

# POLITECNICO DI MILANO

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KEY PERFORMANCE INDICATORS FOR SUSTAINABILITY:

A METRICS PROPOSAL FOCUSED ON THE LOGISTIC SECTOR

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# ABSTRACT

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Sustainability is nowadays a topic and objective of many industries and countries; the concept has been changing along the years passing from a green idea to an integral multiphase concept. Ignoring the importance of a sustainable behavior lead to environmental, financial and social issues at many different levels.

Sustainability means equilibrium, different authors definitions hint at ideas such: ecosystem carrying capacity considerations; present needs fulfillment with out cost transferred to future generations, environmental concern, human rights respect, social equity, quality and corporate responsibility, just for mentioning some.

The three pillars that define sustainability are: environmental, social and economical aspects, their weights have been equalizing and when achieving an overlap the state of sustainable development takes place. Measuring sustainability requires measuring those three pillars. Numerous organizations aim at rating sustainability of companies or single products; however benchmarking them based on the proposals presented is rather ambiguous since must of them are guidelines, greener practices but not measurable, comparable or accessible indicators.

This work focuses on building a set of key performance indicators taking into consideration mainly four worldwide initiatives; the global reporting initiative (GRI), the Walmart Sustainability Initiative, the Corporate Responsibility Index and the Dow Jones SAM Questionnaire, additionally it was briefly considered the ISO-14001.

Logistics sector is the special focus in this work; a proposal for measuring sustainability in a logistics company is presented; benchmarking for setting the indicator's scales were fixed by analyzing four major worldwide logistics companies.

The Sustainability Index presented is a framework in evolution; the details for its composition are presented in these chapters, however its assessment and further evaluation and adjustment are still required.

The objective of this Work is to provide logistic companies with a tool that supports its corporate responsibility strategy, allowing them to enhance sustainable development and ultimately the satisfaction of all stakeholders.

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# CHAPTER 1

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## Introduction to Sustainable Logistics

### 1.1 Introduction

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The concept of sustainability as the necessity of deeply reflect and so acting on the ways in which individuals and society can contribute to social, economic and environmental welfare without compromising the future of the earth, was initially expressed in the Brundtland Report in 1987, later on, the Summits of Rio and Johannesburg took place, so the concept of sustainability started to have an increscent popularity. Today it is topic and objective of many industries and countries.

According with the Word Wide Fund of Nature Report 2008, in 1961 almost all countries in the world had the capacity to meet their own demand; however, by 2005 the situation had changed and many countries were able to meet their needs only by importing resources from other nations, which not necessarily means a lack of sustainability, but certainly illustrates the increasingly dependency and disparities among countries and companies (WWF\_2008).

The described situation requires actions from all society actors, public sector, private sector and individuals. Since all of them are involved in the cause, development and solution of it. A way to measure sustainability is missed a research in the subject and a measurement proposal will be exposed in this Work.

In this chapter though, the concept of sustainability, its definition, concept origin and the problems faced due to the lack of it will be tacked. It will also be briefly mentioned the content of the following chapters and its main purpose.

First of all a description of the most important concepts used in this thesis will be explained.

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## 1.2 Sustainability

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The concept includes many varied ideas converging nowadays in a main one called equilibrium. In this section it will be exposed what are the fields to be equilibrated and some history of how the sustainability concept has evolved.

### *1.2.1 Sustainability Concept Origins*

The progress brought with the industrial revolution led not only to development, but also to a huge resource consumption growth, to an increase in wealth, health and population (Worster\_1994). After World War II the world started an acceleration cycle, the best years of capitalism, during this time, the environmental costs associated with all the development were starting to be considered (Carson\_1962).

Non renewable resources were becoming popular, oil production boom was forecasted (Grove\_1974) and some years after, in the 70's several expressions of concern brought to light how the planet development relies on a nonrenewable resource: fossil energy. Among the mentioned publications were: *Is growth obsolete?* by William Nordhaus and James Tobin, *Small Is Beautiful*, by Schumacher in 1973, and *The Limits to Growth*, the Club of Rome, in 1975 (WRI\_2009).

The development of renewable sources of energy during the next years (70's & 80's) presented more alternatives to fossil energy (Turner\_2008).

Concern about settlement problems started to be subject of conferences, the first one taking place in Vancouver, Canada in 1976 in which it was stated that sustainable human settlements are those cities, towns, villages and their communities which enable societies to live in a manner that supports the state of sustainability and the principles of sustainable development; and have institutional, social and economic systems that will ensure the continued existence of those settlements (CSIR\_2002).

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One of the most concurred UN conference was held on Rio de Janeiro, Brazil in 1992, about 180 countries assisted, given as output a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment (UN\_2010).

Ten years after, The World Summit on Sustainable Development was held in Johannesburg; the slogan used for the World Summit 2002 was “People, Planet, Prosperity” (McKinlay\_2004). Further efforts have been made along the years by different organizations and they keep growing in number and scope.

### *1.2.2 Sustainability Definition*

The word sustainability is derived from the Latin *sustinere* -to hold- (Onions\_1964).

As mentioned before, in 1987 the Brundland report was published, and the term sustainability stated to be a common term; authors such as Dalal-Clayton and Bass expressed that a commitment to meet the needs of present and future generations has various implication. Their explanation of “meeting the needs of the present” regarded economic needs – including access to an adequate livelihood or productive assets; also economic security when unemployed, ill, disabled or otherwise unable to secure a livelihood. Social, cultural and health needs – including a shelter which is healthy, safe, affordable and secure, within a neighborhood with provision for piped water, drainage, transport, health care, education and child development, and protection from environmental hazards. Political needs – including freedom to participate in national and local politics and in decisions regarding management and development of one’s home and neighborhood, within a broader framework which ensures respect for civil and political rights and the implementation of environmental legislation

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(DalalBass\_1995).

In 1991 the United Nations Environment Programmes defined sustainable development as used in this strategy to mean: improving the quality of human life whilst living within the carrying capacity of the ecosystems (UNEP\_1991).

Sustainable development is concerned with the development of a society where the costs of development are not transferred to future generations, or at least an attempt is made to compensate for such costs (Pearce\_1993).

### *1.2.3 Sustainability Areas*

From the United Nations General Assembly there were defined the three pillars of sustainability: environmental, social and economic aspects (UN\_2005).

The three fields should overlap, since they are not mutually exclusive (Fosestry\_2009) and do that in a balanced way. In figure 1.2 can be seen the evolution regarding the three pillars.

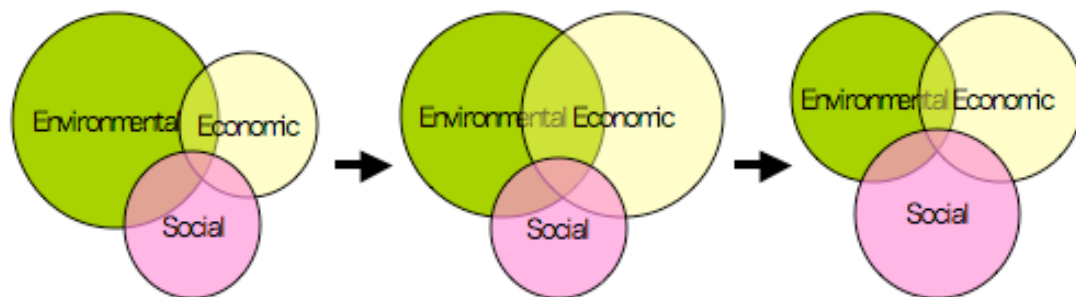


Figure. 1.2 Evolution of Three pillars of sustainability

In detail the last step achieved could be represented as follows (Forestry\_2009)

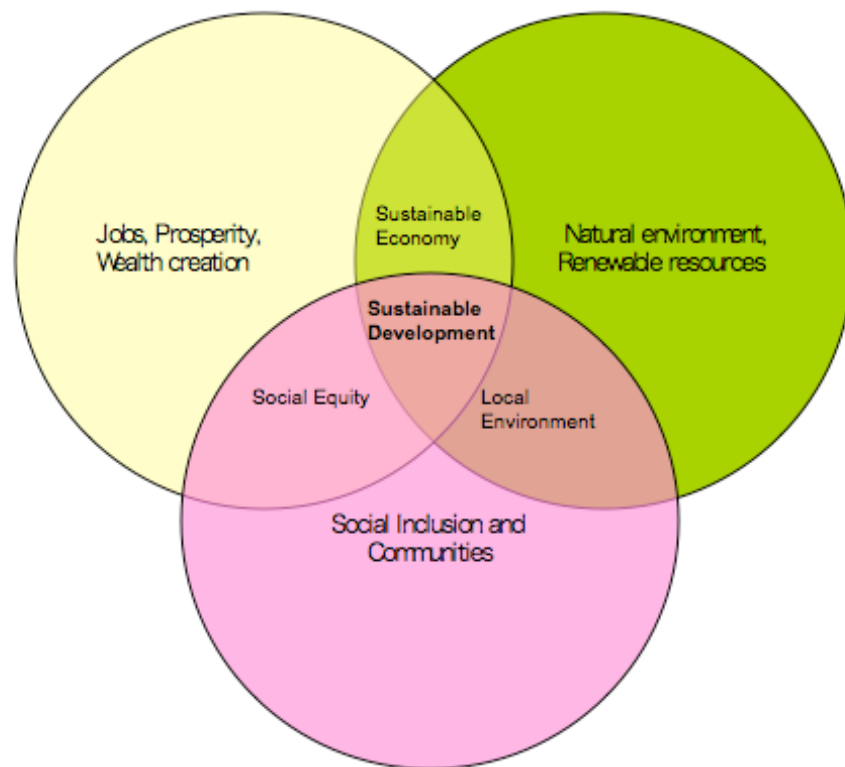


Figure.1.2.1 Balanced Sustainability

Sustainability in different scales is applicable, from a global context to a company or individual lives, this thesis focus its analysis especially on logistic companies.

#### *1.2.4 Sustainability Measurements*

There is no agreed way of defining the extent to which sustainability is being achieved in any policy programs. Sustainability and sustainable development are effectively ethical concepts, expressing desirable outcomes from economic and social decisions. The term ‘sustainable’ is therefore applied loosely to policies to express this aspiration, or to imply that the policy choice is “greener” than it might otherwise be (Forestry\_2009).

In this work many sustainability indicators will be covered. Nowadays, metrics, benchmarks, indexes, reporting procedures and audits are available. They include

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environmental, economic and social metrics jointly or differentiated in many levels and contexts.

### **1.3 Performance Indicators**

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In this section we will discuss the concept of a key performance indicator, the characteristics of an indicator and it will be compared the traditional indicators versus the sustainability ones.

An indicator is an index that reflects or measures a certain condition. Its objective is to measure the performance of something and to help in the decision making process.

When there is no a straight way to measure a certain process an indicator could indirectly lead to an answer (MCS\_2009).

The most important indicators in a company are the key performance indicators (KPI) which are critical business statistics that measure a firm's performance in strategic areas. The KPIs show the progress (or lack of it) toward realizing the firm's objectives or strategic plans by monitoring activities that (if not properly performed) would likely cause severe losses or failures (Hart\_2009).

KPI's are very varied as the process they monitor. An effective indicator would most likely have the following characteristics:

- Relevancy: the index must fit the purpose for measuring.
- Understandability: it is needed to know what it is telling you.
- Reliability: an indicator is only useful if you know you can believe what it is showing. An indicator does not necessarily need to be precise; it just needs to give a reliable picture of the system it is measuring.

- 
- Accessibility to the data: indicators must provide timely information. They must give you information while there is time to act. In order for an indicator to be useful in preventing or solving a problem, it must give you the information while there is still time to correct the problem.

On the other hand, according to the Winnipeg-based International Institute of Sustainable Development, a good alternative economic indicator is characterized by the following factors:

Policy relevancy, policy simplicity and validity; time-series data, availability of affordable data, ability to aggregate information, data sensitivity; and reliability.

In some cases, constructing indices requires creating new data sets; in others, data must be reused in new ways. Probably the most difficult criterion to fulfill is that it be “scientifically valid” (this covers issues such as measurement and definitional problems). Again, it should be noted that these issues apply equally to the GDP when it is used as an indicator of social welfare (IISD\_2009).

### *1.3.1 Traditional Logistics Performance Indicators*

Key performance indicators in logistics involve certain metrics that are typical in the logistics industry. These metrics include cost, time and risk. The first two are typical of the logistics operation. For a logistics business time is the cornerstone, delay in delivery translates into inefficient operations. The other two should be in balance in order to achieve an optimum business growth as shown in the following picture (Miller\_2010).



Figure 1.3.1 Pyramid of logistic performance indicators

Time related indicators include: average time to complete a regular transaction; documents filling time; time to deal with clients; the average time to process a transaction; total time for transporting procedures and trade-related processes and on-time deliveries (Perego\_2009).

Cost indicators include: cost per case, transportation cost, warehousing cost, total cost for shipping-related procedures, fuel cost, labor and inland freight cost (Perego\_2009).

Transporting products bring along some intrinsic risk such as the probability of natural events taking place, ports/ highways shutdowns and cancelled transit among others. In order to be efficient, logistic management should look for the least costly way to face those uncertainties, especially by planning a strategy to efficiently encounter unexpected circumstances. Effective procedures in shipping must be drawn while contingency cost may have to be allocated to prepare for the risks (Miller\_2010).

KPI's in logistics can support management spot and solve issues during its daily operations. These indicators can point out the weaker operations in the supply chain. If perceived non-positive results in the measurements, logistics metrics may reveal the



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factors that require improvement and it can distinguish the business stronger areas. By applying the metrics, management can formulate solutions or ameliorate its performance making it more effective in carrying out the objectives of the organization. Well defined performance measure help keep everyone on the same track. A well- defined system of performance measures also improves performance by providing a framework for making decisions. (Kaydos\_1991) When managers clearly understand what is best for the company, the thousands of decisions that must be made every day will be better decisions. Without the proper frame of reference, some of these decisions will be based on false assumptions and personal values.

KPI logistics is a decisive tool in evaluating the advance of logistics business. It can also be a mean to indicate the efficiency and effectiveness of the different level of management. Logistics management that provides effectiveness in the operation leads the organization to its success. Mismanagement at one point of the supply chain can lead to costly transactions that can eat up profits, thereby jeopardizing the position of the logistics business in the supply chain (Miller\_2010).

### *1.3.2 Sustainability Indicators*

Indicators of a sustainable community point to areas where the links between the economy, environment and society overlap. What are those differences will be explained in this part.

#### *1.3.2.1 Traditional indicators vs. Sustainability Indicators*

Traditional indicators measure changes in one part of a community as if they were entirely independent of the other parts. Indicators of sustainability are different from traditional indicators of economic, social, and environmental progress. Sustainability indicators reflect the reality that the three different segments are very tightly

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interconnected, Sustainability requires a type of integrated view of the world -- it requires multidimensional indicators that show the links among a community's economy, environment, and society (Hart\_2009) as shown previously on figure 1.2

One of the biggest problems with developing indicators of sustainability is that frequently the best indicators are those for which there is no data, while the indicators for which there is data are the least able to measure sustainability. This has led many communities to choose traditional data sources and measures for indicators. There are several advantages to traditional indicators. First, the data is readily available and can be used to compare communities. Second, traditional indicators can help to define problem areas. Third, traditional indicators can be combined to create sustainability indicators (Hart\_2009). The choice between quantitative and qualitative indicators depends mainly on the purpose of the indicators, though quantifiable indicators are more frequently used (Gallopín\_1997).

#### *1.3.2.2 Sustainable Logistics*

According with the Council of Supply Chain Management Professionals Logistics Management is that part of supply chain management that plans, implements, and controls the efficient effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements (Perego\_2009).

Some research has been developed around Green Logistics. Little research has been undertaken including transport operations as a strategic member of the supply chain and hardly any work has been developed on the impact of uncertainty on transport operations within supply chains (Sanchez Rodrigues\_2007). In the next chapters some initiatives will be discussed and the proposal regarding sustainable logistics index

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will be presented.

## **1.4 Conclusions**

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Sustainability along the years has passed from a green idea to a very complex concept that integrates many factors of life starting from the environmental phase, the social phase and finalizing with the economic aspect, which as already mentioned was considered the main indicator before the idea of sustainable development took the place it has nowadays.

Traditional indicators focused on measuring a very specific performance aspect, the three most relevant parts in performance are time, quality and cost; same principles apply for traditional logistics performance indicators, when combining them, productivity and so the economic development of a business was traditionally measured. In this chapter it was also discussed the concept of key performance indicators, those essential measurements that translate the vision of an organization/business into indexes that measure it.

By combining all the introduced definitions we are about to start the next chapters, in which the initiatives regarding sustainability in their varied facets and the proposal of an integrative sustainable index for the logistics sector will be exposed.

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# CHAPTER 2

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## State of the Art – Sustainability Measurements

### 2.1 Introduction SOTA

The research done in the field of Sustainability comprises different levels, starting from evaluating the sustainability of the entire planet until the evaluation of single products. Some companies and governmental organizations have developed indexes and frameworks aiming at grading sustainability. Each entity takes into account different procedures and considerations when evaluating it. In this chapter, indexes, frameworks, labels and some companies' initiatives will be described in order to illustrate what has been done in the field.

In the following diagram the initiatives to be discussed in this chapter are summarized.

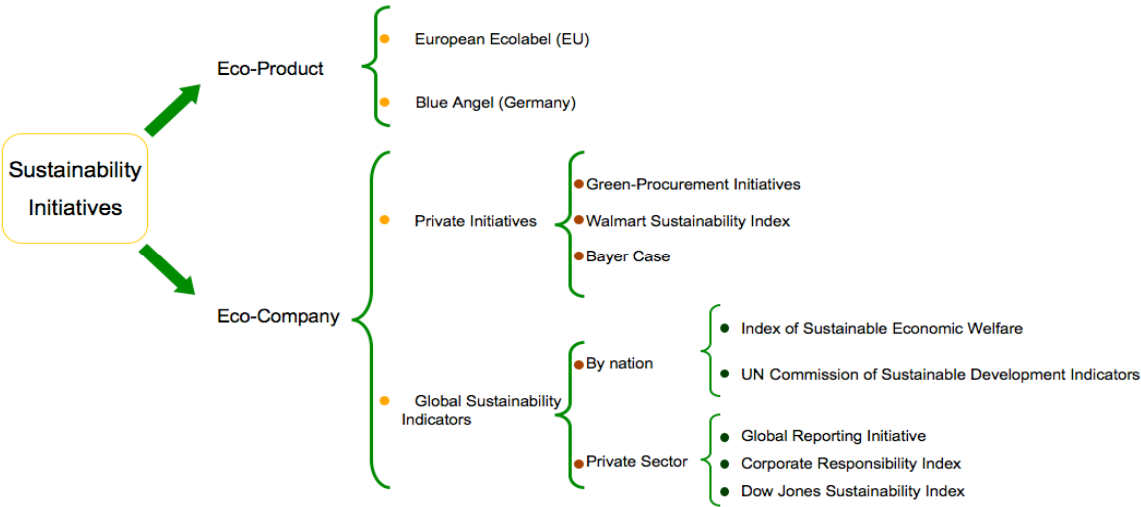


Figure 2.1- Global sustainability tendencies and initiatives

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## 2.2 Eco-labels

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By using this system the products (not food nor medicine) are tagged as being ecologically friendly. An eco-labeled product is entitled to bear a logo that comes with a claim that the product has been produced in accordance with certain environmental standards (EUC\_2006). Different sort of labels exists nowadays, among the most popular ones it can be mentioned the EU Flower and the Blue Angel from Germany.

Eco-labeling is not mandatory by law, it is absolutely voluntarily (EUC\_2006). However this fact and due to the growing consciousness of the consumers, being an eco-friendly product or company is becoming a need.

Ecolabeling was promoted by NGO's but nowadays the European Union has legislation to rule the Ecolabeling and also it has its own Ecolabels.

An Ecolabel is meant to facilitate the decision making process of an environmental concerned consumer. In general, consumers have become both, more aware and also educated about environmental issues (BlueAngel\_2009). First, because of the increasing amount of information available regarding environmental threats such as acid rain, green house effect, desertification etcetera and secondly, because of the appearance of eco-certification, which help these consumers to identify eco-friendly products (Quariguasi\_2006).

The most remarked benefits according with the United Nations Environmental Program to be obtained from the use of an Ecolabel are; the improvement of the market opportunities, sales promotion, public relations and brand communication proposes.

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### *2.2.1 European Ecolabel*

This project started in 1992 aiming at promoting products and services that are rather benevolent to the environment. Products and services granted the Ecolabel carry the flower logo, permitting consumers (private and public customers) to easily spot them.

This label is supported by the European Union. A verification regarding performance standards is carried on in order to gain the right to using the logo in a product.

According to the EU environmental commission, many producers have found that the label gives them a competitive advantage; it also helps producers, retailers and service providers to achieve recognition for good standards.

The criteria to be analyzed in order to evaluate a product is based on the impact of that product or service on the environment this evaluation is done considering all the stages of the product life, beginning from the raw material and until its disposal. Example of this it is an eco-labeled TV, which in standby mode consumes half the energy of regular TVs.

The effective procedure and clauses to be awarded with the Ecolabel is included in the third article of the regulation (EC)No. 180/2000 of the European Parliament and the Council, in this article it is stated that the label can be given to a product possessing characteristics which enable it to contribute with the key environmental aspects. Some provisions are taken into account such as:

- Provisions regarding the evaluation of comparative improvements, considerations shall be given to the net environmental balance between the environmental benefits and burdens, including health and safety aspects, associated with the adaptations throughout the various life stages of the products being considered.

- 
- The key environmental aspects shall be determined by identifying the categories of environmental impact where the product under examination provides the most significant contribution from a life cycle perspective, and among such aspects the ones for which a significant potential for improvement exists.
  - The pre-production stage of the life-cycle of goods includes extraction or the production and processing of raw materials and energy production. Those aspects shall be taken into account, as far as is technically feasible.

This initiative is a piece of a bigger project on Sustainable Consumption and Production and Sustainable Industrial Policy adopted by the EU Commission on 2008.

### *2.2.2 Blue Angel*

The group behind this label is from Germany. The Blue Angel was the first and oldest environment-related tag for services and products in the planet. It was founded in 1978 by the Federal Minister of the Interior and approved by the Ministers of the Environment of the Federal Government and the Federal States.

According to the Blue Angel Group, its eco-label enjoys full consumer confidence. This is evidenced, by the great brand awareness of 80 percent and also by the fact that 66 percent of the consumers are willing to spend more money on environmentally friendly products. Nowadays, about 10,000 products and services in 80 product categories carry the Blue Angel eco-label.

What differentiates this label from the rest is that this company is not a governmental institution so it is not driven by other interest (BlueAngel\_2009); the Cia. RAL (who awards the label) is an environmental service provider pioneer; and what it is mainly

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underlined is the composition of the jury of RAL, composed by very varied sectors in order to get the most integral evaluation.

According with the Umweltbewusstsein in Deutschland Association a study made in 2006 shows that 38% of the consumers pays attention to the Eco-labeling when making a purchase decision.

The award criteria are divided into different sections, such as Health, resources, water, climate, all products. In each section it can be found the criteria to integrally evaluate the product.

For instance:

Product: Low Noise and Fuel saving Automobile Tires (RAL-U289)

Requirements to be complete: pass by noise, rolling resistance and weight, service properties, compliance with minimum requirements of the range, consumer information.

Each of these requirements includes the test to be made with all the technical specifications and the criteria to evaluate the results. For instance in the requirement of “Rolling Resistance and Weight” the standard to follow is the ISODIN8767, which will later give a further explanation of the procedure.

## **2.3 Green Procurement Initiatives**

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The “Quick Wins” are a set of minimum environmental standards for a range of commonly-purchased products. 'Buy Sustainable - Quick Wins' are comprised of both a set of mandatory minimum standards at the market average level and best practice specifications.



The U.K. Government has promoted the Green Procurement Initiative of the European Commission that takes into account the environmental factors when buying products and services, meaning buying Quick Wins.

The government is committed to sustainable procurement, which means only purchasing goods and services, which are really needed, and buying items whose production; use and disposal minimize negative impacts on the environment and society.

The products assessed were chosen for their environmental / financial impact, scope for environmental improvement and political or example-setting function.

According with the 2009 report of the National Audit Office in the UK Government departments and their agencies, excluding the health sector, it is spent £54.7 billion in 2007-08 on the procurement of non-capital goods and services.

Current Quick Wins standards have not historically been based on analysis of benefits and costs because they were set at market average levels. There is also uncertainty over the extent to which EU legislation allows the inclusion of sustainability within procurement specification.

An example of a “Quick Wins” specifications are the ones shown in figure 2.3:

	Product type	The 2003 'Quick Win' specification	2007 Minimum Procurement Specifications		Justification for 2007 specification																										
3.	LCD computer monitors	-	<ul style="list-style-type: none"> <li>Energy consumption on mode &lt; 37.1W</li> <li>Consumes 4W or less in sleep mode and 2W or less in off mode (equivalent to <a href="#">Energy Star Monitors</a> requirement issued 1<sup>st</sup> January 2005)</li> </ul>		Data taken from MTP's Evidence Base ( <a href="#">Policy Brief ICT</a> )  Average of models in EC Energy Star database																										
4.	Portable computers	<b>Energy saving:</b> Maximum off-mode consumption of < 2 watts	<ul style="list-style-type: none"> <li>Consumes 15W or less in sleep mode (equivalent to <a href="#">Energy Star Computers</a> requirement issued 1<sup>st</sup> July 1999, see Table below)</li> <li>Energy-efficiency specifications based on power supply.</li> <li>Automatically enter a low-power "sleep" mode after a period of inactivity.</li> <li>Factory-enabled to enter sleep when on network</li> <li>Include mechanisms through which the low-power modes of qualified monitors can be activated.</li> <li>Facility to return product at end-of-life, free of charge</li> </ul> <table border="1"> <thead> <tr> <th rowspan="2">Computer Delivery Date</th> <th rowspan="2">Guidelines</th> <th colspan="2">Power Consumption</th> </tr> <tr> <th>Power Supply (PS)</th> <th>Watts (W) in Sleep Mode (SM)</th> </tr> </thead> <tbody> <tr> <td rowspan="4">PC Delivered After 1<sup>st</sup> July, 2000</td> <td rowspan="4">Shall enter a sleep mode within 30 minutes of inactivity</td> <td><b>Guideline A:</b></td> <td></td> </tr> <tr> <td>PS &lt; 200W</td> <td>SM &lt; 15W</td> </tr> <tr> <td>200W &lt; PS &lt; 300W</td> <td>SM &lt; 20W</td> </tr> <tr> <td>300W &lt; PS &lt; 350W</td> <td>SM &lt; 25W</td> </tr> <tr> <td rowspan="2">If shipped with network capability, shall sleep on networks and respond to wake events</td> <td rowspan="2"></td> <td>350W &lt; PS &lt; 400W</td> <td>SM &lt; 30W</td> </tr> <tr> <td>PS &gt; 400W</td> <td>&lt; 10% of power supply's maximum continuous output rating</td> </tr> <tr> <td></td> <td></td> <td><b>Guideline B</b></td> <td>&lt; 15% of power supply's maximum continuous output rating</td> </tr> </tbody> </table>		Computer Delivery Date	Guidelines	Power Consumption		Power Supply (PS)	Watts (W) in Sleep Mode (SM)	PC Delivered After 1 <sup>st</sup> July, 2000	Shall enter a sleep mode within 30 minutes of inactivity	<b>Guideline A:</b>		PS < 200W	SM < 15W	200W < PS < 300W	SM < 20W	300W < PS < 350W	SM < 25W	If shipped with network capability, shall sleep on networks and respond to wake events		350W < PS < 400W	SM < 30W	PS > 400W	< 10% of power supply's maximum continuous output rating			<b>Guideline B</b>	< 15% of power supply's maximum continuous output rating	Data taken from MTP's Evidence Base ( <a href="#">Policy Brief ICT</a> )
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		<b>Guideline B</b>	< 15% of power supply's maximum continuous output rating																												

Figure 2.3 – Quick Wins specification example

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## 2.4 Global Indicators

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### 2.4.1 *Index of Sustainable Economic Welfare*

Globally speaking there are some indexes that measure the worldwide sustainability. One of this type is the Index of Sustainable Economic Welfare (ISEW) which is an indicator that takes into account not only economic factors, but only the ones that affect the environment and the social welfare (Daly\_1989).

The formula for calculating this index is the following one:

ISEW = Personal consumption + Public non-defensive expenditures - Private defensive expenditures + Capital formation + Services from domestic labor - Costs of environmental degradation - Depreciation of natural capita

The index is based on the ideas presented by William Nordhaus and James Tobin in their Measure of Economic Welfare. In 1989, Herman Daly and John B. Cobb expressed it firstly.

### 2.4.2 *UN Commission of Sustainable Development Indicators*

The Commission of Sustainable Development has about 96 indicator, 50 of them form the core set. These core indicators have three characteristics: They cover problems that are relevant for the sustainable development in the majority of the nations; they give unique information compared with the other indicators and finally, they can be obtained within an adequate time and cost.

The themes tackled by the indicators are:

- Poverty
- Natural hazards
- Economic development
- Governance
- Atmosphere
- Global Economical partnership
- Health

- 
- Land
  - Education
  - Oceans, seas and coast
  - Consumption and production patterns
  - Freshwater
  - Demographics
  - Biodiversity

### 2.4.3 Global Reporting Initiative (GRI)

Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework.

In 1997 the idea of having a Global Reporting Framework was conceived and the Boston-based non-profit CERES started a "Global Reporting Initiative" project division and staffing, they did the fundraising and network development process. However, it was until 2002 that the GRI Steering Committee was established and on 2003 the guidelines were released.

The framework is developed through a common agreement process in which people from different backgrounds (from business, civil society, labor, and professional institutions) contribute to build a content that takes into account the social, economical and environmental factors.

The GRI framework has its basis on the Sustainability Reporting Guidelines G3. For each industry special supplements have been developed. The G3 framework can be illustrated as in the following diagram.

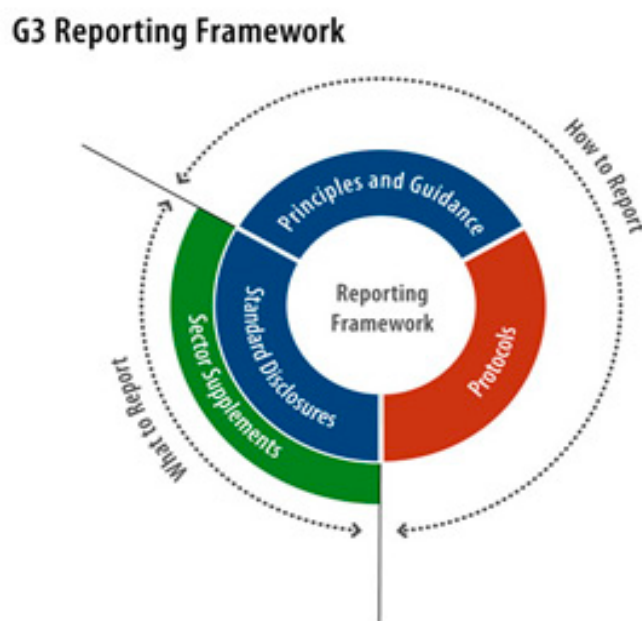


Figure 2.4.3 - G3 Reporting Framework

The general indicators included in the G3 indicators are the ones listed in the following table. Additionally there are specific industry indicators that can be found in the industry supplements.

<b>ECONOMIC PERFORMANCE</b>	
<b>Customers</b>	
EC1	Net Sales
EC 2	Geographic Breakdown of markets
<b>Suppliers</b>	
EC3	Cost of all goods, materials and services purchased.
EC4	% of contracts that were paid in accordance with agreed terms
EC11	Supplier breakdown by organization and country
<b>Employees - Direct Employees Involved</b>	
EC5	Total payroll and benefits (pensions, wages, other benefits)
<b>Providers of Capital</b>	
EC6	Distributions to providers of capital broken down by interest on debt and borrowings and dividends on all classes
EC7	Increase/decrease in retained earnings @ end of period. ROACE
<b>Public Sector</b>	
EC8	Total Sum of Taxes of all types paid broken down by country
EC9	Subsidies received broken down by country or region
EC10	Donations to community, civil society and other groups broken-down in terms of cash and kind of donation
EC12	Total spent on non-core business infrastructure development
<b>Indirect Impact</b>	
EC13	The organization's indirect economic impacts. Major externalities associated with the service

<b>ENVIRONMENTAL PERFORMANCE</b>																					
<b>Materials</b>																					
EN1	Total Materials use other than water, by type (tones, kg or volume)(fuel, tiers, components, oils, pallets)																				
EN2	Percentage of materials used that are waste (processed or unprocessed) from sources external to the reporting organization.																				
<b>Energy</b>																					
EN3	Energy consumed by: <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="text-align: center;">Air</td> <td style="text-align: center;">Sea</td> <td style="text-align: center;">Road</td> <td style="text-align: center;">Rail</td> </tr> <tr> <td>Lts/m3-km</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Lts/ton-km</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Lts/delivered item (state the item weight considered)</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		Air	Sea	Road	Rail	Lts/m3-km					Lts/ton-km					Lts/delivered item (state the item weight considered)				
	Air	Sea	Road	Rail																	
Lts/m3-km																					
Lts/ton-km																					
Lts/delivered item (state the item weight considered)																					
EN4	Indirect Energy Use. Report on all energy used to produce and deliver. Electricity , WH, transit point. Heating A/C ** Other equipment energy consumption forklifts, cranes, hoist. ** E.i. Food Sector, Cooling																				
EN17	Initiatives to use renewable energy sources and to increase energy efficiency.																				
EN18	Energy consumption footprint (i.e. Annualized lifetime energy requirements) of major products -joules-																				
EN19	Other indirect energy use and implications, such as organizational travel,																				

	product LC
<b>Water</b>	
EN5	Total water use in the service
EN20	Water sources and related ecosystems/habitats significantly affected by use of water
EN21	Annual withdrawals of ground and surface water as a percent of annual renewable quantity of water available from sources.
EN22	Total recycling and reuse water (cooling water, carwash)
<b>Emissions, Effluents and Waste</b>	
EN6	Location and size of land owned, leased or managed in biodiversity-rich habitats
EN7	Description of the major impacts on biodiversity associated with activities and/or products and services
EN8	GHG (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, SF <sub>6</sub> ). Report separate subtotals for each gas in tones and in tones of CO <sub>2</sub> equivalent for the following: - Direct emissions from the services (divided by rail, sea, road, air) - Indirect emissions from electricity heat or steam, WH.
EN9	Use and emissions of ozone depleting substances
EN10	Nox, Sox and other significant air emissions by type
EN11	Total amount of waste by type and destination.
EN12	Significant discharges to water by type
EN13	Significant spills of chemicals, oils& fuels in terms of T numb.& T Vol.
EN15	Percentage of the weight of products sold that is reclaimable at the end of the product's useful life and percentage that is actually reclaimed
EN23	Total amount of land owned, leased of managed for production activities or extractive use
EN24	Amount of impermeable surface as a percentage of land purchased or leased
EN25	Impacts of activities and operations on protected and sensitive areas
EN26	Changes to natural habitats resulting from activities and operations and percentage of habitat protected or restored
EN27	Objectives, programmers and targets for protecting and restoring native ecosystem and species in degraded areas
EN28	Number of IUCN Red List species with habitats in areas affected by operations
EN29	Business Units currently operating or planning operations in or around protected or sensitive areas
EN30	Other relevant indirect greenhouse gas emissions
EN31	All production, transport, import or export of any waste deemed "hazardous" under the terms of the Basel Convention Annex I, II, III, and VIII.
EN32	Water sources and related ecosystems/habitats significantly affected by discharges of water and runoff
<b>Compliance</b>	
EN16	Incidents of and fines for non compliance regarding labeling, storage, handling and transportation of hazardous goods.
<b>Suppliers</b>	
EN33	Performance of suppliers relative to environmental components of programmes and procedures described in response to Governance Structure and Management Systems section
<b>Overall</b>	
EN35	Total environmental expenditures by type
<b>Transport</b>	
EN34	Significant environmental impacts of transportation used for logistical purposes.
<b>Fleet Composition</b>	
LT2	Breakdown of fleet composition

<b>Policy</b>	
LT3	Description of policies and programs on the management of environmental impacts, including: 1) Initiatives on sustainable transportation (e.i. Hybrid vehicles) 2) Modal shift 3) Route planning
<b>Energy</b>	
LT4	Description of initiatives to use renewable energy sources and to increase energy efficiency.
<b>Urban Pollution</b>	
LT5	Pollution Description of initiatives to control urban air emissions in relation to road transport (e.g., use of alternative fuels, frequency of vehicle maintenance, driving styles, etc.).
<b>Congestion</b>	
LT6	Description of policies and programs implemented to manage the impacts of traffic congestion (e.g., promoting off-peak distribution, % of deliveries by modes of alternative transportation).
<b>Noise/Vibration</b>	
LT7	Description of policies and programs for noise management/abatement.
<b>Transportation Infrastructure Development</b>	
LT8	Description of environmental impacts of the reporting organization's major infrastructure assets (e.g., railways) and real estate. Report the results of environmental impact assessments.
<b>SOCIAL PERFORMANCE INDICATORS</b>	
<b>Employment</b>	
LA1	Breakdown of workforce (divide by drivers and others): Status: employee/self-employee Type: full time/part time Employment contract: indefinite or permanent, exclusivity
LA2	Net employment creation and average turnover
LA12	Employee benefits beyond those legally mandated
<b>Labor/Management Relations</b>	
LA3	Percentage of employees represented by independent trade union org.
LA4	Policy and procedure involving information, consultation and negotiation with employees over changes in the reporting organization's operations (e.i. Restructuring)
LA13	Provision for formal worker representation in decision making or management, including corporate governance
<b>Health and Safety</b>	
LA5	Practices on recording and notification of occupational accidents and diseases, and how they relate to the ILO Code of Practice on Recording and Notification of occupational accidents and diseases.
LA6	Description of formal joint health and safety committees comprising management and worker representatives and portion of workforce covered by any such committees.
LA7	Standard injury, lost day, and absentee rates and number of work-related fatalities (including subcontracted workers)
LA8	Description of policies or programs (for the workplace and beyond) on HIV/AIDS.
LA14	Evidence of substantial compliance with the ILO Guidelines for occupational health management system
LA15	Description of formal agreements with trade unions or other bona fide employee representatives covering health and safety work and proportion of the workforce covered by agreements.
<b>Training and Education</b>	
LA9	Average hours of training per year per employee by category. Transport safety training

LA16	Description of programs to support the continued employability of employees and to manage career endings
LA17	Specific Policies and programs for skills management of for lifelong learning
<b>Diversity of Opportunity</b>	
LA10	Description of equal opportunity policies or programs, as well as monitoring systems to ensure compliance and results of monitoring.
LA11	Composition of senior management and corporate governance bodies (including board dir), female/male ratio and other indicators for culture , age diversity.
<b>Strategy and Management</b>	
HR1	Description of policies guidelines, corporate structure and procedure to deal with all aspects of human rights relevant to operations , including monitoring mechanisms and results.
HR2	Evidence of consideration of human rights impacts as part of investment and procurement decisions, including selection of suppliers.
HR3	Description of policy to evaluate human rights performance within the supply chain
HR8	Employee training on policies and practices concerning human rights
<b>Non-discrimination</b>	
HR4	Description of global policy and procedures/programmes preventing all forms of discrimination in operations, including monitoring systems and results of monitoring.
<b>Freedom of association and collective bargaining</b>	
HR5	Description of freedom of association policy and extent to which this policy is universally applied independent of local laws
<b>Child Labor</b>	
HR6	Child Labor exclusion, as defined in ILO Convention 138
<b>Forced and Compulsory Labor</b>	
HR7	Description of policy to prevent forced and compulsory labor
<b>Disciplinary policies</b>	
HR9	Description of appeal practices, including human rights
HR10	Description of non-retaliation policy and effective, confidential employee grievance system
<b>Security Practices</b>	
HR11	Human Rights training for security personnel
<b>Indigenous Rights</b>	
HR12	Description of policies and guidelines and procedures to address the needs of indigenous people
HR13	Description of jointly managed community grievance mechanism/authority
HR14	share of operating revenues from area of operations that is distributed to local communities
<b>Community</b>	
SO1	Description of policy to manage impacts on communities areas affected by activities, as well as procedures to monitor them
SO4	Awards received relevant to social, ethical and environmental performance.
<b>Bribery and Corruption</b>	
SO2	Description of policy, procedures, management systems and compliance mechanisms for organizations and employees addressing bribery and corruption (OECD convention on combating bribery)
<b>Political Contribution</b>	
SO3	Description of policy procedures/management systems and compliance mechanisms for managing political lobbying contributions
SO5	Amount of money paid to political parties and institutions whose prime function is to fund political parties or candidates
<b>Competition and Pricing</b>	
SO6	Court decisions regarding cases of anti trust monopoly regulations
SO7	Description of policy preventing anticompetitive behavior



<b>Customer Health and Safety</b>	
PR1	Description of policy for preserving customer health and safety during use of products and services, and extent to which this policy is visibly stated and applied as well as description of procedures/programmes to address this issue.
PR4	Number and type of instances of non compliance with regulations concerning customer H&S including penalties and fines
PR5	Number of complaints upheld by regulatory or similar official bodies to oversee or regulate the health and safety of products and services
PR6	Voluntary code compliance, product labels or awards with respect to social and/or environmental responsibility that the reporter is qualified to use or has received.
<b>Products and services</b>	
PR2	Description of policy, procedures/management systems and compliance mechanisms related to product information and labeling
PR7	Number and type of instances of non-compliance with regulations concerning product information and labeling, including penalties and fines.
PR8	Description of policy, procedures/management systems and compliance mechanisms related to customer satisfaction, including results of surveys.
<b>Advertising</b>	
PR9	Description of policies for adherence to standards and voluntary codes related to advertising
PR10	Number and types of breaches of advertising and marketing regulations
<b>Respect for privacy</b>	
PR3	Description of policy for customer privacy
PR11	Number of substantiated complains regarding breaches of consumer privacy.
<b>Mobile Worker Working Patterns</b>	
LT9	Description of policies and programs to determine working hours and rest hours, rest facilities, and leave for those driving and operating fleets
LT10	Describe approaches to provision of facilities to enable mobile workers to maintain personal communication while away. Note: This indicator is intended for mobile workers work long distance or for prolonged periods of time due to work duties away from home/personal residence (e.g., long distance truck drivers).
<b>Substance Abuse</b>	
LT11	Abuse Description of policies and programs regarding substance abuse (campaigns and training)
<b>Road Safety</b>	
LT12	Num. of road fatalities of drivers or third parties per million km driven.
<b>Ships safety</b>	
LT13	List of incidents by ship (all details, reason, name, duration)
<b>Access to mail</b>	
LT14	Description of policies and programs for public access to mail
<b>Humanitarian Programs</b>	
LT15	Provision of logistics & transportation core competences to deliver humanitarian needs measured in terms of ( tons carrying capacity; people, months; expenditure) & contribution to disasters.
<b>Use of Labor Providers</b>	
LT16	Criteria for selecting recruitment and placement services. State how these criteria relate to existing international standards such as the conventions of the International Labor Organization (ILO).
<b>Continuity of Employment</b>	
LT17	Describe measures in place to provide income security and employment continuity for workers employed/contracted repeatedly but not continuously.

Table 2.4.3 – G3 GRI Indicators (GRI\_2008)

There are many companies that nowadays use this framework, for instance:

3M, Accenture, Air France KLM, Bayer AG, Autogrill, Autostrade, BBVA Bancomer, Bell Canada, Coca-Cola, etc...

Each company has a different level of adherence, however, their sustainability level is not related with the classification given by the GRI, since its class A+, A, B, C or self-declared is not related with the data reported but with the format and completeness.

#### *2.4.4 Corporate Responsibility Index (CRI)*

The Corporate Responsibility Index (CRI) was created to support the improvement of corporate responsibility by providing a methodology, which help enterprises to spot their non-financial risk and also improve corporate responsibility and align it with their business strategy. It issues a benchmark for companies that are willing to manage, measure and report their impact on society and the environment.

The CRI database is online and it is only accessible authorized individuals.

##### *2.4.4.1 Core Components*

The Index framework consist of the following four core components:

*(10%) The Corporate Strategy* section assesses the inclusion of corporate responsibility (CR) commitments inside the company values and principles, it checks how these link with the strategy; how they are controlled by the risk management and the creation of policies and commitment for this responsibility at its senior level.

*(22%) The Integration section* evaluates the way in which the corporate manages, organizes and integrates corporate responsibility across their system. It should check if the CR is included in the strategic decision-making processes and connected by the internal governance and the risk management and also if It is part of the company culture.

(26%) *The Management section* looks for a deeper integration of corporate responsibility by the analysis of how are managed the relationships with the stakeholders. This area focus on what the principal matters are for the company regarding the community, environment, workplace and marketplace. Ultimately analyzes the objectives, targets and initiatives to get what it is desired.

Community regards the relationship between corporate and society which could be affected by a project, product or investment on different levels (global or local, positive or negative). Responsibility with the environment means protect the ecosystems and the resources for the next generations. Responsibility in the Marketplace is maintaining the highest standards of business practice when developing, purchasing, marketing and selling products and services. It relates to how companies influence the rules of the marketplace in which they operate. Workplace is the habitat in which people are developed professionally and personally with knowledge of their rights.

(36%) *The Performance & Impact section*

Evaluate the corporate behavior regarding two impact areas, social and environmental. They are requested to assess a total of six areas divided like follows:

- > Environmental Impact Areas: Climate Change and Waste & Resource Management and either Biodiversity or a Self-Selected Environmental Impact.
- > Social Impact Areas selected from: Health Safety & Wellbeing, Employee Development, Equality Diversity and Inclusion in the Workplace, Community Investment or a Self-Selected Social Impact.

(6%) *The Assurance & Disclosure section* is meant to guarantee the authenticity, relevance and reliability of information provided within the study.

#### 2.4.4.2 Index Process

Enterprises assess a web-based survey supported by supplementary guidance notes. As this is a self-assessment process; it is needed that each submission be accompanied by supporting documentary proof and formally signed by the CEO or board member.

*Validation.* In 2009 PricewaterhouseCoopers’ Sustainability and Climate Change Team assumed the responsibility of assessing all company submissions by verifying the evidence provided.

*Scoring.* Post validation, final company scores generate automatically in the Community online benchmarking system according to the percentages already presented.

*Feedback.* The feedback is confidential and given comparing the company with companies of the sector and also versus all other participants. The comparison helps to spot the opportunity areas and the strengths of the participant.

The final result is a table as shown:

Company Name	Scope ^	Overall Score	Corporate Strategy	Integration	Management Practice	Environmental Impact Areas	Social Impact Areas	Assurance & Disclosure
<b>Australia &amp; New Zealand submissions:</b>								
ANZ	100%	★	★	★	★	☆	★	★
Australian Broadcasting Corporation	100%	☆	★	★	★	□	☆	★
Boral Limited	100%	★	★	★	★	★	★	★
Caltex Australia Limited	100%	□	☆	★	□	□	□	□
City West Water Ltd	100%	★	★	□	★	□	□	☆
Colliers International	100%	□	☆	□	□	□	□	□
Country Energy	100%	☆	★	☆	★	★	☆	☆
Diageo Australia	Australia	☆	★	☆	★	★	★	☆
EnergyAustralia	100%	★	★	★	★	★	★	★
Ergon Energy	100%	★	□	☆	★	★	□	☆
Essendon Football Club	100%	□	□	□	□	□	□	□
Foster's Group Limited	100%	★	★	★	★	☆	★	★
Henry Davis York	100%	★	★	□	★	☆	□	★
meou Limited	100%	☆	★	★	★	☆	□	★
Minter Ellison Lawyers	Australia	★	★	★	★	☆	★	★
New Zealand Post Group	New Zealand	□	★	★	□	□	□	☆
PricewaterhouseCoopers **	100%	□	☆	★	□	□	☆	□
Savings & Loans Credit Union	100%	☆	★	☆	★	□	☆	☆
Sensis Pty Ltd	100%	★	★	★	☆	□	□	□
Teachers Credit Union	100%	□	☆	□	□	□	☆	□
The GPT Group	Australia	□	☆	□	□	□	□	☆
Visy	Australia	□	★	□	□	□	□	□
Private Index average (seven companies)	100% / Aust / NZ	□	★	□	□	□	□	□
<b>Global submissions:</b>								
Anglo American *	100%	★	★	★	★	★	☆	★
Ford Motor Company *	100%	☆	☆	★	☆	☆	★	★
Jaguar Land Rover *	100%	☆	★	☆	☆	☆	□	★
Kimberly-Clark Corporation *	100%	☆	★	☆	☆	★	★	★
Pfizer Initial *	100%	☆	★	☆	☆	□	□	★
Serco Group *	100%	★	★	★	★	★	★	★

Figure 2.4.4 – Corporate Responsibility Index Results 2008.

### 2.4.5 Dow Jones Sustainability Indexes

The Dow Jones Sustainability Indexes are a combined effort of Dow Jones Indexes, STOXX Limited and SAM Group. It was set into motion in 1999 and the initiative main objective is providing asset managers with reliable and objective benchmarks to manage sustainability portfolios (DowJones\_2009).

The assumptions triggering this program are two. One is the idea that corporate sustainability attracts investors since it means long-term shareholder value; the other concept is the relationship between superior performance with positive return profiles and sustainability. Therefore considering it a critical success factor.

Table 2.4.5 shows the index dimensions, weights and criteria.

Dimension	Criteria	Weight (%)
Economic	Codes of conduct/compliance/corruption and Bribery	6
	Corporate Governance	6
	Risk & Crisis Management	6
	Industry Specific Criteria	*
Environment	Environmental Reporting	3
	Industry Specific Criteria	*
Social	Corporate Citizenship/ Philanthropy	3
	Labor Practices Indicator	5
	Human Capital Development	5.5
	Social Reporting	3
	Talent Attraction & Retention	5.5
	Industry Specific Criteria	*

Table 2.4.5 Weights and criteria Dow Jones Index

The sources of information to evaluate the company are the following ones:

- a. SAM Questionnaire
- b. Company documentation:
  - b.1 Sustainability Report
  - b.2 Environmental Report
  - b.3. Annual Financial Reports
  - b.4 H&S Report; Social Reports; other reports (R&D,employment).

- c. Media and Stakeholder reports and other publicly available information.
- d. Personal Contact with Companies.

## **2.5 Private Initiatives**

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### *2.5.1 Walmart Case*

Walmart recently announced a worldwide sustainability index initiative, all this encouraged by its mission of becoming a more sustainable enterprise; under the statement that their customers want products that are more efficient, last longer and perform better. According with Walmart, their clients want to know the product's entire lifecycle. They want to know the materials in the product are safe, that it is made well and is produced in a responsible way (Walmart\_2009).

These objectives leaded Walmart to work on the sustainability index. With this program they aim at supporting the development of a more reliable supply chain, promoting product innovation and eventually giving their clients the information they need to evaluate products' sustainability.

The index consists of three main phases:

- a. Supplier Assessment :15 Questions
- b. Lifecycle Analysis Database
- c. Customer Information Provision

#### *2.5.1.1 Supplier Assessment: 15 Questions*

Initially, 100,000 Wal-Mart's global suppliers will complete a brief survey to evaluate their own companies' sustainability. The questions will focus on four areas:

- Energy and climate
- Material efficiency
- Natural resources
- People and community

According with the Corporate Responsibility statement, for Walmart Sustainability is a tremendous source of value. Listed below are just some of the benefits that suppliers can get from taking actions recommended by Walmart.

#### *Energy and Climate*

- Measuring the energy and greenhouse gas emission in a supply chain can help find opportunities to cut fuel and utility cost and create innovative products that save customer money.
- Publicly reporting emissions through the carbon disclosure project demonstrates to clients and investors that suppliers are strategically addressing climate change risk and pursuing opportunities to reduce cost, drive innovation and ensure access to capital.

#### *Material Efficiency*

- Eliminating waste can save money by reducing resource and logistics costs. Walmart uses the waste of the cows to produce the energy of the plant in which these cows produce its sweet cream.
- Walmart's Packaging Scorecard helps suppliers identify packaging reductions that, even if small, can have significant impacts in the use of materials, manufacturing, shipping, storage, refrigeration, waste and energy use.
- By selling only 100% concentrated liquid detergent, suppliers will help save over 400 million gallons water, 95 million lbs of plastic, 125 million lbs of cardboard and millions of dollars in transportation costs over 3 years.

#### *Nature and Resources*

- Science-based, 3<sup>rd</sup> party certification and verification mechanisms can help identify supply chain efficiencies, improve quality and ensure that materials are sourced and produced in a sustainable way.
- Sourcing raw materials responsibly also allows you to tap consumer demand for sustainability produced products and mitigate supply chain risk.

### *People and Community*

- Transparency – knowing where materials and components come from and how they were produced led to quality products and category sales leadership. Creating opportunities to improve quality of life, health and communities can build competitive strength, create new markets and ensure license to grow.
- The first step is knowing more about the location and practices for producing.
- Managing social compliance ensures employees are treated with respect and in a manner, which Walmart and their customers expect.

Walmart is committed to working with its suppliers to reduce social impacts and improve efficiency and quality.

### *2.5.1.2 Walmart Questionnaire*

It is understandable that there are many variables inherent in measuring energy use, greenhouse gas emissions, waste and water use, and in absence of common, transparent rules or protocols, one number cannot be legitimately compared with another. Despite these complications, in the future Walmart does intend to reward those suppliers who have measured impacts and show progress toward meeting stated reduction goals.



*Energy and Climate Questions, Tools for measuring and Evaluation*

Q1. Have you measured and taken steps to reduce your corporate greenhouse gas emissions? (Y/N)

Q2. Have you opted to report your greenhouse gas emissions and climate change strategy to the Carbon Disclosure Project (CDP)? (Y/N)

Q3. What are your total greenhouse gas emissions reported in your most recently completed report? (Total metric tons CO<sub>2</sub>e, e.g. CDP 2009 Questionnaire, Q 7-11, Scope 1 and 2 emissions)

Q4. Have you set publicly available greenhouse gas reduction targets? If yes, what are those targets? (Total metric tons and target date, e.g. CDP 2009 Questionnaire, Q23)

*Tools and Resources to calculate and answer the questionnaire Part 1*

- 1) Calculate the carbon footprint based on the GHG protocol
- 2) Carry out a facility energy audit and review your options for taking action. Use resources such as the Nicor Inc. list of common energy efficiency opportunities.
- 3) Explore renewable energy options. Use guides given by EPA or the Green Power Market Development Program.
- 4) Participate in the Carbon Disclosure Project (CDP)

*How this Section will be scored*

By working with the merchant team in advance to complete the questionnaire, the supplier will be able to get started on the things that will raise their score. The score will be available only to the supplier and the merchant team.

Merchants will be using this score along with other important financial and non-financial metrics to:

- Identify supplier leadership
- Determine what can be done to help drive business sustainable success.

- Measure overall supplier performance against goals

Individual questions are weighted based on answers provided, then added to generate a Below, On or Above target assessment the section.

Energy & Climate section results are 30% of your overall assessment.

Material Efficiency also accounts for the 30% ; Nature and Resources for 20% and People and Community 20%.

The same methodology is applied in this section applies for the other three.

### *2.5.1.3 Lifecycle Analysis Database*

Walmart is helping create a consortium of universities to collaborate with suppliers, retailers, non-governmental organizations and government officials. The consortium will help develop a global database of information on products' lifecycles – from raw materials to disposal. They already provided initial funding for the Sustainability Index Consortium and invite other retailers and suppliers to contribute.

### *2.5.1.4 A simple tool for customers*

The final step of the index is to provide customers with product information in a simple, convenient, easy to understand manner so they can make choices and consume in a more sustainable way. Walmart intends to provide customers greater transparency regarding the quality and history of products than the one they have today. How that information is delivered to consumers is still undetermined.

The final goal of Walmart is the creation of a new retail standard for the 21st century.

## *2.5.2 Bayer Case*

Bayer presents each year a corporate responsibility report. Bayer is using the GRI guidelines, but also the ones of the World Business Council for Sustainable Development (WBCSD) and the European Industry Council (CEFIC).

Electronic questionnaires are used to gather the Health, Safety and Environment data and later on it is consolidated in Bayer's information system "BaySIS". Other internal system is used to obtain the employee-related data.

The auditing company is Deloitte; their duty is to verify the quality and credibility of the gathered information.

### 2.5.2.1 *Bayer Sustainable KPI's*

The indicators used by Bayer are listed below, the way in which each one is computed is not provided, however since they follow the G3 guidelines it can be addressed to these specifications.

#### ***Ecological indicators***

Direct Greenhouse Gas emissions (in million t CO2 equivalents/a)
Energy use (in petajoule/a)
Indirect Greenhouse Emissions
Sum of direct and indirect greenhouse emissions
Emissions of volatile organic compounds
Other air emissions (So2, Nox)
Water use (m3/d)
Water use according to origin
Wastewater (liters)
Waste disposed of according to means of disposal
Hazardous waste removed to landfill sites
Reportable environmental incidents
Environmental incidents and incidents resulting in damage (number per year)
Transportation incidents

Transportation incidents according to means of transport (number per year)
--

***Social indicators***

Regional distribution of social security indicators (in percent)
Further social indicators
Category Indicator
Diversity and opportunity
Percentage of women in senior management
Number of different nationalities in senior management within the Bayer Group
Training and continuing education
Training and continuing education costs as a percentage of total personnel expenditure
Employment
Number of employees per region (permanent and fixed term job contracts)
Total for the Bayer Group
Occupational injuries
Occupational injuries affecting Bayer personnel resulting in days lost
Reportable occupational injuries affecting Bayer personnel
Injuries involving contractors resulting in days lost
Fatal occupational injuries

***Economic indicators***

Net sales
Sales outside Germany
Income (loss) before income taxes
Income (loss) after taxes

Return on stockholders' equity
Personnel expenses of which pension expenses
Pension obligations
Net debt
Income taxes
Bayer Group income taxes (in € million)
Income taxes paid or accrued
Income taxes
Deferred taxes
Net sales by subgroup and segment (in € million)
Research and development expenses (in € million)

Table 2.5.2 Bayer Sustainability KPIs

Since 2006 Bayer started to also include indirect GHG emissions, this point is different in contrast to most of the global companies. The development of this company in the sustainability area is illustrated in the following figure.

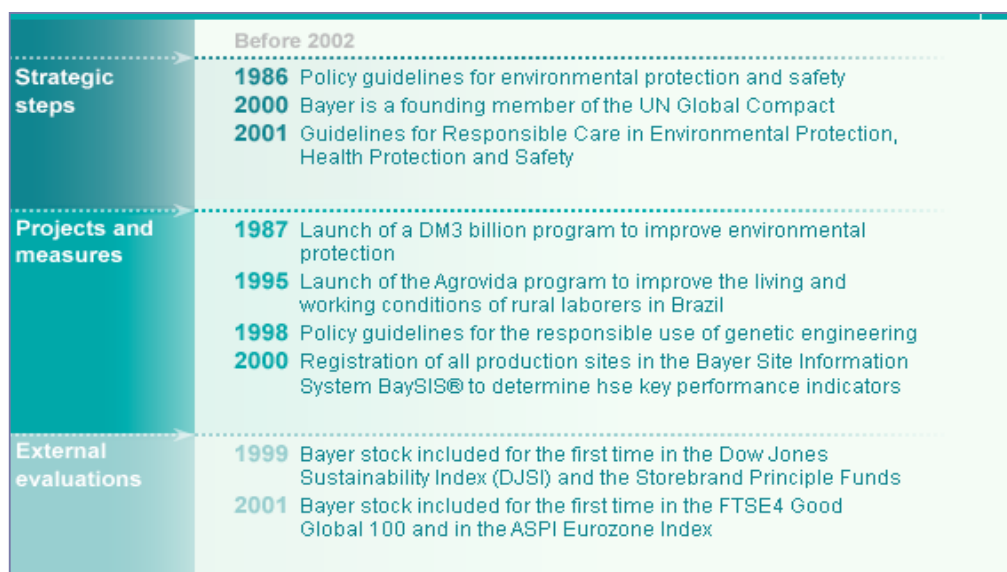


Figure 2.5.2 Bayer evolution in corporate responsibility

## 2.6 Conclusions

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In this chapter the actual situation regarding initiatives, public and private were described.

Green products and services can be easily identified by the Eco-labels, such as the European Union flower or the Blue Angel label. The green products have been developed due to an increment in the general interest from the customers and also from the public sector. To give an example of the concern manifested by the government it was included the Quick Wins case, a United Kingdom initiative to promote the consumption of green products inside their institutions, which main goal is reducing its overall CO<sub>2</sub> emissions.

In this second chapter we also deal with global indicators. First, two global indicators were presented, the Index of Sustainable Welfare (analogous to the GDP but concerning sustainability) and the United Nations Commission of Sustainable Development Indicators, which are a set of indicators focused on evaluating the sustainability level of a nation.

On the other hand, three more initiatives were presented; these ones are actually focused on evaluating/reporting the sustainability of companies rather than the sustainability of nations.

First of all, the Global Reporting Initiative, which will be our starting point to develop the whole model of metrics proposed in the next chapter. The GRI is divided in three major categories and its main contribution is the G3 guidelines and framework, which nowadays serves as a model for the majority of the global companies.

Another index introduced in this chapter was the Corporate Responsibility Index, this is an Australian initiative that aims at benchmarking corporations, the weights, and criteria applied was presented; however the specific questionnaire is not publicly

available, the participation in this initiative is charged as well as in the next initiative. The Dow Jones Index, which objective is providing asset managers with reliable and objective benchmarks to manage sustainability portfolios, however this initiative only apply to listed companies, which restricts its applicability.

Finally, two more cases were introduced. The Walmart initiative and the Bayer Sustainability KPI's. Walmart proposes a program aiming at: assessing the suppliers, constructing a lifecycle analysis database and ultimately informing their costumers of the sustainable characteristics of each of the products. Lastly, the Bayer case is an example of how a set of sustainability KPI's is conformed in a worldwide corporation.

In the next chapter, an integral proposal will be presented taken in consideration all the information exhibited, the foundation will be the GRI framework and some ideas from the rest of the initiatives will be indeed integrated.

# CHAPTER 3

## KPI's Proposal and Sustainability Index

### 3.1 Introduction

As already shown in the previous chapter, there are different tools to report the sustainability level of a product, a company or even a country. However, none of the listed ones allows a direct and public benchmarking.

In the case of CRI and Down Jones, the information regarding the indicators it is not available for the public use; which makes them somehow harder to be established as a standard metric. Moreover, the GRI proposes many relevant indicators but it does not set targets neither offers a direct comparison procedure.

This chapter aims at describing the steps followed to archive the integration of the different initiatives exposed into a general index composed by a varied number of key performance indicators. The index has two focuses, one a general perspective for any type of company and another regarding the logistic industry issues.

The workflow followed in the development of the index is illustrated in the following figure:



Figure 3.1 Workflow-Sustainability Performance Index



## 3.2 KPI's Selection

In order to define which indicators are the ones that would best enclose most of the relevant issues of each area, it was taken the full list of the Global Reporting Initiative and then confronted with the other initiatives to check if those ones also tackled similar objectives, if the answer was negative the non-included indicator was incorporated into the data base of indicators and so at the end of the process a very rich pool of indicators was the outcome.

In the following table it can be seen the described process.

Indicators Pool		Initiative				
Aspect		GRI	Walmart Initiative	Corporate Responsibility Index	ISO 14001	Dow Jones SAM Questionnaire
<b>ECONOMIC PERFORMANCE</b>						
<b>Customers</b>						
EC1	Net Sales	Y				
EC 2	Geographic Breakdown of markets	Y				
<b>Suppliers</b>						
EC3	Cost of all goods, materials and services purchased.	Y				
EC4	% of contracts that were paid in accordance with agreed terms	Y				
EC11	Supplier breakdown by organization and country	Y				
<b>Employees</b>						
EC5	Total payroll and benefits (pensions, wages, other benefits)	Y				
<b>Providers of Capital</b>						
EC6	Distributions to providers of capital broken down by interest on debt and borrowings and dividends on all classes	Y				
EC7	Increase/decrease in retained earnings @ end of period. ROACE	Y				
<b>Public Sector</b>						
EC8	Total Sum of Taxes of all types paid broken down by country	Y				

EC9	Subsidies received broken down by country or region	Y				
EC10	Donations to community, civil society and other groups broken down in terms of cash and kind of donation	Y				Corporate Citizenship/Philanthropy
EC12	Total spent on non-core business infrastructure development	Y				
	<b>Indirect Impact</b>					
EC13	The organization's indirect economic impacts. Externalities	Y				

ENVIRONMENTAL INDICATORS		GRI	Walmart Initiative	Corporate Responsibility Index	ISO 14001	Dow Jones SAM Questionnaire
<b>Materials</b>						
EN1	Total Materials use other than water, by type (tons, kg or volume)(fuel, tiers, components, oils, pallets)	Y	c) Nature and Resources Q9 Q10	Performance & Impact Section		Operational Eco-Efficiency
EN2	Percentage of materials used that are waste (processed or unprocessed) from sources external to the reporting organization.	Y		Performance & Impact Section		
<b>Energy</b>						
EN3	Energy consumed by: Lts/m3-km Lts/ton-km Lts/delivered item (state the item weight considered)	Y Y Y				Operational Eco-Efficiency
EN4	Indirect Energy Use. Report on all energy used to produce and deliver. Electricity, WH, transit point. Heating A/C ** Other equipment energy consumption forklifts, cranes... ** E.i. Food Sector, Cooling	Y				
EN17	Initiatives to use renewable energy sources and to increase energy efficiency.	Y				
EN18	Energy consumption footprint (i.e. Annualized lifetime energy requirements) of major products -joules-	Y				

EN19	Other indirect energy use and implications, such as organizational travel, product LC	Y				
<b>Water</b>						
EN5	Total water use in the service	Y	b) Reduce waste and enhance. Q7 Q8	Performance & Impact Section		Operational Eco-Efficiency
EN20	Water sources and related ecosystems/habitats significantly affected by use of water	Y				
EN21	Annual withdrawals of ground and surface water as a percent of annual renewable quantity of water available from sources.	Y				
EN22	Total recycling and reuse water (cooling water, carwash)	Y				
<b>Emissions and Waste</b>						
EN6	Location and size of land owned, leased or managed in biodiversity-rich habitats	Y				
EN7	Description of the major impacts on biodiversity associated with activities and/or products and services	Y				
EN8	GHG (CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, SF <sub>6</sub> ). Report separate subtotals for each gas in tonnes and in tonnes of CO <sub>2</sub> equivalent for the following: - Direct emissions from the services (divided by rail, sea, road, air) - Indirect emissions from electricity heat or steam, WH.	Y	a) Energy and Climate. Q1 to Q4			Operational Eco-Efficiency
EN9	Use and emissions of ozone depleting substances	Y				
EN10	Nox, Sox and other significant air emissions by type	Y				
EN11	Total amount of waste by type and destination.	Y	b) Reduce waste and enhance. Q5 to Q6	Performance & Impact Section		Operational Eco-Efficiency
EN12	Significant discharges to water by type	Y				

EN13	Significant spills of chemicals, oils& fuels in terms of T numb.& T Vol.	Y				
EN15	Percentage of the weight of products sold that is reclaimable at the end of the product's useful life and percentage that is actually reclaimed	Y				
EN23	Total amount of land owned, leased or managed for production activities or extractive use	Y				
EN24	Amount of impermeable surface as a percentage of land purchased or leased	Y				
EN25	Impacts of activities and operations on protected and sensitive areas	Y				
EN26	Changes to natural habitats resulting from activities and operations and percentage of habitat protected or restored	Y				
EN27	Objectives, programmes and targets for protecting and restoring native ecosystem and species in degraded areas	Y				
EN28	Number of IUCN* Red List species with habitats in areas affected by operations	Y				
EN29	Business Units currently operating or planning operations in or around protected or sensitive areas	Y				
EN30	Other relevant indirect greenhouse gas emissions	Y				
EN31	All production, transport, import or export of any waste deemed "hazardous" under the terms of the Basel Convention Annex I, II, III, and VIII.	Y				
EN32	Water sources and related ecosystems/habitats significantly affected by discharges of water and runoff	Y				
<b>Compliance</b>						
EN16	Incidents of and fines for non compliance regarding labeling, storage, handling and transportation of hazardous goods.	Y				
<b>Suppliers</b>						

EN33	Performance of suppliers relative to environmental components of programs and procedures described in response to Governance Structure and Management Systems section	Y				
<b>Overall</b>						
EN35	Total environmental expenditures by type	Y				
<b>Transport</b>						
EN34	Significant environmental impacts of transportation used for logistical purposes.	Y				
<b>Fleet Composition</b>						
LT2	Breakdown of fleet composition	Y				
<b>Policy</b>						
LT3	Description of policies and programs on the management of environmental impacts, including:			Management Section	Y	
	1) Initiatives on sustainable transportation (e.i. Hybrid vehicles)	Y				
	2) Modal shift 3) Route planning					
<b>Energy</b>						
LT4	Description of initiatives to use renewable energy sources and to increase energy efficiency.	Y				
<b>Urban Pollution</b>						
LT5	Pollution Description of initiatives to control urban air emissions in relation to road transport (e.g., use of alternative fuels, frequency of vehicle maintenance, driving styles, etc.).	Y				
<b>Congestion</b>						
LT6	Description of policies and programs implemented to manage the impacts of traffic congestion (e.g., promoting off-peak distribution,% of deliveries by modes of alternative transportation).	Y				
<b>Noise/Vibration</b>						
LT7	Description of policies and programs for noise management/abatement.	Y				
<b>Infrastructure Development</b>						

LT8	Description of environmental impacts of the reporting organization's major infrastructure assets (e.g., railways) and real estate. Report the results of environmental impact assessments.	Y			
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SOCIAL INDICATORS		GRI	Walmart Initiative	Corporate Responsibility Index	ISO 14001	Dow Jones SAM Questionnaire
<b>Employment</b>						
LA1	Breakdown of workforce: Region / country employee/self-employee Type: full time/part time Contract: indefinite/perm Exclusivity contract	Y				Corporate Governance
LA2	Net employment creation and average turnover	Y				Talent Attraction & Retention
LA12	Employee benefits beyond those legally mandated	Y				
<b>Labor Relations</b>						
LA3	Percentage of employees represented by independent trade union org.	Y	d) People and Community- Q 13	Performance & Impact Section		Labor Practice Indicators Q28
LA4	Policy and procedure involving information, consultation and negotiation with employees over changes in the reporting organization's operations (e.i. Restructuring)	Y			Y	
LA13	Provision for formal worker representation in decision making or management, including corporate governance	Y				
<b>Health and Safety</b>						
LA5	Practices on recording and notification of occupational accidents and diseases, and how they relate to the ILO Code of Practice on Recording and Notification of occupational accidents and diseases.	Y				

LA6	Description of formal joint health and safety committees comprising management and worker representatives and portion of workforce covered by any such committees.	Y				Labor Practice Indicators Q28
LA7	Standard injury, lost day, and absentee rates and number of work-related fatalities (including subcontracted workers)	Y				Labor Practice Indicators Q28
LA8	Description of policies or programmes (for the workplace and beyond) on HIV/AIDS.	Y				
LA14	Evidence of substantial compliance with the ILO Guidelines for occupational health management system	Y				Labor Practice Indicators Q28
LA15	Description of formal agreements with trade unions or other bona fide employee representatives covering health and safety work and proportion of the workforce covered by agreements.	Y				
<b>Training and Education</b>						
LA9	Average hours of training per year per employee by category.			Management Section		Human Capital Development Q32
	Transport safety training	Y				
LA16	Description of programs to support the continued employability of employees and to manage career endings	Y				
LA17	Specific policies and programmes for skills management of for lifelong learning	Y				
<b>Diversity of Opportunity</b>						
LA10	Description of equal opportunity policies or programmes, as well as monitoring systems to ensure compliance and results of monitoring.	Y				
LA11	Composition of senior management and corporate governance bodies (including board dir), female/male ratio and other indicators for culture , age diversity.	Y				Labor Practice Indicators Q28

<b>Strategy and Management</b>						
HR1	Description of policies guidelines, corporate structure and procedure to deal with all aspects of human rights relevant to operations, including monitoring mechanisms and results.	Y				Labor Practice Indicators Q30
HR2	Evidence of consideration of human rights impacts as part of investment and procurement decisions, including selection of suppliers.	Y				
HR3	Description of policy to evaluate human rights performance within the supply chain	Y				
HR8	Employee training on policies and practices concerning human rights	Y				
<b>Non-discrimination</b>						
HR4	Description of global policy and procedures/programmes preventing all forms of discrimination in operations, including monitoring systems and results of monitoring.	Y				Codes of Conduct/Compliance/Corruption&Bribery Labor Practice Indicators Q28
<b>Freedom of association</b>						
HR5	Description of freedom of association policy and extent to which this policy is universally applied independent of local laws	Y				Labor Practice Indicators Q28
<b>Child labor</b>						
HR6	Child Labor exclusion, as defined in ILO Convention 138	Y				
<b>Compulsory Labor</b>						
HR7	Description of policy to prevent forced and compulsory labor	Y				
<b>Disciplinary policies</b>						
HR9	Description of appeal practices, including human rights	Y				Codes of Conduct/Compliance/Corruption&Bribery
HR10	Description of non-retaliation policy					
<b>Security Practices</b>						



HR11	Human Rights training for security personnel	Y				
<b>Indigenous Rights</b>						
HR12	Description of policies and guidelines and procedures to address the needs of indigenous people	Y				
HR13	Description of jointly managed community grievance mechanism/authority	Y				
HR14	Share of operating revenues from area of operations that is distributed to local communities	Y				
<b>Community</b>						
SO1	Description of policy to manage impacts on communities areas affected by activities, as well as procedures to monitor them	Y				
SO4	Awards received relevant to social, ethical and environmental performance.	Y				
<b>Bribery and Corruption</b>						
SO2	Description of policy, procedures, management systems and compliance mechanisms for organizations and employees addressing bribery and corruption (OECD convention on combating bribery)	Y				Codes of Conduct/Compliance/Corruption&Bribery
<b>Political Contribution</b>						
SO3	Description of policy procedures/management systems and compliance mechanisms for managing political lobbying contributions	Y				Codes of Conduct/Compliance/Corruption&Bribery
SO5	Amount of money paid to political parties and institutions whose prime function is to fund political parties or candidates	Y				
<b>Competition and Pricing</b>						
SO6	Court decisions regarding cases of anti trust monopoly regulations	Y				
SO7	Description of policy preventing anticompetitive behavior	Y				
<b>Customer H&amp;S</b>						

PR1	Description of policy for preserving customer health and safety during use of products and services, and extent to which this policy is visibly stated and applied as well as description of procedures/programs to address this issue.	Y				Customer Relationship Management
PR4	Number and type of instances of non compliance with regulations concerning customer H&S including penalties and fines	Y				
PR5	Number of complaints upheld by regulatory or similar official bodies to oversee or regulate the health and safety of products and services	Y				
PR6	Voluntary code compliance, product labels or awards with respect to social and/or environmental responsibility that the reporter is qualified to use or has received.	Y				
<b>Products and services</b>						
PR2	Description of policy, procedures/management systems and compliance mechanisms related to product information and labeling	Y				
PR7	Number and type of instances of non-compliance with regulations concerning product information and labeling, including penalties and fines.	Y				
PR8	Description of policy, procedures/management systems and compliance mechanisms related to customer satisfaction, including results of surveys.	Y		Y		Customer Relationship Management
<b>Advertising</b>						
PR9	Description of policies for adherence to standards and voluntary codes related to advertising	Y				
PR10	Number and types of breaches of advertising and mktg regulations	Y				

<b>Respect for privacy</b>						
PR3	Description of policy for customer privacy	Y				Customer Relationship Management
PR11	Number of substantiated complains regarding breaches of consumer privacy.	Y				
<b>Mobile Worker</b>						
LT9	Description of policies and programmes to determine working hours and rest hours, rest facilities, and leave for those driving and operating fleets	Y		Management Section		
LT10	Describe approaches to provision of facilities to enable mobile workers to maintain personal communication while away.					
<b>Substance Abuse</b>						
LT11	Abuse Description of policies and programmes regarding substance abuse (campaigns and training)	Y				
<b>Road Safety</b>						
LT12	Num. of road fatalities of drivers or third parties per million km driven.	Y				
	Ships safety					
LT13	List of incidents by ship (all details, reason, name, duration)	Y				
<b>Access to mail</b>						
LT14	Description of policies and programmes for public access to mail	Y				
<b>Humanitarian Programmes</b>						
LT15	Provision of logistics & transportation core competences to deliver humanitarian needs measured in terms of (tons carrying capacity; persons months; expenditure) & contribution to disasters.	Y	d) People & Comm. Q15	Management Section		Corporate Citizenship/P hilanthropy
<b>Use of Labor Providers</b>						

LT16	Criteria for selecting recruitment and placement services. State how these criteria relate to existing international standards such as the conventions of the International Labor Organization (ILO).	Y	d) People & Comm. Q11	Management Section		
<b>Continuity of Employment</b>						
LT17	Describe measures in place to provide income security and employment continuity for workers employed/contracted repeatedly but not continuously.	Y				
<b>People and Community</b>						
	11. Do you know the location of 100% of the facilities that produce your product(s)?		Y			
	12. Before beginning a business relationship with a manufacturing facility, do you evaluate their quality of production and capacity for production?		Y			
	13. Do you have a process for managing social compliance at the manufacturing level?		Y			
	14. Do you work with your supply base to resolve issues found during social compliance evaluations and also document specific corrections and improvements?		Y			
<b>Overall</b>						
CRI-	Corporate Strategy	Y		Y	Y	Y
CRI-	Integration Section			Y	Y	
CRI-	Assurance & Disclosure Section			Y		Corporate Governance/ Social Reporting
DJQ-	Risk and Crisis Management					Risk Management Q11-Q16
ISO-	ISO14001 Certification				Y	

Table 3.1 Indicators Pool: Comparison between initiatives indicators

After making this comparison, the list of necessary indicators seems to be completed.

However, the indicators proposed by the GRI are in some cases difficult to assess, since the GRI objective is not to evaluate, but to report; with this in mind, an analysis

of how the indicator should be adapted in order to make them measurable was the following activity to formulate the index.

### 3.2.1 Adjustment of indicators

Two main adjustments were required for the last table presented. First, a division between general and specific metrics in order to obtain a general sustainability indicator and a specific one focused only on the logistics industry.

The second one consisted in adapting some indicators that had a qualitative and descriptive connotation into a more quantitative and comparable metric.

In the following table the outcome of this adjustments is reported and so it is a description of each KPI.

#### GENERAL KPI's

<b>Economic Performance Indicators</b>			
<b>Area</b>	<b>Indicator</b>	<b>Equivalent Indicator</b>	<b>Description</b>
Customers	Return on Sales	EC1	$ROS = EBIT / Total\ Sales$
Suppliers	% of contracts paid according to agreed terms	EC4	$= Total\ contracts\ paid\ according\ to\ agreed\ terms / Total\ contracts$
Employees	Total payroll and benefits	EC5	$= Payroll,\ pensions\ and\ other\ benefits / total\ number\ of\ full\ time\ employee\ equivalent$
Providers of Capital	Return on Capital Earned Return on Assets	EC7 DJQ	$ROCE = EBIT / (Total\ assets - Current\ liabilities) \%$ $ROA = Net\ Income / Total\ Assets$
Public Sector	Contribution to Public Sector Subsidies impact Donations to community/net profit Total Spent on non-core business infrastructure development	EC8 EC9 EC10 EC12	$= Total\ taxes / Net\ income$ $= Subsidies\ received / Net\ Profit$ $= Donations\ to\ community / net\ profit$ $= Total\ Spent\ on\ non-core\ business\ infrastructure\ development / Total\ spent\ on\ core\ business\ infrastructure\ development$
Indirect Impact	Indirect Economic Impact	EC13	$= Major\ economical\ externalities\ produced / Net\ Profit$
Strategic Goals	Financial Independence Ratio Financial Leverage	CRI Section 1 CRI Section 1	$= Equity / Total\ Assets$ $= Liabilities / Equity$
Integration	Level of completeness	CRI Section 2	The strategy of the company tackles all stakeholders (shareholders, customers, employees and public sector)
Assurance and Disclosure	Internal Audit Organism	CRI Section 5	There is an internal audit organism or similar in the company?

<b>Environmental Performance Indicators</b>			
Area	Indicator	Indicator equivalent	Description
Materials	Percentage of wasted material (processed and unprocessed)	EN2/EN11	= 1- (Total material of output /Total material used as input)
	Material usage measurement	Walmart initiative	Indicates the level at which the material measurement is controlled and if targets have been set
Energy	Energy consumption targets	Walmart initiative	Indicates the level of commitment regarding the reduction and tracking of the energy consumption
	Initiatives for the usage of renewable energies?	EN17	Indicates if there is a program to promote the usage of renewable energy
	% of sustainable electricity usage	EN17	Quantitative measure of the renewable energy used. =Sustainable energy/Total energy used
Water	Percentage of recycled of water	EN22	= Total recycle water/ Total water used
Emissions	CO2 emissions measurement	Walmart initiative	Indicates the level at which the company is controlling its CO2 emissions policy.
	Total metric tones CO2 emissions/100,000 euro Revenue	EN8	This could also apply for CH4, N2O,HFCs,PFCs and SF6
Compliance	Incidents of and fines for non compliance regarding labeling, storage, handling and transportation of hazardous goods	EN16	Tracks the number of fines that has been paid due to regulations violation.
Suppliers	The suppliers count with an environmental policy?	EN33/ Walmart initiative	Indicates the level of completeness of supplier's environmental strategy
Policies	Do you have an environmental policy?	CRI Section 3	Indicates if the company has an environmental policy and at which level it has been implemented.
Overall	Total environmental expenditure/ Total expenditures	EN34	=Total environmental expenditure/ Total expenditures
Management	% of ISO 14001 Certification processes	ISO 14001	Identify the percentage of operations that has been certified by ISO 14001
Assurance and Disclosure	Have you published your environmental data?	CRI Section 5	Measures the level of consistency and disclosure of data
<b>Social Performance Indicators</b>			
Area	Indicator	Indicator equivalent	Description
Employment	Percentage of part-time employee	LA1	= Part time employees/ Total employees
	% of employee engagement	LA2	= 100% - % turnover
	Percentage of employees with permanent contract	LA1	= Employees with permanent contract/total employees
	Employment creation	LA2	= Num employees at time t – Num employees at t-1 / Num employees at time t
Labor/Mgmt Relations	Percentage of employees represented by independent trade union	LA3	= Employees represented by trade unions/ total employees

	organization		
	Policy and procedure involving information, consultation and negotiation with employees over changes in the reporting organization's operations (e.i. Restructuring)	LA4	Measures the level at which the policy has been implemented
Health and Safety	Is there a H&S policy visible, available, applied and monitored/updated?	CRI Section 3	Measures the performance of the H&S policy
	Standard injury, lost day, and absentee rates and number of work-related fatalities (including subcontracted workers)	LA7	Measures the days lost due to injuries or absenteeism
	Practices on recording and notification of occupational accidents and diseases. ILO guide coherence	LA5	Indicates the procedure regarding accidents and diseases notifications.
	Policies or programmes (for the workplace and beyond) on HIV/AIDS.	LA8	Indicates the performance of the AIDS prevention program.
Training and Education	Average hours of training per year per employee by category.	LA9 /LA17	Average training yearly hours/full time employee (now only general data, but it would be needed by levels)
	Transport safety training	LA9-1	Hours of training
	Programmes to support: continued employability of employees and to manage career endings	LA16/LT17	Measures the scope and performance of the programmes.
Human Rights	Human Rights policy completeness	HR1- HR14	Evaluates the completeness of the HR policy regarding different issues of the subject.
Community	Contribution to humanitarian programs	SO1/SO4/LT15. Walmart initiative section 4	Identify if the company supports by any mean the community
Bribery and Corruption	Employees trained in anti-corruption policies and procedure	SO2	Identify is the procedure to avoid bribery and corruption in the company
Customer Health and Safety	Policy for preserving customer health and safety during use of products and services.	PR1/PR7	Identify the level of completeness of the effective policy
Products and Services	Customer Satisfaction	PR5/ PR8	Identify the level of customer satisfaction
	Green labels, Voluntary code compliance, product labels or awards.	PR6/ EU Flower/ Blue Angel. Walmart initiative 3rd phase.	Identify the voluntary usage and/or adherence to sustainable initiatives

	Practices regarding customer satisfaction improvement and customer privacy respect	PR3	Identify the level of completeness of the effective initiative
Overall	Is there an internal controller for the social sustainability indicators mentioned?	CRI Section 5	Identify the level of monitoring, disclosure and integration
Risk	Risk Management Program	DJQ	Evaluates the level of development of the risk management policy

\*International Union for Conservation of Nature

Table 3.2.1 Output: General Performance Indicators

## LOGISTIC KPI's

Economic Performance Indicators			
Area	Indicator	Indicator equivalent	Description
Drivers	Total payroll and benefits of drivers	EC5	= Payroll, pensions and other benefits/ total number of full time employee equivalent
Environmental Performance Indicators			
Area	Indicator	Indicator equivalent	Description
Materials	Percentage recycled packaging material	EN2	= Recycled packaging material / Total packaging material
	Average fuel consumed in lts/100 km in fleet divided by light vehicles and large vehicles.	EN1	Average fuel consumed in lts/100 km fleet divided by vehicles under the 7.5 tones and over 7.5 tones.
Energy	Fuel consumed in lts/m3-km	EN3	= Total liters in fuel consumed/m3 - km
	Fuel consumed in lts/ton-km	EN3	= Total liters of fuel consumed/ tons-km
	Fuel consumed in lts/item delivered	EN3	= Total liters of fuel consumed/total items delivered
Policies	POLIMI WH index	POLIMI	Indicates the warehousing sustainability level
	European Regulations compliance	EN8/ LT2	Percentage of total vehicles in conformance with EU vehicle regulations
	Transportation initiatives	LT3	Do you have initiatives that consider the following: a. Route planning b. Modal shift c. Sustainable transportation
	Pollution initiatives to control urban air emissions in relation to road transport?	LT5	Measures if it includes initiatives regarding alternative fuel, vehicle maintenance, driving style or equivalents.
	Policies or programmes implemented to manage the impact of traffic congestion?	LT6	Measures the level of completeness of the initiative
	Policies implemented to manage noise/ vibration?	LT7	Measures the level of completeness of the initiative
Social Performance Indicators			
Area	Indicator	Indicator equivalent	Description



Health and Safety	Policies and Programs re Substance Abuse	LT11	Do you have initiatives that consider the following: a. Route planning b. Modal shift c. Sustainable transportation
Road Safety	Work related fatalities in the last 3 years	LT12	Number of fatalities in the last 3 years
	Work related injuries in the last 3 years	LT12	Aims at measuring the road safety.
Mobile working Patterns	Programs available describing working and rest hours for drivers.	LT9	Aims at measuring how well the rest and working hours are clearly known by the employees
	Facilities and provisions to enable mobile communication drivers and truck tracking.	LT10/LT14	Aims at measuring the availability of communication facilities and safety of drivers.
	Work related injuries in the last 3 years	LT12	Aims at measuring the road safety.

Table 3.2.2 Output: Logistics Performance Indicators

### 3.3 Benchmarking

Once defined the indicators it was necessary to assess the range of values that will further lead to a standardized measuring system. As mentioned before, most of the basis of this framework are inspired in the GRI guidelines, so the selection of the companies for the benchmarking was done among GRI members and focused specifically on the logistic service providers.

The next four companies were selected due to their similarity in size, their location (two European and two American) and their brand recognition. In the following table it is shown the grade given by the GRI to each of these companies.

Company	Origin	GRI grade	
DHL	EU	B+	Self-declared
FEDEX	USA	B	Self-declared
UPS	USA	B	Self-declared
TNT	EU	A+	GRI-checked

Table 3.3 GRI selected companies

The benchmarking was not available for all the KPI's of the pool. However, those cases were also included since it is expected to gather information once the model starts to be applied.

The documents used for the benchmarking were the corporate responsibility report, the financial statements and the available information online regarding special programs and initiatives.

### 3.3.1 Financial Benchmarking

The information employed to calculate this section was mainly obtained from the financial statements of the companies, which resulted very beneficial since most of the companies follow the international accounting system. Only for this area, a fifth Sweden Company was considered, The Grieg Shipping Group, which is also ranked as B by The GRI. The main reason to include this additional actor was only to observe if the ranges were indeed applicable to smaller companies.

The following table reflects the results of the qualitative data used in this section. Furthermore, in the case in which the ranges are rather qualitative, it was decided to exclude them from the table, but include them in the final outcome, the general sustainability index.

<b>Data</b>	<b>UPS</b>	<b>FEDEX</b>	<b>DHL</b>	<b>TNT</b>	<b>Grieg S G</b>	<b>Average</b>
Revenues (m euros)	35870	25280	53414	10390	208	
EBIT (m euros)	3748	2032	3193	1150	78	
ROS = EBIT/ Total Sales (%)	10.61	7.48	5.22	11.44	37.5	14.45
Average Payroll and benefits per employee (euro)	44892	36729	36635	47985	42532	41754
ROCE = EBIT/(T assets- current liabilities) %	18.20	13.90	8.28	24.64	10.23	15.05
Contribution to Public Sector = Total taxes/Net income	50.40	62.90	11.23	44.68	74	48.64
Financial Independence Ratio = Equity/Total Assets	0.28	0.57	0.04	0.26	0.52	0.41
Financial Leverage= Liabilities/ Equity	2.95	0.66	25.69	2.86	0.91	1.85
ROA = Net Income/Total Assets	0.08	0.06	0.01	0.11	0.05	0.07

Table 3.3.1 Economical Benchmarking

### 3.3.2 Environmental Benchmarking

In the environmental benchmarking only three of the mentioned companies were studied, since FEDEX does not report publicly its environmental detailed information.

Especially in this section the data available is very variable from one company to another. Each company reports according to its policy and so, a comparison might not be evident, however the data is shown in the following table.

<b>Data</b>	<b>DHL</b>	<b>TNT</b>	<b>UPS</b>	<b>Walmart</b>
Measurement of material usage, other than water	Y	Y	Y	Y
Average energy consumed in lts/km in fleet		17.20		15.35
Average energy consumed per kg transported *				
Average energy consumed per item delivered			0.78	
Building energy use (kW/m2)		92.33		
Warehouse reduction policy in place	Y	Y	Y	Y
POLIMI WH index				
Total recycling and reuse water	N	N	N	Y
Revenues (millions euros)	53414	10389	26902	
Revenues (100,000 euros)	534140	103895	269024	
Metric tons of CO2 per 100,000 euro revenue	60.28	23.04	57.41	
CO2 emissions from operations including heating, cooling	6.7	1.1586	7.3	
CO2 including subcontractors	32.2	2.394	15.44	
Total CO2 tones	32200000	2394000	15443464	
FLEET grCO2/km (large truck)		670		
FLEET grCO2/km (small truck)		281		
% Paper/Packaging reuse	59.60%	76%		
Do you have an environmental policy	Y	Y	Y	Y
Initiatives for the usage of renewable energies	Y	Y	Y	Y
% of Sustainable electricity usage	-	43.50%		
Pollution initiatives to control urban air emissions in relation to road transport	Y	Y	Y	
Policies or programmes implemented to manage the impact of traffic congestion	-	-	-	-
Transportation infrastructure development	-	-	-	
Percentage of fleet into EURO 4 or higher category				
Small fleet	49.04%	59%		
Large fleet	0.30%			
Environmental Management Certification ISO 14001	46%	89%	100%	-

\*Bison Transport transports 36.7kg/l and Bell City Canada Transports 35.3kg/l both Canadian Carriers (Source: Office of Energy Efficiency- Natural Resources Canada  
*Table 3.3.2 Environmental Benchmarking*

### 3.3.3 Social Benchmarking

In this section most of the indicators are available, the ones not included in the following table but present in the indicators pool, will be part of the index; data to establish the ranges for each of them will be gather later on, when the model would be tested.

All data presented was obtained from the companies' corporate responsibility report. Unfortunately, UPS does not report detailed information regarding this specific section.

<b>Data</b>	<b>DHL</b>	<b>TNT</b>	<b>FEDEX</b>
Part-time employees	68942		91566
% of part-time employees	0.381		0.392
% of Women in management positions	24.97	23	38.6
Turnover	0.50%		6.90%
Employee covered by collective bargaining agreements	130000		
Employee engagement	99.50%	72%	93.40%
Hours of training per full-time employee	11.8	1.01	17
Cost of training hour (eur)	448		
Sickness rate (days)	6.33	3.90	
Employees trained in anti-corruption policies and procedure		Y	Y
Policies and Programs regarding substance abuse	Y	Y	Y
Practices relating to customer satisfaction	Y	Y	Y
Customer Satisfaction	82.00	89.67	84.00
Number of accidents	12122		
Rate of accidents per 1000 employees	0.07		
Work related fatalities in the last 3 years	2.33	0.67	0.59
Social responsibility area auditor	Y	Y	---
Contribution to humanitarian programs	Y	Y	Y

*Table 3.3.3 Social Benchmarking*

### 3.4 Sustainability Performance Indicators

Once the benchmarking was performed it was just necessary to look at the results that came out in order to establish the ranges for each indicator.

In some cases the indicators are related to the quality of a policy, focused mainly in evaluate the existence, completeness, availability and improvement of the practice or guideline. In this way, the answers were mainly developed to express the level of detail and maturity at which the policies have arrived.

#### 3.4.1 Economic Performance Indicators

The result of confronting the benchmarking and of considering the nature of each indicator leaded to the following list of metrics.

Area	Indicator	Range	Points
<b>Customers</b>			
	<b>1. ROS = EBIT/ Total Sales (%)</b>	<.1	0
		0.1-3	25
		3-5.	50
		5-9.	75
		>10	100
		<i>Answer :</i>	
<b>Profitability</b>			
	<b>2. ROA= Net Income/ Total Assets</b>	<0.01	0
		.01-.04	33
		.05-.06	66
		>=.07	100
		<i>Answer :</i>	
<b>Providers of Capital</b>			
	<b>3. ROCE = EBIT/ (Total assets-Current liabilities) %</b>	0-.5	0
		0.5-2.9	25
		3-6.9	50
		7-9.9	75

	>10	100
	<i>Answer :</i>	
<b>Public Sector</b>		
<b>4. Contribution to Public Sector=Total taxes/Net income</b>		
	0-.1	0
	.2-5	25
	6-20.	50
	21-35.	75
	35-70	100
	<i>Answer :</i>	
<b>Employees</b>		
<b>5. Average payroll and benefits per employee (euro)</b>		
	0-8000	0
	8001-16000	25
	16000-24000	50
	24000-40000	75
	>40000	100
	<i>Answer :</i>	
<b>Strategic Goals -financial-</b>		
<b>6. Financial Independence Ratio = Equity/Total Assets</b>		
	<.1	0
	.2-.3	33
	.3-.4	66
	>.5	100
	<i>Answer :</i>	
<b>7. Financial Leverage= Liabilities/ Equity</b>		
	>4	0
	3-4.	33
	2-3.	66
	<=1	100
	<i>Answer :</i>	
<b>Integration</b>		
<b>8. Does the Corporate Strategy considers the interest of:</b>		
<b>1.Customers 2.Employees 3.Public Sector 4.Shareholders</b>		
	only 4.	0
	4 and 1	33
	4,1,and 2	66
	4,2,1 and 3	100
	<i>Answer :</i>	

<b>Risk Management</b>	
<b>9. Is there a Risk Management Department?</b>	
a. No	0
b. Yes	100
c. In progress	25
<i>Answer :</i>	
<b>Assurance and Disclosure Section</b>	
<b>10. Is there an internal audit organism in the company?</b>	
a. Yes	0
b. No	100
<i>Answer :</i>	

Table 3.4.1 Sustainable Index: Economic Performance Indicators

In this particular section, there is no special section for a logistic company

### 3.4.2 Environmental Performance Indicators

The environmental indicators were divided into the general ones and the ones that will compose the logistic supplement.

This first table shows the general environmental indicators.

Area	Indicator	Range	Points
<b>Materials</b>	<b>1. Do you measure your material usage, other than water?</b>	0-100	
	a. Yes and reduction targets have been set		100
	b. Yes but reduction targets have not been set		66
	c. In process to be implemented (next months)		33
	d. No		0
<i>Answer :</i>			
<b>Energy</b>	<b>2. Energy consumption targets and optimization policies/procedures on place?</b>	0-100	
	a. No		0
	b. In process		33
	c. Yes with no records available		67
	d. Yes and records are available		100
<i>Answer :</i>			

	<b>3. Initiatives for the usage of renewable energies?</b>	0-100	
	a. None		0
	b. In process		50
	c. Yes and any improvement has been reported yet.		75
	d. Yes and improvements in energy efficiency reported		100
		<i>Answer :</i>	
	<b>4. % of Sustainable electricity usage?</b>		
		0-10%	0
		11-30%	33
		30- 50%	67
		50% <	100
		<i>Answer :</i>	
<b>Emissions</b>			
	<b>5. CO2 emissions measurement:</b>	0-100	
	a. Yes, with targets set and improvements recorded		100
	b. Yes, with targets set but no improvements recorded		66
	c. Yes		33
	d. No		0
		<i>Answer :</i>	
<b>Suppliers</b>			
	<b>6. Do your suppliers have an sustainability policy/ strategy?</b>	0-100	
	a. None		0
	b. In process		25
	c. Yes but neither recorded data nor targets established.		50
	d. Yes and targets have been established		75
	e. Yes with records and targets		100
		<i>Answer :</i>	
<b>Policies</b>			
	<b>7. Do you follow a sustainability policy/ procedure/strategy?</b>		
	a. None		0
	b. In process		25
	c. Yes but neither recorded data nor targets established.		50



d. Yes and targets have been established	75
e. Yes with records and targets	100
<i>Answer :</i>	
<b>Management</b>	
8. <b>% of ISO 14001 Certification</b>	
0-10%	10
10-20%	20
20-30%	30
30-40%	40
40-50%	50
50-60%	60
60-70%	70
70-80%	80
80-90%	90
100%	100
<i>Answer :</i>	
<b>Assurance and Disclosure Section</b>	
9. <b>Have you published your environmental data?</b>	
a. Yes and the indicators have been consistent in the last 3 years	100
b. Yes but indicators have not been consistent in the last 2 years	66
c. Yes but this is my first year	33
d. No	0
<i>Answer :</i>	

Table 3.4.2 Sustainable Index: Environmental Performance Indicators

For the Logistic sector, additional indicators apply. In the following table the indicators and its ranges are shown.

Area	Indicator	Range	Points
<b>Materials</b>			
	1a <b>% Paper/Packaging Re-usage</b>		
		0-10%	0
		11-30%	25
		31-50%	50
		50-60%	75
		>60%	100

		<i>Answer :</i>	
2a	<b>Average fuel consumed in lts/100 km in fleet?</b>		
	a) Light vehicles (<7.5 tons) full-load	>25	0
		19-24	33
		14-18	66
		<13	100
		<i>Answer :</i>	
	b) Large vehicles (> 7.5 tons) full-load	>40	0
		40-37	33
		37-35	66
		<34	100
		<i>Answer :</i>	
<b>Energy</b>			
3a	<b>POLIMI Warehousing index (Morganti 2009)</b>	0-100	0-100
		<i>Answer :</i>	
<b>Emissions</b>			
4a	<b>Total tons CO2 emissions/100,000 euro revenue</b>		
		60<	0
		40-60	33
		30-40	67
		0-30	100
		<i>Answer :</i>	
	<b>European regulations</b>		
5a	<b>SMALL vehicles</b>		
	a) Percentage of fleet into EURO 4 or higher?		
		0-20%	0
		20-40%	33
		40-60%	67
		60<	100
		<i>Answer :</i>	
5b	<b>LARGE vehicle</b>		
	b) Percentage of fleet into EURO IV and V or higher category?		
		0-20%	0
		20-40%	33
		40-60%	67
		60<	100
		<i>Answer :</i>	
	Average of the two, in case only one applies consider it without average		

<b>Policies</b>		
	<b>Do you have initiatives that consider the following: a.Route planning b.Modal shift</b>	
6a	<b>c.Sustainable transportation</b>	
	a. None	0
	b. In process	25
	c. The initiative includes at least one of the listed options	50
	d. The initiative includes at least two of the listed options	75
	e. The initiative includes all the listed options	100
	<i>Answer :</i>	
7a	<b>Pollution initiatives to control urban air emissions in relation to road transport?</b>	
	a. None	0
	b. In process	25
	c. At least including one of these: alternative fuel, vehicle maintenance, driving style or equivalents.	50
	d. At least including two of these: alternative fuel, vehicle maintenance, driving style or equivalents.	75
	e. Including all of the previously stated.	100
	<i>Answer :</i>	
8a	<b>Policies or programmes implemented to manage the impact of traffic congestion?</b>	
	a. None	0
	b. In process	50
	c. Yes and none result has been recorded yet	75
	d. Yes and improvements/reports are been recorded	100
	<i>Answer :</i>	
9a	<b>Policies implemented to manage noise/ vibration?</b>	
	a. None	0
	b. In process	33
	c. Yes and none result has been recorded yet	67
	d. Yes and improvements/reports are been recorded	100
	<i>Answer :</i>	

Table 3.4.2.1 Sustainable Logistics Index: Environmental Performance Indicators

In this particular section, there is no special section for a logistic company

### 3.4.3 Social Performance Indicators

The social indicators were divided also in two categories, the general ones and the ones included in the logistic section.

The criteria to set ranges was the same applied in section 3.4.2. and 3.4.1

The following table shows the general social indicators.

Area	Indicator	Range	Points
<b>Employment</b>			
	<b>1. Percentage of part-time employees</b>		
		0-10/ 61+	0
		11 – 29	33
		30 - 39	67
		40-60 %	100
		<i>Answer :</i>	
	<b>2. Employee engagement (100% - % turnover)</b>		
		0-24	0
		25-54	33
		55-74	67
		85-100	100
		<i>Answer :</i>	
<b>Training and Education</b>			
	<b>3. Average training yearly hours/full time employee</b>		
		0	0
		1-2	25
		3-5	50
		6-9	75
		>10	100
		<i>Answer :</i>	
	<b>4. Do you have programs or initiatives that promote HR learning and development?</b>		
	a. No		0
	b. In progress		20
	c. Available		40

d. Available and promote	60
e. Available, promoted and data (frequency, content) recorded	80
f. Available, promoted, data (frequency, content) recorded and updated	100

*Answer :*

**Non-discrimination**

**5. Percentage of minority workers**

0-10 /50+	0
11 – 29%	33
30 - 39%	66
40 - 50 %	100

*Answer :*

**6. Percentage of women in management positions**

0-9%	0
10-19%	25
20-29%	50
30-39%	75
40-50%	100
50%<	50

*Answer :*

**Human Rights and Labor Relations**

**7. Human Rights policy completeness:**

a. None Human Rights policy available	0
b. HR policy in progress	10
c. HR policy includes the following issues (sum points for each issue):	
c.1. Child labor exclusion	10
c.2 Forced and Compulsory Labor prevention	10
c.3 Disciplinary practices that respect all human rights	10
c.4 Freedom of association and collective bargaining	10
c.5 Indigenous Rights	10
c.6 Non discrimination	10
c.7 Employee training regarding the policy	10
Sum points for each of the following:	
a. The policy is promoted	10
b. The policy is promoted and monitored	20

c. The policy is promoted, monitored and periodically updated 30

*Answer :*

**8. Is there a policy and procedure involving information, consultation and negotiation with employees over changes in the reporting organization's operations (e.i. Restructuring)**

- a. No 0
- b. Available 33
- c. Available and visible 67
- d. Available, visible and applied 100

*Answer :*

**9. Is there a Health & Safety policy?**

- a. No 0
- b. Available 20
- c. Available and visible 40
- d. Available, visible and applied 60
- e. Available, visible, applied and monitored 80
- f. Available, visible, applied, monitored and updated 100

*Answer :*

**10. Are there any policy or program regarding substance abuse?**

- a. No 0
- b. In progress 33
- c. Applied but improvements has not been recorded yet 67
- d. Applied and improvements have been recorded 100

*Answer :*

**11. Existence of practices on recording and notification of occupational accidents and diseases (according with ILO guide coherence)**

- a. None 0
- b. In progress 33
- c. Policy promoted and practices carried on 67
- d. Policy promoted, practices carried on and recorded data available 100

*Answer :*

**12. Policies or programmes (for the workplace and beyond) on HIV/AIDS.**

- a. None 0

b. In progress	33
c. Policy promoted	67
d. Policy promoted and recorded data (frequency, assistance and content)	100
<i>Answer :</i>	
<b>13. Employees trained in anti-corruption policies and procedure</b>	
a. No	0
b. In progress	33
c. It exists	67
d. Applied, records available and continuously updated	100
<i>Answer:</i>	
<b>Humanitarian Programs</b>	
<b>14. Contribution to humanitarian programs</b>	
a. No	0
b. Yes	100
<i>Answer :</i>	
<b>Customer Satisfaction</b>	
<b>15. Policy for preserving customer health and safety during use of products and services (including proper labeling, effective regulations and standards compliance).</b>	
a. None	0
b. In progress	25
c. Available and monitored	50
d. Available, monitored and updated	75
e. Answer d and it has also lead to internal/external improvements (recorded)	100
<i>Answer :</i>	
<b>16. Practices regarding customer satisfaction improvement and customer privacy respect</b>	
a. No	
a. None	0
b. In progress	33
c. Applied but improvements has not been recorded yet	67
d. Applied and improvements have been recorded	100

	<i>Answer :</i>	
<b>17. Customer Satisfaction</b> (consider 0-25 if there is no measurement of customer satisfaction)	0-25	0
	36-50	25
	60-79	50
	80-89	75
	90-95	90
	95-100	100
	<i>Answer :</i>	
<b>18. Green Labels, Voluntary compliance, product labels or awards</b>		
a. None		0
b. In progress		50
c. Yes		100
	<i>Answer :</i>	
<b>Overall</b>		
<b>19. Is there an internal controller/ team/ department for the social sustainability area</b>		
a. No		0
b. In progress		33
c. Yes it started this year		67
d. Yes and for more than a year		100
	<i>Answer :</i>	

Table 3.4.3 Sustainable Index: Social Performance Indicators

The following table shows the additional indicators for the logistic sector.

Area	Indicator	Range	Points
<b>Road Safety</b>	<b>1a. Work related fatalities in the last 3 years</b>	> 2	0
		1.5- 2	25
		.7-1.5	50
		0.1- 0.6	75
		0	100
		<i>Answer :</i>	
<b>Labor Relations</b>	<b>2a. Programs available describing working and rest hours and rest</b>		



<b>facilities.</b>	
a. None	0
b. In progress	25
c. Available	50
d. Available and promoted	75
e. Available, promoted and monitored	100
	<i>Answer :</i>
<b>3a. Available facilities to enable mobile communication, mail access and tracking of the truck.</b>	
a. None	0
b. In progress	10
c. Only one of the mentioned is available	20
d. All are available	40
e. Answer d and mobile communication coverage is high (90% of trip)	80
f. Answer d and truck tracking is high (100% of trip)	80
g. e and f	100
	<i>Answer :</i>

*Table 3.4.3.1 Sustainable Logistics Index: Social Performance Indicators*

### **3.5 Sustainability Performance Index**

Assessing the sustainability index is almost the last step for evaluating a company.

Since there are two categories of indicators (general and logistics) there will be two indexes.

The same weight was given to all of three areas (33.33%); each of them is computed as the simple average of the indicators of the section; each section is expected to increase its number of KPI's while the model is applied (full list of indicators).

If the company is a logistics company, more indicators should be included, in this case the average incorporate the logistics measurements.

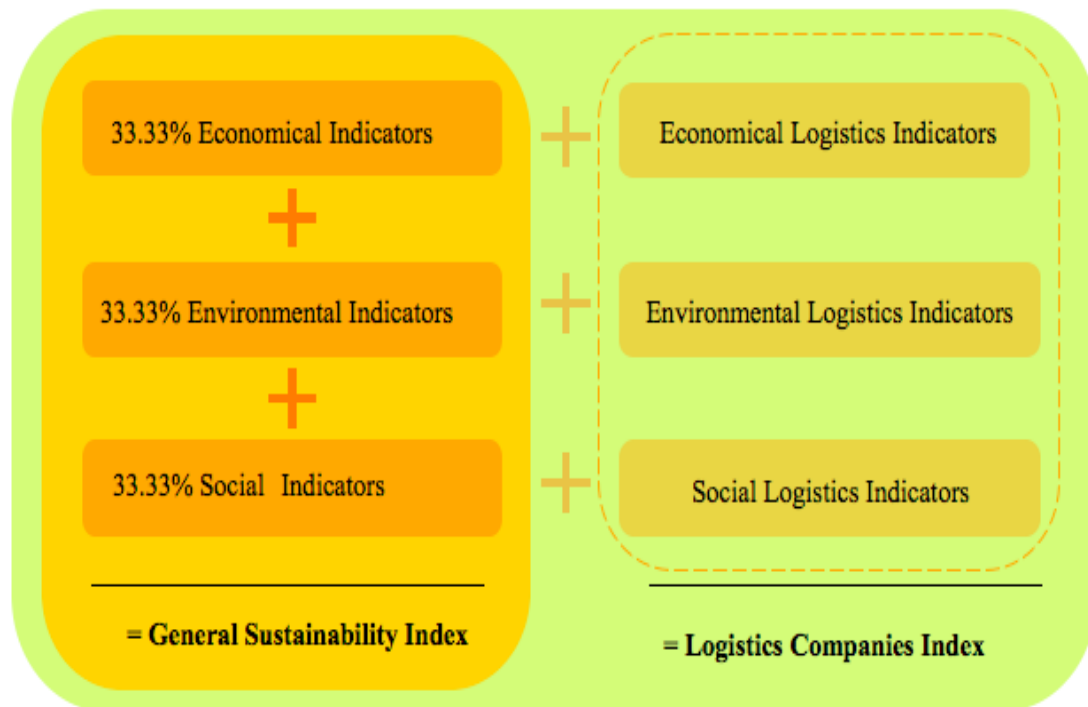


Figure 3.5 Index sections weights

The final grade is expressed over 100, being the maximum grade 100/100.

The full list of indicators should be use when evaluating a company; however the ones for which the ranges has not been determined should also be assessed to obtain information and ultimately being able to set up ranges and a measurement process.

After assessing the Index value, the result can be analyzed, in the next chapter, ideas and practices regarding how each area might be tackled and consequently how the score could be higher, will be described.

### 3.6 Conclusions

In this chapter it was exposed how the General and Particular Sustainability Indexes were developed. First of all, a comparison regarding the different initiatives was done. This exercise led a rich pool of indicators, must of them from the GRI; however, many were reformulated in order to make them measurable, comparable and simple. At this point, the indicators were adequate for the propose pursued and a benchmarking to set the ranges of each indicator carried out.

The Benchmarking was done mainly between four companies incorporated to the GRI, all of them of comparable size and brand recognition (Fedex, DHL, UPS and TNT). Walmart and other smaller companies were taken into consideration in particular cases.

The information available was not enough to fulfilled the complete list of metrics, nonetheless, with the data available, the ranges for some of the indicators were established. It is expected that once the model starts to be applied, a database for all of the indicators will serve to calibrate the ranges and establish the ones that are not available right now.

Finally, it was explained how to assess the numeric value for the general and the logistic index which will express the level of sustainability of that company and will serve as a comparable metric among companies.

In the next chapter, ideas and practices regarding how each area might be computed and how the score could be higher will be exposed.

# CHAPTER 4

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## **Tools and Resources for Sustainable Results**

### **4.1 Introduction**

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In the last chapter the steps of how the sustainability index was composed and the weights given to each indicator were presented. In this section, tools and resources available for answering and getting a better result in each area (financial, environmental and social) will be covered. By the end of this work it is expected to have developed a clear image of the sustainability index structure.

### **4.2 Tools and Resources**

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Once answered the questions and gotten the score; we can know the opportunity areas to be reinforced as well as where outstanding performance was spotted and lowlights identified. In this part, we will address in a general way some tools and resources to improve the final score obtained after assessing the proposed questionnaire. It will also be explained the aim of each indicator in order to clarify how this question can be, firstly answered and further, improved.

#### *4.2.1 Economic Performance Section*

The indexes in this section are mainly ratio indicators that will as a whole give an idea of the financial health of the business. In order to improve them it is necessary either to increase its numerator or decrease its denominator, improving them is mainly related with the financial strategy of the business.

Nonetheless, there are three indicators included that measure other than financial performance the strategy integration, the risk assessment and the information assurance and disclosure.

#### *4.2.1.1 Strategy integration*

This indicator tries to assess whether or not the strategy considers the interest of all actors involved in the business, stakeholders, meaning customers, employees, public sector and shareholders.

The balance scorecard is a very powerful tool, which can help us analyzing the actual strategy of the company and the focus that this one has regarding each stakeholder.

The balanced scorecard is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. (BSCI\_2010)

Kaplan and Norton describe the innovation of the balanced scorecard as follows:

"The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation." (KaplanNorton\_1996)

The following figure shows the integration of strategy in a balance scorecard.

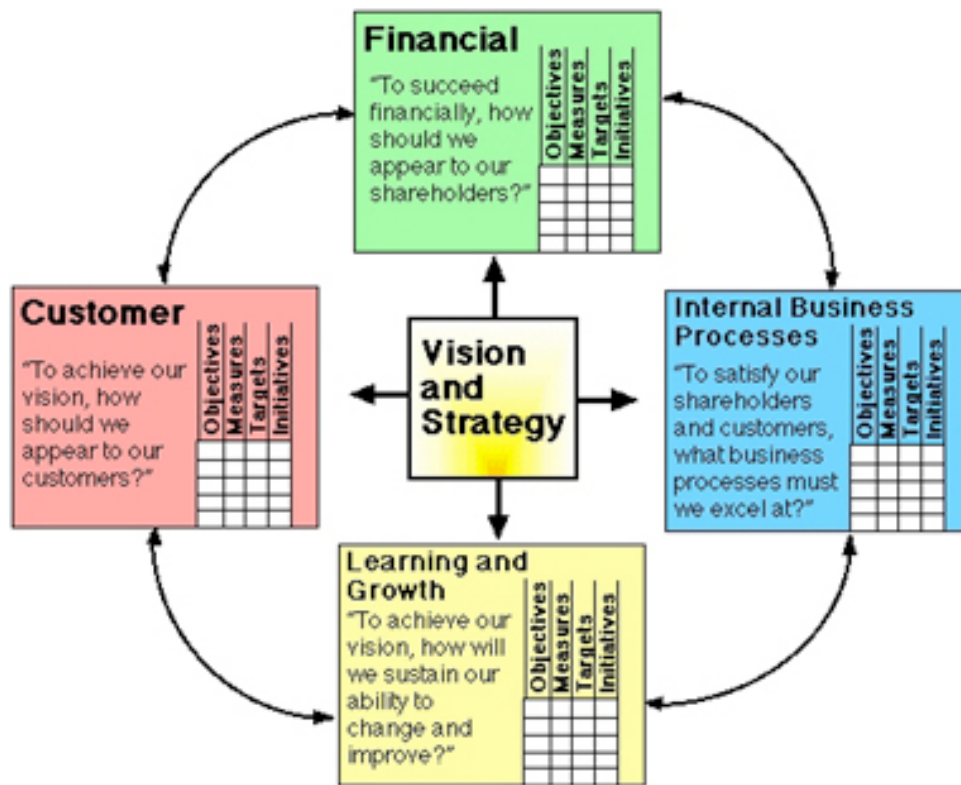


Figure 4.1 Balance Scorecard (KaplanNorton\_1996)

As it can be seen if developing a balance scorecard aligned with the vision and strategy a better integration between strategy and objectives and ultimately measurements can lead to an integrative vision in which all stakeholders are considered.

#### 4.2.1.2 Risk Assessment

Risk management is not just something for corporations or public organizations, but for any activity whether short or long term. The benefits and opportunities should be viewed not just in the context of the activity itself but in relation to the many and varied stakeholders who can be affected (IRM\_2002).

Risk can be defined as the combination of the probability of an event and its consequences (ISO/IEC Guide 73\_2010).

Risk management is a central part of any organization's strategic management. It is the process whereby organizations methodically address the risks attaching to their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities. The focus of good risk management is the identification and treatment of these risks. Its objective is to add maximum sustainable value to all the activities of the organization. (IRM\_2002)

In this part of the questionnaire it is inquired if there is a risk management department, however this question is intent to check if there is a control regarding risk management, since this will imply that there is analysis of risk factors external and internal ones (figure 4.2) and a risk management processes going on in the organization (figure 4.3).

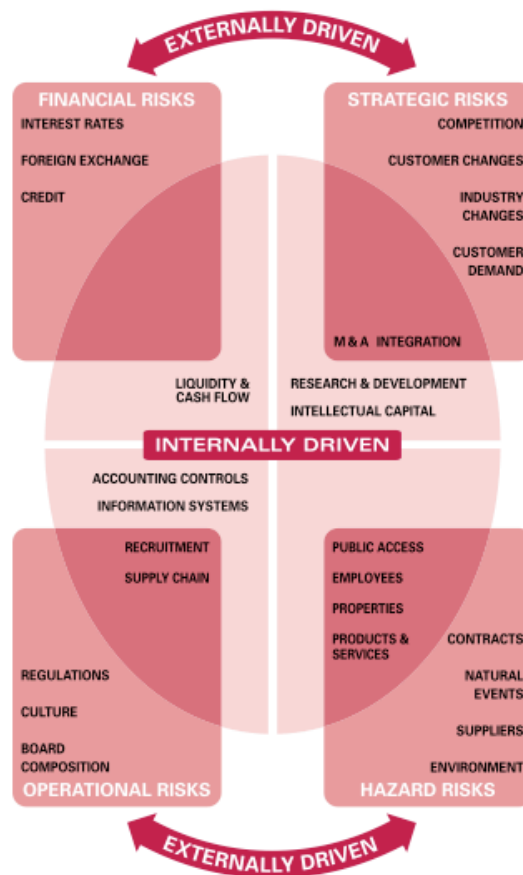


Figure 4.2 Risk Factor Analysis (IRM\_2002)



Fig. 4.3 Risk Management Process (AIRMIC\_2002)

According with the Risk Management Standard; risk management protects and adds value to the organization and its stakeholders through supporting the organization's objectives by:

- Providing a framework for an organization that enables future activity to take place in a consistent and controlled manner
- Improving decision making process, planning and prioritization by comprehensive and structured understanding of business activity, volatility and project opportunity/threat



- Contributing to more efficient use/allocation of capital and resources within the organization
- Reducing volatility in the non essential areas of the business
- Protecting and enhancing assets and company image
- Developing and supporting people and the organization's knowledge base
- Optimizing operational efficiency

Finally, in order to achieve all benefits related to risk management, a department or responsible for performing such responsibility should be assigned. The question aims at measuring this and the initial step (having a management risk department) should be consider for the improvement of the section score.

#### *4.2.1.3 Information assurance and disclosure*

As defined by the Institute of Internal Auditors (IIA), "Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.

Internal Auditors' roles include monitoring, assessing, and analyzing organizational risk and controls; and reviewing and confirming information and compliance with policies, procedures, and laws. Working in partnership with management, internal auditors provide the board, the audit committee, and executive management assurance that risks are mitigated and that the organization's corporate governance is strong and effective. And, when there is room for improvement, internal auditors make recommendations for enhancing processes, policies, and procedures." (Cornell\_2007)

In this section it is questioned whether there is an internal audit organism in the company, so in order to improve the score of this section an organism responsible of

auditing the processes carried on in the company should be established or at least be planned or in the process to get constituted.

#### *4.2.2 Environmental Performance Section*

In this section we will discuss more about how the environmental performance score can be raised up. In this case the different areas will be tackled one by one.

##### *4.2.2.1 Material Usage*

This section aims at assessing if the material measurement is been controlled somehow. It does not question the way or method but whether or not the company has undertaken a compromise of measuring its material usage and in the case it does, if performance targets have been established, meaning for instance reducing the waste produced.

Reducing waste saves money for customers, suppliers and business. It also decreases the reliance on non-renewable resources. When reducing waste, it is also reduced all the water consumption, energy use and environmental impacts that resulted from producing the wasted material. Eliminating waste can save money by reducing resources and logistics cost. Cutting wastes reduces the need for conventional waste disposal system like landfill and incineration (Walmart\_2008).

Proposed methods to measure the material usage are the following ones:

Calculation of the material used (total weight). According with the CustomPartNet, company specialized in the estimation of manufacturing cost, material usage can be calculated considering the following parameters by line or family of products and by raw material component:

Order quantity, defect rate (scraps), part weight (lb or kg), part per cycle, feed system (total introduced), recycle ratio (scrap recycled by total scrap produced). These parameters not only apply for manufacturing companies but for any company that has

some material usage, even a service company might calculate its material usage, the way to calculate it depends on the process carried out. But the important part is measuring it in order to establish goals that lead to a greener efficient process in which waste is reduced and material usage maximized. In the case of a logistics companies it should include the boxes, the plastic, the consumables of the activities to be able to transport goods and case-by-case all material involved in the activities performed.

The tools and resources recommended by Walmart are the following ones:

Measuring trash:

Unit: Volume units. Cubic yard

Capacity \* volume \* frequency = cubic yards/week/year or tons/week/year

Example: One 2yd<sup>3</sup> Dumpster is 80% full when it is emptied twice per week

$$= (2 * 0.80) * 2 = 3.2 \text{ yd}^3 / \text{week} = 0.7 \text{ tons} / \text{week}$$

Measuring recycling material:

Recyclables are usually measured in pounds/tons by material.

Businesses may choose to weigh material (e.g., parcel scale) before it is hauled, estimate based on volume. Some vendors will provide monthly itemized report of recycling/redirection activity

Measuring and tracking your solid waste reduction:

Unit: Redirection rate (%)

% redirected from total solid waste

Example: 30 tons recycling + 120 tons trash = 150 tons total solid waste = 20% redirection rate

Zero waste = 100% diversion (all waste into landfill or incineration disposal)

Other than the production department, the measurement of material used in a company can be monitored via the accounting or procurement department since there it is where all invoices or orders regarding material, inventory information and scrap data would enter the ERP used by the company, hence a simple way to recheck the results from operations is to perform the cross-checking activity together with the procurement / accounting department. Submission

#### 4.2.2.2 *Energy*

In this section three questions regarding energy consumption, renewable energy initiatives and sustainable electricity consumption are presented. The queries are simple to answer since only consider the status of the initiative, if targets have been set, if records (performance documentation) have been kept or if the whole policies or procedure are still on process. In the case of the percentage of sustainable electricity, it only accounts for the amount of sustainable electricity used in the activities performed.

Renewable energy, energy consumption and sustainable electricity

The US Energy Information Administration defines renewable energy as “Energy sources that are naturally replenishing but flow limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy sources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action and tidal action.” (EIA\_2010)

In the Walmart questionnaire for suppliers, it is suggested a Facility Energy Audit. This process makes easy to understand the way in which energy is used; it spots opportunities for savings. The audit can be divided into the following segments: energy cost analysis, identification of potential savings and cost-benefit suggestions. The most common issues to be evaluated are lighting, building efficiency, heating,

cooling, motors and equipment (Walmart\_2008).

Some other groups offering guidelines or tools for carrying an energy audit are:

- a) Natural Resource Defense Council: Green Business Guides at [www.nrdc.org/greenbusiness/guides/](http://www.nrdc.org/greenbusiness/guides/)
- b) US Department of Energy's Industrial Technologies Program evaluation for industrial plants energy usage at <http://www.plasticsindustry.org/files/events/pdfs/energy-scheihing-062006.pdf>
- c) Energy audit software, which offers packages to support companies in their energy auditing process <http://www.energyauditsoftware.com>

According to the Green Power Group, sustainable electricity is electricity derived from renewable resources including wind, solar, photovoltaic, geothermal, biomass, landfill gas and certified low-impact hydro (GPG\_2010). Hence, sustainable electricity usage can be achieved by implementing/ increasing the usage of renewable power sources in the company's processes.

Cost energy increases and government incentives make renewable energy more cost competitive, support for renewable energy can provide cost saving over time (Walmart\_2009).

The integration of renewable energy by producing on-site renewable energy is a way to incorporate the sustainable energy usage into a company, if not an option researching renewable energy providers in the area can be an alternative. Some options for increasing sustainable power are available at:

- a) US Environmental Protection Agency: Guide to Purchasing Green Power at: <http://www.epa.gov/greenpower/buygp/guide.htm>
- b) World Resource Institute: Green Power Market Program at: [http://pdf.wri.org/gpmdg\\_corporate\\_guide\\_05.pdf](http://pdf.wri.org/gpmdg_corporate_guide_05.pdf)

#### 4.2.2.3 Emissions

The starting point in this matter is measuring emissions, later on setting targets and tracking the improvements reached.

One of the most used methods for measuring the CO<sub>2</sub> emissions is following the Corporate Standard framework designed by GHG Protocol Initiative.

Calculating emissions is a multi-step process. An accurate and useful inventory can only be developed after careful attention to quality control issues and to the activity data required. Only then should emissions be estimated. The GHG Protocol's Corporate Standard provides guidance on the entire inventory development process; it covers the accounting and reporting of the six greenhouse gases covered by the Kyoto Protocol (GHG\_2010).

In order to measure the CO<sub>2</sub> emissions the GHG Protocol Standard is available at <http://www.ghgprotocol.org/standards/corporate-standard>.

Another useful tool for measuring the CO<sub>2</sub> emissions is calculating the carbon footprint also named Carbon profile - is the overall amount of carbon dioxide (CO<sub>2</sub>) and other greenhouse gas (GHG) emissions associated with a product, along its supply-chain and sometimes including from use and end-of-life recovery and disposal. The carbon footprint is a sub-set of the data covered by a more complete Life Cycle Assessment (LCA). LCA is an internationally standardized method (ISO 14040, ISO 14044) for the evaluation of the environmental burdens and resources consumed along the life cycle of products. The carbon footprint is a life cycle assessment with the analysis limited to emissions that have an effect on climate change. The international standards ISO 14040-14044 provide robust and practice-proven requirements for performing transparent and accepted carbon footprint

calculations (LCA\_2007).

#### 4.2.2.4 *Suppliers*

This section aims at assessing an echelon in the supply chain of a company, the suppliers. A sustainable supply chain is a system of aligned business activities throughout the lifecycle of products that creates value for all stakeholders, ensures ongoing commercial success, and improves the wellbeing of people and the environment (BSR\_2007). This question is only a part of this effort of having a more sustainable supply chain by questioning if the suppliers also integrate to their policies environmental procedures.

This sustainability framework could be useful in assessing your supplier's performance. Once obtained and weighted the results of all, an answer that contains that result can be chosen.

Example:

Supplier A 80% Polimi Sustainability Index represents 60% of our supplies= 48%

Supplier B 60% Polimi Sustainability Index represents 40% of our supplies= 24%

Suppliers sustainability grade= 72% → Answer = 72%

#### 4.2.2.5 *Sustainability Programs or Policies*

Many initiatives were introduced in the first chapter and this question assess if the evaluated company has an strategy regarding sustainability, if it follows any policy or sustainability program and the level at which these strategy, program or policy has been developed.

#### 4.2.2.6 *Management*

ISO 14001 specifies the actual requirements for an environmental management system. It applies to those environmental aspects that the organization has control and over which it can be expected to have an influence. It is the only ISO 14000 standard

against which it is currently possible to be certified by an external certification authority (ISO\_2002). Information regarding ISO 14001-certification procedure can be found at: <http://www.iso14000-iso14001-environmental-management.com>

#### *4.2.2.7 Assurance and Disclosure*

Corporate responsibility reports are issued to broaden a company's conversation with an expanding list of stakeholders. Such reports allow for increased transparency and disclosure practices related to a company's various environmental, social and governance initiatives. This growing trend strengthens transparency, increases stakeholder confidence and enhances regulatory compliance. (Deloitte\_2010).

This section aims at evaluating the report consistency and disclosure; facts that allow stakeholders to compare the company and keep track of the indicators progress along the timeline. How to perform better in this section depends mainly in systematically reporting using a framework (this one or other), and using it consistently along the years (updating and keeping records). Many initiatives that can be used for these purposes were introduced in chapter two.

### *4.2.3 Social Performance*

Corporate social responsibility is companies acting voluntarily and beyond the law to achieve social and environmental objectives during the course of their daily business activities (CSR\_2010). In this section we will discuss more about how the social performance indicators can be assessed and their score increased; the different areas composing this section will be tackled one by one.

#### *4.2.3.1 Employment*

Corporate Social Responsibility is more than Human Resource Management of the many stakeholders in a corporation a key stakeholder is its employees (Hopkins\_2003).



The term 'turnover' refers to employee movements that create vacancies within an organizational unit. These vacancies may be the result of resignations, transfers, retirements, dismissals, or the completion of fixed term contracts (Beach\_2003).

According with the Chartered Institute of Personnel and Development employee engagement can be seen as a combination of commitment to the organization and its values and a willingness to help out colleagues. It goes beyond job satisfaction and is not simply motivation. Monitoring levels of employee engagement is a key element in managing human capital (CIPD\_2010).

Measuring employee's engagement is at this point difficult to compute, since surveys are need, in this framework it was proposed, as an indirect measurement the personnel turnover assuming that employees would leave their jobs if a lack of employee engagement exists.

The formula to calculate the employee turnover is the following one:

$$\text{Turnover} = \frac{\text{Total number of leavers over period}}{\text{Average total number Employed over period}} \times 100$$

The following recommendations' collection promote a decrease in the companies turnover ratio, for further information regarding each point refer to the bibliography of this work:

- a) Selecting the right people, offering a competitive benefit package, provide opportunities for people to share knowledge, demonstrate respect for employees at all times, enable employees to balance work and life, involve employees in decisions that affect their jobs, recognize excellent performance, staff adequately so overtime is minimized, nurture and celebrate organization traditions, provide opportunities within the company for cross-training and career progression, provide opportunity for career and personal growth and

communicate goals, roles and responsibilities (Heathfield\_2000).

b)According with the US Equal Employment Opportunity Commission (EEO) these tips intended to assist agencies in retain employees who strive for excellence: demonstrate leadership commitment and accountability, hire and train the right people, establish special emphasis programs and collaborate with affinity groups, review personnel data improve advancement opportunities and conduct employee opinion (climate) surveys and 360 degree evaluations (EEO\_2010).

#### 4.2.3.2 *Training and Education*

In this area questions only measure the amount of training given to the employees and if there is policies or initiatives on place that promote the learning and development of the human resources in the company.

As already mentioned training and education of personnel is a very important factor for retaining people. Training is vital, as CSR will only have an impact if employees are engaged: attitudes or behavior won't change otherwise (CIPD\_2009)

Advices regarding the steps to follow in order to introduce learning and development programs are presented; for further information regarding each point refer to the bibliography of this work:

- a)The basic steps to effectively design a training program are: define training needs, define target audience, define the course content and define the outcomes to be achieve from training (HRvillage\_2007).
- b) Some people consider training optional since it is viewed rather like an expense than an investment; without measurable results, it's almost impossible to change this idea. So the first step is determining your training and

development needs based on targeted results. Secondly, establishing a learning dynamic for your company; and finally a learning culture to communicate your expectations to old and new employees (Sarvadi\_2005).

- c) Options for Employee Training and Development are external, internal, and online. Choices range from seminars to book clubs to mentoring programs. Some external are: courses, seminars, workshops, field trips to other companies and organizations (college, universities). Some internal are: onsite seminars and classes, which provide customized training. And to develop development and training: Coaching and mentoring as formal programs (Heathfield2\_2000)

#### 4.2.3.3 *Non-discrimination*

This section aims at assessing the non-discrimination in the company; it evaluates the participation of minorities, and the existence of a policy regarding human rights.

The US Equal Employment Opportunity Program defines minority as the smaller part of a group. A group within a country or state that differs in race, religion or national origin from the dominant group (TerminologyEEO\_2010).

Discrimination, in an employment context, can generally be defined as treating an individual or group less well in recruiting, hiring, or any other terms and conditions of employment due to the person's or group's race, color, sex, religion, national origin, age, disability, or veteran's status (Kleiman\_2011).

Computing the answer of this questions only requires as input the personnel data. It is calculated as follows:

Percentage of minority workers = Number of minority workers / Total workers

Percentage of women in management position = Female managers / Total managers

In order to rise up the score in this section, inclusion of minorities and women should be the issue to be tackled.

#### 4.2.3.4 *Human Rights and Labor Relations*

This section tries to evaluate the completeness of the company human rights and labor relations policies. In order to do so, the following initiatives are presented as references to develop or complete the organization human rights policy currently on place/in progress:

- a) The United Nations Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles. By doing so, business, as a primary driver of globalization, can help ensure that markets, commerce, technology and finance advance in ways that benefit economies and societies everywhere (UNglobalcompact\_2010). The ten principles are:
  - a. Businesses should support and respect the protection of internationally proclaimed human rights; and
  - b. Make sure that they are not complicit in human rights abuses.
  - c. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
  - d. The elimination of all forms of forced and compulsory labor;
  - e. The effective abolition of child labor; and
  - f. The elimination of discrimination in respect of employment and occupation.
  - g. Businesses should support a precautionary approach to environmental challenges;
  - h. Undertake initiatives to promote greater environmental responsibility; and
  - i. Encourage the development and diffusion of environmentally friendly technologies.
  - j. Businesses should work against corruption in all its forms, including extortion and bribery.
- b) To see examples of human right policies in global companies the Business and Human Rights Resource Centre' website offers a wide list of companies that

have taken the step of adopting a formal company policy statement explicitly referring to human rights (B&HRRC\_2011).

#### 4.2.3.5 *Health and Safety Policy*

Suggestions on how to begin and develop an organization H&S policy can be found at the website of Infrastructure Health & Safety Association:

[http://www.csa.org/health\\_and\\_safety\\_program/index.cfm](http://www.csa.org/health_and_safety_program/index.cfm)

Some governments offer guidelines to prepare H&S policies; example of these kinds of websites is the Ontario Ministry of Labor publishing: How to prepare an occupational H&S Policy. This type of document might be available in your city H&S department website. The Canadian example is available at:

[http://www.labour.gov.on.ca/english/hs/pubs/ohsa/ohsag\\_appa.php](http://www.labour.gov.on.ca/english/hs/pubs/ohsa/ohsag_appa.php)

#### 4.2.3.6 *Substance Abuse Program*

Some reasons for setting up a drug-free workplace program are: the company values the health and safety of all employees and it is concerned about the impact of unhealthy lifestyle choices on medical and insurance costs. Substance abuse impacts negatively in the employee life (absenteeism, lower productivity, and damaged relationships). Depending the industry a substance abuse program could be mandatory and lastly, developing such program would protect non-consumers (Heatfield\_2000).

Some examples of substance abuse programs and guidelines for writing a policy are:

- a) Construction Industry Service Corporation; Drug and Alcohol Abuse Program available at: <http://www.cisco.org/abuse.htm>
- b) Tennessee Department of Labor and Workforce Development; Drug Free Workplace Program available at: <http://www.tn.gov/labor-wfd/dfwp.html>
- c) San Diego Reference Laboratories; Developing a drug-free workplace program available at: <http://www.sdrl.com/ddf.html>

#### 4.2.3.7 *International Labour Office Geneva Guides: Occupational Accidents and Diseases*

The provisions of the ILO code should be considered as the basic recommendations for the recording and notification of occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents. More stringent national or international regulations have priority over these recommendations. The practical recommendations of this code of practice are intended for the use of all those who have responsibility for the reporting, recording and notification of occupational accidents and diseases (ILO\_1996).

The ILO code of practice: recording and notification of occupational accidents and diseases can be found at ILO's website: <http://www.ilo.org>

#### 4.2.3.8 *Policy or programs on HIV and AIDS*

This question aims at evaluating the existence and evolution level of an HIV program in a company.

According with the Centers for Disease Control and Prevention there are five components to the AIDS company's programs: HIV/AIDS Policy Development, training for managers, supervisors and labor leaders, HIV/AIDS education for employees/workers, HIV/AIDS education for employees'/workers' families and HIV-related, community service, volunteerism, and philanthropy (CDC\_2011).

Example of an AIDS policy is the US Department of Health and Human Services: Guide to AIDS in the Workplace Resources which can be found at:

[http://www.hivatwork.org/tools/pdf\\_laborkit/resources.pdf](http://www.hivatwork.org/tools/pdf_laborkit/resources.pdf)

#### 4.2.3.9 *Anti-corruption programs*

According with the six principles of a best practices anti-corruption program under the UK Bribery Act Guidance, an anti-bribery and anti-corruption policy and

procedures documentation could include:

- a) Clear prohibition of all forms of bribery including the decision making process.
- b) Specific guidance on making any kind of contributions and gifts.
- c) Provide advice on relevant laws and regulations.
- d) Guidance when facing blackmail or extortion.
- e) Share information about the bribery relevant to their industry of development.
- f) Issue a code of conduct - expected behavior standards (in labor contract).

(Fox\_2010)

An anti-corruption policy sample, code of conduct, risk assessment procedure and anticorruption program are downloadable from the Business Anti-Corruption Portal at <http://www.business-anti-corruption.com/integrity-system/>

#### *4.2.3.10 Humanitarian Programs*

In this section it is evaluated the companies participation in humanitarian programs.

The forms of corporate support for humanitarian activities include (Tomasini\_2005):

- a) Cash: which allows the humanitarian organization to finance the required goods or services according to the need.
- d) Goods: they are an alternative to cash when appropriate.
- c) Volunteers: only if well equipped, with the required skills, expertise or knowledge.
- d) Partnerships: between companies and humanitarian organizations.

#### *4.2.3.11 Customer Satisfaction*

In this section the customer satisfaction current programs and policies of the company are evaluated.

Customer satisfaction is a measurement of customer attitudes about products, services and brands (Kopacek\_2011). Customer satisfaction is a state of mind in which the customer's needs, wants, and expectations throughout the product or service life have

been met or exceeded, resulting in future repurchase and loyalty (Anton\_1996)

The most common way to evaluate customer satisfaction is by applying surveys. The purpose of a customer feedback questionnaire is to measure the level of customer satisfaction with a product, service, or brand (Proctor\_2009).

The heart of a satisfaction program is the improvement projects that result (Kopacek\_2011).

According to Cacioppo, the most basic objectives that should be met by any surveying program include: comprehending the expectations and requirements of the customers and determining how well the company and its competitors are in satisfying them; developing standards based on the findings; examining trends over time in order to take action on a timely basis and establishing priorities and standards to evaluate the achievements (Cacioppo\_2000)

Likewise, Proctor suggest the following practices to obtain a well-designed questionnaire: customize the client feedback template; identify goals to determine the best survey question design, use unbiased language in questionnaire, ask for positive feedback from Clients, aim for acceptable survey response rates and evaluate the customer service questionnaire on several fronts to get the best possible survey tool.

Other sources containing guidelines to construct a good customer satisfaction survey and examples of them are:

ISO/TS 10004:2010, Standard on Quality management — Customer satisfaction — Guidelines for monitoring and measuring. available at: [www.iso.org](http://www.iso.org)

Marketing research firm Survey Value Inc. at :

[http://www.surveyvalue.com/csp\\_guidelines.html?src=customersat\\_overview](http://www.surveyvalue.com/csp_guidelines.html?src=customersat_overview)

Alberta Govenment Client Satisfaction Surveys , available at:

<http://www.oag.ab.ca/files/oag/clientsatisfaction.pdf>



#### 4.2.3.12 Overall

This question makes sure that the issues regarding social sustainability are in hands of a specific department/team/controller/committee in the corporation that will implement and has as a responsibility all CSR issues.

As a tool for implementing CSR into the company, the International Institute for Sustainable Development have published the Corporate Social Responsibility: An Implementation Guide for Business, that explain and gives a useful starting point for accessing the many CSR instruments currently available in the marketplace (Hohnen\_2007); other than the ones mentioned in this work.

### **4.3 Conclusions**

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This whole chapter explained all about tools and resources available to compute and to rise up the results of the sustainability indicators proposed.

The financial area was the first one described; in this section, different tools, as the balance scorecard, were introduced.

The environmental area included many references as support for each of the indicators. Certainly, many options were given to compute a single index, however, if carefully analyzed, the primary idea of many of them is to be sure that the policy or program exist inside the company; that implementation and monitoring are happening and that those policies are been updated. This criterion was also applied for the social performance indicators, it is expected though, an evolution in this framework. Continuous improvement is required in any job; these indicators should be enriched and adapted to different business profiles.

The proposed sustainability index is only an exploratory project, which intended to

turn into indicators a very abstract concept, Sustainability.

The idea of profitability and sustainability are not opposite, many of the concepts and practices exposed in these pages reflect that being sustainable allows and promotes higher consumption, customer affinity and loyalty and ultimately a bottom-line increment. The usage of renewable energy and the government incentives for doing so, only for mentioning some, are a very good stimulus for becoming a social responsible corporation. Likewise is the most important asset in a company, happy employees, healthy and protected people are more productive, which translates into profit and social acknowledgment.

However, the biggest challenge in all areas is to bring together plans and actions into the everyday corporate life.

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