TrainERGY project

Case Study - Template

Submission Date:	19/6/2017
Place:	Naples, Italy

Sector Analysed:	Super Market Chain
Product Analysed:	Supermarket

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1 Introduction

The implication of green external operations management in order to reduce electricity and fuel consumption through cross docking optimization and logistics efficiency is significant in today's business environment. More specifically, the integration of cross docking transportation in order to reduce waste, improve supply chain effectiveness and to apply new technologies and techniques aiming for company improvements, has been a game-changing process innovation for large corporations.

2 Overview

2.1 Firm description

As a leader in the supermarket chain in Greece, "Company X" has established a presence with more than 365 stores around Greece and more than 13,000 employees. Their Principles are created around people, quality and the environment. Lastly, it was founded in 1939 in Athens, Greece. Their operations are focused on serving the best quality products to the daily visitors of the stores.

2.2 Product description

The products that the supermarket is selling are numbered as 51,391 products, 3,085 of which are Fresh products, 708 Ecological Products, 40,885 branded products, 102 Owned and lastly 192 ready to serve products. The supply chain of the company is spread all over Greece, which is balanced by a complex, coherent value chain that has been developed through the decades of operational activities.

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2.3 Supply chain of the product

3 Main Analysis

3.1 Process approach

Main Operations:

- Transportation of goods and products
- Packaging their own branded products
- Inventory Management
- Marketing
- Supplier Selection
- Customer Service
- Organizational communications

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3.1.1 Resources and materials

Overall Process & Measurement Unit	Main processes	Inputs
Product/Process: Truck transport(unit=100km)	Fuel consumption (movement)	• Gas (12 L) • Oil (0.2)
	Fuel consumption (stationary)	• Gas (11 L)
	Hub docking	• Gas (1.5 L) • Oil (0.04 L)
	Waste	• Paper cartons (0.567 KG)
	Cleaning	• Water (11.50 L)

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3.2 Scenat analysis

3.2.1 SC Carbon Map

The Supply Chain Environmental Analysis Tool (SCEnAT) was used to model theCement_Sack Supply Chain of The University of Sheffield in order to evaluate the total lifecycle carbon emissions, identify carbon-hotspots and suggest possible low carbon intervention measures to address the hot-spots.

The results of lifecycle assessment (LCA) undertaken using the Hybrid LCA methodology are based on the environmental impacts due to global warming potential of the transportation procedures. The total lifecycle carbon emissions were estimated to be 3674.64 kg CO2- eq/kg. This can further be divided into two main categories: process LCA impacts and indirect impacts. The process LCA impacts contributed 100.00 % of the total lifecycle impacts of the transportation supply chain. Indirect impacts associated with the supply chain were estimated to be 0.00 %. These indirect impacts arise from emissions associated with indirect inputs from the industries aggregated across 20 sectors namely: Personal and Business Services, Transportation and Communication,

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Trade, Construction, Utilities, Equipment, Metals, Minerals, Chemicals, Fuels, Wood and Paper, Food, Mining, Fishing, Foresting, Agriculture, Final Product.

The use of the robust Hybrid LCA ensures that the those inputs that might otherwise be missed in the process LCA system, such as such as construction of commercial buildings (to account for construction of plants and related buildings), service related inputs (such as administration and business related activities), and other special purpose machineries for instance are captured.

A. Table of SC Carbon Map

Input Name	Amount	Avg. Unit Cost	Emission Intensity	Carbon Emissions	Emission %
Fuel	15.00litre	$1.34	1.4500	2,175.0000	72.2%
Water	6.50litre	$0.05	0.6700	435.5000	14.5%
Oil	1.70litre	$11.40	1.3400	227.8000	7.6%
Paper carton	1.50kg	$0.56	1.1700	175.5000	5.8%
Personal Services (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Business Services (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Transport and Communication (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Trade (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Construction (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Utilities (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Equipment (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Metals (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Minerals (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Chemicals (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Fuels (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Wood and Paper (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Textiles (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Food (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Mining (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Fishing (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Forestry (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Agriculture (Indirect)	N/A	N/A	N/A	0.0000	0.0%
Final Product	N/A	N/A	N/A	0.0000	0.0%

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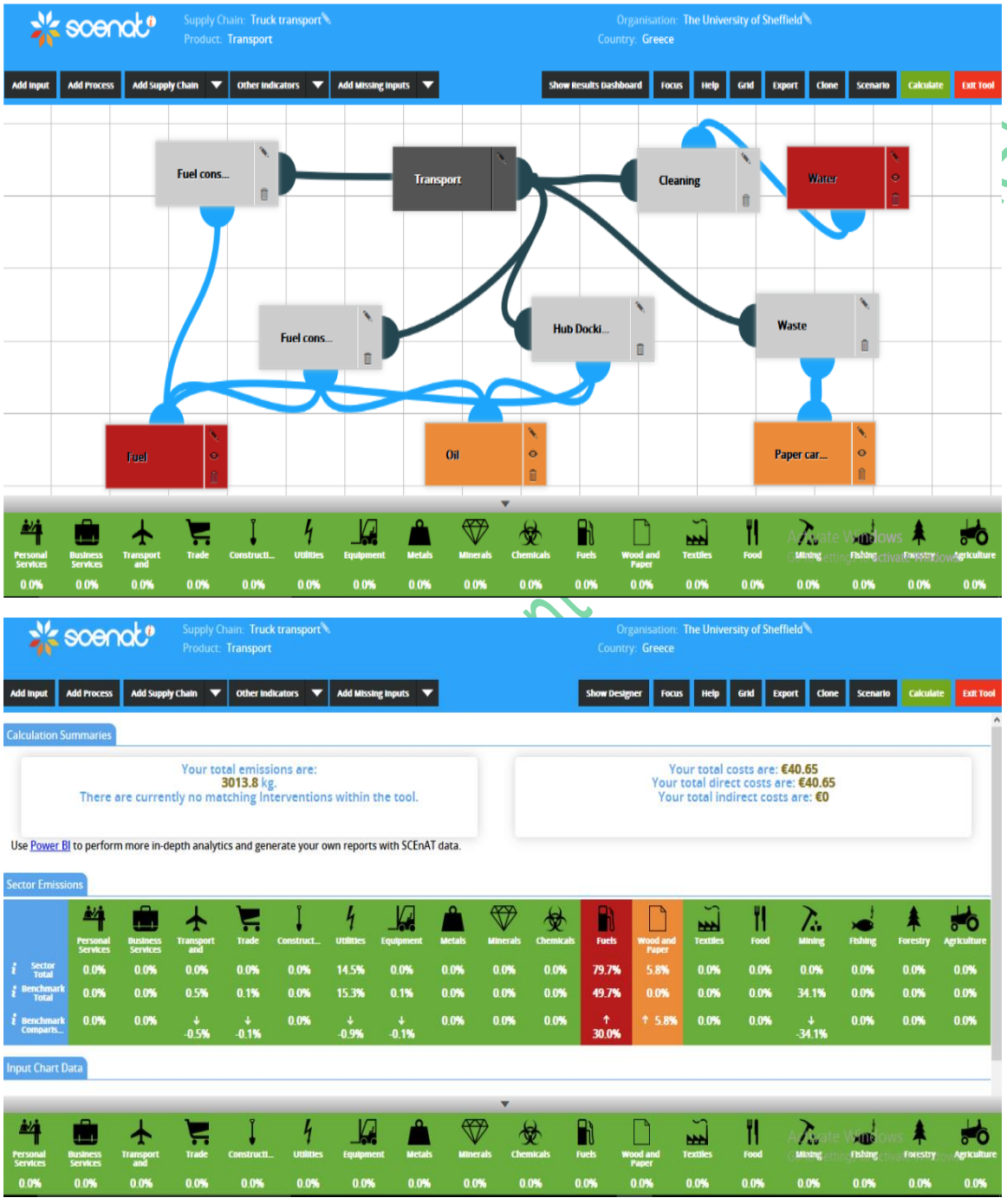
3.3 Results



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4 Possible improvements

4.1 Scenario 1

Apply Cross Docking Optimization Technique

- Allow inbound goods to be consolidated and shipped to Retailers
- Highly used throughout the globe
- High Logistics volume
- Open communication channels throughout the supply chain

The expected Results that the application of this technique will guarantee to the company is the reduction of:

- Utilities: Decrease of 6,5%
- Increase Speed to Market
- Reduce Inventory
- Operational Cost Reduction
- Warehousing minimization
- Reduction of labour costs
- Slight increase in fuels consumption

5 Final conclusions

Summarizing, this technique will generate competitive advantage for the firm and in the same time will create benefits such as:

- Cross Docking Optimization increase the efficiency and Space utilization
- Return on Investment after 2 months
- New Trend due to high volume of products
- Increase S.C effectiveness
- Eco – Friendly
- Competitive Advantage
- ISO 140001 Certificate

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