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**School of Information Management and Systems
Faculty of Information Technology
Monash University**

**Business-to-Consumer Interactions on the
Internet: A Model for Small Businesses**

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**This thesis is presented to fulfil the requirements for the award of Doctor of
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Abstract

The purpose of this thesis was to develop a practical model to assist small businesses in using the Internet for business-to-consumer interactions. Any business with one to twenty employees is classified in this thesis as 'small'. In developing the model, the intention was to take into account the specific characteristics of small businesses and to use common steps that have been identified in strategic IT models as a basis for the development of the model.

When looking at the specific characteristics of small businesses, it is important to note how they differ from larger businesses, especially in their use of IT. Some of these ways are the lack of formal planning and control procedures when implementing information technology (IT), the lack of available resources (money and time) to devote to assessing IT investments and the general lack of formal IT training.

The use of IT by small businesses is usually based around administrative and operational applications (or as a reaction to something a competitor has done) rather than strategic or proactive applications. Small business attitudes to e-commerce are similar to their attitudes to IT in general. Small businesses have concerns about available resources and expertise to realise the advantages of e-commerce. They need to be able to address the technical needs required to set up and maintain an Internet presence. The reasons that small business adopt electronic commerce at the moment are not that different from their reasons for using any type of information technology: reduced costs, they are reacting to another organisation's advantage or they are forced to by a larger partner.

In order to develop the initial model for investigation, it was necessary to examine the effect of IT and related telecommunications technologies on businesses. It has been known for over two decades that IT can add value to a business' products and services. Hoffman and Novaks' communications models for marketing in a hypermedia environment were used to identify some of the differences between traditional forms of advertising and advertising on the Internet. The Communication marketing channel, representing the exchange of information, was identified as being the channel where value was more likely to be added using the Internet.

It was shown that the steps that various models followed to identify strategic IT ideas could be classified into three generic stages. These steps were the conducting of a business investigation, determination of business strategies based upon the investigation and the identification of strategic IT opportunities based upon those strategies. A number of models specifically designed for the use of electronic commerce were fitted into this framework.

At this stage, it was possible to design the initial conceptual version of the model.

This study had a number of characteristics that related it to interpretivist and post-positivist research, using an action research method. The study was divided into two major Phases.

Phase One used a web based discussion list as the data collection tool in a form of Delphi study designed to refine a conceptual model to assist small businesses to establish business-to-consumer

interactions on the Internet. As is typical with such qualitative studies, a small sample of six academics participated in the data collection.

A web discussion list was the basis for the conduct of the first Phase of this study. An expert panel was assembled to comment upon the preliminary model, which was introduced at the start of the Phase and was refined throughout the Phase.

The model was refined as a result of the discussion that occurred in the web discussion list. The following points highlight the major observations made during the first Phase of the study.

- The importance of using an easy to understand method for business investigation.
- The need for communication and consultation with external stakeholders at an early stage.
- The need to determine how the success of the Web site will be evaluated AT THE TIME of designing the Web site.

Phase Two of the study involved the use of three micro focus groups to refine the initial version of the applied model which has been developed from a combination of the conceptual model refined in Phase One and literature related to the applied model. An emphasis was placed upon those techniques that would lead to a model that was useful to small businesses. In preparing the model for this Phase, a procedures manual and accompanying spreadsheet software application (used for storing the results of small business analyses and making recommendations) were prepared.

The main themes coming out of the focus groups were the need for simplicity of operation of the model for small businesses and the need to match the model to actual situations faced by small businesses.

The final model, produced as a result of Phases One and Two of this study, has been placed through rigour at the conceptual design stage by academics and at the applied design stage by small business counsellors. The resultant tool is a package that can be used effectively by small businesses to assist them in the task of approaching their business-to-consumer interactions on the Internet.

Statement of Originality

Except where duly referenced, this report contains no materials published elsewhere or extracted from in whole or part from a thesis or report presented by myself for another degree or diploma. This thesis has not been submitted for the award of any other degree or diploma to any other tertiary institution, nor has the work of another been utilized without due acknowledgement.



Stephen Keith Burgess
December 2001

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Part One

Introduction

1 Introduction

The purpose of this thesis is to report on a study investigating a specific component of electronic commerce, business-to-consumer interactions on the Internet. In particular, these interactions are examined with a view to how they may operate in small businesses. A model is developed for small businesses to use when setting up these types of interactions on the Internet.

1.1 Literature Review

Initially, the literature review examines a number of areas related to this topic. The literature review is separated into three major sections. The first section examines some of the theoretical foundations involving the use of information technology in organisations, methods of using information and communications technology to add value to an organisation's products and services and models that can be used to do this. The second section examines some contemporary areas relating to business-to-consumer interactions in the context of the first component. These areas are:

- A description of electronic commerce.
- A view of information technology and small business.
- An examination of business-to-consumer interactions on the Internet.
- An examination of strategies for successful business-to-consumer interactions on the Internet.
- A specific look at business-to-consumer interactions in small businesses.

The first two sections of the literature review are used as the basis of the development of the preliminary, conceptual level of the model.

The final section of the literature review is devoted to the development of the applied model. In the thesis, this part of the literature review has been placed after the description of the first Phase of the study (refer next section). The following components are examined:

- Conducting a business analysis.
- Developing a Web site strategy.
- Determining the Level of Sophistication of the Web Site.
- Promoting the Web Site.
- Implementing the Web Site.
- Measuring Web Site Success.

1.2 The Study

A two Phase study is used to develop the model to assist small businesses to identify opportunities in the area of business-to-consumer interactions.

1.2.1 Phase One: The Conceptual Model

The first Phase involves developing the model at the conceptual level. A preliminary conceptual model is developed from the first two sections of the literature review. The preliminary conceptual model is then refined via a form of Delphi study, using an expert panel of academics from the fields of electronic commerce, small business and the strategic use of information technology in relation to the issues identified in the literature review. A Web based discussion is used as the vehicle for conducting the study. A final Conceptual level model is produced as a result of this Phase of the study.

1.2.2 Phase Two: The Applied Model

The aim of this Phase is to produce a model that can *actually be used* by small businesses to assist them in setting up business-to-consumer interactions on the Internet. The conceptual model developed in Phase One of the study is combined with the third section of the literature review to produce a preliminary, applied version of the model. This model is again refined, this time by use of a series of micro focus groups of small business counsellors. A final, applied level model is produced as a result of this Phase of the study.

1.2.3 What is *not covered*

This study will not cover:

- Other types of electronic commerce, such as business-to-business interactions or the application of intranets (other than where references to them are needed to assist placing this study in context).
- Technical issues related to setting up World Wide Web sites.
- Technical issues related to the speed of consumer connections to the Internet.
- Issues related to the design of World Wide Web sites, other than the costs of different levels of Web site design.
- Technical issues related to security on the World Wide Web, although a number of references are made to security issues.
- Legal issues in relation to the laws of copyright, contract and so forth, except where they apply specifically to the areas covered in this thesis.

1.3 Importance of the Study

Small businesses differ from larger businesses in their use of IT in a number of ways. Some of these ways are (Doukidis, Smithson and Lybereas, 1994; Naylor and Williams, 1994; Bergeron and Raymond, 1992; Palvia, 1996):

- They lack the use of formal planning and control procedures when assessing, implementing and reviewing IT investment.
- They lack the resources (money and time) of larger businesses to devote to assessing IT investments with the thoroughness they deserve.
- They generally have a lack of formal IT training, which could help to address some of the limitations identified here.

A number of models have been used to assist firms to identify strategic IT ideas. Some models are now being developed to assist the firm to identify e-commerce opportunities, but these lack detail or are not specific to the needs of small businesses.

The Internet is seen as providing a means by which small businesses can, in some ways, compete with larger businesses. There are a number of opportunities available to small businesses to take advantage of the 'added value' possibilities that are provided by communications technologies such as the Internet.

The purpose of this thesis is to develop a model that can assist small businesses to adopt the Internet for business-to-consumer interactions. It is intended that the model will take into account the specific characteristics of small businesses, but use the common steps that have been identified in strategic IT models as a basis for the development of the model.

1.4 Appendices to the Thesis

The thesis contains three appendices, situated after the Bibliography. Appendix One -Definitions provides a series of definitions for many of the terms used in the thesis. Appendix Two – Associated Publications by the Author, contains the abstracts for three categories of papers associated with the thesis: publications resulting from the thesis, publications involving associated work carried out by the author during PhD studies and publications quoted in the thesis. Details of Appendix Three follow.



Appendix Three refers to a CD ROM that accompanies this thesis. The CD ROM has two major sections.

The first section includes the entire Web based discussion for Phase One of the study.

The second section contains the various versions of the spreadsheet used as the basis for the applied model as they were developed during Phase Two of the study.

Appendix Three contains details of how to operate the CD ROM, which can be found in the inside back cover of the thesis.

2 Methodology

2.1 Introduction

As mentioned previously, the purpose of this thesis is to report on a study investigating a specific component of electronic commerce, business-to-consumer interactions on the Internet. In particular, these interactions are examined with a view to how they may operate in small businesses. A model is developed for small businesses *to use* when setting up these types of interactions on the Internet.

The purpose of this chapter is to discuss the theoretical foundations of the research, the research methods and the data collection techniques used in conducting the study.

2.2 Background

In developing a conceptual, and then applied, model for small businesses to use in interacting with consumers on the Internet, this study involved dealing with people. Sections of this chapter will examine the justification behind the research methods adopted and the techniques that have been used for data collection. It will also look at the research methods and the data collection techniques that were not used.

2.2.1 Description of the study

This study involves research into the information systems and small business fields. This section examines research in these areas.

2.2.1.1 A Comment on Information Systems Research

Williamson et al (2000, p.12) lists a number of reasons as to why research should play a part in professional practice. Included in these reasons are the following:

- To assist in understanding problems and issues in the workplace.
- To add to knowledge in the field and/or provide solutions to problems.
- To provide a body of research findings and theory to inform practitioners.

Information systems researchers draw problems from practice and the results of their studies usually generate theories, which need to be applied and tested by practitioners in the context of the real world information systems. Information systems researchers are very conscious about the usefulness of their research results to industry as well as the rigour of their approaches and their contribution to the core knowledge of the information systems field.

(Williamson et al, 2000, pp.17-18).

Benbasat and Zmud (1999) recognise IS research that is committed to both applying the methodology best suited to research goals and better accommodating practical endeavours. They

suggest that relevance is not just assured with the selection of a "relevant" topic. The results must be implementable before practitioners will take an interest in it. They go on to list five reasons as to why much information systems research lacks relevance. Included amongst these are:

- The dynamism of information technology. Amongst other things, this can result in the results of research 'chasing after practice' rather than leading practice and reporting results after the technology has been accepted or rejected.
- Limited exposure to relevant context. Information systems researchers must be exposed in some ways to the practical contexts where IT-related usage and management behaviours unfold.

The purpose of this thesis is to develop a model that *can be used* by small businesses to adopt the Internet for business-to-consumer interactions. It is intended that the model will take into account the specific characteristics of small businesses, but use the common steps that have been identified in strategic IT models as a basis for the development of the model. The words 'can be used' are important because they imply some level of practicality for the model. That is, it is not sufficient for the model to be developed at the conceptual level only if it is to be actually used by small businesses.

2.2.1.2 A Comment on Small Business Research

Since the 1980s and particularly the 1990s there has been an increase in the amount of research into entrepreneurship and small and medium enterprises. Gibb (2000) argues that much of this research may not have been beneficial to its intended beneficiaries. One of Gibb's criticisms focuses upon the development of research that attempts to apply the culture of large businesses to small businesses.

Corporate business values, beliefs, ways of seeing and doing things...are shown in stark contrast to those associated with those of the small business. Given the weight of power of the corporate/bureaucratic lobby in shaping society it may well be that schools and other initiatives ostensibly focussed upon entrepreneurship are in practice in danger of creating the business environment of the larger organisation.

(Gibb, 2000)

Gibb (2000) classifies the interested parties in small business research into four categories: small businesses themselves, government policy makers, small business stakeholders (such as banks, accountants, customers and suppliers) and the academic community.

Arguably the greatest challenge is that of sharing greater insight into the small and medium enterprise itself and its 'ways of seeing things' Effective ongoing communication with the SME is the key to this.

There will be a need to understand the theories that SMEs have about their own behaviour and the way that stakeholders seek to explain their behaviour. This will involve the academic in being more closely involved in the community and with the growing number of private/ public government agencies or small firm associations.

Part of the problem relates to the seeming reluctance of academics to debate more of their concepts with practitioners.

(Gibb, 2000)

2.2.1.3 Summary

The need to use a research design that is targeted specifically to small businesses is paramount. There is also a strong argument that practical research in the small business and information systems should have some direct exposure to the community the research is targeted at.

The research design for this study is therefore divided into two major Phases, the conceptual section and the applied section. Both Phases rely heavily on the literature review for development of the preliminary version of the model for refinement, and, in addition, the applied section uses the conceptual model developed in the first stage of the study.

The conceptual section of the study relies on academics that are specialists in the fields of small business, electronic commerce and the strategic use of information technology to refine the overview level model that is developed from the literature review. A form of Delphi study is used to collect the views of academics during this Phase of the study. This method was chosen as a means to introduce a conceptual view of the model to the academics, consider their varied views as to the design of the model and continually refine it until consensus was reached as to its final form. A Web discussion list was used as the vehicle for 'capturing' the views of the academics. This provided a means by which the participating academics could not only view the model, but also the responses of other academics to its various iterations.

The applied section of the study addresses some of the criticisms of research carried out in the fields of information systems and small business. The applied level model is tested for its practical relevance by exposing it for comment, criticism and debate to members of the Small Business Counselling Service, an arm of the State Government unit, Small Business Victoria. 'Micro' focus groups were conducted to receive feedback on the applied model from the counsellors. This method was chosen as it allowed for the determination of discourse, as the counsellors were actually being lead through the application of the model as it would be used by a small business. It was possible to review and refine the applied model by running a number of micro focus groups.

2.2.2 Research Methodology

2.2.2.1 A Positivist Study?

The two major Phases of this study each involve the assessment, review and refinement of a proposed model. In the case of the conceptual section of the study, the overview level model was refined. In the practical section of the study, the applied model was refined.

Each level of the model was developed on the basis of the review of literature. For the overview level model this can be found in Chapters Three and Four. For the applied level model, this is Chapter Five. However, another important component for the development of the model was the previous experience of the researcher in the area that is being studied. This involved ten years of teaching the strategic use of information technology into the undergraduate and postgraduate level of business information systems courses, six years of research into the use of information

technology in small businesses and, more recently, three years of teaching the business application of electronic commerce in small businesses. Some examples of the results of this experience can be found in Burgess (1997); Burgess et al (1997); Wenzler, Burgess and Ellis (1997); Darbyshire, Wenn and Burgess (1998); Burgess (1998); Sandy and Burgess (1999); and Burgess and Schauder (1999) (Refer Appendix Two for abstracts of these publications). This is important, because it means that the viewpoints and experiences of the researcher influenced the initial design of the model for each Phase of the study. The model therefore represents the researcher's view of the 'world' in relation to the use of the Internet by small business to interact with customers.

After the initial versions of the model were developed for each Phase of the study, the separate Phases were carried out to review and refine them. Each Phase of the study involved participants examining and commenting upon the proposed models. As such, there was an emphasis on verification of the models. Therefore, the study has *some* characteristics of a positivist study. Positivist researchers believe that the methods for researching the natural sciences can be used to research the social sciences (Blaikie, 1993).

The study of natural phenomena requires the scientist to invent concepts and theories to describe and explain; the scientist has to study nature, as it were, from the outside. Through the use of theories, the natural scientist makes choices about what is relevant to the problem under investigation.

(Blaikie, 1993, p.36)

The positivist view is that general laws of social life exist, and that any regularity is a result of a specific occurrence of a more general law. This is an objectivist view, where it is assumed that meaning already exists and is 'waiting' to be discovered by the researcher (Blaikie, 1993). In this study, the experience of the researcher in combination with the 'experience' of many other researchers (in the form of the literature review) has been used to develop the initial version of the models for each Phase of the study. The models represent a 'general law' or blueprint for successful use of the Internet by small businesses to interact with customers. In each Phase of the study, the experience of the participants is used to modify and refine the models.

The positivist's view of research is often associated with the *inductive* research strategy. Blaikie (1993) makes two statements about inductive strategies:

An inductive argument begins with singular or particular statements and concludes with general or universal statements.

(Blaikie, 2000, p.132)

This statement is true for this particular study. An attempt is being made to arrive at a general or universal statement (the final model), based upon the series of 'particular' statements produced initially.

The Inductive strategy corresponds to a popular conception of the activities of scientists, i.e. of persons who make careful observations, conduct experiments, rigorously analyse the data obtained, and hence produce new discoveries or new theories. Personal opinions are excluded from this process in order to arrive at what is believed to be objective knowledge.

(Blaikie, 2000, p.133)

This statement starts to identify some of the inconsistencies between the purely positivist view of research and this particular study. In this instance, careful observations are being made, the data is being rigorously analysed and new discoveries have emerged, but no experiments have been conducted and, more importantly (as mentioned earlier), personal opinions are vital to the study. These opinions include the initial opinion of the researcher and the subsequent opinions being sought from academic experts and small business counsellors.

For this reason, it is necessary to look beyond the positivist view of research for this particular study.

2.2.2.2 A Post-Positivist Study?

Although the positivist view has been proven to have its useful purposes over time, there is criticism aimed at those who claim it is the only research viewpoint. Those critics claim that its rigid requirements make it an abstraction of the real world (Crotty, 1998).

Science imposes a very tight grid on the world it observes. The world perceived through the scientific grid is a highly systematic, well-organised world. It is a world of regularities, constancies, uniformities, iron-clad laws, absolute principles. As such, it stands in stark contrast with the uncertain, ambiguous, idiosyncratic, changeful world we know at first hand.

(Crotty, 1998, p.28)

Crotty (1998) discusses a more modern, varied 'positivist' view where the status of research findings are tempered in relation to the status ascribed to findings and the claims made about them. With this view, the researcher admits that research outcomes may not be totally objective or unquestionably certain. Although still claiming a higher level of certainty than other beliefs (such as interpretivist views, refer next section), the 'absoluteness' of the findings has gone and claims to validity are qualified.

It is this humbler version of the scientific approach, one that no longer claims an epistemologically or metaphysically privileged position, that has come to be known as post-positivism.

(Crotty, 1998, p.41)

The post-positivist researcher still believes that reality exists, but that it should be subjected to the widest possible critical examination. This allows for the use of research methods that involve more natural settings and the soliciting of 'insider' views, rather than just relying on the view from the

'outside'. There are similarities with this viewpoint and the viewpoint of interpretivists (refer next section) (Williamson et al, 2000).

The idea of claiming confirmation or validation of findings of a research study, and claiming objectivity, validity and generalisability for those findings is the viewpoint of a positivist. The non-positivist view is to offer the findings for interpretation. The invitation is made to the reader to weigh up the researcher's interpretation, judge whether findings have been arrived at soundly, if they are plausible (or even convincing) and decide whether they have application to the reader's interests (Crotty, 1998).

From this argument, the study carried out in this thesis is delivered more from a post-positivist viewpoint than from a strictly positivist viewpoint.

2.2.2.3 An Interpretivist Study?

Interpretivist researchers agree that natural sciences have to be studied from outside.

However, for the Interpretivist, social reality is the product of its inhabitants; it is a world which is already interpreted by the meaning which participants produce and reproduce as a necessary part of their everyday activities together. Hence, because of this fundamental difference in the subject matters of the natural and social sciences, different methods are required.

(Blaikie, 1993, p.48)

In the interpretivist viewpoint, social regularities are understood or explained by constructing models of typical meanings used by typical social actors engaged in typical courses of action in typical situations. In this instance, the models that are constructed represent the hypotheses to be tested, language is used as the means for constructing the social reality and the social actors' (not the researchers') viewpoint is paramount in determining this reality. There are some similarities with this viewpoint and that of post-positivists. In fact, in describing interpretivism, Blaikie (1993) suggests that another term for it is post-positivism!

From the viewpoint of this study, the researcher has constructed the initial version of the model to be used in each Phase of the study, but it is the viewpoint of the participants ('actors') in the study that has been paramount in determining the 'social reality' throughout each Phase.

The interpretivist view of research is often associated with the *abductive* research strategy. The starting point for this strategy is the world of the social actors being investigated. What is important is their construction of reality, their way of viewing and giving meaning to their world and their tacit knowledge. Thus, the viewpoint of the social actor is paramount to the research strategy. This viewpoint is communicated via the language of the social actors (Blaikie, 2000).

Hence, the researcher has to enter their world in order to discover the motives and reasons that accompany social activities. The task is then to redescribe these motives and actions, and the situations in which they occur, in the technical language of social scientific discourse. Individual motives and actions have to be abstracted into typical motives for typical actions in typical situations. These social scientific typifications provide an understanding of the activities, and may then become the ingredients in more systematic explanatory accounts.

(Blaikie, 2000, p.25)

It is obvious from this description of interpretivism that this study has many characteristics of an interpretivist study, including the need for the researcher to interpret the meaning placed by the social actors (participants in the two Phases of the study) to their social world.

2.2.2.4 Summary

This study attempts to make generalisations (in the form of a model that can be used by small businesses to interact with their customers on the Internet) from specific inputs (the previous experience of the researcher, the literature and the participants in both Phases of the study). It could be argued that it is founded in positivism. However, the fact is that the researcher is not claiming absolute certainty of the results, but is prepared to let the reader make judgements as to the applicability of the results based upon the research method used. In addition to this, the study relies on the meanings that social actors make of their social world and concentrates upon determining these meanings by interpreting their language. As such, the study is more of a post-positivist and/or interpretivist study. As the definitions of either type of study overlap significantly, it is difficult to classify *this* study as being succinctly one or the other.

2.2.3 Research Methods and Techniques

When discussing interpretivist researchers, Williamson et al (2000) observe:

Their concern is with the beliefs, feelings and interpretations of participants, who are also often referred to as actors, and with recording those perspectives as accurately as possible. They therefore often provide some opportunity for participants to comment on what has been recorded about them.

(Williamson, 2000, p.31)

The interpretivist approach is often associated with the qualitative data collection techniques, the positivist approach being more usually associated with quantitative data collection. The post-positivist approach is more sympathetic to the use of qualitative data collection techniques (Williamson, 2000). These links between the theoretical foundations of research and the eventual data collection techniques being used have been established over time but are not 'set in concrete' as such (Crotty, 1998). A typically interpretivist view!

Each Phase of this study involves interactions with study participants to refine the model into a 'final' version for the Phase. In both Phases, this involves interaction of some type with the participants and an evaluation or assessment of the discussion (electronic and verbal) that occurs between them to further refine the model. As such, the study involves the analysis of predominantly qualitative information. This is consistent with the post-positivist and interpretivist theoretical foundations and the general link with qualitative data collection techniques.

A vital component of this study is the selection of the participants in each Phase of the study. The primary beneficiaries of this study are meant to be small businesses. It is important to note that although no small businesses were selected to participate this study (some of the participants may have also been small business operators, they were not asked if this was the case), the participants were selected because they were academics that had had expertise in the area being investigated (for Phase One) or small business counsellors, who had close contact with many small businesses (for Phase Two). This is further examined in the discussion of each separate Phase of the study later in this chapter. From the theoretical viewpoint, the researcher was immersed in the world of the social actors (academics in Phase One and small business counsellors in Phase Two) with a view to determining the meanings that they place in their social world (the 'world' of small businesses) and the suitability of the proposed model to 'their' world.

This study could be described as action research, which is concerned with the study of human actions and social practice. It is performed in discrete cycles, where later cycles are used to challenge, support and refine insights and results from previous studies. The typical action research (repeating) cycle of Plan, Action, Results, Reflection has been used in this study. A potential problem with the label of action research with this study is that it is usually concerned with a single situation, such as a group or company, and is not generally viewed as being an appropriate approach to test the general applicability of theories (Oosthuizen, 2000). However, Kock and Lau (2001), argue that action research is particularly useful for the *development* of theoretical models in the field of information systems, and not particularly useful for *testing* theoretical models. It is the development of a model that is of concern in this thesis.

Kock and Lau (2001) argue that the action researcher serves two different "masters", the research client and the research community as a whole and that the needs of these two masters are usually entirely different, and sometimes conflict with each other. They observe:

To be sure, the scope of relevance of IS action research findings to practitioners may vary. For example, the outcomes of an action research study may be relevant to a single company, if the problems addressed through the research are specific to that company. The outcomes may be relevant to a whole industry, if the problems are faced by all (or most) companies in the industry; to a whole sector of the economy, if the problems are faced by all (or most) companies in the sector in question, and so on. But, broad or narrow, the relevance will "always" be there.

(Kock and Lau, 2001)

The purpose of this study is to develop a model that is applicable to all (or most?) small businesses that wish to interact with their customers using the Internet, as it attempts to address the problems faced by all (or most?) small businesses in that situation. In this case, there is overlap between the interests of the two 'masters' (the small business community and the research community) in the manner in which the study is carried out and the results of the study..

This study therefore has a number of characteristics in common with action research. Some data collection techniques commonly used in action research are: Delphi techniques used in a face to face situation and focus groups (these will be described later in this chapter).

Popper (1968) argues for a combination of interpretivism and action research, and that meanings are tested against action in an ongoing cycle, such as is occurring in this study.

Another view of the study is that it could be described as an ethnographic study. "Ethnographers study people in their everyday contexts and utilize the medium of the text to describe and theorise on the nature of the topic they are studying" (Saule, 2000, p.160). An interpretivist view of ethnography is different to that of a positivist. The interpretivist is more likely to consider that the context in which a particular event occurs is integral to the study. Facts are less important than the manner in which the facts are interpreted by individuals and social groupings. Interpretivist researchers recognise the role that they play within the study (Saule, 2000). The major aim of this type of study is to understand someone else's experience of the world in order to be able to translate that understanding into knowledge that is comprehensible to those who have not experienced the "someone else's" experience. Another aim of the research is to create theories of how people create and interpret their environments (Bow, 2000, p.249). It can certainly be argued that this study is trying to achieve these aims. The major research tool used by ethnographers is participant observation. Typical tools of the ethnographer are interviewing, focus groups, observation and questionnaires (Bow, 2000). As has already been noted, some researcher involvement occurred in both Phases of the study, but attempts were made to keep this to a minimum, as it was more important to determine the viewpoints of the social actors (participants).

Williamson (2000) discusses the difficulty of classifying 'Delphi' as a research method or as a data collection technique. The Delphi approach involves gathering a consensus of experts' opinions using several data collection rounds. Controlled feedback of the previous round's results (produced by the researcher) is provided at the start of each new round. Each separate Phase of the study could be described as using this technique in a different way. The Delphi technique, as a data collection technique, is described in the discussion involving Phase One of the study, later in this chapter.

The use of case studies (as a research method) was not considered to be appropriate for this study. Case studies are involved with examining the characteristics of a phenomenon. In a case study, the researcher explores a particular phenomenon (case) bounded by time and activity (such as a process or a social group) and collects detailed information by using a variety of data collection procedures over a period of time. As such, it is used more to shed light upon the phenomenon as it exists (Leedy, 1997). The case study method was ruled out for this particular study because it would have

involved the investigation of a small, finite number of small businesses. It would not have provided the breadth of coverage needed for the study, as the intention was to develop a model that is generally applicable to small businesses. It was decided to target the study towards *all* categories of Australian small businesses because the limitations of small businesses that provided the reasons for developing the model (refer the Introduction) are apparent in all subsets of small business that are typically identified. These reasons include a lack of resources, a lack of adequate planning and control procedures when using IT and/or the Internet.

The selection of appropriate data collection techniques for this study was vital. It was not expected that there would be immediate consensus with either version of the model when they were initially proposed. This was because of the need to draw from a number of different discipline areas (refer to the literature review) to create the original version of the model. The data collection techniques used, a form of Delphi study using a web based discussion list in Phase One and a series of micro focus groups in Phase Two are discussed in the following sections.

It was felt that a questionnaire would not be suitable. Questionnaires allow for coverage of a wider sample and larger geographical areas, but this was not required for this study (refer previous section). A questionnaire, even one with 'open-ended' questions that allow respondents to qualify their responses, would not be able to provide the depth of responses that were required in both Phases of the study. The main difficulties associated with questionnaires for the purposes of this study is that it is difficult to secure initial responses and even harder for researchers to probe for further information (Tanner, 2000).

2.2.3.1 Summary

This study can be described as a post-positivist or interpretivist study. The study uses action research as its research method, but also has similarities to an ethnographic study. The modified Delphi technique is used as a data collection technique for the first Phase of the study, whilst micro focus groups are used for data collection in the second Phase of the study.

2.2.3.2 A Comment on Sample Size

This study involves the need to interpret the language of the social actors in the study (participants) and they describe the meanings they place in their social world. Typically, this type of study collects an extensive amount of verbal data from a smaller number of participants, and findings are presented with words/ descriptions that are intended to accurately reflect the situation under study (Leedy, 1997). The conduct of this study matches very closely with this and is consistent with the description of an interpretivist or post-positivist study that is attempting to use the language of social actors to describe the meanings that they place in their social world (Blaikie, 1993). Each Phase of this study collected an extensive amount of data. In the case of Phase One, participants typed the data in the discussion list. In Phase Two, it was verbal data recorded on tape. Both Phases were conducted with a small number of participants.

In Phase One, six academics with a research background in one or more areas of small business, the strategic use of information technology and/or electronic commerce were invited to participate (and agreed to participate) in the study. It is not possible to claim that the viewpoints of these academics were representative of the viewpoints of all worldwide, or even Australian, academics in their respective areas. It is possible to state that the academics were regarded as experts in their fields by their teaching and research records in their respective fields, and that their input to the study was very useful in refining the conceptual model that had been developed from the literature in those areas.

In Phase Two, the conceptual model developed in Phase One was combined with literature related to the detailed components of the model to develop a preliminary applied version of the model. The final aim of the Phase Two was to refine this model to a level where it could be *used by* and was *useful to* small businesses. To this end, small business counsellors were invited to participate in micro focus groups to assist in the refinement of the model. As with Phase One, it is not possible to claim that the views of these counsellors were representative of the viewpoints of all worldwide, Australian or even Victorian small businesses. It is possible to state that the combined experiences of the counsellors represented exposure to hundreds of Victorian small businesses annually. Their input was vital in providing valuable feedback in the micro focus groups that allowed considerable refinement of the applied model over the period that the micro focus groups were conducted.

These claims are consistent with the researcher's claim of placement of this study in the foundations of interpretivism and post-positivism.

In both Phases of the study, discourse amongst participants was investigated thoroughly. This was investigated until the source(s) of the discourse was (were) satisfied by the views of the general consensus, or the majority of participants were convinced of the need to vary the model. When this occurred, the participants were presented with a new, altered version of the model in the next 'round' of the study. This was repeated in each Phase until general consensus about the model was achieved and discussion about the model was practically exhausted. This process is described fully in the Results chapters for each Phase of the study. This is consistent with an action research approach.

Specific details relating to the selection of the samples for each Phase of the study are in the respective Results chapters for Phase One and Phase Two.

2.3 Phase One: Developing the Conceptual Model

The first Phase of the study involved developing the model at the conceptual level. A preliminary conceptual model was developed from the first two sections of the literature review. The preliminary conceptual model was then refined via a form of Delphi study, using an expert panel of academics from the fields of electronic commerce, small business and the strategic use of information technology in relation to the issues identified in the literature review. A Web based discussion was

used as the vehicle for conducting the study. A final, conceptual level model was produced as a result of this Phase of the study.

2.3.1 Delphi Study

The Delphi technique originated in the USA as a method for obtaining expert opinion, by the use of a structured communication process, in the late 1940s. A Delphi study typically has four characteristics (ASTECC, 1996):

- No physical contact between participants.
- Iterations.
- Controlled feedback (results of the previous round are provided to respondents).
- A statistical presentation of the group response.

Key aspects of a Delphi study typically are (ASTECC, 2000; Koenig, Heinzl and von Poblitzki, 1995; Williamson, 2000):

- Sets of questions or issues are identified for the study.
- A panel of experts is used for obtaining data.
- There are two or more rounds where participants are requested to respond in writing to a shared document that summarises the evolving consensus and views of other participants.
- At the end of each round a summary of the results of the previous round is prepared by the investigators and communicated to the participants.
- An opportunity is provided for respondents to re-evaluate responses given in previous rounds in the light of the views of others.
- There is a systematic attempt to produce a consensus of opinion, as well as identify opinion divergence.
- It is most common for a consensus to develop, but if there is divergence then this is identified and explained.
- The process terminates when consensus amongst participants has been reached or opinions have been stabilised so that they are unlikely to change further.

This particular study lends itself to use of the Delphi technique because (Williamson, 2000):

- The development of the model will benefit from subjective judgements on a collective basis.
- The individuals and organisations contributing to the process come from diverse backgrounds with respect to experience and expertise (small business and information technology).
- More individuals are needed than can effectively interact in a face to face environment.

Advantages of the Delphi study are (ASTECC, 2000; Williamson, 2000):

- It elicits responses from experts in the field.
- Choice of experts is not limited by geographic region.
- Respondents can modify answers without being personally identified.
- Respondents with firm views can stick to them for the same reason.
- A consensus of opinion, or degree of divergence of opinion, can be gauged.

Disadvantages of the Delphi study are (ASTECC, 2000; Williamson, 2000; Koenig et al, 1995):

- It may be costly, slow and time consuming. Results may not be as successful as if a face-to-face 'brainstorming' session occurred.
- The researcher or respondents may misunderstand the written input of participants. The researcher may manipulate the feedback to reflect his or her views.
- The panel of experts may be too like-minded, producing a skewed data set.
- Anonymity can encourage a lack of accountability for responses.
- The study may be hindered if participants choose not to participate further whilst the study is being conducted.
- The role of the investigators in preparing the round summaries may bias the process.

The first potential problem was reduced with the use of electronic communication. The chance of participants misunderstanding the written input was reduced in the final two rounds of the Phase by providing summarised versions of the overall responses, identifying consensus or divergence at each stage. In relation to the panel of experts being too like-minded, it was identified earlier that focus group members for stage one were selected from different fields. In relation to anonymity, each respondent was offered the chance to view summary results of the study as an incentive for participating. Allowing participants to view previous responses of all participants and the summary of each round reduced the chance of 'investigator bias'. This also meant that participants had the opportunity to comment upon responses from other participants, so the contributors were not exactly contributing on an equal basis in relation to when and how they made their responses. This was of little concern, as the main reason for the use of the technique was to establish if there was any discourse, to act upon it and to achieve eventual consensus.

Delphi studies have been used in information systems research previously. A three round Delphi study was used to identify, rank and evaluate the 20 most significant international information systems issues of foreign affiliates (Lai, 2001). It is now quite common for Delphi studies to be undertaken using computers and the Internet. Computer-based Delphi studies allow for greater exploration of notions than 'pencil and paper' responses that may be limited by the size of the study. It is easier to protect the anonymity of respondents and, especially if the discussion is conducted online, participants have more freedom about when they choose to respond and what they respond to (Williamson, 2000). A *web based* Delphi study of digital libraries (DLs) was undertaken to gain a broader understanding of issues related to DLs (Kochtanek and Hein, 1999).



The CD ROM in Appendix Three contains the entire Web based discussion for Phase One of the study.

2.4 Phase Two: Developing the Applied Model

The aim of this Phase was to produce a model that can actually be used by small businesses to assist them in setting up business-to-consumer interactions on the Internet. The conceptual model developed in Phase One of the study was combined with the third section of the literature review to produce a preliminary, applied version of the model. This model was again refined, this time with by use of a series of 'micro' focus groups of small business counsellors to incorporate the practical experience of the counsellors (spanning hundreds of small business) into the model. The groups were labeled 'micro' focus groups as they each contained three or four participants, which is less than the number of participants in a typical focus group. A final, applied level model was produced as a result of this Phase of the study.

The model was presented to small business counsellors via three micro focus groups, where each stage of the applied model was reviewed.

The small business counsellors were all from the Small Business Counselling Service (SBCS). This is an independent, non-profit service provided by a section of the Victorian State Government, Small Business Victoria. The SBCS was set up to provide assistance to small businesses via one or a series of appointments with counsellors. The first six consultations are priced at a relatively inexpensive rate (\$Aust66 per consultation at March, 2001). Consultations usually involve the provision of financial and taxation advice, setting up or refining business plans or the provision of marketing advice. The majority of the counsellors are aged 50 or over and have had vast experience in the counselling areas identified. The general IT skill level of counsellors could be described as being in the range of poor to average. This is seen by the author as providing realism to the study that would not be apparent if the counsellors were experts in the use of the technology. Their experience more accurately reflects the experience of a typical small business employee.

2.4.1 The Use of Focus Groups in Research

A focus group involves an organised discussion with a selected group of individuals to gain information about their views and explore their experiences of a topic area. Focus groups are a subset of group interviews, which involves interviewing a number of people at the same time. The emphasis in a group interview is on the questions and responses between the researcher and the participants. A focus group differs as it relies on the insight and data produced by the interaction between participants (Gibbs, 2000).

The main reason for using a focus group as a research tool is to examine participants' attitudes, feelings, experiences and reactions in a way that would not be possible, say, with one to one interviewing, observation or surveys. They are more likely to be revealed via the social gathering and interaction that occurs when participating in a focus group. The interaction is important as the interactions highlight the participants' views of the topic and the language that they use to discuss the topic. The interaction allows participants to ask questions of each other and to re-evaluate and reconsider their own views (Gibbs, 2000).

Focus groups can be used at any stage of a study, either as a method in their own right or as a complement to other methods (Gibbs, 2000). They are an excellent way to explore ideas and can be used to decide what themes and concerns are important to a particular audience (Lawrence and Berger, 1999).

The advantages of using the focus group approach are (Gibbs, 2000; Williamson, 2000; Zikmund, 2000):

- Focus groups can allow members to react to and build upon responses of other group members.
- Focus groups are able to produce data on the precise topic of interest because they are under the control of the researcher.
- Focus groups may elicit information in a way to determine why an issue is important, and what is important about it.
- Focus group research may provide benefits to participants. There is an opportunity to be involved in a decision making process, to be valued as an expert, and to be given the chance to work collaboratively with researchers. If the group functions well, trust develops and the group may explore solutions to a particular problem as a unit.
- This form of data collection can allow for greater scrutiny, by direct observation and/or by recording the sessions. Later examination of the recorded sessions can provide further insights and clear up uncertainty about what may have happened.
- Focus groups are easy to organise, cheap and efficient in gathering large amounts of data.

The disadvantages of the focus group approach are (Gibbs, 2000; Williamson, 2000):

- Some participants may dominate others in a group situation.
- The facilitator of the group may influence the group's actions and therefore create a bias. Careful phrasing of questions and interpretation of results will ensure minimal chance of this occurring.
- Views of the focus group may differ from those of the entire population of small business counsellors. It is felt that the vast experience of the contributors (they have all dealt with hundreds of small businesses in their consulting role) would go some way to overcoming this.
- The researcher has less control over the data produced than in quantitative studies or one to one interviews. The facilitator must allow participants to talk to each other, ask questions and express doubts, while having little control over the interaction other than attempting to keep a general control on the topic area being discussed. By its nature, a focus group is open ended and cannot be entirely predetermined.

Focus groups have been used in information systems research previously. A United Kingdom study that examined the need for a more human-centred approach to information systems development used a combination of focus groups and a broader questionnaire as a research approach (Lehaney et al, 1999). A study of the level of use of information technology in police agencies in the United States employed interviews, focus groups and first-hand observation to gather data (Manning, 1996). There are also examples of the use of focus groups in small business research. A focus group of 10 small business owners was used to examine impediments to small business development as they

relate to the enterprise support network in Canada. The focus group identified sources of dissatisfaction, which were then explored further by a telephone survey of 90 small businesses (Zinger et al, 1996). A United States study of 16 small organisation partners used a focus group to determine the service mix of small certified public accountant organisations and the activities used to market their services (Reagan and Gavin, 1988).

2.4.1.1 Organising the Micro Focus Groups

One of the major difficulties associated with organising focus groups is to arrange for participants to be at the same place at the same time, especially if the participants have a busy schedule. This is particularly the case for counsellors in the SBCS, who often find they are travelling to meet with their clients at a time that suits the clients. This was a factor in the number of responses received after the initial request for participation email was sent out.

Three micro focus groups were held. This is a typical number for one particular research area focus and one demographic group (Lawrence and Berger, 1999).

The number of participants in a focus group are usually six to ten, with as high as fifteen and as low as four (Gibbs, 2000). If a group is too small, there is a chance that one or two group members may intimidate the group (Zikmund, 2000). Given the age and experience of the SBCS counsellors, it was felt that the interaction provided (even in groups of three and four participants) would be so valuable that the sessions should continue. The first two groups had three participants and the third group had four participants. Langer (1999) observes that 'mini-focus groups' of four to six respondents have their place, especially where participants are highly opinionated, perhaps self-important, shy or hard to control. Another use of the mini-focus group is where detailed probing of participant responses occurs.

Homogeneous groups seem to work best, where participants have similar employment types, experiences and communication skills (Zikmund, 2000). This was certainly the case with the SBCS counsellors.

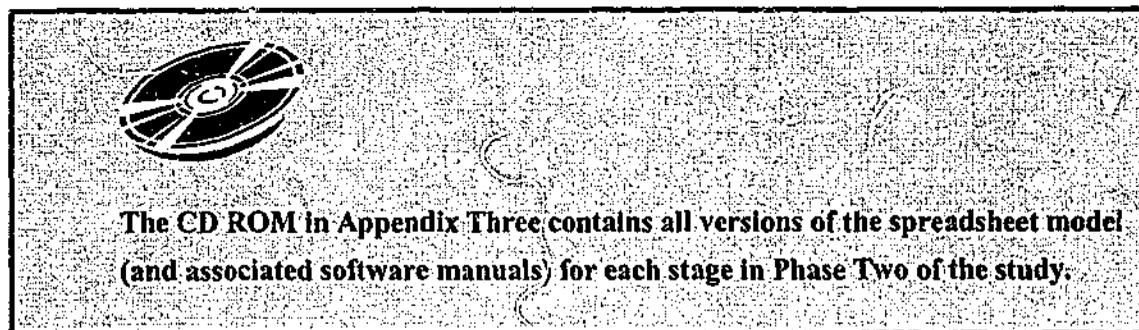
It will be shown that many of the typical characteristics of the focus group have emerged during these sessions (refer to the Phase Two Results chapter).

2.4.1.2 Material covered in the Micro Focus Groups

The updated version of the model can be viewed in Appendix Three: Phase Two Model Developments. For this particular Phase, the detail of the general steps of the model that had been finalised in Phase One of the study had been expanded into a detailed set of procedures for small businesses to follow when setting up a Web site to allow them to interact with their customers.

The model consisted of two major components:

1. A procedures manual. This took the user of the model through the various steps of Business Investigation, Strategy, and so forth.
2. A spreadsheet program. This allowed the user of the model to record the results of the analysis and then provided recommendations based on the analysis. The main reason for doing this was that the user could then return to (and alter) the results of the analysis based upon the recommendations. For instance, the user could choose to return to an earlier stage of the model and alter the level of investment in the Web site if it was shown that enough had not been allowed to implement all of the Web site features that were desired.



2.5 A Summary of the Research Process

The following series of diagrams outline the research process described in this thesis. The literature review is composed of two major sections. The first section contains the theoretical foundations of the study and an examination of contemporary issues. The theoretical foundations section investigates much of the established literature relating to the use of information technology in business and the contemporary issues section presents more recent literature related to electronic commerce and small business use of information technology.

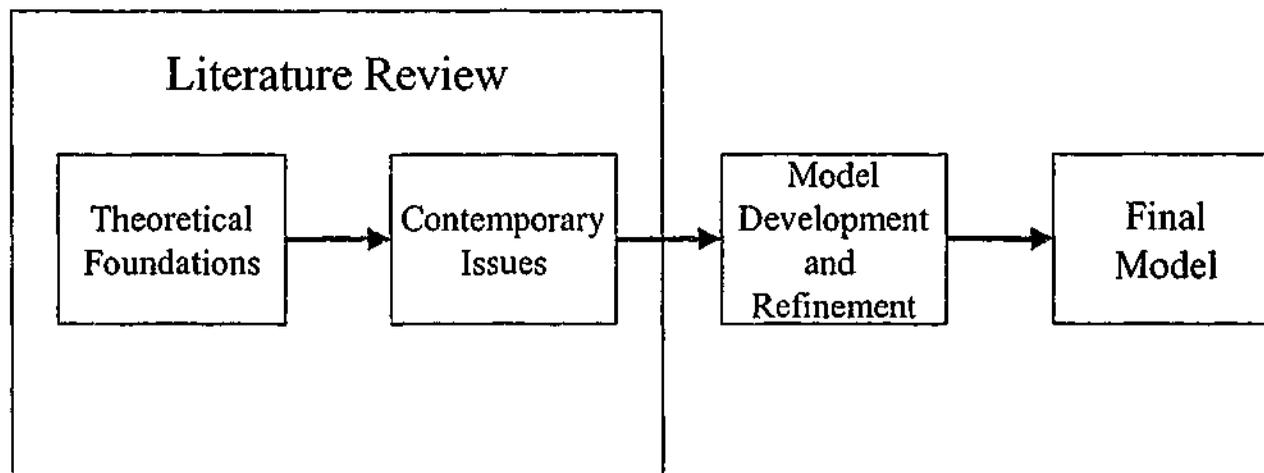


Figure 1: Overall Research Process

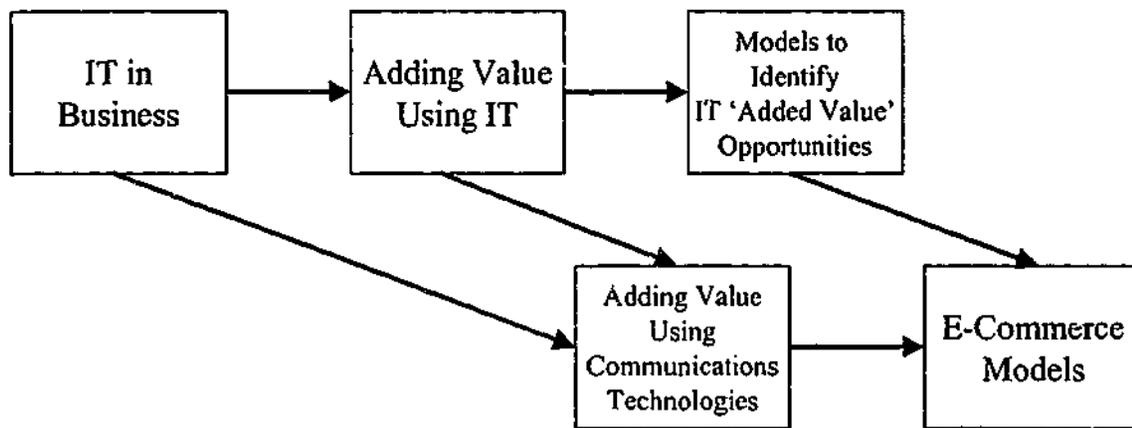


Figure 2: Theoretical Foundations

The theoretical foundations section of the literature review is divided into a number of sub-sections. The fundamental place of IT in business is examined. The discussion then moves to how information technology can be used for added value. After this, the discussion breaks off into two areas. First, a number of models related to the strategic use of information technology are examined, followed by a specific look at the how communication technologies can be used to add value. These sections then provide a lead-in to a discussion of some of the foundation literature on electronic commerce models. The contemporary issues section of the literature review examines more recent developments in a number of areas related to the development of the model. In this section, literature related to electronic commerce is discussed, eventually being refined to a discussion on business-to-consumer interactions on the Internet. There is also a discussion of the use of IT by small businesses. The final area of literature discussed relates specifically to small business use of the Internet to interact with customers.

The first section of the study is developed from the first main section of the literature review as

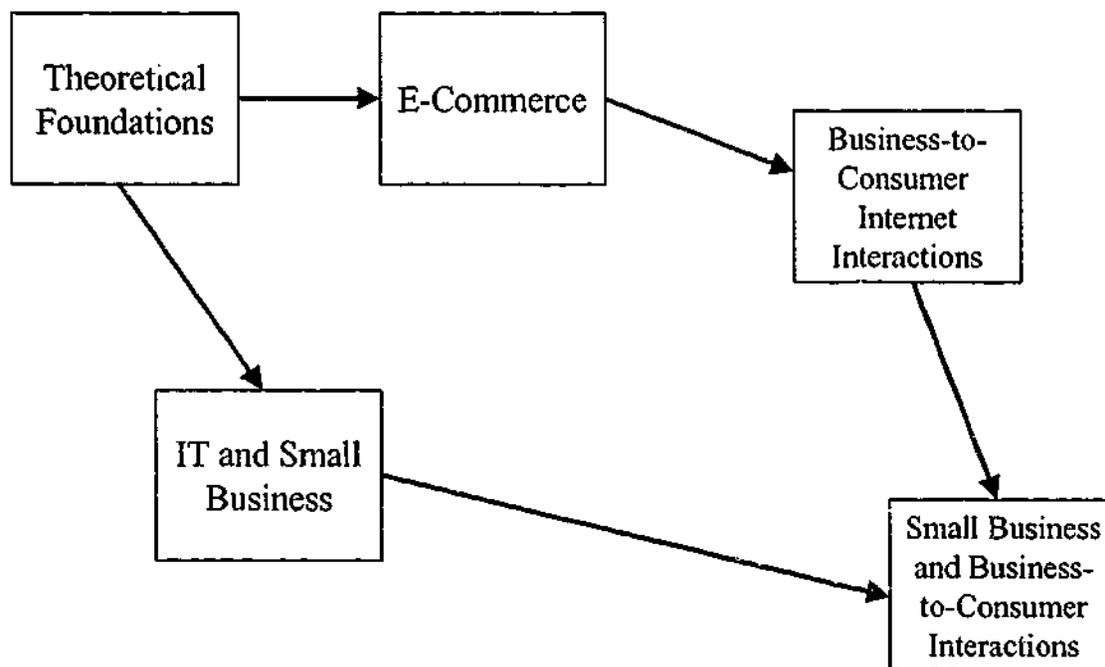


Figure 3: Contemporary Issues

described. A form of Delphi study is used to develop and refine a conceptual model to be used by small businesses to interact with customers over the Internet. After this stage, the next major section of the literature review is presented. This specifically examines those issues necessary to support the development of the applied model, and leads in to the final stage of the study, the development of the applied model using micro focus groups of small business counsellors. This process is explained more thoroughly in the next chapter.

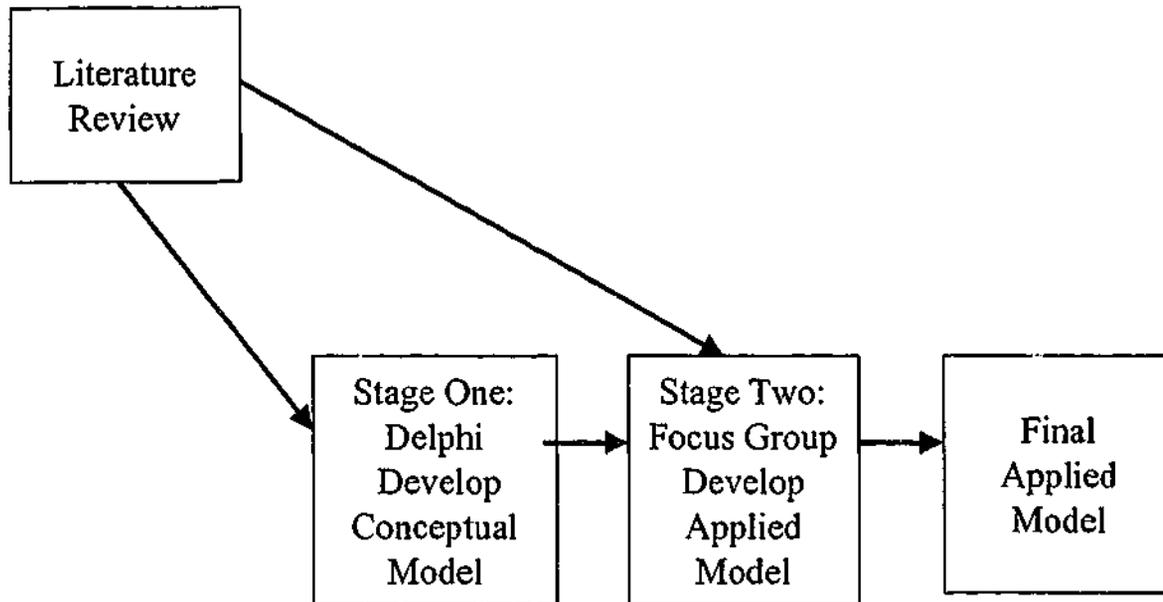


Figure 4: Model Development

2.6 Conclusion

This study has a number of characteristics that relate it to interpretivist and post-positivist research. It primarily uses an action research method. The study is divided into two major Phases. Phase One involved a Web based discussion list as the data collection tool in a form of Delphi study designed to refine a conceptual model to assist small businesses to establish business-to-consumer interactions on the Internet. As is typical with such qualitative studies, a small sample of six academics participated in the data collection. Phase Two involves the use of three micro focus groups to refine a applied model which has been developed from a combination of the conceptual model refined in Phase One and literature related to the applied model. Again, a small sample of six small business counsellors was used in this Phase of the study. This chapter has discussed the theoretical foundations of the study, the selection of the research method and the data collection techniques used in the study and also discussed some methods and techniques that were not used in the study. An emphasis was placed upon those techniques that would lead to a model that was useful to small businesses. As mentioned in the chapter, the particular methods and data collection techniques employed have been specifically employed to determine discourse amongst study participants in relation to the development and refinement of the model during its various iterations.

Part Two

The Conceptual Model

3 Literature Review: Theoretical Foundations

This first section of the literature review examines some of the theoretical foundations involving the use of information technology in organisations, methods of using information and communications technology to add value to an organisation's products and services and models that can be used to do this. Its purpose is to provide a theoretical framework upon which to build the initial version of the conceptual model. There is a vast amount of published research in the fields mentioned in this chapter. The author has included a number of well-known works in the various fields to provide an introduction to each of the areas. This will act as a platform for which the more specific sections of the study (small businesses setting up Web sites so that they can interact with their customers).

3.1 *The Place of Information Technology in Business*

3.1.1 Purpose of this Section

The purpose of this section is to investigate aspects of the relationship between information technology (IT) and other areas that make up an organisation, as well as to examine the ways that different types of IT systems interrelate with each other within the organisation.

3.1.2 The Place of Information Technology in the Organisation

Information technology affects, and is in turn affected by, many forces from within and external to the organisation. This subsection examines the relationship between information technology and these forces.

Silver, Markus and Beath (1995) argue that the consequences of IT in organisations follow mainly from the interaction of the technology with the organisation and its environment. An understanding of this interaction is central to leveraging the benefits and avoiding the hazards that IT can present to the organisation. Silver et al have proposed a model, the IT Interaction Model (refer Figure 5), which represents a stylised view of the dynamics of information systems in organisations.

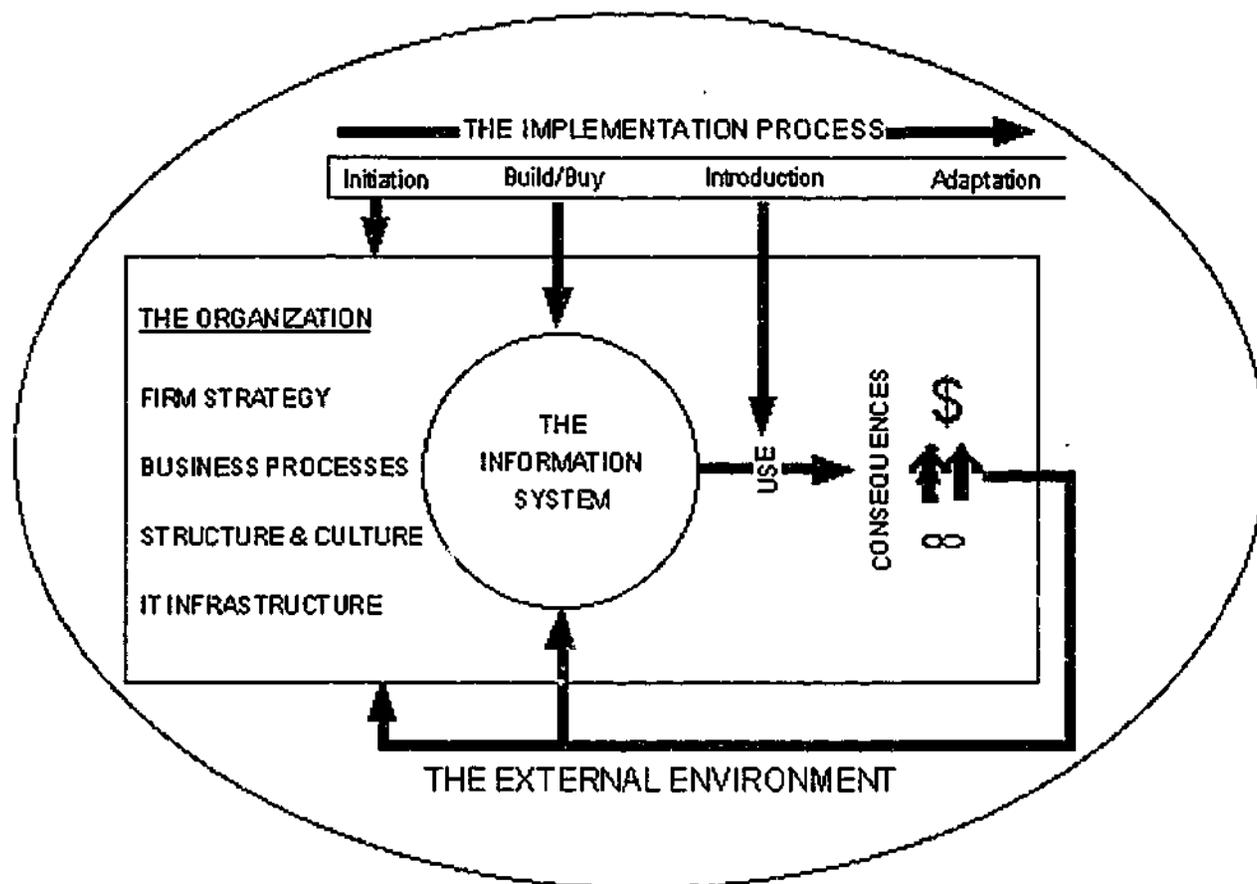


Figure 5: The Information Technology Interaction Model (Source: Silver et al, 1995).

The Model contains four interrelated elements:

3.1.2.1 System Effects

Information systems are studied because there is a need to measure the positive and negative effects of the systems for the organisation. Systems effects fall into three stages (Silver et al, 1995):

- *Usage.* Is the system being used? How is the system being used? Is it being used for the purpose for which it was intended to be used?
- *Outcomes.* There are three classes of outcomes:
 - *Performance effects.* These include 'bottom-line' measures such as profit, revenue and market share.
 - *Consequences for People.* These include outcomes such as shifts in power, job satisfaction and deskilling.
 - *Future flexibility.* Will the system enable or constrain future strategic initiatives by the organisation?
- *Alterations over time.* The effects of how the system is used and the various outcomes it achieves will cause the system to be altered or adapted over time. Such a period of learning, adjustment and restructuring (a feedback loop) may be needed before the maximum returns of the IT investment can be achieved.

3.1.2.2 The Organisational Context

Elements within and external to the organisation influence the design of an information system.

These elements are:

- *The External Environment.* This is defined by factors such as the competitive structure of the organisation's industry, power of buyers and sellers, growth state of the industry, level of regulation within the industry and the level of technological deployment. The environment influences the information systems that an organisation chooses to implement and how they effect the organisation and its external environment.
- *The Internal Environment.* The internal environment is made up of a number of areas.
 - *Corporate Strategy.* These days, an organisation's information technology strategy is often linked as closely as possible to the organisation's corporate strategy. In some organisations, IT supports the corporate strategy. In others it may be a critical component of the organisation's overall strategy.
 - *Organisational Structure and Culture.* Organisational structure refers to the formal aspects of a functioning organisation, such as division of labour, hierarchical authority and so forth. The structure of an organisation can affect the success of IT, especially where data is to be shared amongst (perhaps competing) organisational units. Organisational culture refers to the shared values, basic assumptions and behaviour of members of the organisation. These can also affect the success of IT. For instance, it may be difficult to introduce a groupware system (software to assist the operation of teams by allowing, amongst other things, sharing of data files across distances) into an organisation that values individuality over teamwork.
 - *Business Processes.* These are the processes by which organisations accomplish their missions. Whilst 'automation' of such processes using IT is now commonplace, the major benefits occur when the actual process is investigated for efficiency and effectiveness before the automation occurs.
 - *IT Infrastructure.* This covers the physical components, data and document storage areas, technical capabilities of IT staff and users and the strategies that enable current business processes and allow the organisation to create new IT applications.

3.1.2.3 The Information System and its Fit with the Organisational Context

The information system is central to the IT Interaction model. The system comprises hardware, software, data, people and procedures. Systems should 'fit' the organisation's political dynamics, managerial assumptions and user expectations to avoid being resisted, underused, misused or even sabotaged. A careful assessment of organisational needs and expectations at all levels needs to be carried out to ensure every possibility of success (Silver et al, 1995).

3.1.2.4 The Implementation Process

Silver et al describe this stage as all of the policies and interventions associated with the development, introduction and use of an information system, from its inception, through to introduction, adaptation along the way and its eventual retirement (Silver et al, 1995).

3.1.2.5 Summary

The IT Interaction model assists in identifying the factors that should be considered when examining the dynamics between an organisation's information technology area and the rest of the organisation. Important considerations from the viewpoint of this thesis are the need to consider the effects of information systems (including outcomes) and the internal and external environment of the organisation.

3.1.3 IT as a Strategic Investment

3.1.3.1 Strategic IT Investments as a Component of Overall IT Investment

Information technology can be used for strategic advantage in the organisation (refer 3.2 Adding Value Using Information Technology). Such expenditures on IT should be considered in the context of all types of IT investment, not just strategic investments. The different types of IT investments reflect different types of desired outcomes (Weill and Lucas, 1992):

- Strategic systems generally targeted towards providing extra added value to the organisation's products and services to customers.
- Information systems for decision-making.
- Transaction systems. These systems are often used to perform basic functions (that may be required by the organisation) and are often used to improve efficiencies and cut costs.
- Infrastructure systems. These systems are designed to provide the infrastructure to support the other systems (such as a company-wide network).

Weill and Lucas have proposed the IT Investment Pyramid to represent how these systems fit together in an organisation.

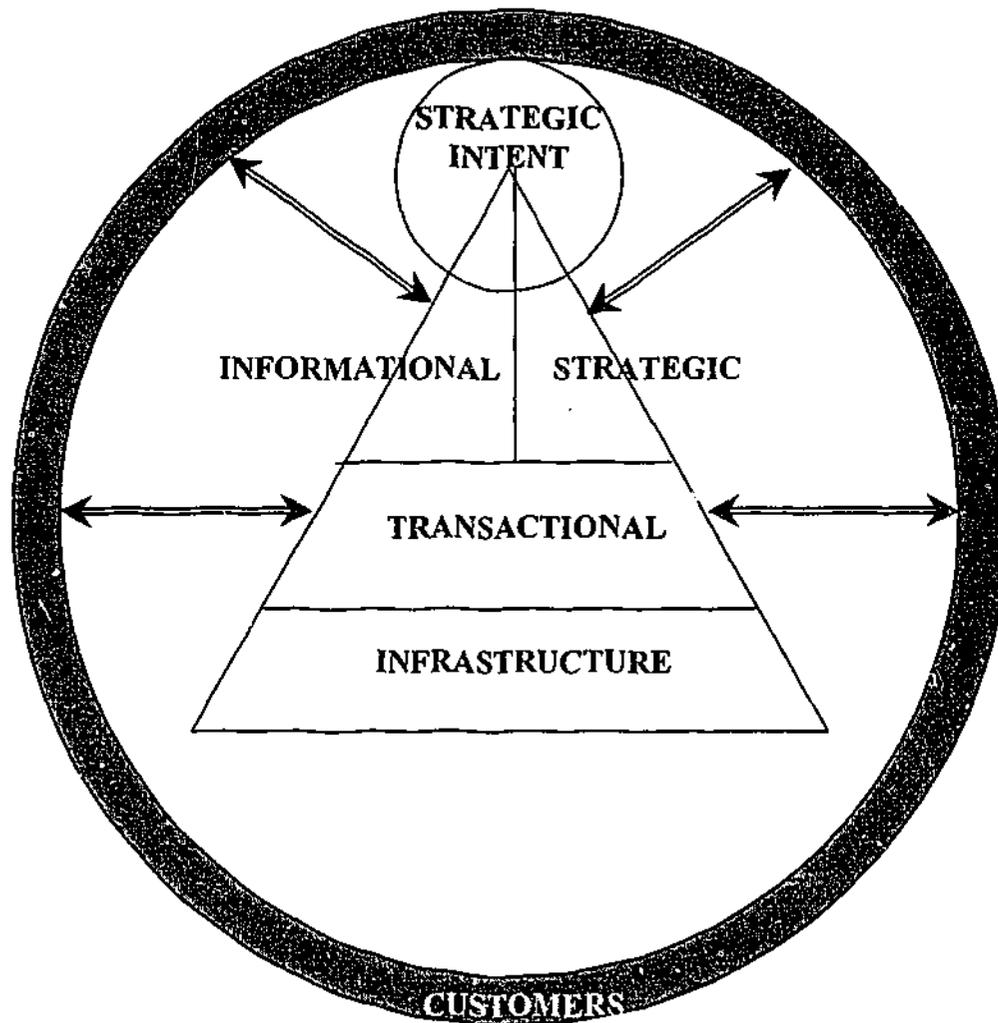


Figure 6: The IT Investment Pyramid (Source: Weill and Lucas, 1992, Figure 1)

The base of the pyramid, the transaction and infrastructure systems should support the upper levels of the pyramid, the information and strategic systems. Weill and Lucas have identified a foundation that needs to be in place to produce a successful strategic system:

- **Sell the Strategic Intent.** When the foundations (infrastructure and transactions systems) of the IT Investment Pyramid are being set up, they should be set up with the knowledge of what the organisation's overall strategic intent is. This may assist in the later development of strategic systems that are being designed to match some recent business strategy. Provided that the business strategy meets the organisation's overall strategic intent, there is more chance of a successful strategic system being developed 'over' the existing infrastructure.

- **Ensure the Base of the Pyramid is in Place.** As suggested in the previous point, the infrastructure must be flexible enough support the strategic system and allow its introduction in a timely manner.
- **Limit the Risk.** Weill and Lucas suggest that successful IT investments limit risk to ensure a higher chance of success. This includes limiting organisational risk (involving major changes to relationships within the organisation) and market risk (where a market need is not clearly identified).
- **Decide whether to Lead or Follow.** The benefits of being an industry leader need to be balanced against the risk of the initiative not being as successful as anticipated (refer next section).

3.1.3.2 Assessing the Risk of IT Investments

Any IT investment carries with it the risk that it may fail. Many IT investments that involve potentially large strategic advantages carry with them the possibility of a high operational risk. This is because many of the technologies being used are new to the organisation or the industry. It is quite common for such IT investments, when successful, to be duplicated by competitors. Whilst these competitors may not enjoy the initial strategic advantages which may be gained by the 'early adopter', they are not taking the initial risks encountered by that organisation because the IT investment has already been shown to be a 'success' (Ahituv and Neumann, 1990). They may also be able to correct any obvious errors that have been made by the early adopter (Phillips [a], 1998). Eventually, the more successful strategic IT investments become industry standards - a normal part of doing business and a necessary component of existence in the industry (Weill and Lucas, 1992).

3.1.3.3 Measuring the Success of IT

There are a number of difficulties involved with trying to measure the success of information systems (IS) in an organisation. The first task is to identify the elements that make up the costs and benefits of an information system. The next task is to determine how to measure or estimate them. There are two main difficulties involved. The first is that the circumstances of the organisation may alter before, during or after the information system is implemented. The second difficulty is that all of the elements (particularly many types of benefits) may not be easily converted to monetary values (Ahituv and Neumann, 1990). For instance, how is a monetary value placed on faster decision making, or on social consequences of an IS that result in environmental improvements? Ahituv and Neumann (1990) suggest that IS costs can be broken up into four major areas:

1. Procurement costs (such as equipment purchases).
2. Start up costs (such as searching for personnel and hiring activities).
3. Project related costs (such as software development and training).
4. Ongoing costs (such as rental, depreciation and maintenance).

Benefits can generally be broken up into three major areas:

1. Tangible monetary benefits.
2. Tangible non-monetary benefits. These are benefits that can be measured in some other way, such as producing a report three days earlier than before or saving ten square metres in storage space due to improved stock control. Some of these benefits may be convertible to tangible monetary benefits.
3. Intangible benefits. These cannot be measured easily or at all. Often their existence can only be noted (for instance, improved employee morale) and then included as part of the overall assessment of benefits.

Ahituv and Neumann suggest that tangible costs and benefits can be used with standard accounting techniques, such as discounted cash flow (DCF) or internal rate of return (IRR) to estimate the tangible returns on an IT investment. Managers should then consider these returns in the light of intangible items that may have been identified and explained to them when considering the IT investment or reviewing its success (Ahituv and Neumann, 1990).

3.1.4 Section Summary

This section looked at theories and models related to the place of IT in business. Information systems are not just made up of hardware, software and data. They also include people and business procedures. To have a chance of being utilised effectively, information systems strategy should match up with the overall business strategy and information systems should fit the political dynamics of the organisation as well as the expectations of managers and users.

This section also introduced the IT investment pyramid, noting that the infrastructure and transaction systems should be in place to support informational and strategic systems. The concept of assessing the risk of IT investments was also discussed, introducing the concept of being an 'early adopter' and the associated potential risks and benefits involved with such a strategy. A technique that can be used to evaluate IT investments was also introduced.

3.2 Adding Value Using Information Technology

3.2.1 Purpose of this Section

The purpose of this section is to introduce literature related to the concept of using information technology to add value to an organisation's products and services.

3.2.2 Identifying Strategic IT Opportunities: What is Value?

Inherent in any discussion relating to strategic IT investments is the concept of the value that is provided by the company's products and services.

Previous sections of the literature review have identified the need to consider the external environment of the organisation, including buyers (refer 3.1.2 The Place of Information Technology in the Organisation) and recognised that systems that could 'add value' to an organisation's products and services are a desired outcome of an IT investment (refer 3.1.3 IT as a Strategic Investment).

Porter and Millar (1985, p.150) state that 'value' is measured by the amount that buyers are willing to pay for a product or service. They discuss a model known as the value chain (refer Figure 13, on page 54), which can be used to assist organisations in developing strategic IT opportunities. The value chain consists of value activities, which are the distinct activities that a company performs in producing their products or services. Porter and Millar divide these activities into nine categories. Five of these activities are known as primary activities. These relate to creating, selling, delivering and supporting of the product or service.

The primary activities are (Porter and Millar, 1985):

- **Inbound Logistics:** this involves any activity that involves the purchase, storage and transfer of raw materials, up to the stage of production.
- **Operations:** the conversion of raw materials to finished product.
- **Outbound Logistics:** any activity that moves the finished product to the buyer. This includes the storage and transport of finished goods.
- **Marketing and Sales**
- **Service:** Any service provided to the buyer after delivery has been made.

The rest of the activities are described as support activities. These activities provide the infrastructure that allows primary activities to occur.

The secondary activities are:

- **Firm infrastructure:** this includes activities such as general management, legal services, public relations, and so forth.
- **Human/ Resource Management:** recruiting, hiring, training and development, and so forth.
- **Technology Development:** research and development activities.
- **Procurement:** Purchasing activities.

The value chain focuses primarily on the primary activities of the organisation. Each action that makes up the primary activities is analysed to determine whether it adds value to the finished product in the eyes of the buyer (Porter and Millar, 1985). The concept of adding value is discussed in greater detail in the next section.

3.2.3 Adding 'Value'

How can an organisation add value to its products or services? Porter and Millar (1985) mention three ways that organisations can compete with their products or services (these are known as the three generic strategies for improving competitiveness):

- Be the low cost producer.
- Produce a unique or differentiated product.
- Provide a product or service that meets the requirements of a specialised market.

3.2.3.1 Competing on Cost

In this instance an organisation produces a product or service of similar quality to competitors, but at a lower cost (Porter and Millar, 1985). The price of a product or service contains three components (Benjamin and Wigand, 1995):

- Production costs. These costs represent the physical or other primary processes that are needed to create and distribute the goods or services.
- Coordination costs. These represent the costs of all of the information processing necessary to coordinate the work of people and machines that perform the primary processes.
- Profit margin.

Lowering any of these cost areas can provide a means for the organisation to lower the price of the product or service.

3.2.3.2 Competing on Differentiation

This involves providing value in a product or service that a competitor cannot provide or match (Porter and Millar, 1985). It is possible to differentiate product offerings by combining them with IT in the following ways (Alter, 1992):

3.2.3.2.1 Helping the Customer Purchase the Product

Alter (1992) suggests a number of ways to assist the customer in purchasing products:

- Ensuring immediate availability: this works on the theory that people may pay more for a product if they can get it sooner.
- Expediting transactions: this can occur with the use of bar codes and scanners.
- Simplifying payment: can be done with use of credit cards or EFT/ EFTPOS.
- Providing electronic shopping.

3.2.3.2.2 Assuring Fit to Customer Needs

The key to these types of systems is that they are flexible enough to be able to achieve the added value of 'customisation' of the product within a reasonable time period (Alter, 1992).

- Matching to customer requirements: this includes the ability of airline reservations to determine ideal travel routes, or the automatic storage and recall of the special needs of customers (such as vegetarian meals) for flight or accommodation bookings.
- Customising information products: an example of this is the use of desktop publishing and database facilities to 'customise' standard newspapers that span several districts combined with local articles and advertisements.
- Customising physical products: this can be done using Computer Aided Design/ Computer Aided Manufacture packages (CAD/ CAM).

3.2.3.2.3 Enhancing the Product

Each of the following techniques is used to provide extra value for the customer (Alter, 1992):

- Incorporating IT into the product to provide further information on its use: This is commonplace in washing machines and microwave ovens.
- Providing additional service: for instance, hand held terminals are now used by car rental businesses to speed up the process of rental car return.
- Providing product information or knowledge:
- Providing cost control information: these systems provide better information for product users on efficient use of the product. The providers of services, such as gas and electricity, often do this. The customer is able to compare usages and costs over different periods, as well as being informed of the most cost effective and efficient times to use the service.

3.2.3.2.4 Helping to Maintain the Product

The importance of product support has already been mentioned. One way that this can be achieved is to support the organisation's existing field service with the provision of help lines or fax instructions. These may eliminate the need for expensive frequent service calls (which, for instance, often occurs in the use of photocopy machines). The response to the customer is also generally faster (Alter, 1992).

3.2.3.2.5 Competing on Differentiation Summary

IT can be used in a number of ways to help differentiate an organisation's products and/or services. Literature throughout this section has provided a number of detailed suggestions as to how IT may be used to differentiate to products and/or services:

- Quality: this relates to product or service traits (such as durability) that provide a degree of excellence when compared with the products or services of competitors.
- Product Support: the level of support provided for the product or service. This can include information on how to use the product, product replacement/return strategies, and so forth.

- Time: this works on the concept that buyers will pay more for a product that is provided/ delivered quickly, or will choose a product of similar price and quality if it is available *now* over a competitor's product that is not currently available.
- Personalisation/ Customisation. This is the process of customising/ tailoring a product or service to the purchaser.

3.2.3.3 Filling the Needs of Specialised Markets

The third of the three generic strategies for improving competitiveness is filling the needs of a specialised market. Here, the organisation identifies a particular niche market for its products and/or services. The advantage of targeting such a market is that there may be less competition than the organisation is currently experiencing in the more 'general' market (Porter and Millar, 1985).

3.2.4 Competitive Forces

The importance of consideration of the external environment has already been discussed (refer 3.1.2 The Place of Information Technology in the Organisation). When examining how IT can add value to an organisation's products and/or services, Porter and Millar (1985) also recognise that external forces can impact on the organisation. The model of competitive forces (refer Figure 7) was introduced to help managers identify potential strategic IT opportunities (Porter and Millar, 1985).

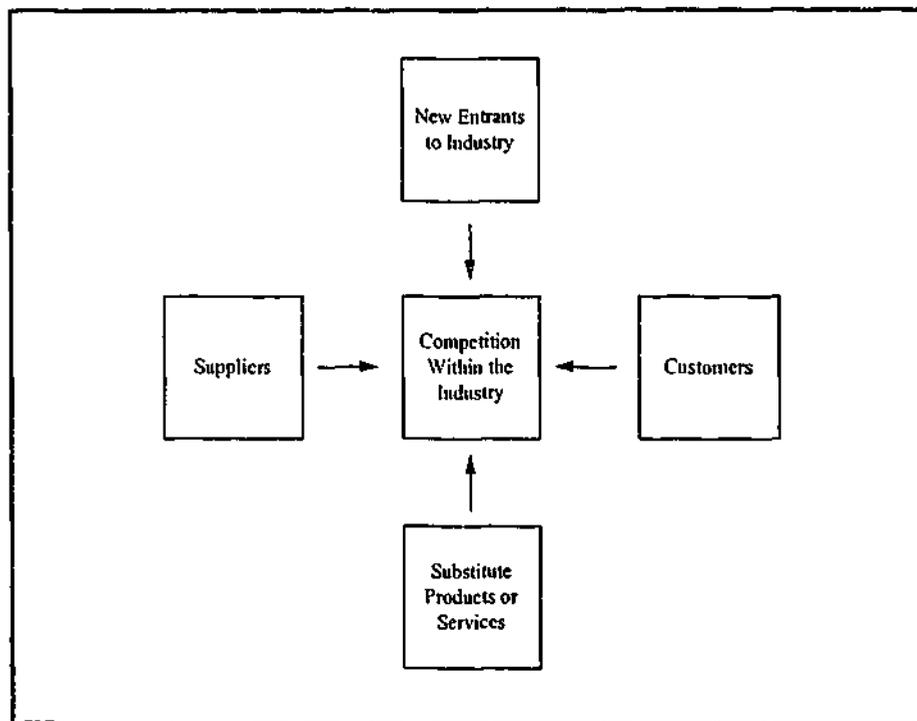


Figure 7: The Five Competitive Forces Model (adapted from Porter and Millar [1985])

The five competitive forces model can be used to examine external forces that effect the strategic potential of IT in each area (Earl, 1989).

3.2.4.1 Customers

Attempts could be made by the organisation to use IT to lock in customers. Earl (1989) suggests that this could be done by encouraging links between the systems of the organisation and the customer (for instance, for automatic ordering). After installation of such a system, the customer may feel that too much time or money will be involved in switching suppliers. In this way, the organisation has managed to build in switching costs for the customer.

Earl also suggests that the organisation has the potential to store customer information in databases. This information could include details about customer buying habits or complaints, which may lead to improved product marketing or product design.

3.2.4.2 Suppliers

In the same way that organisations try to lock in customers, they could attempt to reduce the power of suppliers (Earl, 1989). One way to do this would be to introduce a database of supplier performance. For instance, how much suppliers charge (relative to their competitors) or how promptly they fill orders. This gives an organisation the means by which it can choose between suppliers quickly on measures other than price.

3.2.4.3 Substitute Products/Service

A substitute product is used to replace an existing product. An example of this occurred where computer-based games gradually become a substitute for 'action' board games (Earl, 1989).

3.2.4.4 New Entrants

Earl (1989) suggests that barriers to entry could be used as a weapon against new entrants to an industry. Locking in customers or competing aggressively in the areas of price and quality (even in the short term) are ways of discouraging new entrants.

3.2.5 When and How Can IT Add Value to Products and/or Services?

Ahituv and Neumann (1990) have identified three factors that influence the likelihood of strategic IT potential in an organisation:

- The presence of significant information content in key relationships between buyers and sellers. IT (and communications technology) is obviously suited to the transferral of such information. It can provide benefits in the areas of cost, speed of data transfer and improvements in data entry errors.
- The presence of competitive pressures in the industry (such as deregulation, IT innovation, or competition intensity). This forces industry participants to find ways of gaining competitive advantage by closely examining the potential of IT as a part of their constant investigations of all parts of their business to try to gain an edge on competitors.

- Limited product or service life (such as unsold airline seats or vacant hotel rooms). The importance of having effective and flexible systems to manage these effectively cannot be overstated, generally offering the organisations the opportunity to package the price of their products and/or services to be lower during off peak periods to maximise sales.

Porter and Millar (1985) suggest that IT changes the way that companies operate by altering the process that they use to create their products, as well as altering the actual products themselves. A process they describe as 'transforming the value chain' can do this. Each value activity has a physical and an information component. The physical component is the actual physical action that occurs with the activity. Traditionally, this has been the major area targetted to add value to a product. New technologies allow an emphasis to be placed upon the information component. The information component can be a combination of the data that needs to be recorded about the occurrence of a value activity (for instance, recording that a certain amount of raw materials have been used in a batch) or information for a customer about how to use a product. As well as this, IT can be used to improve the information and the physical components of the activities involved in the process of producing products.

3.2.6 Other Strategies

On top of Porter's suggested three generic strategies, there are a number of other strategies that organisations can adopt to assist them in dealing with elements of the five competitive forces model.

3.2.6.1 Innovation

Innovation occurs when an organisation invents new ways of doing business. In some cases this may lead to differentiation of products. In other cases it may lead to entire new ways of doing business and may alter the fundamental structure of an industry (O'Brien, 1999).

3.2.6.2 Growth

A growth strategy involves the expansion of an organisation's capacity to produce goods and services and/or expanding into new markets (O'Brien, 1999).

3.2.6.3 Alliance

An alliance strategy involves the establishment of a business linkages or alliances with any other element of the five competitive forces model. The types of linkages can include mergers, acquisitions, joint ventures or other marketing, manufacturing or distribution agreements between businesses (O'Brien, 1999).

3.2.6.4 Time

Frenzel (1992) includes 'time' as a competitive strategy. In this thesis, 'time' has already been discussed as a part of Porter's three generic strategies for improving competitiveness, differentiating the product or service (refer 3.2.3.2 Competing on Differentiation).

3.2.7 Section Summary

A number of important concepts were introduced in this section. 'Value' is the amount that buyers are willing to pay for a product or service. Porter and Millar (1985) introduced the value chain model, which can be used to help an organisation to add value to its products and services. In addition, they introduced the five competitive forces model, which identifies that strategic systems used to add value often directly effect or effected by competitors, customers, suppliers, new entrants to the industry or substitute products and/or services. The three generic strategies for improving competitiveness were introduced as strategies for organisations to adopt in their pursuit of strategic ways to use information technology, as well as three other possible strategies: innovation, growth and alliance. The idea of 'locking in' customers and storing information in databases about their buying habits was introduced.

Situations where IT can add value to products and/or services were identified. These were:

- The presence of significant information content in relationships between buyers and sellers.
- The presence of competitive pressures in the industry.
- Limited product or service life.

The potential for the use of IT in improving the performance of the information component of value activities was also identified.

3.3 Adding Value Using Communications Technology

3.3.1 Purpose of this Section

According to the chosen definition of information technology, communications technology is a subset of information technology. This section examines the specific types of added value that can be provided by communications technologies. Communications technologies also help to form the basis of the infrastructure systems, the base level of the IT Investment Pyramid.

In doing this, the section examines the business capability of telecommunications, how to add value using communications technologies, some models for using communications technologies for marketing on the Internet, the effect of the Internet on marketing channels and consumer behaviour on the Internet.

3.3.2 The Business Capability of Telecommunications

Keen and Cummins (1994) developed the Telecommunications Services Platform Map (refer Figure 8) to help an organisation to identify business opportunities using telecommunications. The Map is designed to identify the organisation's technical capabilities in relation to three dimensions of business: reach, range and responsiveness.

Each of the business dimensions moves from a simple level of sophistication to a complex level as the business requirements of the organisation are expanded. An organisation can decide the level of sophistication that they require in each of the business dimensions. They can then determine if they have (or can acquire) the level of technical expertise required to match the desired level of sophistication (Keen and Cummins, 1994).

3.3.2.1 Reach

Reach is concerned with whom it is necessary to connect to. At the simplest level, connection is only necessary within a single location - such as an office department. The next level requires connections across domestic locations, such as all the domestic branches of an organisation. At the highest levels, reach is aimed at being able to contact all customers and suppliers or anyone, anywhere (Keen and Cummins, 1994). This shows how communications technologies can be used in relation to Porter's five competitive forces model, introduced in the previous section. As contact is made via IT with forces external to the organisation, the complexity level of the type of communication required increases.

3.3.2.2 Range

Range involves the level of sophistication of the communication. At the basic level, this involves the sending of simple messages, such as electronic mail. At the next level, data can be accessed from a remote system. At the next level, independent transactions can be carried out separately. For

instance: separate airline, car rental and hotel reservations may be made by a travel agent. The highest level is co-operative transactions, where transactions can be interdependent. For instance, in such a system, if the travel agent wishes to change the date of departure in the previous bookings, the alteration to dates in the airline, car rental and hotel reservations systems occurs automatically, rather than having to amend each system individually (Keen and Cummins, 1994).

The most complex level of 'Range' can provide organisations with a way of using information technology to differentiate their products and services from their competitors (refer 3.3.3 Adding Value using Communications Technologies), as suggested by Porter and Millar (1985) in their three generic strategies for improving competitiveness by providing extra product support or a faster service (refer 3.2.3 Adding 'Value').

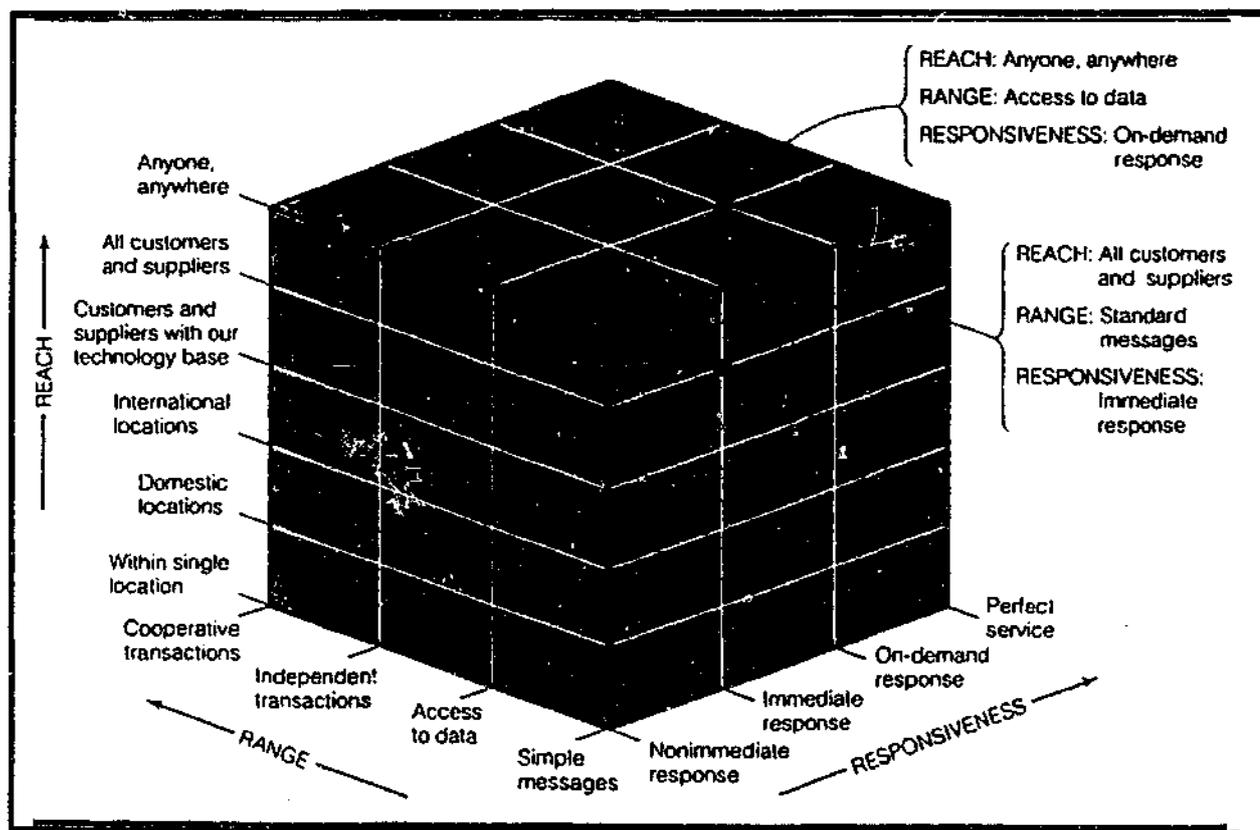


Figure 4: The Telecommunications Services Platform Map (Source: Keen and Cummins, 1994, p.128)

3.3.2.3 Responsiveness

Responsiveness relates to the speed, reliability and security of the communication service provided. The simplest level is Non-immediate Response, where the service is processed offline (such as weekly - an example of this is a payroll system). The next levels are Immediate Response (online processing within specified time periods, such as business hours) and On-demand response (immediate response 24 hours per day). The highest level is Perfect Service, which is virtually On-demand response with sufficient backup processes to ensure that immediate responses will still occur when there are technical (or other) problems (Keen and Cummins, 1994).

As with Range, the ability to achieve a high level of Responsiveness provides organisations with a way of using information technology to differentiate their products and services from their competitors, as suggested by Porter and Millar (1985) in their three generic strategies for improving competitiveness by delivering a faster service (refer 3.2.3 Adding 'Value').

3.3.3 Adding Value using Communications Technologies

Malone et al (1989) identified a number of benefits relating to 'electronic markets':

- More convenience for the consumer than having to contact a sales representative (Responsiveness).
- Elimination of paper handling and clerical work in purchasing, processing the order, billing the customer, tracking the delivery and accounting for the sale.
- Customers have a choice from a number of suppliers (Reach).
- If databases containing product features can be linked to the electronic market process, customers have the ability to narrow their search to a few important product features (Range).

Malone has identified a number of advantages that can be related back to Keen and Cummins' model, and therefore to the differentiation theory of Porter and Millar (1985).

3.3.3.1 Communications Technologies and Commodity Markets

Traditionally, where commodities are similar, organisations have been able to make substantial profits because it has been costly for consumers to compare prices at retail outlets that may be great distances apart. Electronic markets can reduce the cost of 'comparison shopping' by consumers. This may force sellers to lower their prices to compete against their 'new' competitors (Bakos, 1991). This increases the Reach of the customer in relation to Keen and Cummins' model (but not, necessarily, the Reach of the business). Communications technologies can assist the organisation to lower its coordination costs (Benjamin and Wigand, 1995).

3.3.3.2 Communications Technologies and Differentiated Markets

In a differentiated market, consumers have to consider not only the price of the goods on offer but also any particular characteristics the goods may have. The improved search capabilities of electronic markets provide consumers with the same benefits as those shopping for commodities that are similar (mentioned in the previous section). In addition, they also have the benefit of being better informed about the unique characteristics of the available goods. In the long run, it may be impossible for sellers to avoid some loss of market power in such markets (Bakos, 1991). This increases the Range (of information) available to the customer in relation to Keen and Cummins' model.

3.3.4 Communication Models for Marketing on the Internet

Hoffman and Novak (1996) have developed a model to represent the change in marketing that may occur as a result of the Internet.

The 'Mass Media Model' (refer Figure 8) represents advertising using traditional advertising media, such as radio, newspapers and television. There is no interaction between consumers (C) and the firm (F) in this situation.

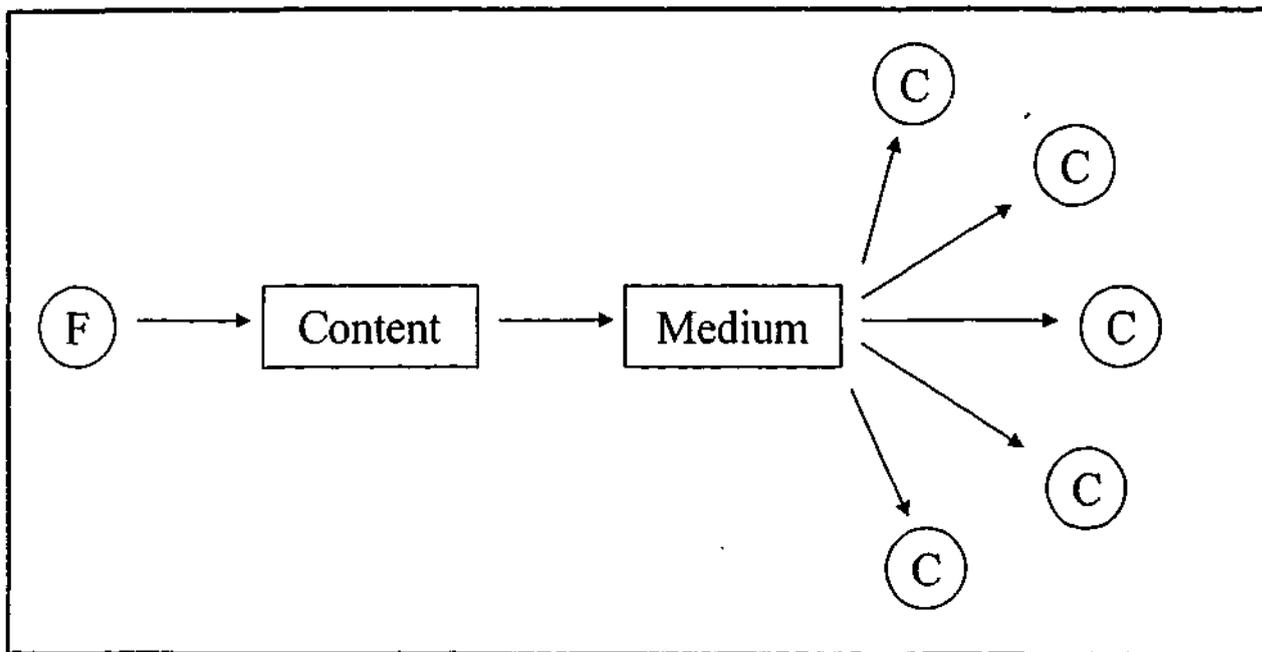


Figure 8: Traditional One-To Many Marketing Communications Model for Mass Media (Source: Hoffman and Novak, 1996, p.52)

The communication flow in this model is one way. The business distributes its content via the traditional advertising media in the hope of it reaching the targeted customers, but there is no facility for immediate response by the customer.

Electronic marketing, however, is not limited to this one-way model.

Hoffman and Novak define a Hypermedia Computer-Mediated Environment (CME) as:

...a dynamic distributed network, potentially global in scope, together with associated hardware and software for accessing the network, which enables consumers to:

- 1. Provide and interactively access hypermedia content (machine interactivity); and*
- 2. Communicate through the medium (person interactivity).*

(Hoffman and Novak, 1996, p.53)

The 'Interpersonal and Computer-Mediated Model for Mass Media' (refer Figure 9) represents interpersonal communication between sender and receiver. The communication generally occurs via a particular medium, such as electronic mail. Communication is two-way and can occur over a period of time.

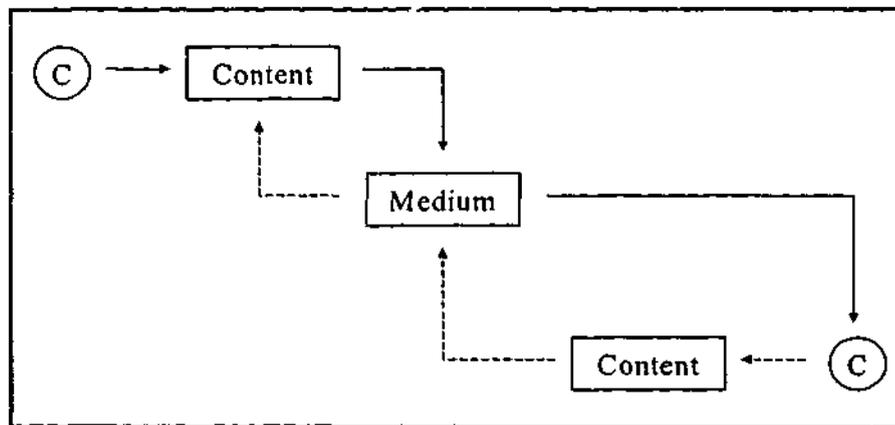


Figure 9: Model of Interpersonal and Computer-Mediated Communication (Source: Hoffman and Novak, 1996, p.52)

In this instance, navigation through hypermedia occurs in the same manner as navigation using hypertext links. Hoffman and Novak (1996, p.53) also define Network Navigation as the process of self-directed movement through a hypermedia CME.

Such a medium provides potentially unlimited freedom of choice and greater control for consumers, contrasted with the limitations of traditional media.

The 'Model of Marketing Communications in a Hypermedia CME' (refer Figure 10) represents a many-to-many communication model for such an environment. The difference between this model and the previous one is that interaction can occur with the medium (machine interactivity) in addition to through the medium (person interactivity) (Hoffman and Novak, 1996).

This model can be used to represent the uncertain nature of advertising on the Internet. Either the organisation or the customer may initiate contact. Either the organisation or the customer can contribute content. Either the organisation or the customer can interrelate with the medium used for communication, or can do so directly with the other party.

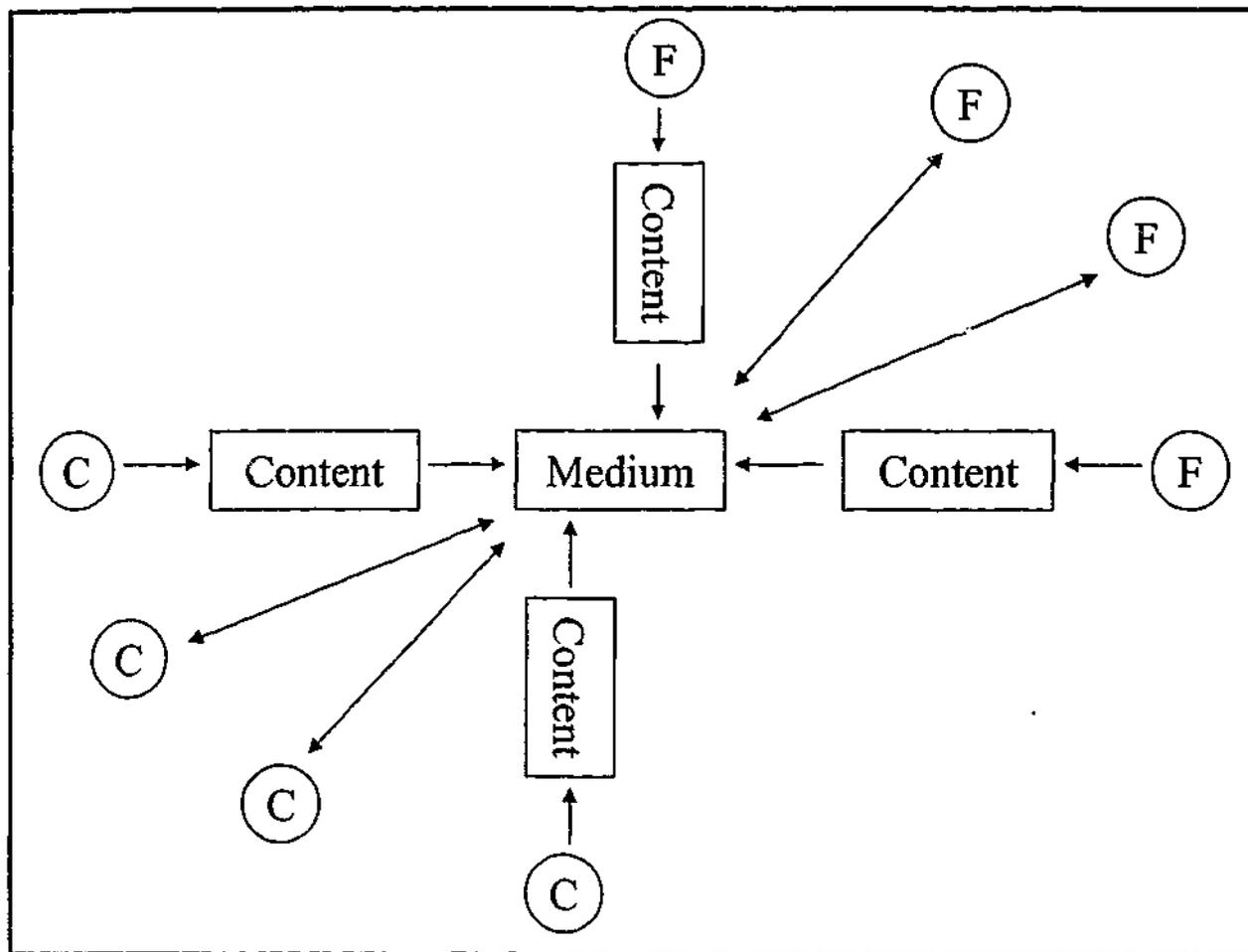


Figure 10: Model of Marketing Communications in a Hypermedia CME (Source: Hoffman and Novak, 1996, p.52)

This type of many-to-many communication helps an organisation to manage the trade-off between the reach of their communications (as per Keen and Cummins, 1994) and the richness of the communications. The richness is represented by a combination of the amount of information that can be sent, the level that it can be customised to an individual and the level of interactivity between the organisation and the recipient (Aguila and Dube, 2000).

3.3.5 The Effect of the Internet on Marketing Channels

Which particular value activities does the Internet affect? Peterson et al (1997) suggest that marketing activities occur through three types of channels:

- The *Distribution channel* facilitates the actual exchange of products and services.
- The *Transaction channel* facilitates economic exchanges between buyers and sellers.
- The *Communication channel* facilitates the exchange of information between buyers and sellers.

3.3.5.1 Effects on Intermediaries

Intermediaries in the Distribution channel are least likely to be effected by the Internet, unless the goods can be produced in a digital format. The Transaction channel is likely to be effected because sellers are able to more efficiently interact with individual and potential buyers over greater

distances, 24 hours per day. The Communications channel is the most likely to be effected by the Internet, due to its low cost, speed and the ability to interact automatically with customers (Peterson et al). Table 1 summarises these concepts:

Table 1: Channel Intermediary Functions and the Internet (Source: Peterson et al, 1997, p.335, Figure 2).

Channel Type	Intermediary Function	Are Internet Operations a Substitute?	Does the Internet Dominate?
Distribution	Logistic Operations Assorting Accumulating Sorting	No, unless the good is based on digital assets	No, unless the good is based on digital assets
Transaction	Sales, including control over the sales environment	Likely	Depends upon the characteristics of the good
Communication	Creating information (e.g. the role of ad agencies) Distributing information to buyers (e.g. role of broadcast media)	Possible Very Likely	Possible Very Likely

The three channel intermediary functions have been highlighted as key factors that will drive Internet related efficiencies and wider use of the Internet in the business community (Commonwealth of Australia [a], 1999).

The Internet will have an effect on the distribution of goods if they are digital. That is, they can be downloaded over the Internet. In addition to being a powerful medium for the delivery of digital goods, the Internet can be used to track and confirm deliveries of physical goods (Commonwealth of Australia [a], 1999).

Depending upon the characteristic of the good, there is a likelihood that some sales will occur over the Internet. Use of the Internet has already lowered the cost of payment transactions (especially the relative costs of small payments) (Commonwealth of Australia [a], 1999).

The more likely marketing channel to be affected by the Internet is the communication channel, where it will be possible to efficiently exchange information between buyers and sellers (Peterson et al, 1997). Organisations have already seen benefits from reduced communication costs by using the Internet to send and receive email and to transmit and receive data (such as designs) (Commonwealth of Australia [a], 1999).

3.3.6 Consumer Behaviour on the Internet

3.3.6.1 Introduction

This subsection examines the behaviour of consumers when they are considering interacting with organisations over the Internet.

3.3.6.2 Models of Consumer Behaviour on the Internet.

Chen and Sukpanich (1998) have proposed a model to assess consumer involvement in online purchasing (refer Figure 11).

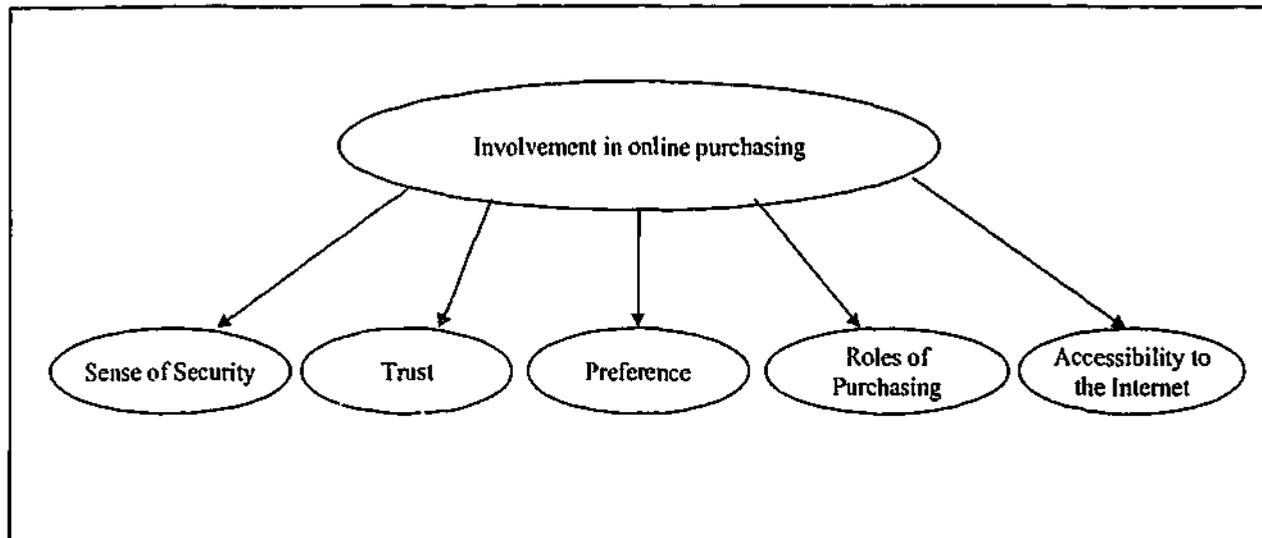


Figure 11: Measurement Model for Assessing the Involvement in Online Purchasing (Source: Chen and Sukpanich, 1998, p.281)

The five aspects of the model are (Chen and Sukpanich, 1998):

- **Sense of Security.** Consumers must feel a sense of security before they will be willing to transmit amounts of money or private information over a public network such as the Internet.
- **Trust.** Organisations can improve the sense of security for a potential customer by implementing and continually improving secure technologies so that mutual trust can be developed the organisation and its customers. Security related issues, although important, are not a focus of this thesis.
- **Preference.** The Internet is very attractive in some dimensions of purchasing and not so attractive in others. Different strategies may be needed by organisations depending upon the types of products and/or services that they offer.
- **Role in Purchasing.** In some instances, the purchaser of products or services may not be the user. Chen and Sukpanich (1998) have identified six influences on 'buying' from the literature. Depending upon the type of purchase, one person may carry out many of these roles:
 - *Users.* This group uses the product or service that has been purchased.
 - *Purchasers.* This group actually makes the purchase.
 - *Deciders.* This is the group that makes the purchasing decision.
 - *Influencers.* This group has input into decisions.
 - *Gatekeepers* can control information or access to decision makers.
 - *Initiators* recognise the need for a product or service.
- **Accessibility to the Internet.** This can be assessed in two ways – the availability of technology to access the Internet and the time available to do so.

Ambrose and Johnson (1998) have proposed a model that identifies trust and buyer motivation as important components for successful Internet retailing (refer Figure 12).

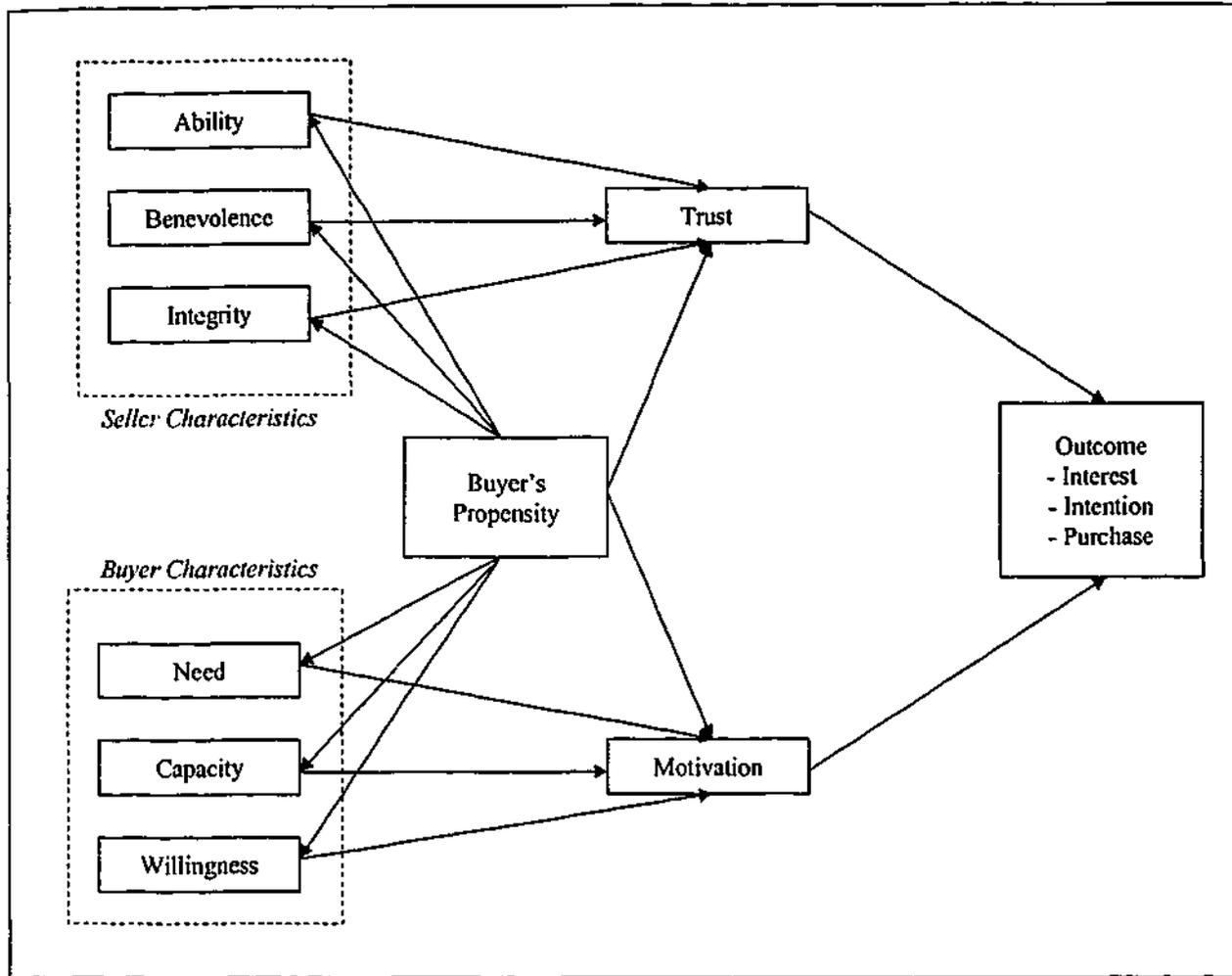


Figure 12: Trust Based Model of Buying Behaviour (Source: Ambrose and Johnson, 1998, p.264)

In this model, a buyer's trust consists of the buyer's propensity to trust the seller and the seller's capability to be trustworthy. The buyer's propensity to trust is an individual trait amongst buyers. The seller's capability to be trusted depends upon three factors (Ambrose and Johnson, 1998):

- *Ability* of the seller (from the buyers viewpoint) to deliver products of promised capabilities.
- *Benevolence*. The extent to which the seller is perceived to want to 'do good' to a buyer. The seller may be required to demonstrate that they are trying to do more than simply maximise profits.
- *Integrity*. The perception that the seller adheres to a set of principles that buyers find acceptable.

It is, however, difficult for the web user to assess the level of seller skills, attitudes or performance capability (AlMoumen and Sommerville, 1999). The achievement of trust is not enough by itself to lead to online sales. In addition to this, buyers need to be motivated to purchase the organisation's products and/or services. The buyer must have a need and the capacity to purchase the product. In addition, the buyer must be willing to buy (that is not be deterred from buying by any situational, personal or social reasons) (Ambrose and Johnson, 1998).

3.3.6.3 Matching Consumer Decision Sequences with Product and Service Characteristics.

Peterson et al (1997) have developed a means for assessing the suitability of the Internet for products and services with different characteristics. Three dimensions of product and service characteristics have been identified (Peterson et al, 1997):

- *Cost and Frequency of Purchase.* Goods vary along this dimension from low cost, frequently purchased goods (such as milk) to high cost, infrequently purchased goods (such as a stereo system).
- *Value Proposition.* Goods vary along this dimension between being 'tangible and physical' and 'intangible and service related'.
- *Degree of Differentiation.* This is determined by the extent to which a seller is able to create a competitive advantage by differentiation.

In addition to examining product and service characteristics, Peterson et al (1997) contend that it is also necessary to examine the decision sequence used by consumers in purchasing goods. For instance, do they commence their search for a good looking for a particular brand, or do they commence by looking for a particular category of good? Table 2 links the different types of product and service characteristics with likely consumer decision sequences. It can be used to help an organisation to decide if an Internet presence is desirable for their particular products and/or services.

For low value, frequently purchased physical goods, consumers are likely to purchase their goods from a retail store after looking in a retail store. Where those goods are information-based or intangible goods, they will be likely to buy them over the Internet.

For higher outlay, infrequently purchased goods, consumers are more likely to search both the Internet and retail stores, with final purchase likely to happen in whatever medium offers the best deal to the consumer (Peterson et al, 1997).

Table 2: Product and Service Characteristics and Likely Consumer Decision Sequences (Source: Peterson et al, 1997, p.339, Figure 4)

Dimension 1	Dimension 2	Dimension 3	Likely Decision Sequence
Low Outlay, Frequently Purchased Goods	Value proposition Tangible or Physical	Differentiation Potential High	(Example: wine, soft drinks, cigarettes) <ul style="list-style-type: none"> • Brand choice likely after retail search • Subsequent price search on Internet unlikely • Final acquisition likely in retail store
		Differentiation Potential Low	(Example: Milk, eggs) <ul style="list-style-type: none"> • Brand choice likely after retail search • Subsequent price search on Internet unlikely • Final acquisition likely in retail store
	Value proposition Intangible or Informational	Differentiation Potential High	(Example: Online newspapers and magazines) <ul style="list-style-type: none"> • Brand choice likely after Internet search • Subsequent price search in retail channels unlikely • Final acquisition likely on the Internet
		Differentiation Potential Low	(Example: Stock market quotes) <ul style="list-style-type: none"> • Brand choice likely after Internet search • Subsequent price search in retail channels unlikely • Final acquisition likely on the Internet
High Outlay, Infrequently Purchased Goods	Value proposition Tangible or Physical	Differentiation Potential High	(Example: Stereo systems, automobiles) <ul style="list-style-type: none"> • Brand choice likely after search of both channels • Price search likely in both channels • Final acquisition may occur in either channel (The need for personal inspection may influence the decision process)
		Differentiation Potential Low	(Example: Precious metal ingot of known weight and purity) <ul style="list-style-type: none"> • Brand choice likely after search of both channels • Price search likely in both channels • Final acquisition may occur in either channel
	Value proposition Intangible or Informational	Differentiation Potential High	(Example: Software packages) <ul style="list-style-type: none"> • Brand choice likely after search of both channels • Price search likely in both channels • Final acquisition may occur in either channel (If prices are comparable, the Internet may be convenient for the final delivery of such products in the future)
		Differentiation Potential Low	(Example: Automobile financing, insurance) <ul style="list-style-type: none"> • Brand choice likely after search of both channels • Price search likely in both channels • Final acquisition may occur in either channel

3.3.7 Section Summary

Continuing the examination of foundation theory, this section introduced Keen and Cummins' map of telecommunications services, identifying key components of that map as being the Reach, Range and Responsiveness of a particular communication. The relationship between this map and the five competitive forces model and three generic strategies for improving competitiveness (Porter and Millar, 1985) was also identified.

Hoffman and Novaks' communications models for marketing in a hypermedia environment were used to identify some of the differences between traditional forms of advertising and advertising on the Internet. Using the Internet, either the business or the customer can initiate contact, and both can

contribute content. Both parties can interrelate with the medium for communication or contact each other directly.

Peterson et al introduced a means of classifying marketing activities on the Internet into three channels, the Distribution channel, the Communication channel and the Transaction channel. The Communication channel was identified as being the channel where value was more likely to be added using the Internet.

A number of aspects of consumer behaviour on the Internet were also examined. These included the need for trust and the relative suitability of different products and/or services for purchase over the Internet from a consumer's viewpoint.

Peterson et al examined three dimensions of product and service characteristics that can be linked with likely consumer decision-making sequences to determine the suitability of different types of products and services to be sold over the Internet. In relation to low outlay, frequently purchased goods, consumers will be more likely to purchase physical goods from retail stores and intangible or information-based goods over the Internet. In relation to high outlay, infrequently purchased goods, consumers will take more time considering their purchases and are more likely to search both retail stores and the Internet for the best deal.

3.4 Models for the Identification of IT Opportunities that Add Value to Products and/or Services

3.4.1 Purpose of this Section

This section provides a review of some of the models which currently exist to assist organisations to identify IT investments that add value to an organisations products and/or services. There is an analysis of the common features amongst the models at the end of the section.

3.4.2 Introduction

There are a number of models in existence to assist organisations to identify ways of using IT to their advantage. A common feature amongst all of them is that they require some form of business analysis to be performed at an early stage of the application of the model, before any IT investment can be recommended.

3.4.3 Business Analysis: Identifying Areas where IT can be Useful

Before introducing the models to be analysed, it is necessary to examine some of the methods of business analysis that they use.

3.4.3.1 Critical Success Factors

John Rockart introduced the concept of critical success factors (CSFs) in 1979. CSFs are used to identify factors that are critical to the success of a business operation. Critical success factors are the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the business. They are the few key areas where 'things must go right' for the business to flourish. If the results in these areas are not adequate, the efforts for the period will be less than desired. As a result, the critical success factors are areas of activity that should receive constant and careful attention from management. The current status of performance in each area should be continually measured, and that information should be made available to decision makers (Rockart, 1979; Senn, 1990; Frenzel, 1992). CSFs can be used to identify areas of the organisation where the effective use of IT could help to ensure its 'successful competitive performance'. The method encourages executives to identify what is important to them in their business, and outlines a number of steps to be followed in the identification of CSFs (Alter, 1992):

1. Identify the primary mission of the organisation and the objectives that define satisfactory overall performance for the organisation.
2. Identify critical success factors.
3. For each CSF, identify pertinent indicators or measures of performance that can be tracked.
4. Develop systems for collecting and using this information.

IT could be effectively used in the final step to identify the types of systems that are needed most by the organisation.

3.4.3.2 SWOT Analysis

Whilst CSFs are effectively a management tool, SWOT analysis has been traditionally used in the marketing or economics areas of the business. The term SWOT is an acronym for Strengths, Weaknesses, Opportunities and Threats. An analysis is performed on the various areas of the organisation to identify current or potential strengths and weaknesses when compared with other competitive forces (see Porter's five forces model). From this analysis, the organisation identifies actual or potential opportunities to gain strategic advantage or threats to the organisation's well being. Actions taken by the organisation to take advantage of an opportunity are proactive. Actions taken by the organisation to combat a threat are reactive (Kotler et al, 1989).

The analysis of the strengths and weaknesses of the organisation and its competitors should include (Kotler et al, 1989):

- Relative size and scope.
- Resources.
- Skills.
- Brands.
- Customer types.
- Customer preferences.
- Loyalties and behaviour.
- Company images.
- Relative ability to serve the market.
- Relative ability to control distribution and resellers.

Once an actual or perceived opportunity or threat has been identified, the organisation can examine ways in which IT can be applied in a proactive or reactive manner.

One of the advantages of the SWOT analysis from the viewpoint of this thesis is that it requires an investigation of internal and external factors affecting the business (refer 3.1.2.2 The Organisational Context and 3.2.4 Competitive Forces)

3.4.4 Model Introduction

The following subsections introduce a number of models that have been proposed to assist organisations to identify strategic IT investments. Apart from the first model (the value chain), the models have all been selected for their applicability to small business. Each of the articles referenced for these models provides small business examples of how the model should be employed. These are not referred to in the text but can be found in the associated reference.

3.4.5 Porter and Millar (1985) - The Value Chain

3.4.5.1 Rationale for the model

The concept of the value chain model was introduced in an earlier section. Porter and Millar proposed this model to assist general managers to respond to the challenges of the information revolution (Porter and Millar, 1985).

3.4.5.2 Model Description

An organisation's value chain is 'a system of interdependent activities, which are connected by linkages. Linkages exist when the way in which one activity is performed affects the cost or effectiveness of other activities' (Porter and Millar, 1985, p.150). For instance, a more costly product design and more expensive raw materials can reduce after sales service costs and (perhaps) provide some marketing benefits. Figure 13 shows a representation of the value chain model.

'A company must resolve such trade-offs, in accordance with its strategy, to achieve competitive advantage' (Porter and Millar, 1985, p.150).

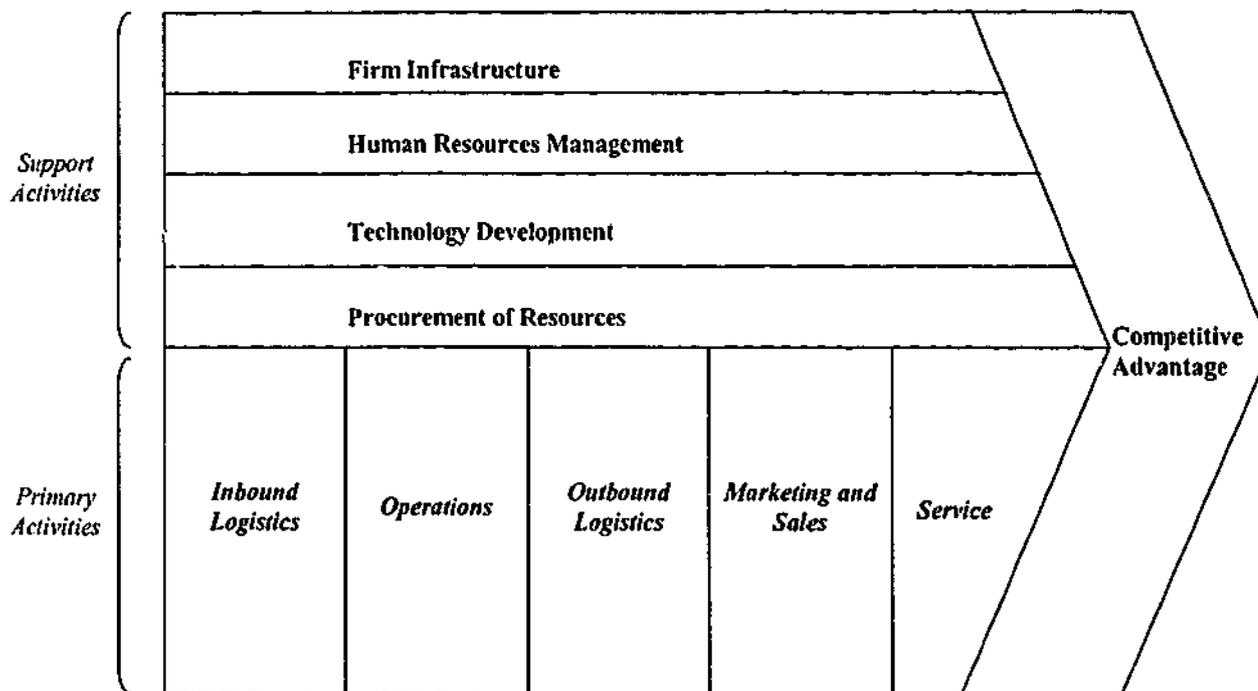


Figure 13: The Value Chain Model (adapted from Porter and Millar, 1985, p.151)

3.4.5.2.1 Industry Value System

The Value Chain system does not only have to apply to a single organisation. "Linkages not only connect value activities inside a company but also create interdependencies between its value chain and those of its suppliers and channels. A company can create competitive advantage by optimising or coordinating these links to the outside" (Porter and Millar, 1985, p.150)

The value chain system starts at the supplier, and includes the business or business unit, distribution channels and customers. There is a different value system for each industry (Porter and Millar, 1985). This is another example of the importance of the relationship between the business and its external trading partners.

3.4.5.3 Classifying the Organisation's Primary Activities

Refer to 3.2.2 Identifying Strategic IT Opportunities: What is Value? for a discussion of primary and secondary activities in the value chain.

The first step of the value chain model is to classify each activity of the organisation that is a primary activity into one of the five key areas in the diagram above. Each activity is then analysed to see whether or not it adds value to the organisation's finished product or service in the eyes of the customer. This highlights the customer focus which Porter and Millar identify as being so important. Any activity that is deficient in this area is a potential target for an appropriate IT investment (Porter and Millar, 1985).

3.4.5.4 Identifying the Strategic IT Opportunity

In the next stage of the model, appropriate IT investments are suggested in the light of classification of the value activities. Porter and Millar (1985) provide two areas of assistance in assisting the organisation to identify appropriate IT investments (some of these were discussed in 3.2.5 When and How Can IT Add Value to Products and/or Services?).

3.4.5.4.1 Transforming the Value Chain

IT can transform the way each value activity is performed, as well as the nature of the link between each activity. Each value activity is made up two components:

- Physical component. This relates to the physical tasks required to perform the value activity (historically, these been the components affected by technological progress).
- Information-processing component. These are the steps required to capture, manipulate, and channel the data necessary to perform value activities, includes everything that the buyer needs to know to obtain the product and use it to achieve the desired result (developments in this area are now advancing faster than technologies for physical processing).

Both components need to be examined to attempt to identify IT opportunities that can add value to the organisation's products or services (Porter and Millar, 1985).

3.4.5.4.2 Changing the Nature of Competition

The nature of the competition can be changed by (Porter and Millar, 1985):

- Changing the industry structure by locking in customers, reducing the power of suppliers, being aware of the threat of new entrants and being aware of the threat of substitute products.
- Creating competitive advantage using the three generic strategies.
- Spawning new businesses.
 - New businesses have now become technologically feasible.
 - Demand derived for new IT products (such as networks to allow computer communications).
 - New businesses from old (such as exporting of gained IT expertise).

3.4.5.5 Summary

The key to the value chain is the identification of the primary activities and the determination of whether or not they add value to the products and/or services of the business. This 'business analysis' then leads to the identification of strategic IT opportunities.

3.4.6 Barton and Peters (1991) - Synthetic Framework for IT

3.4.6.1 Rationale for the Model

Barton and Peters (1991) designed the Synthetic Framework for IT in response to demand from industry for suitable guidelines as to how to best identify and exploit IT for competitive advantage. It attempts to represent a 'synthesis' of existing research literature in the area and issues that the literature does not focus upon.

3.4.6.2 Model Description

A simplified version of the Barton and Peters model is presented in Figure 14.

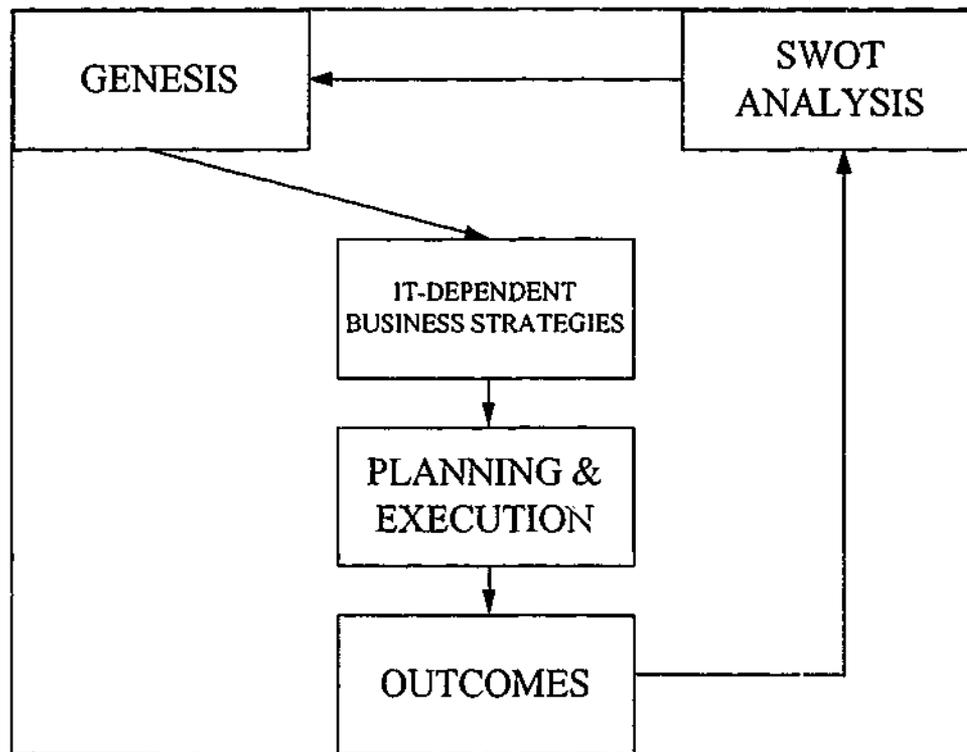


Figure 14: Five Elements of IT-derived Competitive Advantage (adapted from Barton and Peters, 1991, p.50)

The operation of the model is described in the following sections.

3.4.6.3 Situational Factors/ SWOT Analysis

The first step that is performed is an analysis of situational factors. This is virtually a SWOT analysis as described earlier. An analysis of the following factors brings about identification of actual/potential strengths and weaknesses that relate them to threats or opportunities (Barton and Peters, 1991):

- **Internal Factors:**
 - The nature and direction of the organisation (culture, mission, prevailing strategies).
 - The resources of the organisation (this includes technological capability, staff expertise, availability of capital, and so forth).
- **External Factors (refer 3.1.2.2 The Organisational Context and 3.2.4 Competitive Forces):**
 - Other actors in the market (such as customers, competitors, suppliers and regulatory agencies).
 - External availability of resources (such as labour force availability and raw material availability).

3.4.6.4 Genesis

This step is the originating force behind the IT initiative. After the SWOT analysis, threats and opportunities have been identified. At this stage, proactive or reactive strategies are decided upon (Barton and Peters, 1991):

- **Proactive Strategy:**
 - This requires the foresight to identify an IT-lead initiative with strategic, tactical, or operational significance to the organisation.
 - A proactive strategy takes advantage of a perceived 'opportunity' for the organisation to gain a strategic advantage.
- **Reactive Strategy:**
 - A reactive strategy is an attempt to resolve or limit the impact of an existing or anticipated 'threat' to the organisation.

3.4.6.5 IT-Dependent Business Strategy Alternative

By this stage, proactive and/or reactive strategies have been adopted. The aim of this step is to enhance an existing competitive advantage, create a new competitive advantage, or react to an actual or potential competitive advantage gained by a competitor by identifying a strategic IT opportunity that fits the suggested proactive or reactive strategy (Barton and Peters, 1991).

Competitive advantage can be achieved by (Barton and Peters, 1991):

- **IMPROVING INFORMATION:** improving the way information is available to support the organisation's functioning. This section relates to improving the execution of an organisation's core business tasks:
 - Automating Current Procedures (replace existing manual systems with IT equivalents).
 - Integrating Systems (produce a combination of business and information systems).
 - Building an Information Culture (provide relevant information for senior management).
- **IMPROVING MARKET POSITION:** improvements in the manner in which customers perceive the organisation's offerings. This is related to the previous chapter where the concept of using IT to add value to products and/or services was investigated:
 - Changing Market Structure (alter bargaining power or introduce new actors - such as a new product line).
 - Product Differentiation (from competitor's products and/or services).
 - Changing Market Rules (modify the nature of competition within the organisation's industry).

Note the similarities between this step and the corresponding step in the value chain model (refer 3.4.5.4 Identifying the Strategic IT Opportunity).

3.4.6.6 Planning and Execution

Barton and Peters (1991) have provided little detail about how this is done. One suggestion that they make is that the initiative could be a pilot project. They also make the observation that IT investments may fail if poorly planned or executed. At this stage, there is also a need to consider budget and the technical limitations of the business in relation to development of the initiative.

3.4.6.7 Outcomes

This step examines the impact of the IT investment on customers, competitors, suppliers and other competitive forces. In other words, this step virtually involves carrying out another SWOT analysis. It is usually limited to the competitive forces that were highlighted in the initial SWOT analysis. The Outcomes identified here then become the Situational Factors for new initiatives or changes (the next time that evaluation using the iterative model is commenced) (Barton and Peters, 1991).

3.4.7 Osterle (1991) - Generating Business Ideas Using IT

3.4.7.1 Rationale for the Model

Osterle (1991) designed this model to assist in the early detection of IT opportunities and threats, as this is a critical issue in many industries. The model describes a method of innovation through IT with an emphasis on the links between enterprises and business partners.

3.4.7.2 Model Description

The model attempts to assist a business to establish competitive advantage through relations between a supplier and a customer. This implies offering customers more value, increasing customer switching costs (refer 3.2.4.1 Customers), improving bargaining power with customers, breaching barriers of other enterprises and erecting one's own barriers (refer 3.2.4.4 New Entrants) and attempting to attract new customers (Osterle, 1991). All of these methods for gaining competitive advantage were introduced in 3.2.4 Competitive Forces. The operation of the model (refer Figure 15) can be initiated by either party involved in the supplier/customer relationship.

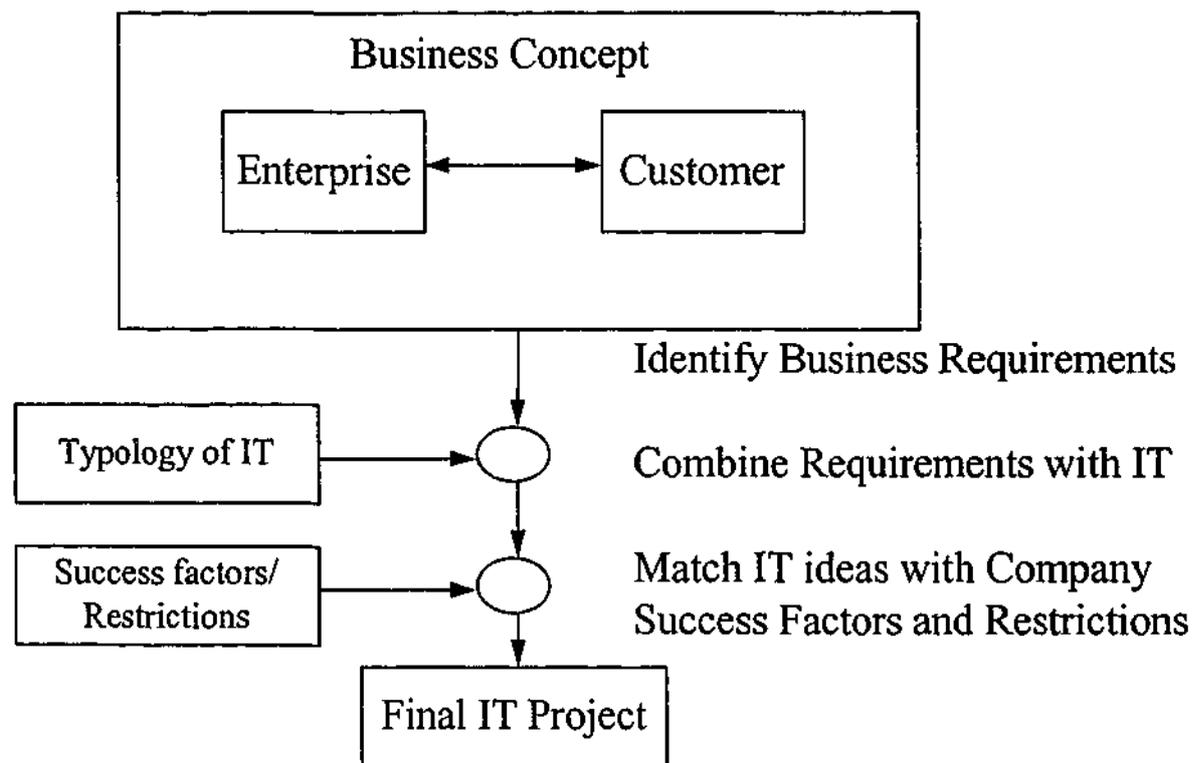


Figure 15: Procedure for Generating and Selecting IT Ideas (adapted from Osterle, 1991, p.155)

3.4.7.3 Identify Business Requirements

The first step in the application of the model is to analyse actual and potential relations between the supplier and the customer (the business concerned can be either). This involves communicating with the 'other' business and ascertaining the business needs of the customer and supplier that are in principle capable of communicating with each other. It is necessary to look through the business functions of both enterprises to identify actual and/or potential relationships [in this case, business functions relate fairly closely to Porter's primary activities, refer 3.2.2 Identifying Strategic IT Opportunities: What is Value?] (Osterle, 1991).

3.4.7.3.1 Critical Business Functions

Any business unit may have between 100 to 300 business functions. This is not manageable for the task required for this model. It is necessary to concentrate on business functions that are critical to link relations, where critical means that the business function exerts a great influence on success of the unit (similar to the concept of critical success factors, refer 3.4.3.1 Critical Success Factors) (Osterle, 1991).

Figure 16 represents a simplified version of the actual processes identified by Osterle in a case study examining the relationship between a material provider (the supplier) and a garment manufacturer (the customer). Business functions that are critical to 'link' relations between the businesses are listed. The related business functions are then linked with an arrow. For instance, actual links would include a relationship between ordering (customer) and order entry (supplier), as well as accounts payable (customer) and accounts receivable (supplier). An example of a potential link might be the linking of the two market research departments. There is a possibility there may be duplication of market research between the two organisations. They could pool their resources to complete more extensive research or share data to reduce their outlays in the area (Osterle, 1991).

It should not be assumed that the gathering of data such as critical business functions from another organisation is an easy task. It generally requires a great deal of trust existing between the two organisations. Potential problems can include (Osterle, 1991):

- Fear of passing information to competitors.
- Lack of trust in 'partner' quality and data.

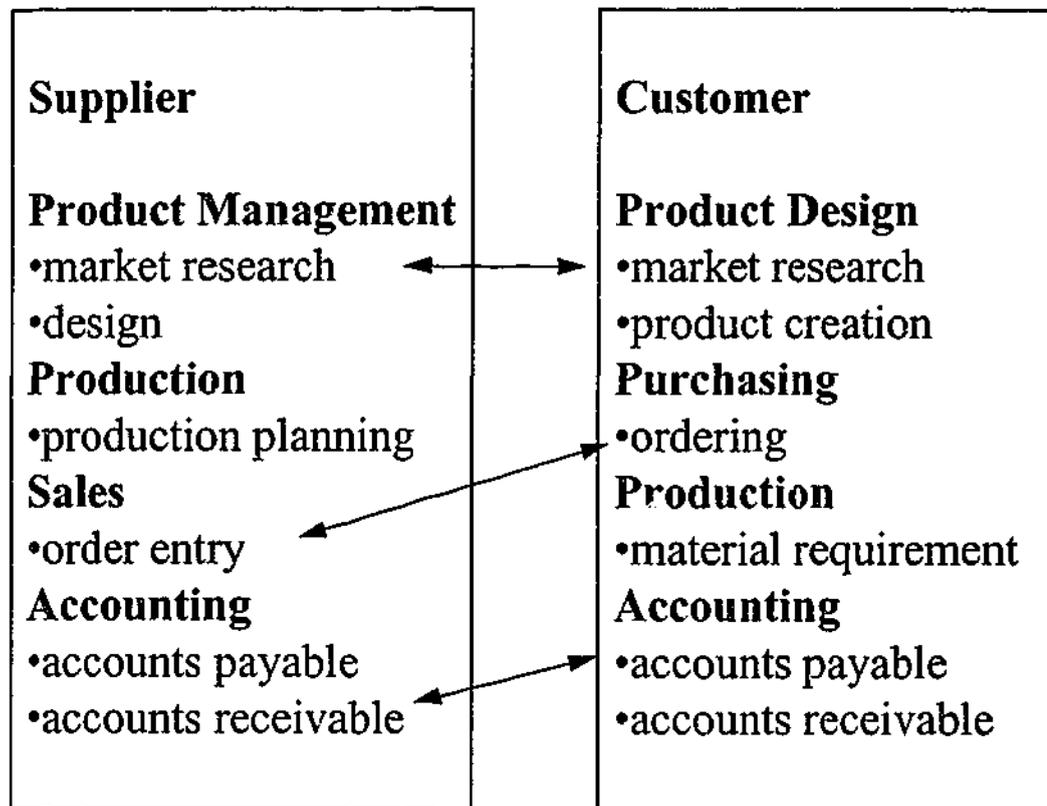


Figure 16: Business Functions in Customer Relations (adapted and simplified from Osterle, 1991, p.157)

3.4.7.4 Combine Business Requirements with IT

Each of the links (arrows) identified in the initial step of the model are matched with a Typology of Information Technology listing. The list summarises the technical possibilities at the stage preceding practical application, and is a representation of the types of things that IT can do for the business without actually mentioning the IT involved (Osterle, 1991). Figure 17 represents a simplified version of the Typology of Information Technology as represented by Osterle.

Each link is compared with an item in the typology until a potential IT investment is identified. For instance, there are possibilities in the Market Research to Market Research link of advantages to be gained in:

- Group work (with marketing personnel in both businesses jointly working on the same data).
- Common database access (where the database is stored in the computer of one business, but can be accessed by the other).

The Order-to-Order Entry link may find transaction data exchange (the automatic swapping of order data electronically) to be useful (Osterle, 1991).

Typology of Information Technology

- **Communication**
 - email
 - conferencing/ group work
 - transaction data exchange
 - common database access
- **Management/Administration**
 - project management
 - expert systems
 - MIS/ DSS/ EIS
- **Self-Management**
 - word processing
 - spreadsheet
 - graphics
 - time management
- **Design**
 - modelling tools
 - design tools (eg CAD)

Figure 17: Typology of Information Technology (adapted from Osterle, 1991, p.160)

3.4.7.5 Select Application Ideas

In this step, the identified IT opportunity is (Osterle, 1991):

- Measured against the yardstick of the business unit or the company's critical success factors.
- Compared with restrictions and/or costs that may limit the potential of the IT investment being implemented successfully, ensuring technical and financial feasibility.

3.4.7.6 Summary

The Osterle model uses a technique similar to critical success factors as its method of business investigation. It is also the only model that provides a direct means of identifying various specific applications of information technology through its Typology of Information Technology.

3.4.8 Jackson (1992) - Customer Oriented Strategic Information Systems

3.4.8.1 Rationale for the Model

Jackson (1992) developed this model because he felt that the value chain was difficult to apply for two major reasons. Firstly, he felt that the value chain was difficult to apply beyond the intuitive level (for instance, what is the next step after identifying a potential system in the marketing and sales area?). Secondly, he felt that the value chain implied a sequence of events or activities (for instance, inbound logistics is followed by operations, which is followed by outbound logistics, and so forth). In practice, many (if not all) of the value activities may occur simultaneously

Jackson suggests that the key to corporate success is to satisfy the customer with low product or service cost, high product or service quality, prompt product or service availability and distinguishing product or service features (refer 3.2.3 Adding 'Value'). As sales are becoming more volatile, increased competition is forcing organisations to focus on costs, improving quality and improving flexibility (especially making product life-cycles shorter). As such, the key to Jackson's model is responsiveness, attempting to shorten (Jackson, 1992):

- New product introduction lead times.
- Manufacturing cycle times.
- Sales and distributions lead times.
- White collar cycle times.

3.4.8.2 The Model

The Jackson model (refer Figure 18) rearranges the Porter and Millar model to include some new areas and to represent that activities all occur simultaneously. As with the value chain, increased emphasis is placed upon the importance of customer services. In the model, all processes in the business investigation involve some form of interaction or communication with current and potential customers (Jackson, 1992).

As with the value chain, each activity is analysed to see whether or not it adds value to the organisation's finished product or service in the eyes of the customer. The only difference is the division of activities into the Jackson model instead of the primary activities of the value chain (Jackson, 1992).

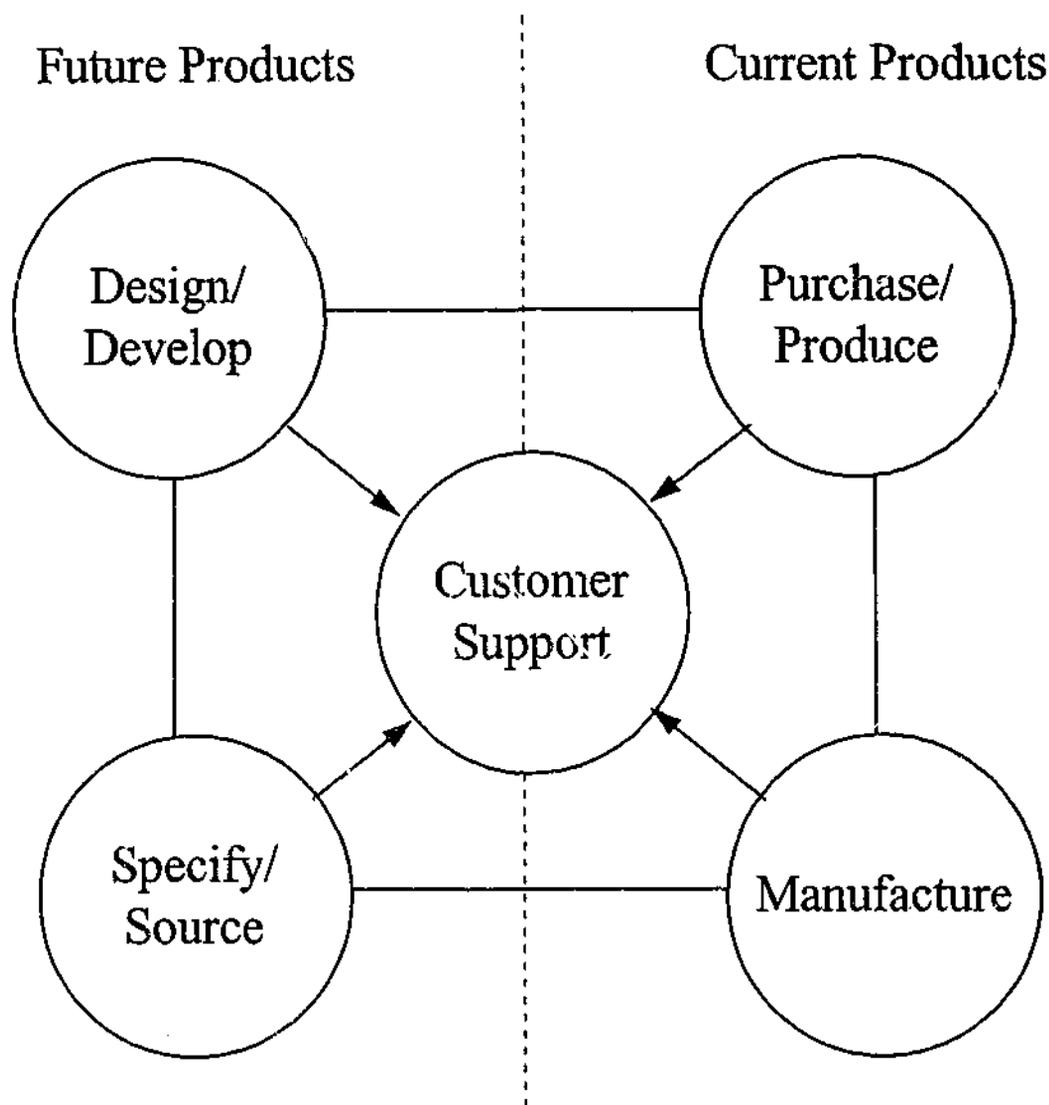


Figure 18: The Customer Oriented Strategic Information Systems Model (Source: Jackson, 1992)

Jackson has rearranged the 'Value' activities of Porter into separate areas, which can be identified as follows (Jackson, 1992):

3.4.8.2.1 Future Production

There are two major components of this area. They are Design/Develop and Specify/Source.

The Design/Develop component includes market analysis, technology definition, cost estimation, product definition and design, prototyping and testing.

The Specify/Source component includes identification, evaluation, and selection of suppliers; delivery and determination of price.

3.4.8.2.2 Current Production

Current Production contains the Purchase/Produce and Manufacture components.

Purchase/Produce includes:

- Getting materials (identifying sources, ordering and receiving raw materials, and so forth).
- Preparing for production (preparing machines, initiating requisitions, and so forth).

Manufacture includes scheduling and planning production, quality control, movement of materials, personnel management and production control.

3.4.8.2.3 Customer Focus

This area focuses upon white-collar activities, such as selling the product, credit checks, packing and shipping and invoicing.

3.4.8.3 Identifying the Strategic IT Opportunity

As with the value chain, the business investigation should highlight areas that are not 'adding value' from the customer viewpoint. In addition to this, Jackson (1992) provides some suggestions as to how IT may be used in each of the areas.

3.4.8.3.1 Future Production

- **Design/ Develop:** make the marketing aspect explicit. Find where potential competitive advantage may be gained. Some examples are:
 - Design work (such as CAD), to become a prime mover in product development.
 - Economies of scope (savings generated from using the same process to produce a number of different goods in a given timeframe). An IT-based production system is useful here. For instance, piggybacking production in the plastics industry, where batches of production can be altered easily depending upon customer demands.
- **Specify/ Source:** Look to use IT to reduce cost or lead time in locating sources for materials and parts or determining price and delivery capabilities from suppliers.

3.4.8.3.2 Current Production

- **Purchase/ Produce:**
 - Economies of scale can provide productivity improvements but may require a complete restructuring of processes.
 - Reduced inventory costs (for instance, JIT [Just In Time] systems can improve efficiencies in obtaining raw materials).
- **Manufacture:** linkages between product design and the manufacturing process may contribute to reduced product cost, improved quality and increased flexibility.

3.4.8.3.3 Customer Focus

This includes after sales service. It is essential to control the information flow at these points, and allow minimal bottlenecks of information. This can be helped by effective and efficient information systems.

3.4.9 Bergeron and Raymond (1992)– Identifying ISCAs

3.4.9.1 Rationale for the Model

Bergeron and Raymond designed this model specifically to assist small businesses in the development of ISCA's (Information Systems for Competitive Advantage). They developed the model because small businesses have a number of characteristics that differ them from larger businesses (Bergeron and Raymond, 1992).

3.4.9.2 Model Description

The model is based around a strategic matrix (refer Table 3), developed from the value chain and from the authors' theory of strategic thrusts (relating to customers, suppliers and competitors).

Table 3: Strategic Matrix for the Identification of ISCA's (adapted from Bergeron and Raymond, 1992, p. 25)

Competitive Strategies	Strategic Targets		
	Suppliers	Competitors	Clients
Differentiation	EDI with suppliers	Performance forecasts for customised products	
Cost	Computerised selection of transport options		Computerised order entry and follow up
Growth		Marketing database	
Organisational Activities	Raw materials handling Inventory control Supplier services Purchasing Receiving	Production Maintenance Handling and Storage R&D Accounting and Finance HRM	Order Entry Credit Approval Customer Services Distribution Sales Force Market Studies Pricing Shipping & Billing

To apply the model, it is necessary to work consecutively through the following steps (Bergeron and Raymond, 1992):

3.4.9.3 Step 1: Create a Working Group

The working group should include the owner/manager and interested employees associated with the 'value chain' activities of the business. This ensures their early involvement in the planning process and helps to convince the manager of the need for change in the manner in which the small business uses IT (Bergeron and Raymond, 1992).

3.4.9.4 Step 2: Familiarisation with the Concept

This step is included for the purpose of informing the manager of the benefits and usefulness of ISCA's. In doing this, it is necessary to stress the difference between traditional and strategic systems to the manager (refer 3.1.3.1 Strategic IT Investments as a Component of Overall IT Investment) (Bergeron and Raymond, 1992).

3.4.9.5 Step 3: Analysis of the Organisation

This step involves reviewing the organisation's objectives and strategies using CSFs and SWOT analysis. This is for the purpose of identifying the organisation's relative strengths and weaknesses (Bergeron and Raymond, 1992).

3.4.9.6 Step 4: Identifying the Strategic IT Opportunity

The application of the strategic matrix model occurs here. In the light of the findings from Step 3, the working group should examine the potential for the introduction of an ISCA for each strategic target (customers, suppliers and competitors), investigating each competitive strategy (cost, differentiation and growth). For instance, is there a potential for the introduction of an ISCA that targets the differentiation of products from competitors? This means that nine areas need to be examined. A review of organisational activities that affect the particular strategic target may assist in this analysis. As a strategic IT investment idea is identified it is entered into the corresponding section in the strategic matrix. These become the potential strategic uses of IT for the small business (Bergeron and Raymond, 1992).

3.4.9.7 Other Steps

There are a number of other steps in the Bergeron and Raymond model, involving the examination of the feasibility of the ideas that have been identified in the strategic matrix, planning and implementing the project, and measuring the success of the project.

3.4.10 Section Summary

Each of the models that have been reviewed have three common steps to be followed in establishing IT investments. These are steps are:

3.4.10.1 Step 1: Business Investigation: Steps that Identify Areas where IT can be Useful

This is typically the first step in any model. The business investigation is normally achieved by analysing CSFs (to obtain senior management viewpoints of what *they* think is important to the organisation) and/or performing a SWOT analysis (identifying actual or potential opportunities or threats to the organisation).

3.4.10.2 Step 2: Determining the Strategy to be Adopted

This is generally where proactive and/or reactive strategies are identified after the business investigation.

3.4.10.3 Step 3: Identifying the Strategic IT Opportunity

This is the stage where particular IT investment(s) are identified to match the strategies.

3.4.10.4 Representing the Steps of the Models

Table 4: Comparing the Steps of each Model

Models	Step 1: Business Investigation	Step 2: Determining Strategy	Step 3: Identifying the IT Opportunity
Porter and Millar	Analyse Primary Activities	Assess Value Added	Transform the Value Chain or Change the Nature of Competition
Barton and Peters	Situational Factors	Genesis	IT Dependant Business Strategy
Osterle	Identify Business Requirements	Identify Business Requirements	Combine Business Requirements with IT
Jackson	Analyse Value Activities	Assess Value Added	Identify IT Projects
Bergeron and Raymond	Perform CSF or SWOT analysis	Determine Strategies	Apply Strategic Matrix

3.4.11 Section Summary

This section introduced two ways of performing a business analysis, Critical Success Factors and SWOT analysis. Porter and Millar's value chain was examined as the first real model to be used to identify strategic IT opportunities. Barton and Peters; Osterle; Jackson; and Bergeron and Raymond created other models that were investigated. It was shown that the steps of these models that related to the creation of a strategic IT idea could be classified into three generic steps that described the process in any of the models. These steps were the conducting of a business investigation, determination of business strategies based upon the investigation and the identification of strategic IT opportunities based upon those strategies.

In addition to these steps, some of the models (particularly the Barton and Peters' model and the Bergeron and Raymond model) have other steps that relate to the actual implementation of the IT opportunity and ways of measuring its success.

3.5 Models for the Identification of IT Opportunities that Add Value to Products and/or Services in the E-Commerce field

3.5.1 Purpose of this Section

The purpose of this section is to provide a review of some of the models that currently exist to assist organisations to identify IT investments that add value to an organisation's products and/or services specifically in the E-Commerce field. The models have been identified into two categories, 'snapshot' models and complete models.

3.5.2 'Snapshot' Models

These models have been labeled as 'snapshot' models because they do not feature a full business analysis (such as a SWOT analysis or critical success factors analysis) beforehand. They offer recommendations based on the assumption that a business has already performed this type of analysis. Although these models offer useful ideas as to how to proceed with the e-commerce initiative, they offer little support in this thesis to the idea of connecting the business investigation through to the e-commerce application.

3.5.2.1 Electronic Commerce and the Value Chain (Viehland, 1998)

Viehland (1998) suggests that the traditional value chain can be used to identify potential uses of electronic commerce in an organisation. He has adapted the value chain to show how electronic commerce can be used in each area (refer Figure 19).

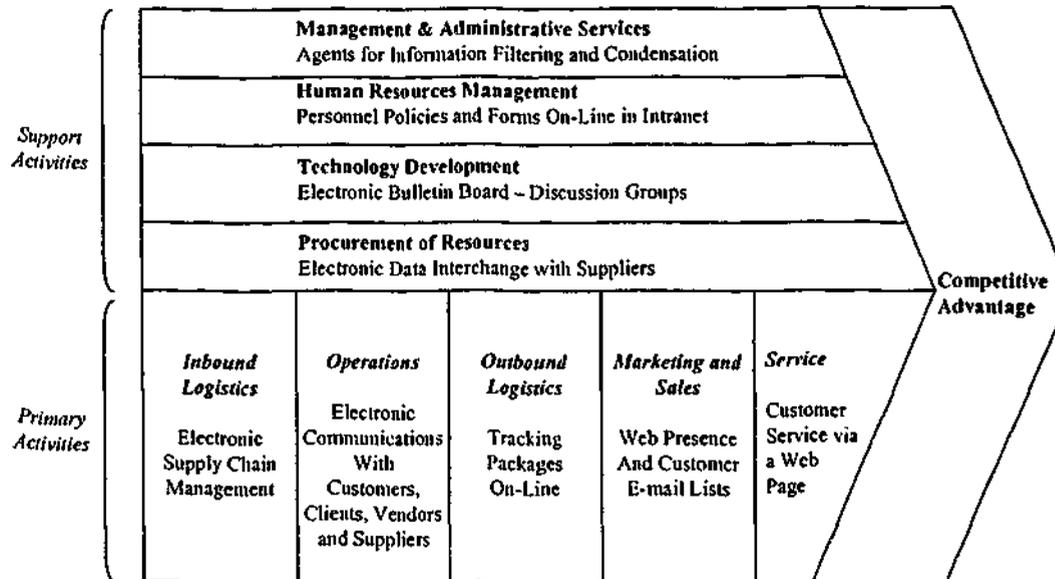


Figure 19: Electronic Commerce in the Value Chain of a Firm (Source: Viehland, 1998, p.2)

Viehland (1998) assumes that the normal operation of the value chain has occurred, and offers suggestions as to how each primary and secondary activity can be improved by using e-commerce.

3.5.2.2 The E-Commerce Value Chain (Straub, 1998)

The E-Commerce Value Chain model suggests different areas of the business (represented by columns in Figure 20) that an organisation may wish to apply e-commerce to. Each separate row represents a different business strategy for the organisation. For instance, an organisation applying the situation outlined in the first row would only use e-commerce in the 'Enquiry' area of the business. An organisation applying the situation in the second row would use e-commerce for 'Enquiry' and the 'Order/Sale' areas of the business (Straub, 1998).

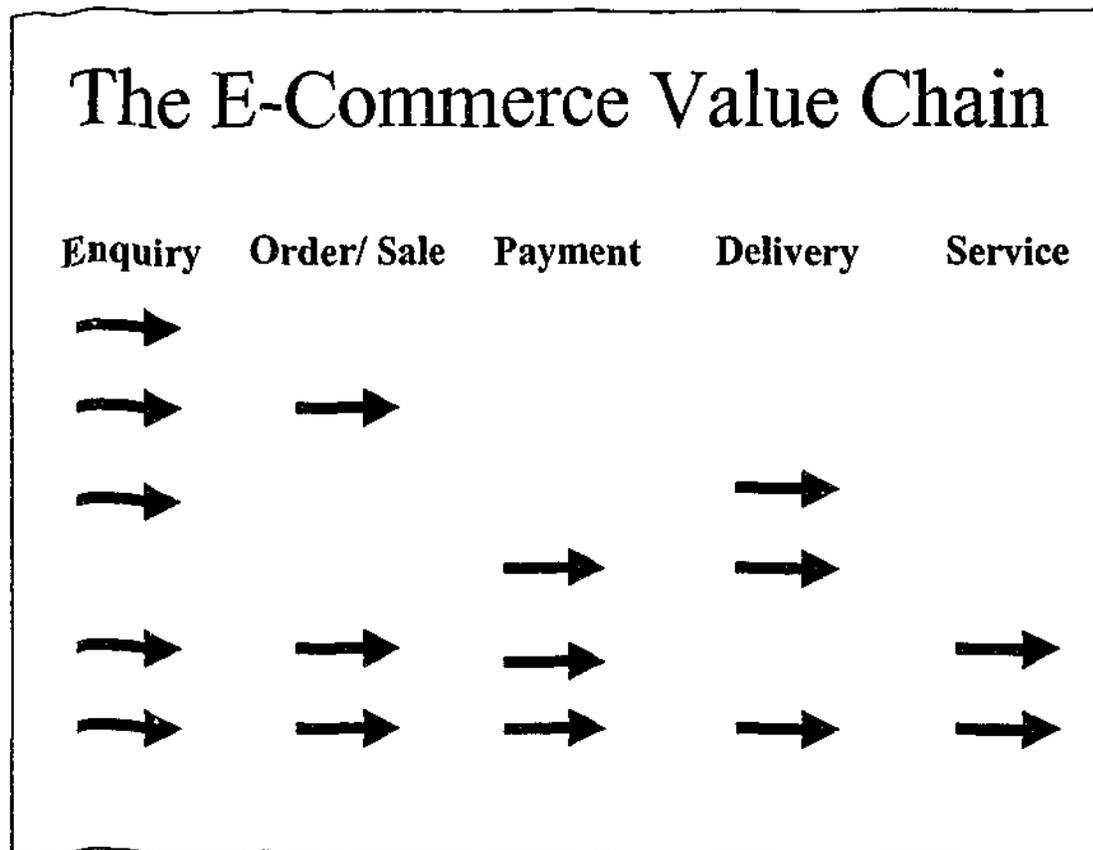


Figure 20: The E-Commerce Value Chain (adapted from Straub, 1998, Session 1, Slide 90)

An explanation of each of the areas follows:

- The area of greatest impact on the E-Commerce value chain thus far is the Enquiry area. This is where organisations introduce basic, non-interactive 'brochureware'. In this situation, the Web site of the business is used mainly for information provision (Straub, 1998).
- The next area, Order/Sale, can be achieved by using a technology as simple as email. At the most complex level, interaction can occur directly with an organisation's ordering system. This may be a disadvantage to existing businesses, as they try to interface new (Internet) technology with legacy order entry systems (Straub, 1998).

- The Payment area is still going through the process of standard setting. Users need to be comfortable with the notion of making online payments before general acceptance will occur.
- Some digitised products can actually be delivered online (the Delivery area of the model).
- The Service area is the area of greatest impact after Enquiry. Setting up services such as instructions on how to use a product or 'Frequently Asked Questions' are typical of such an area.

Economic theory suggests that the service area (after-sales support) has a huge potential in that, lacking cost leadership, a firm can retain (and perhaps gain) market share by better use of proprietary customer information (Straub, 1998, Session one, Slide 95).

Straub (1998) suggests that new virtual organisations, which have no prior legacy systems to integrate, will have an advantage over traditional organisations that have to link the newer technologies with legacy systems in whatever business area combination that they choose.

3.5.2.3 The Internet Value Chain: Customers (O'Brien, 1999)

The Internet value chain can be used to identify ways of adding value to an organisation's product and services over the Internet. Suggestions are made that focus on the relationship between a business and its customers. These lead to benefits such as lower costs, enhanced customer satisfaction, faster delivery, improved reliability and increased productivity (O'Brien, 1999). As with the Straub model, this really just points out to organisations how gains can be made by using the Internet, without linking them to any specific analysis of the business. Figure 21 shows the section of the model that relates to customers.

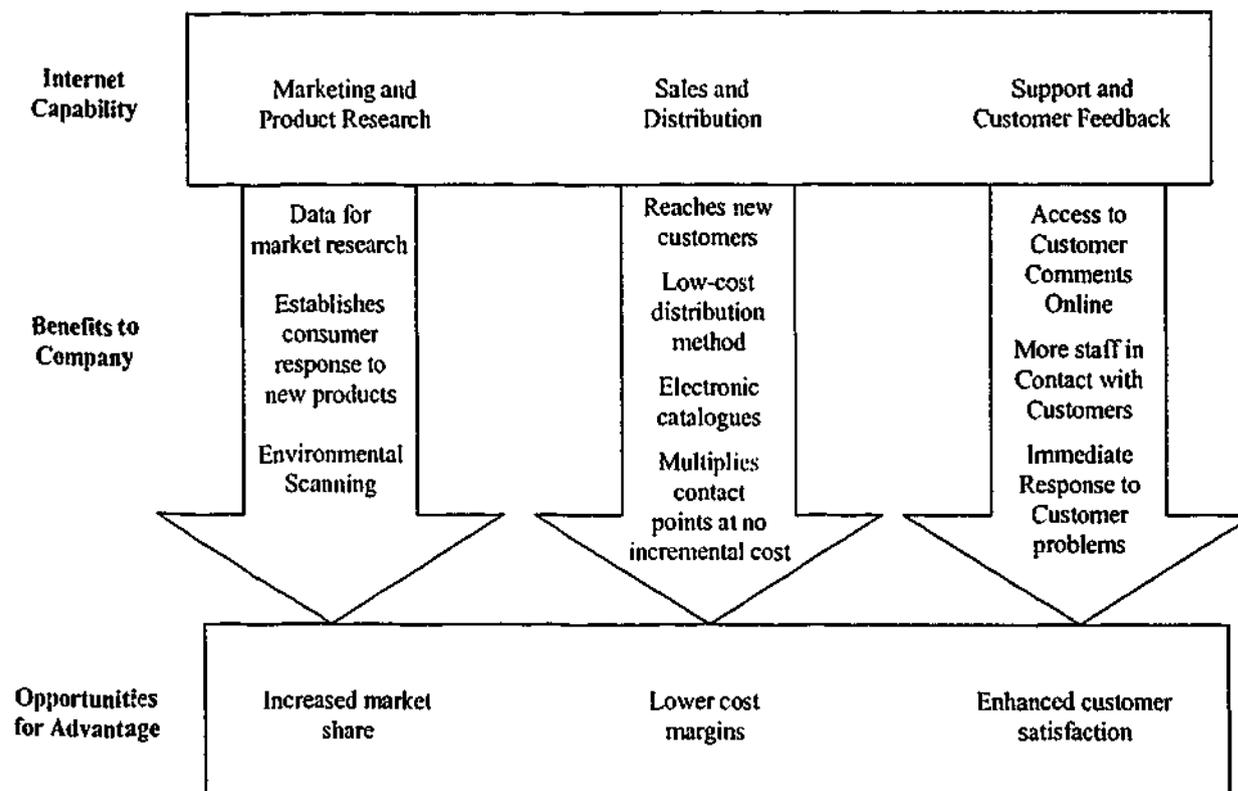


Figure 21: The E-Commerce Value Chain - Customers (Source: O'Brien, 1999, p.542)

3.5.2.4 Web Business Models (Lawrence, Corbitt, Tidwell, Fisher and Lawrence, 1998)

Lawrence et al (1998) propose seven business models that can be used for e-commerce. Three of these are appropriate for business-to-consumer interactions. Again, there is no suggestion as to how to link the choice of the model with an analysis of the business.

3.5.2.4.1 The Poster/Billboard Model

This is the simplest type of model proposed. A business supplies an email address on all of its electronic and non-electronic communication. An automated email reply mailbox is set up by the business to automatically send standard material out in reply to requests for information (Lawrence et al, 1998).

3.5.2.4.2 Cyber Brochure Model

The main emphasis here is on the provision of information. Web 'brochures' are set up that can be colourful and up-to-date, alleviating some of the cost of printing paper brochures (Lawrence et al, 1998). This is similar to Straub's Enquiry area.

3.5.2.4.3 Virtual Storefront Model

This is designed to be a complete information service to market the organisation's goods, allow for online purchasing and provide product support. Ordered products are delivered by mail (or, if possible, downloaded directly). This type of model requires the most time, planning and money (Lawrence et al, 1998).

3.5.2.5 Other Snapshot Models

Other researchers have championed e-commerce models that perform a similar function to the snapshot models identified thus far. Rappa (2001) suggests that these models should be different for separate industry areas, and proposes separate models for brokerage, advertising, infomediaries, merchants, manufacturers, affiliates, community businesses, subscription businesses and utilities. His suggestions propose separate web site features to be used depending upon the industry. Timmer (1998) proposes a more general series of models: for the e-business storefront, infomediaries, trust infomediaries, e-business enablers and a model for infrastructure providers.

3.5.3 'Complete' Models

The following models have been selectively chosen as they extend the snapshot model to propose a strategy that organisations may follow in developing a Web site from inception to implementation. As such, each of the models links some type of business analysis with the eventual e-commerce suggestions.

The major difference between these models and the earlier models that identified strategic IT ideas is that these models are generally applied with the business already having made the decision that it wants to investigate an e-commerce solution.

3.5.3.1 Web Development Model (Marchese, 1998)

Marchese (1998) suggests a seven-step approach to developing Web sites.

3.5.3.1.1 Kick Off

In this first step, it is necessary to meet with whoever is building the Web site and decide what is really wanted. The establishment of a 'project' extranet or Internet site creates a means for communication for people on the project. It allows the organisation to define objectives, timelines and responsibilities (Marchese, 1998).

3.5.3.1.2 Strategic Analysis

In this stage all of the people associated with the project are interviewed. This ensures that all interested parties have input. This group would include customers and employees to ascertain their expectations of the company and the Web site. A technical analysis ensures that the project is within the capabilities of the organisation (that it can be managed and maintained).

A competitive analysis is also important. It is important to know what competitors are doing, understand why they are doing it, understand how they are being perceived in the market place because of what they are doing and understand how you are going to be perceived in reference to them (Marchese, 1998).

There are many similarities between the information requirements for this step and the business investigation step of the strategic IT models earlier identified (refer 3.4.10.4 Representing the Steps of the Models).

3.5.3.1.3 Concept Development

Concept development involves mapping out thoughts into what becomes a conceptual architecture, which provides a 'road map' for what the business is contemplating. The conceptual architecture becomes the (more detailed) information architecture for the project, or what will be provided on the Web site. It is the information that makes that concept valuable to the user (Marchese, 1998).

3.5.3.1.4 Prototyping

Prototyping involves the creation of a small-scale model of the Web site. This can be shown to management and users and tested in formal and informal settings. It allows those parties to comment at an early stage, so that refinements can be made (Marchese, 1998).

3.5.3.1.5 Site Execution

Site execution includes a number of steps, such as final site production, final content development, final usability analysis, quality assurance, documentation and staff training. It is important that the

branding and the strategic thinking that was involved at the beginning carry on to this phase (Marchese, 1998).

3.5.3.1.6 Launch and Beyond

It is important that the Web site is very dynamic: changing, growing, improving and evolving. Additionally, ensure that user feedback is being incorporated into site alterations (Marchese, 1998).

3.5.3.2 Summary

The Marchese Web Development Model is one of the more comprehensive e-commerce models, as it involves all of the steps from business investigation, through idea realisation, to eventual implementation.

3.5.3.3 AlMoumen and Sommerville (1999) – Marketing for E-Commerce

AlMoumen and Sommerville (1999) have been concerned with developing a model that extends existing approaches to requirements engineering to support the analysis and specification of requirements for e-commerce systems. They have identified a six-stage model to perform this.

The six stages of the model are (AlMoumen and Sommerville, 1999):

1. *Select Applicable Principles.* Decide where the organisation wishes to position itself in the marketplace (low cost, differentiation and/or niche).
2. *Define the Required Marketing Mix.* This is based upon where the organisation wishes to apply its marketing principles to a particular market segment. This is based upon what AlMoumen and Somerville refer to as the 6-P's (Product, Price, Promotion, Place, People and Process). The first four "P's" are well known in marketing circles (Kotler et al, 1989). Lawrence et al (1998) provide a slightly altered version of the 6-P's (the 5-P's):
 - *Product:* Products that sell well are typically the types of products that sell well in catalogues.
 - *Price:* It may be possible to sell at a lower price where costs are reduced where an organisation is able to reduce the overhead of a physical shopfront. Cost reductions may also occur in advertising and in reduced errors (because customers are entering information about themselves via forms).
 - *Place:* This may not be such a consideration due to the 'virtual' nature of the medium. This increased access to markets, however, also brings a potential for increased competition. Other issues, particularly political, legal and cultural issues, may need to be confronted.
 - *Promotion and People:* New types of thinking may need to be considered to promote the Web based business. In setting up the Web site, is it important to involve the people within the organisation who will be involved in using it and maintaining it.

3. *Analyse and Assess Existing Web Site.* This analysis occurs on the basis of four areas:

- *Intangibility.* The need for consumers to be able to evaluate the product and/or the level of provider skills and performance levels.
- *Separation between product/service and supplier.* The ability of consumers to actually contact someone within the company directly.
- *Heterogeneity.* The ability of consumers to be able to compare products and services of different organisations when there are no standards for organisations to present product or service information on the Internet.
- *Perishability.* The ability of organisations to make consumers aware of product and service information (especially 'specials') at a time and place when the consumer is looking for that information.

Even when an organisation has not established a web presence, it is still a good idea for this analysis of competitors' Web sites to occur.

4. *Summarise Site Features from a Marketing Perspective.* Summarise how the existing Web site matches the marketing mix identified in step 2.
5. *Compare with Good Practice Guidelines.* Compare the web design with a set of good practice guidelines (at the time of publication, the authors had not developed these guidelines).
6. *Report on Changes or Redesign of E-Commerce Site.* Recommend changes to the current site, a complete redesign of a new site, or features to be implemented in a proposed site (AlMoumen and Somerville, 1999).

3.5.3.3.1 Summary

The AlMoumen and Somerville model provides an interesting mix of the first two steps of the strategic IT models identified earlier (refer 3.4.10.4 Representing the Steps of the Models). It is only the final step of the model that *really* examines the content of the Web site.

3.5.4 Section Summary

In order to compare the steps of these models with those of the models in the previous section, Table 5 is presented, which represents the separate components of each model and breaks them down into business investigation, determining strategy and identifying the IT opportunity. Note that the first two 'snapshot' models only concentrate upon the application of the technology with out linking it to any form of business investigation. This is implied, but not stated implicitly.

Table 5: Comparing the Steps of each E-Commerce Model

Models	Step 1: Business Investigation	Step 2: Determining Strategy	Step 3: Identifying the IT Opportunity
Viehland			Identify potential uses of e-commerce in primary and secondary areas of the value chain
Straub			Outlines e-commerce benefits to an organisation in relation to customers and suppliers
Marchese	Kick off Strategic Analysis	Concept Development	Prototyping Site Execution
AlMoumen and Sommerville	Select Applicable Procedures Analyse and Assess Existing Web Site	Define the Required Marketing Mix Summarise Site Features from a Marketing perspective	Compare with Good Practice Guidelines Report on Changes or Design of E-Commerce Site

All of the models discuss the particular features of the Web site being adopted. Of the two 'complete' models, only Marchese addresses the need to look at how the Web site will be implemented and only AlMoumen and Sommerville discuss how the Web site should be promoted.

3.6 Chapter Summary

This chapter introduces the theoretical foundations upon which this thesis is based. Initially, the concept of value, Porter and Millar's value chain, the five competitive forces model and the three generic strategies for improving competitiveness using IT were introduced. The next section examined the relationship between Keen and Cummins' map of telecommunications services, the five competitive forces model and the three generic strategies for improving competitiveness. Hoffman and Novaks' communications models for marketing in a hypermedia environment were used to identify some of the differences between traditional forms of advertising and advertising on the Internet. The Communication marketing channel, representing the exchange of information, was identified as being the channel where value was more likely to be added using the Internet.

A number of aspects of consumer behaviour on the Internet were also examined. In relation to low outlay, frequently purchased goods, consumers will be more likely to purchase physical goods from retail stores and intangible or information-based goods over the Internet. In relation to high outlay, infrequently purchased goods, consumers will take more time considering their purchases and are more likely to search both retail stores and the Internet for the best deal.

The penultimate section of the chapter introduced two ways of performing a business analysis, Critical Success Factors and SWOT analysis. It was shown that the steps of five models used to identify strategic IT ideas could be classified into three generic steps that described the process in any of the models. These steps were the conducting of a business investigation, determination of business strategies based upon the investigation and the identification of strategic IT opportunities based upon those strategies. During the analysis of these models, the relationship between their various steps and the concepts identified earlier in the chapter were highlighted. A number of

models specifically designed for the use of electronic commerce were fitted into this framework. Other steps introduced in some of the models were the need to look at how the Web site will be set up (implemented), how it will be promoted and how its success will be measured.

This chapter is most important in setting up the context for the conceptual model to be developed. It introduces the following concepts, all of which are vital to the development of the conceptual and applied versions of the model:

- The concept of aligning the IT strategy with the business strategy.
- The need to assess the risk of and develop a means for measuring the success of IT projects.
- Ways in which IT can be used to add value to products and services.
- How communications technologies (such as the Internet) can be used in this manner.
- How product and service characteristics can be used to determine useful Web site features for a business.

Finally, the chapter explored a number of different models, for the use of IT and e-commerce, and determined a series of common steps that are employed in these models. These steps form the basis of the development of the initial, conceptual model.

4 Literature Review: Contemporary Issues

This section of the literature review examines some contemporary areas relating to business-to-consumer interactions in the context of the conceptual model. In order to do this, it is necessary to examine some of the broader areas related to the development of the model. The areas covered are:

- A description of electronic commerce.
- A view of information technology and small business.
- An examination of business-to-consumer interactions on the Internet.
- An examination of strategies for successful business-to-consumer interactions on the Internet.
- A specific look at business-to-consumer interactions in small businesses.

This section of the literature review has been used as the basis for developing the conceptual model for Phase One of this study.

4.1 Electronic Commerce

4.1.1 Purpose of this Section

The purpose of this section is to provide an overview of literature describing electronic commerce and its various component parts.

4.1.2 Introduction

There is some debate about the level of impact that electronic commerce will have. Some views expect e-commerce to become the standard for a major portion of all commerce. Others state that the level of impact of e-commerce will remain a small percentage of overall commerce (Friel, 1999).

Few people are willing to bet against the possibility that electronic commerce may become the dominant form of retailing (Straub, 1998). Although it can provide opportunities for all organisations, electronic commerce is currently used far more extensively in Australia by exporting businesses than those supplying local and national markets. This means that countries who may be heavy users of electronic commerce are more likely targets for Australian export companies (Commonwealth of Australia [b], 1999).

4.1.2.1 Definition of Electronic Commerce (E-Commerce)

The Concise Oxford Dictionary (Oxford University Press, 1974, p.392) defines 'electronic' as the:

...branch of physics and technology dealing with behaviour of electrons

and 'commerce' as the:

Exchange of merchandise; especially on a large scale.

(Oxford University Press, 1974, p.242)

Straub (1998, Session one, slide 17) defines 'electronic commerce' as activities that directly support commerce by means of electronic (which he describes as 'networked') connections. It is this narrower view of 'electronic' that more accurately describes its contribution to electronic commerce in its current context.

The Oxford Dictionary description of 'commerce' is also interesting. It implies an exchange of merchandise (especially) on a large scale. The definitions provided further on in this section indicate that the 'commerce' component of electronic commerce is somewhat more than this. The following definitions of 'electronic commerce' tend to indicate that perhaps another term (such as 'electronic business' or 'e-business', which is becoming more popular) would better describe it.

There are many different definitions of electronic commerce available throughout the literature. A selection of them has been provided here, broken up into three major categories.

4.1.2.1.1 Buying and Selling

The most simplistic restricted definition of e-commerce is that it only involves online buying and selling over the Internet. This definition has been adopted by Telstra Corporation and NOIE (2000) in their study of Australian small businesses and accurately reflects the meaning of 'commerce' as defined earlier.

4.1.2.1.2 Any Dealings with Customers and Suppliers

The next category of definitions of e-commerce are those that recognise that 'electronic' dealings with customers and suppliers can involve more than just buying and selling goods online.

Electronic commerce relates to every type of business transaction in which the participants (such as suppliers or purchasers) prepare or transact business or conduct their trade in goods or services electronically. Electronic commerce may include interactive voice recordings, facsimile interactions and online technologies. Online technologies include Internet retailing and banking, Electronic Data Interchange, electronic settlements and selection of products or services over the Internet.

(DIST[b], 1998).

The DIST [b] definition does mention the use of voice recordings and the selection of goods over the Internet.

Electronic commerce is the paperless exchange of business information using electronic data interchange (EDI), e-mail, electronic bulletin boards, fax transmissions and electronic funds transfer. It refers to Internet shopping, online stock and bond transactions, the downloading and selling of "soft merchandise" (software, documents, graphics, music, etc.), and business-to-business transactions.

(Liflander, 2000, p.16)

Liflander, whilst using mainly 'buying and selling' examples at the end of the definition, does recognise that the "paperless exchange of business information" is a vital component of e-commerce. This involves more than just buying and selling goods.

4.1.2.1.3 General Definitions of E-Commerce

General definitions of e-commerce recognise that it can not only involve interactions between buyers and sellers, but can also be used within the organisation to streamline internal activities.

The process of electronically conducting all forms of business between entities in order to achieve the organisation's objectives. The term 'electronic commerce' embraces electronic trading, electronic messaging, Electronic Data Interchange (EDI), Electronic Funds Transfer (EFT), electronic mail (email), facsimile, computer-to-fax, electronic catalogues and bulletin board services (BBS), shared databases and directories, continuous acquisition and lifecycle support (CALs), electronic news and information services, electronic payroll, electronic forms (e-forms), online access to services such as the Internet and any other form of electronic data transmission..

(Electronic Commerce Australia, reported in Phillips [a], 1998, p.9)

This definition, whilst still mainly referring to buyers and sellers, does recognise the importance of electronic payroll, an activity internal to the business.

Electronic commerce is the application of information and communication technologies to any or all of three basic activities related to commercial transactions:

1. *Production and support - sustaining production, distribution and maintenance chains for traded goods and services;*
2. *Transaction preparation - placing product information into the marketplace and bringing buyers and sellers into contact with each other;*
3. *Transaction completion - concluding transactions, transferring payments and securing financial services.*

(Hawkins, Mansell and Steinmueller, 1998, p.7)

The Hawkins et al definition introduces 'production and support' as an important component of e-commerce. This at least recognises the importance of e-commerce to the 'value chain' activities within the business.

Electronic commerce is the use of computer networks to improve organizational performance. Increasing profitability, gaining market share, improving customer service, and delivering products faster are some of the organisational performance gains possible with electronic commerce. Electronic commerce is more than ordering goods from an online catalog. It involves all aspects of an organisation's electronic interactions with its stakeholders – the people who determine the future of the organization.

(McKeown, 2001, p.186)

The McKeown definition introduces the concept of dealing with 'stakeholders', rather than just suppliers and customers. Its emphasis is on the use of computer networks to improve all aspects of organisational performance.

E-Commerce is sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks. E-Commerce is defined as a variety of market transactions that are enabled by information technology and represents the entire collection of actions that support commercial activities on a network (Zwass, 1998; Applegate et al., 1996). From a business process perspective, e-commerce is the application of technology toward the automation of business transactions and workgroups. From an on-line perspective, e-commerce provides the capability of buying and selling products and information on the Internet and other on-line services (Kalakota and Whinston, 1997).

(Raisinghani, 2000, p.3)

The Raisinghani definition looks at e-commerce from two perspectives, the business (internal) perspective and the on-line (external) perspective. This definition outlines the uses of e-commerce as a tool that can be used externally and within the business. It is this definition that will be adopted for this thesis.

4.1.3 Components of Electronic Commerce

Electronic commerce can involve a number of different types of informational and/or transactional exchanges (Straub, 1998):

- Internal business processes (business unit to business unit).
- Business-to-business interactions.
- Business-to-consumer interactions.

This thesis concentrates upon the third type of interaction, business-to-consumer interactions, but a short description of each type of exchange will be given.

4.1.3.1 Internal Business Processes

One of the potential benefits of electronic commerce is the opportunity that is afforded to re-engineer an existing business to improve efficiency and reduce costs [DIST[b], 1998]. Internet technology can be used in the form of intranets, which allow employees of an organisation to share data across the organisation using a standard interface (web browsers). Organisations can quickly make cost and efficiency gains by publishing their standard information (such as procedure manuals and newsletters) on the intranet and providing access to data via shared databases (O'Brien, 1999). Intranets allow a business to place all of the software and databases on its corporate landscape into (what appears to be) a single system that enables employees to find the information they need when they want it. More advanced intranets will provide tools to support workings by allowing the sharing of documents, communication tools, scheduling tools and so forth (Stair and Reynolds, 1999).

This use of intranets for these purposes is sometimes known as business-to-employee interactions (McKeown, 2001).

4.1.3.2 Business-to-Business Interactions

Electronic commerce that is external to the organisation occurs mainly between three groups: business, government and consumers. The majority of electronic commerce activity currently occurs on a business-to-business level (DIST[b], 1998). It is estimated that these types of transactions have comprised 80% of all electronic commerce (Conhaim, 1999). This is likely to remain the case in the near future (Straub, 1998). Some of the reasons for this include (Viehiand, 1998):

- Businesses are generally more computerised and networked than homes.
- Many businesses only sell their goods and services to other businesses.
- The supply chain for many businesses goes from business-to-business (for instance: manufacturer to wholesaler to distributor to retailer to customer).

The focus of business-to-business interactions is the business partnership, mainly involving co-operation along distribution channels. Traditionally, this has been done using Electronic Data Interchange (EDI), which involved linking businesses using value-added or private networks. Traditionally, these have been expensive to set and have usually been the realm of larger businesses. This meant that the reach of EDI has been narrow. Today, however, EDI systems are gradually

being superseded by extranets, which use Internet technology to perform the same transactions (McKeown, 2001). There are a number of reasons why this is occurring (McKeown, 2001):

- Extranet setup and usage costs (communication and software) are much cheaper than those for EDI. The standard interface for an extranet is a web browser. Popular web browsers are free.
- Training costs associated with extranets are lower because users are generally familiar with the interface (web browsers).
- Hardware costs can be minimal, because all that is needed to access the extranet is a personal computer and modem.

Access to extranets is available on a wider basis than EDI for these reasons (McKeown, 2001).

Supply chain management tools dominate business e-commerce applications. Information such as payment terms, instructions and product details are being communicated electronically. Automatic re-ordering is taking place as products with bar codes are removed from stock or sold and their movements are tracked automatically. Large retailers are therefore able to remove a large part of their inventory carrying costs as purchasing becomes the most popular type of business-to-business e-commerce transaction (Friel, 1999; Conhaim, 1999). Many suppliers are now providing Web sites that not only provide these services, but also extra services such as order placement and approval tailored to a particular organisation (Karpinski, 1999).

4.1.3.3 Business-to-Consumer Interactions

The main area of this thesis is involved with examining business-to-consumer interactions over the Internet.

Business-to-consumer interactions on the Internet involve those aspects of electronic commerce that deal specifically with the relationship between businesses and consumers on the Internet. As such (and by the previous definition of electronic commerce, refer 4.1.2.1.3 General Definitions of E-Commerce) these interactions involve more than just selling goods to consumers on the Internet. They also include other aspects of dealing with consumers, such as marketing, customer support and product delivery (Raisinghani, 2000).

4.1.3.3.1 How Does the Internet Alter the Relationship?

The Internet has a number of characteristics that are shared with traditional forms of dealing with consumers and a number of characteristics that are unique. These characteristics include (Peterson et al, 1997):

- The ability to inexpensively store large amounts of information at different locations.
- The availability of powerful, inexpensive tools to search, organise and disseminate information.
- The ability to automatically 'interact' with a customer.
- The ability to provide a perceptual experience superior to a printed catalogue (but inferior to personal inspection).
- The ability to serve as a transaction medium.
- The ability to serve as a distribution medium for certain types of goods (such as digital goods).
- Relatively easy entry and establishment barriers for sellers.

Song and Zahedi (1998) have identified a number of areas where 'electronic' markets differ from traditional markets:

- *Location constraints.* Traditional markets are generally constrained by physical location.
- *Product differentiation and customisation.* Product differentiation can be a costly strategy, especially where organisations try to determine individual customer needs. Electronic markets allow the automatic (and inexpensive) capture of information about customers and their actions, thus providing customisation opportunities.
- *Distribution channels and roles for intermediaries.* In electronic markets, the role of the intermediary can be drastically redefined or removed completely.
- *Level of price information available and cost of searching for the best price.* The cost of searching for the best price is lower for the consumer in electronic markets as much of the information is readily available to them.
- *Types of advertising.* The general purpose of advertising in electronic markets is no different to that of traditional markets. Electronic markets, however, offer different methods of advertising. This is because of the different business-to-consumer characteristics that are provided by the Internet.
- *Extent and type of competition.* The reduced cost of searching for price information will lead to increased competition in electronic markets.
- *Size of potential markets.* Increased accessibility will lead to larger markets. There is a greater degree of cultural, social and preference diversity in electronic markets, which may require a different approach to product design and marketing.
- *Access constraints.* In electronic markets, constraints may be restricted by the availability and the ability to use the technology needed to access the market. Further access constraints may occur where customers require physical access to the products that they wish to buy. The best opportunities available to organisations that sell these types of products may be to provide online services or information that supplement their traditional markets.

Many of these differences have been mentioned previously in the section related to adding value using communications technologies. Table 6 summarises the observations made in this section in relation to the marketing channels and sections related to consumer behaviour in the previous chapter.

Table 6: The Effects of the Internet on Marketing Channels and Consumers

Marketing Channel (refer 3.3.5 The Effect of the Internet on Marketing Channels)			Consumer Behaviour
Distribution	Transaction	Communication	
The Internet can serve as a distribution medium for certain types of goods	The Internet can serve as a transaction medium	It is possible to store large amounts of information inexpensively, e.g. product information, product support, information about the business, testimonials, ...	Have powerful tools to search, organise, and disseminate information
It may provide a means to reduce or remove the role of intermediaries		The business can 'automatically' interact with the customer to determine individual likes and preferences	Customers can more easily access product, price and business information (assisting in decisions related to the ability to deliver, the integrity of the business and their level of benevolence, refer 3.3.6.2 Models of Consumer Behaviour on the Internet.)
		The Internet can provide a perceptual experience superior to catalogues (but inferior to personal inspection)	Access to larger markets should lead to greater competition

Table 6 highlights the important changes that the Internet environment can provide to the communication channel, not only in the manner in which businesses can provide information on the Internet, but also the ability that consumers have to search out and use that information to their advantage.

4.1.4 Advantages of and Impediments to Electronic Commerce

A 1998 survey of 130 Australian organisations identified a number of benefits of electronic commerce (refer Table 7):

Table 7: Benefits of Electronic Commerce (Adapted and Modified from Commonwealth of Australia [b] (1998), p.103, Table 1)

Benefits of E-Commerce: The Internet...	Business Area to Gain Benefit
Operates 24 hours per day, increasing market exposure	Marketing
Allows cheap, quality presentation of catalogues	Marketing
Is a cheap and effective method of access to export markets	Marketing
Reduces document cycle times	Internal
Improves the quality of service	Marketing
Facilitates easy update of products and inventories online	Internal/ Marketing
Enables access to overseas markets without a physical presence	Internal/ Marketing
Reduces waste and duplication	Internal
Reduces costs relating to employee wages	Internal
Is inexpensive to maintain	Internal
Allows us to compete with other firms on a level playing field	Marketing

The second column of Table 7, Business Area to Gain Benefit, has been added to attempt to identify where these potential benefits may occur. Marketing benefits can be traced back through Peterson et al's Marketing Channels and Keen and Cummins' Telecommunication Services Platform Map to Porter's three generic strategies for improving competitiveness. Internal benefits occur as a result of cost savings or improvements in efficiencies (internal processes).

A 2001 study of Australian small and medium businesses (Telstra Corporation, 2001) identified expanded markets, reduced selling costs, the provision of competitive advantage and 'pleasing the customer' as the main benefits of e-commerce.

The 1998 survey also identified the following impediments to electronic commerce:

Table 8: Impediments to Electronic Commerce (Source: Commonwealth of Australia [b](1998), p.105, Table 3)

Impediment
Australia's business capability is not promoted over the Internet
New non-tariff barriers, licensing restrictions or burdensome tax systems will impede electronic access to export markets
Government trade and investment services are not available online
International protocols underlying Internet commerce infrastructure are absent
Advice on how to facilitate strategic alliances with foreign firms over the Internet is not provided
Export-related documentation is not available for firms over the Internet
The Internet has no authentication, verification, privacy and encryption standards
Evidence demonstrating the business potential of electronic commerce is lacking
Industry is not involved in developing electronic commerce
No proven business models show the benefit of using electronic commerce
Our firm has limited resources for implementing electronic commerce
Our firm does not have enough knowledge/ skills in operating and using applications

The 2001 study (Telstra Corporation) identified as lack of personal contact with customers as the main deterrent to becoming involved in e-commerce. Another major concern related to security issues.

Many of these impediments relate to government policy (national and international), lack of standards, lack of knowledge, the relationship with customers and lack of suitable business cases that can be used a reference point.

4.1.5 Electronic Commerce and Added Value

Michael Porter (2001) has revisited some of the concepts that were introduced in the 1980s in relation to strategic use of IT and discussed in Chapter Three. He comments that, although many people think that the Internet will 'change everything', the old rules that have held for It will still hold for the internet. Although the Internet provides a powerful set of tools that can be used by a business, it will be generally used as part of the overall business strategy. As such, an investigation of how the Internet can be useful will be based upon proven principles of effective strategy. Porter revisits how the attractiveness of an industry will still be determined by the five forces of

competition (refer 3.2.4 Competitive Forces): rivalry amongst competitors, the power of suppliers, the power of competitors, barriers to entry and the threat of substitute products or services. The Internet will affect all these in some way, but the affect will differ across industries. For instance, barriers to entry and customer power may increase due to the nature of the technology. As well, competitive advantage can still be achieved by operational efficiency (leading to lower costs), differentiation and strategic (niche) positioning (refer 3.2.3 Adding 'Value'). It may be harder for businesses to obtain sustainable competitive advantage, but the Internet may in turn provide new opportunities, previously unavailable to the business (Porter, 2001).

4.1.6 Section Summary

This section examined literature related to electronic commerce. A number of definitions for electronic commerce were examined: one that recognised the internal and external nature of e-commerce eventually being selected for use in this thesis. The components of e-commerce: internal business processes; business-to-business interactions; and business-to-consumer interactions were discussed.

Business-to-consumer interactions were examined in greater detail. Characteristics that were specific to these types of interactions were discussed and summarised in Table 6. These examined the use of the Internet in such interactions in the distribution, transaction and communication marketing channels, as well as the unique opportunities the Internet provides for consumers.

From the viewpoint of the consumer, this section has examined means by which the Internet can be used to add value to goods, through delivering goods faster or cheaper or providing opportunities for personalisation of goods. Also, provided that consumers have access to the Internet, they can have access to larger markets and more efficient and effective means of searching them. From the business point of view, the opportunity is there to improve business processes and to reach larger markets, with a likelihood of greater competition in those markets.

Some advantages of e-commerce were examined, these mainly occurring in the marketing channels or to internal business processes. Impediments to e-commerce were also identified, these mainly relating to government policy, lack of standards, lack of knowledge and lack of suitable business cases.

Finally, an update to the material related to the work of Michael Porter (discussed in Chapter Three) is presented. Porter maintains that the Internet will alter the basic fundamentals of industry competitiveness and using IT for added value, but may alter the manner in which these can be delivered and maintained.

4.2 Information Technology and Small Business

4.2.1 Purpose of this Section

This section provides an overview of the literature relating to the use of IT and electronic commerce in small business.

4.2.2 Definition of Small Business

When studying the use of IT in small business, the range of definitions used to describe 'small business' is interesting to say the least. This range can make it extremely difficult for researchers to 'match up' different small business studies.

In Australia, an annual study examining the use of computers and electronic commerce in small and medium businesses (Telstra Corporation and NOIE, 2000) defines a small business as having 1-19 employees and a medium sized business as having 20-200 employees.

A 1997 study of 174 small and medium businesses (Bridge and Peel, 1999) used the European definition of 'small' being 10 to 99 employees and 'medium' as 100 to 499 employees.

In a study of 244 Canadian 'small' businesses, El Louadi (1998) targetted businesses with up to 300 employees. The study ended up with the sample having an average of 28 employees per business.

Pollard and Hayne (1998) have identified a number of studies that set the upper limit of employees for a business to be classed as small as 50, 100, 200, 250 or 500! They themselves have decided that any business with up to 200 employees can be classed as small.

The preferred definition for this thesis is that a small business is any business with one to twenty employees. A micro business has up to five employees (refer next section). The researcher does not use any other method for measuring business size (such as annual turnover) because experience has shown that it is much easier to get a small business to tell you how many employees that they have than to ask them any financial information.

4.2.2.1 Medium Businesses and Micro Businesses

A 'micro' business is a special type of small business – one that is *very* small. Micro businesses have characteristics that differ them from other small businesses (Burgess, 1997). Bridge and Peel (1999) have defined a micro business as having up to nine employees. As mentioned in the previous section, for this thesis a micro business as one with up to five employees.

'SME' stands for Small and Medium Enterprises. It is commonly used to describe research into a combination of small and medium sized businesses. The problem occurs when the different definitions of the size of the businesses is taken into account.

So – what is classed as ‘small’ in one study (say 120 employees) may be ‘medium’ in another study and ‘large’ in yet another study – depending upon the chosen method of classification. It is important to look at the definition that the researchers use for ‘small business’ and take that into account in the interpretation of research results.

4.2.3 The Use of IT in Small Business

There are a number of key differences in the use of information technology between small and larger businesses (Doukidis, Smithson and Lybereas, 1994; Naylor and Williams, 1994; Bergeron and Raymond, 1992; Palvia, 1996):

- Small businesses generally have fewer resources available to devote to IT investments.
- Small businesses generally offer a limited number of products or services, often to a very specific market.
- Small businesses have very little control over forces that are external to the organisation, which means that they face greater uncertainty.
- Small businesses generally have less formalised planning and control procedures. In many cases the owner/manager does not have the time, the resources or the expertise necessary for such tasks.
- Small businesses generally do not have their own separate IT department.
- Small businesses are, however, more flexible and therefore able to more easily reorganise their business around IT.

Small business owners recognise that the use of technology is important, but rank its effective use below a number of other business issues, such as levels of taxes, government regulations, finding qualified employees, being sued, getting bank loans and being effected by crime (Dennis, 1998). Where IT is recognised in small businesses as a tool that can be used strategically, it often results as a result of a push from the senior manager in the business (Eckhouse, 1998).

Much of the ‘expertise’ relating to purchases of information technology, selection of software packages and development of in-house software applications comes from within the small business. External consultants are typically used when a task that is (perceived to be) difficult needs to be performed, such as the creation of a highly specialised and/or technical software application (Burgess, 1998).

4.2.3.1 Business Size

A number of studies have indicated that Micro businesses are less likely to own computers than other small businesses (Fuller, 1996). A number of studies suggest that there is a relationship between the size of a business and its level of adoption of IT (McDonagh and Prothero, 2000). As the business size increases, so does the likelihood of IT implementation (Yap and Thong, 1997; Hepworth and Blizzard, 1996; Burgess, 1998).

A 2000 study of Australian small businesses revealed that 79% of businesses with 1-2 employees used computers, with this percentage increasing as the size of the businesses increased: 3-9 employees (90%), 10-19 employees (93%) and more than 20 employees (100%). Similar business size trends were evident in levels of Internet usage and adoption of Web sites (Telstra Corporation and NOIE, 2000).

There is also a relationship between the size of a business and the different characteristics it will have that can lead to the successful use of IT (Igbaria et al, 1997; Pollard and Hayne, 1998). As such, research findings based upon traditional 'MIS' in larger businesses are not necessarily directly applicable to small businesses.

Micro businesses are also more likely to require computers that perform more than business tasks. These purposes may vary from such tasks as accounting, producing sales material, using the Internet and maintaining mailing lists to 'non-business' applications, such as games, hobbies and homework (Fortune [a], 1999; Burgess, 1997).

4.2.3.2 Use of IT by Small Businesses

These days, the vast majority of small businesses in most countries have computers.

The issue, however, is not whether small businesses have computers, but how well they use them.

(El Louadi, 1998)

It has been well reported in the literature that small businesses that use computers mainly use them for administrative and operational purposes (such as accounting, budgeting, payroll, inventory control and the like) (Pollard and Hayne, 1988; El Louadi, 1998; Bridge and Peel, 1999).

Much of the software that is used by small businesses is purchased 'off the shelf' (McDonagh and Prothero, 2000), although there is some evidence to suggest that small businesses with particular (specialised) needs are prepared to invest in customised software (Burgess, 1997).

The literature also suggests that some small businesses are beginning to realise that IT can be used to gain competitive advantages (Pollard and Hayne, 1998). Bridge and Peel (1999) divided UK small businesses into groupings of 'high planners' and 'low planners'. These classifications related to the degree of detail with which strategic plans (of longer than one year) were worked out by the business.

...SMEs which engaged in more intensive (detailed) strategic planning, were significantly more likely to utilise business software (spreadsheets, database, MIS and statistical packages) related to decision-making.

(Bridge and Peel, 1999).

4.2.3.3 Using IT to Add Value in Small Businesses

This section examines the strategic use of IT in small businesses. A number of studies of computerised small businesses (Garsombke and Garsombke, 1989; Holzinger and Hotch, 1993) identified some of the benefits of computerisation as:

- Being able to respond to customers.
- Having control over operating costs.
- Being able to effectively manage resources.
- Increase in production output.
- Increase in profit margin.
- Increase in sales and/or market share.
- Improved throughput times leading to reduced lead times.
- Increase in return on investment.
- Improved material flow.

This list shows that the potential benefits of information technology to small businesses go far beyond the mere saving of costs or improvement in efficiencies. As the previous section highlighted, although some small businesses do use IT for strategic purposes, they mainly concentrate upon improving the execution of core business tasks. This notion is supported by a number of worldwide studies (Naylor and Williams, 1994). This could be because the adoption of IT in small businesses is often a *reaction* to pressure from suppliers and/or customers, rather than a *proactive* strategy designed to improve the organisation's strategic position (Lebre La, 1996).

Although small businesses may not use IT for strategic purposes to any great extent, their reliance upon transactional systems does provide them with a useful foundation upon which to build strategic applications according to Weill and Lucas' IT Investment Pyramid (refer 3.1.3.1 Strategic IT Investments as a Component of Overall IT Investment).

In many cases the potential strategic use of IT in small business is limited or not understood. There is, however, a realisation amongst small businesses that there must be a more proactive focus towards the use of IT than in the past (Garsombke and Garsombke, 1989). Much more can be done to improve the use of IT by small businesses in this area, as the following suggests:

- Small business leaders often "wait and see then react" and are usually left behind. (Garsombke and Garsombke, 1989).
- Some businesses make relatively little use of IT and this is mainly tactical or operational in nature, whereas others truly lack a strategic approach to their utilisation of IT (Kench and Evans, 1991).
- "Microcomputer technology can be adopted to great advantage by many small businesses, but visions as to how it can and should be used have been too limited" (Lincoln and Warberg, 1985, p.9).
- Strong potential exists at the operational level, but also at the administrative and strategic levels for small businesses. (Bergeron and Raymond, 1992).

4.2.3.4 Success Factors for the Use of Information Technology in Small Businesses

A number of factors have been highlighted as being important in the successful exploitation of IT in small business (Swartz and Walsh, 1996; Naylor and Williams, 1994; Zinatelli et al, 1996; Yap and Thong, 1997):

- Owner/Manager involvement.
- Training of User-managers.
- The level of internal IT expertise.
- The use of planning methodologies.
- The number of analytical (versus transactional) applications being run.
- Involvement of end users.
- The role of the External Environment (consultants, vendors).

Zinatelli et al (1996) suggest (after a preliminary case study involving eight organisations) that IT success is perhaps linked to the level of IT sophistication, being:

- The breadth of end user skills and knowledge.
- Finesse (the ability to learn to use new software).
- Level of application utilisation.
- Type of end user (programmer/support, command level/ support, command level only).

Summarising, the success of IT in small business requires a combination of one or more of upper management involvement, training and involvement of end users, use of planning methodologies and/or the level of IT expertise available (internal or external).

4.2.3.5 Measuring the Success of IT in Small Businesses

A barrier to the successful use of IT in small businesses is a lack of understanding of the benefits that IT can provide, and how to measure those benefits. The success of IT implementations relate to the extent to which the system contributes to achieving organisational goals (Yap and Thong, 1997). There have typically been three methods used to evaluate the success of IT systems in small businesses. These are (Naylor and Williams, 1994; Zinatelli et al, 1996):

- Measures of system usage.
- Impact upon organisational performance.
- Measures of user satisfaction.

System usage is often measured using data automatically collected from the system. For instance, this may be the number of transactions that have been entered, reports being requested from the system, and so forth. The impact of IT upon organisational performance is difficult to assess, as so many other factors can directly or indirectly effect organisational performance (Naylor and Williams, 1994).

The most common way used to determine the level of IT success is to measure small business user satisfaction with information technology. Such measures of user satisfaction have one major

problem – they are linked with user expectations (Naylor and Williams, 1994). For instance, an owner/manager understanding the strategic benefits that IT can provide may be less satisfied with a simple transactional system than an owner/manager who is unaware of these strategic benefits. This is despite the possibility that they be reviewing systems that perform in a similar manner. Again, the problem falls back to a lack of proper knowledge about the advantages that IT can provide. Interestingly, a 2000 survey of UK small and medium businesses revealed that over half of the businesses felt that Internet and IT had no effect on their business at all (Management Services, 2000).

Igbaria et al (1997) have suggested that another measure of success could be user acceptance of IT. The voluntary use of computers can potentially play a role in enabling small businesses to compete successfully and provide better customer service. Individuals in small businesses are more likely to use a computer system if it is easy to use and if they feel that they can improve their performance and productivity.

4.2.4 Small Business and Electronic Commerce

This sub-section examines current uses and attitudes of small business of electronic commerce.

A survey of 1000 United States businesses with less than 100 employees in 1998 revealed that 37% conducted some type of business online. Of those businesses, 84% sent email to customers, 80% used the Internet as a research tool and 38% purchased products or services online (Kantor, 1999).

The attitudes of small businesses to electronic commerce are not unlike their attitudes to information technology in general. They understand that there may be benefits associated with e-commerce, but feel that there is not enough time available to investigate these benefits. Their conservative nature means that they are less likely to experiment with e-commerce unless the technology is tried and proven. This is consistent with an 'opportunistic' rather than 'strategic' approach to information technology. The issues that they tend consider are (Australian Electronic Business Network, 1998):

- Is it proven?
- Is the cost relatively low?
- Will it deliver immediate benefits to the organisation?

General small business attitudes to e-commerce are (Australian Electronic Business Network, 1998; Conroy, 1999):

- They recognise the term but do not have a broad understanding of the meaning of the term nor its future significance.
- The benefits of e-commerce are not readily visible. Small business managers typically look at investments such as e-commerce for the efficiency or cost saving benefits it can provide.
- A strong driving force within small businesses is the fear of reduced sales and/or profits by NOT adopting technologies such as e-commerce. They must, however, be aware of benefits available in their own industry area, not to parts of the economy that do not effect them, before such technologies are considered.
- EDI may have given e-commerce a poor reputation. The reputation of EDI is that it is expensive and offers marginal rewards. Some small businesses cannot differentiate between EDI and e-commerce.
- Many small businesses are not averse to the notion of e-commerce, they are just waiting for the technology to reach critical mass.

In a study of 1496 Australian small and medium businesses (Telstra Corporation and NOIE, 2000), 15% used the Internet to take orders and 12% had received payment via the Internet. Table 9 lists the (unprompted) benefits of selling products or services over the Internet listed by these businesses:

Table 9: Perceived Benefits of Selling Products or Services Over the Internet, in Australian Small and Medium Businesses (Source: Telstra Corporation and NOIE, 2000)

Perceived Benefit	% of Respondents
Reach a wider market/ customer base	36
More efficient/ takes less time	13
Accessibility	10
Can provide more information on products	9
Form of advertising	8
Profits/ increased sales	7
Cheaper form of advertising	7
Less effort	7
Can present visual images	5

The benefits identified here coincide fairly closely with the benefits of electronic commerce identified in Table 7 in Section 4.1.4 Advantages of and Impediments to Electronic Commerce.

4.2.4.1 Electronic Commerce and the Differences between Small and Larger Businesses

The Internet provides an open network environment that potentially is available to all types of traders (individuals and small and large businesses). Many types of transactions can occur in this environment (Hawkins et al, 1998).

Electronic commerce is seen as one of the methods that small businesses can use to compete with large businesses (DIST [b], 1998; Penhune, 1998). Although small businesses cannot reach the level of sophistication of their larger counterparts, there are increased opportunities available for small

businesses to find and retain customers (Viehland, 1998; Engler, 1999). Setting up an online business is cheaper than opening up a shop in a city street. The Internet provides the means by which the reach of small businesses can extend beyond their traditional markets (OECD, 1999).

One of the problems that small businesses may face is that they cannot match the advertising campaigns of their larger counterparts. They also face the risk that a niche market they may currently operate in may (intentionally or otherwise) become the target of larger businesses that may be looking to broaden their own customer base (Evans, 1999). There are a number of skills required to design and develop a Web site. These skills include interactive design, interface design, strategy design and technical skills. It is necessary to decide whether or not the organisation acquires them internally or externally. They must then be brought together in a cohesive way that will make a project run smoothly (Marchese, 1998). This is a big enough challenge for larger businesses to address, let alone small businesses. Small businesses can use the more inexpensive tools to create Web sites, but will not be able to compete with the resources that larger companies will be able to devote to sophisticated Web sites (Fortune [b], 1999).

Small businesses may derive the most benefits proportionally from the Internet because they can now have ready access to a tool for accessing information about products, customers, prices, market trends and partners. Larger organisations have often already had these systems in place in a different form - and the Internet just adds another dimension to those systems (Commonwealth of Australia [a], 1998). As with other forms of IT, small businesses can take advantage of their size by moving quickly to remodel themselves to take advantage of opportunities that may present themselves (Engler, 1999).

One of the problems facing small businesses is that they have little time or resources to address potential changes to their current activities. There is a perception amongst them that they may be drawn into a 'black hole' that consumes these resources. Another problem is the availability of technical expertise to help them to take advantage of opportunities that may present themselves (DIST [b], 1998; Engler, 1999; Conhaim, 1999; Conroy, 1999). A lack of skills and knowledge is one of the major barriers to uptake of electronic commerce by small businesses (Duan, Mullins and Hamblin, 2000). Small business owner/managers often feel that they lack the perspective and experience to accurately assess and measure the cost and performance of Internet technologies (Larsen and Bloniarz, 2000).

One of the primary reasons why many Australian small businesses are not connected to the Internet is that they see no need or no benefit from doing so. Other reasons include that it is too complex and that customers do not use computers and/or the Internet (Yellow Pages Australia, 1998). Similarly, the primary reason why businesses reject e-commerce is that they do not perceive that their products or services are suitable for such a medium. Other reasons relate to whether customers have requested it, or are connected to the Internet. Lesser-reported reasons relate to issue regarding how electronic commerce can be implemented (Yellow Pages Australia, 1998).

The Internet may, however, offer greater opportunities to smaller businesses to team with other smaller associated organisations or as part of the supply chain of larger organisations (Eugler, 1999; Commonwealth of Australia [a], 1998). Portal sites are being set up to act as a mediator between small businesses and their various customers and suppliers (Karpinski, 1999).

Another potential benefit may come in the form of reduced, standardised and/or cheaper methods of preparing and handling the documentation associated with international transactions. Less complex documentation requirements may be less intimidating and could encourage smaller organisations to participate in international trade. Another driving factor may be streamlined banking processes that reduce the cost of trading across borders (Commonwealth of Australia [a], 1998).

The Commonwealth of Australia ([a], 1998) has identified three factors that are likely to influence small (or any) businesses to adopt electronic commerce:

- Reduced transaction costs, improved product quality and customer service.
- A defensive reaction to competitors engaging in electronic commerce.
- Insistence by large business that their suppliers link to their electronic commerce systems as a condition of doing business.

The first two reasons are consistent with those generally identified by small business studies as reasons that small businesses adopt IT in general (refer 4.2.3.3 Using IT to Add Value in Small Businesses).

4.2.4.2 Problems with E-Commerce in Small Businesses

Some of the major problems identified by Australian small businesses in early 1999 as reasons for not adopting e-commerce are (Telstra Corporation, 1999; Telstra Corporation and NOIE, 2000):

- Loss of personal contact with customers.
- Customers have not requested it.
- All customers are local.
- Customers do not use the Internet.
- Concerns for customer privacy.
- Customers need to see or touch the product.
- Product or services are not suitable.
- Concerns about how to deliver products.
- The business does not have credit card or EFTPOS facilities.
- The business does not know enough about computers.
- The business cannot afford the investment.
- Concerns about competitors gaining access to information.
- Concerns about security of transferred funds.

As with other types of information technology, small business managers are not aware of the opportunities that are presented to them by electronic commerce. In many cases, those that are

willing to use the technologies do not know where to start or lack guidance about how they can implement the technology (Duan et al, 2000).

Section 4.1.4, Advantages of and Impediments to Electronic Commerce, noted that many of the listed impediments to electronic commerce related to government policy, lack of standards, lack of knowledge and lack of suitable business cases. This sub-section has also highlighted the importance of maintaining a customer focus and having suitable IT resources before small businesses will adopt e-commerce.

4.2.4.3 Growth Aspirations

Australian small businesses that are seeking significant growth are more likely to be using or be interested in using e-commerce than those seeking moderate growth. The least interest and use is shown by small businesses with no growth aspirations (Telstra Corporation, 1999).

4.2.5 Section Summary

This section of the literature discussed the use of information technology and electronic commerce by small businesses. After some discussion as to the various possible definitions for small business, it was decided that any business with one to twenty employee would be classed as 'small' and any business with one to five employees would be classed as 'micro'.

The use of IT in small businesses is typically influenced by a lack of resources (available time and capital), limited IT knowledge and little use of planning and control mechanisms. Not surprisingly, those small businesses that have 'successfully' used IT have been found to have addresses these issues. There was also a discussion as to the various ways to measure the 'success' of the use of IT in small businesses. The most common method used is to measure user satisfaction with the IT system.

There is a great deal of evidence to indicate that small businesses tend to use IT to a greater extent as they grow in size. This use is usually based around administrative and operational applications (or as a reaction to something a competitor has done) rather than strategic or proactive applications.

The use of e-commerce in small business was also reviewed in this section. Small business attitudes to e-commerce are not unlike their attitudes to IT in general. E-commerce may provide a number of cost and strategic advantages, but small businesses still have concerns about available resources and expertise to realise these advantages. Their reasons for adopting (or not adopting) e-commerce are similar to those reasons that they adopt (or not adopt) information technology.

4.3 Business-to-Consumer Interactions on the Internet

4.3.1 Purpose of this Section

The previous section provided an overview of electronic commerce. The purpose of this section is to concentrate on literature relating to one aspect of electronic commerce, business-to-consumer interactions, particularly in Australia. There will be a separate emphasis placed upon businesses and consumers.

4.3.2 Business Profile

Table 10 represents the number of business Internet sites in Australia in January 1998.

Table 10: Type of Internet Presence in Australia: January 1998 (Source: DIST[a], 1998, p.11)

Type of Internet Presence*	Number of Sites	Percentage of Sites
Company hosting the Web site on their own computer	8,000	15
Hosting with ISP or third party (but with a unique Domain Name)	25,200	46
Using a Shopping Mall or directory/subdirectory elsewhere	21,600	39
Total	54,800	100

* For types of Internet presences, refer 6.6.2 Implementation and Levels of Web Site Sophistication

The majority of business Internet sites are hosted outside of the organisation. The total number of enterprises having an Internet presence represented some 11% of all Australian enterprises in 1998 (DIST[a], 1998). By 2001, 31% of Australian small businesses had a Web site. Interestingly, 48% of these Web sites were developed internally and 42% were developed by external specialists (Telstra Corporation, 2001).

Table 11 indicates that the location of an organisation's current and potential customers is likely to influence whether or not it has an Internet presence:

Table 11: Proportion of Small and Medium Australian Businesses with Home Pages (adapted from Yellow Pages Australia, 1998, pp.10, 15)

Customer Location	Proportion with Home Pages where business' current customers come from (%)	Proportion with Home Pages where the business would like to expand its customer base to (%)	Potential to Use E-Commerce where current customers come from... (%)	Potential to Use E-Commerce where the business would like to expand its customer base to (%)
Locally/ within district	11	11	24	32
Elsewhere in City/ Town	N.A.	N.A.	43	40
Elsewhere in State	16	17	42	55
Interstate	24	26	61	59
Overseas	47	37	54	69

The highest proportion of businesses with home pages is where their current customer base is interstate or overseas or the intended customer base is interstate or overseas. The same trend is

apparent when the same businesses express the potential for e-commerce. This supports the earlier notion that importing/ exporting companies are more likely to use the Internet (refer 4.1 Electronic Commerce).

4.3.2.1 General Usage of the Internet

There is no doubt that a rapidly increasing number of small businesses are using the Internet (McDonagh and Prothero, 2000). Gallagher (1999) claims that the level of Internet use is growing faster than any other technology in history! The number of small businesses in Australia connected to the Internet has increased dramatically since 1995 (refer Table 12).

Table 12: Internet Connections 1995-2000 (Source: Telstra Corporation and NOIE, 2000)

Year	Internet Connections (%)
1995	5
1996	9
1997	23
1998	34
1999	48
2000	60

Table 13 shows the usage of the Internet by different sized businesses in Australia in 1999 and 2000.

Table 13: Internet Connections by Business Size: 1999 and 2000 (Compiled from: Telstra Corporation, 1999; Telstra Corporation and NOIE, 2000)

Size of Business (number of employees)	Internet Connections	
	1999	2000
1-2	42%	53%
3-4	57%	70%
5-9	49%	65%
10-19	62%	65%
20-99	80%	87%
100-200	91%	99%

This indicates that Internet usage trends in relation to the size of the business are similar to those identified for the use of IT (refer 4.2.3.1 Business Size). As the business size increases, so does the likelihood that it uses computers and is connected to the Internet.

The main uses of the Internet in business are email, business research, entertainment and academic research (DIST[a], 1998; Telstra Corporation and NOIE, 2000). APT Strategies, in a survey of 90 Australian businesses in December 1997, measured the number of Internet business applications being used in each business. The business applications identified were (Phillips [b], 1998):

- Distribution of information.
- Branding Products or Services.
- Customer Satisfaction.
- Sales via the Internet.
- Advertising.
- Subscriptions.

An average of 2.7 Internet applications were recorded across the businesses. The most popular application was distribution of information, followed by branding of products or services. One in five surveyed organisations were using the Internet to sell products or services (Phillips [b], 1998).

4.3.2.2 Characteristics of Small Businesses that Use the Internet

A number of characteristics can be identified which may assist particular industry areas to benefit from online technologies. Some of the characteristics are (DIST [b], 1998):

- The industry area has a high reliance on the dissemination and exchange of information. An example of this is a service industry, such as tourism. For instance, travel agents rely on provision of information to consumers and integration with travel and accommodation organisations.
- Products and services in the industry area can be easily digitised. This would include areas such as education, entertainment and the media.
- Quick response times are vital to the operation of the industry. This may include the tracking of products being delivered to consumers or flexible ticketing and pricing systems that can be customised to react to market forces.
- The industry area is in a remote or rural area.
- Consumers are more interested in a product than in the organisation's location. This is typical of products that can be downloaded online (such as software) or where selections can easily be made online (such as books and music).

A survey of Australian small and medium businesses use of e-commerce (in this case, selling over the Internet) in February 1998 revealed that (Yellow Pages Australia, 1998):

- Businesses providing services are less likely to see e-commerce as suitable.
- Businesses are more likely to see e-commerce as suitable for their sales where the purchases are infrequent.
- Businesses that mainly sell goods through intermediaries are less likely to see e-commerce as suitable.
- Amongst service-based businesses, those that already receive orders via facsimile or electronic means see greater potential in e-commerce.
- The perceived potential of e-commerce is lowest in businesses where cash is the main avenue of payment and invoices are not generally issued.

A later survey of Australian small and medium businesses (Telstra Corporation and NOIE, 2000) found that the use of the Internet to 'transact business' was more likely in businesses that had:

- A business planning structure and were willing to be innovative.
- A perception of demonstrable price and cost advantages.
- Internal skills and knowledge or a willingness to engage an outside consultant to move to online transactions.
- Seen competitors engage in online transactions and had a strategic sense of how to respond.
- Suppliers and/or customers who indicated a willingness to conduct online transactions and/or mandated its use.

One of the benefits that can be provided by the Internet is disintermediation. This occurs when wholesalers, distributors and/or retailers are eliminated from the supply chain. For distributors and retailers, this may occur when a business (which previously may have used their services) decides to sell its good directly to customers over the Internet (Viehland, 1999). When an intermediary migrates its service to the Internet it is known as transintermediation (for example, employment agencies and real estate agents). When a new type of intermediary sets up on the Internet it is known as reintermediation (for example, search engines and auction services) (Birch et al, 2000).

4.3.2.2.1 Summary of Characteristics

This sub-section has reinforced many of the points made earlier in this literature review. Certain types of industries seem to be suited to the use of e-commerce. For instance, these include those that rely on exchanges of information, have goods that can be digitised and rely on quick response times. These characteristics were identified earlier in sections 3.3.5 The Effect of the Internet on Marketing Channels and 3.3.6 Consumer Behaviour on the Internet.

The manner in which small businesses carry out their business is important as a guide to whether they are likely to adopt e-commerce. Those that sell through intermediaries or deal mainly in cash are less likely to see it as suitable. Those that are used to receiving orders by facsimile or other electronic means are more likely to adopt e-commerce.

Finally, use of the Internet to 'transact business' is more likely in small businesses that are willing to plan properly, be innovative, are able to determine the benefits, have a knowledge of the area and have customers that are willing to operate in this manner. This coincides with the findings in section 4.2.4 Small Business and Electronic Commerce.

4.3.2.3 Barriers to the Adoption of Web Sites

Table 14 shows the results of a survey of 255 businesses (over half of which had less than 100 employees) selected from a commercial mailing list of USA advertising agency and client organisations identified a number of potential barriers to the use of the Internet for marketing (Bush et al, 1998).

Table 14: Potential Barriers to Using the Internet for Marketing Purposes (Source: Bush et al, 1998, p.24)

Barrier/ Problem	Frequency of Response
Security, privacy, consumer fear	58
Access, availability to all consumers	40
Computer capabilities	36
Measuring effectiveness	33
Difficult to reach/ find target market	30
Overload of information	25
Difficulty navigating the web	16
Maintaining/ Updating Web sites	15
Executives' fear of technology	14
Lack of knowledge among consumers	13
Consumer reluctance to purchase on the web	11
Costs of reaching consumers	11
Availability of technological experience	8
Other	1

A potential problem in business-to-consumer interactions is that not enough consumers may appreciate the potential benefits of such interactions (or assume that their costs outweigh the benefits) to create the necessary critical mass of customers required (DIST [b], 1998). Hawkins et al (1998) claim that the main obstacle to market acceptance for e-commerce is customer difficulty in perceiving the advantages of these services.

The Telstra Corporation and NOIE (2000) study of Australian small and medium businesses identified the following reasons for not adopting a Web site:

- A lack of understanding of how a Web site could be used to 'add value'.
- Concern about the benefits to the company (how will customers find the site).
- Cost.
- Availability of skills to design, build, and maintain the Web site.
- Availability of the time needed to setup and maintain the site.

Many of these reasons can be matched with the barriers identified in Table 14.

The main barriers from a business point of view are therefore customer attitudes, ability to reach customers, difficulty with understanding how the technology can be used, limited resources (time, money and skills) and methods of measuring the effectiveness of the Web site. Again, this list coincides with the impediments to e-commerce and problems with e-commerce listed in sections 4.1.4 Advantages of and Impediments to Electronic Commerce and 4.2.4.2 Problems with E-Commerce in Small Businesses.

4.3.3 Consumer Profile

4.3.3.1 Shopping using the Internet in Australia

As at February 1999, 18% of all households in Australia had access to the Internet. In the 12 months up until that time, 37% of Australia's adult population had accessed the Internet. This is a dramatic increase over the 23% that had accessed the Internet in the previous year (Australian Bureau of Statistics, 1999). The main areas of access during that time were:

*Table 15: Areas of Internet Access in the 12 months to February 1998 and February 1999
(Compiled from Australian Bureau of Statistics, 1999)*

Area of Internet Access	12 months to February 1998 (million)	12 months to February 1999 (million)
Work	1.3	2.5
Home	1.0	1.7
Friend or Neighbour's house	0.8	1.5
TAFE or Tertiary institution	0.5	1.0
Public Library	0.2	0.7

There is a definite trend relating to adult age groups using the Internet. There is more likelihood that younger adults will be using the Internet than older adults (Australian Bureau of Statistics, 1999).

In December 1997, 43% of Australian Internet users had tried online shopping, and another 30% were willing to try it (DIST [a], 1998). This showed an increase quarterly from June 1996, where

fewer than 20% of Australian Internet users had tried online shopping (DIST [b], 1998). In the 12 months to February 1999, 9.6% of Australian adult Internet users purchased goods over the Internet for their own personal use. 77% of these made these purchases from home (Australian Bureau of Statistics, 1999). The more frequent online shoppers are highly educated, in professional occupations and aged between 25 to 35 years old (www.consult [b], 1998).

4.3.3.2 Products Purchased

A number of predictions have been made about what the most popular products purchased over the Internet in the near future will be. Typically, these are (Dawson, 1998; Beckham, 1999):

- Financial/ Securities services.
- Insurance.
- Travel.
- Entertainment/ Ticketing.
- Sports.
- Groceries.
- Books.
- Music.
- Video.
- Computer and Office Supplies.

Some of these are already proven to be popular amongst Internet purchasers. Table 16 represents a series of rankings of the popularity of products/ services that have been purchased over the Internet, according to a number of different Australian studies.:

Table 16: Ranking of Products Purchased On the Internet in Australia (Sources of data in headings)

Product type	Ranking: Six months to December 1997 (DIST [a], 1999)	Ranking: February 1998 (Dawson, 1998)	Ranking: June 1998 (www.con sult [a], 1998)	Ranking: February 1999 (Australian Bureau of Statistics, 1999) *mentioned in the same category	Ranking: February 2000 (Telstra Corporation and NOIE, 2000)
Books	2	2	1	1*	1
Software	1	1	2	2*	3
Music	-	3	3	3	2
Magazine Subscription	3		4	1*	9
Peripherals	4		5	2*	
Clothing	7		6	5	6
Adult Entertainment	6		7		
Tickets	13		8	7	6
Games	5		9		
Shares/ Quotes	11	4	10		
Travel Services	14	5	11	6	5
Educational Software	8		12		
Flowers	12		13		8
Computers	10	8	14		
News	-		15		
Classifieds	9		16		
Wine	16	6	17		
Food/ Groceries	15	6	18		4

In recent times the most popular goods have been books, software and music. Some of the attractions of these types of goods are (Beckham, 1999):

- The ability (for the consumer) to get the best deal by being able to shop around on the Internet from a number of options (for instance, with travel).
- Lower costs because the organisation may not have an expensive 'physical' storefront.
- The product can be digitised (refer Tsao and Lin, 1999) and therefore downloaded over the Internet (for instance: music and video).
- The service provided is information-based. Information can be easily manipulated over the Internet (for instance: insurance, banking and shares).

Sales related to travel; hardware and software are likely to dominate global online business-to-consumer trade because of the convenience, service and available choice, rather than just price. Other types of goods, such as clothing, which have traditionally been sold via mail order may also be suitable for sale over the Internet. Sales of perishable and non-perishable goods may become viable over the Internet, because of associated improvements in logistics technology. For instance, groceries can now be shipped long distances at competitive rates by overnight couriers (Commonwealth of Australia [a], 1998).

Products or services that are too big or require personal dealings (for instance: houses and boats) may not be suitable to be sold over the Internet (Beckham, 1999). Also, products or services that require a personal one to one interaction by the customer with a salesperson may prove to be difficult to sell over the Internet (Phillips [a], 1998).

Birch et al (2000, pp.32-33) suggest a number of categories of goods that may be suitable for the Internet:

- Those goods that have a high built-in quality standard. That is, goods that do not need to be checked by the customer when they make the decision to buy (such as music CDs).
- Those goods that are context intensive. This occurs where the goods need explaining and extra information is valued (for example, with travel and health products).
- Those goods where there is a high potential for reduced transaction costs. For example, where removing the need for intermediaries can lower sales and distribution costs.
- Those goods where customer feedback can be used to enhance and tailor the goods for the customer (such as with computers and cars).

Liflander (2000) suggests a number of categories of goods that are likely to be suitable for the Internet:

- *Gifts and Impulse Products.* These are products, such as trinkets, that consumers may not realize they want until they see them. A Web site selling these should be enjoyable to browse through, simulating the 'discovery' process of walking through an antique shop.
- *Commodity Products.* These are products where presentation is not as important (such as, a videotape). The important elements are price, selection available and availability.

- *Considered Purchase Products.* These include items such as cars. The consumer likes to consider the information available and evaluate alternatives before making a purchase decision, which is usually not rushed. The Internet is suited to providing information about the product – options available, colours, extras on offer and so forth. The Web site should list all of the options.
- *Configurable Products.* These include items such as computers. There is usually a base product that can be configured by the consumer to a ‘tailored’ final product. Again, Web sites selling these products should provide as much information as possible.
- *Products Sold by Category.* These are general sales sites that provide hierarchical categories of products. Consumers can ‘drill-down’ to find the product they desire. The Web site should support this type of selection.
- *Service Businesses.* The business can place information about the services they provide on the Internet, allowing customers to contact them via email or by listing a telephone number.

4.3.3.2.1 Products Purchased Summary

This sub-section examined the types of products that are typically sold over the Internet. The extra ‘reach’ of consumers over the Internet will allow them to consider a wider availability of goods. Initially, these are goods that have been traditionally associated with mail order, but other goods may become more attractive as improvements in logistics technologies come about.

The ‘added value’ of goods sold over the Internet is important. Those goods where the quality is known (such as music CD’s), goods which require the provision of extra information is important for consumers to make a decision, goods that are cheaper and goods that can be tailored to individual customers were all considered as likely candidates for ‘online’ sales. These attributes were mentioned in sections 3.3.6 Consumer Behaviour on the Internet and 4.1.3.3.1 How Does the Internet Alter the Relationship?

4.3.3.3 Consumer Motivations

When discussing models of consumer behaviour on the Internet previously, buyer motivation was highlighted as an important factor in business-to-consumer interactions (refer 3.3.6.2 Models of Consumer Behaviour on the Internet.). A number of key factors have been identified to assist growth in the number of consumers using electronic commerce (DIST[b], 1998):

- Users need to be comfortable with using the technology. This includes allaying consumer concerns about some of the issues mentioned in the previous section, as well as the user interface.
- The price of goods and services, combined with the value-added services provided need to be attractive to increasingly empowered consumers.
- The telecommunications infrastructure should be available at a suitable price and an adequate bandwidth to support a larger number of consumers going online.

Alba et al (1997) contend that interactive shopping will need to match or exceed the value provided by more traditional means if it is to succeed. They compared the relative attractiveness of different types of retail formats and compared them to interactive shopping (refer Table 17).

Table 17: Dimensions Affecting Relative Attractiveness to Consumers of Alternative Retail Formats (extracted from Alba et al, 1997, p.40, Table 1)

Dimension Category	Dimension	Super market	Department Store	Category Specialist	Catalogue	Interactive Shopping
Providing alternatives For Consideration	Number of Categories	Medium	Medium	Low	Low	Low or High
	Alternatives per Category	Medium	Low	Medium	Medium	High
Screening Alternatives to Form Consideration Set	Selecting Consideration Set	Medium	High	Medium	Low	High
Providing Information for Selecting from Consideration Set	Quantity	Medium	Medium	Medium	Medium	High
	Quality	High	High	High	Medium	Low or High
Ordering and Fulfillment: Transaction Costs	Delivery Time	Immediate	Immediate	Immediate	Days	Days
	Supplier Delivery Cost	Low	Low	Low	High	High
	Customer Transaction Cost	High	High	High	Low	Low
	Supplier Facility Costs	High	High	High	Low	Low
	Locations for Placing Orders	Few	Few	Few	Everywhere	Many
Other Benefits	Entertainment	Low	High	Medium	Low	Medium
	Social Interaction	Medium	High	Medium	Low	Low
	Personal Security	Low	Low	High	High	High

The following discussion is based upon Table 17.

4.3.3.1 Providing Alternatives for Consideration

An increase in the number of available alternatives may be enough to cause some shoppers to switch from traditional shopping to online shopping. However, other consumers may find it tedious and stressful to search through a large number of alternatives. Therefore, taken by itself, the capability of interactive shopping to increase the number of alternatives available to consumers may not be enough of a reason to justify its adoption (Alba et al, 1997).

4.3.3.2 Screening Alternatives to Form Consideration Sets

Online *interactive* shopping allows a consumer to concentrate upon only those goods that best match their personal preferences. This allows them to make purchase decisions more efficiently as they can evaluate alternatives within their selected subset of goods in more detail (refer 4.1.3.3.1 How Does the Internet Alter the Relationship?). Taken to a further level, sellers may be able to customise their products to individual consumers as they build a database of their personal preferences (Alba et al, 1997) (refer 4.3.3.2.1 Products Purchased Summary).

4.3.3.3 Providing Information to Evaluate Alternatives in the Consideration Set

Internet shopping allows sellers to provide vast amounts of information to the buyer about their potential purchases. There is no guarantee that the quality of this information will be any better or

worse than that available from other alternatives (Alba et al, 1997). Customers will be faced with a varied set of products and services to assess. The lack of standards applied to presentation of information about these may make it difficult to assess differences between different products and services (AlMoumen and Sommerville, 1999).

4.3.3.4 Other Considerations

According to Alba et al (1997), consumers will consider many other factors before deciding upon their method of purchase. For instance, it may be possible to purchase and receive goods at the supermarket immediately. This, however, requires a commitment of resources (time and money) to get there. The same goods, ordered over the Internet, may not be delivered until the next day (or later) and may end up being more expensive due to freight costs. Also, there is a greater chance for social interaction at a supermarket or department store than is possible by purchasing on the Internet.

4.3.3.4 Implications

These days, there is an implicit promise (if not explicitly stated on the Web sites of organisations) that consumers will save time and effort (Kolesar and Galbraith, 2000).

Organisations can provide Web sites that provide features that assist consumers to explore their goods (categorised headings, indexed lists and so forth). It may even be possible to provide price and feature comparisons with the goods of competitors. Web sites can assist consumers with their consideration sets by determining their preferences directly (by querying them) or indirectly (based upon what they have purchased or where they have been on the Web site). Eventually, the success of an organisation's Web site may relate to how successfully it can provide the types of information that customers value (Kolesar and Galbraith, 2000).

4.3.3.5 Consumer Profile Summary

Much of the discussion in this sub section relates to consumers using the Internet to interrelate with organisations because of the following attractions (linked with Marketing Channels and Porter's three generic strategies where appropriate) which provide the motivation for them to become involved in business-to-consumer interactions (refer also to Table 6: The Effects of the Internet on Marketing Channels and Consumers):

- Lower costs (because the organisation does not have to pay rent, improvements in logistics, and so forth). [Low Cost Producer].
- Convenience of being able to 'shop around' more readily [Communication channel].
- Convenience of being able to purchase over the Internet (as per mail order over the telephone) [Transaction channel/ Differentiation by time (and perhaps) cost].
- Being able to find more information about products and services [Communication channel/ Differentiation by extra product support].
- Delivery of the service over the Internet [Logistics channel/ Differentiation by time and cost].
- Delivery of information-based services over the Internet [Logistics channel/ Differentiation by time and cost].
- Personal customisation of products or services [Differentiation].

Tsao and Lin have classified the factors that consumers take into account when considering purchasing over the Internet into two areas, thinking and feeling (refer Table 18).

Table 18: The Measurement of Thinking and Feeling (Source: Tsao and Lin, 1999, p.69)

Factors	Definition
Thinking facts	Reasonable price Brand, Reputation and Services Functionality Product Quality
Feeling factors	Creating self-image Sign of Fashion Symbolic value Feeling from the look of products

In a study of 81 Taiwan business students that had experienced purchasing over the Internet, Tsao and Lin (1999) found:

- Ideas and services are suitable for distribution over the Internet because they are highly digital in nature.
- The Internet is suitable for 'high thinking' products (such as hotel reservations) because its characteristics are suited to one to one communication, posting vast amounts of product information and personalised search engines.
- The Internet is not suited to 'low thinking'/'high feeling' products (such as magazines) because the 'look' of the product is most important to the customer.
- 'Low thinking'/'low feeling' products (such as soft drinks) are mainly distributed by mass channels. The searching and purchase costs through physical channels are cheaper than over the Internet.

4.3.3.6 Problems of Business-to-Consumer Interactions on the Internet

This sub section examines the benefits and problems of business-to-consumer interactions on the Internet from a consumer viewpoint.

A potential problem is the lack of personal contact with the business (Yellow Pages Australia, 1998) and closely related to success factors of Internet marketing are the concerns of actual and potential buyers.

Table 19 outlines the major concerns of Australian Internet users.

Table 19: Online Shopping Concerns of Australian Internet Users (Compiled from DIST[a], 1998, p.16)

Concern	Internet users that had tried online shopping	Internet users that had not tried online shopping and are not sure if they will	Internet users that had not tried online shopping and probably will not try it
Response Times	24%	19%	19%
Cost	23%	21%	21%
Security of Financial Transactions	13%	18%	12%
Privacy of Individuals		25%	20%

Many of these concerns are based around the creation of an environment of trust, especially in the area of intellectual property and privacy and credibility of information (DIST [b], 1998; Chen and Sukpanich, 1998). These were identified as important areas in the models of consumer behaviour on the Internet discussed previously (refer 3.3.6.2 Models of Consumer Behaviour on the Internet.).

4.3.4 Section Summary

This section examined business-to-consumer interactions on the Internet from two viewpoints: those of the business and the consumer.

The business sub section examined a number of reasons as to why organisations may or may not use the Internet for business-to-consumer interactions. Organisations that were involved in import/export, service-based organisations, organisations with products or services that can be digitised, organisations where there is a high exchange of information required and rural organisations were highlighted as being those that were more likely to use the Internet. The use of the Internet to 'transact business' is more likely in small businesses that are willing to plan properly, be innovative, are able to determine the benefits, have a knowledge of the area and have customers that are willing to operate in this manner. The main barriers from a business point of view are customer attitudes, ability to reach customers, difficulty with the technology and methods of measuring the effectiveness of the strategy

The consumer sub section identified a number of reasons as to why organisations may or may not use the Internet for these types of interactions. The reasons for using the Internet in this way were linked to the Marketing Channels and Porter's three generic strategies for improving competitiveness and motivating consumers to use the Internet. Consumers have access to wider markets and have the capability to assess greater amounts of information in determining which products to purchase. They will still choose based upon a combination of cost and other types of added value (such as time, product support, level of personalisation and so forth).

4.4 Business-to-Consumer Interactions in the Small Business Sector

4.4.1 Purpose of this Section

This section will concentrate upon literature relating to those aspects of business and consumer interactions that are specific to small businesses.

4.4.2 Profile of Business-to-Consumer Interactions on the Internet in Small Businesses

4.4.2.1 Small Business Use of the Internet

Surveys of Australian small and medium businesses revealed the following usage of computers and modems and e-commerce trends:

Table 20: Advertising, Taking Orders and Receiving Payments over the Internet in Australian Micro and Small Businesses: 1999-2000 (Compiled from: Telstra Corporation, 1999; Telstra Corporation and NOIE, 2000)

Size of Business (number of employees)	Advertising over the Internet (%) 1999/ 2000	Take Orders over the Internet (%) 1999/ 2000	Receive Payment over the Internet (%) 2000
1-2	13/ 18	8/ 12	3
3-4	25/ 32	8/ 14	10
5-9	19/ 37	14/ 25	12
10-19	32/ 37	25/ 16	10
All Small	18/ 25	11/ 14	7
All Medium	41/ 46	16/ 23	15

Although there are only two years of figures in Table 20, it seems fairly safe to say that there is an increasing trend for small businesses to advertise and take orders over the Internet. There is a greater likelihood that larger businesses will do this rather than the smaller ones (again, this is consistent with section 4.2.3.1 Business Size).

Small businesses are less likely to believe there is a potential to use the Internet to sell goods and/or services than medium businesses (Telstra Corporation and NOIE (2000)). A 1999 study of small businesses in the USA showed similar trends. Some 55% of small businesses were using the Internet for business purposes, 32% had a web page and 17% were using the Internet to sell products or services (Long, 1999).

In early 1999, almost half of all small businesses in Australia (48%) were connected to the Internet. Nearly one in five (18%) advertised on the Internet and just over one in ten businesses took orders over the Internet. The likelihood of using the Internet to advertise or to take orders appears to increase with the size of the organisation (Telstra Corporation, 1999).

4.4.3 Levels of Web Site Development

The following table represents interest by Australian small businesses in different levels of Web site development (as identified by Telstra Corporation, 1999).

Table 21: Levels of Interest in Different Levels of E-Commerce (Source: Telstra Corporation, 1999)

Level of interest	Electronic Brochure (%)	Electronic Brochure plus Ordering (%)	Electronic Brochure plus Ordering and Payment (%)
Extremely interested	20	13	13
Very interested	24	20	15
Fairly interested	24	23	19
Slightly interested	20	15	16
Not at all interested	12	29	37

Interest levels are highest for the more basic Web site and are subsequently reduced as the complexity of the Web site increases. This is consistent with a staged development of Web sites (refer 6.6.2 Implementation and Levels of Web Site Sophistication). Table 22 examines the preferred type of e-commerce package by industry area.

Table 22: Preferred Level of E-Commerce Package (Source: Telstra Corporation, 1999)

Level of interest	Electronic Brochure (%)	Electronic Brochure plus Ordering (%)	Electronic Brochure plus Ordering and Payment (%)
Manufacturing	31	29	32
Building/ Construction	37	21	24
Wholesale/ Retail	29	19	46
Transport/ Storage	40	27	29
Business Services	47	19	24
Personal Services	31	22	37

Organisations in the Building/ Construction, Transport/ Storage and Business Services industries selected the basic Web site (electronic brochure) as their preferred option. Organisations in the Wholesale/ Retail and Personal Services industries selected the more complicated option provided; electronic brochure combined with ordering and payment systems.

4.4.4 Benefits of Business-to-Consumer Interactions on the Internet

Some of the major benefits identified by Australian small businesses in early 1999 as reasons for adopting e-commerce are (Telstra Corporation, 1999):

- Reaching a wider market or customer base.
- It is more efficient and saves time.
- Less overheads/ costs.
- Can provide more information about products.
- Better exposure.
- Good advertising.
- Provides 24-hour access.
- Provides more business.
- Improved communications.

4.4.5 Section Summary

This section examined some of the issues related to small business use of business-to-consumer interactions on the Internet. Small businesses need to be able to address the technical needs required to set up and maintain an Internet presence. The reasons that small business adopt electronic commerce at the moment are not that different from their reasons for using any type of information technology: reduced costs, they are reacting to another organisation's advantage or they are forced to by a larger partner.

4.5 Chapter Summary

This chapter discussed a number of areas in the literature related to contemporary issues to be considered in developing the conceptual stage of the model.

The first section examined aspects of electronic commerce. A definition of electronic commerce was selected for use in this thesis, which included its use in internal business processes; for business-to-business interactions; and for business-to-consumer interactions.

Business-to-consumer interactions were examined in greater detail. Characteristics that were specific to these types of interactions were discussed. These looked at the use of the Internet in such interactions in the distribution, transaction and communication marketing channels, as well as the unique opportunities the Internet provides for consumers.

The discussion then moved to means by which the Internet can be used to add value to goods, through delivering goods faster or cheaper or providing opportunities for personalisation of goods. The opportunity is there for businesses to improve their business processes and to reach larger markets, with a likelihood of greater competition in those markets. Some advantages of e-commerce were examined, these mainly occurring in the marketing channels or to internal business processes. These concepts are important, as they are used in the development of the conceptual model.

The use of information technology and electronic commerce by small business was discussed. Any business with one to twenty employees is classified in thesis as 'small'. The use of IT in small businesses is typically influenced by a lack of resources, limited IT knowledge and little use of planning and control mechanisms.

There is evidence to indicate that small businesses tend to use IT to a greater extent as they grow in size. This use is usually based around administrative and operational applications (or as a reaction to something a competitor has done) rather than strategic or proactive applications.

The use of e-commerce in small business was also reviewed. Small business attitudes to e-commerce are similar to their attitudes to IT in general. Small businesses have concerns about available resources and expertise to realise the advantages of e-commerce. It is vital that the model is designed specifically for small businesses. Their needs are much different than those of their larger counterparts. Such a model should take into account the differences in resource availability and usage in this sector.

This discussion moved to business-to-consumer interactions on the Internet. A number of reasons were investigated as to why organisations may or may not use the Internet for business-to-consumer interactions. Organisations that were involved in import/export, service-based organisations, organisations with products or services that can be digitised, organisations where there is a high exchange of information required were highlighted as being those that were more likely to use the Internet. The use of the Internet to 'transact business' is more likely in small businesses that are willing to plan properly, be innovative, are able to determine the benefits, have a knowledge of the area and have customers that are willing to operate in this manner. Consumers have access to wider markets and have the capability to assess greater amounts of information in determining which products to purchase. They will eventually choose to purchase products based upon a combination of cost and other types of added value (such as time, product support, level of personalisation and so forth).

The final section examined some of the issues related to small business use of business-to-consumer interactions on the Internet. Small businesses need to be able to address the technical needs required to set up and maintain an Internet presence. The reasons that small business adopt electronic commerce at the moment are not that different from their reasons for using any type of information technology: reduced costs, they are reacting to another organisation's advantage or they are forced to by a larger partner. This discussion is important as it examines the very reasons as to why small businesses may wish to interact with their customers over the Internet and how they should go about doing it.

5 Phase One: Expert Panel Discussion

5.1 Introduction

The purpose of this chapter is to describe the first Phase of this study and to reflect upon the process of the development of the expert panel and the conduct of the first Phase. An expert panel was assembled to comment (via a web discussion list) upon a preliminary model and a number of general issues that arose from the literature review. A preliminary version of the model was introduced at the start of the Phase and was refined throughout the Phase.



The CD-ROM in Appendix Three contains the entire Web based discussion for Phase One of the study.

5.2 Details of the Expert Panel

The composition of the expert panel was intended to contain a mix of academic expertise in the areas of small business, electronic commerce and the strategic use of IT. Many participants had expertise in more than one of the desired areas. Table 23 summarises the expertise levels of the participants. Industry representatives from the small business were not sought as their input was used in Phase Two of the study.

Codes:

MU: Monash University

RMIT: RMIT University

VU: Victoria University of Technology

Table 23: Expertise of Expert Participants in Phase One of the Study

Participant code	Affiliation	Area of Expertise		
		Small Business	E-Commerce	Strategic Use of IT
1	VU, Electronic Commerce Unit. Also, completed PhD in strategic use of IT		X	X
2	VU, Small Business Research Unit	X		
3	VU, Small Business Research Unit	X		
4	RMIT, Centre for International Research on Communication and Information Technologies (CIRCIT)	X	X	
5	MU, School of Information Management and Systems			X
6	MU, School of Information Management and Systems			X

5.2.1 Phase One Details

A form of the Delphi technique was employed in Phase One of the study, as it was designed to gain some consensus on a wide range of issues related to the preliminary design of the model. Phase One involved working with a group of academic experts (as identified) over a period of two weeks using an Internet-based discussion list. Twelve potential participants were initially identified (and approached via electronic mail messages) with the hope of having at least six agree to participate in the study. The proposed participants each came from one of the following areas:

- Victoria University of Technology (employer of the author).
- Monash University (where the doctorate was being conducted).
- Research contacts of the researcher.

Of the twelve, eight agreed to participate, three stated that they were too busy and one did not reply at all. Of the eight that agreed to participate, two did not actually participate at all.

The six members of the panel were introduced to the applied version of the model (refer Section 5.3 Preliminary Issues that were Raised). At this stage the model contained no detailed procedures, just a number of general steps to be followed in its operation. A number of issues that were related to the operation of each of these steps were presented to the experts for discussion, each in a different discussion 'thread' that had a separate discussion list attached to it. The expert group web based discussion list was set up using Microsoft Publisher 2000, Microsoft Access 97 and the Internet database language Cold Fusion. It ran on an Intel processor based personal computer that was running the operating system Windows NT, which acted as the web server.

Although not a large group, the combination of the six academics forming the discussion group provided the coverage of experience required for this Phase of the study. As was mentioned in Chapter Two Methodology, the use of a form of Delphi study was to establish discourse amongst members of the expert panel in relation to the model. This allowed the original conceptual model, developed from the literature, to be refined for the purpose of the eventual development of the applied mode in Phase Two.

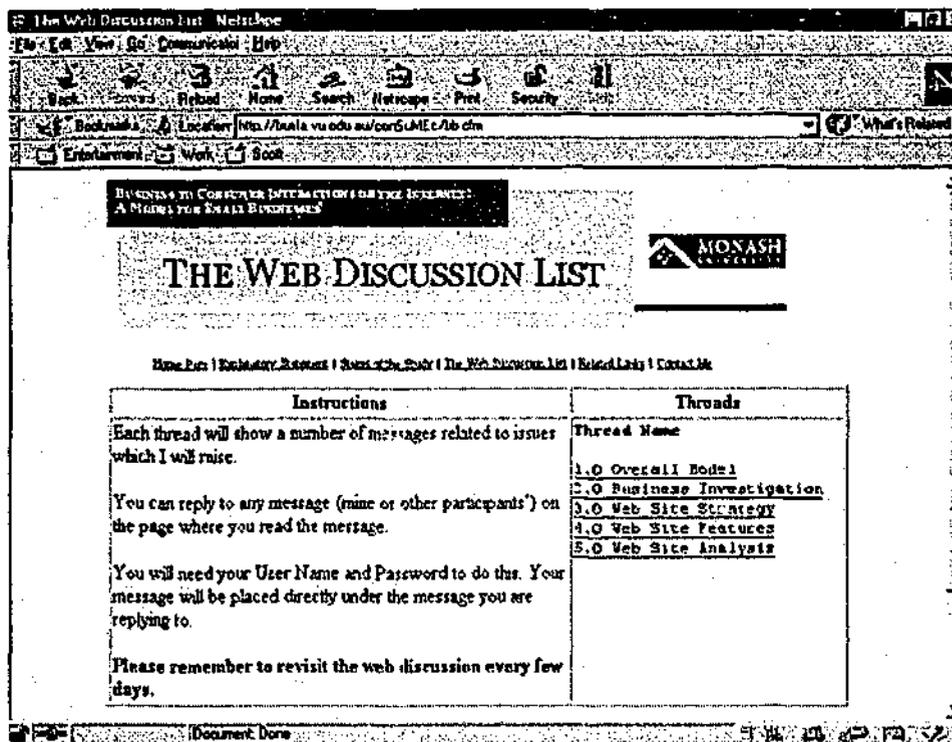


Figure 22: The Web Discussion List Opening Screen

Group members were assured of the confidentiality of the study in the explanatory letter they were presented with at first contact and the consent form they were required to sign to participate in the study.

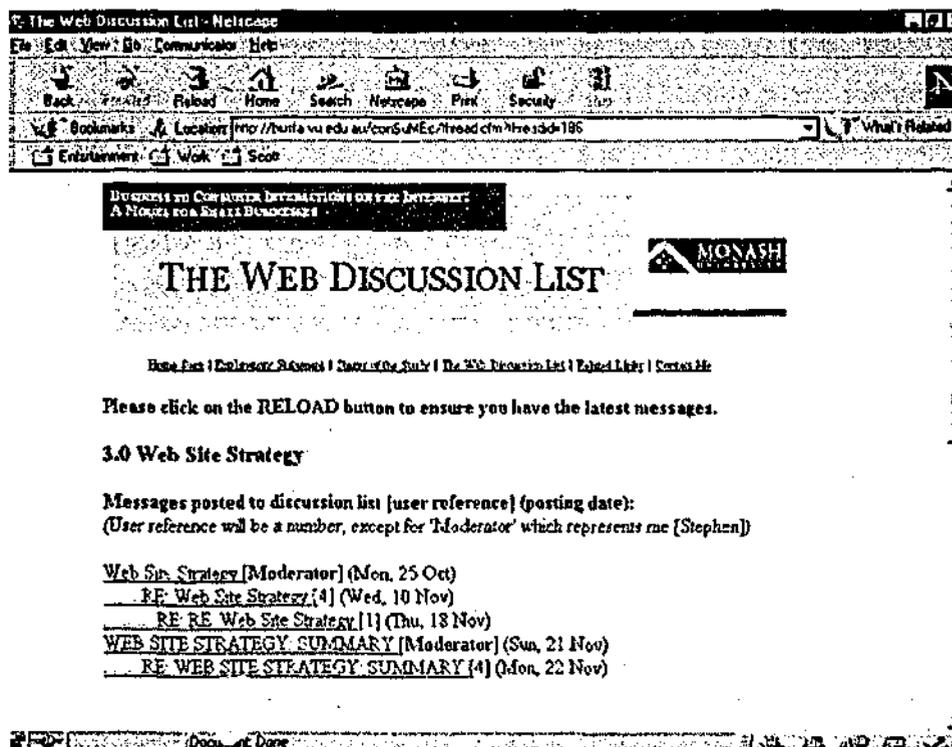


Figure 23: A Discussion Thread Screen

Associated with each discussion thread were the messages that could be posted by the researcher or participants. A group member could view any message in the discussion by selecting it.

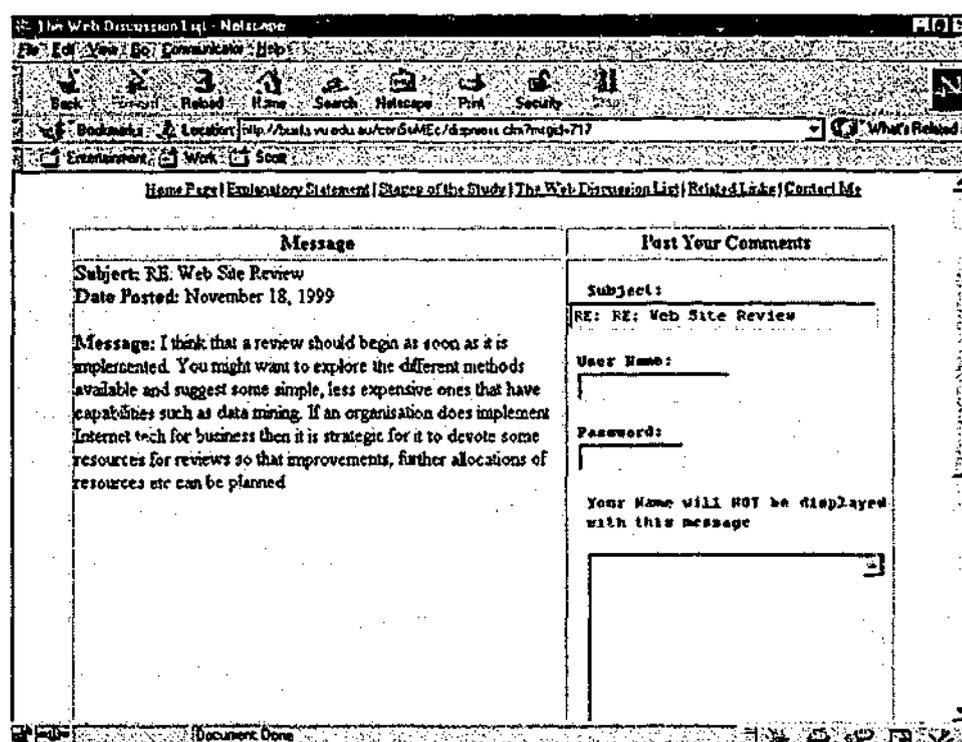


Figure 24: A Sample Message Screen

The 'message' screen was split into two halves. One half of the screen displayed the message. The other half of the screen allowed the member to submit a reply to the message that they were viewing.

When a participant submitted a message to the discussion group it was placed directly under the message being replied to and indented as per a normal bulletin board. The personal identification number of the submitter and the date of submission of the message was also posted. This was designed to let other group members know when messages came from different submitters and which messages needed to be read since the last time that they visited. The personal identification numbers could not be linked to individual participants.

5.2.2 Conducting the Study

Participants were recruited into the study via means of an email explanatory letter, distributed between Monday 25 October 1999 and Friday 5 November 1999. The discussion commenced on Sunday 7 November 1999.

The discussion was originally intended to last for one week, so as to cause the least amount of inconvenience to participants as possible. From early on it was obvious that participants generally preferred to contribute to the discussion as it suited them, rather than be rushed into a series of responses over a short period of time. Due to this, the discussion was finally concluded on Monday 22 November, 1999. The discussion that was derived during the operation of Phase One, plus findings from the literature review, were used to develop the conceptual version of the model to be used as the basis for the development of the applied model in Phase Two of the study.

5.3 Preliminary Issues that were Raised

5.3.1 Introduction

The following preliminary model was developed using the steps that were identified as being common amongst models that can be used to help a firm to identify strategic IT investments. These steps are (the names given to each step are in parentheses): identify areas where IT can be useful (in this preliminary version of the model, the Business Investigation); determine the strategy to be adopted (Web Site Strategy); and identify the strategic IT opportunity (Web Site Features). The components of Web Site Features were identified from areas that developed within the literature review. A further step to review of the success of the investment (Web Site Analysis) was also added as another important area that was identified in the literature review.

The various issues that were introduced into the discussion of each aspect of the model were developed from the summary issues that were identified in the literature analysis summary.

Figure 25, The Preliminary Model (Version 1), is the first version of the model that was presented to participants.

The Preliminary Model (Version 1)

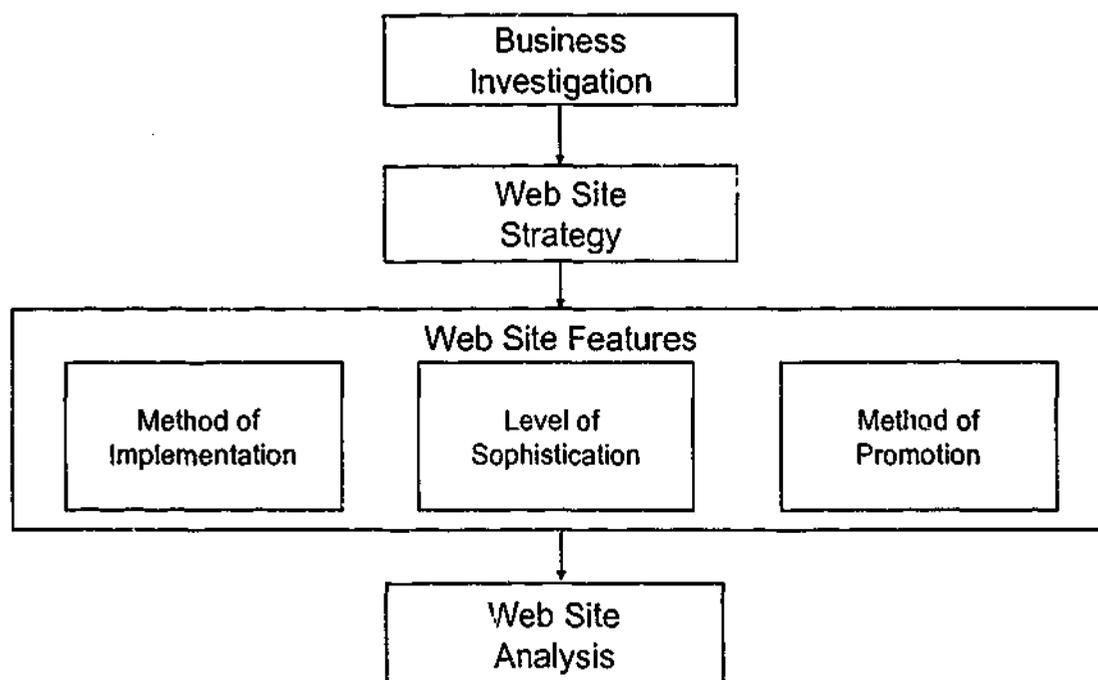


Figure 25: The Preliminary Model (Version 1)

5.3.1.1 Background to the Development of the Conceptual Model

The main basis for the development of the initial version of the Conceptual model were Sections 3.4 Models for the Identification of IT Opportunities that Add Value to Products and/or Services and 3.5 Models for the Identification of IT Opportunities that Add Value to Products and/or Services in the E-Commerce field.

Section 3.4 introduces the use of three main steps as used in many of the models (refer Section 3.4.11 Section Summary, for a summary of these). In the case of the initial Conceptual model, these steps have been labeled 'Business Investigation', 'Web Site Strategy' and 'Web Site Features'. In addition, another step, 'Web Site Analysis' has been added so that the measure of success of the model can be determined (as per some of the models, again refer 3.4.11 Section Summary).

In determining the components of the Web Sites Features step, a section related to the 'Level of Sophistication', outlining what Web site features will be on the Web site, has been added as per section 3.5.4 Section Summary, which discusses models specifically in the e-commerce field. The section related to 'Method of Implementation' is derived from the Marchese model and the 'Method of Promotion' step is taken from the AlMoumen and Sommerville model (again, refer section 3.5.4 Section Summary).

5.3.2 The Discussion

The discussion was broken up into a number of separate discussion 'threads', related to the various aspects of the preliminary model. These threads were:

- A discussion of the design of the Overall Model.
- Business Investigation.
- Web Site Strategy.
- Web Site Features.
- Web Site Analysis.

Each of these threads was run concurrently. A participant could contribute to any of the threads at the same time.

As discussed in the methodology chapter, Phase One of the study involved a Delphi study. The study contained two Delphi rounds that comprised:

- Round One issues, where a number of general issues related to the preliminary model that had been presented were raised. These general issues were incorporated by the researcher to describe each of the various aspects of the model to participants so as to 'trigger' the initial discussion. As a result of this, eight messages were posted on 25 October, 1999, four for Business investigation and one for each other thread.
- The first round of discussion. In this stage, participants contributed in response to the general issues that were raised and/or to other participants' contributions. 17 Messages were posted by participants between 11 November, 1999 and 18 November, 1999.

- A summary of the first round of discussion that was presented back to participants via the Web site. Five messages were posted on 21 November, 1999.
- Round two discussion. Eight messages were posted between 22 November, 1999 and 1 December, 1999.

Three 'explanatory' messages were also included in the discussion to clarify points or to correct obvious errors that had been made in preliminary or summary messages that had been posted.

In total, 41 messages were posted. Of these 25 messages were contributed by the expert panel. The full text of all messages from the discussion can be viewed in Appendix Three.

5.3.3 Thread One: Overall Model

5.3.3.1 Introduction

This part of the discussion was intended to review the overall structure of the model and general issues that related to the overall model. The following sections categorise the discussion into the separate stages that evolved (as described earlier).

5.3.3.2 Preliminary Issues that were Raised

Participants were initially presented with a pictorial representation of the model (refer Figure 25). Upon entering this thread of the discussion, participants could access the first message that contained the general issues. These issues are reproduced as here as presented to participants (all such references are enclosed in borders):

The overall generic categories that will form the model are based upon my literature review. The categories of the model are proposed to be:

- **Business Investigation:** This involves an analysis of factors internal to the firm (such as overall strategy, resources and expertise) and forces external to the firm (such as suppliers, customers and competitors).
- **Strategy.** After examining the firm's position in Business Investigation, the firm's Web site strategy is developed. Is it to be proactive, reactive or a combination?
- **The Web Site.** This is made up of three sub sections. The first is Web Site Features. What particular features will be incorporated in the site? These are considered in light of the findings from the first two steps of the model. The second is Method of Implementation. How will the Web site be implemented? The third is Web Site Promotion. The literature continually identifies the different approaches that need to be taken to promote Web sites to customers.
- **Web Site Evaluation.** A formal evaluation of the success of the Web site needs to take place.

Many models that have been used to identify strategic information technology opportunities have followed similar guidelines, typically: business investigation, strategy, strategic information technology idea, implementation and evaluation (or review). Some emerging electronic commerce models are identifying similar steps.

Application of the model will occur on an iterative basis. The steps are to be approached in the order that they are presented – but this does not preclude a revisiting of earlier steps if it is appropriate.

I am interested in comments regarding the proposed overall structure of the model.

5.3.3.3 Results: Discussion - Part One

5.3.3.3.1 General Structure

Comments relating to the general structure of the model were generally positive (four comments). There was concern, however (three comments), that the model did not appear to be cyclical. That is, the diagram did not allow for an iterative process where earlier steps could be revisited, allowing an "ongoing continuous process of investigation, design and development" (as one participant commented).

Two of these comments occurred even after the researcher posted the following explanatory message:

I am adding this statement in light of some of the comments made by participants so far. In the original message I put in the following comment regarding revisiting earlier steps:

Application of the model will occur on an iterative basis. The steps are to be approached in the order that they are presented – but this does not preclude a revisiting of earlier steps if it is appropriate. I did this to avoid drawing lots of arrows from the later steps ('boxes') up to earlier steps. In hindsight I would probably draw the arrows in!

Three messages contained sections that related to other threads. These sections were considered as part of the discussion for the particular thread that they referred to (these will be addressed later).

One contributor suggested that calling the initial diagram a 'model' was premature, and that perhaps a 'propositional framework' may be a better title.

5.3.3.4 Presentation of Summary Discussion

At the conclusion of the first stage of the discussion, a 'summary' message of the discussion was posted for each thread. The summary discussion message for the overall model thread incorporated messages posted in that thread, as well as some messages relating to overall design that were posted in other threads. The reasons for doing this were explained in the summary message to participants. The summary discussion message for the Overall Model is reproduced here:

This section evoked most of the comments. I have redesigned the Preliminary Model based on some of the comments I have received from participants. Please provide your views on the new design. An explanation on the revised design is provided below.

The Preliminary Model (Version 2)

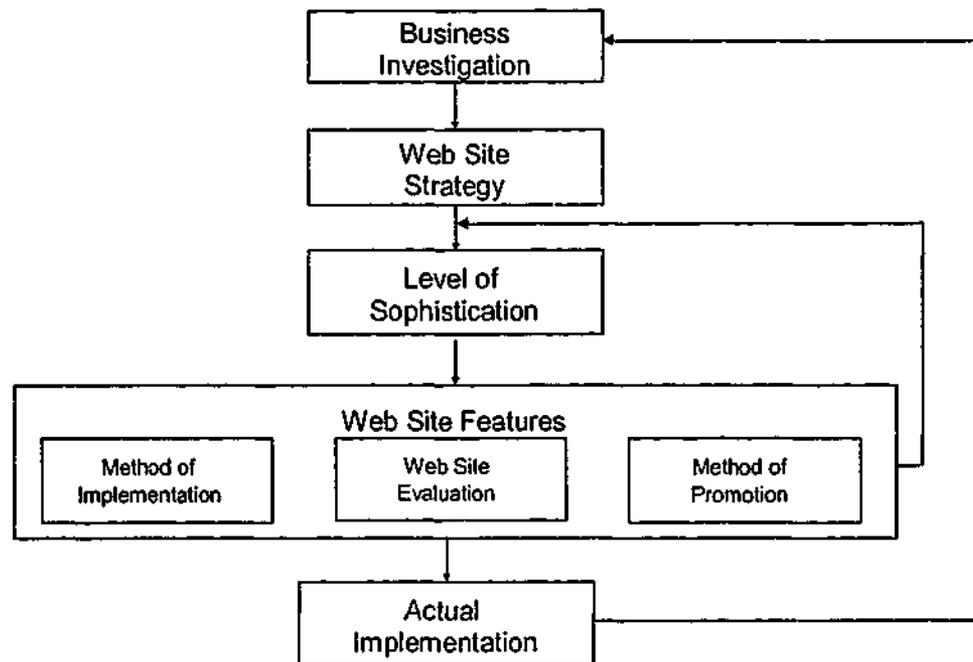


Figure 26: The Preliminary Model (Version 2)

The majority of concern was that the cyclical nature of the process should be represented, so I have attempted to do this in the 'new' version of the model. I have added in a new process, Actual Implementation, to represent the difference between deciding upon the web features and actually implementing the Web site.

I have put the process, Level of Sophistication (of the Web site) BEFORE the decision about Web Site Features, as I indicated earlier would be possible. The one participant that responded here agreed with this premise.

I have included Web Site Evaluation in with Web Site Features, as a number of participants indicated this would be desirable. Actual Implementation would therefore represent the implementation of decisions made in Web Site Features.

The two 'cyclical' arrows represent the two stages where reviews are likely to occur that may cause earlier steps to be revisited. The 'smaller' one represents a review of the Level of Sophistication of the site after something (say, a new technology?) has been discovered in Web Site Features. The 'larger' arrow represents a recommencement of the entire review process after a (yet to be determined) period.

One participant suggested that I should rename the whole process a 'framework' as the thing has not even been tested yet. I will take this suggestion on board in the later Phases of the study. For consistency, I'll keep using the term 'model' in this stage of the study.

5.3.3.5 Results: Summary Discussion

There were only two comments here. Both were positive in relation to the changes that had been made. One comment also pointed out an error in the diagram that was quickly corrected.

5.3.4 Thread Two: Business Investigation

5.3.4.1 Introduction

This section is devoted to the discussion thread related to the Business Investigation stage of the preliminary model.

5.3.4.2 Preliminary Issues that were Raised

As discussed in the literature review, a business investigation (such as a SWOT or CSF analysis) can involve the investigation of a number of areas related to the business. For the purposes of the Business Investigation stage of the preliminary model, the discussion was divided up into the following areas:

- The method to be used for the business investigation.
- The part that the firm's overall strategy has to play in its Web site strategy.
- Areas within the firm (internal factors) that need to be investigated.
- Areas outside of the firm that need to be investigated.

The following section reproduces the four preliminary messages as they were presented to participants:

Method of Business Investigation

Common methods used to perform business investigations are:

- Critical Success Factors (CSFs). A person at a senior level in the firm is asked to identify what are the few critical factors upon which the firm relies for its success.
- SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. An analysis of a firm's internal and external factors is performed to identify its potential Strengths and Weaknesses. Strengths are mapped into potential Opportunities and Weaknesses are mapped into potential or current Threats to the firm.
- Porter's Value Activities. Those activities that involve direct dealings with customers are identified. Each activity is then analysed to see whether or not it adds value to the finished good from the customer's viewpoint.

Which of these types of investigations are suitable for this model? Is a combination of them appropriate? Should some other type of investigation be used? Is one type of investigation particularly suited to small businesses?

Overall Strategy

Is the firm's overall strategy important in determining Web site strategy?

General strategies of differentiation, cost, growth, alliance and innovation have been identified in the literature; the first three in particular for small businesses. Is it important to consider one or more of these in the application of the model?

Internal Factors

The following internal factors have been identified in the literature:

- Owner/manager involvement in the process. This is viewed as being vital for the overall success of the process.
- The resources (money and time) that can be devoted to the process. This is particularly the case for small businesses.
- The level of IT (or Internet) expertise within the firm. This effects the ability of the firm to implement the Web site, the understanding of what can be achieved and/or the necessity to obtain external expertise.
- The location of the firm (City, Suburb, Town, Rural). This is in relation to how available IT or Internet expertise actually is (location of customers is dealt with separately).
- The firm's existing computer systems. These can provide a base for Web based systems (for instance, product and customer databases).
- Product and/or service characteristics. Some products or services are seen as being more suited to being sold over the Internet. Can the product or service be tailored to suit the needs of individual customers (for instance, clothing)?
- The firm's previous record in assessing IT opportunities. It has been shown that small businesses that follow a planning methodology (such as this proposed model!) when implementing IT have tended to be more successful.

How comprehensive is this list? Is it too comprehensive? That is, would a small business have the necessary time and other resources to devote to this type of analysis?

External Forces

Porter has identified five external forces that should be considered when implementing strategic IT systems:

- Suppliers. Can an analysis of suppliers assist with customer interactions?
- Competitors. What are competitors currently doing?
- Customers. Is customer behaviour different on the web? Is customer location important? Does it relate to the type of good being offered?
- The threat of new entrants to the industry. The web is being seen as a great opportunity for many firms to expand their market base.
- The threat of substitute products. Can this affect a Web site strategy?

Which of these factors is it important to investigate in relation to developing a Web site presence to interact with customers?

Are there other external forces that should be included (eg Government)?

5.3.4.3 Results: Discussion - Part One

5.3.4.3.1 Method of Business Investigation

Most of the contributions for the Business Discussion thread occurred in this section.

Two major themes emerged during the discussion.

The usefulness of analysis methods such as SWOT, CSFs and Porter's Value Chain were discussed. The main emphasis seemed to be placed upon the need to be able present a simple method of investigation for small business operators to use. One respondent suggested that a set of key questions could be used to perform the investigation.

The importance of communication and consultation with external parties, especially customers, was mentioned in three contributions as a key component of the investigation stage. One respondent discussed the need to understand the current mix of traditional communication channels (such as telephone and face to face communication) to determine how to best supplement them with newer technologies such as email and interactive Web sites.

One contributor suggested that it may be useful to concentrate on micro businesses as they constitute over 90% of all Australian small businesses anyway.

5.3.4.3.2 Overall Strategy

There was only one contribution here, and it was generally in line with the findings from the literature review. Although there are no standard answers for all small businesses, cost is often the major issue for them. Differentiation becomes more important as a strategy for small businesses considering use of the Internet.

5.3.4.3 Internal Factors

There was one message in this section, but one other message (from Thread One) was related to this area. One response stated that the list was useful, and that some areas may even be easy to measure (for instance, if a firm does not have computers at all). The other response suggested that the expertise and motivation of owner/managers is particularly important and needs to be examined.

5.3.4.4 External Forces

There was no direct message in this area, but a message from Thread One suggested that governments should be included amongst external factors, as they may provide incentives, subsidies or services useful to the small business.

5.3.4.4 Presentation of Summary Discussion

The summary discussion message for the Business Investigation thread is reproduced here:

This section contained four 'sub' themes: Method of Business Investigation, Overall Strategy, Internal Factors and External Forces. Please comment upon my observations of your comments here.

The Method of Business Investigation section evoked most responses. Two major themes came through here. The first is the importance of communication and consultation with external stakeholders - how the firm does it and why the firm does it in the way it is done. The second is the form of the investigation. If CSF or SWOT (or a combination or whatever) is chosen, it should be presented in a way that is easy to understand for small businesses.

One participant suggested presenting it as a series of key questions that may 'indirectly' deal with what is required without actually saying that it is a 'CSF' or 'SWOT' analysis. In the Strategy section I mainly referred to general strategies that a firm may adopt. The three primary ones I mentioned for small businesses were cost, differentiation and growth. The one response here mentioned that it is difficult to come up with a standard answer, but that the Internet may lead to greater differentiation. Perhaps the answer is that they are all appropriate strategies in some combination. It depends upon the firm.

Internal Factors and External Forces drew very little response from participants (one response in total). Is this because they were considered as being fairly obvious or because they were down at the bottom of the discussion list?

5.3.4.5 Results: Summary Discussion

There were two responses to the presented summary. They both agreed that it was important that the method of investigation is easily understood by small businesses. One respondent also added that it should be flexible enough to be used by all small businesses, which can be extremely varied in nature. One respondent agreed that government should be added to the list of external forces.

5.3.5 Thread Three: Web Site Strategy

5.3.5.1 Introduction

This section is devoted to the discussion thread related to the Web Site Strategy stage of the preliminary model.

5.3.5.2 Preliminary Issues that were Raised

The following section reproduces the preliminary message as it was presented to participants:

The Web site strategy is determined after the business investigation has been completed. The firm now decides where it wishes to position its presence. A proactive strategy will go beyond what is currently being offered by competitors. A reactive strategy will attempt to match some, most or all features offered on competitors' Web sites. This stage does not involve identifying specific Web site features. It is designed to develop a general strategy.

Which of the following factors (previously listed in the business investigation) are important in determining the Web site strategy as outlined here? Why? List any other factors that you think may be important.

Internal Factors

- Available resources (money and time).
- IT (or Internet) expertise within the firm.
- The location of the firm.
- The firm's existing computer systems.
- Product and service characteristics.
- The firm's previous record in assessing IT opportunities.

External Forces

- Suppliers
- Competitors
- Customers.
- The threat of new entrants to the industry.
- The threat of substitute products.

5.3.5.3 Results: Discussion - Part One

There were two contributions to this section, including one from another area that related to this section. Another contribution was more related to Web Site Features. One contribution mentioned that the most important factors were owner/manager involvement, available resources, existing computer systems, product/service characteristics, suppliers and customers. The other contribution

mentioned that the overall design of the strategy section was sound, and reinforced the literature review notion that it allows the adoption of proactive/reactive strategies according to the Business Investigation.

5.3.5.4 Presentation of Summary Discussion

The summary discussion message for the Web Site Strategy thread is reproduced here:

This stage did not invoke many responses (two). The stage really represents the decision to adopt a proactive or reactive stance after the business investigation has occurred. One respondent identified a selection of important internal factors and external forces from the list I provided.

Do the important internal factors and external forces differ from firm to firm?

5.3.5.5 Results: Summary Discussion

The summary discussion attracted one response. It commented that the internal factors are more under the control of a firm and therefore more easily managed than external factors. The relative importance of each of these factors differs according to firm, industry and environmental influence. One participant noted: "The external factors are often part of longer term, strategic planning and may be more important at particular times and would be influenced by the firms development and stage of growth".

5.3.6 Thread Four: Web Site Features

5.3.6.1 Introduction

This section is devoted to the discussion thread related to the Web Site Features stage of the preliminary model.

5.3.6.2 Preliminary Issues that were Raised

In accordance with the literature review, the Web Site Features were divided into a number of sections:

- The level of sophistication of the Web site.
- The method of implementation of the Web site.
- The methods used to promote the Web site.

The following section reproduces the preliminary message as it was presented to participants:

Once the strategy has been determined, the firm can then consider the type of Web site presence they desire. This is determined by the Web site strategy, the available resources, the characteristics of the goods and/or services and the characteristics of customers. The literature has pointed to three areas that need to be considered. I am interested in comments as to whether they should be considered together. For instance, could (should?) Method of Implementation and Promotion be carried out after the Level of Sophistication has been determined?

- **Level of Sophistication.** Will they introduce a plain electronic brochure site, where customers can read about products and services, find out about the firm and get basic product support? At a more sophisticated level they could introduce ordering and/or payment facilities. The most comprehensive Web sites introduce interactive features which allow customers to receive 'personalised' attention (but which are expensive).
- **Method of Implementation.** The available resources and the expertise within the firm will determine this. Different levels of implementation from 'free' sites (that require advertising space on the firm's site) to individually customised sites (the most expensive) can be considered by the firm. Other options include building the Web site themselves and 'outsourcing' the ordering and payment facilities to outside firms.
- **Promotion.** As the method of interaction with the customer is different, so is the method of promoting the Web site. Traditional media (newspaper, magazines and so forth) can be used to advertise Web sites, as can registration with search engines, alliances with other firms (for instance, to swap banner advertisements) and so forth.

5.3.6.3 Results: Discussion - Part One

There were two messages in this section, plus some contributions from another thread that related to Web Site Features.

One comment suggested, "the Method of Implementation and Promotion should be carried out after the Level of Sophistication (LOS) has been determined. The LOS is really the objective or main goal for developing the Web site and would drive the other two aspects".

The other comment supported the division of the area into different sections (sophistication, implementation and promotion).

One message stated that few small businesses would have the expertise to build a Web site. Another message suggested that "Web site strategy might also include training requirements, ISP's and method of transferring/ incorporating current business onto Internet or automated business".

5.3.6.4 Presentation of Summary Discussion

The summary discussion message for the Web Site Features thread is reproduced here:

Although there were only two 'official' responses in this area, a number of participants addressed some the areas covered in this section in the Business Investigation section. As I mentioned in my summary of that area, I have taken the suggestion of one participant to put the Levels of Sophistication BEFORE this actual section. This reflects that the firm should determine the type of site that it wants before it addresses the issues of HOW it will build it, HOW it will promote it and HOW it will measure its success. I have not provided much detail about each these three areas because I am more concerned with the overall structure of the model. I will certainly be providing detail in Phase Two of the study.

I will address the issue of the inclusion of Web Site Review in this part of the model in the next discussion thread (5.0).

5.3.6.5 Results: Summary Discussion

There were two contributions made in relation to the summary discussion. The first agreed with the summary comments and the changes made.

The second comment queried the use of 'Level of Sophistication':

"Level of Sophistication" seems to be a questionable construct to me, as sophistication is a cultural judgement rather than something easily defined. It also encompasses how well something is done as well as what is done so its double-dimensional anyway. Given your explanation, I wonder if "Level of Functionality" might not be a better model construct, given that it could be operationalised in terms of specific functions and combinations of functions offered via the Web site.

5.3.7 Thread Five: Web Site Analysis

5.3.7.1 Introduction

This section is devoted to the discussion thread related to the Web Site Analysis stage of the preliminary model.

5.3.7.2 Preliminary Issues that were Raised

The preliminary issues message for the Web Site Analysis thread is reproduced here:

The final stage of the model would be a review process. This is an area that has typically been lacking in small businesses. Rather than discuss the methods that can be used for this I am more interested in the following:

- How long after implementation should the first review (establishing the success of the strategy) be carried out? Modern tools allow for almost immediate feedback from the site regarding online sales, traffic and so forth. Is immediate feedback too early? Should the Web site strategy (including promotion) be given a chance to 'settle down' before a formal review process commences?
- On what basis should the Web site strategy be reviewed? How often? Should each review include a full business investigation? Could a regular, 'partial' investigation be carried out, with a 'major' review every x rotations of the partial review?
- What types of resources can/should small businesses devote to these reviews?

5.3.7.3 Results: Discussion - Part One

There were two lengthy messages in this part of the discussion. Both of them referred to the need to consider the method to be used for Web site review at the time of Web site design. For instance:

"A regular review should be carried out with a major review undertaken every 6 months. This will allow for monitoring which may highlight the impact of external influences such as seasonal fluctuations and internal influences such as marketing campaigns. The review process should be planned in advance and be as simple and as manageable as possible".

Both comments also mentioned the need for simpler, less expensive methods of review to be used.

"If an organisation does implement Internet tech for business then it is strategic for it to devote some resources for reviews so that improvements, further allocations of resources etc can be planned."

5.3.7.4 Presentation of Summary Discussion

The summary discussion message for the Web Site Analysis thread is reproduced here:

As with Web Site Features, although there were only two responses in this area, there were some comments made about the importance of the review process in the Business Investigation section. My response to these comments has been incorporated into the design of Version 2 of the model. There were two major points raised. The first is that the method of review should be included as part of the design process and should be simple as possible. The second is that it should start as soon as the actual implementation occurs due to the current 'web measurement' tools that are available.

5.3.7.5 Results: Summary Discussion

There was just one response in this area, which supported the summary discussion message.

5.4 Chapter Summary

The web discussion list described in this chapter was the basis for the conduct of the first Phase of this study. An expert panel was assembled to comment (via a web discussion list) upon a preliminary model and a number of general issues that arose from the literature review. A preliminary version of the model (refer Figure 25: The Preliminary Model (Version 1)) was introduced at the start of the Phase and was refined throughout the Phase (refer Figure 26: The Preliminary Model (Version 2)).

The model was refined as a result of the discussion that occurred in the web discussion list. The following points highlight the major observations made during the first Phase of the study.

- The importance of using an easy to understand method (for instance, a set of questions) for business investigation, instead of formally referring to it as CSF or SWOT analysis. Some flexibility may be required to allow the model to work for a range of small businesses.
- The need for communication and consultation with external stakeholders at an early stage.
- The need to emphasise the cyclical nature of the model in its design.
- The need to determine how the success of the Web site will be evaluated AT THE TIME of designing the Web site.
- Ideally, the level of facilitation should be determined BEFORE determining Web site features.

Also, based on the suggestion of one participant, the label 'Level of Sophistication' was replaced with 'Level of Facilitation'. The researcher felt that this was more suitable than the suggested alternative, 'Level of Functionality'.

5.5 Reflections on this Phase

Setting up this Phase provided a number of interesting challenges. The idea of setting up a web discussion list was seen by my supervisor and myself as an interesting way to solve the problem of getting feedback from experts in a form that was richer than that which could be achieved by questionnaire. It was also less invasive than email discussion lists. What I mean by this is that an email discussion list sends each responses to each participant as an email, and there is no convenient way that participants could view all (or some) of the messages contributed in a particular discussion thread as they could in a web discussion.

5.5.1 Developing the Initial Model

The basic stages of the model (business investigation, strategy and IT idea) formed the basis of the model. These were mainly taken (as per the literature review) from a number of models that had

been used to identify strategic IT ideas in organisations. The detail associated with each of these stages was also derived from the literature review.

5.5.2 Technical Issues

The tools used to design the Web site and associated discussion list tended to evolve related to my expertise rather than be chosen specifically from a selection of software applications that may or may not be more appropriate for the task. My choice of Microsoft Publisher as the tool for developing the basic web pages was purely because I was familiar with it. I had used it to develop web pages for Tertiary subjects in the past. The web pages were stored on a Microsoft NT server for the identical reason. My only problem was to decide how to operate the web discussion list, which required some type of database, some programming and therefore some new skills. I decided to use Cold Fusion as the web database application for three reasons:

- It was residing on the web server I was using.
- It used Microsoft Access databases, which I was familiar with.
- It used SQL (Structured Query Language) to access and report on the data. I was familiar with SQL.

My only concern was how to link Cold Fusion with MS Publisher, which did not really provide for external programming other than to allow for a segment of HTML code to be placed upon a page. This feature was used to prepare a blank page containing the basic web design and an empty HTML code fragment. When needed, the Cold Fusion code was added to the segment and saved as a separate file.

Cold Fusion is packaged with the programming code for a basic web discussion list, broken up into discussion threads. It was necessary to customise this to allow a message to be displayed by itself on a web page when a participant selected it. This was the most difficult task of those described in this section.

The only other technical issue was one of web page design. A Microsoft Publisher template was used for the basic web page design, but some testing and alterations had to be made to the Web site message page as the same page was used to allow a participant to prepare and submit a reply to any particular message. It was then necessary to experiment with the page and font sizes until it could be used on web browsers with a variety of screen resolutions.

5.5.3 Choosing the Threads

Once I had decided that the discussion would be too unwieldy if I just used one discussion thread, the decision of what discussion threads to use was fairly simple. The threads were based around the design of the preliminary model. One thread was used to discuss the overall design of the model, and then a separate thread was allocated to each of the main components of the model (Business Investigation, Web Site Strategy, Web Site Features and Web Site Analysis).

5.5.4 The Actual Discussion

By the time that the web discussion commenced, the actual technology had been well tested and ended up operating as expected. The same cannot be said for the timeframe that the web discussion was conducted in. In my explanatory letter to potential participants, I had mentioned that the discussion would occur over the period of approximately one week. This short timeframe was chosen because I wished to inconvenience participants as little as possible. My first hint that things might not exactly run to plan occurred when it took twice the amount of time that I expected to contact and receive replies from potential participants about whether or not they would participate in Phase One of the study. The reasons for the delays included potential participants being on holidays, being at conferences or being too busy to keep up with email messages. The second hint that indicated to me that the discussion might take longer was when one participant, when agreeing to participate in the study, indicated that in an email discussion that was recently conducted participants preferred to reply in their own time. This was usually about once per week. This observation was not that dissimilar to the way that the discussion eventually panned out.

After the discussion commenced there was an initial flurry of replies, followed by a period of inactivity. During this time (and during the rest of the Phase) I kept in contact with participants to inform them about the conduct of the Phase (such as my decision to extend it, my posting of summary messages, and when the discussion was closed). I provided a summary of the discussion that had already occurred, with associated changes to the preliminary model, concluding round one of the Delphi study. The contributions that were made after the summaries were posted predominantly agreed with my interpretation of the previous discussion and the changes that I had made to the preliminary model. This effectively ended the first Phase of the study.

The other point that I wish to make here was an observation made by a lecturer at Monash University that was not involved with the study (but knew about it) and requested to have a discussion with another PhD student studying an associated area. Upon showing the lecturer the anonymous web discussion and my summaries that were posted, she commented that it seemed a very suitable and transparent medium upon which to conduct that type of study. This is because the individual messages are still there to be seen with the summary messages. This means that any participant was able to challenge the summaries that had been posted and refer to the appropriate (detailed) message if they felt that I had misrepresented them or the discussion that had occurred.

Part Three

The Applied Model

6 Designing a Model for Successful Business-to-Consumer Interactions on the Internet

6.1.1 Introduction

This chapter introduces the literature to support the initial design of the applied model, introduced and reviewed in the focus groups in the second Phase of the study. The literature reviewed in this section is divided into different groupings, based around the various sections identified in the conceptual model in the first Phase of the study. These sections are:

- Business analysis.
- Web site strategy.
- Levels of Web site sophistication.
- Promoting the Web site.
- Implementing the Web site.
- Measuring Web site performance.

6.2 Conducting a Business Analysis

6.2.1 Introduction

This section examines business-to-consumer interactions in light of how a business may use a SWOT analysis and Porter's Five Competitive Forces model to assist with analysing where they are situated competitively in their industry.

A number of factors have been highlighted as being important in the exploitation of IT in small business. These factors include available resources (money and time), owner/manager involvement, training of user-managers, the level of internal IT expertise, the use of planning methodologies, involvement of end users and the role of the external environment (consultants and vendors).

Any application of IT in small business, such as the use of Internet technologies, is going to be reliant upon the level of internal expertise and/or understanding of the capabilities of the technologies available within the organisation.

The areas covered in the following analysis are those typical of a SWOT analysis investigating the internal resources of the business and the external forces that affect the business. The external forces are two of those identified in Porter's Five Competitive Forces model, customers and competitors. These areas also touch upon those factors mentioned here as being important in the use of IT in small businesses.

The other 'major' external force, suppliers, is not considered because this model deals with business-to-consumer interactions on the Internet.

6.2.2 Internal Resources

6.2.2.1 Overall Business Strategy

It is vital that those involved with developing the Web site have an understanding of not only the technical issues, but also the overall strategy of the business. It is important that the e-commerce initiatives are aligned with the business strategy (O'Brien, 2000). Is the Web site going to be an extension of the existing business, or a new initiative? Is the business looking to gain new customers or lower costs? These can all impact on the type of Web site being developed (Booth, 1999).

Typical strategies that can be adopted by the business are a (low) cost strategy, a differentiation strategy, a growth strategy or an alliance strategy (O'Brien, 1999). The concepts behind cost and differentiation have already been discussed.

With a growth strategy, a business is looking to expand its market. Such a strategy should match the aims of the business. For instance, a business that serves a local market (such as a gardening service) with no growth aspirations should carefully consider whether or not they need an Internet presence.

They may be able to provide other, added value, services that are important to customers (Booth, 1999).

An alliance strategy allows a business to form a partnership with external forces, such as customers, suppliers or even competitors, for mutual advantage (O'Brien, 1999). The alliance strategy is discussed later in this sub section.

6.2.2.2 Capital

Those businesses wishing to use the Internet for business-to-consumer interactions may be adopting a cost strategy to generate cost savings, but these will not occur immediately. There are a number of costs that need to be covered before savings are generated, including Web site design and development. On top of this, the costs of promoting and maintaining the site need to be considered (Langer, 2000).

All of these issues need to be considered in the small business context. It has been observed a number of times that small businesses are resource poor when compared to their larger counterparts.

6.2.2.3 Employees

Employees may be required to provide some technical skills or knowledge to implement and/or assist in the maintenance of the organisation's Web site. Employees should be notified (perhaps by memo or face to face meeting) of the organisation's intended Internet strategy and the benefits of the strategy to them and the organisation (Bickerton et al, 1999).

Where the necessary technical skills to be able to build and maintain an organisation's Web site are lacking it is necessary to use expertise external to the organisation (Duan et al, 2000).

A survey of 81 United Kingdom small businesses identified the following training areas as being the most in need of training and support (Duan et al, 2000):

- Business strategies for successful e-commerce (43%).
- Managing e-commerce operations (35%).
- Hardware/Software issues (27%).
- Security (23%).

Some 98% of respondents identified such training as being essential (36%); very important (31%) or quite important (31%). The training levels identified as being required were beginner (41%), intermediate (43%) and advanced (16%). The most popular forms of training identified were (more than one could be selected): on site using external resources (42%); CD ROM self training (37%); on site by someone within the organisation (36%); off site training by a training organisation (31%) and Internet based training (21%) (Duan et al, 2000).

In a study of 1496 Australian small and medium businesses (Telstra Corporation and NOIE, 2000), 51 % of proprietors rated their own skills in 'using the Internet and e-commerce' as being below adequate, with 29% rating them as well below adequate. Employee skills were rated slightly higher.

The skills were rated higher where the business actually used computers or were connected to the Internet. Some 60% of proprietors believed that they would benefit from training in the area. The main problems associated with getting the desired training were having the time to do it (41% of respondents identified this) and the cost of the training (13%).

A lack of knowledge of managers as to the benefits that the Web site can provide to the organisation needs to be addressed immediately before progress on the Web site can effectively continue (Duan et al, 2000).

6.2.2.4 Type of Products and/or Services Offered

Section 4.3.3 Consumer Profile examined the types of products and services that are more popular on the Internet and the motivations of consumers in purchasing products.

Sandy and Burgess (2001) have proposed a decision chart that uses the characteristics of goods and services and the unique features of the Internet to identify the types of Web site features that a business may wish to introduce onto its Web site (Refer Figure 20). Working through the decision chart, a business would answer the questions and the chart would then suggest the Web site features that could be adopted.

6.2.3 External Forces

6.2.3.1 Alliances

One of the important strategic IT forces identified earlier was that of alliance. The internet can provide a number of ways that organisations can share resources and target customers toward 'complementary' products. One way that this can be done is through distributed storefronts. Customers cannot only purchase the goods of the organisation; they can also purchase goods of organisations with complementary products (Viehland, 1999). For instance, an organisation that sells fishing supplies over the Internet may provide the ability for customers to purchase fishing books or videos (from an online bookstore) or even to book fishing trips (through an online travel agent). Links to these organisations can occur directly through the organisation's Web site. These types of arrangements often occur as 'affiliate' or 'associate' programs, where the organisation receives a commission for directing a sale to the organisation that receives the sale of the complementary product (Refer 6.5.3.3.2 Promotion on other Commercial Web Sites.).

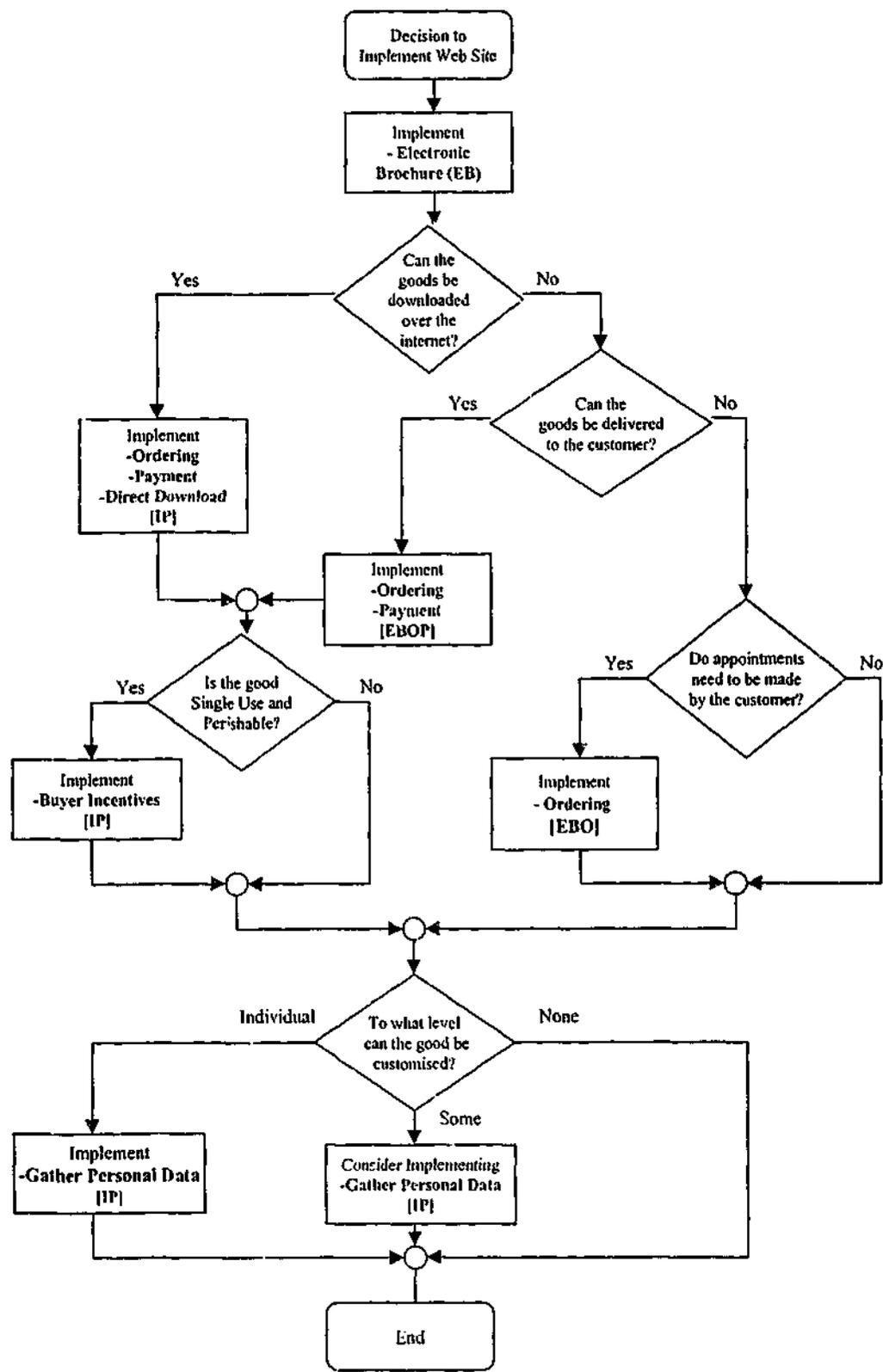


Figure 27: Decision Chart on the Use of the Internet to Add Value to Goods

6.2.3.2 Competitors

The analysis of competitors is an important part of the e-commerce plan of a business. This involves knowing who your competitors are and what they are doing (O'Brien, 2000).

An analysis can be performed to examine the current position of the business in relation to Internet marketing. Typical questions to be resolved are (Viehland, 1998; Booth, 1999; Compumaster, 1999):

- Do competitors have an Internet site? How many competitors in the industry have an Internet site?
- If so, what level of sophistication have they achieved? What features do they have that might be effective for you?
- What do customers think about their Web site and their products?
- What are their goals? Who are they trying to attract (target market)?

An analysis of the Web sites of competitors can quickly tell a company the stage that they are at in relation to an online presence within their industry. Burgess and Schauder (1999) proposed a method by which the Web sites of competitors can be quickly analysed. A matrix can be used to document the main features of, say, a company's five major competitors, to determine where the company stands amongst its competitors in the scale ranging between early adopter and late adopter. Where a competitor already has a particular feature fully implemented on their Web site, a score of one is given. Where the feature is partly implemented, a fraction is awarded. An example can be seen in Table 23:

Table 24: The Competitor Comparison Matrix (Burgess and Schauder, 1999, p.123)

FEATURE	FIRM 1	FIRM 2	FIRM 3	FIRM 4	FIRM 5	Total
BASIC PRODUCT DETAILS						
Static Catalogue/ Details	1	1	1			3
Direct Access to Product Database				1	1	2
Images	1	1	1	1	1	5
Prices	1	1	1	1	1	5
TRANSACTION DETAILS						
Online Ordering	1		1			2
Online Payment	1					1
INFORMATION						
About the Business	1	1				2
About Trade Shows/ Coming Events	1		1			2
Web Site Navigation screen	1		1	1		3
EXTRAS (added value)						
Frequently Asked Questions	1					1
Directions on how to use the product	1	1				2
Postcards, Screen Savers, and so forth						0
'INDUSTRY' LINKS	1	0.5				2.5
Industry Web Ring	1		1			2
GENERAL LINKS						
Basic Internet Feature Sites	1		1			2
Search Engines	1					1
CONTACT DETAILS						
Email	1	0.5	1	1	1	4.5
Guestbook		1				1
By Form			1			1

As further features become commonplace amongst competitors or on the Internet, extra rows can be added. If the organisation has no Internet presence at all, a comparison table such as this can show the features that may be necessary when building the site initially. It also shows what features that may be introduced that have not been adopted by competitors where it may be possible to gain a short-term competitive advantage.

6.2.3.3 Customers

Organisations will need to be increasingly aware of the increasing empowerment of consumers using electronic commerce. Customers will more easily be able to make decisions based upon price, quality, suitability and after sales service than if they had to physically travel to each vendor (DIST[b], 1998). Customers are provided with a no-threat method of comparing companies and product information (Brianet Pty Ltd, 1998).

Some early gains can be achieved on an organisation's Web site if it has some advance idea of features that the target audience (customers) would like to see on the Web site. Because the Internet is a new medium, customers may require a different type of service to what they traditionally expect. Some methods of gathering this type of information from customers can be with the use of telephone interviews and questionnaires (Bickerton et al, 1999). Bickerton et al (p.53) provide some questions that may be asked of customers that are connected to the Internet:

- Would you use the Internet to search for a supplier?
- If you were searching for an organisation like us on the Internet, what search words would you use?
- Would having a fast and easy email contact with the organisation be beneficial to you?
- What services/information could the organisation provide regular and easy access to, and what might persuade you to visit the site on a regular basis?
- What sites do you visit first on the Internet and why?
- What features or services might persuade you to use the organisation rather than a competitor?
- What is your important consideration when selecting an organisation in the industry?
- What do you like and value most about the organisation?

The Internet offers opportunities for dealing with customers and building relationships and loyalty that are not available elsewhere (Haines, 1998). A number of questions relating to customers should be examined (Haines, 1998; Booth, 1999; Burgess and Schauder, 1999; Compumaster, 1999):

- Who do I currently do business with?
- What types of people do I do business with?
- Are there particular groups that I do certain sort of business with but not another sort of business? How old are they? What gender are they? What is their average income? How often do they use the Internet?
- Do I want to create a new sort of audience that I am not yet doing business with?
- How can we reach our current and potential customers?

- Are enough of our customers part of (or likely to be part of) the online community to justify a presence?
- Are our customers demanding an online presence from us (even at the basic level of email contact)? What are their expectations? What are their concerns?
- Is there the potential to attract new customers via an online presence?

6.2.3.4 New Entrants

Maintaining a competitive advantage using the Internet can be difficult. This is because entry into the Internet is so easy for businesses. This limits the advantages gained by innovators. Sustained competitive advantage therefore requires constant innovation (Viehland, 1998).

6.2.3.5 Summary

This section has examined aspects relating to the business investigation stage of the applied model. Aspects of the marketing tool, the SWOT analysis, and Porter's five competitive forces model have been discussed as a means for performing a business investigation. These have classified into internal factors and external forces.

The internal factors include an examination of the overall strategy of the business, the capital available to the business, the availability of skills of existing employees and the characteristics of products and services.

The external forces analysed include competitors and customers, together with an examination of the benefits of forming alliances with external forces.

6.3 Developing a Web Site Strategy

6.3.1 Purpose of this Section

This section looks at considerations of how a small business should approach its Web site strategy, having already performed a business analysis.

6.3.2 Web Site Strategy

In a Web site that deals with customers, the goals and objectives of the Web site should reflect the experience the business wants for its customers (Liflander, 2000). The organisation should decide what it is (or will be) that sets them apart from competitors. This should be emphasised on the Web site (Compumaster, 1999).

It is important to determine exactly what the organisation wants visitors to the Web site to do. For instance (Compumaster, 1999):

- Does the organisation want customers to contact them?
- Does the organisation want customers to place an order with them?
- Does the organisation want customers to find information about them?

Bickerton et al (1999) have proposed a series of questions that an organisation may wish to address when considering what the Web site is meant to achieve. These questions are formulated from the customer's viewpoint:

- Who are you?
- Why are you credible?
- What products and services do you sell?
- Why choose you? Your expertise/ approach/ value? What is your unique selling proposition?
- Why should I come back and visit you again?
- Why should I contact you?
- What product or service is best suited to my needs?
- How can you solve some of my specific needs?
- How can I conduct business with your organisation?

When examining strategies for marketing on the Internet, it should be remembered that Internet marketing would generally be conducted in conjunction with other, more traditional, marketing strategies, such as the use of mass media (Peterson et al, 1997). Peterson et al suggest that there is no reason to assume that marketing to consumers on the Internet will cause consumers to spend more. It will more likely result in a redistribution of existing spending resources.

Successful Internet sellers will need to adopt strategies that allow them to gain a competitive advantage in one or more of the following areas (Alba et al, 1997):

- *Distribution efficiency.* Customers provide a major portion of the distribution function when they purchase goods from a store. With interactive shopping, the majority of these costs will need to be borne by the seller. Because of these costs, sellers that are able to deliver to individual consumers will have advantages over those that cannot (Alba et al, 1997). This can be matched with the Marketing Channel, Distribution.
- *Assortments of complementary merchandise.* Sellers that can provide access to complimentary products are also likely to gain an advantage. For instance, someone purchasing a shirt may be offered a matching tie. This may be offered at a discount because the two items can be sent together, reducing the shipping costs. It may also be possible to offer a greater range of complementary products over the Internet than could be placed near the product in a physical store (Alba et al, 1997).
- *Collection and utilisation of customer information.* The use of databases allows personal profiles to be built up on customers. As well, it is possible to track their interests by tracking which pages of a site that they visit with their web browser and how long they stay there. This assists the organisation to provide information-based value to the customer by (Alba et al, 1997):
 - Using technology to identify a subset of products to match an individual consumer's tastes (Product Differentiation).
 - Provide information about those products that enables consumers to predict their satisfaction after purchase (Marketing Channel: Communication).
- *Presentation of information.* This represents the quantity and quality of information that is presented on the Web site. The method of presentation is also important - is it informative, is it entertaining and so forth? (Marketing Channel: Communication).
- *Unique merchandise.* This is the concept of selling goods that cannot be offered elsewhere (Niche Market). Being able to tailor a product or service to an individual customer is the ultimate level of niche marketing. Internet technology is unique in its ability to target individual customers and allow a high level of interaction at a personal level (Knoll, 1998). Part of the attraction of the Internet is that a site can be accessed worldwide, 24 hours per day. This makes it especially suitable for reaching niche markets where there are a small number of buyers that may be geographically dispersed and the products being sold are specialised or unique (Peterson et al, 1997).

6.3.3 Summary

Booth (1999) suggests a number of reasons that an organisation would create a Web site to interact with customers. The selection of strategies that the business adopts will depend upon its overall business strategy:

- To win new customers.
- To promote products that the organisation sells in retail outlets.
- To take orders and appointments online.
- To distribute information about the company and its products.
- To develop relationships that may lead to new customers.
- To develop better relationships with existing customers.

6.4 Building Business-to-Consumer Interaction Web Sites: Levels of Sophistication

6.4.1 Purpose of this Section

Organisations will have different marketing and/or advertising objectives for establishing a web presence. As an example, they may wish to create product awareness, service awareness, or to get feedback from established customers (Haines, 1998).

In suggesting different levels of Web site sophistication, a staged approach of implementation (from simple to complex) is often suggested. This section examines some of these suggestions.

6.4.2 Levels of Sophistication

Yellow Pages Australia (1998) has described three types of electronic commerce 'packages' that organisations may be interested in. These represent different levels of sophistication.

6.4.2.1 The Electronic Brochure

With an electronic brochure Web site, an organisation's product and services are displayed over the Internet. Customers can examine the organisation's offering(s) (usually on separate, static web pages) and then order by traditional means, such as telephone, facsimile or in person (Yellow Pages Australia, 1998).

This type of Web site allows the business to establish a corporate presence, displaying the organisation's activities, products and personnel. It will probably be as necessary in the future to have this type of contact with customers as it is now with the telephone and the facsimile machine (Viehland, 1998).

Information on this type of site can help to add to an organisation's legitimacy. Written testimonials from satisfied customers and 'expert' advice on product usage are ways that an organisation can improve its image in this area (Compumaster, 1999).

At the very least, the site should offer features to make using the site easier for consumers (Birch et al, 2000):

- *Guided Tours.* These are to make it easier to navigate the site.
- *Answers to Frequently Asked Questions (FAQs).* These help to put consumers at ease and can reduce the cost of repetitive customer-service queries.
- *Provide an easy means for consumers to find and select goods.* These can include search capabilities, product category catalogues and so forth.

This type of Web site reflects the Marketing Channel, Communication.

6.4.2.2 The Electronic Brochure plus Ordering System

The electronic brochure Web site can have an ordering system added so that customers can order over the Internet. Payment is then arranged by conventional means (Yellow Pages Australia, 1998).

This type of Web site adds the Transaction Channel to the Communication Channel of Electronic Brochure.

6.4.2.3 The Electronic Brochure, Ordering System and Payment System

The electronic brochure Web site with ordering facility can also have plus the ability to make payments over the Internet added to it (Yellow Pages Australia, 1998). This also uses the Transaction Channel and the Communication Channel.

Simplifying the act of ordering and purchasing for the consumer is vital to the success of these types of sites (Birch et al, 2000).

6.4.2.4 Interactive Publishing

Tseng (1997) suggests another level of sophistication, interactive publishing. In this type of site, users are provided with personalised and compelling content. They see different content from other users according to earlier responses they may have made whilst accessing the site. Some features of this type of site are (Tseng, 1997):

- Visitors are engaged in a personalised dialogue to learn more about them.
- Personalised incentives should be provided to order products or provide information (as suggested earlier).
- Online transaction handling.
- Interactive versus Interactive publishing. With Interactive Publishing, an organisation can qualify and respond to a customer's want and needs, tailor products and services to suit a customer (which may include providing access to core systems) and recognise and *track* a customer's preference for future sales. This can be achieved by simply tracking where the customer moves within the Web site and how long they spend in each area (Tseng, 1997).

In these types of site, consumers are often provided with direct access to parts of the organisation's computer systems. In gaining access to core systems, a customer can perform activities such as (Commonwealth of Australia [a], 1999):

- Check their accounts and purchase histories.
- Track shipments or the position of an order in a production schedule.
- Update billing and shipping addresses automatically.
- Obtain technical support information without speaking to suppliers.

Alba et al (1997) view interactivity as a continuous construct that captures the quality of two-way communication between two parties. In interactive home shopping, those two parties are buyer and customer. There are two dimensions of interactivity (Alba et al, 1997):

- *Response time.* On the Internet, response time can be close to immediate.
- *Response contingency.* This is the degree to which a response by one party is the function of the responses made by another party. An example of this is where a customer can select the type of goods desired, the price range and special features of the goods required. A search of the seller's database then occurs and the results are then presented to the customer. Each customer will see a different result depending upon the options that they selected.

Note the similarities between Alba's dimensions of interactivity and Keen and Cummins' Telecommunications Services Platform Map, which contains dimensions of reach, range and responsiveness.

Interactive Web sites fit Hoffman and Novaks' Model of Marketing Communications in a Hypermedia CME very well.

6.4.3 Other Views of Levels of Sophistication

Quelch and Klein (1996) have described two evolutionary paths that Web site development may follow, depending upon whether an organisation is an existing multinational company or a company created solely to do business on the Internet. The stages (in order) typically followed by the multinational company follow the 'information-to-transaction model' (Quelch and Klein, 1996):

1. Promote brand image/ Provide product information.
2. Collect information about customers/ Perform market research.
3. Provide customer support and service.
4. Develop internal support and service (not really an area of concern for this thesis).
5. Provide online transactions.

The company approaches the Web site development in this way because its first priority is to address the needs of existing customers.

In a startup company designed to operate only on the Internet, a 'transaction-to-information' model is typically used (Quelch and Klein, 1996):

1. Provide online transactions.
2. Provide customer support and service.
3. Promote brand image/ Provide product information.
4. Collect information about customers/ Perform market research.

Using this model, the company starts by providing online transactions for its goods. It then uses that medium to provide support and to build a brand image for the goods.

Liflander (2000) has identified five general types of Web site:

1. *Online Business Card*. This is where all the business is trying to set up is an information site with information on how to contact it.
2. *Online Brochure*. This is similar to the Electronic Brochure described earlier.
3. *Online Sales Presentation*. This is virtually an online version of a sales pitch, using a combination of text, video, audio and other special effects.
4. *Online Store*. This is similar to Electronic Brochure plus ordering and payment.
5. *Interactive E-Commerce*. This involves integrating many of the activities of the business with the Internet technologies. The use of databases and dynamic web page generation allows for the personalization of web pages for individual visitors to the Web site.

Bickerton et al (1999) have proposed three stages of development of Internet technology. These stages are:

- Internet presentation. This is where information is published and can only be viewed.
- Internet interaction. This allows for two-way communication between an organisation and its customers.
- Internet representation. This is where the organisation uses Internet technologies to replace elements of its business processes.

Bickerton et al (1999) also proposed a series of questions that could be posed about the reasons why a customer would visit an organisation's Web site. These questions are linked to the three stages of Internet technology (and some examples of how they can be achieved on a Web site) in Table 25.

Note the similarity with the strategy questions in Table 25 and the questions posed in 6.3.3 Summary, the section summary for Developing a Web Strategy.

Table 25: Specific Examples and Benefits of Internet Developments (Adapted from Bickerton et al, 1999, p.11, 69)

Level of Development	Strategy Question	Internet Feature
Stage One Presentation	Who are you?	<ul style="list-style-type: none"> • Company history and mission statement
	Why are you credible?	<ul style="list-style-type: none"> • Annual report and statistics
	What products and services do you sell?	<ul style="list-style-type: none"> • Catalogue • Brochure
	Why choose you? Your expertise/ approach/ value for money? What is your unique selling proposition?	<ul style="list-style-type: none"> • Demonstration of expertise
	Why should I come back and visit you again?	<ul style="list-style-type: none"> • What's new? • Frequently asked questions • Briefings/ newsletters • New product updates • Special offers • Maps of outlet locations
Stage Two Interaction	Why should I contact you?	<ul style="list-style-type: none"> • Easy response mechanisms
	What product or service is best suited to my needs?	<ul style="list-style-type: none"> • Decision tree, taking the customer to the most appropriate product or service • Newsgroups/ conferences
	How can you solve some of my specific needs?	<ul style="list-style-type: none"> • Automatic responders • Email subscriptions • Online customer support • Complaint handling • Market research/ test marketing • Voting mechanisms
Stage Three Representation	How can I conduct business with your firm?	<ul style="list-style-type: none"> • Video/audio presentations of company and products • Integrated funnel into existing sales system • Secure Online ordering or quotation system

6.4.3.1 Attractive Business Environment

An organisation should endeavour to make purchasing decisions as simple as possible, as well as promoting confidence from customers. A number of strategies can be adopted to do this (Commonwealth of Australia [b], 1999):

- Web pages must be kept up-to-date.
- Extensive information should be provided on an organisation's product and services, including how to get the best use from them.
- Provision of online catalogues, shopping carts and online ordering forms.
- Provision of currency converters and secure payment facilities.
- Provision of delivery and tracking systems so that clients will know when products are available.

6.4.3.2 Client Focussed Business Relations

An Internet strategy can provide organisations with the opportunity to generate repeat business from clients. Some strategies that can be used to assist this are (Commonwealth of Australia [b], 1999):

- Putting client comments and testimonials on the Web site.
- Including a list of clients' frequently asked questions on the Web site.
- Providing a loyalty program for frequent purchasers.
- Developing a profile of clients' purchasing decisions and then offering them individualised goods based upon those profiles.

6.4.4 Summary

Each of these views of developing a web presence allow for an incremental development of the organisation's Web site, from the simple level in the beginning to a more sophisticated level later on as the organisation becomes more familiar with the technology. This section can be used to provide valuable links between the Web site strategy of the business and the Web site features that are eventually recommended to be included.

6.5 Promoting the Web Site

6.5.1 Introduction

This section examines the mix of marketing strategies that are available to an organisation to promote the Web site. As the Web site is being operated in a different manner to marketing in traditional mass media, so promotion methods should reflect this.

6.5.2 Web Browser to Buyer Conversion Rates

Different people access Web sites in different manners. Because of this, different methods should be used to promote Web sites (Brianet Pty Ltd, 1998). In the one instance the organisation needs to concentrate on getting potential customers to the Web site. In the other instance there is a need to transform the site visitor into a buyer (either through the Web site or through traditional means). The final instance occurs where the buyer returns for repeat business (Argenti and Boritz, 2000). An indication of the various conversion rates as they stood in late 1999 follows.

Table 26: Conversion Ratios of Browsers to Buyers (Source: Argenti and Boritz, 2000, Table 1, p.3)

Conversion Ratio	Average Value
Click-Through Ratio	0.5%
Visitor-to-Buyer Conversion Rate	2.7%
First Time Buyer to Repeat Buyer Conversion Rate	20-40%

In late 1999, only one in 200 browsers tended to click on to Internet advertisements. Around three in 100 visitors to a Web site ended up purchasing something from the business. However, once the business had gained a first time buyer, there was a 20-40% chance that this person would be a repeat buyer. It is easier and cheaper to keep existing customers than reach new customers (Evans, 1999).

6.5.3 Brand Recognition

Brands create a basis for trust between an organisation and its consumers. An organisation dealing with consumers over the Internet may require even stronger brands because it is so easy for customers to look elsewhere (for example, in a physical location the customer would have to *move* to another location to consider another organisation's product) (Birch et al, 2000). Straub (1998) suggests that an organisation should attempt to develop a particular logo, product identity or phrase that allows customers to relate to it on the Internet, as they would in the traditional mass media. Birch et al (2000) argue that in most cases organisations should consider setting up new brand names for operating over the Internet because:

- Consumers favour young, modern brands as the Internet is a young, modern medium.
- A new Internet brand may avoid damage to the integrity of established brands. Due to the nature of the Internet, an organisation may have to offer its Internet brand at a lower cost than its established brands. Also, damage may be avoided if the Internet initiative is regarded as a failure (for instance, because someone has hacked into the system causing security concerns). The established brand may not be affected.
- An Internet brand should be capable of operating internationally if that eventuates. This is especially the case with a nationally recognised brand or brand that is somehow locally linked.

Birch et al (2000) also argue some limited cases where the organisation should use an established brand on the Internet:

- Where the organisation feels that the established brand is strong enough to counter another organisation's competitive lead on the Internet.
- An established brand offers opportunities for leveraging marketing activities with the traditional business. For example, cross promotion can occur on the Internet and in traditional advertising areas for the organisation (as indicated elsewhere in this section).

6.5.3.1.1 Providing Information about the Organisation's Goods

Aguila and Dube (2000) have classified the factors that are likely to influence consumer behaviour on the Internet into a number of categories:

- *Information Processing and Acquisition:* The Web site should match the technical complexity of the intended audience. If the intended consumers know little about the organisation's goods they need to be able to learn about them.
- *Product and Brand Knowledge:* If an organisation's goods have been positioned as being a pioneer product, more information will be needed about all of the goods' features. If the goods are later entrants into the market or have been established for some time, the basic features of the goods will be known. The information provided to consumers will need to be based around features that differentiate the goods from those offered by competitors. Including brand logos and names on all communications and web pages can reinforce the brand.
- *Attitude Formation:* Internet communications should assist the consumer to recall the brand name. One way to do this for 'downloadable' goods is to allow visitors to the site to download trial or demonstration versions of the goods or, in other cases, to be able to view images of the goods.
- *Choice:* when comparing alternatives, consumers can use a within-attribute strategy (where they compare one important product attribute across a number of brands) or an across-attribute strategy (where they examine a number of attributes on one brand at a time). In many cases, the ease of access of information may influence which strategy a consumer selects. In order to address the prospect that consumers may use a within-attribute strategy, the Web site should show clearly and precisely the more relevant attributes of the product. In situations where a good can be tailored or 'added to', basic (cheaper) configurations of the good should be offered with the option for consumers to add-on options as they see fit.
- *Consumer Satisfaction/Dissatisfaction and Post Purchase Behaviour:* Consumer satisfaction is dependant upon perceived quality, perceived value and consumer expectations. The Web site should give a clear (and inviting) idea of the quality of goods that are offered.
- *Social Processes:* The inclusion of a discussion list or panel on a Web site may assist the creation of a consumer group 'around' the Web site. Support of such a technology by the organisation (in technical and product and service support related matters) may positively influence the 'community feel' towards the organisation.

6.5.3.1.2 Domain Names

The domain name (the Internet 'address' of the organisation's Web site) can be important in a similar way to brand recognition. A current or potential customer looking for a particular organisation's Web site may attempt to find it by guessing the domain name, such as:

www.organisation_name.com.au.

There are a number of reasons that an organisation would wish to register one or more domain names (Booth, 1999):

- Present customers can find the organisation by entering its name as the URL.
- The organisation offers a product (brand) that is easily recognisable and may serve as a suitable domain name.
- The organisation offers a unique product that can be described in the domain name (the example offered by Booth (1999) is:

www.inkjetrefills.com

6.5.3.2 Something Extra

Sometimes buyers are looking for more than just purchasing a product or service from a business. They are after some type of social experience or entertainment (refer 4.3.3.3 Consumer Motivations).

6.5.3.2.1 Creating a Sense of Community

This strategy provides a means for potential customers and stakeholders to use the organisation's Web site as a means for exchanging information, sharing professional, sporting or hobby interests. This can be done by the provision of bulletin boards, chat facilities and links to related sites to enhance communications (Commonwealth of Australia [b], 1999; Argenti and Boritz, 2000).

6.5.3.2.2 Entertaining Web Sites

Web sites that provide different forms of entertainment may increase the likelihood of customers returning to the site or telling friends about it (Viehland, 1998).

The Internet shopper wants to be delighted, excited and 'wowed'. If they don't find it in one place, they can quickly seek it out elsewhere.

(Birch et al, 2000, pp.139-140.)

A successful site should fire potential customers with enthusiasm in at least one respect. There has to be a hook, something that is out of the ordinary for the majority of customers. For potential customers the hook helps build preference for the specific site and word of mouth (or mouse) may encourage other Internet users to visit. The critical question here is what on the site offers the visitor something special. Enthusiasm can be inspired by, amongst other things, beautiful design, entertainment or exciting services.

(Birch et al, 2000, p.150)

An interactive publishing site encourages the likelihood of customers returning to the site because they are being attracted by dynamic and informative content and quick responses to requests. Another way to encourage extra visitors to the Web site is to run contests and 'giveaways', with the dual aim of attracting customers and gathering extra 'push' marketing information to allow the organisation to build individual customer profiles (Phillips [a], 1998).

6.5.3.3 Levels of Internet Promotion

Birch et al (2000) suggest four levels of Internet promotion that have proven to be successful. These levels are:

- Promotion on the organisation's own Web site.
- Promotion on other commercial Web sites.
- Promotion in Internet communities.
- Promotion outside the Internet.

6.5.3.3.1 Promotion on the Organisation's own Web Site.

Organisations should promote their goods on their own Web sites. They can do this by (Birch et al, 2000):

- Supplying information about new offerings.
- Emphasising successes.
- Communicating interesting events.

Sales Promotions and Incentives

Incentives can be used to attract potential customers to an organisation's Web site. These can include frequent buyer loyalty schemes and digital coupons. The latter provides customers with discounted deals relating to an organisation's product or services. The coupons may be placed on the organisation's site, the site of an associated organisation or with a site that specifically deals in digital coupons. Typically, the customer prints the coupon and then uses it to receive a discount on the product or service (Martin, 1997). This is another form of product differentiation.

Loyalty schemes can reward customers for frequent purchases, visits to a particular site or for clicking on advertisement. It is possible to link in with other well-known loyalty schemes (such as 'Fly Buys' in Australia or a frequent flyer program) or the business can set up its own program. The purpose of such schemes is not to attract customers for the first time, but to get them to return on repeat occasions for extra purchases or more information (Kaufman, 2000).

6.5.3.3.2 Promotion on other Commercial Web Sites.

Search Engines

The use of search engines is one of the common ways used by web users to find Web sites (Methvin, 1999). From a small business point of view, search engines have two major things going for them, they are free to register for and they are the closest things on the Internet to a telephone directory (Kaufman, 2000).

There are a number of ways to register with the major search engines. An organisation should investigate these as some of them are quite inexpensive and will register the organisation with a number of search engines. A strategy should be adopted to ensure that the organisation is registered so that appears as high on the search lists as possible when particular key words are entered. This requires an understanding of the way that some of the major search engines operate (Phillips [a], 1998).

Some search engines use 'robots' or 'spiders', which search the Internet for new addresses to include in their indexes. They search and index the Meta Tags for the site. It is necessary for the business to consider the keywords that customers would be likely to use if they were searching for the business' Web site (Phillips [a], 1998). It is likely that these types of search engine will eventually find the business' Web site, but the process can generally be sped up by submitting the URL of the home page of the Web site to the search engines concerned (Methvin, 1999).

Banner Advertisements

Banner advertisements (see Cross-promotion below) are as effective as television advertisements in their ability increasing brand awareness. A survey of 7,000 randomly selected AOL (a large Internet Service Provider) members found that 40% of respondents that viewed a static online banner advertisement remembered it, as opposed to 41% of those who viewed a 30 second television commercial (Internet.com [c], 1999). One particular strategy is to pay for banner advertising to appear on the major search engines when 'terms' that relate to the organisation's Web site are entered by users of the search engine (Booth, 1999).

One of the problems with banner advertisements is that the 'click through rate' of web advertisements has been reducing. It was not uncommon to have 5% of visitors click on a web advertisement in 1996. In May 1998 this had reduced to 1.35% and by September 1999 was down to 0.56%. The reasons for this are (Argenti and Boritz, 2000):

- Users are becoming more familiar with the use of the Internet and more easily recognise, isolate and then ignore the area occupied by the advertisement.
- The mix of repeat versus new users is shifting towards repeat users. Click through rates decrease after the first exposure to the same advertisement.
- There is a general change of attitude towards using the Internet as a tool, with users more focussed on what they are looking for rather than general surfing.

Cross-Promotion

Often an organisation can cross-promote a Web site that complements or supplements the information on the organisation's Web site, be it with a supplier, a customer or even a competitor. This is done by offering to provide online advertising space (often referred to as a 'banner') or hypertext links for the other organisation on your Web site in return for them advertising your organisation on their Web site (Phillips [a], 1998).

Another type of banner exchange is to use a banner exchange program. When a business joins one of these programs it agrees to display banner advertisements from the exchange program on its own Web site. In return, the exchange program will arrange for the business' banner advertisement to be displayed on other participating sites (Methvin, 2000).

The use of banner advertisements in this way is an example of how to use the competitive IT strategy, alliance, identified previously. This may be a step towards distributed storefronts (as described earlier).

Shopping Malls, Portals, and so forth.

Another form of alliance is to use a shopping mall or portal.

Portals are predicted to act as a funnel for 40 percent of total consumer e-commerce spending by 2002 (Internet.com [b], 1999).

'Electronic markets' were identified by Malone et al (1989) as holding the offerings of many suppliers. They could reduce the costs of negotiating and closing out deals, whilst helping buyers find the best suppliers. Companies that choose not to use these types of market could find themselves let behind by those that do.

Some portal services can use software to determine the interests of a particular Internet user. They can then tailor banner advertising that is specifically tailored to the interest areas of that user (Commonwealth of Australia [a], 1999).

In 1988, the major portals around the world were (Keenan Vision, 1999):

- AOL/ Netscape.
- Yahoo.
- Excite.
- MSN.
- Lycos.
- InfoSeek/ GO.
- Snap.
- AltaVista.

Classified Listings

There are many online classified services. These work in a manner that is similar to the traditional newspaper classified services. Some are free and some charge a small fee to advertise in them (Booth, 1999).

Paid Listings

These are generally industry based. They provide contact details for organisations (Internet addresses, email addresses, street addresses and telephone and facsimile numbers) (Booth, 1999).

6.5.3.3 Promotion in Internet Communities.

An organisation can promote itself and its goods by establishing a presence in Internet communities (Birch et al, 2000):

- Have a presence in Internet news groups.
- Sponsor community events.

Creating Communities

The concept of 'building communities' is an important one. Organisations offering their site as the centrepiece for such a service can delineate their community a number of ways. Some of these ways are (Martin, 1997):

- Geographic community (such as a site that provides local information and chat).
- Specific interest community (such as specific sports, camping, appliances – or whatever the interests of the target market).

The notion of creating communities on the web was identified earlier as one of the success factors in business-to-consumer interactions.

6.5.3.4 Promotion Outside the Internet using Traditional Mass Media

Organisations can advertise their Web site in their normal traditional mass media advertising by including the Web site address in their advertisements. In addition, the organisation should include the web address on all of its stationery: business cards, letterheads, brochures and so forth (Phillips [a], 1998; Birch et al, 2000).

6.5.3.4 Comparison of Promotion Methods

A survey of 8600 consumers by Forrester Research (1999) identified the following as the most used sources for Internet addresses:

- | | |
|---|-----|
| • Search engines | 57% |
| • E-mail messages | 38% |
| • Other Web sites | 35% |
| • Word of mouth | 28% |
| • Magazine advertisements (mass media) | 25% |
| • Television commercials (mass media) | 14% |
| • Periodical articles | 11% |
| • Vendor Catalogues | 11% |
| • Newspaper advertisements (mass media) | 9% |
| • Banner advertisements | 7% |
| • Radio advertisements (mass media) | 2% |

The most common methods of Web site promotion used by Australian small businesses are (Telstra Corporation and NOIE, 2000):

- Letterhead, stationery 69%
- Brochures, pamphlets 56%
- Banners, links from other Web sites 27%
- Search Engines 22%
- Advertising on Television, press, radio 19%.

6.5.3.5 Keeping Existing Customers: Interacting with the Consumer at an Individual Level

6.5.3.5.1 Targeting the Product

The major success factors in attracting new customers are Internet promotion and Web site design. The major success factors in keeping existing customers are developing individual customer relationships and customer-oriented business processes (Birch et al, 2000).

The concept of targeting an organisation's goods to the individual consumer has already been mentioned a number of times previously. The use of the Internet allows a paradigm shift from an organisation trying to achieve greater 'market share' to increasing 'customer share'. This means that organisations, instead of attempting to increase market share by mass advertising, concentrate upon retaining existing customers by attracting as much of a customer's lifelong spending in the organisation's particular product or service area as possible. It is estimated that the ratio between dollars spent on new customers versus dollars spent on retaining old customers is 4:1. The main idea behind increasing customer share is to personalise dealings with them. This means using tools such as email and electronic forms to gather information about customers each time they visit the organisation's Web site (Tseng, 1997; Vanzyl, 1998). Customisation can also help to keep people at an organisation's site. If someone has entered the site and spent time customising their own look and feel, that person is relatively less likely to leave the site than if there was no personalisation there (Vanzyl, 1998).

In traditional mass media, attempts at targeted campaigns are very inefficient. One of the major advantages of Internet marketing is the opportunity available to organisations to tailor (or personalise) their products and/or services to individuals. Products are tailored on an individual basis rather than on a mass level (Straub, 1998). By gradually building customer profiles, the business may be able to eventually target individual customers - refer to the next section. Electronic mail provides an instant and simple way in which to communicate with these customers (Knoll, 1998). Another advantage provided by this type of marketing is that feedback can be immediate with the web analysis tools that are now available to analyse Web site interactions. Marketers can view statistics about Web site interactions as they are happening rather than waiting for survey or telephone poll results (Knoll, 1998).

Dawson (1998) suggests a 'life cycle' related to the number of times that a customer has visited a Web site and the level of interaction with the customer:

- Arrival - the initial visit from the customer.
- Anonymous - the customer moves around the Web site and the process of personalisation begins.
- Interested - the customer is gradually 'narrowed down' according to their interactions with the site.
- Well-known – the customer profile is familiar to the organisation.

At each stage, the level of customisation towards the customer (that is, personalised content on the Web site) must match the level that they have interacted with the site and the information gathered about them (Dawson, 1998).

Birch et al (2000) suggest a staged approach to building customer loyalty over time. They break this process into four stages:

- Know and understand customers.
 - Get to know your customers. Offer them chances to provide feedback. Offer incentives to get them to provide information (competitions, giveaways, vouchers, and so forth).
 - Find out as much information about customers as you can over time. Look for patterns of behaviour.
 - Store customer information on every customer contact. Each contact with a customer (visit, purchase, delivery and complaint) should be recorded.
 - Concentrate on the right customers. Try to judge which customers will be high value, repeat customers. Look for the patterns of repeat customers.
- Address customers.
 - Treat each customer as an individual. Each customer should be addressed by name when he/she visits the Web site or receives an email from the organisation. Email should be responded to quickly.
 - Offer individual products. This can often be done in situations where one or more 'standard' products or services can be quickly and conveniently customised to suit the needs of individuals. It is very important that the organisation's production process can quickly match the customer's requested goods.
 - Provide individual product information. Try to provide detailed descriptions of individual products (images and/or extra information).

- Let customers define the shopping experience.
 - Give customers control of the business processes. For instance, let the customer decide how to order (by telephone or Internet) or how to pay (by credit card or direct debit) or what type of invoice is required (detailed or summary).
 - Personalise the shopping process for customers. Let them have their 'own' (personalised) view of your Web site.
 - Offer self-help opportunities. Let the customer check and update their own details, or view their own interactions (such as orders, deliveries and payments).
- Promote customer community.
 - Provide a sense of belonging. For instance, have exclusive 'member' only online events where participants receive advance notice of new product or service releases. Allow discussion groups where customers can help each other with tips of how to use the organisation's products.
 - Bring customers in contact with each other. As per above.
 - Maintain control without steering. Allow free discussion, but quickly keep control of unhelpful discussion (such as abuse and so forth).

Typical demographic groups that may be characterised by (Brianet Pty Ltd, 1998):

- Age.
- Computer and/or Internet skills.
- Daily routines.
- Dependants, family ages and sizes.
- Education.
- Employment and/or job function.
- Financial history.
- Future intentions or proposed activities.
- Intended purchases.
- Gender.
- Marital status.
- General skills and literacy.
- Hobbies, sports or general interests.
- Income and purchasing power.
- Location and methods of transportation.
- Nationalities or cultural groups.
- Needs and wants.
- Purchasing preferences and/or shopping habits.

Another method used to track customers on an individual basis is to deploy *cookies*. The cookie can keep track of a user's previous interactions with an organisation's Web site. One of the disadvantages of cookies is that their usefulness diminishes if the user accesses the Web site from a number of different computers (Brianet Pty. Ltd, 1998).

It was mentioned previously that organisations can track details of users' interactions with their Web site by the use of a Web site analysis tool. Each time a customer interacts with a Web site, an entry is added onto a log file (of user interactions). Web site analysis tools interpret these log files and can provide a number of reports that can be used to analyse customer (and potential customer) behaviour, including (Brianet Pty Ltd, 1998):

- Which pages on the Web site are the most popular.
- When the pages are accessed.
- How long is spent on each page.
- Where the customers are coming from to access the Web site.
- Typical navigation paths of customers through the Web site.

6.5.3.5.2 'Push' Marketing

Similar to push technology with browsers, this concept relies upon contacting customers rather than waiting for customers to contact you. As suggested earlier, this attempts to gain a greater share of a customer's spending in a particular area:

- A florist shop may send reminders (combined with special deals) to customers a few days before birthdays, anniversaries, and other special days.
- A travel agent may offer a special package to a family for the same seasonal period they took holidays in the previous year.

In both cases, the organisation has recorded information about a customer from a previous purchase, and has used this knowledge to 'push' a new offer of repeat business to the customer (Tseng, 1997).

6.5.3.6 An Internet Marketing Model

Another way to view many of the strategies mentioned in this section is to view them in relation to a marketing model.

Simeon and Quanci (1999) have identified a number of stages that relate to traditional product launches (refer Figure 28).

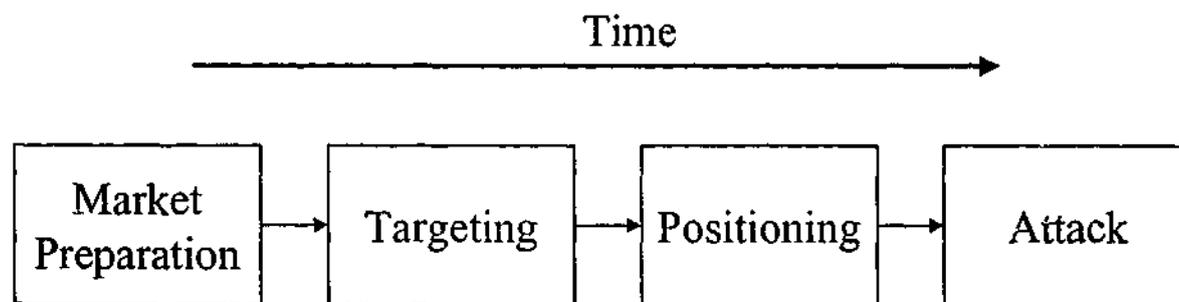


Figure 28: The Traditional Product Launch Marketing Process (Source: Simeon and Quanci, 1999, p.96)

In a traditional product launch, the four major steps occur sequentially (Simeon and Quanci, 1999):

- *Market Preparation.* This step involves readying the market for the launch of a new product, such as providing pre-launch information and organising distribution arrangements.
- *Targeting.* This involves matching the capabilities of the goods on offer with a particular market segment (for instance, existing customers or competitors' customers).
- *Positioning.* This involves activities that promote the awareness of special features of the goods, such as price or special applications.
- *Attack.* The organisation attempts to educate the general market of the benefits and availability of the goods.

This process involved a large amount of resources and was spread over a period of time. There are new market demands for greater speed, lower costs and increased flexibility. The Internet provides a means by which the marketing model can be re-examined (Simeon and Quanci, 1999). Refer Figure 29.

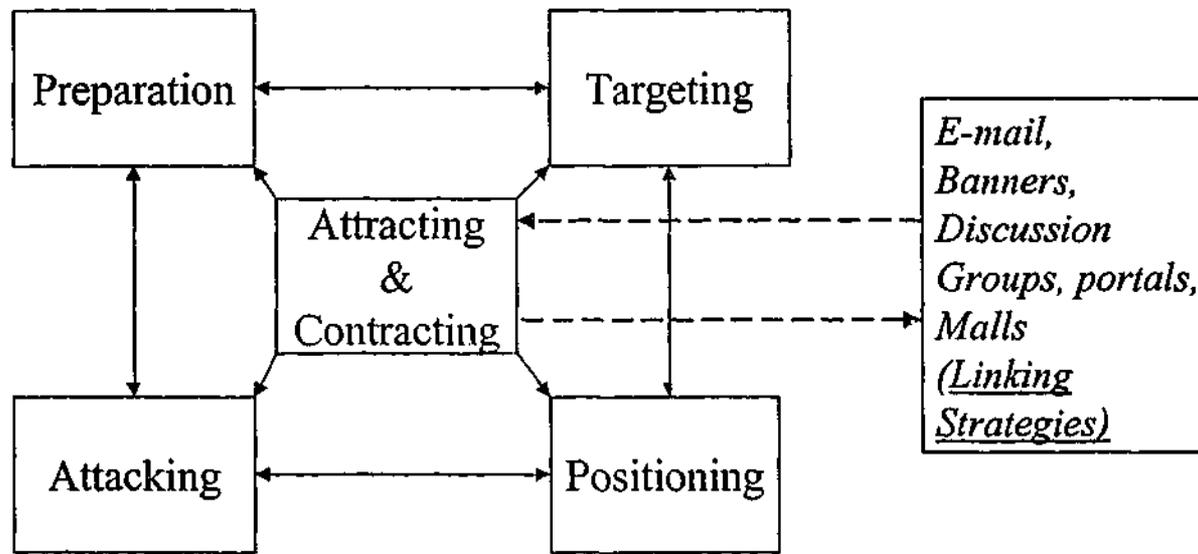


Figure 29: The Internet Product Launch Environment (Source: Simeon and Quanci, 1999, p.96)

The Internet allows a different type of marketing model to develop. The use of the Internet by an organisation allows the four major steps of the traditional model to occur simultaneously. The organisation uses a number of techniques (such as email, advertising banners, discussion groups, search engines and so forth) to contact potential customers and attract them to the Web site. Once the potential customers have been attracted to the site, the traditional marketing steps can operate simultaneously (Simeon and Quanci, 1999):

- *Market Preparation.* Interest groups, chat and meeting sites can be used to foster discussion on new products or to prepare participants for a new launch.
- *Targeting.* Techniques (such as those mentioned earlier in this section) can be used to target market segments [even to the individual].

- *Positioning.* The ability to rapidly change a Web site allows companies to test a variety of strategies as it attempts to establish a market position. Specifically targetted email messages and banner advertisements can assist in this strategy.
- *Attack.* The Internet allows organisations to initiate educate about product features and usage and respond to customer concerns rapidly. Efficient ordering and delivery processes assist in this area.

This model brings together many of the strategies mentioned earlier in the section and divides them into areas according to traditional marketing steps that have been updated to incorporate Internet marketing.

6.5.4 Summary

This section examined Internet promotion techniques. Some techniques that were identified were brand recognition (through providing information on goods and the selection of suitable domain names) and the provision of 'something extra' for consumers, by providing them with some type of social interaction or entertainment. The 'level' of promotion classified other techniques. The first level of promotion was promotion on an organisation's own Web site, which could occur by providing information about goods or by offering sales incentives. The next level was promotion on another commercial Web site, by registering with search engines, employing banner advertisements, cross promoting with other businesses or joining online shopping malls or portals. The next level of promotion was to set up Internet communities, through news groups or chat sessions. The final level was to use traditional mass media, such as newspaper or billboard advertising to promote the Web site. The final technique of promotion identified was individual personalisation of goods, where the business targets its good towards individual customers, based upon an accumulated knowledge it builds up of that customer over time.

6.6 Implementing the Web Site

6.6.1 Introduction

This subsection investigates some of the techniques that can be used to implement various levels of Web sites as identified in the previous section.

The benefits of business-to-consumer interactions should outweigh the costs, which may be significant. Some example of the associated costs are (DIST[b], 1998):

- Initial or upgraded hardware and software.
- Training.
- Loss of efficiency in the short term.
- Lack of familiarity with new forms of marketing.
- Access fees.
- Cost and/or expense in the development of Web sites.

6.6.2 Implementation and Levels of Web Site Sophistication

A common theme that emerged from a study of ten small businesses in Georgia, USA in 1998 was that small businesses were concerned about their lack of knowledge about how to set up a web presence (Purao and Campbell, 1998). As they generally do not have trained IT staff, they require Internet solutions that are easy to set up and maintain (Conroy, 1999).

Small businesses will find it relatively easy to implement electronic brochure standard Web sites. Specially personalised, customised Web sites at the interactive level will require resources beyond the capabilities of most small businesses. For many small businesses, electronic brochure level sites have been suitable, but this may change, as customers become more familiar with the online environment. A lack of online capability may affect an organisation's credibility (Fortune [b], 1999). Given these constraints, a number of options are available to small businesses to assist them with setting up various levels of Web sites.

The choice between a number of different options needs to be decided based upon a number of issues (Booth, 1999):

- Can an outside organisation fully understand the business?
- How much will it cost?
- How long will it take?
- How is the site to be maintained?
- What skill level is required?

6.6.2.1 Off-the-Shelf Packages

Off-the-shelf packages are available to assist organisations to set up simple retail stores using wizards (Fortune [b], 1999). They are often hosted by a limited number of (supported) ISPs.

6.6.2.2 Web Hosting Service

Another available option is to use a web hosting service. Some organisations will provide the tools to design Web sites according to a number of available templates and then host the site on their server for a regular fee (Fortune [b], 1999). Some of these tools include wizards that the organisation can use (Lawrence et al, 1998). ISPs are offering a number of diverse web hosting services that are targeting small to medium sized businesses (Birtles, 1999). It is important that the organisation is able to use its chosen domain names (and not the domain name of the ISP) as this can project a more professional image (Compumaster, 1999).

6.6.2.2.1 Free Web Hosting Services

A number of these services are available, again providing different levels of service (some even provide payment facilities). The problems with these are again with credibility. There will be sections of the site where the ISP puts their own advertising material that the organisation has no control over (Compumaster, 1999).

6.6.2.3 Online Auctions

A business can also sell their products and/or services through an online auction service. In these instances, the organisation is dealing via the web through a third party's site, who usually charges a percentage of the sale fee for the service (Fortune [b], 1999).

6.6.2.4 Cybermalls

In these instances the organisation maintains a presence as part of a 'virtual' shopping centre. As with a regular shopping centre, advertising by is usually based around getting people to visit the centre. The level of services amongst different centres, but usually setting up the site is fairly simple and there is a standardised method for payment of goods across all businesses in the centre. Costs also vary but they can be quite expensive (Compumaster, 1999).

6.6.2.5 Web Portals

Although most portals provide links to an organisation's site (and are thus more of a marketing tool), some provide Web-hosting facilities. The same arguments apply here as with Cybermalls.

6.6.2.6 Self Hosting

Whether or not the business sets up and/or hosts a Web site by themselves is usually dependent upon the organisation's size. Smaller organisations are more likely to rely on a third party to host the site. Larger organisations (with the associated IT expertise available within the organisation) are more likely to host the site themselves (Fortune [b], 1999). This option requires a computer, a suitable and secure operating system, Internet server software and a dedicated leased line to the Internet. Selection of this option should only occur where the business has the necessary internal expertise (Compumaster, 1999).

6.6.2.7 Personally Customised to the Organisation

This option may be chosen if the organisation requires a Web site with a design and feature that are unique. Because of this, the cost will generally be greater than with most of the other options (Booth, 1999). The costs of such sites will usually ranges from the low thousands to tens of thousands of dollars for small businesses (Liflander, 2000).

Questions to ask a designer are (Booth, 1999):

- Can I see work you have already completed (especially in my field)?
- How will we communicate?
- Are there any additional charges (such as scanning graphics)?
- Can you provide a firm completion date?
- How much do you charge for site maintenance?
- How do you assist with promotion (for instance, registration with site engines)?

6.6.3 Costing Different Web Site Options

Web site design is not a focus of this thesis, but needs to be considered by an organisation. There are many Internet based resources that assist with Web site planning and creation (Booth, 1999).

Additionally, credit card transactions are the currently predominant type of transactions where purchases over the Internet are made. When a customer decides to make a purchase the major delays that can occur from the organisation's point of view (before the product is 'shipped') are the time taken to read and process the order and the time taken to verify the credit card purchase. There are also costs to the business in these transactions (Lawrence et al, 1998).

A 2000 study of Australian Web site development options by Burgess and Schauder (2001) examined a number of different options available to small businesses for developing and hosting Web sites. Some options, such as self-hosted Web sites, Web sites that were entirely self-designed or customised by external consultants were not considered as part of the extended analysis as they were considered to be out of the range of the typical small business because of the cost or the expertise needed to maintain them.

In examining options for small businesses, Burgess and Schauder (2001) decided to concentrate upon the various types of Web site development options that were available. It was decided to consider only ISP Web site hosting, rather than do-it-yourself hosting, as the latter was likely to be done by only a small proportion of small businesses.

The following Web site development options were selected:

- Personal Computer (PC) Package or Wizard Development, where a business purchases a software package and develops the Web site on its own computer using pre-prepared wizards or templates.
- Online Package or Wizard Development with Web Hosting Service, where the site is developed remotely by the businesses on the ISP's web server, again using wizards or templates.

For each Web site development option, a costing was done for Web sites with increasing complexity, from electronic brochure, through electronic brochure plus ordering, to electronic brochure plus ordering plus payment sites.

Burgess and Schauder (2001) found that small businesses should consider a number of different factors when comparing simple Web site hosting options. These include the setup costs and the monthly cost of hosting the Web site. As the requirements of the Web site increases to include an ordering facility, so firms also should consider other factors such as the number of products that will be hosted as part of the Web site's product catalogue.

As businesses wish to sell goods over the Internet a number of new costs emerge, such as the merchant account setup and maintenance fee, the transaction fee charged by the ISP and the credit card transaction fee. In other words, as the complexity of even Web sites that are 'simple' to set up increases, so does the range and level of costs associated with the Web sites in addition to normal set up and maintenance costs (Burgess and Schauder, 2001).

6.6.4 Maintaining the Web Site

An important issue to consider when thinking about implementation of the Web site is the effort that needs to be maintained in keeping the site up to date. Material on the site should be current. Email requests by customers should be dealt with promptly. One method of doing this can be by using an autoresponder. An autoresponder sends an automatic reply when an email is sent to a particular address. It is useful for advising of updates to the Web sites, sending out newsletters and so forth. Products that are ordered need to be delivered promptly. The more interactive sites will allow for content to be individually tailored to site visitors (Booth, 1999).

In keeping or removing information from the Web site the organisation should be aware of what visitors to the site find important. Use of a web analysis tool will be useful in determining this (Compumaster, 1999).

6.6.5 Other Technology Issues

Although technology is not the direct focus of this thesis, some issues relating to its selection and use need to be addressed.

The Web site must be available to customers on a 24 hour per day, seven days a week basis. The business should, therefore, have a dedicated connection to the Internet. Many ISPs that have such dedicated links will also have appropriate backup facilities and may be able to register domain names (Lawrence et al, 1998).

6.6.5.1 Selecting an ISP for Hosting

A series of steps can be followed to assist an organisation to select an ISP (Booth, 1999; Compumaster, 1999):

1. Work out a budget. If you are unsure, start out with an ISP that charges on a monthly basis and look for a minimal presence for minimum outlay. On the other side, it may be possible to arrange discounts for a longer time commitment.
2. Compare:
 - How much are colleagues, competitors and customers paying for access?
 - What are they getting for their money?
3. Consider trying out free introductory services. Many ISPs offer a one month free trial.
 - Use the service as often as possible.
 - Try it at different hours.
 - Check for an after hours help number.
4. When the search has been narrowed down to a few ISPs look at the plans more closely. National or overseas access to the service may be needed if employees travel regularly.
5. Check how much space is allocated for the organisation's Web site. A small amount may be adequate at first, but how much will increased space be if the organisation expands the web presence? Are there charges for web traffic?
6. Will the provider register and host your domain name(s)?
7. Will the provider allow customers to download files from your Web site?
8. Does the provider allow more than one email address per account? Are there charges for additional accounts? Check to see if the amount of space provided per email mailbox is adequate for the organisation's need.
9. Is the email service proprietary, or can it be accessed with a regular web browser? The answer to this question is important to allow roaming access of email.
10. Is there a premium for high-speed access?
11. Are wizards available to assist with web page design and construction? Does the provider have preconfigured services (such as credit card payments and shopping cart facilities)?

6.6.6 Summary

This section examined a number of issues related to Web site development options that are available to the small business. Many different development options were considered and costed. At the simplest and cheapest level, an electronic brochure site is relatively inexpensive for a small business to set up using a wizard or template and having the Web site hosted by an ISP. As a business wishes

to extend its web presence to include online ordering and/or payments, or wishes to increase the complexity of the site, or even wishes to host the site itself, the cost and difficulty associated with the development and maintenance of the site increases. Another issue is the level of expertise needed. If the expertise is not available within the small business (which is likely), it will have to be acquired externally.

6.7 Measuring Web Site Performance

6.7.1 Introduction

This subsection examines some of the methods that have been adopted to measure the success of an organisation's web presence.

6.7.2 Timeline

The expectations for an organisation's Web site should be set before implementation. A useful way of doing this is to define deadlines by which the Web site must have achieved certain goals. These deadlines should be over regular time intervals, such as six, twelve and eighteen months.

6.7.3 Success Factors

In a study of Web site effectiveness and gender differences, Mao and Sukpanich (1999) developed the following six constructs to measure the effectiveness of a Web site:

1. *Content.* What are customers using the Web site for? Does it provide the precise information needed? Does it produce sufficient information? Does the content meet the users' needs?
2. *Timeliness.* There is a need to balance sophisticated graphics with speedy download times. Is the site always available for access? Is the information current?
3. *Ease of Use.* This includes issues such as a familiar interface and ease of navigation through the site.
4. *Format.* Does the site provide sufficient graphics? Is the presentation format suitable? Is information clearly presented?
5. *Marketing Construct.* This suggests that web users are becoming increasingly familiar with sites that are becoming more and more interactive and personalised. Does the site provide sufficient interaction with users? Does the site allow interaction with other site users? Do users feel a sense of belonging to the site?
6. *Security.* There are concerns about the security of Web based transactions and the privacy of information. Do users feel that the site is secure? Do users trust the site?

Some of these issues are not the direct focus of this thesis, but clearly need to be considered as part of an organisation's overall Internet strategy.

Bickerton et al have identified a number of success factors that can be associated with the different levels of Web sites that they have identified:

- **Presentation:**
 - Increase in total number of clients.
 - Market research to establish changing attitudes to the organisation.
- **Interaction:**
 - Number of qualified leads achieved.
 - Number of leads resulting in an order.
 - The cost of the project versus the resulting extra revenue.
- **Representation:**
 - The number of orders generated.
 - Revenue generated online as a ratio of total revenue.

6.7.4 Methods

6.7.4.1 Return on Investment

A survey of Australian businesses with Web sites requested them to indicate their Return on Investment (ROI) from their Web site presence in July 1997 (DIST[a], 1998). Businesses that had recently adopted Web sites primarily indicated no return (40%), less than 10% ROI (22%) or a negative return (17%). This type of analysis is typically not used by small businesses.

6.7.4.2 Best Practice

The Australian Government Federal Department of Industry, Science and Tourism have identified a number of strategies to deliver the statistics needed to properly measure the performance of electronic commerce in Australian organisations against international best practice (DIST[b], 1998). Their first report, *Stats: Electronic Commerce in Australia* (DIST[a], 1998) was released in May 1998 to help to provide meaningful data to Australian organisations to benchmark against.

6.7.4.3 Other Methods

Most e-commerce packages come with tools that allow businesses to track where actual and/or potential customers have been on the Web site. These need to be more sophisticated than tools that simply measure the number of times a web page has been 'hit' (browsed). They can help to track site traffic, ratios of sales to site traffic, time spent in different areas, and conduct user surveys of site quality (Fortune [b], 1999). In addition, they provide information on where users come from and how they reached the site and the success of various banner advertisement campaigns conducted on other sites through alliances (Greening, 1999). These types of tools may provide small businesses with access to the types of marketing information they have previously not been able to generate.

A number of other techniques can be used to measure the success of a number of the features on an organisation's Web site (Bickerton et al, 1999):

- Discount vouchers. Where an organisation has provided discount or special offer vouchers on a Web site that can be printed out and taken to a physical outlet it can help to determine the number of people that are visiting the organisation as a result of visiting the Web site.
- User names and Passwords. Organisations that provide customers with these to access special features of the site can monitor customer movements in the area.

The number of 'hits' on a particular Web site should be regarded with caution as they may not reflect the true usage of the site. Many service providers use a cache facility, where a particular page that is accessed by many users is only download to the service provider's server on an infrequent basis (Bickerton et al, 1999).

6.7.5 Measures of Success

In line with their identified success factors, Bickerton et al (1999) have suggested a number of measures of success that could be used to judge the performance of an organisation's Web site:

- Presentation:
 - Hit rates (treat with caution).
 - Research new and current customers regarding company image, awareness of the Web site and so forth. This is to assess the impact of the site.
 - New Enquiries.
- Interaction:
 - Hit rates.
 - Email and response form enquiries.
 - Research (as above).
 - Other enquiries.
 - Competition entries.
 - Vouchers received/ special offers taken up.
- Representation:
 - Hit rates.
 - Email.
 - Research.
 - Actual orders from the site.

The selection of which measures to use will be influenced by business strategy and what the business is trying to achieve with the Web site.

6.7.6 A Cost-Performance Model for the Internet

Larsen and Bloniarz (2000) have designed a model for organisations that do not yet have an Internet presence, or are intending to expand their Internet presence. The purpose of the model is to assist organisations to narrow the range of their options in relation to developing Internet services. The model consists of three tools:

- *Identifying systems features and functionality.* This tool helps to identify the business goals that the Internet services is to fulfill, as well as the delivery mechanisms to be used to support the service.
- *Assessing and measuring performance.* This tool identifies the important benefits and performance factors that will be affected by the services defined through the first tool. These factors are expanded as performance variables, measures and targets.
- *Assessing the costs of developing and delivering the Internet service.* This tool addresses a comprehensive set of cost areas and calculates an estimate of the system's costs.

6.7.6.1 Assessing and Measuring Performance

Larsen and Bloniarz (2000) have identified this step to determine the major benefits of the Internet service. They have divided the potential tangible benefits of the Internet service into three performance categories: better, cheaper and faster. These match well with Porter's generic strategies of cost ('cheaper') and differentiation ('better' and 'faster'). Potential intangible benefits include public visibility for the organisation and improved employee morale.

Larsen and Bloniarz suggest that it is important at this stage to concentrate upon explicit outcomes and results where the organisation can determine readily whether or not its expectations have been met. Some measures, such as customer satisfaction, may be difficult to assess, but can be measured in some way (for instance, with an Internet-based survey). It is important to match these with the strategies identified in the first stage (Larsen and Bloniarz, 2000).

Organisations may find difficulty in developing targets initially, but are supported by the model by being given the chance to set different levels of targets: modest, moderate and elaborate. Table 27 presents an example of this type of measurable targets:

Table 27: Performance Worksheet (adapted from Larsen and Bloniarz, 2000, Table 2, p.113)

Variable	Performance Category	Measure	Modest Target	Moderate Target	Elaborate Target
Mailing Costs	Cheaper	The need to send information packets through the mail	Reduce by 5%	Reduce by 10%	Reduce by 30%
Quality of Service	Better	Rating in a customer survey (on a seven point scale)	Improve average rating by 5%	Improve average rating by 15%	Improve average rating by 25%
Customer base	Better	Number of new customers each month	National: 10% increase International: 5% increase	National: 15% increase International: 10% increase	National: 25% increase International: 15% increase

6.7.6.2 Assessing the Cost of Developing and Delivering Web Services

It is not uncommon for organisations without experience in the estimation of Internet service costs to underestimate the costs by as much as a factor of four (Larsen and Bloniarz, 2000). This section of the model calls for the identification of as many costs as possible. Larsen and Bloniarz have designed a cost framework with small businesses in mind, the aim being that it is comprehensive but not overly burdensome.

Five cost categories have been identified, each with costs allocated at startup and for annual maintenance. The cost areas are (Larsen and Bloniarz, 2000):

- *Organisational readiness.* This includes assisting employees to learn about the technology and its capabilities.
- *Provision of Internet access for employees and other users.*
- *Support for end users.* Any training that is needed for employees, or even customers.
- *Content development and maintenance.* This includes converting existing information into a web based form, updating of materials and the development of sophisticated applications (if required).
- *Hosting site infrastructure.* Costs associated with the method chosen for implementing the site.

To assist with the estimate of costs, Larsen and Bloniarz (2000) have suggested estimating costs on the basis of modest, moderate and elaborate guesses.

Table 28 represents their sample worksheet for this section of the model.

6.7.7 Summary

This section examined methods of measuring the success of the Web site. Small businesses should be able to understand some of the different measures available to them to measure the performance of their Web sites. The selection of suitable measures of success depends upon what the business is trying to achieve with the Web site.

Table 28: Cost Worksheet (adapted from Larsen and Bloniarz, 2000, Table 3, p.114)

Cost Area	Modest		Moderate		Elaborate	
	1 st Yr Cost	Subsq Yr	1 st Yr Cost	Subsq Yr	1 st Yr Cost	Subsq Yr
Organisational Readiness						
Training for Technology Awareness						
Planning for Internet Presence						
Access for Staff and Other Users						
Hardware for end users						
Software for end users						
Network and Internet access for end users						
Human Resources						
Startup process for equipment procurement						
Establish/manage vendor and ISP contracts						
End User Support						
Vendor Services						
Human Resources						
Establish and manage vendor contracts						
Development and delivery of user training						
User time in training						
Help desk for users						
Content Development and Maintenance						
Hardware for content developers						
Software for content developers						
Network and Internet access for developers						
Other vendor services						
Human Resources						
Startup process for equipment procurement						
Establish and manage vendor contracts						
Development and delivery of staff training						
Staff time in training						
Webmaster						
Editorial review						
Content creation and coordination						
Web site design and development						
Staff support for service						
Programming support						
Database administration						
Other management support						
Other clerical support						
Host of Site Infrastructure						
Hardware						
Software						
Network and Internet access						
Human Resources						
Front-end research and technical evaluation						
Startup process for equipment procurement						
Establish and manage vendor and ISP contracts						
Development and delivery of staff training						
Staff time in training						
Network and systems administration						
Web server management						
Operations support						
Clerical support						
Infrastructure and Other Subtotal						
Human Resources Subtotal						
Total Costs						

6.8 Chapter Summary

This chapter examined literature for the purpose of developing the initial version of the applied section of the model investigated in Phase Two of the study.

This first section examined aspects relating to the business investigation stage of the applied model. Aspects of the marketing tool, the SWOT analysis and Porter's five competitive forces model were used to develop the sections for the business investigation. These were divided into internal factors and external forces.

The next section examined the Web site strategy of the business. The selection of strategies that the business adopts will depend upon its overall business strategy, which could be to win new customers, to relate better to existing customers, to cut costs and so forth.

The next section examined the selection of the features to be included on the Web site. It is recommended by a number of authors that this occur from the simple level in the beginning to a more sophisticated level later on as the organisation becomes more familiar with the technology.

The next section examined Internet promotion techniques. Some techniques that were identified were brand recognition and the provision of some type of social interaction or entertainment. The 'level' of promotion classified other techniques. The first level of promotion was promotion on an organisation's own Web site. The next level was promotion on another commercial Web site. The next level of promotion was to set up Internet communities and the level was to use traditional mass media. The final technique of promotion identified was individual personalisation of goods, where the business targets its good towards individual customers.

The following section examined a number of issues reacted to Web site development options that are available to the small business. At the simplest and cheapest level, an electronic brochure site is relatively inexpensive for a small business to set up using a wizard or template and having the Web site hosted by an ISP. As a business wishes to extend its web presence to include online ordering and/or payments, or wishes to increase the complexity of the site, or even wishes to host the site itself, the cost and difficulty associated with the development and maintenance of the site increases. Another issue is the level of expertise needed. If the expertise is not available within the small business (which is likely), it will have to be acquired externally.

The final section examined methods of measuring the success of the Web site. The selection of suitable measures of success depends upon what the business is trying to achieve with the Web site.

This chapter is most important for the development of the applied model. It has provided the 'nuts and bolts' by which the applied model is originally converted from the conceptual model. Each section has mirrored a major component of the conceptual model and is used as the basis for development of the corresponding section in the applied model.

7 Phase Two: Micro Focus Groups

7.1 Introduction

The purpose of this chapter is to describe the second Phase of this study and to reflect upon the process of the development of the applied model and the conduct of the second Phase. Three micro focus groups were conducted to provide feedback upon the applied model, which was developed from the literature review. An initial version of the applied model was introduced at the start of the Phase and was refined after each micro focus group was conducted.



The CD ROM in Appendix Three contains all versions of the spreadsheet model (and associated software manuals) for each stage in Phase Two of the study.

7.2 Details of the Micro Focus Groups

Small Business Victoria (SBV) is a section of Victorian State Government Department of State Development. Its aim is to direct small businesses to information, provide assistance for starting or growing small businesses, provide referral services and work closely with other Government agencies and private sector small business service providers.

Small Business Victoria provided a list of the SBCS counsellors and their email addresses to the researcher. From the list of 40 Counsellors, 33 had email addresses. An email message was sent out on November 16, 2000 to all counsellors with email addresses to participate in the focus groups. Three possible attendance dates were proposed: Friday 24 November (6pm-8.30pm), Saturday 25 November (9.00am-11.30am) and Saturday 9 December (9.00am-11.30am). Of the 33 messages that were sent out, six were returned as invalid email addresses. Of the 27 remaining, 13 responses were received in total. Six counsellors responded that they were unable to attend due to lack of time (three), distance to travel (two) or personal reasons (one). Responses were received from seven counsellors willing to attend. In the final analysis, three counsellors agreed to attend on Saturday 25 November (the first 'micro' focus group) and four agreed to attend on Saturday 9 December. One counsellor did not attend on 9 December (leaving three in the second 'micro' focus group).

The participants in the both micro focus groups indicated (unprompted) a willingness to meet again. Those in the second micro focus group actually arranged the time for the combined group to meet again to discuss the next generation of the model. The date agreed for this third focus group to be held was Saturday, 3 February, 2001. Originally, all six 'original' participants agreed to be

available. One participant indicated soon after that he had a prior commitment and another was unwell on the day, meaning that four participants were attendance (two from the first micro focus group and two from the second group).

As per the requirements of the Monash University Ethics Committee, each counsellor was made aware that the sessions would be taped (audio) and that their contributions would remain anonymous.

Each micro focus group was held at the City campus of Victoria University. Each group ran for two one-hour sessions between 9.00am and 11.30am, with a break in between. Minor refinements of the model were made between the first micro focus group and the second micro focus group. Lawrence and Berger (1999) recommend that focus groups run for one hour, although they may run for two hours if participants are deeply involved in sharing different points of view and/or specific examples.

After the second and third micro focus groups, refinements were made to the model according to feedback from the counsellors.

7.3 Setting up the Applied Model

7.3.1 Material Covered in the Micro Focus Groups

The updated version of the model can be viewed in Figure 30: The Preliminary Model (Version 2). For this particular Phase, the detail of the general steps of the model that had been finalised in Phase One of the study had been expanded into a detailed set of procedures for small businesses to follow when setting up a Web site to allow them to interact with their customers. The model consisted of two major components:

1. A Procedures manual. This took the user of the model through the various steps of Business Investigation, Strategy, and so forth.
2. A spreadsheet program. This allowed the user of the model to record the results of the analysis and then provided recommendations based on the analysis. The main reason for doing this was that the user could then return to (and alter) the results of the analysis based upon the recommendations. For instance, the user could choose to return to an earlier stage of the model and alter the level of investment in the Web site if it was shown that enough had not been allowed to implement all of the Web site features that were desired.

7.3.2 A Summary of the Initial Applied Model

The basis of the initial version of the applied model was version Two of the Preliminary Model that was created as a result of Phase One of the Study.

The Preliminary Model (Version 2)

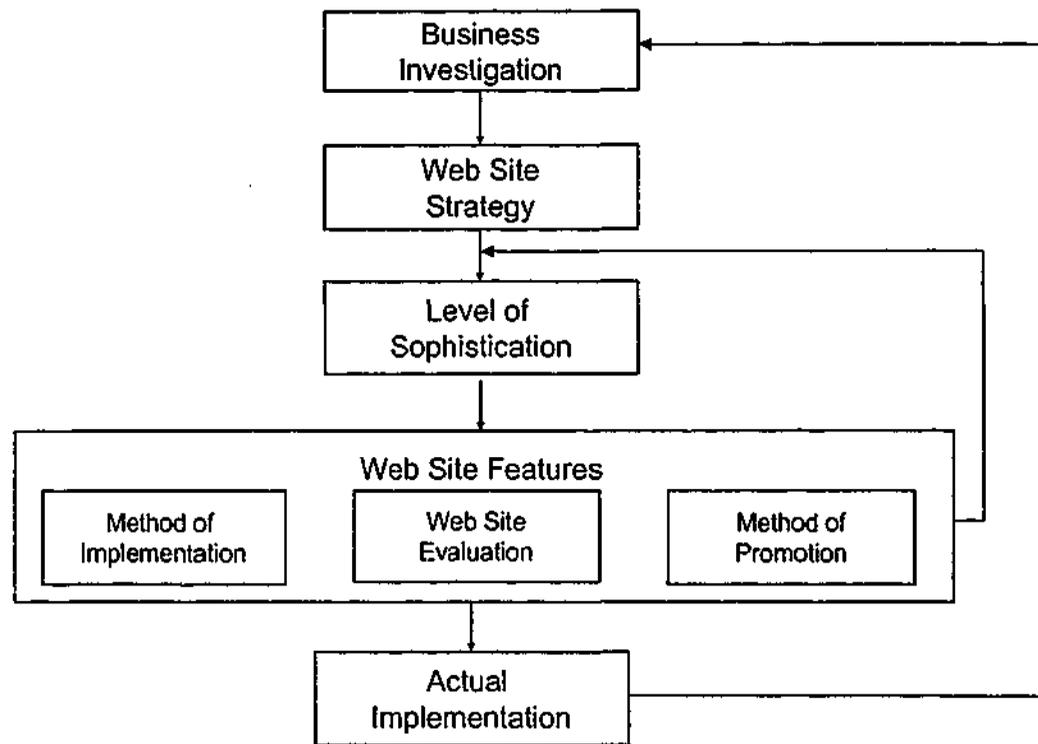


Figure 30: The Preliminary Model (Version 2).

A summary of the various sections of the initial applied model, and the relationships between the sections, follows. Actual extracts from the manual are enclosed in borders.

7.3.2.1 Introduction

The manual introduced the applied model by providing a brief description of each section. It described the steps to be followed in executing the applied model, which was developed from a combination of the literature review and the responses from participants in Phase One of the study.

Business Investigation

As outlined in the Introduction, the first phase of the analysis is where the business stands in relation to its own resources and direction and its relationships with external parties.

Internal Factors*Firm Strategy*

An overview of the direction that the firm is heading in. Does it wish to grow?, Is it willing to work with partners?, and so forth....

Capital

An assessment of the amount of capital that the firm is willing and able to allocate to this project.

Employees

This section relates to the expertise available within the firm to assist with the project.

Product/ Service Details

An assessment of the characteristics of your goods, and your plans for them on the Internet.

External Factors*Customers*

What are your customers' expectations of your web presence?

Competitors

What are your competitors currently doing?

Web Site Strategy

This section summarises the business investigation component of the model and provides an early indication of potential proactive and reactive strategies.

Level of Facilitation

This section is designed to assist with the decision as to which features to implement on the Web site. Recommendations are based upon the entries made in the business investigation section.

Web Site Features**Method of Implementation**

This section reviews the feasibility of the project, based upon the amount of capital that the firm is willing to commit to the project.

Method of Promotion

This section investigates the methods available to promote the Web site.

Method of Evaluation

In this section, the decision is made as to how to evaluate the success of the Web site.

At this stage, it was suggested that users of the manual and software should have a minimal understanding of Internet concepts to be able to effectively carry out the required analyses. An attempt was made to explain the level of competencies required (refer Appendix Three).

7.3.2.2 Business Investigation

The first stage of the applied model is the Business Investigation. As indicated in Stage One of the study, a 'SWOT-type' analysis was implemented. This consisted of a review of a number of internal factors (overall firm strategy, financial outlay, employee skill levels and product details) and external factors (customers and competitors). These were selected on the basis of the literature review (refer 6.2.3.5 Summary) and comments of the participants in Phase One (refer Section 5.3.4 Thread Two: Business Investigation).

7.3.2.2.1 Overall Firm Strategy

Four strategies were provided for small businesses to choose from (as per the small business and information technology literature, refer Section 6.2.2.1 Overall Business Strategy): growth, alliance, low cost and differentiation. More than one strategy could be selected here.

7.3.2.2.2 Financial Outlay

Section 6.2.2.2 Capital examined some of the areas small businesses should examine when determining their capital outlay for this type of project.

At this stage, users were provided with a range of four options as the estimated financial outlay for the project, ranging from the inexpensive (a small Web site developed with a package or wizard) to the most expensive (a larger Web site containing a number of interactive features). A range of setup and maintenance costs was provided for each option, based upon the sophistication level of the features chosen, the number of products being listed on the Web site and anticipated number of online sales. Refer to section 6.6.3 Costing Different Web Site Options for the source of the details used in this section.

7.3.2.2.3 Employee IT and Internet Expertise

This section allowed the expertise level of employees who would be associated with the Web site to be entered. Refer Section 6.2.2.3 Employees of the literature review. A range of choices for employee expertise was provided for businesses to indicate their current level of expertise.

7.3.2.2.4 Characteristics of Products and Services

This section was designed to ask questions about the characteristics of the firm's products and/or services. This was to ascertain whether particular Web site features may be suitable for the business. Refer to Section 6.2.2.4 Type of Products and/or Services Offered of the literature review for the basis of this section.

Another set of questions asked about the number of goods being listed on the Web site and the estimated number of online transactions per month. This can effect the cost of the Web site (refer to

Section 6.6.3 Costing Different Web Site Options of the literature review for details of how this occurs).

7.3.2.2.5 Competitors

This section was designed to allow an analysis of the Web sites of major competitors to occur. The analysis is performed in a similar manner to that described by Burgess and Schauder in Section 6.2.3.2 Competitors of the literature review. The analysis requires each major competitor to be given a 'score' between 0 and 1 for each major Web site feature that has been implemented (or not). If a business has fully implemented a feature it scores a '1', if it has not implemented it at all it scores a '0' for the feature. The total for each Web site feature is then added up. As an example, if there are five competitors and four of them have fully implemented online payments, then that particular Web site feature would have a total score of 4.

7.3.2.2.6 Customers

This section allows the user to enter the current 'Internet' skill level of customers and the scope of the current market (Local, State, National, International). Refer to Section 6.2.3.3 Customers for the source of this section.

It is also possible to enter particular Web site features that customers have requested the firm to implement.

7.3.2.3 Web Site Strategy

This section summarises the entries in the Business Investigation Stage that relate to overall firm strategy and competitors (refer Section 6.3 Developing a Web Site Strategy of the literature review). It requires no analysis, nor entry of results of the analysis. It repeats the overall firm strategy as selected by the business and provides an assessment of the likelihood that a particular category of Web site feature (identified in the Competitor and Customer sections of Business Investigation) will be Proactive, Neutral or Reactive if it is implemented by a business. This latter feature is the result of the first mathematical formula introduced into the model by the researcher. In order to offer 'recommendations', the spreadsheet component of the model is required to perform a number of mathematical calculations or comparisons. Each of these are explained in the following sections.

7.3.2.3.1 Formula to Determine the Strategic State of a Feature.

Initially, determine the number of competitors that have been analysed (this is not done by the user, the software does this).

The total score of each Web site feature is calculated for all competitors (refer Competitors section above). The software totals this after the users have entered the score for each competitor.

The ratio of the two figures is calculated for the particular Web site feature by dividing the total score by the number of competitors being analysed by the total number of competitors. In the example described in the Competitors section, the ratio would be four divided by five, or 0.8.

A particular Web site feature would be PROACTIVE if the ratio is less than or equal to 0.33 (in other words, most competitors [probably less than a third] have not implemented it).

A particular Web site feature would be REACTIVE if the ratio is greater than or equal to 0.66 (in other words, most competitors [probably more than two-thirds] have implemented it).

Otherwise, implementing the Web site feature would be NEUTRAL (some have it, some do not).

The choice of 0.33 and 0.66 was purely arbitrary, as they divide the sections into three roughly equal levels.

7.3.2.4 Level of Facilitation

Refer to Section 6.4 Building Business-to-Consumer Interaction Web Sites: Levels of Sophistication of the literature review for the basis of this section. This section once again listed the Web site features that had been identified earlier in the Competitors and Customers sections of Business Investigation. It provided a recommendation as to whether or not a Web site feature should be implemented, based upon entries made in the Business Investigation area. The recommendation for implementing each Web site feature was based upon a series of assumptions that had been built into the model. There were five criteria by which a Web site feature was considered for implementation. A strong implementation recommendation would receive a score of '1', a weaker recommendation would receive a score of '0.5' (the user did not see these 'scores'):

7.3.2.4.1

Formula for Determining if a Web Site Feature is Considered for Implementation

1. **Cost.** If the Cost strategy had been chosen in the Business Investigation section and if the Web site feature could provide cost savings to the firm it was recommended. This was done for the following Web site features:
 - Implementing a product catalogue, newsletters and/or basic information about the firm may provide the firm with printing cost savings.
 - Providing the answers to Frequently Asked Questions (FAQ), directions on using the product and email-based product support may reduce the amount of time (and money) spent on supporting products and services. The latter may save time as questions may be answered in 'batch' mode rather than having someone available all of the time.
2. **Differentiation.** If the differentiation strategy had been chosen in the Business Investigation section and if the Web site feature could differentiate the firm from its competitors it was recommended. This could not occur if the Web site feature had been implemented by a majority of competitors ("reactive").
3. **Competitors.** If the Web site feature had been implemented by a majority of competitors ("reactive") it was recommended to implement the feature. If many competitors had not implemented the feature it was also recommended, as it was a chance to be "proactive".
4. **Customers.** A recommendation was made here based upon whether customers had requested that the feature be implemented (this was entered in the customer section of Business Investigation).
5. **Goods.** A recommendation was made here based on whether or not the particular characteristics of the firm's products and/or services suited the particular Web site feature. These were based on the following assumptions:
 - If a good can be downloaded over the Internet, delivered by mail/freight or if the customer needs to make an appointment to complete a transaction, there may be advantages to implementing interactive online ordering.
 - If a good can be downloaded over the Internet or delivered by mail/freight there may be advantages to implementing online payments.
 - If a good can be downloaded over the Internet there may be advantages to implementing that feature on the Web site.
 - If it is possible to tailor the firm's goods to individuals, there may be advantages in implementing features that assist personalizing the goods (such as storing customer details in

Final Advice

The final recommendation for this section was made on a basis of the results for the five areas. Another mathematical model was used here. The scores for each of the five areas for the Web site feature were totaled (by the software). A score greater than or equal to 2.5 would mean a strong recommendation to implement the feature. A score greater than or equal to 1.5 (but less than) 2.5 would provide a weaker recommendation. Any other score would result in no recommendation. Thus, to receive a recommendation, a Web site feature would have to be recommended in more than one of the five areas.

7.3.2.5 Web Site Features

7.3.2.5.1 Implementation

This section allowed the user to accept or reject the recommendations of the previous section for each Web site feature. Upon choosing to implement a feature, a judgement was made by the system as to whether or not it could be implemented within budget. This is based upon the costs of the Web site being affected by the following (refer Section 6.6.3 Costing Different Web Site Options):

- The cost of hosting basic information provision features is relatively small. This statement does not take into account the time taken to transfer the information to the Web site initially and the time needed to update it.
- The ongoing cost of providing product catalogues does tend to rise as the firm increases the number of products listed on the Web site.
- The ongoing and transaction-based costs increase when online payment features are introduced.
- Options that allow some interaction with the Web site (more than just viewing information) require a greater outlay.

The various Web site features were divided into the following categories (these can be viewed as 'Cost Drivers' in the Implementation screen of the software). Each Web site feature was assigned a value from '1' to '7'. The ability to implement the feature was based upon the outlay selected in the Financial Outlay section of the Business Investigation. These outlays were given a rating ranging from '1' for the most inexpensive (a small Web site developed with a package or wizard) to '4' for the most expensive (a larger Web site containing a number of interactive features).

Table 29 shows the logic behind the message provided to the user, based upon the cost driver rating, the number of products on the Web site, the number of online transactions per month and the level of outlay selected in Business Investigation.

Table 29: Website Feature Cost Driver Classifications and Suggested Implementation Message provided, based upon Outlay choice.

Cost Driver	Rating	Suggested Implementation Message Provided
Static - inexpensive	1	YES
Static - may rise with products	2	If < 15 products or Outlay Rating > 1 then YES, else show NO - too many products - choose more expensive outlay
Static - may rise with sales	3	If < 100 online transactions/month or Outlay Rating > 1 then YES else show NO - too many sales transactions - choose more expensive outlay
Interactive - standard feature	4	If Outlay Rating > 2 then YES, else show NO - INTERACTIVE option - choose more expensive outlay
Interactive - Relies on number of products	5	If < 15 products and Outlay Rating > 2 then YES if < 15 products and Outlay Rating = (1 or 2) then show NO - INTERACTIVE option - choose more expensive outlay, else If Outlay Rating > 3 then YES, else show NO - too many products - choose more expensive outlay
Interactive - Relies on products and sales	6	If < 100 online transactions/month and Outlay Rating > 2 then YES If < 100 online trans/month and Outlay Rating = (1 or 2) then show NO - INTERACTIVE option - choose more expensive outlay, else If Outlay Rating > 3 then YES, else show NO - too many online transactions - choose more expensive outlay
Needs IT expertise	7	If Outlay Rating = 4 then YES, else show NO - INTERACTIVE option - choose more expensive outlay

This section also provided a recommendation as to how the Web site could be developed, internally or externally. The recommendation was based upon the employee expertise identified in the Business Investigation stage and the highest rating cost driver for the Web site features that were selected by the user.

Table 30 represents the logic used for this. If there was no internal experience at developing Web sites, the recommendation was that the Web site be developed externally. If there was some internal experience (either by the development of simple HTML pages or the use of a package or wizard), the option was provided to develop the Web site internally, provided that it does not contain any features that require IT expertise. If there was internal IT expertise, the option was provided to develop the Web site internally irrespective of the level of difficulty.

Table 30: Website Feature Cost Driver Classifications and Suggested Website Development Options, based upon Level of Employee Expertise.

Level of Employee Website Expertise	Suggested Website Development Message Provided
None	No Website experience: Recommend External Setup
Created Simple HTML Pages	If Static Web site (High rating ≤ 3) then show Static Web Site: Internal Setup Possible, else If Interactive Web site (Highest rate > 3 and ≤ 6) then show Interactive Web Site: Possible internal setup: Template/Package, else show Website Experience required: Recommend External Setup
Used Template or Wizard	If Static Web site (High rating ≤ 3) then show Static Web Site: Internal Setup Possible, else If Interactive Web site (Highest rate > 3 and ≤ 6) then show Interactive Web Site: Possible internal setup: Template/Package, else show Website Experience required: Recommend External Setup
Experienced	If Static Web site (High rating ≤ 3) then show Static Web Site: Internal Setup Possible, else If Interactive Web site (Highest rate > 3 and ≤ 6) then show Interactive Web Site: Possible internal setup: Template/Package, else show Website Experience required: May be available internally

7.3.2.5.2 Promotion

The Promotion section allowed the user to select the various Web site promotion strategies to be adopted by the firm. These were divided into the following:

- Using brand recognition techniques.
- Creating entertaining Web sites to draw visitors.
- Using levels of Internet promotion (on the firm's own Web site, on other commercial Web sites, in Internet communities and outside of the Internet).
- Using the Internet to assist with the personalisation of goods.

Refer to Section 6.5 Promoting the Web Site of the literature review for the source of material for this section.

7.3.2.5.3 Evaluation

This section allowed the user to identify and quantify the areas to be measured to determine the success of the Web site. It was based upon Section 6.7 Measuring Web Site Performance of the literature review, specifically Section 6.7.6

7.4 Setting Up the Micro Focus Groups

This subsection discusses the selection of the facilitator of the micro focus groups and some aspects of the conduct of the groups.

7.4.1 The Role of the Facilitator

The major role of the facilitator in a focus group is to ensure that (Zikmund, 2000):

- The general topic area is introduced at the start of the session and then specific topics are focused upon throughout the session.
- Everybody gets a fair chance to speak and ask questions about clarification of the topic.
- A rapport is developed with the group.
- Interaction amongst group members is promoted;
- Discussion is focused upon areas of concern, but when the topic is not generating fresh ideas the flow of discussion is changed.

The facilitator should ideally be interested in people, be able to listen carefully and make people relaxed and willing to talk. 'Listening' is vital as the purpose of the focus group is to illicit immediate responses (Zikmund, 2000). In some instances it is useful to have facilitators with previous experience in running focus groups. In this particular instance, the nature of the study was assisted by selecting a facilitator with some background in the area being researched and a working knowledge of the software being used. The facilitator, Andrew Wenn, is a colleague of the researcher and a lecturer in the School of Information Systems at Victoria University. Andrew already had experience in running discussion panels at international conferences, curriculum seminars within the School of Information Systems and years of experience promoting discussion in tutorials at the undergraduate and postgraduate levels. In addition to this, he had been involved in a number of personal interviews and the use of other qualitative data collection in his own PhD studies. The skills gained in performing these activities, his skill in being able to use the software to guide participants and his background in teaching and researching in a related area made him a suitable choice as facilitator.

The facilitator is often aided by a set of prepared questions (Zikmund, 2000). In addition to providing the facilitator through a 'walkthrough' of the manual and software, the following set of guidelines for running the first micro focus group was provided by the researcher.

Micro Focus Group Advice – Mr A Wenn

Main Aims of the Micro Focus Group

1. Lead participants through the manual and software in two, one hour periods. This may require explaining some of the sections of the model rather than 'actual' implementation of the stages.
2. Encouraging any discussion that arises during the process of working through the model.
3. Ensure that participants 'record' their thoughts in the questionnaire implemented in the model.

Opening Remarks

1. Welcome participants
2. Explain why you are running the group. Explain the researcher's role (passive).
3. Explain the tape recorders
4. Explain that the manual and software are 'beta' versions and not fully tested – and that you are after comments about the process.
5. Encourage them to offer opinions, comments, suggestions, etc. BUT keep track of time.
6. Explain that participants can take home the manual and software, and that they will get a copy of the final version if they wish.

Session One – Business Investigation and Strategy

Business investigation

1. Take them through the various stages of the business investigation. You may have to 'fudge' some of the results here to get through them in time.
2. Don't forget to encourage any discussion that may arise, especially disagreement with the process or a lack of understanding of the process.
3. At the conclusion of this, get them to fill out the questionnaire sections: 'Prev experience', 'Internal' and 'External'

Strategy

1. Take them through the strategy stage. This is passive, so explain what it is meant to achieve.
2. At the conclusion of this, get them to fill out the questionnaire section: Strategy
3. Break for morning tea

Session Two – Facilitation, Planning and Implementation and Session Close

Facilitation

1. Take them through the facilitation section.
2. Don't forget to encourage any discussion that may arise, especially disagreement with the process or a lack of understanding of the process.
3. At the conclusion of this, get them to fill out the questionnaire sections: 'Facilitation'

Planning and Implementation

1. Take them through the various stages of planning and implementation.
2. Don't forget to encourage any discussion that may arise, especially disagreement with the process or a lack of understanding of the process.
3. At the conclusion of this, get them to fill out the questionnaire sections:
'Planning/Implementation'

Session Close

1. Ask them about the entire process, any comments, suggestions, etc.
2. Get them to fill out the last part of the questionnaire, 'Framework'.
3. Thank participants for their assistance.

Andrew followed similar guidelines to conduct the remaining groups.

Whilst the focus groups were being conducted, the researcher observed from within the room, taking down notes during the session, answering questions relating to the operation of the software where needed and clarifying points where requested by the facilitator. The researcher reviewed the tapes of the sessions after the sessions were conducted. The combinations of the researcher's own notes and the taped sessions were combined to produce the outcomes of the sessions, documented in the following sections.

Note the mention of a questionnaire being available in the software, to be filled out at the end of each 'section' of the micro focus groups. This questionnaire can be viewed by selecting the 'Questionnaire' tab in the spreadsheet. Whilst the initial micro focus group was being conducted, it was decided by the researcher that the feedback from the focus groups was so 'information rich' that the questionnaires were not needed. Participants were never requested to fill it out at any stage.

7.5 Conducting the Micro Focus Groups

7.5.1 The First Micro Focus Group (25 November, 2000)

7.5.1.1 Introduction

As can be seen from the Micro Focus Group instructions provided to the facilitator, the discussion was reasonably structured, as working through the model for the first time is a fairly linear process. There was a general discussion about the process at the start and end of the sessions. The rest of the time was spent working through the sections of the model.

The overall discussion in relation to the model fitted into two major areas, discussion of a general nature (relating to the entire model) and that of a specific nature (relating to the sections being covered). On a number of occasions, participants made general comments whilst working through a specific section of the model. On a few occasions, participants would refer back to an earlier specific section that had previously been dealt with.

Within these classifications, the discussion could also be divided up into two 'sub categories'. These were comments that related to the process (working through the model) and those that related to the interface (how the manual described the process and how the software looked and operated). Some of the comments related to the interface will not be included here, as they do not relate to the subject matter being described here. Some comments related to the interface, however, do relate to the subject matter and therefore will be included in the discussion.

The following subsections represent a summary of the discussion within the first micro focus group. This was compiled from a combination of the notes taken by the researcher during the conduct of the group and a subsequent review of the recorded proceedings.

7.5.1.2 Comments of a General Nature

Initially, participants seemed to be satisfied with the order of the analysis as described at the start. Even with the initial explanation, however, it became apparent a number of times throughout the entire discussion that participants felt that an overview of the entire process should be presented at the very beginning. This should not only include a description of what will be occurring, but an illustration of the process to be followed throughout the analysis. This should be concluded with a statement/ demonstration of what can reasonably be achieved at the end of the analysis. It was suggested that a multimedia presentation (perhaps audio, but probably video) would be useful in serving this purpose. Perhaps a 'wizard' to lead through the process would also be useful. It was decided that a suitable means of delivering such a package would be on compact disc (CD).

An interesting and related discussion developed about the complexity of the process of the analysis versus the complexity of using the model (interface). It was felt that small businesses need a user-friendly model to help them work through what was a fairly detailed process. In this instance, the participant explained the use of the term "user-friendly" rather than "simple" because it was felt that the process was "not simple".

One participant commented that the model may be useful because small business do not use the Internet because:

- "They don't know how it can help their business", and
- "They don't know where to start".

In keeping with this theme, the need for a glossary (perhaps in the software) was discussed on a number of occasions. It would help small businesses to be more familiar with the terms used and be 'less scared' by them.

Although it was impossible to lead participants through an actual walkthrough of the model with a real example, it was felt that they were experienced enough with small businesses to apply the model to situations that they knew. This was confirmed a number of times throughout the discussion as they related the various sections that they were working through with 'actual' businesses that they had worked with.

As an aside, the researcher initially designed the software to be a 'support' for the process described in the manual. It was there mainly as a means of recording the results of the analysis and presenting the outcomes of the mathematical modeling. It became obvious throughout the session that the software was what participants 'gravitated' to as their primary source of information for working through the model. When (repeatedly) reminded to use the manual by the facilitator, they did so as a final resort. Many of the user-interface related comments were related to areas that were explained in the manual and not in the software.

Some of the interface comments that particularly related to small business users (as 'novice' users of IT) were:

- "Can you lose information? Small businesses are worried about such things".
- "Can you describe what is going on at the top of the screen so that small business users always know what is going on and where they are".
- "Can you highlight areas that have been completed" (for the same reasons).

7.5.1.3 Comments Related to the Business Investigation Stage

As indicated earlier, the Business Investigation stage was broken up into a number of areas.

7.5.1.3.1 Overall Firm Strategy

There was general agreement with the strategy options provided and the description of them in the manual.

7.5.1.3.2 Financial Outlay

As mentioned earlier, participants were asked to select a particular level of financial outlay that the firm would be willing to commit to the Web site, based upon some categories that were presented which included setup and ongoing (maintenance) costs. One participant was concerned about identifying a third category of Web site expenses, separate to maintenance, that involved the cost of alterations to the Web site at a later date. Another participant asked how this type of cost could be planned for.

It was generally felt that the provision of examples of Web sites that were typical of each level of financial outlay would be useful to guide the user in their selection of the financial outlay. These examples could be put onto the CD package (mentioned in the General Comments area). It was agreed that the early provision of this type of information is important because this section is referring to a cost that would be incurred at the end of the process.

One participant felt that the costs involved in setting up and maintaining a Web site had not been identified clearly enough. For instance, at this stage of the process there had been no mention that the Web site had to be hosted somewhere.

7.5.1.3.3 Employee Expertise

There was little discussion related to this section. One participant suggested that some extra options for the level of employee expertise could be included, these being No Expertise (to be placed before 'Minimal Expertise') and Use of Email Only (to be placed before 'Use of Email plus Web Surfing').

7.5.1.3.4 Characteristics of Products and Services

Participants contributed quite a bit of discussion in this section. There was a lot of confusion as to the use of the terms 'Products' and 'Services'.

A question that was asked in the model was 'Are your products/ services downloadable over the Internet?' One participant asked how a product could be downloaded over the Internet, to which another participant replied, "It can't".

Another question asked in the model was 'Can your products/ services be delivered by mail/freight?' It was generally felt that it was more likely to be products that would be delivered in such a way, rather than services.

There was a concern that the questions were being asked on too general a level, and that there should be provision for firms with multiple types of products and services to be able to classify these separately. One participant pointed out that even a small business such as a landscape gardener provides products (rocks, grass, flowers and so forth) and a service (the design process).

In discussing the resolution to this, participants noted that many of the questions (including the two mentioned above) allowed for one of four responses: 'Yes', 'Some', 'No' or 'Unsure'. One participant decided that he would probably put 'Unsure' because he did not know what the question meant! After some further discussion it was decided that if a firm's different classes of products and services could be classified separately, there would only be a need for two responses: 'Yes' or 'No'. As one participant put it, "You either do or you don't".

Another area of discussion revolved around the question 'To what level can your goods be customised?' There was some confusion about the meaning of the term 'customised'. After reading the definition in the manual there was still some confusion, some about the term and some about the four responses on offer (again): 'Yes', 'Some', 'No' or 'Unsure'. It was suggested that a better method would be to use the word 'individualised' instead of 'customised' and, as suggested earlier, ask the question for each separate class of product or service. This would enable a response of 'Yes' or 'No'. Again, as one participant noted, "You either can or you can't".

One participant raised the topic of deciding when a good can be classified as being individualised, citing the example of a firm that sells stories over the Internet. It was decided that these were NOT individualised, as each separate story was the same when ordered by separate customers. The same participant asked if each story was a separate good (although the word 'product' was used). The answer was that it was a separate good (and would have to be for marketing purposes), but all of them may fall into the same class of good for this exercise.

A final concern was that the model asked for the number of anticipated monthly online sales transactions when the Web site is implemented. Participants were unsure as to whether this meant for one product or was the total for all products (it was meant to be a total).

7.5.13.5 Competitors

As indicated previously, the purpose of this section was to allow an analysis of the Web sites of major competitors to occur. This could be done by entering a 'rating' as to what level major competitors had implemented each listed Web site feature, the rating being a range from '0' (for not implemented) to '1' (for fully implemented).

One participant suggested that a better definition of 'fully implemented' needed to be provided. Another participant requested that the description of each Web site feature could be provided earlier in the manual (perhaps 'online').

A comment was made that this section was "really getting into the meat" of the process.

The model allowed for the analysis of five competitors. There was some discussion (and disagreement) as to whether this was enough. One participant stated, "I'd want ten". Another suggested that five was enough, but that you may be able to "lump" similar competitors together.

7.5.13.6 Customers

Most of the discussion in this section related to an inability to classify customers in one single group. It was felt that at least there should be a division between current customers and potential customers that the firm might be trying to attract with its Web site.

As with employee expertise, it was suggested that the options 'No Experience' and "Email only" be added to the question regarding level of Internet experience.

There was also a section allowing users to enter particular Web site features that customers have requested the firm to implement. This included the options: 'No/ Not Applicable', 'Consider' and 'Implement'. It was suggested that a stronger recommendation option be included, 'Essential'. This was to "put a priority" on the implementation of the Web site feature.

7.5.1.4 Comments Related to the Strategy Stage

Generally, participants were happy with this stage as a "summary" of the Business Investigation stage. It was felt that there could be a better explanation of the notion of 'Proactive', 'Neutral' and 'Reactive'. The concern was based more about the meaning of each of the terms in relation to the overall process, rather than how the model determined whether a particular subset of features would be proactive, neutral or reactive.

7.5.1.5 Comments Related to the Level of Facilitation Stage

As mentioned earlier, the purpose of this section was to provide a recommendation as to whether or not a Web site feature should be implemented, based upon entries made in the Business Investigation area. The recommendation for implementing each Web site feature was based upon a series of assumptions that had been built into the model. There were five criteria by which a Web site feature was considered for implementation.

There was a great deal of confusion and discussion based around this section. An initial comment (carried over from the previous section) related to the use of the words 'Proactive' and 'Reactive'. After a short discussion it was decided that small businesses would probably understand the terms 'Market Leader' (for proactive) and 'Market Standard' (for reactive) more easily.

There was no doubt that the interface caused much of the confusion here. Some of the columns (related to each of the five criteria) contained text and some did not. It was felt that an on-screen description of what the section was meant to achieve would assist. There were many comments here about the need to explain things further.

In the 'Competitors' criteria column, it was possible for a Web site feature to be recommended on the basis that the majority of major competitors had implemented it ('a 'Reactive' strategy). Participants accepted this. Confusion seemed to arise when the same column could also recommend a Web site feature on the basis that few or no competitors were using it (that is, a chance to be 'Proactive'). One participant observed that if no other firm uses a Web site feature it is not reason enough to implement it - there have to be business reasons for implementing it as well.

One participant commented upon the logic used to determine the final recommendation made by the model. In the version presented, there had to be a recommendation made by more than one criteria before the model would recommend it. The participant asked why this is the case, arguing that one good reason to implement a feature (such a Web site feature that may generate cost savings) should be enough to recommend its inclusion overall. Other participants agreed with this argument.

There was some debate over what to do with the information on the screen. One participant suggested that it should be simplified, but another felt that the detail was "OK", but the explanations need to be improved. Some suggestions included the facility to print off a written report to view the outcomes in "straightforward terms". Another suggestion was to show a pie chart, with the cumulative effects of the five criteria represented in proportion.

One comment was related to the logic behind the model and reflects other comments in the section. It was felt that there was a need to show the actual reasons for recommending implementation rather than just state that they were there.

Overall, the participants felt that the screen had a useful purpose, but needed to be better explained. Comments such as "the intention is great" and "the concept is brilliant" reflected this.

7.5.1.6 Comments Related to the Web Site Features Stage

The Web Site Features stage incorporates three sections. These will be discussed separately in the order they were covered in the micro focus group.

7.5.1.6.1 Implementation

This screen allowed users to select particular Web site features for implementation, based upon the recommendation made in the previous stage. It then made a 'judgement' as to the ability of the firm to develop the site internally, based upon entries that had been made in the Employee (expertise) section of the Business Investigation stage.

There was some confusion about the purpose of the 'advice' column. The facilitator had to explain a number of times that this was carried over from the previous section, and that the user still had to select the Web site feature to be implemented, based on that recommendation. This section was eventually understood after a demonstration of its operation.

One participant suggested that it would be nice to be able to eliminate a feature that you did not want to implement at all early on in the process of using the model.

The section related to judging the ability of the firm to host the Web site was received well. One participant gave it a "big tick".

7.5.1.6.2 Promotion

Participants were satisfied with this stage. There were few comments. One participant again highlighted the usefulness of a glossary (this time to explain the meaning of the term 'portal').

7.5.1.6.3 Evaluation

As indicated earlier, this section allowed the user to identify and quantify the areas to be measured to determine the success of the Web site. One participant indicated that it would be useful to include a "drop down list" of typical benefits so that the user could select them.

There was some discussion about leaving this particular stage to the end of the process. It was felt that understanding of the overall model would be assisting by determining the reasons for wanting the Web site early on in the model. These could then be used to assist in the development of the evaluation list at the end of the process.

A final suggestion was made to link the overall goals and the budget if possible. This would entail indicating if a particular outcome that had been identified was achievable given the budget.

7.5.1.7 Final Comments

There were a number of general comments made at the end. Most of these were covered in the earlier section, Comments of a General Nature.

Participants felt that the model would be useful for small businesses wishing to establish a Web site. The comprehensive analysis was praised, with one participant commenting "it's a shame they don't use something like this in other parts of their business".

There was some discussion as to whether small businesses would devote the time to applying the model to their business properly. At this point, the researcher intervened and indicated that the model was only aimed at those small businesses that were prepared to devote the time. The group accepted this.

One particular area of discussion towards the end of the micro focus group is of interest. One participant asked if this was the end of the process for them. An 'open ended' offer was made to be involved in the process at a later stage. The other participants quickly agreed to be further involved as well. This was not prompted by the facilitator or by the researcher, and was the precursor to the running of the third micro focus group.

7.5.2 Alterations to the Model after the First Micro Focus Group

There was a gap of two weeks between the running of the first micro focus group and the second one. This provided the researcher with an opportunity to alter the manual and software according to suggestions made in the first micro focus group. A number of changes to the general interface that do not effect the operation of the model were made. Other changes were made that do effect the operation of the model. There was not enough time to make all of the changes suggested by the group. Some of these were made for the third micro focus group.

7.5.2.1 Changes to the Operation of the Model

Most of the changes were made to the software, as this was the subject of most of the comments by the first micro focus group. The following changes reflected this emphasis. This version of the software can also be viewed in Appendix Three.

1. The first change was the introduction of explanation screens at the start of the operation of the model and at each major stage of the model. Participants in the second micro focus group were asked to imagine that these were 'videos'. The time between the focus groups did not allow for real videos to be recorded and included in the software.
2. Online descriptions were added for each Web site feature and for the major headings on each screen in response to the requests for further explanations of the process and terms. The description was shown if the user moved the cursor over the item in question.
3. A change was made to the Website Strategy screen. Due to the request for the benefits to be shown earlier in the process and linked to the Web site evaluation, a section was added to

Strategy that not only shows whether implementing a feature would be Proactive, Neutral or Reactive, but also indicated the typical types of benefits available if the firm had selected a Cost of Differentiation strategy. The logic behind the screen is shown in Table 31.

Table 31: Cost and Differentiation Benefits for Website Categories

Website Feature Category	Potential Benefits if Cost Strategy Selected	Potential Benefits if Differentiation Strategy Selected (*)
Basic Product Details	Save catalogue printing costs	May provide information about product quality
Transaction Details		Faster transactions/ Reduce geographic boundaries
Product Support	Reduction in staff time answering queries	Extra Product Support
Personalisation		Goods customised to individuals [Niche]
Sense of Community		Entertainment/ social experience
Other Incentives		Extra incentives for customer to purchase
Basic Information		May imply reliability/ Customers find stores faster
Website Navigation		(+)Required Features - Web site standard
Contact Details		(+)Required Features - Web site standard

(*) The differentiation benefit was only shown if implementation of the Web site was Proactive or Neutral. If it was Reactive, the message 'Competitors are doing this - consider!' was shown on the basis that the majority of competitors were already doing it.

(+) These features are considered to be required (standard) features in a firm's Web site. As such, they were always recommended.

4. Inconsistencies related to the use of the terms 'Products' and 'Services' (as identified by participants in the first micro focus group) were removed.
5. The Level of Facilitation screen was reworked to remove some of the lack of understanding that occurred in the first micro focus group.
 - The 'Cost' column remained, but was expanded to show the type of cost benefit that could potentially be provided by implementing the Web site feature (the potential benefit was determined using the same method as for Table 31).
 - The 'Differentiation' column in the original version of the model was replaced with a column titled 'Proactive- Chances to Differentiate'. A recommendation in this column was only made IF the status of the Web site feature was Proactive or Neutral AND IF there was a potential differentiation benefit (as per Table 31). As with 'Cost', the potential benefits were shown on the screen.
 - The 'Competitors' column was removed. In its place was a column titled 'Reactive'. This only recommended that the Web site feature be included if the majority of competitors had implemented it ('Reactive' strategy).
 - The 'Customers' and 'Goods' columns remained consistent with the original version of the software.

6. The 'Advice' column was altered from the original version of the software on the basis of suggestions by participants in the first micro focus group. A recommendation was now based on the strongest recommendation of any of the five criteria. It no longer relied on a cumulative recommendation in more than one column. This meant that a Web site feature had only to be recommended in one column to be recommended on an overall basis.
7. On the basis of the discussion in the first micro focus group, the 'Promotion' Screen was revamped. It was divided into two areas, 'General Promotion' strategies and 'Specific Promotion' Strategies. General Promotion strategies included those items already in the model (such as use of domain names, promotion on search engines and so forth). The Specific Promotion strategies realized that some Web site features could also assist in promotion of the product. These were identified as follows (refer to Section 6.5 Promoting the Web Site of the literature review).

Table 32: Specific Website Feature Promotion Benefits

Website Feature	Potential Promotion Benefits
Provision of Basic Product Details	Branding
Bulletin Board, Chat rooms, Clubs	Social experience for Customers

8. The 'Evaluation' Screen was revamped in a similar manner to the Promotion Screen. It was also divided into two areas, 'General Aims' and 'Specific Aims'. General Aims provided a list of the typical benefits of that Web sites can provide that may not directly link to specific Web site features (such as increased number of customers, increased sales and so forth). The Specific Aims section listed those cost and differentiation benefits that were identified earlier (in Website Strategy) that could be related directly to specific Web site features. Users were then able to put quantifiable measures against these aims (specific and general) to judge the success of the Web site at a later date.

7.5.2.2 Interface Changes

An increased number of general guidelines and prompts for the user were included in the software. A 'tracking' option was also added to allow users to know when they had completed various stages of the model. This was in the form of a notification of stage completion on the main screen whenever a stage had been completed.

All of the changes in relation to the model were included in the updated version of the manual.

7.5.3 The Second Micro Focus Group (9 December, 2000)

7.5.3.1 Introduction

The second micro focus group was conducted with three new small business counsellors.

As with the first micro focus group, the discussion was reasonably structured, working through the model on a step-by-step basis. The discussion again fitted into two major areas, that of a general nature (relating to the entire model) and that of a specific nature (relating to the sections being covered). Participants in the second micro focus group were more likely to make general comments whilst working through a specific section of the model than with the first group. Again, participants would refer back to an earlier specific section that had previously been dealt with.

Within these classifications, the discussion was again divided up into two 'sub categories', process comments (working through the model) and interface comments (how the manual described the process and how the software looked and operated). There were fewer comments about the interface (and more about the process) than with the first group. This is probably due to the changes made to the interface between the first and second micro focus groups, but this is conjecture on the part of the researcher.

7.5.3.2 Comments of a General Nature

After being introduced to the manual and the software, the discussion began. Participants were asked to comment upon the opening 'video' (which was actually just a comment box on the screen with the text of the proposed video) and were told that there were a number of these at major junctures throughout the model. Participants were in favour of this, with comments such as "such a thing is necessary", "they [small businesses] don't have a lot of time" and "its good if they can see it happening". One participant suggested that it was a good idea to tell users of the process of what will go on the Web site to "excite the customer".

As occurred with the first group, there was discussion throughout parts of the entire session about the need to make the process straightforward so that it could be understood by small businesses, many of which are "computer illiterate". It was felt that younger people might be more inclined to use the model (and the Internet). Older people (especially those that had been made redundant and were now starting up a small business) may be more familiar with the business processes but were not brought up in the Internet "culture". One participant commented that they "understand the business jargon but not the IT jargon" and that there was a "fear of the unknown".

The topic of a glossary was discussed in parts of the entire session (as with the first group). In many instances it was linked with the previous discussion that related to making the entire process straightforward. The software changes that had been made in between the two micro focus groups were considered "useful" (and were used quite a bit throughout the session), but not extensive

enough. There were still a number of terms that participants did not understand, or felt that small businesses would not understand.

There was a deal of unsolicited discussion in the second group about the usefulness of the model to small businesses. It was felt that the model was useful because it forced small businesses to think about what they were doing and to have a better knowledge of the marketplace. One participant commented that the model was "a soft introduction into a perplexing problem, but it needs some refinement and simplification".

7.5.3.3 Comments Related to the Business Investigation Stage

As indicated earlier, the Business Investigation stage was broken up into a number of areas. At the end of this stage, which took up approximately 60% of the entire session, one participant commented: "we've only done one button", to which another participant replied "but the most important one". It was felt that the session was lengthy, but comprehensive – very important for such a major investment of small business resources.

7.5.3.3.1 Overall Firm Strategy

As with the first micro focus group, there was general agreement with the strategy options provided.

7.5.3.3.2 Financial Outlay

Unlike the first group, there was very little discussion in this section, even though it remained unchanged. One participant noted that it was good to include the ongoing costs as well as the setup costs.

7.5.3.3.3 Employee Expertise

This section remained unchanged from the first session.

In this section there were glossary-related queries about a number of terms (template, wizard and search engine).

As with the first group, one participant suggested that there should be extra options for the level of employee expertise, the suggestion being Email Only.

7.5.3.3.4 Characteristics of Products and Services

This section had been updated to eliminate some of the confusion that had occurred with the definitions of products and services in the earlier version of the applied model.

As with the first group, there was a concern that the questions were being asked on too simplistic a level. One participant commented, "the model makes the old assumption that businesses offer one product or service, like a doctor. This view is not contemporary enough to handle industries, such as service industries, that are much broader". The resulting discussion observed that this 'narrow' view was quite common amongst small businesses themselves. It was suggested that the same questions be asked for a number of categories of products and services that the small business could identify (based around, say, business activities).

Another concern was related to the amount of anticipated monthly online sales transactions. This was also a concern for the first group. Participants were unsure as to this meant for one product, a category of products or was a total for all products.

7.5.3.3.5 Competitors

Apart from a few minor changes, this screen was largely the same for the first group as for the second group. Two of the participants felt that the screen may be intimidating for small businesses when compared with the previous screens that they had seen. It was noted that small businesses would need quite a deal of time to work through the analysis in this section.

One participant asked if the general Web site features that were in the model could apply to a range of industries. Another participant responded that it could and that you "just get them to fill in a zero" for the features that the industry did not use, a concept which achieved general agreement.

Once again, there was some discussion as to the importance of this section forcing small businesses to see what their competitors are doing.

7.5.3.3.6 Customers

There was a great deal of discussion in this section. As with the first group, most it related to the limitations of the model only allowing customers to be classified into in one overall group. One participant suggested that if was to be done the small business had to be able to enter the percentage of customers in each category of a question. For instance, $n\%$ of customers have no Internet experience, $m\%$ of customers are experienced Internet users, and so forth. This notion had support throughout the group. After some discussion, it was decided (as with the first group) that there should at least be one category of questions for existing customers and one category for potential customers, as there was a need to cater for both. Further observations included that questions related to the expectations of customers could realistically only be asked of existing customers and that only firms that had chosen a growth strategy would be interested in potential customers.

The previous discussion lead into further comments related to the narrowness of the model and further suggested the "segmentation" of customers. One participant commented "successful businesses cater for the different segments of their market" and asked if it was "possible" to relate the customer type (or segment) to the categories of products and services proposed earlier. Another participant responded that they "needed" to be related.

A final suggestion related to customers that have 'minimal' Internet usage. One participant suggested that this question should be asked earlier on in the model, because "if the majority of customers have minimal usage what is the point of the process?" The point being made here was that a fair bit of analysis had already occurred to find out that the Web site may not be used by customers.

7.5.3.4 Comments Related to the Strategy Stage

As with the first group, participants were satisfied with this stage as a "summary" of the Business Investigation stage and were satisfied with the notion of 'Proactive', 'Neutral' and 'Reactive'.

A change made to the software between the first and second micro focus group was the introduction of a section that described the types of costs that could be saved or the types of differentiation that could occur. This was introduced as an attempt to introduce the business reasons for implementing the Web site at an earlier stage. This was explained to participants and they were satisfied with the usefulness of the feature.

7.5.3.5 Comments Related to the Level of Facilitation Stage

There were few comments in this section when compared with the number of comments at the corresponding stage of the first group. This is probably due to the changes that were made to this part of the software in between the running of the two groups, but this assertion cannot be confirmed.

As with the first group, the participants felt that the screen was useful, but would have preferred more time to reflect upon it. One participant noticed that there were some features that were recommended for implementation irrespective of the earlier analysis (such as Web site navigation buttons) – refer Table 31. Upon confirmation of this, the participant commented, "this is great – the little things can sometimes get lost".

7.5.3.6 Comments Related to the Web Site Features Stage

The Web Site Features stage incorporates three sections. These will be discussed separately in the order they were covered in the micro focus group.

7.5.3.6.1 Implementation

There was very little discussion in this section. One participant noted that the screen was relatively easy to understand.

7.5.3.6.2 Promotion

As with the first group, participants were satisfied with this stage. There were few comments. One participant commented that it would be useful to see if there are any statistics available to determine the effectiveness of the various methods.

7.5.3.6.3 Evaluation

This software for this section was altered between the first and second groups, but this section was still a catalyst for discussion in the second group. The emphasis of the first group was on identifying the list of items to be used to measure success. The emphasis of the second group (probably due to the changes that were made) was on how to determine suitable targets for these measures.

The first part of the discussion revolved around the provision of benchmarks of best practice to assist small businesses to identify suitable and achievable targets. One participant suggested that, in the absence of other information, the small business was likely to overestimate the potential benefits. Another participant suggested that this would allow the business to attempt to more suitable measure the investment against other alternative investments they could make. Terms that were used to describe the types of estimates that small business might make were "pie in the sky", "crystal gazing" and "stab in the dark".

There was also some discussion about the need to translate the measures in dollar benefits for the business. Some of the comments that were made were "how do you measure the success of a Web site? You can have 'x' hits per day but how does that translate to dollars" and "it is important to be able to convert the number of visits to the number of orders".

One participant commented that in the end, the relationship between the revenue and the cost has to be identified to identify the value of the investment.

7.5.3.7 Final Comments

There were a number of general comments made at the end. Most of these were covered in the earlier section, Comments of a General Nature.

The participants were asked for some final comments. One participant again mentioned the importance of providing some benchmarks that small businesses could use to guide them in setting their targets for evaluation of the Web site.

As with the first micro focus group, there was some discussion about whether or not small businesses would be patient enough to work through the model. One participant observed, "the good players will". A short discussion again occurred around the likelihood of younger people to use the model over older people. Although it was agreed that they were likely to be more "IT literate", there were some that "will be cavalier and will not do it". In the end, it would be determined by the willingness of the small business to embrace the technology and perform the analysis.

There was (once again) interest generated amongst the counsellors to be further involved in the process that was not prompted by the facilitator or by the researcher. The participants made comments such as "do you propose to run this again? This has been a bit rushed and now we're a bit more familiar..." and "there is a benefit to you and to us, by the way of extra knowledge...". The participants then organized a time in February 2001 between themselves, a meeting that the facilitator and researcher agreed to organize (which turned out to be the third micro focus group)!

7.5.3.8 A Summary of Both Sessions

This section summarises the main areas of agreement between the two micro focus groups.

Both groups agreed with the overall (high level) format of the model carried over from Phase One of the study.

There was discussion in both groups relating to the need to make the process of applying the model a straightforward one. The idea of multimedia presentations at the beginning and at major junctures of the model was introduced by the first group and implemented (in a simplistic manner) in the second group to general agreement of their usefulness. Along the same lines, the importance of a comprehensive glossary, explaining terms that were used throughout the process, was emphasized in both groups.

Both sessions highlighted the usefulness of the model to small businesses as a tool for forcing them to think about what they were doing where they were positioned in the marketplace.

Both groups commented on the need for the products and services section to cover the possibilities that small firms may market a range of products and services. It was suggested that the section be based around categories of products and services (for instance, business activities).

The important of investigating what competitors are doing was emphasized in both sessions.

As with products and services, the customer section was identified as being too simplistic. At the very least, customers should be divided into two groups, existing customers and potential customers.

There was some discussion in both groups as to who would use the model. The need to perform the detailed analysis might put some small firms off. It was thought that whilst younger people might be more inclined to use the model and the technology that older people might be more likely to go through the process of a proper business analysis that was required.

Both groups indicated an enthusiasm to meet again and be further involved with the project. Neither the facilitator nor the researcher initiated these (separate) offers from both groups.

7.5.4 Alterations to the Model after the Second Micro Focus Group

7.5.4.1 Introduction

The final micro focus group differed from the first two in a number of ways. It included members from both of the first two groups. Members of those groups, and not the researcher initiated its organisation. The members of the group had, therefore, already been exposed to the software. The combined micro focus group was conducted to provide feedback upon the latest version of the applied model. The latest version of the model was developed on the basis of feedback from the earlier micro focus groups.

There was a gap of approximately eight weeks between the running of the second micro focus group and the combined group. This provided the researcher with an opportunity to alter the manual and software significantly according to suggestions made in both micro focus groups. As with the earlier changes, a number of alterations to the general interface that do not effect the operation of the model were made. Other changes were made that do effect the operation of the model. This version of the software can be viewed in Appendix Three.

7.5.4.2 Changes to the Operation of the Model

A number of changes were made to the operation of the model. These are summarised here.

1. A number of 'Benchmark' buttons were added throughout various stages of the model. These were to provide some idea of typical profiles of small businesses in the area of the model they were situated in, containing useful information or national trends in the area. As such, the information provided was more of a report of a standard situation rather than 'benchmarks' for best practice as such (some of which could be obtained on a commercial basis from marketing research organisations but were not for this Phase of the study due to lack of resources).
2. Given the success of the 'online tips' added to the software for the previous micro focus group and a request in that group for further explanations in the software, many more were added at all stages of the process.
3. There were a number of changes made in the Business Investigation section.
 - In the firm strategy section, online descriptions of each strategy in the form of 'tips' were added. Previously the user had to refer to the manual to see these.
 - In the financial outlay section, online descriptions of Web site option were added to the screen. A request for links to example sites to match each level of described site was not implemented due to lack of time.
 - Online tips and Benchmarks were added to the employee section. The benchmarks showed a self-rating of Internet knowledge in Australian small businesses (obtained from Yellow Pages and NOIE, 2000).
 - There were a number of changes to the goods section. Benchmarks were added in the form of the most popular products and services sold over the Internet. Participants now had a chance to enter details for five different categories of goods. Different questions were asked for Products and Services (for instance, participants were ONLY asked if they could download a good if they indicated that it was a service). Online tips were added.
 - Further tips and descriptions were provided in the competitor section.
 - Benchmarks were added to the customer section. These were in the form of figures showing the number of Internet users and shoppers in Australia, broken up by age and income demographics). The customer section was also divided into EXISTING and POTENTIAL customers. Potential customers only would only be shown in a GROWTH strategy was selected earlier. Instead of having to enter one particular level of Internet skills for customers, participants could now put percentage ranges for their customer's Internet skills (for instance, 10% do not surf the Internet, 20% are experienced surfers and so forth). A percentage check was performed to ensure that it added to 100%. If more than 50% of customers do not use the Internet, a warning message appears asking if the whole process is worth going through at all! The Customer expectations screen has further tips and descriptions provided.
4. The Strategy screen was not altered.

5. Further tips and descriptions were provided in the Level of Facilitation screen.
6. A number of changes were made in the Web Site Features section.
 - Benchmarks were added to the implementation section, providing profiles of how many Australian small businesses were connected to the Internet, and how many take orders and accept payments over the Internet. These were broken up into industry areas. Further tips and descriptions were provided.
 - Benchmarks were added in the promotions area, showing typical methods used by Australian small businesses to advertise their Web sites and typical ways that Web sites are found (worldwide). Further tips and descriptions were provided. If an alliance strategy was selected earlier, the use of banner ads on other Web sites was suggested.
 - Benchmarks were added to the evaluation screen, showing the benefits of e-commerce as listed by Australian small businesses. Further tips and descriptions were provided.
7. The report section was operational for the first time. It operated by taking the data entered into the spreadsheet and producing a Microsoft Word report showing the results of the business investigation, the model's recommendations and the options selected for implementation, promotion and evaluation by the user.

7.5.4.3 Interface Changes

There were a number of interface changes implemented at the request of the previous micro focus groups, the major ones being the introduction of SAVE AS... and SAVE... buttons on most screens, and a BACK TO PREVIOUS STEP button added for Level of Facilitation, Implementation, Promotion and Evaluation.

7.5.5 The Final Micro Focus Group (3 February, 2001)

7.5.5.1 Introduction

The discussion in this micro focus group was reasonably structured, still working through the model on a step-by-step basis, but participants made more comments on all aspects of the model throughout the entire discussion. The discussion again fitted into two major areas, that of a general nature (relating to the entire model) and that of a specific nature (relating to the sections being covered). Participants in this group, being more familiar with the model and the software than when they were involved the first time spent much more time on discussing the applicability of the model to small businesses.

Within these classifications, the discussion was again divided up into two 'sub categories', process comments (working through the model) and interface comments (how the manual described the process and how the software looked and operated). As was the earlier trend, there were fewer comments about the interface (and more about the process) than with previous groups.

7.5.5.2 Comments of a General Nature

Participants were told at the commencement of the session that the purpose of the model was to produce a report that could then be given to their internal web designer or a consultant to create the Web site. All participants were comfortable with this, especially when told that a draft of the report (automatically produced by the software) would be available for the first time at the end of the session.

As with earlier sessions, there was concern raised about the amount of time needed by small businesses to work through the model. It was recognised that small businesses needed to allocate a "good deal of time" to properly prepare themselves, but it was also raised that they should not be held up in the process by not having one "piece of the puzzle". One participant provided the example of what was being asked about customers, observing that there was "every likelihood" that a small business would probably not know the information required and would take some time to find it. Other participants asked if there was a possibility that each section could have a "not enter", "enter details later" or a "typical default" option that could be selected. This could, perhaps, be based on the benchmark figures provided. This would allow the users to get some feedback from the model and then come back and refine their responses later. Another participant observed a possible problem in that, given this option, most small businesses "choose the default option" all of the time.

For the first time, participants commented upon the word used to describe the stages of the model. This happened a number of times as they were taken back to the overall model screen. One participant suggested that small businesses would be "put off immediately", seeing words like 'level of facilitation', which were "academic" or "high pollutin" words – "I want you to grab me, not turn me off". Another participant suggested that users would like to know what the words meant, and that putting tips (as was done in other parts of the software) would probably satisfy them as long as they "don't have to read a lot". Another participant suggested that the 'video' provided at the start of each major section would help with this if implemented properly.

One participant suggested that small business people get confused between objectives and strategies. It was agreed that the difference between these should be made clear in the model (refer later discussion). This part of the discussion is expanded in the overall firm strategy section, but was first mentioned during discussions about the overall model.

There was much discussion (all negative) about the use of the word 'firm' throughout the model. It was agreed by all participants that the word 'business' would be much more appropriate. One participant commented that use of the word 'firm' was "terribly American". Another noted that it could cause some confusion. For instance, does 'firm strategy' mean the business strategy or a solid strategy?

The addition of the benchmarks throughout the model was regarded as being a very positive addition to the model. There were a number of positive comments, some just coming in general conversation when something else in the same area was being discussed. The only drawback, noted by two participants, was that they may date quickly and would need to be continually updated.

7.5.5.3 Comments Related to the Business Investigation Stage

7.5.5.3.1 Overall Firm Strategy

There had been very little discussion in this section in the previous micro focus groups. This time, it seemed to be ignited by the earlier comments relating to the difference between objectives and strategies. One participant described objectives as being what will be achieved in a year and strategy as what the firm is in existence for, or what will be achieved in the next few years. Another participant disagreed, saying that objectives were what will be achieved in a predetermined period and strategies were what have to be done to achieve the objectives. This view achieved general consensus, with another participant describing objectives as the "what" and strategies as the "how". It was observed by two participants that a strategy could be "lifted out" and made into an objective on some occasions.

The overall consensus was that the model needed to address the difference between the two and place them into context for the small business.

Another short discussion was based upon the options provided in this section: Growth, Alliance, Low Cost and Differentiation. One participant asked if high profit was a strategy, but decided that it was an objective. Another participant asked if there could be a section for an open-ended answer, but then wondered how the model could interpret this.

The final topic of discussion in this section related to the Alliance strategy. One participant asked if it was happening in small businesses. The other participants observed that it was increasingly occurring, one noting that many small business may have to adopt alliance strategies to survive.

7.5.5.3.2 Financial Outlay

There was little discussion in this area, one participant noting that it was "an improvement on what we saw last time". This was because the descriptions of the various choices had been made available onscreen.

One participant asked if more categories of Web sites could be provided than the four that were made available.

7.5.5.3.3 Employee Expertise

Participants were satisfied with the alterations that had been made in this section.

7.5.5.3.4 Characteristics of Products and Services

In the previous micro focus groups, most of the discussion in this section was based around the inflexibility of the questions being asked for a business that had different types of products and services. The alterations that had been made, allowing users to enter different categories of products and services, were received well.

Most of the discussion in this section centred around the suitability of the word 'goods' on the button used to enter the section. It was felt that small businesses would more comfortable with the words 'products and services'.

7.5.5.3.5 Competitors

In this section, participants were comfortable with the type of analysis that needed to be carried out by small businesses, but felt that seeing a full screen where five competitors' Web site details could be entered would be very threatening for small businesses. One participant suggested that, at first viewing, if you could fill in the screen you could probably design the Web site yourself!

One suggestion, which was agreed to by other participants, was that only one competitor should be shown on the screen at first. After that competitor had been entered and users were familiar with the process, other competitors could be entered. Another participant suggested that it could be broken up even further by breaking up the separate Web site features into the categories that had been identified by the model. For instance, at one stage a user could be entering details about how competitor one displays its products and services on its Web site.

An interesting final observation by all participants was that they would like to see the screen as it currently is at the end of the process. This would be to allow them the opportunity for proper analysis and comparison.

7.5.5.3.6 Customers

Participants saw this screen as a less daunting one than the competitor screen. Discussion in previous groups centred around the difficulty of identifying customers in one 'general' category of Internet experience and the need to differentiate between current and potential customers. Having addressed those concerns, the discussion was this time centred on the types of questions being asked. Participants were concerned about the likelihood of small businesses knowing the Internet abilities of their customers, and the costs in time and dollars of them finding that information out. Typical comments were:

"We can find out about competitors on the web" (meaning that customers cannot be found so 'easily').

"It would be information that they would absolutely have to guess at".

"What if they don't know this information? Is the process held up until they get it?"

"To survey them [customers] will cost money and time".

The general consensus was that this was useful section to have if the small business knew the information or could get it easily, but there should be a default option allowing them to avoid entering the information or using the benchmark figures as standard entries.

Discussion went a little off track onto the topic of a 'typical customer'. One participant asked if businesses have a typical customer. Another respondent replied, "sometimes, if they have a typical product". Another participant suggested that perhaps a better description would be a "signature customer".

7.5.5.4 Comments Related to the Strategy Stage

There were a few comments about this stage. One respondent commented that he would like to be able to print it out.

7.5.5.5 Comments Related to the Level of Facilitation Stage

There have been fewer comments related to this section of the model as the suggestions of each focus group were implemented. There were very few comments related to this screen in this session. The screen had many additions to it in relation to explanations of how and why the various recommendations had been made, and these seemed to satisfy the group as a whole.

7.5.5.6 Comments Related to the Web Site Features Stage

7.5.5.6.1 Implementation

As with level of facilitation, there were few comments about this screen that had been the cause of much discussion in earlier groups. Both participants from the first micro focus group liked the feature that indicated whether the Web site features could be afforded within the chosen budget.

7.5.5.6.2 Promotion

This screen was another example of the users now being able to understand the operation and commenting upon its effectiveness. It was suggested by one participant (and agreed by the others) that it would be easier to split the promotion strategies related to specific Web site features away from the general promotion strategies – preferably to separate screens. This would eliminate any confusion by small business users.

7.5.5.6.3 Evaluation

As the evaluation screen is a similar format to the promotion screen, similar suggestions were made in this section as for the promotion section regarding the splitting of specific and general means of evaluation.

7.5.5.7 Report

This was the first opportunity that participants had to view a Microsoft Word report, and they were most enthusiastic about it. Typical comments were:

“I like to be able to read things”.

“Its good the way it summarises the input into the model”.

7.6 Final Changes to the Model

The changes made here produced the final version of the applied model for Phase Two of the study. This version of the model can be viewed in Appendix Three. The major changes made were as follows:

1. Default options were added in a number of areas (specifically Customers). These were not designed to place 'standard results of analyses' as a response to a particular area. Rather, they were designed to allow that part of the analysis to be ignored by the model until the analysis had been done. Results of some type could then be produced without that part of the analysis being carried out.
2. Business objectives were introduced at the Business Investigation stage. These were then 'mapped' by the system into strategies, which could then be selected in the Web Site strategy section.
3. The Competitors screen, whilst basically performing the same function, was simplified dramatically to allow the first competitor to be added by itself. It was also simplified to allow small business users the opportunity to enter categories of Web site functions at a time, rather than looking at all of the Web site features at once.
4. Later screens were also simplified in the light of what was done with Competitors.
5. The Report output was improved to look more professional.

Basically, the operation of the model changed very little. The interface used to access these functions changed quite dramatically.

7.7 Chapter Summary

This chapter described the conduct of Phase Two of this study, as well as the development of the applied version of the model (based upon the conceptual version of the model from Phase One of the study and the literature review). The second Phase of the study involved the use of micro focus groups, comprising small business counsellors, to refine the applied version of the model. The main themes coming out of the focus groups were the need for simplicity of operation of the model for small businesses (refer to comments related to the need for a glossary, recognizable terms and 'tips') and the need to match the model to actual situations faced by small businesses (refer to comments related to products and services, business strategy, use of benchmarks and so forth).

7.8 Reflections on this Phase

The development of this Phase of the study proved to be the most difficult part of the thesis to 'get my mind around'. The first major problem I faced was how to take the conceptual model and turn it into the applied model. My initial idea was to develop a manual or book that small businesses could

work through and use to 'record' the results of the analyses that they carried out along the way. This would then lead to recommendations as to what Web site features they should implement. There were two major concerns with this approach. The first was that if the small business person wished to go back and alter any of the data entered, he or she would have to use an eraser or liquid paper. The second concern was how to lead the person to the eventual recommendation once the analysis was completed. The need to follow the somewhat complex paths I have designed through to the various recommendations might have been enough drive the small business person to distraction and a subsequent decision to abandon the process.

I finally decided that the spreadsheet package, Microsoft Excel, was the solution I was looking for. Most small businesses that have computers use a spreadsheet package, and the majority of spreadsheet packages in use are Microsoft Excel. The spreadsheet has long been recognised as a tool that can be used to support basic decision-making. It provides users with the capability to alter figures and to see the effects the alterations have on recommendations (Stair and Reynolds, 1999). In this case, it provided a means by which the complex path from analysis to recommendation could be handled automatically by the software.

I already had some experience in using Microsoft Excel and its associated programming language, Visual Basic for Applications. It provided the flexibility for me to alter the software and the interface easily, based upon the suggestions of the micro focus group participants. A look at the different versions of the software from the start to the end will show how the interface changed from version to version. Much of this was due to the participants relying on the software rather than the accompanying manual.

The other major problem of Phase Two from my point of view was to determine how to test the model. I floated the idea of testing it with actual small businesses, but my supervisor suggested that this may be too narrow (or too time consuming to achieve the desired broad coverage). Knowing about my contacts with Small Business Victoria, my supervisor suggested that we approach small business counsellors, who have a wide experience of dealing with small businesses, to refine the model.

As mentioned in the Methodology chapter, the focus groups seemed an ideal way to expose the counsellors to the model and get their feedback. My concern was always that I may not be able to get enough counsellors involved in the process to receive enough feedback on the model. This concern remained until about 15 minutes into the first micro focus group, when I was sure that I would get the type of feedback I desired. I feel that the discussion summarised in this chapter and the gradual changes I have made to the model as a result of it have justified this choice. As the groups started to exhibit the characteristics of successful focus groups identified in the literature I was further convinced.

The final challenge I faced was the development of the logic for the 'paths' that lead from the analysis to the recommendation. In many instances there were no precedents in the literature for the development of these. For instance, in Section 7.3.2.3 Web Site Strategy, if less than or equal to 33\$

of competitors have a Web site feature the model suggests that there is a chance for the business to be proactive. If 66% or more of competitors have implemented a particular Web site feature, I suggest that the business is in a reactive situation regarding that feature. I came up with the figures of 33% and 66% for these paths arbitrarily.

Other paths were developed on the basis of the literature and were easier to determine.

There were some instances when the paths I identified were not appropriate. For instance, in Section 7.5.1.5 Comments Related to the Level of Facilitation Stage a participant noted that one part of the model had suggested that a Web site feature be implemented, but the model did not recommend its implementation on an overall basis. This was because initial version of the model required that the Web site feature be recommended in a number of different sections of the model. The participant pointed out the folly of this logic – if the Web site feature provides a benefit, even if only in one area, recommend it! This was altered for later versions of the software.

7.8.1 Comments on the Micro Focus Group Sessions

The purpose of this sub section is to relate the experience of conducting the micro focus groups with the list of the advantages of focus groups listed in section 2.4.1 The Use of Focus Groups in Research. This is for the purpose of identifying whether the micro focus groups produced similar benefits to those expected from a traditional focus group.

Focus groups can allow members to react to and build upon responses of other group members. This occurred on a number of occasions. In a number of instances in both groups one of the participants put forward a proposal that was then discussed and agreed on.

Focus groups are able to produce data on the precise topic of interest because they are under the control of the researcher. This occurred more in these sessions than in typical focus groups. This would probably have more to do with the linear nature of working through the model in the group. Even so, there were still a number of occasions in both groups where the facilitator had to get the focus of the group back onto the topic being discussed.

Focus groups may elicit information in a way to determine why an issue is important, and what is important about it. This was an unexpected bonus of running the focus groups. There were a number of occasions, particularly when discussing the characteristics of goods and the investigation of customers that it was determined that the model was too simplistic. Through the process of the two focus groups it emerged that small businesses were often much more complex than the model suggested and that it was important for the model to be able to recognize that to ensure that a proper business analysis is performed.

Focus group research may provide benefits to participants. It was pointed out in Chapter 2 Methodology, that focus groups can provide participants with an opportunity to be involved in a decision making process, to be valued as an expert, and to be given the chance to work collaboratively with researchers. If the group functions well, trust develops and the group may explore solutions to a particular problem as a unit.

In the first two micro focus groups, participants decided amongst themselves that they would like to be further involved with the study, citing both an interest in the outcome of the study (a desire to be there 'at the end') and a need to be able to consider the material at greater depth.

This form of data collection can allow for greater scrutiny. This can occur by direct observation and/or by recording the sessions. Later examination of the recorded sessions can provide further insights and clear up uncertainty about what may have happened.

In observing both micro focus groups, the researcher was able to not only make notes along the way but also review the taped sessions to confirm points of view or capture points that may have been missed during observation.

Focus groups are easy to organise, cheap and efficient in gathering large amounts of data. The focus groups were very inexpensive to set up and run, that major cost being that of the facilitator. As the researcher was interacting with a group of small business counsellors who were typically very busy, it was not very easy to arrange a time to suit everybody. This was the main reason behind the decision to run the 'micro' focus groups. As can be seen from the richness of information produced in this chapter, they turned out to be a very efficient means of gathering a large amount of applicable data.

7.8.1.1 Summary

The previous sub sections have shown that the micro focus groups conducted as Phase Two of the study displayed virtually all of the advantages of a traditional focus group as identified in the literature.

Part Four

Summary and Conclusion

8 Further Study

At a micro level the model developed in this thesis, based originally on the literature and then refined at the conceptual level with a web discussion group of academics and at the applied level by a series of micro focus groups of small business counsellors, has already been through a rigorous analysis.

The next (post thesis) challenge is to ensure that the model addresses the major observations of the small business counsellors, namely speed, usability and simplicity – typical hurdles faced by small business in their use of information technology, whilst still addressing another major hurdle, the need for proper planning and control procedures. Thus, the post thesis Phase of testing will be with actual small businesses. Small business counsellors from Phase Two have already committed themselves to testing the model with small businesses that they deal with.

At a macro level, there is still much work to be done with (and for) small businesses to remove or lessen the effect of barriers to the use of the Internet. Although an increasing number of small businesses have a basic understanding of, and are using Internet technologies, many of them are just using the technology at a basic level or just 'trying it out'. Similarly, small businesses seem to realise that there may be some benefits in setting up a Web site, but they approach the task of setting up a Web site with little imagination or examination of the full potential available.

Research into small business use of the Internet to deal with small businesses should, before anything else, be practical. Studies are needed that not only identify the problems of small businesses, but also offer solutions. It is a difficult area in which to offer practical advice, taking its principles from areas such small business research, the strategic use of information technology and the vast (and rapidly growing) base of e-commerce literature.

To this end, the author encourages research into small businesses that leads to practical outcomes. Any research that took this model and attempted to apply the sequence of steps it recommends to particular 'niches' such as specific industry areas, or different sized small businesses, or developing countries would be a valuable contribution – especially if it was then modified to suit the particular niche area being targeted.

9 Summary

The purpose of this thesis was to develop a model to assist small businesses in using the Internet for business-to-consumer interactions. It was intended that the model would take into account the specific characteristics of small businesses and employ the common steps that have been identified in strategic IT models.

When looking at the specific characteristics of small businesses, it is important to note how they differ from larger businesses, especially in their use of IT. Some of these ways are:

- They lack the use of formal planning and control procedures when assessing, implementing and reviewing IT investment.
- They lack the resources (money and time) of larger businesses to devote to assessing IT investments with the thoroughness they deserve.
- They generally have a lack of formal IT training, which could help to address some of the limitations identified here.

A number of models have been used to assist firms to identify strategic IT ideas. Some models are now being developed to assist the firm to identify e-commerce opportunities, but these lack detail or are not specific to the needs of small businesses.

The Internet is seen as providing a means by which small businesses can, in some ways, compete with larger businesses. There are a number of opportunities available to small businesses to take advantage of the 'added value' possibilities that are provided by communications technologies such as the Internet.

In order to develop the initial model for investigation, it was necessary to take a step back and examine the ways in which IT has been used in businesses. Initially, the concept of value, Porter and Millar's value chain, the five competitive forces model and the three generic strategies for improving competitiveness using IT were introduced.

The next section examined the relationship between Keen and Cummins' map of telecommunications services, the five competitive forces model and the three generic strategies for improving competitiveness. Hoffman and Novaks' communications models for marketing in a hypermedia environment were used to identify some of the differences between traditional forms of advertising and advertising on the Internet. The Communication marketing channel, representing the exchange of information, was identified as being the channel where value was more likely to be added using the Internet.

A number of aspects of consumer behaviour on the Internet were also examined. In relation to low outlay, frequently purchased goods, consumers will be more likely to purchase physical goods from retail stores and intangible or information-based goods over the Internet. In relation to high outlay, infrequently purchased goods, consumers will take more time considering their purchases and are more likely to search both retail stores and the Internet for the best deal.

In order to examine some of the models used to identify strategic IT ideas, it was necessary to first examine ways of performing a business analysis, such as Critical Success Factors and SWOT analysis. It was shown that the steps of five models used to identify strategic IT ideas could be classified into three generic steps that described the process in any of the models. These steps were the conducting of a business investigation, determination of business strategies based upon the investigation and the identification of strategic IT opportunities based upon those strategies. During the analysis of these models, the relationship between their various steps and the concepts identified earlier in the chapter were highlighted. A number of models specifically designed for the use of electronic commerce were fitted into this framework.

Other steps introduced in some of the models were the need to look at how the Web site will be set up (implemented), how it will be promoted and how its success will be measured.

Before the conceptual version of the model could be finalised, it was necessary to examine a number of areas in the literature related to contemporary issues to be considered in developing the conceptual stage of the model.

A definition of electronic commerce was selected for use in this thesis, which included its use in internal business processes; for business-to-business interactions; and for business-to-consumer interactions.

Business-to-consumer interactions were examined in greater detail. Characteristics that were specific to these types of interactions were discussed. These looked at the use of the Internet in such interactions in the distribution, transaction and communication marketing channels, as well as the unique opportunities the Internet provides for consumers.

The discussion then moved to means by which the Internet can be used to add value to goods, through delivering goods faster or cheaper or providing opportunities for personalisation of goods. The opportunity is there for businesses to improve their business processes and to reach larger markets, with a likelihood of greater competition in those markets. Some advantages of e-commerce were examined, these mainly occurring in the marketing channels or to internal business processes.

Small business use of information technology and electronic commerce was discussed. Any business with one to twenty employees is classified in thesis as 'small'. The use of IT in small businesses is typically influenced by a lack of resources, limited IT knowledge and little use of planning and control mechanisms.

There is evidence to indicate that small businesses tend to use IT to a greater extent as they grow in size. This use is usually based around administrative and operational applications (or as a reaction to something a competitor has done) rather than strategic or proactive applications.

The use of e-commerce in small business was also reviewed. Small business attitudes to e-commerce are similar to their attitudes to IT in general. Small businesses have concerns about available resources and expertise to realise the advantages of e-commerce.

This discussion moved to business-to-consumer interactions on the Internet. A number of reasons were investigated as to why organisations may or may not use the Internet for business-to-consumer interactions. Organisations that were involved in import/export, service-based organisations, organisations with products or services that can be digitised, organisations where there is a high exchange of information required were highlighted as being those that were more likely to use the Internet. The use of the Internet to 'transact business' is more likely in small businesses that are willing to plan properly, be innovative, are able to determine the benefits, have a knowledge of the area and have customers that are willing to operate in this manner. Consumers have access to wider markets and have the capability to assess greater amounts of information in determining which products to purchase. They will eventually choose to purchase products based upon a combination of cost and other types of added value (such as time, product support, level of personalisation and so forth).

Finally, some of the issues related to small business use of business-to-consumer interactions on the Internet were examined. Small businesses need to be able to address the technical needs required to set up and maintain an Internet presence. The reasons that small businesses adopt electronic commerce at the moment are not that different from their reasons for using any type of IT: reduced costs, they are reacting to another organisation's advantage or they are forced to by a larger partner.

At this stage, it was possible to design the initial conceptual version of the model. The study had a number of characteristics that related it to interpretivist and post-positivist research, using an action research method. The study was divided into two major Phases.

Phase One used a web based discussion list as the data collection tool in a Delphi study designed to refine a conceptual model to assist small businesses to establish business-to-consumer interactions on the Internet. As is typical with such qualitative studies, a small sample of six academics participated in the data collection.

A web discussion list was the basis for the conduct of the first Phase of this study. An expert panel was assembled to comment (via a web discussion list) upon a preliminary model and a number of general issues that arose from the literature review. A preliminary version of the model was introduced at the start of the Phase and was refined throughout the Phase.

The model was refined as a result of the discussion that occurred in the web discussion list. The following points highlight the major observations made during the first Phase of the study.

- The importance of using an easy to understand method (for instance, a set of questions) for business investigation, instead of formally referring to it as CSF or SWOT analysis. Some flexibility may be required to allow the model to work for a range of small businesses.
- The need for communication and consultation with external stakeholders at an early stage.
- The need to emphasise the cyclical nature of the model in its design.
- The need to determine how the success of the Web site will be evaluated AT THE TIME OF designing the Web site.
- Ideally, the level of facilitation should be determined BEFORE determining Web site features.

Having developed the conceptual version of the model, the next challenge was to design the initial applied version of the model. In order to do this, it was necessary to examine literature related to the applied model.

This first section of this aspect of the literature review examined aspects relating to the business investigation stage of the applied model. Aspects of the marketing tool, the SWOT analysis and Porter's five competitive forces model were used to develop the sections for the business investigation. These were divided into internal factors and external forces.

The next section examined the Web site strategy of the business. The selection of strategies that the business adopts depends upon its overall business strategy.

The next section examined the selection of the features to be included on the Web site. It is recommended by a number of authors that this occur from the simple level in the beginning to a more sophisticated level later on as the organisation becomes more familiar with the technology.

The next section examined Internet promotion techniques. Some techniques that were identified were brand recognition and the provision of some type of social interaction or entertainment. The 'level' of promotion classified other techniques.

The following section examined a number of issues related to Web site development options that are available to the small business. At the simplest and cheapest level, an electronic brochure site is relatively inexpensive for a small business to set up using a wizard or template and having the Web site hosted by an ISP. As a business wishes to extend its web presence to include online ordering and/or payments, or wishes to increase the complexity of the site, or even wishes to host the site itself, the cost and difficulty associated with the development and maintenance of the site increases. Another issue is the level of expertise needed. If the expertise is not available within the small business (which is likely), it will have to be acquired externally.

The final section examined methods of measuring the success of the Web site. The selection of suitable measures of success depends upon what the business is trying to achieve with the Web site.

Phase Two of the study involved the use of three micro focus groups to refine the initial version of the applied model which has been developed from a combination of the conceptual model refined in Phase One and literature related to the applied model. An emphasis was placed upon those techniques that would lead to a model that was useful to small businesses.

The main themes coming out of the focus groups were the need for simplicity of operation of the model for small businesses (refer to comments related to the need for a glossary, recognizable terms and 'tips') and the need to match the model to actual situations faced by small businesses (refer to comments related to products and services, business strategy, use of benchmarks and so forth).

10 Conclusion

Small businesses need as much help as they can get in relation to their use of information technology. They are, however, generally comfortable with introducing it to their businesses at a gradual level. This has not been the case with their use of the Internet. Small businesses are adopting Internet technologies at a much faster rate than they adopted IT. They know about electronic commerce, but they do not fully understand the benefits it can provide and the pitfalls to be avoided. They know that 'selling' can occur on the Internet, but do not generally know of any other services they can provide to their customers using the technology.

The purpose of this thesis was to report on a study investigating a specific component of electronic commerce, business-to-consumer interactions on the Internet in small businesses. A model was developed for small businesses to use when setting up these types of interactions on the Internet.

A literature review examined a number of areas related to this topic. The first section examined some of the theoretical foundations involving the use of information technology in organisations, methods of using information and communications technology to add value to an organisation's products and services and models that can be used to do this. This was to lay the foundations for determining the types of benefits that these technologies can provide to organisations.

The second section examined some contemporary areas relating to business-to-consumer interactions. These areas were electronic commerce, IT and small business, business-to-consumer interactions on the Internet and the strategies for successful business-to-consumer interactions on the Internet. The first two sections of the literature review are used as the basis of the development of the preliminary conceptual level of the model. This was tested and refined via a web discussion list with a panel of academic experts.

The final section of the literature review was devoted to issues related to the development of the applied model. The following areas were examined: conducting a business analysis, developing a Web site strategy, determining the level of sophistication of the Web site, promoting the Web site, implementing the Web site and measuring Web site success. An applied model was developed, using a spreadsheet to record the analyses of small businesses and to make recommendations, and a manual to explain the operations of the model. The applied model was refined through a series of micro focus groups of small business counsellors.

The final model came about as a result of a rigorous combination of literature review (of areas such as the small business literature, electronic commerce literature and strategic use of IT literature), expert academic opinion in the same fields and practical advice from practicing small business counsellors. This continuing cycle of meanings against action was tested a number of times, as per Popper (1968) [refer Methodology chapter], who argues that social learning results from adjustments that occur through an acknowledgement of incongruence between meanings and action. Indeed, the cycle continues even after the submission of this thesis, when the model is tested within the small business community.

10.1 Contribution

Has this thesis made a significant contribution to the existing body of knowledge? The author maintains that it has. Previous models targeting the strategic use of IT and e-commerce in businesses are either lacking in detail or have a 'big' business focus. Small businesses have different needs. This research has involved the development of a model that is targeted to small businesses and that they can actually use. It is more than a set of procedures listed on paper for a small business to follow – it is a combination of software and procedures that force a small business to perform a proper business analysis (of internal factors and external forces), develop a Web strategy, determine what they want on their Web site, decide how they intend to implement it, how they measure its success and how they will promote it. This is all before they actually start preparing the Web site! It is specifically designed to be used by small businesses, having first been reviewed at a conceptual level by academics with relevant experience and then reviewed and refined thoroughly at the applied level through interactions with small business counsellors. This model is not for all small businesses. If small businesses are not prepared to devote the time to perform the business analysis and other steps of the model properly then they would be better off not using the model at all. If, however, a small business user was prepared to put in the ground work, the benefits would be there in the long run.

10.2 Final Note

Was this too ambitious a project? At the start it probably was, but by removing some of the areas of concern (refer Chapter One for what is not covered in the study), it became achievable. Not only does this thesis comprise of a traditional action research project, complete with a Delphi study and the use of 'micro' focus groups, there is also a practical result as well, which was just an important aim for the researcher as completing the official 'research' component of the thesis. The reader is taken back to the Methodology chapter, which puts forward the premise that information systems and small business research should have a practical aspect to it to be useful.

The researcher believes that this thesis stands by itself as a doctoral thesis, but that the accompanying software (although refined through the initial Delphi study and subsequent focus groups) still needs some work (especially on the interface) by software experts before it becomes readily usable by small businesses on their own. In its current form, the tool embodies the conceptual and applied modeling undertaken in this thesis. Small business consultants, familiar with the software as it currently is, could apply it to the benefit of small businesses. Small business employees that are relatively familiar with IT could probably use it now. The upshot is that this project will continue on beyond this thesis as it is subjected to practical testing within the small business sector. After further evaluation, reflection and refinement, it will hopefully will play a crucial role in the decision making process of many small business that wish to use the Internet to interact with customers.

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Appendices

The following appendices appear in this section:

Appendix One: Definitions

Appendix Two: Associated Publications by the Author

Appendix Three: CD ROM and Details.

11.1 Appendix One: Definitions

This Appendix lists definitions for many of the terms used throughout this thesis.

11.1.1 Banner

A graphic image that announces the name or identity of a site (and is often spread across the width of the web page) or an advertising image. Advertisers sometimes count banner 'views' or the number of times a banner graphic image was downloaded over a period of time.

(Phillips [a], 1998, p.142)

11.1.2 Branding

The ability to increase consumer awareness of an organisation's brands (Internet.com [c]).

11.1.3 Click Through Rate

The proportion of users who 'click' on an Internet advertisement, therefore moving to the Internet site that is linked to by the advertisement.

(Argenti and Boritz, 2000)

11.1.4 Cookie

A cookie is information that a web server sends to user's browser. It stores information at the user's computer. The next time that the user accesses the Web site, the web server can access the cookie to update information about the user's previous interactions with the Web site. It is a way for a Web site to remember that a user has visited it (Phillips [a]).

11.1.5 Digital Goods and Services

A good or service which is in (or can be translated to) a digital format and, thus, be suitable for transmission over the Internet.

11.1.6 Domain Name

The text name corresponding to the numeric Internet address of a computer on the Internet.

(Phillips [a], p.147)

11.1.7 Electronic Data Interchange (EDI)

Computer-to-Computer interchange of electronic transaction documents, involving at least two trading partners.

(Zwass, 1998, p.672)

Electronic Data Interchange (EDI) allows computers to exchange electronic transmissions of data and information, thus automating routine business between retail stores, distributors, and manufacturers.

(McKeown, 2001, p.375)

11.1.8 Electronic Funds Transfer/ Point of Sale (EFTPOS)

Electronic Funds Transfer (EFT) occurs where electronic tools are used to exchange value (usually money) for goods, services or information. EFTPOS is a form of EFT where the purchaser is physically at the point of sale (for instance, at the checkout counter of a supermarket)

(Lawrence et al, 1998).

11.1.9 Electronic Mail (Email)

The exchange of computer-stored messages using telecommunication equipment. Although the body of the message is encoded in text, a user can send non-text files, such as graphics images and sound files, as attachments to the message.

(Phillips [a], 1998, p.148)

11.1.10 Extranet

A network based on Web technologies that links selected resources of the intranet of a company with its customers, suppliers, or other business partners.

(Stair and Reynolds, 1999, p.669)

11.1.11 Hyperlink

An element in an electronic document that links to another place in the same document or to an entirely different document. In a mouse-enabled system the user typically clicks on a hyperlink to follow the link.

(Phillips [a], 1998, p.151)

11.1.12 Hypertext Markup Language (HTML)

A structural markup language used to display documents on the World Wide Web.

(Phillips [a], 1998, p.150)

11.1.13 Hypertext Transport Transfer Protocol (HTTP)

The set of rules for exchanging files (text, graphics, images, sound, video and other multimedia files) on the World Wide Web.

(Phillips [a], 1998, p.150)

11.1.14 Information System (IS)

An organised set of components for collecting, transmitting, storing and processing data in order to deliver information.

(Zwass, 1998, p.674)

A set of interrelated elements or components that collect (input), manipulate (process), and disseminate (output) data and information and provide a feedback mechanism to meet an objective.

(Stair and Reynolds, 1999, p.670)

In the context of this thesis, the definition of 'information system' will be confined to those systems that rely on information technology as a major component of the system.

11.1.15 Information Technology (IT)

The Australian Computer Society has adopted the following definition for the term 'information technology' (IT):

The term Information Technology is used to cover the technologies used in the collection, processing and transmission of information. It includes microelectronic and opto-electronic based technologies incorporated in many products and production processes and as a vehicle for the proliferation of services. It covers inter alia, computers, electronic office equipment, telecommunications, industrial robots and computer controlled machines, electronic components and software products.

(DEET, DITAC and IETF, Vol.2, 1992)

11.1.16 Intermediaries

Organisations that aid an organisation in promoting and distributing its goods to final buyers. These include:

- Agents and resellers: assist the organisation in finding customers or closing sales.
- Physical distribution organisations: assist the organisation in storing and delivering goods from their point of manufacture to the customer.
- Marketing services agencies: assist the organisation in targeting and promoting products to the correct markets.
- Financial intermediaries: help to finance transactions in the buying and selling of products.

(Kotler et al, 1989)

11.1.17 Internet

A global inter-network of computers, linked via telecommunications networks. The Internet enables applications such as e-mail, the World Wide Web, file transfer and other services to run across different networks and operating systems.

(DIST[b], 1998)

11.1.18 Internet Service Provider (ISP)

Any company that provides individuals or organisations with access to the Internet.

(Stair and Reynolds, 1999, p.671)

11.1.19 Intranet

An internal corporate network built using the Internet and World Wide Web standards and products that allows employees of an organisation to gain access to corporate information.

(Stair and Reynolds, 1999, p.671)

These private networks use the infrastructure and standards of the Internet and the World Wide Web but are cordoned off from the public Internet through a device known as a firewall that sits between an internal network and the outside Internet. Its purpose is to limit access into and out of the network based on the organization's access policy. Employees can venture out onto the Internet, but unauthorized users cannot come in.

(Stair and Reynolds, 1999, p.316)

11.1.20 Legacy Systems

Systems that have been in use in an organisation for some time and that generally do not require new functions.

(Licker, 1997, p.519)

An older information system built around a minicomputer or a mainframe, often a candidate for downsizing.

(Zwass, 1998, p.675)

Legacy systems are often comprised of vendor-specific hardware and/or software. As such, it can be difficult to link them with more 'open', recent systems.

11.1.21 Meta Tag

Key descriptive words that enable search engines to categorise a business by relevant search criteria under which Internet users will be able to find that business' Web site listing.

(Phillips [a], 1998)

11.1.22 Portal

Organisations can choose to advertise their Web sites on other Web sites that are devoted to relaying traffic through to other Web sites (Phillips [a], 1998). These are often known as traffic hubs, shopping malls or portals. The costs of having a Web site lists in these sites can range from zero (where the sites gain revenue from advertising space) to a charge based upon the amount of 'traffic' that is forwarded to your site from theirs. Portals are beginning to offer a range of services, including online shopping facilities, as banks and other financial institutions look to partner them.

(Internet.com [a], 1999)

11.1.23 Search Engine

A computer program that does the following:

1. *Allows you to submit a form containing a query that consists of a word or phrase describing the specific information you are trying to locate on the web.*
2. *Searches its databases to try to match your query.*
3. *Collates and returns a list of clickable URLs containing presentations that match your query; the list is usually ordered, with the better matches appearing at the top.*
4. *Permits you to revise and resubmit a query.*

(Greenlaw and Hepp, 1999, pp.171-172)

A search engine generally has two parts: the 'robot' or 'crawler' program that visits every page (or representative pages) on the web to create an index; and the program that processes a search request, compares it to entries in the index, and returns results to you.

(Phillips [a], 1998, p.159)

11.1.24 Uniform Resource Locator (URL)

In Web terminology, the address of a home page is referred to as its URL (Uniform Resource Locator). It is so named because a URL is a standard means of consistently locating Web pages or other resources no matter where they are stored on the Internet. For example, the URL of the welcome page for fareastfoods.com's Web site is:

<http://www.fareastfoods.com/welcome.html>

Like every URL, this one has four parts: the protocol (the type of resource being retrieved – this stands for hypertext transfer protocol – it is used to format the screen); the Internet address of the server computer (www.fareastfoods.com) and its port number (optional, and not seen here) and the path of the web resource being retrieved (in this case: welcome.html).

(McKeown, 2001, pp.88-89)

11.1.25 World Wide Web (WWW; Web)

A series of interlinked computer sites that display text, graphics, images and or sound according to a particular format. Users access the sites via a browser that reads this format, such as Netscape Navigator or Microsoft Internet Explorer.

(DIST[b], 1998)

11.1.26 Web Browser

A browser is a program that provides a way to look at, read, and even hear information on the World Wide Web. Technically, a web browser is a client program that uses the Hypertext Transport Transfer Protocol (HTTP) to make requests of web servers throughout the Internet on behalf of the browser user.

(Phillips [a], 1998, p.143)

11.1.27 Web Site

A related collection of web files that include a file called a home page. A company or individual tells users how to get to a Web site by giving them the address of the home page. From the home page, users can get to all other pages on the site.

(Phillips [a], 1998, p.163).

11.1.28 Wizard

A built-in software package capability that 'watches' users and offers suggestions as they attempt to perform tasks by themselves.

(Turban, McLean and Wetherbe, 1996, p.202)

11.2 Appendix Two: Associated Publications by the Author

11.2.1 Publications Resulting From this Thesis

Burgess, Stephen and Schauder, Don, 2001, 'Small Businesses, Customers and the Internet: Asking the Right Questions', SSECP'2001 – Skill Sets for the E-Commerce Professional Proceedings, Victoria University & RMIT University, Melbourne, June, pp.1-13.

This paper discusses a method of performing a SWOT analysis in a model designed to assist small businesses to set up a Web site to interact with their customers. The model is reviewed in three 'micro' focus groups by small business counsellors from the Small Business Counselling Service, a service provided by Small Business Victoria, a government department in Victoria, Australia.

The major observations of the small business counsellors indicated that the model should be simple to use and not time consuming – typical hurdles faced by small business in their use of information technology. At the same time it needed to address another shortcoming of small businesses, the need for proper planning and control procedures in the use of information technology.

Burgess, Stephen and Schauder, Don, 2000, 'Refining a Model to Assist Small Businesses to Interact with Customers on the Internet: A Delphi Study', Working for E-Business: Challenges of the New E-conomy, Proceedings of the 1st. International WE-B Conference, School of Management Information Systems, Edith Cowan University, Nov 30 – Dec 1, pp. 1-11

The problems facing small businesses in relation to use of the Internet are mainly centred around problems with IT expertise and available resources (time and money). The purpose of this paper is to describe the first Phase of a three Phase study that is attempting to provide small businesses with a structured sequence of steps that they can follow (in the form of a model) to develop and/or improve interactions with their customers over the Internet. For this Phase of the study, a Delphi study was conducted using an expert panel that was assembled to comment (via a web discussion list) upon a preliminary model and a number of general issues relating to small business use of the Internet to interact with customers. A preliminary version of the model was introduced at the start of the Phase and was refined throughout the Phase.

The model was refined as a result of the discussion that occurred during the Delphi study. The following points highlight the major observations made during the first Phase.

- *The importance of using an easy to understand method (for instance, a set of questions) for business investigation, instead of formally referring to it as CSF or SWOT analysis. Some flexibility may be required to allow the model to work for a range of small businesses.*

- *The need for communication and consultation with external stakeholders at an early stage.*
- *The need to emphasise the cyclical nature of the model in its design.*
- *The need to determine how the success of the Web site will be evaluated AT THE TIME of designing the Web site.*
- *Ideally, the level of facilitation required should be determined BEFORE determining Web site features.*

Burgess, Stephen and Schauder, Don, 2000, 'Interacting with Customers on the Internet: Developing a Model for Small Businesses', **Challenges of Information Technology Management in the 21st Century**, Proceedings of the 2000 International Resources Management Association International Conference, Alaska, USA, May, pp.517-521.

A number of models have been used in the past two decades to assist firms to identify ways that they can use information technology (IT) to add value to their products and services. This paper examines the concept of using IT to add value to products and services and looks at a number of different models that have been used to achieve this. An analysis of the steps of the models reveals that they each possess a number of common steps in their practical application. Some recent models that have been designed specifically for electronic commerce are examined for the same purpose and shown to have a similar set of basic steps. Finally, a model is proposed that attempts to address the needs of small businesses that wish to interact with customers on the Internet. A method of testing the model is suggested. Application of the model could provide small businesses with the planning methodology that they often lack to review their internal and external resources and identify a basic Web site strategy before attempting to develop their Web site.

Burgess, Stephen and Schauder, Don, 1999, 'Assisting Small Businesses to Identify Internet Opportunities', **Millennial Challenges in Management Education, Cybertechnology and Leadership**, Association of Management and the International Association of Management 17th Annual International Conference, San Diego, California, USA, August, pp.121-128

This paper introduces a preliminary version of a model designed to assist a small business to help them to establish or review an Internet presence that supports strategic interactions with its customers. The model can provide small businesses with a planning methodology that is often lacking. It makes them aware of some of the benefits of establishing a web presence and where they stand within their industry, particularly in relation to customers and competitors. They are encouraged to develop a promotion strategy in conjunction with their Web site. Finally, it suggests a review of their web presence to establish the level of success of the project.

11.2.2 Publications Involving Associated Work

Sandy, Geoff and Burgess, Stephen, 2001, 'The Characteristics of Goods, Web Site Features and Added Value: A Decision Chart' submitted to Working for E-Business Conference, Perth, December.

This paper describes some exploratory research that is designed to help businesses to maximise the application of Internet technology to add value to their product or service. It uses the type of Consumer Good as a basis to develop a decision chart to help organisations to identify ways of adding value to a Consumer Good using Internet technology. The initial decision chart is based upon the inherent properties of consumer goods (product versus service, single use versus durable use and perishable versus non perishable). The chart also incorporates the characteristics identified as being important when implementing a Web site (method of ordering and delivery of the goods and the level of personalisation). It provides a classification scheme that businesses can examine in relation to their goods. The 'classification path' that they follow leads to the suggested Internet features that provide added value for the consumer. A study involving two micro focus groups of small business consultants from the Small Business Counselling Service, a service offered by Small Business Victoria (a Victorian State Government department) found that the initial chart had its limitations, and needed to be simplified so that it could be understood by small businesses and versatile enough to be applicable to firms with a number of different goods. Their suggestions have been incorporated in the updated decision chart. It is anticipated that the chart can be used to provide organisations with an easy and structured approach to determining suitable Web site features for consumers to interact with

Burgess, Stephen and Schauder, Don, 2001, 'Web Site Development Options for Australian Small Businesses', presented at IRMA International Conference, Toronto, 2001.

There are many options available to small businesses that wish to set up an Internet presence. This paper examines a number of different Web site development and Web site hosting options for Australian small businesses, with a view to determining the separate factors that small businesses need to consider when weighing up Web site development and hosting options.

A number of different options available to small businesses for developing and hosting Web sites are examined. Some options, such as self-hosting, self-designed or customised by external consultants are mentioned, but not considered as part of the extended analysis as they were considered to be out of the range of the typical small business because of the cost or the expertise needed to maintain them. The analysis compared various options for developing Web sites, assuming that an Internet Service Provider (ISP) hosted them. The options included development of the Web site on a firm's PC and development of the Web site on an ISP's server.

The analysis showed that small businesses should consider a number of different factors when comparing simple Web site hosting options. These include the setup costs and the monthly cost of hosting the Web site. As the requirements of the Web site

increases, so firms should also consider other factors such as the number of products hosted and the number of transactions that will occur.

There are a number of costs, such as the merchant account setup and maintenance fee and the credit card transaction fee, that are similar for all options and therefore not included in the analysis. These costs also need to be considered by a small business considering selling goods over the Internet.

Sandy, Geoff and Burgess, Stephen, 1999, 'Considerations for Adding Value to Consumer Goods Via Marketing Channels through the Use of the Internet', **COLLECTeR'99: 3rd Annual COLLECTeR Conference on Electronic Commerce**, Wellington, New Zealand, November.

It has been recognised for a number of decades that the use of computers can provide cost savings and improvements in efficiencies in many organisations. Porter and Millar (1985) have generally been credited with recognising that the capabilities of information technology can extend further – to providing firms with the opportunity to add value to their commodities and services.

There has been much speculation as to the role that the Internet may play in dealings between businesses and customers. This paper aims to explore the link between established methods for strategic information technology investments, and the use of the Internet to add value to a consumer good.

It identifies an important link between Porter's three generic strategies and opportunities for adding value to consumer goods via the Internet. Firms can apply Porter's traditional methods of identifying strategic IT investments to their use of the Internet. Most of these benefits occur in the communication marketing channel, so this should be the first area where firms may begin their search for added value.

11.2.3 Other Work by the Author Quoted in this Thesis

Burgess, Stephen, 1998, 'Information Technology in Small Business in Australia: A Summary of Recent Studies', **United States Association for Small Business and Entrepreneurship 12th Annual Conference Proceedings**, Northern Illinois University, Clearwater, pp.283-291

This paper synthesises the results of a number of studies that have examined the use of information technology (IT) in small businesses in Australia. Approximately three-quarters of Australian small businesses use computers. This ratio increases as the business size increases. Many factors can influence the level and types of hardware and software used. Industries that are predominantly office-based, located in the cities and/or major towns and with more than five employees are more likely to be using the latest technology, as well as more applications.

Australian small businesses make extensive use of packaged software. Different industry areas use different specific applications depending upon their needs.

Small businesses are cautiously optimistic in their appraisal of the success of their IT systems. They perceive more benefits than problems in their use of IT.

Burgess, Stephen; Belcher, Brian; Paull, Stephen and Singh, Mohini, 1997, 'IT and Australian Small Business Enterprises', **SEAANZ 97 Conference Proceedings - Small Enterprise: The Key to Urban and Regional Development**, Southern Cross University, Coffs Harbour, Queensland, September, pp. 529-534

This paper presents the findings of a research project that investigated the application and use of information technologies in the Australian Small Business. It discusses the benefits of information technologies achieved by the small business enterprises, the factors that contributed to success and the problems associated with these technologies. It also points out a number of issues that require further investigation indicating a need for further research.

Darbyshire, Paul; Wenn, Andrew and Burgess, Stephen, 1998, 'The Internet and Small Business in Australia: Unfulfilled Dreams?', **USASBE 12th Annual National Conference Proceedings: Bright Horizons for Small Business and Entrepreneurship**, United States Association for Small Business and Entrepreneurship, Clearwater Beach, Florida, January, pp.239-247.

The Internet provides a means for leveling the playing fields between small and large businesses. Small businesses can offer their products to a wider market and can research information readily. The most frequently used features of the Internet that provide the greatest business value to small businesses are: the provision of information to customers; its use as a research tool and electronic mail.

This paper examines the usage of the Internet in small business in Australia. Two separate studies found that usage of the Internet and electronic mail is increasing rapidly. Respondents indicated, however, that these applications rank lowly when compared with the value of other IT applications to the business. Three case studies identified a number of current and potential uses of the Internet. These showed some similarities with the uses of the Internet identified earlier.

Wenzler, Ron; Burgess, Stephen and Ellis, Susan, 1997, 'Measuring the Strategic Nature of Information Systems in Small Business', **Third Australian & New Zealand Systems Conference Proceedings**, University of Queensland, Gatton, Queensland, October, pp.301-312.

A number of studies have indicated that the usage of information systems in small business has been mainly at the operational or cost saving level. In 1992, Bergeron and Raymond presented a model to identify uses of information systems in small business for competitive advantage. This paper reports the results of a study of 77 small businesses in the western region of Melbourne, where the model was used to measure the strategic level of information systems usage.

The study determined that cost was, indeed, the major competitive strategy for implementing information systems and that customers were the major strategic targets for these systems. It was also determined, however, that the major strategies and targets do differ across industry areas. Some reasons are suggested as to why this may occur.

11.3 Appendix Three: CD ROM and Details

Note: This CD ROM should only be used on an IBM compatible environment. It has been found to perform unreliably on the Macintosh platform.

The CD ROM can be found in a pocket inside the back cover of the thesis. The CD ROM contains the following items:

PHASE ONE

The complete web discussion (including all messages)

PHASE TWO

The Applied model spreadsheet and manuals for each Phase of the study.

To use the CD ROM, you will need an IBM compatible computer that has a web browser, ideally Netscape Navigator or Microsoft Explorer, installed.

NETSCAPE NAVIGATOR (or COMMUNICATOR)

Place the CD ROM in the CD drive. Open Netscape. Select **File/ Open Page** from the menu. Then click on the **Choose File** button and browse to the CD ROM. Then select the file called **Index.html** and click on the **Open Page** button. You will be shown the main screen. You can follow the instructions on the screen from there.

INTERNET EXPLORER

Place the CD ROM in the CD drive. Open Netscape. Select **File/ Open** from the menu. Then click on the **Browse** button and browse to the CD ROM. Then select the file called **Index.html** and click on the **Open** button. You will be shown the main screen. You can follow the instructions on the screen from there.