

Supply Chain Sustainability: a Retailer Perspective

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Abstract

Since the publication of 'The Greening of Wal-Mart's Supply Chain' (Plambeck, 2007) the subject of sustainability has gained a clear focus in organisations' supply chain activities. (The Sustainable Business, EFMD, 2010)

In fact the 2007 paper reported on Walmart's ambitions as outlined by CEO Lee Scott, in 2005. That plan was titled "Sustainability 360". Based on information published by Walmart since 2007, this article discusses the organisational context of these initiatives and focuses on the supply chain and logistics practices that support their intentions. In the final discussion it draws the conclusion that logistics service providers (LSPs) can learn from practices operated by large retailers such as Walmart.

Key words: supply chain, Walmart, sustainability, logistics service providers

JEL classification: L81

Organisation Profile

Walmart was created by Sam Walton in 1962, initially with one store in Arkansas, USA. Sam had managed other stores before this, enabling him to set out his guiding principle, "If we work together, we'll lower the cost of living for everyone...and have a better life" (Wal-Mart 2010 Annual Report). Since then the organisation has grown to be the largest retailer in the world with an annual turnover of US \$405 bn (2010) with sales from 8,650 stores across 15 countries and some 2 million staff. In the US it operates a variety of 4,300 outlets including Walmart supercenters, discount stores, Neighborhood Markets and Sam's Club warehouses. It sells food/grocery, clothes and household goods, electrical/electronic goods.

Given Walton's original premise for guiding Walmart, "Sustainability 360" can be considered a natural development of its business model in an environment conscious 21st Century. The initiative has three goals:

- To be supplied by 100 percent renewable energy
- To create zero waste
- To sell products that sustain our resources and the environment

The extrapolation of the programme includes: Operations, Customers, Suppliers, Associates (staff) and social projects in the community
([http://walmartstores.com/pressroom/factsheets/ sustainability fact sheet {1}.pdf](http://walmartstores.com/pressroom/factsheets/sustainability%20fact%20sheet%20%7B1%7D.pdf)).

Sustainable Supply Chains

Whilst the company's framework for sustainability is broad in application this article concentrates on four aspects of supply chain logistics - Supplier Relations, Transportation, Facilities/Infrastructure, and Supply Chain practices.

Supplier Relations

One of the prime areas that retailers such as Walmart focus their attention is the provenance of food products. A particular focus is on fresh produce such as fruit and vegetables, meat, fish and seafood. Walmart has made a two-pronged attack on these product ranges. Further to that it works with suppliers of manufactured goods to develop and re-develop more sustainable products.

As for fish and seafood they have focussed on working with suppliers, and importantly, with accreditation bodies such as the Marine Stewardship Council (MSC). Their concern is to confirm that these products are being fished for, or farmed in a sustainable manner, and therefore - not destroy habitats, or over-fish. So far, in their North American stores (up to January 2009) they have achieved accreditation by the MSC and other councils of up to 49% of these products.

Another approach relating to fruit and vegetables, launched in 2008 and being implemented in the US and other countries, is by offering local produce in their stores. Walmart quote examples such as potatoes and sweet corn, but these initiatives cover a wider range of produce. The emphasis is to offer high quality products at low prices; and one of the key aspects of maintaining lower prices is the reduced cost of transportation (because of less miles travelled). These initiatives vary dependent upon 'local realities'¹: in the UK, ASDA (Walmart subsidiary) is working with 5000 different suppliers; in China there is a whole programme (Direct Farm Program) to encourage sustainable harvested produce.

In another context Walmart is working with manufacturers to produce more sustainable products. An example of this type is the development of concentrated liquid laundry detergents. According to Walmart, in 2008, the estimated environmental savings could be high, through achieving reductions: - 400 million gallons of water, 95 million pounds of plastic resin and 125 million pounds of cardboard, over a three year period. A particularly interesting factor is that Walmart sells 25% of detergents in the US, so the accumulating benefit if other retailers follow suit is enormous.

In addition Walmart works with suppliers to reduce the packaging content of existing products. Whilst the targets for packaging reduction vary, dependent upon the starting position in different countries, they are significant. The company is aiming to reduce the amount by 5% in the US, whilst in the UK a target of 25% reduction was set in 2007. Overall, just in the US, financial savings of some \$3.4bn are expected by 2013.

Although a good deal of attention is placed on local produce, Walmart also sells a much wider range of goods which are sourced from across the world. Its' "Global

¹ 'local realities' a phrase from Danone Sustainability Report 2009 p208 referring to having to consider local contexts and capabilities.

Procurement" activities are also managed within its' "Sustainability 360" programme by working with manufacturers. They demand that their factories can demonstrate they meet specific environmental metrics whilst operating to high quality standards.

Indeed, Walmart announced in February 2010 that it and its supplying companies would be audited independently by PricewaterhouseCoopers, to ensure that product quality and methodology of metric measurements does accurately drive sustainable processes.

Transportation

Achievements in meeting the challenges with regard to transportation and 'Sustainable 360' come in two forms. Firstly changes in the overall supply channel, and improvements in transportation usage.

In tandem with its attention on buying local produce come the added advantage of reducing 'food miles'; that is the overall distance that the product travels before it arrives at the actual retail outlet. In terms of benefit to Walmart this reduces the lead-time of the product - from field to store, and reduces the overall cost of transportation.

Whilst this is relatively straightforward for produce such as fresh fruit and vegetables, there is a greater challenge with meat products which are often shipped between farmer, abattoir, butcher, packager (often in different parts of the country/ or countries), all before being sent on to the retailer's distribution centre.

In its logistics operation it has 7200 tractor units and nearly 8000 truck drivers. The company has achieved direct improvements in transportation in two forms:

- Vehicle management
 - Better routing of deliveries/journeys
 - Better loading of trucks
 - Reducing empty 'backhauling'
- Investment in vehicles
 - 2008 - 1,100 aerodynamic trucks introduced to the fleet
 - 2009 - Pilot use of alternative fuel, and hybrid fuel trucks tested.

Are these improvements delivering value for Walmart? According to their reports a 38% increase in efficiency was achieved in this area of their operations. ([http://walmartstores.com/pressroom/factsheets/ sustainability fact sheet {1}.pdf](http://walmartstores.com/pressroom/factsheets/sustainability%20fact%20sheet%20%7B1%7D.pdf)).

Facilities/Infrastructure

The emphasis on reducing the costs and environmental impact in their facilities will have a major input to achieving their "Sustainability 360" aims.

In the introduction of the programme Walmart has focussed much attention on its facilities - stores and distribution centres. With 4,300 stores and 147 distribution

centres in the US alone, some bigger than 24,000 m², with a typical sized store being around 18,000 m², this is a significant element of their business portfolio and supply chain infrastructure.

In the attempt to achieve 100% renewable energy a strong focus has been placed on generating energy from renewable sources, especially solar energy. Many stores and distribution centres, both new and refurbished, are having solar panels installed.

Other forms of 'generating' power include geo-thermal heating and cooling with the 'technology' buried in 15km strings of cabling under the store's car park. Capturing and directing the heat generated by refrigeration units is another method of heating the stores.

But it is not only about the energy input; the management of power, heat and light is also important.

In an Environmental Demonstration Store constructed in Canada and opened in early 2009 Walmart is testing a range of methods/techniques in a large-scale pilot site. Added to the use of solar energy and geothermal methods, is wind and water power. Addressing the aspect of energy management, the store also demonstrates the use of in-store lighting management. This comprises of the use of 'daylight harvesting' equipment using skylights with light refraction to spread daylight across the interior of the store. When additional lighting is needed this is managed using light sensors which monitor the environment and supplement the natural daylight when needed; when the daylight is strong the system adapts by dimming the in-store lighting. In addition, energy usage is reduced further as the lighting equipment is made up from LED lights, rather than the traditional fluorescent systems in earlier stores.

In its press release on the opening of this demonstration Supercenter the overall energy saving is estimated to be 60% more energy efficient than an equivalent traditional Walmart supercenter. (<http://walmartstores.com/pressroom/news/16/01/2009>)

Another key resource in the facilities is water; Walmart is working to implement water saving and water re-cycling systems in countries in which water usage is acute. Simple improvements such as low-flow sinks and toilets are being installed, along with on-site water treatment equipment which is being installed in Brazil, Mexico in addition to the new Canada demonstration store.

Supply Chain Practices

Whilst improvements are being made in products, transportation and infrastructure, there are other aspects of supply chain operations that are also important for retailers. In this section a number of initiatives and practices are discussed.

In the Canadian Demonstration Supercenter the set-up allows for some 85% store waste to be diverted away from landfill sites; this is a significant improvement, compared to the current average of 65% in Walmart's UK ASDA stores. In Brazil a particular initiative has been successful by working in partnership with a local

consortium to have an organised collection and recycling service direct from the stores. The dumping of materials such as cardboard, plastics etc has been reduced by many hundreds of tons per annum.

The increase in offering locally produced produce has in itself removed some of the high cost of trucking goods over long distances, and the increased attention on journey planning, and truck loading has increased efficiency in these aspects of logistics operations.

Not only does a retailer manage its operations with its business partners, but also with its customers. One very public aspect of environmental concern in retailing is "the plastic bag".

Many retailers have employed various methods to reduce the number of single-use plastic bags in recent years, including charging for them, not providing them, or selling a more durable re-usable bag. Of course the shopping bag, in many instances is a strong marketing tool for retailer in many ways - to project, advertise, and re-enforce the company's branding. But millions of plastic bags have then to be processed after use.

Walmart is addressing this issue taking into account 'local realities', as these two particular examples show. In the US the check-out operator encourages the customer to place at least five items into one bag; in Japan there is a programme to encourage the customer to re-use the bags. In environmental terms, the figures from the stores in California alone have shown a reduction of 290,000 metric tonnes of greenhouse gases from a 33% reduction in bag usage.

Discussion

This article focuses on the supply chain and logistics practices of Walmart to support its "Sustainability 360" programme. In the context of supply chain management representative examples of Walmart's activities are used here. It is important to recognise that Walmart's programme itself covers other areas of the business operations e.g. working with and managing staff, and programmes carried out as community service.

Whilst acknowledging that many other retailers are following similar routes this article has used Walmart's examples of sustainable practice. Further, some major manufacturers such as - Danone, Heinz, Kimberly-Clark, Procter and Gamble (Danone Sustainability Report, 2009; The Future Laboratory Report for Oracle, 2008) are also pursuing approaches to achieving a sustainable supply chain.

However, the actions discussed here highlight the broad thinking that is necessary when looking to develop sustainable operations. Working *with* suppliers, of products or services, creates opportunities and overcomes wasteful activity. Understanding the role of the customer/consumer highlights how service providers can achieve success. Even though Walmart is a very large organisation, with wide-ranging resources and capabilities, there is still potential for other organisations, both large and small, to gain from the ideas, practices and experiences generated through "Sustainability 360" and similar programmes.

The examples here do not only apply to manufacturers and retailers, but also logistics service providers. These organisations are key service providers in supply chains, and therefore are well-placed to drive positive developments in sustainability. Whether large or small, national or international, they too can benefit from understanding the pressures facing and practices required by their own customers. With this knowledge they can support their customer's own initiatives. In this way they can become industry leaders through offering competitive advantage to their customers by providing effective, competitive and sustainable services themselves.

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