A STRATEGY FOR THE IMPLEMENTATION OF E-BUSINESS AND E-COMMERCE TO ACHIEVE A COMPETITIVE ADVANTAGE IN THE TEXTILE INDUSTRY

BY

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The dissertation presented in partial fulfillment of the requirements for the Master's Degree in Business Administration in the Faculty of Management at the Port Elizabeth Technikon

PROMOTER: Dr T Hutton

DATE: JANUARY 2003
DECLARATION

“I, Shane Henry Futcher, hereby declare that:

- the work in this dissertation is my own original work;
- all sources used or referred to have been documented and acknowledged; and
- this dissertation has not been previously submitted in full or partial fulfillment of the requirements for an equivalent or higher qualification at any other recognised educational institution.”

__________________________  ______________________
Shane Henry Futcher             Date
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ABSTRACT

The research problem addressed in this study was to determine what is required for e-business and e-commerce to have an impact on the Textile Industry in the Nelson Mandela Metropolitan. To achieve this objective, a literature study was done to identify what strategies were needed and how e-business and e-commerce would enhance the relationships between the organisations, suppliers and customers.

An empirical study was conducted to ascertain what the managers within the Textile Industry know about e-commerce and e-business and the role they have or could play within their industry.
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CHAPTER 1

INTRODUCTION, PROBLEM STATEMENT AND DEFINITION OF CONCEPTS

1.1. INTRODUCTION

There have been many articles and books written about e-business and e-commerce. Literature that has been reviewed reveals why e-business and e-commerce is important, where it is going, what impact it has on organisations and what strategies organisations should implement to benefit from it.

Turban, Lee, King and Chung (2000: xxvii) state that as the second millennium was entered, one of the most important changes experienced was the move to an Internet-based society. The authors predicted that almost everything would be changed at home, school, work, in government and even in leisure activities. Some of these changes already exist in South Africa as well as globally, whereas others are just beginning. One of the most significant changes is in the manner in which business is conducted and especially the manner in which the marketplace and commerce is managed.

Kalakota and Robinson (1999: xix - xx) state that e-commerce is changing the shape of competition, the dynamics of customer relationship, the speed of fulfillment and the nature of leadership.

Managers and companies everywhere are now at a crossroad and they will need to consider which road will lead to success. They also need to consider what challenges will be faced, which business models, management strategies and tactics will ensure success, what will the characteristics of the next generation of business applications be, which vendors will lead in delivering them and, finally, to whom managers can turn for help?
“The real movers and shakers are pointers and clickers,” an advertisement for the *Wall Street Journal* Interactive Edition proclaimed. The edition went on to state, “We’re on our way from an Internet dominated by business-to-business specialists to a power shift. Consumers, get ready to rule”.

Shopping has assumed a brand-new look as online retail has escalated and Internet sales skyrocketed. Convenience, ease of purchase, simplified comparison shopping, and enhanced security contribute to the wave of shopping binges at today’s new online shopping malls. The Internet also presents an entirely distinct mode of establishing customer rapport. At the major department store Web sites, holiday shopping seasons alone have demonstrated online sales increases of 200 to 500 percent. The world of e-commerce has become the fastest growing facet of the Internet.

According to Norris, West and Gaughan (2000: xi), electronic business over the Internet “will explode” in the next few years, becoming a $300-500 billion dollar market over the next few years. This, however, is not the pious hope of a few zealous engineers; it is the judgment of just about every industry leader and market analysis.

Depending on the type of company, sales can be made directly to customers or to other businesses, or access can be given to a company’s special information services. Regardless of the type of company, the key ingredients of success in e-business include:

- **Security** – guaranteed safe transactions and record-keeping
- **Flexibility** – e-business solutions extended to accommodate new products and technologies
- **Integration** – site’s tools, databases and various software and scripts to ensure contact with customers, partners, and suppliers.
Stones (2001) wrote an article for Business Day in January 2001, titled: Become e-enabled or wave goodbye to the future. In the article Stones emphasises the fact that e-business and e-commerce is important for organisations.

Here is a copy of the article: Become e-enabled or wave goodbye to future

A survey by Price Waterhouse Coopers (PWC) management consulting services shows that most South African (SA) companies merely pay lip-service to online ideas, but they do not believe that they are a matter of life or death. Therefore, many SA companies are in danger of losing market share or going out of business because they still cannot grasp the importance of e-business strategies.

The survey, which focused on SA, found that 70% of executives think e-business simply means trading online. That myopic view means they fail to see the broader benefits of using the Internet to communicate with suppliers and customers to speed up order processing, cut the cost of procurement and streamline internal communications.

The survey also found that email, despite being fast and cheap, is rarely the standard means of communication: 94% of companies still use faxes or telephones as their main link with their suppliers. Such statistics may seem unsurprising as SA drifts towards an e-business future. However, PWC director Spiro Georgopoulos says this leisurely pace is putting businesses in jeopardy. According to Georgopoulos, "Research into the SA situation is flabbergasting. Few companies understand the effect they can have by running their supply chains electronically."

The researchers questioned 270 SA executives from traditional companies. "SA businesses have a very unsophisticated view of the strategic advantages e-business can provide. Few understand the implications of business-to-business trading and the advantages of economies of scale and connectivity to speed up their production and distribution systems and to understand their customers better."
A wider-ranging survey by BMI-TechKnowledge supports those findings. Last year 76% of SA firms had no access to the internet, let alone conducted business electronically.

Few executives were willing to admit they did not have an e-business strategy but most were bluffing, the PWC survey found. When PWC probed the nature of their plans for the digital era, the talk turned to nebulous concepts rather than solid plans.

Many said they intended to trade online, but could not say when, how, through what channels or with whom. Their lack of urgency is hardly surprising, since more than half said they had yet to see their business rattled by the supposedly unavoidable e-business earthquake. That gives e-business evangelists a tough task in persuading them to take the issue seriously. PWC is adamant that change is imperative.

Georgopoulos says that the competitiveness of SA organisations is diminishing. "Our big organisations are competing with global players and should be putting plans into place so we do not get left behind, but the rift is getting bigger." Rod Ward, commercial director of trading hub Miraculum, says a major shift in attitude is needed among suppliers and buyers if the benefits of e-business are to be realised. Companies are overlooking the benefits of reaching new and larger markets, automating routine tasks and gaining insight into their customers' businesses for better demand forecasting.

To achieve that, all parties in the supply chain must be willing to collaborate. "It demands levels of trust and transparency between business associates never achieved before, or even contemplated," he says.

PWC strategy consultant Zunaid Juma says SA lags behind the US, UK, Japan, Asia Pacific, India and Brazil in adopting e-business. "SA corporations are losing significant opportunities to compete in international markets." Internet technologies could help them gain market share, cut costs, boost efficiency and carve significant
improvements into their bottom line, but they were simply not doing it. "It's not about e-business it's about business in the future. If you are not e-enabled, you are not going to be a player in the future" (Stones, 2001: 1).

Although e-business and e-commerce have the potential to empower organisations, SA organisations appear not to be taking advantage of e-business’s benefits. This situation and Stones article in the Business Day 2001, prompted the author to research the textile Industry in the Nelson Mandela Metropolitan area and assess their understanding of e-business and e-commerce and what would be required for them to obtain a competitive advantage over their competitors.

1.2. MAIN PROBLEM

Therefore the main problem is formulated as follows:

What is required for e-business and e-commerce to have an impact on the textile industry in the Nelson Mandela Metropolitan?

1.3. SUB-PROBLEMS

In order to solve the main problem the following sub-problems have been identified.

What strategies can textile managers adopt to develop a competitive advantage through e-business and e-commerce?

How can e-business and e-commerce enhance the relations between the organisations and its customers?

How can e-business and e-commerce enhance the relations between the organisations and its suppliers?

What experts within the textile industry expect the role of e-business and e-commerce to be in the industry?
1.4. DEFINITION OF KEY TERMS

1.4.1. E-COMMERCE

The global information infrastructure serves as the foundation for new modes of personal interaction and business transactions in a collection of activities known as e-commerce. E-commerce is sharing business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks. E-commerce is defined as a variety of market transactions that are enabled by information technology and represents the entire collection of actions that support commercial activities on a network (Zwass, 1999; Applegate, McFarlan & McKenney, 1996).

From a business process perspective, e-commerce is the application of technology towards the automation of business transactions and workgroups. From an on-line perspective, e-commerce provides the capability of buying and selling products and information on the Internet and other on-line services (Kalakota & Whinston, 1997).

E-commerce involves any electronic business action such as an inquiry about a product feature, a purchase order, or an invoice delivery. Although technologies such as fax and telex are extensively used in the business world, they are not considered electronic commerce since they include the use of paper as an output, which hinders the interaction of electronic media and thus prevents data exchange on an electronic base. E-commerce is a way to open new markets, improve communications, speed delivery times, simplify business processes, streamline supply chain, and maximise customer relationship marketing (Rahman & Raisinghani, 2000: 3).

Thus e-commerce may be seen as the front office of a business in the electronic world, which entails electronic transaction and information sharing between the organisation and its customers and suppliers.
1.4.2. E-BUSINESS

There are various definitions of an electronic business or e-business. E-business is the conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners (Chen, 2001: 2).

E-business can be classified into four main types according to the type of buyer and seller in the transaction (Chen, 2001: 2):

- Business-to-Business (B2B);
- Business-to-Consumer (B2C);
- Consumer to Consumer (C2C); and
- Consumer to Business (C2B).

E-business is composed of the elements of e-commerce, but also includes operations that are handled within the business itself. For example, production, development, corporate infrastructure and product management (Deitel, Deitel & Steinbuhler, 2001: 8).

Kalakota and Robinson (1999: 4) define e-business as follows: e-business, in addition to encompassing e-commerce, includes both front- and back-office applications that form the engine of modern business. E-business is not just about e-commerce transactions; it is about redefining old business models, with the aid of technology, to maximise customer value. E-business is the overall strategy, and e-commerce is extremely important facet of e-business.

Glover, Liddle and Prawitt (2001: 1 - 2) define e-business as follows: e-business is the use of information technology and electronic communication networks to exchange business information and conduct transactions in electronic, paperless forms.
For the purpose of this study, e-business is defined as the back office of a business which includes the technical aspects (hardware, software and networks) and business model (how business interworks).

1.4.3. BUSINESS-TO-CONSUMER (B2C)

Huff, Schneberger and Wade (2002:189) define B2C as follows: B2C e-commerce is about individual consumers searching for, researching, acquiring, and maintaining goods and services via the Internet. Normally included within the B2C “space” are topics such as Internet-base advertising, consumer-oriented electronic payment mechanisms, electronic promotion, and customer care systems based on the Internet, as well as conventional goods and services acquisitions.

For the purpose of this study, business to consumer is defined as the communication between the organisation and its customers regarding electronic transactions and information sharing.

1.4.4. BUSINESS-TO-BUSINESS (B2B)

O’Brien (2002: 183) defines B2B as follows: business-to-business electronic commerce is the wholesale and supply side of the commercial process, where businesses buy, sell, or trade with other businesses.

For the purpose of this study, business to business is defined as the communication between the organisation and its suppliers regarding electronic transactions and information sharing.

1.4.5. COMPETITIVE ADVANTAGE

Competitive advantage is a company’s ability to perform in one or more ways that competitors cannot or will not match. Hopefully, the competitive advantage is seen as a customer advantage. If the customer does not care about the company’s advantage, then it is not a customer advantage. Companies, therefore, strive to
build sustainable and meaningful customer advantage. Those that succeed, will deliver high customer value and satisfaction, which will lead to high repeat purchases and, therefore, high company profitability (Kotler, 2000: 56).

1.5. DELIMITATION OF THE RESEARCH

In order to ensure that the research project is manageable, it is necessary to demarcate the research. Although this research was limited to the textile industry, it does not imply that research on the same topic is not needed in other regions and business sectors.

1.5.1. DEMARCATION OF RESEARCH

The scope of this research is limited to the textile industry in the Nelson Mandela Metropolitan area.

1.5.2. GEOGRAPHIC DEMARCATION

The companies researched operate in the Nelson Mandela Metropolitan industrial area. This includes the areas of the Port Elizabeth and Uitenhage.

1.6. RESEARCH METHODOLOGY

In conducting the research project, the following procedure will be adopted to solve the main problem and the sub-problems.

1.6.1. LITERATURE STUDY

A literature study will be conducted in order to identify the key elements that make e-business and e-commerce successful and to help understand these key elements.
1.6.2. EMPIRICAL STUDY

The empirical study will consist of two parts:

- A survey will be conducted in the delimited area to obtain information on organisations and their use of e-business and e-commerce; and
- Information from the survey will be used to test the degree of understanding of e-business and e-commerce and if organisations have implemented any facets of e-business and e-commerce.

1.7. PROPOSED OUTLINE OF STUDY

The research has been planned to include the following chapters:

Chapter 1  Introduction, problem statement, demarcation of studies, definition of key terms, significance of the study and broad methodology. This chapter also includes an outline of the programme of study.

Chapter 2  This chapter will examine what the experts have written about e-business to provide an understanding of e-business, some concepts and challenges.

Chapter 3  This chapter will examine what the experts have written about e-commerce to provide an understanding of e-commerce, but only focusing on B2B and B2C.

Chapter 4  This chapter will describe the design of the empirical survey. A discussion of the results will follow, together with tables of the relevant data.

Chapter 5  This chapter will integrate the survey data with the literature study, draw conclusions and make recommendations.
CHAPTER 2

E-BUSINESS – TECHNICAL ASPECTS, BUSINESS MODEL AND THE CHALLENGE

2.1. INTRODUCTION

Chapter 1 defines e-business as being the back office of the electronic world, and chapter 2 will examine some of the technical aspects of e-business, as well as business models and some e-business challenges.

The chapter will examine how business has been linked with tomorrow’s technology, identify the rules of e-business, describe what e-business consists of and outline some strategic roles of e-business. Also covered in this chapter will be the infrastructure of e-business; network, switching, firewalls, LANs and WANs.

2.2. E-BUSINESS

Glover et al. (2001:1-2) state that e-business leverages the power of information technology and electronic communication networks, such as the Internet, to transform critical business strategies and processes. E-business removes traditional boundaries of time and geography and makes possible the creation of new virtual communities of suppliers and customers. As indicated in the definition, e-business also includes the exchange of business information that may or may not directly relate to the purchase or sale of goods or services. For example, businesses are increasingly using electronic mechanisms to improve company performance by facilitating collaboration and data sharing among employees as well as providing improved customer support.

Participants in e-business transactions and information exchanges may be individuals (consumers and employees) or automated agents (information systems that are programmed to perform with little or no human intervention). Transactions and information exchanges can take place within a company, between companies...
and individuals, and between individuals. Another term commonly associated with e-business is e-commerce, which is defined as the use of e-business to buy and sell products or services.

2.2.1. LINKING TODAY’S BUSINESS WITH TOMMOROW’S TECHNOLOGY

Kalakota and Robinson (1999: 4-6) explain how e-commerce evolved and influenced businesses. They also answer two questions: Why is e-business important and what is driving e-business? They also consider the rules of the business game.

As a vast reconfiguration of business on an unprecedented scale is occurring, Kalakota and Robinson? (1999) explain that e-commerce is an economic solvent that dissolves old business models, changes the cost structure and rearranges links among buyers, sellers, and everyone in between. E-commerce is, therefore, a relationship solvent, melting traditional boundaries between companies’ partners and customers and so changing the nature of relationships. Simply put, e-commerce is a potent socio-economic chemical that reacts with everything it touches.

However, the impact of e-commerce is occurring in phases. In its first phase (1994-1997), e-commerce was about presence: making sure that all had Web sites, meeting the demands of all companies, so that all had something on the Internet. Companies were not quite sure why they were doing it, but they knew that they had to have an online presence.

The second phase (1997-2000) of e-commerce was about transactions – buying and selling over digital media. The focus in this phase was on order flow and gross revenue. Some of that was the matching of buyers and sellers who never would have connected in the past. Some of it was simply taking transactions that would have been done through paper purchase orders and saying that this business was
done on the Internet, although the meaning of that change was quite trivial. But in this phase, the announcements were all about order flow at any cost: why-sell-it-when-you-can-give-it-away business models. As a result, many of the first movers in this phase, such as Value America, are “either gasping, have gasped their last breath, or are flailing about in a sea of red ink.

Today, e-commerce is entering the third phase (2000-?), with a focus on how the Internet can impact profitability. Profitability is not about increasing gross revenues but rather about increasing gross margins. This phase is called e-business, and it includes all the applications and processes enabling a company to service a business transaction. In addition to encompassing e-commerce, e-business includes both front-office and back-office applications that form the core engine for modern business. Thus, e-business is not just about e-commerce transactions or about buying and selling over the Web; it is the overall strategy of redefining old business models, with the aid of technology, to maximise customer value and profits.

Why is e-business so important? CEOs everywhere are faced with shareholder demands for double-digit revenue growth, no matter what the business environment. CEOs have already re-engineered, downsized, and cut costs. Consequently, they are investigating new strategic initiatives to deliver results, and many are looking to technology to transform the business model – in other words, harnessing the power of e-business.

What is driving e-business? Every day, more and more individuals and companies worldwide are linked electronically. This digital binding of consumers and companies in a low-cost way is as significant a technological advance as the inventions of the steam engine, electric power generation, telephone, or the assembly line. The resulting democratisation of information resulting from this digital revolution casts aside the stodgy old conventions of business built on information asymmetry.
2.2.2. RULES OF E-BUSINESS

According to Kalakota and Robinson (1999: 4 – 6), the rules of the business game are being rewritten to be the rules of e-business:

- Ensuring that technology is no longer an afterthought in forming business strategy, but rather the cause and driver;
- Streamlining information structures to influence and control its flow is a dramatically more powerful and cost-effective service than that of moving and manufacturing physical products;
- Overthrowing the dominant, outdated business designs which often lead to business failure;
- Using e-commerce to listen to customers and become “the cheapest,” “the most familiar,” or “the best”;
- Not just using technology just to create the product, but using technology to innovate, entertain, and enhance the entire experience surrounding the product: from selecting and ordering to receiving and service;
- Using reconfigurable e-business models to best meet customers’ needs;
- Creating flexible outsourcing alliances that not only off-load costs but also make customers ecstatic;
- Minimising application infrastructure needs and focusing on the glitzy front-ends applications can be a costly oversight.
- Planning e-business infrastructure course swiftly and implementing it ruthlessly are keys to success. Ruthless is the norm;
- Aligning business strategies, processes and applications quickly, correctly, and all at once; and
- Having strong leadership is imperative.

According to Kalakota and Robinson (1999: 106-108), e-business can be a blessing or a curse, depending on the perspective. When the majority of winning e-business executives were asked what the main issue was that they lost sleep over, they expressed the fear of not being proactive and farsighted enough to
make smart decisions about where their companies should focus attention. The reason for this fear is simple. A CEO can think of many interesting ideas and directions to improve company performance, but the company has the time, resources, and staff to implement only the best decisions. If the CEO chooses the wrong cutting-edge concept or strategic path in a fast-moving environment, the mistake made gets magnified, and few companies, much less their managers, get second chances. This is called architecting e-business.

E-business success depends on how well company executives make business decisions while crafting an e-business path that was not preordained, but that is of their own choosing. When crafting its e-business direction, management must pay careful attention to three interlocking layers: e-business design, e-business application infrastructure, and e-business infostructure.

### 2.2.3. STRATEGIC ROLES OF E-BUSINESS

*E-business designs* are the first-level strategic weapons in the new digital economy. In an environment in which multiple variables, including technology, customer requirements and supply chains are changing simultaneously, the old weapons of differentiation, including low cost, quality, and incremental process improvement are playing a lesser role in sustaining growth. Business design is no longer an optional part of corporate strategy; rather, it is the very core. To create an innovative e-business design, answers to the following questions must first be answered:

- *What business design can make customers’ shopping and service experiences unique and memorable?* Although it is not easy, a good way to outperform competition is to render it passé by pleasing customers in novel ways. Essentially, that is what e-business is all about. E-business uses technology and processes to keep its finger on the pulse of the customer. Over and over, an example of innovators leapfrogging over competition by delivering better end-to-end service is seen. Total and complete service is important because it is what a customer experiences and, moreover, truly cherishes. *When*
assessing a business design’s value, ask whether it meets the customers’ priorities not only for that day but also in the future.

- **What capabilities and competencies create rich customer experiences?** This question helps define the capabilities required to match the customers’ most important priorities. These decisions determine what customers see and encounter when interacting with e-business designs. For example, at Dell, value is defined as the convenience of purchasing a high-quality product at a low cost, making the purchase process convenient has resulted in an explosive growth of Dell’s Web-based sales. *In the quest for customer-centricity, is the product or process oriented? How is the customer sold to – through a sale force, reseller channels, or a call center (direct)?*

- **In the quest for efficiency, how is the organisation structured for efficiency?** Dell is innovative in not only how it sells but also manufactures computers. The company uses a build-to-order (BTO) business model and Dell does not start building a machine until an order is received. This helps keep computer components and finished-computer inventory levels low, which in turn controls costs. Understandably, competitors Compaq and IBM are working overtime to replicate Dell’s BTO e-business design. *In the quest for cycle-time reduction, how much does the company manufacture internally, and how much does it outsource? How is the product distributed?*

Each of these e-business design elements must be in alignment for a company to excel at providing exactly what customers wish to experience when doing business. Once this design is in place, the company is ready to move to the next level: creating the application infrastructure.

The *e-business application infrastructure* supports the e-business design by providing the software functionality required for the business design to work. Early in the e-business revolution, many businesses raced onto the Web only to discover that having a URL does not spell automatic success. If the business of the e-customer is to be won without rock-solid, bullet-proof e-commerce applications and back-office integrated systems, the customer will only be alienated.
In order to ensure their e-business success, companies must create a strong application infrastructure foundation from which they can deploy their e-business applications. Addressing enterprise wide infrastructure needs, first means avoiding the integration issues resulting from disparate systems, data formats, and legacy applications.

The *e-business infostructure* is the structural foundation supporting the application layer. Building a reliable infostructure ensures that applications are working and those online operations are accessible and available. A well-built e-business infostructure:

- Is a balance of structure and flexibility;
- Harnesses, safeguards, manages, and permits use of information in ways that are fast, safe, and simple; and
- Comprises the technology, utilities (tools), and services needed to enable an uninterrupted flow of commerce.

### 2.2.4. E-BUSINESS COMPONENTS

Norris et al. (2000: 4-10) provides a brief understanding of what e-business consists of:

*The marketplace*

Before business is considered, the market where that business is conducted should be thought about. An electronic market is a direct parallel of the familiar shop, store or emporium. It is, in essence, a virtual trading area where deals are struck over a network. The ‘shop-front’ is the computer and the server is the warehouse. In fact, there is an electronic analogue of virtually all of the items that would be found in a conventional market, including bogus traders, inferior goods and dubious bargains.
The size and scope of the marketplace is, however, a little different from the familiar high-street model. In e-business, unlike many other areas of high technology, size really does not matter. It is quite possible to conduct a large volume of business over a wide area with little overheads. The ‘information smallholder’ can compete on an equal footing with the multinational corporation. In fact, it is often not that easy to distinguish between the two.

**EShops**

The electronic shop can be thought of as the ‘look and feel’ of the screen that fronts the customer. Just as with high street stores, the aim is to entice the customer to browse and, ultimately, to buy.

The fundamental prerequisite for presenting products and services online in the e-business world is the catalogue. These are central, and are the electronic equivalent of a shop’s shelves, goods, special offers and departments. The catalogue is the online representation of what is ‘for sale’ (or more correctly, what is available for trading).

It is important to appreciate that there are different scales of catalogues. They range from a set of web pages and a simple script that allows orders to be taken, through mid-range catalogue products that are characterised by a pre-defined structure of product categories and sub-categories, up to large scale corporate catalogues that are customisable. In this last case, there is usually back-end integration with inventory, stock control and ordering systems.

Another important point about catalogues is that they are different for buyers and for sellers. The former is a virtual directory that allows the buyer to look at and judge a range of competing products from a number of different suppliers. The latter is a structured set of information that represents what a particular supplier has to sell. The technology used to represent these different types of catalogue has to match, that is, it either has to be optimised for one seller and multiple buyers, or vice versa.
Payment

The core of any business (and e-business is no exception) is profit. Trade, commerce and business only exist to satisfy the needs and desires of the participants. This means one party getting something they want in exchange for something the other party wants; and usually it is money that fuels the desire to trade.

By its very nature, e-business needs to emulate in some way the customary direct exchange of cash for goods. Attitudes to the use of different payment mechanisms are changing (and vary when considering Europe, the US, Asia-Pacific or the whole world). A priority in establishing an e-business is to put in place an acceptable mechanism for payment. There are many technical options, and to choose appropriately, factors such as scale and acceptability all need to be carefully examined.

Settlement

It is all very well taking a ‘virtual’ payment for goods or services offered over the Internet but, at some point, this must be converted into dollar bills, Euros, or some other tangible form of money. Hence, a gateway between the virtual world and the real world is needed, a payment gateway. This can be effected with automated connection to Merchant acquirers (for example, Barclays Merchant Services), the BACS system, direct debits, or other systems, such as PC-EFT, WorldPay and Clear Commerce.

Of course, traditional settlements are not mandatory. In the past, customers have used all kinds of different objects to represent money: leaves, sticks, beads and even bits of metal or pieces of printed paper! In the electronic world there are additional possibilities, such as token-based systems, where a number of tokens are bought in a chosen currency, and then spent on goods which are priced in tokens. An example of this is web ‘benz’ which are like on-line loyalty card points. Electronic wallets and smart cards such as Mondex provide another alternative.
Some of these types of electronic cash are fully portable, whereas others retain your wallet on your PC or on a server.

*Presentation*

As with catalogues, the way in which online products and services are presented depends upon the market. For the electronic shop, the art of window dressing is not really one that has transferred online as yet. Already the ease of use of online systems is coming under the scrutiny of consumer watchdogs such as *Which? Magazine*, who reported a significant impact (both positive and negative) of presentation quality.

When there are many suppliers worldwide, the look and feel of the shop will make a big difference, as will the ease of use. This will require business-to-business transactions to be reliable and easy to use.

The design of online information is very much in its infancy, but there are some basic guidelines for getting the right presence and operation. Navigational dead-ends, inconsistent and out-of-date information, lack of an overall information map, frustrating and non-intuitive structures and poor search/browse capabilities all put customers off. The electronic window dresser is one of a number of new skills being driven by e-business.

One of the interesting twists to presenting what is offered online is that it is possible to find out exactly what each customer has looked at, what they purchased and when. This assessment would usually be very time-consuming and would require a video in a conventional shop, but online access requires little more than analysing system logs for an e-business. Information about individual customers, their browsing and buying patterns, is important feedback on how proceed with presenting goods.
**Security**

In the 'real' world, the customer enters a shop and makes some judgments based on its location, size, type of premises, how long it has been there. Cash or various forms of payments are made in return for goods and customers carry their goods away. The risks are very small, and even if processes go wrong, faulty goods can usually be exchanged. The customer knows where to return and who to talk to. If no satisfaction is gained, as a last resort, customers can make a scene in a busy store and tell an assistant, as loudly as possible that they have been badly treated. This can elicit rapid solutions for various problems.

When trading over the Internet, the process is not as simple: the dream of the virtual trader can suddenly become a nightmare. For example, how do consumers know (before entering their credit card details) that the company they are dealing with is reputable, and is what it purports to be? Conversely, how does the trader know that the consumer is not using stolen credit card details? Furthermore, how do both parties ensure that their transactions take place confidentially without a third party gaining access to details or, even worse, interfering with the transaction details, while they are in transit across the network? And when processes go wrong (as they often do), what sort of mechanisms are available to ensure that both parties fulfill their obligations?

A successful e-business should consider and have viable policies, approaches and solutions to all of the above concerns. In addition, there is the small but important practicality that a certain amount of infrastructure has to be established before a company can actually begin to trade online.

Oz (2002, 22-27) explains some of the electronic communication networks terminologies that are used in e-business including: computer network, switch techniques, network protocols, LANs and WANs, Internet addressing and integrated services digital network. These concepts are discussed below.
**Computer Network**

A computer network is composed of computers and other devices, such as special communication equipment, printers, and other peripheral pieces. For the sake of simplicity, the word *computer* will be used for all the devices. A network comprises of *nodes*, which are connection points in the form of computers that are capable of recognizing and processing or forwarding transmissions to other nodes. Communication devices often are not used for computing per se but rather for communication purposes such as routing or amplifying signals. At least one of the devices in a network must be able to perform communication tasks.

Again, a network is made up of nodes and the communication lines that connect the computers. The physical layout of a network is called topology (from the Greek *topos*, meaning “place”). In a star topology, all the computers are connected to a single computer that performs the tasks of accepting messages and routing them to their respective destinations. In a ring topology, each computer is connected to two other computers and no single device has full control over the network. In a bus topology, all computers are connected to a single cable called a *bus* or a *backbone*. Unlike in a star topology, in a bus topology each computer relies on its neighbor to relay a message. Only computers actually addressed by a signal pay attention to the signal and pick it up. The others ignore the signal.

It should be noted that few networks form a pure star, ring, or bus topology. For example, many networks are made up of a high-capacity bus, to which lower-capacity stars are connected.

Networks can generally be classified as peer-to-peer networks or client-server networks. In a peer-to-peer network, each computer has equal capabilities and responsibilities. In a client-server arrangement, some computers are dedicated to serving the other computers. These servers are usually more powerful than the other computers. Client-server systems are predominant on the Internet, where many computers are linked to a single server that is linked to the Internet backbone.
Switch Techniques

Special devices called switches must be present in any communication network. Switches direct the flow of electrical or optical signals and route communication traffic in networks.

In circuit switching, the entire path of the communication between two devices is reserved for those devices for the duration of the communication session between them. This is the type of switching that takes place in telephoning, both analog and digital. Whether the line is actually used or not, all the segments of a certain path in the network are reserved for those devices until one disconnects. This ensures a high quality of voice communication. However, this also means that the path is occupied even during times when no information is communicated or, as described by engineers, when silence is communicated. Thus, there is some waste of resources when digital transmission use circuit switching.

In packet switching, the digitized form of the communication, be it data, sound, or pictures, is divided into groups of several bytes. Each group is called a packet and each packet may be sent through a different path in the network. When all packets reach the destination device, they are arranged in the correct order, and the party at the receiving end receives a coherent message. Packet switching is more efficient than circuit switching, because the packets are optimally routed through the paths that have the least amount of traffic at any given moment. Thus, the overall amount of information that can be transmitted at the same time from multiple users is higher, and there is less waste of network time when there is silence. The Internet uses packet switching.

Network Protocols

Nodes in communication networks must be able to recognise, process, and forward information that flows through the network. To this end, network protocols have been established. A network protocol is a set of rules that governs the flow and processing of information in a network. Protocols include such rules as the
type of error checking used the method of data compression, how the sending device indicates that it has completed sending a message, and how the receiving device indicates that it has received the message.

TCP/IP (Transmission Control Protocol/Internet Protocol) is a set of protocols developed by the US Department of Defense in the 1960s and 1970s as part of the general effort to develop the Internet. The two best known protocols in the set are TCP and IP. TCP/IP was designed to be robust that is, to withstand errors via automatic recovery without central management. On the Internet and in organisational intranets and extranets, the TCP and IP protocols are used.

IP is a packet-switching protocol. IP handles addressing to ensure proper routing, fragmentation of the message into packets, reassembly of the packets at the destination, and *multiplexing*, which is a method of transmitting several streams of messages through the same communication line.

The IP protocol of the TCP/IP protocols set handles the transmission of data packets between host computers that is, from one node to another. It operates on hosts that move data from the departmental host within the organisational network to the organisation’s host, from that host to the region’s host, and from there to anywhere in the world. The next generation of IP, IPv6 (IP version 6, popularly called IP next generation, or IPng) is now under development. It will replace the current version, IPv4. IPv6 will support Internet traffic for many years into the future, providing enhanced capabilities relative to the existing IPv4. IPv6 will allow the transmission of larger packets than the current 64 KB, including additional addressing schemes, and provide better data security measures.

TCP verifies the correct delivery of data from client to server. It detects transmission errors and executes retransmission if a packet of data is not received by the destination host, until all packets are correctly and completely received.
LANS and WANS

Any of the topologies that have been discussed can be used both in local area networks and wide area networks. A local area network (LAN) is a network serving a building or a campus of several adjacent buildings. Usually, the entire LAN is owned and operated by an organisation for internal purposes. However, nowadays, most LANs are linked to the Internet to enable communication with other organisations and to provide access to sources of information.

A wide area network (WAN) is a network spread over large regions, often national or international territory. Telephone networks and the networks that make up the Internet are examples of WANs. To link nodes, WANs usually employ more than one type of physical medium, such as copper wires, optical fibers, TV cable, microwave transceivers (receivers-transmitters), and communication satellites.

An important factor in accelerating e-commerce is the ability of organisations to maintain their own LANs for daily operations while connecting them to the outside world, especially to the Internet. Organisations can use LANs for their internal business processes and then transmit information about products, shipping and receiving, bids in auctions, and the like to business partners and consumers over the Internet.

Many organisations have connected their LANs to the Internet. They have done so not only to enable their employees to utilise this vast resource for information gathering, but also to share a network with their suppliers and clients. In Internet terminology, intranets and extranets are spoken of. An intranet is a LAN or a network of such LANs that use the TCP/IP protocols for internal purposes. When an organisation operates from multiple sites, the disparate LANs can be linked through the Internet so that employees in many different locations can use the Intranet.

Similarly, organisations often give suppliers and clients access to their internal networks. The purposes of granting access vary from mere information tapping to
transactions such as placing orders and making payments. In this situation, all supplier and client organisations use their own LANs to access another organisation’s LAN via the Internet. This arrangement creates an extranet: LANs of two or more business partners linked through the Internet. Because in both multisite intranets and extranets part of the communicated information passes through the public lines of the Internet, these arrangements pose a serious challenge: how to guarantee that only authorised users have access to a private network.

There are no absolute guarantees that intruders will never gain access to computers that are connected to a public network. However, there are means for minimising the possibility that uninvited guests will gain access. When these measures are implemented, the LANs at the various sites and the Internet lines connecting them become a virtual private network (VPN). A VPN is in reality partially private and partially public, but users experience the network as if it were totally private. Note that at the same time a VPN is used, users who may not even know about the VPN of others are using some of the Internet lines that are presently being used by other users, hence the word virtual in virtual private network.

*Internet Addressing*

When registering an Internet server, an organisation receives an IP number made up of four bytes that are called blocks, each representing a number. Each device connected to the Internet must be assigned a unique IP number (also called Internet address or IP address), at least for the duration of the link. Each block addresses another level in the hierarchy of Internet addresses: a device (usually a computer) in a department, a department of the organisation, the organisation, and the region in which the organisation is located.

The IP registrar allows the organisation to allot the lowest level number, or the two lower levels, to its own devices. For example, if an organisation were assigned the number 2.32.104.xxx, the network manager of the organisation would decide which
numbers between 1 and 255 would stand in lieu of the xxx and assign them to particular devices. The organisation may assign numbers as static IP numbers, which means that devices have their numbers permanently, or have the system assign a dynamic IP number to a computer whenever that computer is linked to the Internet via the organisation’s server. For example, an organisation may own all these IP numbers and allocate them internally: 134.108.133.81, 134.108.133.82, 134.108.133.83, and 134.108.133.84.

An IP address consists of two parts, one identifying the network and the other identifying the node. It is important to remember that a block is made up of a binary number. Thus, when an organisation is assigned a set of addresses from this class, it can internally assign a maximal number of 256 valid addresses. However, two of these addresses are never assigned to any particular node, which leaves the maximal internally assigned number at 254.

The reason two is subtracted from the maximal number of nodes is explained as follows: When the node part is set to all zeros, such as in 152.219.0.0, this IP number identifies the entire organisational network and is assigned to the server itself.

*Integrated Services Digital Network*

Integrated Services Digital Network (ISDN) is an international telecommunications standard for transmitting voice, video, and data via digital lines at a speed of 64 Kbps (thousand bits per second). It is possible to combine (bond, in professional jargon) several such lines to reach a greater speed. Combining two ISDN lines to reach a capacity of 128 Kbps is common and widely available, both in North America and Western Europe. The service is available from telephone companies. They charge several tens of dollars per month for a subscription to these lines. Subscribers can use the lines the same way they use regular telephone lines, both for voice communication and as dial-up lines for Internet communication. The standard was first announced in the early 1980s and was expected to provide all the capacity needed so that a single line could support voice, data, and video
transmission at the same time. It took a decade for the service to become widely available, and by that time the capacity proved to be quite modest in terms of current speed requirements (Oz, 2002:27).

2.2.5. ELECTRONIC COMMUNICATION NETWORKS

Chen (2001:52-57) also explains some of the electronic communication networks terminologies that are used in e-business.

Internets and Extranets

Although the Internet protocols were developed originally for communication between remote sites, a significant boost to their use in businesses has been the increasingly widespread use in internal networks or Intranets, substituting or complementing proprietary local area network (LAN) software such as Ethernet. For example, employees within a company can use Internet browser software on their PCs to access information on internal web sites and to exchange files with each other whereas previously this may have been done using proprietary LAN applications.

Some companies have also set up Extranets or networks that use Internet technology to communicate with customers, partners and lenders. For example, customers can use Extranets to access supplier databases to check on stock availability, to place orders and to check the status of orders.

Firewalls and proxy servers

One major issue of concern with the use of Extranets is ensuring security of data held on the company’s network. This is usually done using firewalls and proxy servers. A firewall is a set of programs located on a company’s network gateway server that prevents unauthorised external users from accessing the company’s Intranet and controls which external resources its own users can access. One way
to prevent unauthorised access is to only accept requests from authorised IP addresses and domain names. Another is to use logon passwords and authentication certificates.

Firewalls are often used in conjunction with a proxy server, which is a server that acts as an intermediary between a user’s workstation and the Internet. The proxy server only allows access to authorised sites and only allows access by authorised users. It may also act as a cache server, holding copies of previously accessed web pages. This is of advantage where there are many users or where users frequently access the same pages since response times can be reduced. In addition, some proxy servers run virus detection programs on incoming files, reducing the risk of corrupted data on the user’s computer.

*Virtual private networks*

For further security on a public network, some companies also use virtual private networks (VPN). A VPN is a private data network that makes use of the public telecommunication infrastructure, maintaining privacy by using tunneling protocol and security procedures. A virtual private network can be contrasted with a system of owned or leased lines that can only be used by one company. The idea of the VPN is to give the company the same capabilities at much lower cost by using the shared public infrastructure rather than a private one. Telephone companies have provided similar secure shared resources for voice messages. A virtual private network makes it possible to have the same secure sharing of public resources for data. Many companies today are looking at using a private virtual network for both Extranets and wide-area Intranets.

In a virtual private network data is encrypted before sending it through the public network and decrypted at the receiving end. An additional level of security involves encrypting not only the data, but also the originating and receiving network addresses. Microsoft, 3Com, and several other companies have developed the Point-to-Point Tunneling Protocol (PPTP) and Microsoft has extended Windows NT
to support it. VPN software is typically installed as part of a company's firewall server.

Wireless technologies

The one that is causing the most interest at the present time is the mobile communications route, termed by some 'm-commerce'. Demand is expected to be large owing to the low entry cost for users of purchasing a mobile phone compared with purchasing a networked PC or interactive television system and this new market is being actively targeted by many companies. The user device that most companies in this area are targeting is an enhanced mobile phone although the idea dates back to earlier ideas of a ‘thin client’ PC promulgated as early as 1990.

The term ‘thin client’ originated in the 1990s to describe a new category of client devices such as Network Computers (NCs) and Windows-based Terminals (WBTs).

Thin clients run operating systems locally as opposed to traditional PC operating systems (Win95, NT,). Today thin client is the accepted generic term for a network-based approach to information processing that is comprised of both hardware and software elements. In thin client architecture most of the processing is done by a powerful back-end server, thus less hardware and software is required on the client computer. In conventional client-server systems, clients are often desk-top personal computers with local storage operating systems and peripherals. These ‘fat’ client PCs are more expensive to buy and maintain. In fact, much of the software and hardware can be reduced. For example, if the client simply picks up messages, a hard disk is unnecessary. Instead the files can be stored centrally. By locating all the software centrally, installation and upgrades are easier and software maintenance is reduced. Furthermore, since there is only one central access point to be protected, security should also be easier.

In parallel with a move towards thin client PCs has been a move towards networking using wireless devices such as mobile phones and PDAs. The latest
trend is digital cellular phones. They use the same radio technology as ordinary cellular phones but convert the analogue signal into digital format and then compress it. This compression allows between 3 and 10 cell phone calls to occupy the space of a single analogue voice call. Using time division multiple access (TDMA) technology, each cellular channel is divided into three time slots. TDMA is used by Digital-American Mobile Phone Service (D-AMPS), Global System for Mobile communications (GSM), and Personal Digital Cellular (PDC) Digital Enhanced Cordless Telecommunications (DECT) standards. However, each of these systems implements TDMA in a somewhat different and incompatible way.

CDMA, one of the three wireless telephone transmission technologies, takes an entirely different approach from TDMA. CDMA, after digitising data, spreads it out over the entire bandwidth it has available. Multiple calls are overlaid over each other on the channel, with each assigned a unique sequence code. A group called PCS PrimeCo that includes NYNEX, Bell Atlantic, US West and Airtouch Communications has announced plans for PCS systems that use CDMA in the USA.

Until recently, wireless Internet access has been limited by the capabilities of handheld devices and wireless networks, which were designed to handle smaller volumes of data. Internet standards such as HTML, HTTP and TCP are inefficient over mobile networks, requiring large amounts of mainly text-based data to be sent. Standard HTML content also cannot be effectively displayed on the small-size screens of pocket-sized mobile phones and pagers. A number of standards have emerged to overcome these constraints.

OZ (2002: 32) states that organisations must consider several factors when deciding on the type of telecommunications services they want to adopt: bandwidth, cost, security, and ease of maintenance. Often, the ratio that organisations consider is dollars per Mbps, where dollars are the monthly fee they pay. However, if the business depends heavily on fast communication, it should consider the absolute communication speed.
For example, if a business intends to use a Web site for transactions, it must establish a high-speed link. This is also true for companies that perform much of their purchasing online, and for the growing number of companies that use the services of application service providers. While a large majority of businesses currently subscribe to T1 and T3 lines, many others that are going online now adopt ATM. The choice makes sense in light of the fact that the ATM standard applies both to WANs and LANs.

While bandwidth is an important issue, the ability to augment a network, especially a LAN, is important as well. Such ability is often called scalability. In general, the scalability of wireless networks is less expensive and easier than the scalability of wire-based networks because adding links is relatively easy. Wireless networks also require less expertise in maintenance.

There are three types of costs involved in telecommunications: the one-time capital investment in the installed lines, both the LANs and the link to a WAN, such as the Internet backbone; the monthly fee, if the line is leased from a telecommunications company, which is often the case; and the ongoing cost of maintenance, which is mainly the salaries of the telecommunications staff. The latter cost depends on the expertise required for different types of technologies and the size and complexities of the LANs and outside links.

Security refers to the degree to which the information that an organisation transmits and receives can be intercepted. By and large, guided links such as copper wire, cable, and optical fibers are more secure than unguided links such as satellite and terrestrial microwave links, because the latter can be intercepted remotely without connecting any devices to a physical line. As much as managers consider bandwidth vis-à-vis cost, they also must consider the degree of security that can accommodate different technologies and standards under cost constraints. It would make no sense to spend several million dollars on security measures that might prevent damages estimated in the tens of thousands of dollars or that protect against occurrences whose probability is very small.
2.2.6. CHALLENGES OF E-BUSINESS

Deise, Nowikow, King and Wright (2000: xxvi) examine some of the challenges of e-business that organisations have to face. Understanding how one company can take another’s problems away while maintaining a viable place in the virtual world of the future requires keeping in mind some basic rules:

- E-business employs “disruptive technology.” While it can improve and enhance business, it can also disrupt the value chain by changing the way players within it interact;
- E-business success is not about technology; it is about organisational change management and about users working in new ways, both within their company and with extraprise partners in value networks. It is also about using technology to enhance existing relationships and create new ones;
- In the digital world, the company that owns the customer relationship and the customer knowledge is king. Companies must determine if they are (or can become) the party in the value chain that owns the customer relationship. Whatever a company’s position, leadership must not only know what it knows, but know what it does not know. It must also be able to find and create networks with partners who can fill that knowledge gap;
- Companies will constantly be creating new services based on their digital assets (information and processes). Some intermediaries (particularly those that define best practices) will emerge within the value chain, others will be forced out. Old and new intermediaries will fight for position. (Together, this set of strategies is known as disintermediation, reintermediation, and counterintermediation.);
- Commoditisation of products and services will move farther and farther up the value chain (a process of rolling commoditisation) until, ultimately, everything upstream of customer contact will be a commodity. This means companies will continually be fighting to become knowledge or network masters. Companies that fail to do so will face life as low-margin commodity producers;
• While rolling commoditisation will squeeze companies from upstream in the value chain, customers will continually use knowledge technology to squeeze margins from the downstream end. Confronting rolling commoditisation, intermediaries, and increasingly knowledge-enabled customers, even network and knowledge masters will be hard pressed to maintain competitive advantage for long periods of time; and
• All of this will lead to an environment where business strategy must be more flexible than even before; where companies may need to dis-integrate over time, forming small, nimble companies to fight for position close to the customer, maintain physical competencies in a core physco, and pass off noncore activities to extraprise partners who are experts in these competencies.

2.2.7. WHO SHOULD BE INTERESTED

Norris et al. (2000: 10-11)) identifies who should be interested.

There are various categories of people who benefit from doing business online. Firstly, the consumers, who can shop (globally and at all hours) without having to travel, can window shop to their heart’s content and, in some cases, can have their needs directly fulfilled (especially if they are after software, games, music, reports, papers, and legal advice ). There are also other who will benefit. For example, the reasons why a supplier would be interested in e-business are quite diverse, and include:

• The small shop that wants to establish a global presence (such as trophy miniatures, a manufacturer of toy soldiers and probably the first multinational corporation with only one employee).
• Affinity groups (such as Barclay Square, where a set of established, large trading organisations wish to extend their market by associating themselves with others);
• Large retailers (such as Tesco online, a UK-based supermarket chain who see an online presence as a means of cutting their costs);

• New businesses (such as Amazon.com, who have extended the traditional image of a bookshop by allowing the buyer to participate in the business through reviews, promotion of books and IQ Port (www.iqport.com) which creates a new market in online knowledge);

• Suppliers, who want to speed up and secure their business (for instance, supermarket stock records linked directly to wholesalers’ delivery schedules to allow ‘just in time’ deliveries);

• Large corporates, who may sell product but see the main opportunity as extending their services by making them available to consumers online (such as BT’s ‘Friends and Family’ service, that allows customers to set up their own calling preferences); and

• Trade bodies, co-operatives and other groups of companies in niche areas who, by pooling their e-business presence, can achieve objectives that would be unattainable individually. For example, small companies may have very little purchasing power individually, but through e-business, may combine their requirements and rival corporate purchasing departments.

Ultimately, there is the virtual retailer. This would be a service that consists of no more than a front-end with no physical presence (and no stock). It just links to suppliers, manufacturers and customers; and the wherewithal to fulfill an order and charge. It was through careful stock control that the 1980s saw the advent of just-in-time manufacturing. The new millennium could well see the next step: just-in-time fulfillment, where the supplier keeps the customer happy despite owning no physical resources at all.

Each of the above will have a different set of needs and priorities. Banks, for instance, will be more concerned, than most, with security. A supplier of car parts may be more worried about building a catalogue that is quick and easy to use, or ensuring that the online facilities are linked to established stock control systems. Matching the available technology to the purpose for which it is intended is a focus
of this study. However, e-business is not one process; it is a spectrum of capabilities and opportunities that need to be balanced.

It is important for organisations to understand e-business and its terminologies as strategies need to be created and implemented. E-business will have to carry and support front office, e-commerce as a bad e-business platform will make an organisation’s e-commerce a costly mistake.

2.3. SUMMARY

This chapter described some key aspects of e-business. It examined the link of today’s business with tomorrow’s technology and how the business rule are changing and forming e-business rules. There is a strategic role of e-business and it is discussed in the chapter. An explanation of components and electronic communication networks of e-business was also discussed. Lastly, this chapter examines some of the challenges of e-business that organisations should be aware of and answers the question of who should be interested in e-business.
CHAPTER 3


3.1. INTRODUCTION

Chapter 2 examined e-business (the back office), which is the platform for e-commerce to operate on. Chapter 3, examines e-commerce.

E-commerce is considered the front office of the electronic world, and is defined as a variety of market transactions that are enabled by information technology and represents the entire collection of actions that support commercial activities on a network. In Chapter 1, Chapter 2 will examine B2B and B2C. The organisation needs to understand the future of e-commerce, the supply chain around e-commerce and strategy involved with e-commerce.

3.2. BUSINESS-TO-BUSINESS (B2B)

Before an organisation considers going B2B, they need to understand what B2B entails. This section, will explain B2B, consider the future of B2B, discuss the three broad categories of B2B activities and explain the importance of the supply chain in B2B. EDI and the role it plays in B2B will also be examined. Lastly, e-marketing in B2B will be discussed.

Forrester Research found the following in a research on B2B: while the US business-to-consumer (B2C) revenues grew to $108 billion in 2003, the business-to-business (B2B) revenues ballooned to $1.3 trillion, accounting for 9.4% of total business-to-business sales (Rahman & Raisinghani, 2000: 7).

According to Rayport and Jaworski (2002: 360), in B2B’s brief history, as they were conceived, built, modified, and sometimes dissolved, these businesses have clustered around three broad categories of B2B activities: sell-side solutions, indirect e-procurement, and Net marketplace and Net exchange activities.
3.2.1. B2B ACTIVITIES

Rayport and Jaworski (2002: 360-362) give a brief overview of the following B2B activities:

*B2B Sell-Side Solution*

Because B2C gained momentum before B2B, early adopters of B2B focused on the use of the Internet to sell products to end consumers, and eventually other businesses. Businesses began to develop sell-side capability or new Web-based applications to provide buyers with product and service information, as well as the ability to allow buyers to place orders for products or services. B2C best practices, such as searchable online catalogs and shopping-cart functions were developed and implemented as B2B sell-side transactional capabilities.

Also, a sell-side capability typically included online access to fulfillment data informing the customer of expected ship date, delivery date, and shipping status, provided either by the seller or a third-party logistics provider.

*Indirect E-Procurement*

Once Web-based sell-side applications were implemented and businesses began using the Internet to sell merchandise to customers, businesses quickly realised they could Web-enable their buy-side by implementing Web-based e-procurement capabilities.

Initially, the focus on e-procurement was for the purchase of non-strategic products and services often referred to as indirect materials, or maintenance, repair, and operations (MRO) materials, for manufacturing companies. E-procurement capabilities to facilitate MRO procurement are the mirror-image of sell-side capabilities, including catalog management, which allows the buying organisation to store and search supplier catalogs and transaction processing. The same
fulfillment-status capability required on the sell-side to enable the supplier to provide order and shipping status to the buyer is required on the buy-side for e-procurement.

Net Marketplaces and Net Exchanges

With buy-side and sell-side capabilities implemented, business were now able to interact with their trading partners directly using the Internet and to facilitate commerce transactions. Meanwhile, a new wave of Internet-based business was emerging. Net marketplaces and Net exchanges were created to provide Web-based capabilities to facilitate the interaction and exchange of commerce transactions among buyers, sellers, and other trading partners. Net marketplaces integrated with and enhanced the buy-side and sell-side capabilities implemented by buyer and seller businesses. Net marketplaces were created in a wide range of industries, with a wide range of capabilities, and using a wide range of business models.

One area of growing business-to-business e-commerce is in procurement. Enterprise Resource Planning (ERP) systems of suppliers and buyers are linked via Intranets and Extranets, enabling every step between the two ends of a transaction to be automated. Buyers select items from electronic catalogs that are updated by pre-approved suppliers. Purchase requests, approvals, order issues and acknowledgments, tracking shipments, invoicing, and matching invoices to purchase orders all occur electronically. Electronic (E) procurement streamlines the traditional buying process through extensive use of catalog management techniques such as content aggregation, custom catalog, proactive compilation, contingency plans, and cooperative Open Buying over the Internet (OBI), resulting in cost savings, responsiveness and more strategic supplier relationships (Rahman & Raisinghani, 2000: 7).
3.2.2. B2B SUPPLY CHAIN

The whole success of the e-procurement is based on how the supply chain is understood. Rayport and Jaworski (2002: 294-296) give a brief explanation of the supply chain.

Buyers reduce costs by creating an environment in which sellers are more competitive. Sellers can also use business-to-business (B2B) sites to instantly advertise their products to potential customers. Gartner Group estimated that the worldwide B2B Internet trade was $109 billion in 1999 and predicted that by 2004, the worldwide B2B Internet trade would be a $7.29 trillion market. The potential B2B market is estimated to be 3 to 10 times the size of the B2C market, although B2B customers generally spend more than B2C customers. Grainger, the leader in MRO supplies, had an average order size of $240 in 1999 and estimates put Amazon.com’s average order size in the $30 to $50 range.

The B2B supply chains in the online space are somewhat different from other supply chains. Whereas other supply chains are truly new to the industry, B2B supply chains are rooted in more that a decade of enterprise-level expenditures in various technology, including computing, networking, and client/servers. Thus, companies may have had existing supplier relationships, and the parties simply converted the relationship into an electronic format.

Investment bank, Goldman Sachs, refers to an evolution from electronic data interchange (EDI) via virtual private networks (VPN) to intranets and, finally, to the Internet itself in the quotation below:

*Prior to the existence of e-markets, large (buyer) business had 1:1 relationships with other (seller) business, using EDI or other mechanisms (like VPNs). These were primarily focused on direct materials and production goods. (For many suppliers)… the cost of doing business electronically was prohibitive and it was difficult enough to get the attention of the large buyers (Hubs).*
There are five main reasons that big buyers (for example, automobile companies) require such systems from their suppliers:

- Lower costs compared to offline management of suppliers and transactions;
- Improved transaction speed and control (allowing for dependable global production of cars, for example);
- High security of the system created a strong switching barrier for participating suppliers;
- Proprietary nature of the system created a strong switching barrier for participating suppliers; and
- Good reliability of capacity to process the transaction volume as the buyer was the key driver behind capacity management of the system.

The evolution of computing and communications technology has made the Internet an increasingly attractive alternative to these proprietary; expensive systems owing to the following advances:

- Improved security;
- Increased transaction-handling capacity (hardware and software); and
- Broader supplier base, based on open standards.

B2B sites are revolutionising manufacturers supply chains by allowing manufacturers the opportunity to realise lower input prices, reduced inventory and transaction costs, faster delivery, and improved customer service. These advantages are described below:

- **Lower input prices.** Manufacturers use B2B sites to conduct auctions from pre-qualified bidders for their supply-chain inputs. The ease of bidding expands the universe of potential supplier bidders and takes favoritism out of the buying equation. Increased competition coupled with decreased supplier overhead pushes suppliers to offer lower prices. One negative effect of the use of the auction process for procurement is that suppliers may become less inclined to
invest in customising products for a manufacturer, if they have to bid against others for contracts at purchase time. In many dynamic industries, it is necessary for manufacturers to create partnerships with suppliers to achieve fast product-development cycles.

- **Reduced inventory.** B2B supply chains establish a closer communication process with suppliers regarding input needs and procurement time frames. This allows manufacturers to reduce their inventory stock, warehousing costs, and inventory carrying costs, and to increase return on assets. At 3Com, in an effort to make its inventory process more efficient, expanded product production automatically triggers additional orders for input supplies such as cardboard boxes.

- **Reduced transaction costs.** By using the Internet to announce order requests and to receive bids, both manufacturers and suppliers reduce the transaction costs associated with supply procurement. AMR Research reports that buyers in the B2B market can expect to realize a 15 to 20 percent drop in maverick purchases, $50 to $100 transaction savings per order, and a 2.5 to 10 percent price savings due to competition brought on by B2B sites.

- **Faster delivery.** Because procurement transactions are no longer processed through multiple internal departments or entered in several different data systems, the time between supply request and supply delivery can be greatly reduced.

- **Better customer service.** General Motors (GM) is trying to use B2B supply chains to provide better service to its customers (the current order-to-delivery time of a new car is up to eight weeks) by connecting its factories and suppliers via the Internet. This connection will provide suppliers with real-time notification of needed materials and delivery deadlines. Pre-qualified suppliers can instantly submit a bid to provide supplies. This system allows GM to better coordinate with suppliers. GM hopes the system will reduce the order-to-delivery time of new cars to four to five days Rayport and Jaworski (2002: 294-296).
3.2.3. EDI OVERVIEW

Awad (2002: 394-398) explains how EDI operates, the advantages and drawbacks of EDI, and the justification of using EDI.

Prior to EDI, purchase orders, acknowledgments, invoices, and purchase order changes depended on communication between trading partners for limited hours each day, using phone or fax. Today computers enhance communication between trading partners, regardless of time, place, or distance. A request for a product is sent to purchasing for action. The purchasing department places a purchase order, which is sent to the seller via regular mail or by fax. A copy of the purchase order is sent to the finance department for payment upon receipt of the product. On the seller’s part, the purchase order goes to the sales department that fills the order through manufacturing or the warehouse. The product then is sent to shipping, which delivers it to the buyer’s receiving department. Once received, it goes to the warehouse. This triggers payment of the invoice by the finance department.

This creates a labour-intensive process and promotes delays and waste throughout the entire purchase cycle. The alternative is EDI where a buyer makes a decision to order a product. The buyer’s EDI computer generates the purchase order transaction in its purchasing application (the same step it took in the traditional method). The purchase order transaction is transmitted directly to the seller’s EDI system in machine-readable EDI standard generated by the buyer’s EDI system.

The seller’s EDI system sends an acknowledgment notice to the buyer’s EDI system after it passes the order information to the receiving order entry application for processing. The processing is handled like any incoming purchase order. The seller’s EDI system communicates with the company’s network to activate shipping and billing. It also generates shipping confirmation to the seller and a copy to the
buyer. The buyer’s EDI system sends an electronic payment to the seller’s computer.

EDI is a fast and efficient way of handling business transactions such as purchase orders, shipping notices, invoices, and other documents. All communications occur through the interactive EDI servers of the buyer and the seller. EDI contributes to competitive advantage in the way it expedites transactions, information flow, and payments. It speeds up the business exchange between buyer and seller as well as between seller and seller. The latter benefit is unique to B2B e-commerce. Well-known retailers like Wal-Mart, Proctor and Gamble, and Levi Strauss could not have been successful without the quick response, fast product delivery, speed, data integrity, and the standardisation that EDI offers.

Although EDI has been around since the early 1970s, after a decade of attempts, a number of industry groups got together to develop cross-industry standards for widely used mechanical and electronic items. In the US, the most popular standard is the American National Standards Institute (ANSI X.12). Most Fortune 500 companies use dedicated telephone lines or a VAN run by companies like ATT or IBM to carry EDI data exchanges. In 1989, the United Nations published its first standards under EDI for Administration, Commerce, and Transport (EDIFACT, or UN / EDIFACT). EDIFACT is destined to gain strong support from the US, Western and Eastern Europe, and Pacific Rim businesses because it was developed prior to the businesses in different areas developing their own systems to the point where they could not change them. EDIFACT was boosted in 1988, when the US Customs Service said it would support the EDIFACT standard. Australia and the UK then followed suit, Awad (2002: 394-398).

3.2.4. ADVANTAGES AND DRAWBACKS OF EDI

There are three tangible benefits of EDI:

- **Cost reduction and time saving.** By eliminating unnecessary paperwork, information flow becomes more efficient. For example, the seller’s EDI
computer sending acknowledgments and electronic billing eliminates the paper invoice.

- **Improved B2B problem resolution.** EDI responds quickly to business inquiries and transfers of documents with an automatic audit trail to ensure accuracy and consistency. This actually improves trading partner relationships. In most cases, partners cooperate on how to set up EDI and its various applications. The result is improvement in information sharing and cooperation between trading partners.

- **Accuracy with integrity.** Eliminating data entry means improved accuracy in the way data are processed. This contributes to the integrity and reliability of the business process. The receipt of more accurate and complete business transactions through EDI improves information processing in the affected application. For example, the receipt of an EDI purchase order invariably improves the accuracy of the order entry application of the seller.

Despite these benefits, there are definite drawbacks:

- EDI has yet to catch on as the perfect solution to information flow or for doing business. With millions of businesses in the US, fewer than 200,000 have adopted EDI;
- EDI is expensive and requires a heavy investment to launch and maintain the technology;
- EDI is point-to-point. Each contact requires special hardware and software;
- EDI requires expensive VAN networking to operate at peak efficiency. Only high-volume, large trading partners can afford this investment; and
- As a system, EDI is not easy to use, learn, or implement.

Given the pros and cons of EDI, the next consideration is: Under what conditions could a business justify EDI? EDI is an option, if the business situation is paper-intensive, people-intensive, and requires fast information processing or delivery of goods. In terms of business documents and forms of messages such as telephone and fax, the following realistic criteria also justify EDI implementation:
- **Volume of data.** Companies that handle a large volume of data on a regular basis find EDI a welcome relief. Also, if the nature of the information stored (such as a catalog) is large but requires frequent access, the business is a candidate for EDI. EDI will eliminate the manual handling of the catalog, along with the error rate in updating it.

- **Frequency of document transmission and reception.** Because of the heavy installation and maintenance expense of EDI, most companies have found that EDI is justified when documents are sent and received with high frequency.

- **Content sensitivity.** Another criterion is the sensitivity or critical nature of the information contained in the document. Documents involving international contracts or orders make the content highly sensitive for accuracy and integrity.

- **Time sensitivity.** This criterion addresses the time and speed factors. EDI can ensure quick delivery, provided the firm’s internal information processing procedures are also quick and accurate.

Rating the business based on these criteria should give a clear indication of whether it can justify an EDI investment. In doing the rating, it is also important to evaluate the overall results rather than each criterion alone. For example, inventory queries are short in content (mostly product number, quantity, and a descriptor), but might be high in frequency. The important point is to think of the long term and use realistic criteria along with heuristics (the experience of the business) to make the final commitment to go with EDI.

One alternative is to opt for Web-based EDI. As an open communication channel and publicly accessible network, the Internet can bring online B2B trading to virtually every organisation. It can cut communication cost in half, while complementing or replacing existing EDI applications. Web browsers and search engines are also user friendly and require little training.
3.2.5. INTERNET-BASED EDI

Turban et al. (2000: 224-225) discuss why Internet-based EDI is becoming an important option in B2B. When considered as a channel for EDI, the Internet appears to be the most feasible alternative for putting online B2B trading within the reach of virtually any organisation, large or small. There are several reasons for firms to create EDI ability over the Internet:

- The Internet is a publicly accessible network with few geographical constraints. Its largest attribute, large-scale connectivity (without demand to have any special company networking architecture) is a seedbed for growth of a vast range of business applications;
- The Internet’s global inter-network connections offer the potential to reach the widest possible number of trading partners of any viable alternative currently available;
- The Internet can cut communication costs by over 50 percent;
- The Internet’s use to exchange EDI transactions is consistent with the growing interest of business in delivering an ever-increasing variety of products and services electronically, particularly through the Web;
- The Internet-based EDI can complement or replace current EDI applications; and
- Internet tools such as browsers and search engines are very user-friendly, and most users today know how to use them.

The Internet can also support EDI in a variety of ways:

- Internet e-mail can be used as the EDI message transport in place of VAN. For this end, the Internet Engineering Task Force (IETF) is considering standards for encapsulating the messages within Secure Internet Mail Extension (S/MIME); and
• A company can create an Extranet that enables trading partners to enter information in Web form whose fields correspond to the fields in an EDI message or document.

Companies can utilise the services of a Web-based EDI hosting service in much the same way that companies rely on third parties to host their commerce sites. Netscape Enterprise is an example of the type of Web-based EDI software that enables a company to provide their own EDI services over the Internet, while Harbinger Express is an example of companies that provide third-party hosting services.

3.2.6. B2B MARKETING

Turban et al. (2000: 228-230) discuss the issue of B2B marketing, namely, how a company can find customers for its products. In fact, companies compete strongly in the B2B market.

Direct Marketing to Reach Functional Buyers.

In the typical business organisation, buying decisions, especially for products over a few thousand dollars, are made by groups of individuals. As a result, direct marketers need to extend the reach of their programs to different functional areas and perhaps even different levels within a functional area.

There are multiple buyers and influencers in any organisation who play a role in the buying decision. An organization may know with reasonable certainty who its primary target is, but secondary targets can be just as important to reach. Organisations may have to reach business buyers and influencers in three basic management areas (functional management, financial management, and general management) and do it at middle to upper managerial, as well as technical, levels. To accomplish this, companies need accurate e-mail lists, which they can develop
by viewing companies’ Web sites and reviewing annual reports and other public documents.

*Relationship Marketing.*

Business buyers are not always ready to buy products or services when organisations are ready to sell them. Factors that cannot be controlled, such as the company’s budgeting process, the need for additional approvals, or purchasing procedures, may have a direct impact on plans to purchase. There may also be a casual interest in the product but not an immediate need.

The smart B2B direct marketer compensates for this uncertainty by making sure a program of regular, ongoing communications (often called a continuity program) is in front of prospects periodically. This can be done by direct e-mail and by placing the information on the Web site.

*Audience Strategy and Mailing Lists.*

Audience strategy drives the process of evaluating and selecting mailing lists. There are three basic kinds of lists:

- *House list.* The house list is typically made up of customer and prospect names (with appropriate segmentation) collected by a variety of methods: input from the sales force, trade shows, leads from various media, and so on;
- *Response list.* These are lists with names of individuals who responded by e-mail, filling out Web questionnaires, and so forth. Typical response lists include subscribers, buyers, and members lists; and
- *Compiled list.* These lists are compiled from a variety of sources, including telephone directories.
Electronic/Interactive Media.

Electronic or interactive media presents the B2B direct marketer with the most exciting creative potential. There are three basic media, each with its own creative considerations: CD-ROMs, e-mail, and the Web. Electronic mail and the Web are Internet based media. The CD-ROM medium offers opportunities to execute the full-fledged multimedia promotions with scripted copy, music, and full-motion video. From a direct marketing perspective, CD-ROMs should incorporate plenty of interactivity and, if appropriate, facilitate response. They are also increasingly being used to connect to the Internet; for example, an electronic catalog can be housed on a CD and, through a link to a Web address, can be automatically updated. This technique draws a prospect or customer to the marketer’s Web site for additional information.

Currently, e-mail is a text-only medium, although graphic e-mail is on the horizon. The Web is the interactive area receiving the most attention from direct marketers. Creatively, the Web combines the qualities of several direct marketing media with some of its own unique ones. It is similar to direct mail in that it can accommodate integrated copy and graphics. Like broadcast and CD-ROM, the Web also facilitates the use of sound and multimedia, but the Web is unique in its construction and its instant interactivity.

How to Build an E-mail List and Marketing Database

Perhaps the area with the most payback potential should be the basis for an organisation’s house list or marketing database. The list can be enhanced with marketing intelligence about each of the individuals on it. When building e-mail lists the following should be avoided:

- Entries that have wrong contacts;
- Lists composed of many different unorganised lists;
- Lists that are embarrassingly out-of-date;
• Lists that cannot be segmented;
• Lists that are not being used often enough.

The supply chain for B2B may be the answer for organisations. This will help the organisation to focus on the B2B activities; B2B Sell-Side and Indirect E-procurement. Organisations also need to understand EDI, its advantages and drawbacks, as it is the preferred link in B2B. They also need to be aware that EDI is evolving all the time. E-marketing has its role in B2B and must not be neglected and it is important on the B2B Sell-Side activity.

3.3. BUSINESS-TO-CONSUMER (B2C)

Before an organisation considers going B2C, they need to understand B2C. In this section, B2C is explained, the future of B2C is discussed, how different e-commerce is to a brick-and-mortar business and the importance of the supply chain in B2C. Factors that are essential to the success of a B2C Web business will be examined, as well as discussing critical questions that need to be asked, before B2C is considered. Lastly, the ten steps an organisation should follow to implement e-commerce will be outlined.

Since the mid-1990s, when very few people purchased anything through the Internet or even had the hardware and telecommunications means to do so, B2C has developed into a multibillion dollar activity. A study by the consulting firm Boston Group assessed the 1999 B2C volume at $33.1 billion and estimate that it would almost double to $61 billion in 2000. Equally important is the findings that 85 percent of Internet users are also Internet shoppers (Oz, 2002: 145).

Consumers prefer to shop and buy on the Internet for three major reasons: convenience, saving time and comparative shopping. Shoppers can shop from anywhere in the world, at any time. Shoppers can also visit numerous vendors’ sites within a short period of time (Oz, 2002: 145).
3.3.1. B2C ACTIVITIES

According to Oz (2002: 145), the major share of B2C activities falls into two categories: electronic retailing and reservation.

In the last few years, a significant growth in the retailing over the Internet has been witnessed. According to the research and consulting firm Forrester Research, retail sales on the Internet would reach nearly $185 billion by 2004. Many companies were established especially for retailing online, and some brick-and-mortar retailers augmented their operations by bringing them onto the Web, while others moved completely from physical structure to the Internet (Oz, 2002: 145).

Oz (2002: 147) states that the purpose of e-retailing (or e-tailing) is to sell goods to consumers via the Internet. Generally, this entails a site that:

- promotes the items offered for sale;
- provides a mechanism to search for items by attributes such as brand, size, color, and price; and
- has the means to accept a purchase and payment for it.

Reservations for any type of service seem to be an ideal activity for the Internet. After all, the reservation process is in-demand, information-intensive, and does not require the physical delivery of goods. An online reservation for any service can be more convenient and less time consuming than making one the traditional way that is, by physically going to an office of the seller or even by telephoning. If a reservations site is built properly, it is easy to find the service desired and easy to reserve it. This is true of reservations in any industry. Successful online reservation systems have also been set up in the travel, entertainment, and sports industries (Oz, 2002: 154).
3.3.2. TRADITIONAL COMMERCE VS E-COMMERCE

Rayport and Jaworski (2002: 91-92) examine traditional commerce (bricks-and-mortar) and compare it to e-commerce. They answer five questions that will help a business who want to enter e-commerce and have a brick-and-mortar business:

- **What are the key similarities and differences between e-commerce and brick-and-mortar selling regarding location?**

  The location and naming of an online or bricks-and-mortar store are important to driving traffic to it. Having an easy-to-remember and logical domain name for a virtual store increases brand awareness and makes locating the store easier for customers. Physical stores can locate on popular streets or in malls to maximise foot traffic, while online stores can “locate” their store in virtual malls to generate traffic. In addition, making sure that the location has enough capacity to handle the number of customers it will attract is critical. In a bricks-and-mortar store, having enough capacity involves making sure there is enough physical space to handle the foot traffic generated by the store. Online, having enough capacity involves maintaining enough server bandwidth and processing power to allow fast and reliable access to the store during peak hours of use.

- **What are popular methods for marketing an e-commerce store?**

  The vehicle used for marketing many bricks-and-mortar stores (for example, advertising, public relations, and guerrilla marketing) are also available to online storefronts. In addition, the online medium provides new marketing options such as banner advertising, spam, and viral marketing.

- **How does e-commerce payment differ from bricks-and-mortar payment?**

  A variety of popular payment forms exist in the offline world. In the online world, however, credit card is fundamental. When a credit card is used in a physical store, the clerk can check the buyer’s identification, and the store has a signed
receipt for the purchase to keep in its records. Online purchases, however, do not have this paper trail and are, therefore, referred to as card-not-present transactions. Because of this difference, the financial responsibility for credit-card fraud is placed on the credit-card company for bricks-and-mortar purchases and on the merchant for online card-not-present transactions.

- What roles does security play in e-commerce?

The key components of online security are privacy and authentication. SSL is the most popular encryption technology used to ensure privacy during online purchases. Encryption utilises public key infrastructure to encrypt and decrypt sensitive information. Digital signatures are used to authenticate the identity of Web sites so that consumers can be sure they are giving their payment information to the company they intend to. Firewalls are used to decrease the risk of Internet hackers gaining access to a company's private networks and sensitive information.

- What challenges exist in e-commerce fulfillment?

Along with the complexities associated with warehousing, picking, packing, shipping, and handling returns, e-commerce companies must contend with issues specific to Web businesses. E-commerce customers are increasingly expecting better information on the status of their orders. E-commerce businesses have to integrate the activities of many different parties to ensure proper delivery, as well as contend with the difficulties of integrating Web order-taking capabilities with multiple systems for procurement, payment, inventory management, and delivery. Finally, online retailers have to ensure that they maintain high-capacity utilisation while having adequate capacity to handle customers’ fulfillment needs during peak order cycles.
3.3.3. B2C SUPPLY CHAIN

Rayport and Jaworski (2002: 291-294) explain the supply chain in B2C as follows: one reason for the many supply-chain options available in the B2C market is that online retailers (or e-tailers) do not need to have products physically in stock in a network of retail outlets to sell directly to consumers. Unlike bricks-and-mortar retailers, which must maintain stock on hand in retail outlets, as long as the e-tailer fulfills its promise to deliver goods in a specified time period, consumers do not care how the order is fulfilled. This provides the e-tailer significant flexibility in designing its supply chains.

On the other hand, the B2C supply chain for market space companies is significantly more complex than for offline companies. Web-based deliveries are often small, time-sensitive (overnight, two or three days) deliveries to individuals about whom the company might have very limited information. This is very different from periodically delivering to an established network of shops with which the company has long-term relationships. In addition, a physical outlet network provides network provides the outlet supplier with a predictable expectation of needed routes and volumes. Such predictability is certainly absent when it comes to delivering goods to a changing volume of both new and existing consumers every day.

One of the weakest links in the B2C implementation chain is fulfillment. Late or unfulfilled orders are the leading source of e-commerce complaints. A recent Forrester study found that half of the customers who had an unsatisfactory online buying experience stopped doing business with the offending company. Given the high costs of customer acquisition and the knowledge that disgruntled customers will relay their poor experiences to friends, poorly executed orders are costly to B2C firms. The cost of handling a return is generally three to four times the cost of shipping a product. In addition to refining fulfillment processes to satisfy customers, many firms are beginning to use expedited fulfillment as a means to product differentiation. For example, in an effort to prove its superior fulfillment
capabilities in 1999, Amazon.com guaranteed Christmas delivery to its customers if orders were received by December 22.

In today’s B2C market, there are four primary supply-chain models: stock-it-yourself, outsource warehousing, drop ship, and fulfillment intermediaries.

- **Stock-it-yourself.** For a brick-and-mortar company that also sells online, this model typically involves maintaining an integrated warehouse that is able to handle shipments to stores as well as shipments to Web customers. This is often very difficult, if not impossible, to implement. Systems and processes must handle both large deliveries to physical stores and small, individual orders to online customers.

  For purely online companies, the stock-it-yourself model generally involves an automated warehouse that can directly fulfill online orders. A primary benefit of this model is that it gives the online firm control over its fulfillment process as control over fulfillment is a major concern for online companies. The primary reason that Barnes & Noble tried to purchase the Ingram Book Group, the nation’s largest book wholesaler, was to improve its book distribution system. This purchase was ultimately not completed due to antitrust concerns, but if the purchase had gone through, 80 percent of Barnes & Noble’s online and offline customers would have been within overnight delivery distance from the combined companies’ 11 distribution centres. The only disadvantage of this model is that the whole supply chain is no longer likely to be a strategic asset that the firm can shape in a proprietary way. Hence, it could be argued that such a structure commoditises the supply chain.

- **Outsource warehousing.** Outsourcing warehousing generally involves the use of logistics specialists like Federal Express (FedEx) or UPS to stockpile and ship Web orders. Hewlett-Packard (HP) uses FedEx to handle all of its fulfillment orders from its retail website; FedEx warehouses HP inventory in Memphis, Tennessee (one of its hubs). Once an order comes in through HP’s site, it is automatically transmitted to FedEx’s Memphis facility. Orders are
packaged at its warehouse and directly shipped to the customer via FedEx. HP thereby has a very efficient distribution system to handle fulfillment to its distributors. However, its distribution system is simply not configured to handle small, individual shipments. It is not a trivial task to reconfigure its system to be able to handle both distributor and individual order fulfillment.

FedEx also handles all of the fulfillment duties for proflowers.com. When orders come into proflowers, the order is routed directly to flower growers using FedEx technology. These growers create the floral arrangement, and FedEx picks up and delivers it directly to the customer. In this case, proflowers.com’s role is strictly focused on marketing, assembling a network of quality growers, and overseeing the production process.

- **Drop shipping.** Drop shipping requires an e-commerce company to depend on its manufacturers or distributors to pack and ship its retail Web orders. Drop-shipper specialists even go as far as placing the e-tailer’s name and logo on all shipped orders. Direct-mail catalog companies are benefiting greatly from the growth of e-tail drop shipping; they are experienced in fulfilling individual mail-order catalog purchases and are applying this experience to e-commerce fulfillment. The general design of a drop-shipping fulfillment warehouse is one in which shipments from manufacturers are unloaded at one end, merchandise is organised throughout the warehouse, and individual customer orders are shipped out via US Mail or by an overnight service through the other end of the warehouse. One reason Federated Department Stores purchased Fingerhut, a mail-order house, was to help Federated with its e-commerce supply-chain strategy. In addition to working on Federated fulfillment orders, in 1999, Fingerhut won contracts to do order fulfillment for other well-known companies such as eToys and Wal-Mart. Fingerhut has strongly benefited from the drop-shipping boom. Fingerhut’s revenues in 1999 were expected to be $40 million and were forecasted to increase to $100 million in 2000.
• **Fulfillment intermediaries.** Fulfillment intermediaries take care of all back office operations for e-commerce companies. They handle order processing, direct orders to suppliers, keep customers updated on their order progress, handle order cancellations, and process product returns. These types of systems afford e-commerce entrepreneurs the opportunity to focus on developing their business, and also reduce the initial set-up costs. One fulfillment intermediary, Order Trust, estimates that it would cost the average e-commerce firm at least $1.5 million a year to build and operate an order-processing system; Order Trust claims to sell the same fulfillment capabilities for between $25,000 to $100,000 a year. Fulfillment intermediaries allow e-commerce companies to start operating almost immediately.

Outsourcing order fulfillment also minimises risk. In the rapidly changing online environment, e-commerce companies that outsource do not have to commit to a specific type of supply chain. Shipper.com hopes to capture business from this growing trend of providing same-day service by investing $150 million to build fulfillment warehouses in 10 markets. The company plans to focus on becoming an e-commerce facilitator rather than an e-commerce retail business, with the core of its business focused on fulfilling orders for e-commerce companies. Innovative fulfillment companies such as Shipper.com may give firms, without a proprietary supply chain, an advantage over rivals who have invested resources in a supply chain that cannot provide same-day service.

A basic fact of Internet retailing (*E-tailing*) is that all retail Websites are created equally as far as the location imperative of success in retailing is concerned. No site is any closer to its Web customers, and competitors offering similar goods and services may be only a mouse click away. This makes it vital that businesses find ways to build customer satisfaction, loyalty, and relationships, so customers keep coming back to their Web stores. Thus the key to E-tail success is to optimise several key factors such as selection and value, performance and service efficiency, the look and feel of the site, advertising and incentives to purchase,
personal attention, community relationships, and security and reliability (O’Brien 2002: 177).

3.3.4. ESSENTIAL FOR B2C WEB BUSINESS

O’Brien (2002:178-179) briefly examine each of these factors that are essential to the success of a B2C Web business.

- **Selection and Value.** A business must offer Web shoppers a good selection of attractive products and services at competitive prices or they will quickly click away from a Web store. But a company’s prices do not have to be the lowest on the Web if they build a reputation for high quality, guaranteed satisfaction, and top customer support while shopping and after sale service. For example, top-rated E-tailer REI.com helps the customer select quality outdoor gear for hiking and other activities with a “How to Choose” section, and gives a money-back guarantee on purchases.

- **Performance and Service.** As customers do not want to be kept waiting when browsing, selecting, or paying in a Web store, a site must be efficiently designed for ease of access, shopping, and buying, with sufficient server power and network capacity to support website traffic. Web shopping and customer service must also be friendly and helpful, as well as quick and easy. In addition, products offered should be available in inventory for prompt shipment to the customer.

- **Look and Feel.** B2C sites can offer customers an attractive Web storefront, shopping areas, and multimedia product catalogs. This could range from an exciting shopping experience with audio, video, and moving graphics, to a more simple and comfortable look and feel. Thus, most retail e-commerce sites allow customers to browse product sections, select products, drop them into a virtual shopping cart, and go to a virtual checkout station when they are ready to pay for their order.
• Advertising and Incentives. Some Web stores may advertise in traditional media, but most advertise on the Web with targeted and personalised banner advertisements and other Web page and e-mail promotions. Most B2C sites also offer shoppers incentives to buy and return. Typically, this means coupons, discounts, special offers, and vouchers for other Web services, sometimes with other e-tailers at cross-linked Websites. Many Web stores also increase their market reach by being part of Web banner advertising exchange programs with thousand of other Web retailers.

• Personal Attention. Personalising the customer’s shopping experience encourages buying and return visits. Thus, e-commerce software can automatically record details of visits and build user profiles as well as other Web shoppers. Many sites also encourage customers to register with them and fill out a personal interest profiles. Then, whenever they return, they are welcomed by name or with a personal Web page, greeted with special offers, and guided to those parts of the site that they are most interested in. This one-to-one marketing and relationship building power is one of the major advantages of personalised Web retailing.

• Community Relationships. Giving online customers with special interest a feeling of belonging to a unique group of like-minded individuals helps build customer loyalty and value. Thus, website relationship and affinity marketing programs build and promote virtual communities of customers, suppliers, company representatives, and others via a variety of Web-based collaboration tools. Examples include: discussion forms or newsgroups, chat rooms, message board systems, and cross-links to related website communities.

• Security and Reliability. Customers of a successful Web store must feel confident that their credit cards, personal information, and details of their transactions are secure from unauthorised use. They must also feel that they are dealing with a trustworthy business, whose products and other website information can be trusted to be advertised. In addition, having orders filled and
shipped as requested, in the time frame promised, and with good customer support are other measures of an e-tailer’s reliability.

3.3.5. CRITICAL QUESTIONS

Rahman and Raisinghani (2000: 6) suggest that there are some critical questions that need to be answered before an organisation begins selling products or services online. These include:

- How well suited are the organisation’s products for selling on the Web?
- What will happen to the organisation’s traditional sales channel?
- What are the organisation’s business objectives? For example, do they want their market reach extended, costs reduced or customer relationships improved?
- How will issues related to order fulfillment, returns and exchange be addressed? How will front-end Web site with back-end database management system/s be integrated? How will bills be processed?
- How will transactions that take place be secured?
- What will be done with the all the personal information gathered on customers? Will customers be told how their information will be used?

3.3.6. TEN STEPS TO IMPLEMENT E-COMMERCE

For B2C to be successful, Tiernan (2000: 57-84) believes that there are ten steps an organisation should follow to implement e-commerce:

Step 1: Set Goals

E-commerce is a technology that exists to support business goals and is not technology for the sake of technology. E-commerce should help an organisation to accomplish the following:
• Make business processes simpler, faster, and more efficient;
• Cut overall costs (eventually);
• Make business more competitive;
• Enable business to serve consumers and other businesses globally, as if they were local;
• Help create new products and services to meet customer needs;
• Level the playing field for large and small business; and
• Expand view of future possibilities.

If an organisation requires e-commerce to enhance its business rather than weigh it down with additional monthly expenses and problems, it will need to take the first step very seriously. If this is done correctly, it will do more than just create a multi-page Web site. A window can be created for customers everywhere, at any time of day, who might never have been previously accessible. A convenient, secure environment in which to handle purchases will have been created.

It is vital that e-commerce is integrated with the rest of an organisation’s business. A business plan will also provide the structure to support an organisation’s goals for marketing and financing of the company.

In the setting up of goals for an e-commerce system, specific ways to minimise the risk of time investment, effort and money must be delineated. In addition, potential problems from the start must be addressed as well as examining the competition and seeing what they are doing.

When setting goals for an organisation’s e-commerce strategy as well as, its Web site, it is important to be specific about what is expected from the to do with your Web site. The following questions should be considered:

• What is the organisation’s mission? Who they are and what makes their businesses better than that of the competition?
• What does the organisation want its Web site to accomplish? How will its Web site help the organisation achieve its goals?
• Will information about the organisation be provided? Will this include its history? Its major clients? And, will this serve as an online “brochure”?
• How will information about products, services, features and benefits, prices, and ordering information be provided?
• To what extent will the Web site mimic offline materials and catalogs or offer fresh new information and features? Will new products and services, or provide a more vivid depiction of the same inventory be introduced?
• How detailed should the organisation’s electronic catalog be?
• How will the Web site be used to establish a relationship with customers, provide customer support, and gather information and ideas from customers?
• What level of interactivity will be provided for customers? How many different links should be offered?

Step 2: Access the Internet

What is needed to get connected to the Internet?

An organisation’s computer configuration is the complete set of equipment that will be used to access the Internet for its business. Therefore, it is important to get the best configuration that can be afforded, with an eye to the future, regardless of whether the system is located in a home basement, office or a prestigious corporate headquarters. For e-commerce, the most sophisticated capabilities to support multimedia programming is needed.

The larger the operation, the more critical round-the-clock support is. When the volume of the orders coming into a business begins to increase, the organisation will need to consider handling noncritical functions during nonpeak hours.

A computer network is the data communication system that connects systems at different sites. Many small businesses opt to select an Internet Service Provider
(ISP) rather than acquire their own. However, it is important to be careful of choices made. An ISP can help an organisation take full advantage of Internet capabilities.

Step 3: Promote Web Sites

An organisation should establish its presence early and definitively. This can be done by:

*Selecting a domain name.* A domain name is the unique name that identifies an organisation’s Internet site. It is a good idea to try for easy recognition and memorisation for customers. If a brand name of the company is strong, that may be an even better choice. It is also important to register a domain name.

*Register with search engines.* More than 300 search tools are available today. Search sites and engines help consumers find what they need on the Web and they also help potential customers locate a Web site. An organisation is not really on the Web until it is listed in a directory that is accessible by a Web server program. It is like having an unlisted telephone number. Individual registration with each search engine is required.

*Choose keywords.* Search sites like Yahoo! are directories sorted in categories and subcategories. Search engines, on the other hand, are computerised searches by keywords or phrases. Keywords can be any words chosen that have a connection to a product or service, and are not necessarily part of an organisation’s product definition or service description. As keywords should make sense to customers, keywords that quickly relate to products and services to attract the right customer to Web site should be selected.

*E-market the organisation’s name.* Reinforce domain names on all of printed material: brochures, stationery, business cards, flyers, press releases, and advertising. Domain names should be as much a part of an organisation as addresses, phone, and fax numbers have been.
Link to and from other sites. Connect with similar organisations, passing information back and forth as this will increase traffic to sites. Also connect with companies that serve similar target markets, even though their products and services may be distinctly different. As they can provide a beneficial connection.

Step 4: Web Site Design

Consider the following:

How complex should a Web site be? To determine complexity, consider the number of pages; the number of elements on a page (photos, articles, forms, headlines.); site revision (frequency of updates to the pages daily, weekly, monthly, or less often); and interactivity.

Also plan the interface between the Web site and customers. Determine the interactivity between customer and Web pages; customers and organisation; and customers and one another before details of technically composing the Web site are put into operation.

Project a professional image. The image the project online is just as important as a physical presence. An influential introduction to a company can be created by using available technology, which is becoming more powerful and advanced rapidly.

Step 5: Create an Electronic Catalog

Electronic catalogs, e-catalogs, can be used in two ways.

Stand-alone catalogs display products and services in an innovative manner. This is a Web site put together to sell a product or service. More than an online version of a printed catalog, the stand-alone catalog should more closely represent an electronic storefront, bringing the shopper closer to the heart of the business.
Electronic mall or cybermall lists products and services in the e-catalogs of other companies to gain wider exposure. It is a catalog of catalogs, a collection of catalogs from different merchants combined by an ISP.

As presentation is very important, the best balance between graphics and text must be achieved. However, for an elaborately designed catalog to be fully displayed takes a long time so should be avoided. The same customers who dislike waiting in shopping lines in brick-and-mortar stores will lose interest in online sites too.

Step 6: Identify Distribution Channels

As function flows vary for different businesses, supply chains need to be delineated in great detail. It is essential that to examine closely the tasks that will occur to get from the point where a customer places an order to the moment the order is shipped.

The following questions need to be considered when analysing the information flow in the supply chain:

- What are the central lines of communication?
- Exactly who must be communicated with? When? How much advance notice is needed if a sudden increase or decrease in the volume of orders is anticipated?
- What information is passed back and forth, and in what format?
- What measures need to be taken if an order needs to be expedited?
- If needs cannot be met by a primary supplier or vendor, are there alternate companies?

Step 7: Develop a Method of Order Processing

As soon as an on-line sales presence is developed, an organisation has the capacity to sell 24 hours a day, 7 days a week, all round the world. Clients and
customers can also have up-to-the minute information about products, service, prices, and availability. The steps that will need to be taken to ensure that customers can shop 24/7 include transferring money, processing payments, handling invoices and billing.

Offer real-time payment solutions.
As transfers will often be electronic, an organisation’s bank will need electronic fund transfer capabilities. The objective in selecting a method of payment is to minimise disruptions for the organisation and its customers, while providing real-time solutions that are affordable and safe. Credit card payments, electronic money, electronic checks, and smart cards are the most common methods of electronic commerce payment. Payment methods can be designed into a system or contracted out to a company that handles third-party payment.

Work out shipping arrangements.
Shipping arrangements will depend on where an organisation’s merchandise is located. However, whether stock is stored at an organisation’s location, or shipped from one or more manufacturers at various locations, it is important that products are delivered to the consumer as quickly, and safely, as possible. This is as important as handling financial transactions safely.

In addition, arrangements for regular and expedited shipments with the best carrier to suit an organisation’s needs must be worked out. UPS has generated software to integrate merchants’ processes with theirs to provide fast, efficient, and accurate approach to shipping merchandise.

Step 8: Select Security Systems

Security systems serve the dual purpose of safeguarding customers’ privacy and protecting all confidential company records and data. Private information about inventory, suppliers, and clients cannot be accessible to unauthorised individuals.
Networks can be protected from unauthorised access to confidential information by encryption, firewalls, and proxy servers. Passwords can be used to isolate specific sections of servers and allow only specific information to be accessible to authorised users.

Security precautions are critical in dealing with all forms of digital and electronic currency, particularly electronic cash. Merchants need system designs that reduce the possibility of fraud and security threat.

Step 9: Develop Inventory Tracking Procedures

Experience e-commerce companies have found that it is possible to dramatically reduce overall costs by installing new procedures for inventory tracking and control. The Internet allows a vendor to build demand, reducing inventory to the minimum. According to this strategy, manufacturers produce only as much as required by incoming orders. This eliminates the problem of overstocked warehouses, and as a result reduces debt for both merchants and manufacturers.

For this to work, there is no room for error. Therefore, all order information must be accurate, and there can be no bottlenecks in the system.

Step 10: Refine Customer Interface

An organisation should always encourage feedback. The fundamentals of nurturing relationships and building loyalty span the life of businesses. All systems will need to be capable of receiving and monitoring feedback from customers continuously. Customers should be apprised of business ‘news’ frequently and ways should be set up for customers to provide feedback on what they are doing and what they need. It is also important to track their purchase patterns, and build on the information on past orders to help them with future buys.

Before any organisation implements B2C; it is important to understand B2C, how it could affect a business and its strategy. To do this, a detail market research is
required, finding out the needs of customers and how the organisation’s product will perform on the net. Once the organisation is sure that selling their product on the Internet will be beneficial and will achieve their objectives, a good implementation plan is required. Tiernan’s (2000) ten steps to implement e-commerce should be used as they will help minimise an organisation’s risks.

3.4. SUMMARY

Although this chapter covered e-commerce, it focused on B2B and B2C.

The focuses of what was discussed in B2B were the activities and supply chain of B2B. Also covered in this chapter was EDI, the overview of EDI, the advantages and drawbacks of EDI and the internet-based EDI. Lastly, B2B marketing was also discussed on how a company can find customers for its products.

Chapter 3 examined B2C so that the focus of traditional commerce and e-commerce could be understood. Other important aspects that were discussed in B2C were the activities and supply chain of B2C. Web site development was also discussed and the essentials for B2C web business were considered as well as critical questions that an organisation should ask if wanting to sell online on the Internet. Finally, if an organisation was still interested in Internet access after answering the critical questions, they should consider following Tiernan’s (2000: 57-84) ten steps to implement e-commerce.
CHAPTER 4

THE EMPIRICAL STUDY, METHODS USED AND ANALYSIS OF DATA

4.1. INTRODUCTION

In Chapter 2 and 3, the literature study was used to establish answers to the first three sub-problems: What strategies can textile managers adopt to develop a competitive advantage through e-business? How can e-business enhance the relations between the organisation and its customers? How can e-business enhance the relations between the organisation and its suppliers?

This was done by examining and understanding e-business, the business model and strategic roles of e-business, e-commerce, the supply chain and the strategy involved with e-commerce.

The empirical study will help resolve the forth sub-problem: What do experts within textile industry feel, the role of e-business and e-commerce has or could play in the industry? The manner in which this sub-problem will be addressed is explained in this chapter.

4.2. RESEARCH DESIGN

The research was designed around the main problem and the sub-problem. The main problem is:

*What is required for e-commerce and e-business to have an impact on the Textile Industry in the Nelson Mandela Metropolitan?*

From the main problem, four sub-problems were identified to assist with the solution to the main problem, namely:

- What strategies can textile managers adopt to develop a competitive advantage through e-business?
• How can e-business enhance the relations between the organisation and its customers?
• How can e-business enhance the relations between the organisation and its suppliers?
• What experts within the textile industry expect the role of e-business and e-commerce to be in the industry?

The procedures to solve the main problem and sub-problem were as follows:

• In Chapter 2 a literature study was conducted on e-business. The understanding of e-business, the business model and strategic roles of e-business were focused on in this chapter.
• In Chapter 3 a literature study was conducted on e-commerce. The understanding of e-commerce, the supply chain and the strategy involved with e-commerce were focused on in this chapter.
• In order to resolve the forth sub-problem, namely what experts within textile industry expect, the role of e-business and e-commerce to be in the industry, a questionnaire was designed to ascertain what their expectations.
• Lastly, the results gained through the survey were analysed to ascertain if the extent to which the textile industry is using e-business and e-commerce and if they are ready to take advantage of these systems.

4.3. THE QUESTIONNAIRE

The questionnaire was divided into two parts. Section A was made up of demographic questions that offered choices for the respondent to tick. The questions in this section surveyed the number of employees, geographical location, positions held, manufacturing sector, product category and number of personal computers (PC).

Section B was made up of questions to ascertain from the respondent what they understood about e-business and e-commerce, what activities the organisation
was involved in regarding e-business and e-commerce and what benefits they perceived to be important.

4.4. THE RESEARCH RESPONSE

The survey was disseminated on the 18 November 2002 and a response rate of 82.75 percent was attained by the due date, 17 December 2002. There were multiple respondents from the same organisation which could distort the results based on their knowledge of the organisation. Table 4.1 shows the data collection procedure.

Table 4.1: Summary of data collection procedure.

<table>
<thead>
<tr>
<th>Number of Questionnaires hand delivered</th>
<th>Number of Questionnaires returned</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>24</td>
<td>82.75</td>
</tr>
</tbody>
</table>

4.5. RESULTS OF BIOGRAPHICAL DATA IN SECTION A OF QUESTIONNAIRE

Section A of the questionnaire required the respondents to provide general information about themselves and the organisations in which they are employed.

The results for section A of the questionnaire are provided in Tables 4.2 to 4.7. A brief discussion of the data is provided following each table.
Table 4.2: Size of organisation

<table>
<thead>
<tr>
<th>Size of organisation</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 100 employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>101 to 300 employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>301 to 500 employees</td>
<td>1</td>
<td>4.17</td>
</tr>
<tr>
<td>501 to 700 employees</td>
<td>12</td>
<td>50.00</td>
</tr>
<tr>
<td>701 to 1000 employees</td>
<td>4</td>
<td>16.67</td>
</tr>
<tr>
<td>1001 to 3000 employees</td>
<td>7</td>
<td>29.17</td>
</tr>
<tr>
<td>3001 and more employees</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results of analysis of organisation size

Table 4.2 shows that 50 percent of the companies that responded fall into the group of 501 to 700 employees. The group with between 1001 and 3000 employees represented 29.17 percent, while 16.67 percent of respondents represented organisations with 701 to 1000 employees.

Table 4.3: Magisterial district

<table>
<thead>
<tr>
<th>Magisterial district</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Elizabeth</td>
<td>13</td>
<td>54.17</td>
</tr>
<tr>
<td>Uitenhage</td>
<td>6</td>
<td>25.00</td>
</tr>
<tr>
<td>Both</td>
<td>5</td>
<td>20.83</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results of analysis of response rate by magisterial district

Table 4.3 shows that each district is represented by 54.17 and 25 percent respectively, while 20.83 percent are represented in both districts.
Table 4.4: Positions of respondents

<table>
<thead>
<tr>
<th>Position of Respondent</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing/ Logistics Manager</td>
<td>3</td>
<td>12.50</td>
</tr>
<tr>
<td>Sales &amp; Marketing Manager</td>
<td>5</td>
<td>20.83</td>
</tr>
<tr>
<td>IT/ MIS Manager</td>
<td>3</td>
<td>12.50</td>
</tr>
<tr>
<td>Manufacturing/ Production Manager</td>
<td>1</td>
<td>4.17</td>
</tr>
<tr>
<td>Financial/ Administration Manager</td>
<td>4</td>
<td>16.67</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>33.33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of position of respondent

Table 4.4 shows that *Other* accounted for 33.33 percent of respondents. Sale and Marketing accounted for 20.83 percent, Financial/Administration Managers accounted for 16.67 percent, Purchasing/ Logistics and IT/ MIS managers 12.50 percent and Manufacturing/ Production represented 4.17 percent.

Table 4.5: Manufacturing sector

<table>
<thead>
<tr>
<th>Manufacturing sector</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Textile</td>
<td>12</td>
<td>50.00</td>
</tr>
<tr>
<td>Household Textile</td>
<td>9</td>
<td>37.50</td>
</tr>
<tr>
<td>Both</td>
<td>3</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of manufacturing sector
Table 4.5 shows that 50.00 percent of the organisations are in the industrial sector and 37.50 percent in the household sector while 12.50 percent are in both sectors.

Table 4.6: Product category

<table>
<thead>
<tr>
<th>Product category</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarn</td>
<td>3</td>
<td>12.50</td>
</tr>
<tr>
<td>Fabric</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td>Both</td>
<td>11</td>
<td>45.83</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of product category

Table 4.6 shows that the products are categorised into 45.83 percent for Both Yarn and Fabric, 41.67 percent into fabric only while 12.50 percent is Yarn only.

Table 4.7: Number of PCs

<table>
<thead>
<tr>
<th>Number of PCs</th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 25 PCs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26 to 50 PCs</td>
<td>9</td>
<td>37.50</td>
</tr>
<tr>
<td>51 to 75 PCs</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td>76 to 100 PCs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>101 to 125 PCs</td>
<td>2</td>
<td>8.33</td>
</tr>
<tr>
<td>126 to 150 PCs</td>
<td>3</td>
<td>12.5</td>
</tr>
<tr>
<td>151 and more PCs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of number of PCs
Table 4.7 shows that the number of PCs in an organisation are 51 to 75 (41.67 percent), 25 to 50 (37.50 percent), 101 to 125 (8.33 percent) and 126 to 150 (12.50 percent).

4.6. QUANTITIVE ANALYSIS OF RESULTS OF SECTION B OF THE QUESTIONNAIRE

The questions in section B were designed to ascertain what the managers within the textile industry know about e-commerce and e-business and the role it has or could play within the industry?

The results for section B of the questionnaire are provided in Tables 4.8 to 4.35. A brief discussion of the data is provided following each table.

Table 4.8: Does the organisation have a computer network?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>100.00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis computer network

Table 4.8 shows that 100.00 percent of the respondents understood that their organisation was using a network. It appears that the respondents understand what a computer network is.
Table 4.9: Does the organisation have e-mail?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>100.00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don't Know</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis e-mail

Table 4.9 shows that 100.00 percent of the respondents understood that their organisations were using e-mail. This is encouraging as the respondents should have experienced the advantages of e-mail, which will assist them in performing their jobs more efficiently.

Table 4.10: Do the computer users use e-mail to do business?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
<td>91.67</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
<td>8.33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis e-mail as a tool to do business

Table 4.10 shows that 91.67 percent of the respondents believed that the organisation’s computer users used e-mail to do business, while 8.33 percent did not know if it was used for business.
Table 4.11: Do the computer users have Internet access?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Don't Know</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis Internet access

Table 4.11 shows that 95.83 percent of respondents believed that their organisations' computer users had access to the Internet but the fact that 4.17 percent did not realise this, could suggest that only selected users had Internet access. This could also suggest that the respondents were aware of what the Internet has to offer and what some of the drawbacks of a poorly designed Web site were. These respondents should be able to give constructive input on their organisations' Web design? (look and feel) . In addition, if their organisations had online selling, they should be able to provide comment. .

Table 4.12: Is the organisation's computer network protected from outside threats?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Don't Know</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis network protection

Table 4.12 shows that 91.67 percent of the respondents believed that their organisations' network was protected, while only 8.33 percent did not know if they were protected or not. However, it can be concluded that the organisations have realised that their systems and data are important because they were providing protection.
Table 4.13: Does the organisation have a firewall?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9</td>
<td>37.50</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>29.17</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>8</td>
<td>33.33</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis firewall

Table 4.13 shows that 37.50 percent of respondents believed that their organisations’ had firewalls installed whereas 29.17 percent did not. 33.33 percent did not know.

Table 4.14: Does the organisation have a Web site?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>100.00</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis Web site

Table 4.14 shows that 100.00 percent of the respondents understood that their organisations had a Web sites. This revealed that the respondents were aware of the organisations’ Web sites.
Table 4.15: Is the Web site promoted on the Internet?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>14</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis promotion of Web site of the Internet

Table 4.15 shows that 58.33 percent of respondents believed that their organisations’ Web sites were promoted on the Internet, 20.83 percent did not believe that they were, while 20.83 percent did not know. It would be very important for organisations to promote their Web sites on the Internet. By promoting the Web site, the organisation will hopefully increase potential customers to visit the Web site and purchases some of the products. Promoting on the Web site would entail buying banner space on other organisations’ Web sites. This could result in very good exposure on the Internet.

Table 4.16: Is the Web site used for product and company awareness?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of product and company awareness on the Internet

Table 4.16 shows that 91.67 percent of respondents believed that their organisations used their Web sites to promote their products and company, 4.17 percent did not believe that it did, while 4.17 percent did not know. This
organisations were using their Web sites for what they were intended, namely, advertising organisations and their products or services.

Table 4.17: Is the Web site used for information gathering and feedback from customers?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of information gathering and feedback from customers

Table 4.17 shows that 65.50 percent of respondents believed that their organisations did not use the Web site for information gathering and feedback, 20.85 percent believed that they did, while 16.67 percent did not know. Although customer feedback is an important tool for market research at a low cost, it appears that the organisations were not using this feature.

Table 4.18: Is the Web site used for online selling?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of online selling

Table 4.18 shows that 70.83 percent of respondents believed that their organisations did not do online selling, 12.50 percent believed that it did, while
16.67 percent did not know. It appears that the organisations were not using online selling, but there could be valid reasons for not using it.

Table 4.19: Does the organisation's Web site achieve its goals?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of goals achieved by Website

Table 4.19 shows that 83.33 percent of the respondents were not sure if the goals were achieved, while only 16.67 percent believed that they did not achieve their goals. It appears that their organisations were just following the trend of having Web sites and were not experiencing the advantages of Internet use.

Table 4.20: Do the respondents see e-business and e-commerce as one?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of e-business and e-commerce

Table 4.20 shows that 41.67 percent of respondents believed that e-business and e-commerce were one, 33.33 percent believed that they were different, while 25.00 percent did not know. It was not a problem that the respondents considered e-business and e-commerce as one, sources also often do not differentiate between them. However, it would be a concern if the respondents, who were all managers,
did not consider e-business and e-commerce separately. They could then miss a vital component in getting themselves e-enabled.

Table 4.21: Should e-business and e-commerce play a role within the organisation?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of the role of e-business and e-commerce

Table 4.21 shows that 66.67 percent of respondents believed that e-business and e-commerce should play a role within their organisations, 8.33 percent believed that they did not, while 25.00 percent did not know. The majority of the respondents realised that e-business and e-commerce were important and that e-business and e-commerce could play a role in their organisations to help the organisations gain a competitive advantage over their competitors.

Table 4.22: Does the organisation have a strategy for e-business and e-commerce?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of organisation’s strategy for e-business and e-commerce
Table 4.22 shows that 41.67 percent of the respondents believed that their organisations did not have a strategy for e-business and e-commerce, 37.50 percent did not know if their organisations had a strategy, while 20.83 percent believed their organisations had a strategy for e-business and e-commerce. Therefore, as a small percentage had a strategy; could explain why their Web sites were not achieving any goals. Organisations need to rethink their policies on having a strategy for e-business and e-commerce.

Table 4.23: Should the organisation have a strategy for e-business and e-commerce?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis organisation’s strategy for e-business and e-commerce

Table 4.23 shows that 75.00 percent of respondents believed that their organisations should have a strategy in place for e-business and e-commerce, 4.17 percent believed that they did not, while 20.83 percent did not know. It is encouraging that the respondents believed that a strategy should be in place.

Table 4.24: Does the organisation have an ERP computer system?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of ERP computer system
Table 4.24 shows that 95.83 percent of the respondents believed that their organisations' had ERP computer systems, while only 4.17 percent did no know. If the organisations were keeping up to date with software technology some of the constraints that could occur as the e-world changes would be eliminated.

Table 4.25: Does the organisation perform electronic transactions with suppliers and business partners (B2B)?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of B2B

Table 4.25 shows that 62.50 percent of respondents believed that their organisations performed electronic transactions with suppliers and business partners, 20.83 percent believed that they did not, while 16.67 percent did not know. From these statistics, it appears that the advantages of B2B have been recognised and that there are immediate cost savings with B2B.

Table 4.26: Does the organisation perform electronic transactions with consumer (B2C)?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis B2C
Table 4.26 shows that 33.33 percent of respondents believed that their organisations performed electronic transactions with consumer, 50.00 percent believed that they did not, while 16.67 percent did not know. The fact that the response percentage was so low could indicate that the type of products that are being sold do not lend themselves to Internet selling.

Table 4.27: If the organisation does not perform B2B or B2C transactions, should it?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>68.18</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>4.55</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>6</td>
<td>27.27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of should a organisation perform B2B or B2C transactions

Table 4.27 shows that 68.18 percent of respondents believed that their organisations should perform B2B and B2C, 4.55 percent believed that they did not, while 27.27 percent did not know. The respondents recognised that to gain a competitive advantage their organisations would have to implement B2B and B2C.

Table 4.28: Which one of the two (B2B or B2C), should be implemented?

<table>
<thead>
<tr>
<th></th>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2B</td>
<td>3</td>
<td>13.64</td>
</tr>
<tr>
<td>B2C</td>
<td>1</td>
<td>4.55</td>
</tr>
<tr>
<td>Both</td>
<td>11</td>
<td>50.00</td>
</tr>
<tr>
<td>Neither</td>
<td>2</td>
<td>9.09</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>5</td>
<td>22.73</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis B2B and B2C implemented
Table 4.28 shows that 50.00 percent of the respondents believed that their organisations should implement both B2B and B2C, 13.64 percent believe that only B2B should be implemented, 4.55 percent believed that only B2C should be implemented and 9.09 percent believed that neither should be implemented, while only 22.73 percent did not know. It appears that the respondents believed that there was more to gain by implementing B2B and B2C.

Table 4.29: Does the organisation use e-procurement?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of e-procurement

Table 4.29 shows that 54.17 percent of respondents believed that their organisations did not use e-procurement, 8.33 percent believed that they did, while 37.50 percent did not know. As e-procurement should help the organisations with their supply chain, they should investigate the potential of e-procurement.

Table 4.30: Does the organisation use EDI at all?

<table>
<thead>
<tr>
<th>Response frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of EDI

Table 4.30 shows that 33.33 percent of respondents believed that their organisations did not use EDI, 16.67 percent believed that they did, while 50.0
percent did not know. It appears that the organisations have recognised that there are advantages for implementing EDI. The possibility that the percentage was so low was that some of the respondents did not use the facility, but possibly certain business processes did not need this feature.

Table 4.31: Does the organisation do EFT?

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>20</td>
<td>83.33</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>4</td>
<td>16.67</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of EFT

Table 4.31 shows that 83.33 percent of respondents believed that their organisations were using EFT, while 16.67 percent did not know if they were using it. In using EFT, organisations were limiting the risk of handling money and increasing productivity, in paying any debt.

Table 4.32: Could e-business and e-commerce give the organisation a competitive advantage?

<table>
<thead>
<tr>
<th>Response</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>16.67</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>10</td>
<td>41.67</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of advantage e-business and e-commerce for the organisation

Table 4.32 shows that 41.67 percent of respondents believed that e-business and e-commerce could give their organisations a competitive advantage, 16.67 percent
believed that they did not, while 41.67 percent did not know. The fact that some of
the organisations did not have a strategy for e-business and e-commerce would
make them skeptical about the organisation gaining an advantage or the
respondents were not aware of the advantage to be gained if e-business and e-
commerce were implemented.

Table 4.33: Efficiency benefits

<table>
<thead>
<tr>
<th>Efficiency benefits</th>
<th>Total of priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowering costs</td>
<td>71</td>
</tr>
<tr>
<td>Improving productivity</td>
<td>73</td>
</tr>
<tr>
<td>Improving business processes</td>
<td>75</td>
</tr>
<tr>
<td>Improving transaction speeds</td>
<td>88</td>
</tr>
<tr>
<td>Reducing inventory levels</td>
<td>95</td>
</tr>
<tr>
<td>Reducing errors</td>
<td>96</td>
</tr>
<tr>
<td>Improving quality</td>
<td>116</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of efficiency benefits

Table 4.33 shows that the respondents believe that lowering costs were the most
important efficiency benefits, while improving quality was the least important of the
seven benefits that were prioritised. Studying the results shows that the
respondents were considering costs, which would help with increasing profit
margins.

Table 4.34: Service benefits

<table>
<thead>
<tr>
<th>Service benefits</th>
<th>Total of priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving customer service and support</td>
<td>43</td>
</tr>
<tr>
<td>Improving communication between business units /</td>
<td>61</td>
</tr>
<tr>
<td>departments</td>
<td></td>
</tr>
<tr>
<td>Improving supplier relationships</td>
<td>62</td>
</tr>
<tr>
<td>Providing more accurate and up-to-date information</td>
<td>66</td>
</tr>
<tr>
<td>Providing a secure computer network</td>
<td>96</td>
</tr>
</tbody>
</table>
Source: Results obtained from analysis of service benefits

Table 4.34 shows that the respondents believed that improving customer service and support were the most important service benefit, while providing a secure computer network was the least important of the five benefits that were prioritised. The respondents were more focused on customers as this was their form of income.

Table 4.35: Product and Market benefits

<table>
<thead>
<tr>
<th>Product and Market benefits</th>
<th>Total of priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making organisation a global player</td>
<td>53</td>
</tr>
<tr>
<td>Increasing sales</td>
<td>62</td>
</tr>
<tr>
<td>Increasing organisation awareness</td>
<td>71</td>
</tr>
<tr>
<td>Increasing product awareness</td>
<td>73</td>
</tr>
<tr>
<td>Increasing competitiveness</td>
<td>78</td>
</tr>
<tr>
<td>Help create new products</td>
<td>119</td>
</tr>
</tbody>
</table>

Source: Results obtained from analysis of product and market benefits

Table 4.35 shows that the respondents believed that making organisation a global player was the most important product and market benefits, while creating new products was the least important of the six benefits that were prioritised. The only problem was, how were they going to achieve these benefits without a strategy for e-commerce?
4.7. SUMMARY

The aim of this chapter was to set out the planning, the execution and results of the empirical component of the study. The research population was clearly defined and a questionnaire was designed based on the model developed from information gained from the literature study.

The results of the empirical study were then analysed in order to ascertain from the respondents what they understood about e-business and e-commerce, what activities the organisations were involved in regarding e-business and e-commerce and what benefits they perceived to be important.
CHAPTER 5

INTEGRATION OF THE FINDINGS OF THE EMPIRICAL SURVEY WITH THE LITERATURE STUDY, RECOMMENDATIONS AND CONCLUSIONS

5.1. INTEGRATION, RECOMMENDATIONS AND CONCLUSIONS

As stated in the introduction, there have been many articles and books written about e-business and e-commerce, how important they are, where they are going, the impact they have on organisations and what strategies organisations should implement so that they may benefit from them.

Turban, Lee, King and Chung (2000: xxvii) state that as the second millennium was entered, one of the most important life changes would be experienced, in the move to an Internet-based society. One of the most significant changes would be the manner in which business was conducted, especially how the marketplace and commerce was managed.

Kalakota and Robinson (1999: xix - xx) state that e-commerce is changing the shape of competition, the dynamics of customer relationships, the speed of fulfillment, and the nature of leadership.

According to Norris, West and Gaughan. (2000: xi), e-business over the Internet would explode in the next few years, becoming a $300-500 billion dollar market. This was not only the hope of a few engineers it was the judgment of just about every industry leader and market analysis.

Forrester Research found the following in a research they did about B2B; while the US B2B revenues would grow to $108 billion in 2003, the business-to-business revenues would balloon to $1.3 trillion, accounting for 9.4% of total business-to-business sales (Rahman & Raisinghani, 2000: 7).
Stones (2001: 1) wrote the article: Become e-enabled or wave goodbye to future, warning organisations of e-business and e-commerce and how important it will become.

As e-business and e-commerce is the future, it is important for organisations to determine the role of e-business and e-commerce in their organisations. The organisations would need to know what strategy is required to implement e-business and e-commerce and how to maintain it.

**E-business**

After examining e-business within the textile industry, it can be concluded that the textile industry has an e-business info-structure and a computer network that is protected from outside threats. In some cases they even have firewalls. The organisations also have e-business application infrastructure, ERP computer systems, which indicates that business units are working together through the system and the network. Most of the ERP systems on the market, like SAP and BAAN, are geared toward e-commerce (B2B and B2C), forcing the organisations to have a secure network and data security.

It is a natural process for organisations to have most of e-business implemented, if the organisations want to stay up to date with network and software technology. These organisations will need to have ERP systems with firewalls to protect their networks and have the correct protocol to communicate between workstations.

The textile industries’ e-business is very much in place to handle e-commerce. The only implementation that could be required is dependent on whether or not the organisation wants to host their own Web site or not. If they do, there would be more requirements, like gateways to be implemented and software for maintaining the Web site. Another factor could be the way the organisation wants to conduct their e-commerce on the Internet. This could lead to the implementation of more hardware. They would also have to consider some of the following points:
• Security;
• Payments;
• Computer networks;
• Internet addressing;
• Virtual private networks; and
• Firewalls and proxy servers.

The organisations need to remember that the rules of the business game are being rewritten to be the rules of e-business, according to Kalakota and Robinson (1999: 4 – 6), as discussed in Chapter 2:

• Ensuring that technology is no longer an afterthought in forming business strategy, but rather the cause and driver;
• Streamlining information structures to influence and control its flow is a dramatically more powerful and cost-effective service than that of moving and manufacturing physical products;
• Overthrowing the dominant, outdated business designs which often lead to business failure;
• Using e-commerce to listen to customers and become “the cheapest,” “the most familiar,” or “the best”;
• Not just using technology just to create the product, but using technology to innovate, entertain, and enhance the entire experience surrounding the product: from selecting and ordering to receiving and service;
• Using reconfigurable e-business models to best meet customers’ needs;
• Creating flexible outsourcing alliances that not only off-load costs but also make customers ecstatic;
• Minimising application infrastructure needs and focusing on the glitzy front-ends applications can be a costly oversight.
• Planning e-business infrastructure course swiftly and implementing it ruthlessly are keys to success. Ruthless is the norm;
• Aligning business strategies, processes and applications quickly, correctly, and all at once; and
• Having strong leadership is imperative.

According to Kalakota and Robinson (1999:106-108), as discussed in Chapter 2, e-business designs are the first-level strategic weapons in the new digital economy. In an environment in which multiple variables, namely, technology, customer requirements, supply chains, are changing simultaneously, the old systems of differentiation like low cost, quality, and incremental process improvement are playing a lesser role in sustaining growth. Business design is no longer an optional part of corporate strategy; rather, it is the very core. To create an innovative e-business design, the answer to the following questions must first be answered:

• What business design can make customers’ shopping and service experiences unique and memorable?
• What capabilities and competencies create rich customer experiences?
• In the quest for customer-centricity, is the organisation product or process oriented?
• How is the customer sold to, through a sale force, reseller channels, or a call center (direct)?
• In the quest for efficiency, how is the organisation structured for efficiency?
• In the quest for cycle-time reduction, how much does the company manufacture internally, and how much does it outsource?
• How are products distributed?

Each of these e-business design elements must be in alignment for an organisation to excel at providing exactly what customers wish to experience when doing business.

For the organisation to become or remain competitive with its competitors, it would need a good strategy for its e-business. Good business processes will include a plan on when hardware and software will be updated or replaced and when new technology will be implemented. Without a strategy and capital provision, the organisation could lose its competitive advantage.
E-commerce

As discussed in Chapter 3, Rayport and Jaworski (2002: 294-296) stated that B2B sites are revolutionising manufacturers supply chains by allowing manufacturers the opportunity to realise lower input prices, reduced inventory and transaction costs, faster delivery, and improved customer service.

65.50 percent of the textile industry appears, according to the questionnaire, to be performing B2B. For the organisations to be competitive or have an advantage, they will need to focus on the supply chain and the benefits that Rayport and Jaworski (2002) have identified.

It appears that the organisations are using e-mail to conduct business, according to 91.67 percent of the respondents. The problem with this finding is that there are still too many human interventions in these systems. This should be automated by computerising the systems. The organisations would need to consider one of the following or both to conduct B2B; EDI and/or VPN. It would depend on the suppliers and the organisations on what would need to be implemented for B2B, based on the e-business. If the organisations do not need EDI or VPN, it would be of interest to investigate the reasons why e-mail is efficient enough for the organisation.

The greatest advantage of B2B is that it is possible to predict the cost saving of the benefits that Rayport and Jaworski (2002) identified. The fact that they are doing B2B and the results of how the respondents prioritised the benefits in the survey, indicate that they are aware of the benefits to be gained. An organisation that wants to implement B2B and B2C, would be advised to implement B2B first as then they could calculate the savings and achieve it. Once the savings are consistent from B2B, only then should B2C be implemented. B2B could support B2C while there are unpredictable customers and unknown market factors and B2C could run at a loss for a period of time. For example, Amazon.com took a few years to be profitable, B2B could minimise the loss when starting out.
Although the organisations have a Web site, it is possibly mainly used for product and company awareness, according to 91.67 percent of the respondents. They could also use it to gather information from customers or potential customers, according to 20.83 percent of respondents. Therefore, the next step for the organisation is to sell online. This will help them to extend their market and, hopefully, increase their sales volume; it could also give the organisation a competitive advantage over its competitors. The fact that they do not sell online could also encourage organisations to investigate reasons why they are not online. A possible reason for not selling online could also be that the product is not suitable for online selling.

As discussed in Chapter 3, Rahman and Raisinghani (2000: 6) suggest that there are some critical questions that need to be answered before an organisation begins selling products or services online, they include:

- How well suited are products for selling on the Web?
- What will happen to traditional sales channel?
- What are an organisation’s business objectives? For example, does the organisation want to extend its market reach, reduce costs or improve customer relationships?
- How will issues related to order fulfillment, returns and exchange be addressed? How will front-end Web sites with back-end database management system/s be integrated? How will bills be processed?
- How will transactions that take place be secured?
- What will be done with the all the personal information gathered on customers? Will customers be told how their information will be used?

Once organisations have answered the above questions and they feel that their organisation should implement online selling and that it has the potential for success, they should follow Tiernan (2000: 57 - 84) ten steps.
The ten steps an organisation should follow to implement e-commerce, which were discussed in Chapter 3, are:

Step 1: Set Goals;
Step 2: Access the Internet;
Step 3: Promote Web Site;
Step 4: Design Web Site;
Step 5: Create an Electronic Catalog;
Step 6: Identify Distribution Channels;
Step 7: Develop a Method of Order Processing;
Step 8: Select Security Systems;
Step 9: Develop Inventory Tracking Procedures; and
Step 10: Refine Customer Interface.

The organisation should also consider O'Brien's (2002:178-179) factors that are essential for B2C Web businesses, as discussed in Chapter 3:

- Selection and Value;
- Performance and Service;
- Look and Feel;
- Advertising and Incentives;
- Personal Attention;
- Community Relationship; and
- Security and Reliability.

There is a concern that the organisations do not appear to have a strategy for e-commerce. Without a plan and goals, it will be difficult for any organisation to achieve success. If the organisation wants to become competitive or gain a competitive advantage, it would have to put a strategy in place with clear objectives. This problem would make a good topic to be investigated as there might be valid reasons why organisations do not have strategies for e-commerce.
The other reason could be that the organisations are followers and they are only doing what they are doing because it is the trend and not for a feasible reason.

For an organisation to determine that its competitive advantage is an advantage, the organisation’s profits need to be assessed. The true objective of an organisation is to increase its profits yearly and to be as profitable as possible.

There are basically two ways of increasing organisations profits. The one way is to increase the selling price, but this could lead to an organisation pricing itself out of the market. This method is not one of the best approaches. The second way is to reduce the costs, thereby increasing the profit margin. This approach could lead to reducing selling price and increasing volume, gaining market share. What could also be done is that the selling price could increase, thereby increasing the profit margin, but the product should not be priced out of the market.

The organisations should strive for the second approach to increase profits. B2B will be able to help organisations with the second approach, where the cost could be reduced and B2C will be able to help with increasing the volume of sales. With B2B and B2C on a good e-business platform, organisations have a chance of achieving their goal of increased profits. If how the respondents prioritised the benefits are analysed; lowering costs, improving productivity, improving customer service and support, improving supplier relationship, becoming a global player and increasing sales, it becomes evident that they are aware of what is required and what could be gained.

There will be costs involved with implementing e-business and e-commerce. However, if investigation is done and all the recommendations that literature study authors have presented are considered and there is a favorable return on investment, then if the timing is reasonable, it could be a worthwhile project for the organisation to tackle and implement B2B and B2C.

Organisations need a strategy for e-business and e-commerce, and they need to get their suppliers and customers to buy into this strategy as well. Therefore all
three parties (the organisation, suppliers and customers) involved may benefit from e-business and e-commerce, the main benefit being cost savings which equates to higher profits, which means survival.

The following is a summary of what is required to make e-business and e-commerce a success:

- Understand e-business and e-commerce;
- Determine if e-business and e-commerce is required or not (supply chain);
- Make sure e-business and e-commerce will be a feasible option (the critical question);
- Have an strategy that every one buys into;
- Have clear goals and objective;
- Implement e-business and e-commerce properly (the 10 steps);
- Have continuous feedback of e-business and e-commerce; and
- Adjust to changes rapidly and stay ahead of the competitors.

Organisations need to be better than their competitors and remain one step ahead of them to ensure that profits increase. This is how an organisation will gain a competitive advantage over its competitor. E-business and e-commerce can effectively achieve this, if done correctly.
REFERENCE LIST


ANNEXURES

QUESTIONNAIRE ON E-BUSINESS / E-COMMERCE IN THE TEXTILE INDUSTRY
SECTION A: DEMOGRAPHIC DATA

This section of the questionnaire is purely for statistical purposes.

INSTRUCTIONS

Please place a cross (X) in the appropriate box.

1. How many employees does your organisation have in total?
   - [ ] 0 to 100
   - [ ] 101 to 300
   - [ ] 301 to 500
   - [ ] 501 to 700
   - [ ] 701 to 1000
   - [ ] 1001 to 3000
   - [ ] 3001 to 6000
   - [ ] 6001 and more

2. In which magisterial district do you operate?
   - [ ] Port Elizabeth
   - [ ] Uitenhage

3. What is the nature of the post that you hold?
   - [ ] Purchasing/ Logistics Manager
   - [ ] Sales & Marketing Manager
   - [ ] IT / MIS Manager
   - [ ] Manufacturing/ Production Manager
   - [ ] Financial/ Administration Manager
   - [ ] Other
4. Within which manufacturing sector would you categorise the organisation?

- [ ] Industrial Textiles
- [ ] Household Textiles

5. How would you categorise your organisation’s products?

- [ ] Yarn
- [ ] Fabric
- [ ] Both

6. How many PCs does your organisation have in total?

- [ ] 0 to 25
- [ ] 26 to 50
- [ ] 51 to 75
- [ ] 76 to 100
- [ ] 101 to 125
- [ ] 126 to 150
- [ ] 151 to 175
- [ ] 176 and more
SECTION B

This section of the questionnaire is to help the researcher ascertain what the managers within the Textile Industry know about E-commerce/E-business and the role it has or could play within their industry?

INSTRUCTIONS

Please place a cross (X) in the appropriate box.

1. **Does your organisation have a computer network?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

2. **Does your organisation have e-mail?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

3. **Do the computer users within your organisation use e-mail to do business, for example, quotes or purchases order numbers?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

4. **Do the computer users within your organisation have Internet access?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

5. **Is your organisation’s computer network protected from outside threats, for example, viruses and hacking?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

6. **Does your organisation have a firewall?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know

7. **Does your organisation have a Website?**
   - [ ] Yes
   - [ ] No
   - [ ] Don’t Know
8. Is the Website promoted on the Internet?
   □ Yes    □ No    □ Don’t Know

9. Is the Website used for product and company awareness?
   □ Yes    □ No    □ Don’t Know

10. Is the Website used for information gathering and feedback from customers?
    □ Yes    □ No    □ Don’t Know

11. Is the Website used for online selling?
    □ Yes    □ No    □ Don’t Know

12. Does your organisation’s Website achieve its goals?
    □ Yes    □ No    □ Don’t Know

13. Do you see e-business and e-commerce as one?
    □ Yes    □ No    □ Don’t Know

14. Should e-business and e-commerce play a role within your organisation?
    □ Yes    □ No    □ Don’t Know

15. Does your organisation have a strategy for e-business and e-commerce?
    □ Yes    □ No    □ Don’t Know

16. Do you feel that your organisation should have a strategy for e-business and e-commerce?
    □ Yes    □ No    □ Don’t Know
17. Does your organisation have an ERP computer system (e.g. SAP, Baan)?
   
   □ Yes  □ No  □ Don’t Know

18. Does your organisation perform electronic transactions with suppliers and business partners (B2B)?
   
   □ Yes  □ No  □ Don’t Know

19. Does your organisation perform electronic transactions with consumer (B2C)?
   
   □ Yes  □ No  □ Don’t Know

20. If your organisation does not perform B2B or B2C transactions, do you think they should?
   
   □ Yes  □ No  □ Don’t Know

21. Which one of the two, do you feel should be implemented?

   □ B2B  □ B2C  □ Both  □ Neither  □ Don’t Know

22. Does your organisation use e-procurement?
   
   □ Yes  □ No  □ Don’t Know

23. Does your organisation use Electronic Data Interchange (EDI) at all?
   
   □ Yes  □ No  □ Don’t Know

24. Does your organisation do Electronic Fund Transfers (EFT)?
   
   □ Yes  □ No  □ Don’t Know

25. Could e-business and e-commerce give your organisation a competitive advantage?
   
   □ Yes  □ No  □ Don’t Know
26. Prioritise the importance of the following benefits that e-business and e-commerce could provide your organisation

26.1. **Efficiencies**

- [ ] Lowering costs
- [ ] Reducing errors
- [ ] Improving transaction speeds
- [ ] Reducing inventory levels
- [ ] Improving business processes
- [ ] Improving productivity
- [ ] Improving quality
- [ ] (Other) __________________________
- [ ] (Other) __________________________
- [ ] (Other) __________________________

26.2. **Service**

- [ ] Providing more accurate and up-to-date information
- [ ] Improving customer service and support
- [ ] Improving communication between business units / departments
- [ ] Improving supplier relationships
- [ ] Providing a secure computer network
- [ ] (Other) __________________________
- [ ] (Other) __________________________
- [ ] (Other) __________________________
26.3. **Products and Markets**

- [ ] Making organisation a global player
- [ ] Increasing organisation awareness
- [ ] Increasing product awareness
- [ ] Help create new products
- [ ] Increasing competitiveness
- [ ] Increasing sales
- [ ] (Other) ___________________________
- [ ] (Other) ___________________________
- [ ] (Other) ___________________________