CORE COMPETENCE IN THE INTERNET SPACE

Dissertation submitted as part requirement for the degree of Master of Business Administration of Durham University Business School, 2001

1.0 Abstract

Core Competence In The Internet Space.

This dissertation is an exploration of core competence of Internet organisations. The overall objective is to examine the validity of the concept of core competence within organisations that operate solely within the Internet space.

The study describes the development of a framework that can be used to assess the extent to which an organisation is currently identifying and exploiting its core competences. The framework is designed such that the assessment is conducted by examining the content provided by these organisations on the World Wide Web.

The fieldwork component of the study then applies this framework to forty-three organisations that exist purely to satisfy demand created by the existence and development of Internet activity. The framework allows each of the organisations examined to be awarded a score based upon current activity in pursuit of identification and exploitation of their core competences.

Analysis of results is performed by comparing core competence scores with financial performance. Correlation of these measures shows significant association between identification and exploitation of core competence and revenue generation. The issue of correlation versus causation is explored.

The dissertation concludes by providing a review of the approach and its results. The impact of these results is reviewed in the context of the current environment in which Internet organisations operate. This is followed by a critical examination of the validity of the conceptual framework. Recommendations for further study are proposed. Strengths and weaknesses of the empirical approach are presented, and overall achievement in respect of the original dissertation objectives is considered.

2.0 Summary Contents

Word Count 22680.

3.0 Detailed Contents

4.0 List Of Tables & Figures

acknowledgement haiku

through understanding
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warmed my winter study

5.0 Introduction

5.1 Context

It is ten years since Hamel & Prahalad presented their work on the core competence of the corporation. Much has happened in that decade. Arguably the largest single change to the business environment has been caused by the growth and pervasiveness of the Internet. In 1990, the Internet was manifest as 313,000 hosts. Ten years later, the number of hosts has grown to 93,047,785. Zakon (2000).

This growth has been substantially driven by the rise in commercial organisations that are using the Internet as a new business opportunity. In 1990 the World Wide Web had not yet been invented, and therefore no commercial websites existed. A decade later there are more than twenty million '.com' domains registered. Measurement of the exact number of Internet users is inexact, but best estimates suggest that the total number of global users now exceeds 407,100,000 NUA Internet Surveys (2000).

Commentators have made bold statements such as "the changes made possible by the Internet are strategic and fundamental" Ghosh (1998) and "The Internet is the foundation for the new industrial order" Hamel & Sampler (1998). There is a general acceptance that an information revolution is taking place, and that the rules of business are being rewritten.

These are, undoubtedly, exciting times that we live in. However, it is the author's contention that this revolution is purely technological. The impact of this technology does not result in the rewriting of business rules. Moreover, a departure from the fundamental concepts of establishing and maintaining a set of core competences for sustainable profitable growth cannot occur.

Over the last twelve months there has been evidence of organisations that have chosen not to identify or exploit their true core competences with an imprudent expectation that the fact that they were operating in the Internet space would provide adequate compensation. Boo.com and Netica are two such examples of organisations that have disregarded the concept of core competence and have consequently failed.

Therefore, this dissertation sets out to examine a series of organisations that operate solely in the Internet space. It seeks to measure the extent to which they have identified and are exploiting their core competences. Subsequently, it compares this measurement with their actual performance using traditional business metrics. Finally it uses this comparison to establish the extent to which

organisations are able to operate successfully in contravention of the fundamental strategic principles identified by Hamel & Prahalad ten years ago.

5.2 Objectives

The objectives of this dissertation are as follows:

- To develop a robust mechanism for measuring the extent to which an organisation is identifying and exploiting its core competences.
- To measure the extent to which a sample of leading Internet companies are exploiting and identifying their core competences.
- To establish the degree of association between financial performance and identification and exploitation of core competence.
- To understand whether the concept of core competence is still valid in the context of Internet organisations.
- To investigate the Internet as an appropriate environment for conducting dissertation fieldwork.

5.3 Focus & Research Question

The author's interest in this subject arose from observation of the failure of several Internet organisations. Initially it was considered that a review of failed organisations might have highlighted a series of consistent criteria that had directly led to failure. However, the most obvious barrier to this approach was the anticipated difficulty associated with collection of data from organisations that had ceased to operate.

A more practical approach was adopted by electing to examine existing organisations and by undertaking a comparison of their financial performance. This allowed the testing of the hypothesis that identification and exploitation of core competences is critical to sustainable profitable growth.

However, in the early stages of the study, it became apparent that the empirical nature of financial data would not be easily comparable with the non-quantitative attributes of core competence. Moreover, the research component of this dissertation failed to uncover any published academic literature that offered a methodology for performing empirical studies in relation to core competence. Therefore, prior to the commencement of the fieldwork component, a bespoke methodology was developed as part of this study.

The framework and methodology that has been developed for the purposes of this dissertation allows empirical analysis of core competence. This approach is bold and as a result, will almost certainly attract criticism.

In summary therefore, the actual research question in order to achieve objective three and provide information with which to answer objective four is:

"To what extent is the concept of core competence valid in the context of the organisation that operates solely within the Internet space?"

5.4 Structure Of Dissertation

Subsequent to this introduction, the dissertation is presented in five main sections. As a point of departure, the following section contains a review of relevant literature published in respect of the concept of core competence. A review of sources dealing with the measurement of core competence and the evaluation of websites is also presented. The section concludes with a consideration of contemporary sources that allude to core competence in the Internet space.

The framework upon which the analysis component of this study is based is described in section seven. A series of questions used to derive quantitative data for analysis are presented. This section concludes with an explanation of how the answers to these questions will be evaluated for use in the analysis stage.

Section eight details the research approach and methodology used in this study. Data sources, sampling procedure and measurement techniques are described. As an illustration, the methodology is followed and fully described for one of the forty-three organisations in the study.

The results and analysis section presents the data that were collected during the research component. These data are then compared with published financial data and manipulated statistically. A general analysis and discussion follows.

Finally, the dissertation considers the implications of the results in the context of the wider Internet space. The validity of the approach is discussed alongside recommendations for improvements. The conclusion considers the overall success of the study versus the original dissertation objectives.

6.0 Literature Review

6.1 Introduction

The aim of this dissertation is to investigate and establish the validity of the concepts of core competence for organisations operating solely within the Internet space. Through this investigation it should be possible to make strategic recommendations for this type of organisation.

The objective of this section is to provide a review of the key areas of literature that will help to explore and develop the concepts of core competence and performance in the new environment that is the Internet space. In order that this section is given structure, four questions are used to probe the literature and provide a framework.

- What are the most accurate definitions of core competence, and how best might organisational core competences be identified?
- To what extent is the concept of core competence significant in the quest for sustainable profitable growth?
- What attempts have been made to measure the degree to which organisations identify and exploit their core competences?
- Is core competence considered relevant to organisations operating in the emerging Internet space?

This section will present relevant literature to address these questions, beginning with a consideration of the concept of core competence and its interpretation by a range of authors. As the concept of core competence is central to this dissertation it is critical that these fundamental issues of definition are addressed.

The review will then develop to consider the significance of core competence. A fundamental assertion upon which this dissertation relies is that organisations are only able to achieve sustainable profitable growth through the identification, understanding and exploitation of their core competences. Therefore, this assertion will be supported with evidence from a range of sources.

The issue of measurement of core competence identification and exploitation will then be considered. Evidence of similar attempts to measure core competence and other similar qualitative concepts will be presented and examined. The outcome of this section will have a bearing upon how the analysis component of this dissertation is approached.

The relevance of the concept of core competence to the Internet space will be explored in relation to published literature. Much has been written in the last decade with regard to core competence and the majority of this material is not specific to any particular industry sector. Therefore, an overview of industry specific literature will be presented.

The literature review will conclude by drawing this presented evidence together and asserting its usefulness or otherwise in the context of this dissertation.

6.2 Exploring Core Competence

There exists a wide range of approaches to the development of organisational strategy. Academics have made many attempts to classify strategy development, with mixed results. Perhaps one of the more useful frameworks for classification is provided by Teece et al (1997) who propose that there are just three types of strategy development thus:

Competitive Forces Model	This model suggests that for an organisation to be successful, it has to be aligned with the environment in which it operates. As such, this model is closely linked to Porter's 'five forces' framework.
Strategic Conflict Model	Based upon game theory, the model proposes that an organisation is able to increase profitability through manipulation of the marketplace by influencing the behaviour of its competitors.
Resource Based Model	This model suggests that profitability is a function of superior systems and structures that enable organisations in terms of lowered operational costs and increased quality of output.

Strategy Development Model After Teece et al.

At this juncture, it is useful to note that the concept of organisational competence lies firmly with the resource based model. Prior to the 1990s, competence was often used to describe simple organisational capabilities or strengths. This is evident from Barney's pioneering work on strategic factor markets. In his 1986 paper, he suggests that organisations should shift away from extensive analysis of the external marketplace and look to internal capabilities to drive their strategic decision making processes.

> "For a firm seeking greater than normal economic performance, our analysis suggests that strategic choices should flow mainly from the analysis of its unique skills and capabilities rather than from the analysis of its competitive environment."
>
> Barney (1986)

It is significant that Barney chooses to use the words 'skills and capabilities' rather than 'competences'. In 1990 Hamel & Prahalad developed the phrase 'core competence' in their seminal paper 'The Core Competence of the Corporation.' Since the publication of this work, there has been a substantial increase in the interchange of words such as 'core', 'distinctive', 'capability', and 'competence'. For example, Kay (1993) appears to use the phrase 'distinctive capability' to articulate an almost identical concept to that which Hamel & Prahalad describe as 'core competence'. Similarly, Stalk et al (1992) describe the notion of 'core capabilities'.

This casual substitution of similar phrases can often serve to confuse. Therefore, throughout this dissertation, a distinction will be made between 'capabilities', 'competences' and 'core competences'. The following definitions are not offered as authoritative, but rather are tendered in pursuit of semantic clarity.

- Capabilities are operational activities founded upon resource and expertise. These may occur throughout an organisation's entire value chain.
- Competences are borne out of capabilities that combine to offer potential value at specific points along the organisation's value chain.
- Core competences are those competences which critically underpin the organisation's competitive advantage.

In their 1990 paper Hamel & Prahalad invite readers to rethink their corporation. They suggest that the real root of competitive advantage lies in identifying and exploiting core competences. These are necessarily hard to define, and in a contrary manner, the authors begin their exposition by establishing 'how not to think of competence'. However, the paper subsequently offers three tests for the identification of core competence thus:

- A core competence provides potential access to a wide variety of markets.
- A core competence should make a significant contribution to the perceived customer benefits of the end product.
- A core competence should be difficult for competitors to imitate.

These tests help to focus the whole core competence issue. Furthermore, Hamel & Prahalad continue to suggest that few companies are likely to build world leadership in more than five or six fundamental competences.

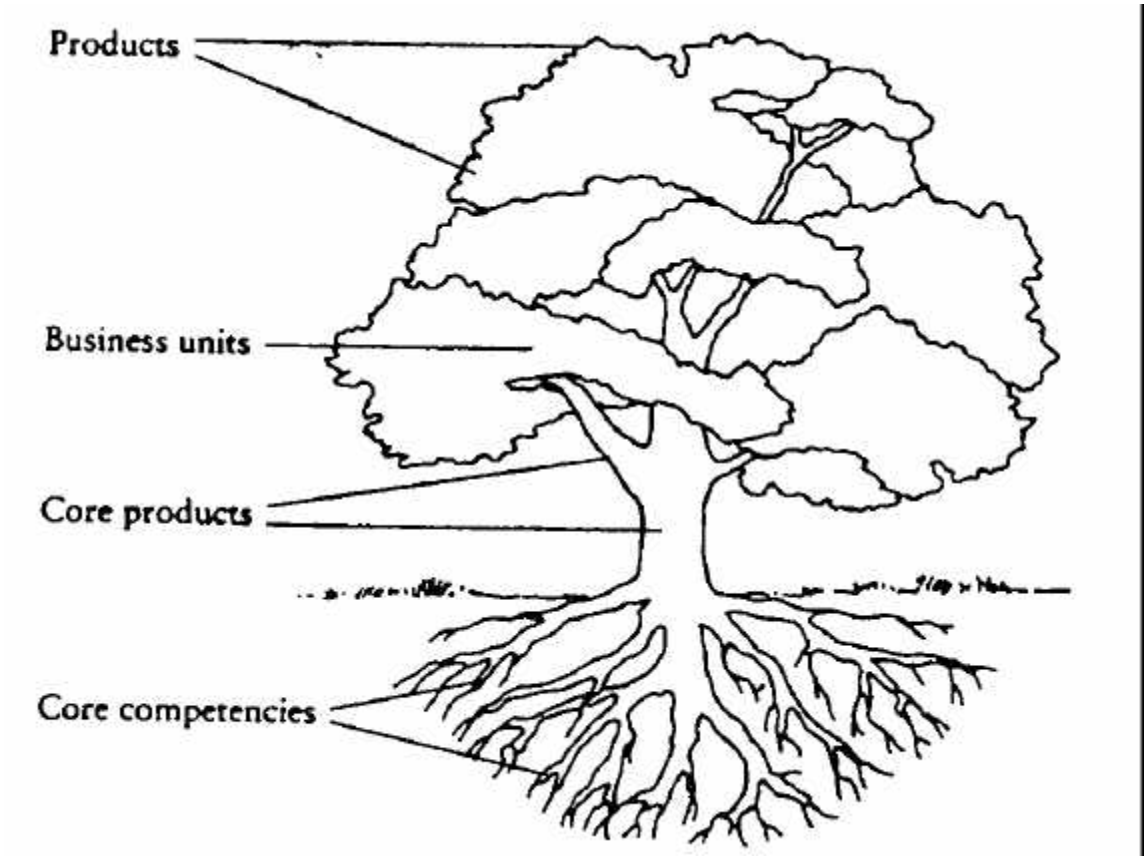
Hamel & Prahalad continue their discussion by detailing the process by which core competences should be used to drive the establishment of core products and ultimately end products. They define core products as the components that add to the value of the end products and end products as those which are eventually delivered to the consumer. The example given to illustrate this model is provided by Canon below:

Core Competences	Precision Mechanics Fine Optics Micro-electronics
Core Products	Cameras Printers Fax Copiers
End Products	Basic Cameras Electronic Cameras Video Cameras Bubble-Jet Printers Laser Printers Basic Fax Laser Fax Plain Paper Copier Colour Copier Laser Copier

Core Competences, Core Products & End Products at Canon.

The link between core competences, core products and end products is noted by Hamel & Prahalad, and they describe the association thus:

> "The corporation, like a tree, grows from its roots. Core products are nourished by competencies and engender business units, whose fruit are end products"
>
> Hamel & Prahalad (1990).



Core Competences As Roots. Morden (1999)

This acknowledgement of strong association is critical to the academic validity of this dissertation. The analysis component of this study relies on the assumption that this association allows an organisation's core competences to be identified by examining its portfolio of end products. The validity of this assumption is discussed at greater length in section 6.3.

Following publication of Hamel & Prahalad's work, there seemed to be an absence of published academic challenges to the concept of core competence. The first real challenge came from Tampoe (1994) in an article that suggested that Hamel & Prahalad's ideas were not new and that they were merely an extension of Drucker's earlier work. Furthermore, Tampoe proposed that the real value comes not from identifying core competences, but from exploiting them. To this end, Tampoe's paper offers an elaboration on Hamel & Prahalad's three tests thus:

- Essential to corporate survival in the short and long term.
- Invisible to competitors.
- Difficult to imitate.
- Unique to the corporation.
- A mix of skills, resources and processes.
- A capability which the organisation can sustain over time.
- Greater than the competence of an individual.
- Essential to the development of core products and eventually to end products.
- Essential to the implementation of the strategic vision of the corporation.

- Essential to the strategic decisions of the corporation, i.e. on diversification downsizing, rationalizing, making alliances, and joint ventures.
- Marketable and commercially valuable.
- Few in number.

This elaboration on Hamel & Prahald's tests rather complicates the research process for the analyst who is seeking to identify an organisation's core competences. In this respect, they are probably less useful as tests than the original three set out by Hamel & Prahalad. However, what Tampoe does bring to the discussion is his view of 'technical subsystems' which he borrows from Parsons and describes as:

> "the core of what the entity [organisation] does and which accounts for its distinctive character"
> Parsons (1960)

The concept of technical subsystems is useful in highlighting the extent to which core competence is profoundly embedded within the knowledge, process and culture of an organisation. Ultimately, this carries significant implications for researchers attempting to identify organisational core competences.

Tampoe's writings in 1994 certainly added to the debate, however, they introduced depth rather than clarity to the whole notion of core competence. Four years later, Tampoe articulated the process of identifying core competences more clearly, the results of which are discussed in section 6.3.

In 1997 Goddard identified seven critical properties that transform generic corporate competences into the core competences of an organisation:

- They are imbued with experiential or tacit knowledge that competitors would find it impossible to replicate; thus, they are not simply products, functions or assets.
- They define what the company does better than, or differently from, any other company and therefore the source of whatever success it enjoys; thus, they are definable only in relation to the competence of all other companies.
- They are embedded in the organisation's modus operandi as though the company were "wired up" to operate at a level of "intelligence" greater than that of the sum of its people; thus, they do not reside simply in the minds of a small number of highly talented stars but find day-to-day expression in the behaviour of everyone in the firm.
- They are rare, limited perhaps to two or three activities in the value chain, namely those that are most critical to the firm's future success; thus, they are not synonymous with the entire activity set performed by a company.
- They are the source of the company's ability to deliver unique value to its customers; thus, they are not to be mistaken with "leading-edge technologies", "world-class processes", or other production-driven" definitions of distinctiveness.

- They are flexible enough to straddle a variety of business functions, product families, and technologies; thus, they are not tied to existing ways of doing business but are platforms for growth and stimuli for growth.

- They also define the unique opportunity set available to the firm, being those market openings or knowledge gaps that the company is uniquely qualified to fill; thus, they serve to narrow the focus of the firm's forward strategy.

In outlining these critical properties, Goddard adopts a stance that is similar to that taken by Tampoe. He argues that there is a significant difference between identifying a core competence, and extracting economic value from one. Goddard then continues to argue for the existence of an over-arching 'meta-competence', which is the ability of an organisation to build and sustain core competence. However, as the whole notion of core competence is an elusive concept, the pursuit of meta-competence appears to be a largely theoretical journey. Moreover, critical readers will be uncertain as to whether Goddard is attempting to articulate descriptions of the successful, or offer explanations of success.

At around the same time as Goddard's work came an aggressive attack on the issue of core competence from Coyne et al (1997) who suggest that:

> "Few managers we have talked to could claim to have utilized a core competence to achieve success in the marketplace, and even fewer to have built a core competence from scratch. Indeed, most were uncertain as to exactly what qualifies as a core competence."
>
> Coyne et al (1997)

Coyne and his co-authors are critical of previous attempts by academics to clearly determine core competence and believe that a precise definition to be essential. In a rather contradictory manner, they then proceed to offer a less precise definition than provided by either Hamel & Prahalad or Tampoe thus:

> "A core competence is a combination of complementary skills and knowledge bases embedded in a group or team that results in the ability to execute one or more critical processes to a world-class standard"
>
> Coyne et al (1997)

Collis & Montgomery (1995) are critical of the whole notion of core competence. Their attack is centered on the fact that core competence has become an exercise that is impossible to fail. To this end they state that:

> "Every company can identify one activity that it does relatively better than other activities and claim that as its core competence."
>
> Collis & Montgomery (1995)

The authors develop their argument and suggest that it would be more effective for organisations to focus on those activities that it performs better than its competitors. Furthermore, they suggest

that in this context, the phrase 'distinctive competence' is more appropriate than that of 'core competence'.

However, even focusing upon activities that an organisation performs better than its competitors creates its own set of issues. Long before Hamel & Prahalad were promoting core competence, Stevenson noted the problem of maintaining objectivity in appraising capabilities thus:

> "Organisations frequently fall victim to past glories, hopes for the future, and wishful thinking".
> Stevenson (1976)

Stevenson goes on to substantiate this claim by citing the cases of BSA-Triumph and Harley-Davidson who, in the 1960s, did not consider that Honda was a serious threat to their hold over the motorcycle market.

In 1991, Grant developed the idea that core competences may be little more than 'wishful thinking'. However, rather than being critical of the view that core competences may be purely aspirational, he accepts them as a useful mechanism for developing the basis of the firm's future competitive advantage.

> "Thus, Prahalad and Hamel's notion of 'core competencies' is less an identification of a company's current capabilities than a commitment to a path of future development."
> Grant (1991)

Whilst Porter (1996) does not critically denounce Hamel & Prahalad's original work, the approach that he describes to highlight an organisation's strategic position is closer to that of Collis & Montgomery. Porter illustrates the use of an 'activity system map' to highlight those activities which combine to produce what he describes as 'higher order themes'. Given the examples that Porter presents in his paper, it would possible to interpret these higher order themes as core capabilities, rather than those which Hamel & Prahalad would consider true core competences. In Porter's defence, he does not explicitly use the phrases 'core competence' and 'higher order themes' interchangeably. However, those critical of this paper will focus on the absence of definition in respect of both activity system mapping and higher order themes.

Later still, Javidan (1998) is critical of Hamel & Prahalad's original paper, and suggests that further clarification is needed in terms of definition. Javidan states that:

> "They [Hamel & Prahalad] use the concepts of competence, core competence and capability as synonymous….Without a clear operational definition, it is difficult for an organization to embark upon a process of identifying and exploiting its competences."
> Javidan (1998)

However, wherever there is seemingly unending debate it is useful to establish its value. In this instance it seems that the value of pursuing this particular contest is only to discredit the original work of Hamel & Prahalad, rather than to assist the development of alternative paradigms. Therefore, whilst Javidan is to be commended for entering into the debate, the net value of his contribution is limited.

Moreover, it should be noted that discussions regarding the difference between competences capabilities and resources had begun much earlier than Javidan's 1998 contribution to the debate. In 1991, Grant uses the phrase 'resource and capabilities' in a statement that is clearly influenced by the notion of core competence:

> "The firm's most important resources and capabilities are those which are durable, difficult to identify and understand, imperfectly transferable, not easily replicated, and which the firm possesses clear ownership and control. These are the firm's 'crown jewels' and need to be protected; and they play a pivotal part in the competitive strategy which the firm pursues."
>
> Grant (1991)

Similarly Stalk et al present the difference between competences and capabilities neatly in their 1992 work as follows:

> "Competences and capabilities represent two different but complementary dimensions of an emerging paradigm for corporate strategy ..... whereas core competence emphasizes technological and production expertise at specific points along the value chain, capabilities are more broadly based, encompassing the entire value chain"
>
> Stalk et al (1992)

This claim is substantiated by an interpretation of the heavily cited Honda example. The authors suggest that, like Honda, General Motors had similar core competences in respect of engine design and manufacture. However, it was the exploitation of wider value chain capabilities, for example dealer management and product realisation, which allowed Honda to grow more vigorously and profitably than its competition.

This contention by Stalk and his colleagues was certainly insufficient to close the debate on the difference between core competences and capabilities. Indeed, it would not be terribly difficult to present a convincing argument to suggest that dealer management, for example, is a core capability rather than a core competence. Furthermore, this is exactly what Hamel & Prahalad (1994) do in their in their text 'Competing for the Future'. Petts summarises this assertion neatly thus:

> "Hamel and Prahalad counter this argument with their assertion that it is the core competence that renders distinctively better customer benefits, not secondary capabilities such as 'dealer management' which are only comparable with other competitors"
>
> Petts (1997)

It is evident at this juncture, that Hamel & Prahalad are not without their detractors. From an academic perspective, the lively debate surrounding the validity of the concept of core competence is encouraging. Furthermore, it is likely that Hamel & Prahalad's theories in this domain will be augmented or replaced entirely in the future. This dissertation does not acknowledge the concept of core competence as a grand unifying theory. However, their original paper on core competence is the Harvard Business Review's most requested reprint and in many respects, has become an accepted paradigm. It is this general acceptance of the concept of core competence that leads this piece of work to draw upon it so heavily.

6.3 Measuring Core Competence

The research for this dissertation failed to uncover any published academic literature that offered a methodology for performing empirical studies in relation to organisational core competence. The absence of published material is interesting and leads to one or more of the following conclusions:

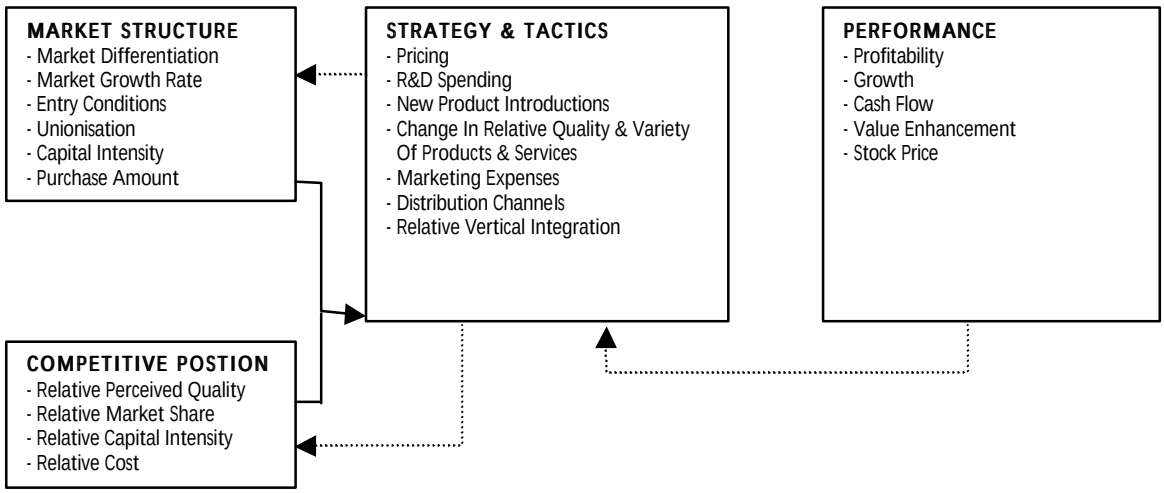
- Empirical measurement in respect of core competence is considered impractical or impossible.
- Empirical measurement would be of little or no interest.
- Empirical measurement has been overlooked to the extent that it has been disregarded.
- No sufficiently robust or academically valid measurement framework has been established.

Indeed, the problem of performing empirical analysis on qualitative data has been discussed at length within the field of social sciences.

One of the most recognised attempts to quantify strategic information was made by the Profit Impact on Market Strategy or PIMS programme. This was launched in 1972 and derived from research by Sidney Schoeffler. The rationale behind the PIMS model is that organisational characteristics and behaviour are determinants of profitability. The model is based upon the belief that there are three factors that drive an organisation's performance:

- Strategy & Tactics
- Competitive Position
- Market Structure

The relationship between these factors and performance is best described by the diagram below:



The PIMS Competitive Strategy Paradigm From Buzzell & Gale (1987)

As evidenced from the diagram above, the model relies heavily on factors that cannot be readily quantified. Indeed, there is no generally accepted method by which market differentiation, perceived quality or distribution channels can be measured empirically.

However, Buzzell & Gale (1987) suggest that the PIMS programme attempts only to investigate dimensions of strategy that can be measured in reasonably clear terms. They continue to suggest that a feature such as vertical integration can indeed be measured, at least in relative terms. Conversely, they suggest that corporate culture cannot be measured. It seems that relative nature of these features is critical to their measurement.

The PIMS database is still being used by major organisations almost thirty years after its inception; therefore in terms of usefulness, this model has its supporters. Correspondingly, the model is not without its critics.

The main criticisms levelled at the PIMS model are identified by Burnes (2000) as follows:

- That it uses historical data, making it a retrospective, rather than prospective tool.
- It is highly analytical, but limited in terms of its usage in solving problems.
- The model contends that profitability is closely linked to market share.
- It suggests that most profitability factors lie outside of the control of an individual organisation.
- Its dependence on quantitative variables to capture the strategic state of a business.
- The model assumes that organisational problems are well structured and manageable.

It is remarkable that there appears to be little criticism of this model for attempting to quantify what would have traditionally been considered the softer business issues. Moreover, from the general criticisms levelled at the PIMS programme, it is possible that an increased effort in quantifying strategic issues would have been well received.

Viewing the PIMS model as analogous to the issue of core competence measurement is useful in the context of this dissertation. However, it does not lead naturally to the development of an appropriate and usable framework for measuring core competence. It seems that no such published framework exists and therefore it is worth considering why this might be.

Petts (1997) believes that core competences are difficult to analyse and suggests that this is a direction function of their intangibility. He also makes the point that core competences are invisible to external observers thus:

> "A core competence is a unique combination of technologies, knowledge and skills that are possessed by one company in a market. Its intangible assets render it invisible to external observers and difficult to analyse"
>
> Petts (1997)

This 'invisibility' is quite a bold assertion. Whilst other authors have suggested that core competence might be difficult to imitate, only Tampoe (1994) and Petts (1997) suggest that true competences are invisible. Moreover, in a later article, Tampoe suggests that core competence may actually be hidden from the organisation itself:

> "In most cases the core competences of an organisation are hidden from competitors and from the organisation itself. Few within established organisations have bothered to find out the real source of their true strengths"
>
> Tampoe (1998)

However, in his 1998 work Tampoe proceeds to describe two techniques available to researchers wanting to uncover the core competences of an organisation. The first technique involves a 'bottom-up' approach that initially involves examining technologies, knowledge, culture, strategic assets, and processes. and aggregating these into complete products and services by means of the organisation's core competences. The second technique repeatedly decomposes products and services into their constituent parts until the point where the organisation's core competences and enabling culture become apparent.

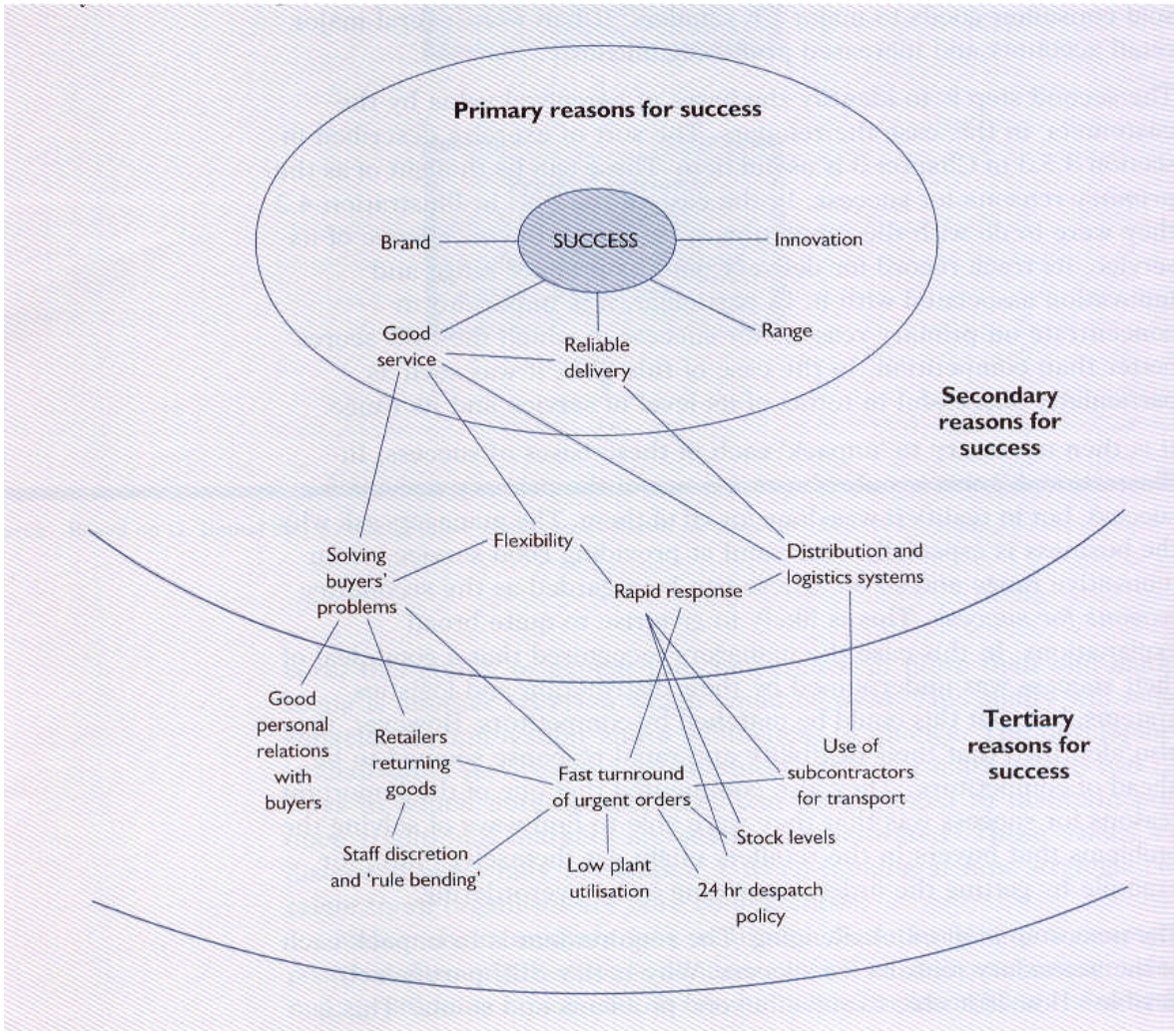
If indeed core competences are invisible to those outside of an organisation, then this has serious implications on the remainder of this study. Furthermore, if core competences were invisible, attempts to build a framework for measurement would be futile.

However, it should be recognised that the original authors Hamel & Prahalad, do not require that core competences be invisible to competitors. They do suggest that a core competence should be difficult to imitate, but do not explicitly stipulate invisibility. As evidenced by Honda and Sony whose core competences have been publicly exposed, it seems that this visibility does not automatically lead to loss of competitive advantage. Furthermore, the whole issue of linkage between core competences, core products and end products suggests that reverse engineering an organisation's core competences from its portfolio of end products will be inevitable.

Johnson & Scholes (1999) acknowledge that the identification of core competences can be a difficult issue. They recognise that if core competences do have a high degree of visibility, that it would be relatively easy for competitors to imitate them. The pair also makes the assertion that often core competences are so embedded in organisational practice that they effectively become tacit. This is an interesting perspective and is of relevance to the notion of Knowledge Management.

Nevertheless, despite their potential invisible or tacit nature, Johnson & Scholes go on to suggest that core competences are best identified through a process they refer to as 'unpacking'. This process is described as a series of five steps:

- Identify successful strategic business units.
- Identify the basis of perceived value by the customers.
- Through questioning, establish secondary reasons for this success, i.e. what makes the organisation good at delivering this value.
- Continue to question what makes the organisation good at delivering these secondary reasons to establish tertiary success factors.
- Finally look for patterns of explanation that may point to core competences.



The Unpacking Process Described Graphically, Johnson & Scholes (1999)

This methodology is more exploratory than scientific, however, this does not serve to repudiate its validity. This approach has much in common with the process of 'activity system mapping' as described by Porter (1996). Moreover, these softer system approaches appear to cope most effectively with the more elusive aspects of core competence identification. This study calls upon

the work of these particular academics to underwrite the belief that core competence can, indeed, be identified through broad analysis.

6.4 Website Evaluation

Despite website technology being less than a decade old, there already exist several frameworks for website classification and evaluation. However, the majority of these frameworks have been created out of an academic desire to classify sites into specific typologies, that are ultimately used to define strategic marketing best practice. Examples of this type of approach include Hoffman et al (1997) and Psoinos & Smithson (1999). Whilst these frameworks are useful as a means of classifying websites, they are less appropriate for performing content analysis. Moreover, the main criticism of this type of approach is that the classification process is largely subjective which results in problems of generalisability. Bauer & Scharl suggest that:

> "Many of these classification frameworks lack a clear and consistent distinction between identified categories as many of these approaches are based more on anecdotal than empirical evidence"
> Bauer & Scharl (2000)

In a move towards a more empirical approach to web site evaluation, these authors have developed an alternative methodology that exploits software tools to offer a more objective and robust analysis. However, whilst the automation and depth of analysis that this technique offers is relatively sophisticated, the fundamental interrogation of websites under this regime is basic. For example, this approach includes measures such as the number of broken links, the file size of each web page, and frequency of update.

Other evaluation methodologies focus on developing a set of metrics that may be used to establish the overall effectiveness of the website, rather than attempting to place it within a taxonomy. In essence, the approach allows a benchmarking exercise that can be applied to a range of web sites. These metrics analyse attributes such as ease of navigation, quality of graphic design and page load time. Examples of this benchmarking style approach are detailed by Misic & Johnson (1999) and Bell & Tang (1998).

However, neither the classification nor the benchmarking approaches described above are useful in respect of analyzing actual site content. For the purposes of this study, it is the actual website content that will be examined as a route to establishing the core competences of an organisation. Therefore, measures such as page download time, ease of navigation and graphic design are largely irrelevant. In the context of this study, the focus of analysis should be website content.

If the content of the site were purely textual, then this study could take advantage of a range of tools that were established long before the advent of the World Wide Web. These tools include critical textual analysis, narrative analysis and semiotic analysis. However, web technology now allows the presentation of much richer content than simple text and therefore, the site message is

delivered in a multimedia environment that augments text with images, animation and sound. To this end, Mitra & Cohen observe that:

> "There are issues related to the specificity of the text – its inherent intertextuality, its lack of centre, its volume, its multimedianess, its international scope, its impermanence, and the resulting altered sense of authorship. If these elements are not taken into consideration, the critical analysis will be incomplete and unreliable"
>
> Mitra & Cohen (1999)

The argument above seems to be accepted, although perhaps not explicitly, by the majority of commentators in this field. The most convincing manner in which to disprove this contention would be to develop an analysis tool that was able to cope with richness of web site content and distil a site to its very essence. To date, this study has not discovered evidence of any such tool.

Like the web itself, it seems that any research approaches that attempt evaluation are largely immature. An obvious framework or approach does not appear to be available for incorporation into this study. Within the context of this dissertation it is not appropriate to establish why this might be. At this juncture, it is sufficient to accept the current academic consensus and acknowledge the following observation:

> "There is no one way, or even a set of ways to go about studying the Internet, just as there is no one way or set of ways to study social relations and processes"
>
> Jones (1999)

6.5 Core Competence In The Internet Space

Since March 2000, the value of high-tech stocks has fallen dramatically. The press was reporting that the tech-bubble had burst, and was colourfully referring to the meltdown as the 'e-pocalypse' Rushe (2000). In December 2000, The Times published the following:

> "The techMARK index, the key barometer of high-tech health on the London Stock Exchange, has halved since March, with dot-coms faring the worst. Observers have tended to blame the increasing stream of the dot-com collapses on public weariness with the Internet, the evaporation of venture capital and stock market funding, and in some cases corporate excesses"
>
> Mathieson (2000)

Of the dot-com casualties, those who fared worst appeared to be those organisations that were operating in the retail sector. Of these 'e-tailers', boo.com has perhaps been the most visible UK example of an organisation that failed as a result of not exploiting its core competences. It is worth exploring the concept of core competence within the context of this much-cited failure.

During its existence, boo.com did not create new markets, or new market spaces. The number of lifestyle and sportswear sites prior to boo.com's arrival was legion. In this respect, the value proposition offered to their customers was not unique, and therefore not significant. Defenders of the organisation would suggest that what boo.com did was innovative, and that what they were trying to achieve was strategy innovation. Hamel provides us with an elegant description of strategy innovation thus:

> "Strategy innovation is the capacity to reconceive the existing industry model in ways that create new value for customers, wrong-foot competitors, and produce new wealth for all stakeholders. Strategy innovation is the only way for newcomers to succeed in the face of enormous resource disadvantages, and the only way for incumbents to renew their lease on success."
>
> Hamel (1998)

However, from a pragmatic perspective, all that boo.com were doing was selling sportswear; the same products that can be found on every corner of every street in town. Boo.com had not created a new product; they were relying on technology and marketing to differentiate. On this point, Hamel and Prahalad remind us that:

> "Neither technology nor marketing can be the sole departure point for creating new competitive space"
>
> Hamel & Prahalad (1991)

Long before its demise, it was evident that the vision and the core competences of boo.com were incongruent. This was an organisation whose vision was to become the world's leading online retailer of fashion and sportswear. Yet boo.com's core competences focused on the ability to exploit technology to create and manage a virtual, yet credible relationship with a distributed global customer and supplier base.

It is possible that boo.com would have been more successful if it had re-invented itself as a broker of customer and supplier knowledge within a broad 'lifestyle' industry sector. In so doing, boo.com would have been able to exploit its core competence in a wider range of markets and would have left the retail of fashion and sportswear to those organisations with existing infrastructures that were superior to that of its own. This would also have changed the target buyer group from the public, who has a wide range of suppliers to choose from, to other retailers, where there is much less competition.

The boo.com example indicates that understanding and exploiting core competences appropriately remains fundamental to delivering success. Boo.com were in the right market, but in the wrong business.

To date, scant academic attention has been paid specifically to core competence in the Internet space. Examples, such as that provided by boo.com allow a retrospective analysis of organisations through published frameworks. However, critics will be wary of this *ex post* analysis of failed organisations. This approach makes it difficult to establish whether the identified issues surrounding core competence are symptomatic of failure, or the direct cause of failure.

To help answer this question, it is worth returning to the whole notion of the resource based view of the firm. On this subject Amit & Schoemaker (1996) remind us that:

> "The basic idea that underlies the resource-based view of the firm, is that marshalling a set of complementary and specialised resources and capabilities which are scarce, durable, not easily graded, and difficult to imitate, may enable the firm to earn organisational rents".
>
> Amit & Schoemaker (1996)

In articulating this statement, Amit & Schoemaker do not make reference to the phrase 'core competence', however, their model includes the concept as part of the broader notion of strategic assets. They subsequently suggest that this organisational rent is driven from the choices that are made to determine how the strategic asset base is utilised.

> "Organisational rent is shown to stem from imperfect and discretionary decisions to develop and deploy selected resources and capabilities, made by boundedly rational managers facing high uncertainty, complexity, and intrafirm competition."
>
> Amit & Schoemaker (1996)

Organisations like boo.com, which are operating in the Internet space, do indeed face high levels of uncertainty, complexity and competition. These are largely driven by emerging nature of the marketplace, the speed of technological change and the seemingly low barriers to entry. It is possible, therefore, that proponents of the resource based view of the firm would identify the

issues of core competence as critical to, rather than symptomatic of, the failure of Internet companies.

It seems, therefore, that despite the claim by many that the new economy is causing a review of traditional business rules, fundamental strategic imperatives do still exist. This academic perspective is supported by practitioners in the field, as the following comment from Computing bears out:

> "If more organisations recognize that basic business management principles are essential, regardless of the innovations brought about by the Net, then perhaps soon the headlines will read more like 'boo who?' than 'boo hoo'".
>
> Glick (2000)

The question of the importance of these fundamental strategic imperatives is central to this dissertation. In section 9.0, this study will seek to test the relevance of core competence to Internet companies and assess the extent to which these basic management principles affect performance.

6.6 Literature Review Conclusion

The aim of this chapter was to provide a summary of the relevant literature in order to set the context for the fieldwork component of this study. It is considered that this section has demonstrated a range of interpretations and beliefs in respect of the concept that is broadly referred to as core competence. Moreover, having completed this literature review, it is anticipated that the whole core competence debate is not yet over, and perhaps its application to new markets will provide material to further provoke discussion.

Furthermore, this exploration of published literature has demonstrated a dearth of quantitative approaches to the measurement of core competence. Similarly, presumably because of the relatively recent impact of the Internet on organisations, the volume of material discussing core competence in the Internet space is limited. However, the absence of published literature drawing these themes together is seen as an opportunity for this dissertation to produce new insight into core competence in the Internet space.

7.0 Conceptual Framework

7.1 Introduction

The most significant issues that have to be overcome in many research projects are associated with the comparison of qualitative data with quantitative data. This dissertation is no exception. The financial performance data was necessarily quantitative, whilst the core competence information was entirely qualitative. Therefore, one of the fundamental tasks within the study was to find a framework that could be used to quantify the extent to which organisations were identifying and exploiting their core competences.

This section describes the approach taken to turn qualitative information into values that could subsequently be used for empirical analysis. The main body of this section presents a series of thirty questions that will be asked of each of the organisations in the study. These questions have been developed by the author, based upon the original tests for core competence, as set out by Hamel & Prahalad in 1990. The answers to each of the questions must be ascertained purely from information presented on each organisation's web site.

7.2 Core Competence Framework

The research activity that was conducted to provide material for the literature review did not reveal any previously published empirical method for measuring the extent to which an organisation identifies and exploits its core competences. It is perhaps unsurprising that no such method has been published; much of the literature suggests that the whole domain of core competence is poorly defined and largely conceptual.

In deciding to create a framework for measurement, the original Hamel & Prahalad (1990) definitions of core competences were revisited. Whilst the literature review shows that the original definitions were not without detractors, the author finds their simplicity useful as a foundation. Moreover, the use of this definition is reassuring in as much as it reflects the beliefs of the original authors of the concept of core competence.

Therefore the three central tenets of access to a wide variety or markets, contribution to perceived customer benefit and imitation difficulty were adopted and encapsulated into three keywords thus:

- Application
- Imitation
- Benefit

Therefore, it is these fundamental aspects of core competence that will be measured. In order to ascertain the degree to which each aspect was being exploited, a series of irrefutable questions have to be formulated around each keyword that can easily be answered in respect of the organisations in the study.

These questions are proxy measures for the extent to which organisations have identified and are exploiting their core competence. It is important to recognise that this framework relies heavily on the assumption that core competences can be worked backwards from examination of end products. The literature review has already identified that this assumption is not universally accepted. Fortunately, there is a significant contingent of academics that do accept this proposition, as set out in section 6.3.

The questions presented in this section require a response in one of two states. Based upon the information presented within an organisation's web site, the questions are designed to be answered by responding with either a 'yes' or 'no' response.

The choice of a binary condition is especially useful in this context, as only a partial picture of an organisation and its product set can be portrayed on a web site. Selection of either 'yes' or 'no' means that an answer relative to other organisations in the study may be given. This issue of relativity is significant. The study accepts that absolute measures would be difficult to establish from the single, limited data channel that is a website. Therefore, as with the PIMS model, relative measurements are justified in terms of their ability to provide a handle on attributes that, otherwise, would be impossible to determine.

Sections 7.2.1 to 7.2.3 present the thirty questions that have been developed for this study. The measurement technique is described more completely in section 8.6. In addition, the application of these questions to a specific organisation is illustrated in sections 8.6.2 through 8.6.4.

7.2.1 Application

The following series of questions was designed to establish the extent to which each organisation in the study is identifying and exploiting its core competences in order to provide potential access to a wide variety of markets.

7.2.1.1 Low Cost Replication

Is the organisation producing a products or services that, once created, has zero marginal cost?

The contention in this instance is that products and services with zero marginal cost generally have wider application. This type of product is commonplace within the IT environment. Software applications, search engines and encryption utilities all follow this model; essentially these products rely on the creation of algorithms that, once written, can be exploited infinitely at no extra cost, Arrow (1999). The rationale is that these products are particularly suited to the adoption of a low-cost high-volume sales strategy. It is the low cost proposition that allows these products to have wide application.

7.2.1.2 Service Mass Market

Do the organisation's products or services target the domestic user?

This question addresses the potential size of the marketplace for the products or services that an organisation offers. A simple market segmentation could involve the distinction between domestic and corporate environments. Both domestic and corporate environments demand IT products. It is considered that organisations that serve both segments are necessarily taking advantage of a core competence that allows access to a wide variety of markets. This question would be answered in the affirmative for services such as online shopping and anniversary reminder services.

7.2.1.3 Other Businesses

Do the organisation's products or services target the corporate user?

This follows from the previous question. Using the same segmentation and the same premise, it is anticipated that organisations servicing both domestic and corporate environments are exploiting core competences that allow access to the widest variety of markets. The majority of organisations in the IT sector would answer 'yes' to this question.

7.2.1.4 New Market

Do the organisation's products or services only service other IT and new economy sectors?

The rapid growth of the Internet sector, over the last ten years, has meant that some of the organisations exist solely to meet requirements that did not exists prior to 1990. For example, there was no demand for web search functionality, simply because the web did not exist at that point. By contrast, business incubation services and communication networks were required. The assertion here is, that organisations that are serving existing markets are accessing a wider variety of markets.

7.2.1.5 Multiple Sectors

Do the organisation's products or services serve multiple sectors?

In a similar manner to the previous question, the assertion is that organisations servicing multiple sectors are taking advantage of core competences that allow access to a wide variety of markets. For example, an organisation that builds networks will arguably have access to all industry sectors, whereas a provider of telecommunications monitoring software has much more limited access to markets.

7.2.1.6 Existing Requirements

Do the organisation's products or services predominantly serve existing requirements rather than potential future requirements?

Because much of the Internet industry is driven by technological change, it follows that this type of organisation is generally eager to 'catch the next wave'. As a result, many organisations in this sector have products and services that will only have significant commercial application in the future. An example would be the provision of video-on-demand services over the Internet: a technology that is currently limited by low network bandwidth. This question assumes that those organisations serving existing requirements are driven by stronger core competences that allow access to a wider variety of markets.

7.2.1.7 Value Through Growth

Does the value of the product or service increase with growth of installed user base?

The Internet industry is fundamentally based upon the exploitation of a network. To that end, the value of many products and services provided by organisations in this sector is a function of the size of their user base. Examples include instant messenger products and Internet directories. The proliferation of products in this manner often leads to these becoming established as industry standards. The assertion here is that this prolific adoption is the result of a core competence that allows access to a wide variety markets.

7.2.1.8 Global Application

Do the organisation's products or services serve a global market?

There is an assumption that products with global application are more likely to have come from organisations that have identified and are exploiting core competences that allow potential access to a wide variety of markets. Some organisations have geographic restrictions to their product portfolios. For example, language and export restrictions compromise the full exploitation of the core competences of regional search engine providers or online shopping organisations.

7.2.1.9 Augmentation

Are the organisation's products or services designed to augment another series of products?

Organisations operating in the Internet sector often provide products that are designed to enhance the operation of another pervasive tool or technology. An example is provided by the application of encryption products within organisations providing online financial transactions. This question presupposes that organisations, providing products that leverage existing prolific Internet components, will have exploited their core competences that have provided access to a wide variety of markets.

7.2.1.10 Scalability

Is the organisation producing products or services that can be scaled operationally such that they can service an infinite number of users?

This question is similar in some respects to the question of low cost replication. However, this question focuses on potential number of physical users rather than product costs. The question relies on the supposition that organisations, which are able to produce infinitely scalable solutions, are more likely to have exploited their core competences which allow access to a wide variety of markets.

7.2.2 Imitation

The following series of questions was designed to establish the extent to which each organisation in the study is ensuring that its core competences are difficult for competitors to imitate.

7.2.2.1 Legal Protection

Is the intellectual property underlying the organisation's products or services legally protected?

It is possible that an organisation's core competence could be a function of products or processes that are protected by law. For example, patents exist in respect of the network traffic management algorithms that are fundamental to the provision of broadband services. This legal protection makes imitation of these core competences impractical in commercial terms. Therefore, organisations answering in the affirmative are more likely to be able to exploit these core competences more effectively than their competitors.

7.2.2.2 Bespoke Algorithm

Are the organisation's products or services reliant on embedded algorithms?

Many products and services provided by organisations in the IT sector are based upon a series of embedded algorithms. If these algorithms are available in the public domain, then they can be freely exploited for commercial advantage. By contrast, if the algorithm architecture is not open source, then reverse engineering of algorithms is the only means of imitation. This process becomes more difficult as the complexity of the algorithm increases. Therefore, organisations with bespoke algorithms are more easily able to leverage their core competences.

7.2.2.3 Pure Technology

Does the organisation combine technological capability with other resources to establish core competences?

There is an assumption that core competences, based upon pure technology, are much more easily imitated than those that bind technology with another capability. For example, Intel is a company that combines technology with manufacture to produce computer processors. Arguably, their core competences are much less easily imitated than those of Microsoft whose core competence is essentially founded upon writing program code.

7.2.2.4 Technology Maturity

Does the organisation's value proposition exploit technology that is emerging and immature?

The assertion inherent in this question is that those organisations exploiting emerging technology are likely to have core competences that are difficult to imitate. The exploitation of immature technology requires new and changing skill sets. The pace of change results in imitators having little time to study organisations in order to copy their core competences. It is expected that organisations answering this question positively will have core competences that are difficult to imitate.

7.2.2.5 Supplier Reliance

Does the organisation create products and services without reliance on a third party supplier of non-commodity technologies?

There is an argument to suggest that those organisations that essentially reprocess others' technological capability are more likely to have their core competences imitated. This is evidenced by the proliferation of PC manufacturers, compared with the scarcity of organisations that create the processors that these machines use. This question uses supplier reliance as a proxy measure for difficulty of imitation of core competence.

7.2.2.6 People / Technology

Is the volume of revenue generated by the organisation restricted by technological constraints rather than the number of staff employed?

This question attempts to establish the source of competitive advantage within the organisation. The contention in this instance is that an organisational core competence will be more difficult to imitate if it is more reliant on technology than it is on number of employees. The basis for this argument is that employees are more of a commodity than technology. Core competences that generate revenue from the fixed costs of technology, rather than from the variable costs of employees, are more difficult to imitate.

7.2.2.7 Digital / Physical

Is the product or service that the organisation delivers physical rather than digital?

Organisations that produce physical products necessarily require some means of production and an associated support infrastructure. Digital production can often only require little more than a computer and an operator. Therefore, it is assumed that the core competences of digital production organisations are more easily imitated than those of an organisation that produces physical product. For example, it is considered that the core competences of a web design agency are more easily imitated than a provider of network services.

7.2.2.8 Customer Base

Are the products or services produced by the organisation only useful where a large customer base is available to support their development?

As detailed in section 7.2.1.7, the value of some Internet products increases with growth of an installed user base. Organisations that successfully deliver this type of product or service to a large customer base have competences that are allied to servicing large-scale demand. Core competence in this domain is borne out of experience and therefore, imitation without the foundation of experience, is difficult.

7.2.2.9 Product Complexity

Are the organisation's products and services based upon conceptually complex models?

Product complexity is an awkward attribute to measure. However, it is assumed that those organisations that offer complex products and services have core competences that are more difficult to imitate than those with simple product offerings. For example, there is an assumption that it would be more difficult to develop the same core competences as an Internet healthcare technology provider than a domain name registrant. Essentially, this question uses product complexity as a proxy measure for difficulty of imitation of core competence.

7.2.2.10 Infrastructure

Does the value of the organisation's products rely upon the existence of a large infrastructure without which it cannot operate?

The focus of this question is 'operation'. Questions surrounding 'production' have already been asked. Internet products and services often require large infrastructures in which they operate. For example, Internet service providers rely on a telecommunications network, which they have to procure in order that their services can be provided. Conversely, an Internet consultancy requires hardly any infrastructure at all with which to operate. Therefore, it is assumed that the core competences of organisations that require large infrastructures in which to operate are less easily imitated than those that require no infrastructure.

7.2.3 Benefit

The following series of questions was designed to establish the extent to which each organisation in the study is identifying and exploiting its core competences, in order that they make a significant contribution to the perceived customer benefits of the end product.

7.2.3.1 Market Leader

Does the organisation have an identity in the industry that positions it as the market leader?

The question of market leadership is vexed. The more rigorously markets are defined, the greater the number of market leaders. However, it assumed that market leadership could be established by exploiting core competences that contribute to the perceived customer benefits of the end product. Extrapolation of this idea would suggest that those organisations exploiting their core competences to the greatest extent would offer most contribution to perceived customer benefit and other things being equal, would become the market leader.

7.2.3.2 Benefit Measurement

Can the benefit of the organisation's products and services be clearly and absolutely measured?

The assertion in this instance is that products and services whose benefit is easily measured are delivered by organisations that are exploiting their core competences. For example, the benefits of using online marketplace products can be established more easily than the benefit of web portals. Organisations that are able to measure benefit are more able to prove that their products are contributing to customer benefit and, therefore, are more likely to have identified and be exploiting, their core competences.

7.2.3.3 Technology Choice

Does the organisation offer products or services that can only be delivered using a single type of technology?

The assumption here is based upon the premise that in some domains, no choice of technology exists. Customers will either buy, or not buy, because there are no technological alternatives. This binary condition means that those that do buy, believe that the product or service is delivering benefit. Therefore, it is assumed that those organisations operating successfully in single technology domains are exploiting their core competences to the extent that they are contributing to customer benefit.

7.2.3.4 Psychological Benefit

Does the organisation offer products or services that deliver significant psychological benefit?

Not all products or services are able to deliver benefit that can be measured in real terms. However, because Hamel & Prahalad's definition includes the phrase 'perceived benefit' psychological benefit cannot be disregarded. For example, the benefit of humanised search engine services is largely psychological, whereas the benefit of broadband services is not. It is possible that some organisations offer products with a mix of psychological and physical benefits, for example web authentication services. Those organisations answering this question in the affirmative will be leveraging core competences that are contributing to the perceived customer benefit of the end product.

7.2.3.5 Technology Alternative

Does the organisation deliver benefit from their products and services that could be achieved without recourse to exploitation of technology?

The premise underlying this question is that where an alternative to technology exists, organisations successfully selling the technology must offer benefit that extends beyond the non-technical solution. For example, computer-based accounting packages perform the same fundamental tasks as the pencil and ledger. Therefore, those organisations competing with non-technological solutions will necessarily have to exploit their core competences that offer contribution to perceived customer benefit.

7.2.3.6 Zero Cost

Does the organisation offer any core products or services at zero cost?

This question assumes that if products and services at offered at zero cost, they only have to offer infinitesimal advantage before contribution to perceived customer benefit is made. For example, users of many search engines are not charged for the service they receive. Conversely, the services of an Internet incubation service can incur huge costs. Therefore, the implication is that organisations answering this question positively are more likely to be exploiting core competences that contribute to perceived customer benefit.

7.2.3.7 Component Identification

Does the organisation provide goods and services that can be identified by those using the end product?

Within the IT sector, there are many organisations that offer products and services that are used as components by other organisations. For example, an organisation that writes natural language processing algorithms will not be readily identifiable by the user of a search engine that is reliant on such routines. In contrast, the user of an Internet service provider is able to identify the provider of that service. The contention, in this instance, is that those organisations providing identifiable products are exploiting competences that contribute to perceived customer benefit.

7.2.3.8 Supplier Tie-in

Are customers of the organisation readily able to change supplier?

Where organisations are providing products or services that can easily be substituted, there is an assumption that a significant benefit proposition has to be offered to prevent customers from seeking alternatives. For example, moving from one search engine to another is almost effortless. Conversely, for those launching a web-based business, selecting an alternative Internet incubator is wholly impractical. Therefore, in order to retain customers in low inertia environments, the organisations must have core competences that contribute to the perceived customer benefit.

7.2.3.9 Problem Solving

Does the core of the organisation focus on the delivery of solutions to existing business problems?

The IT sector can be roughly divided into two types of organisation. The first type is characterised by firms that deliver pure cutting-edge technology, the second contains those organisations that apply existing technology to existing business problems. This distinction is exemplified by the difference between those organisations providing solutions in search of problems (e.g. video compression) and those creating solutions to existing problems (e.g. faster Internet provision). It is arguably those organisations providing applied rather than pure technology solutions that are leveraging their core competences, such that they are contributing most to perceived customer benefit.

7.2.3.10 Product Leverage

Does the organisation produce items that leverage the value that can be derived from other products and services?

Those organisations that are able to deliver products and services designed to enhance the value of existing environments, are exploiting the core competences that contribute to perceived customer benefit. For example, providers of Internet portal services are leveraging the value of the services of the agencies, which provide the information and news that is used as the underlying portal content. The inference is that this leverage capability requires clear identification and exploitation of core competences.

7.3 Measuring Core Competence

The thirty questions developed in section 7.2 can subsequently be used to measure the extent to which organisations are able to identify and exploit their core competences. For the moment, the validity of this approach, or the quality of these questions, will not be explored. Moreover, this section is devoted to the framework usage.

Each of the thirty questions can be answered in the affirmative or the negative. The questions have been phrased such that answering 'yes' to any question indicates that an organisation is more likely to have clarity of core competence and/or, is better able to exploit these competences. Conversely, there is a contention that those answering 'no' are less likely to have identified or be exploiting their fundamental core competences. Furthermore, it is accepted that these questions can be answered in a sufficiently robust manner, simply by examining the information that is available in the public domain, i.e. without recourse to the interrogation of company employees.

It is the intention that this framework be utilised as complete series of questions. Exposing an organisation to all thirty questions provides a proxy measure as to the overall likelihood of that organisation having identified or be exploiting its core competences as defined by Hamel & Prahalad.

7.4 Conclusion

Once a proxy measure has been defined as detailed above, it is possible to get closer to an answer to the question posed at the head of this dissertation. This framework allows the conversion of essentially qualitative aspects of an organisation into quantitative terms that can be incorporated into an empirical analysis. The methodology behind this analysis is described in section 8.0.

However, this framework is remarkable insomuch it raises more questions than it answers. The questions that arise concern the interpretation of Hamel & Prahalad definitions, the validity of the questions and the overall robustness of the approach. These issues will be addressed in section 10.0.

8.0 Methodology

8.1 Introduction

The objective of this section is to describe the overall research methodology upon which this dissertation is based. This, necessarily lengthy section, articulates and justifies the chosen approach.

The section begins with an overview of the research frameworks that exist within the social science domain. This is followed by a review of the research question that is central to the study and includes comments on the practical aspects of the fieldwork involved.

Subsequently, attention is turned to the process of sampling and data capture. An elaborate sampling process is outlined alongside a description of the target sector from which data are taken. Understanding this process is critical to the interpretation of the study's ultimate research findings.

The main body of the section is used to illustrate the application of the conceptual framework described in section 7.2. To this end, the evaluation process is described for one of the forty-three organisations in the study.

The section concludes with observations on the suitability of measurement of organisational performance. Appropriateness of financial measures is considered, as are limitations and bias associated with the chosen approach.

8.2 Research Frameworks

Two fundamental types of research framework exist within the social sciences. These are generally referred to as the 'positivist approach' and the 'realist approach', Maxwell (1998).

The positivist approach adopts the style and techniques more usually associated with the physical sciences. There is an underlying acceptance of universal and unequivocal truths that can be established through rigorous observation and measurement. Evidently, this approach is more suited to those situations that lend themselves to the application of practical and accurate measurement techniques. Moreover, these measurements and observations can subsequently be manipulated statistically, in order that a hypothesis may be accepted or rejected.

The realist approach differs, in that it does not seek to identify or measure universal or unequivocal truths. This takes the research focus away from accepting or rejecting hypotheses to a more holistic acknowledgement of the system and its linkages. Advocates of this approach consider inferences and beliefs to be more significant than discrete measurable phenomena. Furthermore, realists accept that as researchers, they are influencing the study simply by being part of the system. This is in contrast to positivists, who seek to abstract themselves from the system.

It is beyond the scope of this dissertation to justify one approach above the other. Moreover, there is a contention that there is scope for both approaches within the same study. Indeed, in their recent paper, Sudweeks & Simoff support this contention thus:

> "We argue that each methodology has its own set of costs and benefits, particularly when applied to Internet research, and that it is possible to tease out and match the strengths of each with particular variables of interest"
>
> Sudweeks & Simoff (1999)

This dissertation is reliant on elements of both approaches. This is evidenced by a realist approach being taken to the interrogation of organisational core competence and a positivist approach being taken to the empirical association of core competence and financial performance.

It is hoped that this approach provides a balanced context in which to conduct the research exercise. The adoption of this hybrid approach is useful in overcoming some of the criticisms levelled at purely quantitative, or purely qualitative methodologies. Indeed, commonly cited disadvantages of a purely quantitative approach that a hybrid methodology is able to overcome include:

- Abstraction of data beyond its context, resulting in dissociated conclusions.
- Statistical, rather than sensible development of hypotheses.
- Pursuit of purely measurable phenomena.

Similarly, the approach used in this study is able to rise above the following criticisms that are regularly made in respect of qualitative research:

- Value loaded analysis introduces bias into observed results.
- Anecdotalism, i.e. inconsistency of representation of particular phenomena.
- Reliability in respect of measurement of subtle yet significant observations.

Ultimately the aim of this research methodology is well considered objectivity, regardless of paradigm. Hammersley (1992) offers a neat synopsis of the author's beliefs thus:

> "The process of inquiry in science is the same whatever method is used, and the retreat into paradigms effectively stultifies debate and hampers progress"
>
> Hammersley (1992)

8.3 Research Question

The purpose of this research is to answer the following question: 'To what extent is the concept of core competence valid in the context of the organisation that operates solely within the Internet space?' This question is reliant on having discussed and understood the concept of core competence as described in section 6.2. The literature review has demonstrated that the concept of core competence has a range of interpretations and consequently this makes the process of finding a single answer to the research question problematic. The issue is further compounded by the elusive nature of core competence itself.

Similarly, the word 'valid', and the whole issue of validity could present difficulties if it is repeatedly dissected. In pursuit of simplicity, this dissertation will use a measure of financial performance to answer the question of validity. Fundamentally, this requires the acceptance of the assumption that revenue generation is critical to all of the organisations in the study. This assumption is discussed in more detail in section 8.7.

It should be recognised that this dissertation is more concerned with evidence-based outcomes, than with definitions and conceptual cogitation. Therefore, the manner in which it proposes to answer the research question is by analysis of organisations currently operating within the Internet space. As mentioned in the introduction, the research approach is unashamedly bold.

8.4 The Research Approach

The fieldwork methodology has been chosen because it allows a relatively rapid means of collecting data from a medium sized research sample. This approach also helps to overcome barriers associated with familiar techniques such as questionnaires. In addition to its obvious convenience, the web-based approach used in this study was exploited to satisfy the author's curiosity regarding its value as a research tool.

It is acknowledged that the singular focus upon web-based research does not necessarily result in a comprehensive and sensible research investigation. However, it is believed that both the quantity and quality of data produced by the fieldwork component of this study are superior to those used in many general social science research projects. Moreover, there is acknowledged providence in using web-based research tools to investigate organisations operating within the Internet space.

8.4.1 Data Source

The data for this study were taken from the 'Information Technology Annual Report', Business Week (2000). The information in the report was compiled from financial data extracted from Standard & Poor's Compustat, which holds information on 100,000 publicly traded corporations. This initial information was trimmed to information technology companies, and was augmented by the addition of non-US technology companies recommended by Business Week's foreign bureaux. To qualify for selection, companies had to have revenues of at least $300M with the exception of Internet Companies. To qualify for the initial list, Internet Companies had to have sales of at least $10 million. Business Week considered that sales figures were a more appropriate measure than revenues.

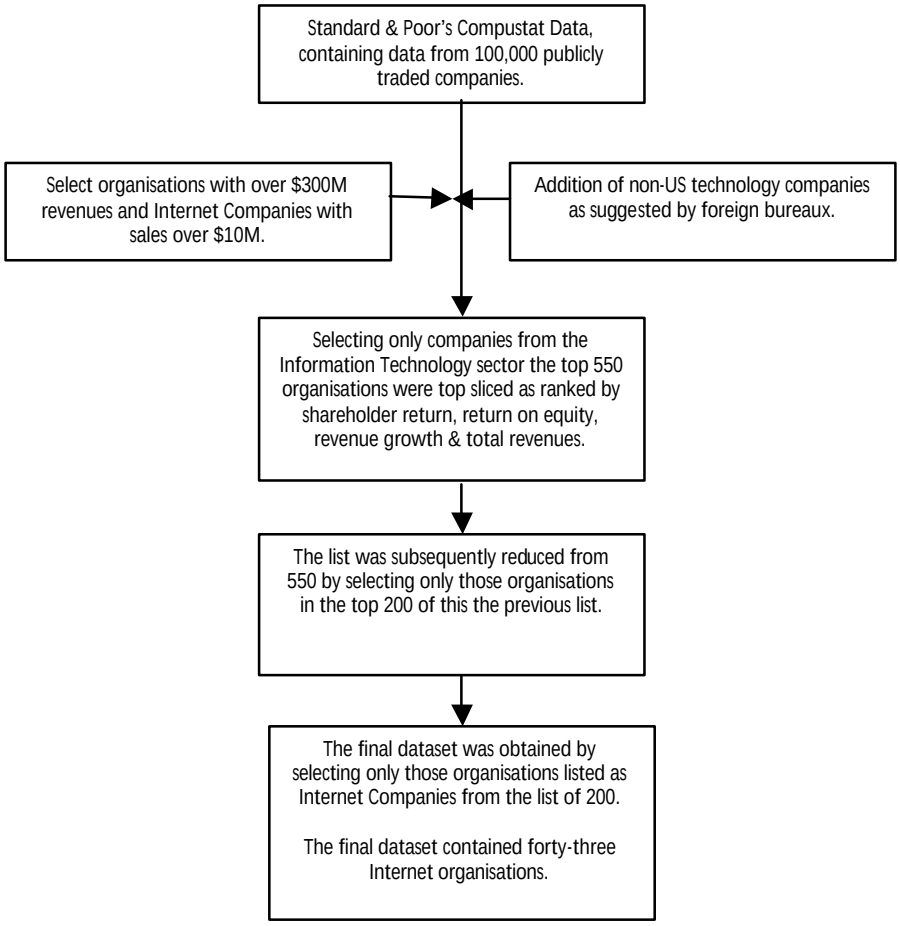
Each of these organisations was categorized into one of the following sectors:

- Internet Companies.
- Networking.
- Services, Resellers & Distributors.
- Software.
- Semiconductors.
- Telecommunications.
- Telecom Equipment & Electronics.
- Computers & Peripherals.

This initial group of 550 companies was ranked on four criteria that were given equal weight: shareholder return, return on equity, revenue growth and total revenues. Companies with sharp declines in current financial results were excluded, as were companies where other developments raised questions about future performance, Business Week (2000). Using this ranking methodology, only the top two hundred organisations were retained.

The list of two hundred was refined for the purposes of this study to include only Internet Companies. Internet Companies are those organisations that only exist as a result of the creation of the Internet and whose core business is the supply of Internet based products and services. This definition is important to the crux of this dissertation. Many of the other sectors are not new businesses. Moreover, some of the sectors, for example Semiconductors, are fundamentally manufacturing organisations. Others, for example Telecommunications, have been in existence for over half a century. It is the infancy and aspirational nature of Internet companies that is of particular interest to this study.

The final dataset contained just forty-three organisations. The data collection process is shown diagrammatically overleaf.



Data Collection Process Diagram.

8.4.2 The Organisations

A list of the forty-three Internet organisations selected for this study with a brief description of their operations is provided in section 13.1. The financial data for each Internet organisation may be found in section 13.2.

8.4.3 Sampling

Effective research generally involves the selection of a sample of the general population for study. Indeed, it would be entirely impractical for this dissertation to collect data for every Internet organisation across the globe. Consequently, a sample of forty-three organisations has been chosen.

There exists a range of methods by which samples can be selected. Generally these methods are considered either probability samples or non-probability samples. Probability sampling is based on principles of probability theory, which state that increasing the sample size will lead the distribution of a statistic, to more closely approximate the distribution of the parameter, Deflem (1998). By contrast, non-probability sampling involves the selection of sample subjects in any non-random manner.

While probability sampling can avoid bias in the selection of elements and increase applicability of findings, it is often not feasible nor theoretically inappropriate, to adopt this approach. This study utilises non-probability sampling methodologies for exactly these reasons.

There are essentially three types of non-probability sampling approaches thus:

- Quota Sampling
- Purposive Sampling
- Sampling By Availability

Of these approaches, this study takes advantage of purposive sampling techniques, by virtue of their use in exploring the extreme elements of a general population. In this study, the extremity is produced by selecting the top forty-three Internet companies as provided by the Business Week Information Technology Annual Report (2000). It is the relative success of all forty-three organisations that is of particular interest.

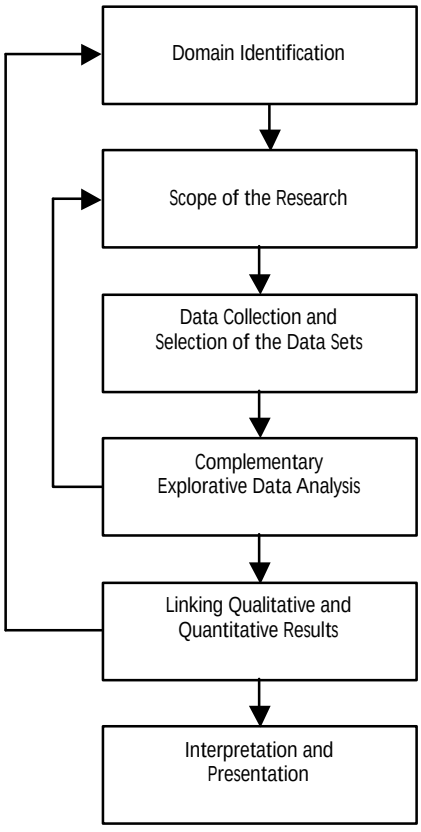
8.5 Web Based Methodology

The relative infancy of the Internet means that there are few established methodologies available for conducting web research. This presents both limitations and opportunities to those wishing to use the Internet as a research environment. This perspective is gaining widespread support and is echoed by Jones, who in 1999, compared traditional techniques with new media methodologies.

> "The natural contexts of new media may limit how faithfully traditional research designs and methods may be applied…the nature of new media themselves may create limitations, as well as new opportunities"
>
> Jones (1999)

It is important to recognise the emerging nature of the Internet and acknowledge the relatively rapid pace of change within the medium. Whilst the methodology presented in this study may be acceptable today, it's appropriateness will almost certainly be challenged by technical adaptations which will occur within the next three years.

However, in the temporal and academic context of this study, it is perhaps more appropriate to take advantage of Jones's stages of Internet research model, described graphically below. It is interesting that this model is generic and would operate successfully as an approach to any type of academic study. There is an implied assertion here that research operating within the medium of the Internet does not have to be different to research within any other media. In pursuit of academic validity, this is a reassuring model to follow.



Stages Of Internet Research. After Jones (1999).

8.6 Measuring Core Competence

In order to measure the extent to which each of the organisations in the study is identifying or exploiting their core competences, each of the forty-three target companies web sites were visited. Each site was browsed in an attempt to answer each of the thirty questions, as set out in section 7.2. This browsing did not follow a linear pathway, that is, the sites were not read from beginning to end. More appropriate to the hypertext construction of these sites, the browsing was structured only in as much as links were followed where it was anticipated that they might lead to information upon which the answer to a question may be established. Furthermore, the dynamic, rather than static, nature of these web sites means that they are particularly unsuited to being read from beginning to end, as is the case with traditional forms of documentation.

The questions set out in section 7.2 only require a response in one of two states. Based upon the information presented within the web site, the author would answer the question in respect of the organisation by responding either 'yes' or 'no'. This judgment was based upon information presented on the web site only and was not influenced by any information from external sources at the author's disposal.

This selection of a binary condition was useful as often the limited information on an organisation's web site was insufficient to be able to give a well substantiated, or quantitative answer. The choice presented by the selection of either 'yes' or 'no' meant that an answer relative to other organisations in the study could be given. This issue of relatively should be acknowledged, as it would prevent meaningful comparisons being made with organisations outside of this study.

The questions were formulated such that answering 'yes' would result in a value of one being recorded, whereas the value zero would be recorded in respect of the answer 'no'. The values were then totalled for each organisation and it is proposed that the organisation with the highest score would have identified and be exploiting its core competences most effectively. A matrix containing the binary responses to all of the questions, for all organisations, is presented in section 9.2.

This methodology is perhaps best described by example. Therefore, sections 8.6.2 through 8.6.4 illustrate the process by which one of the organisations in the study was evaluated and scored by the author.

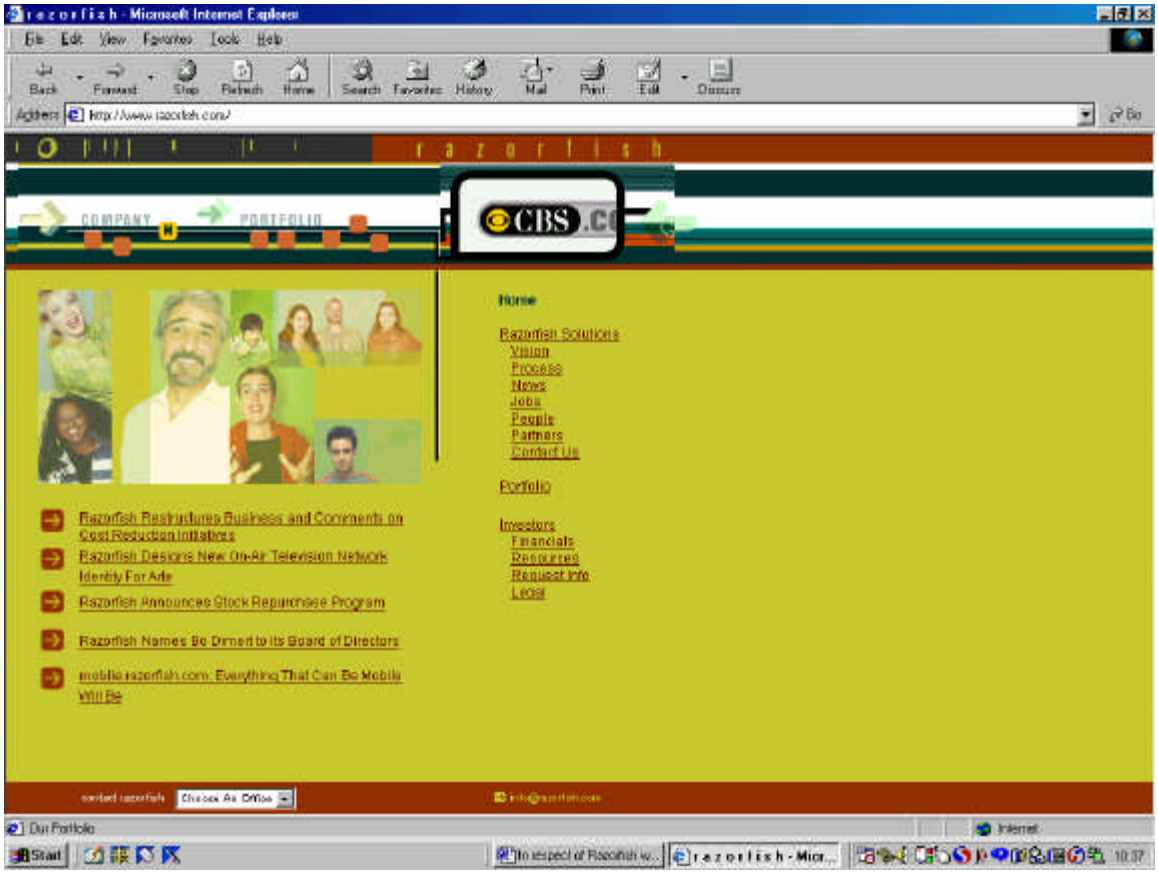
8.6.1 Razorfish

This organisation and its web site were selected to demonstrate the study methodology for the following reasons:

- Ease of web site navigation.
- Low total number of pages within the web site.
- Clarity of product and service offering.
- Well-articulated value proposition.
- Representative of 'new economy' organisations.
- UK press citations within the last twelve months.

Razorfish describes itself as an e-consulting company that provides a wide range of services including strategic consulting, web design, integration with enterprise resource planning and legacy information technology systems. Although known for its expertise in Web services, Razorfish has recently expanded its skills to include platforms such as satellite and wireless devices that include mobile phones and pagers. The company has a significant client base, including high-profile clients such as Charles Schwab, Giorgio Armani, and AOL Time Warner. Its 1999 sales revenues were $201.7M, increasing to $267.9M in 2000. Razorfish currently employs 1355 staff in fifteen locations, Hoovers (2001).

The Razorfish web site can be found at http://www.razorfish.com/ and a screenshot from this site is presented overleaf. The site combines contemporary design and ease of navigation as would be expected from an organisation whose core skills focus on production of web solutions for other organisations.



The Razorfish Web Site Homepage At http://www.razorfish.com/.

What follows is a textual illustration of the process by which Razorfish was evaluated and scored using the thirty-question research framework.

8.6.2 Application

The following ten questions were asked of the Razorfish web site in an attempt to establish the extent to which the organisation was identifying and exploiting its core competences in order to provide potential access to a wide variety of markets. Razorfish scored four out of a maximum of ten in respect of application.

8.6.2.1 Low Cost Replication

Is Razorfish producing a product or service that, once created, has zero marginal cost?

No. The activities of Razorfish extend beyond pure creation of web sites. Their website states "Razorfish provides strategic, creative, and technology solutions to some of the world's most successful digital businesses". Whilst they do not seek to compete with traditional advertising agencies, they do produce concepts that are articulated on channels beyond the web. Therefore, these products and services do not have zero marginal cost. This results in Razorfish's products not having as wide an application as if they did benefit from zero marginal cost.

8.6.2.2 Service Mass Market

Do Razorfish's products or services target the domestic user?

No. The Razorfish web site is clearly designed to attract corporate customers. Furthermore, its client list comprises organisations rather than individuals. Their vision statement suggests that their work connects organisations rather than individuals. Whilst this segmentation is appropriate for this type of business, in terms of core competences, this results in reduced access to a variety of markets.

8.6.2.3 Other Businesses

Do Razorfish's products or services target the corporate user?

Yes. As evidenced by the previous response, Razorfish seeks to target only corporate clients.

8.6.2.4 New Market

Do Razorfish's products or services only service other IT and new economy sectors?

No. The Razorfish web site gives details of over one hundred and sixty clients, categorising them into the following ten sectors thus:

- Communications.
- Consumer Brands & Retail.
- Consumer Electronics.
- Cultural Institutions & Non-Profit Organisations.
- Financial & Professional Services.
- Industry & Manufacturing.
- Media & Entertainment.
- Publishing.
- Software & Technology.
- Travel & Leisure.

Given this information it is evident that Razorfish services organisations beyond the IT and new economy sectors. This means that the organisation is not just reliant on the volatile and often unstable customer base provided by this emerging sector.

8.6.2.5 Multiple Sectors

Do Razorfish's products or services serve multiple sectors?

Yes. Presented with their client list information above, it is appropriate to acknowledge that Razorfish's core competences allow access to a variety of sectors and therefore to a wide variety of markets.

8.6.2.6 Existing Requirements

Do Razorfish's products and services predominantly serve existing requirements rather than potential future requirements?

Yes. Whilst Razorfish suggests on its web site that they 'challenge convention' it does not appear that they have resource dedicated to Research & Development. The organisation seems to prefer to exploit third-party technology developments. In this respect, Razorfish does not seek to expend effort in establishing solutions to future problems. Therefore, as they are servicing existing requirements, they have access to a wider variety of markets than those organisations seeking to solve future requirements.

8.6.2.7 Value Through Growth

Does the value of the product or service increase with growth of the installed user base?

No. Razorfish produce bespoke solutions. Therefore, they do not offer a series of core products that can be used for interacting with others using the same product set. This approach is appropriate given the context of their value proposition. However, it does not allow Razorfish to exploit the phenomenon of prolific adoption as evidenced, for example, by Yahoo and its instant messenger product. In this respect, Razorfish are not able to access a wide variety of markets through creation of a product set that becomes universally adopted.

8.6.2.8 Global Application

Do Razorfish's products or services serve a global market?

Yes. Razorfish itself is an international organisation. The Razorfish website shows that they have offices in the following locations:

- Amsterdam.
- Boston.
- Frankfurt.
- Hamburg.
- Helsinki.
- London.
- Los Angeles.
- Milan.
- Munich.
- New York.
- Oslo.
- San Francisco.
- Silicon valley.
- Stockholm.
- Tokyo.

The majority of its clients also operate internationally. Because their product is digital, it is easy to export work to locations without difficulty. Furthermore, once created, Razorfish's products can be accessed from any location where there is a telephone line, modem and computer. Therefore, it can be assumed that the market Razorfish is serving is global. This gives the organisation geographical access to the widest variety of markets.

8.6.2.9 Augmentation

Are Razorfish's products or services designed to augment another series of products?

No. Whilst Razorfish's products seek to provide enhanced marketing of their customers product set, Razorfish does not provide products and services which enhance the operation of another of their tools or technologies. Razorfish's own website does not demonstrate creation of customer tie-in to their own product set. Therefore, it is assumed that the organisation is not fully exploiting its core competences in respect of creating access to the widest variety of markets.

8.6.2.10 Scalability

Is Razorfish producing products or services that can be scaled operationally such that they can service an infinite number of users?

No. As described by Razorfish's web site, the real users of their products and services come from their client base. Of course, the client's customers are using Razorfish output, but this is secondary usage. Because, as mentioned previously, Razorfish offer bespoke solutions, then each product or service has to be designed from scratch. Therefore, in contrast to an organisation like Yahoo, which offers a search engine service that can be scaled almost infinitely, Razorfish cannot escalate their operations to the same extent. As a result, Razorfish is not able to access as wide a variety of markets as Yahoo.

8.6.3 Imitation

The following ten questions were asked of the Razorfish web site in an attempt to establish the extent to which the organisation is ensuring that its core competences are difficult for competitors to imitate. Razorfish scored three out of a maximum of ten in respect of imitation.

8.6.3.1 Legal Protection

Is the intellectual property underlying Razorfish's products or services legally protected?

No. The Razorfish web site does not give any indication that any of its products or processes is legally protected by patent or otherwise. Moreover, the legal section of the site refers only to projections and forward-looking statements. Because Razorfish rely heavily on third-party tools through which they deliver their solutions, it is probable that all of their processes and products are public domain. This lack of legal protection makes Razorfish vulnerable to competition from imitators and indeed the number of organisations operating in this space is legion. It is considered, therefore, that Razorfish has not sufficiently developed its core competences.

8.6.3.2 Bespoke Algorithm

Are Razorfish's products or services reliant on embedded algorithms?

No. As detailed in the previous response, Razorfish makes use of third-party tools. Whilst these tools make use of embedded algorithms, they are not proprietary to Razorfish and as such can be exploited by any organisation with the resource to purchase the same tools. Therefore, whilst the core competence may exist within Razorfish in terms of using these tools effectively, the barriers to entry are low and, consequently, imitation is possible. Therefore, Hamel and Prahalad would suggest that Razorfish could not build core competence in respect of their core activities.

8.6.3.3 Pure Technology

Does Razorfish combine technological capability with other resources to establish core competences?

Yes. The Razorfish website describes its value proposition as a function of their multidisciplinary skill set; "We draw on skills in business strategy, marketing and branding, technology, and user-centred design". Technological capability is therefore only one component that underpins the Razorfish core competence. The degree to which these components contribute and combine to create core competence makes it difficult to imitate. Because Razorfish's does not seek to deliver through pure technology core competences, it is able to protect and leverage these competences more effectively.

8.6.3.4 Technology Maturity

Does Razorfish's value proposition exploit technology that is emerging and immature?

No. There is no detail of specific technologies within the Razorfish web site. However, given that their domain is applied, rather than pure technology, it can be assumed that the organisation does not centre its value proposition on the exploitation of immature technology. It should be noted that maturity in this instance should be a measurement considered relative to the rest of the information technology sector. Therefore, it is acknowledged that the core competences of Razorfish will be more easily imitated than an organisation that has competences in delivering less mature technological solutions.

8.6.3.5 Supplier Reliance

Does Razorfish create its products and services without reliance on a third party supplier of non-commodity technologies?

Yes. The products and services offered on the Razorfish web site could all be delivered using commodity software and technologies. The value proposition that Razorfish offers is focused upon the way in which they combine creativity and design to this software and technology. Therefore, Razorfish are not an organisation that simply reprocesses or repackages a third-party technology and hence this makes their core competences more difficult to imitate by other organisations with no other capabilities than those associated with reprocessing.

8.6.3.6 People / Technology

Is the volume of revenue generated by Razorfish restricted by technological constraints rather than the number of staff employed?

No. The procedure which Razorfish use to run projects is described on their web site using the following model:

- Clarify - agree upon business objectives and create a strategic plan of action.
- Architect - define the functional, technical, and creative requirements.
- Design - develop content and refine the technology architecture.
- Implement - build the final product.
- Enhance - monitor and analyse how the solution performs.

In this respect, the model is heavily reliant on input from Razorfish staff. Therefore, the greatest constraint in terms of increased production would appear to be number of staff employed. Core competences that generate revenue through exploitation of staff are more easily imitated than those that rely largely on technology. Therefore, it is assumed that Razorfish has not fully developed its core competences as completely as possible.

8.6.3.7 Digital / Physical

Is the product or service that Razorfish delivers physical rather than digital?

No. According to its web site, the products and services that Razorfish produce for its client base are digital. The work that Razorfish performs requires very little physical means of production and no real infrastructure for storage and transport. This departure from the traditional model of producing 'product' means that imitation of digital production core competences is easily facilitated. In this respect, it seems that Razorfish have not fully consolidated their core competences.

8.6.3.8 Customer Base

Are the products or services produced by Razorfish only useful where a large customer base is available to support their development?

No. As detailed previously, Razorfish produces bespoke solutions for its clients. The Razorfish web site makes it clear that the organisation does not service large-scale demand. This is in contrast to an organisation that provides Internet certification services, such as Verisign. Successfully servicing large-scale demand requires specific core competences. Razorfish does not service large-scale demand and therefore is unlikely to have developed core competences in this area. Moreover, serving small-scale demand is more open to imitation by competitors. As a result, it is believed that Razorfish have not exhibited core competence in this domain.

8.6.3.9 Product Complexity

Are Razorfish's products and services based upon conceptually complex models?

No. Whilst the underlying technology that Razorfish uses to service their clients is of reasonable complexity, the model underpinning the product and service offering is simple. At a product level, Razorfish see the web as another channel and use it as a medium through which to offer online branding solutions. Therefore, Razorfish has not had to hone its core competences in this respect and, therefore, is vulnerable to imitation in this respect.

8.6.3.10 Infrastructure

Does the value of Razorfish's products rely upon the existence of a large infrastructure without which it cannot operate?

No. Save for the existence of the Internet itself, the products and services that Razorfish provide do not require any significant infrastructure in which to operate. Compared with an Internet Service Provider that needs a huge amount of physical hardware to function, Razorfish requires very little. Therefore, it is assumed that the core competences of Razorfish are more easily imitated and, subsequently, offer much less competitive advantage.

8.6.4 Benefit

The following ten questions were asked of the Razorfish web site in an attempt to establish the extent to which the organisation is identifying and exploiting its core competences, in order that they make a significant contribution to the perceived customer benefits of the end product. Razorfish scored one out of a maximum of ten in respect of benefit.

8.6.4.1 Market Leader

Does Razorfish have an identity in the industry that positions it as market leader?

No. On their web site, Razorfish do not purport to be a market leader. However, the sector is not yet well defined and it is arguable that IBM now operates in the same sector and has revenues in excess of four hundred times those of Razorfish, Hoovers (2001). Because Razorfish is not yet an established market leader, it is arguable that it is not yet exploiting its core competences to the extent that it is offering its clients maximised customer benefit.

8.6.4.2 Benefit Measurement

Can the benefit of Razorfish's products and services be clearly and absolutely measured?

No. During the period of research, there were twenty-three case studies of Razorfish work presented. Only one of those offered any financial measurement of the benefit of the project. Moreover, this was a prospective, rather than retrospective measurement and, therefore, may not be accurate. Benefit measurement is notoriously difficult. However, assuming that there is no reason for Razorfish to conceal these benefit measures, it appears that the overall benefit of their projects cannot be clearly and absolutely measured. Because Razorfish is not able to measure the benefit of their products and services, it is impossible to acknowledge that they are adding to the perceived customer benefit. Therefore, it is unlikely that they are fully exploiting their core competences.

8.6.4.3 Technology Choice

Does Razorfish offer products or services that can only be delivered using a single type of technology?

No. Razorfish uses a variety of third-party technologies to deliver customer solutions. Their web site describes the range of strategic alliances that Razorfish have forged with a range of technology providers in order to service their customer base as completely as possible. Their site reports that "Razorfish is vendor-neutral and always strives to find the best solution for each client's individual needs". Therefore, customers are not forced into a binary choice of 'buy or don't buy'. The choice of technology means that customers of Razorfish are unable to demonstrate that their prescriptive approach delivers benefit. In this respect, Razorfish are less able to convince customers they are contributing benefit through the application of their core competences.

8.6.4.4 Psychological Benefit

Does Razorfish offer products or services that deliver significant psychological benefit?

No. The Razorfish web site presents its products and services in a non-emotive manner. As detailed previously, the company does not focus heavily on clearly quantifiable benefits. However, it does not embellish its product portfolio and reports factually within the presented case study examples. The overall result is that Razorfish does not position its products and services as adding significant psychological benefit. Therefore, it is considered that Razorfish is not contributing to perceived customer benefit as completely as is possible.

8.6.4.5 Technology Alternative

Does Razorfish deliver benefit from their products and services that could be achieved without recourse to exploitation of technology?

No. The Razorfish website describes their operations as being firmly within the digital domain. None of their products and services could be provided without the use of technology.

8.6.4.6 Zero Cost

Does Razorfish offer any core products or services at zero cost?

No. Razorfish generates revenue from all of its products and services.

8.6.4.7 Component Identification

Does Razorfish provide goods and services that can be identified by those using the end product?

No. The majority of deliverables from Razorfish are manifest as web sites. Having visited a range of their web creations (for example http://www.schwab.com/, http://www.rac.co.uk/ & http://www.carlsberg.co.uk/), Razorfish cannot be generally identified as the supplier of the site without extensive searching. The contention in this instance is that by not providing identifiable products, Razorfish are not exploiting the core competences that contribute to perceived customer benefit.

8.6.4.8 Supplier Tie-in

Are customers of Razorfish readily able to change supplier?

No. During the creation of a new web site, it would be difficult for a customer of Razorfish to change to another web agency supplier without incurring expense and lost time. Whilst their website, understandably, does not articulate this fact, the case studies presented on their site take in the region of three to six months to complete. Between projects, a supplier change would be more feasible. However, when compared with the ease of changing from one search engine to another, the effort is much more significant. Therefore, because it is not easy to change supplier, clients may be tied-in to their supplier without Razorfish offering any great benefit beyond the initial sales period. In this respect, it is possible that Razorfish are not exploiting their core competences as effectively as they might.

8.6.4.9 Problem Solving

Does the core of Razorfish focus on the delivery of solutions to existing business problems?

Yes. The whole focus of the Razorfish web site is that of ‘providing solutions’, specifically to problems associated with building product awareness and branding. Because Razorfish solutions are bespoke, rather than ‘off the shelf’, it is increasingly likely that their solutions will be in response to existing problems, rather than attempts at solving anticipated problems in the future. This applied approach leverages core competences more than those organisations offering pure technology solutions.

8.6.4.10 Product Leverage

Does Razorfish produce any items that leverage the value that can be derived from other products and services?

No. Whilst the essence of the Razorfish value proposition is to leverage the brand awareness of its client's products and services, the organisation does not intrinsically increase their value. By contrast, a portal provider, for example Terra Networks, actually increases the value of the information provided within the portal by categorising it, indexing it and presenting it effectively. Because Razorfish does not leverage other products and services it is considered that the organisation is not contributing to the perceived benefit of the customer and, therefore, is not fully exploiting its core competences.

8.7 Measuring Performance

The essence of the research question is to establish the validity of the concept of core competence in the Internet space. Whilst much thought has been given over to the concept of core competence, little consideration has been made of how validity may be assessed. Arguably, the most useful approach is to adopt a positivist perspective in respect of validity. A convenient series of proxy measures are provided by financial data. The Business Week (2000) report offers the following financial information on the organisations in the study and these data are represented in section 13.2.

Data Series	Description
Revenue	Latest available revenues available for the twelve-month period ended February 28, March 31, or April 30, 2000. For companies that do not report quarterly, the most recent annual data were used. Includes all sales other operating revenues.
Revenue Growth	Percentage change in revenues compared to the previous twelve-month period.
Return On Equity	Net income available for shareholders divided by common equity.
Shareholder Return	The total return to shareholders including reinvested dividends for the twelve-months ended May 15 2000.
Profit	Latest available profits for the twelve-month period ended February 28, March 31, or April 30, 2000. Net income from continuing operations before extraordinary items.

Financial Performance Data Supplied By Business Week (2000)

For the purposes of this dissertation, the data series containing Revenue information was considered to be the most appropriate measure to use in the correlation exercise to establish validity. Revenue was seen as being the purest measure of performance when compared with others. In order that this selection is justified, it is imperative to point out the weaknesses of the other four data series in the context of the analysis.

Revenue growth was seen as a useful measure within a twelve-month period. However, the impact of core competence and strategy generally should not be examined in an isolated twelve-month period. Because of the relative immaturity of the Internet space, many of the organisations are new entrants in only their second year. Therefore, this gives rise to some phenomenally large revenue growth measurements, the largest being 31150% in respect of LifeMinders.com. These large growth measurements are, therefore, not ideally suited to correlation analysis.

The return on equity data series shows much less variation and at first glance would seem to offer a more manageable measurement for correlation analysis. However, this study is less interested in measuring the effective deployment of shareholder funds, than it is in establishing the contribution of core competence in driving revenues. Furthermore, because of the immaturity of many of these organisations, start-up costs are huge and destroy any early chances of shareholder profit. This is highlighted by the fact that twenty-seven out of forty-three organisations in the study exhibited

negative profitability figures. Therefore, the shareholder return and profitability measurements were also considered to be of limited use in the context of this study.

8.8 Limitations & Bias

This analysis does have inherent limitations and is subject to a degree of bias. These are more specific issues than those general strengths and weakness of the approach which are discussed later in sections 10.5 and 10.6. The most obvious limitation is that the dataset is based upon a rather quirky selection of organisations included in the Business Week study. As described in section 8.4.1, the data only contains publicly listed companies and therefore privately owned companies are automatically excluded from the study. Secondly, the majority of the companies in the study are headquartered in the United States. In itself, this is unremarkable as the Internet is still largely a North American phenomenon. However, the rapid increase of Internet activity in Europe and Asia would suggest that this analysis should not be considered globally representative.

Despite the North American bias, the study did contain organisations that do not use English as their native language. Therefore, the analysis was conducted on three web sites whose content was presented only in Spanish, Swedish and Japanese. Whilst judicious use of web translation services were able to assist with the interpretation of Spanish and Swedish web sites, the Japanese sites were less easily interpreted. Fortunately, one of the Japanese sites was Yahoo, who has an American equivalent. The remaining Japanese language site, InterQ, was analysed by proxy, using reports of its activity from English language web sites.

Another limitation is a function of the classification process carried out by Business Week. The classification into types of Information Technology company (see section 8.4.1) meant that some organisations who purport to be Internet companies, were excluded from this study by virtue of them being classified as Networking or Software organisations.

A significant source of bias throughout the analysis process will have been the judgement of the author. Because a single individual conducted the research, it is considered that at least the bias will have been consistent. However, a more robust study may have used a series of researchers and adjusted the summed scores accordingly.

Finally, another acknowledged bias is a function of the author's knowledge of the Internet sector. Whilst attempts were made to rely only on information presented on the organisations web site, as an individual working in the Internet service industry, peripheral knowledge of some of these organisations was inevitable.

9.0 Results & Analysis

9.1 Introduction

This section presents the results derived from the execution of the methodology described previously. The data from all forty-three organisations in the study are presented, correlated and described graphically. The overall result is consolidated into a general assertion. This is followed by a discussion regarding the issues of correlation and causation.

This penultimate section is unashamedly brief. It is the author's contention that the value of this study lies in its methodology and conclusions, rather than in the transformation of data.

9.2 Binary Results

	Imitation	Legal Protection	Bespoke Algorithm	Pure Technology	Technology Maturity	Supplier Reliance	People or Technology	Digital or Physical	Customerbase	Product Complexity	Infrastructure	**Application**	Low Cost Replication	Service Mass Market	Other Businesses	New Market	Multiple Sectors	Existing Requirements	Value Through Growth	Global Application	Augmentation	Scalability	**Benefit**	Market Leader	Benefit Measurement	Technology Choice	Psychological Benefit	Technology Alternative	Zero Cost	Component Identification	Supplier Tie-in	Problem Solving	Product Leverage	**TOTAL**
Yahoo Japan		0	0	1	0	1	1	0	1	0	1		1	1	1	0	1	1	1	0	1	1		1	0	0	1	0	1	1	1	1	0	**19**
Internet Capital Group		0	0	1	0	0	0	0	0	0	0		0	0	1	0	1	1	1	1	1	0		0	1	0	1	1	0	0	0	1	1	**12**
BroadVision		1	1	1	1	1	1	0	0	0	0		1	0	1	0	1	0	0	1	1	0		0	0	1	0	0	0	0	0	0	1	**13**
Network Solutions		0	0	0	0	1	1	0	0	0	0		1	0	1	0	1	1	0	1	1	1		0	0	1	0	0	0	0	0	1	0	**11**
NetCreations		0	0	0	1	1	1	0	0	0	0		1	0	1	0	1	1	1	1	1	1		0	1	0	0	0	0	1	0	0	0	**13**
America Online		0	0	1	0	1	1	1	1	0	1		1	1	0	1	0	1	1	1	1	1		1	0	0	1	1	0	1	1	1	1	**21**
Viant		0	0	1	0	1	0	0	0	0	0		0	0	1	0	1	1	0	1	0	0		0	1	0	1	1	0	0	0	1	1	**11**
Art Technology Group		1	1	1	1	1	1	0	0	1	0		1	0	1	1	1	1	0	1	0	1		0	1	0	1	1	0	0	0	1	0	**18**
Vignette		1	1	0	0	1	1	0	0	1	0		1	0	1	0	1	0	0	1	1	1		1	0	0	0	0	0	0	0	1	0	**13**
Sapient		0	0	1	0	1	0	0	0	0	0		0	0	1	0	1	1	0	1	1	0		1	0	0	1	1	0	0	0	1	0	**11**
Yahoo		0	0	1	0	1	1	0	1	0	1		1	1	1	0	1	1	1	1	1	1		1	0	0	1	0	1	1	1	1	0	**20**
Micromuse		1	1	0	1	1	1	0	0	1	0		1	0	1	1	0	1	0	1	0	1		0	1	1	1	0	0	0	0	1	1	**17**
VeriSign		1	1	0	1	1	1	0	1	1	0		1	1	1	0	1	0	1	1	0	1		1	1	1	1	0	1	0	0	1	0	**20**
InfoSpace		0	0	0	0	0	1	1	0	0	1		1	0	1	0	1	0	0	1	1	1		0	0	0	0	0	0	0	1	1	1	**12**
Scient		0	0	1	0	1	0	0	0	0	0		0	0	1	0	1	1	0	1	1	0		1	0	0	1	1	0	0	0	1	1	**12**
E.piphany		1	0	1	1	0	1	0	0	1	0		1	0	1	1	1	1	1	1	1	1		1	1	0	1	1	0	0	0	0	1	**19**
Exodus Communications		0	0	0	0	0	1	1	0	1	1		0	0	1	0	1	1	0	1	1	1		0	1	1	0	0	0	0	0	1	1	**14**
Proxicom		0	0	1	0	1	0	0	0	0	0		0	0	1	0	1	1	0	1	1	0		0	0	0	1	0	0	0	0	1	1	**10**
Kana Communications		0	1	0	0	1	1	0	0	0	0		1	0	1	1	1	0	0	1	1	1		0	1	0	0	1	0	0	0	1	1	**14**
Terra Networks		0	0	0	0	0	1	0	0	1	1		0	0	1	0	1	1	1	1	1	0		1	0	0	0	0	1	0	0	1	1	**13**
NaviSite		0	0	0	0	1	1	0	0	0	1		0	0	1	0	1	1	0	1	0	0		0	1	1	0	0	0	1	0	1	1	**12**
Keynote Systems		0	0	1	0	1	0	0	0	1	0		1	0	1	0	1	0	0	1	0	0		1	1	0	1	0	0	0	0	1	1	**12**
Interwoven		0	0	1	1	0	0	0	0	1	0		0	0	1	0	1	0	0	1	1	0		0	0	0	0	0	0	0	0	1	1	**9**
Digex		0	0	0	0	0	1	1	0	0	1		0	0	1	0	1	1	0	1	0	0		0	1	0	0	0	0	0	0	1	0	**9**
CNET Networks		0	0	1	0	0	0	0	1	0	0		0	0	1	1	0	1	0	1	1	0		1	0	0	1	1	1	1	1	1	1	**15**
InterNAP Network Services		1	1	0	1	1	1	1	0	1	1		0	0	1	0	1	0	1	1	1	1		0	1	0	0	0	0	0	0	1	1	**17**
Ventro		0	0	1	0	0	0	0	0	1	0		0	0	1	1	0	1	0	1	1	1		0	1	0	0	1	0	0	0	0	1	**11**
VerticalNet		0	0	1	0	0	0	0	0	0	0		1	0	1	1	1	1	0	1	1	0		0	0	0	0	1	0	0	0	1	1	**11**
Entrust Technologies		1	1	0	1	1	1	0	1	1	0		1	1	1	0	1	0	1	1	0	1		1	1	1	1	0	1	0	0	1	0	**20**
TriZetto Group		0	0	1	0	1	1	0	0	1	0		1	0	1	0	0	1	0	0	0	1		0	1	0	0	1	0	0	0	1	0	**11**
Wit Capital Group		0	0	1	0	1	0	1	0	0	0		0	0	1	1	0	1	0	1	1	0		0	0	0	0	0	0	0	0	1	0	**9**
InterQ		0	0	0	0	1	1	1	0	0	1		0	0	1	0	1	1	0	0	1	0		0	0	0	0	0	0	0	0	1	0	**9**
E*Trade Group		0	1	1	0	1	1	1	0	1	0		1	1	0	1	0	1	0	1	1	1		0	1	0	1	1	0	1	1	1	0	**19**
Interliant		0	0	0	0	0	1	1	0	0	1		0	0	1	0	1	1	0	1	0	0		1	1	0	1	0	0	0	0	1	1	**12**
Ask Jeeves		1	0	1	0	1	0	0	0	0	1		1	1	0	0	0	1	0	1	0	1		1	0	0	1	1	1	1	1	1	0	**16**
LifeMinders.com		0	0	0	0	1	1	0	1	0	0		1	1	0	1	0	1	1	1	1	1		0	0	0	1	1	1	1	0	0	0	**15**
MyPoints.com		1	0	0	0	1	1	1	1	0	0		1	1	0	1	1	1	1	1	1	1		1	1	0	1	1	1	1	0	0	0	**20**
Homestore.com		0	0	1	0	0	0	1	0	0	1		0	1	0	1	0	1	1	0	1	1		1	1	0	1	1	1	1	1	1	0	**17**
Icon Medialab Internation		0	0	0	0	0	0	0	0	0	0		0	1	1	0	1	1	0	1	0	0		0	0	0	1	1	0	0	0	1	1	**9**
GoTo.com		0	1	0	0	1	1	0	0	0	1		1	1	0	0	0	1	0	1	0	1		0	0	0	0	0	1	1	1	1	0	**13**
CMGI		0	0	1	0	0	0	1	0	0	0		0	0	1	0	1	0	0	1	0	0		0	0	0	1	1	0	0	0	1	1	**9**
Covad Communications Group		0	0	0	1	0	1	0	0	1	1		0	0	1	0	1	0	0	1	1	0		0	1	1	0	0	0	0	0	0	1	**11**
Razorfish		0	0	1	0	1	0	0	0	0	0		0	0	1	0	1	1	0	1	0	0		0	0	0	0	0	0	0	0	1	0	**7**

Binary Results Produced From Web Analysis.

9.3 Correlation With Revenues

Using the total binary score from the table shown on the previous page, these values can be correlated with revenues as follows:

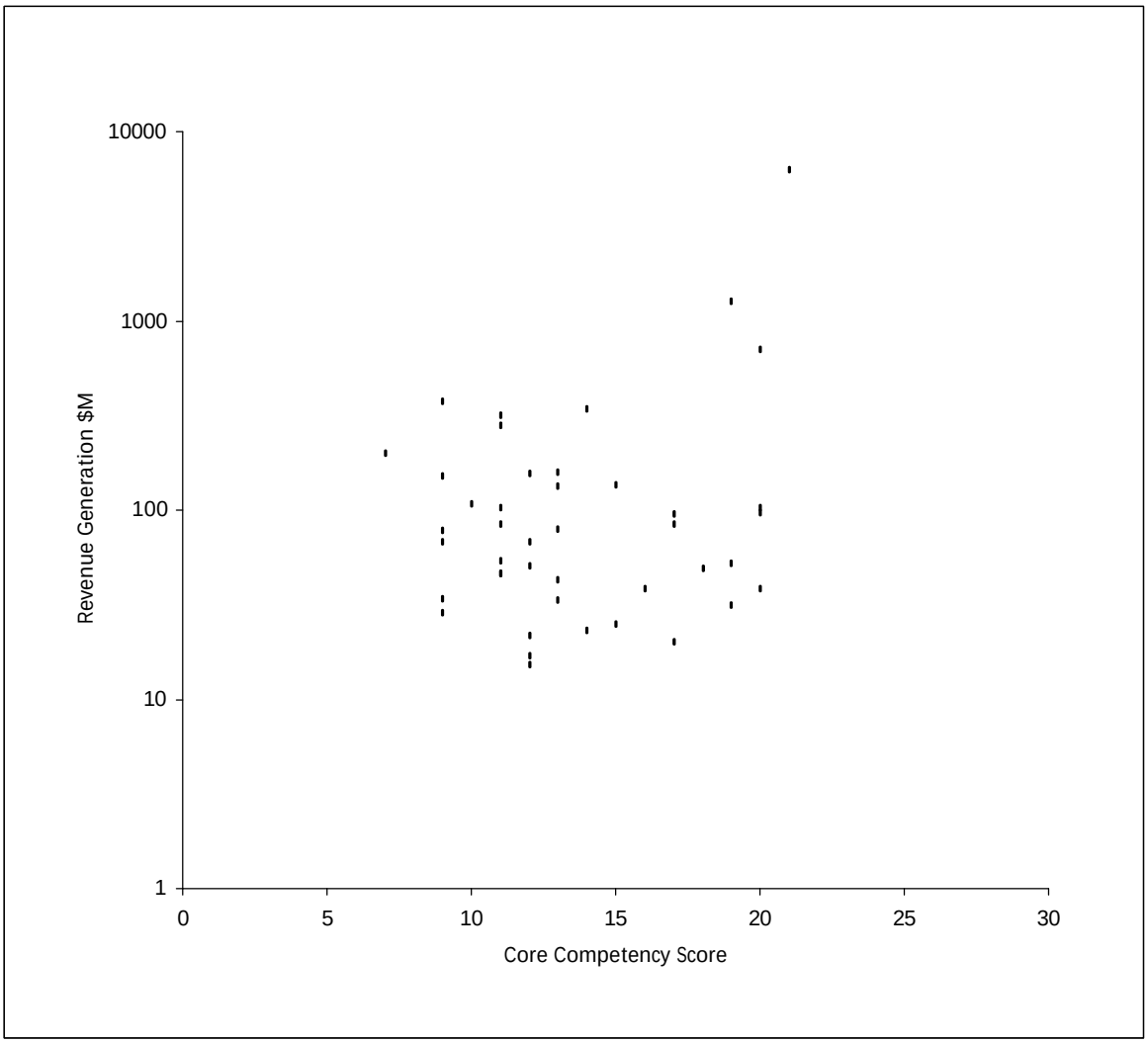
Yahoo Japan	19	52.7
Internet Capital Group	12	15.3
BroadVision	13	158.6
Network Solutions	11	280.9
NetCreations	13	33.4
America Online	21	6301
Viant	11	84
Art Technology Group	18	49.2
Vignette	13	135.3
Sapient	11	319.4
Yahoo	20	713.1
Micromuse	17	84.1
VeriSign	20	103.3
InfoSpace	12	50.7
Scient	12	155.7
E.piphany	19	31.7
Exodus Communications	14	346.2
Proxicom	10	107.6
Kana Communications	14	23.3
Terra Networks	13	79.1
NaviSite	12	21.7
Keynote Systems	12	17.1
Interwoven	9	28.6
Digex	9	78.4
CNET Networks	15	136.6
InterNAP Network Services	17	20.2
Ventro	11	54
VerticalNet	11	46.3
Entrust Technologies	20	97.5
TriZetto Group	11	46.4
Wit Capital Group	9	151.3
InterQ	9	34
E*Trade Group	19	1268
Interliant	12	68.5
Ask Jeeves	16	38.3
LifeMinders.com	15	25
MyPoints.com	20	38.7
Homestore.com	17	95.6
Icon Medialab Internation	9	68.6
GoTo.com	13	42.6
CMGI	9	376.5
Covad Communications Group	11	102.7
Razorfish	7	201.7

Score And Revenue Correlation Data Set.

These values give a correlation score of +0.3392. Given the forty-three pairs of values, forty-one degrees of freedom can be assumed. Using correlation coefficient tables, the critical significance value for forty degrees of freedom at 95% confidence is 0.3044. Therefore, it can be assumed that there is a significant degree of association between identification and exploitation of core competence and revenue generation.

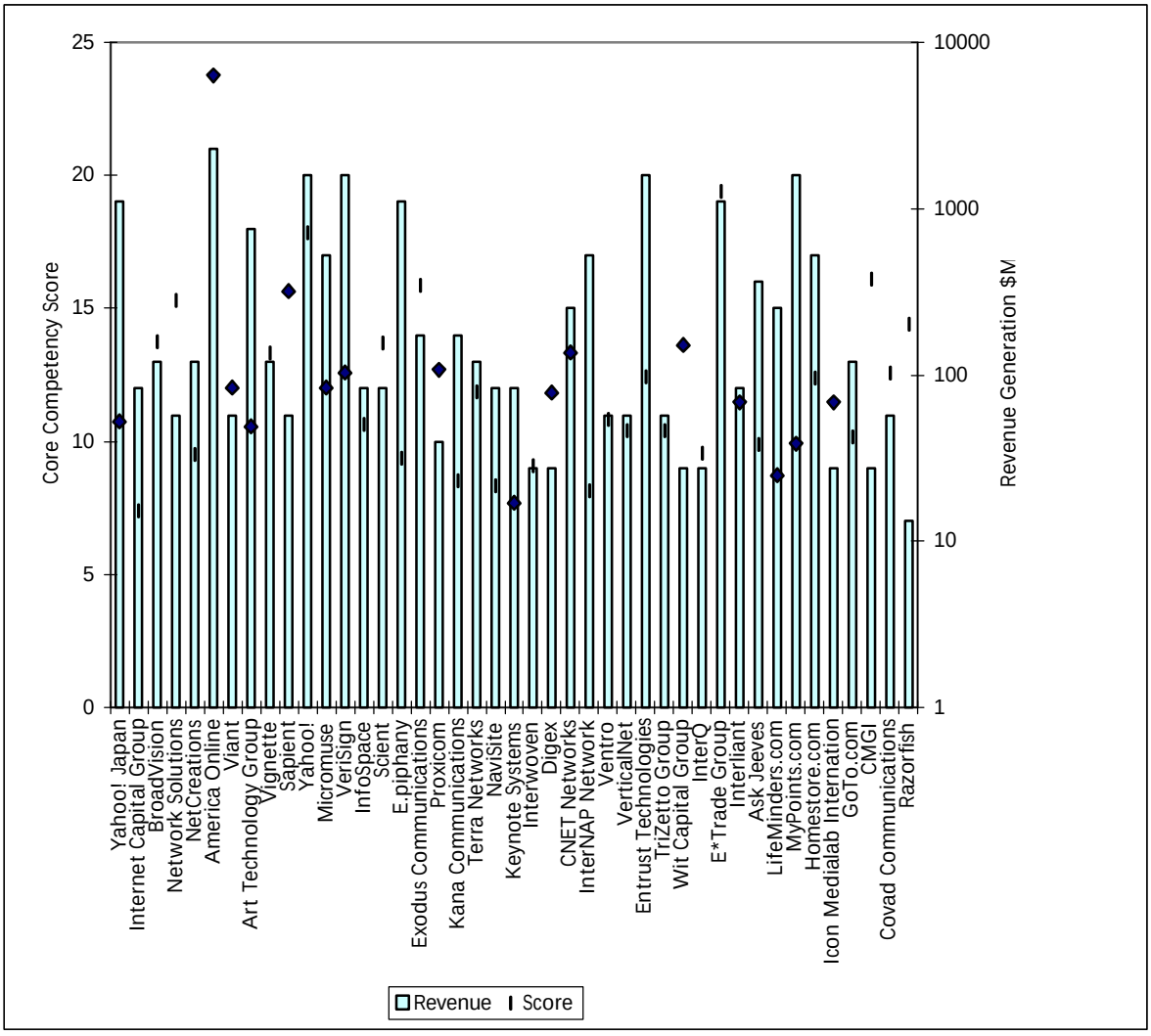
9.4 Graphical Representation

The data presented in section 9.3 can be represented graphically. The following graph describes the relationship between revenue generation and core competence score. Note that the y-axis is presented with a logarithmic scale.



Graph to show the relationship between revenue generation and core competency score.

The following chart describes revenue generation and core competence score for each of the forty-three organisations in the study. Note that the rightmost y-axis is presented with a logarithmic scale and the bullets should be read from this axis. The bars should be read using the leftmost y-axis.



Graph to show revenue generation and core competency score for each organisation

9.5 Results

The results of the research activity show a significant positive correlation between identification and exploitation of core competence and revenue generation. This provides the study with a useful and concise outcome, which will be the basis for discussion for the remainder of the dissertation.

9.6 Discussion of Analysis

Despite the apparent clarity of the results provided by the statistical correlation in section 9.3, this outcome raises a series of previously unconsidered questions. The most obvious question regards the considerable difference between correlation and causation. To this end, the prolific author Mintzberg provides a reminder thus:

> "Finding a correlation between variables…is one thing; assuming a causation, and turning that into an imperative, is quite another"
>
> Mintzberg (1998)

In the context of this study, therefore, we are able to acknowledge the correlation between identification and exploitation of core competence and revenue generation. However, what we cannot immediately assume is that identification and exploitation of core competence are directly driving revenue generation. Moreover, it should be recognized that functions affecting revenue generation are many and varied. In order to confidently suggest that there is an element of causation between core competence and revenue generation, a huge multivariate analysis would have to be performed, to take into account all of the other factors potentially associated with the generation of revenue.

What further compounds this issue is the large number of factors potentially associated with the generation of revenue within organisations. It is highly unlikely that a complete list of factors potentially associated with revenue generation could ever be compiled. This makes the execution of a comprehensive multivariate study practically unachievable. Nevertheless, it is important to recognise that just because causation in this instance cannot be proven. Similarly, it should not be dismissed.

Whilst the outcome of the study might not be absolutely conclusive, it does present an interesting perspective. A more useful approach to analysing the outcome would be to consider what characterises organisations that generate higher revenues. Academically, this is a much less perilous approach and seeks to establish descriptions of the successful, rather than offer explanations of success. Furthermore, this is more appropriate to the hybrid research framework described in section 8.2 which this study has used to combine elements of both positivist and realist styles.

Therefore, as a conclusion to this section, the following claim is presented. Within the context of this study it is asserted that organisations exhibiting identification and exploitation of core competence are generally characterised by their ability to generate greater revenues. This relationship may be causal.

10.0 Conclusions

10.1 Introduction

This final section comprises six subsections which attempt to bring the study to a sensible conclusion. Initially, the implications of the results are discussed in the context of the wider Internet space. Recent turbulence in the Internet sector is reviewed and call is made for a reconsideration of core competence.

The validity of the conceptual framework that underpins this dissertation is then briefly considered. This is followed by a presentation of the strengths and weaknesses of the empirical approach adopted as part of this study.

Finally, this dissertation closes with recommendations for further study and an assessment of the overall achievement of the work based upon its original objectives.

10.2 Implications of Results

The literature review of this dissertation presented a range of academic perspectives on core competence. It is interesting to note that, with few exceptions, the value of identifying and exploiting core competences is seen as critical to long-term competitive advantage. Furthermore, it seems that the concept has application across the widest possible range of sectors. Despite this, little has yet been written in respect of core competence in the Internet space.

As set out in section 9.6 the results of this study do not lead to any absolute conclusions. However, what has been demonstrated is that organisations exhibiting identification and exploitation of core competence are generally characterised by their ability to generate greater revenues. Moreover, none of the results of this study suggest that core competence is no longer a valid concept in the context of Internet organisations. This is consistent with the author's original hypothesis.

It is timely as this dissertation nears completion, profit warnings are being issued for many of the organisations, which have been investigated as part of this study. Two of the lowest scoring organisations in the study, Razorfish and CMGI, have both issued profit warnings and reduced headcount within the last month, Barker (2001), Moules (2001). However, it transpires that the unrest is not confined just to low scoring organisations. Yahoo is currently experiencing such a torrid time that it has suspended its stock, Abrahams & Harding (2001). More generally, the TechMARK index, a respected barometer of confidence in the Internet sector, is at its lowest value for six years.

It seems, therefore, that a return to basic business imperatives may be required to reinvigorate failing Internet organisations. This dissertation offers no guarantee that such a return would provide the panacea that organisations and their investors are currently seeking. However, despite the existence of a new economy, it is evident the some very fundamental business rules persist.

10.3 Validity of Conceptual Framework

If, as Johnson & Scholes (1999) and others contend, it is possible to establish an organisation's core competences by examination of their operating environment, then the conceptual framework underpinning this dissertation should also be considered valid. There is undoubtedly further work that could be done to improve the framework. Similarly, there is certainly room for developing the statistical approach. Such enhancements are considered further in section 10.7.

However, more fundamentally, much of the validity of the framework is a function of its simplicity. Whilst the overall scoring mechanism may initially appear complex, it is essentially comprised of a series of binary choices. Furthermore, the absence of any other published mechanism that seeks to establish core competence activity in this manner, means that currently, its authority remains unchallenged. Whilst this authority may be short-lived, the absence of alternatives does garner validity, if only in an academic context.

10.4 Value of The Internet As A Fieldwork Environment

Whilst the issue of ascertaining the value of the Internet as an environment for fieldwork research was peripheral, there are some significant conclusions that can be drawn. A general conclusion is that web-based research did provide useful data for the study. Nevertheless, some more specific outcomes are worthy of mention at this juncture.

The first is that web-based research provides a very rapid means of gathering data. This study investigated forty-three organisations in less than twenty hours. By comparison, traditional techniques, such as postal questionnaire, are much slower at gathering data. This is especially relevant considering that some of the organisations studied were distributed over three continents. Response rate was also better than traditional techniques, as all organisations had a web presence that the author was able to visit and gather data.

The timeliness of information on organisational web sites is also valuable. Whilst there is little guarantee that all forty-three organisations' web sites are continually updated, it is anticipated that their content is at least as up to date as any paper-based publications that may be accessible to the researcher. An additional benefit arises in as much as any reader of this study with access to the World Wide Web is also able to gain rapid access to the same fieldwork environment used in the study.

There are, however, obstacles that prevent increased value being realised from web-based fieldwork. The first is that whilst web sites have the capacity to include huge amounts of organisational information, it is unlikely that they will ever be a substitute for internal interview based research where very high quality data are required. It should be acknowledged that all web-based information is public domain and, therefore, it is not an appropriate medium for presentation of information that may compromise an organisation's competitive advantage.

Other issues concern the range and quality of information that can be ascertained from organisations' websites. Because there is no standard for the presentation of content on the web, the variety of information found within the web sites in this study was huge. Furthermore, all of this information is open to interpretation by the researcher. Whilst this is true of almost all types of research data, the largely one-way push of information from organisation to researcher has the consequence that issues requiring clarification cannot easily be made. This is in stark contrast to interview techniques that allow opportunities for factual confirmation.

Finally, despite English being the *lingua franca* of the Internet, the issue of foreign language cannot be completely avoided. Instances of web sites presented in Japanese, Spanish and Swedish

presented minor fieldwork problems. However, it is expected that the language issue is no worse using a web-based research approach than it would have been using more traditional methods.

10.5 Strengths of the Empirical Approach

The literature review highlighted the lack of quantitative frameworks designed specifically for strategy analysis. However, on completion of this dissertation, it is evident that there are some obvious advantages associated with the development of an empirical approach. Therefore, as part of the conclusion, it is appropriate to outline the strengths of the framework and methodology used in this study.

Fundamentally, this approach provides a mechanism by which the extent to which organisations have identified and are exploiting core competence can be measured. This in itself is an obvious advantage and is a useful tool to run in parallel with the more established techniques as described in the literature review.

Perhaps the most obvious advantage is the transformation of what are essentially soft data into hard data. Whilst there are advantages of both quantitative and qualitative data, manipulation of quantitative data is readily achieved through standard statistical analysis. Furthermore, the results of this type of analysis are easily understood and compared by readers. Ultimately, this results in reduced ambiguity of interpretation.

The binary scoring mechanism is another element of the approach that helps to reduce ambiguity. Establishing which of the binary states best represents an organisation allows rapid analysis. Furthermore, the chances of incorrect classification are limited compared with multi-criteria or value weighted response mechanisms. Indeed, one of the most useful aspects of a binary approach is that only limited information is required of an organisation, in order that the question can be answered. This is especially appropriate in respect of a purely web-based approach where, often, only limited organisational information was available.

Where only scant levels of information were available with which to make the binary choice, the answer was made based upon the relative position of other organisations of the study. For example, it was difficult to ascertain which organisations offered psychological benefit to their customers based upon their web sites. However, it is much easier to establish that America Online offers greater psychological benefit in its product set than Razorfish. This relativity was often instrumental in decision making throughout the binary selection process.

Whilst web based analysis may provide scant information upon which to conduct analysis, it removes many of the difficulties commonly associated with organisational analysis. For example, traditional questionnaire methods often result in poor return rates, respondent bias and partial completion. Similarly interview methods involve overcoming gatekeepers, large amounts of travel

and political interpretation. Whilst the web-based approach may not be as thorough as other techniques, its advantages, in terms of reduced bias and increased speed, render this a useful tool.

Finally, this approach allows the interrogation of each organisation in a complete and consistent manner, regardless of type of end product. As a result, the use of this framework is not restricted in its application to Internet organisations only. Indeed, it would be a useful exercise to validate the approach within other sectors.

10.6 Weaknesses of the Empirical Approach

Despite the advantages discussed in the previous section, the empirical approach developed for this study will almost certainly attract criticism. It is apparent that there exist some inherent weaknesses associated with the approach that detract from its overall usefulness. These limitations are considered in the hope that the methodology is presented as a work in progress which invites refinements by other researchers.

The most obvious criticism that could be levelled at this approach is that not all authors agree that core competence can be worked back from products, or indeed core products. Critics could argue that true core competences should be invisible from the competition and, therefore, this type of analysis is fundamentally flawed. However, this issue has been given significant coverage in section 6.3 and therefore will not be reconsidered here.

The use of web analysis alone will also attract criticism. Whilst the questions within the framework were designed such that they would be suitable for analysis of web sites, the variation in content of web sites resulted in the information on which the binary answers were based being inconsistent across organisations. This limitation is perhaps less significant than it would be in the analysis of another sector. Moreover, because the organisations in the study are all operating in the Internet space, it is anticipated that they should all have access to effective web site development resources.

It may be argued, that although each of the thirty questions is offered the same value contribution to the summed score, some of the questions should carry more weight than others in respect of measuring core competence. For example, it would be easy to argue that legal protection makes imitation more difficult than reliance on large infrastructure. Fundamentally, therefore, the summed scores should not be directly comparable.

The use of binary scoring mechanisms has the disadvantage of reducing the complexity of organisations and their products beyond what some would consider appropriate. Proponents of a post-modern approach would offer the legitimate criticism that organisations and their strategies cannot be reduced to a series of 1290 bits, as demonstrated by this study.

Finally there is a broader contention associated with the previous paragraph that suggests that strategy is an art, rather than a science and therefore does not lend itself to quantitative analysis. This weakness is acknowledged despite its foundation on anecdotal, rather than objective evidence.

10.7 Recommendations For Future Study

On completion of this study, several areas of potential improvement become evident. The first improvement has already been alluded to and concerns the improvement of the analysis framework. Weighting the scores of the questions, or indeed developing a series of questions with equal impact would be an interesting, if academically cumbersome exercise. On completion, it is anticipated that this would provide a more robust analysis tool that, ultimately, would be less open to criticism than the one used in this study.

The issue of quality of web analysis could be measured by interviewing representatives from each organisation and asking them the same questions of their company that has been asked of their web site. The responses could then be compared with the outcome of this study to establish the accuracy of the web as a medium for strategy fieldwork.

As with almost all quantitative analysis studies, there would be merit in repeating the study using a much larger data set. This idea could be extended by developing an automated tool designed to handle the analysis process. The tool could be sent a whole series of web addresses as parameters and could interrogate a wide range of organisations, thereby providing huge datasets. Currently, the biggest barrier to the implementation of an automated tool would be the problems associated with programmatically encoding the logic of the analysis questions into a software-based application.

Another avenue for further exploration would be the application of this methodology to a range of organisations in other sectors. Whilst it is maintained that this tool has not been designed to conduct comparisons across sectors, the process may help to validate or refine the framework. Moreover, it would be interesting to conduct this analysis on those organisations whose core competences have been extensively investigated by academics. The most appropriate candidates in this respect would be Canon, Honda and Sony.

There would be obvious value in repeating the same study in two years time. It is expected that the core competence scores would remain reasonably constant, however the comparison with financial data may present a very different picture. This triangulation procedure would help to validate the assertion that those organisations, that have not clearly identified their core competences, will cease to be competitive in the Internet marketplace.

Finally, for those wishing to explore the issue in a more scientific manner, the study could be repeated using a vast armoury of financial data. This would necessarily involve a more intensive data collection process, but would almost certainly result in higher resolution research outcomes.

This approach could be augmented by the grouping of similarly performing organisations, which could potentially highlight several types of managerial attitude towards core competence.

10.8 Overall Achievement of Dissertation Objectives

In order to establish overall achievement, it is necessary to revisit the five original objectives set out at the beginning of this dissertation.

- To develop a robust mechanism for measuring the extent to which an organisation is identifying and exploiting its core competences.
- To measure the extent to which a sample of leading Internet companies are exploiting and identifying their core competences.
- To establish the degree of association between financial performance and identification and exploitation of core competence.
- To understand whether the concept of core competence is still valid in the context of Internet organisations.
- To investigate the Internet as an appropriate environment for conducting dissertation fieldwork.

In respect of the first objective, it is evident that this study has produced a framework that allows some measure of identification and exploitation of organisational core competence based upon web site content. The measure is somewhat crude, being presented as an integer between zero and thirty. Furthermore, the extent to which the measure is 'robust' has not been fully explored. However, as an academic tool, this mechanism is of value, even if the value proposition is largely based upon its ability to provoke further debate and new research.

In comparison with the first objective, the second has been achieved absolutely. The fieldwork component of the study presented few problems and the clarity of the research framework allowed a measure to be placed upon the identification and exploitation of core competence in forty-three organisations, with relative ease. Whilst there may be criticism of the research framework, there is little room for doubt in respect of the completeness of its execution.

The third objective was achieved through combination of the measurement framework, revenue data and statistical analysis. Whilst the individual techniques used to achieve this objective were valid, there is a concern that when combined, the overall process is the element of the dissertation most vulnerable to criticism.

Achieving objective number four has been compounded by the correlation versus causation issue. This dissertation has not proven that identification and exploitation of core competence causes increased revenues. However, it is asserted that organisations exhibiting clear identification and exploitation of core competence are generally characterised by their ability to generate greater revenues. Whilst this is an observation, rather than a conclusion, its implications are significant.

The fifth objective, whilst peripheral to the core objectives, has been completely accomplished. Despite the lack of published material regarding Internet fieldwork, the World Wide Web was

found to be an excellent setting in which to conduct organisational research. Whilst this study does not advocate the abandonment of all other research environments, its overall value was found to be higher than originally anticipated.

In conclusion, the dissertation has been very successful in achieving its original aims. This relative success may not prevent the overall approach from being criticised by academics and practitioners alike. However, the study has provided the author with an interesting excursion into the link between strategy and success in the Internet space. The value of this study as a learning experience has been significant.

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13.0 Appendicies

13.1 Appendix I - Organisation descriptions

America Online	Founded in 1985, America Online, Inc., based in Dulles, Virginia, is the world's leader in interactive services, Web brands, Internet technologies, and e-commerce services.
Art Technology Group	ATG sells into the rapidly growing market for enterprise-class software platforms for e-commerce and Internet customer relationship management.
Ask Jeeves	Ask Jeeves is a leading provider of intuitive, intelligent Web interaction solutions to deliver a humanized online experience.
BroadVision	BroadVision, Inc.is the leader in personalized e-business applications. BroadVision's comprehensive suite of integrated applications is built for delivery via the Web and wireless devices.
CMGI	CMGI, Inc., a Nasdaq-100 company, is in the business of creating and managing the largest, most diverse network of Internet companies in the world.
CNET Networks	CNET is the worldwide leader in technology news and information on the Web and the producer of the longest-running and farthest-reaching television shows about technology.
Covad Communications Group	Covad Communications provides ultra-fast, affordable, "always on" broadband access services utilizing DSL (Digital Subscriber Line) technology that connect home and business users to the Internet.
Digex	Digex, Incorporated provides Web and application hosting solutions designed exclusively for businesses that have Internet requirements tied to critical business objectives.
*E*Trade Group*	E*TRADE® brings a superior value proposition and experience to its customers by enabling “anytime, anywhere, any device” access to financial information and transactions and by continually introducing innovative products and services that help individual investors take control of their financial lives.
E.piphany	E.piphany are leading the industry in providing intelligent customer interaction software for the customer economy, incorporating a single enterprise-wide view of the customer across all touch points to cement customer loyalties and drive profitability.
Entrust Technologies	Entrust Technologies is the global leader in solutions that bring trust to e-business for business-to-business (B2B), business-to-consumer (B2C) and enterprise markets.
Exodus Communications	Exodus® is a leading provider of complex Internet hosting for enterprises with mission-critical Internet operations.

GoTo.com	GoTo has created and operates an online marketplace that introduces people to the Web sites they're looking for. More than just another search engine, it's faster, easier and more relevant than any other way of finding information on the Web.
Homestore.com	Homestore.com are the leading network of sites on the Internet for home and real estate-related information, products and services, and are pioneering the use of the Internet to bring the real estate industry online.
Icon Medialab Internation	Icon Medialab is one of the world´s leading integrated e-business and Internet consultancies. We help our clients to embrace the new opportunities of the connected economy.
InfoSpace	InfoSpace is a leading global Internet information infrastructure services company that provides commerce, information and communication infrastructure services to wireless devices, merchants and Web sites.
Interliant	Rapidly expanding Internet service provider that's enjoying explosive profitable growth (No Japanese translation available).
InterNAP Network Services	Interliant, Inc. is a leading provider of managed application hosting, messaging, Web hosting, enhanced Internet, and professional consulting services.
Internet Capital Group	InterNAP Network Services Corporation is a leading provider of fast, reliable and centrally managed Internet connectivity services targeted at businesses seeking to maximize the performance of mission-critical Internet-based applications.
InterQ	ICG targets industries where technology has not yet run deeply or been applied to streamline the supply chain. These are highly specific buyers' markets such as plastics, paper, metals, and small business. B2B e-commerce is revolutionizing these industries. This is where the opportunity lies.
Interwoven	Interwoven is a leading provider of software products and services that help businesses and other organizations manage the information that makes up the content of their Web sites.
Kana Communications	Kana is the leading provider of customer communication and commerce tools for e-businesses. With proven, customer-centric products, Kana offers enterprise-wide solutions for rapidly growing e-businesses.
Keynote Systems	Keynote is the world's largest supplier of Internet performance measurement, diagnostic, load testing and consulting services to companies with e-commerce Web sites.
LifeMinders.com	LifeMinders.com is a leading online direct marketing company that provides personalized content and advertisements via e-mail to a loyal community of members.
Micromuse	Founded as a network management solutions reseller, Micromuse has become the leading provider of real-time fault and service-level management software. Micromuse's Netcool suite helps telecommunications and Internet service providers ensure the uptime of network-based customer services and applications.

MyPoints.com	MyPoints.com is a leading developer of Internet direct marketing services and loyalty infrastructure. This enables businesses to identify, acquire and retain customers through a unique program that integrates highly targeted email and Web-based offers with incentive Points to respond to those offers.
NaviSite	As a managed application hosting provider, NaviSite provides the facilities to launch and sustain a company's web business. NaviSite manages the expensive, time-consuming functions of its clients' sites, allowing our customers to focus on their core competencies.
NetCreations	NetCreations, Inc., a leader in 100% opt-in email marketing, specializes in email address list management, brokerage and delivery.
Network Solutions	Network Solutions, Inc., the world's leading Registrar of Web addresses, helps businesses and individuals establish an identity, communicate with their customers and conduct commerce - all online.
Proxicom	Proxicom is a leading provider of business-critical Internet solutions to Global 1000 companies and other large organizations. These solutions include business-to-consumer electronic commerce Internet sites, business-to-business electronic commerce extranets and company-specific intranets.
Razorfish	Razorfish provides strategic, creative, and technology solutions to some of the world's most successful digital businesses. We partner with our clients to plan, design and build products and services that shape the way the world perceives and interacts with your company.
Sapient	Sapient is a leading creator of New Economy businesses, providing Internet strategy consulting, sophisticated end-to-end solutions, and launch support to Global 1000 and startup companies.
Scient	Scient®, The eBusiness Systems Innovator™, is leading a new category of professional services firms focused solely on building eBusiness systems and capabilities that help companies go to market rapidly and build competitive differentiation.
Terra Networks	Spanish portal. Non-english website.
TriZetto Group	TriZetto is a healthcare-technology company, using the Internet to host its clients' administrative and operational systems. TriZetto is changing the way healthcare companies do business while helping them substantially reduce administrative costs and improve operational efficiency.
Ventro	Ventro™ Corporation is focused on building and operating the next generation of business-to-business (B2B) companies. Ventro was created to leverage the significant assets originally developed by Chemdex in the life sciences market across multiple industries.
VeriSign	VeriSign, Inc. is the leading provider of Internet trust services - including authentication, validation and payment - needed by Web sites, enterprises, and e-commerce service providers to conduct trusted and secure electronic commerce and communications over IP networks.
VerticalNet	Our mission is to: Build industry-focused Internet communities where business can be performed more efficiently. Within our communities,

	provide the foremost online information resources, communication vehicles, and e-commerce channels for industrial, professional, and technology-based businesses.
Viant	As an integrated strategy and solutions partner, Viant has pioneered powerful approaches for successfully incubating and launching e-commerce enterprises.
Vignette	Vignette Corporation is the leading supplier of e-business applications for building online businesses. Vignette's products enable Internet businesses to create and extend relationships with prospects and customers, and ease high-volume transaction exchanges with suppliers and partners.
Wit Capital Group	Wit Capital was founded to empower investors and issuers by transforming the capital raising process through the use of the Internet. Wit Capital continues to deliver on this mission by providing high quality investment banking services and access to high-quality Internet and technology offerings to investors.
Yahoo	Yahoo Inc. is a global Internet communications, commerce and media company that offers a comprehensive branded network of services to more than 156 million individuals each month worldwide.
Yahoo Japan	Yahoo Inc. is a global Internet communications, commerce and media company that offers a comprehensive branded network of services to more than 156 million individuals each month worldwide.

13.2 Appendix II – Organisation Data

Company	Overall Rank	Country	Revenues ($MIL)	Revenues Rank	Revenue Growth	Revenue Growth Rank	Return On Equity	Return on equity rank	Shareholder Return	Shareholder Return Rank	Profits
Yahoo Jap	15	Japan	52.7	183	210	34	20.3	43	412.9	17	10.6
Internet Capital Group	30	U.S.	15.3	200	159.9	38	17.3	61	402.1	19	302.1
BroadVision	34	U.S.	158.6	166	167.4	37	7.1	126	810	2	25.9
Network Solutions	65	U.S.	280.9	164	143.6	41	5.1	133	287.1	32	36.8
NetCreations	74	U.S.	33.4	192	615.5	12	13.2	92	136.5	86	6.3
America Online	78	U.S.	6301	31	45.1	104	16.7	65	-13.9	187	1070
Viant	87	U.S.	84	177	252.6	29	4.5	135	187.5	56	9
Art Technology Group	88	U.S.	49.2	185	235.9	31	-11.5	177	660.4	4	-12.9
Vignette	89	U.S.	135.3	170	486	18	-12.1	178	263.2	35	-118.1
Sapient	91	U.S.	319.4	162	67.2	76	11.4	103	173.9	62	37.9
Yahoo	94	U.S.	713.1	115	128.6	44	8.5	118	60.7	129	137.2
Micromuse	95	U.S.	84.1	176	106.7	52	-2.2	160	410.3	18	-2.5
VeriSign	96	U.S.	103.3	172	115.8	49	-1.1	156	302	30	-20.2
InfoSpace	100	U.S.	50.7	184	265.3	27	-15.3	179	358.3	20	-99.053
Scient	101	U. S.	155.7	167	653.2	11	-6.4	171	167	64	-16
E.piphany	102	U. S.	31.7	193	528.3	17	-9.9	174	312.9	29	-85.4
Exodus Communications	103	U. S.	346.2	156	357.1	23	-71.5	197	245.7	38	-165.4
Proxicom	104	U. S.	107.6	171	118.6	47	4.3	138	182.6	58	6.9
Kana Communications	111	U. S.	23.3	196	537.5	16	-339.4	200	457.3	11	-128
Terra Networks	112	Spain	79.1	178	457.6	19	-143.5	199	324.1	27	-19
NaviSite	116	U. S.	21.7	197	257.3	28	-46.5	193	544.6	6	-38
Keynote Systems	121	U. S.	17.1	199	435.7	20	-2.2	158	200	52	-7.7
Interwoven	125	U. S.	28.6	194	386.3	21	-11.5	176	238.2	41	-26.1
Digex	129	U. S.	78.4	179	178.3	36	-15.7	182	250.7	37	-82.1
CNET Networks	134	U. S.	136.6	169	101.9	54	28.2	20	-32.9	195	367.3
InterNAP Network Services	136	U. S.	20.2	198	598.5	14	-33.4	190	238.8	40	-65.3
Ventro	158	U. S.	54	182	27572.8	2	-2.3	161	61.7	128	-12.4
VerticalNet	159	U. S.	46.3	187	886.3	8	-0.8	154	72.9	124	-5.8
Entrust Technologies	162	U. S.	97.5	174	74.4	67	3.3	145	128.9	88	8.9
TriZetto Group	164	U. S.	46.4	186	247.1	30	-31.7	189	158.3	70	-15
Wit Capital Group	166	U. S.	151.3	168	2446.8	3	-1.8	157	28.5	154	-8.5
InterQ	167	Japan	34	191	88.9	64	7	127	113.4	101	
E*Trade Group	175	U. S.	1268	82	130.9	42	-4.2	166	-62.5	200	-78.3
Interliant	182	U. S.	68.5	181	563.7	15	-39.1	192	103.1	108	-73.5
Ask Jeeves	186	U. S.	38.3	190	1573.1	5	-15.6	181	65.2	126	-94.2
LifeMinders.com	187	U. S.	25	195	31150	1	-29.8	188	85.7	122	-48.6
MyPoints.com	188	U. S.	38.7	189	1504.6	6	-33.4	191	86.7	120	-47.7
Homestore.com	189	U. S.	95.6	175	818.5	10	-17.4	183	50.9	138	-113.3
Icon Medialab Internation	192	Sweden	68.6	180	274.1	26	-18.9	184	85.8	121	
GoTo.com	194	U. S.	42.6	188	1804.8	4	-15.6	180	38.8	145	-52.4
CMGI	195	U. S.	376.5	152	212.5	33	1	151	-3.1	182	60.7
Covad Communications Group	199	U. S.	102.7	173	856.6	9	-27.8	187	-43.6	197	-273.7
Razorfish	200	U. S.	201.7	165	114.3	50	-4.1	165	-16.9	189	-13.1