain the thoughts and concepts which underpin it. Successfully achieving shared understanding requires the people listening to the explanation to explore it in sufficient detail to overcome their own mental preconceptions of the idea as it emerges. “The real test of shared understanding is coherent action” (Crossan, Lane and White 1999 p. 533). The authors also recognise the inherent organisational dangers of the manner in which learning occurs. An over-emphasis on institutionalising can undermine the ability to intuit, as intuiting may be considered subversive to the organisations established processes. Yet institutionalising is a critically necessary process if the organisation is to be capable of capturing the value consistently of any new process.

In considering the 4I model, Lawrence et al (2005) hold that the consideration of how power and politics may be used within the organisation can have a direct impact (positively or negatively) on learning. Decisions are made in organisations about which ideas are supported and advanced. These decisions are not always based on the objective merits of the case as genuine objectivity may be difficult as those involved

are likely to have a view based on personal experience and previous learning. The use of episodic power refers to “discrete, strategic political acts initiated by self-interested actors” whereas systemic forms of power “work through the routine, on-going practices of the organisation” (Lawrence, et al. 2005 p. 182). In other words, the latter is an indication of the organisation inertia considered by Crossan et al (1999), whereas the former relates to the deliberate actions of individuals with power. Neither should be considered as automatically negative. An organisation is unlikely to wish for a constant state of flux in processes as this could jeopardise efficiency dramatically. Consequently, some organisational resistance to change is probably healthy as it requires a new idea to have a demonstrable advantage prior to its acceptance. Equally, the use of power by self-interested actors may be very positive as it may result in valuable ideas being promoted which might otherwise have been suppressed by the organisational inertia. Schilling and Kluge (2009) concur that the self-interest of employees in the organisation must be considered within the 4I model. In their exploration of barriers at each stage of the process, they propose that if the professional identity of the employee is likely to be undermined by the learning identified, then it is likely to be resisted.

3.3 Orders of Learning

Appreciating the distinction between learning and training and understanding how learning takes place in organisations is only a beginning. The concept and scope of learning is not singular or uniform. Learning must be considered as a broad topic with very significant distinctions within it relating to the nature and impact of the learning acquired. The distinction between learning and training, explored above, essentially relates to the degree of involvement of the participant in the process of acquiring new skills and competences, the responsibility taken by the participant for their own learning, as well as allowing for the inclusion of many forms of learning including experience, observation and self-study as well as the more formal and structured forms of learning facilitated by organised programmes and courses. However, a discussion of learning must also reflect on the fact that there is an order of learning, which must be understood in the context of any review of organisational learning or the impact of learning on an organisation's development.

Argyris (1976) described single and double loop learning as a dichotomy of learning types. Single loop learning described simple processes where the task to be completed was well defined and the desired outcomes clearly understood. Single loop learning adequately describes much traditional and functional training where the trainee is expected to acquire the skills to perform a specific task to an acceptable standard. It is easy to conceptualise single loop learning in the context of a machine technician being shown how to set-up a machine in a timely and accurate manner for a specific task. It is also relatively easy to assess the extent of the skills acquired through demonstration of the task. Single loop learning is not confined to manual tasks and could also describe most specific skills training where the participant is not required and in fact is often positively dissuaded from showing any initiative in the end result required or the method to be followed. Double loop learning involves some reflection on the task to be achieved and consideration of the options available to achieve it. Such learning is potentially more complex as the outcomes are not necessarily known in advance and the appropriate method may not be established.

In describing Senge's (1990) terms of adaptive and generative learning, Wang (2008 p. 638) states that adaptive learning occurs "within a set of recognised and unrecognized organisational constraints" which lead to learning within the boundaries

of those constraints. Consequently, learning tends to be sequential and incremental in nature. These constraints are frequently based in the assumptions made in the organisation about its capabilities, its client requirements and the environment in which it operates. The concept of organisational image (Penrose 1959, Weick 2001, Hilliard 2004) will be explored in detail in Chapter 5, however it is worth noting here that an organisation's managers may have a perception of their firm and its environment which is based on experience, previous decisions and personal perceptions. There is significant potential for such an image to be inconsistent with the view which others in the market have of the firm. Consequently, learning, especially experiential learning based on such perceptions can be myopic in that they are based on false assumptions (Levinthal and March 1993, Maskell and Malmberg 2007). When these constraints and assumptions are questioned, the possibility of generative learning presents. It is characterised as “creativity, breakthrough and organisational learning” Wang (2008 p. 639).

Fiol and Lyles (1985) describe lower and higher level learning to distinguish forms of learning. Lower level learning “occurs within a given organisational structure, a given set of rules” (p. 807). The authors stress that that the terminology should not be confused with the organisation level of any individual, rather it is reflective of the nature of a learning which is bounded by assumptions and where a pre-determined behaviour or level of performance is defined. In this context there are clear similarities with Senge's adaptive learning which is also constrained by existing assumptions. Higher level learning “aims at adjusting the overall rules and norms rather than specific activities or behaviours” (Fiol and Lyles 1985 p.808). This type of learning requires greater reflection on the part of the learner to challenge existing assumptions and modes of operation. This type of reflection is difficult for many learners as it requires an ability to identify what the assumptions in use are. In the context of organisational image described above, it can be difficult for managers to identify their own misperceptions until an event occurs which demonstrates the error. Consequently, Fiol and Lyles suggest that some form of crisis may be required for this type of learning to take place. Jones and Macpherson (2006) concur in stating that a crisis can often lead a firm to seeking external help which can assist in challenging assumptions in the business. Cope (2003) agrees finding that it is discontinuous change (often in

the form of a critical incident) which forces the entrepreneur to reflect on their core assumptions and so develop higher order learning.

Organisations require both forms of learning. Lower order learning is required to ensure that processes and routines which provide the basis of an organisations service are delivered consistently and to a standard expected by the market. However, higher order learning is also required if an organisation is to sustain itself for the long term in the face of continuous market change. Relying on lower order learning will not deliver the clarity on constraints and assumptions which may limit the organisations options for growth. While many authors present the distinction between lower and higher order learning as a dichotomy, it may be more useful to consider them as points on a continuum. It is possible to imagine different learning opportunities as being more towards the lower order or higher order without necessarily being easily or usefully categorized as either. In this thesis, the distinction between lower and higher order learning is relative in this way rather than absolute in definition.

3.4 The SME context

Storey and Westhead (1997) articulated a number of reasons as to why SMEs train less than larger firms. SMEs have a higher failure rate than larger firms and so it is rational for them to seek shorter paybacks on their investments. Lack of internal labour markets mean that employees in smaller companies are less likely to seek training opportunities as the opportunities for advancement are fewer. The costs of training may be proportionately higher for the smaller firm and the opportunity costs of released staff are also higher. However, if one accepts the propositions that Storey and Westhead make but still believe that there is a benefit to SMEs in engaging in management development training in terms of lowering failure rates, then it is arguable that some form of government intervention is warranted to alleviate the issues which Storey and Westhead raise which have the potential to be self-fulfilling in terms of firm failure if unaddressed. Programmes such as the Training Networks Programme managed by Skillnets specifically attempt to address these issues through the funding of networks of firms where the identification of appropriate training solutions and the management of those training solutions can be jointly funded by the firms and the government.

SMEs are not smaller versions of larger firms (Penrose 1959, Gibb 2000). They have different characteristics and function differently from larger firms. Penrose (1959 p.19) in discussing the implications of firm growth on organisational structure and management function stated that “organisations will become so different that we must look at them differently; we cannot define a caterpillar and then use the same definition for a butterfly”. Smaller companies often emphasise management informality in order to retain flexibility (Gray and Mabey 2005). Yet the constant comparison of training levels between larger and smaller firms persists. If there are significant differences between them as business organisms and how they operate, is there any basis for drawing conclusions on the relative value of their investment in training as public policy presently does?

Research has shown that hands-on training - where a more experienced operator trains a less-experienced operator by a close quarter's demonstration - is one of the preferred training approaches of SMEs (Gray and Mabey 2005, Barry and Milner 2002). However, the same research reported that many owner-managers do not really

consider this informal, yet very effective, technique to be training at all. This seems to relate to the lack of formality of the training rather than any view that the results are unsatisfactory. The literature also suggests that entrepreneurs learn best from their peers and probably in settings which are informal rather than formal, particularly through networking opportunities (Gibb 2000, Sadler-Smith, Down and Lean 2000, van Gelderen, van der Sluis and Jansen 2005).

Jones and Macpherson (2006) extended the 4I model to the context of the SME and considered how those firms might access external knowledge to enhance internal resources. They suggest that the 4I model has a weakness in relation to small firms as the model “pre-supposes the existence of structures and procedures which is often not the case in small firms” (Jones and Macpherson 2006 p. 169). This lack of systems makes it difficult to share and institutionalise new knowledge. The ability to institutionalise learning in small firms may require the intervention of external parties to assist the owner-manager to make the transitions required. They describe three case study firms who engaged with external parties to acquire new knowledge. The authors describe three different types of learning that occurred as being normative (where a customer helped the firm to establish the expected standards and procedures for quality control and continuous improvement programmes), mimetic learning (learning by imitation where one firm chose from options presented which had worked in other organisations) and coercive learning (where the firm’s customer threatened to remove business unless certain managerial systems were changed). Their research recognises that the owner-manager is central to decision making and that the SME context may be quite different to larger organisations and that third parties can have a direct influence on organisational learning in a number of ways.

In exploring the question as to whether SMEs under-invest in training a number of issues need to inform the research. (i) Learning is both formal and informal, (ii) entrepreneurs may not perceive informal training activity to be training when asked, (iii) entrepreneurs have been shown to prefer to learn informally and ideally from their peers, (iv) larger firms may require greater levels of investment in training than SMEs for reasons of coordination and (v) there is evidence that firms do not plan the learning outcomes sought in advance of training thereby raising doubt as to the efficacy of much spending on training initiatives. Because the research approach

generally adopted fails to incorporate these issues in their analyses, the accepted conclusion in the literature that SMEs under-invest in training is premature. Analysis of firm's level of investment in training should include consideration of the reasons for the level of investment as well as capturing the full extent of the investment in all activity leading to organisational learning. The case study on the Perigord Group explores the reasons for and outcomes of the firm's level of investment in training and development. The critical realism perspective requires a level of analysis to consider the issues involved and to reveal the underlying mechanisms that give rise to these investments.

4. Perigord Case Study & Case Analysis

The Perigord Group is an Irish owned company with operations in Ireland, USA and Singapore. Coming from a printing industry background, it offers brand management and artwork services to multi-national information and communication technology industry clients, pharmaceutical companies and the international gaming software industry. This case study, using a critical realist approach, explores the reasons for and outcomes from the company's level of investment in training and development initiatives. The data revealed a transition from lower order learning to higher order learning within the firm.

The industry context and approach to training and development are presented prior to describing the Perigord Group in detail. The history and development of the firm are presented, with a particular emphasis on the period from 2002 to 2010. The data reveals a significant evolution in the firm in terms of its product and service offering at a time when the industry in which it operates was in turmoil. The reasons for this evolution are examined.

4.1 Print sector issues

The Perigord Group was established in 1974 as Litho Studios Ltd., a company providing origination services to print and publishing companies. Although it has now evolved into an organisation which is as much a marketing services company as a print sector company, its history and development are firmly rooted in the printing industry. The structure, scale and context of that sector must be understood to allow full consideration of Perigord's context and development path.

4.1.1 Market scale and significance

The print and packaging industry in Ireland is a significant sector which employs approximately 17,000 people in 750 firms (National Centre for Partnership and Performance 2009). The industry had a turnover of € 2.5 billion in 2002 with € 333 million of that exported (The Print and Packaging Forum 2005). The profile of firm size in the sector was that 84% of companies had less than fifty employees. While this was smaller than average for the manufacturing sector at that time, it was consistent with the international print company size profile generally. In 2004, 86% of companies in the print and packaging industry were privately owned, with the

majority being owner-managed and a majority of these still run by the founder (The Print and Packaging Forum 2005).

4.1.2 Technological developments

The printing industry has undergone a radical level of technological change in the twenty five years from 1984 to 2009. The invention of the Apple Macintosh computer and the development of personal computing generally had a significant impact on the sector. The move to digitisation, which allowed data to be captured, stored, manipulated and processed in many forms, had significant implications for capital investment and skills requirements in the sector (The Print and Packaging Forum 2005). In particular, the ability of the average computer user to make and use digital images, to create complex, multi-page documents which use extensive amounts of colour imagery revolutionised the elements of the sector which relied on origination services.

A significant implication of these changes has been the blurring of the previously clear delineations in skills and competency requirements for different tasks. In the past originators were charged with the production of material up to and including the creation of the media which would carry the image to the printing device. Printers operated printing machinery which only placed the image on to the substrate. Finishing operators or carton makers then took those printed substrates and converted them into the form shipped to the client (books, magazines, cartons, leaflets etc). Technological changes have meant that equipment now exists which can take a file from a client, paginate it, print it and bind it into a finished form in one process. In effect, this has resulted in three different processes being combined under one operator's control. There are many less comprehensive combinations of previously distinct skills, but the impact has been the requirement for operators with a broader range of skills than before (The Print and Packaging Forum 2005). This has significant implications in relation to the training requirements of both firms and individuals.

Similarly, the commercialisation of fibre optics technology and other significant engineering developments have greatly influenced the technical complexity of the manufacturing equipment in use in the printing sector. Enhancements in the data

processing power of computer chips has allowed extremely large data files to be processed at sufficient speed to facilitate an entirely new (since 1994) digital commercial colour production process. This process allows the production of printed items in commercially acceptable colour directly from disk without any intermediate steps or substrates. This has resulted in significant market changes within the sector. This also has significant implications for firms in relation to the development or acquisition of the necessary skills and expertise required to harness these developments adequately.

4.1.3 Market changes

The market for print and packaging companies has changed radically over the past decade. There has been a marked increase in the globalisation of competition facilitated by the ease of communication and the transfer of data files. The files prepared by an author for a book can be transmitted anywhere in the world in minutes for subsequent manipulation and production. This ease of communication has removed a significant barrier to entry to local markets for internationally based suppliers. Companies export products to an increasing range of countries which has implications for the languages in which they must produce documentation and packaging. For example, a generics drugs manufacturer may require a leaflet, label and box to be produced for ten or twenty languages to meet all market needs. Microsoft has stated an intention to supply products in up to one hundred languages to meet needs in developing countries. Changes in consumer habits have required greater production flexibility to meet demand for products and services which are differentiated, customised, up-to-date and of a high quality. An increase in the number of single person households, demand for convenience, and a growing awareness of health and environmental issues are all fuelling the demand for new forms of print and packaging (The Print and Packaging Forum 2005 p.ix).

The alternative methods for dissemination of information have had major implications for companies in the sector. Data which traditionally was produced in a printed form only can now be provided through web pages, to mobile phones and PDA's. New electronic reading devices (e.g. Apple I-Pad, Kindle, Sony E-Book) make it possible for consumers to carry hundreds of publications (journal articles, books or magazines) on a device no bigger than a small novel.

The implications of these market changes have led industry associations to propose that management need to develop a capability to operate in the new environment in which they find themselves. In particular, firms in the print and packaging sector need to develop flexible processes which minimize equipment downtime for make ready and product changeover and that maximize customer responsiveness (The Print and Packaging Forum 2005). The market developments which have occurred in the recent past and the expected rapid pace of technologically facilitated market change require firms to develop new skill sets and competencies to both leverage the possibilities and where possible to drive developments in their favour. The changes have significant implications for the nature of management development as the skills and breadth of vision required is radically different than that which was required twenty years ago.

4.1.4 Approach to training and development

The printing industry has a historical commitment to training in the form of apprenticeships. The original system of an indentured trainee working alongside a skilled craftsman in a carefully defined and demarcated aspect of the trade has now been developed to a multi-skilled technician with a broad range of competence, but with a specialism in one area (National Centre for Partnership and Performance 2009). The industry in Ireland has consistently reviewed the apprenticeship structure to make it more relevant. The old “time-served” approach which required seven years to complete is now fully replaced with a standards based approach, which proposes a three year cycle, but which is actually dependent on the individual’s ability to acquire and demonstrate the necessary skills range.

Prior to the publication of the report of the Print and Packaging Forum in 2005, the focus of training in the Irish print sector was largely limited to the apprenticeship scheme. That report contained a series of recommendations on training and development which emphasised the need for greater management development training in the sector. The report included a services matrix, Table 2, originally proposed by the Printing Industries Association of Australia (2004), which outlined the ancillary services which would be expected of a printing company over the following five and ten years (The Print and Packaging Forum 2005 p.156). These

services require an investment in staff development to acquire the necessary skills and competences.

Table 2: Services required of printing companies 2004-2014

Ancillary Services (expected of a printing firm)	2004	+5 Years	+10 Years
Digital Printing	✓	✓	✓
Graphic Design	✓	✓	✓
Fulfillment Management	✓	✓	✓
Warehousing	✓	✓	✓
Mailing Services	✓	✓	✓
Desktop Publishing	✓	✓	✓
Telemarketing	–	✓	✓
Electronic File Storage	–	✓	✓
e-Books	–	✓	✓
Database Management	–	✓	✓
Photo CD Services	–	✓	✓
Digital Print Libraries	–	✓	✓
CD Rom Services	–	✓	✓
Multimedia Services	–	✓	✓
Webpage Production/ History	–	✓	✓
Digital Right Management	–	✓	✓
Marketing Services	–	–	✓
Systems Integration	–	–	✓
Full Logistics Services	–	–	✓

Source: The Printing Industries Association of Australia (2004), Training & Education Needs of the Printing Industry Now and Into the Future.

The services which a printing company required at the time in 2004 included the traditional production services which many companies had provided for many years. Some companies in the preceding ten years had added digital printing services. Developments in fulfilment services are, for example, where a printing company might now collate all of the material (Report, shareholder notifications, envelopes etc) with the Annual Report, sort the mailing per postal service regulations and deliver the

entire mailing directly to the mail centre. This extension of service exemplifies the route many progressive print companies took to expanding client service.

The services identified as being required within five years, which is approximately the time of this research, include a range of what could be broadly termed knowledge and data management services. These proposed services recognised the trends, which were emerging in 2004, of devices capable of delivering readable content without the need for paper as well as a range of value adding services which could enhance the utilisation and value of pre-existing data. The ability to re-author existing material for delivery to additional devices or for use in completely novel ways had the potential to greatly expand traditional services.

The report proposed a ten year window for the development of full logistics and marketing services. The Irish printing industry had developed the logistical side of its business in the 1990's to support the multi-national companies who required computer manual services. So while some firms in the industry were ahead of the curve in this aspect, they fell behind in relation to the development of other elements of service development. The report also advocated the development of marketing services and systems integration. This was proposed as a means by which firms could become more central to the core operations of their clients, thereby protecting their market positions.

4.1.5 Recent developments in training and development

The Print and Packaging Skillnet was established in 2006 under a funding agreement between the Irish Printing Federation⁴ and Skillnets Ltd, funded by the Government Department of Enterprise Trade and Employment under the National Training Fund in Ireland. The Print and Packaging Skillnet is a training network which is co-funded by member firms and Skillnets Ltd. The network provides a wide range of training in response to the needs identified originally in the Print and Packaging Forum Report and subsequently confirmed in training needs analysis with the participating companies. In the four years of operation to the end of 2010, the Design, Print and Packaging Skillnet (renamed in April 2010) had delivered 7,939 days training to 1,373

⁴ The Irish Printing Federation is a representative association for print firms in Ireland and is in effect an employer's trade union.

individuals. The total investment of the network was over € 1.6m including network management and training activity. This training has included sales and sales management training, time management, supervisory management, desktop publishing and Microsoft Office Training. It has also developed to incorporate pilot Lean Manufacturing programmes and accredited diplomas in packaging technology and print and digital media technology. The number of industry companies who have participated in training initiatives remains at approximately one hundred of a potential six hundred companies in Ireland.

Despite the technological and market changes taking place and the requirements suggested for training and staff development, the industry's level of engagement with training initiatives remains low (The Print and Packaging Forum 2005). The Forum Report found that average investment in structured training by print employers in 2004 was 0.9 of 1% of total employee costs compared to an industry average of 1.4% for all manufacturing companies. In the intervening period, the only change of substance to the training profile of the sector has been the Print and Packaging Skillnet. The impact of this spend on the sector has been marginal as it amounts to approximately € 95 per person employed in the industry over the six years of operation, or only € 15 per person per annum. However, its impact has been much more significant in the companies who have participated as the investment in training per person involved has been approximately € 1,200. This brings the average investment in those employees' cases closer to the average for all manufacturing firms in Ireland. However, it remains clear that the industry continues to invest less than its manufacturing peers.

4.2 The evolution of Perigord

4.2.1 The company context

The Perigord Group is an Irish owned company with operations in Ireland, USA and Singapore. The firm offers brand management and artwork services to multi-national clients from a number of industries. The Perigord Group of companies consists of five wholly owned subsidiaries which operate in Ireland, Singapore and the USA. The group employs eighty people and has combined sales of approximately €10 million (US\$14m). The company's international subsidiaries have sales of € 1.5m with an additional € 1m of the sales produced in Ireland being exported.

The firm, in its present form, began in 1974 as Litho Studios Ltd. following the liquidation of a previous entity. Over a short period of years, Mr. Pat Leamy became the principal and finally the sole shareholder in the business. Leamy had been a sales person for the company. The firm focused on supplying pre-press services to the printing and packaging trade as well as directly to a number of end user clients in the newspaper and general publishing businesses. The business was dependent on a range of highly skilled operators including scanners, re-touchers and hand planners. In general, these operators had served a seven year apprenticeship in an industry which was heavily unionised.

During the 1980s and 1990s Perigord experienced a period of high profitability. This allowed it to attract investment from venture capital firms. The firm successfully built a client base in the USA, selling pre-press services to large publishers. This reflected the firm's knowledge and expertise in colour reproduction. The skill of the company's employees in the art of colour separations (splitting the original photograph or image into the separate colours required for the printing process) and in re-touching (making minor but delicate adjustments for quality) to those separations won the company business despite the distances and time delays involved. Publishers' production schedules at the time were long and allowed for international shipping and any associated delays. The development of the USA business led to the acquisition of Allied Colour Inc. in Connecticut, USA in the 1980s. It was unusual for small privately owned Irish companies in the printing industry to have overseas operations at that time.

The company made several attempts at expanding its business in Ireland through the acquisition of an educational book publisher in the 1980s and through the establishment of its own print facility in the early 1990s. The print business failed and the publishing business was subsequently sold.

Two sons of the founder have worked in the business since the 1980's. Alan Leamy became CEO in 2002 and Paul Leamy is now the Chief Technical Officer. These two executives are the controlling shareholders in the company. Other key managers are Anne Cooke, who manages the group's printing subsidiary Fine Print Ltd; Michael Fleming, General Manager of Perigord Premedia Ireland; Séamus Lonergan, President of Perigord Premedia USA and Andrew Scanlan, Group Finance Director.

4.2.2 Changing technological environment

In the 1980s the technological landscape of the company began to change radically with the introduction of the Apple Mac in 1984 and associated technologies. This led to a profound change in the industry with many print and packaging companies bringing much of the service previously provided by Litho Studios in house for cost-benefit reasons which were technology driven. This resulted in the collapse of the pre-press service sector in Ireland in the 1990s with all but 3 of 38 companies disappearing during the 1990s. For Perigord, the impact of the digitisation of pre-press activities on the firm was that there was a gradual but definite shift away from many of the skills which had differentiated the company in the eyes of its clients. This was facilitated by the ease with which individuals could complete complex image and document manipulation using previously unavailable software like Quark and Adobe Photoshop.

During the 1980s and 1990s Pat Leamy responded to the changing competitive and technological environment in a number of ways. He invested in equipment and developing technologies during this phase and continued to be recognised as a firm at the forefront of technical capability. For example, the firm purchased an Apple Mac in 1990 and the firm was the first firm in Ireland to buy a Scitex system. Scitex was the brand name of a workflow system which allowed pre-press companies to manipulate client images and files, make on-screen amendments, especially to colour graphics and then output the data to imaging devices seamlessly. It was an enormous

technological advance for its time as previously, the capability to manipulate images was very limited to minor hand based adjustment. The adage of “the camera never lies” was born from this older era where a captured image was generally reproduced very faithfully (including all flaws) from the original. The Scitex system, coupled with the use of Apple Macintosh based software, allowed the image to be digitised and then manipulated in terms of content and colour. The capability to adjust images was a tremendous advance for publishers as flaws could be corrected and images made more perfect. The Scitex system was a powerful innovation as it also allowed the management of files in a workflow system for the first time which had significant control and quality consistency advantages for the user.

The firm was proactive in using the new technology. The firm developed its digital pre-press capability to manage work for multi-national software and hardware companies including Apple Computers and Microsoft (both firms had significant operations based in Ireland at the time). Perigord developed expertise in identifying solutions to issues, such as how to manage fonts in different languages, as they emerged

New expertise was hired. For example, in 1991 Alan Leamy pushed for Pat Leamy to hire an executive with considerable Apple MAC sales experience to act as a link between the newly developing technology and clients in that market space. One of the major contracts that this executive secured was a contract with Microsoft which the firm has successfully retained and developed until the present time.

The firm sought to diversify its activities by expanding the range of businesses and the geographical scope of its activities (Table 3). While some of this activity was unsuccessful, Pat Leamy persisted with this strategy. In 2000 he entered the print market through the acquisition of Fine Print Ltd. Founded in 1990, this company had built a capability and reputation in the ICT sector for producing small format items (leaflets, registration cards etc) in relatively small quantities. The founder of the company, Anne Cooke, was retained and the operation thrived as a distinct operation within the group of companies.

Table 3: Acquisitions and new ventures 1983 to 2010

Year	Firm / Activity	Outcome
1983- Acquisition	Allied Colour Inc., Connecticut, USA. Pre-press company to service local USA clients in New York area.	Still in group ownership
1985- Acquisition	Educational book publisher	Disposed of in 1994
1989 – New venture	Establishment of subsidiary to manage the creation of origination for newspaper sector	Merged into business in 1993
1990 – New venture	Establish printing facility in Ireland to leverage group print business.	Business failed and sold off in 1992
2000 - Acquisition	Fine Print Ltd., Ireland. Printing business focussed on supplying multi-national software and hardware companies with leaflets and registration cards.	Still in group ownership.
2007 - Reorganisation	Establishment of Precise Data Ltd as software development subsidiary	Still in group ownership
2007 – Overseas office	Singapore office established.	
2010 – Overseas office	New Zealand office established	

Source: Perigord Group Business Plans

4.2.3 New management – new market positions

In 2002, due the illness of Pat Leamy, Alan Leamy assumed management responsibility for the group. The son of the owner, Alan Leamy had worked in the business from 1984 to 1997 in a variety of roles including the management of a small group subsidiary which provided services to the newspaper industry. This firm experienced a significant loss of business with the changes in newspaper firms' use of technology in the late 1980s. Alan Leamy was responsible for developing new services in the subsidiary and grew the business by 500% over a four year period. Alan Leamy took a five year sabbatical from the group between 1997 and 2002, during which he travelled and then co-founded a printing firm.

This new firm, started by Alan Leamy, was founded as a result of a relationship Alan developed during his sabbatical. On return from his travels, Alan Leamy bought and then managed a small stationery business from his father. The business used a

photocopier and Alan became friendly with Enda Casey who owned a business which serviced the machine. They became aware of an opportunity with a multi-national information and communications technology business that required training material produced in small but frequent quantities. Utilising a simple on-line tracking solution which Paul Leamy had created, Alan and Enda secured a significant contract with the multi-national which led to the establishment of the new firm Exact Digital Ltd. Alan worked on this business with Enda for a period of time until his return to the Perigord Group in 2002.

As a consequence of the changes in technology the Perigord Group began as early as 1999 to develop a range of software tools which would allow it and its clients to manage and control the production workflow more tightly. This was facilitated by the skills developed by Paul Leamy, another son of the original owner. Paul Leamy had worked in the business for a number of years having studied and worked in the optical design industry in the UK. Leveraging software skills learned while in the software division of an optical design company, Paul Leamy was able to create basic tracking tools for Perigord's own use. These tools allowed much greater control and visibility on projects being worked on in the pre-press services area. It started to become apparent that the tools which were proving so useful internally had an application externally for clients. A small software development team was established and working in close cooperation with a major pharmaceutical company in Dublin, Paul Leamy was able to create a suite of tools which gave the pharmaceutical company a much higher level of control of its documentation (leaflets, labels and cartons) as well as radically shortening the time to market for new product developments. As the range of modules expanded and the significance of the impact of the software for the generics pharmaceutical sector became more apparent, Perigord decided to re-structure the software into a configurable off-the-shelf software offering for the pharmaceutical sector.

The software developed had two significant implications for the Perigord Group. The first was the ability to generate a new revenue stream from software system sales and support was established. More critically, the second implication was that the software solutions provided the company with a clear market differentiator which is a key facilitator in winning new business for the company's other services. The ability to

offer a managed service solution which includes the back-end services offered has allowed the company pitch for business for which it would have previously been excluded on the basis of scale and breadth of service.

Reflecting the fact that this software development business is a business in its own right, the company established a new subsidiary Precise Data Ltd in 2007 to develop and market the software solutions. By 2008, the business of Litho Studios Ltd had changed so dramatically from its history of supplying pre-press services to printing companies to being a provider of services to publishers in the ICT sector and to generic pharmaceutical companies, that the name was changed to Perigord Premedia Ltd. Allied Graphics in the USA was also re-named to Perigord Premedia Inc.

The firm won a number of international contracts including a world-wide contract with Microsoft. This required the establishment of an office in Singapore to service the Asia-Pacific requirements of these contracts. Perigord Premedia Singapore was established in 2008 with staff from Dublin supporting and training local employees. By 2009, the group had three subsidiaries in Dublin focusing on software development, premedia services and printing. Interests in the USA included premedia in Connecticut and sales services on the West Coast.

By 2009, the software service had evolved to the point where the software tools allowed the tracking of documents through the creation, amendment and production cycles to ensure complete traceability of changes and the appropriate procurement control on all items⁵. This service is rapidly becoming the driving force for all business development within the group. This is because the service capability which can be offered relates to control and visibility of requirements as much as it does to the production of the products. This allows the group companies to differentiate themselves in an increasingly commoditised sector.

⁵ A multinational software company uses this software to manage the creation and procurement of its stationery items. An employee chooses from pre-agreed templates and enters their own personal data. The user approves the document (business cards, letterheads etc) for content before submitting it to the system which seeks purchasing approval. Once finally approved, the files are automatically submitted to the production process with printed items shipped to the user within 2 working days.

Other developments which evolved over many years were where the company had to find ways to produce the language versions required by the client and find solutions to the font and reading direction issues which arose. Many languages use fonts which are effectively graphics rather than letters. Some languages read from left to right or from top to bottom rather than the more western world style of reading from left to right. In addition, the length of text required to make the same statement varies considerably from language to language. This has significant implications for product and packaging design where a company is attempting to ensure that products in all language versions convey a similar message. Over the very recent past, the company has begun to engage in a research process which examines the possible integration of third party tools to automate the production of artwork in a manner which is not possible at present. This has the potential to radically alter the processing time required for product iterations in many languages. It could also facilitate the economic production of material in many more languages than are currently viable. The extent of their ambition is indicated in that the company has been invited to work in collaboration with a major international software company on this process.

4.3 Case analysis

The Perigord Group operates in an industry which has experienced dramatic technological and market changes since 1990. The firm has survived while many of its competitors have failed. This analysis begins by summarising the evolution of the services of the Perigord Group from 2002 to 2010 before asking why this evolution took place. This section concludes with an assessment of the outcomes from this initial case analysis.

It is clear from the case data that the print and packaging industry has experienced a period of rapid technological change since 1990. As a result of the commercialisation of the Apple MAC and associated technologies in the late 1980s, companies offering the range of services offered by Litho Studios came under intense competitive pressures. As Alan Leamy described it “that was 1991 ... I remember looking there was 38 competitors in our business and if you look now ... there are probably only one or two others left”. This competitive pressure resulted from printing companies buying the technology which allowed them deliver internally the services which the pre-press companies had traditionally delivered to them. Alan Leamy made several comments in this regard “Irish Independent was changing technologies so the business was gone”; “the prepress business wasn’t looking the best”; “you could see the switch that the whole prepress in the industry was splitting up”.

The company recognised this changing dynamic at an early stage. It invested heavily and early in the developing technology: “we bought our first Apple Mac in 1990” and “we invested heavily in equipment all through the years” (Alan Leamy Interview); “the company bought the first Scitex system in Ireland” (Michael Fleming Interview). The company was also progressive in the ways it used technology to client advantage. Michael Fleming had many stories related to this approach: “we had to go out and find out how to do it” in relation to localising a language like Hebrew where the knowledge did not readily exist to handle the characters and pagination issues which arose; “We eventually amassed the knowledge to do it. But there wasn’t a provider who could tell us how to do it or anything”

Perigord has developed many of the skill sets recommended in the Print and Packaging Forum Report published in 2005 and referred to in Table 2 above. This

report advocated a skills matrix related to ancillary services. The matrix suggested that firms needed to develop skills in web design, digital rights management, digital print libraries and database management within five years. Perigord has effectively developed all of these capabilities. In fact, of the services proposed in the report, the only ones not developed by Perigord relate to telemarketing and e-book services. More critically, Perigord has also developed the services advocated for development within ten years. Marketing services, system integration and full logistics services are all now supported by the company through its software and physical services. These services have not been developed with Perigord in response to the industry report. They have been developed as described above in relation to market and technological development and client needs assessment. The close correlation between the company's development path and the path advocated in the report suggests an affirmation of the company's approach.

It is established that a significant evolution of Perigord took place between 2002 and 2010. Why did this happen? The following sections address this question in relation to (i) the focus of Alan Leamy on the firm's performance, (ii) the approach of the firm to investing in the development of its staff's expertise and (iii) the evolution of higher order learning within the firm.

4.3.1 Theme 1 - A focus on performance

Alan Leamy is very focused on the company's performance, defined as the financial and operational performance of the firm. It was clear from the interview data (Table 4) that he was very conscious of the decline in that performance for a number of years as the transition in the sector and the company described above was worked through.

Table 4: Performance focus

Profit Focus	58 "we were very successful in the 1980s" (Alan Leamy)
	211 "prepress had lost its allure (for investors)" (Alan Leamy)
	114 "we were always very profitable in the 80s and you know we were very profitable, extremely profitable..." (Alan Leamy)
	526 "we will be very profitable for the next 5 months" (Alan Leamy)
Environmental Change	346 "walking back into an absolute hell for 5 years, trying to keep the business going" (Alan Leamy)
	70 "...gradually you could see the switch that the whole prepress in the industry was splitting up" (Alan Leamy)
	51 "it was about service, service, service and quality, quality, quality and the price wasn't as important"(Anne Cooke)
	692 "can we change the way - can we look at how we do it" (Paul Leamy)
	280 "now our customers are driving it as much as we are" (Michael Fleming)

In an interview with him, he made a total of six references to how profitable the business had been in the 1980s and early 1990s. He described the interest which a venture capital company had taken in the business as a result and their subsequent departure as "the prepress business had lost its allure". He discussed with great energy the period he spent in one company subsidiary, Cosmon, where he had been responsible for growing the business from sales of IR£ 400,000 p.a. to IR£ 2.000.000 over a four year period (approximately € 500,000 to € 2,500,000).

The changes in the market place where technological developments had allowed client companies take many of Perigord's traditional services in-house had meant a dramatic decline in profitability. Alan Leamy described "walking back into absolute hell for five years, trying to keep the business going" when he re-joined the company in 2002.

Similarly, other interview respondents made references to the impact of environmental factors on the business. The need to emphasise service and to find new ways of providing solutions to clients was emphasised by Anne Cooke and Paul Leamy. Michael Fleming observed that the client base had begun to drive changes in relation to new technologies as they became increasingly aware of the scale of change and the potential of new developments.

4.3.2 Theme 2 – Capacity Building: People and Technology

The scale of technological and market changes in Perigord's industry segment had a dramatic impact on profitability according to Alan Leamy. Yet the same changes provided opportunities for the introduction of new products and services to both existing and new clients. Perigord has a history of investing in staff training and development as a means of developing its capabilities and product offering. This investment in staff continued in the face of the unfolding crisis of firm profitability.

The interview data provided examples of how the company was focused on the development of its capacity, defined as the firm's ability to service client needs and to develop internal solutions to meet evolving requirements. This capacity development was focused primarily on people and technology.

Developing the capacity of people:

The company supported the industry apprenticeship programme prior to the fundamental change in technology caused by the Apple Mac. Both Alan and Paul Leamy made references to the apprenticeship system of training. The change in technology reduced the level of craft involved to the point where Alan feels that "there is no colour knowledge left in the industry" (Alan Leamy Interview).

Table 5: Capacity building - people

People	189 "there were opportunities there to go on this course or that course" (Michael Fleming)
	360 "I think that's down to investing in people" (Alan Leamy on keeping abreast of developments)
	235 "because it gives them confidence to do the job better and it gives them confidence to speak up and involve more...that's less tangible" (Anne Cooke on the benefits of even basic skills courses)
	450 "if we don't have a multi-talented workforce we're not going to be able to be efficient" (Michael Fleming)
	358 "...in some ways it was forced upon us" on hiring project managers from Microsoft (Michael Fleming)
	344 "we wouldn't be doing the work if we didn't have very good project managers who were able to sort all that stuff" (Michael Fleming)
	382 "I don't know whether it was a belief and I said no, lets give him a go. He did, he clicked." (Alan Leamy on recruiting an experienced Apple computer salesman)

It is clear from the core data that the company invested heavily in its people. Alan Leamy expressed the view that the use of emerging technology and the right people was central to success. Rather than being a formalised company policy, he stated that "it was something that I believed in". This perception of a lack of formality is supported by Paul Leamy who did not believe that this approach to training was a company ethos as much as something which evolved in response to needs. Paul felt that it was only the advent of access to funding from Enterprise Ireland that led to the formalisation of training plans within the company. It is also clear that both Paul and Alan Leamy perceived training as one means of addressing the development needs of the business. Paul discussed the training interventions required to assist employees make the transition from older technology to computer based processes (Paul Leamy Interview). Michael Fleming described his personal experience as a new recruit to the company in the mid 1990's. He entered the organisation at an operator level. He had a reasonable knowledge of Personal Computers (as opposed to Macs) and became recognised as someone who could resolve problems. Michael referred to the many training courses he had attended in relation to new pieces of equipment or technological advances. These included courses on new imaging devices, new software and workflow systems (Michael Fleming Interview). As he took on more

managerial responsibility, Michael attended an Irish Management Institute course on supervisory management.

The commitment to training included senior management training and development as well. Anne Cooke referred to the Transform Programme which she and Alan Leamy attended (Anne Cooke Interview). This programme involved an in depth review and strategic assessment of the business over a ten month period. The programme was sponsored by Enterprise Ireland and run by the Irish Management Institute in Dublin. A two day project management programme was run several times to ensure that all key customer facing staff, including senior managers, could attend. However, it should be noted that this decision to invest in senior management evolved in 2005-2006 as Alan Leamy recognised a gap in his own training. He made several references in his interview in 2008 to his lack of formal management training and to the extent to which he relied on his “gut instinct” to make decisions.

The investment of Perigord in its staff can be quantified. The firm has invested heavily in staff development, particularly in the period 2005-2008, spending at least 400% more than the average of comparable firms in Ireland. The level of investment by Perigord Group in the period 2005 to 2008 is shown in Table 6. This data is a summary of the expenditure of the company on training and includes an assessment of employee time. The average of 3.2% of labour costs can be compared to the average spend on training for all Irish enterprises, which was .67 of 1% of labour costs in 2006, and to manufacturing firms which was only .62 of 1% in 2006 (CSO 2006). This training has included substantial cross-training and multi-skilling initiatives for operators as well as more strategic programmes for senior managers, including the Transform programme with Enterprise Ireland. This programme encourages senior executives to focus on the strategic development of the company during a ten month programme. The company has also invested in less overtly technical skills for sales people, sales managers and project managers. Two staff were funded to participate in an accredited diploma programme in packaging technology.

Table 6: Perigord Group Investment in Training 2005-2008.

Investment in training as	2005	2006	2007	2008	4 year average
Percentage of Sales	1.6	2.2	1.7	1.8	1.8
Percentage of Added Value	2.3	2.9	2.1	2.2	2.4
Percentage of Labour Cost	3.0	3.5	3.2	3.1	3.2

Source: Perigord training records and accounts

The firm has been successful in securing considerable funding from Enterprise Ireland in relation to staff development and training and is also an active participant in the Design, Print and Packaging Skillnet which has provided funding for additional programmes.

Developing technological capacity

The firm has made considerable investments in technology. Alan Leamy and Michael Fleming made frequent references in their interviews to the scale of investment in developing technologies over many years. They traced the evolution of the digitisation of origination workflows and the investments which these required. Alan Leamy stated that “we invested heavily in equipment all through the years and technology” with Michael Fleming offering the view that Perigord “at that stage we were leading it (technology)” as a result of the investments being made.

Table 7: Capacity building - technological

Technology	485 "if we don't do it quickly the opportunity is going to be gone" (Michael Fleming on developing the GLAMS solution)
	75 "we invested heavily in equipment all through the years and technology" (Alan Leamy)
	527 "which will generate cash which will allow us to do other things" (Alan Leamy on press investment)
	109 "at that stage we were leading it (technology)" (Michael Fleming)
	200 "we can react, we can change, we can move" (Paul Leamy)

Alan Leamy also made reference to the link between investments in technology and firm performance. In referring to a substantial printing press investment he stated that it would “generate cash which will allow us to do other things” in relation to the development of the software solutions which he perceived to be the firm’s future. Similarly, Michael Fleming and Paul Leamy alluded to the firm’s continuous

investment in technology development in an effort to react to developments and to grasp the opportunities which these developments presented. The training programmes referred to above also yielded developments in the technological capacity of Perigord as many of the programmes were technical in nature or designed to increase the technical competence of the individual.

4.3.3 Theme 3 – The evolution of higher order learning

It is clear from the case data that Perigord invested heavily in the development of its employees and managers. However, much of this investment was related to specific skills which were required in relation to changing technology and the changing environment. However, the data also revealed a development in the learning of senior managers as they became more aware of the development of the firm. Table 8 includes data from the interviews in relation to developments in learning.

Table 8: The Evolution of Learning in Perigord

Personal Learning	487 "but now I can actually stand back and go ok there is no difference" (Alan Leamy on investing in the development of the software vs. buying a press.)
	184 "I learned from suppliers, I was in the YMPs...trade shows, exhibitions etc" (Anne Cooke)
	558 "and that was probably one of the best processes for me to go through personally" (Alan Leamy on developing the formal business plan for Precise Data)
	263 "it's the discussion that's generated between your peers in the room" (Anne Cooke on learning informally as well as formally)
	222 "you have to find out what the need is...its all about networking" (Anne Cooke)
Organisational Learning	179 "it may be that there isn't as much a requirement to go down that kind of road" (Paul Leamy reflecting on the need for formal training in software development)
	24 "a transition from the skill sets or people who worked on a bench ...to people who are nearly only computer operators" (Michael Fleming)
	146 "we eventually amassed the knowledge to do it" on how to handle Hebrew files. (Michael Fleming)

Alan Leamy made specific references to the changes in how he now viewed various capital investment projects and planning processes in which he had been involved. He was very comfortable with the decision to invest in a printing press as this was familiar territory for him. The decision to invest in software development was less certain for him as the basis for making a decision were less grounded in his experience. He suggested that he can now see that “there is no difference” in the nature of these decisions. Alan Leamy also reflected on the planning process which had recently been completed for the investment in the software solution and stated that this was “probably one of the best processes for me to go through personally” as it had required him to think through the issues in a structured manner.

There is evidence that other interview respondents have also reflected on the changing nature of their own learning and that of the organisation. Anne Cooke made a number of references to how her ability to learn had evolved through participation in a number of meetings and training programmes which included industry peers. Michael Fleming commented on how the skill set of the workforce had transitioned over time to people how now “are mostly computer operators”. Michael also discussed the development in organisational learning which had resulted in sufficient learning to be amassed in relation to how to manage languages which challenging font issues such as Hebrew. This reflection did not necessarily always conclude that investment in formal training was required or useful. Paul Leamy considered that investments in formal software development training would not necessarily be productive for the company. This showed a developing and realistic perspective on training solutions not being the appropriate solution to all business issues.

It is evident that Alan Leamy had a belief in the value of training and offered several examples of his reasons for this belief. It was evident that the type of training programmes became more related to specific needs identification over time. However, the firm did not formally consider or assess the return on investment from its training programmes. There was not one example of an assessment of the return from those investments in the data reviewed or in the interviews transcripts. The lack of formal analysis suggests that the positivist inspired debate on the causal link between training investment and improvements in performance is a moot point in practice as this firm made no effort to assess such a link. However, recognising the experience of the

managers involved and their view of the benefits of these investments suggests that a link to performance is present.

It can be argued that there was a transition from lower to higher order learning within some aspects of the firm's training programmes. Initial activity focused primarily on skills developments (apprenticeship, new equipment and new processes). More recent investment has included the Transform programme, the Diploma in Packaging Technology and project management training. These programmes are designed and delivered in a manner to encourage participants to reflect on current practice and to consider alternatives. This transition has not been to the exclusion of lower order skills which are still required and of value to the firm.

It is clear that the firm faced a crisis in relation to the technological and market changes it faced. The literature (Fiol and Leyles 1985) suggests that such a crisis is often required before firms will be capable of engaging in higher order learning. It is not established here if these crises led to this development. The crises which impacted on the firm developed slowly over a number of years. This allowed the firm to react in an incremental manner which suggests that the crisis type described by Fiol and Leyles (1985) did not arise.

Alan Leamy, the CEO, is performance focused. He recognised the changes underway in the traditional marketplace of the firm and recognised the need for the business to address these changes. He also recognised his own lack of formal management training and the extent to which he relied on instinct over analysis. It can be argued that the transition to higher order learning emanated from this recognition and Alan Leamy's desire to bring additional rigour to managerial decision making.

4.3.4 Outcomes of the initial analysis

The Perigord Group operates in an industrial sector which has undergone radical technological and market transformation. The number of firms operating in this section of the print and packaging industry in Ireland has declined significantly over a fifteen year period. The company has transformed itself in terms of its client offerings and has leveraged software development to capture and retain new business.

This case study began by exploring the reasons for and the outcomes of Perigord's level of investment in the training and development of its staff. Perigord is an example of a firm that has invested in training and development over a sustained period of time and also at a level which is substantially above that of its peers. While the case data does not suggest that this training "caused" the success of the firm, it is evident that given the context that Perigord operated in, its very survival is a significant outcome. The case data offers a partial explanation for why this high level of investment occurred and of how the investment might be related to the survival and success of Perigord. The case suggests the possibility that a slow decline in performance may have been a trigger to continued and even increased investment in training. It further suggests that the approach to training was both sustained and involved staff at all levels and may have been associated with a shift from lower order to higher order learning.

The analysis of the case data suggests that three themes begin to explain the evolution of the Perigord Group. Firstly, the focus of the CEO, Alan Leamy, on the firm's performance is evident in the data. He was aware of and concerned about the declining performance of the firm. This led to a realisation that the firm needed to develop new services if it were to survive. Secondly, the firm invested heavily in the capacity of its people and its technology. The data revealed the level of investment made in training programmes which was at a rate substantially in excess of comparable industry averages. The data also revealed a continuous investment in technological capacity both through training initiatives, capital investment and in the development of technology based solutions for clients. Finally, the data revealed a transition in the nature of learning in the firm where it is possible to identify elements of higher order learning in how the senior manager's perceptions and capabilities have changed.

However, the analysis of the data herein suggests that other factors, not explained by the themes of focus on performance, capacity building and learning are also involved. Perigord developed and acquired resources to allow it address client needs which it had identified or which it projected would be required. The company developed a capability in identifying and acquiring these resources. Alan Leamy seemed to have an ability to utilise his network of friends and associates to deliver advantage to his

business. An alternative view of the case data is that it describes a development in company capability over time which resulted in the transformation of the business. This led to a review of the literature related to firm capability. Additionally, the literature was re-visited in the context of Alan Leamy's use of his personal network of contacts and the role personal networks might play in explaining how Perigord identifies and assimilates new information.

5. Literature Review: Dynamic Capabilities

The case data suggests that the survival and success of Perigord was associated with the development of the new skills that were required in a changing market place. A focus on training in its narrow sense does not provide an explanation for either (i) the investment in training or (ii) the possible outcomes of this training. However, the data highlights how Perigord could be characterised as a firm that evolved new skills over time. This evolution in skills could be described as an evolution in firm capability.

Factors such as the development in Perigord's software solution, the addition of a wide range of new services and the manner in which Alan Leamy utilises his network of contacts led me back to the literature in search of possible ways of explaining the changes in the capabilities of the firm between 2002 and 2010. This chapter reviews the literature on dynamic capability and its foundational concepts. It then examines the factors which might explain the emergence of dynamic capabilities in SMEs.

5.1 Definitions

Dynamic capability is defined here as the ability of a firm to develop the capacity to “purposefully create, extend or modify its resource base” (Helfat et al. 2007 p.4). This perspective places the firm's ability to adapt purposefully to its environment at the centre of strategy. The needs for such purposefulness are several in that:

- environments can change rapidly, thereby negating the value of a previously valuable resource (Eisenhardt and Martin 2000). To be successful, firms must adjust their strategy in the context of the market environment in which they operate. Such adjustments should begin with an assessment of the environment and how the firm's resources continue to fit well with what is required.
- a firm's history and experiences can limit the alternatives which management can see or are prepared to engage with (Teece, Pisano and Shuen 1997, Weick 2001, Schlemmer and Webb 2008). Managers within a firm have a range of experiences over time. Their perception of any issue or problem is influenced by their experiences to date. Similarly, the choices which they consider to be available to them may be restricted by their previous experiences. This is explored in detail below.

- some resources and processes become self-limiting due their own success (Leonard-Barton 1992). As firms develop, they may have a tendency to rely on processes which were very suitable at one point but which have become unfit for purpose as a result of some change. Reluctance to change what may be considered a winning approach can result in significant problems as markets evolve.

The challenge for a firm is to develop routines and processes (Nelson and Winter 1982) which allow it to continuously assess its environment and to assess the fit between existing resource capability and that environment. The firm must also develop a capacity to creatively search (Pandza and Thorpe 2009) the environment to identify new possibilities.

5.2 The evolution of the dynamic capabilities concept

The dynamic capability concept is founded theoretically in the Resource Based View and Evolutionary Theory with its emphasis on routines and processes (Helfat and Peteraf 2009). These two foundations are discussed in the next sections before elaborating on capabilities and dynamic capability as an emerging theory.

5.2.1 The Resource Based View

Penrose (1959) in a significant departure from the neoclassical economics of the time proposed that the configuration of the resources possessed by a firm was the key source of competitive advantage in relation to firm growth: “if we want to explain why different firms see the same environment differently, why some grow and some do not....then we must take the resources approach” (Penrose 1959 p.217). Economic theory at that time held that firms were largely homogenous entities operating in markets in search of equilibrium. Economic theory did not generally consider the differences which existed between firms nor did it attempt to include the actions of individual managers or entrepreneurs in its theories. Helfat and Peteraf (2003 p. 19) argue that “it is an understatement to say that economic theory underplays the role of the manager; in fact, the strategic manager simply does not exist in any recognizable form”.

Penrose proposed that it was the manner in which firms utilised their resources and the services which that use could deliver which was paramount, rather than the simple existence or otherwise of the resources themselves. She defined resources to include both the physical resources available to a firm and the human resources employed and available to the firm. Penrose also found that there was an interrelation between the physical and human resources which influenced the productive services which might be possible. Clearly, the physical resources present shape the services which management might be capable of delivering. However, Penrose (1959 p.5) also held that “...the experience of management will affect the productive services that all its other resources are capable of rendering”. This recognition of the critical role of management pervades Penrose’s work and is central to the theory developed. Penrose also found that the image which the firm’s managers held of their own firm and the environment in which the firm operated was a critical issue in relation to the decisions which those managers would take.

Wernerfelt (1984) seemed to synthesise Penrose (1959) and Porter's (1980) contributions when he argues for examining firms from a resource perspective rather than a product perspective. Building on this concept Barney (1991) proposed four indicators in relation to resources (value, rareness, imitability and substitutability) which are all required if a resource is to deliver a sustained competitive advantage to a firm. Sustained competitive advantage is defined as when a firm "is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors *and* when these other firms are unable to duplicate the benefits of this strategy" (Barney 1991 p.102). Barney's definition is onerous in that a competitive advantage might only be deemed sustained when attempts to duplicate it by competitors have ceased. It is not related to time in an absolute sense, but rather to the attempts of competitors to duplicate the advantage. In his thesis Barney (1991 p.106) defined valuable resources as enabling a firm "to conceive or implement strategies that improve its efficiencies and effectiveness". Resources are considered to be rare in the sense that they are not widely available. Barney struggles to define the level of rarity which is necessary for sustainable competitive advantage. It is possible that rarity becomes less significant if one accepts Penrose's proposition that it is the way in which the resources are used which is paramount as each firm has the propensity to use a similar resource differently. Barney's final two requirements in relation to resources of imperfectly imitability and substitutability are related. If the resource which is valuable and rare can be imitated by competing firms then sustained competitive advantage is not possible. Similarly, if the resources or the results of the application of the resources can be achieved through the application of different but strategically equivalent resources, then the competitive advantage cannot be sustained.

Peteraf (1993) proposes a four factor resource based view model for sustained competitive advantage which develops Barney's (1991) four criteria. Peteraf concurs that resources must be heterogeneous if they are to be of value in sustaining competitive advantage. The second factor relates to "ex-post limits to competition" (Peteraf 1993 p.182). This factor includes two of Barney's requirements relating to imitability and substitutability. Clearly, if a competing firm can substitute an alternative resource for the same result, any competitive advantage will be short lived. However, imitability is more difficult as the basis of the advantage may not be clear or

well understood (even by the firm possessing it). The third factor relates to the mobility of the resource. Where the resource is imperfectly mobile, then there is a greater opportunity for sustaining the competitive advantage. A particular case of immobility relates to resources which have a greater value when used together. The fourth and final factor is that of “ex-ante limits to competition” (Peteraf 1993 p.185). This proposes that there must have been limited competition for the position now occupied by the firm. If competition had not been limited, then no sustained competitive advantage could have ensued as any potential gain would have been competed away. Like Barney, Peteraf finds that all four factors are required for sustained competitive advantage and that the four factors may in fact be related.

Barney (1991) posits that the context of the firm both in terms of its market positioning and its historical context are critical factors. Resources which are valuable in one context may have no value in another. The same resource in two different firms could have significantly different potential as a result of the historical decisions previously taken in each firm and the understanding which might then exist in relation to the resources possible uses and related outcomes. Like Penrose, Barney appreciates the role of managers “for it is managers that are able to understand and describe the economic performance potential of a firm’s endowments. Without such managerial analyses, sustained competitive advantage is not likely” (Barney 1991 p.117).

5.2.2 Organisational Routines

For a firm or any organisation to function a constant stream of decisions must be taken. Many of the simpler decisions are made without necessarily involving conscious thought. Employees often answer phones with a standard greeting without consciously thinking what they will say; in printing companies orders are processed into management information systems without the operator deciding on the best way of achieving the task; even football players perform basic functions like kicking a ball without necessarily making conscious decisions on the motor actions involved. These decisions are all based on practiced skills which the individual had to learn at some point.

In general discussion we all understand the exercise of these skills as routines which have been learned and which may have been improved with practice. More complex

decisions can also be the subject of routine behaviour. Many organisations will have an emergency procedure which is to be followed in the event of a fire. Such a procedure will require the evacuation of a building and some basis for ensuring that all employees are accounted for. Simultaneously, such a procedure might also involve notifying the emergency services and might also involve a trained team of employees tackling the fire in the first instance. Such procedures are often practiced so that if the event actually occurs, the responses and decisions made by individuals will be coherent and safe. This is the essence of a routine.

The literature describes routines in two different ways: as behavioural or cognitive regularities. Behavioural regularities propose routines as “recurrent interaction patterns” (Becker 2004 p.645). These patterns occur in the interaction between a number of actors rather than the actions of one person. To clarify this point, (Dosi, Nelson and Winter 2000 p.5) propose “reserving the term skill to the individual level and routines to the organisational level”. Viewing routines as cognitive regularities would define routines as rules which suggest how to react to or deal with specific situations. Examples could include standard operating procedures, rules of thumb and programs.

Following Winter (2003 p.991) routines are defined as “behaviour that is learned, highly patterned, repetitious, or quasi- repetitious, founded in part in tacit knowledge and the specificity of objectives”. Nelson and Winter(1982 p.97) stated that well defined routines “structure a large part of organisational functioning at any particular time”. The essence of a routine is as follows. The objective of the behaviour is known. They are targeted at specific outcomes in specific contexts. Removing routines from their context may render them largely meaningless (Becker 2004). The behaviour is learned, with the definition allowing for a role for tacit knowledge, knowledge which is often not articulated but developed as a result of experience. Finally, the definition requires patterned behaviour which is repetitious or at least repetitious as necessary in response to similar situations.

Routines develop over time and are based on the history of the organisation (Teece, Pisano and Shuen 1997, Nelson and Winter 1982) and also the experience of the individuals involved (Levinthal and March 1993, Helfat and Peteraf 2003). As

organisations develop the routines within them are regularly subject to incremental adjustment. While a firm may have a specified routine for a specific task, it is open to the individual to adjust that routine based on experience. There is clearly a role for agency in the implementation of a routine which may lead to incremental adjustments. Such incremental stages can be on an individual level or when a group agrees to change a routine. Becker (2004 p.660) discusses the example of a team which meets regularly and agrees to switch from paper based minutes of the meetings to electronic copies of the minutes. This is an incremental and seemingly minor change to the routine. However, Becker suggests that such a change could be relatively significant as electronic documents can be searched automatically making it easier to extract or detect certain facts.

This incremental change to context specific routines is also significant in terms of the resource based view of the firm. A central premise of the resource based view is that the resources available to firms are heterogeneous in nature (Penrose 1959, Barney 1991, Wernerfelt 1984). The routines of a firm are a resource and play a critical role in the services which the configuration of resources in any firm can produce. The incremental and context specific adjustment of a firm's routines is a key source of resource heterogeneity (Helfat and Peteraf 2003). Hilliard (2004), in her research into the environmental performance of pharmaceutical companies in Ireland, found that firms with strong routines in this area did not necessarily start environmental management development earlier than the weaker firms. Rather the explanation of the significant differences in capability at the time of the research lay "in the qualitatively different experiences or evolutionary paths of these firms" (Hilliard 2004 p.12).

Routines allow an organisation to store knowledge. Nelson and Winter(1982 p.99) propose that "the routinisation of activity in an organisation constitutes the most important form of storage of the organisation's specific operational knowledge. Basically, we claim that organisations *remember by doing...*" (original authors italics). It is in the practice of the routine that the knowledge is maintained. It is the tacit knowledge stored by routines that differentiate them from other forms of knowledge in the organisation. Hilliard and Jacobson (2011 p. 2) describe the essence of evolutionary theory as "the firm is a repository of knowledge, that this knowledge resides in the organisational capabilities of the firm and that these organisational

capabilities then determine the firm's performance". Nelson and Winter (1982) discuss how individuals in organisations respond to the messages they receive, based on their knowledge of the organisation and its requirements rather than being based on the content of the specific message received. Instructions frequently require interpretation in the specific context of the firm. "For example, they often omit reference to the typical locations of objects or individuals names in the directives; only someone who has been around the place long enough can easily supply the interpretation" (Nelson and Winter 1982 p.102).

Routines also provide stability and control to organisations. The capability to consistently and accurately interpret instructions in the example above is an important factor in ensuring firm performance. "Routines work by enhancing the interactions among participants..." (Becker 2004 p. 655). Routines define expected and effectively accepted actions and behaviours in an organisation. Nelson and Winter (1982) refer to the "truce" which exists within an organisation where the expected and actual behaviours are sufficiently aligned that conflict does not arise. This does not mean that nominal standards and expectations are being met, but that an accepted standard is being maintained that results in a level of coordination which is acceptable overall. Barnard's (1938 p.137) description of "a zone of indifference" which "resides in each individual within which orders are acceptable without conscious questions of their authority" echoes the truce described by Nelson and Winter. Kogut and Zander (1992 p. 396) concur stating that it is the stability in the relationships between capabilities and social knowledge of how the firm operates that "generates the characteristics of inertia in a firm's capabilities". Routines, therefore, allow the organisation to function in a controlled and stable manner, all other things being equal.

All other things do not remain equal indefinitely. The environment in which any firm exists changes over time and may change frequently. As routines are context specific and objective specific, a changing environment may mean that once appropriate routines become obsolete. A reliance on an "established set of cognitive routines is an attempt to reduce complexity rather than to absorb and internalise it, and it amounts to the application of routinised past-learning to conditions whose novelty may render such learning redundant" (Child 1997 p.50) Experience can be an inhibitor to change as individuals can fail to see the changed circumstances in which they now operate

(Levinthal and March 1993, Leonard-Barton 1992). Negative feedback mechanisms within the routine can be ignored leading to inertia (Becker 2004). Routines are capable of being changed in response to experience and feedback. This change can be incremental or more fundamental depending on the significance of the changes experienced.

5.2.3 Capabilities

All organisations have capabilities. Citing the example of the airline industry (Dosi, Nelson and Winter 2000) describe the ability of an airline to process passengers in a generally uneventful manner from check-in, to boarding, through the flight and safely to the destination. A more in depth view of the delivery of this service reveals a series of organisational routines which have worked in a harmony of sorts to deliver a maintained aircraft to a specific gate on time, with an appropriately trained crew to operate it, with fuel for the journey and food for the passengers etc. In this sense it is easy to understand routines as being building blocks of capabilities (Dosi, Faillo and Marengo 2008) although not necessarily the only building blocks required. Dosi et al (2000 p.4) attempt to distinguish between routines and capabilities by attributing no “presumption regarding evident purpose” to routines. This is completely at variance to the definition subsequently used by Winter (2003) and discussed above which firmly places routines in context with a “specificity of objectives” (Winter 2003 p.991). The attempted distinction in Dosi et al (2000) is unnecessary if one considers routines as elements of the construction of capabilities.

Helfat and Peteraf (2003 p.999) define organisational capabilities as the ability of an organisation to “perform a set of coordinated tasks, utilising organisational resources, for the purpose of achieving a particular end result”. This focus on a defined result is generally accepted in the literature (Winter 2003, Dosi, Faillo and Marengo 2008). Helfat and Peteraf (2003) also place their definition clearly in the context of organisational resources as defined above. Dosi et al (2008 p.1179) describe capabilities as not being “things” but “ways of doing” and use the analogy of “fuzzy algorithms” to express a lack of certainty about how they may operate. There is a sense of collective knowledge at play. In a much earlier work, Richardson (1972 p.888) referred to capabilities as “appropriate skills, knowledge and competence” at the level of the organisation.

Winter (2003) proposes that there are different levels of capability. He defines “zero level” capabilities as the capabilities which allow a firm to function, delivering a consistent rate and quality of production in a market place where the volume and nature of demand is static. Where an organisation changes the product or service being offered, or changes the process by which it is created or changes or adds to the locations where the product or service is offered, then a higher form of organisational capability has been invoked. This distinction is useful as it highlights that all capabilities are not equal, and some capabilities may be completely inadequate in the face of an environment which is changing. There is also a clear parallel with the learning literature and the lower and higher order learning which can arise (Fiol and Lyles 1985, Argyris 1976, Senge 1990).

A distinction can be drawn between technological and organisational capabilities (Dosi, Faillo and Marengo 2008). Technological capabilities refer to capabilities which deal with the physical elements of an organisation’s resources. They suggest routines for how to handle such issues and might relate generally, for example, to capabilities in relation to the operation of printing machinery, the control of utilities supply to a factory etc. Organisational capabilities relate more to the coordination and social interactions within the organisation and relate more to human relations than the physical resources. There is an overlap between these capabilities as the particular manner in which a physical process may operate might be affected by the human relations context. Equally, the extent of the physical resources available and their condition might influence the interaction taking place. The real value in the distinction is that it is conceivable that very similar technological capabilities could be present in different firms and in quite different contexts, whereas the organisational capabilities are more likely to be heterogeneous among firms as the context and history of each firm will be different.

Bender (2008 p. 28-9) introduces an additional typology in describing transformational capabilities as “the enduring ability of an organisation to transform available general knowledge into plant, firm or task specific knowledge and competence” and configurational capabilities as “enduring ability to synthesise novelty by creating new configurations of knowledge, artefacts and actors”.

Transformational capabilities have a close relationship to the concept of absorptive capacity (Cohen and Levinthal 1990) which deals with an organisations ability to assimilate knowledge into its routines, processes and capabilities. This typology is supported by Levinthal and March (1993) who describe the need to have capabilities which both explore (pursue new knowledge) and exploit (using and developing things which are already known). While it is difficult to be prescriptive in relation to a balance between the transformational and configurational efforts, a successful firm will require a balance of both (Levinthal and March 1993, Bender 2008).

Helfat and Peteraf (2003) also found that capabilities are subject to lifecycles in a broadly similar way to product or market lifecycles in the marketing literature. This capability lifecycle concept is a useful tool to bring the concepts of resources, path dependency, routines and capabilities together. The founding stage of the lifecycle requires an organised team with a specific objective which entails the creation of a new capability. The experiences and abilities which the members bring to the team coupled with any other existing resources bring a history and path dependence to the team at its birth. The development stage is where the team is learning and developing its capability in the light of experience. As the capability development stabilises it enters the maturity stage of the lifecycle where the capability can become more embedded in the organisation through use. Like routines, the exercise of the capability has an impact on how well it is maintained. Once a capability is in maturity, it may be threatened with obsolescence or indeed opportunities for growth or change in some way (Helfat and Peteraf 2003). The model proposes that such impacts can lead to one of six possible outcomes: retirement (where the capability is withdrawn by the firm), retrenchment (a decline in the level of the capability), renewal (where the firm searches for and develops new alternatives), replication (where the capability is reproduced in another geographic market), redeployment (where the capability is used in a different but related product market) and finally, recombination (where the capability is combined with another capability or set of capabilities) (Helfat and Peteraf 2003 p. 1005-6).

5.2.4 Dynamic capabilities

Teece, Pisano and Shuen (1997) developed an additional perspective on this resource based view in considering how firms sustain competitive advantage in the face of

environmental change, and particularly in environments of considerable change. Teece et al (1997 p. 515) stated that a firm must be dynamic, described as “the capacity to renew competences so as to achieve congruence with the changing business environment” and that it must have capabilities, described as “the role of strategic management in appropriately adapting, integrating and reconfiguring internal and external organisational skills, resources, and functional competences to match the requirements of a changing environment” if it is to sustain competitive advantage.

Eisenhardt and Martin (2000 p.1107) found that “dynamic capabilities thus are the organisational and strategic routines by which firms achieve new resource configuration as markets emerge, collide, split, evolve and die”. These authors argue that as such routines are idiosyncratic to firms but could result in similar outcomes, they cannot therefore be the source of sustained competitive advantage. Eisenhardt and Martin found that the processes and routines which would underpin the capability were more in the nature of best practice than a source of sustained competitive advantage.

The definition of dynamic capability as the ability of a firm to develop the capacity to “purposefully create, extend or modify its resource base” (Helfat et al. 2007 p.4) synthesises the development from Penrose (1959) to Eisenhardt and Martin (2000). Dynamic capabilities relate to the capacity of a firm for purposeful changes. Such a capability, grounded in appropriate processes and routines, should have a positive impact on a firm’s absolute performance and on its relative performance against competitor firms without such capability.

Newey and Zahra (2009) held that there was a difference between operating capabilities and dynamic capabilities but that a relationship between them exists. Clearly, dynamic capabilities are likely to change the operating capabilities in organisations as they develop. However, Newey and Zahra (2009 p. S97) held that “operating capabilities also affect dynamic capabilities by influencing the knowledge that is available for the latter to undertake future reconfigurations of the former”. Zahra, Sapienza and Davissson (2006) concur with both the distinction between operational (termed substantive) capabilities and dynamic capabilities and the view that a co-relationship exists between them. Zahra et al held that this relationship is

moderated by organisational knowledge. These authors defined dynamic capabilities as “the abilities to reconfigure a firm’s resources and routines in the manner envisioned and deemed appropriate by its principal decision maker(s)” (Zahra, Sapienza and Davidsson 2006 p. 918). This definition is very similar to the Helfat et al (2007) definition but also places the key decision maker(s) at the centre of the discussion. This theme will be re-visited below in relation to the leader’s role having considered some of the criticisms of dynamic capability in the literature.

Ambrosini, Bowman and Collier (2009) propose three levels of dynamic capabilities which are related to firm managers’ perceptions of the level of environmental change or dynamism. Incremental dynamic capabilities relate to the incremental changes associated with continuous improvement processes in firms where the environment is effectively stable. Renewing dynamic capabilities relate to a more radical level of change in a substantially more dynamic environment. Ambrosini et al (2009 p. S14) posit that this level of dynamic capability is required as “resource based advantages in dynamic environments may well be rapidly eroded” and is the level generally referred to in the literature by Teece, Pisano and Shuen (1997), Eisenhardt and Marin (2000) and Helfat et al (2007). Regenerative dynamic capabilities are considered necessary in environments which are perceived as turbulent by the firm’s managers and are the dynamic capability by which the existing dynamic capabilities are changed. If the existing dynamic capabilities are not appropriate to the new environment, then Ambrosini et al argue that the firm in question may fail. The distinctions in the forms of dynamic capability proposed are useful in that they suggest that not all dynamic capabilities are equal. Echoing Winters (2003) consideration of zero and first order capabilities, Ambrosini et al’s (2009) contribution allows a consideration of dynamic capabilities which are appropriate in more or less dynamic environments.

It should be noted that the empirical literature on dynamic capabilities has tended to examine large firms and has rarely examined the SME environment. Teece (2007 p. 1320) described dynamic capabilities as being “especially relevant to multinational enterprise performance in business environments that display certain characteristics”. Wang and Ahmed (2007) in their review of dynamic capability literature reviewed thirty three empirical studies conducted between 1995 and 2005. Only one of the studies included related to an SME or to a group of SMEs. In general, the focus of the

studies were very large organisation such as airlines, telecommunications companies and automotive companies. Similarly, Barreto (2010) in his review of dynamic capabilities research considered forty papers from the period 1997 to 2008. Of the nineteen considered to be empirical in nature, only three studies related to small or medium sized firms. These two reviews of the dynamic capabilities literature demonstrate the lack of empirical research in a small firm context.

5.2.5 Criticisms of dynamic capability

The primary criticism of the resource based view and dynamic capability is that of tautology (Priem and Butler 2001, Arend and Bromiley 2009). The argument presented suggests that defining either the resources or capability under review in the context of superior performance is somewhat self-fulfilling and certainly likely to bias any results which subsequently demonstrate superior competitive performance arising from the use of the resource or capability. The argument as presented is valid, however the presentation is not. Barney (2001 p.42) refutes the presentation of Priem and Butler (2001) by demonstrating that it is possible to construct parameters for elements of the theory in a way which “makes it possible to generate testable empirical assertions”. Similarly, with dynamic capability, the tautology argument fails as the existence of a capability is no guarantee of its use and as a result no guarantee of any specific competitive impact (Helfat and Peteraf 2009).

The existence and use of dynamic capabilities are no guarantee of success (Helfat et al. 2007, Zahra, Sapienza and Davidsson 2006, Ambrosini, Bowman and Collier 2009). Dynamic capabilities are founded in the purposeful actions of the firm’s managers. Consequently, the appropriateness of the dynamic capability is likely to be a reflection of the validity of the perception of the environment by those managers. Ambrosini and Bowman (2009 p. 39) hold that “if managers misperceive the situation of the firm, they may trigger inappropriate dynamic capabilities”. Zahra et al (2006 p. 926) concur stating that as a consequence of the potential for managerial error (or mistaken analysis of the environmental conditions) dynamic capabilities do “not ensure organisational success”. The accusation of tautology also fails on this basis.

Arend and Bromiley (2009) also criticise dynamic capability as being weak in theoretical foundation. This argument seems extraordinary given that dynamic

capability has solid foundations in evolutionary theory (Nelson and Winter 1982), elements of the resource based view (Penrose 1959, Barney 1991, Peteraf 1993) and organisational learning (Zollo and Winter 2002, Argyris 1976, Senge 1990) which are all well established theoretical areas in their own right. Dynamic capability attempts to synthesise these and other areas in an effort to understand how firms sustain a competitive advantage (Teece, Pisano and Shuen 1997). Adner and Helfat (2003 p.1012) examined the potential for synthesizing elements of the resource based view, upper echelons theory and absorptive capacity to explain dynamic managerial capabilities “with which managers build, integrate, reconfigure organisational resources and competences”. The foundations of the dynamic capability concept are substantial and well researched in their own right.

Arend and Bromiley (2009) also accuse dynamic capability as lacking the robustness required of social science research. They outline a number of criteria as being “traditional objectives of social science research” (p. 86) which are entirely positivist in nature requiring extensive prediction and prescriptive advice for firms. Helfat and Peteraf (2009) refute this argument on the basis that dynamic capability is not yet a fully blown theory and will take some time to achieve that status. They point to its relative youth as a field of study with its seminal article only published in 1997 by Teece, Pisano and Shuen. Helfat and Peteraf also proposed that only when the theory is more fully developed will the tests proposed by Arend and Bromiley (2009) be valid. A more fundamental argument with the tests proposed by Arend and Bromiley is that related to philosophical and methodological approach. The tests they propose are exclusively positivist. They seem to exclude the possibility of worthwhile research and theory building from any other tradition. This seems unnecessarily limiting and has the potential to choke off potentially valuable research into business strategy.

There have been calls in the literature for more qualitative research in the dynamic capabilities area. Ambrosini and Bowman (2009 p. 46) suggest that “the seeming dominance of quantitative studies” may be compounding the problem of tautology as it may infer the existence of dynamic capabilities by examining firm performance. These authors also claim that additional research is required to aid clarity on a number of factors including the question of how dynamic capabilities are created. Lockett,

Thompson and Morgenstern (2009 p.25) posit that it is “those resources that are complex, unobservable and difficult to measure that are likely to of greatest importance” when conducting research. These authors call for greater diligence in quantitative research and suggest that “insightful” case studies could usefully accompany such research. Easterby-Smith, Lyles and Peteraf (2009) echo this call for a combination of qualitative and quantitative work to develop the subject but recognise the strength of qualitative research to provide detailed descriptions of the processes involved.

5.3 How do dynamic capabilities emerge in SMEs?

The literature on dynamic capability has tended to consider the issues of the definition of dynamic capability and the identification and impact of those dynamic capabilities (Wang and Ahmed 2007, Barreto 2010). There have been few studies which examined the emergence of dynamic capabilities. These have tended to examine the emergence of dynamic capabilities in larger firms and have further tended to concentrate on the issues of routines and processes which support this emergence. Wang and Ahmed (2007) and Barreto (2010) reviewed published research on dynamic capability in the period 1995-2005 and 1997-2008 respectively. Table 9a and 9b presents an analysis of their findings in relation to the research approach adopted, the purpose of the study and the context in relation to firm size. Of a total of seventy articles reviewed, fifty four were considered by these reviewing authors to have been empirical rather than conceptual in nature. Of these fifty four, only four studies related to an SME context. The overwhelming majority related to large firms or clusters of large firms. Of the studies which could be considered to have addressed the issue of the emergence of dynamic capabilities (Table 9b) only one, Salvato (2003) addressed this in an SME context. Other studies considered the emergence issue in a larger firm or more conceptual context. A number of core themes have emerged in this literature in relation to what might be termed the foundational elements to the emergence of dynamic capabilities.

Table 9a: Summarising research on Dynamic Capability

Review Authors:	Number of Studies Reviewed	Research Approach		Research Context (of Empirical Research)	
		Conceptual	Emirical	Large Firm / Industry	SME
Wang & Ahmed (2007)	32		32	31	1
Barreto (2010)	38	16	22	19	3

Source: Wang and Ahmed (2007), Barreto (2010)

Table 9b: Studies of the emergence of dynamic capabilities

Review Authors	Article Authors	Research Approach of Studies considering the emergence of Dynamic Capabilities		
		Conceptual	Empirical Large Firm	Empirical SME
Wang & Ahmed (2007)	Pisano (2000)		X	
	Verona & Ravasi (2003)		X	
Barreto (2010)	Blyler & Coff (2003)	X		
	Pablo, Reay, Dewald & Casebeer (2007)		X	
	Rosenbloom (2000)		X	
	Salvato (2003)			X
	Teece (2007)	X		
	Zahra, Sapienza & Davidsson (2006)	X		
	Zollo & Winter (2002)	X		

Source: Wang and Ahmed (2007), Barreto (2010)

Zollo and Winter(2002) explored the importance of learning in the evolution of dynamic capabilities and propose that three mechanisms, the tacit accumulation of past experience, knowledge articulation and knowledge codification practices, contribute to the development of dynamic capabilities in firms. They suggest that the practice of routines and their gradual improvement through trial and error results in a level of learning of what works in a given context. Zollo and Winter argue that is in the articulation of this knowledge and especially in its codification that the “know-why” as well as the “know-how” can be adequately captured. This process allows the organisation to develop a shared understanding which can be exposed to critical review in the codification process which may result in the correction of some experientially based learning which is in fact ill-founded in reality.

Verona and Ravasi (2003) in their study of the Danish company Oticon A/S held that dynamic capabilities were made up of three knowledge based elements. These were knowledge creation and absorption (related to investments in science and its technological and market applications); knowledge integration (managing the integration of latent and dispersed knowledge resources); and knowledge reconfiguration (allowing a sufficiently open structure to allow new configurations of resources). The interaction of these three elements allowed a process of continuous innovation which facilitated and encouraged new resource combinations to be developed.

Rosenbloom (2000) in describing the decline and recovery of the NCR Corporation in the USA emphasised the importance of leadership in the transformation which they observed. Rosenbloom (2000 p. 1083) argues that a new leader was able to “actualize latent dynamic capabilities” within the firm thereby enabling the firm to prosper once again. Similarly, in examining strategic change in a public sector environment Pablo et al (2007) emphasised the importance of organisational leadership and trust between that leadership and the employees of the organisation if dynamic capabilities are to be enabled. The study focused on existing dynamic capabilities within the organisation which were effectively latent and which the leadership had to identify and then facilitate their enactment. Salvato (2003 p. 103), in his study of two medium sized Italian firms, concurs finding that “managerial leadership played a direct role in guiding firm evolution”.

Teece (2007) proposed a complex model of the micro foundations of dynamic capabilities which are based on three core elements of sensing, seizing and managing threats/reconfiguration. In sensing opportunities, Teece proposed that the relevant micro foundations relate to processes which facilitate organisations to systematically seek new ideas and to assess, shape and filter those opportunities. In relation to seizing, Teece proposes micro foundations related to defining firm boundaries, processes related to cooperation with other firms, decision making protocols which avoid error and a series of basic processes related to the successful commercial implementation of new products. Finally, the model proposes the micro foundations of the final core element of managing threats and allowing for reconfiguration are knowledge management, proper governance to ensure consistency in processes as well as adherence to the agreed processes and the decentralisation of the organisation to allow as much flexibility as possible coupled with sufficient integration and coordination processes to ensure adequate control.

Blyler and Coff (2003 p. 680) propose the criticality of social capital in the development of dynamic capabilities in relation to the contribution the social network can make as they “enable novel resource combinations by making new possibilities more salient”. Social capital is defined, by these authors, at the level of an individual’s ability to secure benefits through the membership of a social network (Portes 1998). They go so far as to claim that social capital is “a necessary (though not sufficient)

condition for the existence of a dynamic capability” (Blyler and Coff 2003 p.680) as it is through the internal and external social ties of the individual that ideas for new configuration of resources may be revealed or identified.

Although the literature, and in particular empirical studies, on the emergence of dynamic capabilities is still relatively limited it is clear that a number of themes have evolved in relation to the mechanisms which may contribute to that emergence. Organisational and individual learning is an explicitly central element in the work of Zollo and Winter (2002) and Verona and Ravasi (2003). However, it is possible to identify elements of learning in the work of Teece (2007) where the organisation may learn to adjust its micro foundations over time; in the work Rosenbloom (2000) and Pablo et al (2007) in their consideration of how leaders were able to leverage existing organisational knowledge; and in the work of Blyler and Coff (2003) where it is clear that individuals may learn from their social network.

The micro foundations proposed by Teece (2007) relate substantially to the sensing and seizing of opportunities in a multi-national organisational context. It is possible to re-frame this element of Teece’s proposition in terms of an SME firm’s ability to identify new knowledge and then assimilate it into their operations, what is termed by Cohen and Levinthal (1990) as absorptive capacity. Similarly, it is possible to identify aspects of absorptive capacity in the work of Verona and Ravasi (2003) in terms of how new knowledge is created or identified and then made of use to the firm.

In the context of an SME, the owner-manager is central to developments in strategic direction and decision making. Consequently, the role of leadership identified in the work of Rosenbloom (2000) and Pablo et al (2007) in larger organisations is likely to be amplified in the SME context. Finally, the influence or impact of the owner-manager’s network of contacts, identified by Blyler and Coff (2003) is also likely to be relevant.

The following sections consider how dynamic capabilities may emerge in SME’s in terms of the themes that are emerging from the literature on dynamic capabilities. These themes are (i) learning, (ii) identifying and integrating new knowledge, (iii) the role of the leader and (iv) the use of the owner-managers network of contacts.

5.3.1 The role of learning in the development of dynamic capability

Levinthal and March (1993), in discussing organisational learning, distinguished between organisational exploration and exploitation as two elements which are necessary to overcome the dangers of experiential learning. While experiential learning can play a useful role in organisations in relation to simple tasks and routines, these authors consider experience to be often a poor teacher as people can misinterpret experience in the light of outcomes which may not necessarily be tied to the decisions made or the routines followed. It is argued that it is entirely possible for an outcome to be influenced by factors which those concerned may not be aware of which can lead to erroneous assumptions about the cause of the perceived success. Where there is a large group of individuals involved, or groups of such groups as is often the case in larger organisations, the potential for erroneous learning is exacerbated by the complexity of factors involved. Maskell and Malmberg (2007) concur that this myopia is common and that erroneous deductions, often based on very small samples, become widely held “because everyone believes that others have made the sufficient validation, and no lethal or instantaneous consequences prove them wrong” (Maskell and Malmberg 2007 p. 605). This myopic learning can exist within an organisation or across a range of organisations which are spatially related either geographically or by industry (Levitt and March 1988). Levinthal and March (1993) argue that exploration (the pursuit of new knowledge) is essential for the organisation to ensure that its products and services remain relevant in a dynamic environment. Similarly, exploitation (the use and development of things already known) is required to convert knowledge into tangible outputs in the context of the firm. A balance between these capabilities is required to ensure that the organisation prospers in the long run.

Zollo and Winter(2002) propose that learning is an underlying capability in the development of dynamic capabilities. Three elements are considered; experiential learning, knowledge articulation and knowledge codification in relation to how organisations learn. Experiential learning is generally tacit as the learning is based on a trial and error process. Following Levinthal and March (1993), Zollo and Winter (2002 p.342) propose that the articulation of that tacit knowledge in a group discussion can “help to penetrate the ambiguity” which exists in relation to the performance implications of organisational processes. Knowledge codification is a

development of articulation and involves the committal to paper of the articulated knowledge. The process of codification requires reflection on what occurred and the performance implications of the factors involved. “By going through that effort, they will most likely emerge with a crisper definition of what works, what doesn’t work, and why” (Zollo and Winter 2002 p.342). The authors recommend that this process should capture the “know-how” as well as the “know-why” (Kogut and Zander 1992) as it is the latter which will assist the organisation more where the learning relates to issues or circumstances which arise less frequently or for issues which tend to be more heterogeneous. It is argued that the codification of knowledge is a central element in the development of dynamic capabilities as it requires a level of reflection on both the routines utilised and their performance implications which has the potential to lead to changes in the resource base and the configuration of those resources. Paradoxically, Kogut and Zander (1992) propose that such codification activity may increase the imitability of the knowledge as the process requires the specification of that which might otherwise have remained more tacit.

Bender (2008 p.31) discusses the role of learning in the context of innovation which he proposes is not necessarily about R&D but “is always about reconfiguring existing knowledge, components and actors”. Bender (2008 p.28-29) describes two innovation enabling capabilities which he terms transformational capabilities which are the “enduring ability of an organisation to transform available general knowledge into plant, firm or task specific knowledge and competence” and configurational capabilities “the enduring ability to synthesise novelty by creating new configurations of knowledge, artefacts and actors”. There is a clear correlation between Bender’s transformational capabilities and Levinthal and March’s (1993) exploitation capability. They reflect the ability of the firm to utilise generally available knowledge in a way which allows it some competitive advantage over other firms in its sector. This is particularly relevant in low tech industries where the ability to differentiate a firm can be largely based on the extent to which one can transform generally available knowledge into local knowledge and competence. Bender’s configurational capability echoes Levinthal and March’s exploration capability in that it requires the organisation to identify ways to utilise elements of technology or processes in new ways through combinations or adjustment and also to link actors who possess certain competences with knowledge and technology. Bender (2008 p.39) states that

transformational and configurational capabilities are “two sides of the same coin” and that a firm requires both to be innovative.

In an SME context the owner-manager is central to decision making. Section 3.2 above described a model of organisational learning which described a dynamic process which has the potential to be heavily influenced by the evolution and previous learning of both the organisation and of the individuals within the organisation (Crossan, Lane and White 1999). The 4 I model (Intuiting, Interpreting, Integrating and Institutionalising) is not free from the influences of power. Learning can be frustrated or accelerated by the inertia of the organisation or by the acts of individuals (Lawrence, et al. 2005). It must also be understood that the self-image of employees in a firm may also impact on the nature of learning which may occur (Schilling and Kluge 2009). Individuals may consider that certain types of actions or forms of thinking are not appropriate to their role in the organisation. Furthermore, they may consider that their professional identities are likely to be undermined if certain core assumptions are challenged. Consequently, organisational power and politics may prevent the reflection required in order to allow higher order learning evolve.

A further weakness in the model outlined is that its applicability to the context of the SME is not assured (Jones and Macpherson 2006). This is because the SME often lacks the structures assumed in the 4I model to share institutionalised knowledge. As a result, the ability of the owner-manager to dedicate sufficient time and resources to strategic activity can be limited (Jones, et al. 2007). These authors emphasises the importance of absorptive capacity and social capital as factors which can assist an owner-manager to develop what was defined as “strategic space” namely “to accomplish learning and transformation within SMEs there needs to be the time, resources, motivation and capabilities for different constituencies, particularly owner-managers, to reflect on and review existing organisational practices” (Jones, et al. 2007 p. 287).

Reflexivity is the process of reflecting on oneself or one’s own situation. The key element in a learner making the transition from lower to higher order learning is the capability and practice of reflection (Fiol and Lyles 1985, Argyris 1976, Wang 2008, Levinthal and March 1993). Child (1997) questioned the value of unreflective

decision making based on previous experience or learning which might now be redundant. Similarly, in her study of the environmental performance of Irish pharmaceutical companies Hilliard (2004) discovered a considerable difference in capability. This difference in capability was partially attributed to how reflexive action helps to “translate” experience (Hilliard 2004 p. 18) into capability and might also explain why “some firms may not possess any capability in a given area”.

Snyder, Manz and Laforge (1983) suggest that entrepreneurs who engage in self-assessment in relation to their skills, particularly at different stages of a firm’s life cycle, and then self-manage to address weaknesses are more likely to be successful than those who do not. Entrepreneurs need to engage in critical reflection to internalise learning for their own benefit and this can be facilitated through small action sets of entrepreneurs (Clarke, et al. 2006). Small failures can lead to considerable learning if reflected upon as the pain or losses incurred is sufficient to attract attention but not sufficient to cause denial (Eisenhardt and Martin 2000). Jones, Macpherson and Thorpe (2010 p. 660) concur proposing the need for managers in SMEs to create “strategic space” to allow time for reflection.

Hilliard (2004) found that firms who adopted deliberate learning strategies, from a perspective that their firms could always learn more and improve, were more capable of challenging their own existing assumptions and thereby become more dynamic than those firms who did not adopt such learning strategies. Pandza and Thorpe (2009 p.121) posit that managerial thinking “becomes an instrumental and crucial part of dynamic capabilities”.

One specific deliberate learning strategy which a firm may adopt is to use third party intermediaries to challenge their assumptions or to broaden their thinking. Schlemmer and Webb (2008 p.129) postulate that “it could be useful to use resources or dynamic capabilities that are not controlled by the firm” through the use, for example, of external consultants. Eisenhardt and Martin (2000 p.1109) state that “such experiences enhance innovation by breaking down the thought worlds that arise because people with different experiences not only know different things, but they know those things differently”. Whilst these authors were discussing internal product development teams, the concept is equally applicable to external intermediaries.

Devins and Gold (2000) in their research into SMEs in the UK found that firms were less reluctant to engage with funded programmes once they had been approached and engaged on a personal level by someone with whom they could establish some trust. Similarly, Devins and Gold (2002) found that it was through the establishment of trust with an intermediary that firm owners began to share their concerns in a manner which allowed the intermediary introduce options related to state supports. Gold and Thorpe (2008) in their in-depth case study found similar results in that it was only through the close interaction with the entrepreneur and through entering and understanding their world view that an intermediary can influence an entrepreneur in relation to training and other funded programmes. Jones and Macpherson (2006 p. 170) concurred on the influence of intermediaries in examining different forms of learning in three firms, finding that “external agents helped create the internal mechanisms by which organisational learning took place”.

5.3.2 The role of the process of identifying and integrating new knowledge in the development of dynamic capability

Cohen and Levinthal (1990), in considering firms’ learning and innovation processes, first described an organisational capability which they termed absorptive capacity. These authors defined it as the organisations ability to recognise the value of new information, to assimilate it and to then exploit it in the innovation processes of the firm. Cohen and Levinthal (1990 p.128) proposed that absorptive capacity is “largely a function of the firm’s level of prior knowledge”. This fits well with Evolutionary Theory as described by Nelson and Winters (1982), where future organisational developments tend to be linked to prior knowledge and experiences. Cohen and Levinthal (1990 p. 131) also discuss learning theory and conclude “learning is cumulative, and learning performance is greatest when the object of learning is related to what is already known”.

Recognising the value of new information is not assured. Indeed, identifying new information which may be of value requires some form of search activity by the firm. Zahra and George (2002 p. 189) conceptualised absorptive capacity as a dynamic capability and proposed that knowledge acquisition depended on the intensity, speed and direction of the search. This approach proposes that the level of absorptive

capacity may be influenced by conscious effort on the part of the firm, but is also dependent on the direction of the search. The contribution of Levinthal and March (1993) is discussed above in the context of explorative and exploitative learning. If a firm does not explore adequately, it risks missing potentially critical information and may suffer from its path dependence rather than benefiting from it (Cohen and Levinthal 1990, Levinthal and March 1993, Leonard-Barton 1992). For absorption to begin at all, the information has to be valued (Todorova and Durisin 2007).

Assimilating information relates to how the valued information is analysed, processed, interpreted and understood by the organisation (Zahra and George 2002). There are similar issues involved with assimilation as with the valuing of information as a firm's history and development is likely to influence the basis on which the analysis and interpretation takes place. Cohen and Levinthal (1990) posit that diversity of learning and experience will aid absorptive capacity as it facilitates innovative linkages between new and existing knowledge. Zahra and George (2002) proposed the additional required step of transformation which is where the firm fully internalises the new information and converts it for its own use. Todorova and Durisin (2007), in accepting the distinction between assimilation and transformation, hold that they are two discrete processes rather than subsequent stages in the process as proposed by Zahra and George. The distinction which Todorova and Durisin make is that assimilation occurs when the difference between the new knowledge and the individuals or firms existing thought processes are slight. The information is easily absorbed and integrated into processes and routines. Transformation is required when there is a substantial and challenging difference between the new knowledge and the firm's processes. Adopting the perspective of Todorova and Durisin (2007) that assimilation and transformation should be viewed as two alternative processes for integrating new knowledge into firm's processes and routines seems to allow a greater depth of analysis as it recognises that new information can be closely aligned to existing information or radically different. This is not to discard the important distinction which Zahra and George (2002) also make between a firm becoming aware of new information and the firm actually converting it for its own use.

Exploiting new knowledge relates to how the firm puts the newly assimilated or transformed knowledge to use. If new knowledge is used to improve a process or

routine, or is used to change the strategic direction of a firm, then the impact of the exploitation of that knowledge is likely to be identifiable and measurable in some way. Whether it has a positive impact on performance is not relevant from the perspective of establishing that new knowledge was identified, valued, assimilated or transformed prior to it being exploited by the firm. It is clear that there is a temporal dimension to absorptive capacity. It takes time for a firm to go through the process of searching for and identifying new information, analysing and interpreting it and then adjusting its behaviour in some manner to exploit it. What is less clear is the time span of this process (Zahra and George 2002). It is also possible that firms can identify valuable new knowledge but not be in a position to exploit it immediately. Zahra and George (2002) used the terms Potential and Realised Absorptive Capacity to distinguish between the abilities to identify and capture new knowledge without any guarantee of being able to exploit it. Todorova and Durisin (2007) criticise this construct as a simple re-labelling of the original terms of identification and assimilation (as potential absorptive capacity) and transformation and exploitation (as realised absorptive capacity). However, the concept of distinguishing between potential and realised absorptive capacity seems very useful. While it uses the original four terms within the new construct, it draws attention to the possibility that the process from identification to exploitation is not necessarily smooth or linear. The construct allows the possibility that a firm can learn something new, but not be in a position to exploit it for some considerable period of time, if at all. Zahra and George (2002 p. 191) introduce the concept of an “efficiency factor” to describe the ratio of potential to realised absorptive capacity. A higher efficiency factor suggests that a firm converts more of its potential to realised absorptive capacity. However, this construct might be misleading as a firm which rarely sought information outside of its narrow sphere of experience might be very efficient in this conversion, but suffer competitively over time if its search for new information remained too focused.

Lichtenthaler and Lichtenthaler (2009) in addressing issues related to knowledge management incorporated the concept of absorptive capacity in describing how firms explore and retain knowledge and put it to use within their organisation. The framework proposes six knowledge capacities which related to distinctions between internal and external sources of knowledge and the need for exploration, retention and exploitation of knowledge. The analysis is clearly in the context of larger firms. The

framework proposes a series of definitions which are to some extent ambiguous in relation to their temporal dimension. For example, transformative capacity is defined as “...a firm’s ability to retain knowledge inside the organisation” (Lichtenthaler and Lichtenthaler 2009 p. 1320). This is immediately qualified as referring to the “process stage of maintaining knowledge ... and subsequently reactivating this knowledge”. However, the definitional adjustment is critical as it requires reactivation to close the loop. A firm could be judged to have low transformative capacity at a point in time whereas the reactivation of the knowledge held could materialise subsequently. In addition to issues of definition, Lichtenthaler and Lichtenthaler’s (2009) model effectively proposes dichotomies between stages of knowledge identification, retention and exploitation which seem artificial. For example, connective capacity is described as relating to the process by which knowledge is maintained in interorganisational relationships and the subsequent reactivation of that knowledge. While suffering from the same weakness in relation to the need for reactivation as outlined above, this connective capacity is defined as being external to the firm. For a firm to be capable of maintaining knowledge in external relationships, the firm must firstly have some sense of the knowledge which is available and that it is in some manner likely to be useful. This immediately suggests that the knowledge in question, or some aspects of it, must have become internal to the firm. It also suggests that the knowledge or the potential of the knowledge has been assimilated in some way. It may even suggest that the firm can identify a possible basis for the knowledge to be exploited. In any event, the framework proposed, while useful in terms of considering aspects of knowledge management to be considered, seems implausible in terms of its dichotomies.

Absorptive capacity is a cumulative phenomenon (Cohen and Levinthal 1990, Zahra and George 2002, Easterby-Smith, et al. 2008). Cohen and Levinthal (1990 p.135-6) state that “prior knowledge permits the assimilation and exploitation of new knowledge”. As new knowledge is assimilated and exploited, it, in turn, allows the identification of additional new knowledge and so on. The desirability of having a breadth of knowledge is apparent if one recognises that new knowledge acquisition is to some extent dependent on the existing level and breadth of knowledge. Van den Bosch, Volberda and De Boer (1999) propose that as firms develop their absorptive capacity capability they will identify an increasing level of opportunity which is likely

to create a competitive advantage over firms with lower levels of absorptive capacity. Such a divergence is likely to amplify over time as the cumulative impact of developing absorptive capacity will be greater in the firm with the higher relative level. Giuliani and Bell (2005) in their research into the Chilean wine industry found that firms with higher absorptive capacity were more likely to establish linkages with sources of knowledge outside of their immediate cluster of firms. This was more likely to result in new knowledge which might be of use to the firm.

The path dependent nature of absorptive capacity is undeniable, yet it is not unavoidable. The identification of new information can be as a result of a directed search or it can be more related to chance. The path dependent nature of the process suggests that a directed search will tend to favour existing knowledge streams. In a given firm, this is likely to result in a certain structural inertia as enquires will tend in one direction over time. Jones (2006) challenges this focus on structural issues at the expense of individual agency. He proposes that firms are managed by individuals and that these individuals have the capability to make choices which are different to the choices made in the past. Jones based his research on a case study of a manufacturing company which had a long history of supplying the Ministry of Defence in the UK. While the market was relatively static and predictable, the company prospered. However, its lack of absorptive capacity caused it significant problems when the market became more dynamic. Jones identified a number of key roles in the process of identifying, assimilating and exploiting new knowledge, namely gatekeepers, boundary spanners and change agents. It is the effectiveness with which these roles are implemented that will determine the organisation's absorptive capacity. Easterby-Smith et al (2008 p. 498) concur with this perspective by proposing that absorptive capacity "depends on deliberate will and individual agency".

The development of the absorptive capacity capability of an organisation can impact on the self-image of the organisation. Cohen and Levinthal (1990) held that the expectations of the individuals within the firm change as absorptive capacity is developed. This is related to their perception of the firm as being outward looking and that this was a positive thing for the development of the business. This self-image can also be problematic as it can contribute to the view of what information fits with the organisation. This can lead to the problems referred to above in relation to core

rigidities (Leonard-Barton 1992). Zahra and George (2002) also recognise the impact of transformation on the organisation's self-image and how it views its competitive landscape. Van den Bosch, Volberda and De Boer (1999) argue that as absorptive capacity increases, the firms expectations will be increasingly defined in terms of the opportunity in its environment, independent of its current performance. In other words, the firm increases its ability to see opportunity in the environment and so frames its expectations accordingly.

5.3.3 The role of the leader in developing dynamic capability

In his ground-breaking article, Child (1972) posited that firms could make strategic choices rather than their strategy being determined by the environment in which they operated and the technology being used or the size of the firm. The decisions thus made were a reflection of the key managers of the firm, the dominant coalition. Child argued that it was the perception of the environment by this coalition of senior managers that was relevant. The prior ideology of the decision makers is "assumed to colour this evaluation in some degree" (Child 1972 p.17). The criticality of the senior management team in relation to decision making was echoed by Hambrick and Mason (1984). These authors proposed an upper echelons theory which stated that the decisions of senior managers are reflections of their background characteristics. The basic theory has evolved somewhat to allow for a number of issues; differences in influence amongst a management team, reverse causality where managers with certain characteristics or experience being recruited into specific organisational situations, different cultural situations and finally the differences which arise in industry performance.

The relevance of this upper echelons theory to research in SMEs is that the dominant coalition in an SME is very small and frequently relates only to the entrepreneur. Jones and Macpherson (2006 p. 170) referred to the entrepreneur as being the "sole authority within the firm". The centrality of the entrepreneur in decision making is self-evident in small firms, however, the background characteristics alluded to by Child and Hambrick and Mason have relevance. Penrose (1959) discussed the importance of the "image" of the environment which the entrepreneur held in his or her mind. This image and the potentially different images in the minds of different entrepreneurs would influence strategic choice and decisions made. Hilliard

(2004) expanded on this by examining the actions of pharmaceutical companies in Ireland and was able to demonstrate the influence of the image held within the firm on the decisions made and approach taken to environmental (e.g. waste management) matters. In her study, Hilliard found that the dynamic capabilities of some firms were grounded in their tacit perceptions and their purposeful problem solving processes. The tacit perceptions were themselves influenced by past experience and learning.

In their study of the US Petroleum industry, Adner and Helfat (2003) examined the impact of strategic decisions on corporate performance. In particular, they examined a series of decisions related to corporate downsizing on the relative (rather than absolute) performance between industry firms. The emphasis was on relative performance as the industry went through several radical changes in the period under review which impacted on absolute profitability levels. Their findings were that “corporate strategy does in fact matter” and that “the results also strongly suggest that corporate managers matter” (Adner and Helfat 2003 p.1023). In other words, corporate strategic decisions could be shown to have influenced relative performance positively. At the same time, it was clear that the senior management in the different organisations, which faced the same environmental conditions, made different decisions in relation to how to react to that environment. This research seems to support the assertion that key decision makers’ assessment of the environment may differ across firms facing what might objectively be seen as the same environment. The decisions which follow this assessment can influence relative firm performance.

The importance of leadership as an issue is the potential it holds in terms of firm direction and performance (Child 1972, Hambrick and Mason 1984, Adner and Helfat 2003, Hilliard 2004). The ability of leaders to exercise their managerial agency implies that the evolution of the firm does not inevitably determine future paths. However, the inertia of previous decisions coupled with the existing knowledge base of the firm mean that the exercise of managerial agency is influenced by this history (Penrose 1959, Leonard-Barton 1992). It is also influenced by the image which the leaders have of themselves and their organisation (Penrose 1959, Hilliard 2004). One mechanism which may assist owner-managers to learn or become aware of possibilities which might encourage and allow the necessary reflection to take place is

the use of their network of peers and contacts (Jones, Macpherson and Thorpe 2010). The following section discusses this concept of social capital.

5.3.4 The role of the owner-manager's network in the development of dynamic capability

The literature on the emergence of dynamic capabilities suggests that the use which an owner manager can make of his or her network of contacts may play a role in the development of dynamic capabilities (Blyler and Coff 2003). There is a well developed body of literature relating to social capital. The purpose of including a discussion of the role of social capital in my research is to examine the contribution it may make in the context of a resource which is available to the firm and its CEO. The following sections consider the evolution of the concept of social capital over the past thirty years, before narrowing the focus through a resource lens for consideration in the context of the dynamic capabilities literature.

The underlying conceptual elements of social capital are not recent discoveries of the social sciences. Authors like Marx and Durkheim in the 19th and early 20th centuries discussed the links between individuals and some of the benefits, obligations and problems which arose from these links or relationships. However, the concept of social capital as discussed in the literature emanates from a much more recent debate over the past thirty years. The work of Bourdieu, Coleman and Putnam are central to the consideration of social capital (Portes 1998, Field 2003, Lee 2009). The term social capital may have its origins in a paper by Loury (1977) where he challenged the idea of a free-society where all individuals theoretically have equal opportunity to progress. Loury (1977 p. 176) held that “no one travels that road entirely alone”, implying that the network around an individual might influence or restrict their potential to progress.

Bourdieu (1986) discussed social capital primarily in relation to social class and inequality. His research focused on the benefits which might accrue from connections amongst privileged groups and on the deliberate investment in the construction of sociability for the purpose of creating a resource which might subsequently be drawn upon (Portes 1998). Bourdieu and Wacquant (1992 p. 119) defined social capital as “the sum of resources, actual or virtual, that accrue to an individual or a group by

virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintances and recognition”.

Coleman (1994) focused primarily on the issue of education and the impact which social capital might have on the performance of individuals in an educational environment. Coleman was a proponent of rational choice theory which, at its simplest, suggests that economic actors act in their own best interest on all occasions. Coleman used social capital theory to help explain why people might cooperate with each other when their individual self-interest might suggest that such cooperation would not arise (Field 2003). Coleman’s work was also largely based on the unit of the family which resulted in his definition of social capital as “the set of resources that inhere in family relations and in community social organisation and that are useful for the cognitive or social development of a child or young person. These resources differ for different persons and can constitute an important advantage for children and adolescents in the development of their own human capital” (Coleman 1994 p. 300).

Putnam, an American political scientist, considered social capital in the context of the fabric of society and believed that a deterioration in social capital was leading to the crumbling of civic society. In an article (and subsequent book) called “Bowling Alone” Putnam (1995) used the metaphor of an individual bowling on their own or only with family members, rather than as a member of a team playing in competition with other local and state-wide teams, as an indication of the reduction in civic engagement in America. Putnam drew on the writings of de Tocqueville who in describing America circa 1830 held that the post-aristocratic model which existed allowed, encouraged and fostered a dialogue between all which also led to a high level of civil engagement (Field 2003). The reduction in this valued dialogue between different and otherwise distanced individuals was, according to Putnam, leading to a reduction in civic engagement, and therefore to be deplored. Putnam (1993 p. 167) defined social capital as the “features of social organisations, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions”. Portes (1998) is very critical of Putnam and accuses him of tautology in some of his arguments in relation to the relationship between social capital and good governance. Portes argues that Putnam effectively reduced social capital to a single variable, namely civic virtue, which Putnam defined as being present when

individuals vote, obey the law, cooperate with each other and whose leaders are honest and committed to the public good. Given this definition, Portes argues that it is hardly surprising that such civic virtue then results in well governed cities! However, Putnam (2000) also divided social capital into considering what he termed bridging or bonding social capital. Bridging social capital brings people together across a wide range of social divisions and can be very useful in terms of developing new thoughts and in disseminating information widely. Bonding social capital refers to the idea of reinforcing existing ties and networks and tends to strengthen similarities and may discourage behaviours beyond the accepted norms of the group. This analysis is useful in that it allows consideration of different forms of social capital which may have positive or negative consequences depending on the context.

Burt (1992) outlines a theory of structural holes in networks. This theory holds that social networks are imperfect in terms of information exchange on the basis that not all members in a network know each other equally well or that some members of a network may also have access to other networks which may be of potential benefit to members of the first network. As a result, Burt contends that an individual's position in the network may be an asset in its own right, effectively social capital, as it allows the individual to broker exchanges between otherwise disconnected people. This is especially relevant where weak ties (Granovetter 1995) exist in a network where individuals are only loosely connected, as opposed to the denser or stronger ties evident in the work of Coleman.

Portes (1998) is generally critical of authors on social capital for their relative neglect of the potential negative implications of social capital. Bourdieu's analysis is firmly focused on the advantages which may accrue to the members of the network. However, it is apparent that one who does not belong to the privileged network is at a disadvantage. Coleman's emphasis on the family and community ties has the potential to result in strong enforcement of an accepted norm which might be quite restrictive of personal freedoms. Similarly, this enforcement of a group norm can be very damaging if that norm holds that members of the group should not progress in certain ways. Portes references research by Bourgois (1995) which examined the Puerto Rican community in the Bronx, New York and the pressure which was applied to members of the community who were perceived to be too ambitious. Portes calls

for the inclusion of such negative consequences in social capital research in the interests of thorough and robust research.

The literature on social capital examines the subject from a number of perspectives – sociology (Bourdieu 1986, Portes 1998, Coleman 1994) , economics (Loury 1977, Coleman 1994) and political science (Putnam 1995). However, social capital is of relevance to my research in relation to the use which a CEO may be able to make of his or her network of contacts. In this context, the definition of social capital of Bourdieu (1986) in relation to the sum of the actual and virtual resources in an individual's network is considered the most useful of the seminal authors.

Largely following Bourdieu, Nahapiet and Ghoshal (1998 p. 243) defined social capital as the “sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit”. By including the actual and potential in the definition, social capital allows for the possibility that resources may be available to the participants in the network of which they may not be explicitly aware. At its most fundamental, the concept is that there is a value in having a network of relationships and that the resources which arise from those relationships may be able to provide a benefit at some point.

In their paper on the role of social capital in the creation of intellectual capital, Nahapiet and Ghoshal (1998) propose three dimensions of social capital; the structural, the relational and the cognitive. The structural dimension refers to the pattern of connections between participants in the network. Who is connected to whom and for what purpose? A network which exists for one purpose, e.g. a training network, may be used for another e.g. development of trading relationships. The relational dimension describes the nature of the relationships participants have with each other. These can vary in relation to the frequency of interaction and the depth of relationship which develops. The cognitive dimension refers to “those resources providing shared representations, interpretations, and systems of meaning among parties” (Nahapiet and Ghoshal 1998 p. 244). This dimension captures, for example, the idea that networks often possess a shared language for communicating, the subtlety of which might not be obvious to an outsider.

Social capital is an usual resource in that it is not owned by one party in the sense that most resources are owned by an economic actor. The resource is owned jointly by the participants and is not easily traded as other resources might be. As it is based on relationships and experiences of inter-relating, there is a tacit dimension to social capital which makes it difficult to substitute one person for another in a network. Similarly, the social capital in a network can determine methods of operating and ways of perceiving the world which hinder new insights which challenge the status quo. As discussed above, the core rigidities factor (Leonard-Barton 1992) which can impact on firms can also impact on a network.

The phrase intellectual capital is used to refer to the knowledge and knowing capability included in a social network (Nahapiet and Ghoshal 1998). Knowledge can be explicit or tacit (Polanyi 1966). Tacit knowledge is not simply knowledge which has not been codified and made explicit in some way. Polanyi (1966) holds that some knowledge will always be tacit and as such the idea of knowing is as valuable as knowledge. In their model of organisational learning, Crossan, Lane and White (1999 p. 526) describe “an interesting thing seems to happen on the way to expertise. What once required conscious, deliberate, and explicit thought no longer does...what has been learnt becomes tacit knowledge”. This suggests that knowledge may in fact move from the domain of the explicit to the domain of the tacit. In that context, knowing is as important as declarative knowledge.

The impact of social capital on the development of intellectual capital is significant. It has been established above, that breadth of knowledge and experience enhance absorptive capacity as the potential to identify valuable knowledge is increased. The capability to interpret and assimilate that knowledge is also increased with the breadth of pre-existing knowledge and experience. The use of a social network of actors to identify valuable information and to assist in its assimilation has the potential to significantly improve absorptive capacity.

Yli-Renko, Autio and Sapienza (2001) examined the impact of social capital and knowledge acquisition in the context of a key customer relationship between young entrepreneurial high-technology companies and their largest client. The key findings

of this research were that social interaction and network ties are positively related to knowledge acquisition. The constant interactions and intensive information exchange appear to aid this process. However, relationship quality is negatively associated with knowledge acquisition. Whilst this is intuitively surprising, the research suggests that the relationships may have been too close; that the small firms were insulated from other information sources and that lower levels of monitoring, facilitated by the improving relationship, reduced the potential exchange of information. In other words, the close relationships actually hampered development, perhaps as a result of a reluctance to mutually challenge the status quo.

5.3.5 Explaining the emergence of dynamic capabilities in SMEs

This research seeks to explain how dynamic capabilities emerge in small firms. Extant literature argues that the capacity to purposefully create, extend or modify the resource base of the firm is central to firm survival and success. This capability, referred to as dynamic capability, may relate to organisational learning and firm absorptive capacity. In the context of an SME, the centrality of the owner-manager is established, and consequently, the owner-manager's role in developing his or her own absorptive capacity should be considered. The role which social capital plays in this development must be included in any analysis of the emergence of firm dynamic capability. There is also a temporal dimension involved in the emergence of dynamic capabilities. The literature on learning in Chapter 3 describes the potential for a transition from lower to higher order learning, which takes time. The literature on absorptive capacity recognises that there may be a substantial time lag between the identification of new knowledge and the eventual use of that knowledge within the firm. In summary, the literature reviewed in this chapter posits that a number of factors should be considered in explaining the emergence of dynamic capabilities in the context of an SME: organisational learning, the role of the leader, identifying and integrating new knowledge and the role of the owner-manager's network of contacts.

In the context of the Perigord Group, Chapter 6 and Chapter 7 explore the following three questions: (i) did dynamic capabilities emerge in the Perigord Group? (ii) If so, what caused that emergence? And (iii) are there underlying mechanisms which were not empirically observable which facilitated that emergence? Chapter 6 re-assesses and extends the case data in the light of the literature on dynamic capability and the

factors which may help to explain its emergence. The changing strategic priorities of the owner-manager are also considered. These changes in priority reveal the developments in the firm between 2002 and 2010. The data is then analysed in the context of the literature on dynamic capability. Chapter 7 develops a theoretical explanation for the emergence of dynamic capabilities in the Perigord Group.

6. Re-analysing the Perigord Case Study

The initial presentation of the case in Chapter 4 highlighted the significant level of investment in training and development in the Perigord Group. It also revealed the scale of development in the services of the firm in an industry which was experiencing technological and market turmoil. Several key themes emerged from the data in relation to the focus on performance of the CEO Alan Leamy, the level of capacity building which took place in relation to people and technology and finally the evolution of higher order learning within the firm. However, this was only a partial explanation of the firm's development, leading to a further review of the literature. The concepts of dynamic capability, organisational capability and routines and processes seemed a useful way to re-engage with the data. Drawing on additional data, the extensive interviews and notes of 186 meetings with the CEO of the Perigord Group, Alan Leamy, the evolution of Perigord is re-examined. As noted earlier, these meetings occurred in the context of a business relationship between the researcher and the CEO.

The remainder of this chapter is organised as follows. Section 6.1 describes the changing strategic priorities of the CEO during the period covered by this research, showing how Perigord evolved in this time. Section 6.2 discusses the changes in the firm in relation to the themes originally discussed in Chapter 4. These themes are expanded upon and some additional themes emerge. Finally, section 6.3 addresses the first research question in relation to whether dynamic capabilities emerged in the Perigord Group.

6.1 The evolution of Perigord re-examined

In Table 10 the changing strategic priorities of Alan Leamy for the period 2002 to 2010 are shown. This table is drawn from the notes of 186 business meetings between me and Alan Leamy. The data suggests that over time Alan Leamy has become more focussed on identifying how to leverage the group's intellectual and managerial resources to maximise its strategic opportunity, rather than being focused on specific client needs and developing appropriate responses. The following paragraphs describe these issues in more detail. Whilst the presentation of the data suggests well delineated events, it should be understood that the allocation of priorities to specific years is somewhat arbitrary as priorities tend to evolve and dissipate in an irregular

fashion. The methodological foundation for this table is found in Chapter 2 (Methodology) in the discussion of the 186 business meetings which took place between me and Alan Leamy.

In the early stages of the business relationship (2002-2003) the agenda was dominated by the impending collapse of the core business of Perigord. The pre-press business was changing rapidly. Customers were installing equipment which would make the services of Perigord redundant. Some initial work was done on training plans in terms of identifying the training needs of individuals. Separately, Alan Leamy was interested in exploring how he might develop the management structures of Perigord and how he might leverage the human resources assets available to him.

There was a significant escalation of the regularity of meetings in 2004 which was indicative of a momentum which had developed in terms of progressing the evolution of the firm. The meetings (coupled with the training plans described above) showed a focus on a more formal assessment of the skills deficits of staff and the creation of a plan to address those skills gaps. This ultimately resulted in an application to Enterprise Ireland for funding under a training grant in 2005. The other major discussion item in 2004 was the potential which was being identified in the software solutions in Precise Data. This manifested itself in a series of meetings with Alan and Paul Leamy to discuss the developments which had already taken place with the software and outline planning for a major application to Enterprise Ireland for research and development funding under a Research, Technology and Innovation (RTI) initiative.

The year of 2005 continued this consideration of the application for research and development funding for Precise Data to fund the software development. More significantly, the relationship with a large pharmaceutical company in north Dublin was developing quickly. A range of pre-press production services were being provided and initial discussions had taken place in relation to the software solutions which might be provided. An opportunity arose with this client to place printing equipment on site to produce all of the leaflet requirements of the plant. Instruction leaflets were required for each pack of medication produced to instruct the user in proper dosages, contra-indications etc. This project, although ultimately never

implemented, resulted in many meetings with the client company and a number of site visits to explore possible locations and the resulting operational issues which might arise from establishing a small printing facility on site. These meetings were instrumental in developing the business relationship with the client beyond what had previously existed.

The following year, 2006, was dominated by two separate aspects of the company's development. Firstly, the changes in the company's original core business continued apace and required a series of actions to manage the impact. Secondly, the opportunity to develop the software business was being grasped. The on-going changes to the original business meant that a focus on operations became necessary. Employee numbers were reduced in line with the continuing loss of traditional pre-press business. A project was considered and implemented to place Perigord equipment onto a major print company client's site which would be operated by Perigord employees in situ. This allowed Perigord to retain the contract for the production of all the origination material for this client. The data work was handled in Perigord's facility with processed files being transmitted via a broadband connection to the client's site for output locally. In addition to the staff reductions and client site capital investment programme, an application was made to Enterprise Ireland for funding under the Productivity Improvement Fund for two of the Perigord companies. This fund was designed to assist in training initiatives and capital investment projects which were specifically targeted at increasing the productivity of employees in the manufacturing side of the business. These applications were substantial and required many meetings to progress in the period from September 2005 to April 2006. The funding secured provided substantial additional assistance in relation to the company's cross-training agenda. In addition, capital assistance was provided by way of a modest grant which was partially repayable within three years.

Once the funding for productivity improvement had been secured the company's focus returned to the development of the software side of the business. Plans were made to spin out the software development division into a separate company. Although the division was named Precise Data, legally it was part of the core company Litho Studios Ltd. A decision was made to establish the new company from 1st January 2007. In late 2006, discussions commenced with Enterprise Ireland in

relation to the possibility of funding the new company under the High Potential Start Up (HPSU) initiative. This funding takes the form of an investment in cumulative, redeemable, convertible preference shares in the business. This became the major focus for 2007.

The other area of focus for 2006 was the acquisition of new premises for the group which allowed the consolidation of all facilities under one roof in Damastown. Considerable work was done with architects to plan the layouts of the new building and the appropriate division of space between the elements of the operation. The move of all of the equipment and personnel took place in the summer of 2006.

The period from October 2006 to March 2008 was substantially focused on the development of the application for HPSU funding for Precise Data Solutions Ltd. This application required a considerable amount of planning and financial modelling. It resulted in the first comprehensive business plan for the software company. Prior to this point, the planning for the software development had been relatively ad hoc with opportunities being pursued as they arose without any particular client industry focus. The planning phase involved a significant number of meetings which established the potential of the pharmaceutical sector for the service as well as the potential scale of this market segment. Considerable time was invested in learning about this market, its regulatory frameworks, the operational realities of artwork production etc. The process culminated with two significant outputs. The business had a robust business plan which mapped out the potential development trajectory. The business also secured a significant level of investment from Enterprise Ireland to supplement the substantial company investment which was on going.

The other priority during 2007 was the decision to establish a facility in Singapore. Perigord had a number of major international clients who operated on a global scale. Perigord was winning business and capturing an increasing level of market share with some of these clients. The delivery of these services was required on a global scale. Perigord was well placed to meet these demands in Europe and America with its facilities in Dublin and Connecticut.

Table 10: Alan Leamy's changing strategic priorities 2002-2010

2002-2003	2004	2005	2006	2007	2008	2009	2010
Management control processes.	New business opportunities with software development	Print facility on Pharma client site	Productivity improvement plans and funding	HPSU funding for software company	Strategic Review of group and competitor review	Stability of the business	Stability of the business
Training of individuals	Training plans – especially cross training of staff	Training	Plate-setter device in client print company Factory move	Singapore office	Group wide sales offering	Funding software development	Software sales
Recognition of impending collapse of trade business	RTI to fund software		Reduction of employee numbers Development of software company		Management capability	Cost reductions	R&D funding for automatic artwork generation

A constant priority has been engaging with and listening to clients in relation to their needs and how the firm could meet those needs

Source: Notes from business meetings with Alan Leamy

However, it was clear that some form of presence in the Pacific Rim was required to respond more locally in those regions and also to demonstrate to clients and prospective clients that Perigord was a truly global player in this market. As a result of a number of exploratory visits to the region a new operation was established in Singapore in early 2008. An additional element of the market requirement which led to the establishment of the Singapore facility was the requirement by many software companies to expand the range of languages which they could incorporate into their packaging. This led to Perigord establishing a research and development project to develop the range of languages it could handle in an automated fashion. Funding was secured in early 2008 from Enterprise Ireland under its R&D Stimulation Programme to assist in this project.

The priority for development in 2008 largely focused on the range of services which the Perigord Group had to offer. Meetings considered the competitive position of the company and who the emerging competitors for the software service were. The competitor companies in this space often offered a range of services which included all elements of the artwork production process including stages like photography and creative copy writing. Perigord evaluated the competitive offerings and evaluated the commercial advantages of adding to the range of services available. As a result of this analysis, it was decided not to add to the Perigord range of services. However, the analysis did lead to a decision to consolidate the sales approach of the group to a considerable extent. The potential to leverage the software solutions for print services or for artwork management contract services was recognised. This plan meant that sales and promotion efforts could lead with the software solutions and the advantages of control and operational oversight which they would provide to the client. This allowed for a differentiation from other print or pre-press services companies, even if the software solution was never of real interest to the prospective client.

2008 was also a period where Alan Leamy was reflecting on the management structure of the group and the best way of utilising the skills and expertise of his management team. A key issue for Alan Leamy had become the consideration of the most effective use of his own time. It was clear to him that the sales approach for the software solution required his attention at the same time that the business required the consistent attention of a general manager. Plans were established to develop a small

number of key executives in relation to their role in promoting and selling the software products as well as planning for the possible recruitment of a general manager to manage the day to day business.

The economic collapse which began in 2008 had an impact on Perigord. Many of its key clients delayed significant new product launches as businesses froze all discretionary spending for a time. This resulted in substantial pressure on Perigord from a cash flow and profitability perspective. As a result, the focus of the company in 2009 shifted to a more tactical, survival mode from the preceding number of years which had been considerably more strategic in outlook. A number of cost reduction initiatives were implemented which included staff number reductions, salary reductions for remaining staff and the reduction of input costs from all suppliers. The company also made applications to the Employment Subsidy Scheme which was operated by Enterprise Ireland in December 2009. This scheme was developed to provide a level of support to firms in return for a commitment to retain a minimum number of people in employment. It became clear in the latter part of the year that the level of investment which would be required to ensure the survival of the business overall was significant. Perigord had been investing heavily in the development of the software solutions. It had also invested heavily in the new premises in 2006 prior to the economic downturn of 2008-2009. This funding imperative resulted in the assessment of the possibility of applying for funding from Enterprise Ireland under the Enterprise Stabilisation Fund (ESF). This fund was established to assist otherwise profitable companies to weather the storm of the economic collapse of 2008-2009. The investment in this case was in the form of cumulative, redeemable preference shares. The preparation of the application for ESF funding dominated the company's development agenda for much of late 2009 and the early months of 2010.

The completion of the ESF application and the successful securing of the funds it provided assisted in re-capitalising the business. The process required had resulted in the streamlining of the business from a cost inputs perspective and had certainly focused the mind of senior managers in terms of a performance imperative for the new software developments. 2010 saw the completion of the re-development of GLAMS to a configurable off the shelf system which was capable of being validated by pharmaceutical companies. This meant that the focus could shift towards the

concerted and confident promotion of the system to a wide range of pharmaceutical companies. Discussions with Alan Leamy in this period recorded the progress towards achieving sales in this period which saw the first two new system sales being achieved. The release of the cash flow pressure of 2009 and the completion of the development phase of GLAMS also allowed the company to consider the next stage of research and development required. It was apparent that some of the services which the company offers are subject to threat from low labour cost economies as the services are relatively labour intensive and not particularly skilled. The potential exists to significantly automate these stages through an automatic artwork generation tool which the company believes it can develop. Planning began in late 2010 for this process and an application for funding from the research and development programmes of Enterprise Ireland was being considered.

Over the period under review, there is an evident shift in the focus from more tactical issues to the more strategic. The change in focus from initiatives around employee skills and productivity levels to the development of strategic sales plans and organisational review is clear. It is true that the means by which Alan Leamy addressed the earlier issues was uncommon in the industry, as demonstrated by the level of investment in training and development. Similarly, although many companies struggled with productivity issues, Perigord was successful in securing funding from Enterprise Ireland for two of its subsidiaries in this regard. Throughout all of his tenure as CEO, Alan Leamy has demonstrated a consistent engagement with clients to better understand their needs and to ascertain how Perigord might meet those needs.

6.2Case analysis II

A number of central themes emerged from the initial discussion of the case data in section 4.3. These themes are now re-visited in the context of the additional data described in the previous section.

6.2.1 Theme 1 – A focus on performance

This theme emerged from Alan Leamy's focus on the firm's performance. The additional data described in this chapter supports this theme in the manner in which the firm developed and in which Alan Leamy drove that development. However, little of value is added to this theme in the new data as this theme emerged so clearly in the interview data described in Chapter 4.

6.2.2 Theme 2 – Capacity building

In the discussion of this theme in Chapter 4, the development of Perigord's capacity was described in terms of the development of the technology and the people employed. Table 11 shows the evolution of new capabilities and market positions in Perigord from 1974 to 2010. For convenience, the table is divided into ten year time spans with the final column relating to the seven years to 2010. The labels for this table are drawn from the organisational capability literature discussed in Chapter 5. Perigord's initial capabilities were largely people dependent and relied on a high level of tacit knowledge and experience. The emergence of new technologies in the 1980s fundamentally altered the market opportunities available to Perigord. Perigord embraced the new technology and developed a reputation as experts in the manipulation of files and the handling of postscript (the file structure used to create image files). A consequence of this change in the market was that the vast majority of pre-press firms in Ireland closed. However, Perigord survived. Under new management, the firm has adapted to the changing environment and purposefully developed new resources and capabilities, allowing it to provide software solutions for the management of the design and creation stages of branded artwork as well as the global dissemination and control of files for production. The change in focus and the development of the software tools from 2004 has had a marked impact on the company's future development potential. The following sections discuss the table rows in detail.

Table 11: Capacity building in the Perigord Group 1974-2010

	1974-1984	1984-1993	1994-2004	2004-2010
Resources (firm specific)	Analogue scanners Experienced employees	Apple Macs Digitisation of pre-press Scitex workflow system	Paul Leamy re-joins firm with software skills Michael Fleming recruited with PC and other skills Project managers hired and trained Alan developing management skills Access to intermediary	Team of programmers created Access to external subject matter experts – software, Pharma etc. Alan Leamy as a creative force Paul Leamy's technical excellence Ability to manage off-site facilities for clients Work with intermediary
Routines and Competencies	Employee skills in scanning, colour re-touching, hand planning	Skills in “new” digital technology Ability to work with postscript and font issues. Recognised as experts with this technology Output of planned film	Skills in PC work. Expansion of workflow systems. Project Management for clients. Colour Management. Output of digital and analogue media	Software tools allowing better management tracking and information. Project management skills. Workflow systems extended into clients premises. Client site management.
Organisational Capabilities	Scanning market for opportunity. Prepared to acquire resources when required.	Prepared to invest in developing technology.	Ability to leverage technological developments to respond to client needs.	Matching technical capability with market opportunity. Leveraging non-employee experts. Scanning competitor offerings. Proactively seeking/developing solutions which clients might require.
<u>Outcomes:</u>				
Products/ Services	Pre-press services to trade in Ireland. Publishers in newspapers, magazines and book publishing including an expansion into the USA	New customers- Apple and Microsoft. Expansion of publishing business	Publishing – excluding newspapers Software clients. Generics Pharma Basic document tracking solutions. Project management services for publishing requirements.	Software tools for managing the design, creation, amendment and production of artwork. Artwork management services.

Source: Business meetings with Alan Leamy 2004-2010

Resources:

The Perigord Group has a history of investing in the development of its technological and human resources. From its inception, the company invested heavily in technology and acquired state of the art colour scanner technology. When the Apple Macintosh computer became robust enough for industrial use, the company invested to ensure that it remained at the cutting edge of developments. As it became apparent that digitisation was the way forward, the company invested in workflow software which allowed it to handle client's files with the minimum of intervention possible. The recruitment of employees with the appropriate skills was a deliberate and repeatedly used strategy. Alan Leamy described the hiring of a key executive with Apples Mac knowledge, even though he had little knowledge of the pre-press sector. Michael Fleming's recall of his own appointment to the company and his subsequent development through it are testimony to how the company secured and empowered the necessary human resources.

As the emphasis on equipment based technology lessened around 2004, the company continued to ensure that the appropriate human resources were available. Michael Fleming described how skilled project managers were brought into the company, initially to manage the Microsoft business. The impact of this resource was visible and led to the investment in the recruitment and re-training of existing employees to broaden the scope of the project management approach. As the software solutions became a more central element of the company's development, programmer skills were recruited and retained through third parties.

It is evident from Alan Leamy that he values and utilises his network of contacts to the benefits of the business. His recruitment of the executive with Apple Mac knowledge was a clear example of this. By bringing in appropriate skills at the right time, the company was able to maximise the impact of the new technology. Alan Leamy was able to develop a friendship with a key supplier to establish the Exact Digital printing business during his period away from the company. On taking up the position of CEO, Alan Leamy re-established contact with me and put a formal consultancy agreement in place which provided strategic management advice as well as a key resource for the completion of specific tasks and documentation. Some of these contacts were structured less formally. Alan Leamy was also able to gain

valuable information on the generics pharmaceutical industry from an acquaintance who worked in another part of the supply chain to that sector. This colleague was able to provide valuable background information on the sector and developments within it. He was also able to provide contact details for potential clients of the software solutions being developed.

Routines and competencies:

It was evident in how Alan Leamy described the competitive advantage of Perigord in the 1970s and 1980s as being related to its skill in colour management and the handling of clients “re-touching” requirements. These skills allowed the company to win new business from the USA despite the time difference and distance issues. Perigord developed skills and competences in digital workflow as soon as these technologies were developed. Many originators of documents struggled with the technology at this stage as there were many technical issues relating to font usage and the manipulation of postscript files. These issues regularly led to critical errors in the make-up of publications. Perigord developed expertise in this area which allowed them prosper. File handling continued to be developed with the emergence of Adobe Acrobat as the technical solution to these font and output issues.

The company also developed strict control routines in relation to file handling, quality control and image processing. Perigord was at the forefront of implementing the necessary controls to ensure accuracy and precision in the development of large format output devices in Ireland. Developing expertise in this area was critical as this technological development removed a substantial part of the labour input normally provided by Perigord to its clients. As imaging technology developed, Perigord developed the routines and competences necessary to deliver data to imaging devices remotely thereby allowing the company to provide pre-press solutions to clients on the client’s site.

Finally, the development of routines and competences in the area of software development are now central to the firm’s success. Capturing client feedback in a manner which allows inclusion into development plans is essential. Perigord had learned how to explore client needs in relation to tracking solutions and information sharing requirements. The firm’s employees are able to add to the functionality of the

software in this manner. The requirement to have the software validated for the pharmaceutical industry is an example of this competence. Validation for the pharmaceutical sector involves demonstrating that the software and all of its components are consistently robust in the manner in which data is handled to ensure product accuracy throughout. In this instance, the company was able to work with a third party organisation with experience of the validation process. By dedicating internal resources to the project, Perigord was able to establish the factors to be addressed and to deliver the project to completion.

Organisational capabilities

Organisational capabilities relate to the ability of a firm to coordinate resources to perform certain tasks towards a predefined outcome. It is evident that Perigord managed to develop both its resources and routines and competences over time. The firm developed a range of capabilities in investing in and making use of new technologies as they emerged. The transition in its business from a traditional pre-press services company to a company which offers a wide range of brand management and localisation services based on an internet enabled software platform suggests that some underlying dynamic capabilities also exist.

The concepts underlying evolutionary theory are clearly evident in Perigord. Key decisions taken at various stages in its development allowed it to develop a resource base which led to additional, but consequent developments. Hiring a key manager with experience of Apple Mac technology allowed the company to develop its skills and competences at a pace which allowed it capture market share. Some of these skills allowed the creation of the developmental attitude described by Michael Fleming where Perigord became known for its ability to resolve client issues. A decision to invest in early stage imaging devices allowed the company to build up expertise in this area which it consistently leveraged to maximise client advantage. The decision to take some relatively simple tracking tools which had been developed by Paul Leamy for internal control purposes and to develop them into an initial client model allowed the company to sample the possibilities of software development. Path dependency in the developmental process is obvious. Initial decisions allowed the company to build on early stage developments and to create something more substantial.

It is possible to describe this development process as a rudimentary dynamic capability as Perigord sought information from the marketplace and adjusted its resources accordingly. Eisenhardt and Martin (2000) stated that “the order of implantation of dynamic capabilities is consequential”. That is that some capabilities are foundational to others and so must exist in advance of developing others. While these individual examples demonstrate the company’s ability to develop capabilities, it is the purposefulness with which these initial decisions are taken which can be labelled a dynamic capability. The company has demonstrated a consistent commitment to engaging with developments in a positive manner. Where gaps in resources have been identified, the company has purposefully sought ways to add the resources necessary to begin to address them. Over the past fifteen years, it is reasonable to say that Alan Leamy was at the core of these decisions. It was rarely the case that Alan could foresee the final outcome of the decision being taken. Many decisions related to addressing short term issues which had been identified. However, there was an element of an act of faith that the addition of the resource or the investment in the creation of a capability would yield positive results. In addition to the ability to make the initial decisions, Alan Leamy was also capable of building on the emerging insights of these first steps. This is especially evident in the software development where the extent of the commercial opportunity went through a number of iterations in his mind before culminating in the current offering. This combination of the ability to identify the need to take action coupled with the ability to identify and acquire suitable resources to address the issue is at the core of dynamic capability. The purposefulness with which these decisions were taken and the increasing confidence apparent in the investment decisions related to the software development suggests that a dynamic capability was being developed in this area.

Products and services

Table 11 shows the development in the products and services of Perigord in the period under review. In effect, these are the outcomes of the processes described above and show the market transition which was supported by these processes. In the first period, Perigord provided traditional pre-press services to its clients. It was unusual amongst its peers at the time in that it supplied publishers in the USA as a result of its high quality colour manipulation capabilities. Perigord was at the forefront of the

opportunities which arose with the growing software and hardware businesses of the middle 1980s and early 1990s. The ability to handle new forms of origination and the increasing ability to handle many languages was critical at this stage. From the mid-1990s, the ability to offer project management services coupled with the developing technical capabilities allowed Perigord to capture new markets.

This development in products and services has now evolved to position where the client can be provided with a very broad range of services. Perigord can develop and customise an internet enabled software platform which will allow the client to manage the process of creation, amending, storing and distributing all types of artwork related to print and packaging items. The system can store libraries of past documents and approved images. This level of control and functionality appeals strongly to purchasing and supply chain managers as well as to marketing managers striving to produce material ever more quickly with reducing budgets. Perigord can also provide a range of translation and localisation services to take English language master files and convert them to all significant languages on a worldwide basis. Perigord can take the localised files and bring the artwork files to a condition which is ready for distribution to any production facility in the world. The software can also allow the client to manage the procurement process related to design and print projects by requesting and managing a tendering process and the pursuant orders and document workflow. This full range service drives business levels which can be exclusively software related, or include software and production services.

6.2.3 Theme 3 - The evolution of higher order learning

Chapter 4 described the scale of investment in training which took place in Perigord. It also described the evolution in the nature of the learning which took place in the firm as a clearly identifiable transition to higher order learning emerged. Table 11 in describing the development of the capacity of the firm also captures the development in skills and competences which facilitated the overall development in the firm's capacity. The description of the changing strategic priorities of Alan Leamy in section 6.1 support this theme strongly although little is added to what was previously identified.

6.2.4 Theme 4 – Managerial purposefulness

The data reveals instances of purposeful decision making on the part of Alan Leamy. The changes in the market and technology described in Chapter 4 required a response from the CEO. However, it is also evident that many firms in similar situations to Perigord did not succeed in making the required changes and surviving. The description of the changing priorities of Alan Leamy demonstrate his evolving capacity to act purposefully in leading the strategic development of Perigord.

The decision to invest heavily in the development of a software solution required a significant departure from the previous business model of the firm. While the investment level required emerged gradually, Alan Leamy remained committed to it and in fact developed his commitment to it as he began to appreciate the scale of the opportunity available to the firm. Similarly, he made significant investment decisions in relation to the re-location of the businesses to a new premises in 2006 and also in the investment in a large printing machine in 2007.

The interview data also contained references to the theme of managerial purposefulness in Perigord. This data was also supported by some references to the entrepreneurial attitude of Alan Leamy and Anne Cooke and how this fed into decision making.

Table 12 shows excerpts from the data which show the reliance on the senior management team for decision making within the firm. The centrality of Alan Leamy to key decisions is evident from the references to how discussions on major decisions evolved in relation to the printing press investment, the development of the software solution (GLAMS) and the decision to establish overseas offices. The references to an entrepreneurial spirit by Alan Leamy and Anne Cooke reveal their attitude to decision making and the normalcy of being in business and making decisions in a positive manner.

Table 12: Managerial purposefulness

Leadership in the Senior Team	442 "it was the natural thing that I would have been talking to Andrew and Paul..." on developing Glams etc (Alan Leamy)
	476 "Anne was heavily involved in the purchasing of that" printing press (Alan Leamy)
	466 "I wanted to keep my options open" on procuring the new printing press (Anne Cooke)
	442 "when I bought the press" (<i>authors emphasis</i>) (Anne Cooke)
	316 "a lot of those are led by Alan..." (Michael Fleming)
	480 "he is very progressive on these fronts and he sees that they are necessary for doing business" (Michael Fleming on opening offices in Singapore and the west coast of the USA)
	644 "mainly me and Alan" (Paul Leamy on the Glams ideas)
Entrepreneurial Spirit	242 "business was a natural thing for me at the time" (Alan Leamy on starting a dress hire business on leaving school)
	259 "as you say it was probably the genes of like father, like son" (Alan Leamy on schools direct.)
	427 "you know what I mean, there was a gut feeling" (Alan Leamy on decision making)
	126 "I would have other things going on...I was working in hotels at night and working in Brunswick and studying ..." (Anne Cooke)
	477 "I probably could have involved the others more, but sometimes when you see the answer is crystal clear..." (Anne Cooke)

6.2.5 Theme 5 – Use of third parties

The final theme to emerge from the data was that of how the firm made use of third parties in its development. Initially, the interview data included a number of references to how external parties were able to contribute to the firm's development. Table 13 includes some extracts from the interview data in this regard. Alan Leamy and Anne Cooke made a number of references to how working with me had aided the development of the company in terms of adding professionalism and in dealing with government agencies. Alan Leamy gave an example of how he had come to know Enda Casey who had been supplying photocopiers to his business. They struck up a relationship which subsequently evolved into a business opportunity which they shared.

Table 13: Use of third parties

External Influences	559 "and then working with yourself" (Alan Leamy on the benefit of the Precise Data plan)
	557 "we wouldn't have those grants only for the likes of you. If we didn't know you we could have fallen by the wayside and we wouldn't be funded by EI" (Anne Cooke)
	356 "we had to institute training plans...before that it would have been "God it would be great if we had more cross training wouldn't it..." (Paul Leamy commenting on the need to plan training due to EI funding)
	317 "through that - I met Enda Casey" (Alan Leamy on meeting Enda and subsequently starting Exact Digital)

In addition, the review of the strategic priorities in section 6.1 provided additional examples of how the firm made use of third parties in its development. Industry experts were leveraged in the process of validating the software for use in the pharmaceutical industry; a pharmaceutical industry veteran was engaged to develop the firm's knowledge of the European pharmaceutical sector; a USA based company with expert knowledge of the pharmaceutical market was engaged to manage the promotion of the firm's services; a former business associate of Alan Leamy was contracted to open and manage the Perigord New Zealand office. This was a deliberate strategy on the part of Alan Leamy to leverage a required resource for a short period while it was required.

The following section analyses this extended data in the context of the literature and addresses the first of the research questions posed in Chapter 1 "did dynamic capabilities emerge in the Perigord Group?"

6.3 The emergence of a dynamic capability in the Perigord Group

6.3.1 Dynamic capabilities are present in the Perigord Group

Dynamic capability is defined here as the ability of a firm to develop the “capacity to purposefully create, extend or modify its resource base” (Helfat et al. 2007 p.4).

Based on the definitions of Teece et al (1997) and Eisenhardt and Martin (2000) this purposefulness is in response to environmental changes. In other words, the purposefulness of the firm in creating, extending or modifying its resources in response to environmental change is the measure of dynamic capability.

Purposefulness is the key as opposed to accidental or purely evolutionary change which might have been reasonably predicted in advance.

The case data reveals instances of such purposefulness and also of what should be described as evolutionary change. However, the data also reveals a significant increase in the purposefulness of decision making with respect to some aspects of the firm’s business. This leads to the conclusion that there is evidence in the data that Perigord Group is characterised by a dynamic capability.

The evidence from the data is as follows. Perigord has been in business since 1974. The data revealed an underlying business principle of investing in appropriate technology and in the development of people. Many of the investments made were incremental in terms of keeping abreast of productive efficiency. Incremental investments included adoption of new scanning technology, the installation of a Scitex workflow system, the evolution of capability in handling postscript and portable document format (pdf) files and the capability to manage an extensive range of languages (Michael Fleming Interview). The investments in Apple Macs etc were a step change in terms of functionality and skills sets. However, it is reasonable to view them as relatively incremental developments in terms of the technology in use for the delivery of the services offered. Much of the training prior to 2005 was directly related to the equipment investment decisions made. Although there was purposefulness to the decisions in terms of staying abreast of technological innovation and in maximising efficiencies, the environment was relatively stable until the mid to late 1990s. It seems reasonable to describe this capability as a capability to adopt rather than a dynamic capability as the environment was relatively stable and the decisions made were largely predictable. Anecdotal evidence suggests that most firms

in the industry at that time made similar investment decisions. The fact that many firms implemented the same resource change simultaneously does not preclude such actions being part of a dynamic capability as defined, but it certainly impacts on its noteworthiness from a theoretical perspective.

As outlined in section 6.2, the firm developed a new software solution to manage its client's artwork management processes beginning in 2004. The early stages of that solution were completely evolutionary in that they attempted to automate control systems which had previously existed. Functionality was added over time to address specific issues as they arose. However, by 2007, the company had recognised the potential value in the solution it had available. It was able to leverage the software to win artwork management and printing sales. It began to see opportunity to offer the software as a service in its own right. Recognising the nature of the environment for software sales to pharmaceutical companies required a decision to address both the validation issue and the need to re-develop the software into a customisable configurable off the shelf system. The nature of these decisions was different to the incremental decisions in relation to investment in technology and training in the 1970s and 1980s. This decision was taken to purposefully add significantly to the firm's resources to allow it to compete in a new environment in the face of significant disruptive change in its traditional market environment. The data revealed not only the development of the software tools, but also the recruitment of key software project management staff, software programmers and test engineers and the allocation of substantial existing resources to sales and market development initiatives. It is these decisions that suggest that a dynamic capability had clearly emerged.

6.3.2 Capability, purposefulness and resource creation, extension and modification
The following sections discuss and analyse changes in three primary factors (learning, resources and managerial agency) which were empirically observable in the Perigord Group and which played a role in the development of the dynamic capability present. The three primary factors map onto the definition of dynamic capability used in that learning feeds the *capability* to act purposefully while managerial agency pertains to acting *purposefully*. Resources, and the use of intermediaries, self-evidently relate to the issue of resources within the definition.

Building capability

Perigord invested heavily in the development of its people. Table 6 detailed the level of investment in the four year period 2005 to 2008. The company invested an average of 3.2% of labour costs in training initiatives which was four times the average investment level of comparable firms in Ireland. This training included substantial cross-training and multi-skilling initiatives for operators. Programmes included training in the use of desktop publishing software, imposition software and the use of specialised tools for the layout and development of product packaging. The objective of these programmes was to allow existing employees develop the skills required to perform in the changing business (Michael Fleming Interview). In addition, a number of programmes for senior managers were undertaken, including the Transform programme with Enterprise Ireland, six sigma training as well as a comprehensive programme of seminars and conferences (Alan Leamy Interview).

The development of Perigord can be linked to the transition from lower order learning to higher order learning. The literature has several different terminologies around this concept, but all attempt to draw a fundamental distinction between learning which is task oriented within relatively clearly defined structures, where the desired outcomes are well understood and learning which challenges the organization to review and assess its fundamental assumptions, priorities, methods of operation and objectives. The change is being described as a transition in this discussion, although it would be more correct to describe it as an extension of learning as the firm continued to invest in lower order learning initiatives which is entirely appropriate for certain tasks and processes. An extension along a continuum towards higher order learning means that higher order learning began to happen *in addition* to the lower order learning rather than instead of it. The references to the transition to higher order learning below should be interpreted in this context.

The transition from viewing the software as a simple tracking tool for the control of production to realising the opportunity which a comprehensive process management solution offers took a considerable period of time and also required a substantial shift in mind-set on the part of the key managers. The initial development phase was characterized by adaptive learning (Senge 1990) where the company engaged in a series of incremental learning within its traditional scope of organisational activities

(Slater and Narver 1995). Perigord was constrained by its own view of the market opportunity available to it. The capability of the software solution was largely seen as an opportunity independent of the “main” business. Initially, its value was perceived in relation to a simple tracking solution which could provide progress updates internally and then to clients. Conversely, generative learning is characterised as creativity, breakthrough and organisational unlearning (Wang 2008) which accurately describes the shift in thinking within the firm in relation to the opportunities presented. Slater & Narver (1995) suggest that this requires a fundamental understanding of the underlying cause-effect relationship between the environment and the firm. The realisation of the dynamics of the pharmaceutical industry and the generics pharmaceuticals industry in particular in relation to the need for bringing product to market quickly once existing patents expire meant that the development of a solution to manage and expedite this process would have real market value. Alan Leamy and consequently the firm now appreciates the significance of the market offering it has and is moving to exploit the opportunity.

This shift in mind-set can also be exemplified by a distinction between the two CEOs of the company. The founding CEO, Pat Leamy was successful at identifying opportunities as they developed and aggressively pursuing them through technology investment or through the acquisition of resources (Allied, Cosmon, Print Facility, Educational publisher). The shift over recent years with the new CEO, Alan Leamy, has been to a much more proactive approach which seeks to create solutions which he believes the clients will use, but really before the clients express the need. However, this capability emerged in Alan Leamy over time. The review of strategic priorities in Chapter 6 above suggests that Alan Leamy has indeed become more focussed on identifying how to leverage the group’s intellectual and managerial resources to maximise its strategic opportunity.

This transition relates closely to Argyris’s (1976) single versus double loop learning where the company now asks the questions of itself in relation to the business model being adopted, what assumptions are no longer valid and what the implications are for it in relation to how it operates. The more recent move towards a global sales approach is an indication of the double loop thinking which goes to the heart of what the client base needs in the context of artwork management solutions and the

company's capability to deliver that all-encompassing solution. This contrasts with the previous approach where sales from the Irish facilities were predominantly to Irish clients.

Perigord, through its key managers, also learned from its own actions and from the processes it engaged in. The concept that capability development can be consequential (Eisenhardt and Marin 2000) is evidenced in Perigord's investment decisions.

Perigord's market focus and ability to identify and use information was apparent in Alan Leamy's description of firm investment decisions during the 1970s and 1980s. For example, the firm decided to invest in new computer technology at a very early stage and Alan Leamy took the unusual step (for the industry at that time) of hiring an individual with considerable process knowledge to assist the company and its clients in making the transition to the new technology. Alan Leamy is clearly of the view that these earlier investment decisions and the importance of hiring and developing staff were central to the firm's growth and success. Schlemmer and Webb (2008 p.124) in reviewing data from thirteen companies found a "reinforcing feedback loop in which strong commitment towards the development of dynamic capabilities determines actions in their development process, which can lead to competitive advantage which reinforces managers' assumptions". Alan Leamy learned from the actions undertaken and the benefits which ensued. In describing his approach to investment in new technology, Alan said "...so it worked ... it was obviously just a gut policy that worked so that's ...you know ...so that's been the way" (Alan Leamy Interview). This cumulative impact was exemplified by the decision to hire the executive with Apple Mac experience. This allowed the firm to develop a capability in managing postscript files, which facilitated a transition to a workflow management system which in turn facilitated the developments in automating how some files were processed.

The literature suggests that it may not be easy for a firm to engage in higher order learning. This is because of the difficulty many managers have in recognising the assumptions which they make about their firm and the difficulty of being able to challenge this effectively in the normal course of business. This can be a result of the self-image developed over time (Penrose 1959, Weick 2001, Hilliard 2004), the myopia of experience (Levinthal and March 1993), the competency trap of certain core capabilities (Leonard-Barton 1992) or the fundamental inability of managers to

question their, frequently unstated, assumptions about their business model (Fiol and Leyles 1985, Senge 1990a, Wang 2008). It is also possible for a myopia to develop within an industry sector to the exclusion of new ideas (Maskell and Malmberg 2007).

The literature suggests that this issue is generally only overcome as a result of a shock or major environmental change for a firm. It is clear that Perigord suffered a series of shocks or significant environmental disturbances in the period examined. The illness and death of its founder, Pat Leamy, led to a change in the management team structure which by its nature allowed an alternative view of the business to be developed. The industry context of the firm was such that significant market and technological change was underway. Chapter 4 described the development of the Apple Mac technology and the impact of increasing digitisation on the business. This was coupled with the collapsing cost of such technology which allowed many of Perigord's previous customers to invest in the technology and thereby bring the services in-house resulting in a significant loss of business to Perigord. These foundational shifts in the technology enabled radical and life threatening changes to firms in the pre-press services sector of the printing industry like Perigord. These changes resulted in a prolonged catastrophic shake-out of the sector resulting in the closure of approximately 90% of its firms.

It is not clear that the change in management caused any significant change in the fundamental strategic approach of the firm. The firm had a belief in hiring employees with specific skill sets and then encouraged them to develop their skills and competences over a protracted period of time. Michael Fleming's description of his early career in the company and how he was encouraged and facilitated to develop his skills happened prior to the change in management. It seems clear that there was a general ethos, albeit non-formalised, within the business which encouraged the recruitment and development of key staff. The data reveals an enhancement of this approach under the new management team where training initiatives became more structured and formalised but there is no evidence to suggest that this was a consequence of the change in management. It seems likely that the formalisation of these plans was mostly related to the requirements of the application process for state funding.

The technological and market changes which impacted on the sector had a significant and identifiable impact on the firm's strategy. It is evident in the data that these changes presented opportunity to Perigord. Alan Leamy described the new business ventures which were created and the opportunities which the new processes created. However, it is equally evident in the data that the radical and disruptive nature of the changes also impacted heavily on the performance of the company. Alan Leamy described his return to the business in 2002 as "walking back into absolute hell for five years, trying to keep the business going". The impact of this shock to the business clearly caused a substantial shift in how the business was perceived by its owners and commenced a process of development which led to a complete review of the business model.

The literature tends to describe the change from lower order learning to higher order learning in terms of a discrete shift. Wang (2008 p. 639) characterised it as "creativity, breakthrough and organisational learning". Fiol and Lyles (1985) described a crisis leading to a change, with a clear inference that such a crisis change would be relatively immediate and punctuated. The Perigord data suggests that this transition in organisational learning was much more gradual and evolved over a protracted period of time. It is also the case that the shock which was applied to the business did not impact in a sudden manner as the learning literature tends to describe. It was a gradual process as the technological developments gathered pace and drove an increasing level of market change. Perigord recognised the changes happening in its environment and began to react to those changes. For example, there was a sustained level of investment in training over the period 2004-2008 at an average of 3.2% of labour cost as the firm acted to re-train existing staff with the skills which were increasingly required as opposed to older, increasingly redundant skills. The company began to develop its software tools and capability in an effort to provide additional control mechanisms and service levels to clients. It was not until significantly later (2007) that the decision was made to convert the relatively ad hoc developments into a customisable configurable off the shelf system. From a learning perspective, the firm engaged in an evolution of its training programmes to deal with functional and cross-functional skills and gradually engaged in a number of more substantive programmes which allowed the development of some higher order learning.

The discussion above has referred to the change in the orders of learning of the firm. It is clear that a certain ethos in relation to staff recruitment and development existed in Perigord, anecdotally since its inception in 1974, and in a more structured formalised manner since 2004. The centrality of the CEO Alan Leamy to this transition to greater structure and more formalised planning and investment in training and staff development is evident from the case data. The literature on firm decision making generally focuses on the senior management team (Child 1972, Hambrick and Mason 1984) and that management decision making matters in the context of performance (Adner and Helfat 2003). This literature relates to firms of all sizes. In the small firm context of Perigord, it is reasonable to assume that Child's (1972) management coalition is very small in number and in many decisions only includes the CEO (Jones and Macpherson 2006). The role of managerial choice and agency will be explored in more detail below. However, it has been demonstrated that a transition occurred in the perspective of Alan Leamy over the period examined. He began to question the fundamental assumptions of the business in a manner not previously considered. It is also clear from the changing nature of his strategic priorities (see Table 10) that he became more focused on the strategic development of the business rather than being focused on operational issues. Even where the economic conditions of 2009 required a more operational focus, he remained committed to the strategic development of the software and its potential for the firm.

The capability of the Perigord Group has been substantially enhanced through the developments in its learning. The transition to higher order learning is evident in the data. This change in perspective allowed Alan Leamy to identify the potential in the software solutions being developed more clearly. The evolution of the higher order learning was not a discrete event but occurred over a protracted period of time. There is evidence that this was a gradual shift initially as the threats of under-performance became clearer and some form of solution was required. However, in more recent times there has been a more noticeable shift where Alan Leamy continuously questions his own and the firm's managers' assumptions about their business model and client offering in the context of market requirements. In the context of the dynamic capability observed in the Perigord Group, the "capability" element is explained in terms of the gradual development of higher order learning in the CEO.

Purposefulness

There is a role for leadership and managerial agency in determining a firm's strategy and in influencing performance (Penrose 1959, Jones and Macpherson 2006, Hambrick and Mason 1984, Child 1972). Management matters! As discussed in the section on organisational learning above, Child's (1972) management coalition in a small firm is very small indeed and can often effectively be reduced to one, the owner-manager or entrepreneur. In Perigord the case data reveals the centrality of Pat Leamy in the development of the business initially. This involved the acquisition of the business in the first instance, the development of the operation in the USA and an investment in a green-field printing business (Alan Leamy Interview). The data also reveals the manner in which Alan Leamy began to influence the development of the company in a singular fashion. His decision to hire the executive with Apple Mac knowledge was against much of the internal opinion at the time, yet he was in a position to make the decision and implement it. The subsequent impact of this was considerable and is recorded above in the case description. The case data revealed a number of investment decisions which were made by a small group and ultimately by Alan Leamy as CEO.

In his description of the development of the business, Michael Fleming described the centrality of Alan Leamy to the path which was established and subsequently followed. The changes in the strategic priorities of Alan Leamy are reflective of consequent changes in firm strategy. While it could be argued that the technological and market changes which occurred in the industry required a response on the part of the firm, the case data reveals that the source of this response in Perigord was from the CEO. Alan Leamy was sensitive to the impact of changes in technology. He had the previous experience of managing one subsidiary which was largely dependent on the newspaper sector for its revenues. When the newspapers adopted new technology internally, the business which Alan Leamy was managing collapsed.

While it is beyond the scope of this research to ascertain why only three of the thirty eight competitors referred to are still in business, it is clear that a series of decisions were made by Perigord's leadership which contributed in some way to its survival. It is also possible that some of these decisions accelerated the demise of some

competitor companies. The data reveals that many of these decisions were evolutionary in nature and to some extent path dependent on previous decisions. However, the data also reveals decisions to invest in the development of its people at close to four times the average for comparable companies. The company also invested heavily in the development of its software solutions. The company worked actively with Enterprise Ireland to develop its export capability and was successful in attracting considerable funding. All of these initiatives were based on the decisions of the senior management team and in many cases on the decisions of Alan Leamy.

By contrast, firms in the print and packaging sector were weak on management development and slow to focus on market led innovation as opposed to purely technologically led innovation (The Print and Packaging Forum 2005). Alan Leamy's formal education concluded with the partial completion of a diploma in the Dublin Institute of Technology. The experience of the management team in Perigord was largely grounded in the printing industry. Paul and Alan Leamy learned about business from their father. All of these factors would suggest that the structural influences of the printing industry would be strong in Perigord. The tendency of an industry to operate in a certain manner and to have established routines on an industry basis is established (Maskell and Malmberg 2007). Despite this, the case data shows the impact of the managerial agency in the decisions taken and implemented. The structural norms of behaviour were left behind and a business with a global perspective evolved.

The case data also revealed the purposeful addition of resources through linkages between an intermediary and the CEO. This intermediary was the author of this research. Alan Leamy described the benefit he had received in relation to the business planning process for Precise Data. He stated that working with me, in my role as a business consultant, "gave another dimension to it of professionalism, or formalisation". This increase in formalisation was partly based on the intermediary's ability to ask questions which challenged the assumptions prevalent in the business model. By consciously choosing to engage with a third party in this manner, Alan Leamy purposefully added a significant resource to the firm. The case data does not suggest that this was done consciously to extend the learning of the firm, yet the data does make it clear that Alan saw the advantage of bringing a resource of this nature to

bear on the firm. The manner in which he engaged with the consultant and the projects which evolved demonstrated the capacity of the relationship to drive change within the business.

Anne Cooke was more categorical in her assessment of the role of the consultant. Anne felt that access to training was easier as a result and that the company “wouldn’t have those grants only for the like of you. So if we didn’t know you we could have fallen by the wayside and we wouldn’t be funded by EI.” Whilst this assertion was phrased personally to the author, it was clear from Anne Cooke’s description of previous experiences with state agencies that accessing funding was a complex process and perceived not to be worth the effort “I actually remember...trying to get funding from FAS to try to train a couple of people back in Pace Print...and after about 2 weeks with the forms, I just gave up. I didn’t have the patience...I just couldn’t be bothered.” In this instance, the decision to add the resource of the intermediary to the firm facilitated significant additional resources being made available to the firm in the form of grant assistance, advice on training initiatives and research and development funding.

The case data reveals the importance of an intermediary in developing the firm’s plans and in accessing funding for those plans. The literature supports the addition of resources in this manner for their ability to bring new perspectives (Eisenhardt and Martin 2000, Schlemmer and Webb 2008). Alan Leamy expressed the view that the interaction with the intermediary had added to the professionalism or formality with which he approached certain decisions which he clearly viewed as a positive development. Other examples of the use of intermediaries from the data included the procurement of the services of a consultancy firm to drive the validation process for the software solution, the use of a consultant to generate market contacts in the UK and Europe for the pharmaceutical sector and the use of a third party to establish and maintain a sales presence in the Australian and New Zealand marketplaces.

A firm’s self-perception (or the managers’ perception of the firm) has an influence on what opportunities the firm will pursue (Penrose 1959, Weick 2001, Hilliard 2004). The case data reveals a clear transition in this self-image in Perigord. It is apparent in the nature of the services offered previously and in the strategic priorities of the CEO

(Table 10) that the firm perceived itself to be a provider of pre-press services to print and packaging users and specifiers. The market place was relatively local albeit that the firm had a facility in the USA. Considerable efforts were made to improve the efficiency and relevance of that offering over time, but the self-perception was that of a provider of production services. Over recent years, it is clear from the case data that the firm's self-perception has changed substantially. The firm now perceives itself to be a global provider of artwork and brand management services. It believes in its capability to deliver world class solutions to large organisations across all continents. This is evidenced by the establishment of an office in the west-coast of the USA, the establishment of a sales and operational facility in Singapore and the opening of a sales office in New Zealand.

The move from one perception to the other was not sudden but evolved over time as the investments in learning accrued, the resources and capabilities were developed and the market offering started to win new business. All of these factors are founded on the managerial agency which facilitated their implementation.

Resource creation, extension and modification

The Perigord Group is a firm with a set of available resources which are combined in a certain fashion. Neither the resources themselves nor the combination of those resources are static over time. It is clear from the case data that some resources have developed in an evolutionary manner. Other developments have involved quite discrete changes in the resource base of the firm.

The market and technological context of Perigord in the period under review is outlined above. Technologically, the changes from 1990 to date have seen some of the most rapid changes in technology in how printed material is originated since the invention of moveable type by Guttenberg in the fifteenth century. The commercialisation and rapid development of the Apple Mac and other digital technologies revolutionised the industry sector in which Perigord operates. These technological changes facilitated very significant market changes as described above where creators of documents for printing (where documents is interpreted as any item prepared for print production) had the capability to do much more and firms who would have previously been clients for the Perigord service absorbed that

functionality within their own businesses. These changes happened largely over a fifteen year period to 2005.

In the early stages of the development of digitisation, Perigord was able to leverage its knowledge of the processes to become a market leader in the new technologies. The case data described how the firm invested in the developing technology and also added key human resources. This development of its resource base was predicated on investment in people, equipment and training as evidenced by Michael Fleming's description of how the business evolved at this time. As the technology developed, Perigord adjusted its capabilities to ensure it remained at the forefront of the sector. In later years when the technological developments in the core technologies reached a state where clients were more comfortable to invest in their own right, the data showed that Perigord developed its resources and capabilities to allow it to manage facilities on-site for some of those clients.

It is also evident from the case data that the firm developed its resources in relation to client management processes as well. The decision to invest in project management skills was a response to the increasing professionalisation of the client base and the increasing complexity of the service being offered. In the 1970s much of the work done by Perigord involved the production of material for discrete items in response to client orders. While some of the client relationships were long term and involved significant numbers of orders per annum, the majority of orders were discrete and involved little requirement for project management and coordination. By contrast, the nature of the service offered to clients in 2010 has evolved considerably and includes a comprehensive project management solution which coordinates the activities of a number of suppliers and places considerably more responsibility for performance management of those suppliers on Perigord. This change in market requirement evolved over time and Perigord invested in its people and in hiring new employees to ensure that the appropriate level of resources were available. For example, Perigord hired a number of project managers from Microsoft to enhance the level of the firm's capability as well as to assist in developing the abilities of existing staff.

The development of the software solutions currently offered clearly shows an evolutionary path in the resource base and capability of the firm. It also shows an

evolution in the understanding of the firm in terms of the market's needs for a solution to increasing globalisation, increasing product complexity, shortening lead times and increasing regulation in some sectors (i.e. pharmaceuticals). The software solutions were initiated by Paul Leamy in response to the need to monitor order progress for clients in a structured manner. The first iterations of the software provided very simple tracking solutions which showed lists of client jobs and the status of production on each job. Items could be updated simply to show progress through the system and there was some simple filtering capability to allow viewing by individual client and types of orders. As confidence with the software grew, functionality was gradually added before opening the system to client view for remote tracking. As described in the case data, developments of the software in conjunction with one key client allowed significant external resources to be leveraged in development. The involvement of a pharmaceutical company of scale in specifying and effectively testing the software as it was developed added greatly to its relevant functionality. This company made regular suggestions about additional modules which they would like to see added to the system. As the realisation that the software had a use beyond the tracking of production, the engagement with the pharmaceutical sector also made it obvious to Perigord that the software would require some form of validation if it is was to be adopted by pharmaceutical companies outside of the development partner.

Validation within the pharmaceutical sector is paramount. All systems have to be capable of being validated to an exacting standard. At its simplest form, manufacturers of drugs must be able to demonstrate robust systems which ensure that a tablet which is intended to be a 5mg dose is manufactured to that exact specification and that also all documentation related to it describes the dosages accurately and not perhaps as .5 mg or 50mg etc. Software systems intended for use in the creation and amendment of product packaging must be capable of being validated to demonstrate this consistency and appropriate authorisation processes for it to be adopted widely. As Perigord became aware of this requirement, they partnered with a third party company with experience of working on validation projects with pharmaceutical clients. The temporary addition of a critical resource allowed the firm to overcome a market obstacle. The required resource had no particular utility to the firm once the project was completed and was dispensed with.

The resource based view suggests that competitive advantage can be delivered if certain criteria are met (Barney 1991, Peteraf 1993). The literature refers to the requirement for resources to be heterogeneous, that they cannot be easily imitated or substituted, that the resource is immobile and also a requirement that there must have been some limit to competition in the first place for a firm to have been able to establish a position of advantage. It is clear from the case data that Perigord meets the criteria in relation to its software solutions. The resources and the configuration of those resources within the firm are unique to Perigord. They are a function of the firm's evolution and the investments it has made in its equipment and its employees. The resources are also difficult to imitate as they are based on both the combination of the software capabilities which have been developed but also on the expert knowledge which the firm has in relation to document creation and amendment and the control of those processes for complex documents and suites of documents. There is no apparent substitutable service for what is offered. There are clearly competitor companies offering services in the same market space, but the service offered is becoming increasingly central to how international businesses manage their brand and artwork needs. The mobility of the resource in Perigord is difficult to define. The literature suggests that if the resource is imperfectly mobile then an advantage may accrue. The key source of the developments in Perigord relate to the capabilities and experience of the owners and a small number of key managers. This group is relatively immobile and is quite immobile in the context of the location of Perigord's competitors who are largely based outside of Ireland. The final requirement of some "ex-ante limits to competition" (Peteraf 1993 p. 185) seem present in the case data as Perigord had a well established position in the marketplace and seemed to have a capability to adjust its resource base as the market evolved. The literature posits that firms in Perigord's position should have a sustainable competitive advantage. The case data in relation to the software solutions being offered support this contention in so far as system sales are being achieved against competition from other providers who are significantly larger and better financially resourced.

6.4 The empirical evidence summarised

The data provides evidence of the existence of dynamic capabilities in the Perigord Group. The data revealed a long standing capability, which predates this research, in relation to the recruitment of individuals with skill sets and abilities which could drive the development of the business. There is evidence of a consistent level of investment in the development of those individuals over many years. While it is certain that the approach to investment in training and development has become more structured during the period covered by this research, this is more a matter of emphasis than a departure from a previous practice or approach. It can be held that a dynamic capability exists within the firm in relation to its ability to recruit, retain and develop individuals who could contribute significantly to the business. This capability predates the period of this research.

The data also revealed new dynamic capabilities in the firm. The development of the software in its configurable, customisable off the shelf form demonstrated the capability of the firm to purposefully extend and modify its resource base in the light of the opportunity identified in the marketplace. The firm became capable of assessing its environment and its client's environment in a manner which allowed the firm to purposefully address the resource issues which then arose. It is clear that the investment in learning and in the development of key staff played a role in the evolution of this dynamic capability. The data also suggests that the use made of intermediaries assisted the firm to question some of its core assumptions, thereby facilitating a more comprehensive strategic review of its business.

It is possible to summarise the extent of what has been identified at this stage of the analysis as follows. Five themes emerged from the data (i) a focus on firm performance, (ii) capacity building (people and technology), (iii) the evolution of higher order learning, (iv) managerial purposefulness and (v) the use of third parties. The definition of dynamic capability used herein relates to the capacity of a firm to "purposefully create, extend or modify its resource base" (Helfat et al. 2007 p. 4). The previous section discussed the Perigord case data in the context of this definition to establish that a dynamic capability emerged in the period examined. It is also possible to map the five themes which emerged from the data onto this definition of dynamic capability. Capacity relates to the themes of capacity building and the

evolution of higher order learning as the firm increased its capability and broadened the scope of its learning. Capacity is also related to the theme of the use of third parties as some of the third parties leveraged by the firm added to its capacity to make changes. Purposefulness is related to the first theme of focus on the firm's performance as it was this focus which caused the initial movement to seek new solutions. Purposefulness is also centrally related to leadership. As the data revealed, Alan Leamy became much more deliberate in his decision making over time as his learning evolved and his confidence grew. The aspect of resource creation, extension or modification maps on to the themes of capacity building, the evolution of higher order learning, managerial purposefulness and the use of third parties. In effect, all of the themes with the exception of the focus on firm performance relate to the development of the resource base of the firm as its people and technology evolved and as additional resources were made available through the use of third parties. The evolution in the leadership of Alan Leamy also added significantly to the resource base of the firm.

The data reveals a series of factors which were related to the evolution of a dynamic capability in the Perigord Group. The focus on performance of the CEO, the development of the technical capacity and capacity of the people employed in the firm coupled with the impact of the investments in learning and the extension of learning along the continuum from lower order to higher order learning and the influence of the intermediary are identifiable factors from the data. What is less clear from the data is whether there are underlying mechanisms which facilitated or enhanced the development of the dynamic capability revealed by the data.

What is not identifiable from the empirical data is a theoretical explanation of how these factors led to the development of dynamic capability. The temporal dimension of this development of new dynamic capabilities must also be considered in the explanation. These capabilities evolved slowly over the period of this research. The capabilities can be identified in their emergent state in 2007 as the decision to aim for a configurable system was made. However, the capability can be seen more actively in the global sales approach and the emerging priority of investing in an automatic artwork generation solution. Chapter 7 explains how this dynamic capability came to emerge.

7. Discussion

This chapter is divided into two parts. The first part builds on the analysis of the data in Chapter 6 and examines the origins of the dynamic capabilities which were shown to have emerged. Section 7.2 then considers the data and literature at a more abstract level and develops a theoretical explanation for the outcomes of the Perigord case study.

Section 6.3 examined the Perigord case data and established that dynamic capabilities exist and had emerged during the period under review. The explanation for that emergence is presented in the following section. It is in the development of this explanation that the critical realism approach adds real value. Critical realism uses a layered ontology which considers the Empirical, the Actual and the Real (Bhaskar 1975). The Real is the foundational set of mechanisms which exist which a researcher is seeking to discover. The Actual are the events to which these mechanisms give rise. Finally the Empirical is that which has been seen or captured from a data perspective. It is a subset of the Actual. In critical realist research, the researcher must start with the Empirical and work with a combination of the data and the literature to consider what else may be present in terms of the Actual and more importantly the Real. It goes beyond the empirical to seek an understanding of greater depth and persuasion. As a critical realist I recognise that what I can observe is likely to be only a subset of what is happening. Therefore, the analysis must also recognise the structure within which the firm operates and consider the decisions taken in that context.

Retroduction is a core tool of the critical realist researcher. As described in Chapter 2, the purpose of this tool is to consider the data in context and in the context of the extant literature and to ask what might explain the phenomenon being studied. Such an explanation might then allow additional data to be identified to support the explanation developed. In the case of the Perigord Group, the five themes which emerged from the data and presented in Chapters 4 and 6 reveal factors which contributed to the emergence of dynamic capabilities in the firm. By engaging in the process of retroduction, the explanations proposed below were developed.

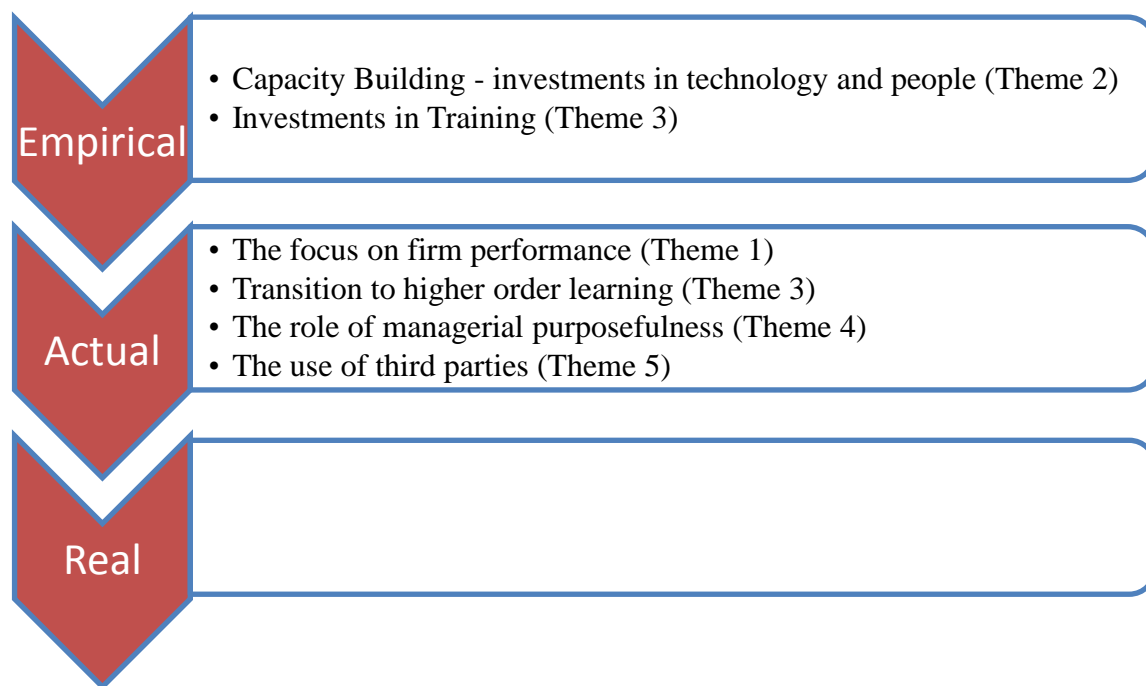
7.1 A critical realist analysis of the Perigord Group

The empirical data revealed both the existence of dynamic capabilities which predated the 2002-2010 period and dynamic capabilities which emerged during that period. The CEO's focus on performance, the extent of capacity building undertaken, the influence of investments in learning, the extension in the nature of the learning along the continuum towards higher order learning, the aspects of managerial purposefulness demonstrated and the process of engaging with intermediaries is recognisable in the data. However, that data does not fully explain how those dynamic capabilities came to exist. For a critical realist researcher, it is the explanation or the understanding of the underlying mechanisms or reasons for such a development of capability which is of central interest. This section develops an explanation of the underlying mechanisms for the emergence of the dynamic capability identified.

The critical realism perspective recognises that what is empirically observable is only an element of what exists. As described in Chapter 2, the Empirical is a sub-set of the Actual which is generated by the mechanisms of the Real. The following diagram, Figure 2, builds on Figure 1 from Chapter 2. Figure 1 showed the relationship between the three elements of the Empirical, the Actual and the Real in a theoretical, abstract sense. Figure 2 shows the elements of the Empirical and the Actual which have been revealed in the analysis above. The level of investment in staff training and development and the level of investment in the development of the software solutions and other technological developments are evident in the data. The data revealed a strong and increasing client focus in the business. The firm consistently built its capability over time either through the recruitment and development of key staff or through the short term contracting of expert personnel. The firm also used third parties to boost performance in key ways. Finally, the data revealed developments in the leadership capacity of Alan Leamy. An underlying factor in these developments was the focus on performance which Alan Leamy had. The deterioration in performance caused him to consider how the firm might need to change in the first place. It is fair to say that the distinction being drawn here between the Empirical and the Actual is slightly arbitrary. The extent of the data available and the depth of my own involvement with the firm and CEO mean that the unobserved element is of little relevance. The Actual is being portrayed here as the less obvious factors which

facilitated the empirically observed events. Theme 3 relating to the transition to higher order learning is shown as being in both the Empirical and the Real.

Figure 2: Perigord strata of reality - the Empirical and the Actual



One advantage of the single case study method is that it allows a considerable depth of context to be explored. In this research, my level of engagement with the firm and the CEO in particular was substantial. The data included above resulted from that extensive engagement as well as documents produced during that period and data specifically captured for this research. In addition to this, I have worked in the printing industry for twenty three years both in a managerial role and for nine years as a consultant offering business services to the industry. The combination of my own knowledge of the sector and the depth of context provided of the Perigord Group, coupled with my engagement with the literature allow me to explore beyond the Empirical to seek to explain the mechanisms which give rise to that data. The following sections build the case for revealing the strata of the Real.

Alan Leamy began working in the Perigord Group in 1984. In the twenty six years to 2010 he gained considerable knowledge of business through his experiences in Perigord and with other ventures referred to in the case data. He has developed an enormous depth of knowledge of his firm's service capability and the market requirements it meets. His entry to the industry coincided almost exactly with the

introduction of the first Apple Mac computers in the USA. He has an interest in technology and in how developments might impact on commercial opportunity as is evidenced by the many references to technological development and opportunity in the case data. The data also revealed the extent to which Alan Leamy engages with individuals outside of the firm. There are a number of specific instances revealed where he was able to draw on a contact to access information or expert opinion on a particular issue. This has been evident in both an Irish and international context, particularly in the USA. Alan Leamy has engaged in his own journey of development as a CEO in terms of his expertise and capability. Participation in the Transform Programme with Enterprise Ireland allowed him to begin to see the business in a different perspective. He recognised the value of my work with him on various projects and applications in terms of developing his own view of how to appraise opportunity within Perigord. More recently, his participation in Enterprise Ireland's Leadership for Growth Programme has enhanced his strategic perspective. Yet in some regard, these developments only added dimension to what he already knew or allowed him to explore the level of his own knowledge and creativity in a different and possibly more strategic way. It is in this expansion of his awareness of his own abilities and the depth of his knowledge coupled with his ability to interact with a range of external parties which is the foundation of the development of the dynamic capability identified above.

This development emerged over time and was not apparent at the commencement of the software development process. It could be argued that the development of the software system was simply an incremental process. It certainly started with a simple internal tracking tool to support operational management. The early developments were expansions in functionality for internal use and then for a small number of external clients which were identified on the basis of personal relationships (friendships) of Alan Leamy or more predominantly Paul Leamy. The initial opportunity which arose with a pharmaceutical company was also evolutionary in nature and facilitated additional developments of the system. However, there was a key point in 2007 where the evolutionary or incremental process gave way to something more discontinuous and discrete in relation to the decision taken to develop a configurable off the shelf system. The impact of the Transform programme and the work being done in relation to the development potential for the business resulted in a

significant change. The influence of conversations Alan Leamy was having with third parties in relation to the opportunity in the generics pharmaceutical industry in particular also played a role in this change. As explained above, the dynamic capability began to emerge in 2007 and is now evident in the manner in which the firm views its software capabilities and in how it sets about enhancing those capabilities and promoting the sale and use of those services.

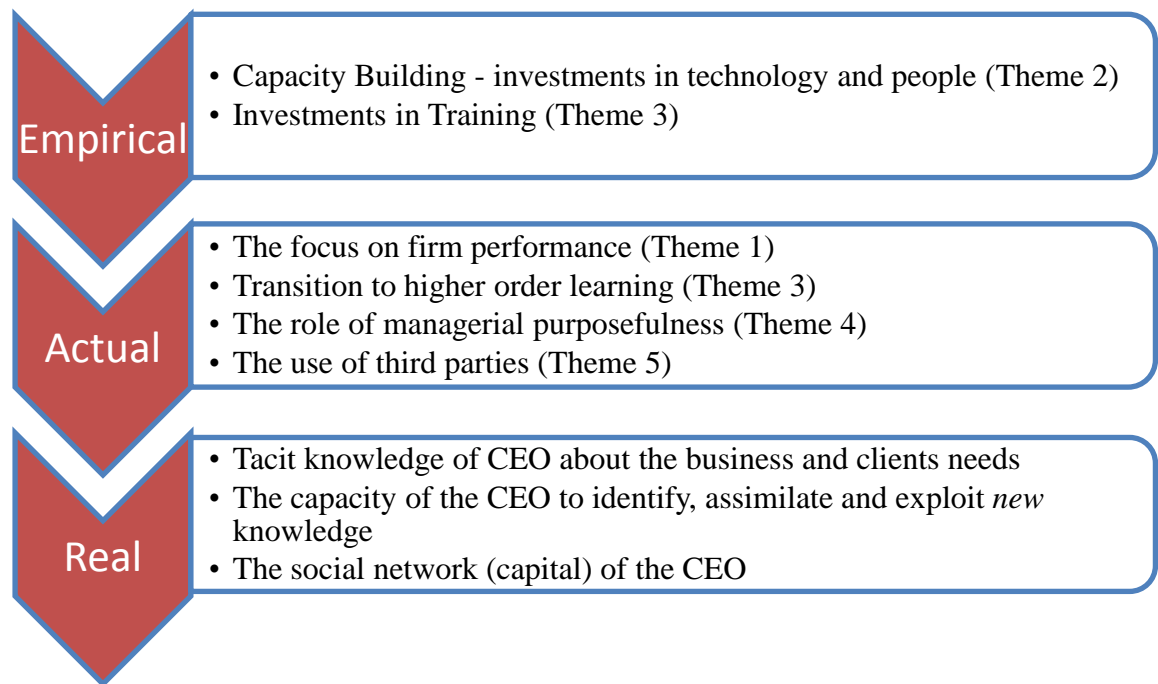
Revisiting the diagram relating to critical realism's strata of reality, the Real relates to the mechanisms which underlie the observed events and in this case, the explanation of the mechanisms which gave rise to the development of the dynamic capabilities identified. Reviewing the developments of the firm in the context of the literature allows three themes (tacit knowledge, social capital and absorptive capacity) to be identified which link with each other in terms of the theoretical explanation for the development of the dynamic capability in Perigord.

Alan Leamy has developed an extensive level of knowledge of his firm, his sector and his clients' requirements. As was described the literature review in Chapter 5 above, it is not unusual for knowledge to become tacit as the level of expertise grows (Crossan, Lane and White 1999). In effect, the individual becomes much less aware or conscious of what it is or just how much they know.

The literature review also explored the concepts of absorptive capacity which was found to be cumulative in nature such that an increase in absorptive capacity is likely to lead to an additional increase in absorptive capacity (Cohen and Levinthal 1990, Zahra and George 2002, Easterby-Smith, et al. 2008). In particular, different levels of absorptive capacity in two firms is likely to result in an increasing divergence in absorptive capacity between them as the firm with the higher level of capacity adds additional capacity at an increasingly divergent rate (Van Den Bosch, Volberda and De Boer 1999).

The social capital literature recognises both the actual and potential resources of an individual's network and how they can be drawn upon by the individual (Bourdieu 1986, Nahapiet and Ghoshal 1998). Figure 3 depicts these elements in relation to the empirically observed events.

Figure 3: Perigord strata of reality - the Real



The dynamic capability which emerged in the Perigord Group was the ability to assess its competitive position within the marketplace and to purposefully add to its resource base to address the competitive opportunities identified. The development of the software solution in its present form is an instance of the manifestation of that dynamic capability. As shown in Figure 3, it is proposed that it is the factors of the tacit expert knowledge of the CEO, the developments in the organisations capacity to identify, assimilate and exploit new knowledge and the use Alan Leamy could make of his networks of contacts which underpins the development of this dynamic capability in Perigord. Each of these factors is now explored in the specific context of the Perigord Group.

7.1.1 Tacit knowledge of the CEO

The first aspect of the Real that explains the emergence of the dynamic capability in Perigord is the tacit knowledge of the CEO. Knowledge can be explicit or tacit (Polanyi 1966). Tacit knowledge is considered to be more than simply un-codified knowledge (Crossan, Lane and White 1999, Polanyi 1966). It is difficult to measure and is often not something of which the possessor is particularly aware. Polanyi (1966) and Crosson et al (1999) discuss this tacit knowledge as simply knowing.

Their thesis is that over time what may have been learned through the codified or uncodified knowledge of others becomes tacit. It is easy to understand this at a basic level with a learned skill like driving a car. What once required considerable tuition and practice to safely master the art of driving a car becomes a skill which can be implemented with almost no conscious thought. One “knows” how to drive a car. Where this example then differs from much tacit knowledge is that it is relatively simple to subsequently describe to another person how to drive a car. This skill is also something of which the driver can easily be reminded. With other aspects of tacit knowledge, the possessor can be unaware of the extent of their knowledge or may not appreciate the extent of the differentiation of their knowledge from others as this would also require some sense of the level of knowledge of the other person or group.

In the Perigord case, it is clear that there is a substantial accumulation of knowledge in relation to artwork management services in the senior management team and in the CEO particularly. In Alan Leamy’s case this has developed both over his own personal involvement in the business and anecdotally from his father who was active in the business during Alan’s childhood. Alan Leamy worked in the business prior to the significant technological changes described above which drove a level of automation and digitisation of the processes. The data revealed the extent of his involvement in the firm’s embrace of technology. Similarly, as the firm developed its initial software tools, Alan Leamy was heavily involved in the requirements of this process as opposed to the technical software development issues. It is clear from the data that the marriage of this in-depth, thorough knowledge of the business of artwork management and brand management coupled with the emerging knowledge of the capability of the software have been central to the development of the business. While a considerable element of Alan Leamy’s knowledge is explicit and could be codified with relatively little conceptual effort, it is clear that there is another dimension to his knowledge which is harder to reveal. Alan knows certain things about his business and his clients’ needs. He has a level of knowledge which is not all explicit and indeed a level of knowledge which it is not clear that he appreciates he possesses himself. This tacit knowledge is one of the reasons that the business is being successful relative to its competitors and also affords the business considerable competitive protection in that the knowledge is not easily transferrable, even should

he wish to transfer it to another person. Equally, there is a risk to the business in that one of its main competitive advantages is dependent on the well-being of its CEO.

7.1.2 Capacity to identify, assimilate and exploit new knowledge

The second aspect of the Real that explains the emergence of dynamic capability in Perigord is the capacity of the CEO to identify, assimilate and exploit new knowledge. Absorptive capacity refers to the capability of the firm to identify, assimilate and exploit new knowledge (Cohen and Levinthal 1990). The case data reveals many instances of new knowledge being exploited in Perigord: the firm was the first in Ireland to invest in a Scitex workflow system; it invested in its first Apple Mac in 1990; it invested in various iterations of image output devices; it developed its own software tools for tracking; and it has utilised the internet heavily for its service delivery for several years. It is evident that the firm has been able to exploit new knowledge. An examination of that knowledge acquisition process reveals a number of ways in which this absorptive capacity works in the firm.

Several mechanisms were described by which the firm becomes aware of new developments or becomes aware of developments which may be new to them albeit that they may have existed for some time externally. The interviews revealed a number of instances where this knowledge came from suppliers (particularly relating to technological developments), customers, training programmes and industry reports. Attendance on formal training programmes also allowed certain knowledge to enter into the firm. The scale and nature of the organisation has meant that any idea of consequence, and certainly any that involve expenditure, come to the attention of Alan Leamy for consideration and decision. This process was generally informal and has normally involved discussion between Alan and a small number of key managers. The assimilation process described in the literature is largely intuitive and involves consideration of whether the new knowledge is useful in the context of current operations or whether the new knowledge might open up new opportunities. Once a decision has been made that the knowledge has a use within the business, the exploitation stage has generally followed relatively seamlessly.

The literature describes the cumulative effect of absorptive capacity (Cohen and Levinthal 1990, Zahra and George 2002, Easterby-Smith, et al. 2008). Prior

knowledge provides a grounding on which new knowledge may be built. This is easy to conceptualise with an example from the case data. Perigord purchased an Apple Mac in 1990. The level of functionality of these machines at that time was quite limited. By using that technology at an early stage, Perigord became more comfortable with the skills required which allowed them to progress to the next stage of technology quickly. By engaging with the technology, the company began to grasp the complexity of the postscript language which converted the clients file to instructions which image output devices could understand. Building on this knowledge allowed them develop an expertise in file handling which was a key factor in being able to secure the Microsoft business. In other words, Perigord developed its capability on this matter gradually and through a series of incremental learning stages. Similarly, though less obviously, Perigord has developed its knowledge of support agencies and the potential for support which is available. Its initial engagements with Enterprise Ireland were at a very low level regarding strategic consultancy support and some training initiatives. Over time, Alan Leamy became more aware of the range of supports available and then developed the realisation that these supports were accessible to Perigord. Finally, the use of intermediaries over the years has facilitated both the identification of new knowledge and the assimilation of that knowledge into the firm.

More broadly, the cumulative effect of absorptive capacity in Perigord is evident in the confidence with which the firm now engages in its business. It is clear that the developments of the software solutions, the support of Enterprise Ireland and the market reaction to the innovations promoted have made Alan Leamy more confident in seeking new developments and in identifying ways of exploiting the services available. The literature suggests that the self-image of a firm can change as absorptive capacity increases (Cohen and Levinthal 1990, Zahra and George 2002). The firm's expectations can become increasingly defined in terms of the opportunities in its environment (Van Den Bosch, Volberda and De Boer 1999). This describes the evolving situation in Perigord where the firm now sees its opportunities in relation to the environment and less in relation to its history and own resources. There is a recognition and confidence that the knowledge base of the firm is now so relatively broad, that new ideas and possibilities can be assimilated without undue difficulty.

The literature also allows that the process of knowledge acquisition, assimilation and exploitation may not be as straightforward as presented here. The possibility exists that knowledge may be identified but that the firm can see no useful means of integrating it into its business model (Zahra and George 2002, Todorova and Durisin 2007). The potential for using this knowledge at a later date is obvious if there is some mechanism by which it can be retained. The case data suggests that there is a high level of dialogue between the senior management team in Perigord which facilitates an exchange of ideas in an informal manner. The interviews also indicated that there is a considerable amount of unstructured research conducted through reading web sites, on-line blogs and industry publications. This constant engagement allows the opportunity for new ideas to emerge. It is also clear from the data that the manner in which Alan Leamy uses his social network allows for new knowledge to be both brought to the firm and to be tested within the network for its potential worth.

7.1.3 CEO network of contacts

The third aspect of the Real that explains the emergence of dynamic capability in Perigord is the ability of the CEO to make use of his network of contacts. Social capital is defined as the “sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit” (Nahapiet and Ghoshal 1998 p. 243). In the context of this research, the concept of the potential resources is as important as the actual resources of any network. This is because the needs of the individual are likely to change over time. In the Perigord context, the issues of importance to Alan Leamy from a business perspective changed radically between 2002 and 2010. Those initial years were dominated by the changing nature of the business and the need for the firm to re-invent itself. The priorities changed as described previously, culminating in the focus on the international promotion of the business using a combination of software solutions supported by state of the art brand management and artwork management tools and processes. Alan Leamy has been able to use his network to gain relevant information, access and industry knowledge. This has not been done in any exploitative fashion as there is evidence that Alan shares with his network as much as he draws from it.

Alan Leamy's ability to both develop and draw on his network emerges from the data. One anecdote described how the digital print business Exact was formed. Alan had come to know Enda Casey in the course of some business dealings in one of his companies. They began a discussion about a business idea which had emerged. They formed a partnership to pursue the opportunity leveraging Alan Leamy's knowledge of the print business with Enda's knowledge of the technology being used coupled with their joint knowledge of the potential client base. Another example is the professional relationship which developed with me as a consultant to the company. I had known Alan Leamy for many years through interactions in the industry. In my previous role as Managing Director of a large printing company in Dublin I had done business with Alan and his company. Following the establishment of my consultancy business in 2002, Alan Leamy approached me and began a series of discussions which led to the current relationship which has evolved over the intervening years. Alan engaged with me to leverage my abilities, experience and contacts to the benefit of Perigord as it developed. There are a number of anecdotal examples in the interview data, in relation to the pharmaceuticals business in particular, where Perigord was able to identify a person with whom they could establish contact who would be in a position to provide information on elements of the industry which were new to them. This assisted the company in terms of gaining a better understanding of quality processes, procurement processes and the procedures by which new products are brought to market. Other members of Alan Leamy's social network were well placed to introduce him to key players in the pharmaceutical market either directly or through a referral.

The potential in a social network is an important aspect which these latter examples illuminate. Alan Leamy had a number of friends who were professionally active in the pharmaceutical industry. This fact was of no real value to Perigord until the firm started to explore the potential for its services in this market. As the opportunity became more apparent, the potential resource became an actual resource for Alan Leamy. In a small firm context, it is not possible to completely distinguish between developments in a firm's absorptive capacity and the social capital of the CEO. By his nature Alan Leamy is a socially active person. The data revealed many anecdotes related to his behaviour which suggest that he is comfortable in engaging with people

whether he knows them well or not. Alan has an ability to network widely and appears to be able to leverage his network effectively.

7.1.4 The emergence of dynamic capability in the Perigord Group explained

A dynamic capability emerged in the Perigord group. Section 6.3 established the links between learning and the building of capacity to make purposeful changes to the resource base of the firm. Similarly, the link between managerial agency and purposeful action was explored. Yet these factors did not fully explain the emergence of the dynamic capability in Perigord Group in terms of the underlying mechanisms which may have facilitated or led to this emergence. The literature on small firms recognises the centrality of the CEO in terms of decision making and influencing or setting strategy. It is difficult to distinguish between changes in the capability of Alan Leamy and changes in the capability of the Perigord Group in relation to dynamic capability. Such a distinction has little relevance in the context of this research where the reasons for the emergence of the dynamic capability of the firm are being explored where Alan Leamy plays such a central and dominant role in that emergence.

Section 6.3 mapped the themes which emerged from the data onto the definition of dynamic capability proposed by Helfat et al (2007). It is also possible to continue that mapping onto the elements of the Real revealed in Figure 3. Tacit knowledge relates directly to the themes of learning, capacity building and managerial purposefulness. Alan Leamy's levels of tacit knowledge grew over time as he assimilated broader learning with his long experience. As the capability of the firm grew in terms of technology and individual employee's capability, Alan Leamy was able to include this in his sense of what could be achieved. His increasing confidence based on this knowledge impacted on his ability as a leader of the firm. The absorptive capacity of the CEO maps well onto all of the themes with the exception of the focus on performance. The capacity to identify, assimilate and exploit new knowledge clearly relates to organisational learning and to developments in firm capacity. Third parties were regularly used as the means by which new knowledge was brought into the firm. As Alan Leamy's personal absorptive capacity increased, this had an impact on his ability as a leader. Finally, the third aspect of the Real, social capital, is related to the themes of the use of third parties and organisational learning. It was the CEO's ability

to identify suitable third parties which made them available to the firm. Engaging with his network also allowed the CEO to become aware of knowledge which might be of use to the firm. It also allowed him to begin to question some of the assumptions which he held about the firm and its role in the market which was a factor in the evolution to higher order learning.

The following section discusses the outcomes of the Perigord case in the context of the extant literature on the emergence of dynamic capabilities and explores the relationship between the factors identified in the analysis of the strata of the Real.

7.2 Discussion

7.2.1 Summarising the literature

Dynamic capability is defined as the ability of a firm to develop the capacity to “purposefully create, extend or modify its resource base” (Helfat et al. 2007 p. 4). The literature clearly situates consideration of dynamic capabilities in the context of the resource based view of the firm and elements of evolutionary theory particularly in relation to routines and capabilities (Teece, Pisano and Shuen 1997, Eisenhardt and Martin 2000). The resource based view of the firm views the firm as a bundle of resources whose configuration determines the services which the firm may deliver to the market (Penrose 1959, Wernerfelt 1984). The literature has considered the attributes of resources which might lead to sustained competitive advantage (Barney 1991, Peteraf 1993). A central aspect of this view of the firm relates to the importance of managerial decision making in determining how resources are configured.

Routines are organisational processes which are repetitive in nature and where the end result is normally well defined (Nelson and Winter 1982, Winter 2003). Routines involve the learning of certain behaviours by individuals (Winter 2003) but also allow the organisation to store knowledge as practice is developed and established (Nelson and Winter 1982). Organisational capabilities relate to the ability of a firm to coordinate resources to perform certain tasks towards a predefined outcome (Nelson and Winter 1982, Helfat and Peteraf 2003). The literature has also pointed to differing orders of capabilities which impact on firm performance (Winter 2003, Dosi, Faillo and Marengo 2008, Bender 2008).

However, the literature has not explored the issue of the emergence of dynamic capability in great depth. The few papers which do address this issue were discussed in Chapter 5 and revealed a number of themes in relation to the mechanisms which may contribute to the emergence of dynamic capability in SMEs.

Aspects of organisational and individual learning are discussed in Zollo and Winter (2002) and Verona and Ravasi (2003). Teece (2007) includes learning in his micro foundations where the organisation may learn to adjust its routines over time. Organisational learning is also included in the explanations proffered by Rosenbloom (2000) and Pablo et al (2007) in their consideration of how leaders were able to

leverage existing organisational knowledge and in the work of Blyler and Coff (2003) where it is clear that individuals may learn from their social network.

The micro foundations proposed by Teece (2007) relate substantially to the sensing and seizing of opportunities in a multi-national organisational context. This concept can be re-framed as absorptive capacity defined as the capacity of the firm to identify, assimilate and exploit new knowledge (Cohen and Levinthal 1990). Similarly, it is possible to identify aspects of absorptive capacity in the work of Verona and Ravasi (2003) in terms of how new knowledge is created or identified and then made of use to the firm.

The owner-manager is central to developments in strategic direction and decision making in an SME (Jones and Macpherson 2006, Hambrick and Mason 1984, Child 1972). Consequently, the role of leadership identified in the work of Rosenbloom (2000) and Pablo et al (2007) in larger organisations is likely to be amplified in the SME context. Finally, the influence or impact of the owner-manager's network of contacts, identified by Blyler and Coff (2003) is also likely to be relevant.

The extant literature suggest that the following factors are central to an explanation of how dynamic capabilities emerge in SMEs: (i) developments in organisational learning, (ii) developments in the firm's capacity to identify, assimilate and exploit new knowledge, (iii) the role of the leader and (iv) the influence of the owner-manager's network of social contacts. The following section discusses these factors in the context of the outcomes of the Perigord case data.

7.2.2 The Perigord Case

The Perigord case data revealed five themes relating to the emergence of dynamic capability in that firm. These themes were (i) the focus on performance of the CEO, (ii) capacity building in relation to people and technology, (iii) the transition to higher order learning in the firm, (iv) the role of managerial purposefulness and (v) the use of third parties. The critical realist analysis suggested that these themes relate to the strata of the Empirical and the Actual and that the underlying mechanisms (Lawson 1997, Easton 2010) in the strata of the Real which give rise to these themes relate to the tacit knowledge of the CEO, his capacity to identify, assimilate and exploit new

knowledge and the use of his network of contacts. In summary, the analysis of the data suggests that the drivers of, and explanations for, the emergence of dynamic capabilities in the case are as follows: (i) the impact of learning, (ii) the impact of the capacity to identify, assimilate and exploit new knowledge, (iii) the impact of the role of the leader and (iv) the impact of the owner-manager's network of contacts.

The impact of learning:

The commonality of the impact of learning at one level is self-evident. The investments in learning made in Perigord allowed a substantial enhancement of the skills base of the organisation to be developed. The substantial use which was made of key internal staff to train other staff reflects the knowledge articulation and codification practices stipulated by Zollo and Winter (2002). The preparation of training material and its subsequent use meant that the practices which the firm wished to embed were subject to these processes of articulation and codification. Similarly, it is possible to see similarities with the research of Verona and Ravasi (2003) and their proposition of three knowledge elements, namely, knowledge creation and absorption, knowledge integration and knowledge reconfiguration. Perigord engaged in a wide variety of processes to capture knowledge and to ensure its integration into the business. Key executives attended relevant conferences and exhibitions. Executives attended a number of formal training programmes related to developing areas. The firm engaged in a series of interactions with clients and third parties, as described above, which brought considerable new knowledge to the firm. The integration of this knowledge led to re-configurations internally on a number of occasions as the transition from traditional pre-press services to a more digitised service evolved. Similarly, the re-configuration of resources which was required in the development and management of the software solutions was substantial.

What is less explicit in the extant literature is the impact of the transition to higher order learning in relation to the emergence of dynamic capabilities. In dealing with knowledge articulation and codification, Zollo and Winter (2002) are effectively dealing with lower order learning issues which lend themselves to codification. However, their analysis also discusses the opportunity to challenge some elements of experiential learning which can be ill-founded in reality or which may have ceased to be relevant as a result of changed circumstances. Verona and Ravasi (2003 p.

601)referred to “the higher order knowledge-related processes that are performed through these combinations” of various resources as being foundational to dynamic capabilities. This analysis recognises the importance of knowledge related processes in re-combining the resources of the firm. The Perigord case study revealed a demonstrable transition in the nature of learning from lower to a higher order where the CEO is now significantly better equipped to question the assumptions and business models employed by the firm.

The impact of the capacity to identify, assimilate and exploit new knowledge:

The literature described the importance of the firm’s capacity to identify, assimilate and exploit new knowledge in facilitating the emergence of dynamic capabilities. Termed absorptive capacity by Cohen and Levinthal (1990) this factor includes an aspect of organisational learning and also capacity building to develop the ability to assimilate and exploit the new knowledge identified. The literature on absorptive capacity has established that it is a cumulative phenomenon (Cohen and Levinthal 1990, Zahra and George 2002, Easterby-Smith, et al. 2008) in that firms which add to their absorptive capacity further increase their capacity to identify, assimilate and exploit more new knowledge. In addition, the literature has also established that as firms add to their absorptive capacity they differentiate themselves more and more from firms with lower levels of absorptive capacity (Van Den Bosch, Volberda and De Boer 1999, Giuliani and Bell 2005). The case data demonstrated that the absorptive capacity of the Perigord Group developed considerably over the period of this research. This was influenced by a combination of learning processes as well as the engagement with suppliers and a range of third parties. It was also influenced by the strategic decisions which were taken to invest in developing technologies at an early stage. This allowed the accumulation of knowledge and experience which the firm was able to translate to client oriented services. Perigord’s capacity building in relation to its people and its technology was central to the development of its absorptive capacity.

The impact of the role of the leader:

The literature on leadership discusses the importance of the management coalition (Child 1972) or senior management team (Hambrick and Mason 1984)in setting the strategic agenda for the firm. It is also established that in the SME case the

management coalition is very small and, in effect, may only include the owner-manager (Jones and Macpherson 2006). In the Perigord case data the central influence of Alan Leamy is evident. From his own description of how key decisions were made and from others descriptions of the evolution of the firm, it is clear that he was involved in all decisions of significance in the firm. These decisions included others at key stages. For example, Anne Cooke was heavily involved in the decision to purchase the new printing machine and also in the re-location project for the businesses. Similarly, Paul Leamy was centrally involved in the technical aspects of what the new software solutions might achieve. Michael Fleming played a critical role in determining the training requirements of staff and in identifying appropriate solutions. Yet, in each case, Alan Leamy was closely involved in the evolving project and was the ultimate decision maker in each case. Alan Leamy was the central Perigord manager involved in all discussions with Enterprise Ireland in relation to funding applications. In his interview, Alan identified a significant shift in how he had approached the development of the business plan for the Precise Data subsidiary as a result of the engagement with me acting as a consultant to the firm. This demonstrated a shift in his own view of the firm and the potential for it which resulted in the pursuit of additional opportunities. In this way the case data supports the findings of literature in relation the importance of the image which the entrepreneur holds of the firm in relation to the development opportunities which are identified (Penrose 1959, Hilliard 2004). As Alan Leamy's view of what Perigord had become evolved, the opportunities which he was capable of identifying and which he was prepared to pursue changed substantially. The enhancement of managerial purposefulness in the Perigord case echoes the role of leadership as described in the extant literature on the emergence of dynamic capabilities.

The impact of the owner-manager's network of contacts:

The literature on social capital, in the context of explaining the emergence of dynamic capabilities, explored the use which can be made of the network of contacts of an individual to his or her benefit (Bourdieu 1986, Nahapiet and Ghoshal 1998, Blyler and Coff 2003). This literature suggests that an entrepreneur may be able to leverage his or her network of contacts to make resources available to the firm which might not otherwise be available to it. The Perigord case data has a number of examples where Alan Leamy was able to do just this. He was able to identify individuals who might

be of assistance to the firm in a professional relationship, for example using my services to develop the relationship with Enterprise Ireland, using a pharmaceutical industry executive to develop business opportunities in the UK and Europe and developing a relationship with a USA based organisation who now represent Perigord in that jurisdiction. Similarly, Alan Leamy was able to work with others in an un-formalised manner to develop his business, for example, the initial relationship with Enda Casey, the pharmaceutical market insights gained from a close friend who worked in the sector and the continuing market intelligence gathered from his circle of friends and acquaintances relating to software, gaming and pharmaceutical markets.

The extant literature on the emergence of dynamic capabilities includes the themes of organisational learning, developments in the firm's capacity to identify, assimilate and exploit new knowledge, the role of leadership and the influence of the network of contacts of the CEO. There are clear parallels between these themes and the findings from the case data of the Perigord Group. However, there remain some unanswered questions in relation to the nature of the interaction, if any, between these underlying or foundational elements of dynamic capability of organisational learning, absorptive capacity, leadership and social capital. The following sections discuss this issue.

7.2.3 The interaction between learning, social capital and absorptive capacity

There is insufficient discussion in the extant literature on how these factors that explain the emergence of dynamic capabilities interact. The literature has explored each of these concepts in detail in their own right. This involves some explanation of how these concepts relate. For example, the literature on absorptive capacity examines its relationship with organisational learning but the interaction between all three is not explored in any depth, though for example, the relationship between social capital, absorptive capacity and learning has been explored theoretically in relation to the development of strategic space and managerial reflection (Jones, Macpherson and Thorpe 2010). The following section describes the relationships between learning, social capital and absorptive capacity in the context of how they may feed into the development of dynamic capability in an SME.

There is considerable authoritative literature in the area of organisational learning on how learning may occur (Jones and Macpherson 2006, Huber 1991, Crossan, Lane

and White 1999). The 4-I model was described in Chapter 3 in relation to the stages which must be followed for learning to take effect (intuiting, interpreting, integrating and institutionalising). However, there are also orders of learning (Fiol and Lyles 1985, Argyris 1976, Senge 1990). This term is used to describe the different nature of learning between for example learning a basic skill set to adequately execute a task and the learning which might allow an entrepreneur to see the benefit to consciously reflecting on the assumptions made in relation to their business in order to plan more strategically for the future. Organisational learning is made up of both types of learning. It should be noted that in the discussion of the literature I have noted that for presentation purposes it is normal to present lower and higher order learning as a dichotomy whereas in reality the distinction is more like a continuum where the extent of reflection and originality in the learning varies.

Some aspects of learning lend themselves to codification. Zollo and Winter(2002) held that the process of codification could be a useful means by which to clarify that which is known and that the process of writing could be an aid to learning. This will be easier in matters of lower order learning which lend themselves to standard operating procedures which describe the task in hand, the result required and the preferred (or required) method of achieving that task. As a consequence of this relative ease of codification and as a result of the nature of the learning involved, there can be a strong relationship between lower order learning and the development and sustenance of the routines and processes of the organisation (Nelson and Winter 1982). The practice of routines reinforces them in the organisation as the organisation “remembers by doing” (Nelson and Winter (1982 p. 99).

The development of higher order learning will also lead to a change in the resource base of the firm. At a minimum, the management capability will have changed. This allows for the possible re-configuration of other resources which may result in new outcomes or capabilities within the firm. The learning may also result in decisions to procure additional resources (or to discard certain resources). Such resources could include the recruitment of new or additional skills sets or the acquisition of equipment or technology. Changes to resources in this manner have the potential to require or cause changes to some of the organisational routines and processes. Such changes to resources may also influence organisational learning. For example, the recruitment of

a new employee with a particular skill set has the potential to influence the organisation as they use their experience to change the stock of organisational learning.

An aspect of organisational learning which must also be included relates to tacit knowledge (Polanyi 1966). The consistent practice of routines can result in the development of tacit knowledge as the practice becomes embedded in firm knowledge (Nelson and Winter 1982, Crossan, Lane and White 1999). Changes in the resource base may also impact on the tacit knowledge within the firm. The loss of an individual member of the team may result in some tacit knowledge exiting with the employee. Similarly, the addition of resources is likely to lead to changes in the tacit knowledge of the firm as that which is known (Polanyi 1966) adjusts to the new configuration of resources. The impact of resource change and the influence of the practice of routines operate through organisational learning to build up the level of tacit knowledge in the firm. This reflects the fact that what has become tacit has to be learned first.

It should be noted that throughout the discussion of learning that there is no assumption in relation to the veracity of what is learned. Huber (1991) defined learning in relation to the potential for changes in behaviour. This definition makes no judgement that the learning engaged in results in accurate or objectively verifiable learning. In the context of learning from experience, in particular, it is possible for the analysis of an event to make erroneous assumptions about the causal factors which both led to the situation and which led to the solution (Levinthal and March 1993). A lack of genuine analysis, an inability to perceive certain assumptions or perhaps even a sub-conscious reluctance to face our own mistakes can all lead to the potential for changes in behaviour which may be completely misguided.

Organisational learning explains how the practice of routines and the codification of knowledge may help to build capabilities and skills within the workforce. It also explains how the different orders of learning may impact on the organisation and the role which tacit knowledge may play. However, the case data suggests that this explanation is incomplete. Two other factors, the impact of the firms capacity to

identify, assimilate and exploit new knowledge and the impact of the CEO's network of social contacts, must also be considered.

The addition of these factors to the explanation is useful as they are aids to the learning process as they may add a third party dimension which has greater potential to challenge assumptions and erroneous learning.

The impact of the CEO's network of contacts is defined in relation to the actual and potential resources embedded in the network of relationships of an individual or social unit (Nahapiet and Ghoshal 1998). This has the potential to feed into the resource base of the firm as the entrepreneur may become aware of resources in his or her network which could be usefully employed within the firm. What is less obvious is that social capital may also influence organisational learning. This can be a negative influence as the pervading perspective of a social network may reinforce rather than challenge the entrepreneurs view. This can lead to rigidities within the firm which are counter-productive (Leonard-Barton 1992). There may also be a substantial tacit knowledge element to the social network. Networks often develop an agreed language and shared perspectives on issues which might not be apparent to a new member or non-member (Nahapiet and Ghoshal 1998). This can feed into the tacit knowledge of the organisation as the entrepreneur engages with his peers and develops his own stock of knowledge. The aspect of peer interaction is important as the literature has established that the preferred method of learning for entrepreneurs is to engage with their peers in informal settings (Gibb 2000, Sadler-Smith, Down and Lean 2000, van Gelderen, van der Sluis and Jansen 2005).

As described in the literature review in Chapter 5 the capacity to identify, assimilate and exploit new knowledge is related to organisational learning through its mediating role in searching for and bringing useful information to bear on organisational practices (Cohen and Levinthal 1990, Zahra and George 2002, Todorova and Durisin 2007). Absorptive capacity has the potential to feed its own development. This is due to the reinforcing and cumulative nature of absorptive capacity where it can be shown that a firm which increases its level of absorptive capacity creates the capacity for even greater learning (Cohen and Levinthal 1990). This accumulation is important as research has shown that firms with a higher level of absorptive capacity are likely to diverge competitively from firms with lower levels as the cumulative effect widens

the gap in absorptive capacity over time (Van Den Bosch, Volberda and De Boer 1999). Absorptive capacity is related to social capital as each may influence the other over time. An entrepreneur's network may provide knowledge or indications of the potential for new and useful knowledge. Similarly, an entrepreneur may seek out new contacts as a result of knowledge gained or even in an effort to identify a resource to assist in the solution to an issue. Some developments in this relationship between social capital and absorptive capacity may be unplanned and result from little more than luck. Others may be quite deliberate as solutions are sought or even awareness of potentially useful information is developed.

It is in the interaction between the various components of organisational learning, the capacity to identify, assimilate and exploit new knowledge and the impact of the CEO's network of contacts which feed into the capability to purposefully change the resources of the firm. Changes in the firm's dynamic capability have the potential to feedback into social capital and organisational learning as described. Similarly, as the firm's dynamic capabilities evolve, they have the potential to influence absorptive capacity in the nature and direction of searches for new knowledge. Critically, the interaction between the three elements has the potential to challenge organisation learning which has begun to suffer from the myopia described by Levinthal and March (1993) and Maskell and Malmberg (2007). In doing so, this interaction has the potential to positively feed the development of the organisation by creating both the realisation of the need for a change in the firm's resources base and also by providing some of the mechanisms by which such change might be purposefully achieved.

This explanation also recognises that there is a temporal dimension to the evolution of dynamic capabilities. There is no assumption of a linear path from organisation learning through to dynamic capabilities. The explanation offered is intended to reveal the complex nature of the relationships which can influence the emergence of dynamic capability. The literature discusses the nature of critical incidents or crisis which might be required to cause the shift in learning for higher order learning to occur (Jones and Macpherson 2006, Fiol and Lyles 1985, Cope 2003). These might be considered as external shocks to the relationships proposed. However, the explanation proposed in my research, and supported by the experience of the Perigord

Group, describes the relationship between the factors for dynamic capabilities to emerge in the event of or absence of such an external shock.

The temporal dimension has another aspect. When considering or researching the emergence of dynamic capability in any period, one cannot ignore the existing resource base, routines and processes and tacit knowledge which exist, a priori, in the firm. Even in a new firm, the individuals coming together to form the new venture have a range of experiences and prejudices as they enter the new firm (Penrose 1959, Child 1972). The managers of an existing firm will have an image of their firm which may influence the perceived range of options (Penrose 1959, Hilliard 2004). Whilst managers have the potential to influence the strategic choices of the firm (Jones, et al. 2007, Child 1972), they can only do so in the context of their own learning and the choices which are apparent to them. In this way, the explanation proposed recognises that existing resources and routines may need to be challenged for dynamic capabilities to emerge.

7.2.4 The importance of interaction between the factors

The explanation for the emergence of dynamic capabilities developed above emphasises the importance of the interaction of the factors of organisational learning, the capacity to identify, assimilate and exploit new knowledge and the use of the owner manager's network of contacts. The importance of the interaction is supported by the Perigord case study. It is important to emphasise this combination as the individual elements may not be sufficient in their own right to enable the emergence of dynamic capability. An emphasis on individual aspects might even be counter-productive. This section explores why relying on an individual factor may not lead to the emergence of dynamic capability and why the interaction of the factors may be required.

Learning from experience is open to error as the linkage between decisions made and outcomes experienced may be misinterpreted (Levinthal and March 1993). Managers may establish decision making rules based on insufficient samples of events which may lead to weak decision making as circumstances vary beyond what was initially experienced (Maskell and Malmberg 2007). These types of myopia in relation to learning tend to be a result of insular thinking. Through not exposing the thoughts

processes to independent (although not necessarily external perspectives) the potential for misguided assumptions remains.

One aspect of the concept of social capital is that the network of the individual has a range of real and potential resources within it. This can be a powerful aid to an entrepreneur in terms of testing ideas and identifying resources which may assist in implementation. It is also established in the literature that networks develop their own language and may develop commonly held interpretations of events or issues (Nahapiet and Ghoshal 1998, Leonard-Barton 1992). However, if a network is not sufficiently varied in membership or remains unchallenged, it is possible for this common perception to hinder new insights which challenge the status quo. The learning within the network may be based on the erroneous assumption that other have done the work of validating the learning (Maskell and Malmberg 2007). This may result in a consensus developing in relation to appropriate courses of action, which is ill-founded.

Absorptive capacity is the process by which firms identify new information and then make use of that information in the firm over time. As discussed in Chapter 5, it is linked to the learning processes of the firm and may allow for information which is not immediately useful but which has the potential for value in the future. However, the concept of absorptive capacity is predicated on two basic information related activities, exploration and exploitation (Cohen and Levinthal 1990). A firm must perform some form of search for new information and then it must find a means of making use of that information now or in the future (Cohen and Levinthal 1990, Zahra and George 2002, Todorova and Durisin 2007). How will a firm know where to seek new information? How will it identify that potentially useful information is available but in a yet unrecognised area? The use of the CEO's network of contacts has the potential to bring aspects of information or potential fields of enquiry to the attention of the individual. This can add considerable value as it may substantially broaden the perspective of the entrepreneur (Giuliani and Bell 2005).

I propose that the interaction of the three elements of learning, the impact of the CEO's network of contacts and the capacity to identify, assimilate and exploit new knowledge has the potential to build a virtuous circle of robust learning which is well

developed in terms of challenging its core assumptions. It may be broader in context in terms of the elements considered. It is less likely to suffer from the myopic view of the entrenched, under-analysed position. It is possible that the proactive development by the entrepreneur of his/her social capital in a conscious effort to build absorptive capacity will result in a development of higher order learning which may in turn lead to the development of dynamic capabilities. The literature on lower and higher order learning was explored in Chapter 3. The consensus in the literature is that some form of shock may be required in order for the thinking of the entrepreneur to be sufficiently challenged for higher order learning to occur (Jones and Macpherson 2006, Fiol and Lyles 1985, Cope 2003). The proactive development of the interaction of the elements of organisational learning, the CEO's network of contacts and the capacity to identify, assimilate and exploit new knowledge may mean that the external shocks described in the literature as almost necessary catalysts for higher order learning might be avoided. Given the potential for such shocks to have catastrophic impacts on the firm, including firm failure, it would be a preferable if firms could develop this capability proactively.

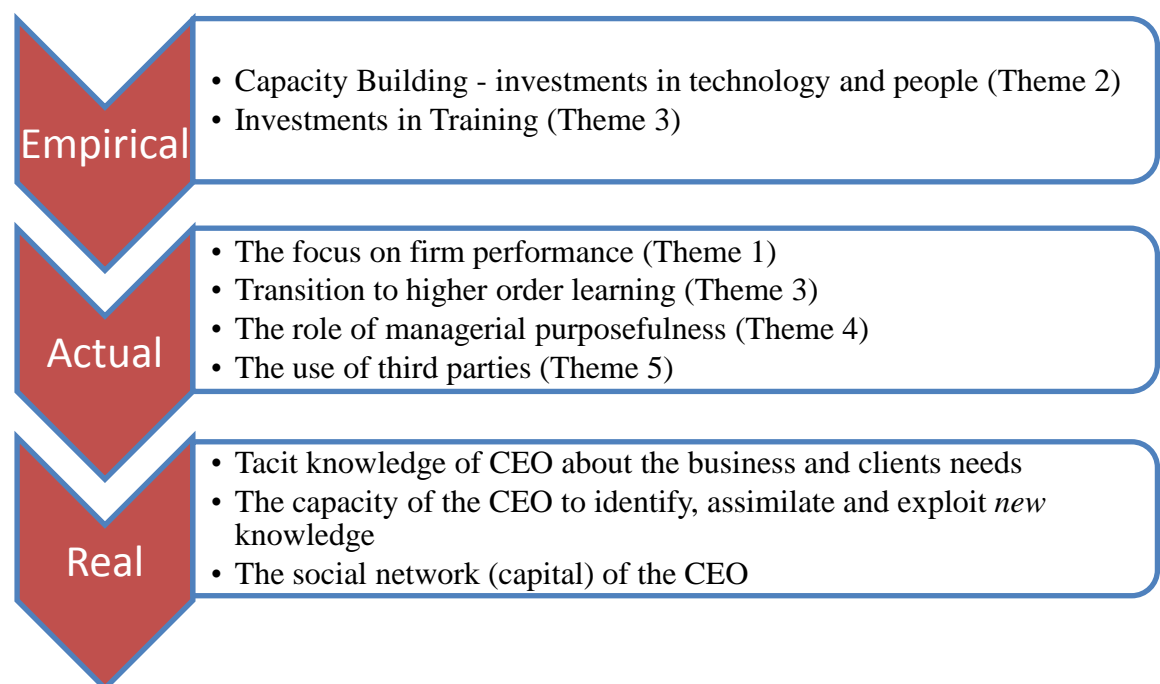
8. Conclusions

This chapter summarises the contributions of this research. The limitations of the research are identified and addressed. Some suggestions for future research are made. Finally, some recommendations for public policy and professional practice are offered.

8.1 Contributions

This thesis explores the development of dynamic capabilities in SMEs. Using a critical realist perspective and through an extensive examination of one firm over a nine year period, it has been established that a dynamic capability emerged in that firm. The dynamic capability which emerged in the Perigord Group was the ability to assess its competitive position within the marketplace and to purposefully add to its resource base to address the competitive opportunities identified. The development of the software solution in its present form is an instance of the manifestation of that dynamic capability. The explanation proposed is that a number of factors contributed to this emergence. These factors can be described in relation to the critical realist ontological strata of the Real, the Actual and the Empirical (Bhaskar 1975). Figure 3 from Chapter 7 summarised the strata of reality as applied to the Perigord case data.

Figure 3: Perigord strata of reality - the Real



The Empirical included the relatively high level of investment in learning and the extension of learning within the firm towards higher order learning which has added a strategic dimension to the CEO's thinking. There were also significant developments in capacity building related to people and technology. The Actual included the purposeful addition of resources, driven by the focus on firm performance, exemplified by the use of third party intermediaries to address specific issues and to assist the CEO in the development of business plans. More fundamentally, it is argued that the underlying mechanisms, the Real, which drove these changes, were the development of the CEO's capacity to identify, assimilate and exploit new knowledge, his use of his network of contacts and the enhancement of his tacit knowledge over time.

The literature on dynamic capability synthesise evolutionary theory, with its emphasis on routines and processes and organisational capabilities (Nelson and Winter 1982, Helfat and Peteraf 2003, Bender 2008) and the resource based view of the firm (Penrose 1959, Barney 1991, Peteraf 1993) in relation to how firms might develop a sustainable competitive advantage (Teece, Pisano and Shuen 1997, Eisenhardt and Martin 2000). As a result, there is a strong emphasis on the routines and processes which are necessary to assimilate new knowledge within the firm. The literature on dynamic capability tends to refer to larger firms (Teece 2007, Wang and Ahmed 2007, Barreto 2010) and tends not to consider the smaller firm where such routines and processes are less likely to exist (Jones and Macpherson 2006). The dynamic capability literature also tends to discuss the existence or otherwise of such capabilities with only limited literature on exploring how such capabilities emerge in a small firm.

There is considerable literature in the areas of social capital (Bourdieu 1986, Nahapiet and Ghoshal 1998, Portes 1998, Coleman 1994, Putnam 1995) and absorptive capacity (Cohen and Levinthal 1990, Zahra and George 2002, Todorova and Durisin 2007) generally, but little in terms of synthesising those literatures with learning, tacit knowledge and the development of dynamic capabilities. The absorptive capacity literature is closely linked with learning in terms of how new knowledge may be identified and made of value to the firm, however, the three areas of social capital, absorptive capacity and learning are not synthesised in the literature in a

developed way. This thesis addresses those gaps by extending the dynamic capabilities literature to the context of the small firm, by examining the emergence of dynamic capabilities in an SME context and by incorporating explanations from the literature on social capital, absorptive capacity and learning (including tacit knowledge) into the explanations of how dynamic capabilities emerge in SMEs.

The research question that this thesis addresses is how do dynamic capabilities emerge in small firms? This question was addressed by examining the Perigord Group and specifically, through seeking to answer the following questions:

- 1) Did dynamic capabilities emerge in the Perigord Group?
- 2) If so, what caused that emergence?
- 3) Are there underlying mechanisms which were not empirically observable which facilitated that emergence?

This research is based on a detailed single firm case study of the Perigord Group, a small Irish owned company which has transitioned in the period under review from being an internationally trading print company to a global provider of brand and artwork management services. The company was chosen as it was known, a priori, to have a higher than average level of investment in staff training and development. Access was made possible as a result of my relationship with the owner of the company in my capacity as a business consultant. The data presented in this thesis relates to the period from 2002 to 2010. Data was gathered from interviews with senior managers in the firm; from company records related to training plans and investment levels; from my records of 186 business meetings with the owner of the company over the period 2004 to 2010; and from business plans and grant applications to Enterprise Ireland which I coordinated on behalf of the owner.

This data was initially explored in terms of the learning literature. As this yielded relatively little in terms of insight other than the transition to higher order learning (Fiol and Lyles 1985, Argyris 1976, Senge 1990) the data was subsequently re-interpreted in the light of the more useful dynamic capability literature. The impact of the higher order learning allowed Alan Leamy to question his assumptions about the business, but it did not in its own right indicate or suggest the appropriate

development path. The exploration of the dynamic capability literature revealed a number of theoretical streams of relevance to the Perigord case. These included aspects of leadership in the SME context, tacit knowledge, social capital and absorptive capacity which allowed a more robust and defensible theoretical explanation of the data to be developed. It was in the consideration of the interaction between this higher order learning and the utilisation of his social capital and the development of his absorptive capacity that this theoretical explanation emerged.

The data revealed the existence of dynamic capabilities in the Perigord Group. A dynamic capability existed prior to 2002 in the nature of the progressive manner in which the firm hired people of considerable capability and then invested relatively heavily in their skills and expertise. A dynamic capability emerged during the period 2002-2010 as evidenced by the firm's ability to specify and develop its software capabilities to meet and exceed client expectations. By re-defining itself as a brand and artwork management services company, Perigord has positioned itself to purposefully address market developments. The dynamic capability is the ability to assess its competitive position within the marketplace and to purposefully add to or adjust its resource base to address the competitive opportunities identified.

Critical realism calls on the researcher to reflect on the data in the context of the literature to ascertain what underlying mechanisms might be at play to explain the phenomenon studied. In the Perigord case, it can be seen that the investment in learning during the period resulted in a development of higher order learning in addition to the continued investment in lower order learning related to skills and functional expertise. This higher order learning facilitated a more strategic reflection on the part of the CEO. His planned use of intermediaries purposefully added resources to the firm at key junctures. The underlying mechanisms which gave rise to these factors are related to the CEO's own tacit knowledge, his ability to use his social capital and the developments in his absorptive capacity.

The data revealed a complex interaction between a number of factors which included organisational learning, tacit knowledge, the evolution of routines and processes, the development of the firm's resource base and the influence of social capital and absorptive capacity in the development of dynamic capability within the firm. The

extant literature has considered each of these factors in detail and has synthesised some. This research has added to the literature significantly in identifying and offering a theoretical explanation for the interaction between learning, social capital and absorptive capacity in the context of dynamic capability. In addition, this research adds to the literature in proposing that developments in any of these factors in isolation from the others may not yield the developments in dynamic capability sought. Indeed, there is the potential for negative consequences through a number of countervailing mechanisms such as myopic learning (Levinthal and March 1993), through invalid assumptions developed at a group level (Maskell and Malmberg 2007) or through inadequate searches for new, useful information (Zahra and George 2002). It is a central contribution of this research that the interaction of these factors may allow entrepreneurs to develop the capacity for reflection which might avoid the level of critical incidents often required to disturb the ineffective development path of the firm (Fiol and Lyles 1985, Cope and Watts 2000, Cope 2003).

The emergence of dynamic capabilities within a firm is a process which has an indefinable starting point. The complexity of the process revealed in this research demonstrates the importance of learning, tacit knowledge, routine and processes and the resources of the firm as key development blocks. The historical development of the firm and the individuals within the firm influence the developmental paths and opportunities which may be pursued. Even new firms will have employees with previous work and life experiences which will influence their choices (Penrose 1959, Child 1972). The critical realism approach allows for the inclusion of such temporal developments in the description of the firm and its context in a manner that other approaches would not allow.

I believe that adopting a critical realist perspective added to this research in a number of ways. First, is the potential to seek explanation without the requirement to postulate in advance what that explanation might be. It has allowed an examination of the data in a reflective manner which has sought underlying mechanisms which were at play and which help to explain the phenomenon examined. I believe that the richness of explanation offered here would not have been possible by an ex-ante consideration of what might have been present in the case. Second, the critical realism approach has also yielded a case study of considerable depth. The case reveals the context of the

firm both technologically and temporally. This depth of explanation will allow other researchers and practitioners to understand that context properly and so draw appropriate parallels to their own research or work situation. It is in the richness of the description and explanation and the consideration of the data relative to the literature that the robustness of the research is established. It is in this robustness that the generalisability of the research is founded. Third, the structure of this thesis is unusual in that it is not presented in the structure which is more traditional in a doctoral thesis. This is deliberate and an attempt to accurately describe the manner in which the research evolved and the impact of critical realism on that process.

The principle contributions of this research relate to the core research question, how dynamic capabilities emerge in SMEs, and to the use of the critical realist perspective in research. In addition this research contributes to the literature on learning and on training. The contributions are as follows.

The emergence of Dynamic Capabilities in SMES

This research extends the concept of dynamic capability into the context of small firms. As noted, extant literature on dynamic capability tends to be based on empirical studies of very large firms. The small firm represents a different context, in that typically the routines and processes that might explain the emergence of dynamic capabilities in larger firms, will not apply to the smaller firm.

Specifically, this research suggests that the emergence of a dynamic capability in the Perigord case is explained by (i) the focus on firm performance, (ii) capacity building (people and technology), (iii) the evolution of higher order learning, (iv) managerial purposefulness, and (v) the use of third parties. This explanation is consistent with the limited extant literature on the emergence of dynamic capability which posits four factors which enable the emergence of dynamic capabilities. These are (i) developments in organisational learning, (ii) developments in the firm's capacity to identify, assimilate and exploit new knowledge, (iii) the role of the leader and (iv) the influence of the owner-manager's network of social contacts.

The research, following a critical realist methodology, suggests a mechanism (Bhaskar 1975, Lawson 1997) by which dynamic capabilities emerge in the context of small

firms. In addition to the existence of the five themes identified, it is argued that dynamic capabilities in SMEs emerge as a result of the interaction of three factors; the interaction of the CEO's capacity to engage in higher order learning, the CEO's knowledge and networks, and the ability of the CEO to identify, assimilate and exploit new knowledge. The emphasis is on the interaction as it is argued that developments in any one factor in isolation from the others may result in the development of countervailing mechanisms (Tsoukas 1989) which may be counter-productive and not result in the emergence of dynamic capabilities.

The critical realist perspective

This research applies the framework of the critical realist strata of reality to the case data. This is a contribution to critical realist methodology as the literature contains few empirical studies which explicitly follow a critical realist ontology or which apply the ontological strata to the data. The application of the framework highlights how, in practice, the presentation and segregation of the Empirical, the Actual and the Real can at times be arbitrary. It also highlights the difficulty of presenting empirical data in the critical realist framework. The retroductive process requires reflection on the data, in the context of continual engagement with literature to uncover underlying mechanisms. This creates practical problems as how best to present the research in terms of the evolving research question, the multiple analysis of the data, and the constant engagement with the literature. While this problem is not unique to the critical realist perspective, the essence of the critical realist perspective requires that the reader of such research understands how the researcher comes to the Real. The use of critical realism in this research and the manner in which the research is presented is a contribution to knowledge as it reveals the process by which the research evolved and provides insight to the iterative and reflexive nature of that process. Specifically, by presenting the case data in the context of the initial literature and subsequently re-interpreting the data in the light of the second literature chapter the reality of the research process followed is revealed.

The use of the critical realist perspective is also a contribution to the entrepreneurship and small business literature, in that it outlines how a critical realist perspective might offer an alternative way of studying aspects of small firms.

The triggers of higher order learning

As suggested above, the transition to higher order learning is an important determinant of the emergence of dynamic capabilities in SMEs. Extant research on learning suggests that this transition is often triggered by a crisis. This research suggests that the trigger for the transition from lower to higher order learning may not occur in the context of a time compressed, single event. A triggering crisis, like the transition, may emerge over an extended period of time. The addition of this temporal perspective provides a more detailed specification of how the transition to higher order learning might be triggered in the context of an SME. Related to this, it is also suggested that it might be possible for firms to avoid crisis-induced triggers. This might be achieved in the context of an explicit effort by a CEO to develop new knowledge through enhancing and leveraging his network of contacts.

The training debate

This research began by trying to understand if, and how, investment in training might be related to firm performance. For researchers interested in understanding how investment in training and management development in smaller firms might impact on performance, this research suggests that attempts to establish direct causal links between training and developing capabilities and outcomes, such as firm performance, will not produce conclusive evidence either in favour, or against, the case for supporting training and management development in smaller firms. This study suggests that such approaches fail to capture either (i) some important outcomes of training, e.g. the possible gradual transition towards higher order learning in an owner-manager, and (ii) the temporal and path dependent nature of how resources and capabilities emerge in smaller firms.

8.2 Limitations to the research

As with all research, there are a number of limitations or constraints applicable.

Empirically, this research relies on a single case study. It has been argued that the generalisability of such research suffers as a consequence. While this might be the case with research from a positivist perspective, where the ambition is to make law like statements of near universal application, the purpose of this research is quite different. My objective is to identify and then explain the emergence of the dynamic capabilities of the Perigord Group. I have done this through revealing a depth of context which included the industry and the firm's history as well as detailed evidence of the progression of the firm over a nine year period. This depth of context and richness of data facilitates genuine comparison across different situations. This is a significant aid to generalisability as research with more cases, but consequently less depth of context, impedes genuine detailed comparison. This research is also generalisable to theory as it provides a specific case which offers a robust and defensible explanation of the emergence of dynamic capability in a small firm. It proposes a theoretical explanation for that emergence which is capable of being tested farther.

It is possible that my closeness to the industry and to the case firm could have influenced my judgment and independence as a researcher in a negative manner. I have worked in the printing industry for over twenty years. I have known Alan Leamy for over fifteen years. I have worked with him as a business consultant for nine years in total and for the past seven years in earnest. The insider researcher issues referred to in Chapter 2 are clearly relevant to this research. It is certain that the closeness of my involvement to the industry and the firm and entrepreneur involved have been factors, indeed valuable factors, in this research. They have allowed me bring my own experiences to the research in a manner which a researcher with less direct experience of the sector could not have done. From a critical realist perspective this is methodologically and ontologically sound as the researcher is not expected to bracket themselves off in the way of other approaches. I believe that the risk of bias was mitigated by a number of factors. I was able to express views on the industry with independent data and data from the interview respondents. Respondents were asked to clarify issues where I wished to ensure that I had ascertained their views or recollections of events instead of relying on my own. The extent of the data gathered

from the contemporaneous notes of my business meetings with the firm provided data which was in fact gathered prior to my status of a researcher being established at all.

8.3 Suggestions for future research

This research proposes an explanation as to how the emergence of dynamic capability occurred in the Perigord Group. The emergence happened as a result of the interaction of three factors; learning, social capital and absorptive capacity. The development took place over a number of years and was not planned in any way by the owner-manager who was so central to it. Future research which seeks to identify how an owner-manager could deliberately embark upon and sustain a journey towards a high level of interaction between these three underlying mechanisms would be worthwhile. The foundational factor of facilitating a transition to higher order learning is likely to be a significant element of any such methodology as it is higher order learning which is required for the basic assumptions of the business model to be identified and challenged so that the search for and assimilation of new knowledge might begin in earnest.

The literature posits that SMEs under-invest in training, especially in relation to management development, relative to larger companies. Chapter 3 addresses this issue and argues that this conclusion is premature as the research which underpins it does not include all the relevant factors. Future research could address the question of the appropriateness of the level of investment in training by SMEs. Such research should begin by considering the context and the issues that face the SME. The research should recognise that informal training is valuable, that owner-managers may not consider such informal activity to be training when asked and that owner-managers have been shown to prefer to learn informally and from those whom they consider their peers. If a comparison to the investment levels of larger companies is to be made, then the research should also consider the appropriateness and effectiveness of that training. Such a consideration should begin with an assessment of the purpose of the training. If the training is required for the purpose of coordination in the larger firm, then while this is valuable to the larger firm, it may have little relevance to an SME. Therefore, in evaluating training investment, the focus should be on a comparison between purpose and desired outcomes and achieved outcomes. If the higher level of investment in training by larger companies is ineffective, then SMEs should not be exhorted to emulate them. Through comprehensive research of this nature, a better understanding of the appropriateness of the investment levels in training by SMEs might emerge.

The final suggestion for future research relates to the critical realist perspective and methodology used in this research. The approach of critical realism was central to revealing the underlying mechanisms of the Perigord Group's development of dynamic capabilities. The process of retrodution, which involved the constant movement between the data and the literature to reveal the underlying mechanisms which led to the development of the company, is a powerful research tool. A more widespread and explicit use of critical realism in this manner could be an aid to understanding other complex issues in entrepreneurship and small business research. However, researchers seeking to conduct critical realist research will face the challenge of how best to present their research. While presenting the outcomes of such research is straightforward, providing transparency to the process through which the researcher developed these results and explanations offered is more challenging. Such transparency of process is also critical for other researchers who may wish to follow a similar methodology.

8.4 Implications for policy and practice

Government policy supports investment in training in firms to enhance competitiveness and capability. In relation to SMEs it has been shown that policy also advocates addressing the perceived under-investment in training by SMEs relative to larger companies. I have argued above that this perceived under-investment may be a result of a misinterpretation of data on investment levels in training. Larger companies may require higher levels of training for reasons of coordination or perhaps indoctrination in company culture. This is not required in smaller companies to the same extent. However, the data in this thesis has shown the impact of the transition to higher order learning in the Perigord Group. Government policy would be better targeted at encouraging SMEs to engage in activities which could lead to a transition to higher order learning. While there is an emphasis in Government policy on increasing the level of management training in SMEs in Ireland, it is unclear that policymakers appreciate that there is a distinction between providing training in a range of management skills and encouraging and facilitating the development of higher order learning. The latter requires reflection on the part of the learner in the context of their assumptions about their business. This suggests that interventions must be more about engagement with the owner-manager to consider and discuss their firm's circumstances and less about formal classroom learning.

Encouraging owner-managers to engage in a process of genuine reflection on their business assumptions is not straightforward. The literature generally suggests that some form of crisis is required for this to take place. The Perigord Group data supports this general contention, although it reflects this crisis as being a more protracted event than a critical time constrained incident. For SME owner-managers to be encouraged to engage in such reflection prior to the occurrence of some form of crisis would be in the best interests of individual firms and the national economy as a whole.

The literature on intermediaries proposes that it is through third party interactions which engage with the owner-manager in their contexts in a meaningful (meaningful to the owner-manager) way which are most likely to result in genuine engagement. Interventions by Government agencies promoting what is perceived as best practice to business owners who do not associate themselves with the issues being presented are

futile. The promotion of engagement on a one to one level with owner-managers on an issue of real concern to them is more likely to result in movement and an increase in receptiveness to the usefulness of third party interactions. This approach would yield increases in social capital as the owner-manager could be facilitated in other networking opportunities. The increase in absorptive capacity which such an interaction can facilitate, in turn promotes the likelihood of additional increases in absorptive capacity. It should be noted that the transition to higher order learning in the Perigord Group took a number of years to occur.

Policy increasingly requires evidence to support funding decisions. It seems reasonable that the investment of funds, public or private, should be based on robust evidence rather than on perhaps prejudiced opinion. The question of the return on investment in training is an example of this focus. There is a risk in this debate which relates to the nature of what is considered evidence and how it may be captured. Capturing the impact of training interventions is more difficult than measuring the impact of an investment in a piece of machinery. Pre-intervention measures of productivity are relatively easy to capture. Post-intervention measures then facilitate some comparison and some assessment of change which may be given a monetary value for the return on investment calculation. However, measuring management capability or strategic awareness is more difficult. It may also take a considerable period of time for any impact of learning to be identifiable. Consequently, policy makers who do not recognise the different nature of certain types of learning risk deploying methodologies for evidence gathering which are entirely inappropriate. Given the previous recommendation for policy in relation to encouraging and facilitating the transition to higher order learning, it is critical that measures of efficacy are appropriate in order to ensure that worthwhile interventions are both allowed time to yield results and subject to measures which capture their full impact.

The final recommendation relates to the need to develop the absorptive capacity of SMEs through their owner-managers. For practitioners this requires openness to experience and to other views in terms of technology development, market opportunity and business practice. The difficulty in this space is that the potential value of new knowledge may take some time to become apparent. The literature suggests that in some cases knowledge will only become useful in some way when an

additional piece of new knowledge is identified which gives context or relevant meaning to that knowledge which already exists. This suggests that patience and perseverance in continuously exposing oneself to knowledge opportunities through interactions with others is required. Policy makers might encourage and support this process through the creation and dissemination of SME case studies, like the Perigord Group, where absorptive capacity has been expanded over time.

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