

Supply Chain Strategy and Evaluation

CASE STUDIES

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Executive Summary

Overview

The aim of this second report is to document six case studies on how organisations have implemented Sustainable Supply Chain Management (SSCM) into their supply chain strategies, highlighting the organisational drivers behind this development, as well as the state-of-the-art in SSCM tools. The information in this report was gathered through interviews with people within the organisations concerned, with literature used for further background material.

The report highlights the conclusions from the first report on SSCM and then draws together the Tools and Strategies used in SSCM into a table that represents the spectrum of management approaches that are used successfully in the current economic climate.

Example organisations

(i) Marks and Spencer

The first case study was Marks and Spencer, a well-known UK food and clothing retailer. An own-brand retailer, they point to developing 'Brand Trust' and reducing operating cost as two of the key drivers into sustainability. Marks and Spencer has a formalised ethical supply chain management policy built into company-wide global sourcing policies. Suppliers are managed through a one-to-one interface of product buyers and technology experts, which is a key success factor in influencing their supply chain.

(ii) Northumbrian Water

This is a large water treatment and supply organisation. The company has developed a strong Environmental Management System (EMS), which they promote as issue on new tender contracts, e.g. there is a requirement for new contract suppliers to have or develop their own EMS. Environmental standards and performance now form part of the weighting for new tender contracts, managed through the supply chain department.

(iii) Lucent Technologies

This company is a global supplier of communications networking equipment. Increasingly, environmental questionnaires from customers, as well as legislative pressures are two of the key drivers towards sustainability for Lucent. They have a Supply Chain Network group that deals with all supply chain and purchasing procedures from suppliers. This group has developed a lifecycle approach to products and services and analyses supplier performance in an integrated manner, taking into account price, delivery performance, service, quality and reliability, access to technology, and environmental quality. One of their key successes has been the introduction of cross-functional teams.

(iv) The Consortium

This is a large UK focused education and public service supplier. The Consortium has own-brand products, but also supplies directly to its customers from its own suppliers. Internal champions appear to be the key driving forces for introducing sustainability into the supply chain. Pre-qualification criteria on environmental grounds are dealt with by The Consortium, while purchasing specifications are dealt with through internal champions within the organisation.

(v) The National Health Service (NHS)

The UK's health service provider is one of the largest organisations in Europe, employing around one million people and operating with a budget of over £40 billion. The NHS Purchasing and Supply Agency is the central, strategic supply body in the NHS, and supplies products and services for all NHS departments. One of the key drivers towards sustainability is government environmental policy, including 'greening' public procurement. The NHS is constrained by competitive rules, but has explored environmental tendering options. It also has internal cross-functional bodies that work toward common environmental goals in supply and purchasing, as well as providing support to suppliers in improving environmental performance.

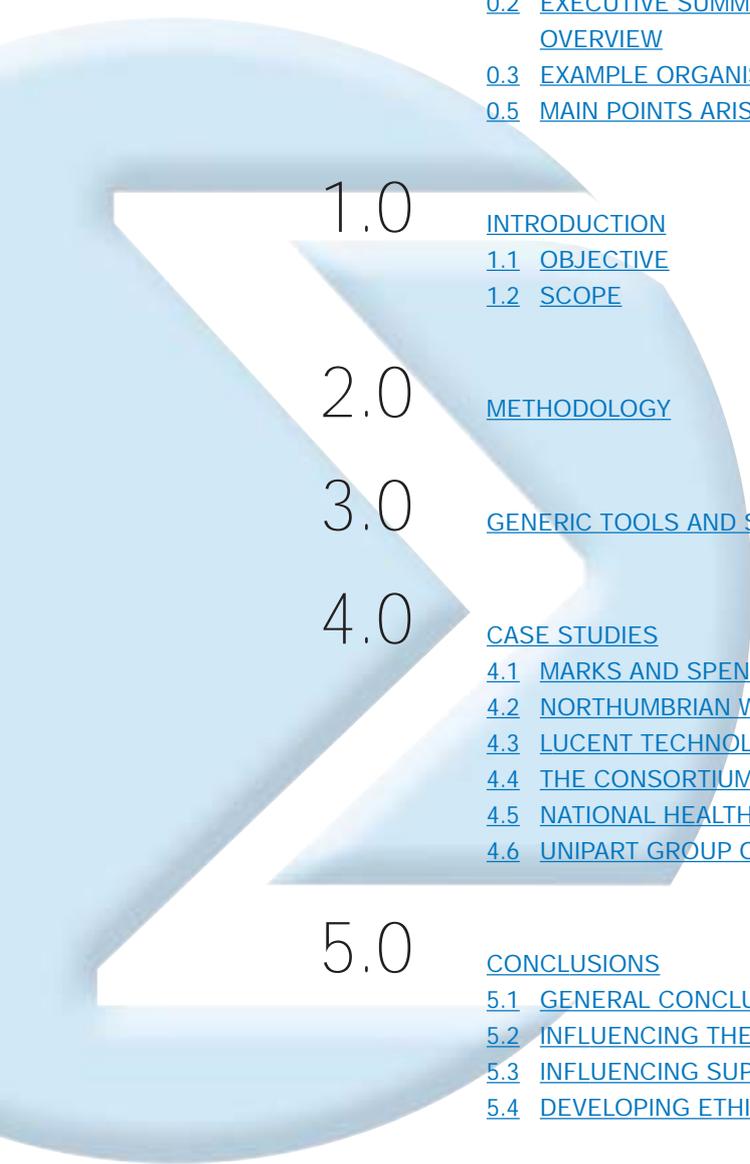
(vi) Unipart

This company is a diverse organisation, with the majority of its operations within manufacturing and distribution, with interests in many different areas of product and service supply. Unipart sees the supply chain as stretching 'from raw material to the end-user,' embracing both an organisation's suppliers and customers. It attempts to work with suppliers with a lifetime partnership philosophy, building trust mechanisms, due to a realisation that it did not have the size or financial weight to force suppliers to change. Although pre-qualification and purchasing specifications are in evidence in Unipart based on environmental criteria, relationship building with suppliers has been their most radical move toward sustainability within the supply chain.

Main points arising from the case studies

- Σ One of the key outcomes is that key metrics may not be the most adequate enablers of a shift toward a triple bottom line. Relationship building with suppliers may have a bigger part to play in moving toward this goal. It is also useful to note that tighter supply chains may be of benefit to this strategy – a key issue in today's competitive markets.
- Σ Cross-functional teams and internal champions can be key influences on supply chain personnel, when initiating sustainability through the supply chain.
- Σ Partnership arrangements are an excellent example of sharing learning between customer and supplier and cascading greater sustainability into a complete supply chain, without relying upon the adversarial method of forcing suppliers to take on board sustainable issues. Bottom-up methods of using internal champions to work directly with suppliers 'on-the-ground' are also useful ways to push sustainability through the chain.
- Σ Ethical Supply Chain Management has only become an issue where global sourcing policies are in evidence. In cases where it is necessary, it has been most successful in the retail sector, where key influencing factors are the combination of low-value common goods and a supply chain which is highly transparent to the domestic consumer.
- Σ The SSCM research theme has indicated that there is a need for a portfolio of simple (but not simplistic) SSCM tools.

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1.0

Introduction



1.1

Objective

The aim of this report is to draw out further findings from the Supply Chain Strategy and Evaluation research theme for the SIGMA Project. This second report is intended to provide Case Studies to input into the SIGMA Project process, as well as representing the how SSCM tools are used within these organisations. These are intended to represent both best practice activities as well as the most commonly used SSCM tools within organisations. The conclusions relate to how these tools are applied, rather than recommendations for developing new tools in SSCM. However, the SSCM research theme has indicated that there is a need for a portfolio of simple (but not simplistic) SSCM tools.

The conclusions from these case studies are aimed at highlighting the spectrum of SSCM current tools for the SIGMA Project Management Team and the Organisational Partners who will be trialling the SIGMA guidelines at a later stage.

On a more detailed level, the objectives of this report are:

- Σ To identify the organisational drivers for developing SSCM and incorporating these tools into their supply chains.
- Σ To identify the application of state-of-the-art tools in SSCM within organisations.
- Σ To identify the common tools and strategies that organisations are using to incorporate and integrate sustainability issues into SSCM.

1.2

Scope

This report examines organisational make-up and company policy, internal strategies and activities, as well as how organisations manage sustainability within supply chains. This report begins by including the conclusions from the first report, drawing together the scope of SSCM tools that have been identified through the first report and the research of the second report, and then outlining six case studies and their conclusions.

The report tries to provide a cross section of organisations - public/private, big/small. The case studies of Northumbrian Water and the Consortium were included to outline what is being done now (representing the state-of-the-art in SSCM within a vast majority of organisations rather than a model of excellence).

2.0

Methodology

The information contained in this report is based mostly upon the outcomes of personal interviews within the respective case study organisations, as well as supporting literature on the company background. These individuals interviewed were identified via The Centre for Sustainable Design's (CfSD's) network and through additional personal contacts within the SIGMA research partners. In all, twelve people were identified and interviewed (identified within each case). The interviews were based on a semi-structured format to elicit ideas from interviewees on four key questions:

- Σ Supply chain Understanding within the organisation.
- Σ Drivers for Sustainable Supply Chain Management (SSCM).
- Σ The tools, metrics, criteria and measurements used within the organisation
- Σ The success factors.

All interviews were conducted using a combination of telephone and face-to-face formats depending upon how accessible interviewees were to the interviewer.

3.0

Generic tools and strategies for SSCM

The following tools and strategies represent the state-of-the-art methods and approaches used by organisations to manage their SSCM issues. These tools are taken from the first report and have been categorised into the table below to represent the spectrum of Strategies and Tools that have been identified in the first report and that are used successfully in the current economic climate. All tools that are shown in the case studies conform to the categorisations that are given in Table 1 overleaf.



3.0.1

3.0

TABLE 1: TOOLS USED IN SSCM

Strategy/Tool/Technique	Description
<p><i>Communicating company sustainability policies and values</i> Environmental Policy, Goals and Targets Environmental Purchasing Policy</p>	
<p><i>Pre-qualification criteria</i> Environmental Management Systems Supplier Environmental Performance Criteria</p>	
<p><i>Contractual Obligations</i> Post Tender Requirements of Suppliers Purchasing specifications Products/services purchasing specifications</p>	
<p><i>Supplier/customer partnership and alliance</i> Partnering:</p>	<p>A long term strategic relationship that aligns the corporate objectives of two or more parties. Alliances in which a contractual relationship is formed by two or more parties to achieve specific goal, i.e. delivery of a project.</p>
Green Supplier Fair	<p>Open days for suppliers that allow them to get to know the company's policy, goals, future trends in supplier policy, but also allows suppliers and customers to network and build closer relationships.</p>
Green Purchasing Training	<p>Training delivered by a customer to its suppliers that may focus on life cycle impact of the customer product and explain environmental or social objectives set by the customer.</p>
'Shared Savings' or Reward Sharing	<p>A business model in which both customer and supplier are given financial incentives to reduce resource inputs and waste. The savings are shared and benefit both the customer and the supplier.</p>
Environmental Programmes with Suppliers	<p>For example, 'cascading' environmental aspect management through supply chain.</p>
Open Book Trading	<p>Customer and supplier give each other access to their books and develop common programmes.</p>
<p><i>Validation</i> Environmental Assessments of Suppliers</p>	<p>Undertaking an environmental assessment of major suppliers. Can include on-site visits. Suppliers may be checked or asked to self-assess themselves periodically</p>
<p><i>Internal Training and Evaluation</i> Training in Environmental Purchasing</p>	<p>Can include circulation of documents that give guidance to environmentally friendly alternatives. This can be backed up by a unit in the company that supplies best advice on environmental issues relating to purchasing.</p>
<p><i>Cross-Functional Teams</i> Merging Environmental and Purchasing department personnel into working groups</p>	<p>An important way to share environmental responsibilities and ownership throughout the organisation.</p>
<p><i>Working with Peers</i> Partner projects</p>	<p>Projects developed to deal with various environmental or social issues in the supply chain.</p>

3.0.2

4.0

Case Studies



4.1

Marks and Spencer

Background

Marks and Spencer Plc is an international retailer with 718 locations across 34 countries. The group sells clothing, footwear, gifts, home furnishings and foods under the St. Michael trademark in its chain of 294 stores in the United Kingdom. It is listed in the FTSE 100 index and employs over 75,000 staff. Approximately half of the group's overseas stores are franchised to local partners.

The group also owns the clothing retailer Brooks Brothers and the Kings Super Markets chain in the United States of America. Marks and Spencer uses direct mail as a means for marketing products such as home furnishings, flowers and wine. Marks and Spencer also has a financial services operation providing account cards, personal loans, unit trust management, life assurance and pensions. Retailing accounted for 96% of fiscal 2000 revenues and financial services, 4%. For the interim results to September 30th 2000, group profit before tax was £183.4 million compared to full 1999 figure of £192.8 million.

Over the past 18 months there has been some major internal organisational changes, including a change of Chairman. Both the UK and the international businesses are controlled through the PLC board. Below this sits the UK Retail Board, which controls the UK retail business (around 90% of Marks and Spencer customer business). Marks and Spencer UK retail is now made up of seven business units. These are Womenswear, Menswear, Lingerie, Childrenswear, Beauty, Home and Foods. The retail business itself is made up of roughly 60% in clothing and 40% in food. The following case study is focused upon the retailing side of the business.

Supply Chain Understanding

As a retailer, Marks and Spencer is the furthestmost downstream within the overall supply chain of raw materials to consumption. As such, supply chain activities are focused upstream toward suppliers. The management of these supply chains also involves more than just the first tier suppliers of goods. There are around 1000 different suppliers to Marks and Spencer, although there are only a few very large suppliers that form the bulk of the supply base. Most of the food suppliers are locally supplied (within UK), while most of the clothing suppliers based globally.

The supply chain is managed through each of the seven business units on an independent basis. Suppliers to the business are managed through the procurement functions for each of the business units. Each business unit integrates both the buying and selling functions within teams orientated towards particular customer groups. The supplier relationships are then managed on an ongoing basis through the product buyers and the product technology specialists who sit within each of the business units.

(i) Issues

Marks and Spencer has a unique selling point that differentiates it from other high street retailers. All products it sells (both food and non-food) are its own brand. They do not buy in branded products from other companies. The key impact for supply chain is that Marks and Spencer has the potential for greater control over influencing and managing issues such as quality, health and safety and environment, as opposed to a supply chain that stocks other brands within its business. In this way Marks and Spencer better understands their own supply chain.

Although Marks and Spencer has a large supply base of around 1000 companies, it has a few major suppliers with whom it conducts the majority of its business. Marks and Spencer trade is very small for some of the larger suppliers, particularly within the clothing and textile business areas. It is difficult to influence these larger suppliers on environmental, social and safety issues.

Drivers for SSCM

The key interests of Marks and Spencer for introducing sustainability into their business can be outlined in five main areas. All five of these issues have an influence on how sustainability within the supply chain has been developed and managed within Marks and Spencer.

(i) 'Brand Trust'

As Marks and Spencer stocks only own-brand goods, there may be an expectation from the consumer that all goods conform to similar criteria on issues such as safety, quality, environmental and social impact. Ensuring 'Brand Trust' within the scope of these issues means capturing and addressing consumer concern across all product ranges. 'Brand Trust' is one of the key drivers for Marks and Spencer's interest in sustainability, this needs to be translated directly into the supply chain if 'Brand Trust' is to be assured to the consumer. 'Brand Trust' is an evaluation by Marks and Spencer of what the consumer wants from a high-street retailer, rather than a reactive approach to direct consumer pressure.

(ii) Operating Cost

Another key driver for sustainability is in cutting the costs associated with the supply chain. Although this may sometimes conflict with other sustainability issues, it also drives aspects of sustainability within the supply chain. An example is the clothing business, where flexibility in the supply chain is being achieved with the introduction of shorter lead times to market – from identification of fashion, to contract tender specification, to production. Tools such as the Internet as a sourcing strategy are enablers in this area.

(iii) Managing Product Lines

Many specific product lines need to have stricter or different specifications, according to customer demands from certain niche markets. Key examples of this have been the introduction of organic range products in foods, as well as labelling for the domestic consumer to enable informed choice. The consumer needs to be reassured in these areas that these products meet certain standards, sometimes with an added premium to the overall cost.

(iv) Corporate Public Risk

The Marks and Spencer supply chain is highly exposed to the views of publicly backed NGO's and pressure groups. In other words its supply chain is highly transparent to the consumer market through the NGO and pressure group channels. This is particularly relevant at the moment for the clothing and textile market, where reports of child labour and human rights abuses have been made against the supplier labour force for some of large well-used retailers. Examples have included Benetton and Nike. In the past this issue has been highlighted particularly in food safety standards, where public interest has the strongest pressure.

(v) Ethical Investment Funds

There is a growing interest from investment fund management in developing assurances of Corporate Social Responsibility (CSR) from the invested organisations. Although a small driver today, this is a growth interest.

It is clear that Marks and Spencer has been driven strongly by the consumer market towards introducing sustainability. The two key areas have been consumer (and public) pressure (e.g. genetically modified organism (GMO) free product introduction, supplier labour standards) and market evaluation (for the case of 'Brand Trust').

SSCM approaches and tools (Metrics, Criteria, Measures)

To meet the needs of sustainability, Marks and Spencer has a number of tools and strategies that are applied within the supply chain. These management tools include the application of environmental criteria, ethical criteria, as well as safety standards issues.

(i) Communicating Company sustainability policy and values

At a policy level, Marks and Spencer has developed the Global Sourcing Principles. These principles require all direct suppliers — i.e. those Marks and Spencer directly contract for both goods and services — to ensure their facilities accord with what Marks and Spencer believe to be acceptable standards, as well as to continually improve those standards. Marks and Spencer enforce these principles firmly among direct suppliers and encourage their implementation further down the supply chain. They are given to all suppliers at contract stage and are assessed through supplier visits. These principles include:

- ∑ Workforce Rights, including minimum age of employment, regulated working conditions and compliance with national pay rates.
- ∑ Labelling goods correctly and agreement with Marks and Spencer on production sites Environmental Responsibility to national standards, with expectation of improvement from the supplier.

Some of the social and ethical standards have been influenced by the involvement of the Ethical Trading Initiative (ETI). Marks and Spencer is a member of the ETI and the ethical standards within Marks and Spencer global sourcing principles draw upon the ETI framework of standards.

(ii) Pre-qualification Criteria

For any global sourcing of goods, whether these are clothing or food, the global sourcing principles apply. These are introduced to potential suppliers through Corporate Communications within Marks and Spencer. The application of these principles are carried out within each business unit through the procurement function at contract stage. When tenders for contract go out to suppliers the global sourcing principles are used in the decision-making process.

Before any contract is taken up within Marks and Spencer (global or local), a site visit is undertaken to ensure that product and service specifications can be met. These specifications can include issues of health and safety, environmental controls, and in the case of global sourcing, adherence to the global sourcing policy.

(iii) Purchasing Specifications

The direct interface between the supplier and Marks and Spencer is managed through the product Buyers within each business unit. Buyers are supported by product technologists from their own business unit, who advise on specification issues for products and the process of production. With some product groups the Environment department (a corporate function, not a business function) supports the product technologist in advice on key issues for product and process standards. For example fish sourcing, cotton and wool.

(iv) Internal Training

The Environment department is a corporate function, not aligned to any particular business unit within Marks and Spencer. It is the environment department who is in a position to push issues into the supply chain by education of the product technologists, as these people are the interface with the supplier. Training is often informal and based on product issues being either championed by the product technologists or the environment personnel.

The Procurement functions have received formal training from an outside consultancy on techniques necessary to integrate the global sourcing principles into their processes. From the start Marks and Spencer require each supplier to implement the Global Sourcing Principles, which establish a minimum acceptable entry standard into the Marks and Spencer supplier base.

(v) Supplier Customer Partnership and Alliances

Marks and Spencer is a member of Project ACORN . As part of this project they work with a number of smaller SME suppliers in an attempt to cascade environmental best practice principles into their first tier supply base, with the understanding that this environmental training will be cascaded further down the supply chain. Part of this process is an attempt to let first tier suppliers take responsibility for undertaking environmental responsibility of their supply chains, rather than leaving this to Marks and Spencer.

(vi) Validation

All production sites are regularly visited by Marks and Spencer's own staff. Auditing processes have a different focus depending upon where suppliers are based. Within the UK, most of the emphasis is placed upon food safety and health standards. These Audits of supplier activities are carried out through both the buyers and product technologists on site visits. The environment department inputs into these audit mechanisms on various product issues where leading edge environmental practice is expected. Audit mechanisms can be risk-based or product based. For example, in the clothing area there is an environmental code of practice. Product technologists carry out occasional quality checks against this code of practice on products by testing samples from suppliers.

For some global suppliers, the audit mechanism is used to assess health, safety, environmental, social and ethical criteria. Audits are determined for targeted 'high risk' suppliers. As part of the ETI membership, Marks and Spencer also works with an external consultancy to carry out some audits on the company's behalf. Some audits are also done in conjunction with NGO's to reflect transparency with ETI principles.

Where suppliers are found to be in breach of Marks and Spencers' global sourcing principles, actions may be taken:

"..Suppliers must not only apply these principles at all times, but must also be able to show they are doing so. We will take action against suppliers who do not comply, which may involve cancelling our orders and ceasing to trade."

Marks and Spencer's Global Sourcing Principles, 2000).

Success Factors

Although the approach to supply chain sustainability within the Marks and Spencer is not completely integrated between the various functions of environmental, health and safety and ethical criteria, there are several organisational structures that make this company work well:

Technologists (experts in particular product lines), who in turn are influenced by the Environment department, support buyers in each business unit. They are the key information holders that can influence environmental standards introduction and improvement. Because specific product buyers and product technologists handle only those product suppliers, there is in-depth product knowledge in dealing with those suppliers on-hand. This leads to better supplier-customer relationships, as well as a good understanding of sustainable product standards.

The Environment department is a corporate function rather than a business function. This means they can influence all business areas. They also have input into the Corporate Social Responsibility sub board, which feeds information into the PLC board and influences corporate Marks and Spencer environmental policy.

Standards for global sourcing are an embedded process within the procurement process. Audits of production sites are undertaken on a regular basis.

4.2

Northumbrian Water

Background

Northumbrian Water is part of Suez Lyonnaise des Eaux, a worldwide group, which specialises in environmental management and urban regeneration. The group has a revenue of £20 billion and 160,000 employees. Within this group, capabilities in water and wastewater range from research and development, through all aspects of engineering and design, to the management of major water and sewage contracts.

The Northumbrian Water Group is an integrated environmental services group with 3800 employees and a turnover of £510m. Its key activities are in water and waste water services, international water and waste water management, waste management and other related services. In one form or another the Group has been involved in these activities for more than one hundred years. The group provides water to over 70 million water customers throughout the world. A key issue to note about Northumbrian and most Water companies in UK is that the industry currently invests over 50% of its turnover in new assets. This is a very high level when compared to other industries. The UK Water regulator, the Office of Water Services (OFWAT), requires much of this investment of UK water companies.

In the UK, Northumbrian Water Group companies operate integrated networks of water supply and sewerage systems covering 12,000 square kilometres. Northumbrian Water Group also holds a strong position within the North East and South East of England. As one of the largest companies in the North East, the Northumbrian Water Group plays a key role in the region's economic and environmental health and prosperity. It is also the largest environmental company in North East England.

The Company has charged the Operations Manager with responsibility for Environmental Affairs. The development of environmental policy and its translation into objectives is the responsibility of the Strategic Management Team, represented on the Group Environmental Committee by the Company Managing Director. A sub-group of the Environmental Committee has been constituted to progress issues.

Supply Chain Understanding

Northumbrian Water is in the business of introducing materials and commodities that treat 'raw', or in the case of sewage, dirty water and distribute this to customers. Other business includes Corporate services that Northumbrian provides to business customers. The supply chain is seen as the management of suppliers that provide goods and services to Northumbrian in support of these business areas. The supply chain is part of the Finance department and supplier-performance management is one of the responsibilities of the supply chain department.

The individual buyers of both goods and services in the supply chain department have 'ownership' of the supply chain. Northumbrian Water also has two different approaches to supplier contracting and management. With large contracts, there are legislative constraints on procurement practice, for example the Utilities directive. Contract management with this approach is more tightly structured. With smaller contracts the contract management process is less tightly structured, due to non-application of legislation. In total there are about 3000 companies in supply base, though not all of these companies are put into contracts. For goods below a value of £2000, contracting of suppliers is not undertaken and purchasing practice can bypass the central procurement department and the processes involved.

4.2.1

(i) Issues

Northumbrian Water has reduced its supply base in an effort to influence a smaller number of key suppliers, particularly within its capital programme, where regulated (through OFWAT) investment in works is around £170m. With the reduction of the supplier base, Northumbrian Water is attempting to have a bigger influence on the strategic direction of its core suppliers. Contractor development is one of the goals that is enabled by a smaller supplier base.

Since 1993, the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors are governed by Directive 93/38/EEC, commonly known as the "Excluded Sectors" Directive or the "Utilities Directive". Any tendering for major service and works supply contracts over a certain monetary value have to conform to specific rules of competition. Even though the directive does not use environmental or general sustainability criteria for deciding upon suppliers, environmental and other criteria do have some input into tendering decisions.

Drivers for SSCM

There is a number of drivers that have pushed the sustainability debate within UK water companies. One of the strongest drivers has been the health and safety issue that is used in the regulation of Water companies. The environment agency and the Drinking Water Inspectorate (DWI) have tightened their enforcement of these processes, so environmental criteria have become more important within all Water businesses. Other drivers are also related to legislation, for example the drinking water standards and sewage waste standards that are regulated by the Office of Water Services (OFWAT), as well as the Environmental Protection (Duty of Care) Regulations 1991, which encourages waste minimisation and recycling where possible.

Northumbrian's parent group Suez Lyonnaise des Eaux also has environmental principles that relate to supply chain. This is another driver for introducing environmental criteria into the supply chain.

As a major energy user, Northumbrian Water also recognises that it has a responsibility to minimise its long-term energy consumption and the environmental impacts associated with energy production, especially the release of "greenhouse" gases. Reducing energy usage at sites and site development requires co-operation from suppliers as well as Northumbrian Water's own staff. With the introduction of the Climate Change levy in April 2001, there will be more pressure on reducing energy consumption from fuel sources.

SSCM approaches and tools

Northumbrian Water an environmental company with a high use of energy. As such, one of its prime concerns is the reduction of energy use. Its other major concern is conforming to health regulations in drinking water and sewage standards. Because of these concerns it is highly concerned with environmental improvements. Northumbrian Water has achieved certification to the ISO 9000 series of standards with all sewage services within Production Directorate, and this system is now being implemented throughout the Company. Due to these key environmental issues, this is reflected in the predominately environmental issues that are cascaded into the supply chain.

(i) Communicating company sustainability policies and values

Northumbrian Water communicates to the public sphere by way of an environmental report, as well as updating information on their website on their environmental policy, commitment to safety standards and their environmental performance. Part of the environmental performance outlined on their website is to request and measure supplier environmental performance. The company also states on its website that it will specify the use of the least environmentally damaging materials wherever possible.

Northumbrian Water's contractors are encouraged to minimise the loss of materials through waste and ensure the safe and responsible disposal of residual wastes, especially any that may be hazardous. The company will expect its major suppliers of products and services to demonstrate their commitment to Continuous Environmental Improvement and the control of environmental effects.

(ii) Pre-qualification Criteria

Northumbrian Water has developed a system of pre-qualification of suppliers that is used in the tendering process of many new supply contracts, although not all. There are two sorts of tendering contracts that are used within the company, depending upon the value of the contract.

With the smaller value contracts for both goods and services there is less constraint on how tenders are managed. For example the Utilities Directive does not apply to these smaller contracts. These are managed through the purchasing department. The tendering process is aided in many cases by the use of a software tool called Achilles.

The software developers Achilles have developed a large Utilities vendor database that is available freely to utilities companies. Supplier companies pay an annual fee to Achilles to appear on this software and as part of the terms and conditions are required to update their company information regularly. The database logs financial background, environmental achievements, as well as health and safety records. It is currently in use with around 80% of utility companies in the UK.

The database can provide Northumbrian Water with a list of suppliers that meet legislative requirements, while also highlighting any environmental standards that have been achieved by the respective suppliers. Northumbrian Water can use the results of the vendor database as a pre-qualification process to sort out those companies that have some initial commitment to environmental principles.

Once prospective companies have been reduced, a tender document is sent out. This tender document will often (but not always) include an environmental evaluation questionnaire that was developed by the Environment department. The purpose of the document is to help understand some of the environmental issues they will face with potential suppliers. It includes nine questions around compliance, standards and environmental initiatives. This document forms part of the tendering decision-making process.

(iii) Supplier Customer Partnership and Alliances

Northumbrian Water is currently developing a programme in conjunction with Sunderland University for a partnership programme on sustainability in the supply chain that will target the top twenty SME suppliers that Northumbrian Water uses. The goal of this programme is to influence some their smaller suppliers to undertake sustainability into their decision-making processes. The project has been developed in conjunction with a European funding mechanism.

Northumbrian Water is in the process of developing Key Performance Indicators (KPI) through the supply chain department. When completed, these indicators will form the basis of a reporting mechanism between contractors and Northumbrian Water in large contract programmes, for example the Capital programme of works that Northumbrian Water is required to undertake as expenditure regulated by OFWAT. Although still being developed, these KPI will include key issues on environmental performance, health and safety and economic performance to budget. As a contract is drawn up between the supplier and Northumbrian Water, working with the KPI can address where performance improvement is necessary from suppliers in order to meet Northumbrian Water standards. Environmental criteria might include issues such as reduction in environmental accidents and reduction in packaging use over the course of the contract.

(iv) Validation

Once contracts have been formed through the purchasing and procurement departments, reviews are undertaken of that contract on a yearly, quarterly or six monthly basis, depending upon the supplier. If the contract was drawn up with environmental or health and safety criteria, then these criteria may be put into the review process and fed back to relevant department. If improvement opportunities are identified by those departments this can be fed back to suppliers via the supply chain department. This, however, is not a common process.

Success Factors

Although Environmental Criteria used in contract tendering and purchasing specifications are still not fully developed throughout the organisation, environmental criteria used in purchasing and procurement pre-qualification are becoming more prevalent.

Northumbrian Water is also looking beyond pre-qualification criteria as the only interface with supplier sustainability. One of their goals is trying to influence supplier companies' environmental practice through the procurement and supply chain department. This is done firstly by directing potential supplier companies to the Northumbrian Water website outlining the commitment to environmental improvement and secondly by the further development of processes that require their suppliers to make environmental improvements, for example the introduction of KPI's.

4.3

Lucent Technologies

Company background

Lucent Technologies (Lucent) operates in the information and communication technology (ICT) sector. It was spun off from AT&T in 1996 together with Bell Labs (Research and Development (R&D) division of AT&T).

Lucent's headquarters are located in Murray Hill, New Jersey, USA. For the fiscal year ended September 30, 2000, Lucent earned approximately \$33.6 billion in revenues from continuing operations.

Lucent employs around 125,000 people world-wide, with one-quarter based outside the United States. Lucent has offices and distributors in more than 90 countries and territories around the world, while Bell Labs has a presence in 30 countries. In the UK, Lucent employs 2,000 to 3,000 people, supporting all the business units. There are no manufacturing plants in the UK.

Following trends in the ICT sector, Lucent is streamlining its portfolio and sharpening its focus on building a broadband and Mobile Internet infrastructure, which includes the development of optical, data/wireless networking technologies, and software and services that support them. This has meant divesting non-core parts of its business, moving towards more contract work, and acquiring new businesses in its core areas. For example, it has spun off its enterprise networking group into Avaya Inc. in 2000 and is on its way to spin off its Microelectronics Group (to be named: Agere Systems) and sell its Power Systems business. At the same time, since its inception in 1996, Lucent has completed 38 acquisitions. In 2000 alone, Lucent acquired Chromatis Networks, Spring Tide networks, and merged with Excel switching and Xedia corporation.

Currently, the main Lucent business units include:

Agere Systems/Microelectronics (to be shortly spun-off into a separate company);

- Σ InterNetworking Systems;
- Σ Optical Fiber Solutions;
- Σ Optical Networks;
- Σ Switching Solutions;
- Σ Wireless Networks.

Lucent is one of the leading global suppliers of communications networking equipment, particularly in the Internet infrastructure for service providers, optical networking, wireless networks, communications integrated circuits (semiconductors), and upto-electronics components. Recent inventions at Bell Labs, the R&D arm of Lucent, include the first optical switch, software that facilitates/enables web content access by the telephone, and a record for the fastest transmission of data over optical fibre.

Supply Chain Understanding

Lucent is in the middle-to-downstream part of the supply chain. Upstream, its suppliers include providers of electrical products like semiconductors, passive components, connectors, printed wire boards, OEM products (e.g. radio equipment, antennas), mechanical components (cabinets/racks, metals, plastics, finishes, fasteners, etc.) and services (including installation services) which are also sold on.

Ninety percent of electrical products are standardised and sourced from global companies whilst 90% of mechanical products are custom-designed and sourced from local companies. Lucent suppliers also provide auxiliary compounds, packaging and operations-related commodities, such as paper, energy, water, etc. Downstream, Lucent does not directly interface with household customers. It is a first tier supplier to telecom companies and/or Internet providers. Lucent customers include global players such as Deutsche Telecom, British Telecom, Australian AAPT, Global Crossing and Beijing Telecom, as well as Sprint and Omniplex (Internet).

The supply chain management group, which is named 'Supply Chain Networks' (SCN), is divided into 4 regional divisions and manages supply chain issues in Lucent. Previously, the strategic supply chain (product/service-related) and purchasing divisions were separate, but due to recent organisational changes they have been merged into one group. The work of the SCN group focuses solely on suppliers. However, the structure of the company is set up to capture and bring forward issues from customers and end-of-life management to SCN work, especially in terms of new product design and development.

Lucent has developed a Total Cost of Ownership (TCO) approach that takes a life cycle perspective for its products and services and analyses supplier's performance in an integrated manner, taking into account price, delivery performance, service, quality and reliability, access to technology, and environmental quality.

Drivers for SSCM

Environmental issues began to be systematically considered in supply chain management by Lucent about three years ago. The triggers for this were three-fold:

- ∑ For the past five to six years, the company has been receiving an increasing number of 'environmental' questions from its customers.
- ∑ Increasing legislative pressures, starting with national product-related environmental legislation in the Netherlands (e.g. mercury restrictions and ban), whilst in the last year, the proposed EU legislation (WEEE) is a current key driver behind this work with suppliers, particularly in the field of new design.
- ∑ With the pressure of above, Henk Groeneboer, the Director of what is now the Supply Chain Networks Group in the Europe Middle East and Africa (EMEA) region, brought the issues of environment and supply chain management to the EMEA board. Mr. Groeneboer showed that 'greening' the supply chain could be profitable and reduce costs, thus being fully compatible with the Total Cost of Ownership (TCO) strategy. As a result of these efforts, the Environmental Quality element was added to the TCO list of requirements.

Social issues have so far not been systematically considered in Lucent's global work on supply chain management. However, examples can be found in Lucent's regional work: in the United States Lucent includes a question on whether suppliers are sourced from minority or women led businesses. Globally, Lucent includes in all contracts and purchase orders that suppliers comply with all legal requirements. All Lucent employees are held to a Code of Conduct that requires them to act in a legal and ethical way.

SSCM approaches and tools (metrics, criteria, measures)

(i) Cross-functional Teams

In Lucent, Environmental, Health and Safety (EH&S) issues are the responsibility of a corporate unit called Lucent Environment, Health & Safety (LEH&S) which is represented on the board by the Senior Vice President & Corporate Counsel (Richard J. Rawson). LEH&S is organised to cover the following key areas:

- Σ Global Operations Support - additionally deployed locally throughout EMEA, CALA (Caribbean and Latin America) and AP (Asia Pacific), NAR (North America Region).
- Σ Product EH&S Support (including Design For The Environment).
- Σ EH&S Management Systems.
- Σ Remediation.
- Σ Analysis & Advocacy.

Recently, Lucent has developed a cross-functional team strategy. The teams operate on the interface between external and internal actors, as well as between internal business functions, in order to bridge the communication gap resulting from traditional function-oriented business units. They aim to facilitate horizontal communication.

A cross-functional, 'virtual' team has also been set up in the EMEA region, under the LEH&S EMEA Group, with a goal of promoting EH&S among Lucent's internal and external facing organisations. The group plays a key role in Lucent's work on Environmental Supply Chain Management. The group operates in a number of interface areas in Lucent (i.e. sales teams/customers, suppliers/SCM Group, EH&S Group/Manufacturing Facilities) ensuring the flow of EH&S information in these areas and within the group.

This recent reorganisation continues and re-empowers former environmental supply chain management work at Lucent, which was initiated in 1997 within the Supply Chain Networks. By shifting relevant information up and down the supply chain and across the functional units, it helps to integrate EH&S issues into conventional supply chain management processes.

(ii) Communicating Lucent environmental policy and values

Lucent's EH&S policy is communicated to its employees, customers and the communities where it operates via its web site (or hard copies provided upon request). With regards to hazardous substances, Lucent has developed a guidance document with a list of hazardous substances that should be avoided. The document is currently sent out to the component suppliers that are included in Lucent's Supplier Environmental Assessment Programme (about 20% of Lucent's component suppliers). Component suppliers also have access to a Lucent web site that includes forecasting information.

(iii) Pre-qualification of suppliers

The EH&S performance of Lucent's key suppliers is fully integrated into the supplier evaluation process. This is managed through a Supplier Systems Assessment procedure, which involves the supplier answering a questionnaire developed by Lucent. The questionnaire is divided into two parts, Supplier Profile and Self-Assessment. The Self-Assessment part includes some basic EH&S questions. All new suppliers are evaluated through the Supplier Systems Assessment process. Check-ups of existing suppliers are triggered when a supplier notifies Lucent about a change in its process. Critical suppliers undergo an evaluation process on average every two years.

Lucent has also developed and is gradually expanding a more sophisticated environmental supplier assessment and benchmarking method. The programme is designed for component suppliers and at the moment includes about 20% of suppliers providing Lucent with Printed Circuit Boards and Integrated Circuits. The environmental supplier pre-qualification procedure includes three elements:

- Σ Environmental Management Systems (EMS);
- Σ Supplier Environmental Performance, and;
- Σ Hazardous substances.

Under this new pre-qualification procedure, suppliers are required to have an EMS. It does not need to be certified but should be internally verified as part of the supplier's Management System. Suppliers' environmental performance is measured with respect to the efficient use of resources (management of wastes and emissions) and the availability of product data on content. Lucent uses this information in its benchmarking method. In the method, all inbound and outbound flows of environmental impacts are measured based on the kilogram weight of the end product. The method qualifies suppliers in five categories of environmental performance, and the best scores lead to the definition of 'best in class'.

Hazardous substances are not part of the pre-qualification process, but are at the moment used as a guidance and contractual tool. This is discussed under 'contractual obligations.'

(iv) Contractual obligations

Lucent sometimes includes a paragraph requiring suppliers to a commitment to the continual improvement of its environmental performance on a more general level.

(v) Supplier Validation

Information received by suppliers can be validated by Lucent in one of the following ways:

- Σ Lucent can send one of its field assessors in order to verify general environmental information.
- Σ Lucent can request a field analysis of a component supplier's EMS.
- Σ Lucent can send an official disclaimer to a supplier that delivers components with banned substances, shifting the liability to the supplier.

In practice, validation procedures are implemented only in cases where there is doubt. The form of validation is decided on a case by case basis.

(vi) Supplier/customer partnerships and alliances

In its working strategy with suppliers, especially in terms of new product design and development, Lucent is moving towards developing more supplier/customer partnerships. This involves Lucent signing a 'Partnership Contract' with suppliers that can include paragraphs in which suppliers oblige themselves to improve the quality of all or parts of their environmental performance.

Additionally, a method for environmental benchmarking of component suppliers has been developed through a partnership between Lucent and its four main printed wire board suppliers.

(vii) Internal training and evaluation

No special training has been organised in Lucent with regards to sustainability and supply chain management. All company staff, however, has access to a web-based environmental awareness package.

(viii) Working with organisational peers

Lucent is working closely with competitors as part of industry associations, such as the Electronics Industry Association and EICTA, to standardise a number of common environmental approaches to supply chain issues. This includes initiatives on supplier pre-qualification requirements, hazardous substances and standardised lists and web-based declarations on supply chain relevant data. Since the entire supply chain must work together towards sustainability, it makes sense for everyone to be working with the same principles in mind.

Success factors

A key success factor at Lucent is the development of cross-function, virtual teams. These teams operate at the interface between various groups, such as EH&S Group, SCM Group and suppliers, as well customers and sales teams, and EH&S Group and manufacturing facilities, bridging the communication gap. This allows relevant EH&S information to flow between the appropriate departments and units within Lucent and up and down its immediate supply chain.

The Total Cost of Ownership (TCO) approach is another key success factor at Lucent, in that it allows Lucent to develop solutions that integrate supplier and product environmental performance with other price and quality parameters.

Finally, Lucent's groundbreaking work on benchmarking of suppliers allows an overall evaluation of the environmental quality of its suppliers.

4.4

The Consortium for
Purchasing and Distribution Ltd.**Company Background**

The Consortium is one of the largest education and public service suppliers in the UK. It was founded in 1971 as the buying department for the Wiltshire County Council. Over the years, it expanded to supply the public sector needs throughout South-West England. In 1995, it was privatised in a management buy out and today, it employs 350 people and handles over £150 million annually in public service purchasing throughout the UK. Currently, it offers over 50,000 different items, from paper clips to fire engines and food to IT equipment, as well as sports equipment, art supplies and cleaning materials, among other products and services. 96% of The Consortium's business is still with the public sector, including schools (75%), emergency services, residential and nursing homes, social services, NHS Trusts, local authorities, central government agencies, prisons and charities - 24,000 member establishments. The Consortium also does 3.5% of their business with the private sector (mostly former public sector organisations) and 0.5% with household consumers.

Supply Chain Understanding

The Consortium considers itself to be a supply chain management company and aims "to be recognised as the leading supply chain manager to the public sector...." In terms of its position, the company sits in the middle to downstream end of the supply chain, between manufacturers and the final user. On the upstream side, it is responsible for both purchasing brand-name products and contracting the manufacture of its own-brand products. On the downstream side, it is responsible for the logistics of delivering products and services to the end user in all parts of the country.

From the company's perspective, it has three clearly defined supply chains: stock, direct delivery and service. The stock supply chain accounts for about a sixth of the revenues and consists of all the brand-name and own-brand products that are stored at the companies warehouse in Wiltshire (8-9,000 different products) and shipped to customers in the company's own trucks. The direct delivery supply chain accounts for another sixth of revenue and consists of products and services that are supplied directly from The Consortium's supplier to the end customer via the supplier's own logistics. This supply chain is made up of items that are large, less common or which are made to order. The service supply chain accounts for the remaining two thirds of the company's revenue and consists of alliances with other companies. In this supply chain The Consortium gets a commission or rebate for directing customers to other businesses that The Consortium considers to be "best in class." The company currently has service alliances for food, vehicles, gas, oil, electricity and IT equipment, among others.

In terms of trends, the company is in the process of reducing the number of its suppliers from a current level of 400 to 250 in the next five years. It is also moving away from the stock supply chain, which is labour, infrastructure and logistics intensive, to the service supply chain, which is more information intensive. In a similar move, the company has developed a cutting-edge e-procurement and electronic invoicing system for the public sector. The system promises to revolutionise invoicing, reduce bureaucracy and transaction costs for their customers and speed delivery times.

4.4.1

Drivers for SSCM

Apparently there were some customer pressures on environmental issues a couple of years ago, but at the present time The Consortium is experiencing no pressures from its customers to incorporate sustainability issues into its supply chain activities. Part of the reason for this is that many of their customer orders are made by low level administration staff purchasing day to day operational supplies. The over riding concern in these purchases is price.

The company does feel some legislative pressure, particularly from the packaging regulations, since there is a financial burden from these regulations.

Beyond this, the main driver for incorporating sustainability issues into the supply chain management practices of The Consortium is internal champions. So far, most of the more interesting sustainable supply chain activities the company has implemented, such as the stocking of 100% recycled paper or biodegradable black plastic rubbish bags, have been initiated by individuals within the company of their own volition.

It should also be said that the corporate culture of the company is open to motivated individuals wanting to undertake such initiatives. The unspoken policy of the company is to supply a more environmentally friendly product or service, if price, quality and performance are the same. This speaks of a high level of untapped environmental awareness.

SSCM approaches and tools (Metrics, Criteria, Measures)

The Consortium is not the most advanced or cutting-edge organisation in terms of sustainable supply chain management. However, they are a good example of where many medium sized companies are on these issues, i.e. only just beginning to address sustainability issues both within their own organisations and within their supply chains. As with many companies, The Consortium has so far concentrated mostly on environmental issues. It is currently finalising an ISO 14001 environmental management system and initiatives started by individuals have predominantly been environmentally focused. On the social side, the main organisational approach has been the Investors in People standard, which was gained in 1997 and is externally assessed annually. Specific tools and approaches are discussed below:

(i) Communicating organisational sustainability policies and values

The Consortium uses several avenues to communicate its sustainability policies and values, including supplier open days, the Internet and printed catalogues. The open days are used to present and discuss environmental issues with suppliers. The Internet and the printed catalogues are the main route to communicate with customers. However, there is only a small amount of sustainability (environmental) information in these sources, i.e. about ISO14001 and a few environmentally preferred products. The information they contain is not aimed at conveying the sustainability aspirations and values of the company.

(ii) Pre-qualification of suppliers

The Consortium uses a complex vendor rating system to pre-qualify suppliers, based on questionnaires, meetings, and official audits in some cases. Within these activities, information about supplier environmental management systems is collected. However, an EMS is not a supplier requirement. Instead, it is collected to track trends in suppliers and will eventually be used in The Consortium's own EMS. The company does not track social or ethical issues.

(iii) Purchasing specifications

There are no specific company-wide purchasing specifications for sustainability issues. Instead, the company has relied on individual initiatives by purchasing staff, i.e. internal champions. A good example of this is the introduction of biodegradable black plastic bags. The switch to biodegradable bags was initiated by the purchasing manager responsible for this product group.

Despite the fact that the price was slightly higher, a decision was made to sell only this type of bag. At first, there was a significant drop in demand. However, as customers got used to the new bags, orders went back up and now the new bags are just as profitable for the company as the former ones. This example shows not only the initiative of the individual purchasing manager, but also the willingness of the company to follow the initiative, even though at first it lost revenue.

(iv) Cross-functional teams

An internal, cross-functional environmental group is in operation within the company. Its purpose is to identify environmental opportunities and threats to the company and to develop environmental initiatives. However, most of these relate to internal initiatives, such as setting up a recycling system, rather than supply chain issues.

(v) Supplier/customer partnerships and alliances

In the one area where The Consortium has felt external pressures, the company has engaged in supplier/customer partnerships, i.e. with packaging waste. Packaging represents a significant financial burden on the company, and it has been working with customers and suppliers to minimise it. This includes working with suppliers to minimise incoming packaging and with customers on a possible reusable tote system for deliveries. It is also exploring biodegradable potato starch trays for food deliveries.

(vi) Validation

The company does audit suppliers as part of its quality management system (ISO9002). However, these audits are not used to validate sustainability issues.

(vii) Internal training and evaluation

At the present time, the company is not involved in any internal training or evaluation schemes for sustainability issues for its staff. Instead, it is considering bringing in an outside consultant (environmental specialist) to help it train its staff and to develop an environmental roadmap (with key milestones) for the company. This is considered to be more effective and timely than expecting everyone to educate themselves.

Success Factors

Despite the lack of significant sustainability activities and initiatives in supply chain management compared with other organisations covered in this report, a few success factors can be determined. First of all, while there is a significant lack of organisation and structure for sustainable supply chain work, the corporate culture is open and receptive to sustainability initiatives from its staff. It is open and receptive to internal champions.

Secondly, due to its position in the supply chain, the company has the potential to influence both the upstream and downstream parts of the supply chain. This is particularly true on the downstream side, where public sector organisations are obliged to engage in green procurement activities but lack product/service-related sustainability information and access to sustainable products and services. Examples of biodegradable bags, recycled paper, and energy efficient equipment indicate that where these products and services are offered, there is a positive response.

4.5

National Health Service (NHS) Purchasing and Supply Agency

Company Background

The National Health Service (NHS) is a governmental institution that was set up in 1948 to provide free health care for all in the UK. Today, it is the largest public sector organisation in Europe, employing around one million people and operating with a budget of over £40 billion, of which approximately £11 billion is non-pay related expenditures.

The NHS is funded by taxpayers and is accountable to Government ministers, who in turn are accountable to Parliament. It has a complex structure, with different mechanisms in England, Wales, Scotland and Northern Ireland. In England, the NHS is the responsibility of the Secretary of State for Health, who sets overall health policy. The Department of Health puts this policy into practice through eight Regional Offices that in turn arrange health services through local NHS Trusts, which provide a range of hospital and community-based services to patients.

The NHS Purchasing and Supply Agency is the central, strategic supply body for the NHS in England. It acts as a centre of expertise in purchasing and supply issues and also negotiates national framework contracts for products and services on behalf of the NHS. The Agency is an executive agency of the Department of Health and together with the NHS Logistics Authority replaced the NHS Supplies Authority in April 2000. It employs 323 staff, divided between purchasing and corporate and support functions.

In the UK, public procurement has been devolved both horizontally and vertically to the individual departments at each level of government, as well as to the regional and local levels. In the case of the NHS, this means that the majority of purchasing and supply decisions are made at the local Trust level (approx. 60%), while the Purchasing and Supply Agency negotiates directly, through framework agreements, a further 20% of contracts, representing 3000 of the 8000 suppliers to the NHS. The Agency also works with Trusts and Health Authorities on developing individual "bespoke" contracts and on the development of procurement guides. In this way, the Agency influences about half of the £7 billion spent in the NHS on purchasing products and services, of which £500 million comes via volume consumables supplied by the NHS Logistics Authority.

Supply Chain Understanding

The NHS Purchasing and Supply Agency has been instrumental in bringing strategic, integrated supply network thinking into the NHS. This includes activities to focus purchasing and supply around the needs of patients, through better forecasting, reduced inventory and costs, faster delivery and increased transparency and efficiency in purchasing and supply.

It has also developed innovative supplier/customer partnerships, such as the Prosthetics Strategic Supply Group (PSSG), which has brought Rehabilitation Consultants and other medical professionals, trade and professional associations, patient groups, academics and purchasing and supply professionals together with commissioners of healthcare to create a cross-functional and inter-organisational forum. The advantage of this approach is better communication across the supply network. For example, the group has developed a model patient care pathway that will inform commissioners on the key inputs and outputs of a prosthetic service.

In its strategic supply network thinking, the patient is the focus of its work. However, the Agency itself does not define patients as "customers". Instead, it prefers to think in terms of stakeholders, with the Agency sitting in a complex network of stakeholders, including patients, the NHS, suppliers, taxpayers, the Department of Health, the Government, etc.

The Agency therefore, views relationship management as a key element of supply network management. It welcomes input from suppliers, patient groups, research/academic institutions, etc., and has been instrumental in exploring innovative cross-functional and inter-organisational teams. Its aim is to develop collaboration and trust and to overcome obstacles, such as internal competition, lack of understanding and general mistrust. Developing links between suppliers and end users is seen as a key part of the Agency's role. The Agency works closely with suppliers to ensure continuing product development and added value for users.

The Agency is also responsible for developing strategy for incorporating environmental issues into the supply network.

Drivers for SSCM

As a governmental organisation, the NHS Purchasing and Supply Agency must comply with governmental policy, including governmental environmental policy. This policy is implemented through the "Greening Government" programme, which includes the greening of public procurement.

The "Greening Government" programme currently focuses on the incorporation of environmental concerns into public procurement and does not specifically address the wider social and ethical purchasing agendas. Consequently, the Agency currently focuses on environmental issues in procurement.

Besides governmental policy, the incorporation of environmental issues into purchasing and supply is being driven by the Agency's environmental management system (EMS). The Agency has recently become ISO14001 certified (June 2000) and many of the Agency's environmental activities and objectives are a result of and driven by its EMS.

SSCM approaches and tools (Metrics, Criteria, Measures)

Firstly, as already indicated the NHS Purchasing and Supply Agency concentrates on environmental rather than sustainability issues. Therefore, their tools and approaches reflect only environmental concerns. Secondly, public procurement in the UK is based on the "value for money" concept, which is defined as "the optimum combination of whole-life cost and quality (or fitness for purpose) to meet the customer's requirements" (HM Treasury, 1999). The whole-life cost includes the initial price, direct running costs, indirect costs, administration costs, possible savings, recyclability and end-of-life costs.

Sustainability considerations can be considered under a number of these headings. However, public procurement is also governed by the EU and national public procurement rules, which are designed to protect and promote free trade, rather than environmental, social or ethical concerns. Therefore, these rules influence how the Agency can integrate environmental issues into their supply chain management techniques. The resulting tools and approaches they use are discussed below:

(i) Communicating organisational sustainability policies and values

The Agency uses three main techniques for communicating its environmental policy and values: specifications in tenders (see Purchasing Specifications below), annual supplier seminars and the Internet. In terms of the Internet, the Agency maintains an extensive Internet site, covering a broad range of supply issues. The Agency's environmental policy and aspirations are also included.

Annual seminars target the Agency's 'major' suppliers (approx. 560). The seminars are organised into 13 main commodity groups and cover a broad range of issues, including the environment. The purpose of the seminars is to share information on the activities the Agency plans to pursue over the following year.

(ii) Pre-qualification of suppliers

EU and national procurement rules require governmental purchasing to be based on a well-defined tendering process. According to the Agency, this means that for it to legitimately incorporate environmental concerns into purchasing practices, the Agency needs to focus on product or service characteristics rather than the supplier's environmental performance. This rules out the use of pre-qualification techniques and puts extra importance on the use of specifications within the tender and subsequent tender evaluation.

(iii) Tender specifications and evaluation techniques

Using specifications in tenders is one of the main approaches the Agency employs to green the NHS supply network. Tools used include standard clauses, which it uses in its own contracts and disseminates throughout the NHS, as well as tools for evaluating tenders, such as whole life costing and the incorporation of relevant environmental issues into tender evaluation. In the latter, buyers are urged to weight environmental considerations sufficiently to influence the outcome.

The Agency has also developed a number of pilot projects to explore environmental purchasing options. These include developing contracts for the refurbishment and repair of wheel chairs and exploring opportunities for reusable products.

The Agency is currently developing guidelines and criteria for most product groups. Buyers work with the Agency's Environmental Supply Policy Manager to determine environmental criteria based on the environmental issues relevant to their particular product areas. The criteria are then incorporated into their tenders.

Future plans include a number of tools and techniques for capturing product- and service-related environmental information (supplier questionnaires, best practice in product groups, etc.) and incorporating specific criteria into tenders. There are also plans to compile and maintain a register of widely available environmentally preferred products and services, and to highlight these types of products in purchasing catalogues.

(iv) Contractual obligations

The Government has advised against public institutions using post-tender contractual obligations to promote environmental issues in public procurement.

(v) Cross-functional teams

The Agency has created three cross-functional teams, two internal to the Agency and one, which is still being developed, bringing together representatives of NHS Trusts from the eight regional areas within England. These are, respectively, the Environmental Purchasing Working Group, the Environmental Supply-Chain Working Group, and the NHS Environmental Purchasing and Supply Working Group.

The groups are tied to the ISO14001 environmental management system (EMS), and their primary purpose is to achieve the objectives and targets laid out in the EMS. Beyond this, the groups identify key environmental issues and develop new targets to address them. They are also seen as an important way to share environmental responsibilities and ownership throughout the organisation. In future, it is planned that the groups will incorporate external organisations (suppliers, trade associations, patients groups, environmental NGOs, etc.) and evolve into stakeholder partnership groups.

The Environmental Purchasing Working Group is responsible for exploring tools and techniques for incorporating environmental concerns into tenders. This includes identifying environmental criteria for specific products and services, environmentally preferred products and services, environmental "hot topics" and best practice, increasing the availability of environmental information, and disseminating this information broadly throughout the Agency and the NHS. The Environmental Supply-Chain Working Group is responsible for monitoring and measuring the environmental performance of the NHS supply chain. This includes surveying key suppliers (via questionnaire), benchmarking their performance, and working with them to identify and achieve improvement. The aim is to improve supply chain performance by 1% annually.

The NHS Environmental Purchasing and Supply Working Group will bring together purchasing and supply experts from all eight NHS regions in England. Its purpose is to survey the extent of environmental supply chain activities throughout the NHS, to develop and disseminate a briefing paper on "green supply", to develop an NHS-wide information network for green supply issues, and to share best practice in environmental supply network management.

(vi) Supplier/customer partnerships and alliances

The Agency has extensive experience with supplier/customer partnerships, as the example of the Prosthetics Strategic Supply Group discussed earlier showed. It is planned to follow this model for environmental issues by expanding the work groups (see Cross-functional Teams) to include external organisations.

The Agency will also provide support for key suppliers to improve their environmental performance. This support will include guidance on where to find existing information sources, as well as targeted workshops, seminars and conferences. The direction of the support will depend on the results of the supplier questionnaire currently being developed (see Validation). Suppliers have already voiced their support for these activities because it gives them support when arguing for improvements with their own boards.

(vii) Validation

The Agency is developing a questionnaire to be sent to existing suppliers. The purpose of the questionnaire is to determine and track the environmental performance and continual improvement of the Agency's suppliers. The information gathered will be used to benchmark suppliers and to develop specific criteria for product groups.

(viii) Internal training and evaluation

Internal training and evaluation is a key approach at the Agency. As already mentioned, all buyers are responsible for establishing environmental criteria in their tenders. Furthermore, all staff are set individual environmental objectives and their overall performance evaluation includes an evaluation of their environmental achievements. To ensure that these objectives are met, the Agency provides ongoing environmental training and awareness raising for all staff members as part of its ISO14001 EMS. This includes a two hour briefing on environmental issues and information on key environmental issues for product groups on the Intranet. Staff also have access to the Environmental Supply Policy Manager, who is responsible for setting up the training and information sources.

The Agency is also working with outside organisations (academic, professional) to develop an interactive learning package on CD-ROM, which will focus on environmental issues for public purchasing professionals. It is also exploring the development of a taught module for environmental purchasing in the public sector.

(ix) Working with organisational peers

The Agency co-operates informally with other governmental departments as part of the "Greening Government" programme, as well as sharing best practice in tendering and contracts. It also works closely with the Chartered Institute for Purchasing and Supply.

Success Factors

Key success factors for the Agency are its central position and leadership role in purchasing and supply in the NHS, its corporate culture and its environmental management system (EMS). Supply network issues are core to the business of the Agency and its corporate culture reflects the modern, open and proactive approach it applies to these issues. This also includes environmental values, which are an integrated aspect of its activities, as shown by the ownership and responsibility for environmental issues at all levels of the organisation. The success of the EMS in leveraging environmental issues into the purchasing and supply network can therefore, be seen to be the result of these values. The EMS has focused these values into a structure and instigated concrete activities, based on clear objectives and targets, to improve the supply network.

Finally, the role of the Agency as a centre of excellence on purchasing and supply has assisted the Agency in its work to green the supply network throughout the NHS.

4.6

Unipart Group of Companies

Company background

Unipart began as part of UK government-owned British Leyland. In 1987, through a management buy-out, the Unipart Group of Companies was officially established. Today, Unipart is not only active in the UK, but has operations in the Netherlands, Italy, Germany, France, Spain, Canada and USA, and is currently one of Europe's leading independent logistics, automotive and accessories companies.

The Unipart Group of Companies (UGC) is significantly diversified. As of 2000, Unipart consisted of the following main divisions:

- Σ Established in 1998/99, Uniparts Advanced teaching system is a division established to work with external partners to transfer learning and skill sets in the areas of change management and continuous improvement (www.uals.co.uk)
- Σ Unipart Demand Chain Management (DCM), which provides mainly value added aftermarket logistics to a range of external and internal clients.
- Σ Unipart International, which supplies car parts for all makes sold in Europe to manufacturers and garages.
- Σ Partco Group, which specialises in the distribution of replacement car and commercial vehicle components, garage equipment, tools, automotive paint, refinish materials, etc. to aftermarkets in the UK, Ireland and mainland Europe.
- Σ Truck and Traller Components (TTC), UK's leading distributor of commercial vehicle spare parts and accessories.
- Σ Burden Group, which distributes a wide range of caravan, camping, marine and outdoor activities products.
- Σ Unipart Manufacturing Group, which manufactures original equipment for several British, European and Japanese vehicle manufacturers in the UK and Europe.
- Σ Unipart TVS, a joint-venture between Unipart and TVS Groups of India for marketing and distributing components throughout Europe manufactured by TVS and other leading Indian component suppliers.
- Σ Surestock Health Service, which offers NHS Trust a procurement and supply chain management service, providing electronic inventory and procurement management.
- Σ Railpart, the leading provider of traction and rolling stock spares to UK industry.
- Σ National Railway Supplies, which provides supply chain solutions for the contractors hired by Railtrack (owner of the UK rail network) to maintain its infrastructure.
- Σ Unipart Defence Logistics, which is an established supplier of products, systems and services to the military sector.

According to John Neill, CEO of Unipart, the motor industry (mainly car parts) 'no longer defines or confines' Unipart, although it does remain important (UGC Annual Review, 1999). For example, Demand Management Systems (DMS) has become one of Unipart's core businesses and it is currently undergoing dramatic growth. Currently, the car parts business constitutes about 60% of the group's operations. The other 40% is made up of new areas of business, especially Demand Chain Management, railways and health care. In 1998, the before tax profit from all UGC operations was £39.2 million.

Unipart has a very strong corporate culture, and over its ten year history has even developed its own 'Unipart language' as a part of the 'Unipart Way.' Unipart is based on a 'learning organisation' model and uses 'knowledge management systems' to create learning opportunities for all its employees. The aim is to re-empower and stimulate their problem-solving and innovative capacities so that the company can be a leader in speed, agility, and customer satisfaction.

A4.6.2. Supply Chain Understanding

Due to the diverse portfolio of UGC companies, Unipart plays a variety of roles in the Supply Chain. Usually, it sits in the middle-to-downstream end of supply chains and does not generally interface with household consumers. Some UGC companies act as first tier suppliers to auto manufacturers (Honda, Toyota, Jaguar, Ford, Rover, Land Rover, JCB, Toyota, Lotus, Saab, Daimler Chrysler and TRW) and railways, as well as supplying parts to businesses providing vehicle aftermarket services.

Other Unipart companies actually provide supply chain management services to its customers. This includes procurement and logistics services (such as warehousing or inventory management) to the auto industry, NHS and IT sectors (Jaguar, Daihatsu, Bull, Vodafone, Hewlett-Packard, NHS Trusts).

Supply Chain Management is one of the fields where UGC has experienced its most dynamic developments. Unipart believes that if companies want to compete successfully in the future they will need to work across the supply chain to meet the needs of their customers.

At the core of Unipart's understanding of supply chain management is supplier/customer partnerships. Unipart sees the supply chain as stretching 'from raw material to the end-user,' embracing both an organisation's suppliers and customers. Its philosophy is to work with suppliers and customers to develop lifetime partnerships to make Unipart operations as lean and efficient as possible. This philosophy grew out of the fact that in the early 90s, when Unipart first began working with suppliers, it realised that it did not have the size or financial weight to force suppliers to change. It therefore, realised that building relationships based on common interests were the only way forward.

Based on these experiences, Unipart is now able to offer expertise in 'improving the customer/supplier relationship' and build them 'in more intimate ways' as one of the services they provide in their Demand Chain Management business. At the operational level, supply chain management is 'owned' by the commercial department (includes purchasing staff).

At its most progressive, Unipart is challenging the way supply chain management is understood today. UGC doubts that the western model of supply chain management, in which a company sets requirements for data from its suppliers, leads to best value in products and services. In Unipart's philosophy, managing supply chains is about a two-way flow of information, based on trust and common goals. To reflect this approach, Unipart advocates the term Supply Network Relationships (SNR). In Unipart's opinion, SNR should include pro-active approaches, close relationships and continuous improvement.

Drivers for SSCM

Unipart has been recognised for its integrated policies on health and safety, training and employee welfare, as well as its holistic approach to the health and safety of the environment in which the company operates. The company also focuses on the reduction of materials and waste in order to keep its business lean, and strives to integrate environmental considerations with mainstream management processes.

The integration of environmental issues into the supply chain was sparked by two factors. Firstly, the company began to detect environmental concerns from end customers, who were routinely interviewed for their needs and preferences. The company understood that having the majority of its business in the auto sector, it would be vulnerable to an 'unenvironmental' image unless something was done. Secondly, at that time work on Environmental Management Systems (EMS), such as ISO 14001, was just beginning, and Unipart was beginning to feel pressures from their customers to work toward an EMS, which in turn forced them to turn to their suppliers with environmental issues.

Social and ethical issues, such as child labour, minorities' rights (racial, gender, etc.) and fair wages, were not specifically addressed in Unipart's supply chain until about two years ago, when it decided to shift its supply base from the 'Western World' to developing countries, such as China. Prior to that Unipart had not seen the need to specifically address social and ethical issues in its 'western-based' suppliers. UGC has now adopted the SA8000 standard. However, Unipart has found that the standard's guidance has turned out to be inadequate, as it sometimes conflicts with the UGC philosophy of "serving their customers better than anyone else."

SSCM approaches and tools (Metrics, Criteria, Measures)

(i) Communicating UGC sustainable policy and values

Unipart's environmental and social policies and values, which are strongly tied to its corporate culture, are communicated through its Internet site and its annual reports.

(ii) Pre-qualification of suppliers

In the Demand Chain Management parts of the UGC operations, Unipart does not have much flexibility in choosing its supply base, since the business is managing its customer's supply chain. However, where it can choose, USG has an in-depth integrated assessment programme for suppliers. The criteria include conventional supply chain management requirements, but also a number of social, cultural and environmental criteria.

Environmental requirements revolve mainly around ISO 14001 or other recognised environmental management systems. Suppliers are required to have a system implemented, or at least have plans to work towards it. Unipart can support its suppliers in endeavours to implement such systems. At the present time, about 80% of Unipart's suppliers are ISO 14001 certified.

(iii) Purchasing criteria

Purchasing criteria have been drafted for the whole company. Environmental aspects are integrated with these criteria, where relevant. One example is in railway business, where very clear environmental criteria are drafted for the purchasing of timber. The Environmental, Health and Safety Department is involved in the process of incorporating environmental aspects into purchasing criteria. At the operational level, individual purchasing teams (cross-functional teams) work with the Group Environmental Officer on criteria as well.

(iv) Partnership with Suppliers

UGC believes that the concept of Supply Chain Management should evolve towards Supply Network Relationships (SCR), in which the core tools should focus around developing relationships that allow organisations to understand each other and work towards the triple bottom line.

UGC started work in that direction about ten years ago when it began to develop a unique approach that challenged the traditional 'adversarial' approach between customers and suppliers and allowed them to co-operate with their suppliers to drive down costs in the supply chain. This led to the development of a programme called 'Ten(d) to Zero' that aimed to develop and continuously improve UGC's partnership with its suppliers by removing of waste, improving quality and meeting customer requirements profitably with the shortest possible time.

In the Ten(d) to Zero programme, Unipart and its suppliers reach an agreement on ten pre-set elements or aspects of the business that they would like to improve, of which one relates to environmental issues (i.e. environmental management systems). For each element, they also agree on ten milestones, with 'zero waste' the ultimate goal of the partnership. Improvements are measured jointly (the worst performance is rated 10 and perfection is zero). The idea is to reduce scores steadily so that continuous improvement becomes second nature for all concerned.

Σ Tools applied in the programme include:

- Σ developing a formal framework for building relationships with suppliers (includes cross-functional teams and principles for the process of forming the relationship – e.g. no blame, openness, honesty, and a proactive approach),
- Σ A transparent version of 'open book trading' that allows both parties to assess their progress,
- Σ Simple, honest contracts.

The achievements of the Ten(d) to Zero Programme from all UGC divisions and all levels are reported on a monthly basis.

Unipart's CEO, John M Neill believes that each point reduced on the Ten(d) to Zero scale is worth £500,000 on UGC's bottom line.

(v) Validation

Unipart reserves the right to audit any of the information provided by or details agreed with the supplier.

(vi) Partnership with Customers

In its thinking about Supply Network Relationships, Unipart includes customers as part of the value adding process. Therefore, Unipart considers that its relationships with its customers are as important as its work with suppliers. In this work, Unipart also strives for close relationships and jointly develops Key Performance Indicators, through which UGC develops a detailed understanding of the processes driving these indicators and works with the client on ways to improve them.

(vii) Cross-functional Teams

Unipart considers cross-functional teams as a vital tool to build relationships with their suppliers and customers. The teams are created based on the specificity of the top ten issues, which are identified depending on the UGC division.

(viii) Contractual obligations

Unipart considers contractual obligations as a very important part of their work with suppliers. For example, the improvement programmes agreed with suppliers under the 'Ten(d) to Zero' initiative are written into the supplier contracts and are legally binding. There is an emphasis, however, on Unipart's side, that contracts should be as short and transparent as possible.

(ix) Internal sustainability training

One of Unipart's core values is to be a 'learning organisation' centred around continuous improvement. This is reflected in its commitment to giving opportunities to its employees to learn more and to become more creative and innovative. As part of this commitment, Unipart has established special learning facilities such as the Unipart University and its satellite, the 'Faculty on the Floor' programme. Besides these, Unipart maintains Communication Cells, which allow teams to monitor and find new knowledge that enables them to improve particular Key Performance Indicators (KPIs). Communication Cells are also part of an extensive internal network that facilitates rapid communication of new ideas and dissemination of Demand Chain Management's standard operating procedures.

Originally, Unipart's learning opportunities were only offered to company employees. Today, Unipart suppliers and customers are also encouraged to take part.

In social and ethical terms, building trust and honesty are a key part of the Unipart learning approach. Before launching the 'Ten(d) to Zero' programme, it first trained its employees in building 'mutual trust.' According to David Thomas, one of the champions in the Unipart's 'learning organisation', 'one can create the best process in the world with the tools and techniques that are available, but if people do not want to use them - they won't!' This is why the learning process is at the core of the 'Unipart Way.'

The internal training programme offers environmental programmes as well. They are offered in the Unipart University programme on average once a month.

Success factors

Unipart has developed a unique model of learning organisation, which has cascaded down to the work with their suppliers and customers. The work of Unipart focuses around the concept of social capital, i.e. building reputation, customer satisfaction and loyalty and knowledge management. Unipart benefits from this approach by gaining the trust of its customers and suppliers.

The value of building 'social capital' is at the core of the Ten(d) to Zero programme, which aims to develop equal relationships that are based on common understanding, mutual trust, honesty and transparency. The same set of values is also at the core of Unipart's relationship with its customers.

5.0

Conclusions



5.1

General Conclusions from Case Studies

- Σ There is confusion over semantics in the SCM tools, which is likely to add another level of difficulty when working towards a generic business model for SSCM. There are terms that are used in individual organisation's language, and organisation-based solutions, that are customised to the needs of the individual organisation.
- Σ In the future, it is possible that individual companies will not compete against companies, but rather that entire supply chains will compete against other supply chains. This will require whole supply chains to be tighter and have closer relationships. Adding value through those chains would be a key feature of a successful supply chain management approach.
- Σ SSCM champions are questioning if the current metrics used in supply chain management are adequate to enable a shift towards the 'triple bottom line.' They have suggested that rather than present 'reduction of waste' or 'percentage of on-time deliveries,' metrics should include the number of years that a company has remained a supplier to its customer or the average life span of the customer base. Stable relationships with suppliers building trust mechanisms will make supplier-customer influence easier.
- Σ Environmental management systems (EMS), such as ISO14001, can be a powerful tool for incorporating environmental issues into supply chain management practices and relationships. However, an EMS is only as effective as the underlying corporate culture and the level of commitment that the organisation allow.
- Σ Governmental sustainable supply chain management approaches and tools are restricted by the EU and National procurement rules, particularly regarding the pre-selection of suppliers and post-contractual obligations. The rules force public bodies to concentrate more on tender specification criteria. These criteria are also true for other regulated industries such as the utilities sector in procurement of large cost goods and services.
- Σ Many of the leading organisations do not use the term supply chain, but supply network and engage in managing the supply network.

5.2

Influencing the development of SSCM within the Organisation

Cross-functional teams are important ways to collect and spread environmental information, as well as access valuable knowledge in the organisation and the supply chain. These approaches also help to spread ownership and responsibility for environmental issues from more than just the environmental departments.

Best practice appears more likely where there are strong communication links between supply chain management and environmental management. This can be accelerated by facilitating informal networks between product buyers or procurement and environment, health and safety.

Influencing Supplier Organisations

There is great value in Customer-Supplier partnership arrangements, as a way of sharing learning from the customer to the supplier and the supplier to the customer. A key example is Unipart, where corporate culture and philosophy are very strong. This culture is cascaded down through the organisation to the work that is undertaken with suppliers. This is a sophisticated tool in building supplier relationships and an effective top-down approach to SSCM development.

Third-party tools for evaluating and categorising supplier companies are also useful techniques that can influence the further development of company approaches to sustainable management practices. This is highlighted by the Achilles software tool in the utilities sector, where companies can be chosen for tender purely on the presence (or not) of an Environmental Management System.

There is value in developing champions of sustainable practice who work at the supplier interface. Key examples of success where this has worked has been in Marks and Spencer, where product technologists drive environmental best practice into the supply chain through an interest in the environmental issues and the ability to influence suppliers 'on-the-ground'. This is a good example of bottom-up approach to SSCM development.

5.4

Developing Ethical Supply Chain Management Strategies

Ethical Supply chain Management is only seen with global sourcing strategies. It may be the case that ethical management is less necessary in local sourcing policies, where minimum standards in labour and social issues are not generally a cause for concern.

From the case studies, only Marks and Spencer has developed social and ethical issues built into its supply chain management strategy. The reasons for this are twofold. Firstly they supply directly to the consumer. In other words their supply chains are highly transparent to consumer concern, which equates to ensuring consumer confidence and the key driver behind ethical management policies. Secondly, they deal in low value goods that require less personal economic investment on the part of the domestic consumer, but are closely related to personal health and well being. Therefore, non-economic criteria can form part of the decision-making for the consumer. This may be one of the reasons that ethical management systems are the most developed in the retail sector. Other global sourcing suppliers such as Lucent have not developed these ethical and social issues due to their main drivers being environmental, plus the lack of significant consumer and media pressure to develop these areas.

6.0

Recommendations

Further research would be useful that would link all three 'triple-bottom line' elements – including the financial aspects of operations. Other findings within the other SIGMA research strands need to be integrated with this research before methods to cascade sustainability through the supply chain can be determined.

There should be further research on development of business models of successful supply chain management approaches e.g. what are the effects of applied tools and approaches for the 'triple bottom line' and what are the lessons learnt (successes and failures)

There is a need for the development of a flexible portfolio of SSCM tools (strategic, tactical and operational) that are focused on the needs of different organisations. These tools will need to be 'hard' e.g. SSCM performance measurement and 'soft' e.g. partnership, collaboration and networking methodologies.

7.0

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