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School of Economics and Management

A study of sustainability in Thule AB

Investigation of awareness and practices within the company and a transformation strategy



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Abstract

Sustainability has begun to be embraced by more competitive and modern businesses. We believe that the issue of sustainability cannot be avoided today by any company. Organizations that are in leading positions are already trying to take advantage of sustainability and integrating it into their business models.

The concept of sustainability will be introduced and a discussion is made about the current need of incorporating a sustainability transformation within companies.

Two questionnaires were conducted to collect data from Thule's employees and plant managers. A research was made to analyze the sustainability awareness and practices within Thule.

Based on the data collected, the results of the analysis, and Thule's current profile, we will try to find Thule's position in the sustainability transition. Some basics in sustainability leadership and transformation strategy are introduced to promote Thule's steps towards becoming a sustainable business.

Key words: Sustainability, Awareness, Questionnaire, Analysis, Leadership, Strategy, Transformation,

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Our future careers will be based upon managing and contributing to transformational changes within organizations towards creating a more sustainable future. The balance consists in creating the right mix including leadership, sustainability and change.

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Abbreviations

BA	Business area
CO ₂	Carbon dioxide
EU	European union
GHG	Green house gas
ISO	International organization for standardization
LCA	Life cycle assessment
NGO	None-governmental organization
PAS	Publicly available specification
SBD	Sustainable business development
SBSC	Sustainability balanced scorecard
VAEA	Vehicle accessories Europe Asia
VANA	Vehicle accessories North America
ROI	Return on investment
ROIC	Return in invested capital
R&D	Research and development
UK	United Kingdom
US	United States

1 Introduction

1.1 Background

This thesis has been written as a part of the degree project course in the Masters program “Sustainable Business Leadership” at the School of Economics and Management, Lund University.

The course was based on the methodology of action learning and self-managed learning. The students were all assigned to an in-company project, having a role as consultants. This project constituted the main part of the course. As a minor part the students were responsible for organizing several learning events addressing relevant issues related to the in-company projects. The students continuously documented their learning in learning journals and participated in tutorials on these journals.

The assessments of the students were done partly on the written thesis, partly on the consultancy process and report to the client company, partly on performance in learning events and partly on ability to document and discuss the students’ individual learning and development.

We were in a project group of six, divided into two thesis groups with different directions. Our main task was to make an investigation regarding the topic, what has Thule already done in relation to sustainability including: awareness, practices, activities and planned initiatives. In the project group we shared the task of conducting the questionnaires and collecting the data needed for the carbon footprint estimation. Our thesis group has focused on analyzing the data and linking it to the sustainability transition. We began with the planning of how to carry out our thesis and creating a project time plane which can be found in appendix A.

1.2 Objective

The project includes the following objectives:

- Describe the concept of sustainability and explain the importance of having a sustainable business
- Conduct a sustainability awareness study within the whole company
- Investigate the type practices currently being processed and the planned initiatives in terms of sustainability

Based on the study of awareness and practices, we developed the part of sustainability transformation with help of theories. The purpose is to provide a solution to the barriers found from the data analysis and promote Thule's sustainability transition forward.

1.3 Methodology

The method used in this thesis is divided into each chapter.

Sustainability and transformation method:

The sustainability part is mainly based on literature reviews (relying on known authors with various writings of sustainability) and case studies. The type of literature studied includes books, sustainability articles, conference documents and diverse guidelines of NGOs. The literature was used to try and define what sustainability is, provide a relevant sustainability scope, identify the sustainable business opportunity, and analyze its main drivers. Furthermore, the case of the company Henkel is used to demonstrate the link between sustainability and economic performance. The case study shows also the benefits sustainability can provide to an organization.

Method for the questionnaires:

We conducted a sustainability analysis involving economy, environment and social aspects, by using surveys to collect empirical qualitative and quantitative data. The survey included questionnaires that have been used to estimate the level of awareness, and to find out the type of practices and initiatives currently being carried out in Thule. We chose to use a web-based questionnaire to gather the information since we believe that the respondents will have less pressure and might answer more frankly. A web-based questionnaire may also be perceived as very convenient and time saving.

The questionnaires were created in cooperation with our supervisor Patrick Monahan, who gave us expert feedback and helped us adapt them to the company. The areas covered include a broad view of environmental, social and economic perspectives.

The questionnaires were aimed at evaluating and covering two different areas:

→ The parts covered in the awareness questionnaire:

- The understanding of sustainability in business
- The meaning of sustainability in person
- Sustainability preferences
- Reflection about Thule's current sustainability performance
- Sustainability behaviors in daily working tasks
- How to perform better and improve the awareness

→ The parts covered in the practice questionnaire:

- The incentive for Thule to engage in sustainability
- What are the barriers to engage in sustainability
- Is an environmental policy being used

- Production: is LCA (life cycle assessment) being used, resource and waste efficiency, recycling, packaging/shipping materials, energy consumption efficiency,
- Supplier purchasing guideline

When analyzing data, the following values have been taken into consideration: Transparency, Accuracy and Consistency. Most of the data is presented with graphs to increase the level of communication and provide a clear image. Each graph is reflected upon and the results are explained. The data is classified in different segments when needed, such as recycling, suppliers and etc. There are also samples of the questionnaires and answers to some questions in the appendix (to verify our answers).

The practice and the awareness questionnaire were built upon asking first easy questions and then more detailed ones with a variability of different alternatives to improve the results. The questions were properly organized to first test the pure knowledge of the respondents. For example, in the first question the sustainability perspective was not explained and had a lot of alternatives including an option to mention any other things. However, we believe that the questions should have been more balanced or neutral including alternatives not only aimed at sustainability. Two questions in the practice were perhaps not adequate to our research and should have been improved (see appendix E, number 11 & 13).

The respondents of the awareness questionnaires were from: US, Sweden, UK, Netherlands, Italy, France, Denmark, Canada and Poland. In the US, it was sent to totally 188 employees and in EU to all managers. There were totally 70 responders surveyed, 35 coming from North America and 35 from Europe (see section 3.1, table 4). The respondents' background includes: plant manager, managing director, engineer, sales, finance, marketing and etc. The practice survey includes different business areas and the respondents were from: US, Sweden, Netherlands, Germany, Poland, Brazil and Belgium. It includes seven employees with backgrounds such as: vice presidents of operations and managing directors (see section 3.2, table 5).

We believe that having 70 respondents from the awareness questionnaire were sufficient for us to make an analysis. However the number of respondents from Europe should have been more because they have the largest share of group sales. The questionnaire in US was sent to various types of employees and a difference of reliability in data might occur since in Europe there were only managers selected. All of them are Thule's employees, but we do not know if the respondents' different backgrounds in US versus Europe will affect the reliability of data, or not? We have considered the value of each responder to be equally worthy and not based it on their backgrounds or job titles. The respondents from the practices were 7: we believe it is too little, and that more plant managers could have contributed with their answers to help us make a better investigation. The positive side is that they have top management positions making their answers very reliable. When analyzing the data of each country the validity may perhaps differ since the number of respondents are unequal. However, when analyzing North America and Europe, the number of respondents is in consistent (50-50). The results may be perceived to be not valid enough in terms of analyzing each plant or country and comparing them against each other, but are correct when comparing the continents: North America and Europe, since the number of surveyors are equal on both sides.

The employees are all office related workers with various backgrounds whom have given us an overall view of the current situation. The selectivity of the awareness was for all of Thule's

office employees and the practice for the plant managers. Even if the questions may have not covered all of the activities, they gave us a reasonable outcome.

Sustainability transformation

In the sustainability transformation part (Chapter 4), our investigation and data are mainly based on consultancy survey reports (coming mainly from Accenture, Deloitte). It is also based on other literatures in the field of organization transformation, strategy, and corporate social responsibility. We used as well articles from different conferences concerning sustainability issues to present a more interesting, reliable and precious insight. Considering the situation of Thule, (based on the survey analysis) we could then draw conclusions and link it to the transformation part. We have tried to provide a solution by investigating the results from the analysis and combining it with theories. The literature was reviewed in a cautious way and is based on several authors. The literature was chosen to fit with Thule's current situation and the analysis. We tried to combine the right literature with the right situation and contribute with some valuable knowledge.

1.4 Limits

This thesis is limited to the internal part of an organization including an analysis of the awareness and practices in relation to sustainability. The thesis is bounded within Thule's business areas with a main scope to include: Europe and USA, and does not consider any other organizations or industries. The difficulty with this project has been to get hold of necessary and valuable data needed for conducting the analysis. Since we were not at place, in one of Thule's plants, getting hold of the information and understanding what kind of information is needed has been somewhat of a limit to us. Some of the information has not been able to be provided to us at all due to its complexity and our time limits. The data was collected only by using questionnaires and the limits for us to provide a valuable analysis depended on the number and selectivity of responders.

1.5 Company background

Thule was founded in 1942 and has its roots in Sweden. It is currently "the world leader within Sports Utility Transportation".¹ Thule consists of over 30 manufacture and sales locations worldwide having as large as about 3100 employees.² Different products are provided in different parts of the world (see the business areas in table 1).

¹ Nordic Capital, Press release, May 31, 2007

² Nordic Capital, Press release, May 31, 2007

Table 1: Financial perspective based on business areas³

Type	Business area	Headquarter	Employees	Net sales (MSEK)	Market share (%)	Total group sales (%)
Vehicle Accessories	Europe/Asia	Malmö, Sweden	1000	2042	38	35
Vehicle Accessories	North America	Seymour, Connecticut	370	829	55	14
Trailers	N/A	Malmö, Sweden	460	781	12	14
Towing systems	Europe/Asia	Staphorst, Netherlands	590	1133	28	20
Organization solutions	N/A	Longmont, Colorado	247	983	10	17

Thule provides products to make everyday life of vehicle-owners easy and flexible. Extra space and new solutions are needed and therefore very important to consumers who seek to bring their equipment with them in an easy, stylish and safe way. The portfolio comprises lots of products; an example is given to show the main ones (see figure 1). We believe that if Thule becomes more sustainable, they will be able to provide more environmental products or green products which may help to obtain a larger consumer base. One of Thule's core values is active lifestyle and is connected to nature and out-doors activities. Creating a greener profile and culture will show that, environmental and social responsibilities are being taken into account, and may increase Thule's recognition even more including brand and image.

Product portfolio		
Base rackets	Snow sports <ul style="list-style-type: none"> ● Ski carriers ● Ski boxes 	Snow chains
Cargo carriers	Water sports <ul style="list-style-type: none"> ● Diverse carriers 	RV solutions
Bike carriers	Diverse carriers	Luggage & packs

Figure 1: Some of the products provided by Thule

Three factors may be the reason behind to have shaped Thule's unique strength and competitive advantage: quality products, its brand, and efficiency in both manufacturing and workforce. The products consist of a good quality and innovative design (including: ergonomics & aerodynamics). Three core values have been taken into account: smart solutions, shared passions and active lifestyle.⁴

³ www.thule.com, (2010)

⁴ Thule year book (2007)

New strategy from 2010

According to the previous CEO Anders Petterson, the arming of Thule has begun with a new strategy to be communicated and implemented throughout the entire company. The strategy is referred to bring success and therefore consist of 4S' including the following:⁵

- Secure
- Sustain
- Support
- Start

The 4S' are stated by Anders in Thule's year book of 2009 and will be described more thoroughly. In which secure involves making a turnaround in the business area of trailers and to proceed with growth, after a stagnation phase due to financial crisis. The goals are as well to reach an EBIT of 10% by 2012. Sustain aims at keeping costs at minimum and be flexible in relation to the changing demand on the market. Support seeks to create a better relation with consumers by investing and finding different ways of reaching and attracting consumers, for example by creating attractive packaging, a new website, new stores and etc. Start means that it is a go for the company to carry out the strategy and provide results in the end, with focus on stock exchange. Strategy is an important part of the organization and we have tried to incorporate it into the sustainable business development and organizational change to create a more sustainable outcome.

1.6 Carbon footprint

An attempt has been made to calculate the carbon footprint for the plants and for five products provided by Thule within different business areas. Due to time limits and the need of very specific data, such as emission factors and the weight of each detail, the process of estimating carbon footprint for products has not been carried out. The greatest limits have been to get hold of very complex data which required us to make large approximations in order to be able to continue. Providing a calculation with large approximations has been somewhat of a drawback for us and we cannot see the benefits of presenting a number for a product that is based approximations. We developed a valuable model including all steps needed for Thule to be able to estimate the carbon footprint, which can be found in appendix F. We managed though to calculate the carbon footprint for 4 plants and the results can be viewed in appendix G.

⁵ Thule year book (2009). Page 8

2 Sustainability

In this chapter, we will introduce the definition and scope of sustainability. We will also discuss what sustainability in business development means and its main drivers. A study case is made on the company Henkel to illustrate what benefits can be derived when implementing sustainability within an organization. The aim is to give Thule a sustainability framework and guide it towards a sustainability development.

2.1 Sustainability definition

“Good for the business good for the environment”⁶

A classical and widely used definition to describe the sustainable development is according to the Brundtland report, 1987: *“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”*

This definition set an ideal hypothesis, but does not clarify the parameters to measure sustainability. The environmental or social contexts are also considerable parameters to define sustainability. The following composite of sustainability definition addresses these factors as well: “Sustainable developments are those which fulfill present and future needs (WECD, 1987) while [only] using and not harming renewable resources and unique human-environmental systems of a site: [air], water, land, energy, and human ecology and/or those of other [off-site] sustainable systems (Rosenbaum 1993 and Vieria 1993)”⁷.

Sustainability comprises three main areas: environment, social, and economy. However the sustainability perspective can be described in many ways and some of the aspects that it depends on are: type of business, type of industry, geographic and demographic variables. It is almost bulletproof, that you would receive two different answers when asking CEO’s of two different companies to describe what sustainability means for them.

The current system of creating economic capital exits in the belief of that the environment and social capital is to be decreased in favor of benefiting and increasing its value. However the resources provided by the Earth are limited and will eventually run out. The constant rising market pressure and the view on the environment as an infinite resource to be used as an input to enhance profit are not consistent and may create a total destruction of society in the future. In the end the health of the economy depends upon Earth’s environment and the wealth of all living organisms. A Business that realizes this and is proactive to implement change to reduce negative impacts on environment and society as a whole, will create long-term value and outperform its competitors. Some businesses today have begun to understand the importance of how to create long-term value and are taking responsibility to create not only economic value but also benefits to the environment and society.

For most companies to implement sustainability into day-to-day business activities may prove to be a tough task. Today companies are struggling to grasp the meaning of it and what benefits can be derived. The methods for developing and analyzing practices within the field of sustainability are on the top of the iceberg and still in progress. The principle of it can be described shortly in that the resources should be used in a cautious way to respect the needs of future generations, the restoring of both efficiency to provide a sustainable transition and

⁶ European commission, http://ec.europa.eu/environment/eco-innovation/index_en.htm

⁷ Michael Mahaffy, School of architecture, Washington State University ,
<http://www.arch.wsu.edu/09%20publications/sustain/defnsust.htm>

fairness in the use of depletable resources.⁸ A large number of factors affects why some companies may be seen as pioneers of sustainability and others as laggards. Is it due to the type of industry, the type of CEO/Manager, knowledge, vision, strategy and belief in long-term goals, demand, human resources, and financial position? These are some of the factors which may definitely affect the development and the best way for a company to override the difficulties is by first recognizing what the benefits and drivers are and then how to overcome the barriers. In general, new emerged small size companies have it tougher to respond to investments in sustainability due to having less financial capacities, less accumulated knowledge within the industry and are concern of surviving in short-term.⁹ Whereas large companies have more financial opportunities and can choose to invest in different directions, by building up a strategy in long-term towards being sustainable, including not only economic capital but also environmental and social values. We believe that it is obvious that challenges within the fields of environment, society and economy are vital business issues, which demand great leaders, strategy, high-level thinking and action.

Today the leaders within all businesses have to manage the synchronization of:

- Leading new change
- Consumer behavior and value changes
- Increased costs of energy and other resources (raw materials, human resources)
- New regulations and policies with purpose to decrease pollution damage (GHG emissions) and hazardous substances
- The weakening of corporate trust
- Shortage in quality workforce
- Increased environmental and social awareness among consumers and employees

⁸ Tietenberg T. (2009), Environmental economics

⁹ Carrillo-Hermosilla J., del Rio González P. and Könnöla T. (2009). Eco-innovation: When sustainability and competitiveness shake hands. Palgrave MacMillan: Basingstoke (UK) and New York.

The sustainability scope

The framework of sustainability consists of three broad categories: Environment, Society, and Economy. Described in more detail it comprises the following perspectives in table 2.

Table 2: Sustainability framework

• Community development and cultural diversity	• Workforce development
• Energy and water	• Organisational learning
• Transport	• Corporate responsibility
• Ecology, ecosystems and biodiversity	• Human rights
• Pollution and waste	• Social justice and equality
• Climate change	• Citizenship and governance
• Resource efficiency	• Globalisation, consumerism and ethical trade
• Carbon footprinting	• Health and well being
	• Urban regeneration

2.2 What does sustainable business development mean?

“The coming of age of sustainable business development”¹⁰

Sustainable business development (SBD) takes part as a wide perspective of the corporation and its business environment, including the following main aspects: personal selling and direct relationships with suppliers, customers, distributors, partners, employees and shareholders.¹¹ There exists also an indirect link with stakeholders, environment, competitors and the same type of industries. SBD is becoming more of a critical management concept due to new fast changes, competition, the fast diffusion of knowledge and information, and the constant increasing customer and stakeholder demand. Today corporate leaders are seeking ways to handle complex changes and how their roles and responsibilities impact the future. A change can be seen in where they are moving towards developing capabilities within the whole organization, acting on operations and strategies to make them more creative and to produce sustainable outcomes.¹² SBD includes visionary leadership and strategic thinking moved away from the short-term perspective towards creating a balance of both short-term and long-term benefits.

The importance is the way of managing corporations and implementing new change, instead of only doing the basics such as example; managing, marketing and increasing sales. Leading corporations are incorporating sustainability within its core to create exciting solutions to the

¹⁰ David L. Rainey (2006), Sustainable business development: inventing the future through strategy, innovation and leadership. Page 737

¹¹ David L. Rainey (2006), Sustainable business development: inventing the future through strategy, innovation and leadership. Page 737-740

¹² David L. Rainey (2006)

environmental, social and business problems by inventing opportunities to be used now and long ahead in the future. SBD has begun to take off in the world of business and may need more time to prove its success, since the main approaches and theories are less than fifteen years old. In the end, it all comes down to people whom are the corporation's heart and holds the ability to success.

The sustainable business development is being embraced by leading global corporations as a framework included in their strategy to lead new change, integrate their business and meet complex requirements or needs, by creating innovative solutions in the sense of a business environment.¹³

2.3 The sustainability business drivers

The impact of Sustainability on Business

The greatest barrier to any development is uncertainty.¹⁴ However, uncertainty can as well drive new developments, for example some companies have increased their developments towards sustainability in the belief of that new regulations will become harsher and will require that companies carry out environmental and social responsibilities.¹⁵ Trends have the ability as well to change a company's strategy, by recognizing the necessity of increasing operations towards the achievement of a more sustainable business.¹⁶ There are as well other mechanisms that push the development of sustainability: consumer demand, new policies, standards, and regulations may be some of the reasons behind or even the drivers to increase incentive towards developing in a sustainable manner.

We have witnessed the transformation of economy during the past decades. Business has undertaken different challenges such as: the shift in marketing, economic cycles, leadership, and industry disruptions. The best companies survive in the world of business, because they adapt themselves to the challenges.

*"Sustainable initiatives are now part of the corporate mainstream. That's why we believe it makes more sense to define sustainability as the drive to accomplish economic growth while maintaining natural ecosystems and ensuring the equitable distribution of the goods and services economic growth provides."*¹⁷

We think that there are large demands which contribute to the sustainability drivers.

¹³ David L. Rainey (2006), Sustainable Business development; inventing the future through strategy, innovation and leadership. Cambridge. Page 737-743

¹⁴ Carrillo-Hermosilla J., del Rio González P. and Könnöla T. (2009). Eco-innovation: When sustainability and competitiveness shake hands. Palgrave MacMillan: Basingstoke (UK) and New York.

¹⁵ Hermosilla et al. (2009). Eco-innovation: When sustainability and competitiveness shake hands

¹⁶ Makipere & Yip, (2008). Sustainable leadership, page 65-67

¹⁷ Bruno Berthon Eric M. Lowitt and Andrew J. Hoffman, (2010). Compatible Aims: Sustainability and High Performance

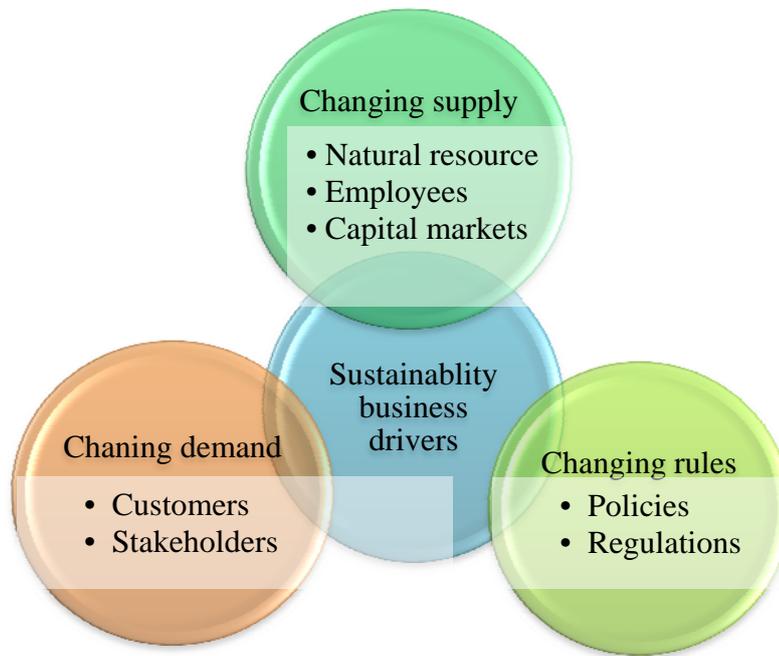


Figure 2: Sustainability business drivers

Natural resources

- More regulations and policies about natural resource and energy are on the horizon.
- Fierce competition due to lack resources, water and energy. Rising concerns due to the increasing level of carbon dioxide (CO₂).
- Climate change and other issues such as resource scarcity are triggering the natural resource crisis and effecting raw material and oil prices. Thule has already faced the problem due to more volatile raw material prices, and implemented “right time, right buy principle” methods and procedures to be optimized.

*“A report by Sir Nicholas Stern, former chief economist for the World Bank, puts the annual worldwide costs of reducing GHG emissions to 500 to 550 parts per million at around 1 percent of global GDP. But if we do nothing, “the overall costs and risks of climate change will be equivalent to losing at least 5 percent of global GDP each year. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20 percent of GDP or more”.*¹⁸

Employees

- Companies with sustainability profile will gain advantage in recruiting the top talents. Authority survey indicate that college graduates nowadays are more mission-oriented

¹⁸ Sir Nicholas Stern, The Economics of Climate Change: The Stern Review (Cambridge, England: Cambridge University Press, 2007).

than before, and prefer to choose the company that matches their personal characteristics and values to reflect themselves.¹⁹

- Sustainability program will help reduce health and safety risks to obtain employee's recognition and trust.

Capital market

- Several investment agencies including JPMorgan, Citigroup and Morgan Stanley have already taken action in integrating sustainability into their investment activities. For example, companies that try to build a coal-fired power plant will have it harder to borrow money from banks because of the CO₂ emission.
- Sustainability performance factor will be taken into account for investors when they are evaluating a company's business performance.

*"About 280 institutional investors, representing over \$57 trillion, have become members of the Carbon Disclosure Project (CDP) since 2000. The CDP urges companies to annually publish data about their carbon emissions."*²⁰
- Pressures from competitors: right now most of the leading companies will disclose sustainability reports in the year book and publish GHG emission annually. There are also some public agencies tracking and rating the sustainability performance, like the launch of the Dow Jones Sustainability index (DJSGI).

*Table Top 10 sustainable companies*²¹

Company name	Country	GIC S Ind. Group	Global 100 Rank	Energy Prod. (US \$)	Carbon Prod. (US \$)	Water Prod. (US \$)	Waste Prod. (US \$)
General Electric Company	United States	Capital Goods	1	3,004	27,878	3,880	729,685
PG&E Corp.	United States	Utilities	2	26,749	8,656	n/a	1,773,779
Tnt Nv	Netherlands	Utilities	3	n/a	14,575	n/a	188,131
H&M Hennes& Mauritz AB	Sweden	Retailing	4	n/a	665,236	n/a	n/a

¹⁹ Debra Meyerson, and Maureen Scully, "Tempered Radicalism and the Politics of Ambivalence and Change," *Organization Science* 6, no. 5 (1995): 585–601.

²⁰ Bruno Berthon Eric M. Lowitt and Andrew J. Hoffman, (2010). *Compatible Aims: Sustainability and High Performance*

²¹ <http://www.forbes.com/2010/01/26/most-sustainable-companies-leadership-citizenship-100.html>

Nokia Corporation	Finland	Technology hardware & Equipment	5	31,345	320,536	53,354	1,545,882
Siemens Ag	Germany	Capital goods	6	44,553	32,741	6,216	273,486
Unilever Plc	United Kingdom	Food beverage & tobacco	7	1,774	21,596	1,053	394,908
Vodafone Group Plc	United Kingdom	Telecommunication Services	8	6,603	44,047	76,661	n/a
Smiths Group Plc	United Kingdom	Capital Goods	9	4,371	38,047	9,670	n/a
Geberit	Switzerland	Capital Goods	10	3,311	26,028	13,771	174,004

Customers

- Customers nowadays are paying more attention to environmental and ethical concerns. According to the 2007 BBMG Conscious Consumer Report, 87 percent of the consumers would like the companies to commit to environmentally friendly practices and support fair labor and trade practices.²² 67% of UK's consumers were surveyed and are more likely to buy a product with lower carbon footprint.²³

Stakeholders

- The stakeholders including the influential individuals and celebrities, the media, NGOs have critical influence to lead the sustainability issue. Stakeholders are considered to be the ones that in some way are affected by the organization.

Policy

A policy may be considered as a driver to increase the sustainable development and at the same time enhance a company's quality, economic profit, and competitiveness.

- An increasing number of countries and industries are setting the rules or regulations to follow including environmental and social issues. They are trying to reach and set standardized agreements. EU has for example release Emission Trading Scheme and the Carbon Reduction Commitment Energy Efficiency Scheme. These regulations are creating opportunities for companies to benefit from emission reductions. They can take advantage of free interest loan, new technology support and tax relief.

²² Bruno Berthon Eric M. Lowitt and Andrew J. Hoffman, (2010). Compatible Aims: Sustainability and High Performance

²³ Carbon foot printing: carbon trust: making business sense of climate change

- Policies may also trigger governments and related associations to promote strict regulations and decrease the environmental burden or increase the benefit to society. This may lead to better innovations within the fields of technology and improve society (example: eco-labeling, green certificate, and etc.).

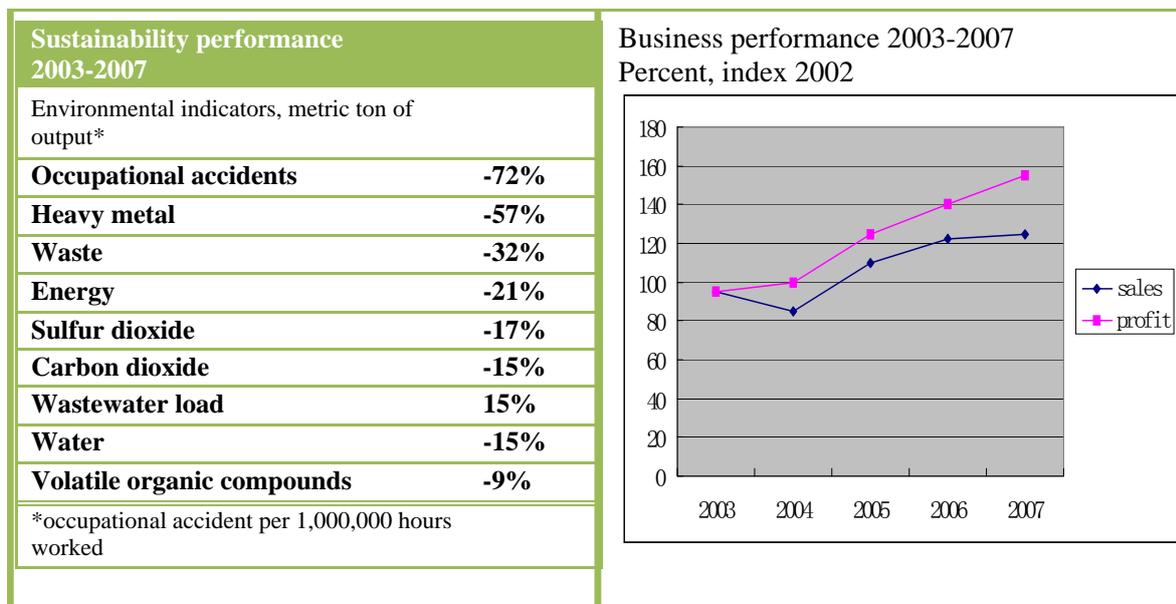
We believe that sustainability has started to reveal itself and become more of a trend around the world today. Behavior changes among customers/consumers and stakeholders have contributed to its rate of adaptation and diffusion to increase. However it is still in progress and perhaps the best time for organizations to start making changes towards incorporating the term sustainability into their vision. Understanding what benefits can be attained by being more sustainable, is in most cases not that obvious and believed in. Large organizations are today investing in becoming more sustainable and actually benefiting from it.

Benefits arise not only from using resources efficient and reducing costs, but also from the creation of so called green (environmental) value to be incorporated in the brand and image. Reducing energy, water usage, and material consumption contributes to lowering operational costs. Focusing on adjusting the cost base, bottom line and improving market position can be considered as well to be a part of sustainability. Meanwhile, reducing the natural resource pressure will alleviate environmental energy crisis to drive society towards sustainability.

Sustainability Business Case Study: Henkel

In this section a case study is introduced and analyzed. We have chosen a company called Henkel because it has incorporated sustainability into its core. Henkel will be used to illustrate the benefits an organization can derive by becoming more sustainable.

Table 3: Advantage of sustainability commitment at Henkel



After studying Henkel’s sustainability report, we realized that Henkel has increased lots of profit and sales by pursuing in environmental and social goals. Table 3 shows the advantage

of committing to sustainability and illustrates the comparison of Henkel's business performances with its sustainability performance.

From 2003 until 2007 the environmental indicators such as heavy metals decreased by 57%. Waste and energy declined with 32% respectively 21%, while sales increased with as much as 39%, resulting in the EBIT to grow up to 61%. Good economic performance will attract potential consumers or investors and can be regarded as an intangible asset.²⁴

If Thule would initiate a sustainability program, the direct economic impact of sustainability for Thule would be an extra added market value to its brand. The "Thule" brand is one of Thule's core values and if consumer's green expectations becomes more satisfied; Thule may increase market share, maintain a competitive advantage in the ever-changing global market, and gain more green and loyal consumers. Sustainability programs will help Thule to obtain government and public attention, they may also provide a chance to increase brand awareness and reputation. Form the case, we know that a sustainability program is able to provide the following benefits: decrease cost expenses and office property cost, increase productivity which results in higher ROI (return on investment).

²⁴ Porter, M. & Kramer, M. 2006 Strategy and society. *Harvard Business Review*, 84(12), 78-92

3 A study of awareness and practices

3.1 Sustainability awareness in Thule

The purpose of analyzing the awareness in relation to sustainability is to find out:

- How aware are the employees
- Sustainability preference in business and in person
- Reflections about Thule's current sustainability performance
- What Thule's employees can and should improve
- What contributions we can provide with to improve their current condition

Presenting and analyzing the results

Seventy employees of Thule were surveyed in different business areas and countries (see table 4). There were 35 respondents from North America and 35 from Europe. The respondents in USA and Canada were from various backgrounds. However the respondents from Europe were only managers. All of them are Thule's employees, but we do not know if the respondents different backgrounds in US versus the respondents backgrounds in Europe will affect the reliability of data, or not? We have considered the value of each responder to be equally worthy and not based on their backgrounds or job title.

Table 4: Responders from the awareness survey

<i>Business area</i>	<i>Continent</i>	<i>Country</i>	<i>Number of employees</i>
Vehicle Accessories	North America	USA	33
Vehicle Accessories	North America	Canada	2
Towing systems	Europe Asia	Netherlands	3
Vehicle Accessories/Towing systems	Europe/Asia	Sweden	15
Trailers/Towing systems	Europe/Asia	Denmark	7
Towing systems	Europe/Asia	United Kingdom	3
Towing systems	Europe/Asia	France	4
Vehicle Accessories	Europe/Asia	Italy	2
Towing systems	Europe/Asia	Poland	1

Sustainability in business

Sustainability in business seeks to incorporate long-term goals within the company's vision and implement short term goals to accelerate new change. It seeks to decrease the environmental burden, enhance competitive advantage, increase the benefit to stakeholders and employees, use the resources more efficient, and add more value in return. Most of Thule's employees see sustainability as long-term which will decrease the environmental

burden and make the use of resources more efficient. Becoming more sustainable will mainly help to reduce costs in the energy sector and not so much perhaps in other parts. In some cases lots of profits are gained by decreasing costs and are maybe not realized since the payback period is too long. For example: Thule uses renewable energy created by solar cells to decrease energy costs. This type of investment demands a huge capital disbursement at first, but will create lots of benefits in the long run. Other benefits gained by using renewable energy sources are: reducing the environmental burden, moving away from dependence of coal and oil, and increasing financial benefits. The environmental part of sustainability seeks to decrease pollution damage and hazardous substances. Figure 3 gives a very clear view of what parts the employees value the most in terms of sustainability. The employees seem to have a good understanding of what benefits sustainability can provide to them which may make an implementation much easier than having to starting from zero. The consumer demand for contributing to change is very important to Thule since it is very consumer oriented. Showing that the company is environmentally aware will reflect its values and what it stands for. Becoming more sustainable in business will cost, however the payback will be greater in the long run.

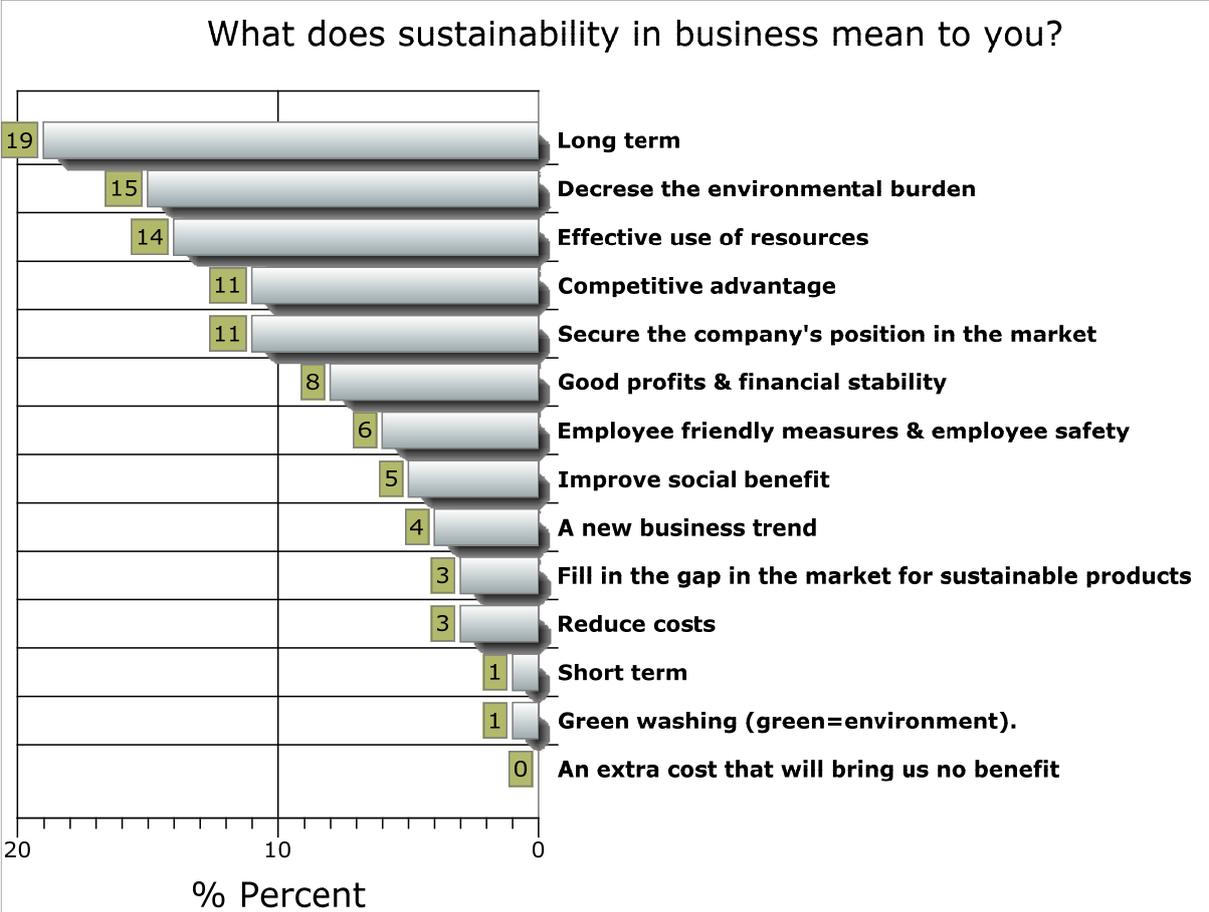


Figure 3: Sustainability in business

Other answers that were written:

- Securing the company's position in the market
- A way of showing that the company is environmentally aware, up to date and reflects what is important to its customers

Sustainability means to you?

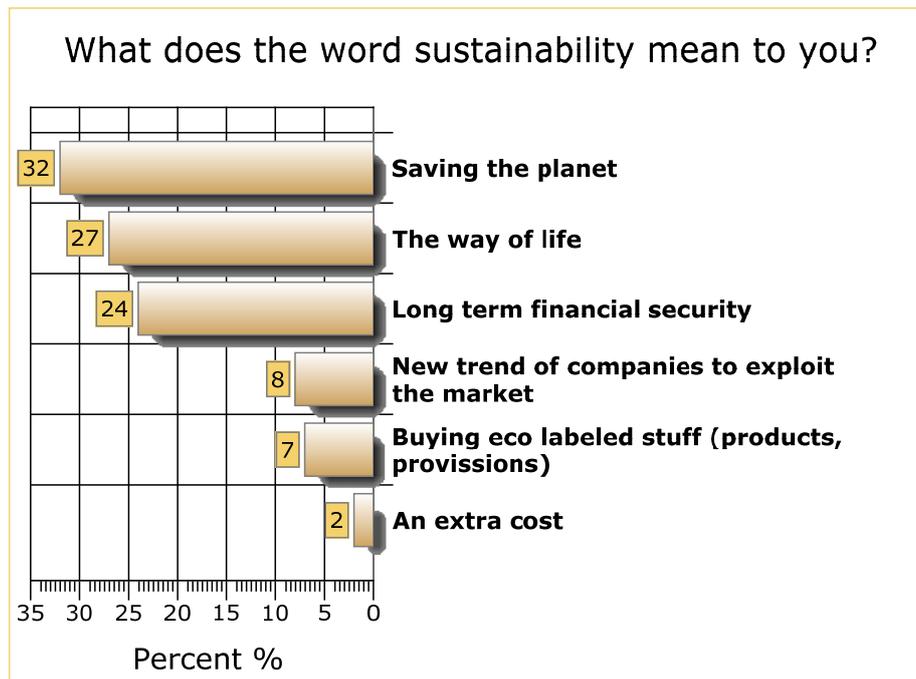


Figure 4: Sustainability in a more personal view

Apart from the business orientation we needed to know what the word sustainability means to the employees more personally. Saving the planet is what it is all about, but in a very long-term perspective. The way of life in this case is that there are behavior and value changes among public and new trends are being followed. Saving the planet, the way of life and long term financial perspective are definitely within the sphere of sustainability and also most valued by the respondents. Some believe that being more sustainable will add up as an extra cost which might seem as remarkable, but in reality it is not. This can be explained in that a lot of green products tend to charge premium price. Which is a fact on that Thule by investigating their own employees can find some evidence: in that becoming more sustainable will help them charge premium price for their products. The differences between figure 3 and 4 in terms of: will sustainability cost more, are a bit different. Green products tend to have higher prices, and will cost you more as a consumer to buy them, but in business the long-term perspective is that an investment will payback and increase benefits even more than usual. Providing green products may use the ability to charge higher prices and is currently being embraced as an advantage by a lot of companies around the world.

Sustainability preference

Sustainability seeks to increase the capital of environment, economy and social. Therefore a question was asked in relation to this as following: sustainability in business encompasses economic, social and environmental aspects, what would be the order of preference for Thule to focus on? The answers are shown in figure 5:

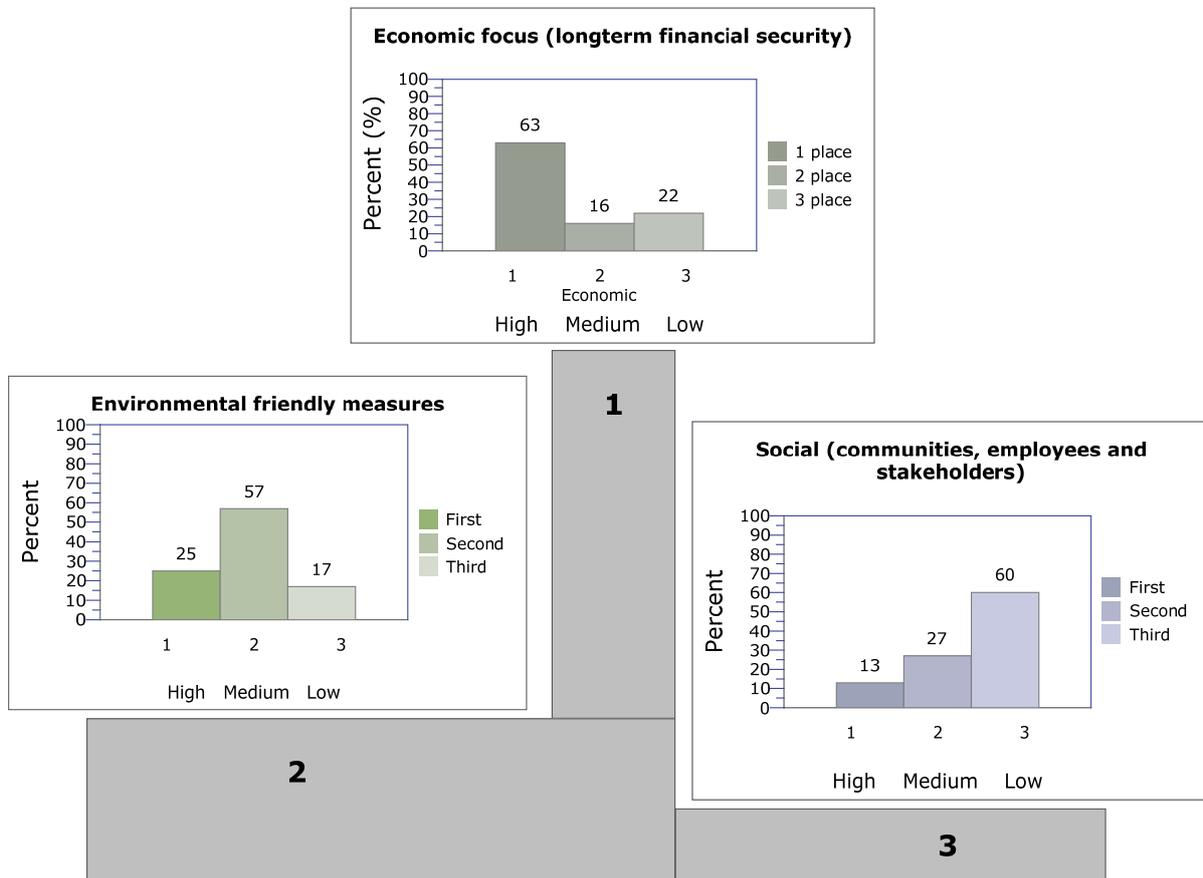


Figure 5: Who wins?

It is very clear that Thule's employee sees the greatest benefits in increasing the economy and to focus on long-term financial perspective for enhancing the sustainability perspective. This was perhaps presumable even before making the analysis; however the rate for it is at 63 percent, which we consider being slightly too high. This would imply that the environmental and social benefits are most likely not going to be equally worth in a long period of time and that change is needed to be put in action. The second most emphasized is the environment (see figure 5) which shows that they have good incentives towards becoming greener. In the third place lays social development; in developed countries where social wealth is quite high may lack motive to increase social wealth even further, which might be one answer to this question. The ideal would be to focus on each of them equally much, and the dream is that the environmental and social part would be the ones to focus most on leaving economy in third place. Focusing on economy is very important, however leaving the other to behind might not create long-term benefit.

Figure 6 and 7 are shown to tell the difference between USA and Europe:

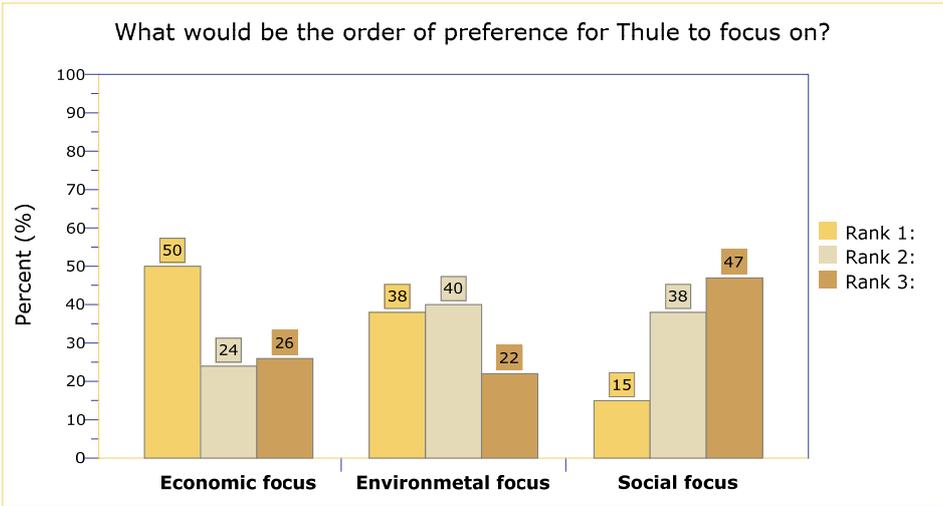


Figure 6: The order of preference in Europe

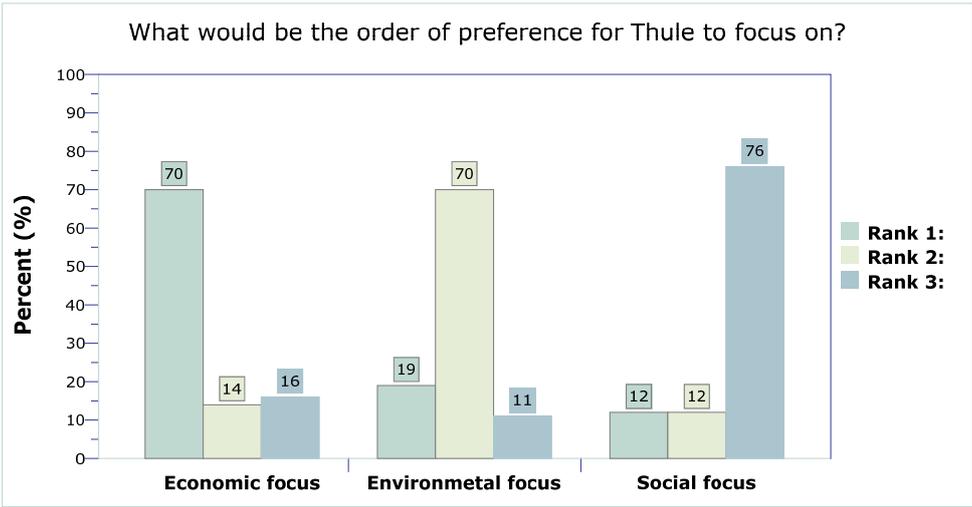


Figure 7: The order of preference in USA

There is a difference between Europe and USA in the economic part as can be seen in figure 6 and 7. The respondents from USA believe that Thule should focus most on economic capital lying at 70% whereas in Europe it is lower lying at 50%. The environmental capital is valued as the second one to be increased and the social as the third. The focus on sustainability is more balanced in Europe but not so much in USA. This may perhaps be because USA follows a very strict method to increase sustainability focusing on first economy, second environment and third social. We can draw conclusions that both USA and Europe wants to increase the economy the most, however the difference is that the incentive is less in Europe by 20%. The explanation of it can have several directions and one of them is that the employees in USA are more capital oriented. Another explanation may be that USA wants to increase its group sales and perhaps catch up the European market. Since the largest group sales is in Europe, the incentive for increasing economy or sales even further may not be as large as in the US. When analyzing the results we could see a pattern between the rankings in terms of job title and most respondents with business backgrounds prioritized the economic focus.

Reflections about Thule's current sustainability performance?

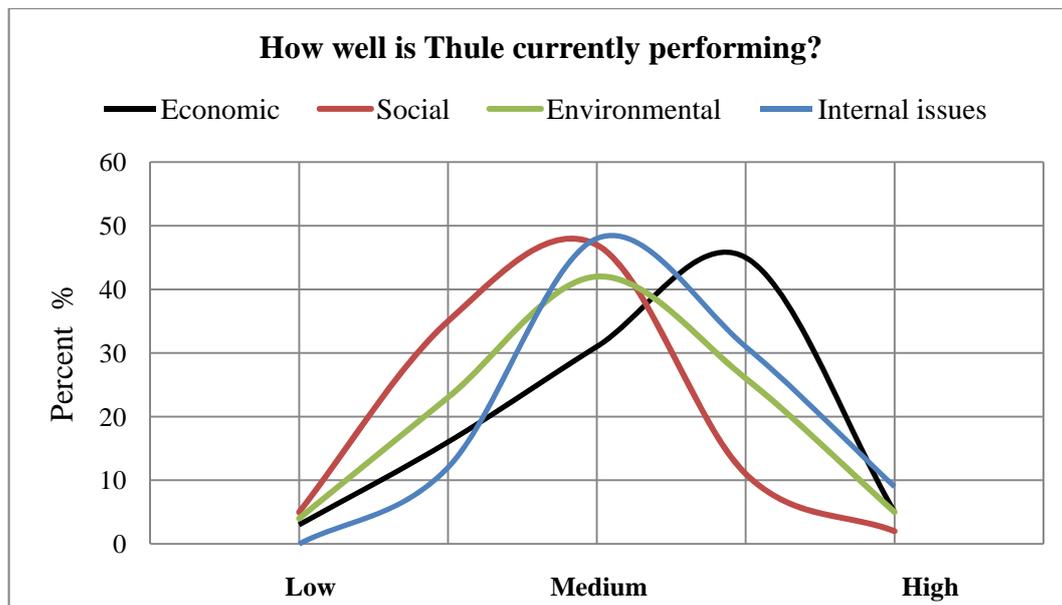


Figure 8: Performance

A majority of the employees believe in that they are performing above medium in terms of economy. Even though they want to increase the economy (shown in the previous figures 5,6 and 7) here they consider themselves performing quite well and best in relation to the environment, social and internal issues. A good performance in economy is important for being able to invest in new technology, R&D and maintain a healthy growth. However the best combination would be to focus more on social and environmental issues to decrease the gap between them. There is a very logical link between figure 5 and 8. In figure 5 the least need to focus on is social capital which is shows in figure 8 that they see themselves performing the worst in. Environment lies at medium and is as well being emphasized as the second category to focus on (see figure 5). A conclusion can be drawn that Thule has a very financial focus and is therefore performing best in that part, while the environment and social issues lies behind. Internal issues are second best here and show that the performance in qualitative measures in terms of human resources, manufacturing and other internal issues are taken into account and dealt with.

Sustainability behaviors in daily working tasks

This question was aimed at understanding how and if sustainability was taken into account in daily working tasks.

There seems to be a lot of environmental thinking and trying to recycle a lot within the company in terms of office related stuff. According to our research some common answers to the question were (see appendix C for the respondents all answers):

- Recycling: Paper, beverage, container, office material, destroyed products, recycle all materials currently 85-90%, waste

- Consume less: Avoid paper use and use electronic documents, auto shutoff lights, reduce electricity use in general
- Use reusable opportunities: Existing parts
- Reduce waste: Waste management tools, 5S, Lean manufacturing, error free products
- LCA mindset: reduce-reuse-recycle
- Smarter traveling and online meetings
- Reduce emissions: transport and network reduction, weight reduction
- Long-term solutions, environmental designs
- NO

The company seems to be in the right direction towards trying to recycle more, consume less, and reduce waste and energy. Some answers were more aimed at trying to do everything for satisfying the consumer's need: which might be perceived as really good as long as that creates a sustainable outcome. Incorporating sustainability might be very complex, and not understood until the results are shown. Thule has the ability to be much more sustainable in terms of also increasing environmental and social capital. They have the right conditions to develop if will is in the air. Transportation could for example be improved even further and other alternatives such as boat and trains can be chosen instead of trucks. It would also be good to continue with encouraging employees and suppliers to use better alternatives of transportation. Lean manufacturing is a good management tool because it increases efficiency and decreases the use of resources. We think that they should continue with lean manufacturing and optimize it even further.

How to perform better?

When we asked what kind of possibilities there exists to perform better in sustainability aspects, we got lots of valuable information of how Thule can become better. The employees know how to become better, however the question is how much are they actually focusing and trying to apply it? Incorporating environmental and social targets will get the acceleration of sustainability to increase. Since Thule's employees are aware of how to be better, only one thing is missing, and that is a plan of action.

Some of the answers of how to become better are as following (see appendix D for all of the respondents answers):

- Community: become a better neighbor, create more jobs, charity, help society and align to cancer research and feed the hungry, volunteer work related to society and environment
- Resources: focus on domestic resources and local suppliers, decrease energy consumption in every aspect, reduce waste, use recyclable material, smart building to decrease chemicals, increase assembly in house, use more natural light to decrease electricity consumption, install solar panels
- Suppliers: influence suppliers in a sustainability direction, have local suppliers, set targets with suppliers, environmental policy for suppliers
- Quality: improve quality of processes and workforce, implement quality programs

- Awareness: increase the environmental awareness; create a green profile and culture, provide awareness to the consumer that for example the cargo box should only be used when necessary and that the gas consumption might be higher when used.
- Recycling: recycling programs, recycling bins in all offices and changing rooms, recycle/reuse scrap materials
- Sharing of success and knowledge between business areas
- Alternative transportation: have incentives programs to encourage carpooling and alternative transportation.

We believe that there are lots of great ideas lying ready in the minds of the majority of Thule’s employees in order to become better, but needs to be put in action and have programs and personnel to take responsibility and implement them.

Your awareness?

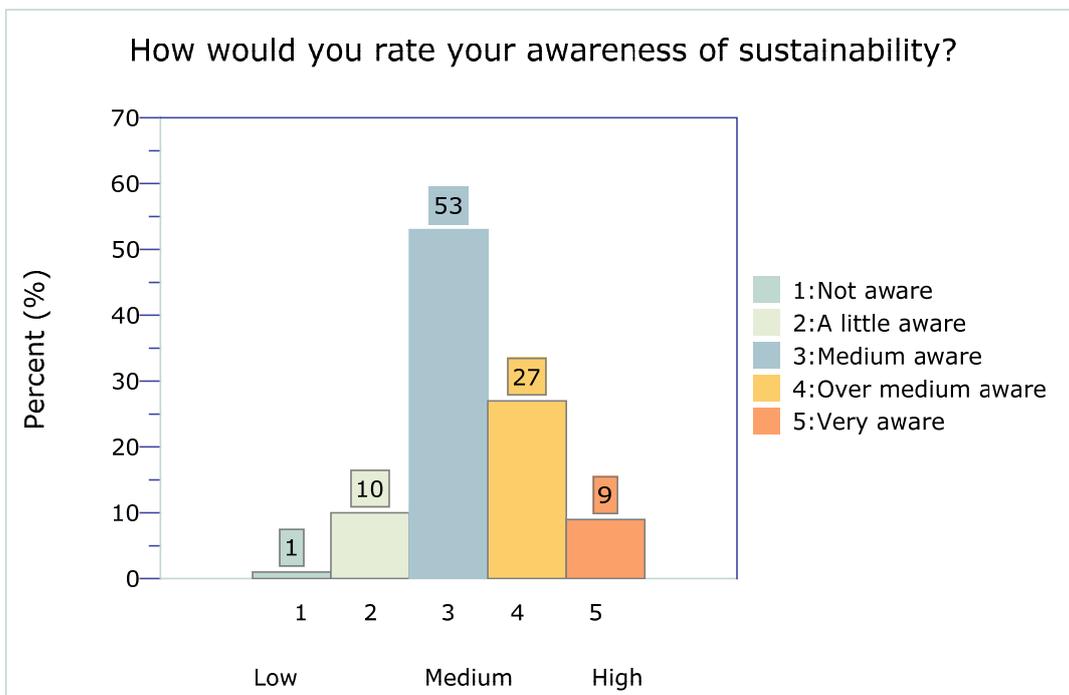


Figure 9: Awareness

Being medium aware of sustainability is not enough and some of the employees are more than medium aware which is very good since knowledge and information can be shared and targets can be set to together to pursue in environmental and social goals. Being not aware or a little aware is not good at all and needs programs and education to increase the level.

The difference between countries

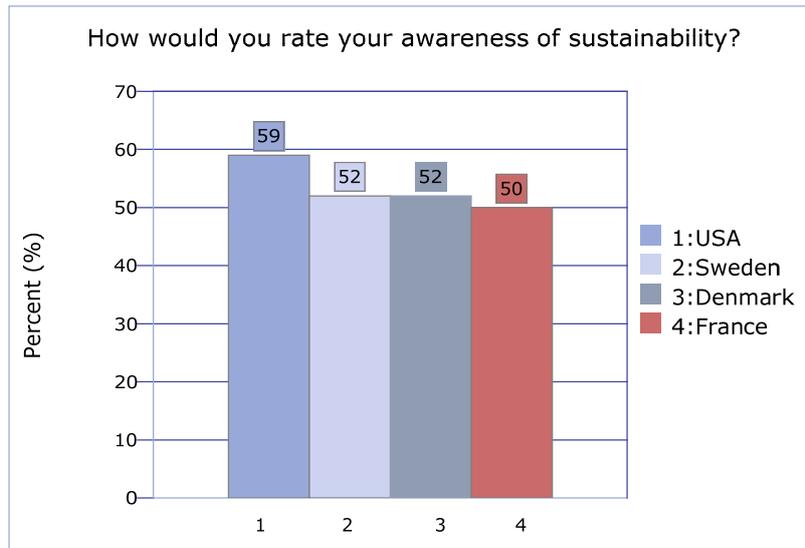


Figure 10: Awareness compared in different countries

Figure 10 shows that the highest awareness is in US following with the Scandinavian countries such as Sweden and Denmark. There were most employees from US who answered and the least from France. The countries that had less than 4 respondents have not been visualized in the graph since the quantity was too low, and we could not proceed to make conclusions based on it. The numbers of respondents are: USA = 35, Sweden = 15, Denmark = 7, France = 4.

Europe vs. North America

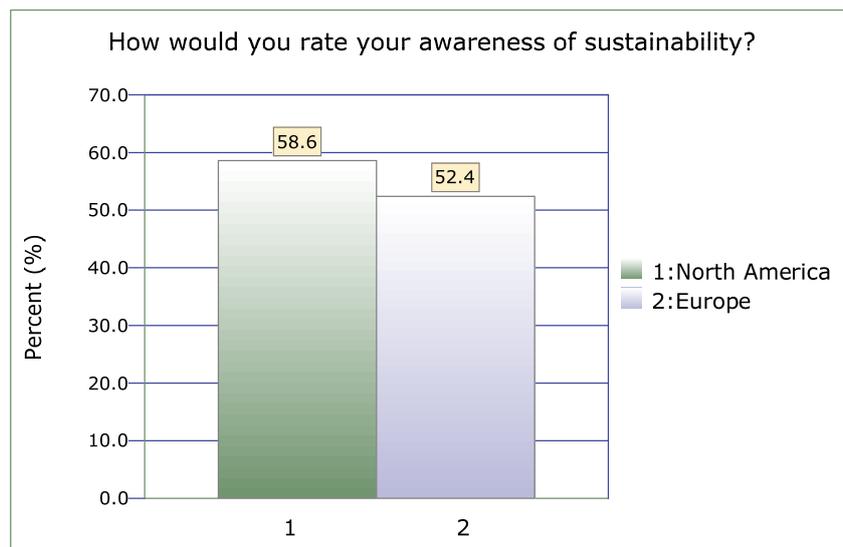


Figure 11: Awareness in EU and North America

There were totally 70 responders and 35 were from North America respectively 35 from Europe. 33 were from USA and 2 from Canada leaving us with the conclusion that it is

mainly USA we are dealing with. We wanted to know how big of a difference there is between these continents and the difference is small lying at 6% (see figure 11). USA is considered to be one of the biggest contributors of CO₂ whereas EU is not. The pattern becomes quite clear and we can explain why the awareness is higher in the US than EU. USA may have more pressure to become more environmental due to strict rules coming from the head of the company. The people from Europe considers USA to be the one that has less environmental thinking and is less aware of sustainability compared to Europe; however, the results tell a different story.

How to improve the attention?

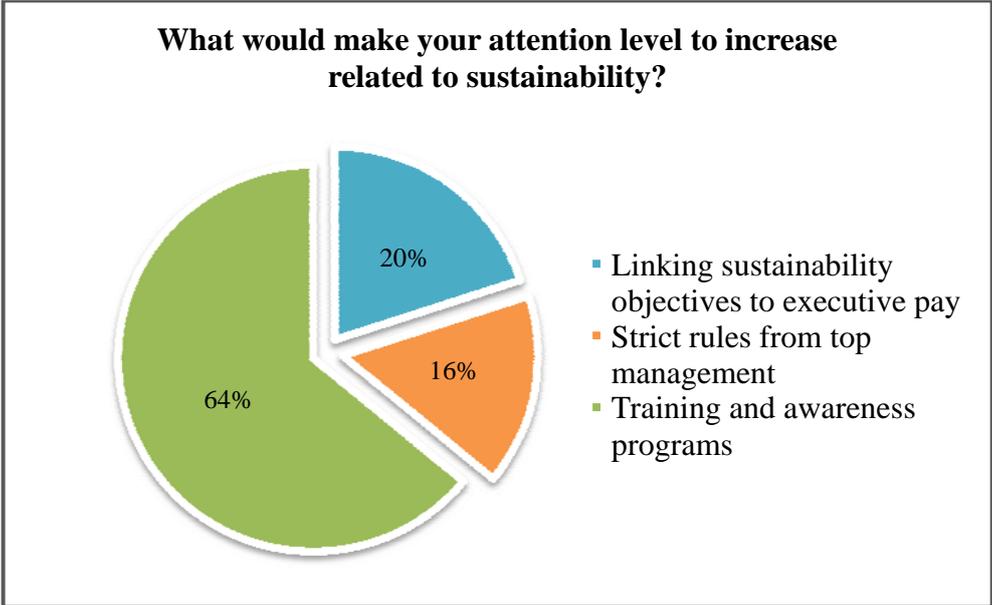


Figure 12: How to improve the awareness level

We all agree that the main driver to increase the sustainability level of awareness is by providing programs and training to increase the knowledge and incentive. Providing education opportunities, sharing information and informing public will also help to escalate the level.

3.2 A study of practices related to sustainability

The purpose of the practices questionnaire is to find out:

- The incentive for Thule to undertake sustainability practices
- What might be the barriers for them when trying to be more sustainable in the activities?
- If Thule already has some environmental policy statement and any programs related to promoting resource efficiency
- If there has been any effort in the company in trying to make their practices more environmental friendly (packaging, shipping, recycling, waste management)
- Any processes related to social compliance and any community development activities
- An example of the questionnaire that we put together can be found in Appendix E.

Table 5: Participants of the practices questionnaire

<i>Employment</i>	<i>Business area</i>	<i>Country</i>	<i>Plant location</i>
Vice president of operations	Vehicle accessories North America	USA	Seymour
Vice president of operations	Vehicle accessories Europe/Asia (VAEA)	Sweden	Malmö
Managing director	VAEA	Poland	Huta
Vice president of operations	Towing systems Europe/Asia	Netherlands	Staphorst
	VAEA	Germany	Neumarkt
	VAEA	Belgium	Menen
	VAEA	Brazil	Sao Paulo/Itupeva

Incentive

What do you think might be the incentive to engage in sustainability?

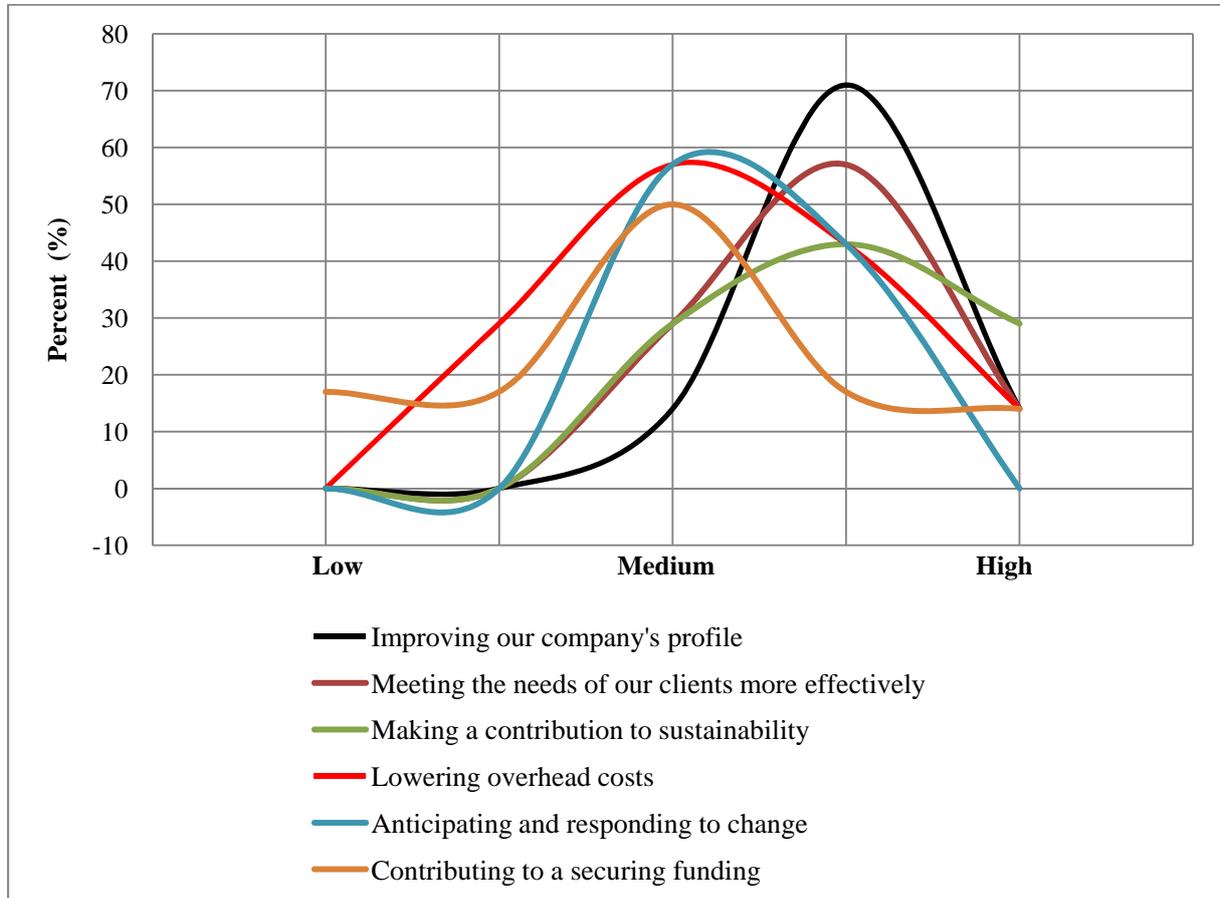


Figure 13: Incentive to engage in sustainability

Thule's products are consumer oriented; improving the company's profile is important and therefore the one rated highest lying at 70% which can be viewed in figure 13.

Improving the company's profile, meeting the needs of clients and contributing to sustainability are the main drivers behind that Thule thinks of why to pursue in a sustainable business. Change is also important in terms of consumer behavior changes and as well changes related to the business and new trends.

The barriers

What do you see as the barriers to improving your organization's engagement in sustainability?

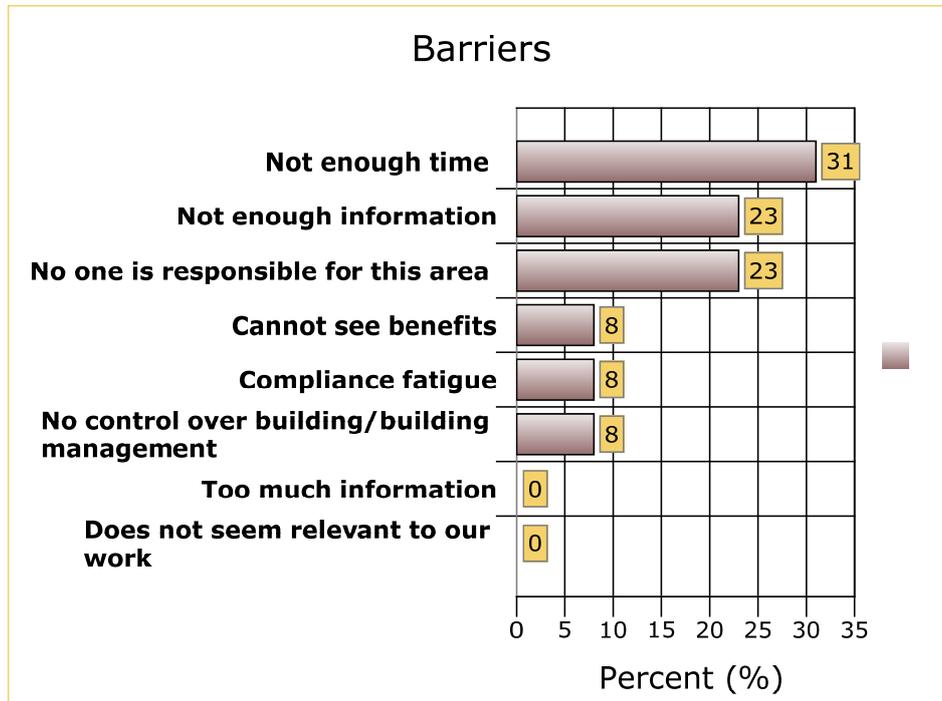


Figure 14: The barriers to engage in sustainability

The first step taken to pursue in sustainability is by first recognizing the barriers to then try and overcome them. The biggest barrier for Thule to engage in sustainability is lack of time, lack of information and no one to be in charge of the responsibilities. Time is money and in this case it requires a lot of effort not only coming from the head of the company but also a bottom up approach. One special answer that we got was “there are no barriers”. This is a typical answer when there are no goals set to be reached within a period of time, and then everything becomes like fog and might seem that there are no convincing targets to pursue in. The best way of knowing what it is all about, is by implementing programs and providing training. The focus should be aimed at increasing the level of understanding and the sharing of information both between the business areas, and within the business areas. Programs and training to increase the awareness should in this case be prioritized.

The perceived barriers in different countries:

USA

- Not enough information
- Have no control over building/building management
- Cannot see benefits
- No-one in the organization to be responsible for this area

Sweden

- Not enough time
- Not enough information
- Compliance fatigue

Germany

- Not enough time

Belgium

- Not enough time
- No-one in the organization to be responsible for this area

Poland

- Not enough time
- No-one in the organization to be responsible for this area

Brazil

- Not enough time

There is not a direct link between the countries except that there seems to be some similarities in Europe, such as lack of time when trying to improve the engagement in sustainability. Having no one in the organization to be responsible for this area will most likely result in a minimum incentive when trying to pursue in sustainability.

Environmental policy statement

Each plant manager was asked if they are having an environmental policy statement and these were the answers given to us:

- 1 We are developing an environmental policy statement
 - Towing systems EA, Netherlands
 - Vehicle Accessories Europe Asia (VAEA), Germany
 - Vehicle Accessories North America (VANA), USA
 - VAEA, Belgium
 - VAEA, Brazil
- 2 We are going to apply an environmental policy statement
 - VAEA, Poland
- 3 Our environmental policy statement consists of a commitment to promote environmental stewardship
 - Towing systems EA, Netherlands
- 4 Our environmental policy statement describes how our company explores opportunities to work with communities, governments and non-governmental organizations to help articulate teach and advance the principles of sustainability.
 - Zero answers

Not having an environmental policy statement would in this case imply that there is a lack of development in the environmental part of sustainability. However we are glad to see that the process of creating an environmental policy statement is in progress in most plants and that ISO 14001 is going to be applied in Poland's plant. We did not get an answer from the plant in Sweden and cannot draw any conclusions, however we know that they are working towards certifying ISO 14000 on all sites (see next section). What would be most preferred is that all of the plants in the near future reaches step four where the policy is implemented and more progress can be made towards becoming more sustainable. The plant in Netherlands seems to be ahead of the other plants since they are committing to promote environmental stewardship as well. It is important that the different plants share a lot of information of how to become more sustainable and work as a group even though it is very complex and difficult to do this, in the end it may yield better results due to competition and feeling pressure from the other plants.

Programs to promote resource efficiency

Managing and reducing the use of resources will decrease costs and waste. At the same time less resources used and less waste produced will decrease the environmental burden and contribute to increasing the company's profile as being more sustainable. Therefore a question was aimed at finding out if there are any kind of programs and what type of programs are used to promote resource efficiency (example environmental and waste audit)?

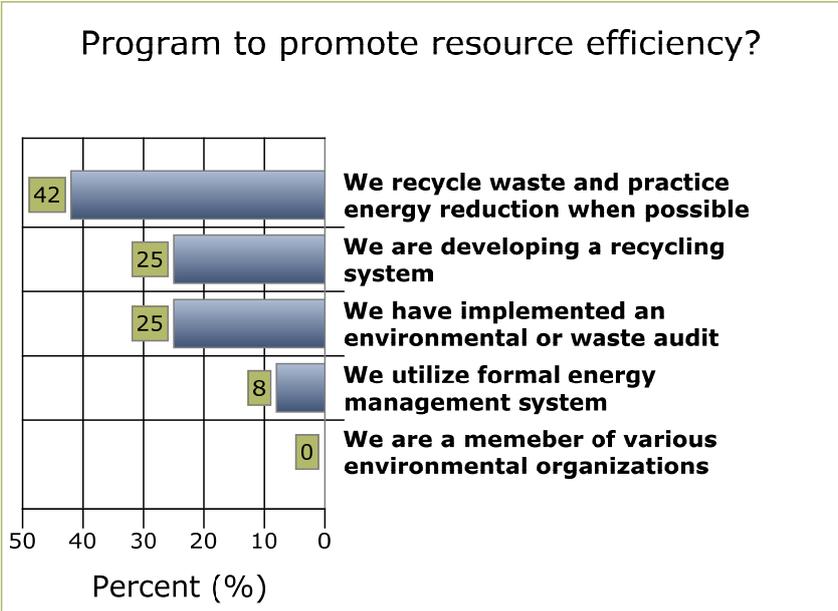


Figure 15: Average results of all plants

Figure 15 shows that recycling waste and trying to reduce energy consumption is on top of the agenda and perhaps the one that has been most developed. 25% includes the level of both developing a recycling system and implemented an environmental or waste audit. It is very good that the recycling is in action but we know from the awareness questionnaire (see section: 3.1, how to perform better) that it is not used in every part of the business areas and within the business areas itself and needs to be pushed more to increase the level.

The results are divided into locations to find out in more specific what is being done in different plants and then compare them against each other:

- We are developing a recycling system:
 - VANA, USA
 - VAEA, Germany
 - VAEA, Brazil

- We recycle waste and practice energy reduction when possible:
 - VANA, USA
 - VAEA, Germany
 - VAEA, Belgium
 - Towing systems EA, Netherlands
 - VAEA, Poland

- We are working towards ISO 14000 certification on all sites:
 - VAEA, Sweden

- We have implemented an environmental or waste audit:
 - VAEA, Germany
 - Towing systems EA, Netherlands
 - VAEA, Poland

- We utilize a formal energy management system:
 - Towing systems EA, Netherlands

- We are a member of various environmental organizations:
 - Zero answers

The plants in US, Germany and Brazil are on its way to develop a recycling system, however Brazil has not been recycling at all until now and has not tried to reduce the energy consumption.

Decreasing the environmental burden

In which areas has your plant already tried to decrease the environmental burden?

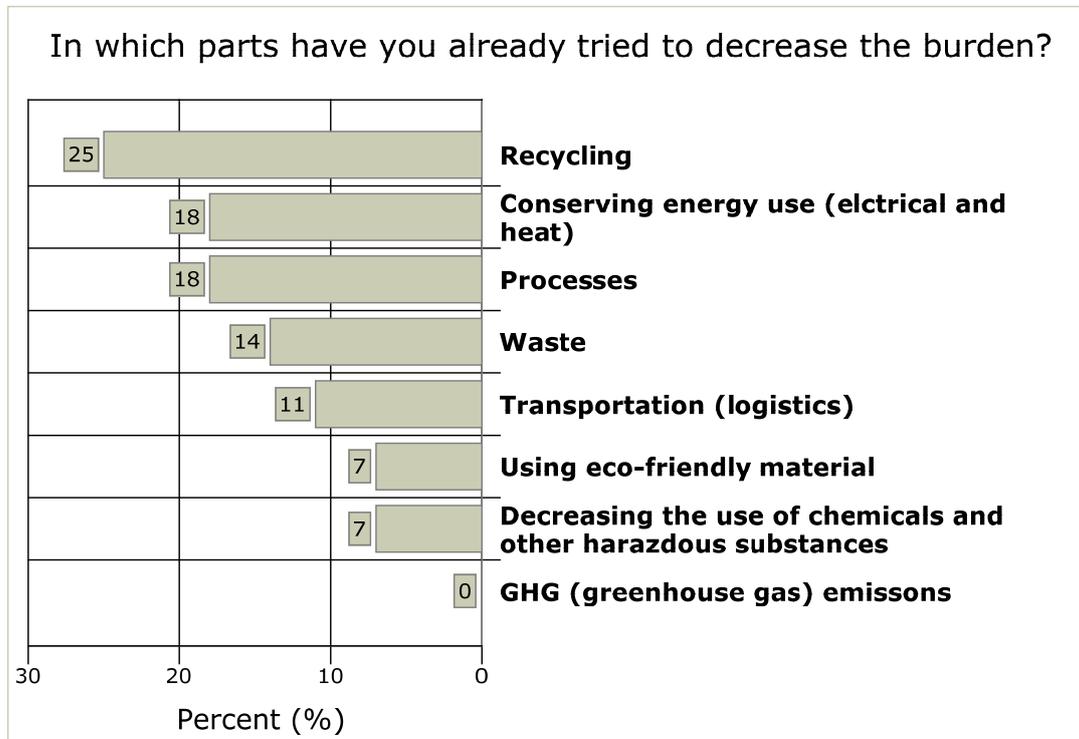


Figure 16: Benefiting the environment

The impacts on the environment have mostly been reduced by recycling, conserving energy use and creating more efficient processes. The results being zero in GHG emissions are because there is not a measure of how large they are. GHG emissions include actually all other stages such as recycling waste, processes and so on. Logistics, using eco-friendly material and decreasing hazardous substances should be increased a lot. Transportation is a major crook to harm the environment and the managing of it will create lots of long-term and short-term benefits.

LCA

Life cycle assessment (LCA) is a technique to define the environmental impacts and considers a product from cradle to grave.²⁵ It takes into account the product's total supply chain including: raw materials used, production processes, usage and recycling or disposal.

Figure 17 shows the results to following question: has an environmental life-cycle assessment of the product that you are providing been conducted by a certified testing organization?

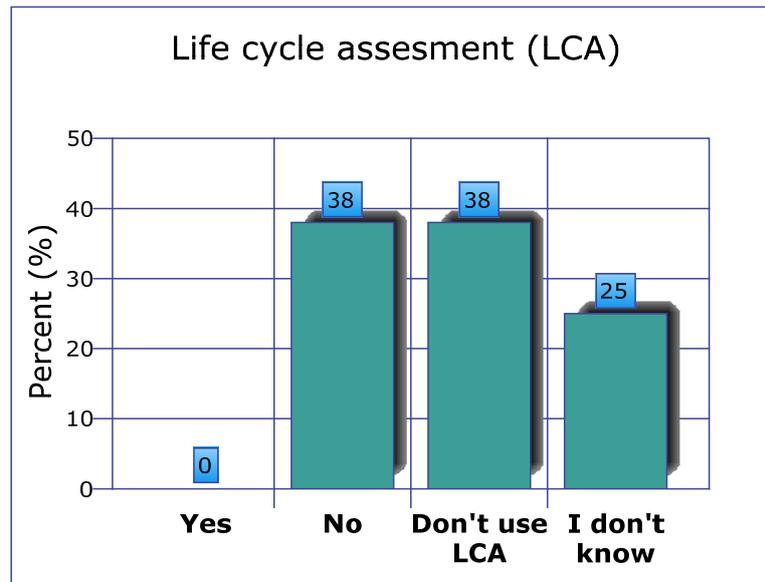


Figure 17: LCA

Using a proper LCA would imply that a certified testing organization has approved it. Not using a LCA is even worse and might harm an organization's profile since recycling has become an important issue to decrease climate change and pollution damages.

Resource efficiency

Do you promote resource (raw material, energy) efficiency, if yes what type of activities or management methods are used?

- Automatic energy saving
- Recycling aluminum profiles
- Sheet size reduction, scrap reduction, reduction of peak energy
- Using ISO 14000
- Laser cutting optimization resulting in managing better than average to reduce scrap

²⁵ US environmental protection agency, <http://www.epa.gov/nrmrl/lcaccess/>

Sustainable packaging/shipping materials

Even though a lot of material is recyclable, it is still better to choose material with fewer chemicals and also reduce the use of non-renewable resources.



Figure 18: What materials are used?

Every single plant is recycling their shipping materials and 4 plants are even reusing them. No plant uses biodegradable materials which can be enhanced if the opportunity exists.

Environmental costs

Does your plant do anything to minimize the environmental costs associated with energy, GHG (Green House Gas) emissions related to transportation?

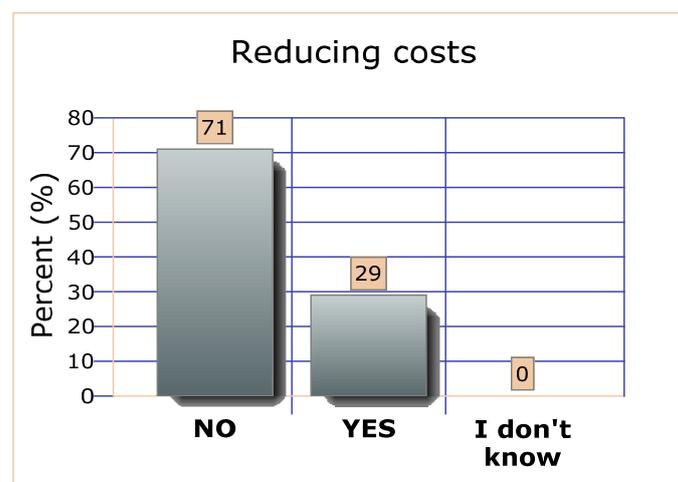


Figure 19: Environmental costs

Only two plant managers answered yes: US and Netherlands

In Netherlands in terms of cost management they are optimizing transportation including routing milk runs and are sure to improve even further. In US they are maximizing truck loads and trying to use only full truck shipments. Optimizing logistics does not only contribute to the environment it also decreases cost immensely. Taking advantage of full truck loads is very efficient and should be used by all plants. We do not know for sure how much the other plants are actually optimizing the transportation apart from the answers and therefore conclude that they do not do anything about it. The remaining five plants equal to 71% in (see figure 19) are not doing anything about reducing energy and GHG emissions related to transportation. Investing in optimizing logistics will save lots of costs and the environment. Transportation is a major part of a business and it is a bit disappointing to understand that a company such as Thule does not try to save costs and the environment in transportation. Maximizing truck loads is the first step taken and the next to come is changing transportation alternatives, example trying to use trains and boats as much as possible instead of trucks.

Managing resources

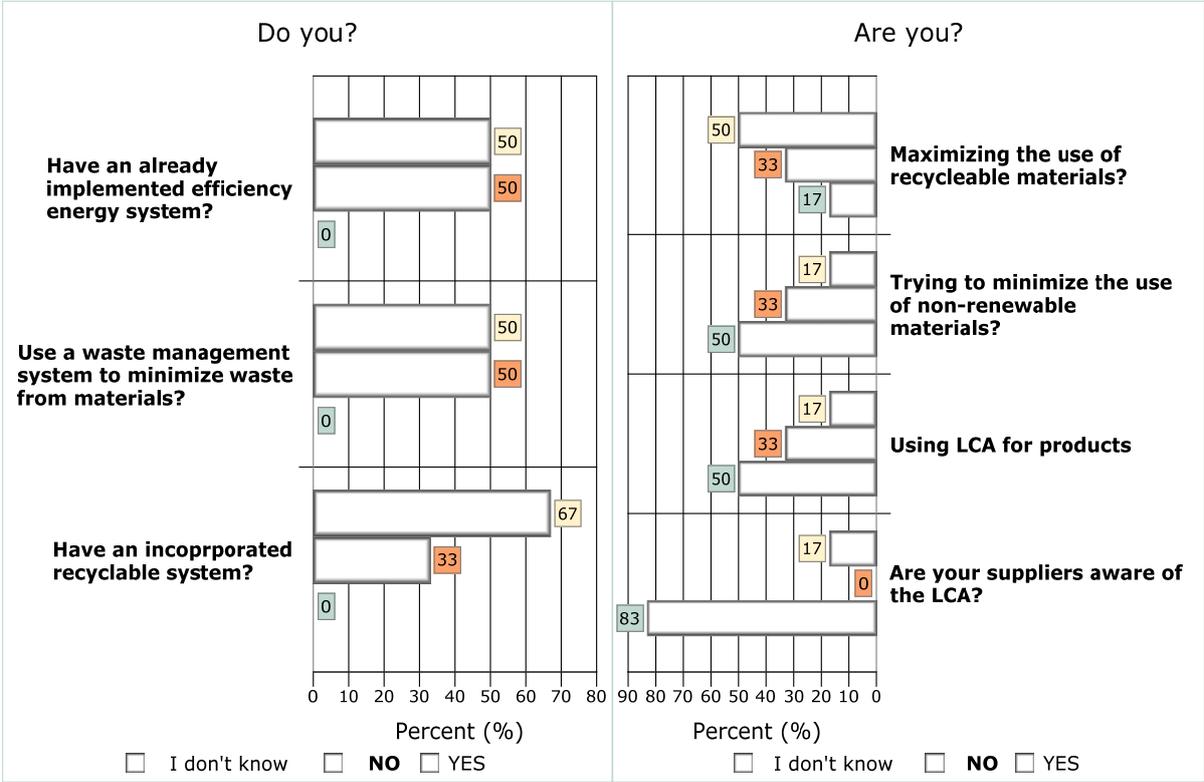


Figure 20: Average for the whole plants

Those plants that do have an implemented efficiency energy system are Germany, Netherlands and Brazil. An energy system that is efficient reduces mainly costs and increases the benefit to the environment. Large plants have a large consumption of energy, and trying to use it more efficient or decreasing its use by new technology or management systems is a way to join the path towards sustainability and also increase economic capital. Waste as discussed earlier should be decreased as much as possible and the best way to know how much waste you are producing is by having a management system where everything is monitored and the requirements as well goals are clearly shown. Recycling is done quite well by Thule but needs to be implemented in all plants. Using recyclable materials will help to increase the

company's profile and reduce the dependence on non-renewable resources. What is perhaps alarming is that when plant managers do not know if they are trying to maximize the use of recyclable materials or not. Non-renewable materials will eventually run out in the future since the demand is increasing more and more over the years. What is important is to try and use other alternatives since the market price will increase even more when signs are shown that it will eventually run out. Armoring in advance and moving away old habits is a way to prepare for the future and improve long-term benefits. LCA considers a product from cradle-to-grave and new products are designed with the LCA approach to minimize the damage occurred to the environment.

Efficiency, waste, suppliers, and social aspects

Waste is loss of money and material; Thule has not any reduction targets within the whole business which are very important in order to reduce them continuously. Poland has a reduction target to reduce the total waste produced lying at 0,4%. Almost every plant has measured the amount of solid waste but lack targets to further reduce it. Decreasing the environmental burden can as well be done by decreasing the water used within each plant. Most of plants do not have a measure on the amount of total water consumed. The plant in Netherlands sees a relation between the amount of employees and water usage, meaning that they have programs monitoring the amount used. When no product is being produced or available in production the water usage is zero instead of being consumed for no use.

Suppliers:

We believe that Thule has not set clear purchasing guidelines for their suppliers in relation to environmental issues and should cooperate more with their suppliers and establish initiatives to create a green distribution program to help them attain even greater results.

Social aspects:

Charity work, investing in communities and enriching the society's wealth is one of the main parts of sustainability. Thule has done nothing about contributing to communities and increasing the social wealth except for the plant in US which conduct river cleanup days in where trash is cleaned up from local rivers. The cleanup days seem to be more like initiatives taken from that specific plant and they do not have processes to manage social compliance.

Perform better in terms of practices

These are the advices and possibilities of the plant managers, were Thule can perform better in terms of Sustainability (Social or Environmental aspects):

- Germany: improve isolation of the roof, install solar cells, try to use rain water, investment in environmental projects/management systems to reduce waste, water, ect.
- Belgium: develop products with recyclable material, recycle the products in the end
- Brazil: is a very small company with 13 employees. They already use recyclable materials and very low waste. The only thing planned is to implement waste separation
- USA: Know what position we hold today and then understand where improvements need to be made. Set goals to improve continuously and.

- Poland: green philosophy, recycle packaging, less printed labels, recycled material use and standardization
- Netherlands: ISO 14001 is being used in the plant and benefits can be determined

3.3 Sustainability initiatives

<p>→ 2008 - Installed 318-kilowatt solar array on the roof of Thule's Connecticut facility to be provided with renewable energy.</p> <ul style="list-style-type: none"> • Ability to produce 281, 128 kWh/year and offset 26% of total energy used. • Emissions saved per year: CO₂=141kg, SO₄ = 269kg, CO = 11kg and NO_X = 72,5kg <p>→ 2007 - Thule employees spent a day cleaning up the Housatonic River in Stratford, Connecticut.</p>	
<p>Vehicle accessories North America:</p> <ul style="list-style-type: none"> → 355 KW solar array installed in 2008 → White paper reduction team started in 2009 → White paper recycling started in 2005 → Paper cup reduction effort planned for 2010 → Annual River cleanup day 	<p>Vehicle accessories in Sweden</p> <ul style="list-style-type: none"> → Reduction of electrical energy by installing a new compressor station with a automatic turnoff → Managing the utilization of each compressor; Started 06/2010 → DIN ISO 14001 environmental certification Started 01/2010 → Improved maintenance for the checking of liquids by using indicators
<p>Vehicle accessories in Italy</p> <ul style="list-style-type: none"> → 200 KW Solar array installation by the end of 2010 → Permit application based on IPPC directive (Integrated Pollution Prevention & Control) by July 2010 → Goal 2011: ISO 14000 certification 	<p>Thule Towing Systems</p> <p>In general: a meeting is held every quarter with Environmental Coordinators in plants to evaluate all energy consumption and waste. Quarterly report including monitoring used energy per produced tow bar (hitch).</p>



Figure 21: Solar panels on Thule's plant in Seymour ²⁶

²⁶ www.thule.com

3.4 Conclusions

The respondents see sustainability in business as:

- Long-term
- Decrease the environmental burden
- Effective use of resources
- Competitive advantage
- Secure the company's position in the market

Having a good understanding of what sustainability is will help to escalate the level of implementation and make it easier than starting from square 1. Thule's employee seems to grasp the meaning of it in a broad view. The sustainability perspective has minor differences from a business to a personal view. Saving the planet is what it is all about, but in a very long-term perspective. Green products tend to charge premium price, which will add up as an extra cost to the consumers. However in a business perspective sustainability demands an investment but is not considered to add up an extra cost since it will create lots more long-term value.

It is very clear that Thule's employee sees the greatest benefits in increasing the economy and to focus on long-term financial perspective for enhancing the sustainability perspective. The second most emphasized is the environment (see figure 5) which shows that they have good incentives towards becoming greener and in the third lays social development. There is a difference between Europe and USA in the economic part as can be seen in figure 6 and 7. The respondents from USA believe that Thule should focus most on economic capital lying at 70% whereas in Europe it is lower lying at 50%. Both USA and Europe wants to increase the economy the most, however, the difference is that the incentive is less in Europe by 20%. There is a link between the focus and the performance. The employees believe that they are performing above medium in the economic part, and can be proved due to them having most focus on increasing the economy. They consider themselves performing the least in social aspects and at medium in the environment.

The sustainability awareness in Thule is at a medium range and does not vary a lot in different business areas. USA seems to have the highest level of awareness followed by the Scandinavian countries. The awareness level needs to be improved and requires: education, training, and programs to be incorporated.

The employee seems to have good ideas of what sustainability is and how to become better within the aspects of the environment, social and economy. However there is no one to take responsibilities and act on creating a sustainable outcome by applying changes towards increasing the benefit to the environment and society. Increasing the knowledge and the diffusion of information both within the plant and between different businesses areas will help to perform better by increasing incentive and competition.

Improving the company's profile, meeting the needs of clients and contributing to sustainability are the main drivers behind that Thule thinks of why to pursue in a sustainable business. Change is also important in terms of consumer behavior changes and as well changes related to the business and new trends.

The first step taken to pursue in sustainability is by first recognizing the barriers to the try and overcome them. According to the plant managers the biggest barriers to engage in sustainability practices are due to:

- Not having enough of time

- Not having enough of information
- No one is responsible for this area

Having an environmental policy would imply that the company is trying to enhance the quality and decrease the environmental burden. Thule does not have an environmental policy; however they are working towards developing and applying one in all sites.

In terms of practices, Thule's top agenda is recycling, and perhaps the one that has been developed the most. Recycling should be enhanced on all plants and in all parts of the plant.

The environmental burden is decreased and ranked as following where 1 is the one most used and 5 the least:

- 1) Recycling
- 2) Conserving energy use
- 3) Processes
- 4) Waste
- 5) Transportation

Investing in optimizing logistics will save lots of costs and the environment. Transportation is a major part of a business and which Thule can focus more on. Maximizing truck loads is the first step taken and the next to come is changing transportation alternatives, example trying to use trains and boats as much as possible instead of trucks.

No plant uses LCA to design their products and most of the plants does nothing to decrease the environmental costs associated with energy and GHG emission related to transportation. All of the of the packaging's are recyclable, some are reusable, but no one are biodegradable which can be enhanced if the opportunity exists.

It is important that the different plants share a lot of information of how to become more sustainable and work as a group even though it is very complex and difficult to do this, in the end it may yield better results due to competition and feeling pressure from the other plants. The thinking of that "sustainability has no barriers" can be removed by setting convincing targets to increase incentive, and maintain the move towards creating a more sustainable society.

4 Sustainability transformation

In this part, the investigation about sustainable transformation will be introduced. Followed by the sustainability business drivers discussed in section 2. It will be based on literature studies and the data collected from the questionnaires. We will discuss the steps for sustainability transition, and transformation strategy, to especially address the situation of Thule. We will also focus on how companies create business opportunities within the framework of sustainability and couple it with some successful examples. In the end the sustainability reporting will be discussed.

4.1 Five stages and three levels for the organization transition

As discussed earlier about Sustainability being a long-term issue, and that it needs implementation through the organization. In this sector, we will introduce the process of when companies are undergoing the transition theoretically, and try to connect these theories to Thule's performance in Sustainability, and discuss its position in the Sustainable transition. Usually there are 5 stages for companies to take the transformation (see figure 22)



Figure 22: Five stages for organization transition²⁷

The following are some characteristics for each stage:

Table 6: Characteristics for each stage

Stage	Characteristics	Attitude
Defensive stage	Companies are against the criticism from coming external to the company, or from internal such as employees and customers.	“It is not our job”
Compliance	Companies will take some measures and deal with the criticism in order to protect the company's reputation.	“ it is a cost thing”
Managerial	Sustainability is being getting more attention, and is being taken into account within the company's core profile	“Sustainability is a long-term work”
Strategic	Sustainability is integrated into the company's business strategy.	“it gives us a competitive edge ”
Civil	Promote collective activities from other industries, institutions, society to address social concerns	“everyone has to do it”

²⁷ Simon Zadek, The path to corporate responsibility

There exists also a possibility to divide the steps of transition in different levels: Strategic level, Tactical level, and Operational level.

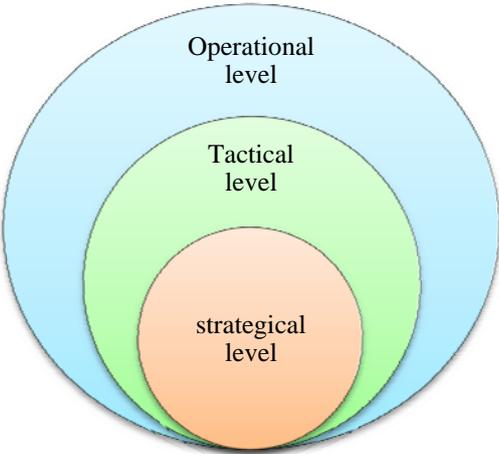


Figure 23: Three levels of organization transition²⁸

Table 7: Three stages in organizational transition²⁹

Strategic level	Starting to understand Sustainability and join the dialogue in this field. Link the sustainability to the business solution, and take into account the sustainability company culture
Tactical level	Defining the barriers in the implementation and regulation, restructure and forming the activity chain to enable the transition
Operational level	Setting up experimental projects, learn and develop different solution.

According to the mentioned stages and levels, and based on the questionnaires and information we collected about Thule’s sustainability performances. We could find that Thule has made some efforts regarding sustainability issues like recycling waste, energy efficiency. We also found that although the employees understand the concept of sustainability in a very broad view, it is a lot better than zero show that they have a willing to move towards creating a more sustainable society. We believe that Thule should be in the stage of “Compliance” (see table 6) and are still in the first level of “strategic” (see figure 24).

²⁸ Derk Loorbach, Janneke C. van Bakel, Gail Whiteman and Jan Rotmans , (2009). Business Strategies for Transitions Towards Sustainable Systems, Business Strategy and the Environment 2009

²⁹ Derk Loorbach, Janneke C. van Bakel, Gail Whiteman and Jan Rotmans ,(2009). Business Strategies for Transitions Towards Sustainable Systems, Business Strategy and the Environment

The following figure 24 presents a general position of Thule in the Sustainability transformation:

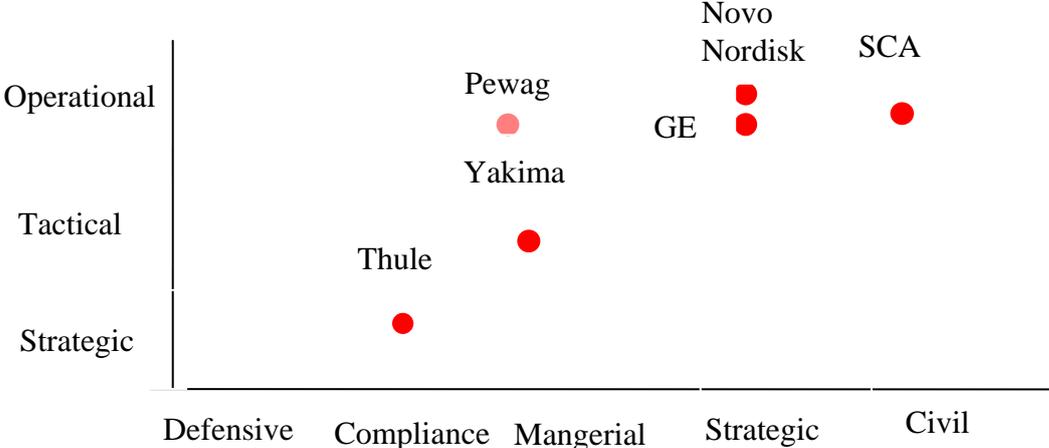


Figure 24: Thule position in sustainability transition

We also collected some data from Thule’s competitors and positioned them in the above coordinate (see figure 24):

“Yakima: Launched Planet Payback program where it has to compensate for the carbon footprint for all of its operations, products and their distribution, as well as its marketing activity, while company’s remaining ;It is also in cooperation with Carbonfund.org, which is a non-profit organization, dedicated to reduce carbon output and supporting renewable energy. Besides, they also making effort in other field like marketing, recycling paper, and are considering buying carbon fund credits that would be equal to taking 1,675 passenger cars off the road for a year.”³⁰

“Pewag: are taking strategies and measures to address environmental concerns and reducing the consumption of energy and raw material. It is the ISO 9001 certified, ISO 14001 certified and its products meet all international standards. further company uses an ecological orientation for its product development, processes and distribution channels and include in their business planning.”³¹

We also list two of the companies who have done a good job in the sustainability transformation: SCA³², GE³³, Novo Nordisk³⁴.

According to the data we collected from the questionnaire in the question of “what are the barriers for Thule to engage in Sustainability”, 31 percent answered that the reason is due to time limits, 23% due to information limits, and there are 23% who believed that the reason is because there is “no one responsible for this area”. From these data, we assume that the there is blank in Thule’s management mechanism in the field of sustainability. In other words,

³⁰ <http://www.yakima.com/>
³¹ <http://www.pewag.biz/home.php?action=setLanguage&language=en>
³² <http://www.sca.com/en/Sustainability/>
³³ <http://www.ge.com/company/citizenship/index.html>
³⁴ <http://www.novonordisk.com/sustainability/default.asp>

Thule haven't integrate the Sustainability into their company culture, much less of the company strategy.

To address this problem and help Thule in the right direction of sustainability transition, we suggest several things which may benefit Thule to proceed in the path towards sustainability transformation: create a sustainability culture inside the company and also put the sustainability implementation into company operation agenda; assign some department in charge of Sustainability issues which will be a good way to raise the awareness among employees and implement the sustainability practices.

The issues are being discussed in the following chapters:

- Sustainability leadership
- Sustainability strategy
- Gain competitive advantage through sustainability
- Sustainability reporting

4.2 Sustainability leadership

We think the first thing and also one of the most important steps for sustainable transformation is to create a sustainability vision and a sustainability culture across the organization. We should be understood is that sustainability transformation is a long period process, and “requires co-evolutionary changes in technology, economy, culture and organizational forms. Transition management takes a process approach that aims to change the dominant culture, structures and practices of unsustainable systems by linking innovations at the micro level to macro level changes in mindsets”.³⁵ To develop sustainability leadership and cultivate sustainability culture across the organization is of significance, because it will be the continuous driver for the success of transition.

We have noticed that Thule's employees have certain sustainability awareness and also have done some practices, but the understanding of sustainability remains still very ambiguous. When taking the first step to form the sustainability vision and integrate sustainability into company culture, it may bring following advantages for Thule:

- Achieve an agreement in the shared behavior, value within the company in the issue of implementing sustainability strategies. This will prepare a good condition and prerequisite to integrate sustainability strategy into the business model.
- “Corporate culture is an important driver of organizational effectiveness. In particular, sustainability initiatives are more successful when they closely match the level of collaboration that occurs within a company”³⁶

After the investigation we found some basics for an organization transition that also applies for the corporate sustainability transition:

³⁵ Derk Loorbach, Janneke C. van Bakel, Gail Whiteman and Jan Rotmans, Business Strategies for Transitions Towards Sustainable Systems, Business Strategy and the Environment 2009

³⁶ Liz Abbett, Anna Coldham, Ryan Whisnant, “Organizational culture and the success of corporate sustainability initiatives”, University of Michigan, 2010

- **Establishing sustainability vision**
The leader needs to develop a sustainability vision of future, accompany with strategies to generate changes and help achieve the vision. Examples can be found in many companies websites, where sustainability has already been addressed and discussed as an independent issue and sustainability policy and measures are also been lunched.
- **Aligning people**
Help people understand the vision, and create coalition within organization and promote them to commit to the visions achievement. In another word, we should spread the concept of sustainability and convince people in the company willing to contribute to the sustainability transformation.
- **Motivating and inspiring**
As transformation requires sustained efforts, and motivation plays an important role during the process of transformation. Continuous feedback is essential to encourage people and improve their behavior in their way towards sustainability.

4.3 Sustainability strategy

According to the questionnaires, we got to know that Thule hasn't formed a plan for sustainability. So this section is designed to present a general idea of sustainability strategy and give some examples of empirical techniques concluded from some successful examples in the experience of sustainability strategy.

We think having a long-term vision is important for implementing the sustainability transformation, and how to create business opportunities by taking advantage sustainability is another important issue. We believe sustainability can bring competitive advantage for companies, and many successful examples have proved it.

Position for the future

The companies should have the long run vision to capture as much benefits as it can, and it is worthwhile to invest today to position itself for the future. This is extremely important when dealing with the sustainability issues.

The most successful example is Toyota, Prius Hybrid. After being released in 1997, it has achieved great success in the automobile industry, even during economic recession. The other example is Sharp, Sharp have invested more than \$4 billion on the factory in Osaka. It will be the world's largest producer of LCD panels, and also the next-generation solar panels when it is completed. The company sees its ability to manufacture high-tech panels as critical to its survival and growth. One research firm estimates that the market for solar energy could increase to \$1 trillion by 2040.³⁷ We can find similar examples like GE, Clorox, Nike, etc.

³⁷ Yukari Iwatani Kane, "Sharp Focuses on Manufacturing," Wall Street Journal, July 9, 2008; B1.

Seek opportunity underlying Sustainability

From the questionnaire, we found that most of the respondents hold the opinion that sustainability is more about environment and corporate social responsibility, while only 11% of the respondents think that Sustainability will bring competitive advantage, and only 4% of people think it will be a future trend of business.

Meanwhile, the results of the questionnaires also show Thule's employees are paying more attention to the commercial benefit that sustainability may bring to them.

We could draw conclusions, that there is weak awareness among Thule's employees in the aspect of linking sustainability to the business opportunity. Few of them see the business potential which lies behind the sustainability. But from many examples and cases studies, we found that sustainability can bring companies competitive advantage and help companies to find the innovative position in the fierce competition. That is also one of the reason we address sustainability transformation. Therefore in this section, we will talk about the topic of why there is a strong link between business and sustainability and how to seek opportunities underlying sustainability.

Figure 25 illustrates a strategy map from Shell (the multinational petrol company). The map is drawn in cooperation with Cranfield management school. It reveals how and to what extent the Sustainable development-related activities. It show also why the sustainable development create value for Shell³⁸

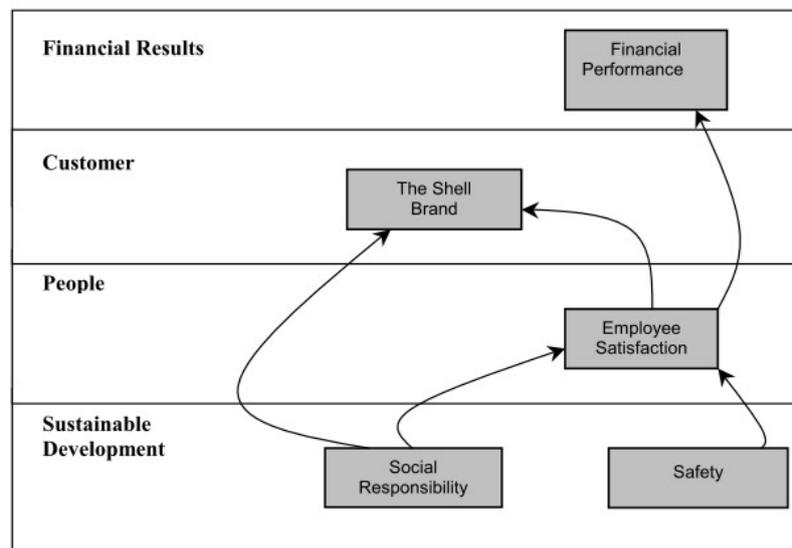


Figure 25: Shell strategy map³⁹

From the above figure, we can see that Shell thinks that social responsibility, safety and employee satisfaction will have an indirect positive benefit in the financial performance. Meanwhile, Making effort in social responsibility can also contribute to Shell's brand recognition.

³⁸ F.Zingales, K.Hockerts, "Balanced Scorecard and Sustainability: examples and Practice", 2003

³⁹ F.Zingales, K.Hockerts, "Balanced Scorecard and Sustainability: examples and Practice", 2003

We wanted also to give some examples about companies successfully taking advantage of sustainability and thereby creating the new business opportunities.

CEMEX, a leading company in building material, reuse the “fly ash”—a byproduct of coal burned in power plants—in its mixture for concrete. The ash often ends up in landfills, by mix it in the concrete, it contributes to a concrete that is more workable and stronger, and requires less water, while at the same time it reduces the burden to the environment.

ESHA, a company works on protection and water proof of building structures. They take advantage of technological innovation and enabled the roofs with important urban ecological functions. This innovation has been adopted not only but the sector but also adopted by the national government.⁴⁰

DuPont, identified the most promising growth markets in the use of biomass feedstock which can be used to create new bio-based materials such as polymers, fuels and chemicals, applied bio-surfaces and biomedical materials. The company has earned nearly 20 percent of its revenue from using non-depletable resources by 2007.

According to the examples we have listed above and other material collected, we find that most of these companies share some common characteristic when they explore sustainable business opportunities. It will also be helpful for Thule to seek business opportunities in different directions.⁴¹ However, only by getting more information from customers and the market, the specific niche in business can be found.

- Re-engineer the process, reduce the material consumption, and improve the operation process, save costs and at the same time decrease the environmental burden.
- Re-value the by-products, take more efficient use of by-product or waste; striving for a zero-waste product or by-product synergies. This will also lead to additional economic benefit.
- Re-think the market; seek an indistinctive way to satisfy customer's need. Pay attention to different customer groups, such as environmentalist or poor people to increase their living standard or to satisfy their needs.
- Re-design the product. Ecological products are often more simpler and smaller in size, and also more environmental friendly in disposing. Make changes in the product function, serviceability, and upgradeability.
- Building alliance and inviting dialogue with key groups. Cooperating with communities, academic organization or NGOs to share the views how to manage the sustainable transformation for companies. Get the insights of direction and trends of sustainability. Invite critical persons participate in the process.

Even though if the sustainability transformation is not considered to be an individual activity, it should be integrated and incorporated in the business across the whole organization. As mentioned earlier, lack of information is one of the main barriers for Thule to improve Sustainability. Thule needs to enhance the sharing of information between different departments, plants and business areas.

⁴⁰ www.esha.nl or for their transition initiative www.zwart-gras.nl (in Dutch).

⁴¹ Markus lehni, “Making the challenge of sustainability a business opportunity”, International conference “From eco-efficiency to sustainable development in enterprises”, ENVITEC, Dusseldorf, 2001

In the following table is an example about how to involve every department in the sustainable transformation.

Table 8: Sustainability across the organization⁴²

Function	Impact
Marketing	Changing consumer interests might lead to loss of opportunities. The need to align to sustainable consumption and production
Talent Management	Talent pools growing interest in working with companies that attend to sustainability
Finance	Stakeholder's demand for increased transparency. Financial market's growing evaluation of companies' sustainability efforts
Operation	Eliminating energy inefficiencies in operations. Ensuring supplier compliance with a code of conduct. Ensuring access to needed (and limited) resources, such as water and energy.
Information technology	Need to minimize the energy inefficiencies in older technologies. Developing technologies to minimize the need for raw materials used to provide value to consumers
Legal	New regulations with to follow
Strategy	The very markets in which companies compete are poised for further change. In some industries, the adaptation of sustainability is paramount to corporate survival

4.3 Sustainability reporting

We want to address sustainability reporting, because “report is a very effective approach towards making progress in sustainable development”⁴³. Pressure may also be seen as a driver to write a sustainability report: especially the pressure from competitors, since an increasing number of companies are enclosing the sustainability report in their annual report. We will mainly discuss the Sustainability Balanced Scorecard (SBSC) in this section and the reason we choose to describe it is because we think that it will be a good management tool for Thule when it implements the sustainable development into practice.

➤ Sustainability Report

“The world today is a place where transparency has become a prerequisite for acceptance in the market place and for the license to operate”⁴⁴

⁴² Bruno Berthon Eric M. Lowitt and Andrew J. Hoffman, (2010). Compatible Aims: Sustainability and High Performance

⁴³ Deloitte sustainability reporting scorecard

⁴⁴ Deloitte sustainability reporting scorecard

Reporting may serve as an important tool to communicate effectively with stakeholders. It is also a major information channel for employees, customers, shareholders, investors and analyst to get hold of information about a company's social, environmental, and economical performance.

- For external public, like customers and investors. Reporting can enhance trust and the acceptance level. It can provide with insights and support decisions to external investors, customers and etc.
- For internal shareholders, employees, reporting can be an effective tool to help reach the targets and improve performance.

➤ Sustainability Balanced Scorecard (SBSC)

The difference from sustainability report is that it mainly uses a management tool inside the company. It also follows the principle "what gets measured gets done", the balance scorecard is a management tool designed for companies to identify the key drivers, and evaluate, benchmark and also learn to improve continuously in the area of sustainability. It is specifically designed to help companies implement strategies to the implementation level.

The following sentence exactly describes the sustainable balanced scorecard:

"By linking operational and non-financial corporate activities with causal chains to the firm's long-term strategy the balanced scorecard supports the alignment and management of all corporate activities according to their strategic relevance, Scorecard makes it possible to take into account non-monetary strategic success factors which significantly impact the economic success of a business. It is thus a promising starting point to also incorporate environmental and social aspects into the main management system of a firm"⁴⁵

A general process of SBSC⁴⁶ is also provided:

- Choosing a target business unit
- Define the concerned aspects of environment and social aspects
- Determine the relevancy of those aspects to the business unit strategy

⁴⁵ Frank Figge, Tobias Hahn, Stefan Schlegger, Marcus Wagner, "The Sustainability balanced scorecard- Theory and application of a Tool for Value-Based Sustainability Management " Green of Industry Network Conference 2002, Gothenburg

⁴⁶ Frank Figge, Tobias Hahn, Stefan Schlegger, Marcus Wagner, "The Sustainability balanced scorecard- Theory and application of a Tool for Value-Based Sustainability Management " Green of Industry Network Conference 2002, Gothenburg

A good example of a BSC is Novo Nordisk, which is a leading pharmaceutical company in the field of diabetes care.

Table 9: Novo Nordisk balanced scorecard 2002 ⁴⁷

Customers & Society	Finance
<ul style="list-style-type: none"> -realize the full potential of strategy products -improve market share globally -ensure successful implementation of US and Japanese Business plan -Achieve superior customer satisfaction -Improve social, environmental and bioethical performance 	<ul style="list-style-type: none"> - Growth in Operation profit -ROIC -Operation Margin - Cash to Earnings Ratio
Business process	People & Organization
<ul style="list-style-type: none"> -Discovery speed, quality and productivity -Competitive development portfolio -Ensure launch capabilities within GP segment -Improve quality management focus in all business process -Timely and efficient execution of investment portfolio -Ensure efficient use of IT supporting the business strategy 	<ul style="list-style-type: none"> - customer relation - winning cultures -attract and retain the best -development of people -social responsibility

⁴⁷ Frank Figge, Tobias Hahn, Stefan Schlegger, Marcus Wagner, "The Sustainability balanced scorecard-Theory and application of a Tool for Value-Based Sustainability Management " Green of Industry Network Conference 2002, Gothenburg

Once the objectives have been set, some indicators should be coupled so that the sustainable development can be implemented and benchmarked. We found some detailed indicators for Novo Nordisk’ SBSC.

Table 10: Example of KPIs for social issues in Novo Nordisk⁴⁸

CSF	CSF-Rationale	KPI	Target 02	Ressp.
Attraction& Retention	High retention of employees will secure our knowledge and competitive advantage	Reduction of unwanted turnover in selected unites	-x%	XY
Development of People	Development of people is a key objective for managers	N. of managers with development of people as a personal target	...	XX
Customer relations	Improving CR is essential for improving sustainable business result	N. of dialogues between patients and employees		
Winning culture	Develop a wining culture will help us strive for stretch targets	N. of team targets		
Social responsibility	Increase equal opportunities and diversity throughout the organization	N. of plans for increasing equal opportunities		

We should pay attention to the effectiveness of the sustainable balanced scorecard. In practice, we find that there are few companies which take advantage of the SBSC. For the others, the SBSC becomes a fictitious bill, and the Balanced Sustainability Scorecard is not integrated to the organization management. There are some factors that contributes to this phenomenon: first, some companies do not have a comprehensive understanding of the SBSC, and sometimes the target are too ambitious which makes it too “heavy” for being implemented, and the small relevance of SBSC compared to the business strategy may also lead to problems.⁴⁹

⁴⁸ Frank Figge, Tobias Hahn, Stefan Schlegger, Marcus Wagner, ”The Sustainability balanced scorecard- Theory and application of a Tool for Value-Based Sustainability Management ” Green of Industry Network Conference 2002, Gothenburg

⁴⁹ F.Zingales, K.Hockerts, ”Balanced Scorecard and Sustainability: examples and Practice”, 2003

5 Conclusions

We have defined the sustainability concept as being a solution to achieve the balance between economy, society and environment. The drivers of sustainability show that organizations are facing an increasing pressure to implement sustainability, at the same time this is also an opportunity for proactive organizations who adopt sustainability at the beginning as a strategy to win competitive advantage.⁵⁰ From our point of view, sustainability is more than ethics and moral. It is of significance for companies to keep the leading position in the business races. The sustainability trends in business indicate that new business game rules are occurring, going beyond maximizing profit.

The respondents from the survey analysis see sustainability in business as:

- Long-term
- Decrease the environmental burden
- Effective use of resources
- Competitive advantage
- Secure the company's position in the market

Having a good understanding of what sustainability is will help to escalate the level of implementation and make it easier than starting from square 1. Green products tend to charge premium price, which will add up as an extra cost to the consumers. However in a business perspective sustainability demands an investment but is not considered to add up an extra cost since it will create lots more long-term value.

It is very clear that Thule's employee sees the greatest benefits in increasing the economy and to focus on long-term financial perspective for enhancing the sustainability perspective. The second most emphasized is the environment (see figure 5) and in the third lays social development. Valuing the environment as second shows that they have good incentives towards becoming greener. There is a difference between Europe and USA in the economic part (see figure 6 and 7). The respondents from USA believe that Thule should focus most on economic capital lying at 70% whereas in Europe it is lower, lying at 50%. Both USA and Europe wants to increase the economy the most, however, the difference is that the incentive is less in Europe by 20%. There is a link between the focus in sustainability and the performance. The employees believe that they are performing above medium in the economic part. This can be proved due to them focusing on increasing the economy. They consider themselves performing the least in social aspects and at medium in the environmental.

The sustainability awareness in Thule is at a medium range and does not vary a lot between the different continents. USA seems to have the highest level of awareness followed by the Scandinavian countries. The awareness level needs to be improved and requires: education, training, and programs to be incorporated.

The employee seems to have good ideas of what sustainability is and how to become better within the aspects of the environment, social and economy. However there is no one to take responsibilities and act on creating a sustainable outcome. Increasing the knowledge and the diffusion of information both within the plant and between different businesses areas, will help to perform better, and increase incentive and competition.

⁵⁰ Porter, M. & Kramer, M. 2006 Strategy and society. *Harvard Business Review*, 84(12), 78-92

Improving the company's profile, meeting the needs of clients and contributing to sustainability are the main drivers behind that Thule thinks of why to pursue in a sustainable business. Change is also important in terms of consumer behavior changes and as well changes related to the business and new trends.

The first step taken to pursue in sustainability is by first recognizing the barriers to then try and overcome them. According to the plant managers the biggest barriers to engage in sustainability practices are due to:

- Not having enough of time and
- Not having enough of information
- No one is responsible for this area

Having an environmental policy would imply that the company is trying to enhance the quality and decrease the environmental burden. Thule does not have an environmental policy; however they are working towards developing and applying one in all sites.

In terms of practices, Thule's top agenda is recycling, and perhaps the one that has been developed the most. Recycling should be enhanced on all plants and in all parts of the plant.

The environmental burden is decreased mostly by the following activities: recycling, conserving energy use, processes, waste, and transportation.

Investing in optimizing logistics will save lots of costs and the environment. Transportation is a major part of a business and which Thule should focus more on. Maximizing truck loads is the first step taken and the next to come is changing transportation alternatives, example: trying to use trains and boats as much as possible instead of trucks.

No plant uses the LCA approach which considers a product from cradle-to-grave and most of the plants do nothing to decrease the environmental costs associated with energy and GHG emission related to transportation.

All of the of the packaging's are recyclable, some are reusable, but no one are biodegradable which can be enhanced if the opportunity exists.

It is important that the different plants share a lot of information of how to become more sustainable and work as a group even though it is very complex and difficult to do this, in the end it may yield better results due to competition and feeling pressure from the other plants.

The thinking of that "sustainability has no barriers" can be removed by setting convincing targets to increase incentive, and maintain the move towards creating a more sustainable society.

Based on the analysis from the questionnaires, we believe that the following points will benefit Thule's sustainability transformation: Cultivate sustainability vision and culture across the organization is a prerequisite condition for the transition; Together with sustainability vision, strategy should be integrated in the company's operation and involved in every department; In order to take advantage of sustainability and gain competitive strength, Thule can seek the business potential through: re-engineer process, re-value the by-products, re-design the product, building alliance and inviting dialogue with key groups; To promote the process of transition, we discussed sustainability reporting and mainly focused on the SBSC (sustainability balanced scorecard), as reports serves an important role of communication, evaluation, benchmarking.

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B. Sustainability awareness questionnaire

Awareness Questionnaire

1. Please fill the following information

Name (optional)

Designation (optional)

* Business Area

* Plant Location/City

* Country

2. What does 'Sustainability' (in Business) mean to you ?

- Employee friendly measures & employee safety
- Long-term
- Short-term
- Improve social benefit
- Decrease the environmental burden
- An extra cost that will bring us no benefit
- Competitive advantage
- Good profits & financial stability
- Effective use of resources
- A new business trend
- Filling the gap in the market for sustainable products
- Securing the company's position in the market
- Greenwashing
- Reducing Cost

Other (If You want to mention any other things)

3. Sustainability in Business encompasses economic, social and environmental aspects. According to you, what would be the order of preference you recommend Thule to focus on. (Rank the following from 1-high to 3-low)

	1	2	3
Economic (Long-term financial security)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social (Caring for the communities in which company operates & compensating them for any negative impact caused)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental (Taking environmental friendly measures)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. According to you how well is Thule currently performing in the following aspects of sustainability?

- 4 Economic (Long-term financial security)
- 4 Social (Caring for the communities in which company operates & compensating them for any negative impact caused)
- 4 Environmental (Taking environmental friendly measures)
- 4 Internal issues (Employee friendly measures, safety etc.)

5. Are you taking sustainability aspects into account in your daily work ? If so, in what type of work tasks ?

6. Please describe any possibilities that you can see where Thule can perform better in terms of Sustainability (Social or Environmental aspects). It can be any thing like minimizing the waste, optimal use of resources, energy conservation etc.

7. What would make you put more attention to the sustainability aspects ? (Tick all that apply)

- Linking sustainability objectives to executive pay.
- Strict rules from Top management
- Training & awareness programs

Other (please state)

*** 8. What does the word sustainability mean to you personally? (Tick all that apply)**

- Saving planet
- Longterm financial security
- Buying eco-labelled stuff
- It is a way of life
- Extra cost
- New trend of companies to exploit the market

Other (please specify)

9. On the scale of 1 to 5, how do you rate your awareness of sustainability ? (1 meaning not aware to 5 very aware)

- 1 2 3 4 5
-

C. Answers to the awareness questionnaire

Avoid paper copies at all costs. Use reusable cups rather than plastic bottles or paper cups. Use vendors that have a sustainability focus as well. Support local companies with business when possible.
PAPER RECYCLING, BEVERAGE CONTAINER RECYCLING
Yes. Cashflow improvement.
Environmental concerns - waste management Lean Manufacturing
When possible, always trying not to waste, to reuse, to recycle in an effort not only to keep Thule costs down but also to help the environment.
Yes. Make sure all printing is done on FSC certified paper.
Aiming for 100% accuracy in data entry, trying not to waste paper. Recycling where possible.
Doing my job as efficiently and affectively as possibly
I look for long term solutions to manufacturing issues. This includes type of equipment purchased, repair procedures, and steady repeatable manufacturing processes.
recycling paper, printing less and sending electronic documents, auto shutoffs for lights
Lean mfg, Strong customer service, world class products, employee relations
Confrence call vs meeting, recycling, bike to work at times, listening to new ideas...
Customer service. Recycle destroyed product
reduce - reuse - recycle mindset
Best and fastest to market utilizing best practices of material choices and ingenuity to increase market share.
Yes. In reusing existing parts whenever possible.
recycling
Ensuring parts needed for manufacturing of product meets specification. Ensuring that all product going to our consumers is of the highest quality and free from defects.
recycling all office materials
5S
reduce use of resources and recycling
Yes, especially in new developments, Capex. Meetings with project teams etc.
We are not focused against sustainability
RECYCLABLES SUCH AS CARDBOARD, STRETCH WRAP AND OFFICE PAPER.
Trying to be smarter about travel plans - using more online meeting providers.
Trying not to use too much of paper and other stuff in the office.
No
I'm trying to minimize the costs and negative environmental impact of my daily work. Reducing the use of electricity, waste etc.
Focus on well-being of my employess, both short term and long term.
We need to be more proactive when it comes to Marketing activities within the Towing Systems BA through the use of the internet and getting closer to the consumer. He must make the brand decision which currently is not the case.
Try to reduce the consumption of energy, paper etc. Encourage my colleagues to think "green".
Yes, - We try to limit use of packing materials..
offering a solution which brings customer uses confident and realable in time
Trying to print as few paper copies as possible.
reduction of CO2 emissions by consolidation transport and reducing the transport network

We are continuously improving the reduction of process scrap High focus on recycling all materials coming into the building; currently 85-90%
No
I choose bike and train as means of transportation rather than going by car or by air. No printing unless necessary.
Small things such as Less printing Cooperate with customers to reduce freight, weight, etc.
Yes, normal issue's like no environmental issue's, no child labour, reduction of material content & waste, transport
Working long term in evaluation of implication from any planned change
- separation paper waste from others (ease recycling) - print two sides of the page (less paper used) - reasonable Heating / air conditioning usage - telephone / video meetings vs actual travel - travel by car with colleagues (coordinate travels when possible) - reuse of waste paper - write the other side of wrong printings - turn off the printers, computers, copiers at night - prefer sending scanned documents when possible
Reduction of weight product + packaging
Environment impact Flexibility and quick reaction to assure everlasting business
No
Finding long term solutions and promote light weight development.
Integrating sustainable development in the establishment of new process
Environmental aspects and safety for employees
No not really
Environment friendly designs + goood ergonomics for customers and employees. We are also working an a long term relation with our customers.
Employee safety, waist recycling
Yes. We are recycling paper, have installed occupancy sensors in offices and restrooms, return regrinded plastic for re-use. We also return used corrugate

D. Answers to awareness questionnaire

More community outreach. Becoming a better neighbor in the city of Seymour and the surrounding area.
Utilize more domestic sources for our resources. Focus on local suppliers for components. Create more jobs in our community by manufacturing and assembling more in house.
KEEP GOING ON A UPWARD TREND ON SUSTAINABILITY IN TERMS OF SUPPLIERS
There always seems to be more room for improvement in our processes and energy conservation. Reduction of manpower with more automation would also improve quality.
Continue with environmental awareness and perhaps publicize efforts more within each location to gain 100% support and understanding from all employees which will spill into their lives and their communities outside of Thule.
Remove carpeting in all buildings to cut down on chemical cleaning and allergens; install environmentally-friendly solid surface flooring; work to provide more natural light to cut down on electrical needs; keep vents clean for employee well-being; provide employee incentives to ride their bike to work; implement a week-long program to weigh garbage per department with a goal to reduce waste as the week progresses;
COMPOSTING BINS IN CAFETERIA'S, RECYCLING BINS IN ALL OFFICES AND CUBICLES, COMMUNITY GARDEN PLOTS WHERE EMPLOYEE KEEPS HALF AND THE OTHER HALF DONATED (WHERE THERE IS ENOUGH LAND).
Employees should be encouraged to save energy, turn off the heat, lights, etc. Better communication between purchasing and product development would result in fewer scrapped parts each year as products are changed or discontinued.
energy conservation, and recycling programs.
Sharing successes from other BA's, best practice sharing...
Better planning and quality control at the beginning of the product development and production cycle. No up front quality control visibly in place at this time.
reduce energy consumption reduction in material both in facilities and product end of product life responsibility
Reducing our waste. From the production floor to becoming a more paperless company.
Environmentally we can take further steps in recycling / reusing scrap materials.
Reduce the amount of scrap - (cardboard, paper and wood items)
Engineering end of life plans into each of our products Eliminating of all PVC or other harmful materials from our products Aligning ourselves as a corporation with one or two social causes. for example: feeding hungry, habitat for humanity, cancer research, etc.
Product availability
More involvement in the recycling program; more energy efficient machines and appliances
More emphasis on recycling
- Encourage alternative transportation and carpooling with incentive program - Increase community involvement with sponsorships, advocacy - Eliminate use of plastic K-cups in coffee machine - Distribute re-usable coffee mugs and charge \$0.25 for disposable cups
See actions TCGM meeting by VPO's in March 2010
Social and environmental optics - more volunteer work with connection to environment, energy conservation, packaging conservation
Very happy to see the recent installation of solar panels - given our location on the top of a windy hill - it would be great to see a wind turbine. Where possible, I'd like to see a higher utilization of recycled materials (like we currently use in our cargo boxes).
Almost in all aspects.
Reduce waste Products which are fuel economy neutral Use of recycled material
Thule needs to implement environmental and social accountability analysis in all sourcing, production and acquisition decisions. Too much is unexplored at this point in time.
I think Thule should define an environment policy towards our suppliers.
A lighter product is a major requirement and totally new thinking as to design. Current design

concepts have remained the same for over 50 years.
Create a sharp "green" profile and culture. The active lifestyle which is our core value is strongly connected to nature and outdoor life. (it will give us brand recognition as well). Show environmental (and ethically) responsibility in all business aspects from sourcing to distribution.
Recycling (re-use) of packing materials.
We can start to talk about the matter more. Clearly define what we will focus on when it comes to sustainability during the coming years. I think we should focus on all of the above suggested areas.
see above, make this an agenda point for senior management
Change our very old thermoforming oven to new, more efficient, design potentially saving 40% in energy Utilising more renewable energy sources
Waste reduction, product development is the big potential, freights, travels
Bigger: Use the most environmentally friendly materials (without any loss of quality) in our products, incl packaging - and tell the customers about it Recycling of used products/material Using renewable energy sources Making environmental awareness part of the Thule image Smaller: Company cars and company bikes available at Thule offices, making it easy to take your bike to the office even if you have to use a car during your working day and making it easy to use a bike for shorter trips during your working day even if you have to use the car to get to work No bottled water in the office (in offices where tap water is of good drinking quality) Waste sorting in the office
Communication of present activities
Focus on saving energy, from production, heating and lightening. Water consumption Reduce production of waste
- ease the usage of Scanners (would ease the electronic archiving) - encourage the video conferences vs travels - reduce heating/ air conditioning when offices are not utilized (holidays, week-ends) - turn off all computers, copiers, printers before leaving - put this into the Purchase requirement we expect from our Suppliers - utilize the roofs of the factories for Electrical power (or selling Green Electricity to the local Electric Company)
Minimizing the waste and packaging, energy conservation
Thule can take direction on product recycling materials, for example by thule box production.
Thule could improve how they utilize existing competences within the group across BA's. Especially when closing down organizations in one end and strengthen in another end.
Switch off the lights in offices, recycle waste in the kitchens.
Use of renewable energy
minimize waste usage of alternative energy solutions
Set requirements on SUPPLIERS for Sustainable actions and reaching certain objectives. Waste and renewable energy for Thule own production
Energy consumption specification for our products as well as specified in what type of energy that has been used.
Show environmental aspect in product assembly instructions. I.e. show additional fuel consumption on car when roof box is in use to make customer aware and only use when necessary
Our CT office installed solar panels on their roof to generate electricity and reduce reliance on the electric company. The opportunity is for other sites to rely more heavily on the sun for energy needs.

E. Sustainability practice questionnaire

Practices Questionnaire	Personal Information	
	Name (optional)	<input type="text"/>
	Designation (optional)	<input type="text"/>
	Business Area	<input type="text"/>
	City (plant location)	<input type="text"/>
	Country	<input type="text"/>

1) What do you think might be the incentive for Thule to engage in sustainability? (1 – represents low, 5 – represents high)

	1.	2.	3.	4.	5.
Lowering overhead costs.	<input type="radio"/>				
Anticipating and responding to change.	<input type="radio"/>				
Making a contribution to sustainability.	<input type="radio"/>				
Meeting the needs of our client group more effectively.	<input type="radio"/>				
Contributing to securing funding.	<input type="radio"/>				
Improving our company's profile .	<input type="radio"/>				

2) What do you see as the barriers to improving your organization's engagement in sustainability? Please indicate which barriers are relevant. (Tick all that apply)

- Not enough time.
- Not enough information.
- Too much information.
- Have no control over building/building management.
- Compliance fatigue.
- Does not seem relevant to our work.
- No-one in organization responsible for this area.
- Cannot see benefits.
- Other (please state)

3) Does your plant (or Thule) have an environmental policy statement?

- We are developing an environmental policy statement
- Our environmental policy statement consists of a commitment to promote environmental stewardship
- We have formed a committee to ensure the success of our environmental policy
- Our environmental policy statement describes how our company explores opportunities to work with communities, governments and non-governmental organizations to help articulate, teach and advance the principles of sustainability.
- Other (please state)

4) What programs do you have in place, or planned for promoting resource efficiently? (i.e. an environmental or waste audit? (Please check the items that apply)

- We recycle wastes and practice energy reduction when possible
- We are developing a recycling system
- We utilize a formal energy management system
- We are a member of various environmental organizations
- We have performed an environmental or waste audit
- Other (please state)

5) In which areas have your plant already tried to decrease the environmental burden? (Please check the items that apply.)

- Conserve energy use (electricity and heat)
- Decrease chemicals use and emission
- GHG (green house gas) emissions
- Using eco-friendly material
- Processes
- Waste
- Recycling
- Transportation (logistics)

6) Life cycle assessment (LCA) considers a product from cradle to grave. Has an environmental life-cycle assessment of the product that you are providing been conducted by a certified testing organization? (Please check the item that applies.)

- Yes, an environmental life-cycle assessment of the product that we are providing has been conducted by a certified testing organization
- No, an environmental life-cycle assessment of the product that we are providing has NOT been conducted by a certified testing organization
- No, we don't use life-cycle assessment at all
- I don't know

7) Do you promote resource efficiency?

If **YES**: What kind of activities or management system do you use for promoting resource efficiency?

If **NO**, please explain why

8) What type of sustainable packaging/shipping materials do you use? (Please check the items that apply.)

- Our packaging/shipping materials are recyclable
- Our packaging/shipping materials are reusable
- Our packaging/shipping materials are bio-degradable
- Our packaging materials are not sustainable
- Other – describe other types of packaging/shipping materials you use

9) Does your plant do anything to minimize the environmental costs associated with energy, GHG (Green House Gas) emissions related to transportation ? If yes, Please describe shortly how and what methods are used.

- Yes
- No
- I don't know

10) Yes or no questions

	Yes	No	N/A
Do you have and already implemented energy efficiency method?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you use a waste management system to minimize waste from materials?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do you have an incorporated recyclable program?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are you maximizing the use of recycle materials?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are you trying to minimize the use of non-renewable materials such as oil?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are you using the LCA (life-cycle assessment) for the products: cargo boxes and bike carriers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Are your suppliers aware of the LCA?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11) If measured, please report the total amount of solid waste (by type if possible) generated for the most recent year measured.

[Redacted]

12) Have you set solid waste reduction targets? If yes, what are those targets?

[Redacted]

13) If measured, please report total water use from for the most recent year measured?

[Redacted]

14) Have you set water use reduction targets? If yes, what are those targets?

[Redacted]

15) Do you have any purchasing guidelines for your direct suppliers that address issues such as environmental compliance?

[Redacted]

16) Do you have a process for managing social compliance?

[Redacted]

17) Do you invest in community development activities in the markets you source from and/or operate within?

[Redacted]

18) Please describe any possibilities that you can see where Thule can perform better in terms of Sustainability (Social or Environmental aspects). It can be any thing like minimizing the waste, optimal use of resources, energy conservation etc.

[Redacted]

F. Carbon footprint guide

Standard for measuring carbon footprint

PAS 2050:2008 is a publicly available specification which has been prepared by the British Standards Institution (BSI) and is based on existing methods already provided by ISO 14040/14044.⁵¹ The specification stands for assessing different type of good's and service's lifecycle greenhouse gas (GHG) emissions. BSI has prepared PAS to state the requirements needed for being able to assess the GHG emissions. By using PAS 2050 organizations can use a method that will deliver better understanding, provide a common comparison and communication of the results attained of GHG emission arising from their supply chain. The benefits derived from using PAS 2050 are many, since they will both benefit themselves as an organization, their stakeholders and their end-consumers.

Some of the Earth's most abundant greenhouse gases⁵²:

- Water vapor
- Carbon dioxide
- Atmospheric methane
- Nitrous oxide
- Ozone
- Chlorofluorocarbons

Examples to benefit Thule when using PAS 2050:

- Supports an organization's corporate responsibility
- Makes the determination of a product's lifecycle GHG emissions possible
- "Facilitates the evaluation of alternative product configurations"
- Provides benchmarking and communication possibilities of GHG emissions both internally and externally between different products, businesses and customers/consumers aimed at reducing the environmental burden.
- Encourages and influences incentive to reduce emission by using alternative methods that are more environmental. Example: choice of raw materials, production and process methods, selection of suppliers and etc.
- "Allows for a comparison of goods or services using a common, recognized and standardized approach to life cycle GHG emissions assessment"

Type of business method used

PAS 2050 can be used for both business-to-Business (B2B) and business-to-consumer (B2C), B2B has not been applied since it would imply that Thule is providing products for another business and not for their customers/consumers. In our case we will use B2C since Thule's products are consumer oriented and will end up in the hands of end-consumers. B2C is a bit

⁵¹ PAS 2050 (2008), Specification for the assessment of the lifecycle greenhouse gas emissions of goods and services. British standards. Page: iv,1-6

⁵² <http://www.ncdc.noaa.gov/oa/climate/gases.html>

more complex than B2B and differs from that it includes a product's whole lifecycle stages, where distribution/retail, use and disposal/recycling has been added compared to B2B.

Thule Carbon Footprint (PAS 2050) Procedure

1. Preparation phase

Setting objectives
Choosing products
Engaging in suppliers

2. Product footprint calculations

Step 1: Building a process map
Step 2: Checking boundaries and prioritization
Step 3: Collecting data
Step 4: Calculating the footprint
Step 5: Checking uncertainty (optional)

3. Application phase

Validating results
Reducing emissions

Carbon footprint calculation preparation phase

Generally, there are three initial steps before carbon footprint calculation as preparatory phase, insure that PAS 2050 will implement fast, effective and support organization decision making. The start-up steps included: setting objectives, choosing products, engaging suppliers.

Setting objectives

Setting objectives will served as the guideline for the following steps in Carbon footprint calculation, it will directly related to the level, scope, boundaries of the carbon foot print calculation.

Carbon foot print calculation can be used for two general applications:

- Internal assessment such as focusing decreasing GHG emission.
- External communication with customer (including business customer) for product informant and purchasing decision.

It is important for Thule to achieve an internal agreement about the objectives. Some information should be defined clear for the objective for Thule:

- The expected outcome of carbon footprint calculation.

Through the conversation with Thule, we find that Thule's motivation of Carbon footprint calculation can be categorized as following:

- Meet customer's attention in sustainability product, which also require a more complex and precision analysis for the calculation.
 - Raise the sustainability awareness within Thule
 - Seek the possibility of decreasing the GHG emission and increasing energy efficiency; especially as Thule involved much transportation in their production and distribution process, they want to lower the usage of fuel.
- The main criterion for assessment

For our thesis, we use the “PAS 2050--Specification for the assessment of the life cycle greenhouse gas emissions of goods and services” as our guideline for calculation the carbon footprint. PAS 2050 is an assessment certification which aimed at helping companies to find the possibility of reduction GHG emission during its process.

- The budget, schedule, people responsible for the project

Choosing products

In line with the objective, we should determine the product for calculation. This involves the decision of product amount, type, and size.

Several criteria should be taken into consideration:

- When we consider the GHG emission, it usually related to four aspects: product specification, manufacturing processes, packing option, distribution methods⁵³. We should determine which aspect is most relevant to the Thule's sustainability strategy.
- The product of most differentiation or competitive perspective should be taken in to consideration.
- The product most aligned with potential emission reduction and marketing opportunities should also be taken into consideration.

After choosing the product, we need to define the function unit, function unit reflects the way the product actually consumed by the end user, which is also the basis for comparison, communication of the calculation result.⁵⁴ In our project, the function unit is per bike carrier.

Engage in suppliers

Engaging with suppliers is a crucial step to understand product life cycle and calculate carbon footprint. The essence for PAS2050 is access product's life cycle through its whole value chain. On the one hand, if suppliers engaged into carbon footprint, Thule will be more likely to complete the emission reduce target. On the other hand, involve into supplier will guarantee the accuracy of data we use in the calculation.

In order to engage the suppliers into carbon footprint, it is useful for Thule to consider the following questions:

- 1: Select Thule's key suppliers, retailers.
- 2: List the aspects Thule concerns
- 3: Figure out how to get suppliers interested in carbon footprint.

⁵³Guide to PAS 2050: how to assess the carbon footprint of goods and services , 2008, page 6

⁵⁴ Guide to PAS 2050: how to assess the carbon footprint of goods and services , 2008, page 7

- 4: try to set some joint emissions targets with suppliers to collaborate to reduce emission
- 5: establish some supplier incentive methods to bond the relationship

Thule Supplier engagement plan

Aim:

Engage suppliers to figure out the product carbon footprint and achieve the emission reduce target

Method:

1: communicate with suppliers, let them understand Thule's carbon footprint concern, and then negotiate with suppliers to reach an agreement on carbon footprint cooperation.

2: figure out the aspect or data which Thule interest from supplier, and set joint emission goals with suppliers

e.g. Transportation methods choice

Components packing materials choice

Is it possible for suppliers to provide product carbon footprint results?

Suppliers' sustainability initiatives

3: work with suppliers to get the data and also help suppliers obtain some emission reduce benefit or profit benefit.

4: use accordingly measure indexes to evaluate the outcome.

5: establish suppliers appraise system: bond and reinforce the relationship with positive carbon footprint suppliers, change or warn the suppliers who do not care the sustainability production.

6: ensure that both Thule and suppliers can get benefit the carbon footprint reduction.

Calculating carbon footprint

PAS 2050 use life cycle assessment approach to evaluate product or service's GHG emissions, and offer company the chance to minimize emissions across the whole value chain.

For Thule, we use bike carrier 914 as one example to guide Thule about how to use PAS 2050 to calculate product carbon footprint. It allows Thule internal assessment of its product GHG emissions; provide a benchmark for ongoing programs and comparison. It is also support information for Thule's future sustainability report. Generally, there are five steps included the product carbon footprint calculation:

- Building a process map (flow chart)
- Checking boundaries and prioritization
- Collecting data
- Calculating the footprint
- Checking uncertainty (optional)

Process map is a fundamental step for calculation, because it decided the following steps; while collecting data determined the results precious, and data validation. We hope this guideline will stimulate Thule implement carbon footprint assessment across its product portfolios aims to reduce GHG emissions.

Step 1: Building a process map

Life cycle assessment means identify all the materials, activities and processes that included in the value chain, insure that all emissions are corporate into the calculation. Thule’s products are mainly focus on vehicle accessories, and it manufactures cargo box, trailer, etc. In order to develop a process map, desktop research and supply chain interviews are two valuable tools to figure out the process map.

Firstly, define a functional unit. Functional unit is driven by how the product is typically consumed. The principle is choice a unit that easier to collect data. In this example, we use one unit as functional unit. Next, break down the functional unit into components, a product specification which list all input materials will be very helpful.

As consider Thule’s product mostly used in transportation and its focus consumers are mainly individual, we choice business-to-consumer (B2C) as model to develop the process map.

Bike carrier 914 as one example:

1: Define the functional unit: we use one unit as our functional unit. Actually, for Thule, batch units can also be used as functional unit. Because of assembly line production, batch units are easier to collect production process data.

2: List the product components:

Assembly	Item	Raw Material	Weight each(Lbs)	Primary Transportation mode from supplier
914	914		34	
914	7533727	Paint	7	truck
914	753372750		7	
914	8537095		5	
914	853709597		5	
914	853518498	Steel	5	Truck
914	8537161	Steel	2	Truck
914	8537096	Paint	5	truck
914	853709650		5	
914	853709697		5	
914	853518498	Steel	5	Truck
914	7533741	Paint	10	truck
914	753374150		10	
914	8535202		5	

914	853520297		5	
914	853518498	Steel	5	Truck
914	853521202	Steel	4	Truck
914	8537093	Steel	1	Boat
914	853709302	Steel	1	Boat
914	8535829	plastic	0.15	Truck

Make sure all the ingredients are included and describe them as clear as possible, e.g. material, weight.

3: List the activities involved in producing and consuming

List all the activities related to produce bike carrier 914 and contribute to GHG emissions. Thule can use its assembly line manufacture process procedures and value chain investigation information completed the step.

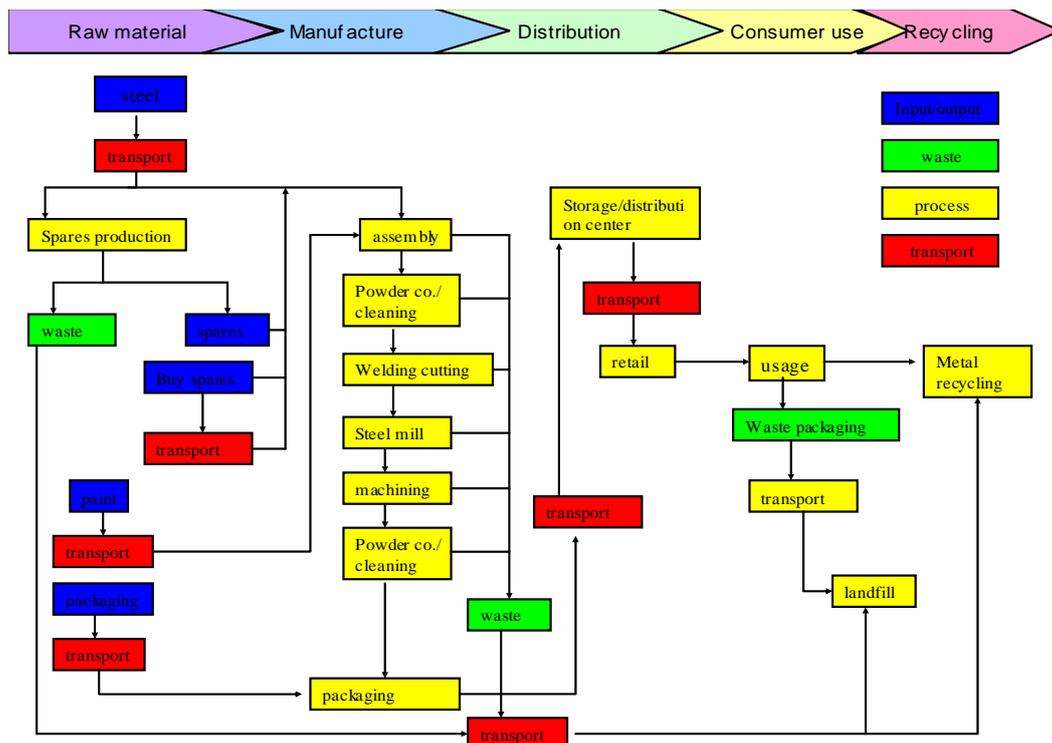
- Produce and transport raw materials
 - steel
 - make spares
 - buy spares
 - paint
 - packing materials
- Manufacture and packaging bike carrier 914

MFG Process
Assembly
Powder coat, Cleaning
Welding
Cutting
Cutting
Steel mill
Machining
Powder coat, Cleaning

- Distribute and retail finished bike carrier
 - Distance from place of departure to destination
 - The No. of finished bike carrier carried per trip and according fuel consumed
- Use
- Disposal and recycling
 - Record waste amount and type, and recycle steel energy consumed

4: Reflect on what might have been missed

- Have all raw materials, activities included into the process map and follow to the origin?
- Were there any by-product created during spares and product manufacturing?
- Have all waste and emission been account for?
- Was emission emitted during consumed? Etc.



This is a simple example of bike carrier 914.

Step 2: Check boundaries and prioritization

Boundaries

According to PAS2050, the system boundary defines the scope for the product carbon footprint, i.e. which kind of input and output should be included in the assessment, how to handle the recycling stage, figure out the manufacture procedures. The aim of define boundaries is to guarantee that all the materials and activities contributed to emission are included into calculation. Company can search if there is PCR has already existed for its product.

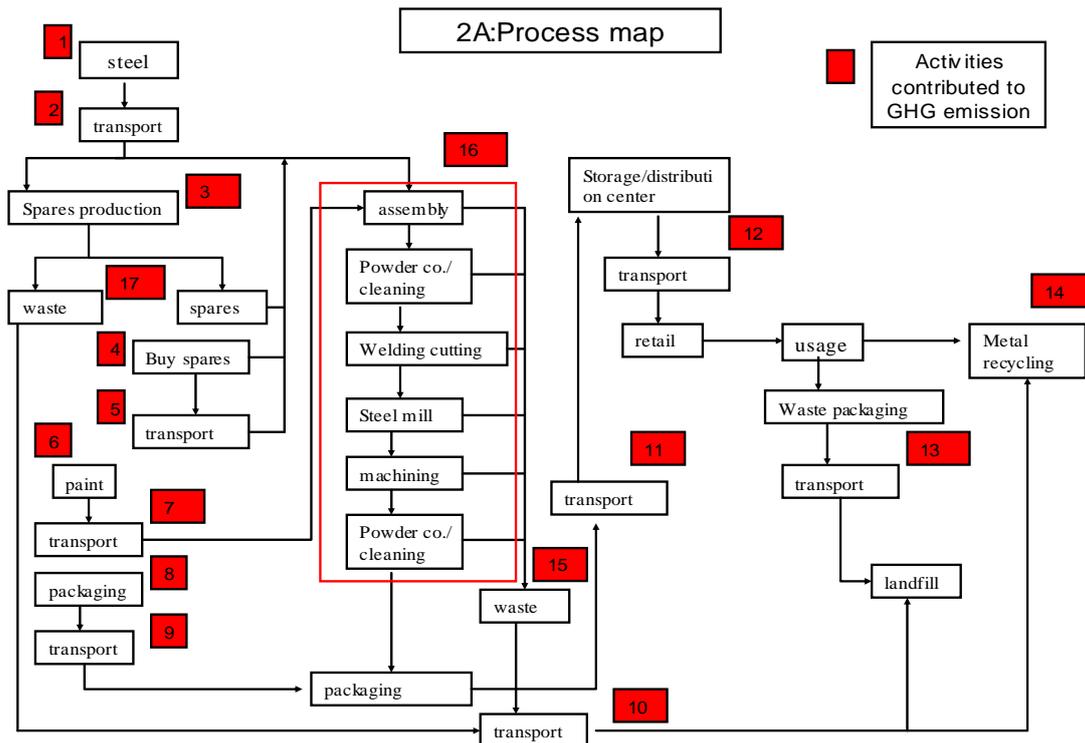
As for Thule bike carrier 914, we developed it boundary followed PAS 2050. After examine process map with the production assembly line and distribution routine, we list which will be included in the data collection and calculation, and excluded unnecessary immaterial emissions. There are three major concern parts: raw materials, product manufacture, and transportation. Centered by the three parts, we list corresponding aspects we concerned:

- 1: The type of steel used
- 2: The fuel and vehicle type used in transport: petrol, diesel, etc; truck, boat, rail etc.
- 3: Manufacture process flow

Materiality and prioritization

According to PAS 2050, the analysis included the full life cycle of the product but relies on estimates and generic data to build a high-level footprint. Desktop internet search and other LCA database maybe helpful for the high-level analysis, make sure where to focus, where not.

In summary, step 2 aims to figure out activities across process map contributed to GHG emissions, and clear what kind of information need to collect.



Step 3: Collecting data

This step begins collect more specific data following the process map. Normally, two types of data are needed to collect: activity data and emission factor. Activity data refers to materials amounts, energy consumed amount and type, transport distance etc; emission factor is the amount of green house gases emitted, expressed as carbon dioxide equivalent and relative to a unit of activity, it is a convert factor linked quantities with GHG e.

For activity data, there are primary data and secondary data; it would be better if Thule can use as many primary data as possible. In order to get enough activity data, Thule can cooperate with its supplier on primary data collection.

The following questions illustrate the type of data needed:

- 1) List all the raw materials as clear as possible (bike carrier 914) and its amounts goes into one unit of product.
- 2) The total amount of product manufacture per year.
- 3) The amount and type of energy consumed during production, e.g. electricity, gas, diesel oil.
- 4) Please mention the amount and type of fuel use for transport.
- 5) Please mention the amount and type of waste generated
- 6) If it is possible, please estimate the amount of energy used during recycling process.

Step 4: calculating the footprint

The product carbon footprint calculation is the sum of all material, energy and waste used and generated across the whole value chain. there are two main steps for calculation:

1: primary activity data and secondary data shall be converted to GHG emissions by multiplying the activity data by the emission factor for the activity, recorded as GHG emission per functional unit of product.

Carbon footprint of a given activity = activity data (mass/volume/kWh/km) × emission factor (CO2 e per unit)

2: GHG emissions data converted into CO2e emissions by multiplying the individual GHG emissions figures by the relevant GWP.

Mass balance

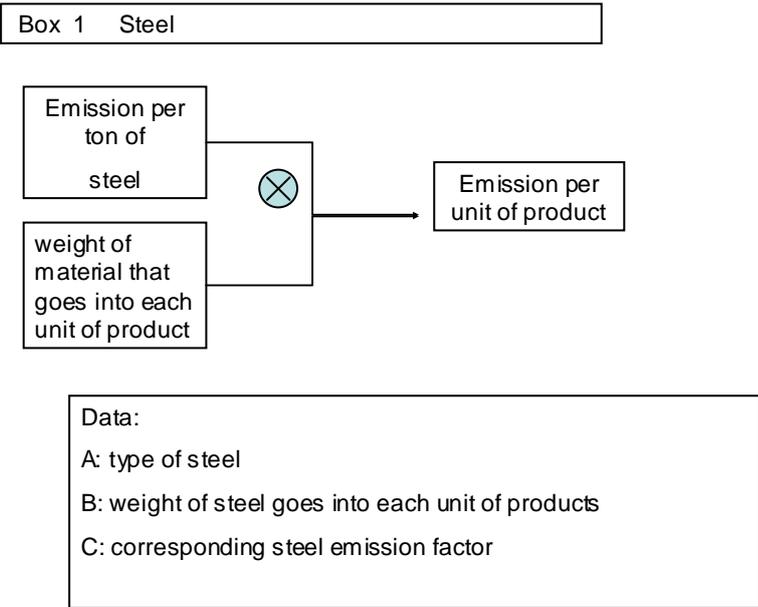
Before calculation, we should weight the quantification of all the total amount of all materials into and out of the process. The concept is that total mass flowing into a process should equal total mass flowing out.(1) after collect data, it is easy to calculate mass balance.

Footprint calculation

We examine the process by following B2C model, from raw materials, manufacture, distribution, to usage, recycling; signal the box which represent the process contribute to GHG emission. All the signaled boxes can be classified into 5 categories:

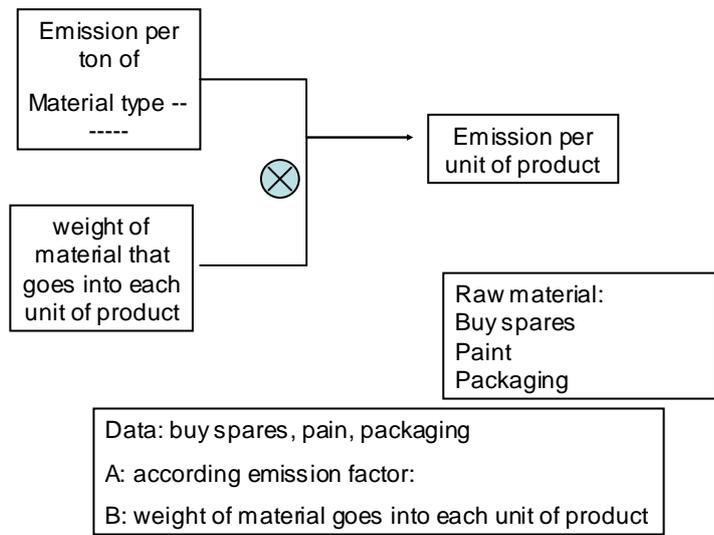
1: Box 1 4 6 8

All the boxes belong to inputs of bike carrier 914, the following diagram explained the way to calculate box 1:



Box 4 6 8 all use the same calculate way:

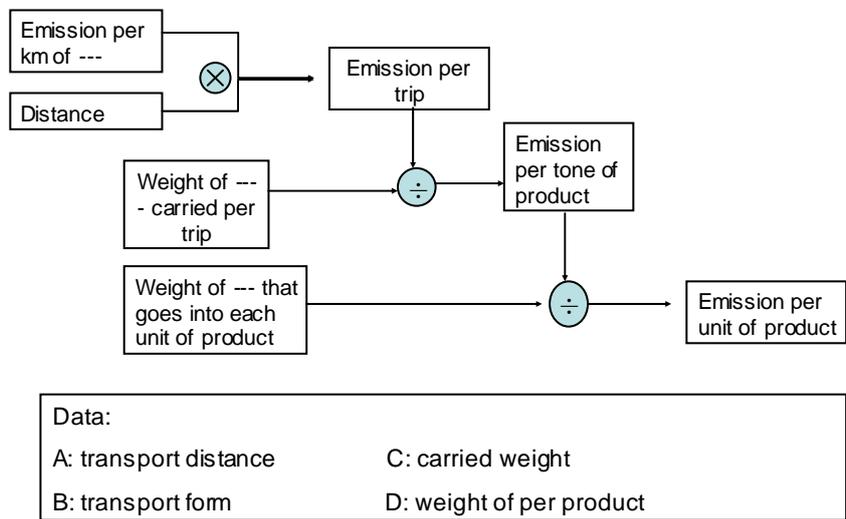
Box 4 6 8 Raw material



2: Box 2 5 7 10 Transport A

These boxes are all related to transport, while the materials carried by transport A is account by weight/ tones.

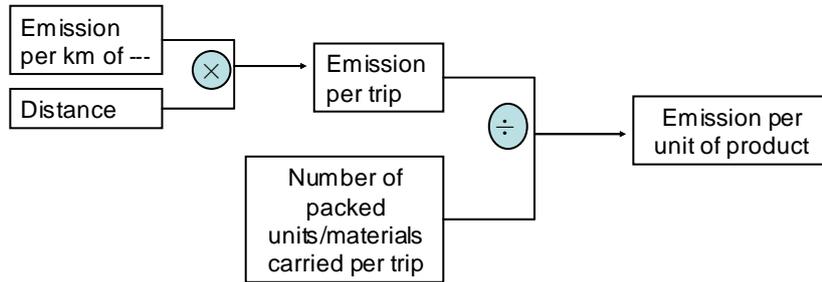
Box2 5 7 10 Transport A



3: Box 9 11 12 13 Transport B

These are link with packaging transportation, as packaging is account by the number packaging materials used, the transport B is different from A.

Box 9 11 12 13 Transport B

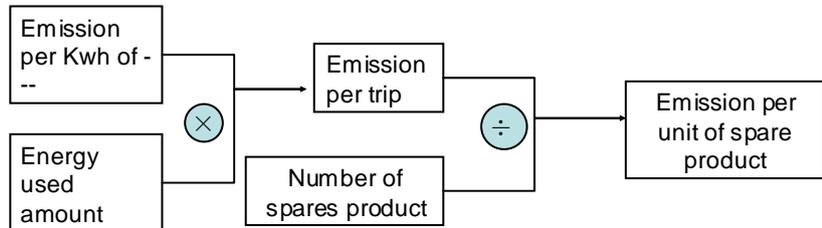


Data:
 A: transport distance
 B: transport form
 C: number of packaging materials carried

4: Box 3 14 16 Production energy consumption

Many different kinds of energy consumed in production process, e.g. gas, natural gas, petrol, diesel etc.

Box 3 14 16 Production energy consumption

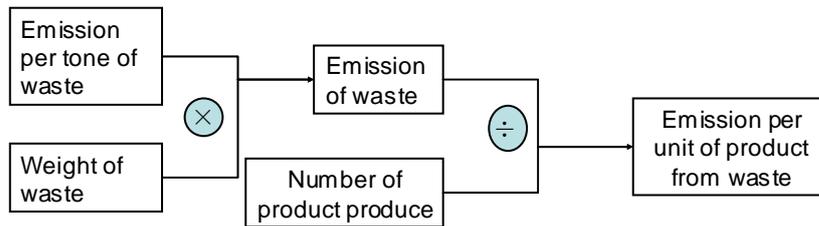


Data: Electricity, gas, diesel, petrol,
 A: energy form
 B: consumed amount
 C: corresponding emission factor

5: Box 15 17 Waste

Wastes mainly come from three ways: make spares, production process, and usage. First, make clear the classes of wastes; then, record the wastes amount; last, try to figure out the fit emission factor.

Box 15 17 Waste



Data:
 A: List every type of waste generated
 B: corresponding emission factor

Step 5: checking uncertainty (optional)

After product carbon footprint calculation, uncertainty analysis is a measure to insure the calculation precision and improve footprint comparisons to insure that any decisions based on carbon footprint will give Thule benefit.

Uncertainty may come from two sources: one is technical uncertainty, another is natural variability. The major uncertainty of carbon footprint for Thule is technical uncertainty, which is created by limited data collection and quality.

Thule can follow the below principles to avoid uncertainty:

A: use as many primary data as possible; replace secondary data with good quality primary data.

B: if it is possible, collect data as precision as possible, e.g. energy consumed in production process.

C: repeat the process of each input and output, raw materials, production assembly line.

D: report the amount and type of waste as clear as possible, pick out the staff go into recycling.

E: describe the input and output, activity, system as clear as possible, insure that when do calculation, using the right emission factor. (e.g. different type of petrol generated have different emission effect.)

Through the carbon footprint calculation, Thule can try to build a database centre for carbon footprint and also use for company management. Thule implements lean manufacture, so these data also can be used for energy strategy part and production management. As for transport, since 2008, Thule pay close attention to LIFO distribution, try to reduce lead time. This part is also useful for calculation.

Thule carbon footprint calculation application

In general, calculate carbon footprint for Thule is not our only aim. The significant meaning for product carbon footprint lies in that it can help Thule understand carbon risk, win company reputation and reduced GHG efficiently. We suggest two possible applications for Thule's product carbon footprint:

1: Validating results:

The level of carbon footprint verification is higher than results only being used internally. Generally, Thule can choose self-verification and third party verification, but compared to third party verification, self-verification has limited reliability.

For Thule, carbon footprint certification (CFV) is a creditable certification, which can reassure regulators, consumers, employees and shareholders, potential investors. Beside, Thule carbon footprint can in accordance with management systems standards ISO 14065⁵⁵

Common emission reduction opportunities:

- Energy use
 - change from electricity to gas
 - increase proportion of energy from renewable
- Production
 - decrease waste volumes
 - increase scale
 - decrease amount of processing
 - change manufacturing practices and improve efficiency
- Distribution
 - decrease heating/cooling in storage and transport
 - decrease distances travelled
- General
 - include energy/carbon criteria in purchasing/supplier choices
 - include energy/carbon criteria in design decisions
 - change product design/configuration/materials, e.g. 100% recycled bottles
 - change technology choice (e.g. upgrading equipment to be more energy efficient)
 - improve inventory management.

Source: Guide to PAS 2050 (page 38)

and use

ISO 14064-1⁵⁶ as GHG guidance at the organization level for reporting. It will help to review the scope and methodology applied to Thule, taking into account the whole organization GHG emissions.

⁵⁵ ISO 14065: 2007 : greenhouse gases: requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition

⁵⁶ ISO 14064-1: the file details principles and requirements for designing, developing, managing and reporting organization-or-company-level GHG inventories, also includes GHG emission boundaries, etc.

Now, Thule just steps the first footstep toward product carbon footprint calculation, next, it can take time to build a plan to guideline its future way to implement ISO standards into the organization. This is also a long term strategy to differentiating Thule brand from the competition, win credibility, a transparency attempt toward “green governance.”

2: Reducing emissions

Product carbon footprint can be seemed as a tool for Thule to identify the GHG emissions opportunities, and offer insight about its internal operation. It can be used to analysis Thule’s potential carbon reduction impact of activities, develop cost reduction campaign, e.g. choose clean energy, reduce internal logistic flow, optimize manufacture, recycling waste.

G. Carbon footprint plant results

Thule plant resource usage CO₂ emission

Thule Towing Systems B.V NL

Type	purpose	Annual usage	unit	Emission factor	Amount kg CO ₂
Electric	Process, light	4,746,308	kwh	0.9637 kg CO ₂ per kwh	139,538.82
Natural gas	Heating, oven	524,180	m ³	2.0133 Kg CO ₂ per m ³	1,055,331.59
Water	Degreasing and sanitary	4869	m ³	0.693 kg CO ₂ per	3,374.22
				Total:	1,198,244.63

VANA US

Type	purpose	Annual usage	unit	Emission factor	Amount kg CO ₂
Electric	Light, heat, IT, MFG Process	1,145,600	kwh	0.6132 kg CO ₂ per kwh	702,481.92
Natural gas	Heat	32,500	Gallons	0.0037854 × 2.0133 kg CO ₂ per gallon	247.60
Diesel	Fire pump	250	Gallons	3.7854 × 2.6694 kg CO ₂ per gallon	2526.18669
Water	Sanitary	236,000	Gallons	0.0037854 × 0.2760 kg CO ₂ per gallon	24.66
				Total:	705.280.37

VAEA Germany

Type	Purpose	Annual usage	Unit	Emission factor	Amount kg CO ₂
Electric	MFG-process; light, Heating	2,000,000	kwh	0.4576 kg CO ₂ per kwh	915,200
Natural gas	Heating	12,000	m ³	2.0133 kgCO ₂ per	24,159.60
Oil	Heating	150	m ³	1000 × 2.5442 kg CO ₂ per	381,630
Water	Sanitary	650	m ³	0.276 kg CO ₂ per	179.4
				Total:	25,635.83

VAEA Italy

Type	Purpose	Annual usage	Unit	Emission factor	Amount kg CO ₂
Electric	Light, heat, IT, Production processes	4,800,000	kwh	0.4768 kg CO ₂ per kwh	2,288,649
Natural gas	Heat, Production Processes	840,000	m ³	2.0133 kg CO ₂ per m ³	1,691,172
Diesel	Emergency power generators	100	L	2.6694 kg CO ₂ per liter	266.94
Water	Sanitary, Production Processes	25,000	m ³	0.693 kg CO ₂ per m ³	17,325
				Total:	3,997,412.94

Results:

Plant	Amount of CO ₂ in kg
Thule Towing Systems B.V NL	1,198,244.63
VANA US	705.280.37
VAEA Germany	25,635.83
VAEA Italy	3,997,412.94