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Information management: the adoption of order processing for B2B e-commerce

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The management of information flow in the order processing activities of small enterprises is not always understood. An inefficient supply chain is often the result of the lack of timely and accessible inter-firm information and data exchange. Small suppliers often do not have the technology infrastructure and capable resources available for proper integration with supply chains. This research investigated suppliers and fast moving consumer goods (FMCG) retailers, adopting business-to-business (B2B) e-commerce. Small businesses are the focus of this research, as they contribute to a large portion of the South African economy and play an important role in the supply chains of retailers. Case study research using evidence obtained from nine small, medium and micro enterprises (SMMEs) and suppliers located in the Western Cape, South Africa, was used. It was found that small suppliers have different processes for conducting business with various retailers. Literature revealed little evidence of using the Internet as an enabling technology in on-line order processing. From the analysis, nine improvement areas were identified to enhance the conduct of efficient B2B order processing and associated information flow. These improvement areas were merged with four factors that were identified in a framework when adopting e-supply chains. This resulted in the proposition of guidelines for small suppliers when adopting B2B e-commerce for order processing.

Key words: SMMEs, B2B e-commerce, information, supply chain, Internet, case studies

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1 Introduction

From reviewing the literature, it is evident that electronic order processing is important to organizations (Lancioni, Smith and Schau 2 003:214; Rahman 2003:499) and that small suppliers are finding it difficult to implement business-to-business (B2B) e-commerce. I n spite of the possible advantages offered by B2B e-commerce, literature indicates that only limited automated order fulfilment is deployed in small to medium enterprises (SMEs) (O'Toole 2003:120; Zheng, Caldwell, Harland, Powell, Woerndl and Xu 2004:34). O'Toole (2003:120) states that '... most firms still find it is possible to process orders manually and just don't see the financial case for integration even though orders may be taken, manually completed, and then transferred to a computerised financial system by different people'.

The identified research problem is that, when receiving electronic orders, small suppliers are not sufficiently equipped to manage the information flow to the satisfaction expected by retailers. This may result in the possible exclusion of small suppliers as future business partners of retailers (Sparks and Wagner 2003:203).

The purpose of this research was to investigate the management of information flow in the order processing activities of small enterprises representing suppliers and fast moving consumer goods (FMCG) retailers, adopting B2B e-commerce. To accomplish this, the collaboration between suppliers and retailers and the information sharing in supply chains are explored. The management of the information flow between retailers and suppliers plays an important role when orders are placed by retailers.

The focus on the small business sector in this research is due to its important role of providing employment to a large part of South Africa's population. This is supported by Soontiëns (2002:712), who finds that small businesses in developing countries are becoming catalysts in job creation. Furthermore, Soontiëns (2002:712) reports that South African small businesses make up a substantial portion of the South African business sector by contributing almost 50% towards the South African economy. The survival of small suppliers depends on their ability to manufacture or supply products (or services), at competitive costs, with short delivery times, minimum product defects and the utilization of less resources (Sharma and

Bhagwat 2006:216).

For suppliers to deliver services that are beneficial to both their customers and themselves, special consideration should be given to supply chains and demand chains. In supply chains, goods are transferred from the point of origin to end customers. In the case of demand chains, customer demands are transferred to suppliers. Suppliers therefore need to make better use of information about customer demands (ECR 2006:18). The Internet is being used in an increasing way as an enabling technology to establish electronic relationships (O'Toole 2003:116). These electronic relationships include order placement and the fulfilment of orders, where both are part of the supply chains (Croom 2 005:58). Furthermore, the Internet is a medium that can ideally facilitate the exchange of information crucial to efficient supply chain management. This can be either in the form of Web pages accessible only to specific vendors, or by means of access to intranets via the Internet (Lankford 2004:303). Furthermore, Kaynak, Tatoglu and Kula (2005:638) assert that Internet-based e-commerce makes it possible for small businesses to communicate externally and gather information for market and product research purposes.

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2 Collaboration between small businesses and retailers

Smaller businesses are often dependent on larger companies for some or all of their business. This dependence is likely to be critical for the survival of small businesses who may find it difficult to switch to alternative companies (Katz and Safranski 2 003:328). The retail industry, for example, deals with a significant number of product promotions, which necessitates collaborative decision making between suppliers and retailers in order to align production with consumer demands (Rosenbaum 2 001:8). Small suppliers do not always have the required technology infrastructure to integrate with supply chains. Moodley (2002:39) indicates that a lack of timely and accessible inter-firm information and data exchange contributes largely to supply chain inefficiencies. In addition, the main constraints to supply chain integration are supplier readiness and capability, particularly where the supply base consists of a high proportion of SMEs (Croom 2005:61).

It is essential for retailers and suppliers to collaborate in order to align production with customer demands (Rosenbaum 2 001:8). One such collaborative technique that allows alignment of production with customer demands is collaborative planning, forecasting and replenishment (CPFR). This technique allows retailers and suppliers to share information and collaborate on forecasting and supply planning. Folinas, Manthou, Sigala and Vlachopoulou (2004:278) define CPFR as 'a process by which supply chain partners co-ordinate plans to better match supply and demand'. Rosenbaum (2001:8) further indicates that retailers have to keep suppliers informed about forecasts, including planned promotions. This assists suppliers to perform capacity planning and inform retailers as to whether or not they will be able to meet their expectations.

There are various ways to establish integrated organizations. According to Sparks and Wagner (2003:202), integration between suppliers and retailers is important to improve the quality of information. Up to 30% of information found in product listings (catalogues) used by retailers to order products from manufacturers is incorrect. This incorrect information results in 10–15% of products not being available when customer enquiries are made. Kim and Uman ath (2005:815) propose an electronic integration method between companies by creating product code translation tables to enable employees to place/receive orders using internal product codes. Automated computer-based systems for purchasing could determine the request for product orders, based on reorder levels. These orders would be transmitted to supplier systems without human intervention. I ntegration of such processes could be done

more efficiently by speeding up data communication between supply chain partners (Gibson and Edwards 2004:66). Morrison and Van Assenselft (2006:12) posit that 'a fully integrated merchandising-supply network enables retailers to overcome longstanding operating problems and deliver a more compelling customer experience'. To reach such a complete integrated scenario, suppliers, transporters and partners all have to be integrated (Morrison and Van Assenselft 2006:12).

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3 Information sharing in supply chains

Electronic integration (EI) facilitates the integration of the business processes of two or more independent organizations by means of computers and communication technologies forming partnerships (Kim and Umanath 2 005:814). Both buyers and sellers should collaborate in such relationships by investing in the underlying hardware, software and communication systems. Furthermore, user training and support are required and collaborating partners should share information relevant to such relationships. Buyers should endeavour to position themselves to monitor the status of the seller production processes. Areas that could be monitored are production capacities, inventory levels, shipping/delivery schedules and the quality of products produced by sellers (Kim and Umanath 2 005:818).

According to Moodley (2002:39), high quality inter-firm information and data exchange processes are necessary to maintain effective supply chains, but are often lacking. Supply chain planning (SCP) relies on information stored in enterprise resource planning (ERP) applications that use advanced mathematical algorithms to improve the flow and efficiency of supply chains. This reduces superfluous inventory. ERP is an accounting-oriented information system to identify and plan resources, to track the manufacturing of goods and to ship and account for customer orders (Koh and Maguire 2 004:340). Muffatto and Payaro (2004:304) find that by digitizing relationships with suppliers, companies could eliminate all the manual procedures of the ordering process.

According to Macpherson and Wilson (2003:174), supply chains often provide large companies with a competitive advantage. When organizations select their suppliers, they require certain mandatory competences before engaging with them as business partners (Macpherson and Wilson 2003:170). They seek to find quality information systems and information sharing as part of a collaborative communication approach as well as for delivery accuracy and competitive costs. Small suppliers that possess some, or all of these competences, have a competitive edge on other small businesses or even larger businesses. However, small suppliers find it difficult to develop these competences (Macpherson and Wilson 2003:174).

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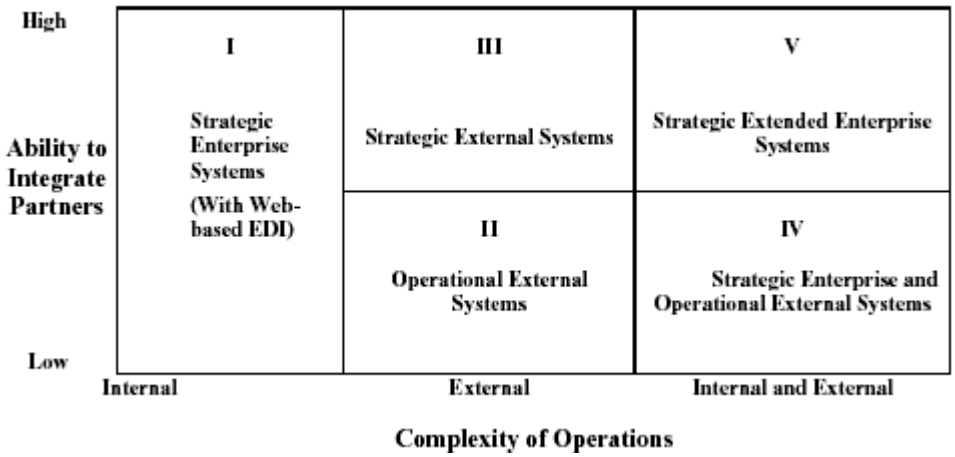
4 Supply chain implementation framework

Pant, Sethi and Bhandari (2003:212) developed a framework to assist businesses in understanding the different approaches to create electronic supply chains (e-supply chains), depicted in Table 1. To become part of such a supply chain, organizations first need to assess the required level of supply chain integration, the technology to be used and the management and business issues at stake before implementing supply chains.

Table 1 Framework for supply chain implementation (Pant *et al*. 2003:213)



From Table 1, it is evident that the way supply chains are implemented depends on the complexity of the operations of a business (horizontal axis), and the ability to integrate external business partners into its e-supply chain (vertical axis). The five e-supply chain implementation approaches depicted by Cell I through Cell V, developed by Pant *et al*. (2003:213), are identified as:

- **Cell I: Strategic enterprise systems**. The operations of these firms are mostly internally complex and the need for internal integration is therefore high and external integration is low.
- **Cell II: Operational external systems**. The operations of these firms are mostly externally complex. It mainly needs external integration whereas internal integration is limited. However, these firms do not have a high ability to integrate business partners into a sophisticated e-supply chain system.
- **Cell III: Strategic external systems**. These firms have complex external operations and therefore mainly need external integration with limited internal integration. These firms are able to more effectively integrate its external partners into the supply chain.
- **Cell IV: Strategic enterprise and operational external systems**. These firms have operations that are complex both internally and externally and, therefore, have a strong need for internal as well as external integration. However, they do not have a high ability to integrate external partners into the supply chain.
- **Cell V: Strategic extended enterprise systems**. The operations of these firms are complex, both internally and externally, and they have a high ability to integrate business partners into a sophisticated e-supply chain system.

From these five implementation approaches, Pant *et al.* (2003:218) propose the following four factors to be considered before implementing an e-supply chain:

- **Factor 1: Establish if integration to business partners is high or low**. If integration to business partners is not high, the organization does not have to invest in systems that enable collaborative planning, forecasting and replenishment, and integrated customer relationship management (CRM).
- **Factor 2: Determine the level of internal integration**. If an organization does not have complex internal systems and does not need a high level of internal integration, it does not need an elaborate strategic enterprise system.
- **Factor 3: Assess the IT infrastructure**. Organizations have to assess their IT infrastructure to determine if they need an off-the-shelf software package to enable their e-supply chain system or if they need to build the required functionality on top of their existing information systems.
- **Factor 4: Consider redesign of business processes**. Organizations have to be aware of the substantial redesign of business processes that integrated e-supply chain systems

require. Processes have to be redesigned jointly with business partners. Change management is needed as current practices and organizational structures may be affected.

These four factors were used as a framework for establishing guidelines for small suppliers, to successfully integrate with the supply chains of retailers.

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5 Research method

This research followed a qualitative approach for data collection. Case study research using focused interviews was chosen as the research strategy. According to Myers (2004), qualitative research includes 'any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification'. Case study research investigates a contemporary phenomenon within the context that it occurs (Yin 2003:13). Taylor, Mcwilliam, England and Akomode (2004:257) indicate that case studies based on personal contact are particularly appropriate for investigating information technology (IT) practice. It is a holistic approach and helps overcome the problems of terminology and verification when questionnaires are used.

Non-probability sampling is generally associated with case study research as the probability of each case being selected from the total population is not known (Saunders, Lewis and Thornhill 1997:141). The technique for selecting cases is based on subjective judgement. According to Saunders *et al.* (1997:145), purposive or judgemental sampling allows the researcher to select cases that will best answer the research questions and objectives. The authors used purposive non-probability sampling to identify the cases.

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6 Research process

The cases investigated were SMME suppliers directly supplying RetailerX located in the Western Cape, South Africa. The SMMEs were defined by the *National Small Business Act* (South Africa 2003). The selected group of cases consisted of one micro supplier, three very small suppliers, two small suppliers and three medium suppliers. The findings of the case studies are discussed below.

The process of finding cases for the study commenced by obtaining a list of 6 382 companies, all suppliers to RetailerX. From this list, suppliers trading as closed corporations (CCs) located in the Western Cape were identified. The assumption made was that CCs are small businesses. This assumption was later confirmed with owners of the selected businesses. From the original list, 1 04 possible small suppliers were identified. The suppliers were contacted by telephone to ascertain whether they were willing to participate in the research study. These activities spanned the period from February 2005 to March 2006. Pseudo names were used for the case study subjects. The authors agreed not to disclose their identities.

The interviews to collect evidence from respondents were the *focused interviews* proposed by Yin (2003:89). The respondents were interviewed for a short period of time and were then asked to answer a set of questions to gather evidence and gain understanding of SMMEs' ordering process. Semi-structured interviews were conducted with the owner/general manager and other personnel within the organization involved in order processing. During the interviews, detailed notes were made to be later summarized and analysed. Where

possible, interviews were tape recorded and subsequently transcribed. Triangulation ('Rationale for using multiple sources of evidence', Yin 2003:97) was achieved by collecting various documentary evidence and data from the suppliers in order to fully understand order processing.

After nine suppliers were interviewed, no new evidence was forthcoming, thus a point of saturation was reached, based on Yin (2003:47) stating that 'each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)'.

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7 Case study findings

This research investigated the ordering process between small suppliers and retailers and the role of B2B e-commerce in this process, as well as the mediums for collaboration. Stemming from the foregoing, themes guiding the interviews were focused specifically on the order medium, the process for receiving and processing orders, and the value of the Internet in this process. After all interviews were analysed, including administering data triangulation, the nine case studies were summarized according to three themes: **Order medium**, **Order process problems** and **Value of the Internet**. This is depicted in Table 2.

Table 2 Case study summary of the ordering process

SMMEs	Order medium	Order process problems	Value of the Internet
Smoked Products Supplier	Facsimile, telephone, e-mail, sales representative and SMS	Telephone calls time consuming and costly, recapture orders, no automated system to confirm orders are placed	E-mail and printing claims from retailer’s B2B Web site
Manufacturer Representative Supplier	Facsimile, telephone, e-mail, sales representative, B2B and EDI	No system integration, telephone orders error prone and slow, retailer product numbers different from the supplier product numbers, complicating the process	E-mail and printing orders from retailer’s B2B Web site.
Bakery Supplier One	Facsimile and telephone	No automated system to confirm orders are placed, order quality depends on store disciplines, orders from same retailer not consolidated, no time to get more involved with the B2B process	Product research, print claims from retailer's B2B Web site, Internet banking
Abrasives Supplier	Facsimile, telephone, e-mail, sales	No automated system to confirm orders are placed, no system in	Created Web site for marketing purposes.

	representative and B2B Web site	place to automatically receive and acknowledge orders	Internet is used to perform product research and to submit tenders
Gifts Supplier	Facsimile, telephone and RetailerW Web portal (B2B site)	Manual comparison of order details against negotiation sheet, thus no system integration	E-mail, product research and to access the retailer's B2B Web portal
Bakery Supplier Two	Facsimile, telephone, e-mail and B2B Web site	Orders from the same retailer are not consolidated and they therefore have to recapture orders	Product research, tax look-ups, visit competitor Web sites and catalogues and print B2B orders from the retailer
Poultry Supplier	Facsimile, telephone and e-mail	No system integration	Only used for e-mail
Plants Supplier	Telephone and store visits (almost same as using sales representatives)	Need to physically visit a store to make an assessment of the stock status	Print claims from retailer’s B2B Web site and conduct Internet banking
Stainless Steel Accessories Supplier	Facsimile, telephone, sales representatives and B2B	If orders via facsimile are not clear, they have to call the sales representative to confirm the quantities	E-mail, Internet banking and printing B2B orders from the retailer

From these findings, it is evident that suppliers use different processes for conducting business with retailers. Simpson and Docherty (2004:315) found that B2B solutions assisted the increased support between businesses, while reducing the need for making telephone calls or sending facsimiles. However, this research found very little evidence of making use of the Internet as an enabling technology for on-line order processing. It was found that suppliers used the Internet mainly for electronic mail (e-mail). In some cases however, orders were sent to suppliers using e-mail attachments. Furthermore, suppliers do not have access to intranets for internal collaboration and physically take paper-based instructions to production lines for action. Some suppliers indicated that promotional campaigns from retailers made order demands erratic. Again, there was no evidence found of electronic integration between suppliers and retailers to manage this demand.

7.1 Electronic integration

Suppliers are dependent on orders from retailers and do make concerted efforts to ensure that retailers place their orders. The ordering processes of all suppliers were found to be extremely labour intensive, and the automation of processes was non-existent.

7.1.1 External electronic integration

Kim and Umanath (2005:814) state that electronic integration (EI) allows partnering firms to integrate their decisions and operations. None of the suppliers interviewed had automated or

integrated applications to receive orders. Suppliers had to resort to manual copy-typing product details and order quantities from retailers into their systems.

A description of external operational issues found in the case studies, is given below:

- Smoked Products Supplier entered all order information received manually into its system.
- Manufacturer Representative Supplier complained that product numbers from all retailers were different and that product descriptions for particular products differed between retailers. This made it difficult to match products ordered to products sold. Manufacturer Representative Supplier preferred an electronic order that RetailerX, for example, made available on the B2B Web portal. Supplier product reference codes that RetailerX indicated on electronic orders made it easy for clerks to determine which products were referred to. Orders received via telephone were prone to errors, which slowed down the ordering process.
- Gifts Supplier manually compared order prices and pack sizes on orders received to what was negotiated before.
- Bakery Supplier Two printed all orders from the retailer's B2B Web portal and manually captured this information into their system.
- Poultry Supplier indicated that promotions launched by retailers tended to make the demand erratic and therefore complicated the order fulfilment process.
- Stainless Steel Accessories Supplier also captured order information from paper orders received. It then called sales agents to confirm quantities in cases where the facsimiles from agents were not clear.
- Smoked Products Supplier, Bakery Supplier One and Abrasives Supplier indicated that they did not have an automated mechanism for tracking stores for placing their orders. When suppliers realized that they had not received any orders, they called the stores to ensure that the orders were placed.
- Abrasives Supplier admitted that it might take a while for them to realize that a particular retailer had not placed an order.
- Suppliers received orders from some retailers on a store-by-store basis. Owing to the lack of a consolidated ordering process, suppliers had to create invoices per store, which was time consuming and costly.
- Both Bakery Suppliers indicated that they preferred consolidated orders to reduce processing effort, to save time and to reduce the number of invoices that had to be generated.

7.1.2 Internal electronic integration

Internal electronic integration is non-existent in most of the suppliers. A description of internal operational issues found in the cases, are given below:

- Smoked Products Supplier sent paper-based orders to their production area.
- Manufacturer Representative Supplier printed stock picking slips in the warehouse as soon as orders were captured by ordering clerks. If certain products were not in stock, the warehouse clerk indicated this on the printed stock picking slip. The order clerk then had to remove the products from the order manually, as this process was not automated.
- Abrasives Supplier had a computer in the production area but it was not in use. As a result, the order clerk had to physically take paper-based orders to the production area.
- Gifts Supplier's orders were manually sent from the product manager via the supervisor (and despatch clerk) to the technical manager. No automation was in place.
- Poultry Supplier physically had to take a batch of paper-based orders to the Egg room manager when sufficient orders had been accumulated. Their computers were not linked to each other, thus no local area network existed.

- Stainless Steel Accessories Supplier physically had to take sales orders to the production area. The production area requested a report manually from Pastel Accounting to find out what levels of stock were available. If insufficient stock was available, the order clerk manually changed the quantities on the sales order to correspond to the quantities indicated on the paper-based copy received from production.

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8 Interpretation of findings

The external and internal operational issues obtained from the cases under investigation, and reported above, formed the basis of the analysis and interpretation of the findings. This resulted in proposing nine improvement areas to enhance the conducting of efficient B2B order processing and associated information flow. These areas are listed in Table 3.

Table 3 Improvement areas to enhance B2B order processing

#	**Improvement area**
1	Establish a 'packaged' Internet deal
2	Adopt the tools made available by the retailers
3	Establish generic business processes with all retailers
4	Automate manual processes
5	Electronically integrate the supplier's front office to its production area
6	Confirm orders by e-mail
7	Standardize the format of the electronic documents received from the retailers
8	Create electronic integration on product codes from the retailers
9	Make time available for staff to up-skill themselves

The four factors (Factor 1 through 4) proposed by Pant *et al.* (2003:218), discussed above, were merged with the nine improvement areas stated in Table 3. New guidelines could then be established for small suppliers to adopt B2B e-commerce for order processing, and to manage the flow of information more efficiently within this process. These guidelines are discussed below.

8.1 Business partner integration

None of the small suppliers indicated a high level of integration with retailers. Pant *et al.* (2003:214) state that, 'complicated off-the-shelf packages for supply chain planning, execution, and logistics for integration with external partners will not be cost effective for such a firm'. Small suppliers therefore did not need to invest in external systems to enable collaborative planning, forecasting and replenishment, and integrated CRM. Instead, they could share information on their ERP systems with external partners over a Web-based link (Pant *et al.* 2003:214). Seven suppliers used accounting based ERP systems to manage their stock, orders and invoicing. Suppliers had to agree with retailers to determine how they could share product and inventory information to streamline their operations. Kim and Umanath (2005:815) propose that firms integrate electronically by creating product code translation tables allowing employees to place/receive orders using internal product codes. In

cases where receiving electronic information from retailers is not possible, suppliers should use e-mail to confirm order quantities. This would include order information before sending the stock to retailers. This should minimize disputes over order quantities, as found evident in this research.

Small suppliers can also make use of retail exchanges. Sparks and Wagner (2003:202) recommend the use of retail exchanges that are easily accessible via the Internet and assist distributors, suppliers and retailers to conduct either one-to-one or multiple transactions with each other. Levinson (2006:70) indicates that mid-market companies should outsource their B2B trading platforms to vendors that operate trading hubs. B2B trading platforms remove the complexity from suppliers and automate transactions between buyers and suppliers.

8.2 Internal integration

Suppliers experienced very poor internal integration of their systems. In most cases, no electronic links existed between areas where orders were received and processed, and production areas. Paper-based documents were physically carried between departments requiring extensive manual work. It is advisable that suppliers focus on the redesign of internal processes and allocate the necessary resources for this (Pant *et al.* 2003:216). Chapman, James-Moore, Szczygiel and Thompson (2000:358) recommend that small businesses map and analyse their business processes to determine the available opportunities for using information and communication technology (ICT). Power (2005:99) indicates that businesses have to build logical models of business processes before embarking on technology and e-commerce adoption. According to Moodley (2002:37), it is necessary for businesses to integrate their front-office systems (sales, marketing and customer support services) with back-office systems (databases, order processing, inventory and accounting). Only when internal business processes are properly integrated, will businesses have suitable platforms from which to establish optimal collaborative supply chain management with other businesses (Moodley 2002:37).

8.3 IT infrastructure

According to Simpson and Docherty (2004:326), one of the barriers to e-commerce adoption is an inadequate telecommunications infrastructure. Moodley (2002:37) however is of the opinion that South Africa has a well-established telecommunications infrastructure that is deeply integrated into global economic networks. South Africa is therefore 'better positioned than any other African nation to take advantage of growth opportunities in B2B e-commerce'. It is therefore important that small suppliers assess the way that they link to the Internet. For example, Abrasives Supplier used ADSL to link to the Internet. The remaining suppliers used analogue dial-up Telkom lines. Bakery Supplier One used a 'pay per call' link. Suppliers should determine what infrastructure is needed to enable them to keep up with the requirements of supply chains. This in turn, will determine what technology to use to link to the Internet.

Suppliers did not regularly make use of tools made available to them by retailers. Smoked Products Supplier indicated that RetailerX introduced their B2B Web portal for printing orders, but they did not use this application – they also did not indicate why they did not use it. Poultry Supplier reported that RetailerX introduced their B2B Web portal to them but RetailerX then postponed the implementation. RetailerZ also supplied documentation associated with a new ordering process they are planning to introduce, but it had not been initiated yet. Bakery Supplier One and Plants Supplier used limited functionality made available by RetailerX on their B2B Web portal. It is important that small suppliers use the tools made available by retailers to their advantage in order to streamline the interaction with retailers. This means that they had to trust the electronic information from retailers. As stated

by Kao and Decou (2003:242), the parties to the e-commerce transactions have to trust each other.

8.4 Business processes

According to Pant *et al.* (2003:218), processes have to be redesigned jointly between business partners. The business as a whole has to be aware that current practices and organizational structures may be affected. Because every retailer follows a different process to communicate stock requirements to suppliers, the onus was on these suppliers to establish a standard way of interacting with all their retailers. Schlenker and Crocker (2003:10) indicated that employees have to be trained to recognize that e-business could assist them to coordinate information flows to improve business processes, to apply Internet technologies to address business challenges and to enrich information to meet the needs and objectives of clients.

Lack of time to re-assess processes, was identified as a problem. Bakery Supplier One indicated that personnel did not have sufficient time to spend on understanding the B2B process of RetailerX. This is in agreement with Chapman *et al*. (2000:354) who find small businesses lack the willingness to dedicate time and resources to improve their understanding and skills. It is extremely important to ensure that sufficiently skilled staff is available to operate the e-commerce venture in the e-commerce planning process (Kao and Decou 2003:242).

Manual repetitive tasks should be automated. All the suppliers need to capture order quantities and product details either from orders received via facsimile or as information communicated via telephone. Rahman (2003:499) indicates that using the Internet in order processing can reduce paperwork. There are retailers that use e-mail to send orders, but there was no indication from the research that suppliers loaded such electronic data onto their systems. Instead, they printed e-mails (as source data) and then captured it onto their systems. Suppliers that made use of RetailerX's B2B Web portals also printed their orders. Suppliers should come to an agreement with retailers to make order data available in a format that can be automatically loaded into suppliers' applications. This supports the view of Gibson and Edwards (2004:66) that Internet-enabled B2B will assist in communicating large amounts of information at a great speed between supply chain partners.

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9 Conclusion

Suppliers participating in the research who were reliant on receiving orders from retailers had to call stores repeatedly to ensure that orders were placed. Very little automation was evident in their processes in conducting business with retailers. Their processes were largely paper-based and administered using stand-alone accounting packages. The Internet usage was very limited and used mainly for e-mail communication.

To minimize manual work that would result in reducing excessive paper-based systems, suppliers should engage with retailers to determine how the exchange of information can be done electronically. This includes the electronic confirmation of orders. It is advisable (and important) for suppliers to dedicate time and resources to Internet technology in an effort to understand its role within their business processes (Chapman *et al*. 2 000:354). However, it is of utmost importance to first educate owners/managers in the concept of e-relationships, if they are planning to exploit this in future (O'Toole 2003:118).

From the research results, nine areas for improvement were identified and depicted in Table

3 that small suppliers should consider when conducting B2B order processing. This was mapped to four factors identified by Pant *et al.* (2003:218) for embracing e-supply chains. Guidelines were established to adopt B2B e-commerce for order processing and to manage the flow of information more efficiently. By considering the established guidelines, the authors are of the opinion that small suppliers will be better equipped to keep up with the business demands from retailers which will enable them to fulfil their role in the supply chain and thus to stay in business.

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