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THE ISSUES WITH TRANSNATIONAL FAST MOVING CONSUMER GOODS SUPPLY CHAINS ORIGINATING IN INDIA AND SOUTH AFRICA

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A thesis submitted to the Graduate School of Business Administration, University of Witwatersrand, in fulfilment of the requirements for the degree of Doctor of Philosophy

Johannesburg

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ABSTRACT

The use of transnational supply chains has been perceived as the "mantra for success" in the era of globalisation, changing customer demographics and demand. The fast-moving consumer goods (FMCG) industry has also joined this bandwagon, along with other industries, such as the high-technology industry, in order to gain competitive advantage. However, the trade regimes of developing (emerging) economies have played a significant role in establishing the context for the supply chains originating in a particular country, and therefore in containing the foreseen benefits accruing from supply chains becoming a transnational process.

This thesis was focused on identifying issues within selected transnational FMCG supply chains originating in India and South Africa. It also identified the steps that supply chain managers were taking to address these issues. It also proposed a framework for supply chain operating model to address the identified issues.

The researcher used a combination of analytical models to investigate the different aspects of the various transnational supply chains. To examine the underlying aspects of the various FMCG supply chains, a typology model in conjunction with an operational model, a financial model and a governance model were used. Supply chain operations reference (SCOR), an operational analytical model, was used extensively in this thesis. Detailed typology and process flow maps specific to transnational FMCG supply chains were also developed.

The collective case study approach was used as the research methodology. A total of four cases spanning two countries – India and South Africa – and dealing with two product segments (packaged food and personal care products) were studied. Data for the study was collected through primary sources (in multiple face-to-face interviews) and secondary sources (from case-specific documents and reports).

After the data was analysed, it was found that the various supply chains in the FMCG industry displayed similar typologies and issues, some of which were unique to each country. The typology of the transnational supply chains for all four cases was very similar in terms of their distribution structure setup, product life cycle, sourcing models combination, customer relations, marketing methods and degree of globalisation. However, in both countries, the supply chain issues identified in the personal care segment, such as product proliferation and supplier unreliability, were different from those identified in the packaged food segment, such as strict food-related regulatory laws and greater manufacturing complexities. Some of the typical issues affecting local supply chains, such as the bullwhip effect and lower supply chain adaptability, were not evident in the transnational supply chains.

The steps supply chain managers were taking to address these issues, such as standardising processes and implementing new technology, were found to be similar in all cases. However, in India, supply chain managers were also focusing on government initiatives, establishing contracts with suppliers and customers, and implementing supply chain policies, while in South Africa they were also

focusing on improving supply chain skills, improving branding in transnational markets and implementing foreign exchange controls.

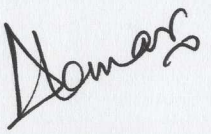
The overall conclusion was that there was considerable potential for achieving competitive advantage by setting up transnational supply chains, provided that the problems identified within transnational supply chains were adequately addressed by supply chain managers. However, in some scenarios, the steps taken in terms of available best practice models resulted in a further set of issues arising.

The identification of the issues facing supply chain managers and the development of a proposed framework of operating model to address the identified issues with transnational FMCG supply chains were the most significant contributions of this research study.

Keywords: supply chain, FMCG industry, transnational, supply chain managers, India, South Africa.

DECLARATION

I, Dinesh Kumar declare that this thesis is, unless otherwise indicated, my own unaided work. It is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the University of Witwatersrand, Johannesburg, South Africa. It has not been submitted before for any degree or examination at any other university.



Dinesh Kumar

Johannesburg

05th July 2010

DEDICATION

This thesis is dedicated to my mother, **Bimla Bansal** for a lifetime of understanding, camaraderie, love and every possible sacrifice she has ever made to provide me with the best possible opportunities.

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LIST OF ABBREVIATIONS

3PL	Third-Party Logistics
4PL	Fourth-Party Logistics
Amka	Amka Products (Pty) Limited
APICS	Association for Operations Management earlier, American Productivity and Inventory Control Society
APS	Advanced Planning and Scheduling
ASEAN	Association of South-East Asian Nations
AVI	Anglo Vaal Industries Limited
B2B	Business-to-Business
B2C	Business-to-Consumer
BIMSTEC	Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan and Nepal
BSC	Balanced Scorecard
CEO	Chief Executive Officer
CFA	Carrying & Forwarding Agent
CII	Confederation of Indian Industry
CLS	Continuous Linked Settlement
COGS	Cost of Goods Sold
CPFR	Collaborative Planning Forecasting and Replenishment
CR	Continuous Replenishment
Dabur	Dabur India (Pty) Limited
DC	Distribution Centre
DPM	Distribution Planning Model
DRP	Distribution Requirement Planning

ECR	Efficient Customer Response
EDI	Electronic Data Interchange
ERP	Enterprise Resource Planning
EU	European Union
FCL	Full Container Load
FDI	Foreign Direct Investment
FMCG	Fast-Moving Consumer Goods
FTL	Full Truck Load
GDP	Gross Domestic Product
Hi-Tech	High-Technology
HR	Human Resources
IBP	Integrated Business Planning
IBSA	India-Brazil-South Africa
INR	Indian Rupees
ISO	International Organisation for Standardisation
IT	Information Technology
ITAC	International Trade Administration Commission
JIT	Just-in-Time
JV	Joint Venture
KPI	Key Performance Indicator
LCCS	Low-Cost Country Sourcing
MRP	Manufacturing Resource Planning
MTO	Make-to-Order
MTS	Make-to-Stock
NAFTA	North American Free Trade Agreement

NPI	New Product Introduction
PoD	Proof-of-Delivery
PoS	Point-of-Sale
QR	Quantitative Restrictions, also Quick Response
R&D	Research and Development
REA	Resource-Event-Agent
RFID	Radio Frequency Identification Data
ROI	Return on Investment
RTA	Regional Trade Agreement
S&OP	Sales and Operations Planning
SACU	South African Customs Union
SADC	South African Development Community
SCC	Supply Chain Council
SCM	Supply Chain Management
SCOR	Supply Chain Operations Reference
SEA	South-East Asia
SEZ	Special Economic Zones
SG&A	Selling, General & Administrative Expenses
SKU	Stock-Keeping Unit
SLA	Service Level Agreement
Surya	Surya Foods (Pty) Limited
SWOT	Strength, Weakness, Opportunity and Threat
TOM	Target Operating Model
TSCC	Total Supply Chain Cost
UK	United Kingdom

US	United States
VAT	Value-Added Tax
VMI	Vendor Managed Inventory
VP	Vice President
WIP	Work-in-Progress
WTO	World Trade Organisation
ZAR	South African Rand

1. INTRODUCTION

1.1 Background

Goldratt & Cox (2004:10) stated in their book, *The Goal* that, "the aim of an organisation is to make money."

An organisation's operational activities guide both its bottom line and top line and influence financial aspect of its activities. The focus on the inter-linkages between these operational activities forced firms to start concentrating on the interrelationships among the silo functions of the firm and among the firm, its markets, its industry and the national economy (Forrester, 1958). Supply chains emerged in the 1970s and 1980s as the platform to integrate all the operational functions and to achieve the organisational aim stated above (Fisher, 1997, Porter, 1998). A "supply chain", as a concept, was earlier represented by the term "physical distribution"[1] (Drucker, 1962) and later by the term "logistics"[2] (Firth (ed.), 1981).

Supply chains encapsulate the flow of information and materials/goods among different entities such as customer, manufacturer, supplier, logistics service provider etc. Often, these entities are legally separated. Christopher (1986) stated that the key driver of the supply chain was to co-ordinate and integrate these entities in order to achieve competitiveness for an organisation.

[1] Drucker (1962) described physical distribution as "the economy's dark continent" and as a neglected sore point, although it was also identified as the most promising area of business.
[2] "Logistics", as a term, was more popular than "supply chain" (Firth (ed.), 1981).

The fast-moving consumer goods (FMCG) industry is a quick, agile industry with a wide range of products (Kumar, 2002). This was confirmed by Unilever (2007:5), a leading FMCG firm, which stated that "150 million times a day, in 150 countries, people use our products at key moments of their day."

Such a huge industry was easily recognised by its customers and its supply chains were seen as a role model for other industries (Armstrong, Enright, Lempres & Rauch, 1996). FMCG industry supply chains generated innovative ideas and a framework for the industry because of its high volumes of product flows, closer interaction with its customers, less complex manufacturing processes and the dominance of retailers (to some extent). Some of its ideas such as point-of-sale (PoS) solutions, transport milk runs and subcontracted manufacturing were adopted by other industries.

However, a very complex underlying supply chain setup was identified during this study. Despite the innovative ideas generated, FMCG supply chains were faced with unique challenges and issues (Kumar, 2002). Some of the issues, such as the hockey stick effect, the bullwhip effect, and higher returns and transit losses, were widely evident in these supply chains.

In order to achieve the organisational goal of making money, supply chain managers tried to find cheaper suppliers, low-cost manufacturing facilities, strategically located distribution centres (DCs) and highly profitable or high-volume customer markets. Bartlett & Ghoshal (1998) stated that supply chains often

extended beyond the borders of a country in order to encapsulate these features and became known as "transnational supply chains".

Transnational as a term is most commonly substituted by the terms "global", "international", "overseas", etc. Transnational concepts came into existence when organisations started conducting worldwide businesses in the 1950s (Clee & Di Scipio, 1959, Clee & Sachtjen, 1964). Firms started expanding their footprints into the international arena[3] in order to tap into the worldwide customer base (Smith, 2008); however, these practices also brought a new set of challenges.

It was imperative to clarify the term "transnational" before discussing the issues around transnational supply chains. The term "transnational" was rather ambiguous and the literature did not clearly define it. Could a firm with one sales branch overseas or a firm with a manufacturing establishment in a foreign country be considered transnational? Farrell (2004) stated that "off-shoring"[4] was not considered as being transnational. Also, another question that arose was, were transnational (global) markets creating transnational minded firms?[5] Denise (2009) stated that transnational firms displayed enormous differences, as they were inevitably linked to the political and economic setup in their home countries.

When supply chains became transnational, a further set of supply chain issues emerged that were different from those faced by local supply chains. It was found from the literature that, while trying to achieve the organisational goal,

[3] Smith (2008) identified "international expansion" in terms of supplier base and marketplace.
[4] "Off-shoring" referred to subcontracting a service overseas.
[5] Some other questions raised were: do firms' practices match the grand rhetoric of globalisation? Are global firms overwhelming the efforts of nations to preserve their distinctive identities? (Denise, 2009)

transnational supply chains often lost sight of other issues that arose in the process of "transnationalisation". Factors such as pricing irregularities[6] (Acker, 2009), cultural differences (Jiang, 2002), political systems, trade agreements[7] (Blanchard, 2009), stretched transportation lines, reduced velocity (Londe, 2006), quality control (Resse, 2009) and the taxation systems of the various countries involved led to issues such as long lead times (Christopher, Towill & Peck, 2006), less visibility[8] (Kumar & Bala, 2009), poor product safety and loss of trust. This thesis was focused only on tangible issues identified within transnational supply chains, not ethical issues (such as loss of trust, corporate responsibility, etc., which are suggested as future research areas).

Supply chains have evolved over a number of years and have also adopted new techniques and philosophies to tackle the new issues that they faced (Ballou, 2007). Supply chain managers became more responsive to a transnational operating environment by acting as global economists[9] (Bovet, 2008). The management of such transnational issues as long lead times, supplier relationships, cost containment, skills and processes became important in the life of a transnational supply chain manager.

Supply chains in developing countries were evolving, but were still not fully matured compared to those of developed countries. Dimitrijevic (2009) stated, however, that the term "developing" or "emerging" countries was obsolete. In 2008, the gross domestic product (GDP) of India was higher than that of

[6] The product pricing was not aligned between the local and the global supply chains (Acker, 2009).
[7] A high complexity was associated with the understanding and the leveraging of trade agreements (Blanchard, 2009).
[8] It resulted in high supply chain risks - as not knowing - where is your delivery? (Kumar & Bala, 2009).
[9] This role involved identifying opportunities in the areas of pricing, sourcing, making and moving.

Germany.[10] Also in 2008, the combined trade of Brazil, India, China and South Africa was as large as that of Europe. India and South Africa were spending a higher percentage of their GDPs on logistics, which reflected the importance of supply chains to these countries (World Trade Organisation, 2009a).

A new set of issues, such as country-specific organisational structures (Denise, 2009) and parallel trade[11] (Mosquera, 2009), were identified in developing countries. The skills required by supply chain managers to manage these transnational issues were perceived to be different from the ones that they used for local supply chains and in developed countries.

[10] It was based on purchasing power parity index.

[11] Parallel trade, a common phenomenon in pharmaceutical industry, involved product moving across borders through grey channels potentially risking safety and eroding margin. This phenomenon was evident in FMCG industry too.

1.2 Rationale for the study

One rationale for this study was to fill the gap that existed in the field of transnational supply chain management, i.e. that of identifying and comparing issues within transnational FMCG supply chains originating in developing countries, such as India and South Africa. Logistics (supply chain) was seen as a key aspect of business in South Africa (King (ed.), 2008) and comparing the South African experience with that in a similar developing country[12] in order to establish common trends and findings seemed to be a worthwhile focus of study.

The rationale for this study was based on the following central components:

- While the basic supply chain issues were well understood in the context of local FMCG industries, the transnational issues within this industry had not been fully ascertained. Therefore, the study of transnational FMCG supply chains in order to identify their specific issues will contribute to knowledge in the supply chain field.
- Country-specific regulations have an impact on trade between a specific country and its partners. A study of the microeconomic impacts of the trade regime on supply chains will identify the transformation requirements from the point of view of both the government and FMCG organisations.
- The trade regimes of the various developing nations play a major role in not only the design, but also the complexity of any supply chain. This thesis also holds that the issues pertaining to the transnational supply chains of a developing country such as India or South Africa were different from those of

[12] In terms of GDP and growth rate (World Bank, 2005).

a developed country such as the United States (US) and needed to be studied in their own terms.

- Parallel to transnational supply chains, local supply chains were already in existence. Therefore, a qualitative case study approach to identify the differences between transnational and local supply chains will create an information repository for further detailed research.
- A composite framework to identify the issues with respect to the operational and financial performance of transnational supply chains was felt to be necessary. Such a framework would help to clarify the many complex issues on which transnational supply chain managers must focus in order to ensure the survival of their operations.
- Central to the establishment of each of the case studies to be examined was the identification of the steps that supply chain managers were taking to address the issues that were identified. The analysis of these case studies will provide a range of information to supply chain professionals related to new strategies, ideas and programmes to tackle these issues.
- Comparing strategies and narratives of resilience and innovation among the cases can contribute to a deepening of the discourse on the development of supply chain management practice. This approach also holds that practice and experience should contribute to theory, and that the lower, execution level should be linked to the higher, strategic level.

A further reason for conducting this research was to address those discouraging questions that many transnational supply chains faced, particularly in the light of the current (year 2008/9) economic crisis and ever-changing customer demands:

- Why do so many organisations fail when they became transnational?
- What has hindered them in achieving the advantages of becoming transnational?
- Are managers taking the right steps to neutralise the impacts of the issues that they face?
- Are the best practice frameworks adopted by organisations suited to addressing the needs of transnational supply chains?
- Can the FMCG industry, which works with thin margins and high volumes, afford to take the risk of reducing velocity in the supply chains of its constituent firms when they become transnational?
- What other risks are carried by supply chain managers as their supply chains become transnational?
- What is the common experience among similar countries with respect to the strategies that their firms adopt when facing these issues?
- Is there a framework for operating model of transnational supply chains?

1.3 Problem statement

In light of the discussion in the previous sections, the researcher decided to study and analyse the issues affecting transnational FMCG supply chains and to compare them in the developing country environment in terms of the impact of the trade regimes of selected countries on their supply chains.

Also, the mitigation strategies and actions used by supply chains managers to deal with the specific issues that they faced needed to be studied.

Hence, the research question addressed by this research study was:

What issues were supply chains managers facing within transnational supply chains in FMCG industry originating in India and South Africa?

However, no attempt was made to analyse the competence of supply chain managers or to understand the quality of the steps/decisions that they were taking to address the issues that they were facing. These aspects would be good areas of research for future studies.

This research study also focussed on identifying and developing a framework for supply chain operating model for transnational FMCG supply chains.

1.4 Research sub-questions

To provide a framework for addressing the research question, the following research sub-questions were formulated:

a. What was the typology of FMCG supply chains originating in India and South Africa?

b. What were the issues facing transnational FMCG supply chains originating in India and South Africa?

c. What steps were supply chain managers taking to address the identified issues within transnational FMCG supply chains originating in India and South Africa?

1.5 Contribution to the body of knowledge

This thesis is intended to contribute the following to the existing body of knowledge:

1. The identification of a typology of transnational FMCG supply chains for India and South Africa. This typology could be adopted for other similar developing countries.
2. The identification of valid and proven supply chain analytical models to analyse FMCG supply chains.
3. The creation of detailed process maps that could be used by any transnational FMCG supply chain.
4. The creation of an in-depth data repository for transnational supply chains from the four case studies used in this research.
5. The definition of a framework to compare trade regimes and their impact on supply chains.
6. The identification of the elements of the transnational environment that were raising issues within FMCG supply chains.
7. The identification of the issues within transnational FMCG supply chains.
8. The identification of the changing requirements of the roles and responsibilities of supply chain managers.
9. The identification of steps that supply chain managers were taking to address the issues that they faced within transnational FMCG supply chains.
10. The development of a framework of supply chain operating model.
11. The recommendation of basic and advanced systems and processes (best or leading) for the governance of and further improvements to the supply chain.
12. The identification of further relevant areas of research.

1.6 Outline of the report

This thesis is structured in the following way:

Chapter 1 deals with **the introduction**, including the background, the problem formulation, the research questions, the study's contribution to the body of knowledge and the present section.

Chapter 2 presents a **review of the literature** covering seven main areas.

- Firstly, the supply chain is discussed with respect to its definition, its components, its role in an organisation and its organisational structure.
- Secondly, the FMCG industry is defined and its supply chains are explored. The challenges faced by FMCG supply chains are analysed and these typology of the supply chains is compared with that of the high-technology (Hi-Tech) industry. Also, the key product segments of the FMCG industry are identified.
- Thirdly, the trade regimes of India and South Africa are studied and briefly compared with those of South America.
- Fourthly, the roles and responsibilities of supply chain managers are explored with respect to their skills and competency requirements.
- Fifthly, the performance of supply chains is studied with respect to the identification of a suitable operational performance model among three different models. The relevant financial indicators and governance models are also used.

- Sixthly, the term "transnational" is defined, along with the issues affecting transnational supply chains. The latest trends in transnational supply chains are also discussed.
- Seventhly, the steps that supply chain managers are taking to deal with these issues are studied in terms of current approaches and best practices.

The **propositions** of the study are presented at the end of the literature review.

The **research methodology** is dealt with in chapter 3. The investigative approach is presented for a collective case study methodology that focuses on data collection through a set protocol and a content analysis of the information collected. Validity and reliability measures are also discussed.

Chapter 4 presents an **overview of the four cases** focusing on their histories, structures, brands and markets.

Chapter 5 presents **the findings of the research** based on the information collected from interviews and an analysis of the various documents. The findings are listed according to the investigative approach in the categories of general, typology, issues, supply chain steps and other findings.

Chapter 6 discusses **the interpretation of the findings**, including an analysis of the findings of the literature review conducted earlier and best practices. The propositions are also tested. A framework for supply chain operation model is also presented.

Chapter 7 concludes **the major findings**, identifies **further areas of research** and makes **recommendations to the industry**.

The **references** are then listed, followed by the **appendices** providing the details of the introductory letter, protocol, consistency matrix, the data collected from the cases, and further details on the recommended solutions.

1.7 Summary

The issues within transnational FMCG supply chains were perceived to be different from those in local supply chains, while the definition of the term "transnational" was not clear in the literature. It was therefore felt that it was necessary to study the impact of their respective trade regimes on the supply chains of two similar countries.

In summary, the elements given in figure 1-1 were analysed as part of the research framework.[13]

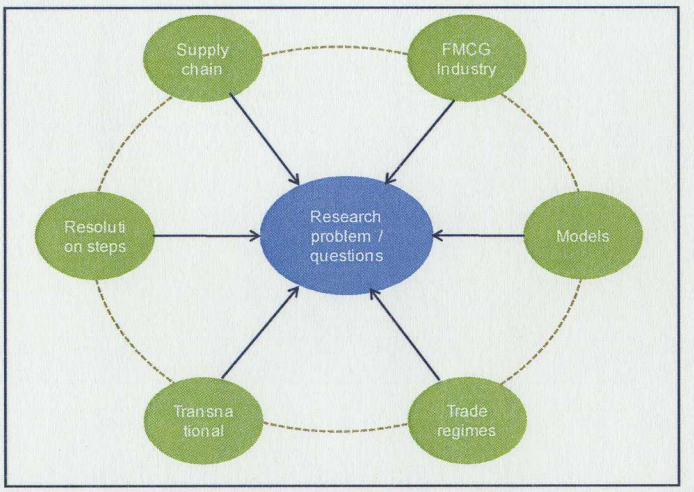

Figure 1-1: The research framework

Hence, the objective of this thesis was defined broadly as that of identifying the key issues within transnational FMCG supply chains while articulating a set of models that identified the issues with respect to the operational and financial performance of these supply chains.

[13] The research framework is explained in detail in the "research design" section.

The researcher therefore set out to investigate the abovementioned research problem and questions through the FMCG industry case studies of India and South Africa and to compare the findings from with-in and across the case studies. The findings were also benchmarked with best practices available locally and globally. Further, the thesis set out to reflect on the steps taken by supply chain managers to deal with the issues facing them as reflected in the case studies.