A Curriculum for e-Business Education

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A CURRICULUM FOR
e-BUSINESS EDUCATION

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ABSTRACT

This study constitutes an investigation into the electronic business environment, with the aim of developing a curriculum for e-Business education. It synthesizes the literatures on e-Business and on curriculum. The synthesis is combined with research into developments at other major educational institutions and into present and future student attributes. It proposes a curriculum for an e-Business course at the School of Business at the University of Otago.

The ideas developed during the course of the investigation were tested against the views and opinions of staff in the School of Business who have an interest and expertise in e-Business. Because it is hoped that this work will be of immediate practical benefit for the implementation of an e-Business course, the traditional Master of Commerce thesis is supplemented in this volume by a short executive report.

In line with the spirit of the topic, an electronic version of this thesis is available on an enclosed CD-ROM. The author hopes that this electronic version would facilitate the finding of material presented in this thesis and provides an efficient manner for the web-knowledgeable reader to read the thesis.
This thesis has been written because of my growing enthusiasm for getting a qualification that relates to the increasingly popular means of doing business using the Internet. In mid 1999, when I was searching for a course that will give me a good all-round grounding in the topic, I was disappointed with those that were available. Finally, in an email exchange following my application (via the Internet, of course!) to the School of Business, Professor Alan MacGregor, in his capacity as Academic Dean, suggested that I undertake a research that involves “electronic commerce and education”. The idea, coupled with the opportunity to spend a year at Otago, appealed to me and, without much further thought, I concurred.

Like the Internet, one derives benefit from connections made to various sources of information. Here I would like to acknowledge parts of my ‘network’ which have been instrumental to enable the completion of my thesis.

I began this thesis with the intention of confining it to understanding the practices of doing business electronically, but following the encouragement from Alan MacGregor, I have extended its scope to include literature from curriculum design. At various stages in its development, all the text have been read and criticised by the good Professor. I would like to acknowledge the friendship and encouragement he has showered on me, without which I could not have developed my topic in any practical way. I am grateful to Alan for providing me with the latest books on the subject and a very comfortable working environment for this research. More importantly, Alan was able to impress on me the need to communicate one’s view unambiguously in the proper academic language.

I am grateful to Professor David Buisson for providing me with a School of Business scholarship which provided the funding for my study.

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Dr. Andre Everett has been most helpful with his advice and guidance when I was initially searching for universities that offers ‘electronic commerce’ courses. Subsequently, when I decided to come to Otago, he was most generous in offering material me from his own research and in providing effusive comments in his usual colourful manner.
Many friends and colleagues have been generous in providing me with information in relation to the writing of a Masters thesis. I would particularly like to thank Clare Gardner, Dyna Seng, Brian Norris, and Karen Petersen in this regard.

I was able to enjoy an uninterrupted period for reflection and writing, and access to the University, Polytechnic, and Public libraries. In terms of libraries and library services, I have been fortunate enough to call on the services of Michael Hamblyn, who deserves my thanks for the very helpful and enthusiastic assistance he has provided me.

Writing a thesis involves obtaining material from various sources. A particular and profound acknowledgement must be given to the head of departments in this School of Business for letting me have access to their staff with expertise in the relevant areas. I am particularly grateful to the various staff members for their patience in fielding questions on their thoughts on topics in e-Business. In terms of survey data, my thanks go to Adele McKirdy, Lesley Whittleker, and Barbara Chambers for providing me with very valuable data which I have used in the “Student attributes” chapter of the thesis. Professor Brian Cox and Dr. Colin Aldridge have been very forthcoming with information relating to computing skills of students.

I wish to acknowledge a debt to Garry Heaton and Carolyn Stringer for their friendship and stimulus in completing this thesis. Garry has done much in proof-reading this thesis and has given me much help with the literature of curriculum development. Carolyn, with blessings from Professor Alan MacGregor, provided me with the opportunity to work with first year students and in doing so helped me formed an opinion of their attitudes and abilities.

I am indeed fortunate to have John Flawn, Michael Eathorne-Gould, and Neil Dobier who were always on hand and willing to fix computer problems I have encountered.

I could never have completed this thesis without the support of the Division, and my debt goes beyond the physical facilities. The range of interests and expertise within this scholarship, and the opportunities to mull matters over, provided me with an invaluable source of help and inspiration. In particular, I would like to pay tribute to Professor Michael Hall of the Centre for Tourism, Professor Charles Higham from the Anthropology department, and Dr. Anthony Robins from the Computer Science Department.

Many more people have helped me throughout the year in relation to my thesis. One group in particular – those who set aside time to enlighten me regarding the e-Business topics that they deem relevant – deserves a special mention. The rest, whose contributions are valued, are too numerous for individual mention and I can only express my gratitude on a blanket basis.

All those mentioned above have contributed to improve this thesis, and any remaining faults are mine alone.

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This chapter chronicles the reasons for an investigation into e-Business education. It describes the motivation to embark on the study and spells out the purpose of this thesis. It also provides an overview of how the research will proceed and outlines the broad areas that will be examined.
Motivation for This Study

‘It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way -- in short, the period was so far like the present period, that some of its noisiest authorities insisted on its being received, for good or for evil, in the superlative degree of comparison only.’

(Charles Dickens (1953) A Tale of Two Cities, p.1)

We are indeed living in ‘the best and worst of times’ – a period in which new rules are being re-written for a new way of doing business. We are in the midst of inventing a new economy and a new way of dealing with a large segment of business and daily life. Almost every day, we hear of individuals and organisations coming up with new ways of doing things. This is an exciting time for those who want to leave a legacy in the business world. Those that succeed tend to do so beyond their wildest beliefs, and those that fail do so with the same intensity.

Many of the changes have been made possible by a medium called the Internet. In the early nineties, the Internet was considered a medium for ‘geeks’ (heavily technically-inclined people), academics, and people with the unique technical knowledge to handle it. Starting from its use by the United States Defence Department as a fail-safe medium for military communication, it then widened to include academics who use it as a medium for sharing research documents. Following the end of the Cold War between the United States of America and the former Soviet Union, businesses began to experiment and build on the infrastructure to facilitate communication and business dealings.
The new environment is not a physical one. In *Neuromancer* (1994), William Gibson introduced the term ‘cyberspace’ – a virtual location which exists through the interconnection of computers. Gibson’s vision of the virtual environment is rather haunting:

“Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts .... A graphical representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding ....”

(Gibson 1994, p.51)

Existing in the virtual dimension, that environment does not belong to any nation and yet exists in the minds of those who know about it. It is only in the last few years that business organisations have seriously considered cyberspace as a viable ‘place’ for conducting transactions.

As with any new wave of change, the majority of people are still grappling with how to tame and take advantage of the new environment for doing business. The proliferation of dot-com companies, and the subsequent demise for many, indicated that there was a lot of trial-and-error in trying to survive in the new environment. Jakob Nielsen, the web design guru, puts it plainly: ‘the present is a unique period in human history in that this is the first time humanity has lost mastery of its tools’ (Nielsen 2000, p.389). Many of the failure cases were, in the opinion of this author, due to the inability of those companies to concentrate on what is actually important.

The changes that the Internet has brought are more pervasive and varied than anything that has gone before. Cairncross (2000) views the Internet as being more versatile than electricity in terms of the possibilities for its uses – it can be used as a distribution channel, a communication medium and it can also serve as “a market place, an information system, a tool for manufacturing goods and services”.

Being a non-physical environment, we cannot hold onto the artifacts of the physical world to provide some guidance and comfort. Berners-Lee (1999), inventor of the World Wide Web, warned of the dangers that lurk in that environment when he recounted that the Web resulted from “many influences on my mind, half-formed thoughts, disparate conversations and seemingly disconnected experiments”. In short, the environment was not built perfect from the start.

Berners-Lee also provided a glimpse of what the environment will eventually look like and the effect it will have upon our lives:

“The vision I have for the Web is about anything being potentially connected with anything. It is a vision that provides us with new freedom, and allows us to grow faster than we ever could when we were fettered by the hierarchical classification systems into which we bound ourselves. It leaves the entirety of our previous ways of working as just one tool among many. And it brings the workings of society closer to the workings of our minds.”

(Berners-Lee 1999, p.1)

When one holds the vision of Berners-Lee and that of Bill Gates’, as espoused in Business @ the Speed of Thought, one gets the inkling that we are dealing with an environment that is much more complex and where things happen a lot faster as a result of the interconnections. In such an environment, there will exist opportunities to do business in a different manner and there will likely be new threats like those that William Gibson provided a glimpse of in Neuromancer. In the opinion of this author, all these are made possible through the more extensive interconnection of minds.

The relatively uncharted territory of the Internet begs questions as to how best to exploit it and thereby hangs a challenge – what skills does a person need to succeed in doing business in the new environment? What new skills need to be acquired? Is there a set of traditional business skills that are still relevant in the new environment? These are some of the questions that have puzzled this author for some time.
Purpose of this Thesis

For educational institutions, the shaping of minds is indeed their business. For them, the emergence of new business models truly heralds what Dickens referred to as ‘the spring of hope’. Educational institutions saw that it provided them with the opportunity to reinvent themselves by offering new courses in this relatively uncharted field. At the same time, it was ‘the winter of despair’ for those who are unsure as to what to concentrate on in terms of teaching to prepare future workers for the new business environment. Practices and technology were, and still are, advancing rapidly, making it difficult to pinpoint what needs to be taught. Many of the early courses were mainly old courses that were repackaged as new ones, often using a catchy name to entice students to sign up for them. A few institutions have done well by reconsidering what skills need to be taught and subsequently developing courses to meet the need.

The purpose of this thesis, then, is to embark on an investigation into the new business environment and learn something about it. Along the way, discoveries will be made and the lessons learned about the new environment will be documented for the purpose of developing a proposed curriculum for a course that will impart the necessary skills for students to thrive in the new environment. Customary in any exploration into a new environment, familiar things will be encountered. In the early days of space exploration, astronauts have used a phrase like ‘a big blue marble’ to describe the view of the earth from outer space. In the same spirit, I will attempt to transmit ideas encountered in the new environment through the use of references to practices and things that we are familiar with in the traditional business environment. However, I am conscious that one must always be careful not to confuse the map with the territory!

The lessons from recorded history has provided reminders that there are things we can learn about survival when environment changed. For example, Higham (1996) expounded on how the arrival of the Bronze Age has altered the prehistoric social organisation in Southeast Asia. We learned that village communities began organising themselves into small seasonal groups for the purpose of mining and smelting ore. Those who managed to align themselves to the new way of working became very successful. The point here is that much of the activities in the village remained the same but there were some new skills to be learned. What we can
take away from that illustration is that we need to identify what skills are still relevant and useful, and establish what new skills need to be learned in order to succeed in e-Business.

At the time when this thesis is being written, a few tertiary educational institutions in New Zealand have started offering new courses to meet demand, and these courses typically have an ‘e’ in their names. The University of Waikato led the way with a degree in electronic commerce at the undergraduate level. The Auckland University of Technology has started to offer courses at the postgraduate level and will offer undergraduate courses in 2001. Rather than blindly following the footsteps of these pioneers, this author is of the opinion that a better understanding of the new environment would facilitate the development of new courses and provides a singular philosophy for revising existing courses to complement the new ones. If the School of Business at the University of Otago takes this conservative yet progressive path, it is likely to develop an educational programme in this new field that is relevant to potential students and profitable in terms of creating a new sustainable stream of revenue for the School.
Framework of Thesis and Description of Chapters

This thesis is structured as follows:

**Chapter two** explores the question of what constitutes doing business electronically. In doing so, an attempt will be made to develop a term that captures the essence of the new business practices. To facilitate our understanding of the range of activities and to put these in relation to one another, a classification method will be investigated.

We shift our attention to investigate how some educational institutions have responded to the demand for courses in electronic business in **Chapter three**. To this end, a review will be made of those courses relating to electronic business. In doing so, we aim to discern trends in the provision of such courses and to tease out important lessons for the development of a new course.

In **Chapter four**, we cast our eyes on the practices of organisations that are relatively successful in conducting electronic business. We will examine contemporary business models and attempt to identify the necessary ingredients for success. This chapter concludes with an indication of what the future environment is likely to be.

**Chapter five** provides the need-to-know of curriculum design. This includes a definition of what curriculum is about, the approaches in developing one, its foundations, domains and design. A review will be undertaken to identify if there are any aspects that we should be aware of in designing a curriculum for a course in electronic business.

In considering any new venture, it is important to understand the potential customers. With this in mind, **Chapter six** focuses on the developments that have taken place in the area of higher education and the likely characteristics of potential students entering university. Specifically, we will attempt to get an idea of the skills level of potential students from within New Zealand. For a broader and longer-term outlook, we will look at some emerging characteristics of the *Net Generation*. 
Chapter seven is the culmination chapter. It pulls together the lessons learned in the preceding chapters and uses these to develop a proposed curriculum for electronic business. It also documents the testing of the resultant curriculum model using opinions from practitioners in the field. Considerations as to the level at which the course should be targeted and the organisation of the course will be addressed at this stage.
You have finished reading the chapter called
Embarking on e-Business Education

Where do you want to go next?

What “electronic commerce” means

Navigation map
WHAT “ELECTRONIC COMMERCE” MEANS

The term *electronic commerce*, or its other popular names, is frequently heard nowadays. One only has to pick up a newspaper or business-related magazine to see a story about some aspect of electronic commerce. The popular press and professional journals seem fervent in advocating it. Businesses appear to be heeding the clarion call to action - with the proliferation of Uniform Resource Locators (for example, http://www.flyingpig.co.nz), educational institutions going on record to say that they intend to incorporate it into their curriculum, and consulting and software firms attempting to market electronic commerce solutions. However, as evidence in later chapters will show, many do not appear to be doing it well.

The material in this chapter attempts to provide some explanation of what electronic commerce really means. It does this by exploring the question of what constitutes doing business electronically. In doing so, an attempt will be made to develop a term that captures the essence of the new business practices. To facilitate our understanding of the range of activities and their relationships to one another, a classification method will be investigated.
A Brief Historical Perspective of Electronic Commerce

Electronic commerce is not a new phenomenon. Ever since the existence of an interconnected network of computers called the ARPANET, people have been attempting to transmit data and share information electronically. However, it was not until the early 1970s that commercial applications like electronic funds transfer started to take off. Due to the costs and complexity in setting up such applications, it was only the large companies, banks and financial institutions that were involved.

The advent of Electronic Data Interchange (EDI) saw other participants entering into the fray. Manufacturers and retailers discovered the possibility of using EDI for streamlining the acquisition of inventory and the fulfilment of orders to resellers downstream. New applications that were introduced fell mainly within the area of transaction processing. It must be said that connections between organisations were largely based on private arrangements and communications were conducted over private networks. The communication protocols involved were known only to the participating organisations, meaning that such networks were closed to outsiders who have no knowledge of the protocols involved.

In the early 1990s, when the United States Defence network was opened for non-military use, the number of users and businesses applications using the Internet increased at a phenomenal rate. The term electronic commerce was popularised and it became synonymous with transacting using the Internet as the medium. However, such a virgin territory could not be exploited without the necessary tools and acceptance from people. Mougayar (1998) rightly attributed the availability of non-proprietary protocols and software, and the adoption of this new business practice by business competitors as the main reasons for phenomenal growth.

As time goes by, electronic commerce activities became more varied. People were discovering more ways of harnessing the potential from having computers and other electronic devices being linked together. Bloor (2000) likened the emerging electronic market place as the ‘electronic bazaar’, where a multitude of commercial and non-commercial activities are happening simultaneously at any one time. Bloor also drew parallels between the Internet and the Silk Road in bringing people from various parts of the world together for the purpose of interaction.
Defining Electronic Commerce

The term electronic commerce has generally been used loosely to refer to the doing of business over the Internet. Indeed, various authors [Greenstein & Feinman (2000), Korper & Ellis (2000), Kosiur (1997), Mougayar (1998), Turban et. al. (2000)] have chosen to stick with the term even after explaining the limitations of that definition, mainly because readers are familiar with the term. Other authors, notably Kalakota & Robinson (1999), chose to use an alternative term – e-Business – to refer to electronic commerce activities after the first few pages.

Intranets and Extranets were mentioned by most of the authors in relation to the conducting of business over the Internet. A brief explanation of these terms at this juncture would clear confusion later on: The Internet refers to the world-wide network of computers. A smaller scale connection of electronic devices that exists within organisations is called an Intranet. When Intranets of a few organisations are linked using the Internet infrastructure to limit the access of information to the participating organisations, the resulting network is known as an Extranet.

Our attention will now be turned towards the establishment of a term that will capture the new way of doing business using the Internet.

A useful starting point is to see how some authors have defined electronic commerce. Turban et al. (2000) defined electronic commerce as ‘the conducting of transactions electronically via telecommunication networks’. Much along the same lines, Korper & Ellis (2000, p.xi) defined electronic commerce as ‘the buying and selling of goods and services over the Internet’.

Mougayar (1998, p.7) is of the view that electronic commerce was different prior to the emergence of the Internet. According to the author, Electronic Data Transfer (EDI) was synonymous with electronic commerce prior to the existence of the Internet as we know it today. For a number of years, EDI focused on the exchange of data and forms between computers belonging to trading partners, usually based on a set of pre-agreed protocols with the intention of streamlining the processing of routine transactions. Subsequently, following the advent of the Internet, it became easier for organisations and individuals to communicate
for the purpose of doing business. With the ease of connecting to the global network, the scope for electronic commerce expanded. Thus, Mougayar argued that ‘Internet commerce’, has ‘evolved’ from EDI, represents a completely different and superior form and is distinguished from its ancient ancestor by the presence of four important characteristics which the author labelled as ‘interactivity’, ‘spontaneity’, ‘pervasiveness’, and ‘the creation of a marketplace’ (Mougayar 1998, p.19). Greenstein & Feinman (2000, p.2) went as far to say that ‘EDI is a subset of electronic commerce’.

It is interesting to note that the Internet features prominently in various definitions of electronic commerce. Greenstein & Feinman (2000, p.6) see the Internet and the World Wide Web as ‘enablers of electronic commerce’. The Internet featured so prominently in Camp (2000) that the author labelled the electronic way of conducting transactions as Internet Commerce. Although there are various definitions of electronic commerce today, Mougayar (1998, p.10) is of the view that the essential elements of the definition must include the following:

- ‘Exchange of information and services’
- ‘Creation of an open (global) marketplace’
- ‘Spontaneous interaction among members of a value chain’
- ‘Empowerment of customers’
- ‘Platform for relationship management’

Using these as guidelines, Mougayar argued, we would be prevented from limiting the scope of electronic commerce to narrowly defined ones like ‘selling in cyberspace’, ‘secure payment transactions’, and ‘electronic shopping’, just to name a few.

In short, the Internet, with its World Wide Web facade, promises a fresh new set of capabilities to electronic commerce. Various authors [Mougayar (1998), Turban et al. (2000), Greenstein & Feinman (2000), Koser & Ellis (2000), Kostir (1997)] believe that the Internet will cause drastic changes to the way business is conducted. These authors, and many others who have written on the subject, have called for a rethink regarding the business models to be used, how companies should deal with issues of disintermediation, and the identification of business areas where value could be added in the new value chain. To illustrate this point, Mougayar (1998, p.11) highlighted the danger of not going beyond
merely duplicating the existing business processes over the Internet, a practice that led to the failure of those who initially set up Internet malls. In effect, the author has issued a clarion call for businesses to review the products and services on offer, the transactional processes involved in order to unearth opportunities for using the Internet to add value at each juncture in the new value chain.

The expanded scope of conducting business electronically over the Internet has been reflected in various definitions. Kosiur (1997, p.4) views electronic commerce as ‘a system that includes not only those transactions that center on buying and selling goods and services directly to generate revenue, but also those related transactions that …… generate demand for those goods and services, the offering of sales support and customer service, and facilitating communication between business partners.’ A number of authors [Tapscott et al. (1998), Kalakota & Robinson (1999), Glover et al. (2001)] prefer the term e-business to e-commerce to emphasise the enlarged scope. Common in their definitions are components like information technology, business processes, enterprise applications, electronic communication network and organisational structure – all fused together to create a business model. Glover et al. (2001, p.1) defined ‘e business’ in its purest form – “the exchange of business information and the conduct of transactions in electronic, paperless form”.
**e-Commerce or e-Business?**

As mentioned in the previous section, many authors have coined different terms to provide broader definitions of electronic commerce. Tapscott *et al.* (1998), Kalakota & Robinson (1999), Glover *et al.* (2001) prefer to use the term *e-business*. Mougayar (1998) and Camp (2000) referred to *Internet commerce* to distinguish the wider-scoped present day electronic commerce from the restrictive form that existed in the past.

The need for a term with a broader meaning to reflect the myriad of business activities besides buying, selling and paying for purchases is in response to the need to cover dealings which do not end up with the exchange of money. Although there is no monetary gain, there is recognition that such activities are essential and necessary for stimulating demand and for the fostering of relationships with potential customers.

I agree with the authors that the term ‘*commerce*’ has a narrow definition in that it merely connotes the exchange of goods or services for money. To embrace cases where information is delivered without the associated handing over of financial payment, the term ‘*electronic business*’ would be more flexible to encapsulate the myriad sorts of transactions that are taking place nowadays. Greenstein and Feinman (2000, p.2) pointed out that “businesses are increasingly using electronic mechanisms to distribute information and provide customer support”, and they termed such activities as ‘*business*’, and not ‘*commerce*’, activities.

Tapscott *et al.* (1998, p.5) refer to the participants and the processes need for their interaction collectively as the *e-business community*. Thus, the term ‘*electronic business*’ is better suited to provide hints of work being done in order to deliver an end-product which could be a physical product, a service, or pieces of information and covers the communications that take place leading to successful interactions.

Turban *et al.* (2000, p.5) provided a sense of relationship between the terms electronic commerce and electronic business: ‘… the term electronic commerce in its broadest scope … is basically equivalent to e-business.’
Over time, business leaders have used the term *e-business* in place of e-commerce. For example, Lou Gerstner, CEO of IBM used it to define the new way of doing business: “E-business is all about time cycle, speed, globalisation, enhanced productivity, reaching new customers and sharing knowledge across institutions for competitive advantage.”

For a working definition of electronic commerce, I will use the term **electronic business** or **e-Business**, which has the following essential elements:

- Use of the Internet as the main communication network to deliver experience as well as products and services to consumers;
- The Internet functioning as the fabric that brings together and binds the players and agents involved in completing the transactions or interactions;
- The supporting information, organisational structure, systems and business processes that have evolved and which are deemed necessary to complete such transactions or interactions.

I have used the term ‘Internet’ to refer to the network of connections among computers. Although its transmission is largely terrestrial as of today, there is no reason to dismiss the possibility as to why space and wireless might not take over in the future, especially if we consider advances in areas like platforms, mobile computing, Global Positioning Systems, and wireless technology. We are currently witnessing the popularity of cell phones and hand-held devices, like Personal Digital Assistants, for business and as well as for leisure. In fact, these devices are getting so prevalent that pundits have been coining new terms like voice-commerce (v-Commerce) and mobile-commerce (m-Commerce) to capture their essence for business purposes. This author believes that pressure from convergence of technologies will hasten the manifestation of the Internet in forms other than terrestrial. It is also likely that the Internet architecture will be expanded to encompass other presently available ‘networks’ such as the telephone system and electricity transmission systems. As such, the communication network should be thought of as a logical rather than a physical construct.
Classification of the Electronic Business Field

One way to classify the electronic business field is by reference to the nature of transactions taking place and the participants involved. The two popular groups of participants are business organisations and individual consumers. Using these participants, we have the following categories:

- **Business-to-Business (B2B)**

  When electronic business is mentioned nowadays, it is usually a reference to the transactions that occur between business organisations. The business transacted between this category of participant constitutes the majority of the transactions in e-Business, in terms of volume and monetary value. This arises from the fact that business organisations were early players in exploiting the Internet to coordinate the procurement and selling of goods and services among themselves.

- **Business-to-Consumer (B2C)**

  This is the electronic version of retailing as we know today. Here, retailers employ the Web as an additional channel for displaying their wares and taking orders from individual customers. Amazon.com, the book seller, would be an example in this category since it sells books directly to individuals.

- **Consumer-to-Consumer (C2C)**

  In this category, the individual consumers transact directly with other individuals. A good example is eBay, an electronic auction site, which enables individuals to list items for sale and provides facilities for completing the transactions.

- **Consumer-to-Business (C2B)**

  This category includes individuals who serve the needs of organisations, and include those individuals who act as intermediaries between individuals and organisations to fulfil the requirements of such organisations.
The categories above are usually identified with commercial transactions. Turban et al. (2000) identified two further categories where the participants are involved mainly with interactions that do not have monetary motive in mind. The authors labelled these categories as ‘non-business’ and ‘intrabusiness’.

- **Non-business**
  
  The participants in this group are mainly non-business organisations which use the Internet to reduce the costs of providing services to its members and at the same time delivering better services.

- **Intrabusiness (or Organisational)**
  
  This category would include interactions that occur within organisations using internal networks. Typical services provided include communication, sharing of resources such as printers, the provision of web-based training. The internal network is intended to increase efficiency and to reduce operating costs.

Choi et al. (1997, p.18) provided a framework for comprehending the various forms of electronic business. Using the three dimensions - ‘the degree of digitisation of the product/service’, ‘the process’, and ‘the delivery agent (or intermediary)’ – the authors have created a model that depicts the possible configurations of electronic business in three dimensions.
Using cubes to embody the various permutations of the three dimensions, we now have a means of classifying organisations involved in doing business electronically. In traditional commerce (depicted by the lower left cube), all three dimensions are physical. Organisations falling in the traditional commerce category would not be deemed to be involved in electronic business. At the other end of the spectrum, all dimensions in pure electronic business are digital. This means that all the other cubes, depicting various shades of electronic business, have at least one dimension that is digital.

The framework proffered by Choi et al. is useful in that we are able to get an idea of the degree to which an organisation is involved in e-business. Further, it provides guidance as to the areas where improvements should be targeted for an organisation to make progress in the field.
The Next Industrial Revolution

In *A Tale of Two Cities*, Dickens described the tumultuous period that the citizens faced during the French revolution. In his less well-known capacity as an educational reformist (Collins, 1964), Dickens could be well suited to describe the ‘revolution’ that is happening in business today, one brought about by new practices in electronic business. Historians in the future will record it as a revolution of sorts in the Silicon Age.

Clinton & Gore (1997) were optimistic about the new way of doing business: "We are on the verge of a revolution that is just as profound as the change in the economy that came with the industrial revolution. Soon electronic networks will allow people to transcend the barriers of time and distance and take advantage of global markets and business opportunities not even imaginable today, opening up a new world of economic possibility and progress."

The lessons in history tell us that each revolution will bring about changes and economic and social repercussions. Just as the invention of steam engines made possible the substitution of animal and manpower with steam power, Dollery (2000) is of the view that the present revolution will ‘decrease the costs of communication and information acquisition.’

In today’s business environment, business pressures from a number of sources – market, economical, societal, and technological – are forcing organisations to respond in order to survive. According to Turban *et al.* (2000, p.19), traditional responses may not be sufficient due to the magnitude of the pressures and the frequent changes involved. Instead, organisations must be innovative in their attempt to reengineer their organisations for survival. According to the authors, electronic business is seen as the ‘major facilitator of organisational responses’ in many cases.

We have often heard the assertion that e-Business changes everything – from marketing theories and practices to product innovation and the way organisations should serve their customers. Korper & Ellis (2000) went as far as to designate e-business as ‘the next Industrial Revolution’ because of its potential to affect fundamental changes in the way people and companies buy and sell products and services.
You have finished reading the chapter called
What “electronic commerce” means

Where do you want to go next?

Next Chapter

Current state of courses relating to e-Business

Navigation map
In this chapter, we shift our attention to determine how some tertiary educational institutions have responded to the demand for courses in electronic business. To this end, a review will be made of the current courses involving electronic business. In doing so, we aim to tease out important lessons for the development of a new e-Business course at the School of Business.
**Literature Survey**

With the popularity and proliferation of e-Business, many sectors of the economy have found that they have to face up to and address various business challenges impacting upon them. Its rapid spread has raised many difficult business, legal and policy issues, especially in the education sector (Gan 2000). Gan urged educational institutions to determine the impact of e-Business in the education sector and develop strategies and courses to meet those challenges.

According to Gan (2000), the role and impact of e-Business in the education sector are reflected in the transaction and delivery of education in all forms of training on the Internet. In this thesis, the delivery mechanism is considered simply because it is one of the many business ventures in e-Business education.

In her paper presented to the E-Commerce and Multimedia Workshop, Gan (2000) identified the various impacts e-Business has on the education sector:

- The proliferation of ‘virtual campuses’ which cater to ‘distance learning on the Internet’;
- Tertiary educational institutions are increasingly employing the web to offer courses relating to e-Business;
- The advent of ‘on-line certification exam’ which is targeted at students who want an additional qualification to supplement their general non-business degree;
- The use of the Internet as a new channel for delivering lessons to students;
- The provision of ‘corporate training’ for customers and business partners;
- The provision of courses to encourage ‘lifelong learning’ beyond the usual formal qualifications.

With the number of new avenues for tertiary educational institutions to reinvent themselves, the challenge for them is to ‘find the right mix, one which can improve and increase access to education for all without compromising the quality and integrity of education’ (Gan 2000). In relation to this, Gan warned against the practice which will lead to the ‘commoditisation’ of education, which arises from ‘shovelling of lecture notes onto the Web’, as Gan puts it.
Rattner (2000) found that many institutions of higher learning are addressing the need to provide e-Business courses in one of two ways. Some have modified pre-existing courses and updated them to include the latest Internet developments. Others have developed entirely new e-Business degrees.

A good place to start deliberating what needs to be taught in an e-Business course would be to consider the types of skills employers would be looking for in potential employees. There is emerging evidence that employers are looking for employees with a business and technology background [Regush (2000), Ambrosio (2000)]. In line with this, Michael Rappa, chief developer of new e-commerce curricula at North Carolina State University, believes that ‘an e-commerce course is a very modest part of core knowledge’ (Corser 27 September 1999). In line with that belief, North Carolina’s approach emphasizes both the technical and management subjects in its Master degrees. In the next few years, the University is planning to offer an e-commerce certification programme to professional continuing education students outside the current Masters degrees.

A common place to include e-Business courses is in the Master of Business Administration programmes. A web search of the current e-Business courses offered by educational institutions confirmed that the majority of them are related to MBA programmes. (See “Analysis of e-Business courses” later in this chapter). Some have made it a core requirement while others have offered it as an elective. To indicate its mandatory nature, Massachusetts Institute of Technology (MIT) has introduced an e-commerce and marketing specialists concentration. To reflect its uniqueness, graduating students at MIT receive a certificate in e-commerce together with their MBA qualification.

Daniel (2000) reported that business schools are starting to use ‘specialist e-commerce courses’ as a ‘crucial differentiator’ to attract students.

In the opinion of this author, business schools that require students to learn about e-Business as a separate topic have either not incorporated e-Business into their MBA curriculum or see e-Business as an optional way of doing business.
Due to its ubiquitous nature, it is not easy to put together a new course in e-Business. According to Daniel (2000), the course developers at MIT encountered various tensions: tensions arising from the reluctance of traditional course lecturers to share case studies, ‘tensions in terms of the direction of the course’, and ‘pressure from consulting companies which wanted to get friendly with the elite band of MBAs and lure them into future jobs’. The author also reported the fact that, because e-Business finds application in various traditional courses, it is a politically difficult decision as to where to house it.

However, not all business schools are convinced that having a separate, stand-alone concentration makes sense. For example, Harvard and Stanford have not joined the race to introduce e-Business into their MBA programmes (Daniel 2000). Garth Saloner, professor of strategic management and economics at Stanford Business School, as cited by Daniel (2000), is of the view that ‘e-Business is not a separate subject matter but an issue that affects every company’. As such, he argued, e-Business ought to be integrated and pervasive in the curriculum. In fact, Stanford MBA students are required to take a course in electronic business in order to earn their degree (Chao 2000). Carl Kester, chairman of the MBA programme at Harvard Business School, also cited by Daniel (2000), believes that students ‘need general management skills instead of just a narrow penetration of one field’ in order to succeed in the e-Business environment.
A Possible Model for Developing e-Business Curriculum

Regardless of how e-Business material is offered, there is a need to spell out what students need to know. What are some of the common elements in e-Business courses?

Tripathi (2000) has a reference model for designing an e-Business curriculum. The model calls for a postgraduate programme in e-Business. The pre-requisites for potential students in this course are maturity and experience. The author further states that candidates are required to have ‘a degree in business or computer science with a minimum of 3 years of relevant work experience’.

Tripathi’s curriculum model comprises of 3 submodels:

- ‘Business model’
- ‘Customer-behaviour model’
- ‘IT-resource model’

Some of the components in Tripathi’s model would provide hints on the relevant areas to include in a curriculum:

**Business model**
- Jurisdiction – applicable law governing a transaction that crosses national borders
- Digital signature for contract negotiations
- Taxation
- Pricing strategies
- Privacy issues

**Customer-behaviour model**
- Dynamic customisation for customer based on past history and current navigation patterns
- Software agents to facilitate transactions

**IT-resource model**
- Performance of an e-commerce site
- Flexibility in accepting new interfaces
- Capacity planning
Regush (2000) lent some support to the requirement for both a business in combination with a technology background. He is of the view that e-Business involves ‘the integration of Internet technology into the strategic fabric of decision-making’. He stated that the e-Business degree should ‘provide a platform for someone without a predominantly IT background to draw their chosen business and the Internet together’.

Tripathi (2000) also provided some features associated with his suggested model:

- MBA with a concentration in e-commerce
- A unit hosts it and offers a cross-functional concentration that cuts across the traditional areas
- Some core courses with a few elective courses
- Executive e-MBA and a regular e-MBA
e-Business Centres

An increasingly popular approach taken by institutions of higher education in addressing the e-Business phenomenon is the creation of on-campus e-Business centres [Rattner (2000), Chao (2000), Kendall (2000)]. According to Rattner, the roles and functions of these centres tend to fall into one of two categories: those in the first category offering e-Business training and those in the other category providing e-Business services. Those in the first category were typically set up to provide new e-Business degrees and courses. These have been established with the primary purpose of training future industry leaders. Those in the second category act as providers of various forms of services. For example, Cardiff University’s E-Commerce Innovation Center has mandates which include ‘helping the business community become more aware of modern electronic trading practices, encouraging all sectors in their use of e-Business, and investigating the benefits and impact of e-Business through various projects’. Often, the outputs of the Centre would be ‘policy and strategy recommendations, and new business models for industry’, as demonstrated by the Centre for Electronic Business at the Universiti Putra Malaysia (Kendall 2000).

The expansion of e-Business on a global scale has resulted in the creation of a new relationship between academia and industry (Rattner 2000). Usually, major corporations undertake to provide substantial financial commitments to these e-Business centres. By participating in this way, businesses stand to gain from their involvement in and support of this new wave of e-Business centres.

Rattner (2000) also suggested that the ‘heavy corporate financial backing validates e-Business as a cultural movement, and removes the stigma of it being portrayed as a questionable experiment’.

Often, a major corporate would support an e-Business centre. In elaborate cases, a number of corporates would be involved in providing funding. The following two examples illustrate this point. The Center for Electronic Business and Commerce at Stanford is funded by Charles Schwab & Co., General Atlantic Partners, eBay, General Motors, and BP Amoco. The Center for the Study of Electronic Commerce at Daniels College of Business, University of Denver, was set up with seed funding from an executive at J. D. Edwards.
Stanford Business School Dean, Robert Joss, believes that ‘the partnership with corporate leaders enables the University to derive financial resources for research as well as leadership in ideas to stay at the forefront in the field’. (Chao 2000).

In summary, the main functions of e-Business centres relate to the coordination of educational programmes and research. The following goals of such centres give a flavour as to their activities.

*Be a leader in the development and dissemination of curriculum materials, methods, and conceptual frameworks for the teaching of electronic business.* (Stanford)

*Support rigorous, relevant research on issues relating to electronic business.* (Stanford)

*Educate graduate students who are well-trained and creative thinkers about problems in electronic business.* (Stanford)

*Build on strategic information theory and show how EC techniques combined with strategy formulation can yield competitive advantage.* (Daniels College of Business)

*Introduces both the practice and theory of Electronic Commerce at appropriate points in the Daniels College Business Curricula.* (Daniels College of Business)

*Participates in a world-wide network of EC practitioners and academics in providing an essential global perspective.* (Daniels College of Business)

*Encourage partnerships between the University, faculty, students, and practitioners.* (Stanford)
**Analysis of e-Business Courses**

This section documents the results of a web search for educational institutions offering e-Business courses. The web search was carried out using Copernic 2000 and the results of this search are documented in Appendix A.

The web search results from 47 institutions were identified as usable. (Copernic 2000 searches for web sites that contain at least one of the keywords). Of these, 16 (34%) have undergraduate degrees relating to e-Business and 40 (85%) have postgraduate courses. (It is important to note that institutions may have courses at both the undergraduate and postgraduate levels. In such cases, each has been considered separately in each of the categories.) Of the institutions in the sample, only 8 (17%) have some form of Centre for e-Business. This low proportion of institutions indicates that the majority of the institutions have either not considered having such a Centre or they are unable to find a corporate sponsor to establish one. Those that have e-Business Centres - notably North Carolina State University, Stanford University, University of Denver – have quite an extensive number of courses for e-Business in addition to the component in the MBA degree.

29 (62%) institutions have e-Business courses in their MBA or postgraduate business degrees.

The full analysis relating to the 47 usable institutions is documented in Appendix B.

The initial web search was conducted early in the course of investigation for this thesis. As a check, a second web search was conducted just prior to the completion of this thesis. (The results are documented in Appendix G). Although the sample of institutions obtained from the subsequent search was different from that of the first, the findings relating to the two searches are essentially the same. The two samples gave essentially the same messages – that most of the courses relating to e-Business are at the postgraduate level and that most e-Business courses are taught in MBA programmes. Interestingly, the second sample reveals more occurrences of e-Business Centres.
Concluding Remarks

The presence of new e-Business courses and the establishment of e-Business centers may revolutionise the material taught in business courses (Rattner 2000). However, the author noted that it is too early to tell if competencies in teaching e-Business represent the silver bullet that will enable universities to have a closer working relationship with industry. Nevertheless, according to Rattner, it can be said with some certainty that the developments in the field of e-Business will have a major impact on all educational institutions, particularly those in the tertiary sector.

It is the opinion of this author that, no matter how the e-Business education is developed, some common features can be said of the majority of the e-Business courses:

- Students need to have a broad knowledge of core commerce and business-related subjects
- It must be interdisciplinary in nature, including coordinated teaching from a number of disciplines.
- The main target should be middle managers, as these candidates have the requisite experience to understand and build on their business knowledge.
You have finished reading the chapter called
Current state of courses relating to e-Business

Where do you want to go next?

Next Chapter

Present status and future trends in e-Business

Navigation map
In this chapter, we cast our eyes on the practices of organisations that are relatively successful in conducting electronic business. We will examine contemporary business models and attempt to identify the necessary skills needed for success. This chapter concludes with some indications of what the future business environment is likely to be.
A Recapitulation of the Definition of e-Business

Chapter two contains a discussion on why the term electronic commerce does not capture the myriad of activities that constitute the new way of doing business over the Internet. An alternative term - electronic business or e-Business - imparts a broader definition and includes those necessary collaborative activities. It encapsulates not just the buying and selling of goods and services, but also interactions relating to the servicing of customers, collaboration with business partners, and the conducting of electronic transactions within an organisation. The term e-Business also captures cases where information is delivered without the associated handing over of financial payment. Thus, the term ‘electronic business’ is better suited to provide hints of work being done in order to deliver an end-product which could be a physical product, a service, or pieces of information.

For the purpose of a working definition, the term electronic business or e-Business, has the following essential elements:

- Use of the Internet as the main communication network to deliver experience as well as products and services to consumers;
- The Internet functioning as the fabric that brings together and binds the players involved in the transactions or interactions;
- The supporting information, organisational structure, systems and business processes that have evolved and which are deemed necessary to complete such transactions or interactions.
Contemporary e-Business Models

The major participants involved in e-Business are either businesses or individuals (usually known as ‘consumers’ in the literature). A number of authors [Everett (2000), Korper & Ellis (2000), Turban et al. (2000), Kosiur (1997), Monty (1999)] have used the nature of transactions to categorise the types of relationships in e-Business when they discussed examples of these. Using these two major groups of participants, and considering all the possible permutations of dealings between them, we end up with four e-Business relationships. These are: Business-to-Business (B2B), Business-to-Consumer (B2C), Consumer-to-Business (C2B), and Consumer-to-Consumer (C2C). Here are some examples of entities involved in each of the categories and the characteristics of each of the e-Business category:

**Business-to-Business**

The transactions between organisations are typically large in value. This category has evolved from the days when organisations were using the restrictive Electronic Data Interchange (EDI) to conduct recurring transactions. Nowadays, companies that facilitate business-to-business transactions are typically brokers or intermediaries which have created virtual Web communities to which buyers and sellers congregate to transact. Many are acting as ‘buyer aggregators’ to take orders and derive benefits from bulk buying, thus improving pricing. Common transactions in this category have gone by names like e-procurement, e-trading, and e-services.

Examples: www.mobshop.com (aggregate purchase orders and benefit buyers through lower prices from bulk buying)

www.eforce.co.nz (New Zealand’s version of Mobshop)

www.metsite.com (aggregate orders to buy various types of metals)

**Business-to-Consumer**

These are retailing transactions with individual shoppers. The businesses extend what they would sell in a physical store to cyberspace. Transacting via the Internet offers consumers many benefits which is either impossible or impractical in a physical store. For example, companies usually put catalogues online so that potential consumers are
able to obtain the information whenever they wish. Another useful way to provide exposure for products is to provide discussion areas where people can share their experience in using those products or services. In order to personalise the purchasing experience, some businesses would make a record of the customer’s preferences and customise their offerings to the customer’s taste.

Examples:  www.amazon.com  (world’s biggest book store)  
www.woolworths.co.nz  (selling groceries to customers)  
www.dell.com  (selling customer configured computers)

consumer-to-business

This category includes individuals who serve organisations, and include those individuals who act as intermediaries between individuals and organisations to fulfil the requirements of such organisations.

Example: Priceline (enable consumers to get good prices for airline tickets, hotel rooms, cars, mortgage financing, and many others)  
www.dominc.cjb.net  (speciality incubators for hatching all types of eggs)

consumer-to-consumer

In this category, the individual consumers transact directly with other individuals. Auction sites like eBay would fall into this category. In addition, there are individuals who put up items for sale on intranets or some networks that are accessible only by members of the particular communities.

Examples: eBay auctions  (allow individuals to dispose of goods by auctions)  
www.napster.com  (allow users to share music over the Internet)

The categorisation above may give the impression that a particular e-Business falls neatly into one of the categories. Except for those organisations that offer limited services, the numerous types of transactions occurring at a modern portal or e-hub make it difficult to neatly categorise it into one of the categories. For example, on a Yahoo! Web site, a business
could be selling a product to a customer, a customer could be providing information to another user, a customer could be using the email facility to sell research findings to an organisation, and there could be an auction going on. Bloor’s (2000) depiction of the Web as an ‘electronic b@azaar’ where a multitude of transactional and non-transactional activities are taking place is very poignant here.

At the present day, the prominent forms of transactions involve Business-to-Business (B2B) and Business-to-Customers (B2C). One way of getting a perspective between these two forms is to visualise an iceberg. The E-Commerce guide put out by the Ministry of Economic Development in New Zealand put it in this way:  *B2C is the visible tip sticking up above the water – the part we all hear about. But seven-eighths of the iceberg, the B2B part, is out of sight below the water. You can’t see it, but it’s there – and it’s incredibly important.* (2000a, p.8)

Businesses typically have web sites that serve as virtual marketplaces where customers and suppliers congregate. Consumers, on the other hand, may or may not have web sites of their own. If they do not have a web site, there is always the opportunity to trade at a third party’s web site.

A concept closely associated with virtual marketplaces is **e-Business communities**. These communities represent a new form of commercial organisation that are enabled by digital technology and these exist to efficiently match customer demand with the appropriate supplier. According to Tapscott, Lowry & Tico (1998, p.25), e-Business communities can be differentiated along two primary dimensions: **economic control** and **value integration**. These two dimensions refer to ‘the degree of a central control over the nature of value and flow of transactions’ and ‘the degree of facilitation in the creation and delivery of specific products or services offerings that integrate components from multiple sources’ respectively. The diagram below illustrates the four types of e-Business communities:
As more Business-to-Business commerce shifts to the Internet, those companies that have the ability to dictate the nature of business relationships and can decide where customers buy from are likely to be more successful than those which do not have this ability. Kaplan & Sawhney (2000) referred to such meeting places as *e-hubs*, which they define as ‘virtual marketplaces where a large number of buyers and sellers are brought together under one virtual roof and are linked according to their transactional needs’. According to the authors, such e-hubs create value by bringing buyers and sellers together and providing facilities where their demands and supplies are matched.

What do companies hope to achieve by conducting business over the Internet? Violino (2000) found that nearly all the companies surveyed are aiming to boost revenue growth. Apart from this, Internet activities are also helping companies to reduce costs in areas such as procurement, customer management and fulfilment and delivery.

Violino (2000) also shed some light on the industries that are conducive for e-Business. Travel and hospitality companies led the way in expanding their customer base via the Internet, followed by high-technology companies. Retailers and travel companies scored above average in terms of percentage of orders fulfilled accurately. The survey also found that travel and high-technology companies are the best at converting web site visits into sales.
It is interesting to note that the products and services that are conducive for e-Business are those that have a high ability of being digitised for delivery.

Increasingly, work is being done between people who might never meet other than getting acquainted through the exchange of e-mails (Monty 1999). This author believes that with the prevalence of this manner of conducting business, authentication technology will play a greater role in facilitating communications and transactions in the near future.

With the emergence of the Internet for conducting business, consumers are having a different view as to what constitutes value to them. For businesses, the changing value proposition poses a threat to those who do not change their value offerings and presents new opportunities for others to add value along the new value chain. Collectively, authors have mentioned three areas in which organisations could add value in the new value chain - providing better customer experience, reducing transaction costs, and providing better service. The necessity to add value in the new value chain is especially important for Business-to-Business transactions, where the frequency and value of transactions is large compared to the other groups.
The table below, from Everett (2000), provides the contrasts between a conventional market and a cyberspace market and lists typical items traded in each market for each type of goods:

**Table 1: Differences between a conventional market and a cyberspace market**

<table>
<thead>
<tr>
<th></th>
<th>Conventional market</th>
<th>Cyberspace market</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General characteristics</strong></td>
<td>Physical place</td>
<td>Virtual place</td>
</tr>
<tr>
<td></td>
<td>Country and local market</td>
<td>Global market</td>
</tr>
<tr>
<td></td>
<td>One-way mass media communications</td>
<td>Two-way communications</td>
</tr>
<tr>
<td></td>
<td>Requires trip to get information, catalogues, etc.</td>
<td>No trip required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electronic money (instant, any amount)</td>
</tr>
<tr>
<td><strong>Tangible goods</strong></td>
<td>Television, VCR, etc.</td>
<td>Books, flowers, stocks/shares</td>
</tr>
<tr>
<td></td>
<td>Need shopping trip</td>
<td>Need mail order</td>
</tr>
<tr>
<td></td>
<td>Mail order, plus</td>
<td>Shopping trip, plus</td>
</tr>
<tr>
<td></td>
<td>Store</td>
<td>Store</td>
</tr>
<tr>
<td></td>
<td>Delivery</td>
<td>Delivery</td>
</tr>
<tr>
<td></td>
<td>Warehouse</td>
<td>Warehouse</td>
</tr>
<tr>
<td></td>
<td>Inventory</td>
<td>Inventory</td>
</tr>
<tr>
<td></td>
<td>Factory</td>
<td>Factory</td>
</tr>
<tr>
<td><strong>Digital information goods</strong></td>
<td>Movies, music, computer games, software</td>
<td>Software, games, music, research (information)</td>
</tr>
<tr>
<td></td>
<td>Need shopping trip, or</td>
<td>No shopping trip required, instantaneous download</td>
</tr>
<tr>
<td></td>
<td>Mail order, plus</td>
<td>None of the following: store, delivery, warehouse, inventory, factory, etc.</td>
</tr>
<tr>
<td></td>
<td>Store</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delivery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Warehouse</td>
<td></td>
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<tr>
<td></td>
<td>Inventory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factory</td>
<td></td>
</tr>
</tbody>
</table>

Source: Everett (June 2000)
The following material documents the typical activities undertaken by e-Business operators and highlights the areas that are different for a business that operates in the physical world. For the purpose of discussion, the business activities will be ordered into two broad groups: Front-end and Back-end. The front-end activities consist of those that deal with serving customers and suppliers, generating demand from customers, handling queries, and marketing the products and services on offer. The back-end activities consist of other activities necessary to complete the transaction. These include order fulfilment, payment processing, inventory handling, and other essential activities to keep the business afloat.

**Front-end activities**

*Presentation of products and services*

A web site that serves as a virtual store provides businesses with an additional channel for customers to visit and to sample the goods and services on offer. The drawback with a virtual store is that, unlike a physical store where customers are able to use all their five senses to evaluate an offering, there needs to be alternative means for businesses to showcase and market their products.

Brent Ellison of Xtra’s *esolutions*, as quoted in McNickel (1999), said that the biggest challenge for businesses developing their virtual store lies in ‘transforming their physical offerings into the digital equivalent’. Ellison also hinted at the importance of attractive presentation and easy location of products by pointing out that it is easy for customers to desert, as ‘international competitors are only a click away’. At Amazon.com, dubbed the biggest bookstore on earth, Jeff Bezos’ trick is in ‘showing millions of customers such a good time that they come back every few days for the next 50 years’ (Krantz 1999). Thus, virtual stores must be designed with the ability to provide a large range of offerings to the shopper and yet enabling the shopper to locate a specific product quickly.
Many authors have provided guidelines on how to set up a functional web site. Here are some of the guidelines, compiled from this author’s own experience:

- The target audience must be clearly identified at the outset.
- There needs to be a clear purpose of what to communicate to the target audience.
- The name of the site must be easy to remember and recall. Effort must be made to promote the site and make it known to the target audience.
- This first page, known as the home page, must be designed to provide a good impression to users and encourage them to go further.
- The involvement of users must be continuously sought at every stage of the lifecycle of the web site development.
- Navigation within the web site must be easy and intuitive for the users.
- Content must be appealing and kept fresh to attract users and encourage them to return for further visits.

It is common for businesses to begin their e-Business foray by merely displaying products and services on their web sites. Later, those web sites would be enhanced to enable customers to indicate their orders electronically. The driving force for introducing electronic ordering facilities usually relate to the reduction of operating expenses and efficiency. Such facilities also help in speeding up the fulfilment of orders, as electronically placed orders are easier to process and it is less likely that translation errors will creep in. Kosiur (1997, p.14) noted that most companies use ‘electronic forms that mirror traditional paper order forms’ to enable customers to place orders electronically.

Reichheld & Schefter (2000) found that the design and the promotion of a web site determines its success in attracting its target customers. Since a web site can be accessed by virtually anyone connected to the Internet, web developers sometimes make the mistake of targeting everyone. The authors argued that such a move, where there is no focus on a particular segment of the market, is likely to jeopardise profitability because it makes it difficult to build customer loyalty. The authors found that successful web sites are those that are tailored to the needs of its targeted group of core customers.
**Customer management**

The Internet has made it easier for businesses to track the purchasing preferences of customers. This is due to the availability of rich sources of data which can be developed and accumulated relatively inexpensively. By tapping into those sources of customer data and using these in conjunction with data mining techniques, e-Businesses have the opportunity to do mass-customisation efficiently. Mass customisation refers to the practice of customising each offering to suit the preference of each and every customer. To this end, we find e-Businesses that are typically investing in customer relationship management (CRM) systems to track and analyse the characteristics of their customers.

Lord (2000) mentioned that e-Businesses should consider adding supply chain management (SCM) to its customer relationship management (CRM) to strengthen its offerings. When these two systems are seamlessly integrated, the e-Business would have an efficient infrastructure for sourcing supplies and delivering products to its customers.

With information regarding products and services being readily available, consumers are becoming more knowledgeable and more sophisticated as to their needs. As such, we hear the portmanteau ‘prosumer’ being used with increasing frequency. It was initially coined by futurist Alvin Toffler to describe a hybrid person comprising both the producer and consumer. The prosumer would be actively involved in helping to design and produce the required product according to his specifications. The more current usage of prosumer was popularised by Marian Salzman, president of The Intelligence Factory. It describes a consumer who desires goods that are better in quality and features compared to those products destined for the mass market. Here, the word is a blend of professional and consumer. From the marketing point of view, prosumers have much in common with early adopters. Salzman, as quoted by Gold & Stapleton (2000), described a prosumer as ‘cash-rich and time-poor, price-conscious and value-seeking .... latches onto trends quickly but is easily bored ..... extremely demanding, socially aware, and demands full and transparent access to information, including human customer service representatives.’ With the emergence of prosumers, Salzman advocated that new research techniques must move toward ‘a more interactive model, one that operates from the respondent's perspective and embraces conflict and ambivalence as drivers of creative insights.’ (Iconocast, 16 November 2000).
Marketing

e-Business consultants often point out to e-Business operators that the basic rules of business should not be ignored [McNickel (1999)]. Harvard Management Update (Nov 2000). Some businesses fall into the trap of adopting an approach without a realistic appreciation of its limitations. For example, McNickel mentioned that ‘price points’ is an area most tend to ignore. This occurs if the ancillary costs of obtaining the product is disproportional to the price of the product. For example, customers would not be happy if they have to pay $5 for shipping and handling if they buy $5 worth of products.

As the volume of business-to-consumer transactions grows, ‘permission marketing’ will become a more important component in an e-tailer’s marketing strategy (Andrews 2000). In the e-Business context, permission marketing – a term popularised by Seth Godin - refers to an approach to selling goods and services in which the Internet user has explicitly agreed in advance to receive marketing information. The communication between the supplier of goods and services and the consumer is usually conveyed through e-mails. From the point of view of the consumer, this method of marketing removes the irritation of being inundated with junk mail. Since it is the customer who initiates the request for information, it will result in a ‘highly efficient one-to-one marketing relationship’ (Andrews 2000). Apart from being able to personalise content for each consumer, businesses using this form of promotion have other benefits compared to traditional postal mailing. These benefits include the incurrence of lower costs, faster transmission and response speeds, and the ability to deliver a more personal message through the use of the electronic capabilities of the Web.

The traditional marketing channels, which include radio, television, and print media, should not be ignored. In addition to these traditional strategies of attracting customers, Korper & Ellis (2000) highlighted some strategies that are unique to an e-Business organisation. These include the placement of advertising at search engine and directory sites, banner advertisements on popular web sites, arrangements to put reciprocal links on other web sites, encouraging users to discuss its products and services in electronic newsgroups and the signing up of users through web sites and emails.
It is often said that an organisation with a web site is involved in business on a global scale. As companies extend their reach beyond their traditional shores, a new set of challenges is introduced. Decisions must be made as to the formation of alliances and partnerships to provide services in the areas of fulfilment, logistics, and payment systems. In addition, there are legal and tax issues to be considered. According to McCarthy (2000), it is important that the fulfilment and selling services be designed and adapted to suit the local environment. McCarthy suggested that companies think of globalised system design for their e-Business as having two layers: “internationalisation”, which refers to processes that have to be done or supported, such as character sets; and “localisation”, the local issues supported by the internationalised layer, such as the use of colour. The author advocated the hosting of the web site at the regional level to minimise disruptions to services.

**Generating trust and loyalty**

Many newcomers to e-Business believe that getting a web site up and running is all there is to doing business on the Internet. Given the fact that there are millions of web sites out there, and thousands more springing up each day, there is a real need to differentiate one web site from another in order to attract customers to it.

A powerful differentiator is the ability to convince the customer that a particular web site has what he or she wants, that it is reliable in terms of service, and that no one else is able to know what has been transacted. In short, the e-Business has to provide the customer with the confidence that it has the capability to fulfil orders in a manner expected of a reputable organisation.

Some e-Business marketers are leading the way in creating new customer expectations by advising customers of the exact day of delivery and frequently changing their product offerings (Wilson 2000). Another way of maintaining customers’ confidence is to provide updated information on the web site and keeping customers regularly informed as to the status of their product shipments (Tham 2000).
Customer confidence is essential because it ensures that the customer will return to transact. After all, the aim for every e-Business is to keep the customer coming back for repeat purchases and ultimately develop into a customer that is loyal to the business.

In order to gain the loyalty of customers, an e-Business must first gain their trust (Reichheld & Schefter 2000). On the Web, the risk of being cheated is increased due to the inability to communicate face-to-face. The authors provided a number of examples of how successful companies have implemented practices to mitigate these perceived risks. For example, by requiring its customers to use a ‘secure 128-bit browser’ and passwords to access its web site, a mutual fund company has managed to convey its commitment towards privacy and exclusiveness. In the case of eBay, buyers and sellers rate each other after every transaction and the resulting ratings are posted on the web site. It also holds money in electronic escrow until the buyer is satisfied with the merchandise. Amazon.com’s emphasis on reliability, trustworthiness and confidentiality has dispelled fears of customers having their personal details stored at the business site. Another way to boost reliability of a web site is to have it hosted on popular on-line and trusted sites, and having a link back to the business site. (Far Eastern Economic Review, 23 November 2000). This will give the impression that the new site is as reliable as the trusted site. According to FEER, this approach can be rather expensive and web sites with heavy traffic are known to charge a lot for this effective approach.

Loyalty is about earning the trust of the right kind of customers, that is, customers which the company can deliver a consistently superior experience to and who will want to do all their business with. The Web raises new questions and opens new opportunities to e-Business participants, thus putting old rules in a new context. In fact, Reichheld & Schefter (2000) found that the largest segment of on-line customers are seeking convenience above all else when they transact over the Internet. Convenience and having recognisable brands seems to work in developing a strong inclination towards loyalty.

Dell Computer, as reported by Reichheld & Schefter (2000), found three key drivers of customer loyalty: ‘order fulfilment’, ‘product performance’, and ‘postsale service and support’. Again we see that these measures are business measures. By monitoring these measures, there is less likelihood that the company will be sidetracked by fads and fashions.
Reichheld & Schefter (2000) reported that a five percent increase in customer retention increases profits by 25% to 95%. They also found that the costs incurred to acquire a customer are often higher in e-Business than in traditional retail channels. The payback comes in future years, where the profit growth accelerates at a higher rate. This evidence indicates that Web customers tend to consolidate their purchases with one primary supplier.

Contrary to the common view that Web customers are fickle by nature and will desert to the next new idea, the Web has been found to be a very “sticky” place in both the Business-to-Consumer and the Business-to-Business spheres (Reichheld & Schefter 2000). Stickiness is a desirable characteristic of e-Business as it ensures that customers will return again and again to the web site to partake of the services and experience it provides.

In addition to purchasing more, loyal customers contribute to the profitability of e-Businesses in a number of ways, the most prominent of which is the referral of new customers to the supplier. Referrals by existing customers tend to be effective, as ‘word of mouse spreads faster than word of mouth’, as Reichheld & Schefter (2000) put it. The authors also found that, in the case of eBay, loyal customers have voluntarily taken over the functions of advertising, sales, and customer support for free.

**Back-end activities**

*Order fulfilment*

No matter how innovative or popular a company’s products are, they are no good if these cannot be delivered to the customers. For soft goods – products or services that are in digital form - the Internet can be used as the medium to deliver these. However, a proper physical distribution infrastructure is still needed to get physical goods to the customers.

Companies used to be at either end of the spectrum – either they are pure e-tailers or they operate in the physical marketplace. As time goes by, companies began to move away from these extremes and adopted a ‘clicks-and-mortar’ strategy by combining their retail stores
with their on-line stores. In relation to this, Gulati and Garino (2000) urged companies to select the appropriate ‘clicks-and-mortar’ by managing the ‘trade-offs between separation and integration of businesses in the physical and virtual worlds’. They reported that businesses that handle physical products would benefit from ‘integrating the web sites and the physical stores so that the two channels work seamlessly to promote and complement each other’.

Much along the same line, Greenfield (1999) found that ‘physical stores serve to provide an avenue for customers to touch, compare, try on, and return merchandise, and provide instant gratification for impatient customers who want their merchandise fast’.

Windham (1999) has some advice for brick-and-mortar companies thinking of embarking on e-Business. The author warned that functional groups within the organisation should not be allowed to develop their web-based propositions independently of each other, in order to avoid the ‘silo effect’. Instead, ‘organisational structures must evolve to smoothly integrate the key functional areas and keep pace with the market pressures’. Windham quoted noted Web guru, Jakob Nielsen, as saying that the organisation of the company’s web site should be an electronic replica of its physical organisation because this would result in an ‘internally-centered site rather than a customer-focused site’.

A number of authors [Windham (1999), Gulati & Garino (2000)] advocated the creation of a separate, autonomous organisation that is responsible for the e-Business operations. Typical responsibilities of the e-Business group would include e-commerce, customer service, collaborative publishing, on-line partnerships and portal deals, banner advertising, production, and design. Gulati & Garino (2000) attributed the following benefits to the autonomous group: ‘speed up decision making’, ‘maintain a high degree of flexibility’, ‘create an entrepreneurial culture’, ‘attract quality management’, and access the ‘vast pool of capital available to Internet start-ups’. Windham (1999) reported that companies with autonomous e-Business divisions are best positioned to compete with traditional competitors entering the fray and e-Business start-ups. On the local front, the award winning CityofDunedin web site (http://www.cityofdunedin.com) is managed by a separate team whose purpose is to facilitate the organisation and coordination of activities relating to the web site.
**Payment processing**

Despite many prospective e-Business customers being nervous about providing credit card information on-line, credit cards remain the default cash transfer device for on-line shoppers. In fact, the top three credit card companies handle over 98% of all purchases made on the Web (Korper & Ellis 2000, p.174). Typically, an on-line retailer would sign up as a merchant with a bank in order to access real-time validation service to process credit card payments. In addition to credit cards, various companies have introduced various payment systems like to enable the transmission of money from customers for goods and services provided. According to Kosiur (1997), the area of payment mechanisms is still evolving and much progress and development is likely to occur in the near future. Some of the recent innovations include electronic cheques, digital cash, debit cards and micropayments systems for small-value repeated transactions.

**Inventory management**

Apart from those businesses that deal in purely digital goods and services, most e-Business ventures would have to deal with inventory management. In the opinion of this author, the speed at which transactions is done and the uncertainty as to demand for the products in e-Business means that prudent inventory management is more important for an e-Business than it is for a physical store which has regular and predictable opening and closing times for business.

A good inventory management system would have the following characteristics:

- Integrated with the order management system to enable customers to determine if there are any products in stock and when these can be delivered;
- Integrated with distributors to facilitate shipment to customers;
- Integrated with the systems of suppliers to enable Just-in-Time ordering to minimise inventory levels.
Security concerns and bandwidth requirements

Existing companies often view e-Business as the catalyst for enhancements and greater efficiency in various areas of operation. While it enhances many business processes, e-Business also presents organisations with new exposures, and hence a need for different controls to be put in place (Attaway 2000). Security remains one of the greatest obstacles to widespread use of e-Business. Thus, an organisation embarking on e-Business must address issues like the confidentiality of information and integrity of transactions. Attaway advocated that the auditor be involved in the early stages of the e-Business project by reviewing the proposed internal control environment and regularly evaluating the critical internal controls upon which the security of the organisation’s e-Business initiatives will depend.

A breach of security can have devastating effects on the image of an e-Business, mainly through the erosion of trust towards it. Security breaches are not limited to the data stored at the business entity but also extend to leakages during transmissions. With the never ceasing threats from hackers, e-Businesses have a constant battle on their hands to minimise security risks.

With the proliferation of web servers hosting e-Business applications, the amount of traffic on corporate networks is exponentially greater than just a few years ago. Increasingly, close ties with multiple partners, suppliers, and customers over the Internet demand reliable availability. Neil (2000) reports the results of a survey that indicated that e-Business innovators are deploying big bandwidth pipes to ‘keep their networks up 99.999 percent of the time.’ Many of the respondents are resorting to Gigabyte Ethernet and T-1/T-3 lines to provide more bandwidth to accommodate increasing traffic due to the growing number of connections and requirements of wireless access technologies.
Concluding remarks

Companies that have established themselves through their physical stores are now beginning to latch onto e-Business to increase their chances of survival in the business world. Here is a typical progression for a company to embark on e-Business. Andrews (2000) documented the Charles and Leah Rogers case with their chocolate business in Victoria, British Columbia in Canada. Starting with ‘mom-and-pop’ grocery store, they established a loyal market through the quality of their product. Next, they moved into mail-order in response to customer demand. When they moved onto the Internet, they initially had a ‘brochure-ware’ web site, where customers could view catalogues that were previously available only on printed material. Orders had to be placed by fax and phone and payments for the chocolates were made by means of credit cards. The web site later became ‘transactional’, meaning customers could also place orders and pay right at the site. This case illustrated one road to e-Business success, where the company has been able to migrate its physical store reputation for quality and customer service to the Internet.

So, what changes has e-Business brought about? The Rogers chocolate case (Andrews 2000) illustrated that the quality of chocolates hasn’t changed, but the customers and their buying styles have. e-Business has enabled the company to offer the same impeccable level of service no matter what medium customers choose when making their selection.

The Internet is a power tool for strengthening relationships. Yet, the basic laws and rewards of building loyalty have not changed. What has, and is changing, is the pace at which these economic rules are playing out, and the speed with which companies must improve their products and services if they hope to keep customers loyal. It is almost a case of requiring businesses to extend the personal level of service made famous by the ‘mom-and-pop’ store to customers on a global scale!
The Ingredients Necessary for e-Business Success

According to Everett (2000), e-Business represents a strong influence on the operations of a business. Everett is of the view that it is not a question of whether a company should get into e-Business but more of when it should take the plunge.

Many authors have propounded the benefits that can be expected from e-Business and these have often been over-exaggerated. It seems that everyone who participates in e-Business expects those benefits, but few have received these. The Gartner Group estimated that 75% of all e-Business ventures would fail. Rather surprising is the fact that there is no long-term positive effect which will accrue to the survivors beyond survival itself! However, the decision not to adopt e-Business will have a very negative long-term effect.

In the opinion of this author, what e-Business changes is more the HOW rather than the WHAT of doing business. The business fundamentals – such as identifying needs, producing goods and services, taking orders, servicing customers, delivery of goods and services, collecting payments, and the need to make a profit – remain as necessities. An analogy would help to illustrate this point. Many consider the advent of motorised vehicles as revolutionary in the field of transportation. Although there is the advantage of being able to travel further, faster, and carry more, the purpose remains the same – to move things and people from one point to another. There is still the need to decide where to go and what to carry. Granted, there are new impacts on the life of people arising from the new form of transportation; for example, the need for rules that motorists have to abide by, the construction of highways, and designating certain areas as parking areas. Very much similar to the Internet in terms of development, new technologies associated with motorised transport called for people with knowledge of the internal combustion engine and the know-how associated with the processing and handling of fuel.

In these early days of e-Business, the Internet dominates discussions on the subject. Various authors have written on specific areas where they think the importance is greatest - marketing, security, bandwidth, payment systems, and portals being some of these. This is understandable, just as the fascination with the internal combustion engine dominated the introduction of motorised vehicles. With the Internet, technological considerations dominate discussions. Soon, however, businesses would need to move away from this technologically-
focused infatuation and start considering all the aspects in relation to each other and how the opportunities associated with this new business practice can be harnessed to derive competitive advantage.

This author is of the view that competitive advantage in e-Business can be derived from the degree with which products and services can be digitised and the propensity of businesses to innovate by introducing new practices that were not possible without the Internet and its attendant technologies. At the same time, choosing the right product for e-Business remains an important decision an organisation has to make. From the model proposed by Choi et al. (1997), we know that not all products can be fully digitised for sale on-line. Some products - such as travel, financial services, and computer software – are more suitable than others for on-line sales. On the other hand, tangible and high value one-off purchases such as cars, houses, and jewellery, are difficult to be sold on a purely on-line basis (Far Eastern Economic Review, 23 November 2000). Hence, thought needs to be given as to the type of products to be offered by organisations getting into e-Business.

The results of the most recent survey, conducted by the Graphics, Visualization, & Usability Center, on items purchased on-line provided a good indication of the types of goods that sell well using the Internet. The top ten items purchased on-line were as follows: software, books, hardware, music, travel, video, magazines, electronics, apparel, and flowers (Graphics, Visualization, & Usability Center (GVU), October 1998). The authors of the survey also reported that web shoppers ‘rated quality information, easy ordering and reliability as more important than the security features’. It is interesting to note that it is the human aspects that are more important than the technological issues when deciding on selling over the Internet.
Thus, it is the opinion of this author that a company has to approach the e-Business venture in a business-like manner. This means the necessity to do the following well:

- The e-Business strategy has to be integrated with the overall strategy of the company.
- The various processes have to be seamlessly integrated. Specifically, the front-end and the back-end operations must complement and support each other.
- Securing and maintaining the trust of customers, partners, and suppliers to foster profitable business relationships.
- Carefully selecting customers to target and service the needs of these customers well so that they remain loyal.
- Be vigilant of developments in technology and constantly evaluate the possibility of employing these to serve the customers better.

How should the importance of technology be seen in relation to e-Business? According to Don Guthrie of Netlink, as cited by Voullaire (2000), the secrets of successful e-Business consist of a sound understanding of the ‘technological possibilities’. Guthrie mentioned that Internet technologies are merely ‘tools to be used when it makes sense to use them’. Pascal Grant from Oracle, also cited by Voullaire (2000), provided three key areas for e-Businesses to consider when deciding on technology:

- It must enable the business to enlarge its market and reach customers previously not being able to be reached;
- The technology must contribute towards the improvement of customer service and enhance customer retention;
- The electronic infrastructure must facilitate the effort of the business in serving the international markets in a streamlined and cost-effective manner.

Technology should, thus, be viewed as an enabler of a catalyst for the changes required for engineering an e-Business organisation. With the threat of convergence of technologies wiping out organisations, it is even more important for businesses to evaluate their use of technology to sustain their competitive advantages. Mougayar (1998) advised organisations to focus on three areas where technology is concerned – the components required for building the e-Business infrastructure, the appropriate use of information appliances, and technology required for servicing vendors and for the provision of essential services.
e-Business in New Zealand

A survey was carried out by Ernst and Young (1999) to determine the extent to which businesses in New Zealand were embracing e-Business. The results showed that less than half the respondents had invested NZ$50,000 or more in ‘eBusiness initiatives’, while 40% reported they had no web presence at all. The largest category, Business-to-Business transactions, accounted for 49% of the activity, followed by Business-to-Consumer at 18%. The main reasons given for investing in e-Business were cost reduction (37%), ‘pressure from business partners to do so’ (26%), and ‘a desire to be a proactive technology leader’ (14%). Apart from cost savings, the main benefit of moving to e-Business included ‘faster turn-around time’ (23%), ‘decreased costs from back office systems integration’ (15%), ‘decreased costs from automating job functions’ (14%), and ‘building customer relations’ (13%). It is interesting to note that many said that their businesses needed to be conducted “face-to-face” as they have not found ways to ‘digitalise’ or ‘virtualise’ their offerings.

A brief summary of the survey results can be found in Appendix C.

An interview with a staff member at Deloitte Touche Tohmatsu in Dunedin (7 April 2000) indicated that things have not progressed much since the survey was carried out. Clients usually have a web presence, but not a structured one. The clients needed help in identifying what needs to be done for e-Business and in managing the implementation of the e-Business solution. Similar to the Ernst and Young survey, the reasons given for getting into e-Business were to reap ‘economy of scale and efficiencies’ and having the Web as another channel to get more customers.

The situation in New Zealand mirrored the uptake of e-Business overseas. According to Bain and Company chairman Orit Gadiesh, ‘e-strategy has often been thought of as just designing a web site’. (Harvard Management Update, November 2000). He added that many rushed to go on-line for fear of being left behind by companies that have done so. His advice is timely: “The issue is no longer getting on-line as fast as possible, it is figuring out how the Internet helps you increase your value proposition and expand your profitable business opportunities”. From that advice, we should consider the Internet an additional channel and not as a replacement channel. In view of the findings from Ernst and Young and Deloittes
Touche Tohmatsu, there is definitely a need for organisations to update their strategic thinking when they decide to embrace e-Business.

The Ernst and Young (1999) survey results indicated that e-Business is still at the infancy stage in New Zealand. A massive 83% revealed that their industry has not developed an infrastructure to create joint ventures with competitors on the supply chain. Another indication is that many CEOs are still afraid that their e-Business initiatives might cannibalise their existing channels. Similar results have been reported in other countries. For example, Cairncross (2000) reported on a survey conducted by the National Association of Manufacturers in America in early 2000 that revealed more than two-thirds of American manufacturers did not use the Internet for Business-to-Business commerce. The researchers attributed the slow uptake to the fact that most large American companies have just started to develop their Internet strategies, having concentrated their efforts in dealing with the millennium-bug scare.

The Ministry of Economic Development’s report - _E-Commerce: Building the strategy for New Zealand_ (2000b, p.7) – might shed some light as to the possible reasons why so many New Zealand companies have not invested in e-Business. That report identified weaknesses that New Zealand has in this developing area and these include the following:

- A shortage of management, leadership, and entrepreneurial e-commerce skills;
- A relatively low level of understanding of the opportunities afforded by e-commerce and the information and communications technology (ICT) revolution;
- Varying ICT-literacy in the community as a whole;
- An uneven distribution of infrastructure capability at reasonable cost, particularly in rural communities;
- A lack of integration or connectivity to global business networks;
- The short supply of technical graduates from tertiary institutions;
- The emigration of skilled New Zealanders, in particular IT personnel with a high degree of technical skill who are attracted by the pay and opportunities overseas;
- The need to develop an innovation culture; and
- A lack of good quality information to support policy formation and inform how we are portrayed in the wider world.
From the list of weaknesses, it is very evident that the lack of *management skills* in a number of areas is a major factor in preventing New Zealand companies from embracing e-Business. It is poignant to note that the required skills fall within the management and leadership areas. The lack of policy information and a proper infrastructure suggested that there is little or no research done in relation to e-Business in New Zealand.
The Future e-Business Environment

What is the likely future landscape for e-Business? The following projections by some authors should provide a feel as to the future e-Business environment.

Three general themes can be extracted from the literature – the prevalence of business done electronically; the importance of having intimate knowledge of customers; and the need for businesses to reinvent themselves and be innovative.

The prevalence of business done electronically

Survey results have generally reported that the number of Internet users is increasing exponentially in the last few years. The increase in the number of users have precipitated the development of more efficient and user-friendly mechanisms and attracted more sellers to offer services over the Internet, which in turn fueled the increase in the number of users. Projecting into the future, the authors generally believe that e-Business activities would be significantly higher with enhancements in the area of security and the availability of electronic payment systems for settling frequent and relatively small denomination transactions (micropayments).

Turban et al. (2000) echoed the view of the majority that Business-to-Business transactions will continue to dominate the e-Business field in the near future. In relation to this, virtual communities of all kinds will spread rapidly to enhance commercial activities online. Kaplan & Sawhney (2000) found that companies that control the on-line markets will exert enormous influence over the way transactions are carried out, how relationships are formed, and the effect on profits. Such e-hubs create value by two fundamental mechanisms: aggregation and matching.
Intimate knowledge of customers

Businesses would need to know their customers better in order to steer marketing and service activities accordingly. In fact, Gates (1999) believes that customer service will become the primary value-added function in every business. He foresees that a change in the areas where people will be required - a 'shift from routine, low-value tasks to a high-value, personal consultancy on important issues for the customer'. Turban et al. (2000) believe that better technologies for processing information relating to customers which will enable businesses to serve customers better.

Kate Phoenix, the marketing and IT manager of the Rogers chocolate company, as quoted by Andrews (2000), gave a flavour of the challenges that e-Business will bring. She believes that the following issues are expected to become standard practices in e-Business: keeping customers informed as to the status of their orders and delivery schedules, greater expectations from customers in terms of speed of delivery, and regularly reviewing concerns relating to security of transaction data and privacy issues.

Reinvent and reinnovate

In order to survive in an environment where the pace of transactions is fast and more personalised attention is expected from customers, Turban et al. (2000) found that innovative organisations are pursuing process reengineering and increasing organisational creativity. In relation to this, Gates (1999) envisages that businesses will be driven to adopt digital processes to streamline their internal business processes to enable those innovative services to be implemented.

Convergence of technology represents an ever present threat to companies that do not reinnovate to add value to their value chain. For example, Long (2000) has demonstrated that the Internet has dealt a death blow on activities where banks traditionally acted as intermediaries. In fact, the threat of disintermediation affects financial institutions in general. For these organisations, the Internet represents a dilemma - embrace it and companies will find themselves losing business, or at least see profit margins dwindle because of competition...
among themselves; ignoring it could jeopardise their survival. Long seems to be hinting that those organisations need to review their traditional offerings and reinnovate in order to stay in business. It is the opinion of this author that financial institutions need to critically examine the areas where the Internet can help add value to their service offerings and port these services to the Internet. Conversely, there are certain services which are not conducive for dealings to be conducted over the Internet and these should be refrained from having the Internet being involved in their transactions.

In his “Emerging digital economy” report, William Daley (1998) of the US Department of Commerce highlighted a number of challenges ahead as the digital economy matures. These can be grouped into the major areas of technology development, the requirement for standards and the investment of capital to provide the necessary infrastructure. The author went on to say that the pace of technological development and the borderless environment created by the Internet ‘drives a new paradigm for government and private sector responsibilities’. True to the spirit of global trading, the author suggested that the new economy would operate better in an environment that is not bound by a gaggle of rules. Briefly, Daley envisaged that the new environment would have the following characteristics:

- Minimal interference by governments in the form of regulation, taxation, or censorship to enable e-Business to flourish;
- Rules governing the operation of e-Business would be at the initiative of the participants rather than being imposed upon them by the government in countries;
- Competition in the telecommunications industries to hasten the volume and speed of transmission of data and information;
- The absence of discriminatory taxation or additional constraints against those businesses operating globally over the Internet;

The essence of those recommendations in relation to the e-Business environment suggests that there is the vision of creating a global marketplace that is unhindered by existing sovereign regulations in various countries.

Daley (1998) is of the view that the emerging digital economy, like the Industrial Revolution before it, will transform society both economically and socially. Specifically, the author warned of potential unwanted dangers which include ‘invasions of privacy, easier access by
children to pornographic and violent materials and hate speech, more sophisticated and far-reaching criminal activity and a host of other as-yet unknown problems’. Daley hinted that countries need to get their education policies right so that its citizens are able to benefit from the opportunities for wealth creation in the new economy.
You have finished reading the chapter called
Present status and future trends in e-Business

Where do you want to go next?

Next Chapter

Essentials of curriculum design

Navigation map
The objective of this chapter is to present the results from an examination of the literature on curriculum development to provide guidance for the development of an e-Business curriculum. It first establishes the definition and the bases of curriculum. This is followed by an exposition of the issues involved in curriculum design and development. With the Internet playing an increasingly big part in the way people work and play, a brief discussion is provided as to what modifications need to be made to the development of a curriculum for the Information Age. This chapter rounds off by providing some methods that can be used for ‘predicting’ the likely future conditions that the curriculum will need to provide for.
Definitions of Curriculum

Many authors have defined curriculum according to their particular points of view. Here are some of the things said about curriculum:

Curriculum is defined as all the planned learning opportunities offered to learners by the educational institution and the experiences learners encounter when the curriculum is implemented. It includes those activities that educators have devised for learners and the process whereby teachers make decisions to implement those activities given the interaction with context variables such as learners, resources, teachers and the learning environment. (Print 1993, p.9)

‘Curriculum’ is elusive and fragmentary. Its content and boundaries are open to debate and misunderstanding. (Ornstein & Hunkins 1998, p.1)

A curriculum can be defined as a plan for action or a written document that includes strategies or a written document that includes strategies for achieving desired goals or ends. This position, popularised by Ralph Tyler (1949) and Hilda Taba (1962), exemplifies a linear view of curriculum.

As an aside, there are two broad approaches to curriculum design – the linear approach and the non-linear approach. The linear approach, also called the normative approach, prescribes a series of tasks to be followed in designing a curriculum. The other, the non-linear approach, views curriculum design as a dynamic process involving many aspects of learning which interact and affect one another.

Which approach is more appropriate? Heaton (2000) is of the view that the open-ended nature of the non-linear approach appeal to those designing courses which provide a ‘generalist’ overview and the linear approach is more appropriate for designing courses which have more specific purposes to cater to captive audiences who have ‘specialist’ interest in the area of study.

The linear approach to curriculum design has its weaknesses and strengths. According to Lovat & Smith (1995), as quoted by Heaton (2000), the linear approach has been criticised...
for not taking into account the numerous aspects that should be considered in designing one, for setting the objectives from the teachers’ rather than the students’ point of view, and for not giving due recognition to those aspects of learning that are not specifically stated in the initial objectives but are implied (or ‘unplanned’). Despite these criticisms, Heaton maintained that the linear approach has the advantages of having specific objectives for guiding the learning process, the ability for curriculum to be developed from scratch, and the availability of course objectives to evaluate a course against.

**Essential features of a curriculum**

According to Print (1993), the term ‘curriculum’ may be used in various situations to describe different, if related, things. This alludes us to the fact that there is widespread acceptance of different interpretations of the word. Having looked at the different interpretations, Print (1993, p.4) provided the essential features common to curricula. These essential features are as follows:

1. ‘A formalised course of study designed for learners’
2. ‘Conscious planning that attempts to determine learning outcomes’
3. ‘Some form of structure to facilitate learning’

**Characterisations of curriculum**

According to Print (1993), a concept is made easier to understand if it is portrayed as an ‘image or characterisation’. Here are some of the ways curriculum has be portrayed:

- **Curriculum as a subject**
  
  This traditional and commonly held image of curriculum depicts it as ‘the combination of subject matter to form a body of content to be taught.’ The content refers to the ‘product of accumulated wisdom’ built up from the ‘traditional academic discipline’.
• **Curriculum as experience**

  This characterisation of curriculum is seen from the point of view of the learner. The curriculum is seen as a platform upon which the learner brings his past experience, reflects on them and subsequently modifies his believes and behaviour in relation to the educational context.

• **Curriculum as intention**

  Educators believe that ‘a comprehensive plan through the use of aims, goals, and objectives’ guides the learning needs of the learners. This characterisation comes in two flavours – the first concentrates on what the learner should learn, and the other emphasizes what the learner must acquire. Thus, this characterisation largely embraces the principles in the linear method of developing curriculum.

• **Curriculum as cultural reproduction**

  Here curriculum is depicted as a vehicle for disseminating useful knowledge and values to learners. It takes the position that the younger generation of learners need to inherit knowledge from the preceding generation. While the overall concept is unchallenged, there is no consensus as to what should be included in a list of things to be passed down.

• **Curriculum as ‘currere’**

  This characterisation emphasizes the learner’s experiential aspect in learning. The curriculum is intended to draw out the learner’s experience and provide an updated understanding on a topic. Indeed, the word curriculum, according to Lovat and Smith quoting Pinar (1975), was derived from the Latin word ‘curro (I run)’ or ‘currere (to be running)’. Print (1993, p.6) interpreted its Latin meaning is as ‘the running of a race’ and not a ‘racecourse’. By immersing the learner in the experience of learning, this characterisation of curriculum encourages active learning on the part of the learner and personalises the learning.

  In summary, curriculum has been portrayed as both a process as well as a product.
Curriculum and syllabus

The terms *curriculum* and syllabus are often used synonymously and taken to mean the same thing. A useful way to avoid confusion, as suggested by Print (1993), is to refer to syllabus as *curriculum documents*. By following this line of thought, a syllabus is a subset of curriculum and would more be specific in spelling out the contents of a course of learning.
Approaches to Curriculum

The approaches taken to develop a curriculum are many and varied. According to Ornstein & Hunkins (1993), each approach is as unique as the individual involved since the approach taken is a reflection of one's beliefs, values and knowledge. Ornstein & Hunkins delineated the following mainstream approaches to curriculum:

• Behavioural approach
  This University of Chicago school approach represents the oldest and the most widely-used approach to curriculum. Frederick Taylor’s theories of scientific management and his ideas for improving workers’ efficiency provided the impetus for the development of this approach. Subscribers to this approach believe that curriculum is best formulated using scientific principles and have, over the years, come up with prescriptions in the form of models and sequences to be followed in order to develop curriculum.

• Managerial approach
  This approach focuses on organising the groups involved in the development of curriculum. These groups would include curriculum specialists and administrators in addition to the teachers and learners. It relies heavily on organisational theory and is concerned about the norms and behaviour in interactions among the groups involved. It is similar to the behavioural approach in that subscribers to this approach rely on plans and logical steps in order to facilitate curriculum processes and bring about changes and innovation in the learning world.

• Systems approach
  This approach, sometimes known as curriculum engineering, divides the learning organisation into subunits and examines the relationship from the point of view of the subunits. Developers of curriculum using this approach are interested in examining the relationships between the subunits and their integration to the organisation as a whole. Its similarity to the way modern computer systems are developed means that organisational charts and flow diagrams are often used to document and communicate ideas.
• Academic approach

According to Ornstein & Hunkins (1993), this ‘historical or philosophical’ approach is usually ‘scholarly but theoretical (not practical)’ and is concerned with many broad aspects of schooling, including the study of education.’ As this approach attempts to document trends in the learning spheres and address various related topics, it has been criticised for having unclear focus and hence does not provide much guidance in the development of a curriculum.

• Humanistic approach

This approach attempts to rectify the weaknesses of the previously mentioned approaches by giving emphasis to the learner. It aims to create a supportive learning environment for the learner to self-reflect and self-actualise while learning. Its deliberations cover various humanistic topics like the artistic, physical, and cultural aspects as well as classroom dynamics.

According to Ornstein & Hunkins (1993, p.8), this approach works well in preparing curriculum for ‘middle- and upper-middle class students, as well as high achievers.’ This approach favours ideas like ‘independent learning’, cooperative learning in small groups, and social (rather than competitive) activities where groups of learners are involved. It shuns ‘teacher-dominated, large-group learning’ and situations where there is only cognitive instruction provided.

It can be seen that these approaches are not mutually exclusive. In fact, each approach seems to be eclectic, bringing together practices that are deemed relevant for that approach.

This author believes that it is unlikely that any of the pure forms of the approaches described will be employed in developing a curriculum in the present day. Instead, the approach taken will have various degrees of those approaches, giving rise to a new eclectic one. In line with what Ornstein & Hunkins have said, it seems likely that the extent to which each of the approaches is called upon will reflect the beliefs of those involved in designing a curriculum and the intended emphasis of the course.
Foundations of Curriculum

The foundations of curriculum define the outer boundaries relating to knowledge of curriculum. In doing so, it provides guidance as to sources of information which are admissible as theories, principles, and ideas relevant to the field of curriculum. Ornstein & Hunkins (1993, p.14) listed the following as commonly accepted foundations of curriculum: ‘philosophical’, ‘historical’, ‘psychological’, and ‘social’. The authors added that the cultural, political, or economic aspects are sometimes admitted in their own right rather than being included in the ‘social’ foundation.

Rather than having each of the foundation areas being treated separately, the value comes from integrating those foundation areas into the development of a curriculum. Without such fusion between curriculum development and the foundation areas, the work would be akin to the not-so-useful intellectual academic approach.

Recent trends have shown the increasing impact of psychology upon curriculum and instruction. (Ornstein & Hunkins 1993, p.15) The growing influence of psychology is considered to be a major support of instruction, learning, and teaching. It manifests itself in the professional literature and research dealing with topics like ‘individualised learning’, ‘cooperative learning’, ‘academic learning time’, ‘direct instruction’, ‘mastery learning’, and ‘more effective schooling’. On the part of the instructor, it touches on topics like ‘teaching methods’, ‘teacher behaviour’, ‘teacher competencies’, and ‘teacher effectiveness’.

Domains of Curriculum

While foundations of curriculum delineate the outer boundaries of the field, the domains of curriculum define the internal boundaries or common knowledge of curriculum. Unlike the foundations of curriculum, there is no agreement among the experts on constitutes the domains of curriculum. Reynolds (1990), as quoted by Ornstein & Hunkins (1993) suggested that the problem comes about because knowledge can be derived from various sources and many of these sources are unread due to the growing volume of literature. Nevertheless, Ornstein & Hunkins (1993) echoed the general consensus by maintaining that the development and design of the curriculum are crucial.
Curriculum Development and Design

The most common way of developing curriculum involves following a series of steps from analysis to implementation. A majority of the curriculum developed are based on the behavioural and managerial approaches, with scientific principles of education as the guiding light in most.

Curriculum design refers to the way we conceptualise the curriculum and arrange its major components (which include content, instructional materials, learner experiences or activities) to guide the development of a curriculum. It has been said that none of the curriculum approaches are followed in their pure form; instead most curriculum designers tend to be persuaded by the strengths inherent in various designs. In doing so, many tend to propagate eclectic designs by drawing together ideas from several pre-existing designs.

As the approaches outlined are rather general and are not followed wholly, they do not provide much guidance for the development of a curriculum. A more prescriptive approach is afforded by Bloom’s Taxonomy of Educational objectives (Bloom 1956). According to Bloom, the taxonomy should ‘help curriculum builders in specifying objectives to make it easier to plan learning experiences and prepare evaluation devices’ (Bloom 1956, p.2). It does this by prescribing a set of goals which would alter the learners’ behaviour in a manner expected.

Bloom’s taxonomy consists of three major parts: ‘Cognitive domain’, ‘Affective domain’, and ‘Psychomotor domain’. Briefly, the cognitive domain deals with the accumulation, retention and appropriate use of intellectual abilities and skills. Affective domain focuses on the degree of changes in personal attributes of the learner describes changes in interest as a result of the learning. The third part, Psychomotor domain, deals with the coordination of physical movements to accomplish tasks.

In terms of developing a curriculum of e-Business education, the relevant domains to concentrate on are ‘Cognitive’ and ‘Affective’.
More specifically, Bloom’s taxonomy consists of six major classes:

1. **Knowledge**, which refers to the ability to remember facts and theories;
2. **Comprehension**, which involves understanding of concepts and ideas;
3. **Application**, which refers to the ability to modify the ideas learned to solve related problems
4. **Analysis**, which refers to the breakdown of a learned idea into its related parts to demonstrate the relationship between them;
5. **Synthesis**, which involves the ability to develop a problem-solving technique using the constituent parts derived from material learned;
6. **Evaluation**, which refers to the ability to make judgments using relevant knowledge.

It must be remembered that each class of cognitive objective described above requires the abilities found in the preceding classes for its manifestation. For example, the ability to perform analysis requires the learner to have abilities relating to comprehension and application of what has been learned.

According to Bloom (1956, p.25), four major areas must be considered in developing a curriculum and its related instructions:

1. The educational aims which are intended to be imparted to the learners;
2. The sort of ‘learning experiences’ which can be given to learners to achieve the educational aims determined above;
3. The coordination of the delivery of ‘learning experiences’ to provide a holistic feel to the whole process rather than imparting a sense that those ‘learning experiences’ are unrelated to each other;
4. The obtaining of feedback to enable the success of those ‘learning experiences to be measured.

The educational aims must be thought out carefully for these are the ways in which the students will be transformed by the educative process. This will be manifested in the ways in which their thinking, feelings, and actions have been modified.

There are several sources of data that can be used for the specification of educational objectives. Bloom provided three common sources where relevant data can be called upon for
this purpose. One source relates to information about the specific needs and inclination of the learners. Another source is the work environment in which those students are likely to strive in for improving their quality of life. A third source comes from discussions and research by experts in the related area of provision of education.
Interdisciplinary Curriculum

In an attempt to divide up the teaching workload, individual specialists in most educational institutions are given the responsibility to teach in their areas of specialty. As a result, subject matters are cut up and forced into standardised time blocks to be taught to students. The downside of this practice is that students began to view each arbitrary division as separate stand-alone pockets and fail to see the relationship between the various divisions. Interdisciplinary curriculum content is needed to combat the undesirable side-effects that arise from the fragmentation of subjects. Writing on secondary school students, Jacobs (1989) noted that those students had trouble internalising a subject matter and realise that in solving problems, they need to ‘draw on data from various solutions in real life, and not the way cleanly-delineated subjects were taught in school.’

Jacobs (1989, p.8) defined the term interdisciplinary as ‘a knowledge view and curriculum approach that consciously applies methodology and language from more than one discipline to examine a central theme, issues, problems, topic, or experience’. Whereas the discipline-field based view of knowledge ‘inadvertently delineates and segregates topics’, the interdisciplinary approach provides linkages between those topics to enable students to see the relationships between them.

Ackerman (1989) provided evidence that an interdisciplinary curriculum makes learning more relevant and stimulating for the students. The author reported that students involved in a properly designed interdisciplinary curriculum are able to synthesize new perspectives from the material learned and the resulting points of views could be beneficial later on in their lives.

In designing an interdisciplinary curriculum, there are pitfalls to be avoided. Jacobs (1989) alerted us to two problems that would jeopardise interdisciplinary courses. These are:

1. ‘The Potpourri Problem’, where parts from each discipline are put together without much consideration for cohesion as to the objectives to be achieved;

2. ‘The Polarity Problem’, where tensions emerge among teachers who feel threatened as new ideas of their subjects are promoted.
To avoid these two problems, Jacobs (1989) suggested two criteria which effective interdisciplinary programmes must meet. These criteria are:

1. They must be designed to develop thinking skills to promote behavioural changes in the students, with proper feedback to indicate that these have been successfully achieved.

2. The curriculum must provide the students with discipline-field-based and interdisciplinary experiences.

Educators have now realised the need to provide for curriculum integration. Jacobs (1989) indicated that the impetus for curriculum integration has been due to the expansion of knowledge which forces people to be specialists in their areas and society’s realisation of the undesirable effects fragmented schedules have on learners.
The Wired Curriculum

The advent of the Internet and World Wide Web has introduced new opportunities for enhancing the development of curriculum. In the early years, writers have focused on the efficiency of the Web as a delivery mechanism. Later, the focus has shifted towards aspects of learning and the provision of more meaningful learning experiences to the learners. For example, Lai (1996) mentioned the ability to ‘organise electronic field trips to facilitate situated learning’, ‘encourage collaborative knowledge building’, and ‘transcend language and cultural boundaries for cross-cultural exchanges and understanding’.

The extent to which the technologies of the Internet will be integrated into a curriculum depends very much on the curriculum developer’s understanding of those technologies and their beliefs in their effectiveness (Lai 1999). It is this author’s opinion that new technologies should only be considered and brought into the curriculum development insofar as these have the ability to enhance the educational experience on the part of the students.

The Internet has renewed the interest of teachers in the use of Information and communication technologies (ICT) within the curriculum. Brown (1999, p.25) views the Internet as ‘an evolving human phenomenon which defies simple explanation’. The author advocated that teachers need to look beyond the narrow scope of technology and reach an understanding of the range of possibilities for using the Internet across the curriculum, a practice the author called ‘Internet Mediated Learning (IML)’.

If properly harnessed, the Internet could be a rather exciting new platform to increase the educational experience of students. Brown (1999, p.28) perceived that there has been “a cognitive revolution in the shift from knowledge instruction to knowledge construction”. In a similar vein, Heaton (2000) advocated “a flexible learning environment which allows and encourages self study rather than teacher-dominated learning”. In this area, the Internet has the potential to advance such views and provide a learning environment that is individualised and at the same time make the learning experience more social on the part of the students. Well-planned IML experiences coupled with informed educational theory, said Brown (1999), allow students to engage in ‘challenging high-order intellectual activities’ where they work with others to actively construct their own knowledge.
In recent years, the study of technology has taken on a more prominent role. However, the role of Information and Communications Technologies (ICT) has been problematic for a number of years in the New Zealand Curriculum. According to Brown (1999, p.26), there are essentially three main dimensions to information and communication technologies (ICT) within the curriculum. These learning dimensions are:
(a) Factual knowledge regarding each technology;
(b) The application of that technology in society;
(c) The use of ICT in relation to curriculum.

Brown added that the third dimension transcends all the essential learning areas and the other two are located within the technology curriculum.

The three dimensions appear to be incomplete and may not capture all uses of aspects of ICT. For example, it is unclear if it covers areas like the learning of a spreadsheet for the purposes of preparing a budget, where the learning of ICT is a means to an end rather than an end itself.

Very similar lessons have been learned from the design and development of courses using the Internet as the delivery medium [Adams (2000), Rosenblum (2000)]. These two authors maintained that the considerations that need to be made in designing on-line courses are no different from designing courses for delivery in-person.

Rosenblum (2000) stressed that the content of the courses must still be based on learning outcomes and course goals. Elliott, UNITEC’s Head of Learning Technologies, as quoted by Adams (2000), said that educational institutes have to be clear about what they are expecting as an outcome in developing on-line presence. Another consideration which is still very relevant is the development of a course schedule which strikes a balance between the inclusion of what students need to learn to accomplish the course objectives and the time available (Rosenblum 2000). Both authors touched on the need to continuously update the material for relevance once these are developed.
Both authors [Rosenblum (2000), Adams (2000)] are in favour of the development of both on-line and off-line resources. Elliott, as quoted by Adams (2000), put it succinctly when he mentioned that on-line and off-line resources have to be complementary and work collaboratively to provide resources to meet the required needs. The authors also highlighted areas which are unique and must be addressed in an Internet-delivery environment. The key challenge, as alluded to by Rosenblum (2000), is to create an environment in which students do not need to rely on face-to-face contact to learn the material. Rosenblum also suggested that it is a good idea to use other on-line courses to form a benchmark for the course to be developed.

In recent years, more and more educational institutions are involved in delivering lessons over the Internet, using web sites as the platform for delivery. With regards to this, Adams (2000) found that it is expensive to develop courses from scratch and maintain these subsequently. Instead, most institutions tend to use one of the web-authoring tools to create and maintain such courses. The most popular packages for this job are WebCT, Top Class and Blackboard CourseInfo.

A recent study shed some light as to the courses that are suited to delivery over the Internet and opinions as to the requirement for students who are enrolled in such courses to come to campus. Saunders & Weible (2000) reported that their sample of College of Business deans favoured the offering of electronic courses (“E courses”) through distance learning in ‘Accounting, Business, and non-business programmes’. However, these deans are strongly not in favour of offering any degree courses where delivery is entirely Internet-based. Saunders & Weible also noted that there was no general consensus among the deans as to whether students in E courses should be required to visit the campus to partake in the traditional university experience; approximately one-third advocated that students should attend lessons on campus at least once during the course, one-third believed that campus attendance was not necessary, and the remaining one-third have no strong beliefs on the issue.

It is interesting to note that web-based learning is still at an embryonic stage in New Zealand (Adams 2000). There is the question of what is the best approach in adapting materials for a conventional classroom setting for on-line use. Rosenblum (2000) suggested two approaches – ‘faculty-designed/faculty-developed’, and ‘faculty-designed/IT-developed’ – and the
The approach to be used will depend on the amount and availability of assistance. Regardless of which approach is adopted, Rosenblum noted that students represent an invaluable resource for course construction and in the production of material.

What are some of the new areas that need to be considered when developing an e-Business curriculum?

Campbell (1996) provided some suggestions on how the Internet might be integrated into the curriculum. These take the form of courses to develop access, navigational and software skills. In particular, the author mentioned electronic mail software skills, World Wide Web browser software skills, the development of home pages on the World Wide Web, and other Internet software skills, example: File Transfer Protocol (FTP), Internet Relay Chat, Internet Phone. Two other areas were also mentioned: the opportunity to demonstrate, share and ask questions in a focused learning environment; and the searching for resources on the World Wide Web.

The Internet provides us with potentially unlimited sources of information. In order to gather relevant information in this new medium, one requires a whole new set of information accessing and processing skills (Lai 1999, p.8). Postman (1992), as quoted by Lai, urged educators to impart to the learners the realisation of additional uses the information can be put to and the implications of their availability. The author maintained that such knowledge is more valuable than getting the learners to learn the speed and ease with which the Internet can be used to gather and transmit information.
Future Directions for Curriculum

The twentieth century has been characterised by a high rate of diverse and extensive changes affecting many aspects of our world. The world of learning has not been spared by these changes. Over time, there have been numerous alterations in what we learn and how we learn, all in response to the requirements of a dynamic society. As a new century dawns, these changes can be expected to be ever present. Thus, it would be dangerous for educators to base education, and specially the curriculum, on any static portrait of society.

According to Ornstein & Hunkins (1993), a good education programme equips the student with the necessary skills and knowledge and brings about positive changes in personal attributes to enable those students to exploit opportunities. This means that educators must be cognizant of the likely as well as the desirable environment that will exist in the future.

In designing a curriculum, one inevitably makes a prediction as to what fields of study are relevant and useful in the future. There are various means for viewing and creating futures. These tools partly comprise the field of futuristics, sometimes called futurism or future studies. The two main approaches to future planning involve either exploratory forecasting or normative forecasting.

Exploratory forecasting refers to the processing of data to discover possible opportunities and threats that are likely to appear in the future, assuming the events develop in a predicted manner. Normative forecasting deals with bringing about the manifestation of desired goals or norms to be actualised in the future. Here, forecasters set the norms for the future and then indicate what needs to be accomplished to attain such norms or goals.

The following table, adapted from Ornstein & Hunkins (1993), provides an overview of the Futures Techniques that can be employed.
<table>
<thead>
<tr>
<th>Technique</th>
<th>Forecast Type</th>
<th>Possible Use</th>
<th>Possible Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulation</td>
<td>Exploratory, normative</td>
<td>To play out the consequences of employing various curriculum designs</td>
<td>Permits educators more control over programmes; introduces more creativity in those programmes</td>
</tr>
<tr>
<td>Trend forecasting</td>
<td>Exploratory</td>
<td>To plot the path of events into the future</td>
<td>Gives curricularists insights into future demands and needs for curriculum planning</td>
</tr>
<tr>
<td>Intuitive forecasting</td>
<td>Exploratory, normative</td>
<td>To get a feel of what the future may hold for education</td>
<td>Provides educators a sense of readiness to deal with new events and demands</td>
</tr>
<tr>
<td>Delphi procedure</td>
<td>Exploratory, normative</td>
<td>To obtain conjectures regarding the future needs of education, or to outline preferred future events</td>
<td>Allows educators to survey views of knowledgeable persons regarding future developments affecting education</td>
</tr>
<tr>
<td>Scenario writing</td>
<td>Exploratory, normative</td>
<td>To outline a future story of how curriculum will or should look</td>
<td>Gives educators a usable written document on possible future times for which the curriculum is designed</td>
</tr>
<tr>
<td>Force analysis</td>
<td>Exploratory</td>
<td>To plot those events that will affect each other and the school</td>
<td>Allows curricularists to design programmes that will influence future events in society</td>
</tr>
</tbody>
</table>

Source: Ornstein & Hunkins (1993)
Considerations for Developing an e-Business Curriculum

This author considers the following should be kept foremost when developing an e-Business curriculum:

- A curriculum is a formalised course of study, with pre-determined learning outcomes, to facilitate learning.
- A curriculum is both a product and process, continually refined as circumstances change in the years ahead. It could be considered as a living document.
- The approach taken to develop a curriculum is usually an eclectic one, drawing on the various streams of ‘pure’ approaches mentioned. The ‘ingredients’ comprising the chosen eclectic approach will depend on the values and beliefs held by the people who are developing the curriculum.
- Psychology is having a growing influence upon curriculum and instruction.
- Bloom’s taxonomy of educational objectives provide some guidance as to the areas to concentrate on in the development of a curriculum.
- The curriculum needs to be interdisciplinary in order to avoid the problems associated with the fragmentary nature of knowledge presented to students in the past. The resulting curriculum should stress linkages of themes within the course of study.
- The technologies brought about by the Internet and World Wide Web should be considered insofar as these enhance the learning experience of students.
- The Internet provides a platform to enhance self discovery and knowledge construction, which is a shift away from the traditional approach of teacher-dominated learning.
- A curriculum should reflect the skills and knowledge that are required of students in the future. Implicit in the curriculum development exercise is an attempt to forecast future conditions and there are many Futures Techniques for this purpose.
You have finished reading the chapter called
Essentials of curriculum design

Where do you want to go next?

Next Chapter

Student attributes

Navigation map
In considering any new venture, it is important to understand the potential customers. With this notion in mind, this chapter focuses on the developments that have taken place in the area of higher education and attempts to identify the likely characteristics of potential students entering university. Specifically, we will attempt to get an idea of the skills level of potential students from within New Zealand. This chapter finishes by looking at some of the characteristics of the Net Generation.
Introduction

The world of learning has not been spared of the changes that have occurred in the twentieth century. In response to the requirements of a dynamic society, there have been numerous developments in the areas of what students learn and how they learn. As a result, the vigilant educator should be on the lookout for changes in trends and incorporate these findings in developing the curriculum.

In order to position the potential e-Business course to meet the needs of future students, it is necessary to know something about their ability and level of proficiency in a few key areas. Thus, the purpose of this chapter is to present some indications of the level of skills these future students are likely to have before they embark on the course of study.

The evidence presented in this chapter with regard to the general level of skills is derived from reports in the popular press and interviews. It is through those interviews that we are able to obtain a better indication of the ability of new students at this University. Finally, to gain an appreciation of where New Zealand educated students stand in relation to their peers in other countries, I have included findings from a recent comparative survey in this area.
Towards the middle of 2000, there have been reports highlighting the alarming level of declining literacy ability among university students. For example, academics at the University of Canterbury were reported as saying that students ‘cannot read, write, or even spell properly’ (Otago Daily Times (ODT), 16 August 2000). More specifically, the report listed the following deficiencies in students: ‘poor grammar, careless spelling, an inability to read significant amount of materials, and a lack of skills in critical reading’.

Poor literacy skills is not a problem confined to students or the lower-educated (ODT, 11 August 2000). It was reported that research shows ‘a large socio-economic class, as high as 50% of our adult population, has only a minimum literacy level - sufficient merely to get through life’. It added: ‘even among the most highly trained people, academic papers and department reports are often written in unnecessarily complicated language, with poor sentence structure that can betray wooly thinking’. That newspaper report attributed the problem to the manner in which language was taught in New Zealand schools, where emphasis on ‘expression of ideas has been at the expense of an appreciation of the equal importance of spelling and grammar’.

The literacy problem is not confined to New Zealand. In Britain, the state of adult literacy is so poor that major companies are employing tutors in spelling, punctuation and grammar so that simple email messages from staff can be understood (ODT, 8 August 2000, 11 August 2000). Another research reported that ‘almost one in five adults in England has a lower level of literacy than the average 11-year-old’ (ODT, 28 June 2000). Many fear that, with the rapid rise of e-Business and the use of email, where written English is extensively used for communication, illiterate workers might impact on firms’ ability to compete in the global Internet economy.
Returning to the concern of the literacy ability of university students, many reasons have been proffered as to its cause. The Dean of Undergraduate Studies at the University Canterbury said that legislation which aims to ensure everyone has equal access to education and the need for universities to attract students in order to obtain government funding prevented universities from turning away inadequately prepared students (ODT, 16 August 2000). The Students Association education coordinator of the same university put it more directly in saying that students, having paid the high fees, expected universities to equip them with the necessary learning skills for tertiary learning (ODT, 16 August 2000).

Rod Bryant, the public relations officer for the New Zealand Vice-Chancellors’ Committee, observed that ‘tertiary education worldwide had shifted from being elitist, with restricted entry, to having an increased participation by the masses’ (ODT, 26 February 2000). With the growing proportion of students entering university and the fact that the problem of low literacy is not confined to the young, tertiary institutions find that they have to deal with ill-prepared students ranging from the young people to older students. According to the article, ‘the average age of New Zealand university graduates has now climbed to the high 20s’ and those aged over 40 have ‘climbed beyond 10%’.

New Zealand is not alone in encountering the massification phenomenon with its attendant effects. The United Kingdom experienced similar situations in the 1980s and 1990s. Kogan & Hanney (1999, p.46) reported ‘dramatic expansion of student numbers’, ‘higher gross expenditure increased substantially’, and ‘staff ratio deteriorated’. Due to the impact massification has brought, the authors queried the real reason for the expansion of the education system – whether it was ‘a product of other exogenous factors’, or ‘whether it derived from the internal logic of higher education’, or ‘whether it was driven by conscious policy intentions’. (Kogan & Hanney 1999, p.66). This author suspects that the same answer would also provide explanation for the effect in the New Zealand tertiary education system.
University Surveys and Anecdotal Evidence

The material in this section provides some indications of the proficiency of first year students at the University of Otago in three areas: English language skills, Mathematics and statistical skills, and Computing skills.

English language skills

The test, developed by the English Department of the University, consisted of four sections:
1. Synonyms, where students have to think of a word that will function in a sentence in exactly the same way as a stimulus word.
2. Dictation, where students have to write the sentence down exactly as they heard it.
3. Common structural errors, where students are asked to rewrite sentences correcting any faults in grammar, punctuation or expression that they find.
4. Listening comprehension, where students will hear a series of brief talks on different subjects which will be followed by a number of questions on the talk. After students have heard each question they will circle the best answer to the question from a series of four alternatives. The talks and the questions will not be repeated.

The test represents an attempt to gauge whether the students have adequate listening and written skills which would be required for successfully completing an undergraduate course at university.

To get an indication of the language skills of first year students in this School of Business, I have obtained the results of the test administered to first year Marketing students in the first and second semesters of 2000. These results are tabulated in the following two tables.
Table 3: Results from English language test administered in the first semester of 2000

<table>
<thead>
<tr>
<th>Marks</th>
<th>No. of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to (17)</td>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>17 to (26)</td>
<td>16</td>
<td>4%</td>
</tr>
<tr>
<td>26 to (36)</td>
<td>120</td>
<td>27%</td>
</tr>
<tr>
<td>36 to 47</td>
<td>298</td>
<td>68%</td>
</tr>
<tr>
<td>Total</td>
<td>439</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4: Results from English language test administered in the second semester of 2000

<table>
<thead>
<tr>
<th>Marks</th>
<th>No. of students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to (17)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>17 to (26)</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>26 to (36)</td>
<td>46</td>
<td>45%</td>
</tr>
<tr>
<td>36 to 47</td>
<td>54</td>
<td>53%</td>
</tr>
<tr>
<td>Total</td>
<td>102</td>
<td>100%</td>
</tr>
</tbody>
</table>

The maximum possible mark is 47. According to the guidelines, a student obtaining 36 marks or more would be deemed to have satisfactory English language skills for University study. This means that all other students would require some help to increase their competency in language skills. Students obtaining marks in the “17 to below 26” range were encouraged to enroll for ENGL 126 (English for University Purposes) to strengthen their language skills. Similarly, students with marks in the 26 to 36 range were encouraged to enroll for ENGL 124 (Language, Style, and Communication).

The results above indicate that at least one in three first year students require some remedial course to bolster their English language skills for University study. Also, it appears that the two groups of students in the two semesters are qualitatively different as to the proportion of students who are deemed to have satisfactory English language skills for University study. However, there is no immediate obvious explanation as to why this is so.
Mathematics and statistical skills

The Finance and Quantitative Analysis Department has made surveys of students who have studied the introductory statistical paper (QUAN 101). The results to the question “What is your highest math (algebra and/or calculus) background?” for a number of Semesters are as follows:

Table 5: Mathematics and statistical skills of QUAN 101 students

<table>
<thead>
<tr>
<th></th>
<th>4th Form</th>
<th>5th Form</th>
<th>6th Form</th>
<th>7th Form</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 1997</td>
<td>4%</td>
<td>8%</td>
<td>18%</td>
<td>64%</td>
<td>6%</td>
</tr>
<tr>
<td>S2 1997</td>
<td>0%</td>
<td>11%</td>
<td>20%</td>
<td>61%</td>
<td>9%</td>
</tr>
<tr>
<td>S1 1998</td>
<td>1%</td>
<td>8%</td>
<td>29%</td>
<td>59%</td>
<td>3%</td>
</tr>
<tr>
<td>S2 1998</td>
<td>5%</td>
<td>11%</td>
<td>24%</td>
<td>54%</td>
<td>6%</td>
</tr>
<tr>
<td>S2 1999</td>
<td>3%</td>
<td>9%</td>
<td>25%</td>
<td>56%</td>
<td>7%</td>
</tr>
<tr>
<td>S1 2000</td>
<td>3%</td>
<td>9%</td>
<td>21%</td>
<td>61%</td>
<td>6%</td>
</tr>
<tr>
<td>S2 2000</td>
<td>0%</td>
<td>12%</td>
<td>15%</td>
<td>61%</td>
<td>12%</td>
</tr>
</tbody>
</table>

The results indicated that at least 4 out of 5 students have at least 6th Form (University Entrance) skills in Mathematics.
Computing skills

Most of the evidence relating to this category of skills was derived anecdotally from Colin Aldridge and Geoff Kennedy from the Information Science Department, and from Brian Cox of the Computer Science Department.

There were certain areas where all three are in agreement:

- Due to the open entry characteristic of first year courses, there is a wide range of computing abilities of students attending the COMP101 class. It ranges from “very competent in C++” to “not knowing how to use a mouse”.
- The lectures in the first year computing paper assume that students do not have very much prior computing knowledge.
- Keyboarding and mousing skills are important for students to know but there are no compulsory courses for these. Brian Cox mentioned that courses for developing these skills were not made compulsory as Computer Science students are already burdened with a heavy workload and much staff resources are required to provide these.
- Most students (Brian Cox estimated it at 98%) would have some computing knowledge by the time they finish their courses of study at the University.

In order to deal with students having a wide range of computing ability in the first year class, Colin Aldridge, a lecturer in Information Science, has segmented these students based on two dimensions – Prior knowledge of computing and Whether they intend to major in Information Science/Computer Science – to provide some guidance as to the reaction towards the COMP101 course:
**Figure 3: Classification of students taking COMP 101**

<table>
<thead>
<tr>
<th>Prior knowledge of Computing</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frustrated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bored</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time-wasting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlikely to do COMP101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If they do, they do it to obtain 6 easy points towards their degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possibly have a longer and more supportive course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possibly a shorter ‘service’ course for these students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide core knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A core course for their degree</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Intend to have a Computing major?**

Source: Aldridge (2000) [Unpublished]

Based on this author’s direct experience in terms of the three first year computing papers, it can be concluded that students who have successfully completed these papers should have sufficient grounding in terms of foundation computing skills to handle computing tasks demanded of them in later years of study.
International Comparison

A recent study involving five countries provided some indication as to relative competitiveness and skills of future candidates who will go through the New Zealand tertiary education system (New Zealand Education Review Office, June 2000). That study investigated the factors affecting mathematics and science education and achievement in Korea, Singapore, the Netherlands, Ireland and New Zealand.

Mathematics and science education is important for workers in the knowledge economy. Borrowing the idea of Ornstein & Hunkins (1993) that the aim of education is to equip students with the relevant ‘knowledges, skills, believes, and values’, an examination of the comparative study has been made to tease out the areas to concentrate on for the development of the e-Business curriculum.

The comparative study focused largely on education at the primary school level or the equivalent. The countries for this comparative study were selected using information provided by the Third International Mathematics and Science Study (TIMSS), which assessed student achievement at ages nine and thirteen, and at the final year of schooling. It is this author’s assessment that the older students that participated in the study will be starting their tertiary study in about 3 years time.

Some of the findings from the study, published in a document entitled “In Time for the Future: A Comparative Study of Mathematics and Science Education” include the following:

- Students in Singapore, Korea, and the Netherlands were deemed to have significantly higher overall achievement compared to New Zealand students.
- Irish students achieved significantly higher than New Zealand students in mathematics, but at the same level in science.
- New Zealand students achieved a little below the international average in mathematics, and a little above the average in science.
What and How Students are Expected to Learn

In a number of areas, the study found that there are differences in the approaches to teaching mathematics and science in the different countries. Major differences were reported regarding when mathematics should become optional in the five countries, and about the streaming of students for mathematics. All the countries require some science to be taught at primary school, although the starting ages at which the course is taught differ. There is also considerable debate as to when specialisation in science should begin.

Of the five countries, only in New Zealand have teachers been expected to develop teaching programmes directly from national curriculum objectives. The authors of the report regarded this as a ‘difficult and time-consuming task’.

Nevertheless, there are areas where there is consensus as to the approach to learning. Educators in all five countries believe that children learn mathematics and science best through a "constructivist" approach. This means that children are required to actively construct new ideas based on their existing understandings and new experiences, and not absorb information and ideas ready made. The key difference is the nature and quality of interaction between individual teachers and individual students. In New Zealand primary schools, teachers typically organise the students from one classroom into several small groups for teaching, and time is allocated to group or individual activity, with minimal teacher intervention. In other countries, teachers frequently teach the whole class and then divide the students into groups that are under active supervision while children apply the material given earlier to the whole class.

This author believes that it is particularly important for students to cultivate the ability to discern relevant information and to construct new ideas based on existing understanding. Such skills are particularly relevant in an age where there are numerous sources of information, some of dubious quality, and where the ever-changing competitive environment calls for decisions to be made based on limited information.
The international comparison study found that New Zealand primary school teachers spend less time each week teaching mathematics than teachers in most of the other countries. They also spend less time in teaching science compared to teachers in the Asian countries. The study noted that New Zealand is the only country where primary school science is taught in blocks of time each term.

The international comparison study has also identified a number of significant issues for improving the teaching of mathematics and science in New Zealand, especially in primary school. According to the authors of the report, these following issues need to be addressed to improve teaching in these two key subjects:

- the relationship between the Government's high level strategies for New Zealand's future as a "knowledge society" and the way these goals are interpreted at the local school and classroom level;
- the strategic management and design of the New Zealand curricula for mathematics and science (defined currently as outcome-oriented curriculum statements about essential learning areas);
- New Zealand teachers' knowledge of the subject content of mathematics and science and related learning skills;
- preferred styles of teaching, including a range of pedagogical matters;
- the pre-employment and in-service teacher education for teaching mathematics and science, especially for those working with primary school students;
- the potential benefits of providing structured teaching resources for teachers, especially those working in primary schools; and
- the expert support and advisory services available to and used by teachers of mathematics and science, especially those working with primary school students.
The Net Generation

Tapscott (1998) coined the term *Net Generation* (N-Gen) to refer to the generation of ‘children who were aged between two and twenty-two in 1999’. Due to the constant exposure to digital media in the environment in which N-Geners grew up in, they are more accustomed than their parents to using digital media in a large part of their life, especially in the areas such as entertainment, learning, communicating, and shopping. The author described them as ‘so bathed in bits that they think it’s all part of the natural landscape’. An interesting finding is that N-Geners ‘prefer interactive entertainment (video games and web surfing) to passive entertainment (television)’. Their fondness for interactivity has caused them to view the Net as the ‘antithesis’ of television.

N-Geners view work and its associated environment differently from their parents. In terms of their work habits, Tapscott (1998, p.10) said:

> They thrive on collaboration, and many find the notion of a boss somewhat bizarre. Their first point of reference is the Net. They are driven to innovate and have a mindset of immediacy requiring fast results. They love hard work because working, learning, and playing are the same thing to them. They are creative in ways their parents could only imagine. The N-Generation has been told that it will be hard to find good jobs, so they have developed great determination. A bigger proportion than any other generation will seek to be entrepreneurs. Corporations who hire them should be prepared to have their windows and walls shaken.

The following material focuses predominantly on the learning ability of the members of the *Net Generation*. It describes the changes that are taking place in the way N-Geners learn. By having a knowledge of what characteristics these N-Geners have, educators should be in a better position to cater for them and business people would be better equipped to understand what drives and motivates them.
According to Tapscott, the interactive form of learning is what the N-Gen are comfortable with. They prefer to be active participants in the educative process, rather than passively taking in information. Historically, the field of education has been oriented toward models of learning employing one-way communication, which Tapscott labelled as ‘broadcast learning’, which work best for the mass audience. With the availability of new media technology, there has been a shift to what Tapscott called ‘Interactive learning’. This new model of learning is one based on active participation and discovery on the part of the learner. This method of learning is similar in notion to what Brown (1999) referred to as ‘knowledge construction’. Tapscott is of the view that this combination of a new generation of learners and new digital tools will require educators to reconsider both the content and method of delivery in education.

Tapscott (1998) documented eight paradigm shifts in moving from the old ‘broadcast learning’ to the new ‘interactive learning’. The diagram below summarises these shifts.

**Figure 4: Paradigm shifts brought about by Interactive learning**

1. **From linear to hypermedia learning**

N-Geners tend to access information in an interactive and non-sequential manner. Thus, instead of the traditional approach of reading from the front of a book and proceeding page by page till the end, N-Geners tend to jump from one topic to the next in a seemingly haphazard manner.

2. **From instruction to construction and discovery**

Those that subscribe to the Constructivist approach to learning argue that people learn best by doing rather than simply being told. Proponents of this form of learning believe that the learners retain what they have learned longer because they were involved in discovering things for themselves. As the learners are actively involved in the learning process, Tapscott also suggested that curriculum designers should encourage the participation of the learners in designing a curriculum in order to provide the learning experience that is desired by these learners.

3. **From teacher-centered to learner-centered education**

Learner-centered education improves motivation on the part of the learner by inextricably merging learning with entertainment (Tapscott 1998, p.144). The role of the teacher is to create and structure the learning experience. Tapscott suggested that there should be plenty of ‘discussing, debating, researching, and collaboration on projects to bring about this new learner-centred learning’.

4. **From absorbing material to learning how to navigate and how to learn**

The form of learning requires the learner to ‘assess’, ‘analyse’ and ‘synthesize’ the material learned (Tapscott 1998, p.145). N-Geners must be able to engage with a vast number of information sources and with other people on the Net and build or construct higher-level structures and mental images. Recalling Bloom (1956), this necessitates that the learners must have the skills to break a learned idea into its related parts, understand the relationship between the parts, and develop problem solving techniques based on the constituent parts.
5. From school to life-long learning

In the face of knowledge explosion, N-Geners will be required to reinvent their knowledge base constantly, thus making learning a continuous, lifelong process for them. This implies that they will continually refine and add on material to their initial knowledge base.

6. From one-size-fits-all to customised learning

Mass education came along with mass production, mass marketing, and the mass media. On the other hand, businesses are shifting towards what Tapscott termed the “molecular” or individualistic approach. The author stated that with the availability of digital media, educators are able to provide students with highly customised learning experiences based on the students’ abilities and learning preferences.

7. From learning as torture to learning as fun

“Learning math should be an enjoyable, challenging and yes, entertaining activity just like learning a video game is.” (Tapscott 1998, p.147). Here, the author argued that it is the challenge that provides much of the entertaining value and vice versa. Thus it is the responsibility of the teacher to becomes the ‘entertainer’ by building enjoyment as motivation into the learning process.

8. From the teacher as an instructor to the teacher as a facilitator

The teacher acts as a ‘resource and consultant’ to the students (Tapscott 1998, p.148). In relation to the new media, the teacher acts as a technical consultant and guides students in its use of technology. Thus, according to Tapscott, teachers would need to learn about the new tools and acquire new approaches if this aspect is to be done properly.
You have finished reading the chapter called
Student attributes

Where do you want to go next?

Next Chapter

Proposed curriculum for e-Business

Navigation map
This is the culmination chapter. It pulls together the lessons we have gathered during the discovery journey in the previous chapters and uses these to develop a proposed curriculum for e-Business. It also documents the results from testing of the resultant curriculum model using opinions from practitioners in the field. Issues such as the level at which the course should be targeted and the manner in which the course can be organised will be addressed in this chapter.
Taking stock of findings

This section provides a review of the desirable characteristics which the e-Business course should have. These characteristics, summarised below, are derived from the findings in the preceding chapters.

- The course should be approached from a business perspective rather than one that largely focuses on the technological aspects (Chapter 2).

- The United States experience suggests that employers are looking for employees with a business and technology background (Chapter 3).

- Tripathi (2000) has provided an initial framework – with business, customer behaviour, and Information technology as the foundations - for an e-Business course (Chapter 3).

- The majority of the currently available courses relating to e-Business is at the post-graduate level and is predominantly found in MBA courses (Chapter 3).

- There is a growing trend for educational institutions offering e-Business courses to coordinate their e-Business activities from a Centre for e-Business (Chapter 3).

- Organisations which have taken to e-Business still have to be concerned with the activities that traditional businesses are concerned with. These activities include the presentation of products and services to the best advantage to generate sales, customer management, marketing, the generation of trust and loyalty, order fulfilment, payment processing and inventory management. Areas that are new to e-Business include security concerns and bandwidth requirements (Chapter 4).

- Future trends suggest that customers will become more fickle and hence customer management will take on greater importance (Chapter 4).

- Competitive advantage is derived from the degree with which products and services can be digitised, and the ability to innovate by doing things better and cheaper that were not possible without the Internet and its attendant technologies (Chapter 4).
The changes brought about by e-Business relate more to **how** tasks are accomplished rather than **what** needs to be done. As a result, general business skills are still relevant (Chapter 4).

The shortage of skills in New Zealand in relation to e-Business, particularly at the strategic management level, seems to be the bottleneck in preventing a greater proportion of companies embracing this new way of doing business (Chapter 4).

The curriculum for the e-Business course needs to be interdisciplinary in nature in order to avoid those problems associated with the fragmentary nature of knowledge presented to students in the past (Chapter 5).

Bloom’s taxonomy of educational objectives provides us with a guide as to the areas to concentrate on in the development of an e-Business curriculum. The six areas include Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation (Chapter 5).

The technologies brought about by the Internet and World Wide Web should be considered insofar as these enhance the learning experience of the students (Chapter 5).

The Internet could be used as the platform in shifting the educational approach from “knowledge instruction” (traditional lecturer-led dissemination of information) to one of “knowledge construction” (Chapter 5).

Psychology is having a growing influence upon curriculum and instruction (Chapter 5).

In an age where there are numerous sources of information, some of which are of dubious quality, it is useful for students to have the ability discern relevant information, engage with the information sources, and construct new knowledge and ideas based on their existing understanding (Chapter 6).
Recently, there have been news reports regarding the low literacy and scholastic ability of school leavers. At the same time, there is the contemporary practice in tertiary educational institutions of having open entry to many first year courses. Taken together, these suggest that students in undergraduate programmes need to be brought up to a level where they have the necessary learning skills and maturity (Chapter 6).

Educators should strive to create an environment whereby the students are free to explore and discover things for themselves, as opposed to ‘broadcasting’ the information to them (Chapter 6).

The above findings provide some guidance as to the structure and content of the e-Business course. These valuable lessons will be incorporated in the development of the proposed curriculum.
Revisiting Literature Survey

To the uninitiated, the two main components in an e-Business course are Information Technology and Marketing. This comes from the perception that, in order to sell products on the Internet, one only has to use technology to present it well and do some advertising to attract potential buyers to the web site. However, the lessons from the failure of dot-com companies suggest that there is much more that needs to be attended to for an e-Business to succeed.

Tripathi (2000) has a reference model for designing a post-graduate programme in e-Business. Tripathi’s model comprises three submodels: Business model, Customer-behaviour model, and IT-resource model. The components provide us with hints on the relevant areas that should be included in an e-Business curriculum:

• Business model
  Jurisdiction – applicable law governing a transaction that crosses national borders
  Digital signature for contract negotiations
  Taxation
  Pricing strategies
  Privacy issues

• Customer-behaviour model
  Dynamic customisation for customer based on past history and current navigation patterns
  Software agents to facilitate transactions

• IT-resource model
  Performance of an e-commerce site
  Flexibility in accepting new interfaces
  Capacity planning
An analysis of the current e-Business courses offered by educational institutions indicated that the majority of them are taught in MBA programmes. Further, these are either incorporated into those programmes or offered as an elective major. The fact that many of the e-Business courses are taught at this level confirms its suitability as a post-graduate course.

The findings so far point to the fact that the course should concentrate on the business aspects rather than focusing on just the marketing and technology areas. If one were to focus on the business aspects, it would be of help to know the types of businesses which the course needs to cater for. In this respect, McKinsey (McKinsey Quarterly, 2000, Number 3) stated that beneath the surface of most companies are three kinds of businesses: ‘a customer relationship business’, ‘a product innovation business’, and ‘an infrastructure business’. Apart from introducing the product innovation aspect, the McKinsey model closely mirrors the model proposed by Tripathi.

Turban et al. (2000) provided a comprehensive list of the major disciplines of an e-Business course. These include the following:

- Marketing
- Computer Science
- Consumer behaviour and psychology
- Finance
- Economics
- Management Information Systems
- Accounting and Auditing
- Management
- Business law and ethics
- Others
  - Linguistics (translation in international trades)
  - Robotics and sensory systems
  - Operations Research
  - Statistics
- Public policy
- Administration
- Knowledge management

Details regarding each of these disciplines can be found in Appendix D.

The material provided by the authors above seem to indicate that the educational platform for an e-Business course predicates upon roughly the same set of business skills required for managing a traditional business. Therefore, issues relating to the Internet need to be put in context in relation to those business skills.
A Curriculum Model to be Tested

Using findings from the literature, a proposed curriculum for education in e-Business can be constructed. The resulting model will be tested against the views of the staff at the School of Business at the University of Otago. To further strengthen the model, the lessons learned from the failure of dot-com companies will be used as a checklist to ensure that none of the important areas have been overlooked.

The diagram below provides an overview of the components that are involved in the development of the proposed curriculum.

Figure 5: Components in the development of proposed curriculum for e-Business
The material below briefly describes the components that are involved in the development of
the proposed e-Business curriculum.

_Three core areas_
From Tripathi’s model, we know that the Business, Customer-behaviour, and IT aspects are
important. Translating to subject matters, these relate to courses taught predominantly in the
Management, Marketing and Information Science departments respectively. In the diagram
above, these three form the core components as inputs to the curriculum as far as content is
concerned.

_Existing e-Business courses_
A survey of exiting e-Business courses offered by other educational institutions provided
valuable lessons and findings and lessons on how those institutions are responding to the
demand for such courses. These findings and lessons, documented in Chapter 3, provide
useful guiding material for incorporation into the development of the e-Business structure and
curriculum.

_Student attributes_
Since potential students of the e-Business course include those students who are still at school
and people who are working in the field, we need to know some characteristics of these
potential candidates. The findings, as documented in Chapter 6, suggest that the course
should be targeted at candidates who are graduates or those who have sufficient experience
and maturity in business management to undertake this rigorous course. A post-
graduate/post-experience course is the suitable level to target because the material in the
course should build on their existing knowledge and experience.

_Curriculum design_
Knowledge about curriculum design is important to avoid any pitfalls in putting together any
course. The various literatures have alluded to the things that should be built into a
curriculum involving a course that is interdisciplinary in nature.
To develop the knowledge areas of the course, I have resorted to the functional areas proposed by Turban et al. (2000). Their functional areas are as follows:

- Marketing
- Computer Science
- Consumer behaviour and psychology
- Finance
- Economics
- Management Information Systems
- Accounting and Auditing
- Management
- Business law and ethics
- Others
  - Linguistics (translation in international trades)
  - Robotics and sensory systems
  - Operations Research
  - Statistics
  - Public policy
  - Administration
  - Knowledge management

The functional areas closely mirror the Departments within the School of Business, except for some of the items listed in the “Others” category. This presents an opportunity to compare what is perceived as important in e-Business in this School as compared to what was suggested by Turban et al. The purpose of this comparison is two-fold: to provide an indication of which areas are deemed important, and to determine what areas need to be strengthened in terms of expertise to conduct an e-Business course.

To generate material to enable comparison with the model proposed by Turban et al., a brief interview each was held with various staff within the School of Business. The results from such interviews are documented in the next section of this chapter.
Results of Interviews with Staff in the School of Business

I have grouped the results into the various subject categories for easy reference back to the suggested curriculum proposed by Turban et al. (2000). The opinions I have obtained from staff members generally relate to the confines of the expertise of that Department. Nevertheless, there are cases where a staff member who, being more familiar with e-Business, has made comments beyond the functional expertise of that Department. Where a similar topic has been mentioned by more than one staff member, I have worded a collective response to capture the essence of what has been said.

The results from the interviews are documented in Appendix E.

The following material discusses the results of the interviews against the suggested syllabus model proposed by Turban et al. (2000). This is done with the aim of fleshing out the main themes that should be included in each of the functional areas of the e-Business course.

Marketing

The on-line and off-line marketing strategies as suggested by Turban et al. made references to the fact that organisations involved in e-Business have a combination of physical stores as well as virtual stores – the ‘clicks-and-bricks’ strategy. The interviews with staff expanded on this by requiring students to know the similarities and differences between traditional marketing practices and e-marketing. In addition, the integration of strategic and tactical e-marketing plans into the traditional way of doing business was also mentioned.

In terms of targeting and reaching potential customers, Turban et al. mentioned only advertising strategies. The results from interviews provided additional topics like ‘identifying and quantifying potential customers’, ‘data mining techniques’, and ‘understanding consumer search behaviour’.
With regard to implementation of marketing plans, Turban et al. mentioned the use of interactive kiosks. Taking that term to include web sites, important topics in this area would include determining the types of data to collect and the measures of success in Internet marketing.

One staff member mentioned segmentation, which refers to segregation of potential customers into identifiable categories and subsequently developing marketing plans to target each category.

With the Internet, there is the opportunity to do individual customisation for each customer. To be able to do this well, an organisation would need rather intimate and detailed knowledge of the preferences of its customers. Associated with this is the requirement for database management skills to establish and maintain customer relationships.

**Computer Science and Management Information Systems**

A knowledge of web programming applications and languages was mentioned by Turban et al. A number of staff members suggested that students should be required to develop a web site as one of their assignments. Also, a basic appreciation of a mark up language – for example HTML and XML – was also mentioned.

There was agreement as to the knowledge requirement with regards to computer networks and their management. Areas here include systems development methodology, project management skills, network management, hardware, and software. Security is another important area that was mentioned. In terms of secure electronic transactions, it is important to appreciate the idea behind the various encryption schemes and digital signature.

Contemporary areas that were mentioned by staff but not by Turban et al. include areas like the alignment of Information Technology strategy with the overall e-Business strategy, Customer Relationship Management, Risk management, and IT sourcing. Two of the newer topics – Knowledge Management and Customer Relationship Management – require a bit of explanation. Cairncross (2000) used the following definition of Knowledge Management
from the Yankee Group, an American consultancy: ‘Knowledge Management involves efficiently connecting those who know with those who need to know, and converting personal knowledge into organisational knowledge’. Customer Relationship Management involves bringing customer information into a central database to enable the various departments of an organisation to deliver better support, achieve operating efficiencies, and tailor offers and services for high value customers, with the ultimate aim of securing customer loyalty.

As organisations move towards e-Business, the workers will be increasingly using machines – predominantly computers – to do their work. Thus, it would make sense to impart some knowledge of human-computer interaction to the students. This knowledge would be useful in designing interfaces and systems that minimise errors and make it more natural for people to interact with those machines. Nielsen (2000), in writing about the principles for good web site designs, asserted that “usability” has become a ‘core competence’ necessary for business survival in the network economy. In particular, he believes that only useable sites get any traffic. With more and more businesses using web sites as the storefront for interacting with potential customers, it is not difficult to see why Nielsen said that only if people get a positive user experience on their initial visit will they return and start providing the business with revenues. Nielsen’s advice is also applicable to the design of interfaces for other devices that are used for communication and interaction with machines. Thus, an appreciation of good design principles would enhance the usability of systems that will be developed for use in e-Business.

Turban et al. mentioned that Intelligent agents play a major role in a environment created by internetworked computers. These agents, having some knowledge of the preferences of the users, are able to sort through networks and various databases to collect information to help the users make decisions.

**Consumer behaviour and psychology**

With e-Business, the power shifts more towards the consumers who can easily find and select which organisation to deal with. Turban et al. mentioned three broad areas for consideration: consumer behaviour, behaviour of sellers, and the relationship between cultures and
consumers in electronic markets. Giving a bit more detail, the authors mentioned some topics to give an idea of what they were referring to: consumer behaviour, cognitive processes, overcoming the limitations of remote control, and identifying impacts on people, seller’s behaviour and motivation, resistance to change and how to overcome it, mental model of consumer product search process, comparison process, and negotiation, how to build trust in cyberspace, reasons for a slow adaptation of some applications and rapid adoption for others, Internet usage pattern and the willingness to buy, building consumers’ behavioural profiles and identifying ways to utilise them.

A number of lecturers have mentioned the importance of an understanding of psychology in playing the mind game in cyberspace. Two areas mentioned that are closely linked to psychology are Behavioural Economics and Industrial psychology. One lecturer suggested that the numbers generated in a budget or forecast be related to human behaviour to determine if those numbers and projections are realistic.

Two associated areas not specifically mentioned are Game theory and Ethics. Game theory is important in understanding how other participants would react in a competitive environment. Ethics, loosely linked to human behaviour, would also provide an indication of how other participants would react in response to some development that affect their lives.

**Finance**

Since organisations involved in e-Business would require the services of existing financial organisations for funding requirements and settlement services, a knowledge of the workings of financial institutions has been suggested by Turban et al. With e-Business, there is a new area associated with the handling, accounting for, and collecting money from on-line transactions.

Turban et al. mentioned the area of fraud in association with on-line transactions. In the opinion of this author, this topic is more appropriately handled when considering controls in accounting systems. Traditional finance topics that are relevant include Capital budgeting, Valuation, and Fundamental analysis.
Two further areas were not mentioned by either Turban or the staff. These include an appreciation of Initial Public Offering as a (popular) means of raising funds and an understanding of Options. Both of these areas are extremely relevant to a new startup, where growth features large in the future and expectations of such companies.

**Economics**

Theories of microeconomics and microeconomic analysis feature prominently in both the mention by Turban *et al.* and the lecturers. In terms of the economic forces that influence e-Business organisations, these result from the competitive environment that exists in the industry – perfect competition, monopoly, or oligopoly. To understand the impact of e-Business on other firms, the world and country economies, one would need to understand topics like network externalities effect, positive feedback, and the consequences of information flow. Network effect - which refers to the phenomenon where the more people involved, the greater the reason for still more people to become involved - is linked to the viability of a community of users and is especially important during the early phase of the cybercommunity development. Mathematically, the benefit to the user population as a whole is captured by Metcalfe’s law, which says that the “value” of a network is proportional to the square of the number of users.

In terms of microeconomics, the important topics include Theory of the firm, Cost structures Pricing for both on-line and physical products, and Versioning. Versioning refers to the offering of different versions of information goods to different market segments at different prices, effectively making it a pricing strategy.

Brian Dollery (2000), an Economics educator at the University of New England, has some topics to add: Allocation of scarce resources through relative price changes, marginal utility, special cost structure of information, lock-in and switching costs, and issues involving standards.

One area which no author has mentioned involves innovation. In a McKinsey report entitled “Gap widening between eBusiness winners and losers”, the authors of the study found that successful e-businesses are those that combine business fundamentals with innovation
In the opinion of this author, organisations that are able to innovate by introducing new ways of accomplishing tasks are the ones that will survive into the future. Those that just automate processes or transplant existing processes to the Internet are not going to go far and they risk being disintermediated by more innovative organisations.

**Accounting and Auditing**

Turban *et al.* and the lecturers I have interviewed recommended a fundamental knowledge of Accounting. The topics mentioned include knowing the Accounting equation and being able to understand financial statements. Closely associated with this is an understanding of the useful information that can be obtained from accounting systems, limitations of financial statements, and awareness of pitfalls in areas of accounting.

Electronic transactions introduce new challenges to accounting. With many more sources where transactions can emerge, there is a stronger need to understand processes and internal controls. Real time processing of data also means that systems need to be more robust and fault-tolerant.

Accountants are involved in supplying information for the evaluation of the performance of an organisation. When an organisation is involved in e-Business, there is a good case for the development of new measures to give indications of how well the business is performing. This is especially crucial in the case where a large proportion of the assets and inventories of the organisation is in a non-physical (digital or traditionally non-quantifiable) form.

**Management**

Turban *et al.* has a recommendation labelled as ‘Theories of management’. Using material supplied by the staff, this can be expanded to encompass management in the following areas: Operations Management, International Management, and Corporate Management. Some knowledge of International Management is essential because an organisation having a web site is, for all intense and purposes, doing business with the population of the world at large.
New approaches in managing an e-Business would center on the interactions between the major players – Business, Consumer, Government, and Employee. There is a need to appreciate the differences between each of the permutations of interactions and an awareness that the unique characteristics of each pair of participants will enhance the maintenance and strengthening of the relationship.

The Internet allows various networks to be integrated at low costs, thus enabling seamless interactions between consumers and suppliers of an organisation. Prominent areas to be examined would include supply chain issues and Just-in-time delivery and ordering.

**Business law and ethics**

Privacy, intellectual property, and legal and ethical issues appear prominently in recommendations. There is also the need to have an understanding of the basic aspects of law, and these include contract law, law relating to evidence, consumer law, and hierarchy of courts.

An organisation conducting e-Business is subjected to laws of various countries. There are calls for the need to be able to identify and understand applicable laws governing transactions that cross national boundaries.

Standards and regulations represent one aspect of law governing requirements for transacting. From time to time, various standards might come into force and students must be trained to be aware of the new pronouncements and be able to grasp their effects.

The law relating to e-Business is largely undeveloped. Governing bodies around the world are grappling with issues like taxation of transactions executed over the Internet, authentication of users, and the applicability of digital signatures. Thus, students would need to be aware of developments in such areas and be able to exploit opportunities when developments occur in these areas.
General comments

A number of useful comments have been offered by the lecturers and these comments fall mainly in the area of imparting some discipline on the students in terms of new attitudes that need to be cultivated. Most of these relate to the course in general and are discussed here because they do not fit well in any one of the functional areas above.

The use of case studies has been mentioned as a means of bringing a sense of realness and introducing innovative applications to the students. Another suggestion relates to the use of the same case study in more than one paper to illustrate important points in a number of functional areas, thus enhancing the interdisciplinary aspect of the course. One lecturer suggested that students should be encouraged to uncover strategic opportunities in e-Business for New Zealand companies from the case studies that are used.

The use of electronic technology should be pervasive in the e-Business course. This means that students must be proficient in the use of wordprocessors, spreadsheets, and presentation packages in their study, assignments, and presentations. The email system should be mandatory for communication, collaboration and for the handing in of work.

In addition to providing the students with e-Business knowledge, they should be infused with skills in logical thinking, critical thinking, and a sense of skepticism as to new information sources. Also, as employers increasingly value communication skills, students must be able to share knowledge, write reports, and argue in an intelligent manner.

There should be a balance of group work and individual work in the course. Group work, while enhances synergy, provides an avenue for free-riding. Individual work, while time consuming, encourages personal reflection on a topic. There is support for a scheme of working which involves group discussion and individual write-up in relation to assignments.

The existence of a web site and the necessity to know customers more intimately often requires the analysis of a vast amount of data. Mathematical and statistical skills need to be strong among the students. The applications in relation to applied mathematics represent an area that needs to be strengthened among the students.
Perhaps the most beneficial aspect of the Internet is its ability to promote a different way of learning - one that involves active learning and self-discovery on the part of the learner. Many authors [Heaton (2000), Brown (1999), Tapscott (1998)] have advocated this method of learning and Tapscott has demonstrated its suitability for the new generation of students. Through this self-discovery form of learning, students add to their knowledge base through knowledge construction rather than the traditional route of having knowledge fed to them by the lecturers. The skills developed over time in this new way of learning has the benefit of enabling the student to acquire and update their knowledge base more efficiently as they progress in their careers. It is interesting to note that the educators in the five participating countries involved in the Third International Mathematics and Science Study agreed that children learn best using the “constructivist” approach (New Zealand Education Review Office, June 2000).

Following the discussion of the various functional areas, a number of topics can be delineated for inclusion in the e-Business course. For ease of reference, these topics have been summarised and included in Appendix F.
An Approach to an e-Business Education

The results of the interviews provided an indication of the relevant topics for inclusion in an e-Business course. The fact that most of these topics are applicable to traditional companies should not come as a surprise. McNaughton (2000, p.6) gave an indication that the business principles involved are similar, be it an Internet company or a traditional one:

“The fundamentals of marketing are sound in the New Economy. But the speed of the game has greatly increased, as have the stakes for which it is played. Cyberspace is teeming with Internet companies experimenting with permutations of technology and business practice. Each is betting that its model will result in rapid growth, attract investors, and make its founders wealthy. Managers in traditional as well as Internet companies can learn from this experimentation, and should closely follow developments in this industry.”

In fact, McNaughton believes that the Internet business models used are “naked”, meaning, there is a transparent relationship between the strategy, tactics, and business processes employed and the intended end result which is reflected by revenues earned. This view is consistent with that developed by this author which asserts that organisations involved in e-Business ought to approach it from a business angle rather than say, with a heavy technological bias.

If the principles involved in running a traditional business and an e-Business are the same, then the results from the interviews reflect the areas that should be given attention in future business courses.

The lessons learned from the failure of dot-com companies are helpful in shedding some light on the areas that should not be overlooked in designing a business - in particular, an e-Business - course. Briefly, the lessons learned, adapted from Useem (2000), are as follows:

- A business proposition that could not be justified in the pre-Internet era is unlikely to succeed in the Internet era.
The majority of the failed companies did not focus directly on profitability. Instead, they focused on scale, which they hoped would produce profit.

With the Internet around, companies employing the clicks-and-mortar approach (whereby a firm integrates its web site with existing fulfilment, logistics, and marketing) are the ones that survive. Those that adopted Internet-only strategies did not do well.

Many Business-to-Business exchanges that were set up to attract customers through their lowest bidder strategy failed.

There is no short-cut or fast-track towards building up a company. It takes time to create an infrastructure, come up with enabling technology, and then build on these.

The failed companies put the marketing cart ahead of the horse in their effort to create ‘instant companies’. They attempted to build a brand for their web sites in order to attract customers.

A number of startups tried to systematise entrepreneurship by clustering together and sharing services and a core of entrepreneurial expertise, leading to a situation where innovation and spontaneity is stifled.

The failed dot-com entrepreneurs were less interested in creating companies than in creating securities that would make them very rich.

The Internet changes the old way of doing business – particularly the relationship between customers and corporations. Through the lowering of the cost of interacting with other businesses, customers are exerting more control over the economy’s productive capacity.

The Internet changes the nature of jobs. People have to add even more value to justify their employment.

The distinction between Internet companies and non-Internet companies is fading fast. Andy Grove, the former Intel Chairman, declared that within several years, “there won’t be any Internet companies. All companies will be Internet companies, or they will be dead.”

It takes time to create wealth.

It can be seen that the failures of dot-com companies resulted from not applying sound business considerations to their setting up or running. These lessons reinforce the need to drill sound business practices into the candidates of the e-Business course.
It is also useful to consider what skills employers look for in potential employees. With regard to what course to pursue at tertiary education level, the public relations officer of the New Zealand Vice-Chancellors’ Committee hinted that ‘skills learnt and attitudes imbued’ is more important than the acquisition of specific factual knowledge. (Otago Daily Times, 26 February 2000). Such generic skills are generally referred to as ‘soft skills’. A soft skill that is valued is the ability to communicate well. Professor Schirato of the newly-established communications studies department at this University listed the ‘kinds of literacies’ that employers are demanding: ‘strong critical and communications skills, including the ability to communicate clearly through spoken presentations and written reports’. (ODT, 25 July 2000). He also hinted at the type of people who will succeed in work environment of the future – perhaps referring to the e-Business environment? – a person with ‘technological skills’, ‘commercial skills’, and ‘people with imagination, analytical skills, and the ability to ‘think on the job’.’ ‘Soft skills’ - which include the ability to speak, write and listen well – is also valued by web employers (Ambrosio 2000). Ambrosio also noted the critical skills that top IT managers should possess – ‘understanding costs, returns, and business strategy.’

Bringing all these together, I envisage an e-Business course that has the following as its characteristics:

- The course will be taught at a post-graduate level, for there is the need that students have a prior business framework or exposure to the business world in order to appreciate the finer points being taught in the course. Teaching the course at the post-graduate level removes the problems associated with the diverse ranges of abilities in students brought about open entry to undergraduate level courses.

- The course should emphasise the business aspects of any new ventures.

- The components of the course should be structured in a manner to give an integrated feel to it. This means that components of the course should have linkages to one another and should not be taught in isolation. One way of achieving this might be to have only one paper for each of the two semesters. The paper for the first semester could be titled “e-Business fundamentals” and cover topics from a number of traditionally separate Departments. The paper in the second semester would continue to build on the
knowledge required to run businesses. There would be a coordinator for each of the papers in the first two semesters. The coordinator could be chosen from one of the lecturers teaching in that semester. A rotation system for the appointment of the coordinator would go some way in enhancing the team spirit among the lecturers.

- The course should be conducted in a manner that mirrors the working condition of the business world. Work practices like the submission of assignments through electronic means and the use of appropriate computer tools in learning should be inculcated.

- In order to incorporate a sense of reality which gives the student a link to the working environment, a research component should be mandatory. This ensures that each course is customised to each student and provides that vital business link between the University and the business community.

- There should be a large component for students to undertake self discovery and knowledge construction. Conversely, there should be less of the traditional teacher-dominated form of learning.

Although the recommended curriculum is targeted at the post-graduate students, the findings from this research can be used to upgrade undergraduate courses for the e-Business environment. In particular, the results relating to the important topics to be covered can be used to fill in gaps in particular courses and to revise these to meet the needs of businesses operating in the e-Business environment. Due to the interdisciplinary nature of such a course, there might be value in having staff from two or more departments collaborating in the development of a new paper.
The diagram below provides a suggested structure for the curriculum in a post-graduate course in e-Business.

Figure 6: Suggested structure for e-Business course

The papers in the first semester are designed to provide students with the foundation knowledge and the relevant analysis skills that will be used in the second and third semesters. The topics documented in Appendix F will form the basis for the content of these papers. In order to indicate that the papers in the first semester have been specially developed for the e-Business curriculum, the names of these papers will have “e” as their prefixes.

The three papers in the second semester represent the ‘three essential legs’ of the e-Business course. These papers serve as the platforms for integrating knowledge gained in the previous semester. Each of the paper in the second semester requires students to recall material learned previously. For example, the Customer Relations Concentration draws on material relating to e-Psychology, e-Numerics, and e-Economy and introduces new material in relation to Marketing. Similarly, the Information Technology Concentration draws on e-Accounting, e-Psychology, e-Finance, e-Psychology and introduces new material relating to Information Technology. Finally, the Business Concentration draws on e-Law, e-Economics, e-Psychology and e-Accounting and introduces new material relating to Management, Business Strategy and Ethics.
The Research Project in the third semester enables students to customise and personalise their courses of study by working individually on an aspect of e-Business in depth.

In line with emerging trends, the School of Business should institute a Centre for e-Business to coordinate the e-Business courses and research activities relating to e-Business. Besides being a focal point for students and the business community to direct their e-Business attention to, such a move would also position the School favourably in terms of set-up where it is advocated that a separate, autonomous organisation be created and held responsible for the e-Business operations [Windham (1999), Gulati & Garino (2000)].

In its entirety, the e-Business course stresses the business aspects of conducting exchanges, whether it is goods and services or information. What distinguishes this course from a normal course is the introduction of an additional emphasis on the ‘information’ aspect. Here, I am using the definition of ‘information’ as used by Shapiro and Varian (1999, p.3), which refers to any goods or services that can be digitised, or ‘information goods’. Topics unique to information goods suggested by the authors include the cost of producing such goods (where the cost to produce the prototype is astronomically high but it costs very little to produce subsequent copies), pricing it as an ‘experience good’ (where consumers attach value to such goods by ‘experiencing it’), and the management of it as ‘an asset or intellectual property’. Armed with the skills required to manage and lead an e-Business venture, and the knowledge required to exploit opportunities afforded by the e-Business environment, these e-Business graduates should be well positioned for the needs of the business community.

The e-Business course has been designed with the aim of providing students with a sound grounding in business principles, an awareness of the issues involved in conducting business over the Internet, and an appreciation of the opportunities that can be tapped with the new medium. In addition, students will also be infused with ‘soft skills’ such as communication skills, learning skills, and working attitudes that are relevant for the new business environment.
A Skills Gap Waiting to be Filled

The advent of e-Business represents a major opportunity for educational institutions to offer new courses in the area to attract potential students. In New Zealand, only the University of Waikato and the Auckland University of Technology have started offering courses. The new course at Waikato is an undergraduate course. The Auckland University of Technology commenced its Master of Business in 2000 and ‘offers web-enabled study in Marketing, Management, Information Technology, Tourism, and International Business.’ (ODT, 15 November 2000). It is planning to add an “eBusiness major” for its Bachelor of Business programme in 2001.

Following from the survey of literature in the area of e-Business education, a curriculum model has been developed for the School of Business at the University of Otago. The curriculum model has been enhanced with knowledge of the characteristics of e-Business courses in other educational organisations and the essential areas of knowledge for such a course. The content of the proposed curriculum model has been tested against the view of lecturers of the School of Business. The point to note from this exercise is that the collective views of the lecturers closely match that of the curriculum model. An added bonus that can be inferred is that most of the skills required for the teaching of the proposed e-Business course are already in place.

Results of surveys indicated that many businesses in New Zealand are still at the infancy stage in terms of embracing e-Business. The Ministry of Economic Development publication (2000b) clearly indicated that the lack of skills in this area is hampering progress for many organisations towards this new way of doing business. More specifically, the skills that are lacking lie within the strategic direction domain. As a result, the e-Business course is initially aimed at producing graduates that will fill the vacuum at the upper managerial level.

The proposed course is well-rounded in that it covers both the hard skills and the soft skills. A graduate of the e-Business course, equipped with the necessary business skills and imbued with the right attitude, should fit in well with the requirements of the networked economy.
You have finished reading the chapter called
Proposed curriculum for e-Business

The icon below will take you back to the Navigation map
Appendix A

RESULTS FROM A WEB SEARCH

The material below represents the results from a web search for educational institutions offering courses in e-Business. Copernic 2000, a meta search facility that looks at other engines, has been used as the search engine.

Copernic Search Results

Search: "e-commerce" "university" (All words)  
Date: 06/23/2000  
Found: 132 document(s) on The Web  
Sort: Score

1. Texas A&M University-Commerce Home Page  
   UPCOMING DATES: First Day of Class Jan 18th Spring Break March 13 17 University Day February 19th News and Information A&M-Commerce Students Future Students Center for Research in Electronic Commerce, UT Austin  
   Found by: Excite, HotBot, Magellan  
   http://www.tamu-commerce.edu/

2. E-Commerce - Barry University  
   Beginning in January 2000 Barry University will offer undergraduate and graduate degrees in the rapidly developing field of electronic-commerce. "This is a huge market," said Dr. ...  
   Found by: Infoseek  
   http://www.barry.edu/IADV-univrelations/ecommerce.htm

3. E-Commerce  
   taught by Dr. Samer Faraj at the Smith School of Business, University of Maryland.  
   Found by: Open Directory Project, Netscape Netcenter  
   http://ecommerce.umd.edu/faraj/

4. Master of Science in e-Commerce: Barry University  
   "In the forefront of change, the World Wide Web has emerged as a new channel for consumer and business interaction. Revenues from e-commerce are projected to rise meteorically from a 1998 sales ...  
   Found by: Infoseek  
   http://www.barry.edu/vpaa-asb/mse-commerce.html
5. **E-Commerce at Boston University**  
**Metropolitan College**  
Introduction The Electronic Commerce concentration of the Master of Science in Administrative Studies degree provides specialized study in the exciting commercial aspects of the World Wide Web. Areas of study include web architecture and design, electronic  
Found by: FAST Search  
http://www.bu.edu/met/ecomm/  

6. **The University of Melbourne**  
The University of Melbourne, an international research university, is located in Victoria, Australia. Acclaimed for excellence and achievement in education and research, its motto is I SHALL GROW IN THE ESTEEM OF FUTURE GENERATIONS.  
Found by: HotBot  
http://www.unimelb.edu.au/  

7. **E-Commerce Learning Center @ North Carolina State University**  
ENTER Copyright © 1998-2000 Michael Rappa  
Found by: FAST Search, HotBot  
http://ecommerce.ncsu.edu/  

8. **University of New Brunswick**  
offers e-commerce track as part of an MBA degree.  
Found by: Open Directory Project, Netscape Netcenter  
http://business.unbsj.ca/mba/ecomm.html  

9. **MIS Division - UBC Faculty of Commerce and Business Administ...**  
Shortcut Welcome to the UBC MIS Home Page. This page is intended to provide information on the Division of Management Information Systems of the Faculty of Commerce at the University of British Columbia.  
Found by: WebCrawler  
http://mis.commerce.ubc.ca/  

10. **The WTO and E-Commerce**  
Home | Issues | Contact Faculty | Events Calendar | Classes | Volunteering Organizing Events | Projects | Community Links | Official Sites | Contact...  
Found by: AltaVista  
http://www.washington.edu/wto/issues/ecommerce.html  

11. **Center for Research in Electronic Commerce, UT Austin**  
No summary available Welcome to East Tennessee State University!  
Found by: Excite, Magellan  
http://cism.bus.utexas.edu/  

12. **McMaster University**  
Michael G. DeGroote School of Business E-Commerce Research Center and MBA program of E-Commerce stream.  
Found by: Open Directory Project  
http://merc.mcmaster.ca
13. **MN E-Trade: Rural Development Through E-Commerce**

MN E-Trade: Rural Development Through E-Commerce. 5/21/97. Click here to start. Table of Contents. MN E-Trade: Rural Development Through E-Commerce. ...

Found by: AltaVista
http://www.cineca.it/untpdc/conference/bangkok97/presentation/UofM/day1/index.htm

14. **ECnow.com Training: e-commerce training designed for your company - from individual sessions to complete conference and university programs**

ECnow.com Training: We work with start-up, medium and large companies to help them create and realize their e-commerce vision... ECnow.com will create the training program that works for your needs: from individual courses to complete conferences and

Found by: FAST Search
http://ecnow.com/training.htm

15. **E-Commerce**

E-Commerce taught by Prof. Sheizaf Rafaeli (in Hebrew) at the Graduate School of Business, the University of Haifa.

Found by: Open Directory Project, Netscape Netcenter
http://econ.haifa.ac.il/~sheizaf/eCommerce/

16. **Welcome to East Tennessee State University!**

What's on ETSU Online! Feedback Form For further information on the university, contact the Office of University Relations, East Tennessee State University, Box 70717, Johnson City, TN 37614-0717. The University of the Thai Chamber of Commerce

Found by: Excite, Magellan
http://www.etsu.edu/

17. **The University of the Thai Chamber of Commerce**

The Computer Center / The University of The Thai Chamber of Commerce Fairfax Electronic Commerce Resource Center

Found by: Excite, HotBot, Magellan
http://www.utcc.ac.th/

18. **E-Commerce Systems Analyst**

> resumes > E-Commerce Systems Analyst last modified: Sun May 7 18:32:40 2000 email this posting next resumes posting E-Commerce Systems Analyst From: sseliga@hotmail.com Date: Sun May 7th Sharon ...

Found by: Infoseek
http://www.craigslist.org/sfo/res/182763.html

19. **Re: Future Education & E-commerce**

Reply [ ] [ All Posts ] Subject: Re: Future Education & E-commerce From: Hank Taylor Date: 01 July 1999 01:21:43 In Reply to: Re: Future Education &...

Found by: AltaVista

20. **University of Dallas**

offers an e-Commerce program specialization as part of the MBA degree.

Found by: Open Directory Project, Netscape Netcenter
http://gsmweb.udallas.edu/e_commerce_mba.htm
21. **University of Rochester**
   E-Commerce MBA concentration in the Simon School.
   Found by: Open Directory Project, Netscape Netcenter
   [http://www.simon.rochester.edu/E_Commerce/ecm.htm](http://www.simon.rochester.edu/E_Commerce/ecm.htm)

22. **Welcome to The University of Adelaide**
   The University of Adelaide is an Australian leader in learning and teaching, education for the professions, research and research training.
   Found by: Excite, HotBot, Magellan

23. **The Weather Page**
   Department of Commerce National Oceanic and Atmospheric Administration NOAA Sources of Weather Information: General information on NOAA programs and offices
   Found by: WebCrawler
   [http://www.esdim.noaa.gov/weather_page.html](http://www.esdim.noaa.gov/weather_page.html)

24. **UCSD InfoPath - The Official Web Site of UCSD**
   Current Students Faculty Staff Prospective Students Alumni, Visitors, & the Community Virtual Visit to UCSD Admissions Directory Search Go directly to: Academic Calendar Athletics Bookstore Campus Map Catalog Chancellor's Office Courses Diversity...
   Found by: HotBot
   [http://www.ucsd.edu/](http://www.ucsd.edu/)

25. **Concordia University**
   Found by: HotBot
   [http://www.concordia.ca/](http://www.concordia.ca/)

26. **April 2000 - StateWide**
   Compiled by Robin Sinckler ODU Offers E-Commerce Degrees E-commerce is changing the way the world does business, and Old Dominion University (ODU) is preparing students to work and compete in the...
   Found by: Infoseek

27. **DePaul University**
   ©1998 DePaul University, 1 E. Jackson, Chicago, IL 60604 | 312-362-8000 | Disclaimer These pages best viewed with Netscape 3.0 or higher.
   Found by: HotBot
   [http://www.depaul.edu/](http://www.depaul.edu/)

28. **MBA e-Commerce Club @ Owen, Vanderbilt University**
   Found by: FAST Search

29. **E-commerce solution, ecommerce, Internet business, e-business, ebusiness, small business webhosting, Net University**
   iNetEcommerce In order to capitalize on the enormous potential of Internet marketing, iNetVisionz.com is providing Corporations E-commerce enabling solutions through its wholly owned subsidiary, iNetEcommerce. Mission: iNetEcommerce is focused on
   Found by: FAST Search
30. E-Commerce
  taught by Dr. Garth Saloner and Dr. A. Michael Spence at the Stanford University Graduate School of Business.
  Found by: Open Directory Project, Netscape Netcenter
  http://www.gsb.stanford.edu/cebc/education/e_course/index.htm

31. E Commerce (cs5964)
  Home page for E-Commerce class at the University of Utah...
  Found by: AltaVista
  http://www.mecworks.com/e-commerce/assignments.html

32. The E-commerce University
  Old South Marketing Inc. The E-commerce University Want to Start your own E-Commerce site? Here's the Tools You Need! Comprehensive 49 lesson E-commerce Course A FREE Shopping Cart that really Works A FREE Secure Server to increase sales A FREE Web Builder
  Found by: FAST Search
  http://oldsouthmk.com/mktpages/university.html

33. Education (Social Sciences)
  Academic Organizations Discussion Groups Government Organizations Non-profit Organizations See Also Web Search Search here, or use Galaxy's advanced search for more options.
  Found by: WebCrawler
  http://galaxy.einet.net/galaxy/Social-Sciences/Education.html

34. USC Business Expansion Network Home Page
  University of Southern California Business Expansion Network...
  Found by: AltaVista
  http://www.uscben.net/

35. University of Denver
  offers an e-commerce specialization as part of a MBA and MIM degree in the Daniels College of Business.
  Found by: Open Directory Project, Netscape Netcenter
  http://www.dcb.du.edu/itec/index.html

36. Medicine
  Academic Organizations Commercial Organizations Discussion Groups Government Organizations Non-profit Organizations See Also Web Search Search here, or use Galaxy's advanced search for more options.
  Found by: WebCrawler
  http://galaxy.einet.net/galaxy/Medicine.html

37. School of Commerce Home Page
  The home page of the School of Commerce, University of Adelaide, Australia.
  Found by: WebCrawler
  http://www.commerce.adelaide.edu.au/

38. Fairfax Electronic Commerce Resource Center
  Electronic Commerce, EC, EDI, Education, Training, government, federal, electronic data interchange EDA Home
  Found by: Excite, Magellan
  http://www.ecrc.gmu.edu/
39. **Best Top E-Commerce Certifications Degrees**

Top E-Commerce Credentials and Certifications. Welcome to the List of Top E-Commerce Certifications and Credentials. Below is a List of Top...

Found by: AltaVista

http://ecommercecertifications.8k.com/

40. **Creighton University e-Commerce Masters Program**

This page uses frames, but your browser doesn't support them.

Found by: FAST Search

http://ecommerce.creighton.edu/masters/index.htm

41. **Press Releases -- NJIT America's "Most Wired" Public University**

E-Commerce: NJIT Offers Bachelor's, Master's and Graduate Certificate in "Hottest" Way to Do Business (Ref.#1) NEWARK, NJ , August 3, 1999 - New Jersey Institute of ...

Found by: Infoseek

http://www.njit.edu/News/Releases/1.html

42. **E-Commerce: Business Uses of the Internet**

Interactive online course by Dr. Rassule Hadidi, Department of MIS, University of Illinois at Springfield. **User registration is required.

Found by: Open Directory Project, Netscape Netcenter

http://mis.uis.edu/ecomm2/

43. **College of Commerce and Business Administration**

Nationally recognized as one of the leading business schools, the College of Commerce and Business Administration at the University of Illinois has outstanding programs in accounting, business, economics, and finance. The college enrolls abo

Found by: Excite, HotBot, Magellan

http://www.cba.uiuc.edu/

44. **E-Commerce Help - Educational Resources**

Resources for Building Web Storefronts and Conducting Sales Transactions on the Internet. E-Commerce Educational Resources. Universities and Distance...

Found by: AltaVista

http://www.e-commercehelp.com/education/continuing_ed.htm

45. **STATISTICS SINGAPORE**

CONFERENCE ON THE MEASUREMENT OF ELECTRONIC COMMERCE 6-8 DECEMBER 1999, SINGAPORE [ Programme ] [ Registration ] [ Conference Details ] [ Accommodation ] [ Main ]

Overview The importance of accurate measurement ...

Found by: Infoseek


46. **EDA Home**

Economic Development AdministrationU.S. Department of Commerce14th & Constitution Avenue, Room 78008Washington, DC 20230(202) 482-5081 Welcome to EDA's Home Page! Manhattan, Kansas Chamber of Commerce Information

Found by: Excite, Magellan

http://www.doc.gov/eda/
47. Creighton University
Creighton Today (News) Compliance Task Force headed by Dr. Robert Heaney **E-Commerce** has a home in Creighton's College of Business Administration. Apply now! Justice Education at Creighton: The Report Jubilee 2000 Calendar of Events Index (Site Map).
Found by: FAST Search, HotBot
http://www.creighton.edu

48. Loyola University
Graduate School of Business offers an **e-commerce** specialization as part of a MBA degree program.
Found by: Open Directory Project, Netscape Netcenter
http://www.luc.edu/schools/business/gsb/ecommerce/index.htm

49. Northwestern University
Kellogg School offers a technology and **e-commerce** (TEC) concentration as part of the MBA degree program.
Found by: Open Directory Project, Netscape Netcenter
http://www.kellogg.nwu.edu/academic/deptprog/tec_prg/index.htm

50. e-Commerce - Barry University
"ActivMedia revised their projections of sales on the Internet to over $1 trillion by the year 2002." As the above quote suggests, Electronic Commerce is not a trend or fad, but it is ... Found by: Infoseek
http://www.barry.edu/vpaa-asp/e-commerce.html

51. Sports (Leisure and Recreation)
Academic Organizations Discussion Groups Non-profit Organizations See Also Web Search Search here, or use Galaxy's advanced search for more options.
Found by: WebCrawler
http://www.einet.net/galaxy/Leisure-and-Recreation/Sports.html

52. Manhattan, Kansas Chamber of Commerce
anhattan is located in the northern end of the beautiful Flint Hills. The city was founded in the first days of Kansas settlement and currently has a population of 45,000 in the city, 100,000 in the...
College of Commerce and Business Administration
Found by: Excite, Magellan
http://www.manhattan.org/

53. STATISTICS SINGAPORE
Introduction The phenomenal expansion of computer networks, notably open networks such as the Internet, has resulted in the rapid proliferation of **e-commerce** with far-reaching economic and social implications. As ...
Found by: Infoseek

54. MN E-Trade: Rural Development Through E-Commerce
MN E-Trade: Rural Development Through **E-Commerce**. 5/21/97. Click here to start. Table of Contents. MN E-Trade: Rural Development Through **E-Commerce**. ...
Found by: AltaVista
http://www.tpsingapore.org/untptdc/conference/bangkok97/presentation/UofM/day1/index.htm
55. University of Michigan Business School E-Commerce Club
   Found by: FAST Search
   http://webuser.bus.umich.edu/organizations/ecc/

56. E-Commerce at Barry University - Web Development - EC 330 and MIS 330
   Class Projects - Spring 2000 EC 330 - Web Development The Andreas School of Business Barry
   University Dr. Henson’s Page
   Found by: FAST Search
   http://barrybusiness.com/

57. Welcome to the University of Missouri Columbia, School of Law
   The University of Missouri-Columbia School of Law seeks to hire a law professor to join the E-
   Commerce Interest Group (EIG) group recently established by the cooperative efforts of five ...
   Found by: Infoseek
   http://www.law.missouri.edu/empfac.html

58. E-Commerce
   A four-day course taught by Dr. Mary J. Culnan, Georgetown University, McDonough School of
   Business, International Executive MBA Program.
   Found by: Open Directory Project, Netscape Netcenter
   http://www.msb.edu/faculty/culnanm/iemba/syllabus.htm

59. The Wharton School of the University of Pennsylvania
   The principal external web site of the Wharton School of the University of Pennsylvania, the nation's
   first collegiate business school recognized around the world for its innovative leadership and...
   Found by: Excite, HotBot, Magellan
   http://www.wharton.upenn.edu/

60. Texas Chamber Index Listings
   Free information! How to Market Your Chamber Page! Form. Add or update your Chamber
   information here. A great Chamber fund-raiser! Please note that the following information is changing
   constantly.
   Found by: WebCrawler
   http://www.globalindex.com/chamber/txt.htm

61. UQ - Department of Commerce - Home Page
   The home page of the Department of Commerce of the University of Queensland
   Found by: WebCrawler
   http://www.commerce.uq.edu.au/

62. De Montfort University
   Main Switchboard: 0116 255 1551 Student Enquiries: 0645 45 46 47 enquiry@dmu.ac.uk © De
   Montfort University 2000 | Disclaimer DMU Facts, Faculties, Departments and Schools Research
   Commerce and Contract Research Information for visitors Libraries...
63. **MN E-Trade: Rural Development Through E-Commerce**

MN E-Trade: Rural Development Through E-Commerce. 5/21/97. Click here to start. Table of Contents. MN E-Trade: Rural Development Through E-Commerce. ...

Found by: AltaVista

64. **Roger Clarke's Electronic Commerce**

This document is at http://www.anu.edu.au/people/Roger.Clarke/EC/index.html 'Electronic commerce' (EC) is an integrative concept, designed to draw together a wide range of business support services,... The Wharton School of the University of Pennsylvania

Found by: Excite, Magellan

65. **North Carolina State University**

E-Commerce concentration as part of master degree programs in management (College of Management) and computer networking (College of Engineering).

Found by: Open Directory Project, Netscape Netcenter
http://ecommerce.ncsu.edu/ecprogram.html

66. **MN E-Trade: Rural Development Through E-Commerce**

MN E-Trade: Rural Development Through E-Commerce. 5/21/97. Click here to start. Table of Contents. MN E-Trade: Rural Development Through E-Commerce. ...

Found by: AltaVista
http://www2.asianconnect.com/unt HDC/conference/bangkok97/presentation/UofM/day1/index.htm

67. **Flinders University of South Australia: School of Commerce Home Page**

Last Modified: March 29, 2000 Flinders University of South Australia: School of Commerce Home Page School of Commerce: Progressive and Distinctive Scholarship in Accounting, Finance and...

Found by: Excite, Magellan
http://www.law.flinders.edu.au/

68. **Net University - Government Studies: E-Commerce**

Government E-Commerce Electronic Commerce (E-Commerce) is the paperless exchange of goods between a buyer and a seller using standardized transaction rules. What can state and local government use e-commerce for? One of the greatest uses of e-commerce is

Found by: FAST Search
http://webserver.tangent.com/net_univ/govt/e_com.htm

69. **The Information Industry: E-Commerce**

taught by Dr. Howard Rosenbaum, School of Library and Information Science, Indiana University.

Found by: Open Directory Project, Netscape Netcenter
http://www.slis.indiana.edu/hrosenba/www/L561/syll/syll4.html

70. **E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business Idea Competition**

E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business Idea Competition 11/8/99 Click here to start Table of Contents E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business

Found by: FAST Search
http://tts.dcu.ie/enterprise/vision/index.htm
71. **UBC Commerce... THE FUTURE OF MANAGEMENT THINKING**

Welcome > Dean's message > UBC Trek 2000 FACULTY > Directory > Divisions > Research Centres > Faculty openings PROGRAMS > NEW! BCom > MBA | MSc > PhD > Management Development > Real Estate RESOURCES > Career Centre > Study Abroad > International...

Found by: Excite, HotBot, Magellan
http://www.commerce.ubc.ca/

72. **21st Century Money, Banking and Commerce Alert Page**


Found by: WebCrawler
http://www.ffhsj.com/bancmail/bancpage.htm

73. **HTML Calendar, E-Commerce and Shopping Cart Software**

Home NetCalendar NetCatalog NetTransfer Resellers Support Contact Keep Updated Enter your email address for notices about updates to our software. NetCalendar | NetCatalog | NetTransfer | Tech Support Grafix Network, Inc produces and markets a collection

Found by: FAST Search
http://www.grafix-net.com/

74. **Santa's Workshop Needs E-Elves**

FOR IMMEDIATE RELEASE CONTACT: Pat Florez December 2, 1999 909-621-8396 SANTA'S WORKSHOP NEEDS E-ELVES BOOMING E-COMMERCE CREATING EMPLOYMENT OPPORTUNITIES Researchers predict that this year's ...

Found by: Infoseek
http://www.cgu.edu/adm/pub_rel/e-elves.html

75. **COBA - College of Business Administration, Creighton University**

Creighton University College of Business

Found by: Infoseek
http://cobweb.creighton.edu/

76. **Keio University Home Page**

Welcome to Keio University! Japanese page. Please read our disclaimers. Keyword Search: Information for International Students Library & Information Services Maps of Our 5 Campuses (Japanese) WWW Servers in Keio University Keio University News...

Found by: HotBot
http://www.keio.ac.jp/

77. **MN E-Trade: Rural Development Through E-Commerce**

MN E-Trade: Rural Development Through E-Commerce. 5/21/97. Click here to start. Table of Contents. MN E-Trade: Rural Development Through E-Commerce. ...

Found by: AltaVista
http://sunsite.sut.ac.jp/untpdc/conference/bangkok97/presentation/UofM/day1/index.htm

78. **GPO Gate at University of California**

Welcome to GPO Gate, the University of California's gateway to federal information. GPO Gate is a World Wide Web interface to the Government Printing Office's suite of databases known as GPO Access. Welcome to The University of Adelaide

Found by: Excite, Magellan
http://www.gpo.ucop.edu/
79. **University of South Alabama**

Mitchell College of Business offers a Bachelors Degree in E-Commerce, combining Computer Science and Business Courses to graduate students proficient in both areas.

Found by: Open Directory Project, Netscape Netcenter
http://mcob.usouthal.edu/ecommerce.html

80. **Astronomy (Science)**

Academic Organizations Discussion Groups Government Organizations Non-profit Organizations Sights and Sounds See Also Web Search Search here, or use Galaxy’s advanced search for more options.

Found by: WebCrawler
http://www.einet.net/galaxy/Science/Astronomy.html

81. **San Jose State University’s Professional Development Electronic Commerce Management (ECM) Certificate Program**

San Jose State University’s Professional Development Electronic Commerce Management (ECM) Certificate Program
Found by: HotBot
http://www.ecmtraining.com/sjsu

82. **Intro to E-Commerce**

taught by Professor Barton Weitz, Marketing Department, Warrington College of Business, University of Florida.

Found by: Open Directory Project, Netscape Netcenter
http://bear.cba.ufl.edu/weitz/mar6930/home.html

83. **Amateur Radio (Leisure and Recreation)**

Amateur Radio Academic Organizations Discussion Groups Non-profit Organizations Sights and Sounds See Also Search here, or use Galaxy's advanced search for more options.

Found by: WebCrawler
http://galaxy.einet.net/galaxy/Leisure-and-Recreation/Amateur-Radio.html

84. **Technology Days at the University of Minnesota**

When: Wednesday and Thursday, April 19 and 20 Where: Room 3-180, Electrical Engineering and Computer Science Building Contacts: Shih-Pau Yen, Academic Computing Services, (612) ...

Found by: Infoseek
http://www1.umn.edu/urelate/newsservice/newsreleases/00_4techdays.html

85. **Creighton University e-commerce Masters Program**

This page uses frames, but your browser doesn't support them.

Found by: FAST Search
http://ecommerce.creighton.edu/masters/index_.htm

86. **Commerce Resources**

Related Commerce Activities "Micropayments - No Small Change", New Media article June 23, 1997 Commerce Protocols Web Standards and Protocols Web Browsers

Found by: WebCrawler
http://www.ini.cmu.edu/netbill/commerce.html

87. **World list... information studies, information management, etc.**

World list..information studies...

Found by: AltaVista
http://www.shef.ac.uk/~is/publications/worldlist/wlist6.html
88. **Bachelor of Electronic Commerce**
   The University of Queensland's Department of Commerce's Electronic Commerce pages.
   Found by: WebCrawler

89. **News Archives Personnel Announcements**
   (formerly System 1 Software), an e-commerce provider of services and tools for the business finance
   industry, announced the hire of Hal Hayden, former SierraCities.com vice president, as segment ... 
   Found by: Infoseek

90. **Boston University**
   SMG Students Devise New Products New E-Commerce Program Offered WebCentral | What's New | Questions | Copyright | 23 December 1999
   Found by: FAST Search
   [http://www.bu.edu/](http://www.bu.edu/)

91. **E-Commerce**
   taught by Drs. Alistair Preston and Alex Seazzu, at the Anderson School of Management, University
   of New Mexico.
   Found by: Open Directory Project, Netscape Netcenter
   [http://asm.unm.edu/e/courses/mgt490/ugrad.htm](http://asm.unm.edu/e/courses/mgt490/ugrad.htm)

92. **CHISA**
   Human-Computer Interaction activities in South Africa. There are still very few people and
   organisations involved in HCI in South Africa. A number of...
   Found by: AltaVista

93. **Bachelor of Electronic Commerce**
   The University of Queensland's Department of Commerce's Electronic Commerce pages.
   Found by: HotBot

94. **UA Culverhouse College of Commerce and Business Administration**
   off the screen Headline News UA MBA Program Ranked 21st by Forbes Magazine Business School
   Ranked 45th in the Nation Alabama Ranked 4th in Computerworld's Survey of Top Techno-MBA
   Programs Welcome to Chapel Hill-Carrboro, N.C.
   Found by: Excite, Magellan
   [http://www.cba.ua.edu/](http://www.cba.ua.edu/)

95. **Welcome to Chapel Hill-Carrboro, N.C.**
   ChamberNet, the home page of the Chapel Hill/Carrboro Chamber of Commerce, is a comprehensive
   source for information about the community, university, and business opportunities and offerings.
   UBC Commerce...THE FUTURE OF MANAGEMENT THINKING
   Found by: Excite, Magellan

96. **Entrepreneurial Resources & E Commerce**
   Career resources including online job bank, featured joblinks, online resume bank etc....
   Found by: AltaVista
97. Mathematics (Science) 27%
Academic Organizations Discussion Groups Non-profit Organizations See Also Web Search Search here, or use Galaxy's advanced search for more options.
Found by: WebCrawler
http://galaxy.einet.net/galaxy/Science/Mathematics.html

98. SIGCPR 2000 Advanced Program 27%
SIGCPR 2000 CONFERENCE : April 6-8, 2000 Chicago, IL, USA Electronic Commerce and Internet Business: Roles, Relationships, Skills and Strategies for the New Millennium Advanced Program Call for Participation ...
Found by: Infoseek
http://www.acm.org/sigcpr/program.html

99. Executive Positions 27%
Chairman's Office. Assistant to Chairman. Assist in managing development project and plan. University graduate. Minimum 5 years commercial experience...
Found by: AltaVista

100. Glasgow Caledonian University Home Page 27%
Glasgow Caledonian University's web site . This site provides a guide to undergraduate, postgraduate and part-time courses. It also gives information on research and university departments.
Found by: HotBot
http://www.gcal.ac.uk/

101. McMaster University 27%
DeGroote School of Business program in the Management of E-Commerce.
Found by: Netscape Netcenter
http://mint.mcmaster.ca/ecommerce/ecomhome.htm

102. Business Issues in E-Commerce 26%
taught by Dr. John Gerdes at the University of California, Riverside.
Found by: Open Directory Project, Netscape Netcenter
http://condor.ucr.edu/class/gerdes/mgt280f99/index.html

103. E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business Idea Competition 26%
E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business Idea Competition 15/12/99 Click here to start Table of Contents E-Commerce Areas of Opportunity Strategy Presentation to Dublin City University - New Business
Found by: FAST Search
http://www.redbrick.dcu.ie/~ned/vision/index.htm

104. Henley Management College : Media Information\New for May Henley Management College : Media Information\New for May Media Information New for May for ... 24%
A:link {color:green}A:visited {color:gray}A:active {color:red} Henley Management College : Media Information\New for May Media Information New for May New for ...
Found by: Infoseek
http://www.henleymc.ac.uk/HenleyMC.nsf/pages/NewforMay

105. Transportation (Engineering and 24%
106. PHP ASP SQL Java Servlets CGI Perl UNIX Javascript dhtml html web hosting e-commerce

If you are a web site developer or even thinking of becoming one, we have what you need. wbt, cbt, ibt, web based training, computer based training, internet based training, secure server, bandwidth, high bandwidth, unlimited bandwidth, unlimited, cgi bin

Found by: FAST Search
http://www.useractive.com/

107. Rhodes University

Rhodes University, Grahamstown, South Africa.

Found by: HotBot
http://www.ru.ac.za/

108. Stanford University establishes e-commerce center

Sunday Jan 30, 2000 8:34 PM PDT MARKETS Dow Jones 10738.87 -289.15 Nasdaq 3887.07 -152.49 Market close Market update TOP BUSINESS Themes, not tickers, a sensible investment Net gold mine in insurance? Dot-com offline ad spending surges Stanford

Found by: FAST Search
http://www.examiner.com/991214/1214stanford.html

109. Touro University International Bachelor of Science in Business Administration

What are the admission requirements to the BSBA program? High school graduate: Completion of an accredited high school program or its equivalent. Students may submit ...

Found by: Infoseek
http://www.tourouniversity.edu/degrees/bsba/bsba.htm

110. Touro University International Master of Business administration

Admission Requirements: An earned Bachelors degree from an accredited institution (for international students, a university approved by the government) with a minimum of 3.0 ...

Found by: Infoseek
http://www.tourouniversity.edu/degrees/MBA/mba.htm

111. Master The Web

High quality instruction and course content but without the day-to-day obstacles that prevent so many of us from pursuing our opportunities....

Found by: AltaVista
http://www.homeworkers.org/webcourse/Default.htm

112. McIntire Welcome Page

Click on the images below to explore the different areas of McIntire. McIntire News MS MIS Top 25 Ranking ! Welcome to the McIntire School of Commerce Online.

Found by: WebCrawler
http://www.commerce.virginia.edu/

113. Responding to the Legal Obstacles to
114. **Commerce 5: EDI and Internet Commerce**
Kenneth W. Copeland, U.S. Department of Veterans Affairs, USA Jinshong Hwang, Southwest Texas State University, USA Kenneth W. Copeland, U.S. Department of Veterans Affairs, USA

Found by: WebCrawler

115. **eCommerce Innovation Centre**
The eCommerce Innovation Centre bridging the gap between academia and industry. At the forefront of developments at local, national and international level, we specialize in eCommerce projects with...

Found by: Excite, Magellan
http://www.cf.ac.uk/uwcc/masts/ecic/

116. **Commerce**
A book by Hal Varian and Carl Shapiro about the economics forces at work in the "New Economy". Lots of links to ecommerce materials on the Internet. Faculty of Commerce and Accountancy Chulalongkorn University

Found by: Excite, Magellan
http://www.sims.berkeley.edu/resources/infoecon/commerce.html

117. **E-Commerce Technology**
taught by Dr. Peter Wurman, Department of Computer Science, NC State University.

Found by: Open Directory Project, Netscape Netcenter
http://www.csc.ncsu.edu/faculty/wurman/courses.html

118. **Halifax University to Offer First E-Commerce Degree**
Shad Valley ShadNet Shad Institute For Teachers Halifax University To Offer First E-Commerce Degree What follows is an abbreviated version of an article appearing in the February 25, 1999 issue of the National Post. Dalhousie University in Halifax

Found by: FAST Search
http://www.shad.ca/ecommerce.html

119. **Iconocast_ecourier: ICONOCAST 11-Nov-99**
Iconocast Newsletter. Accueil | Recherche | Créer un iClub | Aide | Connexion. infos liste abonnés messages écrire [ Sommaire ] [ Même objet ] [ Faire..](http://club.voila.fr/group/iconocast_ecourier/14.html)

Found by: AltaVista

120. **Centre for Electronic Commerce**
Centre for Electronic Commerce The Centre for Electronic Commerce, Monash University, is unique in Australia, providing a nucleus of consulting expertise, research, and education and training services specifically in the business issues and implementation of Electronic Commerce technologies.

Found by: WebCrawler
http://www-cec.buseco.monash.edu.au/

121. **Chiba University Home Page**
WELCOME TO CHIBA UNIVERSITY [Japanese/English]
122. **Faculty of Commerce and Accountancy**  
**Chulalongkorn University**

You are visitor number Since 20 June 1998 This page is good view with Netscape 4.x or higher and resolution 800x600 pixels Texas A&M Homepage

Found by: Excite, Magellan  
http://www.acc.chula.ac.th/

123. **Venerable Cambridge University Press**  
**ramps up its e-commerce strategy**


Found by: FAST Search  
http://shareware.idg.net/crd_cambridge_68761.html

124. **Introduction to E-Commerce**

taught by Prof. Tridas Mukhopadhyay, Carnegie Mellon University.

Found by: Open Directory Project, Netscape Netcenter  
http://www.ecom.cmu.edu/program/courses/tcr870/course.shtml

125. **Faculty of Economics and Commerce**

Faculty of Economics and Commerce

Found by: HotBot  
http://www.fec.newcastle.edu.au/

126. **Snowball: News**

December 1999 News 31/12/1999 Snowball Effect in association with Global Explosion announces extension to Fandango; Internet Café. "We are very..."

Found by: AltaVista  
http://www.snowball.co.za/news/default.htm

127. **JC Bradford & Co: Research**

B2B Internet Commerce Electronics Manufacturing and Distribution E-Procurement Financial E-Commerce Services HCIS.com Information Technology Solutions Telecommunications–Network Services ...  
Found by: Infoseek  
http://www.jcbradford.com/research/tech.asp

128. **Texas A&M Homepage**

Information for: Prospective Students Current Students Former Students Faculty & Staff Visitors Quick A&M Web Search Texas A&M University

Found by: Excite, Magellan  
http://www.tamu.edu/

129. **Business General**

Databases Electronic Journals Electronic Reserves Interlibrary Services Libraries Catalog Periodicals Proxy Instructions Web Reference Tools Web...

Found by: AltaVista  
http://libaxp.hartford.edu/llr/bizgen.htm

130. **Orbit Commerce - Taking Businesses Online!**
Contact Orbit Commerce Today If you have any questions about our company or products, don't hesitate to contact us. Corporate Headquarters

Please Note: This is our NEW address!

Found by: WebCrawler

http://www.orbitcommerce.com/company/com_contact.htm

131. COMMERCE World Wide Web SERVER SABLE

To learn more about The Commerce Faculty, read our on-line General Information and the Degrees offered. Departments in the Commerce Faculty: People to talk to in the Commerce Faculty:

Found by: WebCrawler

http://www.ru.ac.za/departments/commerce/

132. ESIS Extension IS Promotional Activities Syria


Found by: AltaVista

http://www.ispo.cec.be/esis/esis2prom/SYprom1.htm
# Appendix B

## e-BUSINESS COURSES OFFERED BY EDUCATIONAL INSTITUTIONS

<table>
<thead>
<tr>
<th>School</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
<th>e-Business Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barry University</td>
<td>BS in Business Administration with a specialization in E-Commerce</td>
<td>Master of Science in e-Commerce</td>
<td></td>
</tr>
<tr>
<td>University of Maryland</td>
<td>An MBA major</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boston University</td>
<td>A major in the Master of Science in Administrative Studies degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of New Brunswick</td>
<td>BBA with a major in electronic commerce</td>
<td>MBA with a special track in electronic commerce</td>
<td></td>
</tr>
<tr>
<td>Cardiff University</td>
<td></td>
<td></td>
<td>eCommerce Innovation Centre</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Certificate Programmes</td>
<td>Certificate Programmes</td>
<td></td>
</tr>
<tr>
<td>East Tennessee State University</td>
<td>A paper in the Accountancy course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>Undergraduate</td>
<td>Postgraduate</td>
<td>e-Business Center</td>
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<tr>
<td>---------------------------------------</td>
<td>----------------------------------------------------</td>
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<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>McMaster University</td>
<td></td>
<td>MBA eCommerce stream</td>
<td></td>
</tr>
<tr>
<td>University of Haifa</td>
<td></td>
<td>Graduate School of Business (material in Hebrew)</td>
<td></td>
</tr>
<tr>
<td>University of The Thai Chamber of Commerce</td>
<td>(material in Thai)</td>
<td>(material in Thai)</td>
<td>Fairfax electronic commerce resource centre</td>
</tr>
<tr>
<td>University of Dallas</td>
<td></td>
<td>A specialisation in the MBA course</td>
<td></td>
</tr>
<tr>
<td>University of Rochester</td>
<td></td>
<td>A concentration in the MBA degree</td>
<td></td>
</tr>
<tr>
<td>University of Adelaide</td>
<td>A paper in Electronic commerce</td>
<td>A paper in Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>Old Dominion University</td>
<td>The B.S program will cover the use of technology in business management and e-commerce fundamentals</td>
<td>The M.S. program will cover the use of technology in business management and e-commerce fundamentals</td>
<td></td>
</tr>
<tr>
<td>Vanderbilt University</td>
<td></td>
<td>A concentration in the MBA programme</td>
<td></td>
</tr>
<tr>
<td>Stanford University</td>
<td></td>
<td>Part of MBA and an elective paper</td>
<td>Center for Electronic Business and Commerce, funded by Charles Schwab &amp; Co., General Atlantic Partners, eBay, General Motors, BP Amoco</td>
</tr>
<tr>
<td>University of Utah</td>
<td>A paper on electronic commerce</td>
<td>A paper on electronic commerce</td>
<td></td>
</tr>
<tr>
<td>E-commerce University</td>
<td>Lessons on how to start your own e-commerce site</td>
<td>Lessons on how to start your own e-commerce site</td>
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</tr>
<tr>
<td>University of Denver</td>
<td>Undergraduate major in electronic commerce</td>
<td>A specialisation in the MBA and MIM degree</td>
<td>Center for the Study of Electronic Commerce, funding from J D Edwards</td>
</tr>
<tr>
<td>Creighton University</td>
<td>Master of Science in Electronic Commerce</td>
<td></td>
<td>Joe Ricketts Center in Electronic Commerce and Data Base Marketing, funding from Ameritrade Holding Corporation</td>
</tr>
<tr>
<td>School</td>
<td>Undergraduate</td>
<td>Postgraduate</td>
<td>e-Business Center</td>
</tr>
<tr>
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<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>University of Illinois</td>
<td>A paper for the College of Business and Management graduate students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loyola University</td>
<td>A specialisation in the MBA programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northwestern University</td>
<td>A concentration as part of MBA programme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Georgetown University</td>
<td>Four-day course for the International Executive MBA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>De Montfort University</td>
<td></td>
<td>International Electronic Commerce Research Centre</td>
<td></td>
</tr>
<tr>
<td>Indiana University</td>
<td>A paper in the Masters degree in the School of Library and Information Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of South Alabama</td>
<td>Bachelors Degree in E-Commerce</td>
<td></td>
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</tr>
<tr>
<td>San Jose State University</td>
<td>Certificate in Electronic commerce management</td>
<td>Certificate in Electronic commerce management</td>
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</tr>
<tr>
<td>University of Florida</td>
<td></td>
<td>A paper in the Graduate Programme in Business</td>
<td></td>
</tr>
<tr>
<td>University of Minnesota</td>
<td>A paper on e-commerce</td>
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<td></td>
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<td>University of Queensland</td>
<td>Bachelor in Electronic commerce</td>
<td>M Com in Electronic commerce</td>
<td></td>
</tr>
<tr>
<td>Boston University</td>
<td>The Electronic Commerce concentration of the Master of Science in Administrative Studies degree</td>
<td></td>
<td></td>
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<tr>
<td>Glasgow Caledonian University</td>
<td>PgDip or MSc in Electronic commerce</td>
<td></td>
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<tr>
<td>University of California, Riverside</td>
<td>Part of Graduate School of Management</td>
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<tr>
<td>Henley Management College</td>
<td>An elective in the Distant learning MBA</td>
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<tr>
<td>Dalhousie University</td>
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<td>Masters degree in Electronic Commerce</td>
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<tr>
<td>Monash University</td>
<td>Bachelor of Business and Electronic Commerce</td>
<td>Graduate certificate in Electronic commerce</td>
<td>Centre for Electronic Commerce</td>
</tr>
<tr>
<td>Carnegie Mellon University</td>
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<td>Master of Science in Electronic commerce</td>
<td></td>
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<tr>
<td>MIT Sloan School</td>
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<td>Part of MBA</td>
<td></td>
</tr>
<tr>
<td>Bradford University</td>
<td>E-commerce BSc degree</td>
<td></td>
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<tr>
<td>Claremont Graduate School</td>
<td></td>
<td>MS in Electronic commerce</td>
<td></td>
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<tr>
<td>University of Dallas</td>
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<td>A specialisation in the MBA degree</td>
<td></td>
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<tr>
<td>Centennial College</td>
<td></td>
<td>Post diploma in e-commerce</td>
<td></td>
</tr>
<tr>
<td>University of New Brunswick</td>
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<td>Part of MBA</td>
<td></td>
</tr>
<tr>
<td>Emory University</td>
<td></td>
<td>An ‘emphasis’ on e-Business in the Business school</td>
<td></td>
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<tr>
<td>Capella University</td>
<td>A certificate in E-business</td>
<td>An MBA specialisation</td>
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</tbody>
</table>
Appendix C

ERNST AND YOUNG eCOMMERCE SURVEY RESULTS

The material presented in this Appendix represent a digested form of the results of the Ernst and Young eCommerce Survey. I have presented the material in a manner thought to be useful in quickly putting across the findings from the survey.

The study was designed to determine the current state of eCommerce in New Zealand and to act as a benchmark for future change. Ernst and Young sent questionnaires to the 500 largest companies and organisations in New Zealand in November 1998. The target population was the CEO level. They received 103 responses.

The Study Questionnaire was broken down into 4 sections:

- The current state of eCommerce in New Zealand organisations
- How electronic connectivity is being used for communication purposes as well as commercial activities
- The strategies and future goals of New Zealand organisations concerning the adoption of eCommerce
- The effect of eCommerce on the New Zealand economy, including the role of the Government.
Findings

- Less than half the respondents had invested NZ$50,000 in eCommerce initiatives, while 40% said they had no eCommerce Web presence at all.

- What respondents report as their primary eCommerce activity:
  - B2B connectivity 49%
  - B2C 18%
  - Intranets 19%
  - No activity 15%

- 40% of responding organisations do not have a web site. This is consistent with the findings of Australian Electronic Business Network that small to medium sized businesses are extremely slow to adopt new technology.

- Number of domain names is increasingly rapidly.

- Most organisations believe eCommerce will be a strategic priority in the near future. Financial and communication transactions are planned to be increasingly performed electronically.

- Many people continue to believe that the Internet is really useful only in the US.

- Reasons why NZ CEOs are considering investing in eCommerce:
  - Reduce costs 37%
  - Pressured by business partners to do so 26%
  - To become a proactive technology leader 14%
  - Feeling pressure from competition 7%
  - “My business would not exist without the Internet” 2%
Where would NZ CEOs go for eCommerce assistance?

- Consulting services: 37%
- Software vendors: 15%
- Hardware/Solutions vendor: 14%
- Computer Services/Solutions: 13%
- Internet Service Provider: 11%
- Web page designers: 10%

Many respondents said their business needed to be conducted “face-to-face”. They have not found ways to ‘digitalise’ or ‘virtualise’ their offerings in order to allow users to receive the same attention as they would face-to-face.

Apart from cost savings, NZ CEOs see the main benefit of moving to eCommerce as:

- Faster turn-around time: 23%
- Decreased costs from back office systems integration: 15%
- Decreased costs from automating job functions: 14%
- Building customer relations: 13%

Many CEOs are still nervous about the effects of eCommerce on their current strategy. They are afraid that it might cannibalise their existing channels and perceive it as competition with customers.

Is your industry developing an infrastructure to create joint ventures with competitors on the supply chain?

- Yes: 17%
- No: 83%

What is the role of the Government in promoting eCommerce in the NZ economy?

- Educate: 32%
- Provide incentive to business: 29%
- Support passively: 15%
- Champion internationally: 15%
- Ignore: 4%
- Other: 4%
Appendix D

CURRICULUM ADAPTED FROM TURBAN et al.

The following material, adapted from Turban et al. (2000), represents an expanded list of areas to be included in an e-Business course.

- **Marketing**
  - Online marketing strategy
  - Offline marketing strategy
  - Advertisement strategies
  - Interactive kiosks

- **Computer Science**
  - Web programming applications and languages
  - Multimedia
  - Basic knowledge of computer networks
  - Intelligent agents

- **Consumer behaviour and psychology**
  - Consumer behaviour
  - Behaviour of sellers
  - The relationship between cultures and consumer attitude in electronic market
➢ **Finance**
  The workings of financial markets and banks
  Financing arrangements associated with on-line transactions
  Using the Internet as an alternative transaction and delivery mechanism
  Fraud in on-line transactions

➢ **Economics**
  The economic forces that influence e-business
  The impact of e-business on the world and country economies
  Theories of microeconomics in e-business planning
  The economic impact of e-business on firms

➢ **Management Information Systems**
  Steps and procedures involved in deploying e-business solutions
  Systems analysis
  Systems integration
  Planning for systems
  Implementation
  Security
  Payment systems

➢ **Accounting and Auditing**
  Basic knowledge of accounting for transactions
  Back-office operations
  Principles of auditing
  The challenge of auditing electronic transactions
  Development of methodologies for cost-benefit justification

➢ **Management**
  Theories of management
  Managing business in a global market
  New approaches and theories in managing e-business
Business law and ethics

Legal and ethical issues involved in e-business
Privacy
Intellectual property

Others

- Linguistics (translation in international trades)
- Robotics and sensory systems
- Operations Research
- Statistics
- Public policy
- Administration
- Knowledge management
Appendix E

RESULTS OF INTERVIEWS WITH STAFF AT THE SCHOOL OF BUSINESS

The section documents the results of interviews with staff at the School of Business.

I have grouped the results into the various subject categories for easy reference back to the suggested curriculum proposed by Turban et al. (2000). The opinions I obtained from a staff generally relate to the confines of the expertise of that Department. Nevertheless, there are cases where a staff member who, being more familiar with e-Business, has made comments beyond the expertise of that Department. Where a similar topic has been mentioned by more than one staff, I have worded a collective response to capture the essence of what has been said.

Marketing

- Database management skills for relationship management
- Similarities and differences between traditional and e-marketing
- Integration of strategic and tactical e-marketing plans into the traditional way of doing business
- Measures of success in Internet Marketing – Communication, Transactions, Relationship
- Types of data to be collected at the web site for planning and control
- Versioning (Segmentation)
- Identifying and quantifying potential users
- Data mining techniques, especially Choice modelling
• Understanding consumer search behaviour
• Ways to obtain more intimate knowledge of consumers

**Computer Science and Management Information Systems**

• A basic appreciation of a mark up language (example: HTML, XML)
• Web site design skills
• Security – firewall and policies
• Hardware – their purpose and intention
• Software – MIS and Decision support systems
• System development methodology
• Risk management
• Network management
• Project management skills
• Internet
• Alignment of IT strategy with the overall e-Business strategy
• Knowledge management
• Customer Relationship Management
• Enterprise Resource Management – how IT fits into the other departments
• IT supply (develop in-house, buy-in, outsource)
• Processes

**Consumer behaviour and psychology**

• Linking human behaviour with numbers, as in preparing an initial forecast of demand for a product or service
• Psychology
• Behavioural economics
• Industrial psychology
Finance

- Capital budgeting
- Valuation
- Forecasting using simulation techniques
- Industrial economics
- Fundamental analysis

Economics

- Implications of competitive policies (Perfect competition, Monopoly, Oligopoly)
- Microeconomics
- Network externalities effect and Positive feedback
- Consequences of asymmetric information
- Productivity effects of IT
- Theory of the firm
- Cost structures
- Pricing
- Versioning

Accounting and Auditing

- The Accounting equation and its implications
- Analysis of financial statements (Cash flow statement, Profit and Loss Statement, Balance Sheet)
- Processes and internal control
- Limitations of financial statements
- Regulatory requirements for information systems
- The reporting of meaningful information
- Pitfalls in areas of accounting (example: recording and valuation of assets, mechanical recording according to current accounting practices)
• Traditional and modern ways of evaluating the performance of a firm
• Real time processing of data relating to transactions

Management

• Regular strategy which includes Operations Management strategy, International Management strategy, and Corporate Management strategy
• Strategic opportunities in e-Business for New Zealand companies
• Issues involved in the interactions between the major players – Business, Consumer, Government, Employee
• Supply chain issues
• Just-in-time

Business law and ethics

• Privacy
• Evidence
• Contract law
• Consumer law – protection, guarantees
• Intellectual property law
• Hierarchy of courts
• Country law applicable in electronic transactions

General comments

• This School of Business should concentrate more on the theory of e-Business
• More e-Business content in assignments
• Students should send in assignments via email
• Student presentations should be done using Powerpoint
• Students should be familiar with spreadsheets, wordprocessors, and presentation applications.
• Students should create a web page as one of the assignments (This was mentioned by a number of staff)
• Case studies that offer scope for uncovering opportunities afforded by investments in new technology
• Students should be encouraged to discuss in groups and write up assignments individually
• Communication skills – presenting ideas, writing reports, arguing in a civilised manner
• Mathematics and statistical skills
• A short programming course to develop logical thinking
• Students need to be exposed to more real world scenarios
• Development of critical thinking skills and a sense of skepticism
Appendix F

FINAL LIST OF TOPICS TO BE INCLUDED IN EACH FUNCTIONAL AREA

The material in this Appendix summarises the areas to be covered in each of the functional areas in the e-Business course.

**Marketing**

- Database management skills for relationship management
- Similarities and differences between traditional and e-marketing
- Integration of strategic and tactical e-marketing plans into the traditional way of doing business
- Measures of success in Internet Marketing – Communication, Transactions, Relationship
- Types of data to be collected at the web site for planning and control
- Versioning (Segmentation)
- Identifying and quantifying potential users
- Data mining techniques, especially Choice modelling
- Understanding consumer search behaviour
- Ways of getting more intimate knowledge of consumers
Computer Science and Management Information Systems

- A basic appreciation of a mark up language (example: HTML, XML)
- Web site design skills
- Payment systems
- Security – firewall and policies
- Encryption schemes and digital signature
- Hardware – their purpose and intention
- Software – MIS and Decision support systems
- System development methodology
- Risk management
- Network management
- Project management skills
- Internet
- Alignment of IT strategy with the overall e-Business strategy
- Knowledge management
- Customer Relationship Management
- Enterprise Resource Management – how IT fits into the other departments
- IT supply (develop in-house, buy-in, outsource)
- Processes – understanding and documentation
- Reasons for a slow adaptation of some applications and rapid adoption for others
- Intelligent agents
- Standards systems (for example, the widely recognised British security standard BS7799)
**Consumer behaviour and psychology**

- Consumer behaviour, cognitive processes, overcoming the limitations of remote control, and identifying impacts on people
- Building consumers’ behavioural profiles and identifying ways to utilise them.
- Seller’s behaviour and motivation, resistance to change and how to overcome it
- Internet usage pattern and willingness to buy
- Mental model of consumer product search process, comparison process, and negotiation.
- How to build trust in cyberspace
- Game theory
- Ethics
- Linking human behaviour with numbers, as in preparing an initial forecast of demand for a product or service
- Psychology
- Behavioural economics
- Industrial psychology

**Finance**

- An appreciation of Initial Public Offering
- Capital budgeting
- Valuation
- Forecasting using simulation techniques
- Industrial economics
- Fundamental analysis
Economics

- Implications of competitive policies (Perfect competition, Monopoly, Oligopoly)
- Microeconomics
- Network externalities effect and Positive feedback
- Consequences of asymmetric information
- Productivity effects of IT
- Theory of the firm
- Cost structures
- Pricing
- Versioning
- Innovation

Accounting and Auditing

- The Accounting equation and its implications
- Accounting and its role in society
- Analysis of accounting information (Cash flow statement, Profit and Loss Statement, Balance Sheet)
- Using accounting information, both financial and non-financial, to make decisions
- Risk analysis and control systems
- Limitations of financial statements
- Pitfalls in areas of accounting (example: recording and valuation of assets, mechanical recording according to current accounting practices)
- Traditional and modern ways of evaluating the performance of a firm
- Issues relating to real-time processing of transactions data
Management

- Regular strategy which includes Operations Management strategy, International Management strategy, and Corporate Management strategy
- Strategic opportunities in e-Business for New Zealand companies
- Issues involved in the interactions between the major players – Business, Consumer, Government, Employee
- Supply chain issues
- Just-in-time

Business law and ethics

- Legislation relating to computer
- Privacy
- Evidence
- Contract law
- Electronic signature laws
- Consumer law – protection, guarantees
- Intellectual property law
- Hierarchy of courts
- Country law applicable in electronic transactions

Mathematics and Statistical skills

- Data collection and processing techniques
- Interpreting results from data analysis
- Financial mathematics – simple and compound interest, discounted cash flow analysis, net present value
- Mathematics relating to capacity planning (example: Queuing theory)
- Index numbers
- Matrix algebra
**General aspects of the course**

- Case studies should be used in the course if these demonstrate the application of the theory of e-Business and expose students to real world scenarios. These case studies should also offer scope for students to uncover opportunities afforded by investments in new technology.

- The use of electronic technology should be made mandatory in the course. This includes the use of software applications like wordprocessors, spreadsheets, and Powerpoint in course learning and assignments. The email system should be used as the medium for communication and submission and return of assignments.

- To enable students to benefit from peer and individual learning, students should be encouraged to discuss in groups and write up assignments individually.

- Students should create a web page as one of the assignments (This was mentioned by a number of staff).

- In parallel with the acquisition of skills relating to the theory and application of e-Business, students should also have developed skills in logical thinking, critical thinking skills and a sense of skepticism regarding material found on the Internet by the end of the course.

- Students should be able to communicate – present ideas, write reports, argue - in a civilised manner.
RESULTS FROM A SECOND WEB SEARCH

The second web search on the educational institutions which offer courses relating to e-Business was conducted towards the end of the thesis. In order to preserve consistency, I have used the same search engine - Copernic 2000 – as I have used in the initial web search.

Included in this Appendix are the results of the second web search and an analysis of the useable material.

Copernic Search Results

Search: "e-commerce" "electronic commerce" "e-business" "electronic business" "university" (All words)
Date: 12/05/2000
Found: 101 document(s) on The Web
Sort: Score

1. Electronic Commerce & Electronic Markets: @Brint.com (tm)
   Comprehensive index of issues related to Electronic Commerce and Electronic Markets, including Small Business and Home Business resources, and key...
   Found by: AltaVista, HotBot, WebCrawler
   http://www.brint.com/Elecomm.htm [ Translate ]

2. Center for Research in Electronic Commerce, UT Austin
   Center at the University of Texas at Austin presents reports from various research projects concerning e-commerce. Find several FAQs, and news.
   Found by: HotBot, MSN Web Search
   http://cism.bus.utexas.edu/ [ Translate ]

3. Master's Degree Concentrations
   ... MBA Specialization in Information Technology and Electronic Commerce. DePaul University. - MBA Concentration in E-Business. Emory University. - MBA Emphasis in E ... Found by: Google
   http://www.aacsb.edu/e-business/msdgrconcent.html [ Translate ]
4. Introductory and General E-Commerce Articles - Electronic Commerce Research Room
Search Articles Paid Database Search Search This Site Home E-Commerce
Found by: FAST Search

5. VICNET E-Commerce Page
VICNET Business Page
Found by: WebCrawler
http://www.vicnet.net.au/business/ecommerce.htm [Translate]

... of Electronic Commerce - taught by Dr. Deborah Ballou in the College of Business Administration at the University of Notre Dame. The Information Industry: E ...
Found by: Google
http://www.dmoz.org/Business/E-Commerce/Education/Courses/ [Translate]

7. Introductory and General E-Commerce Articles - Electronic Commerce Research Room
Search Articles Paid Database Search Search This Site Home E-Commerce
Found by: FAST Search

8. CommerceNet
Industry association for Internet commerce. Learn about its activities, membership and services, and find news and press releases.
Found by: HotBot, MSN Web Search
http://www.commerce.net/ [Translate]

eurobot Electronic Commerce in the European Union Eurobit, the European Association of Manufacturers of Business Machines and Information Technology Industry, with this position would like to emphasize the importance of enabling electronic commerce to develop rapidly.
Found by: WebCrawler
http://www.fvit-eurobit.de/pages/EUROBIT/POSITION/Pos038.html [Translate]

... Carnegie Mellon University's Master of Science in Electronic Commerce program, while Stanford's Centre for Electronic Business intends to include e-commerce in ...
Found by: Google
http://www.acu.ac.uk/yearbook/142-rattner.html [Translate]

11. DePaulCTI
The largest graduate school of Computer Science, Telecommunication and Information Systems in the US. Specializing in E-Commerce Technology,...
Found by: AltaVista
http://www.cs.depaul.edu/ [Translate]
12. **Fairfax Electronic Commerce Resource Center**

Provides info about Fairfax ECRC services, including training, forthcoming events, and technical assistance. With links, catalogs, and contacts.

Found by: HotBot, MSN Web Search

http://www.ecrc.gmu.edu/ [ Translate ]

13. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

Search Articles Paid Database Search Search This Site Home E-Commerce

Found by: FAST Search


14. **NetAcademy on E-Business and SME**

Business Media Homepage...

Found by: AltaVista


15. **Center of Electronic Commerce**

University of Maribor Faculty of Organizational Sciences Center of Electronic Commerce Center of Electronic Commerce 14th Bled Electronic Commerce Conference e-Everything: e-Commerce, e-Government, e-Household, e-Democracy Bled, Slovenia, June 25-26

Found by: HotBot, MSN Web Search

http://ecom.fov.uni-mb.si/ [ Translate ]

16. **Aspect International Management Training Consulting**

... Georgia State University - Digital Commerce - e-Commerce Institute; Johns Hopkins University - MBA Concentration in Electronic Business - Master of Science in ...

Found by: Google

http://www.bestpractice.co.kr/e-BC/ [ Translate ]

17. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

Search Articles Paid Database Search Search This Site Home E-Commerce

Found by: FAST Search

http://www.ussc.alltheweb.com/go/4/H/inf2.pira.co.uk/top031.htm [ Translate ]

18. **Roger Clarke’s Electronic Commerce**

This document is at http://www.anu.edu.au/people/Roger.Clarke/EC/index.html 'Electronic commerce' (EC) is an integrative concept, designed to draw together a wide range of business support services, including inter-organisational e-mail; directories; trading support systems for commodities, products, customised products and custom-built goods and services; ordering and logistic support...

Found by: WebCrawler


19. **Roger Clarke’s Electronic Commerce**

Professor from the Australian National University, Roger Clarke, provides Net-business news, academic writings, and conference links.

Found by: HotBot

20. **E-Commerce, Electronic Commerce Graduate Programs outside USA**

... Monash University Faculty of Business and Economics Business and Electronic Commerce 5th Floor, 26 ... Click to send E-mail to: ...

Found by: Google

http://www.gradschools.com/listings/out/ECommerce_out.html [ Translate ]

21. **Computer Magazine Archive**


Found by: AltaVista

http://cma.zdnet.com/texis/cma/cma/ [ Translate ]

22. **Scranton ECRC**

Find downloadable software utilities, an IT bookstore, an EDI FAQ, notes on Scranton seminars, and a large collection of links.

Found by: MSN Web Search

http://www.ecrc.uofs.edu/ [ Translate ]

23. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

Search Articles Pay Database Search Search This Site Home E-Commerce

Found by: FAST Search


ECnow.com helps companies increase revenue & customer satisfaction by solving their Electronic Customers needs through Electronic Commerce &...

Found by: AltaVista, Google, WebCrawler

http://ecnow.com/speaking.htm [ Translate ]

25. **Electronic Commerce World : News**

November 21, 2000... Lucent May Cut Reported Results Shares prices for Lucent Technologies Inc. declined by 16% after the company said it had...

Found by: AltaVista


26. **Centre for Electronic Commerce**

Center at Australia's Monash University provides consulting, training and research services for industry and government. Details courses.

Found by: HotBot, MSN Web Search


27. **E-Commerce, Electronic Commerce Graduate Programs in USA**

... University of San Diego School of Business Electronic Commerce 5998Alcala Park San Diego, CA 92110 USA Click to send E-mail to: ...

Found by: Google

http://www.gradschools.com/listings/all/ECommerce.html [ Translate ]

Opening Digital Markets: Battle Plans and Business Strategies for Internet Commerce by Walid Mougayar
Our Price: $22.46 You Save: $2.49 (10%) Availability: Usually ships within 24 hours.

Found by: WebCrawler
http://amazon.com/exec/obidos/ASIN/B0070435421/wilsoninternetseA/ [Translate]

29. Introductory and General E-Commerce Articles - Electronic Commerce Research Room

Search Articles Paid Database Search Search This Site Home E-Commerce

Found by: FAST Search
http://www.ussc.alltheweb.com/go/6/H/www.ulh.ac.uk/ecommerce.html [Translate]

30. Stanford GSB: Center for the Study of Electronic Commerce (CSEC)


Found by: WebCrawler

31. The Wharton Forum on Electronic Commerce

The Wharton Forum on Electronic Commerce is pursuing a research agenda to examine critical issues related to electronic commerce. The forum is generating solid and unbiased insights into the true dimensions and potential of this market.

Found by: HotBot, MSN Web Search
http://ecom.wharton.upenn.edu/ [Translate]

32. Introductory and General E-Commerce Articles - Electronic Commerce Research Room

Search Articles Paid Database Search Search This Site Home E-Commerce

Found by: FAST Search

33. Mission

... Graduate School of Business, University of Texas. E-Commerce Books. Other Pioneering Books in E-Commerce. Electronic Commerce: A Manager’s Guide - Addison-Wesley

Found by: Google
http://www.misp.org/re-biz/E-business Seminar.htm [Translate]

34. United States Government Electronic Commerce Policy

United States Government Electronic Commerce Policy. Contains links to government agencies, important documents, international sites, and related organizations

Found by: WebCrawler
http://www.ecommerce.gov/ [Translate]

35. Advertising, Marketing and Electronic Commerce

Advertising, Marketing and Electronic Commerce This page has been vamped to form 2 web pages: Internet & Marketing (http://www.ntu.edu.sg/library/mktg/int-mktg.htm), and E-Commerce (http://www.ntu.edu.sg/library/mktg/ecommm.htm) Please amend you

Found by: HotBot, MSN Web Search
http://www.ntu.edu.sg/library/advrtise.htm [Translate]
36. **E-Commerce**

    ... servers, and e-commerce; and ... algorithms/protocols. Electronic Commerce Research Unit ...

    Faculty of Business, Victoria University and supports ...

    Found by: Google

37. **E-Commerce Learning Center @ North Carolina State University | Dr. Michael Rap**

    E-Commerce Learning Center @ NC State University | Dr. Michael Rappa. An educational resource for the Web community. Includes the e-commerce course,...

    Found by: AltaVista
    [http://ecommerce.ncsu.edu/](http://ecommerce.ncsu.edu/) [Translate]

38. **Call for Papers**

    Call for Papers. Page Editor: Mike Vanecek, University of North Texas, USA. [Conferences] [Journals] [Expired] [Feedback] [Meetings] This page...

    Found by: AltaVista
    [http://www.unt.edu/UNT_ISWorld/cfp.htm](http://www.unt.edu/UNT_ISWorld/cfp.htm) [Translate]

39. **BMGT 798E Electronic Commerce**

    Robert H. Smith School of Business University of Maryland, College Park THE ELECTRONIC COMMERCE MBA CONCENTRATION Fall 1999 The Internet and the Web are transforming thousands of businesses around the world, allowing new kinds of interactions among companies, their suppliers, and customers, as well as internally within the firms.

    Found by: WebCrawler

40. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

    Search Articles Paid Database Search Search This Site Home E-Commerce

    Found by: FAST Search

41. **TIE-Commerce Online Registration form**

    ... Professor of Electronic Commerce and Technology Kellogg Graduate School of Management, Northwestern University -- This is the best book on e-Business for the ...

    Found by: Google

42. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

    Search Articles Paid Database Search Search This Site Home E-Commerce

    Found by: FAST Search

43. **On the road of electronic commerce**

    On the Road of Electronic Commerce -- a Business Value Framework, Gaining Competitive Advantage and Some Research Issues * The Fisher Center for Information Technology & Management, University of California, Berkeley 94720, USA ** Ecole des HEC, University of Lausanne, 1015 Lausanne, Switzerland

    Found by: WebCrawler
    [http://www.stern.nyu.edu/~mbloch/docs/roadtoec/ec.htm](http://www.stern.nyu.edu/~mbloch/docs/roadtoec/ec.htm) [Translate]
44. **Commerce**

Commerce General Sites Digital Cash, Network Payment, & Online Banking Pricing Information

Found by: HotBot, MSN Web Search
http://info.berkeley.edu/resources/infoecon/Commerce.html [Translate]

45. **Dr. Ravi Kalakota**

... Dr. Ravi Kalakota is ... of "Readings in Electronic Commerce" (Addison ... generation e-business. His current ... D. in e-commerce from the University of Texas ...

Found by: Google
http://www.re-biz.net/ravi.html [Translate]

46. **e.Times - Exploring Corporate Interactive Communications**

e.Times is an online publication that explores corporate interactive communications, including web development, CD-ROMs, kiosk design, electronic...

Found by: AltaVista
http://www.etimes.com/ [Translate]

47. **Introductory and General E-Commerce Articles - Electronic Commerce Research Room**

Search Articles Paid Database Search Search This Site Home E-Commerce

Found by: FAST Search

48. **Yahoo! Business and Economy > Electronic Commerce**

Help - Check Email Home > Business and Economy > Electronic Commerce Add to My Yahoo! all of Yahoo! just this category Inside Yahoo! Live Net Events Categories Bar Codes (7) Business to Business@ Consumer Information (28) Conventions and Conferences

Found by: MSN Web Search

49. **Paula Swatman - Publications**

... PMC (1999) "Government E-Commerce: A Comparative View", Electronic Commerce ResearchUnit Seminar Series, Faculty of Business and Law, Victoria University of ...

Found by: Google

50. **RMIT University Library - Electronic Business Guide**

RMIT UNIVERSITY

Found by: FAST Search

51. **UNBSJ Ward Chipman Library Electronic Service Delivery**

Current Awareness, Indexes and Abstracts Government News (Gov.*) Usenet Hierarchy, Web to Usenet Gateway, International GovNews Project Organizations, Institutes, and Agencies

Found by: WebCrawler
http://www.unbsj.ca/library/subject/edeliv.htm [Translate]
52. **XML Metadata Interchange (XMI)**
   This document is part of The XML Cover Pages database containing some 2500 documents pertaining to SGML (Standard Generalized Markup Language,...
   Found by: AltaVista
   [http://www.oasis-open.org/cover/xmi.html](http://www.oasis-open.org/cover/xmi.html) [Translate]

53. **Yahoo! Business and Economy > Electronic Commerce**
   Help - Check Email Home > Business and Economy > Electronic Commerce Add to My Yahoo! all of Yahoo! just this category Inside Yahoo! Live Net Events Categories Bar Codes (7) Business to Business@ Consumer Information (28) Conventions and Conferences
   Found by: MSN Web Search

54. **E-Commerce Programs**
   ... University : Global E-commerce Masters (GEM) Program Johns Hopkins University : MBA Concentration in Electronic Business Johns Hopkins University : Master of...
   Found by: Google
   [http://merc.mcmaster.ca/programs.html](http://merc.mcmaster.ca/programs.html) [Translate]

55. **ECommerce Innovation Centre**
   Based at the University of Cardiff, Wales. Details the center's projects, courses, and consulting services.
   Found by: HotBot
   [http://www.cf.ac.uk/uwcc/masts/edic](http://www.cf.ac.uk/uwcc/masts/edic) [Translate]

56. **Roger Clarke's BCA E-Transactions**
   Version of 8 March 1999 This paper was prepared for publication in the Business Council of Australia's BCA Papers This document is at http://www.anu.edu.au/people/Roger.Clarke/EC/BCA99.html
   Found by: WebCrawler

57. **Virtual Communities**
   Virtual Communities
   Found by: AltaVista
   [http://www.insead.fr/CALT/Encyclopedia/ComputerSciences/Groupware/VirtualCommunities/](http://www.insead.fr/CALT/Encyclopedia/ComputerSciences/Groupware/VirtualCommunities/) [Translate]

58. **eLab**
   Vanderbilt research program on marketing in computer-mediated environments. Good collection of web resources in Links 2000 section.
   Found by: HotBot, MSN Web Search

59. **Electronic Commerce: A Special Issue of JCMC, Vol. 1, No. 3**
   Special Issue on Electronic Commerce Edited by Charles Steinfield Department of Telecommunication Michigan State University steinfield@tc.msu.edu Contents of the Issue ABSTRACTS General Introduction Charles Steinfield, Guest Editor Department of Te
   Found by: HotBot
   [http://www.usc.edu/dept/annenberg/vol1/issue3/vol1no3.html](http://www.usc.edu/dept/annenberg/vol1/issue3/vol1no3.html) [Translate]
<table>
<thead>
<tr>
<th>60. <strong>RMIT University Library - Electronic Business Guide</strong></th>
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<tr>
<td><strong>RMIT UNIVERSITY</strong></td>
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<td><a href="http://www.ussc.alltheweb.com/go/12/H/esurvey-nv.dce.virginia.edu/overview.htm">http://www.ussc.alltheweb.com/go/12/H/esurvey-nv.dce.virginia.edu/overview.htm</a></td>
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<tr>
<th>61. <strong>Electronic Commerce</strong></th>
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<tr>
<td>You are interested in: <strong>Electronic Commerce</strong>, Payment Systems, and Security</td>
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<tr>
<td>Remark: Other security related references are on the</td>
<td></td>
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<tr>
<td>&quot;Security and Cryptography&quot; and &quot;Organizations&quot; pages.</td>
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<td>Contents Projects and Systems Already offered services via</td>
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<td>Found by: HotBot, MSN Web Search</td>
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<td><a href="http://www.semper.org/sirene/outsideworld/ecommerce.html">http://www.semper.org/sirene/outsideworld/ecommerce.html</a></td>
<td>[Translate]</td>
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<tr>
<th>62. <strong>E-Commerce Times: Linux News</strong></th>
<th>35%</th>
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<tr>
<td>Everything You Need To Know About Doing Business Online.</td>
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<td>This FREE publication includes breaking news, special</td>
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<td>reports, product reviews, stock info,...</td>
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<tr>
<th>63. <strong>internet.com's Electronic Commerce Guide</strong></th>
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<tr>
<td>... What's New. ... Prosperity Yale University Professor</td>
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<td>David ... with electronic commerce and electronic</td>
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<td>business? A groundbreaking ... Group study, E-Reality ...</td>
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<th>64. <strong>Electronic Commerce: Publications of Daniel Hunziker</strong></th>
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<tr>
<td>Daniel Hunziker, Research Assistant, PhD-Student at the</td>
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<tr>
<td>Institute of Information Systems, University of Bern.</td>
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<tr>
<td>Field of Research: <strong>Electronic Commerce</strong>.</td>
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<tr>
<td><a href="http://www.iwi.unibe.ch/~hunziker/publications.html">http://www.iwi.unibe.ch/~hunziker/publications.html</a></td>
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<th>66. <strong>Shortcuts</strong></th>
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<tr>
<td>Shortcuts to over 800 EC Related links on the World Wide</td>
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<tr>
<td>Web Concept Search Keyword Search A B C D E F G H I J K L</td>
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<tr>
<td>M N O P Q R S T U V W X Y Z <em>Electronic Commerce</em> Navigator</td>
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<td>Found by: WebCrawler</td>
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<th>67. <strong>Electronic Commerce Research Gateway</strong></th>
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<td>E-com - <strong>Electronic Commerce</strong> Gateway</td>
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<td><a href="http://ecom.infm.ulst.ac.uk/">http://ecom.infm.ulst.ac.uk/</a></td>
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<td>Found by: FAST Search</td>
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</table>
69. Roger Clarke's EC Definitions

Revised Definitions of 3 February 1999 This document is at http://www.anu.edu.au/people/Roger.Clarke/EC/ECDefns.html This document provides definitions of key ideas that I use when discussing electronic commerce.

Found by: WebCrawler

70. WebQUAL: An E-Commerce Audit

AusWeb99, The Fifth Australian World Wide Web Conference, held in Ballina, NSW, Australia from 17-20 April, 1999. The AusWeb series of conferences...

Found by: AltaVista

71. Center of Electronic Commerce


Found by: MSN Web Search
http://ecom.fov.uni-mb.si/ECOMHome.nsf [Translate]

72. Global Electronic Commerce

... Dr. Carol Cosgrove Sacks ... Commission on Electronic Commerce. US ... and Small Business, UK Government ... Chamber of Commerce Louis A ... Director, e-Poly, University of ...

Found by: Google
http://www.wmrc.com/busbriefing/BusBriefing/mediapacks/elcommp.html [Translate]

73. RMIT University Library - Electronic Business Guide

RMIT UNIVERSITY

Found by: FAST Search

74. Center for Research in Electronic Commerce

UT Austin

Center for Research in Electronic Commerce is the leader in generating knowledge and business models for the 21st century and the digital economy...

Found by: AltaVista
http://cism.bus.utexas.edu/main4.html [Translate]

75. Eclip, law and electronic commerce

ECLIP offers help and information on changes and news concerning electronic commerce and law

Found by: HotBot, MSN Web Search
http://www.jura.uni-muenster.de/eclip [Translate]

76. Internet University Of America: Internet Training and Web De...


Found by: WebCrawler
http://www.phdnet.com/ [Translate]

77. RMIT University Library - Electronic Business Guide

RMIT UNIVERSITY

Found by: FAST Search
78. **eCommerce / eBusiness Books**

... John C. Maxwell's Electronic Leadership Library ... Richard, The Business of E-Commerce: From Corporate ... Technology, Cambridge University Press, 2000 ...

Found by: Google

http://home1.gte.net/pfingar/bookecommerce.htm [ Translate ]

---

79. **Marcos Peralta E-Commerce Research Notes:**

**Main**

Alertbox column on Webusability, usability engineering and Jakob's minimalist approach to Web quality, recommended links/books, Jakob's biography and...

Found by: AltaVista

http://mba99.vanderbilt.edu/marcos.perlata/resume.html [ Translate ]

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80. **Electronic Commerce**

ECom Introduction Professional Accreditation Facilities Course Structure More Information Ipswich News Releases UQ Ipswich Home ECommerce Resources Seminar Series Commerce Links Subject Details Criterio

Found by: HotBot, MSN Web Search

http://www.commerce.uq.edu.auecom [ Translate ]

---

81. **Electronic Commerce**

... General Sites Arthur ... Green State University. Electronic Commerce ... Aimed at business and informatics in e-commerce. Electronic Commerce ...

Found by: Google


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82. **XML Global Alignment**

[This local archive copy mirrored from the canonical site: http://www.gca.org/release/globalxml.htm; links may not have complete integrity, so use the canonical document at this URL if possible.]

Found by: WebCrawler

http://www.oasis-open.org/cover/globalxml.html [ Translate ]

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83. **RMIT University Library - Electronic Business Guide**

RMIT UNIVERSITY

Found by: FAST Search


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84. **Association for Postal Commerce (PostCom): The Postal News Source**

Association for Postal Commerce. formerly Advertising Mail Marketing Association 1901 N. Fort Myer Dr., Ste 401 * Arlington, VA 22209-1609 * Ph....

Found by: AltaVista

http://amma.org/index.html [ Translate ]

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85. **Telecoms Virtual Library: Journals and Other Electronic Media**

Journals and Other Electronic Media America's Network Online (news and analysis of telecommunications technologies for today's public network) ATM News Digest (daily journal for broadband networking)

Found by: WebCrawler

http://www.analysys.com/vlib/journal.htm [ Translate ]

Books All Products Explore this book buying info table of contents editorial reviews customer reviews See more by the authors all books by Ravi Kalakota all books by Andrew B. Whinston read an interview with Ravi Kalakota Custome

Found by: HotBot, MSN Web Search
http://www.amazon.com/exec/obidos/ASIN/0201880679 [ Translate ]

87. RMIT University Library - Electronic Business Guide

RMIT UNIVERSITY

Found by: FAST Search
http://www.ussc.alltheweb.com/go/18/H/eric.akindofmagic.com/ecom.html [ Translate ]

88. TC 462c: E-Commerce Online Resources

... & Society Wharton Forum on Electronic Commerce University of Michigan School of Information University of Michigan Business School e-Lab The Arts and Science ... Found by: Google
http://www.msu.edu/~steinfie/tc462c/webrsources.html [ Translate ]

89. E-Commerce Times: Breaking News

... to bolster the position of e-commerce. First, Stanford University has announced the addition of the Center for Electronic Business and Commerce, a think tank ... Found by: Google

90. International Conference on Electronic Commerce

International Conference on Electronic Commerce Conference Theme: Frontiers of Electronic Commerce Conference Information University of Texas at Austin, Austin -- October 30-31 1995 The first International Conference on Electronic Commerce was very

Found by: MSN Web Search
http://cism.bus.utexas.edu/ravi/ecomm.html [ Translate ]

91. RMIT University Library - Electronic Business Guide

RMIT UNIVERSITY

Found by: FAST Search
http://www.ussc.alltheweb.com/go/19/H/www.ulh.ac.uk/courses/ecommerce.html [ Translate ]


Includes conference schedule and details of tutorials from this event held in Hamburg, Germany, from June 3-5, 1998.

Found by: HotBot, MSN Web Search
http://vays-www.informatik.uni-hamburg.de/ec98 [ Translate ]

93. Public Policy Report

Search the website: Information Technology Association of America 1616 N. Ft. Myer Drive Suite 1300 Arlington, VA 22209 (703) 522-5055 (703) 525-2279...

Found by: AltaVista
http://www.itaa.org/govt/pubs/ppr.htm [ Translate ]
94. Victor as a Liberal Guest Speaker
Victor Perton, Legislative Assembly Member for Doncaster (Melbourne, Australia) has a wide range of interests and speaks to many political, business and community groups.
Found by: WebCrawler
http://home.vicnet.net.au/~victorp/speaker.htm [ Translate ]

95. Tech Trends: Colleges Log On to E-Commerce
... Tech Trends. Colleges ... into electronic business there, enrolled in the new electroniccommerce program offered at Polytechnic University in ... in e-commerce ...
Found by: Google

96. Berkeley Forum on Procurement and Market Place Transformation
Found by: AltaVista
http://haas.berkeley.edu/~citm/forum/speakerbios.html [ Translate ]

97. Telecom Information Resources
Found by: WebCrawler
http://china.si.umich.edu/telecom/online-pubs.html [ Translate ]

98. RMIT University Library - Electronic Business Guide
RMIT UNIVERSITY
Found by: FAST Search
http://www.ussc.alltheweb.com/go/20/H/www.ieb.net/1_1.html [ Translate ]

99. eIT-Forum -- Topics -- IT Readiness for e-Business
IT Readiness for e-Business. IT2B Alignment. IT Scorecards & Dashboards. IT Portfolio Management. IT Leadership. IT Vendor Management. CyberTheatre. ...
Found by: AltaVista
http://www.eitforum.com/Topics/IT_Readiness.htm [ Translate ]

100. National Electronic Electronic Commerce Coordinating Council Home Page
National Electronic Commerce Coordinating Council - Alliance Information - Welcome From Chair NECCC Mission NECCC Overview The Board Members Available Speakers - An Alliance of - NASACT - National Association of State Auditors, Comptrol
Found by: HotBot
http://www.ec3.org/ [ Translate ]

101. TOWARDS AN AUSTRALIAN STRATEGY FOR THE INFORMATION ECONOMY
A preliminary statement of the government's policy approach and a basis for business and community consultation Those wishing to comment on the issues raised in this document should write to:
Found by: WebCrawler
## Analysis of e-Business courses (Second web search)

<table>
<thead>
<tr>
<th>School</th>
<th>Undergraduate</th>
<th>Postgraduate</th>
<th>e-Business Centre</th>
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<tbody>
<tr>
<td>University of Texas at Austin</td>
<td></td>
<td></td>
<td>Center for Research in Electronic Commerce Sponsors: National Science Foundation, IC² Institute, KAIST (Korea), IBM, Intel, Dell, Hewlett Packard, Sun Microsystems, Pitney Bowles, JD Edwards, Cisco Systems, Mannesmann</td>
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<tr>
<td>Rutgers, The State University of New Jersey</td>
<td>Graduate Certificate Program in Electronic Commerce</td>
<td>Graduate Certificate Program in Electronic Commerce</td>
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<tr>
<td>DePaul School of CTI</td>
<td>Bachelor of Science in E Commerce Technology 2001*</td>
<td>MS in E-Commerce Technology 2001</td>
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<td>BS in Human-Computer Interaction 2001</td>
<td>MS in Human-Computer Interaction 2001</td>
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<td>BS in Information Systems 2001</td>
<td>MS in Information Systems 2001</td>
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<td>BS in Network Technology 2001*</td>
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<td>University of Maribor, Slovenia</td>
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<td>Center of Electronic Commerce</td>
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<td>San Jose State University</td>
<td>Electronic Commerce Management Certificate program (targeted at people with “Two-three years of business experience and Knowledge of basic business processes”).</td>
<td>Electronic Commerce Management Certificate program (targeted at people with “Two-three years of business experience and Knowledge of basic business processes”).</td>
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<td>School</td>
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<td>e-Business Centre</td>
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<td>Master of Electronic Commerce</td>
<td>Centre for Electronic Commerce</td>
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<td>Graduate certificate in Electronic Commerce</td>
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<td>e-Business is one of six compulsory subjects in the MBA</td>
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<td>University of Lincolnshire &amp;</td>
<td>BSc in Electronic Commerce and a Commerce subject Eg BSc in Electronic Commerce</td>
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<td>Humberside</td>
<td>and Accountancy (due to commence 2000/01)</td>
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<td>Stanford Graduate School of</td>
<td></td>
<td>Electronic Commerce MBA elective course</td>
<td>Center for Electronic Business and Commerce</td>
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<td>North Carolina State University</td>
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<td>e-Commerce concentration in Master of Science in Management and Master of</td>
<td><a href="#">E-Commerce Learning Center @ NC State</a></td>
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<td>Science in Computer Networking</td>
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<td>Robert H. Smith School of</td>
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<td>Electronic commerce concentration in MBA</td>
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<td>Maryland, College Park</td>
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<td>University of New Brunswick</td>
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<td>MBA track in Electronic commerce</td>
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<td>St John, Canada</td>
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<td>University of Cardiff, Wales</td>
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<td><a href="#">eCommerce Innovation Centre</a></td>
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<tr>
<td>Owen Graduate School of Management, Vanderbilt University</td>
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<td>Electronic commerce concentration in MBA</td>
<td>eLab (Purpose: study the marketing implications of commercializing the World Wide Web.)</td>
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<tr>
<td>University of Virginia</td>
<td>E-commerce Certificate Programme for “Professionals looking to enter and keep pace with the rapid rise of e-commerce”</td>
<td>E-commerce Certificate Programme for “Professionals looking to enter and keep pace with the rapid rise of e-commerce”</td>
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<td>Edith Cowan University, Australia</td>
<td>Electronic commerce major in Bachelor of Business</td>
<td>Executive certificate in Electronic Commerce</td>
<td>We-Bcenter.com “to conduct research, educate and train, and conduct various consulting activities in e-business related fields”.</td>
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<td>University of Ulster, Northern Ireland</td>
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<td>Internet Technology Research Centre “a focal point for ongoing research in electronic commerce and Internet research.”</td>
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<td>University of Malta</td>
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<td>MBA with specialisation in e-business</td>
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<td>University of Queensland</td>
<td>Bachelor of Electronic Commerce</td>
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