

A Transferable Process Model for E-commerce in SMEs

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Purpose: The overall objective to this study was the creation of a transferable strategic process model, designed to aid the implementation of e-commerce within UK SMEs. The proposed model seeks to identify and clarify the stages an SME should undertake in order to implement e-commerce more effectively and successfully within its business activities. It is further envisaged that the proposed model will allow the SME to take full advantage of the benefits to e-commerce whilst attempting to minimise or overcome the identified barriers to implementation.

Design/Methodology/Approach: A total of 93 postal surveys returned from sample 500 firms; firms selected from Sunday Times Enterprise Network Business Directory and the British Chambers of Commerce Directory. In addition, 22 face-to-face semi-structured interviews were conducted across the UK from this sample examining detailed strategic and implementation issues. Fifty respondents also replied commenting on the strategic process model developed from the research, with a significant majority identifying appropriateness and ease of use.

Findings: The responses were selected into two categories; "successful" and "unsuccessful", based upon a series of strategic e-commerce criteria. Reasons for using e-commerce in the interviews were split between; innovation, natural progression, competitive pressure, the exploitation of opportunity and to a lesser extent; customer service, natural fit and differentiation. Barriers to and benefits of implementation are examined in detail for each interviewee identifying prior research, considering future expansion, considering full integration and the need for thorough planning as key factors in the implementation process. Issues following implementation were also considered as part of the model development process.

Implications: The development of a detailed transferable strategic process model for e-commerce implementation amongst SMEs. The model consists of nine phases, with clear and detailed advice for the SME in terms of knowledge acquisition, identification of purpose, competitor analysis, e-commerce strategy formulation, technical delivery, promotional strategy, launch and ongoing development and analysis.

Originality/Value: The creation of a transferable strategic process model for e-commerce adoption amongst SMEs, evaluated by SMEs. The transferability analysis conducted here can be considered an indicator as regards the effective use of the model by other small firms within the UK.

Key Words: SME, e-commerce, adoption, transferability, process, model

Introduction

Recent media hype surrounding the Internet as a medium for commerce has significantly increased awareness of the subject (Beveren and Thompson, 2002; Daniel and Wilson, 2002). It is argued that the Internet provides a cost effective global platform for organisations to conduct business and communicate with their customers (Rao et al, 2003). Within the UK however, research suggests that SMEs (who account for 98% of all UK businesses (Daniel, 2002)) have been slow to adopt an e-commerce strategy and where adoption has occurred, failure rates have been high (Beveren and Thomson, 2002; Brown and Lockett, 2001; Monique and Crawford, 2003). The reason most cited for this has been a lack of a credible methodology or strategic model for e-commerce implementation amongst SME's (Christensen, 2000; Nataraj and Lee, 2002; Quayle, 2002; Marquess, 2001; Paper et al, 2003). The ramifications for the UK economy are serious, as SMEs represent a vital constituent of its overall performance (Storey, 1994).

Whilst Paper et al (2003) and Rao et al (2003) have recently conducted similar studies in the US, where e-commerce adoption and success rates have been much higher (Quayle, 2002), there has been no attempt to develop a similar model for SMEs within the UK where the business environment is very different (Jeffcoate et al, 2002; Rao et al, 2003) and where the economic reliance upon SMEs is much greater (Audretsch et al, 2002). UK SME e-commerce research has generally focussed upon adoption (Quayle, 2002; Daniel, 2003; Monique and Crawford, 2003; Grant and Stansfield, 2003; Scupola, 2002; Jeffcoate et al, 2002), realised benefits (Doherty et al, 1999; Daniel and Wilson, 2002) or more specific aspects of e-commerce SME research (Chaston and Mangles; 2002, Duffy and Dale; 2002). On that basis, the assertion of Monique and Crawford (2003), that not enough is known or understood about SME implementation of e-commerce within the UK, is to be fully supported.

In order to enable UK SMEs to enter into e-commerce activities more confidently and with a better chance of sustained success this research sought to establish a transferable strategic process model for the successful implementation of such activities. The proposed model seeks to identify and clarify the stages an SME should undertake in order to implement e-commerce more effectively and successfully within its business activities. It is further envisaged that the proposed model will allow the SME to take full advantage of the benefits to e-commerce whilst attempting to minimise or overcome the identified barriers to implementation. Transferability refers to the applicability of the model to other SMEs within the UK and is central to its overall worth. A strategic process model is chosen on the basis of research conducted by Lee (2001) and Mahadevan (2000), who argue that there is no simple prescription for success in e-commerce, a sequential framework is all that is required to assist managers and planners as to the direction they should be pursuing. A strategic process model of the type envisaged would attempt to provide such a framework.

Due to the relative newness of e-commerce, there is much dispute over its definition (Daniel, 2002). For the purposes of this paper, e-commerce will be defined as the business model whereby transactions are primarily conducted between businesses and between customers using electronic means, in order to complete the associated processes in a more effective and efficient manner (adapted from: Rao et al, 2003). In an attempt to preserve the overall clarity and focus of this study, only the commercial Internet as a medium for e-commerce and only business-to-business and business-to-consumer oriented trade will be considered. Moreover, only those small or medium sized businesses that have previously operated offline and that now have an online presence were included within this study. On that basis, "pure play" Internet start-ups will not be included, as they have no relevance to the aims of this paper.

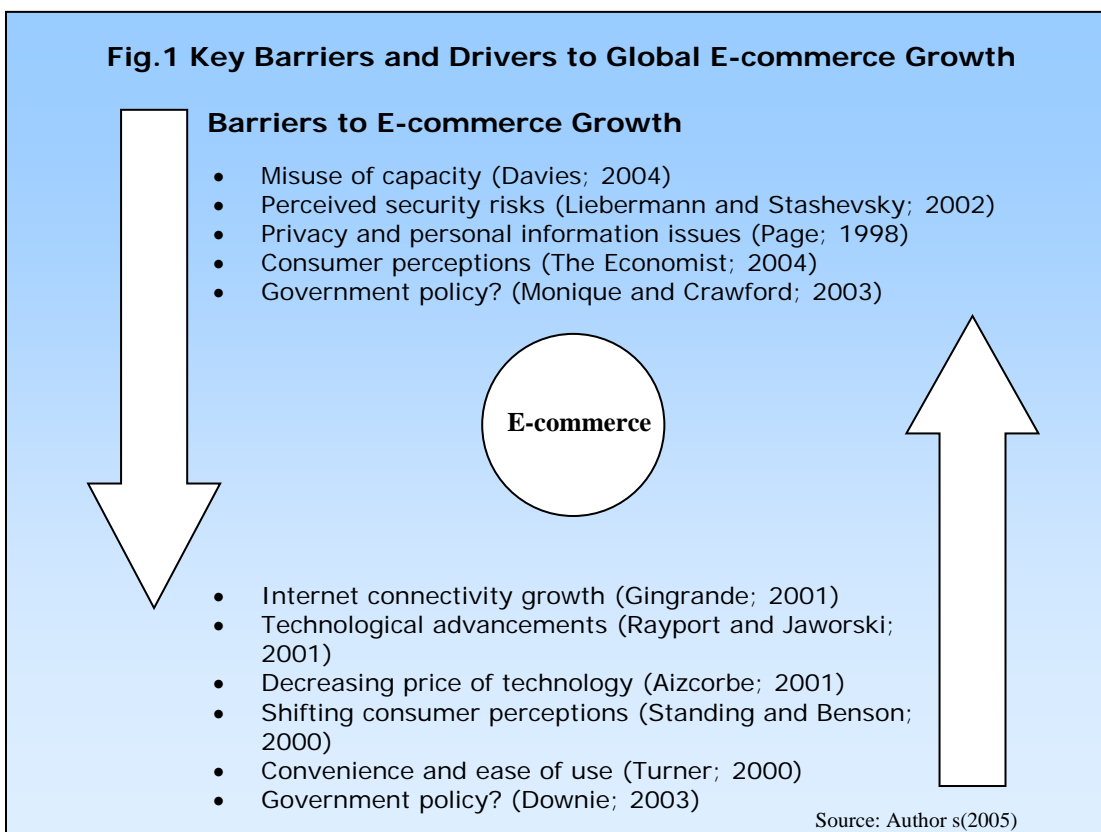
E-Commerce & SMEs

Since commercial use of the Internet began in 1994 (Poon and Jevons, 1997, Daniel and Wilson, 2004) the way in which business is conducted and the very nature of that business has changed immeasurably (Flynn and Purchase, 2002). To many firms, e-commerce is no longer an alternative to their conventional business methods; rather it is an imperative (Lee, 2001). Today consumers can go online to browse, learn about new products and buy an ever-growing

variety of merchandise and services (Farah and Higby, 2001). Moreover, businesses can build integrated electronic relationships with their suppliers and customers, develop their brand image, recruit staff and even deliver digital goods directly to the end user (Daniel and Wilson, 2004).

Whilst transactional definitions of e-commerce are described by Daniel et al (2000) and Duffy and Dale (2002) as being “old fashioned”, it remains the definition of choice for this paper. If the definition of e-commerce were to be sufficiently widened so as to match that provided by Daniel et al (2002), which is less transactional in nature and more vaguely directed towards informational exchanges; the development of a suitable and transferable process model would most likely become unworkable. On that basis, only business-to-business (B2B) and business-to-consumer (B2C) transactions are of any practical relevance to this study. B2C e-commerce is generally characterised by the high volume low value transactions delivered to a broad customer base, whilst e-commerce is characterised by low volume, high value transactions delivered across a narrow customer base (Jentzsch and Miniotas, 1999). It is suggested by Mehta and Shah (2001) that B2B, whilst being a comparatively less well-known phenomenon, could exceed the total value of B2C transactions by a factor of ten.

Daniel (2002) proposes that within the UK, adoption of the Internet continues to be driven by a combination of falling hardware prices, increased proliferation of the broadband standard and the aforementioned Government policy designed to stimulate increased use of the Internet. Nielsen/Net Ratings Research (2004) asserted that 60.6% of the UK population regularly use the Internet, with 50% of homes and 68% of small businesses currently connected. Whilst technological advancements can be considered the greatest driver of e-commerce growth, they also present one of the greatest threats and Fig. 1 provides an overview of the key drivers and barriers to the growth of e-commerce identified within this paper.



Mehta and Shah (2001) Daniel and Wilson (2002) and Quayle (2002) argue that there are many advantages to be gained by SMEs conducting business over the Internet, particularly in terms of the perceived operational and financial benefits that it can bring to an organisation. Quinn (1999) and Mehta and Shah (2001) suggest that the Internet can create a “level playing field” by negating the distributive reach advantage of the large firm, whilst not significantly increasing the fixed cost expenditure of the SME. As a result, it is argued that via e-commerce,

SMEs will gain just as much public exposure, in terms of perceived physical presence, as that of their larger competitors (Table 1):

Table 1. Perceived Short and Long Term Benefits of E-Commerce		
	Short Term Perceived Benefits	Long Term Perceived Benefits
D I R E C T	<p>Increased Revenues (Price Waterhouse Coopers, 1999)</p> <p>Reduce Costs of Information (Price Waterhouse Coopers, 1999)</p> <p>Lower Costs in Acquiring Supplies (Abell and Lim, 1996)</p> <p>Direct Advertising (Poon and Strom, 1997)</p> <p>Online Sales and Transactions (Poon and Strom, 1997)</p> <p>Savings in Communication Costs (Poon and Strom, 1997)</p> <p>Savings in Advertising Costs (Poon and Strom, 1997)</p> <p>Lower Cost Margins for Products or Services (Abell and Lim, 1996)</p>	<p>Possibility of Reaching International Markets (Abell and Lim, 1996)</p> <p>Attract New Investments (Price Waterhouse Coopers, 1999)</p> <p>Easy Access to Potential Customers (Poon and Strom, 1997)</p> <p>Increase in Market Share of Products and Services (Abell and Lim, 1996)</p> <p>Increased Productivity (Abell and Lim, 1996)</p> <p>Increased Sales (Walczuch et al, 2000)</p>
I N D I R E C T	<p>Distance Relate Barriers Disappear (Walczuch et al, 2000)</p> <p>Improvement in Company Image (Poon and Strom, 1997)</p> <p>Continuous Advertising all Around the World (Walczuch et al, 2000)</p> <p>More Customer Service (Walczuch et al, 2000)</p> <p>Increased Customer Satisfaction (Abell and Lim, 1996)</p> <p>Obtain Know-How Through Discussion With Others on the Internet (Poon and Swatman, 1997)</p> <p>Better Service and Support From Suppliers (Abell and Lim, 1996)</p> <p>Speedy and Timely Access to Information From Websites (Poon and Strom, 1997)</p> <p>Communication and Efficiency Improvement (Poon and Strom, 1997)</p> <p>Effectiveness in Information Gathering (Abell and Lim, 1996)</p> <p>Availability of Expertise Regardless of Location (Abell and Lim, 1996)</p>	<p>Improve Competitive Position (Price Waterhouse Coopers, 1999)</p> <p>Form and Extend Business Network (Poon and Strom, 1997)</p> <p>Competitors Performance Benchmarking (Poon and Strom, 1997)</p> <p>Create New Business Opportunities (Poon and Strom, 1997)</p> <p>Increase Customer Satisfaction (Abel and Lim, 1996)</p>

Source: Scupola (2002) p3

Whilst this paper has extolled and in many cases castigated the virtues of SME adoption of e-commerce, it has also identified a shortfall between the perceived benefits to the SME and SME e-commerce adoption rates. In order to accurately develop the proposed process model, it is therefore vital to fully understand and explore the current barriers to e-commerce adoption within SMEs. An understanding of those barriers to adoption, should present the first step towards identifying elements of the final model that would be realistically applicable to all UK SMEs. Whilst this paper has focussed upon SME specific barriers to e-commerce adoption, an overview of *all* perceived barriers to business adoption of e-commerce is presented in table 2.

Table 2. Barriers to e-commerce adoption	
Technical	Financial
<p>Security and encryption (Comercnet; 2000, Love et al; 2001; Chong and Pervan; 2001) Lack of qualified personnel (Comercnet; 2000, Love et al; 2001; Chong and Pervan; 2001) User authentication and a lack of public key infrastructure (Comercnet; 2000; Love et al; 2001) Internet/ web is too slow and not dependable (Comercnet; 2000, Chong and Pervan; 2001) Interoperability (Love et al; 2001)</p>	<p>Inability to develop a return on investment (Love et al; 2001) Investment risk (Love et al; 2001) Cost of training and education (Love et al; 2001) Loss of productivity and market uncertainty (Love et al; 2001) Available credit (Love et al; 2001) Initial set up costs (Chong and Pervan; 2001) Costs of switching from current EDI to online systems (Deeter-schmelz et al; 2001)</p>
Organisational	Behavioural
<p>Lack of business models (Comercnet; 2000) Culture (Comercnet; 2000) Organisation and planning (Comercnet; 2000, Love et al; 2001, Chong and Pervan; 2001) Lack of employee knowledge (Love et al; 2001, Chong and Pervan; 2001) Lack of infrastructure (Love et al; 2001) Reluctance to link to other parties (Love et al; 2001) Time taken to implementation (Purchasing; 2001) Lack of supplier interest (Alexander 2001; Deeter-schmelz et al; 2001, Chong and Pervan; 2001) Lack of perceived need (Chong and Pervan; 2001)</p>	<p>Trust and risk (Comercnet; 2000) Fraud (Comercnet; 2000) Resistance to change existing business processes (Love et al; 2001) Fear of job losses (Love et al; 2001) Need to undertake training (Love et al; 2001) Uncertainty and lack of overall stability (Love et al; 2001)</p> <p style="text-align: right;">Adapted from: Flynn and Purchase (2002) p3</p>

Whilst it is clear that the proposed strategic process model will inhibit or reduce some of the identified barriers to SME adoption of e-commerce within the UK, it is toward reducing the overall failure rates of those SMEs who are planning to adopt e-commerce that this study is primarily directed. The SME sector is generally characterised by high failure rates. Within the European Union, Ballantine *et al* (1998) demonstrates that 11% of all SMEs fail within their first year of business and 80% fail within five years. Within the UK approximately 400,000 SMEs cease trading each year (over 10% of all SMEs) and have an average lifespan of around three and a half years (Bank of England; 2001). More usefully, Nataraj and Lee (2002) have identified the failure rate among SME e-commerce operators in the US to be in the order of 75% within the first two years of conducting business, which they suggest equates to 15,000 job losses each year and many billions of dollars of wasted investment capital. Unfortunately Quayle (2002) identifies a similar failure rate amongst UK SMEs, whilst Marquess (2001) reports through anecdotal evidence that much of this failure can be attributed to poor planning, poor strategy and a lack of a strong business model upon which the enterprise is based.

Critical Success Factors

In order to provide a measure of authority to the sample selection process of this paper, it is imperative to identify those critical success factors that can be used to separate successful e-commerce utilising SMEs from those that are unsuccessful. As such, Galvin (2000) defines critical success factors as those areas in which failure can lead to the failure of the total enterprise, a view supported by Dobbins (2001) and Jeffcoate et al (2002). On that basis, research conducted by Jeffcoate et al (2002) attempted to identify critical success factors that were apparent within successful examples of e-commerce adoption by SMEs in the UK. The study, built upon the work of van Rijsbergen (1998) and a KITE survey (1998), identified eleven relevant critical success factors, including commitment, control, process improvement and effective integration. Many of these critical success factors are echoed by the work of Mehta and Shah (2001) whom argue that in addition to the above, security and fulfilment should be also be considered to be critical success factors as these are two of the leading barriers to consumer acceptance of e-commerce. As such, it is proposed that a combination of the two pieces of work be used in order to identify the sample required by this paper (table 3).

Table 3. Identified Critical Success Factors	
Jeffcoate et al (2002)	Mehta and Shah (2001)
<ol style="list-style-type: none"> 1. Commitment 2. Content 3. Price Sensitivity 4. Convenience 5. Control 6. Interaction 7. Brand Image 8. Community 9. Partnership 10. Process Improvement 11. Integration 	<ol style="list-style-type: none"> 13. Reliability 14. Security

Paper et al (2003) identified a significant failure rate amongst e-commerce active SME's in the US and consequently argued that this failure was linked to a lack of a guiding strategy or process model available to SMEs wishing to engage in e-commerce activity and thus attempted to formulate such a model. The research took into account the views of 15 "successful" SMEs (criteria for measuring "successfulness" is only vaguely defined in terms of profitability) within the US, and whilst it could be argued that this sample was in fact too small to be representative of the population, a process model for the implementation of e-commerce strategy *was* arrived at. Whilst the study did identify common processes amongst the sample chosen, the results were, in this papers' view, deeply flawed. Paper *et al* did not consider whether or not the processes or strategies identified within their report were in fact also identifiable within "unsuccessful" SMEs, and this is perhaps indicative of the small sample analysed. Had Paper *et al* considered analysing the 15 successful ventures against a control sample of unsuccessful e-commerce ventures then the results would have been more verifiable. As it stands, this dissertation suggests that the results of this study cannot be regarded as safe and that whilst the methodology is acceptable, it should have been tested upon a much more representative sample than as was. Moreover, the resulting process model is perhaps overtly simplistic in design and requires a great deal of further elaboration or explanation on the part of the author. Rao et al (2003), also attempted to develop a model to aid SMEs in the development of e-commerce within their business activities, but in doing so took a somewhat different view of model development. Rao et al created a four-stage model for successful e-commerce development prior to assessing its practical applicability against a case study methodology. However, the four stages identified are applicable to the stages an SME will progress through as it attempts to implement an e-commerce operation, and on that basis, Rao et al (2003) argues that the model also offers an SME the opportunity to assess its stage of e-commerce development against that of its competitors. Perhaps it could therefore be argued, that the Rao et al (2003) study is an analysis of adoption first and a guide to implementation second. Therefore this paper attempts to identify a transferable process model for UK SMEs primarily given their particular characteristics.

Methodology

On the basis of a multi-methodological approach, it was decided to collect three distinctly different sets of data.

1. Quantitative data: Which allows an interpretation as to which SMEs have been successful within the field of e-commerce, thus providing the required sample from the population. This approach to sample identification is strongly supported by both Bryman and Bell (2003) and Hussey and Hussey (1997), who suggest that the use of quantitative data to facilitate the collection and analysis of qualitative data, is both logical and effective.

2. Qualitative data: Which allows an analysis and interpretation of the processes adopted by those SME's identified to be within the sampling parameters and which can lead directly to the development of a strategic process model. Qualitative data is selected, due to its focus upon understanding, exploration and interpretation (Saunders et al, 2002).
3. Quantitative data: Which allows an analysis as to how transferable the developed strategic process model will be amongst other SME's considering the adoption of an e-commerce strategy. In this situation, quantitative data is being used within a "testing" and "verification" role, an approach advocated by Ghauri and Gronhaug (2002).

In order to identify those SMEs that can be regarded as "successful", it was necessary to define "successful". In this case it will be taken to mean those SMEs that display the greatest correlation with an amalgam of the critical success factors identified by both Jeffcoate et al (2002) and Mehta and Shah (2001) (table 3).

The quantitative data required to conduct the analysis was collected via a postal questionnaire survey technique, as this provided the greatest opportunity for comparison with the CSF's due to the standardised nature of the response (Saunders et al, 2003). In order to choose the sample size, it was first important to define which SMEs in the UK use e-commerce as a medium for business. Obviously it would be simple to target a broad selection of SMEs in the UK and as a precursor to the questionnaire, ask them if they do indeed conduct business over the Internet. Whilst this would be simple, it would also be impractical, as we have already identified that only 67% of SMEs are even connected to the Internet (OfTel, 2002), thus a survey of this type would deliver only a small number of useful returns. It is therefore necessary to use some form of secondary data to identify which SMEs within the UK actually conduct e-commerce. Both the Sunday Times Enterprise Network Business Directory and the British Chambers of Commerce Directory list a large number of SMEs throughout the UK who carry out some form of e-commerce, and it is the content of these lists (those that fall within our original definition of e-commerce) that formed the population for the requirements of this research in order to identify the qualitative participants for further study.

The questionnaire given to the sample of 500 seeks to determine how these SMEs view themselves in terms of the 13 CSF's listed. Answers were on a Likert scale (1-7), with a lower number suggesting that the SME has little correlation with the CSF and a higher number suggesting a very strong correlation with the CSF. Any SME demonstrating an average of 5 and above across the required range were considered to be "successful" and therefore selected as part of the sample. Additionally, 5 "unsuccessful" SMEs were selected at random (3 and below average on the scale), to provide a control sample that can be used to counter the issues identified within the Paper et al (2003) research project. Thietart et al (2001) and Bryman and Bell (2003) argue that validity and reliability may be an issue with this type of survey, as the respondents to the questionnaire may not give truthful answers for egotistical reasons. Whilst this is unlikely to represent the majority of the sample, as the entire research project and its conclusions could be of great use to all those involved in the survey, it is a valid point. However, having to accept the truthfulness of the data from a questionnaire will always be a limiting factor (Saunders et al, 2003), which can in part be alleviated by careful question design (Thietart et al, 2001). Given that it is entirely feasible that the required sample will not be initially identifiable, due to the strict requirements of the survey, a lesser figure of 15 "successful" firms and 5 "unsuccessful" firms were considered acceptable to this study.

The second piece of (qualitative) data required was designed to be interpreted in such a way so that it can be used to determine the processes used by successful SMEs when implementing an e-commerce venture. This is representative of an inductive approach to model development, whereby observation and experience precede model development (Gill and Johnson, 2000). A deductive approach (as used by Rao et al (2003)), would not be acceptable as it offers too rigid a methodology and would not permit the exploration of alternative or unconsidered activities and processes that may be identifiable within the sample SMEs (Saunders et al, 2002). On that basis, formulation of the required strategic process model was by way of a narrative analysis of in-depth semi-structured interviews, as this allowed a clear understanding of process and process flow from the perspective of those with experience of e-commerce implementation. The interviews were semi-structured (thus allowing interviewees to discuss relevant information that

this research project may not have considered and to maintain a consistent structure for easier comparison of the narratives), audio-taped (for ease of transcription – (Thietart et al, 2001)) and the target was those who control company strategy relating to e-commerce (expected to be the owner/entrepreneur) as it is they who will hold the most relevant information.

In order to gauge the transferability of the strategic process model identified through the analysis of the above interviews, it was necessary to consider the views of the original sample. A completed version of the model was mailed out to the original respondents of the first questionnaire, along with a second questionnaire, which will ask for a very structured (quantitative) response as to the acceptability and implementability of the model (in their opinion).

Questionnaire Design

The questionnaire was designed with two purposes in mind. Firstly and perhaps fundamental to the success of this study, the questionnaire was required to give respondents the opportunity to assess themselves against the previously identified critical success factors. Secondly, and perhaps of slightly less importance, the questionnaire was required to extract data in order to provide a degree of categorisation to the final sample. To that end, the questionnaire was divided into two sections. Section 1 sought to gather the required data relating to the categorisation analysis of each business (as detailed above). Data collected at this stage included that which assessed the size, age and nature of the business (9 questions), whilst more specific questions sought to extract information relating directly to the e-commerce operation active therein (5 questions). Section 2 of the questionnaire requested that the respondent grade themselves against the previously identified critical success factors (now articulated into a series of questions) using a Likert scale of 1-7 in order to facilitate identification of the correct sample. At this stage of the study, a decision was taken to adapt the methodology slightly. Whilst 13 critical success factors were originally identified as being suitable for this study, only 11 were included within the questionnaire, on the basis that it was felt that neither “community” nor “partnership” could be sufficiently articulated so as to provide a reliable response.

Response Rate

In terms of response, the first batch of 250 questionnaires yielded 52 (20.8%) responses and the second batch 41 (16.4%). Whilst this level of response is acceptable, it falls some way behind the 30% response rate identified by Gill and Johnson (2002). This shortfall can perhaps be explained by the time of year in which the study took place (summer holiday period), or perhaps the covering letter or questionnaire was not sufficiently well designed so as to attract a more representative response. On a more individual level, perhaps it could be argued that the potential respondents did not have the available time to complete the survey, or were neither interested in, nor knowledgeable about, the e-commerce operation within their organisation per se.

Interview Sample Selection

The methodology of this paper identified the sample requirement as being 20 successful e-commerce utilising SMEs and 5 unsuccessful e-commerce utilising SMEs. On the basis that an average section 2 questionnaire score of 5 and above represents a successful e-commerce operation and an average section 2 questionnaire score of 3 or below represents an unsuccessful e-commerce operation.

Overall, 31 SMEs (33%) identified their e-commerce operations as being successful, 19 (20%) as being unsuccessful and 43 (46%) were identified as being between categories. Clearly, the 33% success rate and only 20% “unsuccessful” rate demonstrates a clear divergence from the views of Nataraj and Lee (2002) who identify the e-commerce failure rate to be closer to 75%. Of the 50 firms identified as being suitable for further study, only 22 (44%) were willing to be interviewed within the allocated data collection period. Of these, 5 (10%) could be regarded as

being unsuccessful and 17 (34%) as being successful. Of the 22 willing to be interviewed, 4 (18%) did not have time, or were not willing; to take part in face-to-face interviews and where such a problem occurred, telephone interviews were conducted (all such firms fell within the "successful" sample range). The final sample is presented in table 4, along with the overall average scored by each firm against the identified critical success factors, the nature of the business and the web address. All firms interviewed allowed their corporate identities to be used directly within this paper, bar two, whose request for anonymity was respected.

Table 4. Selected Sample (Successful): Face to face interviews				
#	Company name	CSF mean score	Nature of business	Web address
1	Woodway Office Supplies Ltd.	5.0	Office equipment/ supplies/furniture retailer	http://www.wodwayoffice-supplies.com
2	Cliff Pratt Ltd.	5.0	Premium cycles and components	http://www.cpcycles.com/
3	The Card Corporation Ltd.	5.2	Print intermediary and e-commerce solutions	http://www.cardcorp.co.uk
4	Ken Spelman Rare Books	5.1	Rare/ out of print book retailer	http://www.kenspelman.com
5	ACS Office Solutions	5.2	Office solutions provider	http://www.acsofficesolutions.com
6	Alpha Power Cleaners	5.3	Jet wash, floor cleaner reseller	http://www.alphapowercleaners.uk.com
7	Archbold Logistics Ltd.	5.3	Logistics and e-commerce solutions	http://www.archbold.co.uk
8	Requested anonymity	5.4	Premium mountain bike/component/ accessory retailer	N/A
9	First Steps Ltd.	5.4	Baby care products retailer	http://www.firststepsltd.co.uk
10	Otley Modelsport Ltd.	5.5	Radio Control Model Car retailer	http://www.modelsport.co.uk/
11	Express Cleaning Supplies	5.6	Industrial/commercial cleaning products	http://www.express-cleaning-supplies.co.uk
12	Rosemary's Health Foods	5.7	Health food retailer	http://www.rosemarys-healthfoods.co.uk
13	Furniture 123 Ltd.	5.8	Furniture retailer	http://www.furniture123.co.uk
Selected sample (successful): Telephone interviews				
14	Requested anonymity	5.3	Specialist food retailer	N/A
15	Cranswick Gourmet Bacon Company Ltd.	5.4	Direct delivery butchers	http://www.jackscaife.co.uk/
16	Bradshaws Direct Ltd.	5.4	Water garden products	http://www.shopcreator.com/mall/departmentpage.cfm?store=BradshawsDirect
17	Aria Technology	5.8	Computer component/systems retailer	http://www.aria.co.uk/
Selected sample (unsuccessful): Face to face interviews				
18	Monk Bar Model Shop Ltd.	2.0	Scale model retailer	http://www.monkbarmodelshop.co.uk
19	White and Bishop Ltd.	2.4	Outdoor clothing/accessories retailer	http://www.whiteandbishop-outdoor.co.uk
20	Commando Knitwear Ltd.	2.6	Knitwear manufacturer/retailer	http://www.commando-knitwear.co.uk/

21	Advance Computers	2.8	General computer hardware retailer	http://www.acsyork.com
22	Margaret's China	2.9	Rare and out of production Wedgwood china retailer	www.marg.co.uk

The results from their questionnaire are shown below in Table 5. Clearly, the selected sample is not wholly representative of the UK SME population as almost 70% of UK SMEs do not employ *any* members of staff, whilst within the selected sample, no firms match this description, with the majority of firms employing between 1 and 49 persons. Additionally, 9% of firms are identified as having more than 50 employees (and are therefore categorised as medium sized), whereas the national SME average is closer to 0.7%, and no final sample firm recorded its turnover as being below £56K, whereas this study clearly demonstrated that almost 12% of all UK SMEs are categorised as such. Fortunately, as identified within the methodology, identifying a representative sample was never the aim of this study, rather it was intended that a *suitable* and *usable* sample be selected.

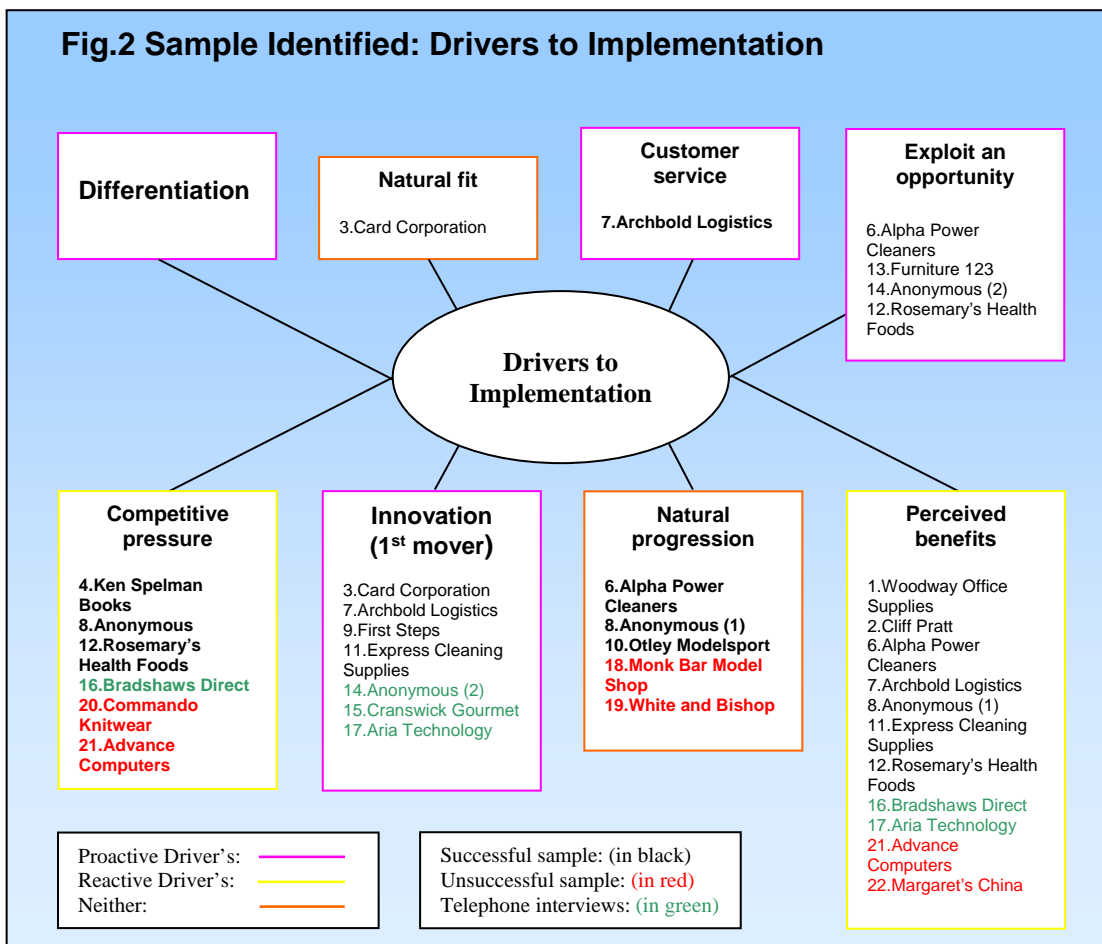
Table 5: Questionnaire Responses From Selected Sample

Trade	Local only 14%	England only 9%	Within UK 77%	International 0%	
No. of employees	None 0%	1-9 employees 46%	10-49 employees 45%	50-249 employees 9%	
Approximation of turnover	Under £56K 0%	£56K – 250K 14%	£250K - 1.5m 45%	£1.5m – 2.8m 14%	Over £2.8m 27%
Age of business	3 years or less 5%	4-10 years 23%	Over 10 years 72%		
Principal area of business	General 9%	Wholesale/retail 63%	Transport/communication 23%	Manufacturing 5%	
Principal delivery method	Services 9%	Both 41%	Products 50%		
Legal status	Sole trader 9%	Partnership 18%	Incorporated 73%		
Ethnic origin of owner/manager	White British 95%	Ethnic minority 5%			
Gender split within management	Predominantly men 68%	Equal responsibility 0%	Predominantly women 32%		
No. of specialist IT staff employed	None 54%	1 employed 27%	2-4 employed 14%	5-10 employed 5%	
Contribution to the business of e-commerce	Significant 32%	Moderate 54%	Minor 14%		
Use of e-commerce	Sell online only 45%	Both sell and purchase 55%	Purchase online only 0%		
Type of trade conducted	B2C only 55%	Both B2B & B2C 45%	B2B only 0%		
Level of satisfaction with e-commerce	Very satisfied 54%	Fairly satisfied 22%	Fairly disappointed 11%	Very disappointed 13%	

Findings

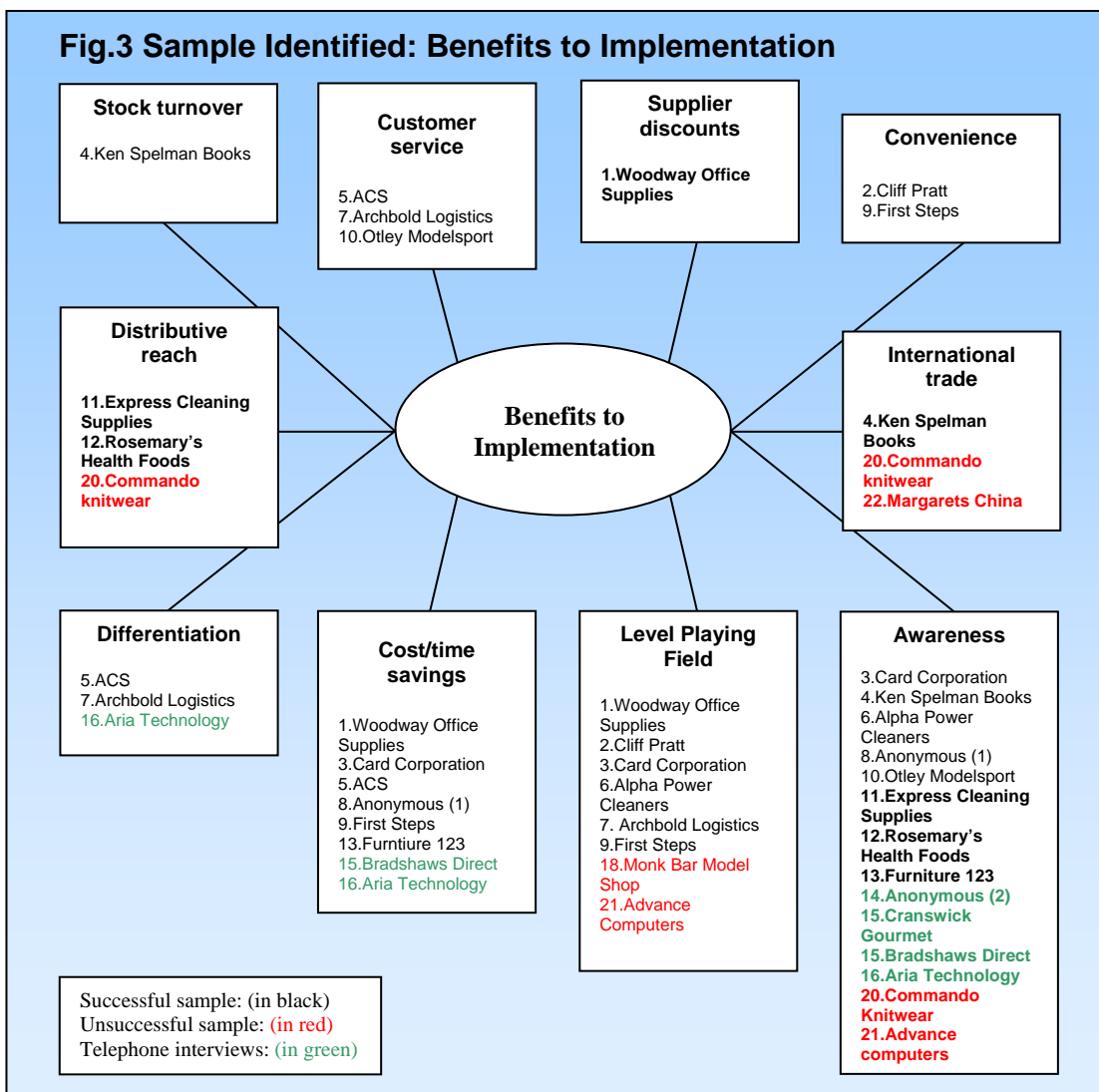
Utilising the sample identified within the methodology, 22 interviews were conducted during August and September 2004. Of these, 18 were face-to-face interviews that yielded verbatim transcripts, whilst the remaining four interviews were conducted via the telephone and yielded only a set of detailed notes. Whilst the drawbacks of telephone interviews are widely recognised (Saunders et al, 2002; Bryman and Bell, 2003) and whilst face-to-face interviews would have (in the authors' opinion) been more suited to the planned narrative analysis, their contribution was considered vital to this study in terms of preserving both the content and the size of the original sample.

Clearly the reasoning behind a firm's implementation of e-commerce will have a considerable bearing upon its implementation strategy. On that basis, it was decided that such information could be considered vital to the construction of any model designed to aid the implementation of e-commerce. All firms interviewed provided some form of extended response when this area of questioning was raised and the majority provided multiple extended responses. In terms of categorisation, seven distinct responses were identified within the sample (fig. 2) and have further been categorised as to whether the identified drivers were pro-active, re-active or neither. Clearly the perceived benefits of e-commerce drove the majority of firms toward its implementation (11 firms), although the actual perceived benefits mentioned by each firm varied significantly.



Innovation or the first mover advantage was the second most popular reason for implementing e-commerce (7 firms). The sample firms were asked to present their own perspectives and views, as to the benefits that they have gained from using e-commerce within their business. All firms, bar one, provided a multiple extended response to the question posed. The only firm *not* to provide a response was White and Bishop (no.19 – unsuccessful sample), who reasoned that, whilst they fully understood the benefits to e-commerce for the SME, they were yet to

realise any of them within *their* business. In terms of categorisation, ten distinct responses were identified within the sample (fig 3).

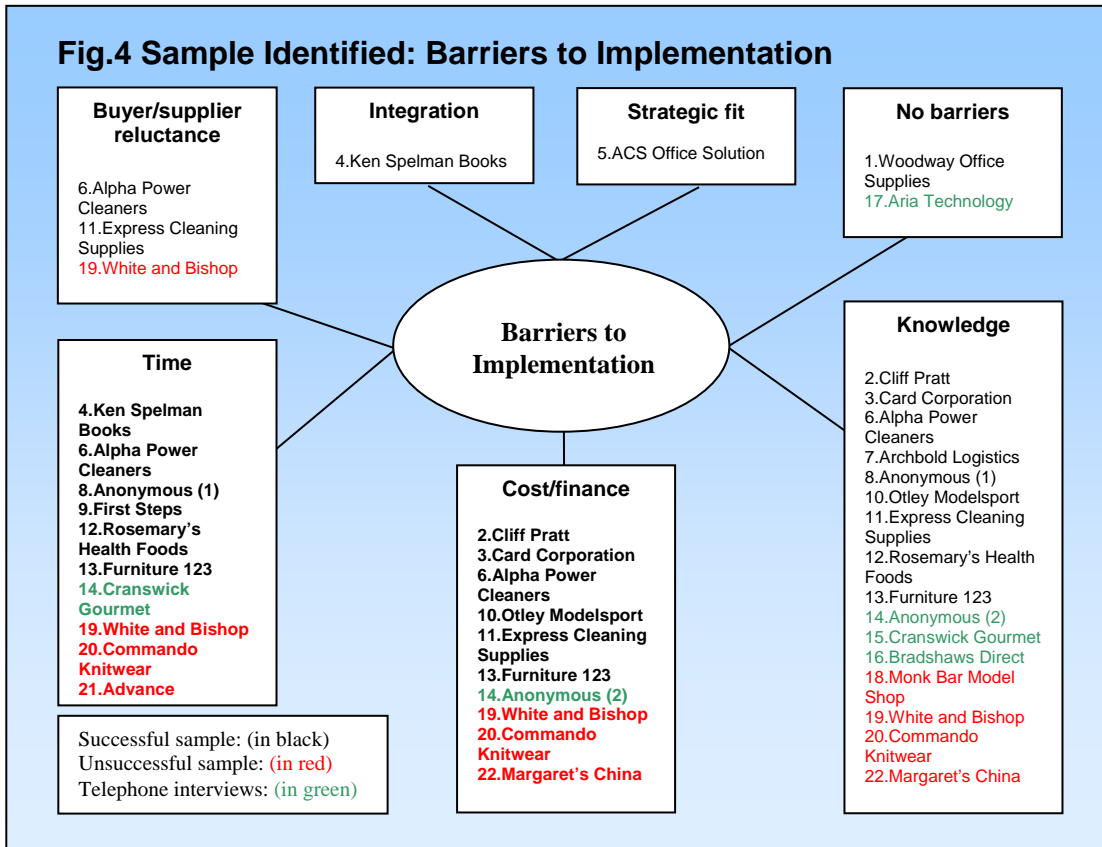


The suggestion that e-commerce provides the small firm with a level playing field and offers significant savings in terms of cost and time, were both equally represented with eight firms each. Clearly, any model designed to aid the implementation of e-commerce within an SME, must be conceived with a clear consideration of the barriers to implementation. Were it not for such consideration, the validity and applicability of the final model would be highly questionable

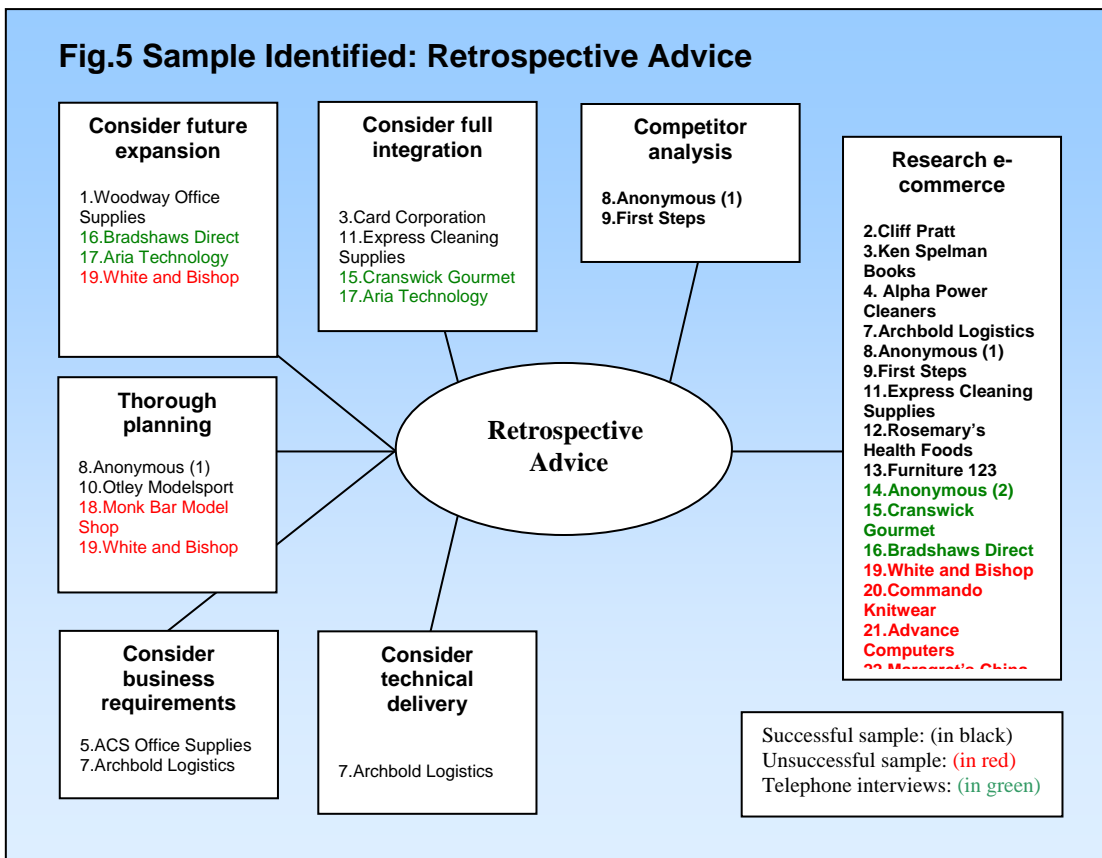
In terms of categorisation, seven distinct responses were identified within the sample (fig 4). Clearly a lack of knowledge was considered the greatest barrier to the implementation of e-commerce (16 firms). Kirsty Hall of Commando Knitwear provides the summation: *"We'll probably spend 2 hours trying to work out how to do something and then someone will say you do it like this, and it would only have taken five minutes"*. Cost was considered to be an issue (10 firms), as was time (10 firms), Ian Bolton of Cliff Pratt Ltd. and Tony Fothergill of Ken Spelman Books provide the summation: *"In terms of just getting the website up and running, I would probably say about £4000. It's not a huge amount, but it is for a small firm"*; *"They do (e-commerce sites) require a lot of work on them, administering them everyday, which takes you away from other, more important things."* The remainder categories were much less heavily subscribed to; buyer/supplier reluctance (3), no barriers (2), Integration (1) and strategic fit (1). On the basis that all members of the sample are now experienced e-commerce implementers, it was considered that their retrospective views could play an essential role in the final model creation. To that end, the sample were asked two questions (in terms of their implementation of e-commerce):

- What would they now have done differently, based upon their experiences?

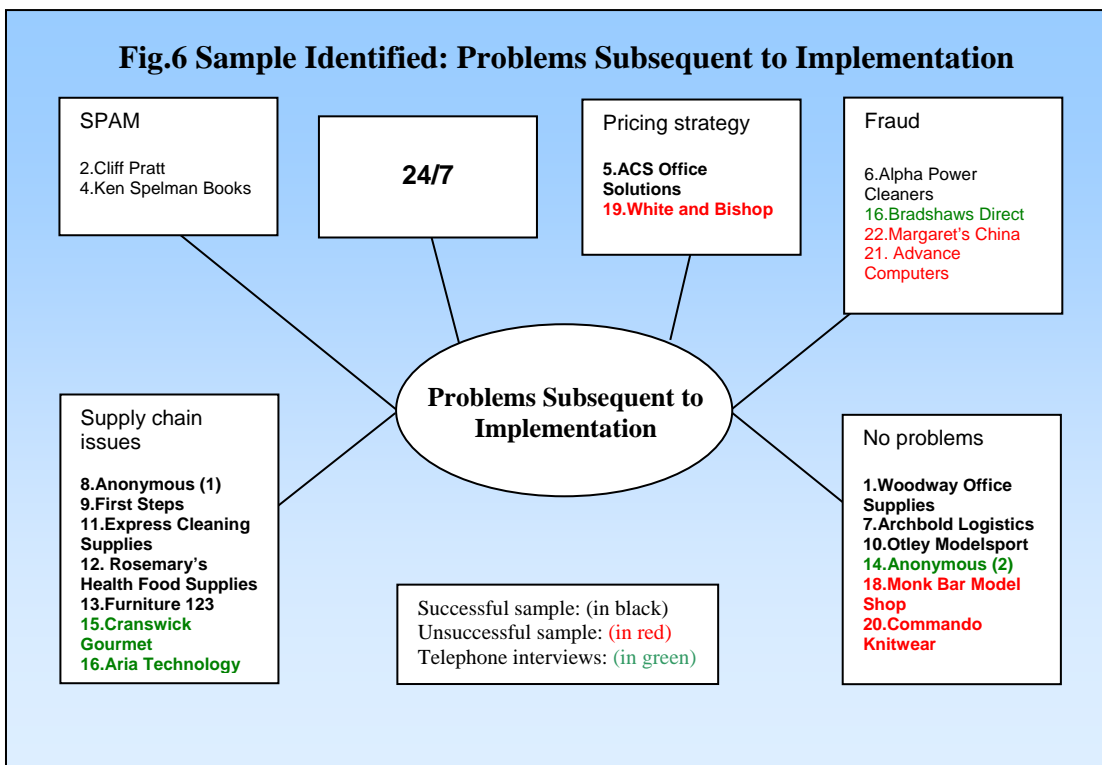
- What advice would they give to other SMEs wishing to implement e-commerce?



The answers to the two questions will be considered as one, and on that basis the entire sample provided multiple or single answer responses. In terms of categorisation, seven distinct responses were identified within the sample (fig 5).



Many of the sample firms identified specific operational problems arising from their implementation of e-commerce. It is the author's belief that such problems can be avoided, where they are properly identified and where a variety of solutions are integrated into the proposed model. On that basis, the problems identified by the sample are presented below (Fig. 6).



Clearly, supply chain issues are regarded as the greatest problem to develop subsequent to the implementation of e-commerce within a business (7 firms). The suggestion that eBay could represent an alternative online strategy for a small business or even an alternative distribution channel, sparked fierce debate amongst all those interviewed. On the basis that the views are not so diverse as to warrant categorisation, they are presented here by way of a brief discussion. Of the 22 firms within the sample, five firms are currently using eBay, eleven firms are considering its use, four firms do not consider it applicable to their business and two have not even considered its use. On the basis that a large quantity of primary data was collected for this study, only that which is considered relevant to the final analysis and model creation has been included within this chapter of the dissertation. Whilst it is in many ways disappointing to leave out large quantities of (very) interesting data and discussion, it is the very nature of the qualitative analysis (to extract that which is relevant) that precludes it. Moreover, the data extracted should prove more than sufficient for the subsequent analysis and model development, when considered within the context of the identified secondary data.

The Creation of a Transferable Process Model

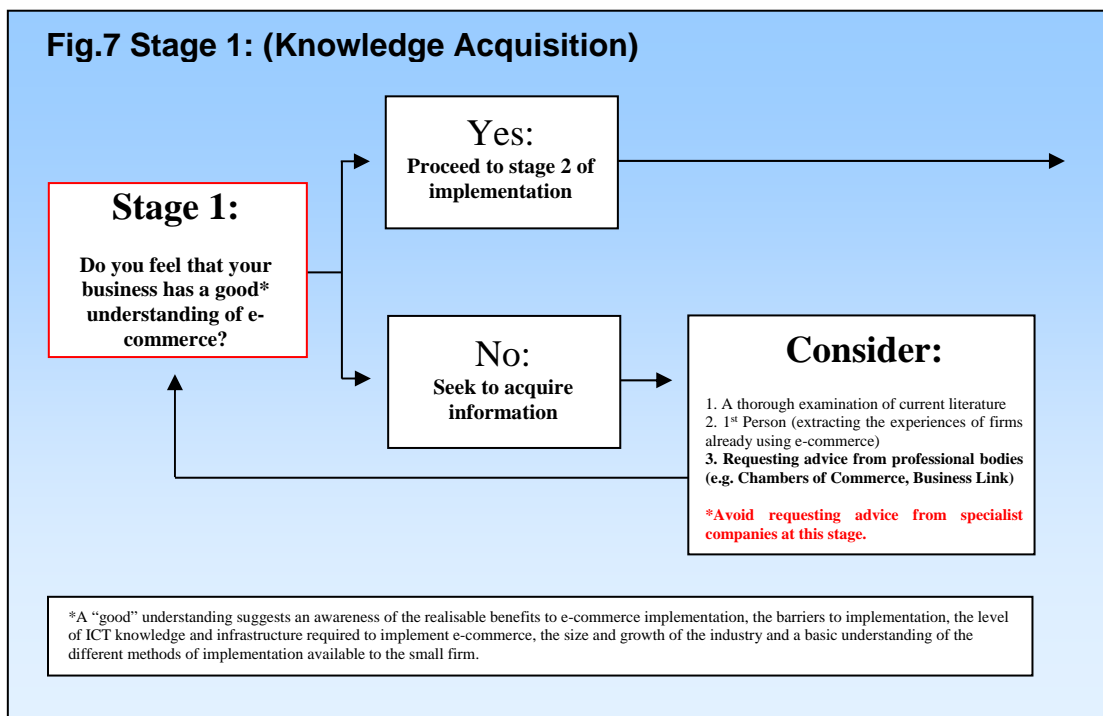
The model proposed seeks to aid only the initial implementation of e-commerce within an SME, on the basis that it intends to be specifically targeted towards achieving this task and is therefore not transferable to other tasks. Furthermore, the level of detail and specificity achieved by each stage of the model will unquestionably preclude its use for purposes other than that intended.

Stage 1: Knowledge Acquisition

Selecting a terminable format for the proposed model substantially increases reliance upon being able to correctly define the point at which the model should begin. Within the "successful sample", the initial stage of e-commerce implementation can be identified as being broadly

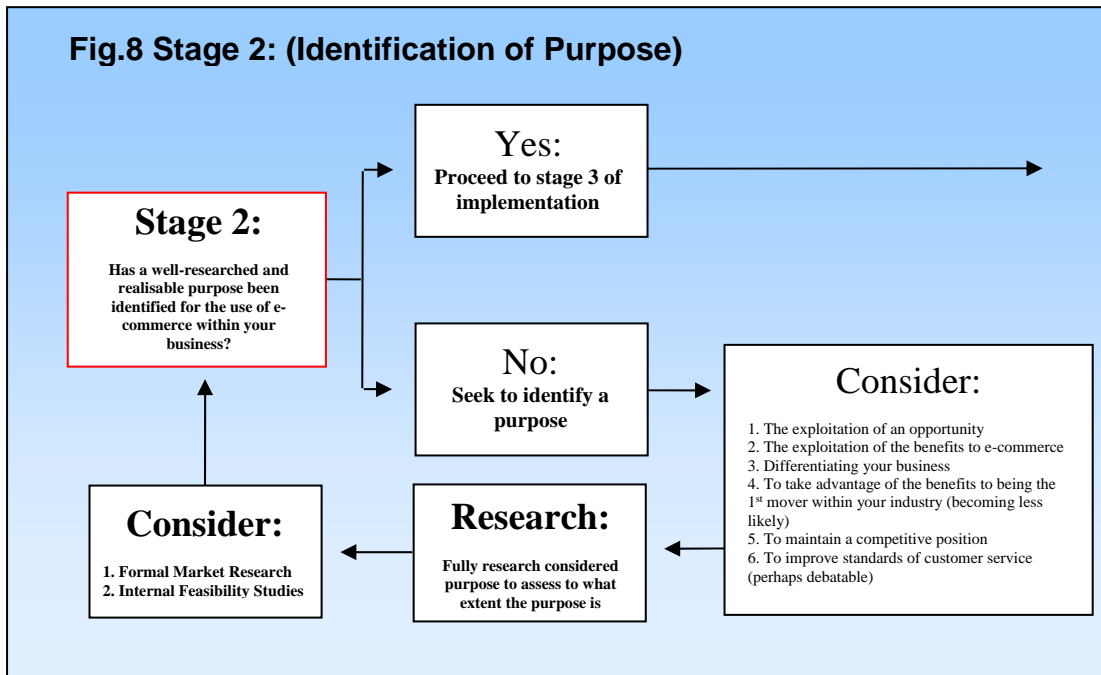
divided between “background research”, “the identification of purpose”, and “opportunity identification”. The latter two of these processes suggest the need to find an initial “fit” or “position” for e-commerce within a business, whereas “background research” suggests that the acquisition of knowledge regarding e-commerce should be the first stage to its implementation. It was demonstrated that 16 firms or 72% of the total sample considered “a lack of knowledge” to be the greatest barrier to e-commerce implementation within an SME. Conversely, achieving a strategic “fit” or “purpose” was only considered to be a significant barrier to implementation by a small minority of the sample (1 firm – 4.5%), thus suggesting that “a lack of knowledge” is a more significant barrier to the implementation of e-commerce, and one which must be overcome toward the early stages of implementation.

Within the reviewed literature, a number of authors (Ritter and Walker; 1999, Scupola; 2002, Duan *et al*; 2002, Khatibi; 2003 and Love *et al*; 2001) also cited “a lack of knowledge” as being a major barrier to the implementation of e-commerce within a small firm, and whilst a lack of clear strategy was also seen to be a significant barrier to implementation (Christensen; 2000, Love *et al*; 2001, Marquess; 2001, Delisle *et al*; 2002, Nataraj and Lee; 2002, Quayle; 2002, Stansfield and Grant; 2002, Paper *et al*; 2003), achieving a strategic “fit” or “purpose” was not. In consideration of this analysis, stage 1 of the strategic process model is presented as figure 7.



Stage 2: Identification of Purpose:

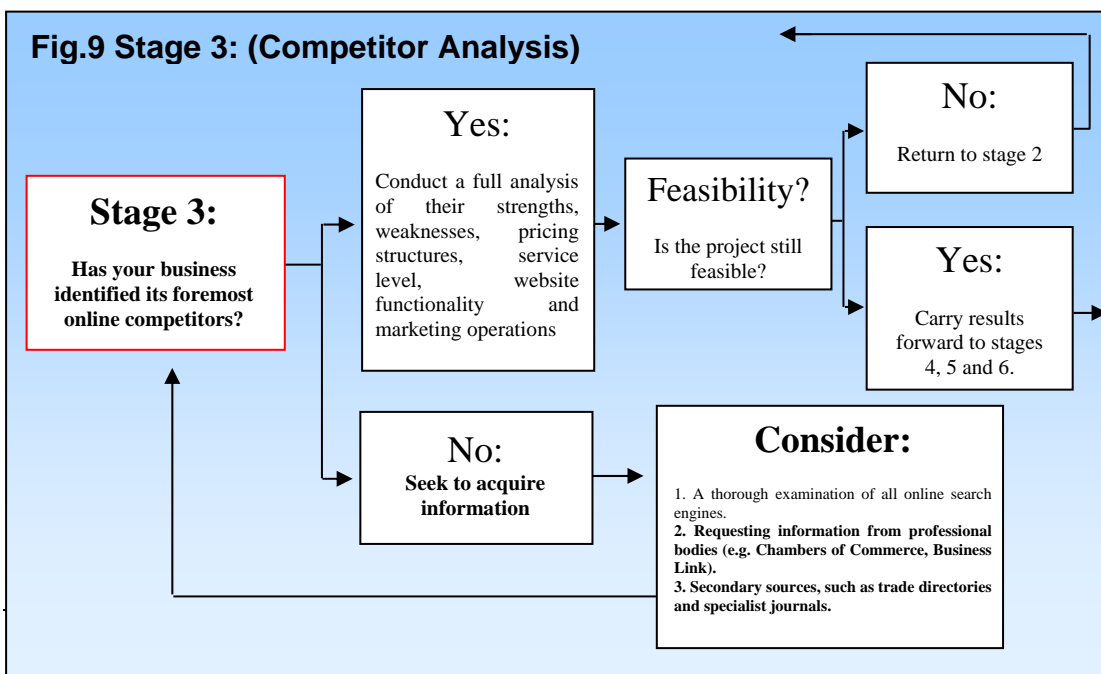
Stage 2 of the implementation model is almost entirely driven by the processes adopted by the “successful sample” and conversely by those not adopted by the “unsuccessful sample”. Within section 6.3 of this dissertation, it was demonstrated that a significant proportion of the “successful sample” suggested that their first stage to e-commerce implementation was driven by either the “identification of purpose” (5 firms - 22%), or the “identification of opportunity” (6 firms - 27%). On that basis, it can be argued that a firm’s reasoning for implementing e-commerce or the identification of purpose for e-commerce within a business, must be carefully considered. Of the drivers to implementation identified a counter question can be developed for each and should perhaps be used by firms considering the implementation of e-commerce. On that basis, market research and/or a feasibility study are to be considered key elements to this stage of the model. Unfortunately, nowhere else within the reviewed literature is the consideration of purpose to the implementation of e-commerce examined, perhaps driven by the general lack of literature pertaining to SME e-commerce strategy. On that basis, this paper selects the identification of purpose (to e-commerce) as the second stage to the proposed model (fig.8).

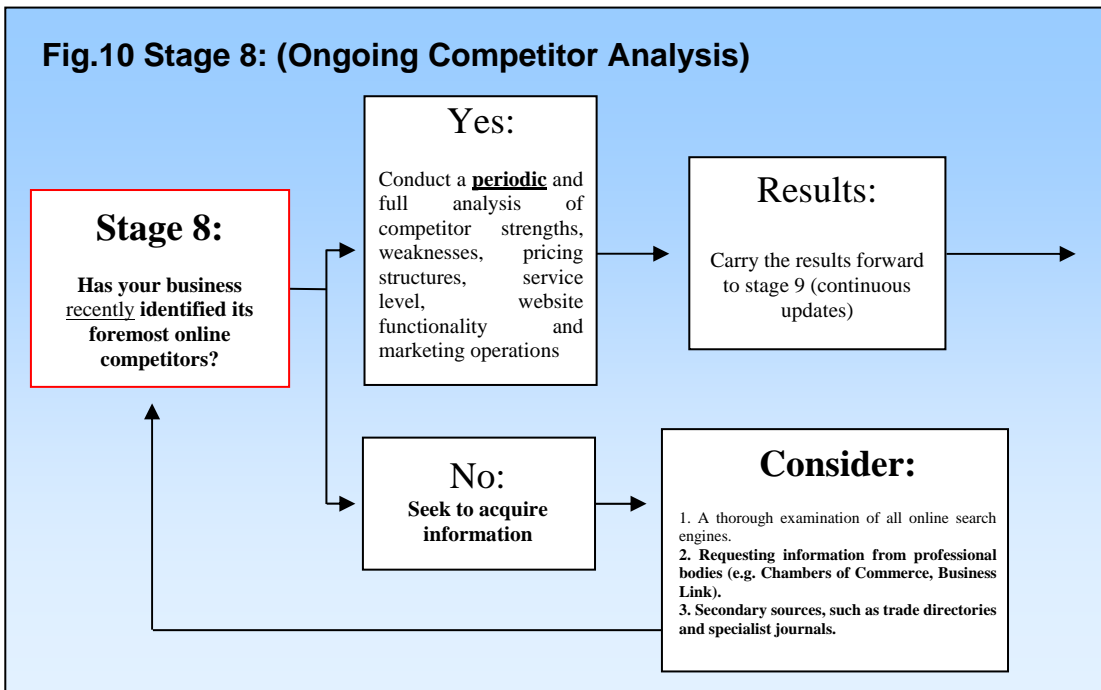


Stage 3: Competitor Analysis

Stage 3 can be considered complimentary to the market analysis and is considered to be a vital component to the final model. White and Daniel (2002) argued that whilst e-commerce presented a number of benefits to the SME, it did so under the cloud of significantly increased competition. Moreover, a further intensification of competition was identified by Benjamin and Wigand (1995), Kambil (1995) and Novak (1995), with the view that; the basis of competition *must* migrate further towards price due to the advent of intelligent, price-sensitive search engines and a lack of significantly differentiated products. The practical significance of this point is echoed by Nigel Warren of First Steps: *“You tend to find that people who shop online will (now) go through and check everyone out (in terms of price)”*.

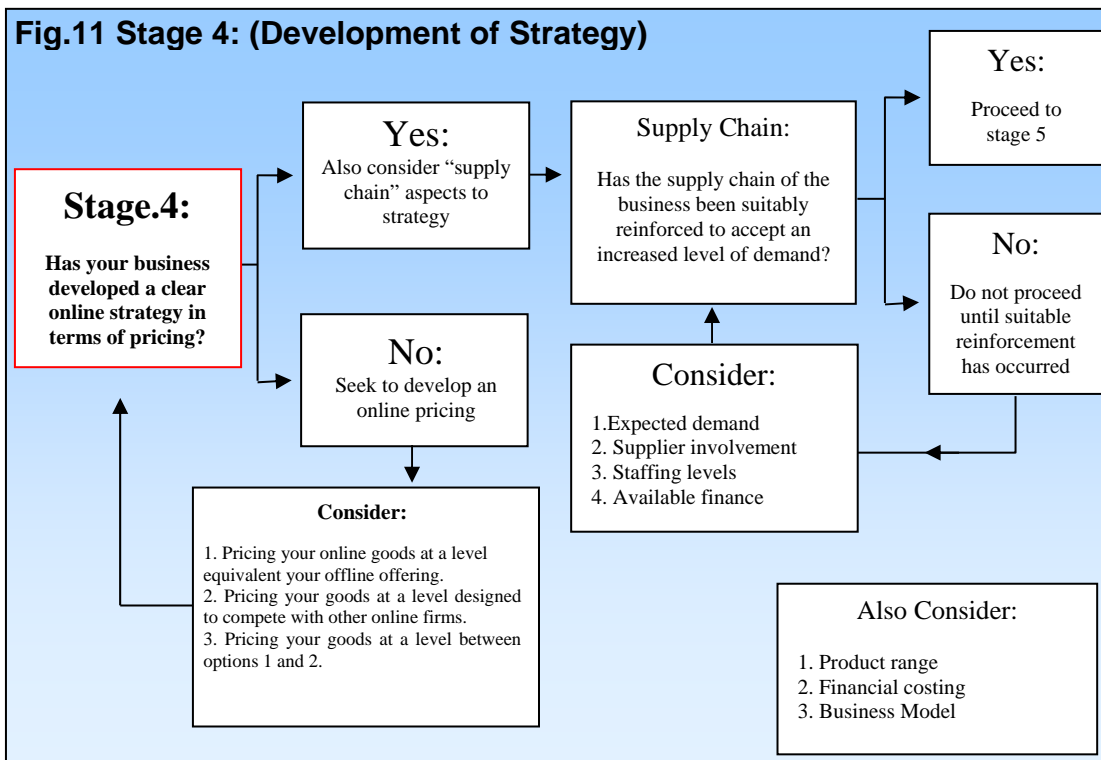
Within the “successful sample”, seven firms (41%) were identified as including a competitor analysis within their implementation process (none were identified within the “unsuccessful sample”). Whilst this is significant, of greater interest to the study was the positioning of such competitor analyses. In consideration of the above, a competitor analysis will form both stages 3 and 7 of the final implementation model. Stage 3 (fig.9) will be a “one-off” analysis, whereas stage 8 (fig.10) can be considered “ongoing” and will further facilitate stage 9 of the model.





Stage 4: Development of an e-Strategy

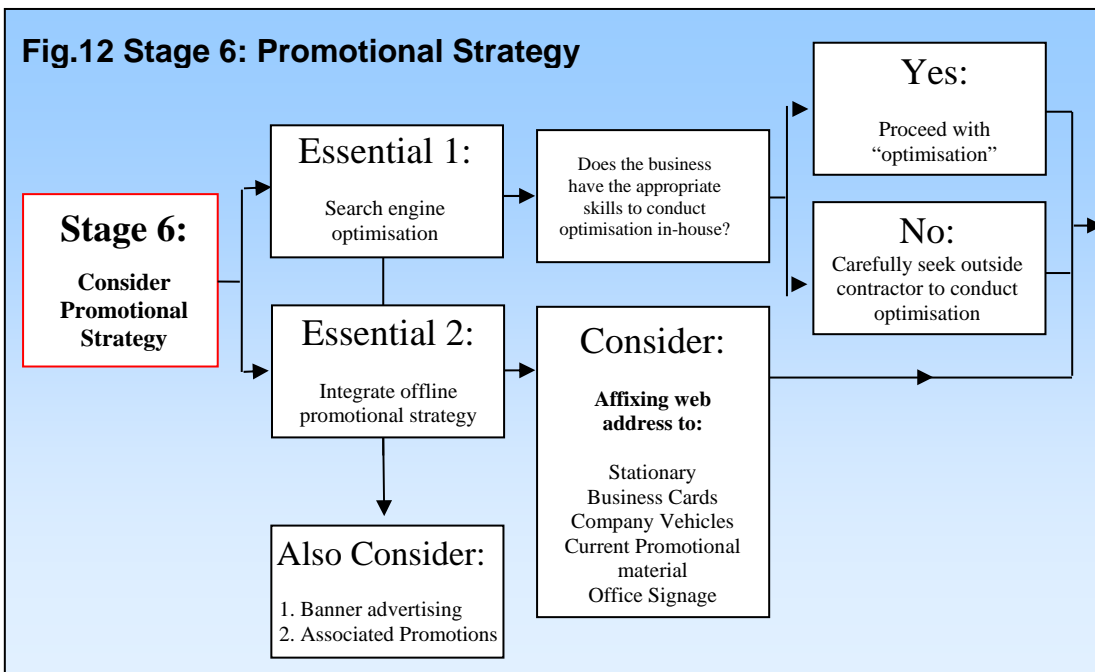
Stage 4 to the proposed implementation model is predominantly driven by the literature review. Within the aforementioned section, it was noted by Porter (2001) that where e-commerce is implemented within a business, it tends to drive that business to compete in ways, which *“violate nearly every precept of good strategy”*. A lack of effective and realistic e-commerce strategy was also blamed by Marquess (2001) for a significant contribution to the high failure rate identified within UK SMEs. On that basis, it is proposed that the implementation model should assist small firms in generating a practical and effective e-commerce strategy for use within their business. On that basis, this stage to the proposed model will also consider a solution to such problems as being an integral component to the strategic online development of the SME (Fig. 11).



Selecting the correct method of technical delivery is perhaps the most important and complex aspect of the implementation process. Where carefully selected, the method of technical delivery can assist in minimising or eradicating many of the identified barriers to implementation whilst realising many of the benefits. Of the “successful sample” 3 firms (18%) developed their website in-house, 6 firms (35%) bought an “all-in-one” software package, 1 firm (5%) signed up to an online “shopping mall” based system and 7 (41%) firms opted to totally outsource the development, operation and maintenance of their website. Of the “unsuccessful sample” 1 firm (20%) chose to develop the website in house, whilst the remaining four firms sought to outsource their technical delivery in full. Moreover, an effective solution to the problem of SPAM (identified as being a problem by only 2 firms – 9%, but considered a more widespread problem by Davies (2004) and Junnarker (2003) within the literature review) and fraud (identified as being a problem by 4 firms and examined within the literature review by Alijifri et al (2003), Saban et al (2002) and Smith (2003)) must also be sought.

Stage 6: Promotional Strategy

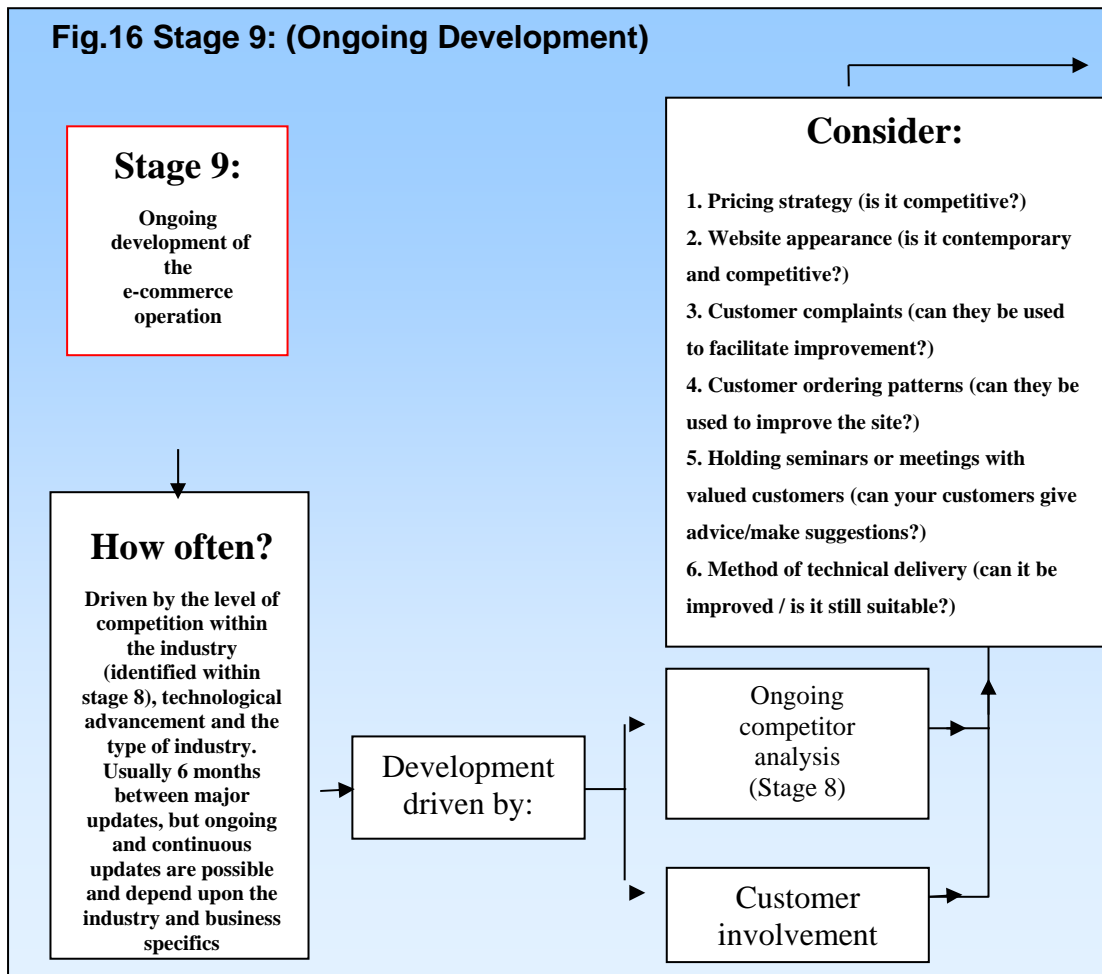
The primary data identifies “increased awareness” as the most realised benefit to the implementation of e-commerce within the given sample; it is also a viewpoint used by Quinn (1999) and Mehta and Shah (2001) to provide support to their “level playing field” argument. That no authors were identified as discussing the “increased awareness” benefit more directly, perhaps suggests a lack of perceived importance. However, on the basis that 15 firms (or 68% of the sample) identified “increased awareness” as a key benefit to their implementation of e-commerce, its significance to this study is unquestionable. On that basis, and to take full advantage of this benefit, it is proposed that guidelines for an effective promotional strategy be integrated within the model prior to the final launch stage (positioning is chosen on the basis that an effective marketing strategy cannot be generated until the previous stages to implementation have been completed). Four specific types of promotional activity were identified within the “successful” sample; online advertising, online search engine optimisation, associated online promotional activity and integrated offline promotional activity. On that basis, it is the recommendation of this paper that the website address be added wherever possible to all current offline promotional material (Fig. 12).



Stage 9: Ongoing Updates

On the basis that there is rapidly growing competition prevalent in all markets where e-commerce is applicable and on the basis of rapid advances being made in technology associated

with e-commerce (Rayport and Jaworski, 2001; Gingrande, 2001; Aizcorbe, 2001), it is the proposal of this paper that once implemented, an e-commerce operation must be subjected to continuous updating, in order to maintain a competitive position within a given market. Within the successful sample, 13 firms (76.5%) had conducted a review of their e-commerce operation and delivered some form of update (none were identified within the “unsuccessful” sample). Within the process narratives, the timing and frequency can be acknowledged as being heavily dependant upon the method of technical delivery exploited by the firm, the type of industry in which that firm operates and the level of competitive rivalry prevalent therein. In consideration of the above, rather than seeking to impose a required frequency or timing for the updating of an e-commerce site, the final model will seek to provide information to the small firm in order to facilitate their own selection of such timing (specific to their own industry and business). All firms involved suggested that such “customer involvement” had been a central facilitator to their continued success.

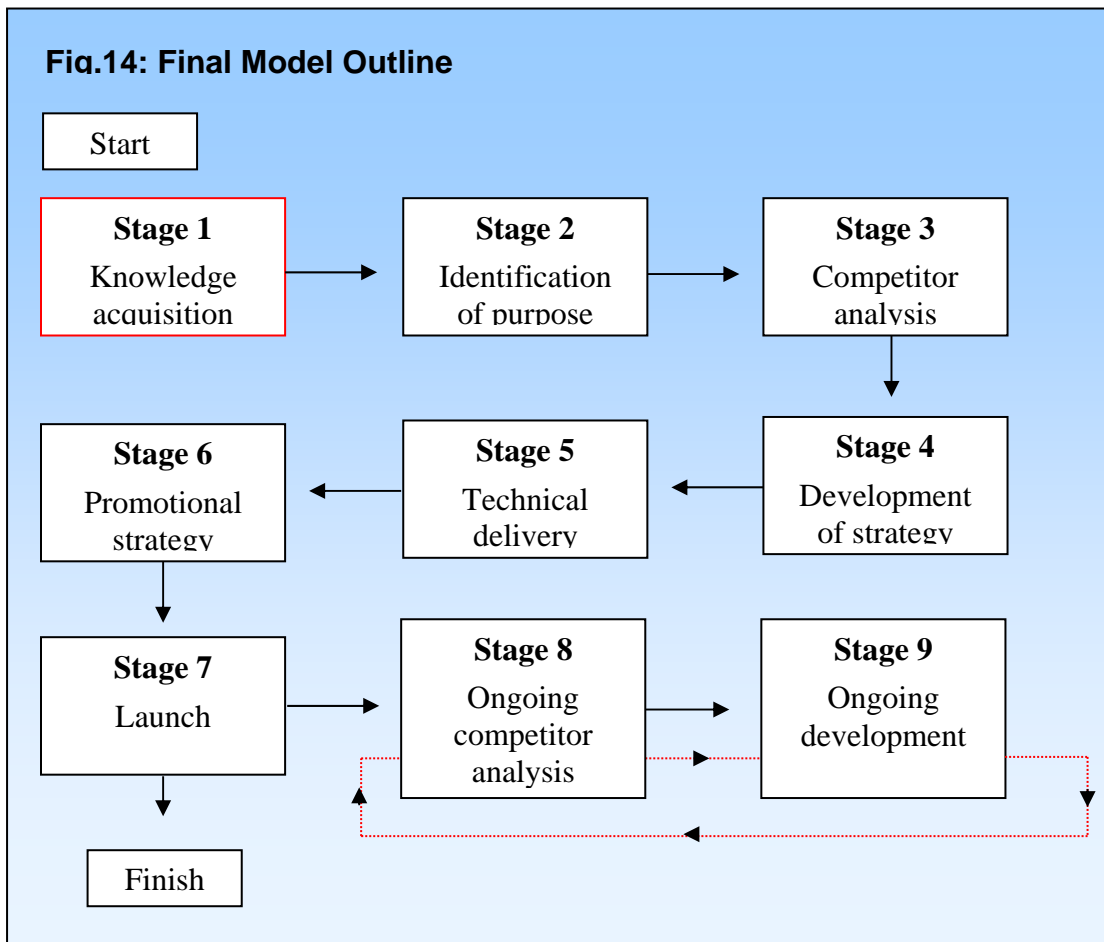


Use of eBay

eBay was never intended to be a component of the final “strategic process model” proposed within this research process. However, in light of the views of the “successful” sample and in light of the ever-increasing amount of literature surrounding the use of online auctions within small businesses, its inclusion within the final model has become all but incontestable. Moreover, the fact that almost 73% of the total sample are using, or are considering using eBay within their business, suggests that its inclusion within the final model should be of relative significance. The question of *how* to integrate eBay into the final model is slightly more troublesome. Within the “successful” sample, the views on the way in which eBay should be integrated into an e-commerce operation varied considerably and included; a principal distribution channel, facilitating stock clearance, integrating it alongside the traditional website, e-commerce test marketing and “own brand” e-commerce software in eBay. On the basis that all of the above are valid methods of integration, each shall be considered and located within the final model.

Conclusion

An outline to the final “strategic process model” is presented within fig.14. It is to be noted that stage 7 to the model (launch) contains no explanation, on the basis that none of the firms interviewed, described the launch process to their operation in any detail (many were launched on an informal basis) nor identified it as being influential to the success (or lack of success) of their operation.



On that basis, a preliminary version of the final model was sent out via e-mail (PDF A1 format) to the originally identified sample (50 firms) with a considerably shorter and less detailed questionnaire than that originally envisaged. The covering e-mail and questionnaire sought a response to five individual questions. These questions covered areas designed to assess the content, usefulness and a transferability of the model to other small firms (SMEs) within the UK. The areas of questioning were; content, clarity, ease of use, applicability and transferability.

Answers were requested upon a five-point Likert scale for each question. Qualitative views (whilst being potentially very valuable) were not sought at this stage of the study due to the inordinate amount of time required to present and analyse such data. Of the 50 firms contacted, 19 replies were received within 5 days (38% response rate). 9 respondents belonged to the “successful sample”, 3 to the “unsuccessful sample” and the remaining 7 to the original sample. Whilst this response rate is a little disappointing (especially upon consideration of the “successful sample” response rate of 52%), it can perhaps be assumed that this rate would have been substantially improved, had more time had been allowed for the accumulation of returns. Moreover, a further increase in the response rate may also have been identifiable had the survey been conducted via the postal service, on the basis that many of the firms interviewed, remarked upon the large proportion of their e-mails (including orders) that are accidentally deleted via SPAM filters and virus checkers.

The majority of respondents considered the level of content to be “about right”. This is reassuring, because (on the basis of the diversity demonstrated by UK SMEs) there was a

requirement to make the model simple enough to be understood by a wide variety of firms (thus contributing to its transferability), whilst providing advice on what is in essence a very complex and multifaceted subject. Whilst it is difficult to gain a measure to the "ease of use" of the model without directly testing it upon a number of firms, sample views were nonetheless sought on such a subject. Clearly a large proportion of the sample suggested that they "would need to try" the model before making any such a judgement, and this is perhaps to be expected based upon that discussed above. However, of those to venture an opinion, encouragingly, all suggested that the final model gave the impression of being "easy" or "fairly easy" to use.

In terms of the general level of applicability apparent within the final model, 13 members of the sample (68%) suggested that they felt the model would be "applicable" or "very applicable" to their business. That the majority of the firms within the sample consider the model applicable is encouraging, and can perhaps be considered an indicator as to how transferable the model would be in practice. All firms surveyed agreed that the final model was in some way transferable. 16 firms (84%) indicated that they felt the model would be either "highly transferable" or fairly transferable", whilst only 3 firms (15%) suggested that just "parts" of the model were transferable. Clearly, these are simply the considered views of the sample, rather than a scientific measurement of transferability, and on that basis, perhaps the "applicability" results are a more useful method of assessment regarding the overall transferability of the final model.

Further Analysis

Whilst almost all aspects of this survey can be described as demonstrating a clear inclination towards a positive assessment of the level of transferability inherent within the final model (fig.14), the limited nature of the survey conducted must be reiterated. The sample (whilst being relatively diverse) is far from being large enough to represent the level of diversity demonstrated by UK SMEs. Moreover, 19 firms is certainly not large enough a sample to determine the applicability or transferability of the model to more than 4 million SMEs across the UK. On that basis, the transferability analysis conducted here can only be considered an indicator (albeit a very encouraging indicator) as regards the effective use of the model by other small firms within the UK. The creation of the model within this dissertation was always viewed as a "starting point". For that reason, two recommendations are made pertaining to its advancement and one pertaining to the advancement of a particular field of e-commerce research.

On the basis that the transferability analysis was considered to be "inconclusive", it is the recommendation of this dissertation that the planned survey be conducted upon a much larger and more diverse sample than that considered. Moreover, the survey should be designed so as to extract a much greater degree of detail from the chosen sample. Such an analysis would give a clear indication as to the applicability of the final model in relation to UK SMEs, and could provide a degree of "closure" to this research. Subsequent to the transferability analysis, it is vital that the final model be put into practice. It is therefore the recommendation of this paper that a sample of SMEs are identified as being willing to implement e-commerce within their business upon the basis of the processes identified by the final model. Such a study could be used to give an indication as to its overall effectiveness, and would likely provide further data, with which to consider necessary advancements or modifications. Without the consideration of such a study, the final model will remain a piece of academic work with little practical relevance.

It is the final recommendation of this paper that the use of eBay as a strategic option within UK SMEs be further researched. Almost all firms within the "total" sample were identified as currently using or considering the use of eBay in the near future. Whilst the model created here does incorporate eBay, it does so on a limited basis due to an intended focus upon more traditional methods of e-commerce implementation. Moreover, the rapid growth of eBay, the lack of literature pertaining to its strategic use by SMEs (within the UK) and the difficulties involved in integrating eBay into an existing online offering can be considered further motivation to such a study.

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