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**E-commerce for exporting garments from South Africa:
“digital dividend” or leap of faith?**

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Summary

Despite the “optimists” vigorous support of e-commerce for developing country producers, there remains a gap in our current knowledge of the relationship between e-commerce and global market access. The paper seeks to address two broad, albeit related, research questions, viz.: are leading export-oriented garment producers in South Africa using B2B e-commerce to: (1) expand their reach into new markets, and (2) prepare and complete transactions with overseas buyers? The empirical research undertaken for this study was based on 28 firm-level interviews, and nine personal interviews with industry experts. No attempt was made to achieve a statistically random sample of firms in this exploratory study. However, every effort was made to capture the full range of characteristics of the top exporting firms. The results of this study appear to contradict the key propositions of the standard model of e-commerce. There was no evidence to support the view that e-commerce is: (1) being used for completing inter-firm commercial transactions; (2) allowing firms to bypass “middlemen” in the value chain; (3) enabling/facilitating international trade by reducing coordination costs; and (4) transforming firms’ business models. Nor is there any evidence to support the view that transaction-oriented B2B e-marketplaces are being used to any great extent by the firms. The empirical evidence suggests that e-commerce is not having a significant impact on the business models of the largest South African exporting garment firms. If garment exporting firms were to adopt e-commerce for fully integrated transactions, this would entail a leap of faith. The market is not demanding it, and the payoffs of transaction-oriented e-commerce and e-marketplaces are regarded as being uncertain. Moreover, without active encouragement from buyers, many suppliers are likely to choose to wait.

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1 Introduction

The potential of e-commerce applications to enable access to global markets, and to reduce barriers to market entry is a theme which is heavily emphasised in the burgeoning literature on the “promise” of e-commerce for developing countries (Goldstein and O’Connor 2000; Mann 2000; OECD 1999; UNCTAD 2000, 2001; WTO 1998a). The recently released UNCTAD (2001: 18) *E-Commerce and Development Report* is indicative:

. . . as many established companies in the developed countries, and in particular large multinational corporations, integrate the Internet into their operations, buyers and suppliers located in developing countries will increasingly come under pressure to adapt to the new business models. Enterprises in developing countries that are or plan to be involved in international trade need to start incorporating ICT and the Internet into their business models in order to stay competitive.

The WTO (1998a) claims that e-commerce is expected to facilitate low cost access to international bidding and supply processes for developing country firms, and to market information such as import restrictions, customs regulations, and potential demand. Several authors have mentioned the potential of e-commerce for expanding the markets of developing country firms, either through online intermediaries or directly through the use of corporate websites (Choi, Stahl and Whinston 1997; OECD 1998; Panagariya 2000; UNCTAD 2001; WIPO 2000; WTO 1998a). According to the WIPO (2000), e-commerce provides developing country producers with opportunities for accessing new international markets at low cost and minimal capital investment, for improving competitiveness and customer services, and for reducing transaction cost and overheads. It is generally believed that e-commerce enables developing country producers to overcome traditional limitations associated with restricted access to information, high market-entry costs, and isolation from potential markets (April and Cradock 2000; Cohen, DeLong and Zysman 2000; Maitland 2001).

E-commerce is being promoted in the developing world because it is presumed that the underlying technology is both inherently global and accessible. It has been argued that as the internet is based on open standards, e-commerce applications are relatively cheap to set up and operate, and they can be configured very flexibly (Kalakota and Whinston 1996; Lee and Clark 1996). The web holds significant advantages over Electronic Data Interchange (EDI) technology: both fixed and variable costs are lower, the web is easier to use, and it is a more flexible and richer medium. E-commerce, in theory, thus provides developing country firms with new opportunities to compete globally because it reduces transaction costs and barriers to entry (Maitland 2001; Panagariya 2000). The prevailing logic is that a reduction in coordination costs enabled by information and communication technologies (ICTs) is likely to produce large changes in the ways that firms select and maintain relationships with trading partners (Malone, Yates and Benjamin 1987). The burgeoning literature on e-commerce, drawing on transaction cost economics, suggests that the web will encourage firms to find the best producers regardless of location (Davidow and Malone 1992; Wigand 1997).

Despite the “optimists” vigorous support of e-commerce for developing country producers, there remains a gap in our current knowledge of the relationship between e-commerce and global market access. The suggestion that e-commerce fosters global markets is still very much at the level of speculation, and needs to be subjected to critical empirical interrogation. The question of whether e-commerce increases, or has the potential to increase, access to global markets for producer firms in developing and transitional economies is an empirical question. Moreover, research is needed on ways in which e-commerce affects the competitive environment in sectors where developing countries have traditionally enjoyed a comparative advantage. This paper is part of the beginning of that research agenda.

The importance of competitive pressures suggests that e-commerce adoption in developing countries may occur earliest in those sectors most heavily exposed to international competition, although strong domestic competition can have the same effect. The paper focuses on one developing country sector, i.e. the garments industry in South Africa, as a means to probe theories of how B2B e-commerce may so far have impacted on developing country firms which are exposed to international competition.² The study concentrates on leading export-oriented garment producers in South Africa because they may signal changes in the competitive process substantially earlier than garment firms producing exclusively for the domestic market, or for whom exporting only accounts for a small percentage of their total turnover. The paper seeks to address two broad, albeit related, research questions, *viz.:* *are leading export-oriented garment producers in South Africa using B2B e-commerce to: (1) expand their reach into new markets, and (2) prepare and complete transactions with overseas buyers?*

The paper is organised in six sections. Section 2 provides a critical overview of the content and scope of B2B e-commerce, as it pertains to developing country producers. The objective of this section is to identify and examine the key propositions underpinning B2B e-commerce. Section 3 reviews South Africa’s recent trade performance (i.e. import and export trends) in garments, based on analysis of the Department of Trade and Industry’s (DTI) and the Trade and Industrial Policy Secretariat’s (TIPS) databases. Section 4 sets out the methodology that was employed for the empirical research. Section 5, which is the core of the paper, presents and analyses the key findings that emerged from the key informant and firm-level interviews. Section 6 concludes the paper.

2 Conceptualising B2B e-commerce

There is no standard or uniform definition of B2B e-commerce in the literature. We are however, cognisant of Anderson’s (1998) critique of researchers who narrowly define e-commerce in terms of actual transactions carried out on the internet. Therefore, for the purposes of this study, B2B e-commerce was broadly defined as *any form of commercial transaction or structured information exchange that takes place between firms within industry value chains via an ICT-based, computer-mediated network*. B2B e-commerce can be divided into two categories: (1) open marketplace-based trade that occurs in public internet-based environments using

² The garments sector is an archetypal buyer-driven value chain, in which retailers and brand-name companies play the key governance role in structuring global trade in garments (Gereffi 1999).

the TCP/IP protocol suite,³ and (2) direct trade between business partners that occurs through either public internet-based platforms, proprietary computer networks, or both. The former generally takes place at various world wide web-based auctions or exchange sites (information and/or transaction-oriented; open or restricted; horizontal or vertical; independent or industry sponsored; etc.). In contrast, the latter tends to occur either through a firm's extranet, or website which has an online purchasing function, or an EDI network.

A primary emphasis in most discussions of e-commerce is the global nature of electronic markets, and the lower costs of reaching customers throughout the world (UNCTAD 2001). The web theoretically lowers transaction costs that formerly served as a barrier to entry in global markets, enabling customers to become aware of and transact with suppliers located anywhere. In other words, buyers and sellers are part of a global network where all companies are equally easy to reach.

Economic theory asserts that firms will choose transactions that economise on coordination costs (Malone, Yates and Benjamin 1987; Picot and Kirchner 1987; Williamson 1981). Malone, Yates and Benjamin (1987) argue that as ICT continues its rapid cost performance improvement, firms will continue to find incentives to coordinate their activities electronically. Utilising cheap coordinative transactions, interconnected networks and easily accessible databases, economic theory predicts that a proportional shift of economic activity from single-source sales channels to electronic markets is likely to occur, as lower coordination costs favour electronic markets.

Transaction-costs economics, emphasising the cost-savings afforded by network-based communication, is generally used to explain the rise of global electronic markets (Benjamin and Wigand 1995; Malone, Yates and Benjamin 1987; Miller, Clemons and Row 1993; Wildman and Guerin-Calvert 1991). It has been argued that networks reduce the constraints imposed by distance by permitting the rapid exchange of information between distant buyers and sellers, and can more effectively link buyers with sellers while avoiding costly search efforts (Malone, Yates and Benjamin 1987; Wildman and Guerin-Calvert 1991). Researchers have often noted that one effect of electronic markets is to reduce asset specificity by expanding access to a large number of potential suppliers (Malone, Yates and Benjamin 1987). The costs of conducting marketplace transactions, i.e. information seeking, negotiating the terms, and settlement, define to a large extent what a firm will buy, instead of making it (Williamson 1975).

According to transaction cost theory, exchanges with external firms entail a variety of coordination costs associated with various aspects of inter-firm transactions. These include search costs to find the right trading partner, as well as negotiation, monitoring, settlement, and various after sales services associated with effecting the exchange (Gebauer and Scharl 1999; Kraut *et al.* 1998). The transaction cost paradigm thus suggests that developing country firms can expect productivity gains through improved systems for

³ These marketplaces were originally designed to reduce bid-ask spreads and to bring down transaction costs by matching buyers with suppliers and enabling suppliers to trade with one another.

procurement and inventory control, reduced costs of intermediation and sales transactions, reduced costs of communication between geographically distant partners, and lower search-and-compare costs involved in finding potential business partners (Bakos 1997).

There appear to be six key propositions underpinning the standard e-commerce model, which is heavily based on the transaction cost argument:

1. E-commerce creates the platform to carry out inter-firm commercial transactions more efficiently.
2. E-commerce is likely to eliminate intermediate transaction layers between producer and ultimate customer for a particular good or service.
3. It is relatively simple and inexpensive to design and implement e-commerce systems in developing countries.
4. B2B e-marketplaces have the potential to: increase transaction efficiency and reduce transaction costs, extend market reach, and increase choice for developing country producers.
5. E-commerce enables/facilitates international trade, by providing developing country producers with lower market entry costs and the ability to extend geographic reach to a much larger market.
6. E-commerce is a “transformational” or “revolutionary” technology which challenges the pre-existing ways of doing business, of collaborating, and of competing.

The abovementioned propositions need to be critically scrutinised, both conceptually and empirically, before they can be accepted at face-value. In this paper an attempt is made to do both.

2.1 A critique of the standard B2B e-commerce model

Drawing on the transaction cost paradigm, Garicano and Kaplan (2000), Humphrey (2002), and Paré (2001) argue that e-commerce has the potential to substantially reduce coordination costs and increase efficiency in inter-firm trade.⁴ The efficiency gains that they highlight can be classified into three broad categories: (1) *process improvements* – a substantial reduction in overall transaction costs; (2) *direct information improvements* – minimising information search costs, and a reduction in information asymmetries; and (3) *indirect benefits* – better information processing (e.g. about future demand, about existing and future supply, etc.) as a result of greater transparency and improved connectivity, and more efficient “make or buy” decisions as a result of a substantial reduction in transaction costs in inter-firm trade. It must be borne in mind, however, that the existence of a network technology infrastructure is not in itself a sufficient condition for the emergence of a durable trade network. That depends on repeated interactions through which parties build reputations for trustworthiness, and gain confidence in one another.

⁴ In contrast to Garicano and Kaplan (2000), however, both Humphrey (2002) and Paré (2001) suggest that the potential reduction in coordination fostered by e-commerce may not be sufficiently large to decrease the overall transaction costs incurred by firms seeking to trade in international markets.

The driving force behind investment in e-commerce is the ability to carry out transactions (ordering, billing, and settlement) more efficiently. The emphasis on transaction-oriented buying and selling limits the scope of the analysis to commercial transactions. This is most clearly embodied in Westland and Clark's (2000) definition of electronic commerce as *the automation of commercial transactions using computer and communications technologies*. In contrast, we argue that a purely transactional approach is inappropriate for developing countries. The strategic role that information can play in the competitive strategy of firms is often overlooked (Bradley, Hausman and Nolan 1993; Keen 1988; Porter and Millar 1985). There is substantial scope for extending the use of e-commerce, particularly involving the use of the world wide web and the public internet as a general communication channel, and for the exchange of structured business information.⁵ Inequalities of access to information have been shown to adversely affect market performance in less developed countries (Stiglitz 1989). One way to increase the flow of rich, up-to-date information is through promoting transparent processes via the internet.⁶ Transparency potentially reduces information asymmetries and creates expectations which reduce uncertainty. The need to increase the speed and quality of information, as well as reducing the costs of sending and receiving information may be an important incentive for the adoption of e-commerce in developing countries.

While information from internet interaction will remain less personal than human interaction, it has several characteristics that make it potentially much more valuable in many circumstances. The first is the low cost of providing very detailed content. Second, the internet allows for effective asynchronous communication, so information access can take place at any time. Asynchronous communication is especially valuable when widely differing time zones are involved, as is increasingly common in the global economy. Third, the internet allows considerable flexibility in dealing with information, with far greater interactivity and search capability than, say, catalogues or menu-driven telephone information. Improving information flows can lead both to lower levels of inventories, as well as better matching of supply and demand.

One of the touted benefits of the internet and web-mediated e-commerce is the elimination of intermediate transaction layers between producer and ultimate customer for a particular good or service ("digital disintermediation") (Choi, Stahl and Whinston 1997; Hoffman, Novak and Chatterjee 1995; Wigand 1997; Wigand and Benjamin 1995). However, even with ICTs, in some kinds of markets there may be reason for continued reliance on the services of "middlemen" (Adelaar 2000; Bailey and Bakos 1997; Klein and Selz 2000; Schmitz 2000; Scott 2000). The middleman is a pervasive response to information and other market imperfections in developing countries. Intermediaries provide many additional functions beyond simple matching services, including some that are difficult for producers to

⁵ The public internet is a massive global network of interconnected packet-switched computer networks based on the TCP/IP protocol. The world wide web is a distributed hypermedia environment within the public internet, and was originally developed by the European Particle Physics Laboratory (CERN).

⁶ The types of information that could be shared include: inventory, sales, demand forecast, order status, and the production schedule (Lee and Whang 2000).

replicate. Whilst it is inevitable that competition will eliminate intermediaries who fail to add value, low barriers to entry and information asymmetries will continue to provide a lucrative environment for web-based intermediaries. Intermediaries with a sound understanding of the internet environment will be able to capture customer and product information in ways to ensure they have an important role to play. Furthermore, the amount of information on the web will certainly continue to grow, providing a continuing and important role for those who would help to organise it. This notwithstanding, the roles of established intermediaries may be redefined and new intermediaries introduced (Sarkar, Butler and Steinfield 1998).

The popular press is extremely optimistic about the ease and cost of designing and implementing e-commerce systems. However, there is increasing evidence that e-commerce is not only a complex undertaking, but calls for substantial investment. The costs of adapting existing technology, building new systems and running hybrid systems are seen as less significant than the effort involved in updating business processes and encouraging new corporate cultures. Clearly organisational and people issues are likely to present more of a challenge in exploiting e-commerce than deploying systems that support online trade. Relationship-specific e-commerce investments to ensure, for example, the appropriate quality control, the implementation of information-sharing systems, and the modification of business processes can be quite considerable.

E-commerce is a complicated concept in technological and operational terms. Claims that e-commerce can be deployed quickly and easily, and that its benefits can be rapidly achieved, are misleading and are based on overly optimistic forecasts. Firms in developing countries need to adopt realistic approaches, with realistic timescales. It is necessary to take a systemic, contextual view of e-commerce in order to understand it. There is a need to grasp the contextual, organisational, structural, management, and process changes required to fully realise the benefits of e-commerce. E-commerce is often undertaken without the benefits being clear (Croom 2000; Garcia-Sierra, Moreton and Sloane 1994; Richie, Brindley and Peet 1999; Wilcox 1999; Wrennall 2000). It is important to see past the hype of exaggerated claims and unrealistic expectations to develop a more nuanced and realistic assessment of e-commerce impacts.

The importance of social relationships in shaping economic exchange has been stressed by Granovetter (1985), and Kraut *et al.* (1998). Moreover, Rauch (2001) has emphasised the importance of business and social networks in international trade, and Johnston and Lawrence (1988), and Powell (1990), have underlined the significance of cooperative relations among firms in a value chain. Kraut *et al.* (1998), for example, found that electronic exchanges between buyers and sellers are not only associated with interpersonal linkages, but the quality of electronic exchanges complemented by interpersonal relationships is higher than electronic only exchanges. The potential synergies to be gained from virtual and physical hybrid structures is therefore likely to be substantial. Kraut *et al.* (1998) suggest that pre-existing social relations between buyers and sellers may lead firms to develop first the capability of electronic transactions with trusted and established suppliers. Similarly, Mansell and Jenkins (1991) have found that even in industries with EDI standards, participation was generally confined to pre-existing

business relationships. It may well be that the reduced costs of monitoring to control for opportunistic behaviour among firms that trust each other provide savings over arms-length relations that require extensive contractual control.

Recent discussion about impacts of e-commerce and the internet on business suggests radical benefits of early entry into new electronic markets, and warns of the risk of being left behind (Panagariya 2000; Simons 2001). Christensen (1997), for instance, argues that businesses must be continually wary, ready to grasp enabling new technologies or lose ground in the fierce competition that follows radical technological change. It is argued that firms that lag in the adoption of e-commerce may be left behind, as competitors take over the electronic markets and non-electronic markets contract. In addition, traditional market leaders could lose out, after failing to build up the relevant electronic expertise and customer networks. Researchers also argue that developing countries may be able to “leapfrog” into the latest generation of e-commerce technologies, thus avoiding the “legacy” problems of having too much asset-specific investments sunk into earlier generations of obsolete technologies (the “leapfrogging” advantage) (Kagami and Tsuji 2000; Panagariya 2000; Wong 2001). Neither the “early entry” nor the “leapfrogging” view is, however, backed up by empirical evidence.⁷ Rather, these views reflect the prevalence of a powerful belief in the transformatory potential of e-commerce and internet technologies (Kalakota and Whinston 1996; Lee and Clark 1996).

The literature on e-commerce is suffused with rose-tinted vignettes of claimed success in developing country settings, and there are very few long-term analytical studies by independent researchers. E-commerce is generally presented in very positive terms, with negative impacts and opportunity costs downplayed (April and Cradock 2000; Leebaert 1998). The “e-commerce as solution” view necessarily simplifies a complex reality. The main impact of e-commerce on developing country producers is likely to be the ability to reduce the cost of communication and exchanging and processing information, thereby reducing the overall costs of customisation between a producer and a supplier or customer. This view, however, runs counter to that of the optimists who argue that an e-commerce induced revolution in business models is underway (Aldrich 1999; Evans and Wurster 1999; Hagel and Armstrong 1997; OECD 1998; Schwartz 1999; UNCTAD 2001).

2.2 But what of electronic marketplaces?

Recently, there has been a great deal of discussion about the opportunities provided by B2B e-marketplaces for developing country producers *vis-à-vis* increasing transaction efficiency and reducing transaction costs, extending market reach of customers and suppliers, and increasing choice for both suppliers and customers (UNCTAD 2001). In theory, e-marketplaces facilitate searches for business information as well as for business partners, negotiating and maintaining a business relationship, as well as conducting business transactions by financial settlements and other information-equivalent transfers

⁷ A review of early empirical work on internet markets in fact paints a mixed picture of their relative efficiency *vis-à-vis* conventional markets (Smith, Bailey and Brynjolfsson 2000).

(Kaplan and Sawhney 2000; Mahadevan 2000; Timmers 1999). E-marketplaces are designed to bring buyers and sellers of products and services together digitally to allow them to transact, but the transaction itself (if there is to be one) may take place outside the e-marketplace, and in fact may even be offline.

Indeed, a number of B2B e-marketplaces that focus on the apparel manufacturer-retailer interface have been launched, e.g. www.worldwideretailexchange.org, www.gnx.com, www.softgoodsmatrix.com, and www.apparelbuy.com. The idea is that buyers (i.e. the retailers) can specify what they want in terms of colour, style, size, or country of origin, and then negotiate prices, order sample shipments, and close transactions. Several B2B trading hubs (i.e. www.virtualrags.com, www.tradeweave.com, www.retailexchange.com, and www.apparelbids.com) focus on selling excess apparel inventory and overruns. These typically require a lower level of capability, since they tend to focus on one-time buys rather than on-going replenishment. Thus, the length and accuracy of lead-times tend to be a bit less important than in a standing relationship in which smaller, more frequent orders are placed. In addition, www.texwatch.com offers products for the entire textile-apparel-retail supply chain. It has a marketplace for quota, garments, fabric, yarn, fibre, machinery, and accessories. Li & Fung, the Hong Kong based apparel sourcing giant, has set up an e-commerce subsidiary, i.e. www.lifung.com, to open up a new market segment of overseas small and medium-size enterprises.

In much of the contemporary literature, B2B e-commerce has tended to be narrowly equated with online commercial transactions, and open, transaction-based trading hubs/e-marketplaces (Downes and Mui 1998; Raisch 2001; Sculley, Woods and Woods 2001; Timmers 1999). Yet, the much vaunted purchasing and transaction-processing benefits of B2B trading exchanges have proved to be largely unfounded (Agrawal and Pak 2001; Berryman and Heck 2001). This reductionist approach seems to be counterproductive because it overlooks other more immediate (and potentially profound) benefits that may accrue for developing country producer firms that engage in some form of B2B e-commerce. In contrast to these latter approaches, both Humphrey (2002) and Paré (2001) emphasise the importance (and prevalence) of information-oriented e-marketplaces, electronic bulletin boards, and trade directories for developing country producers, which enable firms to search for buyers and sellers, but leave the actual “trade negotiation” up to the firms themselves. In other words, the electronic marketplace may merely bring buyers and sellers together (like a “matchmaking” service). In these cases, it is up to the firms to communicate with each other, either online or offline, and to decide on the terms of the contract (if indeed there is to be one) and the transaction protocol to be followed.

The nature of the product that is traded is critically important in influencing the benefits that accrue from electronic trading hubs (Mariotti and Sgobbi 2001). Many of the distinctive characteristics of a garment that are pivotal in the buying decision-making process, i.e. colour, touch and feel, and fit, are difficult, if not impossible, to communicate virtually. The difficulty of specifying the qualities of apparel, textile and other components will make the web a less than perfect substitution. Products, capabilities, and the quality of apparel products are difficult to specify on the web. Furthermore, the complexity of interaction among channel partners is relatively high. Communicating about product design, product quality, and plant capabilities, involves significant subjectivity. This type of communication will be hard to

put online. Furthermore, intermediaries provide domain expertise and local knowledge that will be hard to automate. Although, industry standards for characterising colour and fabric will be familiar forms of communication for business partners, buyers are hesitant to purchase garments “sight unseen”. Therefore the focus, at least in the short-term, on the potential for online trading through open, third party e-marketplaces to leverage price efficiencies and purchase process savings seems misplaced.

The buyers in global value chains are increasingly placing greater emphasis on the need for developing country suppliers to meet stringent production, quality, and management requirements and to comply with strict labour, environmental, and safety standards (Humphrey 2002). This would appear to mitigate against the likelihood that the buyers from the North will source garments directly through public internet-based B2B trading hubs and/or public online auctions hosted on the world wide web. Having said that, it may well be that e-commerce is suited to certain types of apparel products, and it may pose different challenges and opportunities for different types of value chains operating across and/or within national boundaries. The extent to which this is so, would appear to be dependent, in part, on the nature of the inter-firm relationships (i.e. the complexity of interaction among channel partners; the difficulty of specifying products, capabilities and quality on the web; the degree of interdependence; the degree of fragmentation of the industry; etc.) that exist in the value chain.⁸ This would help to explain why some firms find e-commerce technologies essential, while others use them very little, or not at all. It may well be that some garment producers have less need and fewer incentives to use e-commerce technologies, by the very nature of their industry, their clientele, and their inter-organisational relationships.

Broadly speaking, three kinds of e-marketplaces exist in practice, each with its own ownership structure and practical applications: third-party marketplaces, consortium-backed marketplaces, and private marketplaces. Their value propositions centre around two key dimensions: demand and/or supply *aggregation* to overcome market fragmentation (through search cost efficiency, price transparency, product cost savings, market liquidity, network externalities, and customer lock-in), and inter-firm *collaboration* for greater supply chain performance (through streamlined workflows, process-cost savings, customer lock-on, and business process integration). We will now briefly explore the potential of each type of e-marketplace for the garments industry.

Apparel is perhaps better suited to an online private marketplace, which connects buyers with their own select group of suppliers. The incentive to participate in a private exchange is great, especially if large buyers ask suppliers to participate in a private exchange or risk losing its business. The service’s main goal is electronically connecting companies that regularly do business with each other. Private marketplaces are also perceived as safer, or less risky than third-party marketplaces. Wal-Mart, for example, has its own internet-based purchasing system (called Retail Link) that it uses with its vendors. Retail Link has grown in importance because it provides greater information transparency to Wal-Mart’s vendors. The largest buyers (especially the big retailers, brand-name companies, and global sourcing companies) will likely

⁸ The question is whether personalised (rich) networks can be replicated in virtual space, or are they too heavily dependent on relationships of trust and the intensive personal interactions permitted by physical (and cultural) proximity.

invest in their own private marketplaces to source proprietary products. Such products are critical to their competitive advantage, and these companies already have supplier networks in place. Although this is clearly a research question, we do not expect apparel retailers with predictable supply chains and forecast requirements to participate in open marketplaces.

Open e-marketplaces supposedly bring together many buyers and many sellers, with claimed benefits such as price transparency, economies of scale, and network effects (Timmers 1999). It has been claimed that open, public e-marketplaces reduce transaction costs by minimising search costs, as they bring a large number of buyers and sellers into one trading community (Raisch 2001; Sculley, Woods and Woods 2001). Open B2B marketplaces are likely to work for well-understood, highly commoditised products such as tea, coffee, and cotton, but still face significant obstacles in facilitating transactions for specialised goods where the customising information cannot be transferred easily in digital formats that the internet can currently accommodate. Key customers of third-party marketplaces (such as www.retail.com and www.tradeweave.com) are likely to be small apparel retailers, that cannot afford custom solutions, yet want to conduct business through efficient networks of approved suppliers, and large retailers in need of specific services or spot capacity from outside their traditional networks.

The buyers are likely to be reluctant to post privileged information online, such as pricing structures and design blueprints. Suppliers, on the other hand, are likely to perceive e-marketplaces as efforts by retailers to reduce purchase prices through aggregation. In addition, suppliers will be concerned about sharing competitive pricing data, and will resist the substantial conversion costs and efforts associated with joining each new marketplace. There, thus, needs to be an appropriate balance between information transparency and data confidentiality so as to minimise the competitive risks while safeguarding the collaborative benefits of information transparency. We believe that open, e-marketplaces permitting the easy comparison and acquisition of products and services across many suppliers on a spot market basis will be less common, and dependent on market making intermediaries.

Many operators of web-based B2B e-marketplaces assumed that automating transactions would be enough to bring buyers and sellers together online. They ignored the fact that deciding which supplier to buy from is often based on other factors, such as the quality of the product, how quickly and reliably that product can be delivered, and even contractual obligations. These operators also failed to recognise that conducting business involves forming personal relationships. The idea of open e-marketplaces simply does not fit garment firms' notion of how to run a business. In most business transactions there are different prices for different customers. High-volume customers get one price, while occasional customers get another.

Both Global NetXchange (www.gnx.com), an alliance of Sears, Roebuck and Company, Carrefour, and Metro, among others, and www.worldwideretailexchange.org, with 53 retail members worldwide,

including Target, Ahold, and CVS, are examples of consortium-backed e-marketplaces in the garments industry. To be viable, however, consortium-backed marketplaces must overcome a number of formidable obstacles:

- Achieving the liquidity and scale required for credibility;
- Accommodating multiple, complex, buying processes that vary significantly across categories and retail formats. The development of standards-based marketplaces presents an intricate challenge. For example, consider the coordination required to format a single purchase order across retailers and categories;
- Integrating members' legacy retail technologies with new e-commerce enabling technologies from several providers. Marketplaces must develop a broad suite of options to interface with many transactional, merchandise planning, and replenishment systems.

This paper seeks to address two broad research questions, *viz.*: *are leading export-oriented garment producers in South Africa using B2B e-commerce to: (1) expand their reach into new markets, and (2) prepare and complete transactions with overseas buyers?* In addition, four subsidiary questions for empirical research have been generated from the preceding conceptual/theoretical discussion of e-commerce. These are:

1. Is web-based disintermediation taking place among the top exporters in the South African garments industry?
2. To what extent are the leading garment exporters using B2B e-marketplaces to engage in international trade?
3. Is B2B e-commerce a competitive necessity for the key garment exporting firms?
4. What impact has B2B e-commerce had on the leading garment exporters in South Africa?

These auxiliary questions are addressed in the empirical section (Section 5) of this paper.

3 South African garment exports: the current state of play

For decades, the South African garments sector was sheltered by state protectionism and a policy favouring import substitution industrialisation (ISI). In the post-apartheid era, however, the inwardly-oriented apparel sector has become increasingly exposed to the cut and thrust of international competition as a direct result of a major shift in state policy to open markets leading to a rapid dismantling of both tariff and non-tariff barriers, and the implementation of an export-oriented industrial policy. This section of the paper examines South Africa's recent trade performance in garments.

Garment export performance is analysed using South African Department of Trade and Industry (DTI) data which follow the Standard International Classification (SIC) nomenclature, and on Trade and Industrial Policy Secretariat (TIPS) (www.tips.org.za) trade data which follow the Harmonised Commodity

Description and Coding System (HS).⁹ In the case of the latter database, clothing trade data are for HS at the 2 and 4 digit level, and span the period 1988 to 2000. Values from the DTI database are at 2000 constant prices, and range from 1993 to 2001. In addition, the trends (1991–1995 and 1996–2000) data provided in TIPS (2002) have been examined as well. Finally, the Eurostat (1999) Intra- and Extra-EU Trade CD-ROM and data from the United States International Trade Commission (http://dataweb.usitc.gov/scripts/user_set.asp) are briefly analysed in the last part of this section in order to examine the relative position of South Africa in relation to that of other exporters. There is an issue of comparability of the data across the various sources. Whilst TIPS export data are for the Southern African Customs Union (SACU), DTI data are for South Africa (both data are “free on board”). Import values into the EU and the US are for South Africa but are at “cost, insurance, freight” (cif). An important caveat is that when SACU clothing trade data are considered allowances have to be made for clothing exports from Lesotho, and to a lesser extent, from Swaziland.¹⁰

World clothing exports amounted to US\$186 billion in 1999, with trade flows dominated by intra-Western Europe exports followed by Asian exports (in particular to North America) (Table 3.1). Exports have also grown as a result of newcomers such as Latin America, and an acceleration in intra-Asia exports. On the basis of Figure 3.1, it would appear that Africa’s clothing exports are marginal, accounting for about 3.5 per cent of the value of world clothing exports.¹¹ Moreover, African exports are concentrated on the EU market. In 1999, the EU absorbed about 83 per cent of African exports, and the US another 16 per cent.¹² The regional averages hide important variations between countries, especially since exports are dominated by a few African producer countries.¹³ Given Africa’s marginal position in global apparel trade, it is not surprising to find that South Africa is a very small international player. For purposes of comparison, South African Customs Union’s (SACU) clothing exports comprised approximately 23 per cent of the value of Mauritius garment exports in 1999 (US\$210 million compared to US\$910 million) (source: own calculations based on TIPS database, www.tips.org.za, and WTO 2001).¹⁴

⁹ The DTI database is a proprietary database, and was made available to the authors on request.

¹⁰ Whilst no time series data are available for clothing exports from Lesotho, according to the WTO (1998b), clothing and footwear exports to the US accounted, in 1995, for a third of the economy’s total merchandise exports. Lesotho’s dominant market of destination has been the US from the early 1990s.

¹¹ Note that discrepancies appear across the WTO (2001) data. Imports from Africa by the EU, the US, Japan, and Canada, amounted to US\$8.145 billion in 1999, whilst the share of Africa in world apparel exports would suggest a lower figure of US\$6.5 billion. The difference in values might be accounted for by the “free on board” (fob) and “cost, insurance, freight” (cif) figures.

¹² 1999 was the last year for which figures are available.

¹³ Mauritius, for instance, accounted for as much as 14 per cent of Africa’s total apparel exports (source: own calculations based on WTO 2001).

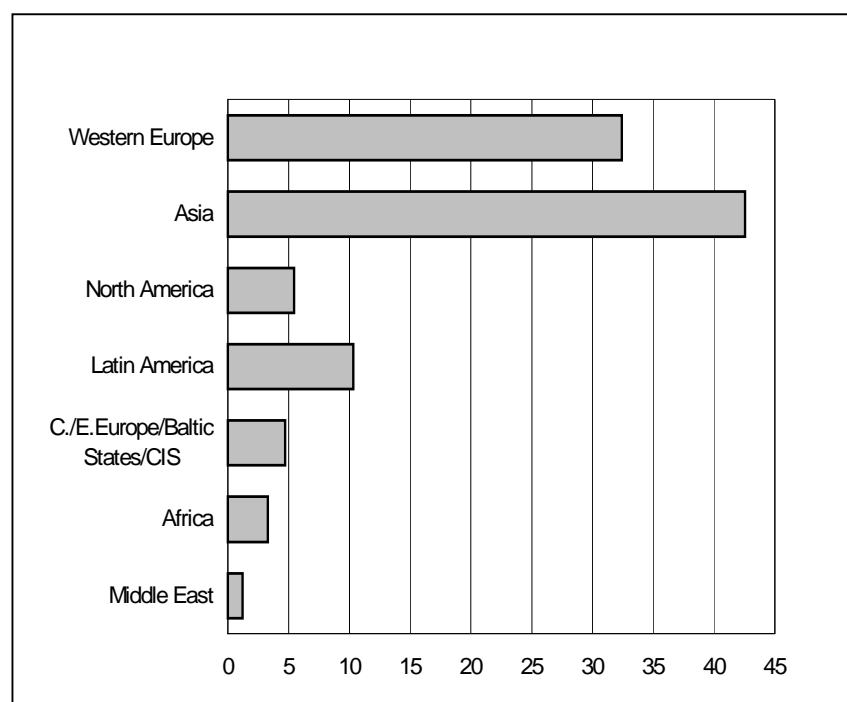
¹⁴ Indicators of export performance are often not available specifically for South Africa. The reason for this is that South Africa is part of the *common* Southern African Customs Union (SACU), which includes Botswana, Lesotho, Namibia, and Swaziland. Tariffs are levied at the point of entry into SACU rather than on entry to the member countries.

Table 3.1 Major regional flows in world exports of clothing, 1999

	1999 value (US\$ billion)	Annual change 1990–99 (%)
Intra-Western Europe	46.6	2
Asia to North America	31.5	5
Intra-Asia	21.0	10
Asia to Western Europe	19.7	4
Latin America to North America	18.1	23
C & E Europe/Baltic States/CIS to Western Europe	7.9	17

Source: WTO (2001: 76).

Figure 3.1 Regional shares of world exports in clothing, 1999 (%)



Source: WTO (2001: 74).

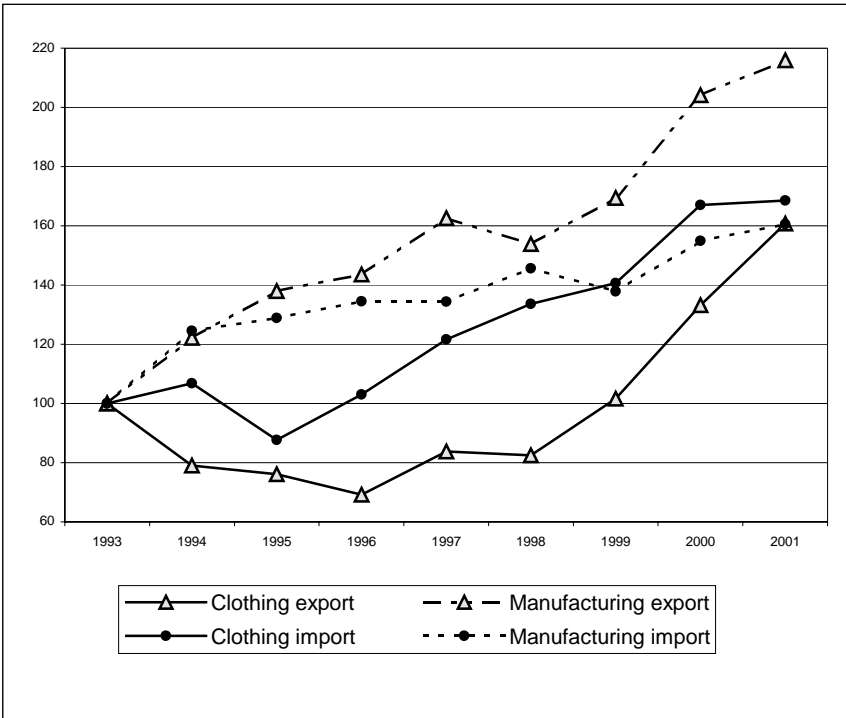
Calculations based on DTI trade data reveal that clothing accounted for 1 per cent of total South African manufacturing exports, and 1.1 per cent of imports during the 1993–2001 period.¹⁵ It is clear, therefore, that clothing is a small export sector in South Africa. However, as will be shown later in this section, the

¹⁵ 2001 figures are for the first nine months only. Clothing is defined as SIC 313, 314, and 315. These codes represent the manufacture of knitted and crocheted fabrics, and articles (knitting mills), the manufacture of wearing apparel except fur apparel, and the dressing and dyeing of fur respectively. For purposes of comparison, HS codes 61 and 62 differentiate clothing by fabric type (knitted and crocheted falling into the first group, and woven into the second). Groups defined under the referred SIC are more encompassing than trade product groups. Thus SIC 313 includes HS 60 and HS 61, and SIC 314 includes HS 62, part of HS 65, and one HS 61 product. The text specifies when a different classification is used.

South African garments sector has recently experienced an increasing export orientation. It is important to bear in mind that, since South Africa has only recently benefited from preferential trade agreements such as the free trade agreement with the EU and the US's Africa Growth and Opportunity Act (AGOA), the direct impact of these trade incentives on exports is not captured and reflected in the trade data.¹⁶

According to DTI data, the manufacturing sector in South Africa increased its export orientation between 1993 and 2001. Whilst imports have grown, exports have grown more rapidly. Thus, whilst South Africa experienced fluctuations in its trade balances, a general pattern of reduction in the trade deficit emerged between 1994 and 1997. A trade surplus of ZAR861m (US\$124m) was reached in 2000. In contrast, clothing had a deficit (at 2000 constant values) throughout the period. This deficit increased between 1993 and 1998, reaching ZAR142m (US\$26m). Between 1998 and 2001, the deficit was reduced to ZAR8.72m (approximately US\$1m). Figure 3.2 shows that it was only from 1999 that clothing exports reached their 1993 level. As for clothing imports, these lagged behind the manufacturing trend between 1993 and 1995. Thereafter, clothing imports increased rapidly. From 1997 onward, the pace of growth of clothing imports roughly coincided with that of manufacturing imports.

Figure 3.2 Export and import indices



Source: Own calculations based on DTI data.

¹⁶ Both the SA-EU trade agreement and AGOA offer duty-free as well as quota-free access to the end-markets in question. The two trade deals differ, however, in their scope. Whilst the SA-EU is progressive and reciprocal, the AGOA is unilateral and instantaneous. Although both require that rules of origin are met, the AGOA is more stringent than the EU deal because it requires a “triple jump” transformation (i.e. incorporation of US or African yarns, transformation of yarns to fabrics, and then transformation of the fabrics into garments) in order for South Africa garment exports to qualify for duty free treatment. These requirements inevitably constrain domestic clothing manufacturers in their sourcing of fabrics.

The trends depicted in Figure 3.2 also appear in the export intensity and import penetration ratios (Table 3.2). The relatively limited export orientation of clothing can be observed by comparing the export ratio of the sector with the manufacturing export ratio (Table 3.2). Between 1993 and 2001, the manufacturing export intensity ratio was 2 to 4 times higher than that of clothing. South Africa's manufacturing export intensity increased throughout the period, whereas clothing only increased from 1996. The contribution of clothing to total manufacturing exports has generally been quite static.¹⁷ The import penetration ratios for clothing and manufacturing were, on average for the period 1993–2001, above the export intensity ratios. The clothing sector was ranked at number 8 amongst 46 economic sectors by TIPS (2002) in terms of export growth changes during the 1996–2000 period.

Table 3.2 Export intensities and import penetration ratios (%)

	Export intensity		Import penetration ratio	
	Clothing	Total manufacturing	Clothing	Total manufacturing
1993	10.3	21.4	10.1	26.0
1994	8.0	26.1	10.3	31.7
1995	6.8	26.1	7.6	29.8
1996	6.9	26.7	9.7	30.5
1997	8.1	29.0	11.1	30.3
1998	8.9	30.4	13.3	34.7
1999	11.0	31.2	14.2	32.3
2000	15.8	34.6	18.6	34.1
2001	19.1	35.0	19.3	34.0
Average for the period	10.3	29.3	12.4	31.6

Source: Own calculations based on DTI data.

In order to place South Africa's clothing trade performance in a broader international context, we make use of revealed comparative advantage (RCA) indicators. Whilst crude in a context of high barriers to imports, RCA indicators are nonetheless helpful as proxies of trade complementarities across countries.¹⁸ SACU's textiles and clothing RCAs are generally either negative or below unity (the latter according to the *Balassa formula*).¹⁹ Table 3.3 below reports RCAs from TIPS for textiles and clothing for the 1970s, 1980s, and 1990s. Table 3.3 reveals that the RCAs for clothing have improved between the 1970s and 1990s. The

¹⁷ Note that both actual import penetration and export intensity ratios were in excess of those forecasted by the Industrial Development Corporation (IDC) (1998).

¹⁸ For instance, Yeats (1998) used RCAs to examine the gains from intra-African regional economic integration in a static exercise. In addition, Valentine and Krasnik (2000) analysed RCAs for a subset of Southern African Development Community (SADC) countries and found that RCAs were "high" for Mozambique and Zimbabwe in 'textile fibres (excluding wool tops) and their wastes', and for Mauritius in textiles.

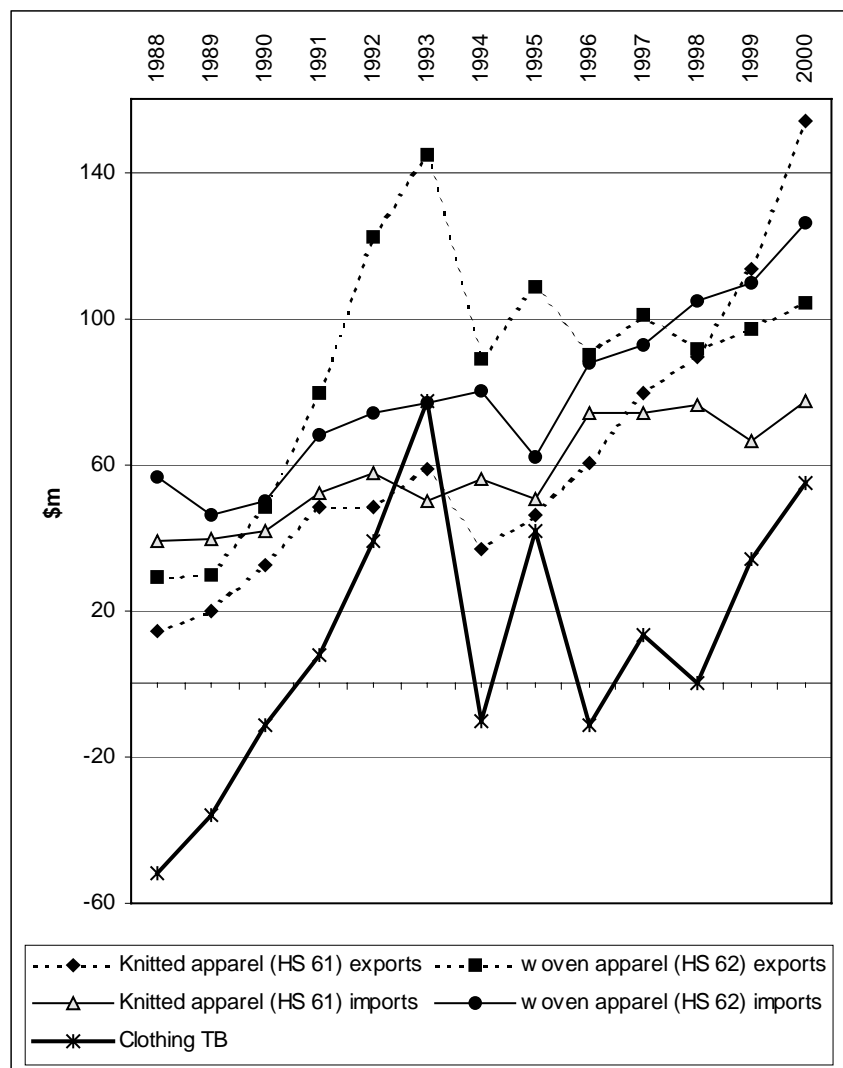
¹⁹ The conventional Balassa RCA formula is: $(X_{ij} / X_{wj}) / (X_i / X_w)$ where X denotes exports, subscripts "i", "w", and "j" denote a country, the world, and a commodity respectively.

Table 3.3 South Africa's comparative advantage in textiles and clothing

Revealed Comparative Advantage (RCA)						
	1970s	Rank	1980s	Rank	1990s	Rank
Clothing	- 0.0046	24	- 0.0023	23	- 0.0008	18
Textiles	- 0.0137	33	- 0.0064	26	- 0.0059	27

Notes: RCA is the proportion of the difference between observed and theoretical net trade in the country's total trade. Theoretical net trade is the net value of trade which the sector would register when global equilibrium occurs in the country's trade. Theoretical net trade figures are obtained by attributing a weight for the sector to the total trade balances. The weight is calculated as the importance of trade in a sector *vis-à-vis* total trade. Source: TIPS (2000).

Figure 3.3: SACU clothing trade



Note: The trade flows are for values at current prices.

Source: Own calculations based on TIPS data. Original data in Rands (ZAR) have been converted to US\$ using exchange rates from various issues of the South African Reserve Bank's *Quarterly Bulletins*.

Table 3.4 Average annual % changes in exports and imports for clothing and textiles

	Period	Clothing	Textiles
Exports	1988 – 2000	17.71%	-2.66%
	1995 – 2000	20.13%	3.05%
Imports	1988 – 2000	8.08%	2.59%
	1995 – 2000	22.04%	2.39%

Note: The changes are for trade values deflated with a seasonally adjusted textiles, clothing, leather, and footwear producer price index (2000 = 100).

Source: Own calculations based on SACU HS data from the TIPS database.

negative signs suggest that SACU has a comparative disadvantage in clothing and textiles.²⁰ However, there seems to be marginally better international prospects for clothing than for textiles.

According to the HS nominal trade data, SACU's clothing trade balances fluctuated between 1993 and 1998 (Figure 3.3). A general point to note is that a first process of export take-off occurred in 1990, with a peak of exports for both woven and non-woven items in 1993, which was subsequently temporarily halted. Export growth was in excess of import growth between 1988 and 2000, but there was a notable clothing import growth acceleration from 1995 onward (Table 3.4). For knitted items, exports have grown rapidly since 1995 (with concomitant changes in the composition of imports towards these goods) (Figure 3.3). By 1998, knitted/crocheted exports surpassed (in value) woven apparel exports (Figure 3.3).

SACU's clothing trade surpluses were primarily with NAFTA and the EEC.²¹ Worsening trade deficits were with 'East Asia and the Pacific' and 'South Asia', and generally, there was some amount of displacement of trade with the SADC. Table 3.5 shows that three regions absorb the bulk of SACU clothing exports, *viz.* the EU, which was the dominant market throughout the 1988–2000 period, NAFTA, and the SADC. East Asia and the Pacific are SACU's principal markets for clothing imports (Table 3.6). South Asia, however, has emerged as an important new region for sourcing SACU's clothing imports. In addition, clothing imports have increasingly been sourced from the EU, pointing to a dual pattern of external sourcing of clothing goods. In this trade process there seems to have been some displacement away from the 'East Asia and the Pacific' region.

Table 3.5 Regional breakdown of SACU's exports (% average for the 1988–2000 period)

HS	EEC	NAFTA	SADC	East Asia & Pacific	Middle East	East. Europe & Central Asia	Other
61	46.9	29.8	14.6	3.9	1.6	2.2	0.9
62	48.5	23.7	14.2	7.9	1.8	-	3.9

Note: "Other" includes unallocated and unspecified trade, as well as marginal regions. The regions were specified in the TIPS database.

²⁰ Other RCA indicators were, for some textiles and clothing sectors, below unity in 1998 (see TIPS 2001).

²¹ The EEC category includes the EU(15), Ascension, British Antarctic Territories, British Pacific Island, British West Indies, Canary Island, Metropolitan France, Gilbert and Ellic Island, Kiribati, Madeira, and Tristan Da Cunha.

Table 3.6 Regional breakdown of SACU's imports (% average for the 1988–2000 period)

HS	East Asia & Pacific	South Asia	SADC	EEC	NAFTA	Other
61	63.7	2.3	19.8	10.1	2.0	2.0
62	48.3	17.9	15.2	14.0	2.2	2.4

Note: See Table 4.4.

One key feature of SACU's trade pattern is its reliance on a few key suppliers and markets of destination (Table 3.7). Moreover, the concentration of trade with a small set of partners (two to three countries) has increased sharply between 1995 and 2000. This suggests that significant developments specific to a few key markets would strongly impact on SACU's export performance. Although some new trade partners have emerged, most of SACU's established partners have remained. The UK has, for instance, been a relatively consistent end-market. On the export side, for non-woven apparel items, the US already absorbed in 1995 as much as 34 per cent of SACU's exports in the sector. The share increased to 74 per cent in 2000. For the woven sector as well, the US was a key destination market; its share in SACU's exports in the sector increased from 28 per cent to 47 per cent. An interesting new market emerged in the second half of the 1990s, *viz.* the United Arab Emirates (UAE), for woven apparel. The UAE, however, could lose out in the area of clothing since SACU exports are shifting markedly to the US, as a result of AGOA. On SACU's import side, China was, already in 1995, a notable partner accounting for more than 20 per cent of apparel imports. By the end of the period, half of SACU's clothing imports were from China. Indonesia was another significant trade partner that emerged during the 1990s (Table 3.7).

Table 3.7 SACU's key partners of interest in 1995 and 2000, and proportion of trade with top 10 partners

Imports				Exports			
HS		% of total imports		HS		% of total exports	
		2000	1995			2000	1995
61	China	51.3	26.6	61	U.A.E	1.1	n.a.
61	Indonesia	3.5	n.a.	61	US	73.8	34.1
61	Top 10	89.2	90.8	61	UK	11.04	16.6
62	China	49.7	21.2	61	Top 10	75.0	84.4
62	Indonesia	14.0	n.a.	62	UAE	3.6	n.a.
62	Top 10	90.6	86.6	62	UK	29.7	29.6
				62	US	46.9	27.8
				62	Top 10	92.3	90.4

Note: The countries listed are amongst SACU's top 10 partners. When no figure is available, the partner did not feature in the top 10 list in 1995. The percentage is calculated on the basis of the total in the HS sub-sector, at the 2 digit level.

Source: Own calculations based on TIPS data.

Table 3.8 Key clothing export sub-sectors

	Product	Proportion of total clothing exports (%)		HS Code	Key markets of destination at the end of the of 1990s
		1988–1995	1995–2000		
Woven items	Men's or boys' suits, ensembles, jackets etc. (excluding swimwear)	30.3	22.7	6203	US/NAFTA and EU, but with a progressive shift away from the EU
	Women's or girls' suits, ensembles, jackets, blazers, dresses, etc. (excluding swimwear).	14.1	8.9	6204	EU and US/NAFTA, with a distinct shift towards US/NAFTA
	Men's or boys' shirts.	11.8	6.0	6205	US/NAFTA from 1990
	Women's or girls' blouses, shirts, and shirt-blouses	3.5	3.0	6206	US/NAFTA from 1997
Knitted/crocheted items	T-shirts, singlets, and other vests	4.1	17.1	6109	US/NAFTA
	Women's or girls' blouses, shirts, and shirt-blouses	2.1	8.4	6106	US/NAFTA
	Men's or boys' shirts	4.0	6.1	6105	US/NAFTA from 1994
	Jerseys, pullovers etc.	3.4	4.0	6110	Difficult to establish: fluctuations between EU and US/NAFTA – but US/NAFTA predominates in 2000
	Men's or boys' suits, ensembles, jackets, etc. (excl. swimwear)	2.0	3.4	6103	US/NAFTA, but with fluctuations
<i>Other garment types</i>		<i>24.7</i>	<i>20.3</i>	<i>Other</i>	

Note: The above sub-sectors are those which dominate SACU's clothing exports in terms of their share of total clothing exports. However, HS 6103 has been reported since it needs to be considered together with HS 6203.
Source: Own calculations based on TIPS data.

South Africa's clothing exports are concentrated across a small number of product groups (Table 3.8). Generally, concentration has become more pronounced, signalling some amount of rationalisation of exports. Moreover, there have been important changes in the sub-sectoral composition of exports in the second half of the period, particularly for the smaller export sub-sectors.²² As expected, there were greater shifts towards rationalisation of HS 61 exports at the product group level.

The main markets of destination for SA/SACU clothing product groups which dominate clothing exports are the EU and US/NAFTA (last column of Table 3.8). Recent pronounced shifts have been towards US/NAFTA for HS 6203 and HS 6204, i.e. woven men's wear, and women's wear excluding shirts. These shifts occurred between 1998 and 2000. There is a longer history of exports to the US in HS 6106 and 6109, i.e. knitted women's and girls tops and T-shirts, so that the shift in favour of HS 61 to US/NAFTA represents growing exports specifically from these sectors. For the latter segment, US/NAFTA was the major market of destination from 1992 onwards. For the former, a shift occurred in 1996 when exports to US/NAFTA were in excess of those to the EU. Fluctuations in destination

²² For instance, whilst hosiery exports grew, the share of the sector in total exports declined substantially.

occurred for HS 6103, i.e. the suits of knitted and crocheted type and, as a result, it is difficult to identify a trend, which is typical of smaller export sub-sectors.

Although, South Africa's exports are small, exporters were able to substantially and rapidly improve their position in the EU and US. The pattern of displacement away from the EU partially emerges through a deterioration of South Africa's export ranking for women's wear of the knitted or crocheted type, excluding shirts and T-shirts.²³ In contrast, the country's export position in men's wear improved. In the EU, South Africa competes with China and Turkey, and in the US, with Mexico, the Dominican Republic, and China who are the key suppliers in products which dominate SACU's clothing export composition. However, what is at stake is the "gap" between South Africa and some of its major competitors. Some key figures illustrate the importance of this "gap": South Africa's highest clothing ranking (29) in the US market is for T-shirts. Yet, South Africa accounted for only 0.34 per cent of US imports of T-shirts in 2000. In men's wear (excluding shirts, T-shirts and overcoats), South Africa accounted for only 0.38 per cent of US imports.

Based upon the data presented in this section of the paper, garments can be characterised as a small export sector in South Africa, and its trade performance in the post-apartheid era has been modest. However, the sector has become increasingly integrated into the global economy, and since 1998, there has been a discernible growth in clothing exports (Figure 3.2), as well as a marked improvement in the clothing trade balance (Figure 3.3). As it stands, clothing imports are primarily sourced from the Far East, with China emerging as a key import market. As far as export markets are concerned, there seems to be a shift away from the EU to the US, although the EU remains an import market destination for South African made garments.

4 Methodology

The empirical research undertaken for this study was based on 28 firm-level interviews, and nine personal interviews with industry experts. A standard, qualitative semi-structured interview schedule was used for the firm interviews. The objectives of the qualitative, in-depth firm-level interviews were to understand and clarify the characteristics and extent of the adoption and use of e-commerce technologies for international trading. When key insights emerged, interviewees were probed for greater detail. The interviews were conducted between February and March 2002, and the duration of each interview ranged between one and two hours. The firms selected were the top (in terms of Rand value) garment exporting firms in South Africa.

No attempt was made to achieve a statistically random sample of firms in this exploratory study. However, every effort was made to capture the full range of characteristics of the top exporting firms. The Clothing Federation of South Africa's (CLOFED) (2000) Handbook was limited as a resource in that it included a list only of its member firms, and did not indicate which of the firms were major exporters.

²³ International competition also contributes to the displacement.

Since there was no master list of leading exporting firms in the South African garments sector, firms for inclusion in the study were identified on the basis of interviews that were held with key informants. These individuals had a detailed knowledge of the state of play with regard to exports and e-commerce developments in the garments sector.²⁴ Moreover, based on prior research on the South African garments sector, the researchers were familiar, and had worked, with some of the leading exporting firms (Moodley 2002; Moodley and Velia 2002).

Of the 28 firms interviewed, the average percent of turnover accounted for by exports was 40.4 per cent (Table 4.1), the average number of employees was 1497 (Table 4.2), and the average age of the company was 44.1 years (Table 4.3). This means that the leading exporters were generally well-established large firms, the overwhelming majority of which were not producing exclusively for the export market, i.e. the domestic garment retail market remains a significant revenue source for the firms concerned. The fact that the interviewees held senior management positions in these firms (Table 4.4) meant they were likely to have a good understanding of the scale and scope of e-commerce implementation in their respective firms, as well as the impact of the internet and e-commerce on their firm’s international trading relationships.

Table 4.1 Percent of turnover exported

	Frequency	Percent
1-20	7	25.0
21-40	4	14.3
41-60	8	28.6
61-80	1	3.6
81-100	1	3.6
Missing cases	7	25.0
Total	28	100.0
Mean = 40.4%		

Table 4.2 Number of employees

	Frequency	Percent
≤1000	15	53.6
1001-2000	9	32.1
2001-3000	2	7.1
>3000	2	7.1
Total	28	100.0
Mean = 1497 employees		

²⁴ Although South African Customs and Excise keep detailed records of exports for individual garment firms, these figures are confidential. Only aggregate data are available to the public.

Table 4.3 Age of company

Years	Frequency	Percent
1-20	5	17.9
21-40	6	21.4
41-60	7	25.0
61-80	7	25.0
81-100	1	3.6
Total	26	92.9
Missing cases	2	7.1
Total	28	100.0
Mean = 44.1 years		

Table 4.4 Position of respondent

Position	Frequency	Percent
Managing director	12	42.9
Production manager	2	7.1
Export merchandise director	5	17.9
Divisional managing director	1	3.6
Marketing director	3	10.7
Chief financial officer	1	3.6
Director	3	10.7
Missing cases	1	3.6
Total	28	100.0

The vast majority (82.1 per cent) of the firms interviewed were South African-owned. The remaining firms were owned by Asians (14.3 per cent), and one firm was Mauritian-owned (3.6 per cent) (Table 4.5). Most of the firms (64.3 per cent) were part of a larger group (Table 4.6). The firms interviewed were primarily located in the provinces of KwaZulu-Natal (32.1 per cent) and the Western Cape (53.6 per cent) (Table 4.7). This is unsurprising considering that KwaZulu-Natal and the Western Cape are the two major centres of garment production in South Africa, and they are the two most important platforms for export-oriented production.

Table 4.5 Ownership

	Frequency	Percent
South African	23	82.1
Taiwanese	3	10.7
Malaysian	1	3.6
Mauritian	1	3.6
Total	28	100.0

Table 4.6 Subsidiary

	Frequency	Percent
Yes	18	64.3
No	10	35.7
Total	28	100.0

Table 4.7 Geographical representation of firms

Province	Frequency	Percent
Western Cape	15	53.6
KwaZulu-Natal	9	32.1
Eastern Cape	2	7.1
Gauteng	2	7.1
Total	28	100.0

The key informants were selected on the basis of their expert knowledge about what is occurring in terms of e-commerce implementation and exporting in the South African garments sector (see Annex 2). The key informants were in a unique position to make sense of key issues and offer useful insights on the efficacy of different business models in B2B e-commerce for garment exporting firms, and about the problems associated with B2B technology platform adoption and implementation. In total, nine personal interviews with industry experts were conducted between January 2002 and April 2002. Unlike the firm-level interviews, a more open-ended, exploratory approach was adopted for the key informant interviews. The researchers used broad, interconnected questions to encourage the key informants to speak freely about e-commerce developments in the South African garment exporting firms. These interviews lasted, on average, between one to two hours.

All the firms and the key informants were assured anonymity. In addition to the firm-level and key informant interviews, this research draws on data sources such as published and unpublished documents, company reports, memos, newspaper articles, and so forth. A literature review of secondary sources was used to prepare a synthesis of previous empirical research and to support the development of the conceptual and theoretical framework for the study to ensure that gaps in understanding would be addressed.

5 Empirical findings

5.1 Product information

The overwhelming majority of the interviewees in the firms (96.4 per cent) participating in this research were global contract manufacturers who make-to-order (i.e. make finished goods to the specifications of foreign buyers) rather than make-to-stock.²⁵ The buyers define the products to be produced by the suppliers, and specify the processes and standards to be used. This is unsurprising given South Africa's peripheral relationship to the central agglomerations in Western Europe that strongly influence global fashion trends. Furthermore, South Africa is seasonally six months behind European fashion, is distant from fashion development networks, and has a relatively conservative domestic market. Only one firm (Firm 20) was adding higher-order services such as styling and design to its garments, which it supplied to small independents and boutiques in the UK.

Garments can be roughly classified as basics, fashion-basics, or fashion goods depending on the length of the product life cycle and the degree of demand unpredictability for the garment. Table 5.1 reveals that a wide variety of garments were produced by the firms, ranging from high value, tailored garments such as constructed men's wool suits, jackets, and trousers to "basics" or standardised, commodity garments such as five-pocket denim jeans, chinos, plain shirts, and t-shirts. Despite this diversity, the garments produced by the firms were less fashion-forward than fancy garments for which variance in demand can be great. They could be classified as basics (knitted t-shirts), fashion-basics (women's skirts and dresses) or "classics" (mainstream staples such as men's worsted wool suits) in the sense of being subject to few changes in design from one season to the next, and items for which there is year-round demand.

Since the firms were not producing trendy, high-variance, fashion-oriented garments, their products were characterised by a relatively long shelf-life, long runs, and long lead-times. Moreover, the firms were not on a replenishment programme with foreign buyers, which would have required them to respond rapidly to the marketplace. Lead-times were, therefore, not of critical importance for these garments because they were not being produced for markets which are dominated by rapid response or "lean retailing" principles.^{26, 27} Hence, geographical remoteness and consequent long delivery times are not obstacles to such products being sourced from South Africa.

²⁵ Hereafter the firms that participated in this research will be referred to as "the firms". Moreover, it should be taken for granted that all evidence cited in this section was derived from the interview notes.

²⁶ Lead-time is calculated as the number of days required for an apparel manufacturer to procure textiles, manufacture, and deliver a typical good in its product collection. The average lead time for the 28 firms interviewed was between 4–6 months.

²⁷ During the early 1990s the "lean retailing" trend became the US retailers' paradigmatic response to the problems of over-investment in retail space, product proliferation, sharply intensified price competition and resulting reductions in margins. Lean retailing employs sets of practices often associated with 'lean production' (Womack, Jones and Roos 1990), 'flexible manufacturing' (Piore and Sabel 1984), or 'modern manufacturing' (Milgrom and Roberts 1990). Lean retailing attempts to minimise the costs associated with holding inventory, with forced markdowns to clear unsold goods, and with stock-outs. On the basis of linking sales-point data to wider systems for EDI, leading US apparel retailers have been able to shift to inventory control methods based on lower and later initial orders, selective later replenishments and more frequent introduction of new items, provided that suppliers also adopt the appropriate technology and accept responsibility for inventory management.

Table 5.1 Main products

Company	Main products	Most significant sources of revenue
Firm 1	Denim trousers and shorts	See main products
Firm 2	Knitted t-shirts, tops, shirts, and shorts	See main products
Firm 3	Men's trousers and shirts	Men's trousers
Firm 4	School wear, men's wear (jerseys, jackets, trousers, shorts, shirts, and tracksuits), and women's wear (jackets, pants, shorts, skirts, dresses, tunics, blouses, tracksuits, and lingerie)	School wear and men's outerwear
Firm 5	Men's and women's trousers, jeans and shorts. Women's skirts, blouses, jackets, and dresses	Women's outerwear
Firm 6	Women's tailored garments (jackets, skirts, and trousers)	See main products
Firm 7	Hosiery	See main products
Firm 8	Women's sleepwear and underwear (brassieres, corsetry, camisoles, briefs, and panties)	Brassieres and panties
Firm 9	Men's tailored suits, jackets, and trousers	See main products
Firm 10	Men's suits, jackets, trousers, and shirts	Worsted wool suits
Firm 11	School wear	Blazers and trousers
Firm 12	Men's, women's, and children's shorts, pants, jeans, shirts, and men's formal trousers	Trousers and jeans
Firm 13	Men's, women's, and children's socks	See main products
Firm 14	Men's, women's, and children's knitwear (jerseys and cardigans), and leisurewear (t-shirts, tops, skirts, and tracksuits)	See main products
Firm 15	Denim jeans and denim skirts	Denim jeans
Firm 16	Men's tailored jackets and trousers	See main products
Firm 17	School wear, women's outerwear, and children's wear	Boy's school trousers
Firm 18	Men's and women's woven shirts	See main products
Firm 19	Men's sportswear, children's outerwear, and women's sleepwear	See main products
Firm 20	Women's outerwear	Blouses and soft dresses
Firm 21	Men's tailored suits, jackets, and trousers, and women's tailored jackets, skirts, dresses, and blouses	Men's worsted wool suits
Firm 22	Women's outerwear, and tailored garments such as jackets	See main products
Firm 23	Men's, women's, and children's outerwear	See main products
Firm 24	Men's and women's leisurewear, and overalls, protective wear, and dust coats	Overalls, protective wear, and leisurewear
Firm 25	Women's knitted sweaters	See main products
Firm 26	Men's, women's, and children's leisurewear and sportswear	See main products
Firm 27	Women's outerwear (jackets, blouses, skirts, and pants)	Pants and skirts
Firm 28	Men's suits, jackets, and trousers	See main products

5.2 Vendor selection criteria

Logistics and telecommunications infrastructure, the human rights situation, and the levels of economic and political stability are critical variables that the buyer considers when deciding to source from a particular country, such as South Africa. Although, the buyers are increasing their expectations of the range of services and characteristics that potential suppliers should have, e-commerce is not yet a condition of trade (Table 5.2).²⁸ Firms 8 and 15 expressed a commonly held view among the interviewed firms:

The lack of e-commerce capabilities does not have an adverse effect on the winning of contracts in the export market (Firm 8).

There is no pressure from the buyers and brokers to adopt e-commerce systems (Firm 15).

This notwithstanding, potential suppliers must be able to demonstrate that they have the necessary communications capacity (i.e. telephone, fax, and email) (Table 5.2). This is in contrast to the domestic market where established electronic exchange mechanisms such as EDI and Electronic Fund Transfers (EFTs) currently exist between the large domestic retailers and their core suppliers.²⁹ Some of the domestic retail chains (such as Edgars), have moved their EDI systems to the internet, seeking the benefits of lower costs and seamless connectivity with their suppliers.³⁰ In addition, the domestic retailers have pushed internet-based Vendor Managed Inventory (VMI) and Collaborative Planning, Forecasting, and Replenishment (CPFR) systems onto their core suppliers.³¹ Firm 4, a South African-owned company situated in a lower labour cost, decentralised zone in northern KwaZulu-Natal stated that:³²

Computerised orders and orders being pulled off the web are starting to happen in South Africa. It is being driven by the major retailers such as Woolworths and the Edgars Group. In South Africa it is the large domestic retail chains which are driving IT use (Firm 4).

Most B2B e-commerce transactions in the domestic garments market take place through EDI and Value-Added Network (VAN) platforms, i.e. proprietary and available only to a “closed” group of users. They are geared to routine (usually high volume) transactions between specified trading partners. Internet platforms are being used mainly to supplement existing EDI and process management systems (like CAD and ERP), mainly through the use of websites and email to provide *general information and communication services*.

²⁸ The key supplier selection variables are based on the responses of the firms, and may not necessarily be an accurate reflection of what buyers actually want.

²⁹ A type of secure EDI that enables inter-bank transfers of funds in the form of information.

³⁰ There is an extremely high level of concentration within the domestic retail sector, and, correspondingly, high levels of buying power are present. The top seven leading retailers jointly account for roughly 70 per cent of total market share (Dunne 2000).

³¹ VMI is a sophisticated system for managing stock and replenishing shipments.

³² “Decentralised zones” refer to peri-urban and rural areas, where the wage rates are lower than that of urban areas.

According to the firm interviewees, the principal interest of the buyers was in the capacities of individual suppliers *vis-à-vis* price considerations, delivery reliability, lead time/flexibility, product quality, product/production engineering capabilities, conformance to specifications, telecommunications capacity, production capacity, technological capability (i.e. computerised pattern-makers, the automation of certain finishing processes, numerically-controlled sewing machines, specialised machines for side-sewing, and automatic overhead conveyers), proximity to appropriate fabric supply sources, and social accountability (Table 5.2). It would appear that price, quality, product/production engineering capabilities, telecommunications capacity, delivery reliability, and conformance to technical specifications and standards are critically important variables in the supplier assessment process. These are the areas where competitive pressures are most concentrated. This was confirmed by the interviews with the key informants. Moreover, the key informants indicated that buyers preferred local companies which were well established and which already had a portfolio of clients similar to themselves.

Table 5.2 Key supplier selection variables (N=28)

	Frequency	Percentage
Price ³³	28	100.0
Quality	28	100.0
Delivery reliability	28	100.0
Telecommunications (telephone, fax, and email)	28	100.0
Product/production engineering capabilities	28	100.0
Conformance to specifications	28	100.0
Production capacity	25	89.3
Lead times/flexibility	22	78.6
Social accountability ³⁴	21	75.0
Technological capability	19	67.9
Current portfolio of clients	16	57.1
Proximity to appropriate fabric supply sources	15	53.6
E-commerce (transactional) capability	0	0.0

Note: Percentage column adds up to more than 100% because of multiple responses.

³³ Price depends primarily on labour cost, transport costs, and tariffs and duties. The sector's high labour component in production costs makes comparative wage levels in different countries a significant indicator of their ability to profitably manufacture garments. Clothing production is labour-intensive, has low capital requirements, static technology, and production processes that are much less complex, in technical terms, than the processes used in many other manufacturing industries. Foreign buyers, particularly the US buyers, are benchmarking South African garment producers against other global suppliers. Consequently, South African garment producers are under enormous pressure to reduce their costs to a minimum in order to offer a competitive price.

³⁴ The social audit entails compliance with local labour laws, safety practices, etc. The main reason for this is that large retailers and brand marketers do not want their brands associated with the exploitation of workers or with unsafe working conditions.

The EU and US buyers require prospective suppliers to undergo an exacting certification process, provide detailed production specifications, demand detailed quality control (QC) to ensure that the supplier conforms to the technical expectations and quality requirements of the buyer, exacting laboratory tests, and frequent updates on the product’s progress (covering pre-production procedures, coordination of input deliveries, production schedules, methods and timing of garment deliveries, etc.). The primary pressures that the firms were experiencing from the buyers concerned price and technical pressures such as higher fabric and garment performance. Sometimes these required the firms to slightly modify fabric composition, and to invest more in finishing processes and quality control in order to reduce levels of rejects. The firms were also under pressure to make investments in machinery such as unit transporters in order to meet demanding performance requirements, and to make their assembly operations more efficient.

5.3 Intermediaries in the export market

The UK/EU and the US are the firms principal export markets (Table 5.3). The interviews revealed that for the EU market the firms were producing garments primarily for mail order houses, supermarkets, discounters, and independents. The US end-market customers included independents, branded marketers, mail order, supermarkets, lower mid-market chains, department store private labels, and mid-market chains. Hence, exports were concentrated in lower market segments, which are generally associated with lower margins, arms-length type relations, poor supply chain development, and limited upgrading opportunities.³⁵

A substantial proportion (32.1 per cent) of the firms source their inputs (fabric, trim, and other components) exclusively from South Africa (Table 5.4). Of those firms that import inputs from overseas, it would appear that the key market is the Far East (60.7 per cent), with the EU (21.4 per cent) also an important destination, particularly for high value-added inputs.

Table 5.3 Most important export markets (N=28)

	Frequency	Percent
EU (including UK)	21	75.0
UK	19	67.9
US	19	67.9
Australia	1	3.6
Japan	1	3.6
Middle East	1	3.6

Note: Percentage column adds up to more than 100% because of multiple responses.

³⁵ Mortimer, Lall and Romijn (2000) warn of the dangers of producers that remain in mass-produced, price-sensitive garments with low skill requirements.

Table 5.4 Most important countries from which inputs are sourced (N=28)

	Frequency	Percent
South Africa only	9	32.1
Far East	17	60.7
EU	6	21.4
US	1	3.6
South America	1	3.6
Mauritius	1	3.6

Note: Percentage column adds up to more than 100% because of multiple responses.

Table 5.5 Link to export markets (N=20)

	Frequency	Percent
Sourcing companies and other agents	19	95.0
Direct sales to end-customer	5	25.0
Parent company	2	10.0

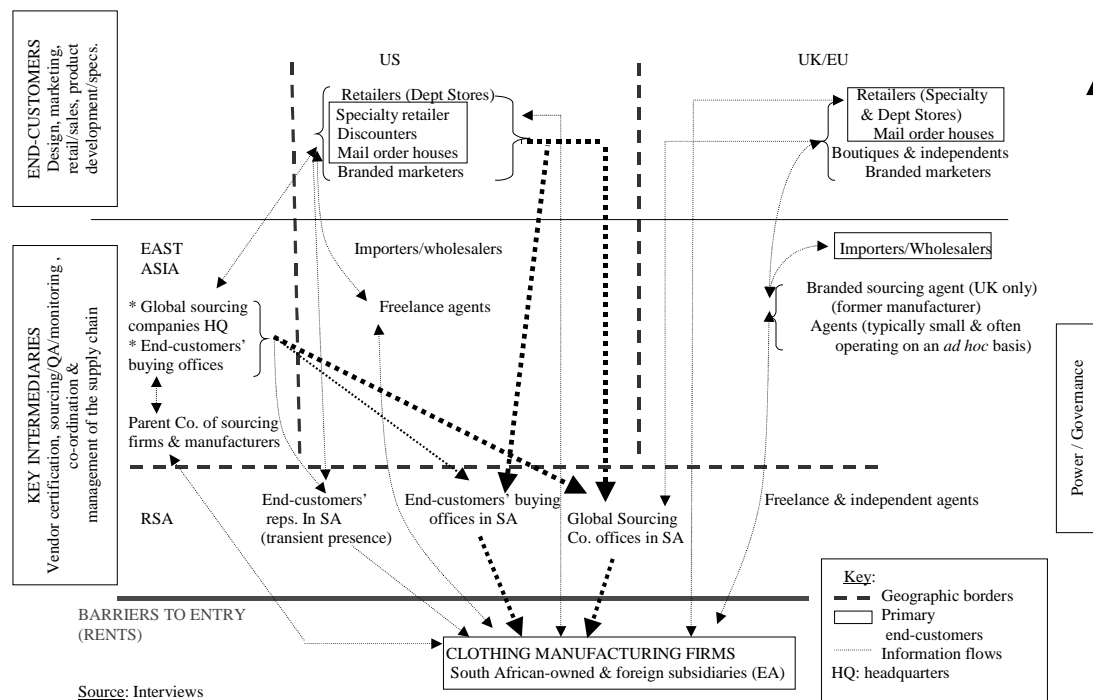
Note: Percentage column adds up to more than 100% because of multiple responses. Eight firms did not answer this question because they consider it to be sensitive “market intelligence”.

Only 25 per cent of the firms had direct links with end-customers in the export market, 10 per cent claimed to link into export markets via their parent companies, while the vast majority (95 per cent) go through “middlemen”, i.e. global buying and/or quality assurance (QA) agents, independent agents, and importers/wholesalers (Table 5.5). Export transactions were thus highly intermediated, and direct selling/purchasing was exceptional. The firms often had to go through one or more intermediaries to reach the end-customer (Figure 5.1). Figure 5.1 illustrates the modalities, and complexity, of the firms’ linkages into the US and EU end-markets. Thus, the firms had to work through a whole gamut of agents and “middlemen” in order to export to the US and EU markets. The agents, on average, charged a 5 per cent commission on all garments exported. Agents were selected on the basis of word-of-mouth referrals, advertising in trade journals, or through undertaking own surveys. The complex array of intermediaries captures and reflects the firms’ marginal position in garment export networks to the EU and US markets (Figure 5.1). Only a few of the firms had achieved the status of “core supplier” to US or EU end-customers; the majority, however, were “fringe” suppliers.³⁶ As one firm put it:

We are small fish in a very big pond (Firm 13).

³⁶ The designation “core supplier” implies the cultivation of longer-term strategic partnerships (collaborative planning and the sharing of information) between buyers and certain of their suppliers best able to produce a particular product, or range of products, to required standards and within required time-frames.

Figure 5.1 Key intermediaries



Certification and quality control (QC) was either done by the end-customer's buying office (e.g. US retailers such as Gap and Target) in South Africa or (in most cases) contracted to independent local agents or to local branches of global sourcing and quality assurance (QA) firms such as Li & Fung, Linmark, Mast or Hot Source.³⁷ In the former case, the majority of the work was QA, arising from contracts placed by company representatives based outside the country. For the latter case, the global sourcing agents were responsible for identifying vendors, placing orders, tracking production, and acting as a quality and compliance assessor. Of the four major QA/sourcing agents operating in South Africa, Mast and Li & Fung were the most advanced in terms of ICTs and e-commerce. Mast Industries has developed an extranet, called *The Mast Connection*, which electronically links Mast associates, manufacturers, customers, and shippers. The extranet has been designed to enable diverse members of the "extended" Mast organisation to communicate and share information (specifications, sewing techniques, patterns, and markers, and to share plans and information on production status) in real-time with its trading partners. The goal being the attainment of a higher degree of consistency, quality, and control (source: Key Informant 6).

The Li & Fung website had three dimensions: (1) marketing; (2) B2B trade of non-garment related consumer goods such as pots, pans, etc. between existing clients; and (3) B2B trade in garments via *Studio Direct* in the US (www.lifung.com). Li & Fung also operates a restricted access (i.e. existing clients only)

³⁷ Linmark Westman International is part of the Taiwanese-owned, but Singapore-based, Roly International Holdings Group; Li & Fung is the largest global, garment sourcing company in the world, and has its headquarters in Hong Kong; Mast Holdings is a US company and is owned by The Limited; and Hot Source is an Australian-US-South African company.

B2B stock offer trading portal called *Electronic Stock Offer* (ESO). This B2B trading hub offers stock goods (including ready made garments, fabric, yarn, and accessories) resulting from over-runs, bankruptcies, and order cancellations. Li & Fung does not take a position on the stock which is offered on an availability basis. Li & Fung charges a commission for all transactions. Furthermore, Li & Fung does not act as a principal, and does not become involved in shipping. It will, however, “recommend and advise” if requested to do so. The volume of trade taking place through the B2B portals is still fairly “low” (source: Key Informant 5). None of the firms had made use of either Mast Industries’ extranet or Li & Fung’s B2B e-commerce website.

The global sourcing networks are multifaceted, dense, and represent resilient forms of social capital. The firms recognised that it would be very costly (in terms of R&D, overseas visits, sampling, etc.) and difficult (lack of knowledge base) for them to bypass agents and deal directly with end-customers. This was because the agents already have a sophisticated market intelligence system, and well-developed, multi-layered global sourcing networks in place, and have established long-term relationships with overseas customers based on trust and reputation (trustworthiness, after-sales support and service, reliability of delivery, etc.). Key Informant 4 explained the conventional sourcing process:

If JC Penney wants to source t-shirts from South Africa. This is what would happen. JC Penney will go to Linmark which is an international sourcing agent, and which has a South African office. Linmark may have enough information to identify the suppliers or else they will go to the Export Council. They will say to the Export Council that JC Penney is the customer, this is what they are looking for, and who do you think we can do business with. The complexity of the needed information is such that you couldn’t do it by surfing through corporate websites or through a B2B trading hub. It will be very painful and risky to do it electronically. The sourcing agent will need to know whether the supplier is able to deliver the right finish, the right quality, how reliable the supplier is, etc. It doesn’t lend itself to e-commerce (Key Informant 4).

5.4 E-commerce adoption and use

Table 5.6 Website

	Frequency	Percent
Yes	16	57.1
No	12	42.9
Total	28	100.0

A substantial 42.9 per cent of the participating firms did not have a website (Table 5.6). They relied heavily on sourcing agents and, in some cases, on their parent company, to “bring in” the buyers. Of those companies (57.1 per cent) that had a website, the websites were generally “static”, offering little interactive

capability beyond email links. Websites were used as a marketing tool to demonstrate to prospective customers the company’s production capabilities, to provide product information (such as online catalogues), and included the company’s contact details. The firms used price differentiation and were thus unwilling to post prices on websites. Only one of the firms (i.e. Firm 18) was constructing a B2B transaction-based website, which was expected to become fully operational in the second half of 2002.

Table 5.7 Type of internet connection (N=28)

	Frequency	Percent
Analogue	18	64.3
Integrated Services Digital Network (ISDN)	10	35.7
Total	28	100.0

The firms were either using traditional analogue-based modems (64.3 per cent) or an ISDN connection (35.7 per cent) (Table 5.7).³⁸ None of the firms reported using high-speed internet connections such as Asymmetric Digital Subscriber Line (ADSL), Symmetric Digital Subscriber Line (SDSL), or cable.

Table 5.8 Adoption of internet technologies

	Frequency	Percent
Public Internet	28	100.0
Intranet	16	57.1
Extranet	0	0.0

Note: Percentage column adds up to more than 100% because of multiple responses.

All of the firms interviewed used computers, and had connections to the public internet (Table 5.8). 57.1 per cent of the firms had an intranet in place. The intranets were typically used to enable staff to read company information and allow staff access to databases. A substantial 42.9 per cent of the firms had yet to establish an internal network (or enterprise “infostructure”) through which enterprise personnel could access information through a single point of entry. None of the firms had developed and implemented an extranet. Consequently, the prospects for developing an external business network by providing clients and commercial partners with limited, firewall-managed access to the enterprise’s internal network was a long way off. In addition, very few (14.3 per cent) of the firm interviewees mentioned accessing the extranets of the buyers.

³⁸ ISDN supports data transfer rates of 64 Kbps (64,000 bits per second). ISDN uses mostly existing Public Switched Telephone Network (PSTN) switches and wiring, upgraded so that the basic “call” is a 64 kilobits per second, all-digital end-to-end channel.

Table 5.9 Email use

To maintain contact with buyers/suppliers		
<i>Frequency of Use</i>	<i>Frequency</i>	<i>Percent</i>
Frequently	7	25.0
Always	21	75.0
Total	28	100.0
To place or accept product orders		
<i>Frequency of Use</i>	<i>Frequency</i>	<i>Percent</i>
Frequently	13	46.4
Always	15	53.6
Total	28	100.0

Among the firms interviewed, email was the most popular use of the internet. Email was being used by all firms to facilitate communication, data exchange, and integration with existing customers and suppliers, rather than to find new business customers and suppliers, or to support new transactions (Table 5.9).³⁹ All of the firms reported that they used email to place or accept orders with existing trading partners. Email had largely replaced the telephone and fax.

Email was often used to receive (as attachments) customer specifications and orders, for order progress tracking, and online post-sales support:

Established customers often use email to check up on the progress of an order, delivery dates, status of trims, issues around conformance to specs, and anything related to the production pipeline (Firm 15).

Email communication was seen as being particularly important for transaction preparation, setting up personal appointments with customers and suppliers, dealing with queries regarding sampling, production planning, order status, fabric availability, garment labels, shipping, etc., and fine-tuning specifications, and when translating the buyer’s specifications into practical knowledge that was necessary for production. The buyers also used email to request quotes, exchange cost and price breakdowns, disclose supplier appraisals, exchange business forecasts, and plan new capacity.

All of the firms were members of the South African Clothing Export Council. The Export Council regularly compiled a standard list of trade leads, which was then emailed to all of its members. It was up to each member to decide which trade leads to follow up on.

³⁹ The Firm 2 interviewees, a Malaysian-owned firm, claimed that the firm communicates with its parent company’s sourcing office in Singapore through a dedicated web-based chat room. This was the only firm which stated that it used a chat room for business communication purposes.

Table 5.10 Public internet use (N=28)

	Frequently	Seldom	Never
To get general information about input markets	14.3%	14.3%	71.4%
To obtain information about specific customers	14.3%	28.6%	57.1%
To obtain general information about product markets	10.7%	17.9%	71.4%
To obtain information about specific suppliers	7.1%	25.0%	67.9%
To accept orders from international business customers	0.0%	10.7	89.3%
To place orders with international suppliers	10.7%	3.6%	85.7%

Note: Percentage column adds up to more than 100% because of multiple responses.

Unlike email, the public internet was not used to any great extent for accepting orders from foreign buyers, or for placing orders with international suppliers (Table 5.10). Only a small percentage of the firms exploited the information seeking potential of the public internet, with 14.3 per cent of firms using it “frequently” to get information about input markets and about specific customers, 10.7 per cent to obtain general information about product markets, and 7.1 per cent to obtain information about specific suppliers. It would seem that the public internet was not being used to any great extent as a market intelligence mechanism. The public internet was also not being used to any significant extent to find new customers, and new supply sources.

Table 5.11 EDI use (N=28)

	Frequently	Seldom	Never
To accept orders from domestic business customers	42.9%	7.1%	50.0%
To accept orders from international business customers	0.0%	3.6%	96.4%
To place orders with domestic suppliers	0.0%	0.0%	100.0%
To place orders with international suppliers	0.0%	0.0%	100.0%

Table 5.11 reveals that the firms’ EDI connections were primarily with domestic retailers, rather than with international buyers. For the former, EDI was used primarily to receive orders from domestic customers and to send invoices to the retailers. According to Key Informant 5:

Very little EDI is used in South Africa. EDI contact with suppliers is still “primitive”. In Asia, however, EDI is used to expedite international logistics and shipping . . . including sailing date, landing times, bill of lading, and visas are all exchanged via EDI . . . IT advancement in Asia has a lot to do with proximity to corporate headquarters, and a quick response drive in the industry.

One of the firms mentioned that it is currently linked via EDI to a British mail order house, and is able to accept EDI-based orders, but that this does not occur frequently.

Table 5.12 Has your company ever used the internet to purchase or sell any of its products and/or services internationally?

	Frequency	Percent
Yes	3	10.7
No	25	89.3
Total	28	100.0

The overwhelming majority of firms (89.3 per cent) had never used the public internet to purchase or sell any of its products internationally (Table 5.12). Firms 1 and 26 reported that they had used the internet to link into the e-procurement systems of big US retailers, in order to bid for contracts. Firm 1, a Taiwanese-owned firm situated in a decentralised area, claimed that it had participated in a private internet-based auction organised by Target, a large US-based discount retailer. The bid was successful, and an order of 200,000 pieces was received. Firm 26 participated in a closed, forward auction through JC Penney’s website, in which suppliers bid against one another to offer the most attractive price. Although their price was the lowest, JC Penney awarded the contract to an existing vendor. The objective was to protect the existing vendor from order cancellations that it experienced in the US market as a result of the September 11 terror attacks. Moreover, Firm 19 used its website to sell fabric over-runs. Although the firm had received some inquiries, only a few (limited value) sales were recorded.

Table 5.13 Has your company ever registered with any web-based international trading site or e-marketplace? (N=28)

	Frequency	Percent
Yes	1	3.6
No	27	96.4
Total	28	100.0

Table 5.13 clearly shows that most (96.4 per cent) of the firms interviewed were not registered with any web-based international trading hub or e-marketplace. The following quotes illustrate the general lack of interest in B2B trading portals:

I am not aware of any South African garment producers trading through B2B hubs or e-marketplaces (Key Informant 1).

There is a general lack of interest in B2B trading portals. As far as actual commercial transactions taking place over the internet . . . we are a long way from it. There is also the question of how appropriate e-commerce is for the clothing industry. At the moment its relevance is debatable (Key Informant 3).

Table 5.14 Use of the internet for Supply Chain Management (SCM) (N=28)

	Yes	No
Does your firm use the internet for SCM?	0.0%	100.0%
Do your suppliers have access to real-time information of your company's sales and stock levels?	0.0%	100.0%
Do your customers have access to real-time information of your company's stock levels?	3.6%	96.4%
Are your firm's internal operations electronically integrated with those of your customers?	0.0%	100.0%
Are your firm's internal operations electronically integrated with those of your suppliers?	0.0%	100.0%
Does your company require suppliers to make use of B2B e-commerce technologies?	0.0%	100.0%

On the basis of Table 5.14, it would seem that the firms were not using the web for SCM or for integrating their internal operations with those of their trading partners. Integrated and interactive internet-based B2B e-commerce systems were non-existent among the firms interviewed.

Table 5.15 Information-oriented internet sites (N=28)

	Frequency	Percentage
Electronic bulletin boards	15	53.6
Trade directory portals	13	46.4
Fashion trends sites	12	42.9

Note: Percentage column adds up to more than 100% because of multiple responses.

A significant proportion of the firms were registered with “matchmaking services” such as electronic bulletin boards (e.g. www.globalsources.com)(53.6 per cent) and/or trade directory portals (46.4 per cent) (Table 5.15). The objective of belonging to information-oriented trading sites was to generate more export trade leads for the firms concerned. The firms claimed that they had received “request for information” and “request for quotes” type inquiries from prospective buyers. That said, the firms claimed that the majority of the queries did not translate into actual sales contracts. 42.9 per cent of the firms reported that they were subscribing to “fashion trends” websites, e.g. www.wgsn.com. As a result of accessing the latest international fashion trends via the internet, the firms claimed that they had cut back on expensive shopping trips to the EU and the US to buy samples from selected retailers.

E-commerce among the firms interviewed was used primarily for enabling messaging and marketing, and for transaction preparation with existing customers and suppliers, rather than for online payment, or inter-organisational supply chain management (SCM), i.e. e-marketplaces and extranet-based collaboration. Settlement of business transaction was definitely not taking place over the internet. Export sales were also not being generated through e-commerce transactions. Despite the availability of e-commerce technologies that could potentially reduce transaction costs, the interviewees chose higher cost

mechanisms such as interpersonal networks and face-to-face meetings to share certain types of information. Business was still conducted in the conventional paper-based way: issuing a purchase order, receiving an invoice, and processing the bill. Firm 12 described the typical transaction process:

The customer requests a quote and a first sample of the required garment. The next step would be to finalise the sample, negotiate the price, the customer places the order, we generate a sales contract which spells out the terms and conditions of the specs, styles, fabric, price, delivery dates, and paying procedure...which invariably takes the form of a letter of credit. If the buyer accepts the contract, the next step would be to affix a purchasing order, which is sent to us.

The participants preferred to rely on personalised inter-organisational networks to win new contracts and were sceptical about the capabilities of e-commerce of this aspect of their business. They also tended to use traditional payment systems, i.e. letters of credit (LCs).

The findings revealed that email was being used extensively by the firms concerned. The interviewees clearly indicated that email was used to support the information (collecting and evaluating information on supplier, customer, and product), negotiation (negotiating the terms of the acquisition such as price, delivery date, and so on), ordering the product, and after-sales (fixing problems after the order) phases of transactions. The only stage of the transaction that email did not support was the settlement phase.

The interviewees clearly pointed to the limited uptake of e-commerce technologies among the firms. E-commerce connectivity was seen as a valuable communication and information exchange tool, but was regarded as having no, or minimal, direct impact on sales prospects or purchasing efficiencies. None of the participants considered an e-commerce strategy to be an integral part of their overall business. Nor did they believe that the application of e-commerce would become an essential aspect of international competitiveness, or a fundamental element of their long-term business development strategy. For the vast majority of participants, the seamless electronic commercial transaction was a long way off because of the perceived difficulties in introducing online finance and payment, and customs collection and taxation applications.

B2B e-commerce was not yet a priority for the firms. There were no firms that could be described as being at the forefront of e-commerce. Key Informant 4 expressed this best:

Of the major exporting companies in South Africa there is no real “high flyer” in terms of e-commerce and IT. If you take the top 10 exporters in terms of turnover, and you surveyed their IT departments you are likely to get quite a shock . . . I think that their IT architectures are quite poor.

Nevertheless, a significant proportion (50 per cent) of the exporting firms had EDI links with the major domestic retailers. Thus there is a base from which to build e-commerce networks, if they are needed.

5.5 Obstacles

Table 5.16 lists a number of constraints to the uptake of e-commerce systems that were mentioned by the participating firms. The most significant constraint was a general lack of understanding among the firms of the potential opportunities, challenges, and risks of e-commerce. Many of the firms were unable to explicitly articulate specific e-commerce strategies and objectives. There was a great deal of uncertainty about the scale, scope, and pace of e-commerce adoption in the garments sector. The prevailing ethos among the interviewees was a preoccupation with competitive secrecy and protecting their customer base. The firms seemed to be preoccupied with survival tactics rather than implementing long-term strategic decisions. High degrees of risk aversion, commercial conservatism, and even inertia amongst the firms' owners were witnessed:

South African clothing companies don't really understand the potential of IT. Management tends to be conservative and inwardly focused (Key Informant 5).

Table 5.16 Blockers to B2B e-commerce

Obstacles
1. Limited understanding among firms of the opportunities, challenges, and risks of e-commerce
2. Uncertainty about returns from e-commerce investments
3. Little or no incentives to adopt e-commerce systems
4. Concerns that the price transparency that B2B e-commerce promotes could lead to a race to the "profitless" bottom
5. Resistance to the idea of sharing inventory and capacity information for fear that it will cost them sales
6. Firms spend little time developing a strategic view of their business. They are preoccupied with survival, i.e. a vision which is tightly focused on the short-term and on issues such as profit, tax, competition, and regulations
7. Inertia, i.e. management's reluctance to change existing operating structures
8. Evolutionary path dependencies which focus on the reduction of labour and input costs as competitive advantage rather than pursuing a knowledge and innovation-intensive growth trajectory
9. Management's "laager" mentality which have locked firms into an insular, inwardly-oriented way of thinking
10. The lack of adequate ICT infrastructures, skills, and capabilities
11. The relatively high initial investment costs involved in developing an integrated e-commerce infrastructure

The firms appeared to be reluctant to open up their internal corporate systems to external business partners (i.e. customers and suppliers), and to redefine their policies and practices to take advantage of e-commerce. In addition, they were uncertain about the consequences of greater transparency and the effect this might have on their ability to compete. The costs of the technology investments, changing business processes, and adapting corporate cultures to accommodate e-commerce were seen as being particularly high. Financial constraints were particularly important, since commercial banks were regarded as being very reluctant to lend to producers in the garments sector, especially after several large closures.

The cost problems were compounded in many cases because the companies had no assessment methodologies to gauge the costs of e-commerce relative to its performance:

The biggest problem with IT is that the capital costs could be completely out of proportion with the actual productivity and efficiency gains. Therefore one has to be careful, and not allow oneself to be seduced into believing that IT is the answer to the company's problems (Key Informant 4).

Foreign buyers are becoming more sophisticated as far as IT is concerned, but it is not a prerequisite for trade at this stage . . . the truth of the matter is that 90 per cent of our needs can be satisfied through email. Email is cost-effective and has caused the demise of the fax machine . . . firms are trying to keep their overheads low . . . this could be a barrier to greater IT diffusion (Key Informant 5).

Moreover, managers were very conservative about large ICT investments. The difficulty of implementing complex ICT-based strategies was another reason for slow uptake, especially in an environment of low IT skills and capabilities.

The firms regarded e-marketplaces/trading hubs as barriers between themselves and their customers. Fears were expressed that e-commerce will threaten or weaken their long-standing relationships with existing buyers. There was also the perceived threat of competition from rival suppliers operating in the same marketplaces. It was felt that online auctions posed the risk of weakened bargaining power *vis-à-vis* their customers, and diminished profit margins. The majority of firms believed that with more complete and up-to-date pricing and vendor rating information available via the web, the buyers would be in a better position to take advantage of changing global labour rates, import tariffs, and exchange-rate fluctuations across markets. The net result of this was expected to be the buyers' increased leverage over suppliers to squeeze margins, and/or lost business to lower-cost producers.

The firms' goal of building and consolidating relationships with end-customers/sourcing agents was a constant refrain. But the route to developing long-term partnerships was seen to lie in the development of personal/social networks of trust, rather than through developing stronger ICT links between the parties concerned. According to Key Informant 5:

The reason for the slow progress of e-commerce is that people in the clothing industry want personal contact (Key Informant 5).

In contrast, Key Informant 4 suggested that e-commerce, at least the EDI and email components of the e-commerce concept, had a role to play in supporting buyer-seller relationship building:

Electronic interchange of information has become vital to support relationship-building with customers (Key Informant 4).

In this sense, e-commerce becomes the medium for intensive data interchange among business partners, with a correspondingly higher cost of switching suppliers. However, there appeared to be little or no incentive (for example, in the form of competitive market pressures) for the firms to adopt and use e-commerce to minimise transaction costs. As one interviewee put it:

The IT crowd seems to be completely fixated with electronic transactions and B2B electronic marketplaces. These are “smoke and mirrors” people who don’t understand how the international clothing industry operates (Key Informant 4).

The firms export on the basis of developed production capabilities that have been learnt in supplying the domestic market, rather than on the basis of advanced e-commerce capabilities. Finally, the firms appeared to be locked into a high buyer dominance trajectory with a strategic focus on efficiency and cost.

To conclude, the patterns of technology use, even in this relatively small sample, are quite consistent with other empirical studies of actual use in most countries in Africa, given both the state of the infrastructure and the practices of people within a whole host of organisations (Maitland 2001). In other words, whilst the empirical results presented and discussed in this section are based on a purposive sample which is admittedly small, it not at all likely to be idiosyncratic.

6 Conclusion

This research project began from a theoretical perspective that was not simply a critique of the mainstream transaction cost view, but rather a perspective in which it was expected that, insofar as any firms were using some or all of the technologies and services associated with B2B e-commerce, there would be opportunities for cost reductions and efficiency increases depending on the specific application, the firms’ location in the value chain, etc. This was an attempt to develop this viewpoint and to validate it using the empirical evidence. Unlike those promoting a “standard”, homogeneous concept of e-commerce, we also expected to find a variegated set of practices and viewpoints informed more by the market environment of the firms than by the potential of electronic networks and e-marketplaces. In short, this research not only succeeds in demonstrating how ill-judged some of the early, and even recent, hype about e-commerce is, but it also helps to inform and extend alternative conceptions. It is definitely the case that much more work is needed to do the latter.

The results of this study appear to contradict the key propositions of the standard model of e-commerce, which was presented in Section 2 of the paper. There was no evidence to support the view that e-commerce is: (1) being used for completing inter-firm commercial transactions; (2) allowing firms to bypass “middlemen” in the value chain; (3) enabling/facilitating international trade by reducing coordination costs; and (4) transforming firms’ business models. Nor was there any evidence to support the view that transaction-oriented B2B e-marketplaces are being used to any great extent by the firms. At the time of the study, B2B e-commerce appeared to have only limited relevance for South African garment exporters. The empirical evidence suggests that e-commerce was not having a significant impact

on the business models of the largest, exporting South African garment firms. An International Trade Centre (ITC) (2001) survey of garment exporters in Bangladesh, the Philippines, and Sri Lanka revealed similar findings. If garment exporting firms were to adopt e-commerce for fully integrated transactions, this would entail a leap of faith. The market was not demanding it, and the payoffs of transaction-oriented e-commerce and e-marketplaces were regarded as being uncertain. Moreover, without active encouragement from buyers, many suppliers are likely to choose to wait.

There was a general lack of urgency on the part of the firms interviewed for this study, for whom e-commerce was simply not yet a strategic priority. South African garment exporters appeared to have much more pressing needs such as investment in state-of-the-art manufacturing technology to meet international standards; supply-side constraints such as access to financial credit and skills; and the planned phasing out of the Duty Credit Certificate (DCC) scheme. All these factors have to be considered when assessing the relative priority to give to e-commerce in the development process.

The only way to evaluate the extent to which B2B e-commerce can generate analyses pointing to genuine efficiency-enhancing opportunities for South African garment exporters is to elaborate its conceptual and empirical framework beyond its current limits. A more inclusive and flexible model of e-commerce should be favoured. Such a model would give more emphasis to inter-firm communication and information processing; to using e-commerce to organise and maintain a network of business relationships; and for supporting bilateral relationships with existing customers and suppliers. The focus in existing models is overwhelmingly on integration between transaction activities. This is not fruitful, since an integrated B2B transaction space has yet to emerge in the garments sector.

Much of the discussion concerning B2B e-commerce focuses on the market expansion capabilities of the medium and assumes a high level of existing ICT systems and capabilities. This does not take into account the apparel sector's less than average ICT sophistication. Moreover, the linkages between e-commerce and global market structures are from clear. Further ongoing research and analysis is needed in developing countries to better understand the nature of the relationship between e-commerce and accessing global markets. Does e-commerce, for example, make it easier for developing country producers to break into high-value segments and compete on a global scale, or, on the contrary, does it increase "commoditisation" and strengthen the bargaining power of global buyers, mostly based in the North?

Much of the rhetoric about e-commerce focuses on its use in reaching global markets (UNCTAD 2001). There is the widespread belief that the global hyper-media, computer-mediated environment enables developing country producers to address a global audience of potential customers. The empirical evidence derived from this study does not support this expectation. *Firstly*, there is a mismatch between e-commerce rhetoric and the ICT capabilities of South African export-oriented garment producers. *Secondly*, e-commerce is not yet an integral part of the participating firms' systems and processes. Based on the findings of this study, e-commerce alone cannot provide South African garment producers with the platform to forge direct links with potential EU and US clients.

Thirdly, that South Africa is a small player in global apparel trade, and its "peripheral" status is exemplified by its highly intermediated access to garment markets in the US and the EU. It is difficult to

see how the South African garment exporters could bypass powerful, well-established intermediaries. The competitive advantage of the leading global commission buying agents lies in their close knowledge of hundreds of manufacturing enterprises in developing countries. It also lies in their capacity to come up with network-type solutions to sourcing problems while acting as guarantors of quality and reliability in meeting deadlines. The big buyers generally only deal directly with “core suppliers”. The rest of their supplies are sourced from a multi-layered sourcing network, organised and controlled by a series of buying agents, many of whom are also involved in quality assurance.

Fourthly, the majority of the firms interviewed for this research are more concerned with building long-term relationships based on trust, and with increasing volumes and lengthening production runs with their *existing* customer base, rather than greatly diversifying their current portfolio of customers. Therefore, a focus on expanding into new markets, with access to new customer bases, i.e. a strategy of expansion into new markets, may be misplaced. *Finally*, B2B e-commerce is not a substitute for a full, coherent export strategy and the development of marketing competencies, including a strong market intelligence capability.

Developing an e-commerce capability does not mean that the exporter must be able to conduct each stage of the international transaction electronically. The market does not appear to demand this. Internet-based export development should not be regarded as an “all or nothing” proposition. The results of the research reported here suggest that e-commerce (particularly email) may have more benefits for transaction preparation than for transaction completion.

There is a need to increase awareness among garment exporting firms of the potential for e-commerce to create efficiencies and productivity gains rather than of the potential for simply automating transactions. However, the development of more effective applications must first overcome the e-commerce “fetish” that dominates much development thinking. Improved communication of the e-commerce “potential” can be achieved through workshops, conferences, and specialised trade journals. Exporters need to know how to extract the most benefit from new e-commerce technologies. They need assistance to work through assessments of the benefits and risks of investments in B2B e-commerce technologies and their likely consequent impacts and returns. Also, the exporting firms require a better understanding of the implications of sharing sensitive business process-related information and valuable knowledge in supply chain management, with respect to their respective competitive advantage and the business value that may be gained or lost.

Practical training should be given on converting paper-based information into a digital format; integrating logistics operations, financial administration, and production information; and managing a network of customers and suppliers. This will involve arranging workshops on organisational and management issues for exporters. Garment exporters need to know which e-marketplaces and web-based information sources may be relevant to their industry. They also need information about the e-marketplaces themselves, i.e. the level of security provided, what facilities are available, what is required

to participate, and which buyers are part of the network. Government and the relevant business associations can help fill this gap by selecting the best information, synthesising it, and disseminating it to the garment exporters.

The belief in e-commerce as a revolutionary new transactional medium is a red herring because it goes against the grain of existing evidence. At least, at the time of writing, e-commerce and the internet did not seem to be associated with fundamental “disruptive technology” impacts. B2B e-commerce should be recognised as offering greater scope for incremental improvements on existing business practises. E-commerce is occurring as an evolutionary development of previous technologies (telex, fax, EDI, etc.) in established relationships between buyers and sellers. Trading (transaction-based) networks in the garments sector are likely to remain “closed”, i.e. a limited number of “trusted” firms, for some time. Buyers are likely to reduce uncertainty by only enabling network membership for a limited number of approved firms. More open, information-oriented e-marketplaces, however, are likely to thrive because they help to reduce some kinds of information asymmetries, especially for firms that are not members of closed networks (Humphrey 2002; Paré 2001).

Despite the significant opportunities that some forms of e-commerce offer, many implementations also present substantial challenges. Among the most complex hurdles will be to overhaul traditional buying and selling processes. Progress is likely to be evolutionary, rather than immediate. The garment exporting firms need to decide on appropriate business models and frameworks for investing in e-commerce. Factors to be considered include perceived costs and benefits, complexity, compatibility, connectivity between new technologies and existing systems, ease of implementation, and user friendliness. The complexity of the decision process is exacerbated as many e-commerce technologies are still in their infancy, and widely adopted business practices have not yet emerged. In addition, the e-commerce capability and investment curves may be very steep indeed.

The three key players in the global value chain for garments are: the buyers (specialty retailers, department stores, branded marketers, branded manufacturers, and mail order houses), the global sourcing companies, and the garment manufacturers. This study investigated the adoption and use of B2B e-commerce from the point of view of the leading garment exporting firms in South Africa, and is therefore limited to the operational impact of e-commerce at the firm-level. However, key informant interviews were conducted with individuals in the South African offices of two global sourcing companies (i.e. Linmark and Li & Fung), as well as with experts knowledgeable about the foreign buyers and global sourcing companies.

It will be important to undertake an e-commerce study of the leading global commission buying agencies (e.g. the Connor Group, the Esquel Group, Fang Brothers, Kellwood, Li & Fung, Mast Industries, Winsor Industrial Corporation, Novel Enterprises, etc.) which often have their headquarters in either Hong Kong or Singapore. The global sourcing companies play a critical role in vendor certification, sourcing, quality assurance, and management and coordination of the supply chain. In addition, the governors of the global value chain, i.e. the foreign buyers, who control the lucrative product design and development, marketing, and retail nodes of the value chain, and who define the products to be produced

by developing country producers, and specify the processes and standards to be used, need to be studied as well. An e-commerce survey of the buyers and the global sourcing companies is important, because it would complement the findings of the present study. The results would provide a more nuanced and deeper understanding of the impact of e-commerce on the value chain as a whole.

The findings generated in this research add to the limited existing research base about e-commerce impacts on garment exporting firm in developing countries. Whether the South African garment exporters adopt the full range of B2B e-commerce applications, and if so, how effective this might be, remains an open question. Questions for further research include:

1. How suitable is B2B e-commerce for garment exporting firms' functional requirements, and how important is transaction economies to the volume of their trade?
2. How much automation of transactions is feasible? Is total automation of the transaction process desirable?
3. To what extent is the adoption and diffusion of B2B e-commerce systems likely to be hindered by issues that may create "limits to value" for the emerging technologies once they are implemented in inter-organisational settings?
4. What are the effects of information transparency on firms' incentives to participate in B2B exchanges?
5. Does the existence of global intermediaries in the garments sector mean that the ability of countries to respond very rapidly to changing trade preferences is much greater than in the past?

The "optimists" tend to make the case for e-commerce on the basis of speculative assertions and anecdotal evidence, rather than on the basis of rigorous empirical research. Critical interrogation of the abovementioned questions is important if we are to move away from the dominant technology-centred "field of dreams" approach to e-commerce. More empirical work is needed before we can accept the view that e-commerce can be the fulcrum for facilitating developing country firms' participation in global trade by reducing transaction costs and barriers to entry.

Annex 1 Websites

www.apparelbids.com

www.apparelbuy.com

www.globalsources.com

www.gnx.com

www.wgsn.com

www.ifashion.co.za

www.lifung.com

www.pursuit.co.za

www.retail.com

www.softgoodsmatrix.com

www.ragtrading.com

www.retailexchange.com

www.texwatch.com

www.tradeweave.com

www.virtualrags.com

www.worldwideretailexchange.org

Annex 2 Key informants

The key informants included: (1) the President of the South African Clothing Federation (CLOFED); (2) the Executive Director of the Natal Clothing Manufacturers' Association (NCMA), (3) the Chairperson of the Export Council for the Clothing Industry in South Africa (ECCISA); (4) the Executive Director of the South African Textiles Industry Export Council (SATIEC); (5) the General Manager of the South African office of Li & Fung, which is the world's largest global sourcing company for garments; (6) the Head of the Durban office of Linmark, which is a major global sourcing company; (7) the Director of Rag Trade Placements, who has been instrumental in developing several B2B and B2C information and trading sites (i.e. www.ifashion.co.za, www.ragtrading.com, and www.pursuit.co.za) for the South African garments industry; (8) the Director of the Duty Credit Certificate (DCC) scheme based at the Department of Trade and Industry; and (9) an international expert on the African clothing industry, who is based as an academic in Europe. The Director of the DCC scheme was interviewed because she was able to confirm some of the firms on our list of key exporters based on the value of their DCCs. It must be borne in mind that only firms which use 100 per cent local content in their production qualify for DCCs. This is an export incentive scheme administered by the South African Department of Trade and Industry. Consequently, many of the large exporting firms located in the lower labour cost, decentralised zones and which are exporting under regulation §470.03, are not on the DCC register.⁴⁰

⁴⁰ Firms exporting under §470.03 are allowed to import fabric and components duty free, as long as all the fabric and components are used to produce garments for the export market only.

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