

The graphic features a stylized bridge arching over the word "Sydney" in a cursive font. Above the bridge, the text "managing our intellectual and social capital" is written. To the right, "21st ANZAM 2007 CONFERENCE" is prominently displayed. Below this, the dates "4 - 7 DECEMBER 2007" and the venue "Sofitel Wentworth Sydney" are listed. A central image shows a handshake, a stack of business cards, and a group of people. The University of Western Sydney logo and name are on the right, with the tagline "Bringing knowledge to life" and "College of Business". The ANZAM logo is in the bottom left corner.

managing our intellectual and social capital

Sydney

**21st ANZAM 2007
CONFERENCE**

4 - 7 DECEMBER 2007
Sofitel Wentworth Sydney

University of
Western Sydney
Bringing knowledge to life
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ANZAM
Australian and New Zealand
Academy of Management

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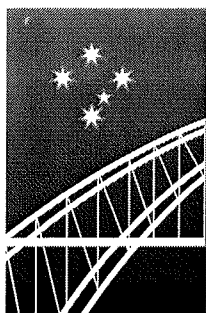
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This CD contains all papers which have been accepted as fully refereed for the ANZAM 2007 Conference held in Sydney, New South Wales. All have been subject to a double blind peer reviewing process.

Editor: Professor Ross Chapman, Professor of Business Systems and Acting Director, Centre for Industry and Innovation Studies
College of Business, University of Western Sydney



Sydney

21st ANZAM 2007 CONFERENCE



welcome from the ANZAM president

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As President of ANZAM, I am very pleased to welcome you to the 21st Annual ANZAM Conference in Sydney 2007.



Conference Convenor, Professor Ross Chapman from the University of Western Sydney, has taken every step to ensure that we have an excellent academic and social program for this conference.

Special thanks to Ross and his organising team for all of their efforts.

This ANZAM conference will provide an excellent forum for management scholars and practitioners from Australasia and around the globe to present, discuss and debate leading edge management research. In addition to the keynote speakers and plenary panels, the program includes in 16 streams of research presentations, interactive workshops and poster presentations.

Opportunities to network and interact with others are also provided throughout the conference from the Welcome Reception, the Conference Dinner, to (an optional extra) Sydney Harbour Cruise.

We look forward to meeting with you during the conference.

Professor Delwyn Clark
ANZAM President, 2007

ANZAM MEMBERSHIP

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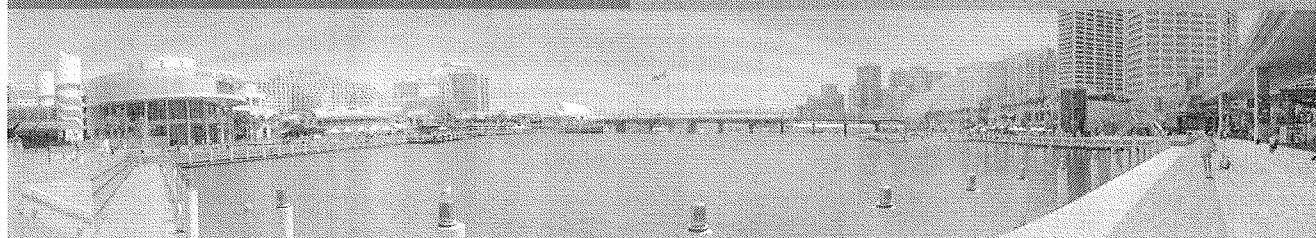
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welcome from the conference chair

It is my great pleasure to welcome you to the beautiful harbour city of Sydney and to the 21st annual ANZAM conference, hosted by the College of Business at the University of Western Sydney.

This year's theme, "Managing Our Intellectual and Social Capital" reflects the new priorities for management (and management research) in our increasingly globalised and networked knowledge economy. Our two keynote speakers, Dorothy Leonard from Harvard Business School and John Bessant from Imperial College London, have both achieved international reputations stemming from their research leadership in key areas of our conference theme.



The response to the call for papers for ANZAM 2007 was overwhelming, with 526 individual submissions, including 466 papers for refereeing, the remainder being made up of workshop proposals, non-refereed papers and poster submissions. These submissions have generated the final program which includes two Keynote Plenaries, 302 accepted, fully-refereed papers, 19 non-refereed papers, sixteen 90-minute workshops and 13 poster presentations. We have presenters and delegates from 28 different nations in all, with strong groups from the UK, USA, Singapore, India, China and of course, New Zealand and Australia. Powerpoint facilities are available in all of the ten parallel sessions throughout the conference and presenters are urged to take advantage of these facilities, generously provided by our sponsors LG and Impact Systems.

A new feature for this year's conference is the joint Industry-Academia Panel forming the Plenary Session on Thursday December 6. This panel session will address the topic: "Friends, Foes or Free-loaders?: Building Knowledge Networks Between Business and Academia". The Panel includes our Keynote Speakers, plus Mr John Phillips, AO, Chancellor of the University of Western Sydney and Chairman of the Foreign Investment Review Board, Ms Lindley Edwards, CEO of The Venture Bank Group and Mr Roger Corbett, former CEO of Woolworths, Australia. This facilitated Panel session will explore the management of intellectual and social capital in leading firms and the linkages between academia and business in Australia and elsewhere.

A detailed interactive Doctoral Workshop involving many senior academics as presenters and facilitators has been prepared for the 70 plus doctoral students who have registered for the conference. In addition to the usual support mechanisms for speakers and delegates, ANZAM 07 also has an Internet Café for delegates use, a Speaker Preparation area and three dedicated AV assistants to overcome those last minute presentation hiccups. Of course there is also an Exhibition area for trade exhibitors, a Conference Welcome Reception on Tuesday evening and a Conference Gala Dinner (with a great band and room for some dancing) on Thursday evening. A Closing Ceremony on Friday afternoon is to be followed by an optional Harbour Cruise to wrap up the conference and provide an opportunity to sample the beauty of Sydney Harbour at night.

ANZAM conferences are only as good as the papers presented, and I would like to thank all of the authors and presenters who have supported the conference so enthusiastically. I would also

like to express a heartfelt vote of thanks to the fantastic job undertaken by the Stream Chairs and the many paper reviewers, all of whom have given up their own time to ensure the quality of presentations at the Conference is maintained. The Stream Chairs of the more heavily subscribed streams had well over 50 papers to turn around in quite short timeframes and the contributions of these Chairs has been particularly significant. Thanks also to the UWS College of Business and to our other sponsors, Impact Systems Technology, LG, Pearson Education, MGSM and Wiley Education and to our exhibitors for their generous support. Thanks to our AV Assistants for their contribution to the conference operation and to the Sessions Chairs who have agreed to assist in the smooth running of the parallel paper presentation sessions. Thank you to Promaco Conventions for their professional conference management skills and many thanks also to Kerrie Manning for her contribution to the conference administration and to my other colleagues in the UWS Centre for Industry and Innovation Studies, who have provided fantastic support in developing and growing the Centre while I have been pre-occupied with the conference.

Please join me in making the 21st ANZAM conference a valuable and memorable experience.

Professor Ross Chapman
Convenor, ANZAM 2007

STREAM CHAIRS

- 1 *Critical Management Studies*
Professor Liz Fulop
- 2 *Entrepreneurship and Small Business*
Dr Judy Mathews
- 3 *Gender and Diversity in Organisations*
Assoc Professor Santina Bertone
- 4 *Human Resource Management and Development*
Professor Andy Smith
- 5 *International Management*
Professor Timothy Devinney and Dr Yue Wang
- 6 *Knowledge Management and Intellectual Capital*
Dr Peter Massingham
- 7 *Management Education and Development*
Assoc Professor Ruth Neumann
- 8 *Marketing and Communication*
Dr Jay Weerawardena
- 9 *Networks, Clusters, Collaboration & Social Capital*
Professor Paul Couchman
- 10 *Organisation Change*
Professor Patrick Dawson
- 11 *Organisational Behaviour*
Professor Ray Cooksey
- 12 *Public Sector and Not-for-Profit*
Assoc Professor Bruce Gurd
- 13 *Research Methods*
Dr Anneke Fitzgerald
- 14 *Strategic Management*
Assoc Professor Urs Dallenbach
- 15 *Sustainability and Social Issues in Management*
Professor Gael McDonald
- 16 *Technology, Quality and Operations Management*
Professor Amrik Sohal

INTERNAL AND EXTERNAL INTEGRATION: STRATEGIES FOR LOGISTICS COMPETITIVENESS

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ABSTRACT

Logistics management has transcended over the decades into a strategy for competitive advantage in organisational performance and supply chain efficiency. Most industries are recognising that substantial savings are available to companies that are able to coordinate and improve within their logistics operations. Organisations today face great challenges because the successful provision of many goods and services requires the effective integration of logistics activities across a lengthening supply chain and an increasing geographical separation. Furthermore, logistics integration philosophy involves both internal and external integration for a coordinated, unified process as well as relationships to respond flexibly, innovatively, and rapidly to shifting and splintering market demand. The key objective of this study was to investigate how logistics firms integrate their operations both internally and externally for competitiveness in the supply chain. The findings depicted the need for a holistic approach enabling organisational effectiveness and supply chain efficiencies.

Keywords: *Logistics and operations strategy, supply chain management, integration, case studies*

INTRODUCTION

Supply chain integration is known to increase efficiencies, performance and competitiveness (Shapiro, 1984; Christopher 1998). This integration philosophy involves both internal and external integration. Internal integration involves the coordination, collaboration and integration of logistics activities with other functional areas in an organisation; whilst external integration requires the integration of logistics activities with those of their customer and suppliers in the supply chain (Stock *et al*, 1998). According to Stevens (1989), firms need to integrate their operations and functions internally before embarking on external strategies to gain supply chain excellence. This paper presents the findings of internal and

external integration initiatives in ten organisations that are subsequently seeking to pursue superior logistics performance in various distribution centres as well as in supply chains.

LITERATURE REVIEW

Logistics Strategy

Logistics is increasingly being considered as a means for firms to create customer value (Langley and Holcombe, 1992). It is more than just a function or a cost centre to a firm, and has become an integral part of the overall business strategy (Mollenkopf and Dapiran, 2005). The scope and role of logistics have changed from a supportive role to primary functions such as marketing and manufacturing to cover various areas such as warehousing and transportation activities, purchasing, distribution, inventory management, packaging, manufacturing, and even customer service (Bowersox *et al*, 2007). In particular, logistics management has transcended from a passive, cost-absorbing function to that of a strategic factor which provides a unique competitive advantage (Bowersox *et al*, 2007; Bowersox and Daugherty, 1995; Christopher, 1998). Logistics activities are an extension of physical-distribution management and usually pertain to the management of the materials, money and information stream of a business, down through a distribution channel, to the end customers.

In the logistics industry, it is widely accepted that the distribution method and time of delivery determine competitiveness for a company. Logistics strategies have been articulated by various authors over the decades from a corporate strategy perspective (Heskett, 1977); prescribed activities (Kohn *et al*, 1990; McGinnis and Kohn, 2002), strategic orientations (Bowersox and Daugherty, 1987), value chain approach (Porter, 1985) resource-based theory (Lynch *et al*, 2000) and competencies and capabilities (Bowersox *et al*, 1999). Given the rising importance of logistics as a strategy to firm and supply chain overall performance, additional research findings have supported the focus of supply chain logistical integration (Stank *et al*, 2001).

Logistics Integration

Integration can be defined as the combining and coordinating of separate parts or elements into a unified whole. Webster (1966 as cited in Germain and Iyer, 2006; pp. 32) specifies “the unified control of a number of successive or similar economic or especially industrial processes formerly carried on independently”. They further illustrate that firms who are not internally integrated comprise logistics activities as fragmented and often uncoordinated, and spread throughout various organisational functions with each individual function having its own budget and its own set of priorities and measurements

(Lambert and Stock, 1993). Internal integration therefore means unifying functions and processes within the firm especially in the areas of warehousing, transportation, inventory management, purchasing, demand planning and production. In order to integrate internal operations, firms need to have cross-functional structures because cross-functional inputs necessitate the consideration of how coordination and integration can be sustained across this intra-firm relationship. This can be achieved with an appropriate organisational structure with fewer formalities, more empowerment and work teams. The nature of logistics is such that it involves intricacy, extensive documentation and detailed management. There is a need to streamline operations and redesign work routines and processes to eliminate redundancy of work. This allows savings of cost and time, and increases the quality of services, and ultimately value to customers (Bowersox *et al*, 1999).

External integration refers to unified control of functions and processes across trading partners. Upstream examples include the sharing of production plans and costs with suppliers, while downstream examples include the various shared information and processes associated with collaborative planning, forecasting and replenishment.” (Germain and Iyer, 2006; p. 32). Virtual integration refers to a temporary tightly coupled collaboration effort between independent entities (suppliers, customers, competitors) that are linked by telecommunication technology. This technology facilitates the sharing of costs, skills and access to global markets (Byrne, 1993). Some of the attributes discussed in the literature on virtual collaboration include the use of information networks to maintain firstly, the connectivity of the participants during the relationship; and secondly, dissolution of the network once the companies have met the specific market opportunity. Barrat (2004) and Simatupang and Sridharan (2002) proposed horizontal, vertical and lateral integration as forms of supply chain integration strategies. Horizontal integration occurs when two or more unrelated or competing organisations (at the same level of the supply chain) producing similar products or different components of one product, form a cooperative association to share resources such as warehouse space and manufacturing capacity (Simatupang and Sridharan, 2002). These have resulted in reduced logistics and administration costs for individual organisations; improved procurement terms through group purchasing power; lowering of the fixed costs of indirect labour (e.g. marketing, quality assurance, technical, sales and financial departments); improved access to markets because continuity of supply can be assured. Vertical integration takes place at different levels of the supply chain. The integration between producer and the distributor enables better physical and information flows, improvements in the trade-off between level of service and average stock, more economical inventory management control and better transportation systems (Caputo and Mininno, 1996). Lateral collaboration combines the benefits and sharing capabilities of both vertical and horizontal integration. Integrated logistics and intermodal transport are examples of an application of lateral integration that aims at

synchronising carriers and shippers of multifirms in a seamless effective freight transport network (Simatupang and Sridharan, 2002).

Research by Stank *et al* (2001) and Gimenez and Ventura (2005) examine the different levels of integration from the logistics points of view. Integration models were developed to show the positive relationship and correlation between internal and external integration. Similarly Gimenez (2006) adopted a similar framework to study the relationship between integration process and performance especially in the interfaces of logistics-marketing and logistics-production. Her study reinforced the integration process as a key aspect of business success and support that firms must achieve a relatively high level of collaboration among internal functions before initiating any external integration. This is congruent with Lambert *et al* (1998) who posit internal integration as a prerequisite for successful supply chain management. Firms have been compelled to restructure both internal and external relationships to respond flexibly, innovatively, and rapidly to shifting and splintering market demand (Chapman *et al*, 2003). Similarly, firms build capabilities by reflecting the value of the work's performance and applying integrative principles that allow multiple processes to be synchronised. This ability to link internal operations affirms the dynamic development and leveraging of proficiencies within the firm (Bowersox *et al*, 1999). In doing so, organisations can then implement their strategies and satisfy customer requirements. Managers have to consider the market, customers' needs as well as resources to plan the coordinated efforts and manage holistically. This requires commitment from all employees being aware of this interconnected capability.

METHODOLOGY

The study adopted an iterative process of data collection by conducting ten case studies comprising interviews with senior and middle managers and visits to observe the operations of distribution centres. This method is especially suited to the current research and is used in investigating the integration strategies and capabilities evident in logistics organisations. Case studies of this kind have some limitations in terms of generalisation to population. The strategies, approaches and capabilities of individual firms may have an impact on the interpretations. The findings however are discussed in relation to existing theories (Yin, 2003). Semi-structured interviews were conducted with twenty-three managers in ten organisations. This paper distinguishes the internal and external integration initiatives in logistics firms, the issues faced and their importance for both organisational and supply chain effectiveness. Five of the firms were in Australia (identified as Firms A-E) and another five in Singapore (identified as Firms F-J). Table 1 summarises the nature of these firms' operations as the various managers who participated in the interviews. The case study approach (Yin, 2003) was adopted because to identify some situations in

which all research strategies might be relevant, the 'how' and 'what' questions are asked about a contemporary set of events over which the investigator has little or no control. The research questions are

- *'What were the initiatives undertaken to integrate internal operations in the firms studied?'*
- *'What were the actions or strategies adopted to integrate with external partners in the supply chain?'*
- *'What were the issues faced?'*
- *'What were the outcomes and benefits of the integration?'*

Firm	No of employees	Organisation Structure	Sales AS mil	Age of Firm (yrs)	Main functions	Main products	Managers interviewed
A	36	Part of a large company group	80	25	Warehousing & Distribution (of finished goods)	Hardware, PC & Appliances	- General Manager - Administration Manager - Human Resource Manager
B	200	Part of a large company group	30	5	Assembling, Warehousing & Distribution (of finished goods)	Automobiles	- Regional Manager - Human Resource Manager - Quality Assessor
C	470	Subsidiary of a multi-national Corporation	350	50	Warehousing, Distribution, Import, Export (of raw materials & finished goods)	Refrigerated foods	- Director of Operations, Australasia - Regional Manager, Australia - Director of IT, Australasia
D	11	Single privately owned business	4.2 (est.)	0.5	Warehousing, Distribution, Import, Export (of raw materials & finished goods)	Varied	- General Manager
E	100	Single privately owned business	230	6	Warehousing & Distribution (of finished goods)	Refrigerated foods	- Operations Manager - Human Resource Manager - Warehouse Manager
F	150	Subsidiary of a multi-national Corporation	234	5	Assembling, Warehousing and Distribution (of finished goods)	Varied	- Managing Director - Operations Manager - Human Resource Manager
G	250	Single company in a public ownership	25	23	Manufacturing, Assembling, Warehousing and Distribution (of raw materials)	Electrical, fibre optic & computer peripherals	- Logistics and Warehouse Manager - Production Manager
H	200	Subsidiary of a multi-national Corporation	158	24	Warehousing and Distribution (of raw materials & finished goods)	Varied	- General Manager
I	320	Single privately owned business	320	6	Warehousing and Distribution (of raw materials & finished goods)	Varied	- Assistant Manager, Regional Operations - IT Manager
J	115	Subsidiary of a multi-national Corporation	68.9	27	Warehousing and Distribution (of finished goods)	Rolling bearings and seals	- Managing Director - Logistics Manager

Table 1 Overview of firms studied

As the study seeks to address research questions, this suggests the adoption of an exploratory approach. Yin (2003) notes that exploratory studies are primarily useful for the generation of hypotheses centred on the phenomena under investigation. It was also anticipated that the research would result in the emergence of further theory and hypotheses to guide future research in the area. A multiple case study approach allowed the researchers to test the congruency or fit of the 'real world' to the factors identified. This method helped to ensure the reliability of cross-organisation and cross-site comparisons between Singapore and Australia, as well as of analysis. The use of multiple sites also contributed to the reliability of the findings (Bygrave, 1989). The qualitative approach and exploratory nature of the research question influenced the data-collection method. Research conducted within the qualitative paradigm is characterised by its commitment to collecting data from the context in which social phenomena naturally occur and to generating an understanding that is grounded in the perspectives of research participants (Bryman, 1988; Lofland, 1971; Marshall and Rossman, 1995; Miles and Huberman, 1984). Consequently, the data was collected from participants in their working environment using semi-structured interviews. This method allowed the capture of data rich in detail about the research problem; and gave the researchers the flexibility to explore additional issues raised by participants. Due to the qualitative research approach adopted and the exploratory nature of this study, the data were collected first-hand. The researchers chose self-collection of data to develop a grounded understanding of integration strategies, initiatives and processes in the distribution centres, and to meet the aims and objectives of the study (Shaw, 1999).

FINDINGS

It was found that the firms studied adopted various initiatives to integrate their operations both within the organisation and with supply chain partners. Several of the main findings of this study are outlined as follow:

Internal Integration

Streamlining the vision and mission of the organisation

The operations of any organisation depend on the overall goals and direction of the firm. From there, strategies are set in line with the operations of the firm. Managers interviewed were asked to elaborate on the company mission or vision. Eight firms focused on serving customers as first priority. The other firms envisioned being market leaders through growth, efficiency and continuous improvement activities. There was also focus on serving employees through training and development, and in areas of quality, occupational health and safety. Two firms' missions included increasing profits to shareholders and

concerns for environmental issues. The managers also indicated that reducing costs and improving quality in their distribution centres were included in their organisations mission statements.

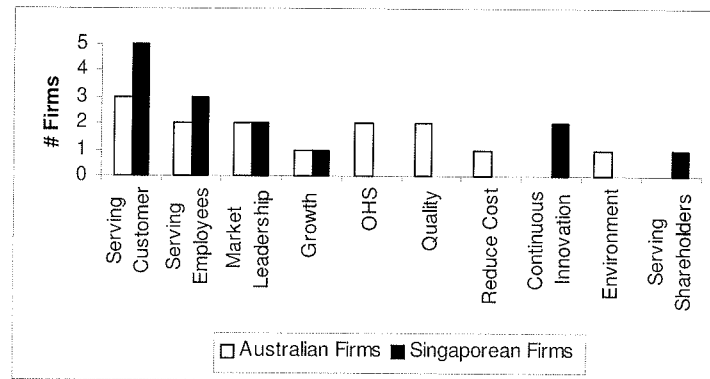


Figure 1 Target areas for company mission/vision

Imposing organisational policies and procedures

The ability to link and integrate systems and processes depends highly on organisational policies and procedures. A policy addresses major operational issues whereas a procedure is a narrower application, generally stated in detail and described as a process. The importance of procedures is to establish corporate-wide standards across diverse practices of the organisation, and describe the details of processes and systems in place. This is crucial for the effective integration of operations across departments. All the departments (except those in Firm A) of the ten firms had standardised policies and procedures. Firm A relied on the broad corporate policies set by headquarters bi-annually. The organisational policies and procedures targeted at various areas and are illustrated in Table 2 following.

Target areas	Firms									
	Australian					Singaporean				
	A	B	C	D	E	F	G	H	I	J
Occupational health and safety	X	X	X	X				X		
Operations/Work practices	X	X		X		X	X		X	X
Management	X								X	
Quality / ISO certified practices		X	X		X	X	X	X	X	
Environmental issues			X		X		X			
Training					X					
Contingency plans			X							
No smoking/alcohol/drugs at workplace			X							
Planning									X	

Table 2 Target areas in policies and procedures of firms

The above suggests that the Australian firms' policies and procedures targeted differing areas to those of the Singaporean firms. Occupational Health and Safety (OHS) was prominent and common among the Australian firms. Only Firm H in Singapore included OHS in its policies and procedures. The

Singaporean firms' policies and procedures placed their emphasis on operations and quality or ISO certifiable practices.

Adopting cross-functional unification across departments

During the interviews, all the managers ascertained cross-functional unification across various departments to streamline operations and work towards common objectives. Unification was obvious through regular meetings, departmental meetings and the directions set by management. There were company-wide objectives set at managerial level and filtered to all departments during periodic meetings. This cross-functional unification across departments can assist synergistic processes and activities in the organisation. Information exchange modes comprised emails and notice boards on departmental costs incurred, profits gained, the goals and directions set for the next quarter, areas for improvement, and how they can make operations more transparent among the departments. Employees and management viewed this exchange of information as a connection and to have an overall picture of the direction of the firm.

Streamlining logistics operations and managing efficiency

Receiving and despatching goods: Coordination between departments was found to be crucial for streamlining processes and systems at the distribution centres. For example, the procurement or administration department was directly linked with the distribution centre in managing inventory. Different firms had different ways of handling stock because of the nature of goods and size of firms. They involved receiving docks, loading, unloading and time spent counting and inspecting goods. Order fulfilment accuracy was critical for customer satisfaction, and these firms attempted to effectively integrate their inventory management for this.

Controlling defective and damaged goods: The managers interviewed explained that damage was predominantly caused by mishandling during despatching, or insecure packaging material when received. These firms took measures to minimise losses to the firm by holding employees accountable for the stock they mishandled or despatched to customers. In addition, they had to be very aware of the shelf life or expiry dates of products, and needed to have effective stock control to manage this. Firm J, being a manufacturing firm experienced errors or defective products from the manufacturing process. The managers reported that defective or damaged goods can be controlled through employee training, proper supervision or other methods. Firm B which dealt with automobiles highlighted and displayed employees' mistakes. Firm I used prominent posters and reminders for efficient handling in the distribution centre. Firm G ensured proper usage of box pallets and shrink-wrapping cartons to prevent

damage to products. In Firm H, the layout of the distribution centre influenced the condition of goods. Well-designed racks and shelves were utilised, capable of sustaining the weight and dimensions of goods.

Inventory Management: To minimise inventory shrinkage, the firms took appropriate measures such as physical stock counts, cycle counting (adopted in Firms C, G, H and I) and barcoding for easier monitoring. In Firms H and J, the responsibility was assigned to employees. Stockkeepers were held accountable for items handled. The goods were labelled with the employee's identification for tracking and reference, should a missing stock situation arise. Firms G and J adopted the Automated Storage and Retrieval System software (ASRS) which made it easier to control and monitor inventory.

Provision for growth and expansion

Eight out of the ten firms interviewed (all except Firms G and I) provided for growth and expansion of the distribution centre. The structure and layout of these distribution centres had been designed to accommodate for expansion. Firms B, D, E and H purchased extra land space adjoining the property for future construction. Firm C, on the other hand, was prepared to relocate the distribution centre and distribution facilities. The other firms intended to provide for this by better racking systems, extra or extendable shelving, and bulk storage. The managers indicated that they had to be proactive and look into the future. Eight of the ten firms' managers were optimistic about the expansion of their distribution centres, because of the buoyant logistics industry and increasing turnover.

Restructuring the organisation

All the managers interviewed affirmed that the organisation structure allowed for cross-functional activities and operations. There was easy access between departments and information was shared or exchanged internally. All the firms, but two (Firms E and J) had restructured their organisation within the last five years. Every manager of the eight firms affected stated that this change was beneficial and assisted to streamline internal operations and enabled employees to be multi-skilled, flexible and react quickly to market changes.

External Integration

Maintaining standardised operations

The firms studied practised standardised operations with most customers and suppliers. The managers maintained these through documentation or Standard Operating Procedures (SOP). Regular meetings were held with suppliers and customers to update or reflect changes in the documentation on environmental or technological improvements. Firms F and H faced problems with the smaller customers who needed