

An Analysis of the Key Success Factors for Lean Supply Management: A Case Study of Unilever's Tea Supply Chain in Africa

by

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This is a research project submitted in partial fulfilment of the requirement for the award of Master of Business Administration (MBA) Degree,
School of Business – University of Nairobi

November, 2009

DECLARATION

This is to certify that this research project is my original work and has not been presented for any degree in any other university or institution of learning. Information from other sources has been duly acknowledged. No part of this work should be reproduced without the permission of the author.



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This research project has been submitted for examination with my approval as the university supervisor.



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This research project has been submitted for examination with my approval as the university supervisor.

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Dedication

To the memory of two outstanding teachers –

The late Madam MERISIA OMBEWA, formerly of Commonwealth School – Bungoma, for her creativity and commitment to my redemption more than thirty years ago

and

the late Reverend FREDERICK GEORGE WELCH, formerly of the Alliance High School – Kikuyu, who taught us, through his life and counsel, the truths that leadership is all about service and that it is in giving that we receive.

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Mr. John Kenduiwo, my supervisor, has been instrumental in all the choices that I have made during the MBA course and I owe my success to him. Special thanks go to Unilever's Global Tea Supply leadership – especially Mr. Hans Synhaeve and Mr. David Smyth, both of whom encouraged me to conduct the study on Unilever's tea supply chain and for undertaking the tedious task of reviewing my draft proposal. I would also like to acknowledge the support of Mr. Francis Kiragu, TBO Head – Kenya, for critiquing various elements of the study; Mr. Charles Boit (formerly of Unilever Tea Kenya Limited) for his useful hints; and , Mr. Visvajit De-Alwis, General Manager – Tea Buying, PT Unilever Indonesia Tbk, for accommodating my schedule during the final preparation of this thesis. I owe my gratitude to Mr. Joseph Obado (Bogor Agricultural University – Indonesia) for his invaluable advice on data management; and Mr Michael Mwangi (University of Nairobi) for his guidance on a broad range of professional and academic issues in the final stages of the project.

I am greatly indebted to all 36 respondents without whose participation in completing the questionnaire the aims of this project would have come to naught.

Finally, to my immediate family for their patience, sacrifice and moral support during the entire period of my studies without which this mission would not have been possible.

Abstract

To achieve leanness in the supply chain, supply managers must of necessity embrace a set of key success factors which – when fully operationalised and supported in an organisation – underlie the realisation of optimal inventories, low supply costs and the shortest lead times. This study examined this phenomenon in the case of Unilever's tea supply operations in Africa. The specific objectives were to determine the extent of adoption of lean supply management practices at Unilever's tea supply chain in Africa and to identify barriers to the realisation of a more efficient supply operation within the organisation's tea supply system in the region.

The author adopted a framework that defined a supply chain at four levels, namely: the upstream, the focal firm (static network), the downstream, and the dynamic network. These four levels were mapped out as supplier relations, internal organisation of the buying firm, customer relations, and strategy level activities, respectively. For this study, the focal firm was the Tea Division of Unilever Kenya Limited (also referred to as Kenya Tea Buying Organisation).

The research methodology deployed was the case study using an electronic questionnaire with both structured and open-ended questions. Responses to structured questions were on a six-point Likert scale. Data was collected from a population of 46 across 10 countries that were part of the supply network under investigation. Five of the target respondents were senior management from third party entities that provided core services to the focal firm, while the rest were managers at different levels within Unilever's global tea supply network.

Data was analysed using descriptive statistics. The means and standard deviations of Likert scale data were computed, tabulated and ranked for interpretation.

The findings indicated that most of the key success factors were present but to varying degrees of implementation. On the other hand, there were a number of impediments to successful lean supply management – notably, a lack of performance measures for suppliers and an inefficient execution of out-sourced services.

Amongst other recommendations, the study proposed that long-term contracting should be expanded to minimise the supply risks associated with auction and spot buying. At the same time, performance measurement and feedback systems for suppliers and third party service providers should be developed, implemented and enforced.

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List of Abbreviations

APS	Advanced Planning and Scheduling
ERP	Enterprise Resource Planning
EATTA	East African Tea Trade Association
ETH	European Tea Hub
GTS	Global Tea Supply (Unilever)
IT	Information Technology
KTDA	Kenya Tea Development Agency
KPI	Key Performance Indicators
LTS	Lipton Tea Supply
AMET	Africa, Middle East and Turkey
OTIF	On Time In Full
PBU	Primary Buying Unit
RDC	Retail Distribution Centre
SEAA	South East Asia and Australia
SC	Supply Chain
SLA	Service Level Agreement
TBK	Tea Board of Kenya
TBO	Tea Buying Organisation
USCC	Unilever Supply Chain Company
UL	Unilever
UTKL	Unilever Tea Kenya Limited
WL	Work Level

CHAPTER ONE: INTRODUCTION

1.1 The Concept of Lean Supply

Lean supply is fast becoming a trend for supply chain management in organisations worldwide. This state of affairs appears to stem from the perceived benefits of going lean in the face of increasing global competition. Value addition has been a key driver for companies embracing lean supply systems (Tersine and Hummingbird, 1995). Value-added activities should be continually improved so that they take less time and thus add more value. Waste is anything that does not add value or consumes more time than is necessary. In this context, “the system” is defined as the entire logistical chain from creation to ultimate consumption (Tersine and Hummingbird, 1995).

Lead-time needs to be minimised as by definition excess time is waste and leanness calls for elimination of all waste (Christopher and Towill, 2000). The lean paradigm requires that “fat” be eliminated and level scheduling achieved. On the other hand, the effectiveness of an organisation's response to rapidly changing market conditions will be largely determined by the capabilities of its trading partners. A manufacturer with key suppliers that have poor quality and delivery records will find it very difficult to provide high levels of customer service even in stable environments (Power *et al*, 2001).

The fundamental principle of lean supply is that the effects of costs associated with less than perfect execution of a sub-process are not limited to the location of the execution. Both costs and value are eventually transmitted to the end customer in the value chain (Lamming, 1996).

As made explicit in the preceding paragraphs, lean supply management revolves around two key elements: cost optimisation and lead-time reduction. Tersine and Hummingbird (1995) argue that the enemy in efficient supply chain management is downtime, non-synchronised activities, queues, non-integrated local optimisation, and adversarial functional interactions. They further point out that time is usually wasted because of serialisation of independent activities, non-synchronisation of dependent activities, production of parts that are rejected/reworked (unacceptable quality), or inefficient workflows. Lysons and Gillingham (2003) reinforce this view by asserting that the core concept of lean thinking is the Japanese term “muda”. Muda means “waste” or any human activity that absorbs resources but creates no value. Examples of muda are spoiled production, unnecessary processing steps, purposeless movement of employees and goods, time wasted in waiting for materials, uneconomic inventories, and goods and services which fail to meet customers' requirements.

1.2 Research on Lean Supply Chain Management

Cunningham (2001) established that no major reviews of agribusiness chain management had been published worldwide. At the time of his investigation, only 123 journal articles relating to supply chain management in agri-food industry were identified as peer reviewed. Of this number, only *one* was from Africa! Cunningham (2001) however notes that the number of articles had begun to increase substantially in 1995, coinciding with establishment of the *Supply Chain Management* journal.

According to Cunningham (2001), fisheries is the most neglected industry while wheat and potato are the most studied. No serious mention is made of *tea* as a commodity in recent supply chain studies.

Bruce *et al* (2004) write that the textiles and apparel industry has been neglected in terms of supply chain management research. They argue that this industry has a short product life-cycle, high volatility, low predictability, and a high level of impulse purchase, making such issues as quick response (reduced lead times) of paramount importance.

Rivard-Royer *et al* (2002) conducted a case study on a “hybrid stockless system” implemented by a Quebec (Canada) hospital. In their discussion, they conclude that although the system reduced inventory costs and time spent going to central storage areas, the initiative did not benefit the distributors whose burden it was to carry medical stock and deliver to patient centres when required.

In a study of the Swedish automotive industry, Svensson (2001) established that there was a high degree of perceived trust towards suppliers and customers in the supply chain. This situation has inspired keen competition with accompanying implementation of lean, responsive and agile supply chains. On the contrary, there has been a lack of mutual confidence between pre-casters and contractors to achieve a just-in-time system of delivery in the construction industry in Singapore (Pheng and Chuan, 2001). While the aim is to realise zero buffer stocks, contractors lament the occurrences of late deliveries as pre-casters accuse contractors of inaccurate demand schedules.

Multinational corporations in Brazil use “time” as a competitive weapon (Rohr and Correa, 1998). The companies (Xerox, Ericsson, Kodak, etc) use time not to achieve shorter lead times but to improve performance in other competitive criteria such as cost, delivery reliability and flexibility.

In their findings on a study of the dairy industry in New Zealand, Sankaran and Luxton (2003) observe inefficiencies in logistics abound because of the co-operative ownership structure and the vertically integrated nature of the industry. The problem is further compounded by the seasonal nature of milk supply and attendant influence of climatic conditions. This scenario of inefficiency mirrors Van den Berg's (2001) observations on the Kenya Tea Development Agency – the largest supplier of tea in Kenya, which is owned by smallholder farmers.

In Botswana, research shows that purchasing policies on external relationships and image are non-existent in most organisations (Msimangira, 2003). The research on Botswana stresses the point that managers in that country need to change their thinking about purchasing and supply chain management, through training.

It is befitting to complete this section with a commentary on the public sector. Based on research in the USA, Yasin *et al* (2001) established that just-in-time (a component of lean supply) has the potential to increase the operational efficiency, service quality and organisational effectiveness of public sector organisations. However, to match their private sector counterparts, the public sector must be willing to modify their procedures and operations. Training is necessary to instil the appropriate organisational culture and philosophy, with a focus on quality, cost and timing (Yasin *et al*, 2001). The authors conclude by stating that public sector operations must be analysed to identify opportunities for standardisation, simplification and automation.

1.3 The Tea Industry in Kenya

In 2007, tea accounted for 18% of Kenya's total exports with an estimated value of US\$12 billion. This ranking was only 1% behind horticulture, which held the number one spot in export value of exports (Kenya Economic Survey, 2007). However, the industry is fraught with numerous problems, which also run through other sectors of the economy. These problems include poor general infrastructure, unreliable road and rail transport, single-port dependency, unreliable telecommunications, unpredictable weather and general corruption (Van den Berg, 2001).

The industry is regulated by the membership-based East African Tea Trade Association and the government controlled Tea Board of Kenya (Tea Act, 1992). The top five suppliers of raw tea account for 90% of the total volume (Van den Berg, 2001); the Kenya Tea Development Agency alone accounts for 62% of production (Tea Board of Kenya, 2007). Unilever Tea Kenya Limited is the second largest producer with 11% share of total output. Unilever's combined field and factory operations together with its trading activities in the region position the company as a key

player in the tea sector. The current research focuses on Unilever's tea operations in Kenya in particular and Africa in general.

1.4 The Unilever Group

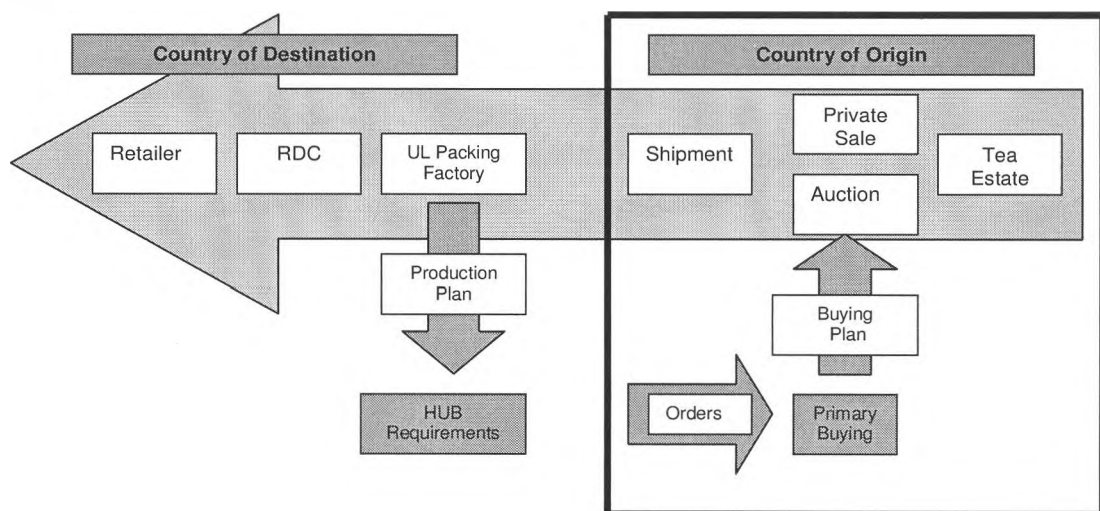
Unilever is one of the world's largest consumer goods companies. With a strong local presence in more than 100 countries across the globe, Unilever has a powerful portfolio of foods and home and personal care (HPC) brands (Unilever Annual Review, 2006). In 2007, the organisation registered a turnover of €40.1 billion (Unilever Annual Review, 2007). Some of the company's well known brands include: Lipton Yellow Label, Brooke Bond, Knorr, Omo, Vaseline, Lux, Close-Up, and Brut, among hundreds of others.

To tackle the challenge of restoring the organisation's competitiveness in the market place, Unilever has sought to create a more agile and unified global operation aligned behind a single strategy with the right people in the right jobs, delivering quality and speed of execution (Cescau, 2005).

Unilever Kenya Limited and Unilever Tea Kenya Limited are the two remaining operational Unilever entities in Kenya following a systematic and rationalised divestiture and consolidation programme over the last 20 years. Unilever Tea Kenya Limited is engaged in tea cultivation, processing and export, while the Tea Division of Unilever Kenya Limited (formerly Lipton Limited) is a supply chain organisation responsible for procuring raw black tea from Africa. The Mombasa based Tea Division (Tea Buying Organisation) is part of an international network for buying tea for Unilever's marketing companies (Van den Berg, 2001).

In 2007, Unilever bought over 300 million kilos of tea globally, about 30% of which originated from Africa (Lipton, 2007). Most of the tea is bought through the weekly Mombasa Auction while the balance is sourced directly from producers through spot-buying or long-term contracts (Van den Berg, 2001). While the majority of purchases are of Kenyan origin, teas from producers in other African countries are also purchased through the three channels. Other key African origins include Rwanda, Uganda, Tanzania and Malawi.

Figure 1.1 illustrates the tea supply chain from the processing factory to the retailer in the country of destination. This process is complex and calls for the deployment of best practices in order to effectively manage diverse challenges faced at each step.



(Source: Lipton Tea Supply, 2001)

Figure 1.1 – The supply chain process

Unilever's global competitors in branded teas include Tata-Tetley, Twinnings, Premier Brands, Tapal, and own-brands by major British chain stores (Beverages Category Team, 1999).

1.5 Statement of the Problem

In June 2001, Paul Van den Berg, then of Eindhoven University, The Netherlands, concluded an extensive analysis of Unilever's tea supply chain in Kenya. The study targeted the optimisation of the organisation's complex tea supply network.

His recommendations, most of which have since been implemented, included the following (Van den Berg, 2001): The development and rollout of an IT platform capable of sharing demand forecasts, availability, inventory levels of the supply chain, and buying strategies; the definition of a corporate buying strategy that would include authority for direct supplier contracts on behalf of all Unilever marketing companies; and the implementation of a set of performance indicators for tea buying at a corporate level.

The key objectives of Van den Berg's work were to identify opportunities for reducing lead times and supply chain costs and realise the potential savings from direct buying from producers rather than over-relying on a lengthy and somewhat complicated auction system (Van den Berg, 2001).

Unilever might not have fully realised its goal of reducing lead times and optimising supply costs for raw tea from manufacture in Africa to delivery at the various packing units (Hans Synhaeve, 2005). The status quo was a matter of great concern to top management in the company.

Further, an internal customer survey conducted in the first quarter of 2008 revealed that Kenya as a supplying unit was ranked second lowest by buying units in terms of both on time and in full (OTIF) delivery and overall customer service (Figure 1.2). From a lean supply perspective, delayed deliveries imply extended lead times with a corresponding increase in inventory costs. Similarly, unsatisfactory downstream relationships (with customers) and inadequate information flows may occasion some level of supply obscurity with attendant uncertainties and hidden supply costs.

	Americas	India	Indonesia	Kenya	Sri Lanka	Average
Rating*	3.3	3.8	4.1	3.4	4.0	3.8

*Rating on a scale of 5

(Source: GTS, 2008)

Figure 1.2 – Service rating of all TBOs by customers: May 2008

With a 30% share of the global tea supply for Unilever (GTS, 2008), the performance of the African part of the network had strategically critical implications. The important question that arose from the foregoing assessments was whether or not Unilever had adopted the full range of supply management practices that were requisite to the delivery of a lean tea supply chain in Africa.

1.6 Research Objectives

This study focused on assessing the presence or otherwise of factors necessary for both supply chain efficiency and effectiveness in the subject organisation. Broadly speaking, the study sought to ascertain how far the organisation had embraced lean supply chain practices that are unique to world class supply chains. Specifically, this study had two goals, namely:

- i. To determine the extent of adoption of lean supply management practices at Unilever’s tea supply chain in Africa.
- ii. To identify barriers to the realisation of a more efficient supply operation within Unilever’s tea supply system in Africa.

1.7 Importance of the Study

This study highlighted the strengths and weaknesses of Unilever's tea supply chain practices in Africa. It provided a basis for action and changes to specific supply chain operating procedures and strategies of the company. Further, the study explored concepts that would be of interest to supply chain scholars and practitioners. The various beneficiaries of the output of this survey will therefore include the academia, managers in supply chain organisations and consultants in the field of supply chain performance management, amongst others.

CHAPTER TWO: LITERATURE REVIEW

2.1 An Overview of Supply Chain Management

Supply chain management is defined as the application of a total systems approach to managing the entire flow of information, materials, and services from raw material suppliers through factories and warehouses and to the end customer (Chase *et al*, 2003). According to New (1996) and Hyland *et al* (2003) the concept is concerned with effective purchasing, materials management and distribution; a focus on long-term relationships between trading partners; and the operational integration of trading organisations. The Logistics and Distribution Institute (2005) supports the above definitions by advocating that supply chain management is best viewed as an integration of business processes from the end user through to the original suppliers of the products, services and information that adds value for customers and other stakeholders.

The term “supply chain” first appeared in the early 1980s, mostly in the context of “logistics” (Houlihan, 1984). Mills *et al* (2004) suggest important distinctions between supply chain management and logistics: the latter strives to find optimal solutions for inventory, transportation and information flow etc, while supply chain management considers the behavioural and political dimensions of trust and power.

Cooper *et al* (1997) identified seven business processes within the supply chain: customer relationship management; customer service management; demand management; order fulfilment; manufacturing flow management; procurement; and, product development and commercialisation.

Supply chain management is an important component of overall Enterprise Resource Planning (ERP), an integrative approach that seeks to link all areas of the business (Chase *et al*, 2003). Koztab (1999) points out that improvement approaches in supply chain management focus on addressing the following objectives: reduction of cycle time in the distribution channel; reduction of total inventories in the chain; avoiding duplications of logistics costs; and, increasing customer service.

Vendor supplied software tools such as Advanced Planning and Scheduling (APS) are essential requirements for effective supply chain management (Lysons and Gillingham, 2003). Such tools provide connectivity, integration, visibility and supply chain responsiveness. Favilla and Fearne (2001) however caution that it is essential for executives to take the time to properly understand the capabilities of the solution at the outset.

A study by Storey *et al* (2005) revealed that a “customer responsive supply chain” with minimal stock-outs, minimal obsolescence, and prompt response to market fluctuations is technically feasible. The goal is to replace inventory with information to provide visibility, so that raw materials and finished goods can be replenished quickly (Tan *et al*, 2002). Leanness benefits members of the supply chain through reduced costs, improved quality, and increased flexibility (Waters-Fuller, 1995).

Lean logistics refers to the superior ability to design and administer systems to control movement and geographical positioning of raw materials, work-in-process, and finished inventories at the lowest cost (Chun Wu, 2003). Leanness is often used in connection with “zero inventory” in just-in-time approaches. It is about doing “more with less” (Christopher and Towill, 2000; Lysons and Gillingham, 2003). Often organisations view lean as a process whereas they should embrace it as a philosophy. Seen as a philosophy, it becomes a way of thinking, whereas tactics or processes are mechanisms to action thoughts (Bhasin and Burcher, 2006). Lean supply is the product of an operating attitude that recognises the cost associated with any departure from perfect execution and the tasks necessary to provide long-term customer satisfaction, thereby achieving total eradication of those costs (Lamming, 1996).

2.2 Supply Chain Management: Conceptual Framework

New (1996) proposes a four dimensional taxonomy that allows the interpretation of supply chain improvement initiatives. The dimensions are labelled as: specificity, action/investment, location/focus and benefits. The author is quick to admit that the proposed taxonomy “cannot summarise the complexity of the real world”. Based on the authors own admission, the suggested framework did not warrant further investigation in the context of this research, which was largely practical in nature.

Betchel and Jayaram (1997) define a process approach broken down into five key stages: planning, implementation, information technology, inter-organisational structure, and, measurement. This approach is significantly superior to New’s simplistic postulations and is of some practical value to business entities.

Cooper *et al* (1997) present a far less detailed but useful framework that distinguishes between the following elements: business processes, management components, and the supply chain structure.

Mills *et al* (2004), in a study that was partly sponsored by the Unilever Group at the University of Cambridge in the United Kingdom, developed a framework that allows the analysis of supply chain management from a company's point of view. This has four perspectives, namely Upstream, Downstream, Static Network and Dynamic Network. These are explained in some detail in the following section.

Upstream: This concerns the structure of the supply base and the links between buyer and supplier. This includes a company's supplier selection and supplier development policy and processes, and the whole area of buyer supplier relationships. Material and information flow are also part and parcel of the upstream focus. In a separate research paper, Maheshwari *et al* (2006) indicate that the critical factors in supplier selection are determining partnership suitability and feasibility.

Downstream: This refers to the relationship of the supplier with his customers. Far less research exists on this perspective. This might stem from the fact that a supplier usually has only limited power over its customers, whereas a buyer's power over suppliers is more obvious.

Static network: The supply network is seen from an auditor's vantage point. This perspective views a "focal" firm's network in order to compare performance in multiple supply chains; to identify potential competitive problems and opportunities; and to identify overall process improvements through supply chain thinking. The role of managers taking this perspective is that of an auditor looking at how the efficiency and effectiveness of the supply network is developing and how it may be improved without changing the structure of the network.

Dynamic network: This is the perspective of a strategist seeking opportunities to improve the firm's position in an existing network (evolution) or even creating a new network (radical change). This perspective provides a strategic, dynamic and long-term view.

Lee (2002) acknowledges products may have different demand and supply uncertainties within the supply chain. He further argues that before setting up a supply chain strategy, it is necessary to understand the sources of the underlying uncertainty and explore ways to reduce these uncertainties. The framework by Lee as represented in Figure 2.1 on the following page complements the work done by Mills *et al* (2004) as described in the preceding section.

		DEMAND UNCERTAINTY	
		LOW (FUNCTIONAL PRODUCTS)	HIGH (INNOVATIVE PRODUCTS)
SUPPLY UNCERTAINTY	LOW (STABLE PROCESS)	Efficient Supply Chain: 1. Cost efficiency 2. Waste elimination 3. Scale economies 4. Capacity optimisation 5. Information linkages	Responsive Supply Chain: 1. Build-to-order 2. Mass customisation
	HIGH (EVOLVING)	Risk Hedging Supply Chain: 1. High safety stock 2. Real time information on inventory and demand	Agile Supply Chain: 1. Combine the strengths of "hedged" and "responsive" supply chains 2. Minimise supply disruptions

(Source: Lee, 2002)

Figure 2.1 – Hau Lee’s Uncertainty Framework

The conceptual framework is represented diagrammatically in Figure 2.2. For clarity, this author has improved on the general concept by appending additional elements that constitute essential practices at each level of the supply chain as drawn from relevant literature.

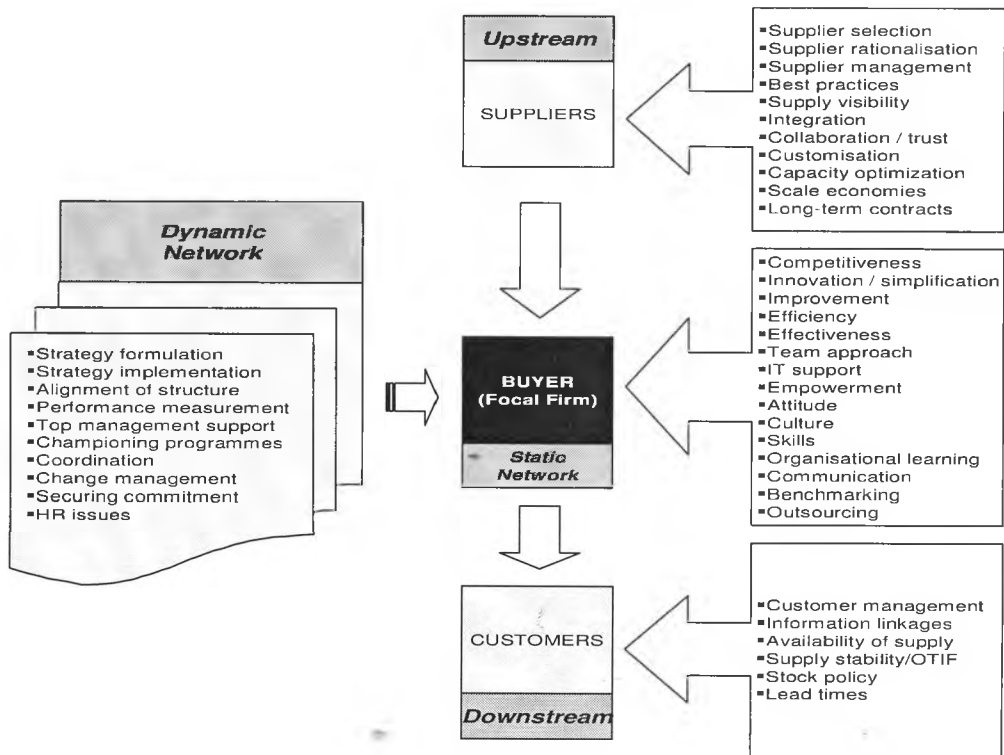


Figure 2.2 – Supply chain management: A conceptual framework

2.3 Key Success Factors – Elements and Practices

The supply chain process is greatly improved by concentrating on the streamlining of material, information, and cash flow, simplifying the decision-making procedures and eliminating as many non-added-value operations/delays as possible (Towill, 1996).

The conceptual framework as proposed by Mills *et al* (2004) illustrates four facets of a typical supply network – the upstream, the downstream, the static network (focal firm) and the dynamic/strategic network. Studies show that successful supply chain operations have certain attributes or factors in common. Each of these “key success factors” manifests in one or more of the four phases of the supply network. Key success factors can be defined as ‘the certain factors that will be critical to the success of the organisation, in the sense that if the objectives associated with those factors are not achieved, the organisation will fail – perhaps catastrophically so’. Identification of key success factors (or critical success factors as they are sometimes referred to) should help determine the strategic objectives of the organisation (University of Melbourne, 2008). These factors are discussed in the ensuing section.

2.3.1 *A systems orientation*

The first step is to view the entire chain from a systems orientation (as opposed to a series of upstream-dependent transactions). A system is a set of independent and interrelated parts that is dependent for survival on its environment (Lysons and Farrington, 2006). The second is to identify and address the lead-time bottlenecks throughout the system beginning with the largest bottleneck in the firm’s own functions and expanding to bottlenecks in contracted functions (Tersine and Hummingbird, 1995). A comprehensive systems approach is necessary to achieve global optimality. Coordinated system based capabilities underpin such competitive advantages as short lead times (Hayes and Upton, 1998). This process calls for diligent strategy formulation.

2.3.2 *Team approach*

Teams are groups of people working together to achieve a common objective (Lysons and Farrington, 2006). Outstanding processes capable of delivering competitive advantage are invariably comprised of activities that reside in diverse areas (Fawcett *et al*, 2006). However, no set of functional managers possesses all of the information needed to make great “system-wide” decisions. These two facts mean that supply chain managers are absolutely dependent on other functional managers within the firm. Team work becomes a necessity (Mitchel, 1997) and managers must view the supply chain as a total system and develop multi-functional teams to optimise the running of that system. As no individual employee has a monopoly of expertise in

any one area, teamwork and cooperation among key staff makes it possible to share information by which the functioning of the supply chain is optimised.

2.3.3 Coordination and empowerment

Coordination is synonymous with integration (Lysons and Farrington, 2006). The (creation of a) supply chain executive governance council can help mitigate internal resistance to supply chain initiatives (Fawcett *et al*, 2006). They should communicate so that there are no surprises (Tompkins Associates, 2005). Further, for successful operation, a supply chain solution must be accompanied with clearly defined roles and responsibilities with empowered individuals (Schofield and Brooks, 1995). Having clearly defined roles and empowering employees creates scope for initiative thus reducing the time it takes to make important operational decisions.

2.3.4 Supply chain collaboration, commitment and partnership

The term collaboration is often associated with the concepts of trust and transparency (Baily *et al*, 2008). Inter-organisational commitment is built on the foundation of good relationships, mutual benefit, trust, and high-impact pilot programmes. Supply chain advantage can only be obtained when suppliers and customers collaborate in meaningful ways (Fawcett *et al*, 2006). Maheshwari *et al* (2006) emphasise that it is important that trust is reciprocated and should therefore be addressed as mutual trust. Suppliers must be regarded as an extension of the internal manufacturing process and cultivated as long-term business partners (Barla, 2003). Structuring supply relationships is characterised by fewer and better relationships with a decreasing number of suppliers and investments in relation-specific assets and substantial knowledge exchange (Simpson and Power, 2005). Relationships with chosen suppliers can be cemented by awarding long-term contracts in return for demands the buyer makes on the supplier (Waters-Fuller, 1995).

There has to be an increasing willingness of members of the supply chain to put aside the traditional arms-length relationship with each other and in its place move towards closer partnership-type arrangements (Christopher and Lee, 2004). There is evidence that co-operative strategies between suppliers and customers result in reduced levels of inventory (Goyal and Gupta, 1989).

2.3.5 Supplier rationalisation

The supplier base relates to the number, range, location and characteristics of the vendors that supply the purchaser (Lysons and Farrington, 2006). Supplier base rationalisation is concerned with determining the approximate number of suppliers with whom the purchaser will do business. Barla (2003) established that single sourcing provides easy control of procurement for achieving

the lean supply objectives. This situation however renders the purchasing firm captive to the supplier (Tan *et al*, 2002). Tully (1995) suggests that firms should instead reduce their supply base so that they can more effectively manage relationships with strategic suppliers. Jayaram and Ahire (1998) also advocate supplier reduction and rationalisation across all tiers. According to Lysons and Farrington (2006), supplier base optimisation aims to leverage the buying power of an organisation with the smallest number of suppliers consistent with security of supplies and the need for high-quality goods and services at competitive prices.

The use of supplier selection processes means that suppliers are deliberately evaluated based on criteria such as performance, cost, service and quality and the amount of business transacted during a specified period (Lysons and Farrington, 2006). Such an approach results in supplier base consolidation and maintaining a list of approved or preferred suppliers. This method achieves administrative cost savings while improving standardisation and product customisation.

2.3.6 Customisation

Engineer to order products are capable of realising lead times comparable to make-to-order products. Ideally, the firm should be constantly pushing towards an optimum product environment as made possible by customisation (Tersine and Hummingbird, 1995). Such an environment promotes adherence to product specifications. Consistently delivering agreed product specifications fits well with the lean concept of waste elimination. Supplying products of unacceptable quality that are subsequently rejected by customers for being out of specification leads to extended lead times as arrangements are made for replacements.

2.3.7 Outsourcing decisions

Lysons and Farrington (2006) define outsourcing as a management strategy by which major non-core functions are transferred to specialist, efficient, external providers. Effectively reducing lead times may involve various reduction programmes or delegation of some functions to specialised firms who can provide a salient advantage (Tersine and Hummingbird, 1995). Advantages of outsourcing include economies of scale (and accompanying low cost operations) and possession of relevant skills by the service provider. At the same time, external partners can bring new ideas and valuable experience (Favilla and Fearn, 2005). Sceptics however express the view that outsourcing can potentially lead to lost capabilities, new competitors and limits on the principal's ability to trade (Mills *et al*, 2004).

Make-or-buy decisions compare the cost of producing a component or providing a service internally with the cost of purchasing the component or service from an external supplier (Lysons and Gillingham, 2003). It is necessary to compare the vendor's price with the marginal cost of

making, plus the loss of opportunity of work displaced. Qualitative factors such as the need to maintain secrecy of a manufacturing process also play a role.

2.3.8 Long-term supplier contracts

As exemplified by Toyota, “obligating contracting”, as it is known, involves guaranteed long-term partnerships characterised by close, face-to-face contacts between purchaser and supplier. In the case of Toyota, frequent visits by personnel involve close scrutiny of the production process; help with management training and education programmes and in some cases financial assistance (Winfield and Kerrin, 1996; Simpson and Power, 2005). The proposition is that buyer-supplier relationships should be based largely on a co-operative partnership rather than on an independent adversarial relationship (Mills *et al*, 2004). “Keiretsu” strategies are critical to this process. Keiretsu is the Japanese word for “affiliated chain” (Lysons and Gillingham, 2003). Such chains comprise mutual alliances that extend across the entire supply chain of suppliers, manufacturers, assemblers, transporters and distributors.

2.3.9 Culture change

Culture is the system of shared values, beliefs and habits within an organisation that interacts with the formal structure to produce behavioural norms (Lysons and Farrington, 2006). Driven by the superior performance achieved by lean producers in Japan over the performance of traditional mass production system designs, western manufacturers emulated the shop-floor techniques – the structural parts of lean, but often found it difficult to introduce an appropriate organisational culture and mindset (Hines *et al*, 2004). Lean supply is characterised by a culture of open communication and a standardisation of all things (Simpson and Power, 2005).

Lean supply should manifest a “no blame-no excuses” culture (Lamming, 1996). An adversarial climate limits the opportunity to share information (Simpson and Power, 2005).

2.3.10 IT support and process flow mapping

Supply chain management is information dependent. Information systems managers must therefore take on a high-energy support role without trying to co-opt supply chain initiative and make it a “software” solution (Fawcett *et al*, 2006). If flows through the system can be accelerated then it stands to reason that volatile unpredictable demand can be met more precisely. Even better, there is less inventory in the pipeline because it is shorter – in effect, we have substituted information for inventory (Christopher and Lee, 2004). Unfortunately, many information strategies have involved far too much bias towards the technology used as opposed to concentrating on the fidelity and availability of the actual data transferred (Mason-Jones and Towill, 1998). It is always

important to remember that supply chain transformation projects are not IT projects; they are business improvement projects (Favilla and Fearne, 2005). Sound IT infrastructure accelerates the flow of information in the system. Inter-connectivity along the supply chain makes possible electronic data interchange (EDI), with its attendant benefits.

2.3.11 Organisational learning

Eliminating delays and improving product flows involves creativity, specialised skills, capital investments and behavioural changes that challenge the status quo (Tersine and Hummingbird, 1995). This is achieved through organisational learning processes. Learning is central to innovation and improvement (Hyland *et al*, 2003). Training employees in order to hone some key skills is important in orchestrating change (Maheshwari *et al*, 2006). As opposed to the traditional purchasing skill set of product knowledge, tactical negotiation, and brinkmanship, managing supply chains requires much wider skills.

2.3.12 Risk identification

Risk is defined as the possibility that a hazard will cause loss or damage (Sadgrove, 2005). The objective of risk management is to avoid loss and disruption. Managers and the organisation that employs lean supply systems are contractually, morally and often legally obliged to identify, manage or mitigate the effects of known or “knowable” risks (Peck, 2005). For instance, a lean customer wanting to ensure sourcing from lean suppliers has only three options – vertically integrate, switch from non-lean supplier to a lean supplier or develop the lean capabilities of existing suppliers (Simpson and Power, 2005). Firms wishing to implement lean logistics must first attempt to understand the sources of waste and inefficiency in existing value systems (McCullen and Towill, 2001). The sharing of strategic information is critical to organisations that are attempting to learn from one another in the supply chain (Hyland *et al*, 2003). The opportunity to learn from other actors in the supply chain provides managers with the information necessary to engage in continuous improvement.

2.3.13 Benchmarking

Naylor (2002) defines benchmarking as the practice of recognising and examining the best industrial and commercial practices in industry or in the world and using this knowledge as the basis for improvement in all aspects of business. Benchmarking identifies opportunities for supply chain improvement (Tompkins Associates, 2005). This practice provides an understanding of what competitors, the industry and the best-in-class companies are doing, so that a framework against which to measure improvements is established. The idea is to discover ‘best practice’

wherever it might be found, and attempt to identify and isolate the variables that accompany or are part of this best practice (Baily *et al*, 2008).

2.3.14 Performance measurement

Storey *et al* (2005) emphasise the need to apply common performance measures between the supplier and customer. Lamming (1996) writes that it is necessary to develop relationship assessment programmes in order to focus on the value flows from one organisation to another. Managing performance can be complex due to the need for metrics to address different dimensions (financial, technical and human) at different points in the partnership life-cycle (Maheshwari *et al*, 2006). However, multiple criterion measures such as the “balanced scorecard” can be used (Kaplan, 2005).

2.3.15 Information sharing

For lean supply to be a reality, customers must share process information, including cost data, with suppliers and accept ideas that come from upstream, as readily as they expect to influence their supply chain partners. They are survivors in the same boat – joint guardians or stewards of the same “value-in-transit” (Lamming, 1996). For example, sharing scheduling information is critical to the elimination of “waste” occasioned by potential delays and excess inventory costs (Waters-Fuller, 1995). Accessibility of supply information and overall supply visibility is critical for supply planning. Where Enterprise Resource Planning systems such as Advanced Planning and Scheduling (APS) are in use, demand can only be adequately met if the supply volumes are accurately forecast from data obtained from suppliers.

2.3.16 Top management support

Only the highest levels of management can dedicate the resources and realign both the measures and rewards needed to make supply chain management an organisation-wide priority (Fawcett *et al*, 2006). It is suggested that one of the critical elements in the eventual success or otherwise, of any value chain improvement project is achievement of corporate commitment or “buy-in” to the concepts, implications and potential benefits of the development of an integrated and lean supply chain (Taylor, 2005). McCullen and Towill (2001) refer to this concept as the “control systems principle”. This involves the selection of decision support systems that contribute to the dynamic stability of the total supply chain.

2.3.17 Use of an executive champion

Without a “king” to govern – that is, to make holistic decisions for the supply chain and see that they are carried out – it is easy for each member of the supply chain to follow his own course,

pursuing a strategy of myopic self-interest. The challenge is to establish a governance structure to enhance communication and coordination among supply chain partners (Fawcett *et al*, 2006). A strong leader has the ability to close the gaps in partnerships despite internal sceptics and external difficulties (Maheshwari *et al*, 2006).

2.4 Impediments to Successful Management of Lean Supply Systems

Obstacles to lean supply management may arise from a number of quarters. Towill (1996) refers to such obstacles as: “internal forces within the business; external sources acting upon the business; and conflict between internal and external forces”. Some specific obstacles that would be inherent in less-than-optimal supply chains are discussed below.

2.4.1 *Measurement failure*

Performance measurement is the process of quantifying the efficiency and effectiveness of past action (Neely *et al*, 2002). Lead times become excessive when managers lose sight of the time and cost dimensions of physical distribution (Tersine and Hummingbird, 1995). Where measurement is practiced, the commercial agreements between organisations are often complex and costs may be affected by a large number of external and internal factors such as inflation and variations in volume (New, 1996).

2.4.2 *Lack of top management support*

A lack of top management support almost guarantees that integrative efforts are superficial and ineffective (Fawcett *et al*, 2006). There is a frequent disconnection between the functional goals of supply chain management and higher-level changes in organisational structure and business strategy. Few organisations have supply chain specialists in their boardrooms; consequently, the supply chain implications of strategic decisions are often not recognised until serious problems occur (Peck, 2005).

2.4.3 *Attitudes, self-interest and lack of internal cooperation*

What are not often recognised by supply chain managers are the intangible elements, for example, the attitude and perceptions of the users and members of the supply chain (Christopher and Lee, 2004). Other vital pieces of the commitment puzzle can be squarely in place only for the supply chain initiative to be undercut by “turf-protecting” managers (Fawcett *et al*, 2006). Managers at many firms find it more difficult to collaborate within the four walls of their own company than they do with outside channel members. During implementation of transformation processes, it is crucial to keep end users involved (Favilla and Fearne, 2005). If employees feel

threatened by the change or are not committed to the company goals, they will effectively sabotage the project by trying to do what they have always done.

2.4.4 *Superficial partnerships and lack of trust*

Commenting on Marks and Spencer's temporary decline in the early 1990s, Storey *et al* (2005) indicate that often relationships are built at a more operational level and therefore remain vulnerable to changes in corporate policy that intrude upon established, emergent practices. The partnership mentality may also be one that is abused by one side exploiting its power over the other (New, 1996). Other barriers include lack of trust, adversarial relationships, transactional rather than cooperative strategies and other traditional approaches to supply chain management (Emmett and Cocker, 2006).

Fawcett *et al* (2006) discussed the cynicism that suppliers feel toward customers who talk about collaborative improvement efforts. Many supplier managers naturally believe that such efforts are "all talk" – just another attempt to seek supplier concessions. They translate the phrase "squeezing the cost out of the process" to mean "squeezing the margin out of suppliers".

2.4.5 *Lack of supply visibility*

Few companies have determined exactly what infrastructure is best suited to create the visibility, alignment and momentum needed to promote collaboration (Fawcett *et al*, 2006). Associated with pipeline length is the lack of visibility within the pipeline. Hence, it is often the case that one member of the supply chain has no detailed knowledge of what goes on in other parts of the chain (Christopher and Lee, 2004). The greatest opportunities for time compression are at the holistic level (Mason-Jones and Towill, 1998). This includes lead-time compression via information sharing. A time based company is only as good as their fellow players in the supply chain. Lack of synchronisation among supply chain members may lead to the "bullwhip effect" (Chase *et al*, 2003) where a slight change in consumer sales ripples back in the form of magnified oscillations upstream leading to accumulation of inventory or acute shortages. Bullwhip is a consequence of such a long and protracted chain, with every "player" double-guessing on what action is really required (Towill, 2005).

2.4.6 *Single-sourcing*

Firms which engage in long term sole source relationships, open themselves to purchasing above market prices, increase the risk of supply disruption, may fall behind the competition in terms of technological innovation and will incur expense should a switch of suppliers become necessary (Water-Fuller, 1995).

2.4.7 Blame culture

A common feature of operating systems is the use of excuses and blame by its managers. When something goes wrong, it is usual to make excuses, in order to avoid penalty (Lamming, 1996). Honesty should be pursued as blame and excuses carry a cost to the supply chain and display a lack of accountability.

2.5 Limitations of the Lean Concept

It is frequently difficult to quantify accurately the reduction in costs achieved by an improvement as it is common for benefits to be intangible (New, 1996). Where savings are calculable, there normally will be a complex accounting procedure needed to translate this into price reductions. Cooney (2002) concurs by stating that it is unclear whether the value added by just-in-time can actually be realised in the marketplace in the form of profits.

Cooney (2002) further observes that the influence of social and political institutions on enterprises in the manufacturing chain is often ignored. The lean concept simply does not encompass the influence of social and political institutions. These include government regulation of industries and financial markets (Jurgens, 1995) or employment relations and labour markets (Kochan *et al*, 1997). Barry (2004) observes that the shock of 9/11 (the terrorist bombing in the USA in 2001) was to be a wake call to the uncertainty of a global environment. The author laments the world is restored to comfort and complacencies.

New (1996) established that supply chain improvements may be made which end up benefiting competitors. He cites an example of Japanese car manufacturers in the UK who supply parts for factories that make cars for other people.

2.6 Supply Chain Performance Measurement Approaches

A number of supply-chain performance measurement tools are available. These tools assist in the evaluation of productivity levels, efficiency and effectiveness of the supply system (Lysons and Gillingham, 2003). The following performance measurement methods have been described under various studies:

2.6.1 Benchmarking

Anderson *et al* (1999) note that "benchmarking is the practice of being humble enough to admit that someone else is better at something, and being wise enough to learn how to match them and even surpass them at it". The authors point out that *measurement* of own and the benchmarking of partners' performance level is useful both for *comparison* and for registering improvements.

Benchmarking provides information on what standards must be surpassed in order to achieve competitive advantage (Lysons and Gillingham, 2003).

2.6.2 Value Chain Analysis

This is described as the understanding of the current state of the whole supply chain; identification of key wastes, problems and opportunities across the system; development of a vision for the future state and, subsequently, the development of an "action plan" to achieve that future vision (Taylor, 2005). Porter (1985) identifies five core activities in the value chain: inbound logistics, operations, outbound logistics, marketing and sales, and service. These are supported by firm infrastructure, human resources, technology, and procurement. Porter indicates that the value chain can be managed in a way that confers competitive advantage by a strategy of either cost leadership or differentiation. The New Zealand dairy industry for instance has pursued a policy of cost leadership (Sankaran and Luxton, 2003). The output of the adopted strategy can be measured using an appropriate tool such as activity based costing (Lysons and Gillingham, 2003).

2.6.3 Financial measures

Traditional financial indicators are widely used. The most common tool is the *budget*, which shows planned costs versus actual costs. The other popular financial measure is the determination of savings realised from any supply chain improvement initiative (McMullan, 1996; Lysons and Gillingham, 2003). However, research reveals that most supply chain projects overrun projected time scales and budgets (Schofield and Brooks, 1995). Tan *et al* (2002) illustrate measures based on accounting data such as return on investment (ROI) and return on assets (ROA). The authors admit that such use of future cash flows is difficult to measure. Ratios, such as operating costs to procurement costs, can also be applied (Lysons and Gillingham, 2003).

2.6.4 Customer performance service measures

Those measures commonly employed are *on-time* deliveries, customer complaints, back orders and stock outs (McMullan, 1996). Such measures are often enforced through service level agreements (SLA). Hiles (1989) defines a service level agreement as an agreement between the provider of a service and its user which quantifies the minimum quality of service which meets business needs (Lysons and Farrington, 2006).

2.6.5 *Third party key performance indicators*

According to Lysons and Farrington (2006), key performance indicators express abstract supply chain objectives in financial or physical units for the purpose of comparison. Where services are outsourced, key service performance indicators become essential in measuring the output of the supply chain. McMullan (1996) argues that warehousing and transport cost measures together with inventory accuracy are paramount in measuring service levels. Other indicators include average order cycle time, labour productivity, on-time shipments and shipping errors. The key performance indicators should be linked to specific performance targets, such as inventory reduction, delivery reliability, reduced planning cycles and lead times (Favilla and Fearn, 2001). Rather than vague statements of business improvement, the indicators should arm the company with tangible evidence of success.

Huang *et al* (2006) conducted a study on 392 firms in Taiwan on the use of key performance indicators for information security management. The researchers used the balanced scorecard (Kaplan, 2005) as the key framework within which sets of indicators such as reduction of financial loss due to malicious attacks, customer information security assurance, and internal security of information were assessed. Harris and Mongiello (2001) conducted similar studies with focus on the hotel industry in Europe where indicators such as guest satisfaction and customer payment time were reviewed.

CHAPTER THREE: RESEARCH METHODOLOGY

In this chapter, the approaches that were used in gathering, analysing and interpreting data are discussed. The survey population is described while at the same time the structure of the data collection instrument is explained.

3.1 Research Design

The research design that was used in this project is the case study. Yin (1994) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. This approach places more emphasis on a full contextual analysis of fewer events or conditions and their interrelationships (Cooper and Schindler, 2003).

The detail contained in a case study provides valuable insight for problem solving, evaluation and strategy. Boyd *et al* (2004) cite as a key advantage of the case study method the fact that more accurate data are obtained. This they attribute to the fact that the researcher would probably have a longer and more intimate association and rapport with the respondents as opposed to relying entirely on formalised questions and answers. In conducting a case study, researchers must balance theoretical ambition with practical constraints that are unavoidable when undertaking empirical research in real organisations (Barnes, 2001).

With reference to Yin’s definition in the preceding section and given the fact that the project was company specific, the case study approach was most befitting for this undertaking. Although the study targeted a unique company situation, some of the findings may be useful in making supply chain generalisations for the tea industry and other commodity supply chains.

3.2 Population

A population is the total collection of elements about which one wishes to make some inferences (Cooper and Schindler, 2003). For this study, the population comprised of 41 Unilever tea supply management that are designated as Work Level 1 and above (Appendix B). This population interacted frequently with the Tea Buying Organisation in Kenya. Five managers who looked after Unilever’s account at companies that provide outsourced services were also incorporated. The population was geographically spread across 10 countries, namely: Kenya, the United Kingdom, USA, Pakistan, the United Arab Emirates, Egypt, Indonesia, Sri Lanka, South Africa and Switzerland. Appendix B lists all the targeted respondents, complete with their job titles and positions.

Sampling was not used as questionnaires were distributed to the entire population of 46 elements. This approach is called a census. A census is appropriate when the population is small and when the elements are quite different from each other (Cooper and Schindler, 2003). The population of this study met both criteria.

3.3 Data Collection

A **semi-structured** questionnaire (with eight closed matrix questions on a six-point scale and two open-ended questions) was administered online at this link: <http://FreeOnlineSurveys.com/rendersurvey.asp?sid=mg5qkqnh1mro690480567-> (Appendix A). A letter of introduction, questionnaire instructions and the questionnaire link were emailed to the target population. A questionnaire-based approach can be extremely efficient because data collection and analysis are simpler and speedier than is achievable with face to face interviews (Barnes, 2001).

Responses were aggregated at the host domain and resulting data made available for further analysis and interpretation.

The questionnaire was derived directly from the conceptual framework, which designated a typical supply chain as having four basic elements – the upstream, the downstream, the static network and the dynamic network. Consequently, the data collection instrument was divided into distinct sections each of which addresses a separate element of the framework. Question 1 to 3 registered respondents' background details. Questions 4, 5, 6 and 7 diagnosed the upstream, the static network, the upstream and the dynamic network, respectively. Question 8 was a test query to ascertain the direction of change in the organisation under study, responses to which indicated the extent of improvement over the specified period. Question 9 was open-ended and invited respondents to suggest in their own words-possible remedies, which were subsequently cross-referenced to corroborate the findings of the study.

3.4 Data Analysis

Descriptive statistics were used in the analysis of data in order to measure the objectives of the study. Descriptive techniques employ factual information about a situation to provide an understanding of performance levels (Ngau, 2004). Specifically, the mean and standard deviations of sets of data representing different objectives were computed using both SPSS v11.0 and EpilInfo 2002 software applications. Using the output of this computation, the various practices were ranked (Appendix C) in order to measure the extent of adoption of best practices at Unilever while at the same time identifying barriers to leanness. The mean describes the

central location of the data while the standard deviation describes the spread or uniformity of collected data.

The structured questions were based on a six-point Likert scale response rating, the output of which was subjected to detailed analysis. The Likert scale is a form of summated rating scale (Cooper and Schindler, 2003). This scale consists of statements that express either a favourable or an unfavourable attitude toward the object of interest. Each response is given a numerical score to reflect its degree of favourableness, and the scores are totalled to measure the respondents' attitude. The Likert scale allows comparison of one person's score with a distribution of scores from a well defined sample group or population.

Original data on the six-point scale was analysed using percentages and frequencies. However, in order to eliminate the inherent bias, the first element on the scale ("Don't Know" responses) was removed before the means and standard deviations were computed using only five Likert scale ratings for each question. The following formulae are generally used to compute the mean and standard deviation in statistical applications using scaled data:

Population Mean for Grouped Data:

$$\mu = \sum \frac{fx}{N}$$

- Where: μ is the population mean
 f is the response frequency
 x is respondents' ranking
 N is the population

Population Standard Deviation for Grouped Data:

$$\sigma = \sqrt{\frac{\sum (x - \mu)^2 f}{N}}$$

- Where: σ is the population standard deviation

CHAPTER FOUR: DATA ANALYSIS

4.1 Introduction

In this chapter, aggregated data from the online survey tool is summarised and presented in graphs, percentages and tables. The analytical process follows the structure of a four-level supply chain structure as outlined in the conceptual framework, namely: the upstream, the focal firm, the upstream and dynamic network. The questions representing each level are ranked in descending order of their mean scores in order to measure the objectives of the study (Appendix C).

This chapter also highlights comparisons in responses among different categories of respondents. The categories are: respondents' functional unit, length of service (experience band), and job position. The charts from which this comparative analysis is made were automatically generated online using the survey software.

4.2 Overview of Collected Data

Out of a population of 46 supply chain members 36 responded. This equates to a response rate of 78.3%. Respondents were drawn from six functional units as shown in Figure 4.1. These units represent the key components of Unilever's global tea supply network. The 36 respondents are spread across 10 countries, namely: Kenya, the United Kingdom, USA, Pakistan, the United Arab Emirates, Egypt, Indonesia, Sri Lanka, South Africa and Switzerland.

1) Please check the box that represents your functional unit.



Figure 4.1 – Responses by functional unit

The majority of respondents had had long experience with the supply chain under study as shown in Figure 4.2. This suggests that they should have had a good understanding of the operations of the supply chain that was under investigation.

2) For how many years have you been working with Unilever?



Figure 4.2 – Responses by length of service

Fewer respondents were included from third parties. Given the nature of their interaction with the supply chain, third party service providers are less likely to have in-depth knowledge of some aspects of operational and strategic activity at Unilever.

3) Please indicate your job position.



Figure 4.3 – Responses by job position

Figure 4.3 shows that participation in the survey was representative of all levels of management. WL1, WL2 and WL3+ correspond to junior, middle and top management, respectively.

Job Position	No. in Population	Responses	Response Rate
WL1	9	9	100%
WL2	23	15	65.2%
WL3+	9	8	88.9
Third Parties	5	4	80%
Total	46	36	78.3%

Figure 4.4 – Evaluation of response rate

Participation from WL1 and WL3+ was overwhelming (Figure 4.4). This is to some extent reflective of the degree of enthusiasm toward the survey at each of the job positions.

4.3 Results for Question 4 – Supplier relations

Within the supply chain structure, this level is referred to as the upstream. The focal firm is principally a customer to all upstream partners.

4.3.1 Overall analysis

What is your assessment of the following aspects of Unilever's relationships with key tea suppliers in Africa?

	1 Very Poor	2 Poor	3 Fair	4 Good	5 Very Good	Mean	SD
Supplier selection processes	3.3	6.7	36.7	50.0	3.3	3.43	0.91
Use of industry supply chain best-practices e.g. in the areas of contract management, logistics/handling, etc	6.1	21.2	42.4	27.3	3.0	3	0.923
Degree of integration and collaboration with individual suppliers	2.9	20.0	48.6	25.7	2.9	3.057	0.9
Supply of "tailor-made" products for Unilever	0.0	16.1	58.1	25.8	0.0	3.097	0.888
Negotiation of long-term contracts	11.4	34.3	31.4	20.0	2.9	2.686	1.167
Accessibility of supply information and overall supply visibility	2.9	23.5	32.4	41.2	0.0	3.118	0.883
Delivery of agreed product specifications	0.0	5.9	52.9	35.3	5.9	3.412	0.903
Regular performance measurement and feedback	8.8	35.3	38.2	17.6	0.0	2.647	1.21

Figure 4.5 – Responses for supplier relations

4.3.2 Summary of results

Using the five point Likert scale data, *negotiation of long-term contracts* had a mean of 2.686 while *regular performance measurement and feedback* scored a mean of only 2.647. The two factors also registered the highest standard deviation of 1.167 and 1.210, respectively (Figure 4.5), somewhat implying a divergence of opinion on the part of the respondents.

Delivery of agreed product specifications, *supplier selection processes*, and *Accessibility of supply information and overall supply visibility* scored the highest means of 3.412, 3.430, 3.118, respectively. The later also registered the lowest standard deviation, which suggests that it is a reliable indicator.

4.3.2.1 Analysis by Functional Unit

Results from Hubs were consistent with the overall view except that a significant number (38.46%) of Hub members also felt that *accessibility of supply information and overall supply visibility* is either "Poor" or "Very Poor".

4.3.2.2 Analysis by Length of Service

The ratings across experience bands were generally consistent with the aggregated results with only a few exceptions. Of those under 5 years of service, 40% said "Don't Know" for *supplier selection processes*. Respondents with 5 to 14 years service gave unfavourable ratings for *use of industry supply chain best-practices* and *degree of integration and collaboration with individual suppliers*.

4.3.2.3 Analysis by job position

WL1 had the highest rating of “Don’t Know” at 44.44% for *supplier selection processes*. WL3 also give 37.7% unfavourable rating for *use of industry supply chain best-practices*. Other ratings across work levels are consistent with the overall results.

4.4 Results for Question 5 – Internal organization

This concerned the status quo of supply chain related initiatives and work dynamics within the focal firm which in this case is the Kenya TBO. Overall results are summarized in Figure 4.6.

4.4.1 Overall analysis

To what extent do you agree with the following statements relating to the local operations of Kenya TBO?

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree	Mean	SD
Management staff are externally focused and competitive	5.9	20.6	41.2	26.5	5.9	3.059	0.899
There is a deliberate and continuous effort to achieve simplification, innovation and improvement	5.6	38.9	22.2	33.3	0.0	2.833	1.028
There is a high degree of teamwork and cooperation among key staff	5.7	25.7	20.0	40.0	8.6	3.2	0.871
The Division's members have adequate access to business information systems and related IT support	5.6	11.1	22.2	55.6	5.6	3.444	0.915
Work culture and attitudes are appropriate for successful delivery of business objectives	8.6	22.9	22.9	40.0	5.7	3.114	0.883
Team members have adequate skills and experience to perform their assigned tasks	2.9	22.9	25.7	40.0	8.6	3.286	0.873
Individuals have clear roles and are sufficiently empowered to carry out their duties	2.9	20.6	17.6	50.0	8.8	3.412	0.903
Warehouse handling, shipping and related tasks are executed efficiently and effectively	11.1	36.1	22.2	30.6	0.0	2.722	1.128
Systems are in place for regular measurement and feedback for third party service performance	6.5	25.8	35.5	29.0	3.2	2.968	0.939

Figure 4.6 – Responses for internal organisation of the focal firm

4.4.2 Summary of results

The majority of issues received favourable ratings. Using the five point Likert scale data as shown in (Figure 4.6) *the division’s members have adequate access to business information systems and related IT support* as a factor registered the highest mean at 3.44 followed by *individuals have clear roles and are sufficiently empowered to carry out their duties* at 3.412.

The three areas with unfavourable ratings were: *there is a deliberate and continuous effort to achieve simplification, innovation and improvement*; *warehouse handling and related tasks are*

executed efficiently and effectively, and systems are in place for regular measurement of and feedback for third party service performance. These had the lowest mean scores on the five point scale at 2.833, 2.722 and 2.968, respectively (Figure 4.6).

4.4.2.1 Analysis by Functional Unit

Tea Hubs gave favourable ratings on only two parameters: *The division's members have adequate access to business information systems and related IT support and individuals have clear roles and are sufficiently empowered to carry out their duties.* All other Hub ratings of Kenya TBO were unfavourable. The pattern of ratings by Coordination was highly consistent with the Hubs' position. Kenya TBO rated all parameters favourably while ratings by Unilever Tea Kenya were consistent with the overall results.

4.4.2.2 Analysis by Length of Service

There was consensus across experience bands on Kenya TBO internal organisational issues. All ratings were consistent with overall results for this area.

4.4.2.3 Analysis by job position

Unfavourable ratings by WL3+ in one area differed with the general rating trend. As many as 62.5% either "Disagree" or "Strongly Disagree" that *there is a high degree of teamwork and cooperation among key staff.* Other ratings across job positions were consistent with the overall results.

4.5 Results for Question 6 – Customer relations

This referred to downstream activities encompassing various aspects of communication with the customer and management of supply related information. Figure 4.7 summarises the overall results on customer related factors.

4.5.1 Overall analysis

To what extent do you agree with the following statements with respect to customer management activities by Kenya TBO?

	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree	Mean	SD
Customers constantly have a clear view of product availability to support routine buying decisions	11.8	14.7	14.7	52.9	5.9	3.265	0.871
Customers are pro-actively informed of any changes in the supply situation	14.3	25.7	28.6	28.6	2.9	2.8	1.055
There is stability and reliability in product supply with a high rate of timely and complete deliveries	17.1	37.1	22.9	17.1	5.7	2.571	1.305
Team members relate well with customers individually and collectively	2.9	11.4	34.3	45.7	5.7	3.4	0.898
When a supply problem is encountered, team members actively propose and evaluate alternative solutions rather than dwelling on assigning responsibility for whatever went wrong	11.4	31.4	28.6	22.9	5.7	2.8	1.055
Product quality always conforms to customer-order specifications	2.9	20.0	22.9	42.9	11.4	3.383	0.893
Forecast information provided for global coordination is reliable	0.0	11.4	34.3	42.9	11.4	3.543	0.967

Figure 4.7 – Responses for customer relations

4.5.2 Summary of results

Three factors received unfavourable ratings: *Customers are pro-actively informed of any changes in the supply situation; there is stability and reliability in product supply with a high rate of timely and complete deliveries*, and *when a supply problem encountered, team members actively propose and evaluate alternative solutions*. It can be seen that on the five point scale, these also recorded the highest standard deviation among the responses with scores of 1.055 (*Customers are pro-actively informed of any changes in the supply situation*), 1.055 (*When a supply problem is encountered, team members actively propose and evaluate alternative solutions rather than dwelling on assigning responsibility for whatever went wrong*) and 1.305 (*There is stability and reliability in product supply with a high rate of timely and complete deliveries*) as indicated in Figure 4.7. *Forecast information provided for global coordination is reliable* and *team members relate well with customers individually and collectively* scored the highest means.

4.5.2.1 Analysis by Functional Unit

Ratings by Hubs, Coordination and Lipton Tea Supply/Global Tea supply all followed a similar pattern and were consistent with overall results. Although Kenya TBO responses were all favourable, their view was less favourable where the other functional units had given unfavourable ratings. Unilever Tea Kenya featured two additional unfavourable factors:

Customers constantly have a clear view of product availability to support routine buying decisions (50% “Disagree”) and product quality always conforms to customer-order specifications (50% “Disagree”).

4.5.2.2 Analysis by Length of Service

There were no significant differences in the ratings across experience bands. Apart from those with under 5 years of service who gave an unfavourable rating for *customers constantly have a clear view of product availability to support routine buying decisions* (60% Disagree), the rest of the ratings were consistent with overall results.

4.5.2.3 Analysis by job position

Apart from 44.4% of WL2 who either “Disagree” or “Strongly Disagree” that *customers constantly have a clear view of product availability to support routine buying decisions*, the rest of the ratings were consistent with overall results.

4.6 Results for Question 7 – Strategy level activities

This is also called the dynamic network. In the case of the Unilever’s tea supply chain in Africa, this function lay with the Switzerland based Global Tea Supply leadership team. Results relating to this question are summarized in Figure 4.8.

4.6.1 Overall analysis

How would you rate the overall execution of the following strategy-level tasks with respect to the supply chain in Africa?

	1 Very Poor	2 Poor	3 Fair	4 Good	5 Very Good	Mean	SD
Supply chain strategy formulation	7.7	7.7	42.3	38.5	3.8	3.23	0.870
Communication of changes in strategy	3.8	30.8	34.6	26.9	3.8	2.962	0.942
Securing commitment for strategy implementation	0.0	22.2	44.4	29.6	3.7	3.148	0.877
Alignment of operational structures to supply chain strategy e.g. allocation of responsibility	3.3	16.7	46.7	26.7	6.7	3.167	0.874
Championing and supporting regional supply chain projects	0.0	26.9	34.6	38.5	0.0	3.115	0.883
Regular supply chain performance-measurement and feedback	6.5	22.6	45.2	22.6	3.2	2.935	0.957
Enforcement of stock policy	4.0	24.0	24.0	48.0	0.0	3.16	0.875
Talent and skills management	0.0	40.7	25.9	33.3	0.0	2.926	0.963

Figure 4.8 – Responses for strategy level activities

4.6.2 Summary of results

The low standard deviations for all the factors in this category indicated a high degree of uniformity in the answers given by the respondents. Looking at the overall picture on the five point rating scale, *communication of changes in strategy*, *regular supply chain performance and feedback* and *talent management* received the lowest ratings with mean scores of 2.962, 2.935

and 2.926, respectively (Figure 4.8). *Supply chain strategy formulation* had the highest mean score of 3.23 and the lowest standard deviation (0.870).

4.6.2.1 Analysis by Functional Unit

Apart from Kenya TBO who gave favourable responses on all factors, the lack of consensus was apparent across all other functional units.

4.6.2.2 Analysis by Length of Service

Those with more than 15 years of service generally gave unfavourable responses on all factors except for *supply chain strategy formulation* (40% “Good” or “Very Good”). *Talent management* was rated the lowest (60% “Poor”) by the same group. Other opinions were largely mixed and inconclusive.

4.6.2.3 Analysis by job position

WL1 registered “Don’t Know” ratings of 33.3% and above on 5 out of 8 factors. WL1 also rated *talent and skills management* unfavourably at 44.4% “Poor” (and a similar rating for “Don’t Know”). This group also rated *enforcement of stock policy* favourably at 44.4% “Good”. WL2 registered the highest number of favourable responses for strategy level issues: *Supply chain strategy formulation* (40% “Good”), *championing and supporting regional supply chain projects* (46.7% “Good”) and *enforcement of stock policy* (40% “Good”). This group also scored *talent and skills management* unfavourably at 40% “Poor”.

WL3+ rated *talent and skills management* favourably at 37.5% “Good”. A significant number of ratings by this group were unfavourable at 37.5% (“Poor”), respectively: *championing and supporting regional supply chain projects*, *regular supply chain performance feedback* and *enforcement of stock policy*.

4.7 Results for Question 8 – Current performance of Kenya TBO

Question 8 was included to confirm the direction of change over the previous 12 months. The results of this question were important in determining whether or not supply chain initiatives over the previous one year period had yielded any positive results (Figure 4.9).

4.7.1 Overall analysis

	Frequency	%
Much Improved	3	8.3
Improved	15	41.7
No Change	13	36.1
Worse	3	8.3
Don't Know	2	5.6
Total	36	100.0

Figure 4.9 – Responses for current performance

4.7.2 Summary of results

The responses collected show that there had been some improvement in the overall performance of Kenya TBO. The change however was not significant as seen from the relatively high proportion (36.1%) of “No Change” responses. This is bearing in mind the bias introduced by responses from Kenya TBO themselves which were 100% either “Much Improved” or “Improved”. Responses from other units, across experience bands and work levels were generally mixed.

4.8 Results for Question 9 – Open-ended

Q. With respect to the supply Chain in Africa, please suggest any measures that in your opinion would help to reduce supply lead times (and associated inventory levels) from purchase to delivery at destination?

This question directly asked for suggestions on possible solutions for the problem of unacceptable lead times, which was part of the subject of this study. All significant responses to this open-ended question are listed in Figure 4.10.

- Increase number of carriers allocated to key destinations to a minimum of three
- Waive carrier allocations in times of supply emergency
- Implement performance measurement for shipping companies
- Appoint dedicated in-house logistics staff
- Introduce vendor managed inventory (VMI) system with just-in-time (JIT) capability
- Expand ex-factory and forward contracting
- Cascade customer expected arrival times (ETAs) to suppliers
- Hold buffer stocks for critical teas via third party with offshore financing
- Automation of warehousing activities e.g. use of pallet inverters for restacking
- Reduce auction-purchase to shipment cycle by early payments to brokers and expedited handling
- Build capacity for producer warehouse shipments
- Increase sourcing from over-looked origins e.g. South Africa, Ethiopia
- Lobby government for world-class port management strategy and infrastructure improvements
- Establish mixing unit in Mombasa

Figure 4.10 – Suggestions on how to reduce supply chain lead times

4.9 Results for Question 10 – Open-ended

Q. Please list any examples of performance that in your opinion represents current good supply practice by Kenya TBO.

The output of this question was relevant in as far it evidenced the extent to which existing practices by Kenya TBO contributed to lean supply management. After all the objective of this study was to find out whether the success factors for lean supply management were present at Kenya TBO or not.

All significant responses to this open-ended question are listed in Figure 4.11

- Weekly updates on the state of the port of Mombasa
- Increased visibility of shipments from Malawi
- High level of accuracy of price and availability forecasts
- Integration with UTKL (a supplier) has improved the reliability of availability forecasts
- Supplier audits and rollout of Good Manufacturing Practices/Sustainable Agriculture

Figure 4.11 – Examples of good supply chain practices by Kenya TBO

Responses to both questions 9 and 10 were applied to validate some of the findings that are discussed in the next chapter.

4.10 Barriers to Efficient Supply Operations

The various factors established by this study as impediments to the successful implementation of lean systems in the surveyed supply chain are listed in the following section. These factors represent those elements that scored the lowest mean scores for each set of questions and are discussed in detail in Chapter 5.

Supplier relations – Inadequate long-term contracting and lack of performance measures for suppliers.

Internal organisation – Low level of innovation, simplification and improvement, and inefficient execution of out-sourced services.

Customer relations – Instability and unreliability of product supply, and low level of accountability / blame culture.

Strategy level activities – Inadequate communication of strategy and limited skills and talent management.

External factors

Observations on extraneous circumstances undermining the performance of the focal firm dominated responses to open-ended question 9. The overriding issues were: Unreliable port services, and poor transport and logistics infrastructure.

4.11 Kenya TBO Purchases by Channel

Figure 4.12 summarises Kenya TBO purchases by channel for 2007.

Purchase Channel	Purchase Volume (Tonnes)	Percentage
Auction	70,581	66.7%
Spot Buying	707	0.6%
Long-term Contracts	34,567	32.7%
Total	105,855	100%

(Source: Kenya TBO database, 2007)

Figure 4.12 – Kenya TBO purchases from Africa by channel - 2007

A higher proportion of purchases were made through the auction as compared to other channels.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

As pointed out by Koztab (1999) improvement approaches in supply chain management focus on addressing the following objectives: reduction of cycle time in the distribution channel; reduction of total inventories in the chain; avoiding duplications of logistics related costs; and increasing customer service.

This study dealt with the necessary conditions for achieving “leanness”. In the unique context of a commodity supply chain, such as that for raw tea, leanness as viewed solely from the perspective of inventory largely denotes striving towards the realisation of the lowest possible levels of stocks along the supply chain. This is unlike in the consumer and durable goods sector where, owing to the more predictable nature of the manufacture and flow of goods, optimality in the form of “zero inventory” and just-in-time approaches are feasible. However, other aspects of lean such as cost and customer service can be adopted and applied universally irrespective of the peculiarities of individual supply chains.

Diligent strategy formulation and operationalisation underpins the success of lean supply management systems. A comprehensive strategy makes possible global coordination to achieve leanness and optimality. Such a strategy must by necessity induce and institutionalise a culture and philosophy for leanness at all four levels of the supply chain.

5.2 Summary of Findings

There is sufficient evidence from the results of this survey to suggest that the majority of key success factors ascribed to in the conceptual framework were manifest in Unilever’s tea supply chain in Africa.

The objectives of this study as stated in Chapter One were as follows:

- i. To determine the extent of adoption of lean supply management practices at Unilever’s tea supply chain in Africa.
- ii. To identify barriers to the realisation of a more efficient supply operation within Unilever's tea supply system in Africa.

Those factors that registered higher mean scores from analysed data corresponded to the practices that had been more effectively adopted by and entrenched in the supply system of the organisation. The barriers can be discerned from those supply chain practices that registered a

majority of unfavourable ratings by respondents in the survey and for which the mean scores were low. The findings in relation to the two study objectives are discussed in the following sections.

5.2.1 *Adoption of Successful Practices for Lean Supply Management*

It is conclusive from the analysis of data that a number of lean supply management practices had been well adopted by Unilever's supply chain in Africa. These practices can be identified under their respective classifications as follows:

Supplier relations – Supplier selection processes; delivery of agreed product specifications; and accessibility of supply information and overall supply visibility.

Internal organisation – Access to business information systems and related IT support; clarity of individual roles and employee empowerment; teamwork and cooperation among key staff; appropriate work culture and attitude for delivery of objectives; and skills and experience to perform assigned tasks.

Customer relations – Product quality always conforms to customer order-specifications; team members relate well to customers individually and collectively; forecast information for coordination of global buying is reliable; and customers constantly have a clear view of product availability to support routine buying decisions.

Strategy level activities - Sound supply chain strategy formulation; alignment of operational structures to supply chain strategy e.g. allocation of responsibility; enforcement of stock policy; securing commitment for strategy implementation; and championing and supporting regional supply chain projects

The literature review section demonstrates the generalised application of all these practices in supply chain situations. What is worth noting in as far as Unilever's setup was concerned is that overall the highest rated factor was *the division's members have adequate access to business information systems and related IT support*. This outcome underscored the commitment on the part of Unilever in investing in the most appropriate IT infrastructure and software applications in order to attain both supply chain efficiency and effectiveness.

5.2.2 Barriers to Efficient Supply Operations

The various factors established by this study as impediments to the successful implementation of lean systems in the surveyed supply chain are discussed in the following section.

5.2.2.1 Supplier relations

The barriers described in this section relate to shortcomings in upstream/supplier management initiatives.

5.2.2.1.1 Inadequate long-term contracting

Guaranteed long-term contracts have a stabilising effect on the supply chain. Purchasing a commodity on a forward basis is akin to storing future inventory with the supplier, albeit often in the form of un-harvested crop or unexcavated ores. Only 32.7% of Kenya TBO purchases in 2007 were made through long term contracts whilst there was scope to do more (Figure 4.12).

As highlighted earlier, suppliers must be regarded as an extension of the internal manufacturing process and cultivated as long-term business partners (Barla, 2003). In lean systems, the supply structure is characterised by fewer and better relationships and a heavy investment in relation-specific assets and substantial knowledge exchange (Simpson and Power, 2005). The award of long-term contracts should be reciprocated by the delivery on the part of the supplier of demands made by the buyer. Such demands may include supply of customised products and implementation of service improvement schemes, amongst others.

Increased long-term contracting would reduce over-dependence on the auction system where supply requirements were not always met in full because of the uncertainties presented by auction dynamics and competition. Long term contracting was particularly important for raw teas sourced from the Kenya Tea Development Agency – the largest supplier of premium teas in Africa.

5.2.2.1.2 Lack of performance measures for suppliers

Storey *et al* (2005) emphasised the need to apply common performance measures between the supplier and customer. Lamming (1996) in turn wrote that it is necessary to develop relationship assessment programmes in order to focus on the value flows from one organisation to another.

Analysed data showed that customers and senior management in the supply network monitored the performance of the focal firm. However, Kenya TBO did not in turn hold their suppliers

accountable on the same supply terms as dictated by their customers. This situation presented a loop-hole that might have led to mediocre yet unmonitored customer service from some suppliers.

As correctly captured by Tersine and Hummingbird (1995), lead times become excessive when managers lose sight of the time and cost dimensions of physical distribution. Without the use of an appropriate measurement and feedback system, this state of affairs would go on undetected for prolonged periods of time with hapless customers at the end of the chain bearing the consequences of inefficiencies.

5.2.2.2 Internal organisation

Shortcomings highlighted in this section relate to internal weaknesses of the focal firm.

5.2.2.2.1 Low level of innovation, simplification and improvement

Results from this study showed that efforts at innovation, simplification and improvement were somewhat wanting. Some organisations often mistakenly view innovation as high-investment technological transformation. This attitude impedes creativity. In a practical sense, innovative activities range from simple, common sense changes with minimal or no expense to grandiose capital expenditure projects. From a supply chain perspective, modest improvements like a reduction in process cycle time by a few days and elimination of unnecessary procedures count for time and cost saving innovation.

5.2.2.2.2 Inefficient execution of out-sourced services

The effectiveness of an organisation's response to rapidly changing supply chain conditions is largely determined by the capabilities of its business partners. As the old Latin saying goes, "a chain is only as strong as its weakest link".

The results from this study suggested that respondents generally thought the performance of service providers was actually measured on a regular basis. This might not have been entirely true. The service providers performed the majority of customer-interface activities. In the customers' mind there was no separation between the service delivery of the focal firm and that of the third parties. Customers (read Hubs) assumed that the performance of Kenya TBO and that of the service provider were inseparable. In other words, the focal firm was held accountable for the failure of its outsourced partners.

Responses from service providers on whether or not their own performance was regularly measured were ambivalent – which at the very least suggested the absence of a robust performance measurement process. The low rating for efficiency and effectiveness of third party

services could therefore be partly attributed to a lack of performance evaluation processes. Such evaluation would usually be reinforced by appropriate penalties for bad performance. In the absence of meaningful penalties, an effective communication of negative feedback to service providers would suffice for an incentive for improvement.

As reviewed elsewhere in this study, sceptics express the view that outsourcing can potentially lead to lost capabilities, new competitors and limits on the principal's ability to trade (Mills *et al*, 2004). Supply chain managers must forestall such pitfalls by having in place an effective appraisal process.

5.2.2.3 Customer relations

The points reviewed in this section relate to gaps in supplier management processes.

5.2.2.3.1 Instability and unreliability of product supply

This study found that the majority of respondents felt that the rate of timely and complete deliveries of orders was low. Supply unreliability may lead to a situation where buyers and customers double-guess what action is required to stabilise supply. It is likely that buyers will be tempted to pick up additional "safety stocks" as customers simultaneously order emergency supplies from alternative sources. This action ultimately blots the supply chain as both inventory and transaction costs sky-rocket.

On the other hand, delayed deliveries may lead to production stoppages with grave consequences on the marketing and sales front. Chase *et al* (2003) referred to this phenomenon as the "bullwhip effect" where a slight change in consumer sales ripples back in the form of magnified oscillations upstream leading to accumulation of inventory or acute shortages.

Constant updates of all manner of supply-information should "replace" inventory by providing visibility and making possible a quick replenishment of raw materials and finished goods. Such information should pre-emptively cover issues such as potential changes in production/availability, likely logistical hitches, inevitable changes in delivery schedules, and other supply chain vulnerabilities. This process can be enhanced further by the efficient use of electronic data interchanges (EDI) for timely or even real time updates of changes in stock movements.

5.2.2.3.2 Low level of accountability /existence of blame culture

The results of this study pointed to relatively low levels of accountability by team members of Kenya TBO. Often managers in organisations resort to *satisficing* (Johnson *et al*, 2008) rather than optimising in order to avoid blame for risks taken on tasks assigned to them. A blame culture

retards creativity and undermines the self-esteem of those at whom the blame is directed. Holding managers accountable is possible only if they are fully empowered in their roles. The option of assigning responsibility for mistakes rather than finding solutions perpetuates a habit of excuses for failure. Time (and money) is wasted on apportioning blame and covering-up while the real problem remains unresolved or becomes aggravated. As observed by Simpson and Power (2005), an adversarial climate limits the opportunity to share information.

5.2.2.4 Strategy level activities

Discussions in this section relate to tasks whose execution rested upon the top leadership of the organisation.

5.2.2.4.1 Inadequate communication of strategy

Strategy level issues generated the highest number of “Don’t Know” responses, especially from relatively new employees and those at lower ranks in the company. The overall results however highlighted the element of *communication of changes in strategy* as being a major weakness.

A well-communicated strategy should galvanise employees and generate a sense of common purpose. As evidence of effective communication, each member of the supply network should have an easy recall of the company’s vision and key goals at all times. The routines of all employees must demonstrate a concerted effort to achieve the stated goals.

No vision is worth the paper it is printed on unless it is communicated constantly and reinforced with rewards (Welch, 2005).

5.2.2.4.2 Limited skills and talent management

A number of studies underscore the importance of managing talent. As already seen, eliminating delays and improving product flows involves creativity, specialised skills, capital investments and behavioural changes that challenge the status quo (Tersine and Hummingbird, 1995). This is achieved through organisational learning processes. Learning is central to innovation and improvement (Hyland *et al*, 2003). Training employees in order to hone some key skills is important in orchestrating change (Maheshwari *et al*, 2006). As opposed to the traditional purchasing skill set of product knowledge, tactical negotiation, and brinkmanship, managing supply chains requires much wider skills.

The results of this study showed that a significant proportion of respondents either thought that talent was poorly managed or did not know how well it was managed. Managing talent is one of the principal tasks of senior management. As emphasised by Heller (1997), they have no role

more important than that of encouraging, facilitating and rewarding the generation of ideas. All means available for creating a teaching and thinking company must be used.

Poor talent management may lead to mediocre performance due to lack of motivation on the part of key team members. The company may also suffer a “brain-drain” as highly skilled but demoralised managers become easy targets for head-hunters.

5.2.2.5 External factors

Observations on extraneous circumstances undermining the performance of the focal firm dominated responses to open-ended question 9. The overriding issues are mentioned below.

5.2.2.5.1 Unreliable port services

Perennial congestion at the port of Mombasa was often caused by incompetent port management and destabilising labour union activity. The situation led to extended turnaround for vessels with the attendant prolongation of purchase to shipment lead times.

5.2.2.5.2 Poor transport and logistics infrastructure

Railway services, which operated on unpredictable schedules and remained largely unreliable, were shunned by shippers. On the other hand, the transit time from factory to port had for years averaged 5 days instead of 2 to 3 days because of the state of disrepair of key trunk roads (Cargill, 2008). Container positioning by shipping companies at depots located hundreds of kilometres away from factories also slowed down the collection process for ex-factory shipments.

5.3 **Conclusions and Recommendations**

From the above findings and discussion it is reasonable to conclude that Unilever’s tea supply chain in Africa was largely well managed with respect to widely accepted criteria for “leanness”. Many factors that are known to contribute to successful lean supply management were in place although the adoption of some practices was found by this study as being only modest as represented by relatively low mean scores from analysed data. These factors were: Supply of “tailor-made” products for Unilever; integration and collaboration with individual suppliers; use of industry supply chain best-practices; and, eternal focus by management staff.

Efforts to bring about improvement should focus on reinforcing those practices that were not fully embraced while setting an action plan to eliminate all impediments to leanness as highlighted in the findings of this study.

There was evidence of divided opinion along work levels and experience bands on the assessment of the levels of efficiency in some operational areas. These differences of perception might have arisen from varying levels of understanding resulting from inadequate information sharing across the network. The customers (Hubs) in the supply chain under study were generally more sceptical of the status quo compared to other functional units in the network.

Taking into account all the findings and discussion points, the following recommendations are presented:

The level of long-term contracting for critical and strategic raw materials should be expanded in order to minimise supply risks and uncertainties associated with auction and spot buying. This calls for the application of the so called “Keiretsu” strategies encompassing mutual alliances, collaboration, and non-adversarial relationships with both existing key suppliers and alternative sources.

A performance measurement and feedback system for key tea suppliers should be developed and implemented. Such a system should employ key performance indicators in areas such as quality, delivery time and customer service. The indicators should be aligned with the performance conditions agreed between Kenya TBO and its customers.

Performance measurement and regular feedback for third party service providers should be enforced by Kenya TBO. This is mainly critical for warehousing, handling, and forwarding services. Appropriate incentives and penalties should be linked to this process to encourage compliance.

The operational strategy should encourage investment in building individual and team capabilities for supply chain management. This can be achieved by means of appropriate learning activities, knowledge sharing, recruitment and more effective communication to all employees of the company's supply chain goals.

A reasonable number of shipping lines should be assigned for deliveries to each key destination. This is likely to reduce delays occasioned by a shortage of liners during times of crisis such as when there is congestion at the port of Mombasa.

The organisation needs to inspire creativity and continuous improvement by encouraging, recognising, supporting, and rewarding innovative ideas. Time and money wasting steps in the production process, warehousing, handling, shipping, and in the purchase cycle could be eliminated or reduced through low-scale innovation and simplification projects.

5.4 Limitations of the Study

This study has several limitations the most important of which are highlighted as follows:

The author did not find time to benchmark the supply chain covered in this study against similar operations in competing firms. A comparison of processes from both related unrelated industries such as the flourishing horticultural sector in Kenya would also have greatly enriched the output of the survey.

It is likely that respondents did not have a common interpretation of some questions because of inadequate construction. An example is the question on strategy level activities responses to which elicited highly varied opinion even among top level management.

The results are slightly biased by responses from Kenya TBO whose ratings for the majority of questions were generally favourable. Kenya TBO is the focal firm that was under investigation.

5.5 Issues for Further Research

As highlighted in section 5.4, this study would have benefited from a comparison of lean supply management strategies in Unilever with those that are applied by peer companies in the highly successful horticultural sector in Kenya. Further research especially using benchmarking techniques would shed more light on best practices in the horticultural industry that could be adopted by the tea sector to improve supply chain efficiency.

Some elements of performance management in the supply chain are also identified as deserving of further research. Specifically, investigation should be conducted on how organisations enforce performance measures such as key performance indicators – both internally and with third parties. This would identify the incentives and penalties exercised by principals in the supply chain to achieve compliance to agreed standards of performance from their employees, suppliers, service providers and out-sourcing agents.

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Appendix A – Research Questionnaire

Study Questionnaire

This questionnaire will take about 10 to 15 minutes to complete. All individual responses will remain anonymous and confidential. Only aggregated data will be generated for evaluation.

- Francis Wanaswa

*1) Please check the box that represents your functional unit.

- ☐ Tea HUB
- ☐ Coordination/USCC
- ☐ Lipton Tea Supply/Global Tea Supply
- ☐ Kenya TBO
- ☐ Unilever Tea Kenya (UTKL)
- ☐ Third Party Service Provider
- ☐ Other (Please Specify):

*2) For how many years have you been working with Unilever?

- ☐ Under 5 years
- ☐ 5 to 14 years
- ☐ 15 years and above

*3) Please indicate your job position.

- ☐ Work Level 1
- ☐ Work Level 2
- ☐ Work Level 3+
- ☐ Not Applicable

*4) What is your assessment of the following aspects of Unilever's relationships with key tea suppliers in Africa?

	1 Don't Know	2 Very Poor	3 Poor	4 Fair	5 Good	6 Very Good
Supplier selection processes	☐	☐	☐	☐	☐	☐
Use of industry supply chain best-practices e.g. in the areas of contract management, logistics/handling, etc	☐	☐	☐	☐	☐	☐
Degree of integration and collaboration with individual suppliers	☐	☐	☐	☐	☐	☐
Supply of "tailor-made" products for Unilever	☐	☐	☐	☐	☐	☐
Negotiation of long-term contracts	☐	☐	☐	☐	☐	☐
Accessibility of supply information and overall supply visibility	☐	☐	☐	☐	☐	☐
Delivery of agreed product specifications	☐	☐	☐	☐	☐	☐
Regular performance measurement and feedback	☐	☐	☐	☐	☐	☐

*5) To what extent do you agree with the following statements relating to the local operations of Kenya TBO?

	1 Don't Know	2 Strongly Disagree	3 Disagree	4 Neutral	5 Agree	6 Strongly Agree
Management staff are externally focused and competitive	☐	☐	☐	☐	☐	☐
There is a deliberate and continuous effort to achieve simplification, innovation and improvement	☐	☐	☐	☐	☐	☐
There is a high degree of teamwork and cooperation among key staff	☐	☐	☐	☐	☐	☐
The Division's members have adequate access to business information systems and related IT support	☐	☐	☐	☐	☐	☐
Work culture and attitudes are appropriate for successful delivery of business objectives	☐	☐	☐	☐	☐	☐
Team members have adequate skills and experience to perform their assigned tasks	☐	☐	☐	☐	☐	☐
Individuals have clear roles and are sufficiently empowered to carry out their duties	☐	☐	☐	☐	☐	☐
Warehouse handling, shipping and related tasks are executed efficiently and effectively	☐	☐	☐	☐	☐	☐

Systems are in place for regular measurement and feedback for third party service performance	☐	☐	☐	☐	☐	☐
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*6) To what extent do you agree with the following statements with respect to customer management activities by Kenya TBO?

	1 Don't Know	2 Strongly Disagree	3 Disagree	4 Neutral	5 Agree	6 Strongly Agree
Customers constantly have a clear view of product availability to support routine buying decisions	☐	☐	☐	☐	☐	☐
Customers are pro-actively informed of any changes in the supply situation	☐	☐	☐	☐	☐	☐
There is stability and reliability in product supply with a high rate of timely and complete deliveries	☐	☐	☐	☐	☐	☐
Team members relate well with customers individually and collectively	☐	☐	☐	☐	☐	☐
When a supply problem is encountered, team members actively propose and evaluate alternative solutions rather than dwelling on assigning responsibility for whatever went wrong	☐	☐	☐	☐	☐	☐
Product quality always conforms to customer-order specifications	☐	☐	☐	☐	☐	☐
Forecast information provided for global coordination is reliable	☐	☐	☐	☐	☐	☐

*7) How would you rate the overall execution of the following strategy-level tasks with respect to the supply chain in Africa?

	1 Don't Know	2 Very Poor	3 Poor	4 Fair	5 Good	6 Very Good
Supply chain strategy formulation	☐	☐	☐	☐	☐	☐
Communication of changes in strategy	☐	☐	☐	☐	☐	☐
Securing commitment for strategy implementation	☐	☐	☐	☐	☐	☐
Alignment of operational structures to supply chain strategy e.g. allocation of responsibility	☐	☐	☐	☐	☐	☐
Championing and supporting regional supply chain projects	☐	☐	☐	☐	☐	☐
Regular supply chain performance-measurement and feedback	☐	☐	☐	☐	☐	☐
Enforcement of stock policy	☐	☐	☐	☐	☐	☐
Talent and skills management	☐	☐	☐	☐	☐	☐

*8) How does the current overall performance of Kenya TBO compare to what it was 12 months ago?

- ☐ Much Improved
- ☐ Improved
- ☐ No Change
- ☐ Worse
- ☐ Much Worse
- ☐ Don't Know

9) With respect to the supply chain in Africa, please suggest any measures that in your opinion would help to reduce supply lead times (and associated inventory levels) from purchase to delivery at destination. Please consider those areas that may not have been covered in the questions above.

10) Please list any examples of performance that in your opinion represents current good supply chain practice by Kenya TBO.



Finish Survey

Appendix B – Schedule of Target Population

No.	Name	Title	Work Level	Country
1	Kurush Bharucha	Supply Director Beverages - AMET	3	UAE
2	Ahmed Ibrahim	Tea Supply Manager	2	UAE
3	Chris Whitebread	Tea Standards Manager	2	UK
4	Martin Precious	Finance Controller	2	UK
5	Tim Barnett	Corporate Risk Manager	2	UK
6	Phil Moody	Tea Supply Manager	2	UK
7	Pradeep Jeyathilak	Tea Supply Manager	2	UK
8	Phil White	Supply Chain Manager	2	UK
9	Gilbert Kendzior	Supply Chain Manager	2	USA
10	John Cheetam	Supply Manager	2	USA
11	Peter Goggi	Supply Management Director	3	USA
12	Ahmed Khawaja	Tea Supply Manager	2	Pakistan
13	Farid Aidrus	Tea Supply Director	3	Pakistan
14	Niaz Tarmahomed	Tea Supply Chain Manager	2	Egypt
15	Moamen Ahmed	Assistant Supply Manager	1	Egypt
16	AbdelRahman El-Moghazy	Assistant Supply Manager	1	Egypt
17	Visvajit De Alwis	General Manager	3	Indonesia
18	Ahmad Ghazali-Rahman	Tea Supply Manager	2	Indonesia
19	Francis Kiragu	TBO Head	3	Kenya
20	David Mugambi	Auction Sourcing Manager	2	Kenya
21	Gideon Mugo	Tea Supply Manager	2	Kenya
22	Simon Ferguson	Non-Auction Sourcing Manager	2	Kenya
23	Nimrod Taabu	Tea Supply Coordinator	1	Kenya
24	Anne Kilimatinde	Assistant Sales & Marketing Manager	1	Kenya
25	Edmund Njoroge	SHEQ Officer	1	Kenya
26	Roselyne Kiburi	Sales & Marketing Manager	2	Kenya
27	Charles Boit	Business Development Manager	2	Kenya
28	Pauline Ongadi	Tea Supply Planner	1	Kenya
29	Irene Kimunyi	Management Trainee	1	Kenya
30	Richard Fairburn	Managing Director	4	Kenya
31	Stephen Muasya	Supply Chain Manager	2	Kenya
32	Alfred Kirui	Tea Manager	2	South Africa
33	Ayendra Jayasinghe	Tea Sourcing Manager	2	Sri Lanka
34	David Smyth	Operations Director	3	Switzerland
35	Brain MacAuley	Head of ETH	3	Switzerland
36	Simon Hindley	Global Tea Buying Coordinator	2	Switzerland
37	Mark Birch	Global Tea Buying Coordinator	2	Switzerland
38	Milly Dudley-Cooke	Tea Supply Chain Planner	1	Switzerland
39	Stephen Banyard	Tea Supply Chain Planner	1	Switzerland
40	Hans Synhaeve	Vice President – Supply Chain	4	Switzerland
41	Mark Echoka	Manager/Cargill Kenya Limited		Kenya
42	Ralph Mwadime	Manager/Cargill Kenya Limited		Kenya
43	Ivan Fernandes	Managing Director/ Cargill		Kenya
44	Tony Mwakesi	Manager/Cargill Kenya Limited		Kenya
45	Major Kalim	Proprietor/Packlog Enterprises		Kenya
46	Leonard Kimutai	Finance & Administration Manager	2	Kenya

Appendix C – Ranking of Responses Using the Mean and Standard Deviation

Sorting by the mean			343
4a	Supplier selection processes	3.43	383
4g	Delivery of agreed product specifications	3.412	365
4f	Accessibility of supply information and overall supply visibility	3.118	28
4d	Supply of "tailor-made" products for Unilever	3.097	28
4c	Degree of integration and collaboration with individual suppliers	3.057	371
4b	Use of industry supply chain best-practices e.g. in the areas of contract management, logistics/handling, etc	3	
4e	Negotiation of long-term contracts	2.686	371
4h	Regular performance measurement and feedback	2.647	393
Sort by standard deviation			398
4f	Accessibility of supply information and overall supply visibility	0.883	367
4d	Supply of "tailor-made" products for Unilever	0.888	355
4c	Degree of integration and collaboration with individual suppliers	0.9	355
4g	Delivery of agreed product specifications	0.903	305
4a	Supplier selection processes	0.91	
4b	Use of industry supply chain best-practices e.g. in the areas of contract management, logistics/handling, etc	0.923	23
4e	Negotiation of long-term contracts	1.167	67
4h	Regular performance measurement and feedback	1.21	16
Sort by the mean			48
5d	The Division's members have adequate access to business information systems and related IT support	3.444	15
5g	Individuals have clear roles and are sufficiently empowered to carry out their duties	3.412	62
5f	Team members have adequate skills and experience to perform their assigned tasks	3.286	35
5c	There is a high degree of teamwork and cooperation among key staff	3.2	26
5e	Work culture and attitudes are appropriate for successful delivery of business objectives	3.114	
5a	Management staff are externally focused and competitive	3.059	87
5i	Systems are in place for regular measurement and feedback for third party service performance	2.968	374
5b	There is a deliberate and continuous effort to achieve simplification, innovation and improvement	2.833	375
5h	Warehouse handling, shipping and related tasks are executed efficiently and effectively	2.722	377
Sort by standard deviation			383
5c	There is a high degree of teamwork and cooperation among key staff	0.871	342
5f	Team members have adequate skills and experience to perform their assigned tasks	0.873	357
5e	Work culture and attitudes are appropriate for successful delivery of business objectives	0.883	363
5a	Management staff are externally focused and competitive	0.899	
5g	Individuals have clear roles and are sufficiently empowered to carry out their duties	0.903	
5d	The Division's members have adequate access to business information systems and related IT support	0.915	
5i	Systems are in place for regular measurement and feedback for third party service performance	0.939	
5b	There is a deliberate and continuous effort to achieve simplification, innovation and improvement	1.028	
5h	Warehouse handling, shipping and related tasks are executed efficiently and effectively	1.128	

Sort by the mean

6g	Forecast information provided for global coordination is reliable	3.543
6d	Team members relate well with customers individually and collectively	3.4
6f	Product quality always conforms to customer-order specifications	3.383
6a	Customers constantly have a clear view of product availability to support routine buying decisions	3.265
6b	Customers are pro-actively informed of any changes in the supply situation	2.8
6e	When a supply problem is encountered, team members actively propose and evaluate alternative solutions rather than dwelling on assigning responsibility for whatever went wrong	2.8
6c	There is stability and reliability in product supply with a high rate of timely and complete deliveries	2.571

Sort by standard deviation

6a	Customers constantly have a clear view of product availability to support routine buying decisions	0.871
6f	Product quality always conforms to customer-order specifications	0.893
6d	Team members relate well with customers individually and collectively	0.898
6g	Forecast information provided for global coordination is reliable	0.967
6b	Customers are pro-actively informed of any changes in the supply situation	1.055
6e	When a supply problem is encountered, team members actively propose and evaluate alternative solutions rather than dwelling on assigning responsibility for whatever went wrong	1.055
6c	There is stability and reliability in product supply with a high rate of timely and complete deliveries	1.305

Sort by the mean

7a	Supply chain strategy formulation	3.23
7d	Alignment of operational structures to supply chain strategy e.g. allocation of responsibility	3.167
7g	Enforcement of stock policy	3.16
7c	Securing commitment for strategy implementation	3.148
7e	Championing and supporting regional supply chain projects	3.115
7b	Communication of changes in strategy	2.962
7f	Regular supply chain performance-measurement and feedback	2.935
7h	Talent and skills management	2.926

Sort by standard deviation

7a	Supply chain strategy formulation	0.87
7d	Alignment of operational structures to supply chain strategy e.g. allocation of responsibility	0.874
7g	Enforcement of stock policy	0.875
7c	Securing commitment for strategy implementation	0.877
7e	Championing and supporting regional supply chain projects	0.883
7b	Communication of changes in strategy	0.942
7f	Regular supply chain performance-measurement and feedback	0.957
7h	Talent and skills management	0.963