

Insight | Survey Report

2008 Supply Chain Monitor “How mature is the Green Supply Chain?”



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Contents

Introduction	.6
1. Summary and conclusions of the study	.7
2. Context and concept of the Green Supply Chain	.9
2.1. Context	.9
2.2. From sustainable development to the Green Supply Chain	.9
2.3. What is the Green Supply Chain?	.9
3. The Green Supply Chain: interest, motives and misgivings	.10
3.1. Environmental concerns are widely embraced	.10
3.2. Multiple business drivers but regulation and brand image are most prominent	.10
3.3. Many priority measures, the importance of which varies depending on country and market sector	.11
3.4. Level of involvement of third party stakeholders: various scenarios, depending on the country	.12
3.5. The degree of institutionalisation of the “green” function	.12
3.6. The main effects of environmental regulation on companies	.14
3.7. The main business drivers for implementing a Green Supply Chain and its benefits	.14
4. The main activities in the Green Supply Chain	.18
4.1. Green design	.18
4.2. Green sourcing	.20
4.3. Green manufacturing	.22
4.4. Transport	.25
4.5. Reverse logistics	.27
5. Study methodology	.30
6. Profile of the participants	.31
7. Green Supply Chain in practice: GPN case study	.33
About BearingPoint	.34
About survey supporters	.34

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Introduction

Limiting damage to the environment is the major challenge society faces over the coming years. As the environmental debate broadens, companies are increasingly being urged to play their part in taking action to avert long term, irreversible damage to our planet.

Now that companies are beginning to step up their environmental programmes, they are looking for ways to incorporate a green policy throughout the various stages of the Supply Chain. Their objective is to create a Green Supply Chain, which is defined as a Supply Chain which

seeks to minimise the environmental footprint of a product or a service. How mature is the Green Supply Chain operated by companies? How have companies implemented Green Supply Chain processes? Will this new imperative be a source of innovation or constraint?

These are the questions that have been explored in this **global survey of more than 600 professionals, which identifies emerging trends in the deployment of Green Supply Chains.**

The study was carried out by BearingPoint together with ESCP-EAP,

Supply Chain Magazine, Supply Chain Standard, APQC, VIB, ABCAL, Log-Biz and Chain Store Age, who kindly lent their support to this initiative in various countries.

1. Summary and conclusions of the study

BearingPoint's global survey examines the impact of the environmental agenda on the Supply Chain and looks at what companies are doing, what is driving them to action and what is holding them back. Evidence indicates that when companies take action, they are typically taking the easy route of reputation and brand protection on green messaging. When the "recycled rubber" meets the road companies are challenged to invest meaningfully in Green Supply Chains.

The study was based on information collected from over 600 professionals within companies of all sizes and various business sectors. The respondents were senior executives involved in Supply Chain, operations, environment and purchasing. The survey was conducted among a wide audience which included Europe (France and United Kingdom predominantly), North America and Japan. In addition to the questionnaires received, a series of qualitative interviews was conducted with 30 companies in order to gain insight into their perspectives.

• Environmental matters are being considered, motivated by regulatory requirements and corporate image

The study reveals that 83% of companies claim to factor environmental concerns into their strategic decisions. This high general level of consideration is firm evidence of a wider awareness which is driving companies, if not to act, then at least to express an interest in the environment.

At the same time, half of the companies which claim not to factor in environmental concerns plan to do so in the not too distant future.

Companies are motivated to take environmental concerns into consider-

ation by compliance with regulatory constraints and a desire to improve the company's brand image: 73% of the companies surveyed are "motivated" by applying environmental rules and directives. 60% of them claim to be motivated by the desire to portray themselves as "a good corporate citizen".

• The Green Supply Chain: significantly different levels of involvement between countries

Overall, 35% of companies say that they have established a Green Supply Chain strategy. Only half of companies that have a high concern for environmental issues have actually taken account of this in the management of their Supply Chain.

The bigger the company, the greater the level of interest in the Green Supply Chain: 54% of companies with turnover in excess of 1 billion dollars claim to have established a Green Supply Chain, but this percentage drops to 29% for companies with turnover of less than 100 million dollars. One exception to this is Japan where 100% of the companies surveyed have adopted a green Supply Chain approach, regardless of size. The picture is quite different in other countries. The percentage of companies who have a Green Supply Chain strategy in place is just 38% for Europe, with big gaps between the UK (45%), France (30%) and the United States (with just 24%).

• There are four main drivers pushing companies to establish a Green Supply Chain strategy:

- **Regulation:** (22%) compliance with relevant laws and anticipation of future requirements.
- **Brand image** and "influence" on a market: (19%) compliance with customer requirements. The figures reveal that companies operating in

the mass market/large-scale distribution sectors tend to be driven more by brand concerns and implementation measures that are "more visible" to consumers.

- **Innovation** (product/processes): (15%) the different green Supply Chain approaches (logistics, sourcing, manufacturing, design, reverse logistics) together provide new sources of innovation.

- **Cost-cutting:** (13%) reducing the volume of purchases and consumption, process optimisation, improving the efficiency of the organisation. This motive, which focuses on optimising costs and processes, is cited mainly by companies operating in the B2B and industrial sectors.

• Lack of information appears to be the biggest obstacle to establishing a Green Supply Chain strategy.

The reasons for the reluctance to establish a Green Supply Chain approach are threefold:

- Lack of information (36%): was named as the main disincentive (little information on recent regulations etc.)
- The complexity of implementing such a strategy (18%)
- The lack of return on investment and/or high costs (9%)

• Little visibility of investments in environmental projects

When companies are questioned about how much of their budget they invest in a Green Supply Chain, two scenarios emerge:

- 1- The people questioned lack information and have no visibility of this subject (38%).
- 2- The budgets generally invested are low: almost 50% say they invest less than 10% of the total budget set aside for Supply Chain operations.

• **Logistics is the link in the chain which attracts the most interest.**

Among the companies which claim to have established a Green Supply Chain:

- 81% have made changes to their **transport/ logistics operations**. Interestingly, where logistics is concerned, the most common environmental measure (41%) involves overhauling logistics organisation to reduce the number of journeys.
- 66% have adopted a **green sourcing** approach, i.e. an approach which favours purchases of less polluting products/materials. In this regard, the procurement function plays a vital role in encouraging suppliers and other service providers/subcontractors to follow suit.
- 65% have changed their **production operations**. The two main courses of action taken are modifying production processes (35%) and using less polluting manufacturing materials/equipment (24%).
- 59% have implemented a **green design** approach for products and/or manufacturing procedures.
- 59% have implemented a **reverse logistics** initiative in order to recover products. Half of reverse logistics operations (50%) involve fini-

shed products, with the main purpose of repairing faulty products (39%).

The complexity of implementing measures varies from one phase to the next. Whilst green sourcing generally involves restructuring the procurement function (buyer training, etc.), green manufacturing and reverse logistics often necessitate bigger investments.

• **The study reveals four levels of maturity among companies in regard to the Green Supply Chain:**

Level 1: the company established a Green Supply Chain approach no more than two years ago and simply abides by the relevant regulations.

Level 2: the company established a Green Supply Chain approach no more than five years ago and frequently reviews its transport with a view to reducing costs.

Level 3: the Green Supply Chain becomes a matter of strategy for the company, which uses “the environment” as a means of innovating and creating a competitive advantage. At this level of maturity, companies involve third parties in

their approach (suppliers, service providers and so on).

Level 4: the company embraces the Green Supply Chain as a means of development and growth.

In conclusion, most companies consider the environment when making strategic decisions but significantly fewer have implemented “Green Supply Chains”, citing the lack of information as the main reason.

However, steps to start turning the Supply Chain Green are not as hard to take as they might seem. From the qualitative interviews, it was seen that many small initiatives where benefits arise quickly are a popular way to begin the journey. This suggests the answer is unlikely to be revolution, but evolution. Nonetheless, introducing an effective green perspective to the Supply Chain is a major change and not one to be undertaken lightly even though such a strategy must be adopted to ensure companies remain competitive in today’s (and tomorrow’s) global market.

Figure 1: Company behaviour within an evolving Green Supply Chain

	Motivation	Age of the approach	Presence of a dedicated function	Functions affected	Partners involved	Measures/follow-up
Level 1	None or regulation only	Less than 2 years	No	No function affected in its entirety	None	None
Level 2	Regulation and cost-cutting	More than 2 years and less than 5 years	Yes, but very slight and only within big companies; localised with no corporate alignment	At least one (often transport)	None	None
Level 3	Means of innovating and enhancing competitive advantage (through image etc.)	At least 5 years and less than 10 years	Yes, but limited; regional but with linkage to corporate framework	At least 2 (transport and production in general)	One partner (generally a supplier)	Currently being set up; transactional
Level 4	Part of the company’s <i>raison d’être</i>	More than 10 years	Yes, heavily institutionalised: horizontal function, present at different levels of the organisation; Enterprise alignment across divisions	All (from design to recycling, including logistics and production)	Collaborative real time involvement of third parties throughout the Supply Chain	Already in place. Incorporated in reward systems

Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

2. Context and concept of the Green Supply Chain

2.1. Context

Sustainable development is a hot topic, and is a concept which melds economic development with principles such as social equity and ecological prudence. In recent years, global warming, the scarcity and rising prices of resources, and ecological disasters have brought into sharp focus the environmental importance of sustainable development.

Up until the mid-1990s, sustainable development was of concern to just a handful of militant companies (The Body Shop, Nature & Découverte). Nowadays, however, environmental issues are kept in the public spotlight by the media (Al Gore; Nobel Peace Prize: “An Inconvenient Truth”), governments (France: the “Grenelle de l’Environnement”) multi-party debate, and other Non-Governmental Environmental Organisations (NGEOs). As a result they are becoming a major corporate preoccupation.

Against this backdrop, sustainable development has become a new stra-

tegic imperative, which companies must henceforth take on board in their development.

2.2. From sustainable development to the Green Supply Chain

There are a number of definitions of sustainable development. The earliest definition is attributed to the Brundtland commission (1987): “sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

In 1992, the United Nations Conference on environment and development, also known as the Rio Summit added to this definition by stipulating that any development policy must incorporate economic, social and environmental components. Summits and other conferences since then have added other components to these three pillars.

Implementing a sustainable development approach within a company is a horizontal task, inasmuch as it

impacts on almost all the company's functions (production, transport, and so on). In this sense, sustainable development policy has a bearing - either direct or indirect - on the Supply Chain, which therefore has a key role to play, particularly in terms of protecting and preserving the environment.

2.3. What is the Green Supply Chain?

2.3.1. The concept

“The Green Supply Chain is an approach which seeks to **minimise a product or service’s ecological footprint**”.

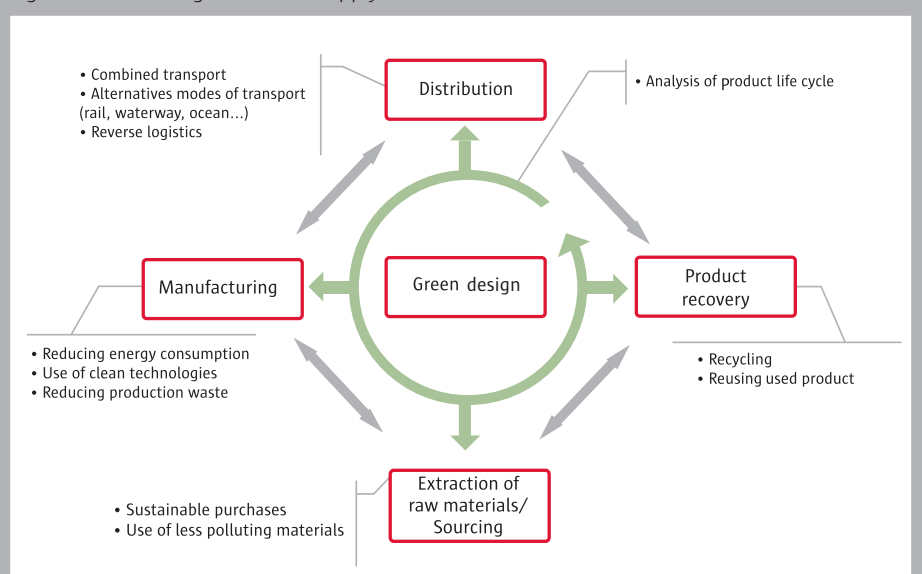
2.3.2. Delimiting the Green Supply Chain

The Supply Chain seeks to optimise the management of all flows of information, physical flows and interfaces between the various producers and suppliers involved in making a product or service available. It is, by definition, a horizontal activity embracing all the company’s functions.

The concept of the Green Supply Chain covers all the phases of a product’s life cycle, from the extraction of raw materials through the design, production and distribution phases, to the use of products by consumers and their disposal at the end of the product’s life cycle (reconditioning, reuse, recycling).

Taking this view of the Green Supply Chain, a product’s life cycle must be considered in its entirety, as each phase can be a source of negative impacts on the environment. The linear model of the traditional Supply Chain is therefore giving way to a cyclical model, and the approach involves all the players, including subcontractors, suppliers, distributors, buyers and consumers.

Figure 2: Delimiting the Green Supply Chain



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

3. The Green Supply Chain: interest, motives and misgivings

3.1. Environmental concerns are widely embraced

Overall, 83% of companies say they factor environmental matters into their strategic decisions. This high percentage is firm evidence of widespread awareness of environmental issues amongst companies, leading them if not to take direct action, then at least express an interest in considering the environment.

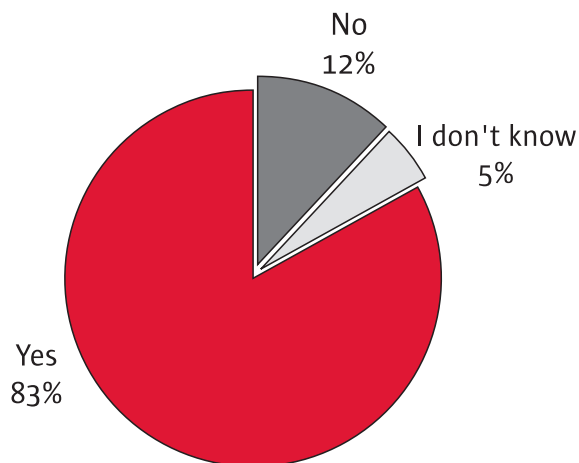
In addition, half of the companies which say they do not currently factor environmental concerns into their planning intend to do so in the not too distant future (24% in less than two years).

The level of preoccupation with the environment appears to vary from one country to the next. France sits at the bottom of the class, with 78%, very closely followed by North America (79%), while the UK sits slightly above the average with 86% and Japan has a very high level of interest, with 93% of respondents saying they embrace environmental concerns. This high level of interest among Japanese companies is due mainly to the high proportion of very large companies among the Japanese respondents in our sample. However, the importance of adopting an environmental strategy in Japan is still evident once these differences have been taken into account.

Beyond national distinctions, the size of the company appears to have a strong influence on its attitude to the environment: the bigger the company, the more wide-ranging the concern for the environment. Roughly 77% of companies with turnover of less than 500 million

Figure 3: Consideration for environmental issues

Does your firm take environmental concerns into account when making strategic decisions?



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

dollars claim to be concerned by environmental matters, compared with 87% for companies with turnover of between 500 million and 1 billion dollars and 88% for those with turnover exceeding 1 billion. This difference can be chiefly ascribed to the availability of resources and how long the company has had an environmental strategy. 50% of companies with turnover of more than one billion dollars adopted an environmental approach more than 5 years ago, whilst smaller companies have more recent practices.

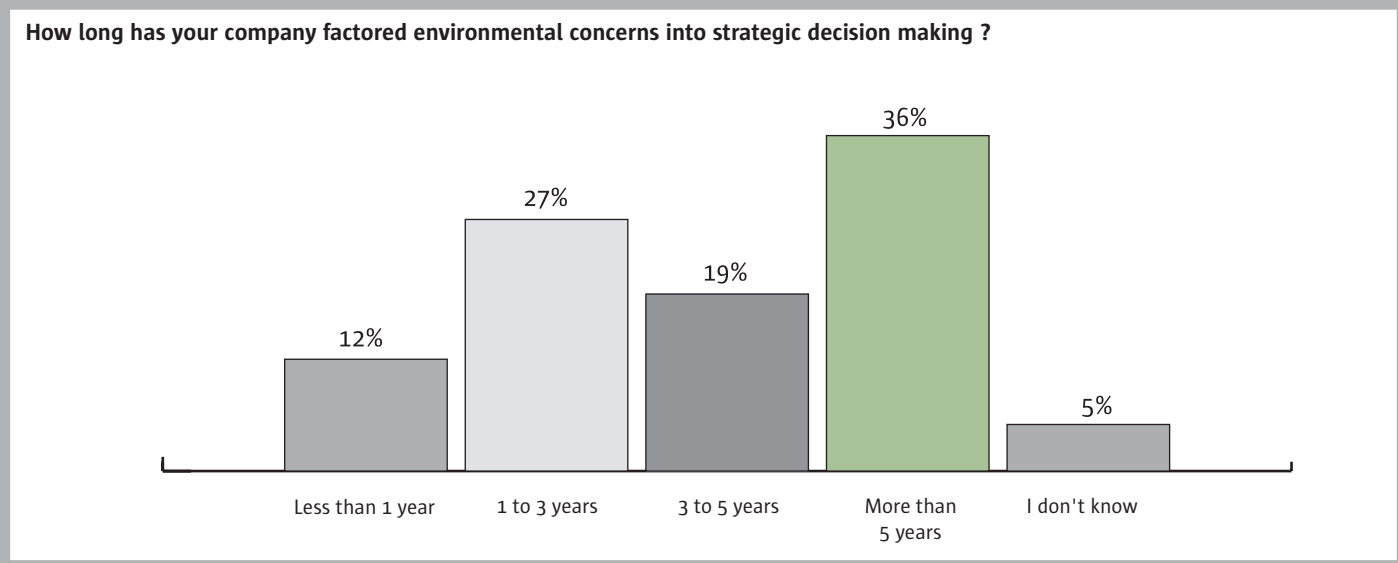
Lastly, environmental awareness varies depending on the market sector. Industrial sectors (automotive, metallurgy, chemicals, electronics etc.) are highly mobilised (from 84% for electronics or 87% for chemicals/pharmaceuticals to 100% for metallurgy and aeronautics), distribution and services less so (75%) and textiles much less so, with only 60% of companies claiming to be concerned by these matters.

The length of time that companies have seriously considered environmental issues varies greatly. While 36% of companies have been taking environmental concerns on board for more than 5 years, almost 40% have been doing so for less than 3 years. Nevertheless, how long the practices have been in place varies considerably from one country to the next. Japan in particular is exceptional, with 85% of companies taking the environment into consideration for more than 5 years (compared with 22% in France, 32% in the UK and 52% in the USA).

3.2. Multiple business drivers but regulation and brand image are most prominent

The primary drivers for adopting an environmental strategy are compliance with regulatory requirements and improving the company's image. Indeed, these factors are consistently quoted regardless of country, vertical

Figure 4: Maturity of environmental strategies



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

sector or size of the company in question.

Of these two drivers, the dominant driver is compliance with regulation, cited in 24% of the responses given by companies who declared they considered environmental issues as part of their decision making. In Japan, almost 85% of companies cite regulation as a motive, compared with a figure of 75% in the UK, 72% in North America and 67% in France. This observation underscores the importance of the regulatory framework and suggests that the most environmentally-active countries are also those which have the toughest ecological regulations.

Unsurprisingly, the service and distribution sectors cite regulation as a reason for factoring the environment into their decisions much less frequently than the industrial sectors such as chemicals, electronics or automotive. Within services industries, improving the image of the company is the main motivating factor.

Lastly, the bigger the company, the greater the pressure that regulation appears to exert. As the Japanese companies responding to the survey

were mainly large organisations, this may explain why Japan's results put them in at the top of the table in terms of establishing an environmental strategy.

Enhancing company image is the second most common motive for adopting a green strategy and is cited by 20% of all respondents. The importance assigned to image concerns is consistent from one country to the next (17% for North America, 19% for the UK and 18% for Japan). Only France appears to attach greater importance to this factor: 24% of responses (compared with 20% on average) cite enhancing the company's image as the primary motive for implementing environmental initiatives.

The next two business drivers may seem contradictory: the desire to innovate (14% of responses) and cost-cutting (13% of responses). The role of executive leadership is the next most important motive (12% of responses) and highlights the critical role these individuals play in operationalising a green agenda. This is true in small (turnover < 100 million dollars) and large (turnover > 1 billion dollars) companies alike. It is rather surprising that competitor

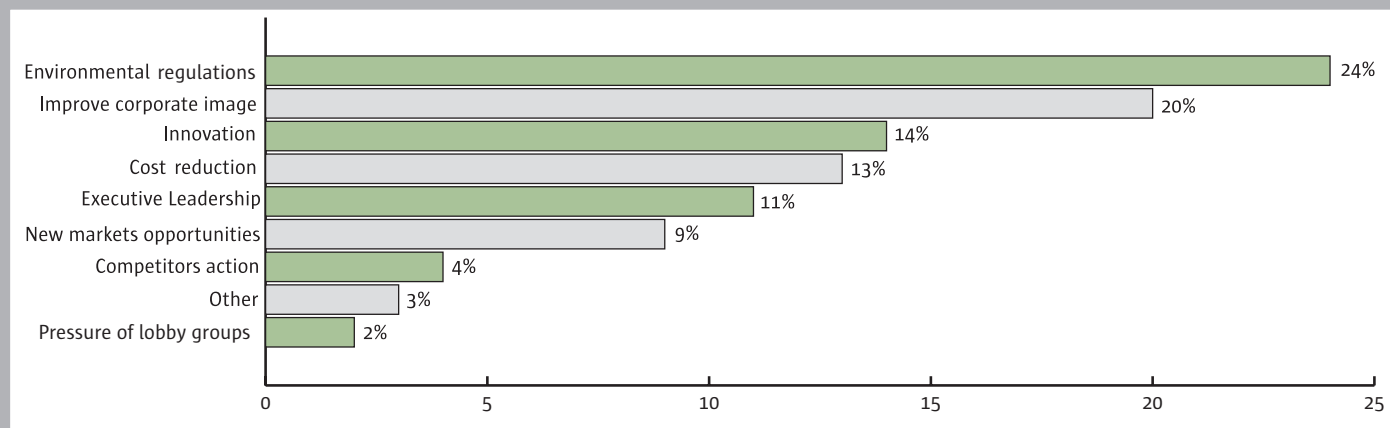
behaviour (4%) and social pressure (2% of responses) appear to have relatively little influence.

3.3. Many priority measures, the importance of which varies depending on country and market sector

The reprocessing of waste and packaging are the main environmental measures taken by companies, being cited in 13% and 11% of responses respectively. Many other measures are deemed important and cited by roughly half of respondents, such as measures associated with reducing use of consumables (paper, water) and energy in both offices (11% of responses) and factories (9% of responses), improving health conditions for employees (10% of responses), reducing journeys (9% of responses), the mode of transport chosen (8% of responses) and water reprocessing (9% of responses).

As with other results, Japan shows that it is ahead of other countries regarding its level of consideration of different environmental factors. Regardless of the area in question, Japanese companies demonstrated

Figure 5: Main business drivers behind importance of environmental issues



Source: 2008 Supply chain Monitor "How mature is the Green Supply Chain?"

a greater penetration of awareness. In particular, Japanese companies consider choice of raw materials highly important (10% of responses compared with 5% for countries such as France or the UK). On the other hand decisions on reprocessing and recycling packaging appear less crucial to the Japanese (7% of responses as opposed to 11% overall and as much as 13% in the UK). This suggests that Japanese companies are more motivated to take action on areas which prevent pollution in the future, rather than corrective action to deal with existing pollution. It is further evidence of the higher level of environmental maturity of Japanese companies.

North American companies are most preoccupied with addressing environmental issues connected with water. However, they are much less focused on transport, packaging and consumables such as paper than the Europeans. These disparities illustrate cultural, structural and institutional differences. For example, in North America rail freight transport is far more developed than in Europe. However, there is a demand for policies that promote transportation approaches that combine different modes of transport (rail, sea, air, road, waterways) to reduce overall emissions. This is forcing companies, both the European Community and indi-

vidual member states, to make changing modes of transport used one of their key environmental priorities.

The differences observed between vertical sectors chiefly reflect the specific traits of the individual industry. For example, companies in the industrial sector, are more interested in energy consumption and water processing than those in the service sectors. Likewise, some sectors, such as automotive (11% of responses) place greater emphasis on employee health while the textile industry, which has decentralised much of its production and distribution, is at pains to reduce transport costs.

3.4. Level of involvement of third party stakeholders: various scenarios, depending on the country

Suppliers are the third party stakeholders most involved in the implementation of environmental strategies cited by 76% of respondents, followed by subcontractors (56%) and logistics providers (47%), which can be regarded as private suppliers. This demonstrates that third parties are most involved in the upstream section in the Supply Chain. In the later stages of the Supply Chain those involved are customers, cited by 42%

of the respondents and the end consumer, cited by 36%, while government authorities are noted for their involvement by 41% of companies. The role of associations and other organisations dedicated to environmental issues is more limited, and referenced by only 20% and 24% of respondents respectively.

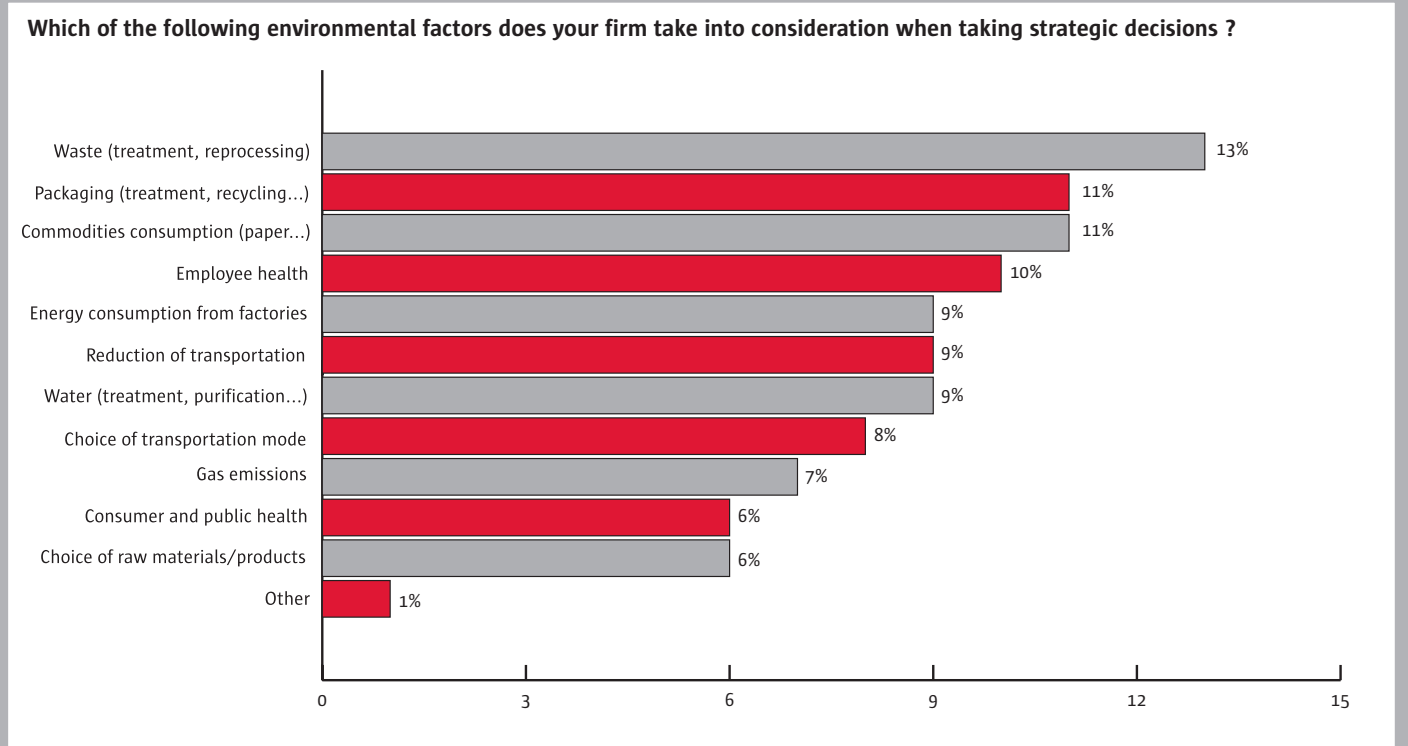
3.5. The degree of institutionalisation of the "green" function

More than half of the companies surveyed (55%) have a department dedicated to environmental issues.

The presence of a dedicated department depends heavily on the size of the company. 78% of companies with a turnover in excess of 1 billion dollars say they have a dedicated department, but just 22% of companies with turnover of less than 100 million dollars have a department in place.

Again, there are variations by country. 95% of Japanese companies, for instance, have a dedicated department, versus 52%, 50% and 51% for North America, UK and France respectively. The figures also reveal there is a strong correlation between how important regulation was seen as a driver for creating a green strategy and the pro-

Figure 6: Priority environmental issues



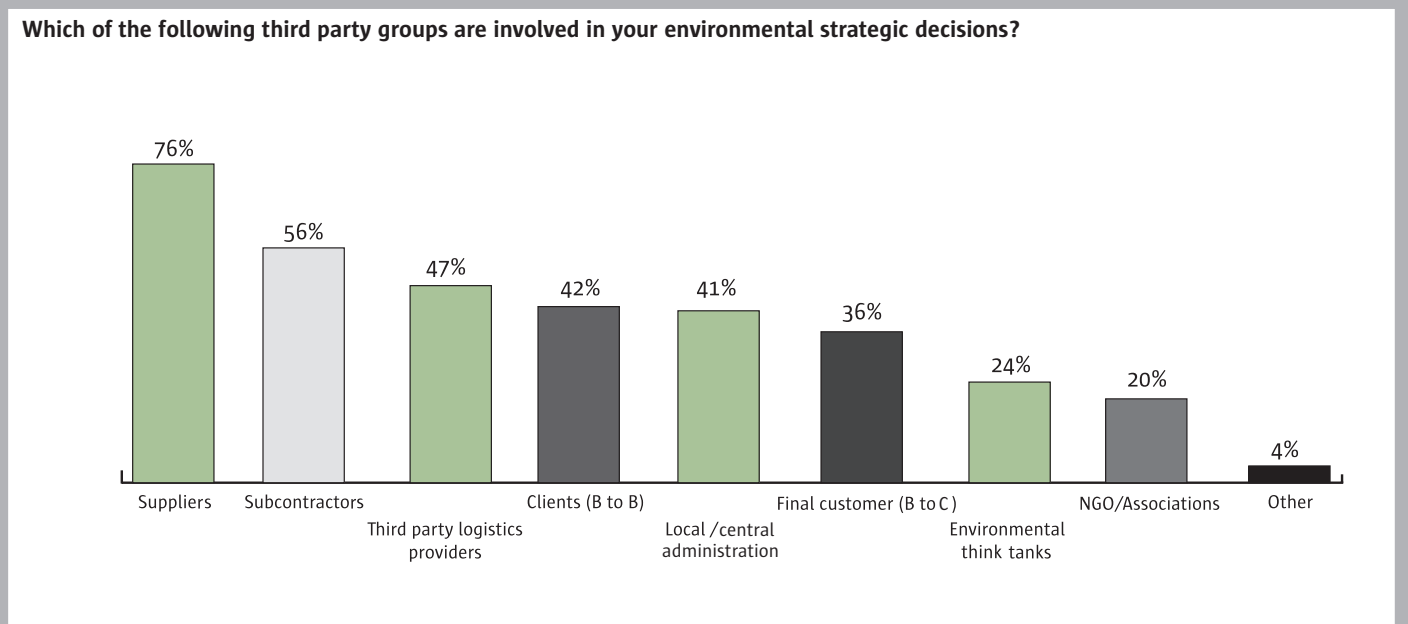
Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

cess of creating a function focused on environmental concerns. This begs the question whether the introduction of tough regulatory constraints would prompt the decision to set up a department dedicated to environmental

issues. In addition, it’s worth noting that the link between “size of company” and “level of concern with regulation” is impacted by the fact that larger companies are subject to considera-

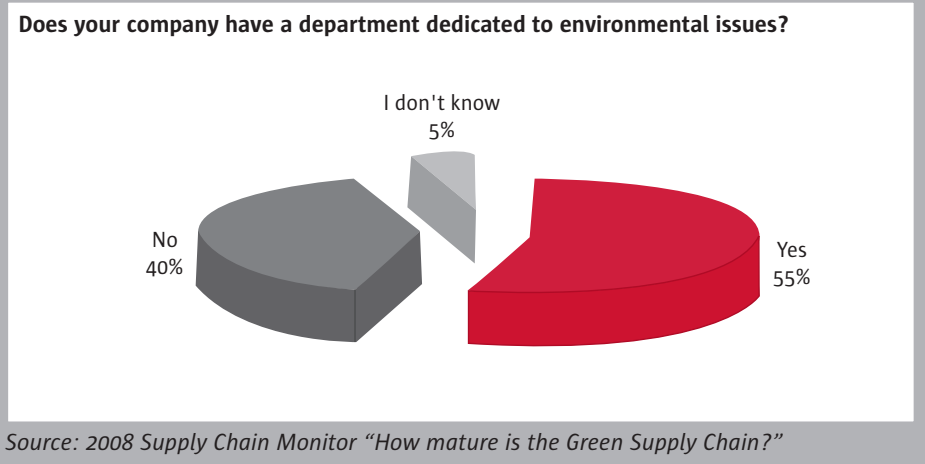
bly tougher regulation than small and medium-sized enterprises. This is true in terms of imposed limits on emissions, compliance with recycling requirements, and many other factors.

Figure 7: Degree of involvement of third parties in environmental strategies



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Figure 8: Existence of an “environmental” department



activities are greatly restricted by environmental regulation, compared with an average of 23% across all countries.

3.7. The main business drivers for implementing a Green Supply Chain and its benefits

Overall, 35% of companies say that they have established a “Green Supply Chain”. Comparing this figure with the percentage of companies who factor environmental issues into their decision-making (83% cf. 4.1) demonstrates that just half of companies that recognise the importance of environmental issues have applied this specifically to their Supply Chain operations.

Again, there are substantial differences between countries and between companies of different sizes. In line with many of our previous findings, the bigger the company, the greater the level of interest in the Green Supply Chain: 54% of companies with turnover exceeding one billion dollars

3.6. The main effects of environmental regulation on companies

Having observed that regulation often prompts companies to address the environmental impact of their operations, it is worthwhile looking in more depth at how the companies view regulation.

52% of companies feel that regulation presents companies with an opportunity to embark upon an innovation process. Nonetheless, there are big disparities between countries in this regard: while 64% of companies in the UK believe regulation has a potentially positive impact on innovation, in France and the United States, this percentage drops to 50% and 51% respectively, and plummets to 5% in Japan! 69% of Japanese companies feel that their

Figure 9: Institutionalisation of an “environmental” department

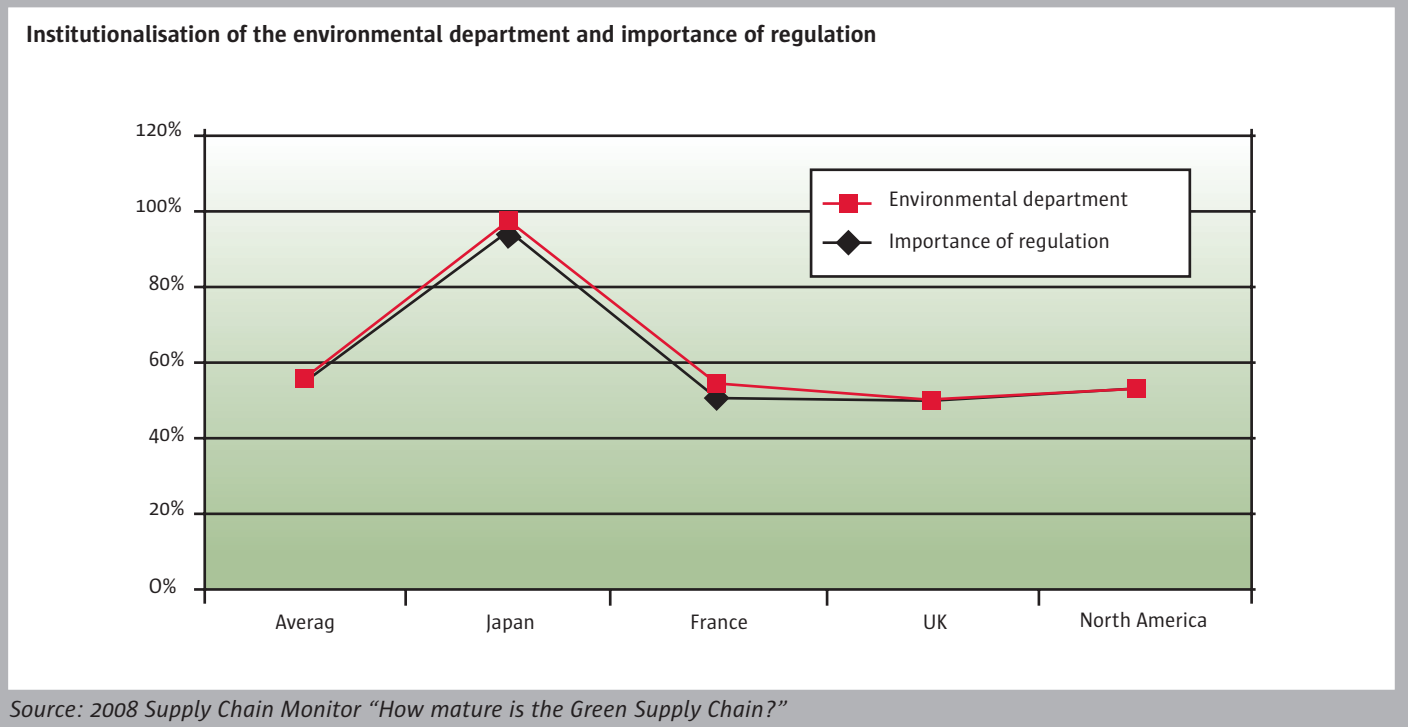
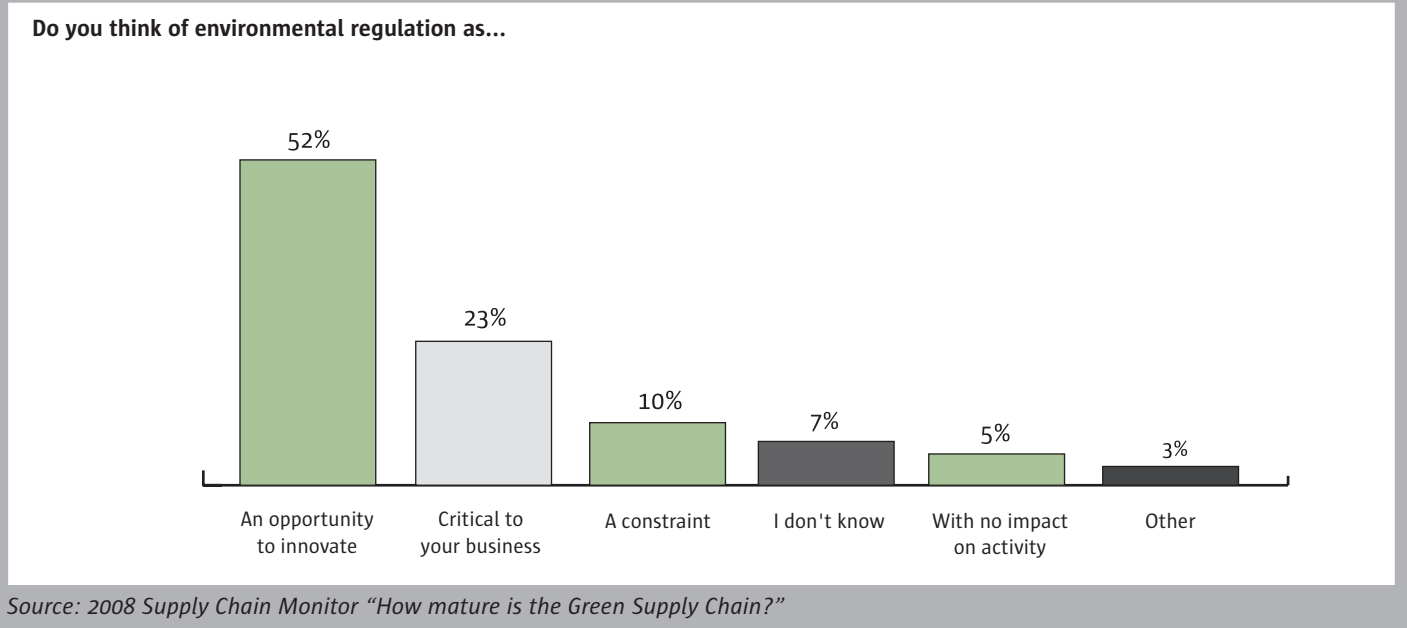


Figure 10: Perception of environmental regulations



claim to have established a Green Supply Chain, but this percentage drops to 29% for companies with turnover of less than 100 million dollars. Again, the discrepancy is particularly important between Asia and the rest of the world. Indeed, 100% of the companies surveyed in Japan are implementing a Green Supply Chain strategy. Conversely, this percentage is only 38% in Europe, with big disparities between the United Kingdom - 45% - and France - with just 30% - or the United States - 24%.

The reasons cited for implementing a Green Supply Chain are almost identical to those which drive the adoption of an overall environmental strategy (cf. 4.2). The two overriding motives are the importance of regulation, followed by the desire to improve corporate image. Nevertheless, some discrepancies relating to the size of the company, or the country, do differ somewhat from those previously observed. Indeed, neither the size of the company, nor the country, appear to have much

impact on the reasons for implementing a Green Supply Chain. Copying competitors appears to have a particularly limited influence, as this factor accounts for just 3% of responses. Almost half of the directors surveyed (46%) say they are not aware of their competitors' Green Supply Chain practices. Among the other half, companies are split 50/50 as to whether they take account of any action taken by their competitors in this area. This finding underscores the notion that competitors are not a model

Figure 11: The motives for implementing a Green Supply Chain

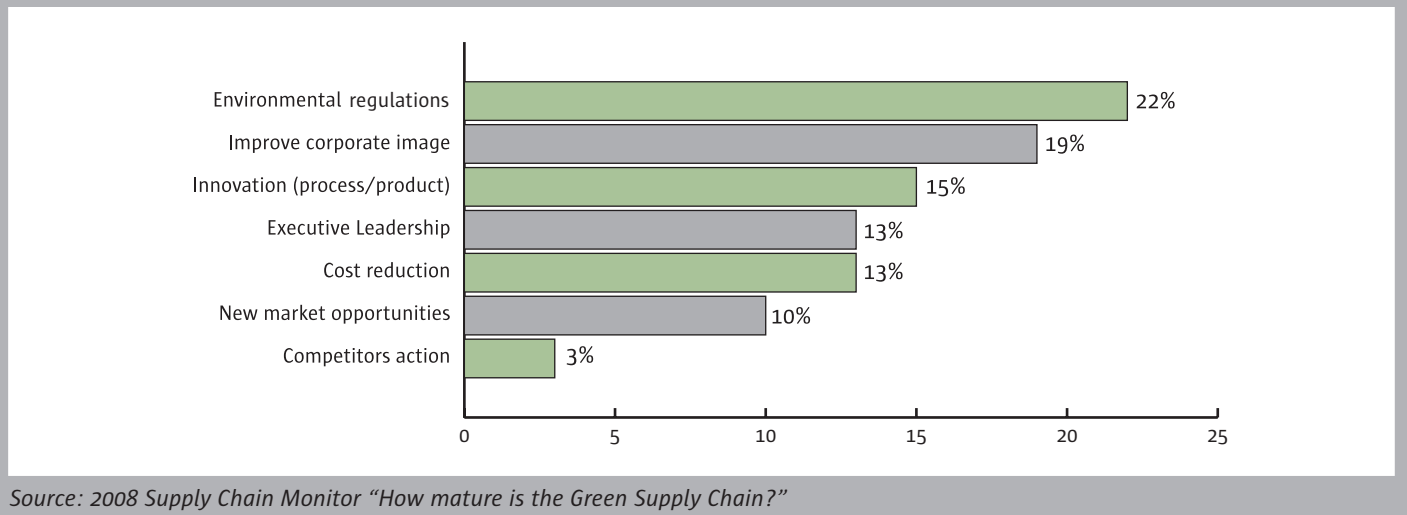
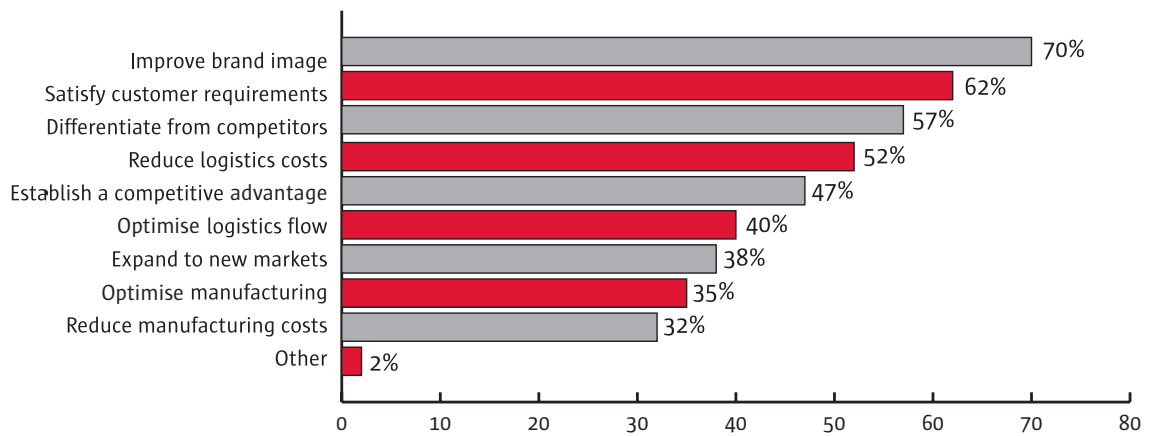


Figure 12: Benefits of the Green Supply Chain



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

for Green Supply Chain practices.

As regards the methods used to establish a Green Supply Chain, collaboration with third parties is even less common than collaboration on broader environmental initiatives. Just 34% of companies that have deployed a Green Supply Chain

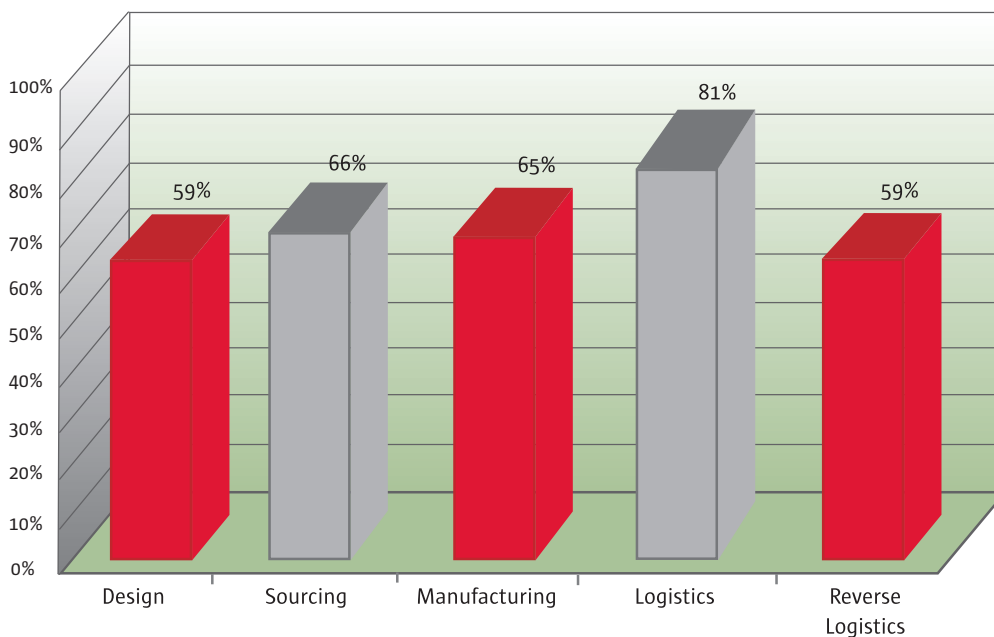
claim to do so in collaboration with third parties.

It is difficult to gain an exact picture of how much is invested in environmental projects. Nonetheless, it is clear that the relative amounts invested are small across the board.

Many people surveyed lack information on the subject (38% of respon-

dents answered "don't know" overall, and 72% in Japan). Moreover, the budgets generally invested are small: 48% of companies say they invest less than 10% of the total budget earmarked for the Supply chain and 30% of those companies invest less than 5% in environmental projects.

Figure 13: Functions most involved in a Green Supply Chain



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

The impact of Green Supply Chain approaches varies: they deliver results in terms of image (70% of responses) and improving customer relationship (62%), but, to a lesser extent, they also deliver results in terms of cost optimisation (logistics providers and manufacturers), production processes and flows.

Underlying these figures are still some pronounced differences between market sectors and different sizes of company. For instance, while 57% of companies on average are seeking to make their business distinctive, this figure rises to 70% for companies with turnover of less than 100 million dollars. For these companies, establishing a Green Supply Chain acts as a much stronger differentiator than for large companies.

As with the drivers, the benefits observed vary depending on the market sector and the cost structure typical of each market sector: in the automotive sector, for instance,

reducing production costs (57% of responses) and logistics costs (57% of responses) is one of the main benefits of the strategy, whilst in distribution, logistics costs dominate the responses (69% of responses for reducing logistics costs compared with 23% for reducing manufacturing costs). Improving image (85%) and increasing customer satisfaction (77%) were also cited as the main results achieved by establishing a Green Supply Chain.

Lastly, a number of companies (59%) mention obstacles to establishing a Green Supply Chain. These are: lack of information (36% of responses), followed by the complexity of implementing this strategy (18%) and a lack of return on investment and/or high costs (9%).

A more detailed analysis reveals that some parts of the Supply Chain are more concerned with environmental issues than others.

Specifically, logistics is the function most heavily involved in taking environmental measures. This can be explained in part because media coverage and regulation link reducing greenhouse gases with transport. Furthermore, these measures are relatively quick and simple to implement (driver training, vehicle development, optimisation of truck flows and loads) and, in many cases, enable costs to be cut while also reducing impact on the environment. For the same reasons, the next most active functions are sourcing and production. Being less intuitive and more complex to implement, activity in the sphere of eco-design and recycling (reverse logistics) is less widespread. Nonetheless 60% of companies which operate a Green Supply Chain do make efforts in these areas.

4. The main activities in the Green Supply Chain

4.1. Green design

“Green design is an approach which seeks to improve a product's ecological quality, by reducing its negative impact on the environment throughout its life cycle. It involves taking account of the environment during a product's design or improvement phase.”

4.1.1. Concept of green design

“80% of the environmental impacts of a product are determined during the design phase.”

Green design is an essential component of the Green Supply Chain, as the most important levers for improving or developing a product's environmental profile are to be found during the product design phase.

According to the “German Environment Agency”, 80% of a product's environmental impact is determined during the design phase. The environmental dimension is incorporated in the product from its inception, i.e. as soon as the product's technical and functional characteristics are determined. Therefore, green design is still a means of anticipating and reducing

the product's impact on the environment throughout its life cycle.

4.1.2. Scope and field of application of green design

In most cases, the green design approach is applied to the product (95%) or the various elements which make up the product, such as the components and packaging. In a small percentage of cases (5%), it is applied to other elements, such as manufacturing processes, to reduce energy consumption or reduce production waste. Likewise, there are various types of green design approach:

- partial green design: improving existing products and/or procedures
- full green design: the products are radically transformed, creating new products. In this sense, green design can be a source of innovation.

“Green design with a view to recycling: almost 70% of companies that have adopted a green design approach believe they have made their products easier to recycle.”

Green design is a progressive process, which is part of a continuous, cyclical

improvement approach. Not until the product has been launched, used and processed at the end of its life can we identify the improvements made in terms of its recyclability.

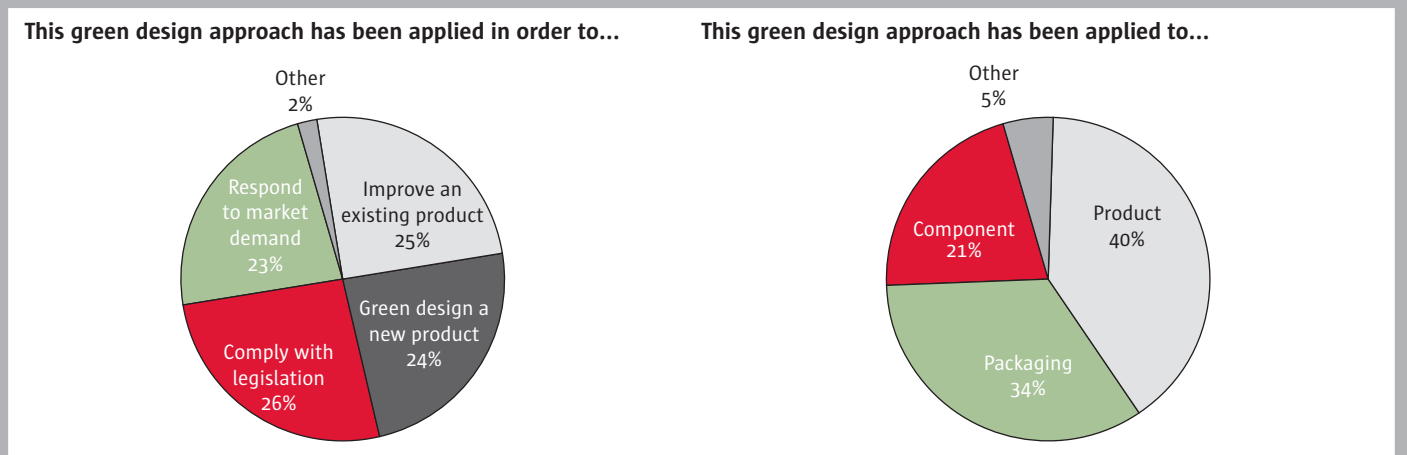
Products are designed with their everyday use in mind, but also, and above all, their **processing at the end of their life.**

4.1.3. The motives and main disincentives

“Green design to improve the company's brand image”

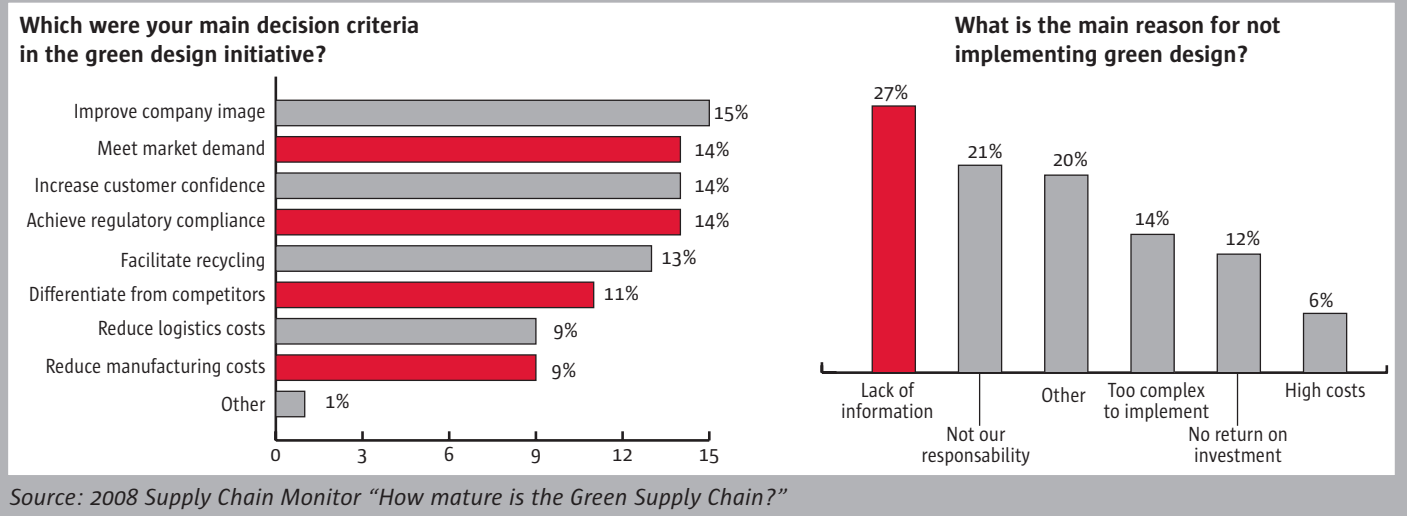
Across the whole sample, the majority of the companies surveyed claim to have adopted a green design approach in order to **improve the company's brand image.** Public awareness of environmental issues is growing day by day. Green design is a means of highlighting a product's ecological value while responding to consumer expectations. In 40% of cases, green design is adopted in order to improve brand image, satisfy needs and increase consumer confidence. Faced with such objectives, many companies - particularly in the distribution and mass market sectors - now make efforts to be able to

Figure 14: Where green design is being applied



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Figure 15: The motives for and disincentives to a green design approach



inform the end customer of each product’s overall impact on the environment.

“The disincentives to green design appear to be cultural in nature rather than financial or technical.”

ting to note that, among the companies which claim to have employed a green design approach, Japanese companies (87%) top the table quite some way ahead of companies in other countries. This significant difference still applies, albeit a little less

Restriction of Hazardous Substances: the ROHS directive

This European directive is aimed at manufacturers of electronics and computer equipment. It is intended to limit the use of six hazardous substances used in soldered joints, cathode ray tubes, relays or printed circuit boards. Equipment which does not meet the standards cannot therefore be sold in the European Union. As the directive applies in Europe, it indirectly affects every major IT Group in the world. Manufacturers have been forced to find alternative products (hence the use of copper and silver to replace lead in soldered joints). There are exceptions to these directives, which are bound by certain thresholds or periods of time. There are equivalents to the ROHS directive in some States of the US and in Japan.

Have you adopted a green design approach?

	All countries	North America	France	Japan	United Kingdom
Green design	59%	71%	56%	87%	45%

If we consider why companies are reluctant to adopt a green design approach, we note that the main obstacle is, quite simply, a lack of training or information (28%).

Green designed products can sometimes cost more than conventional products, because investment is required in order to implement more environmentally-friendly manufacturing processes. Yet the high costs and complexity of implementation are cited by just 6% and 14% of companies respectively, which suggests that the reluctance is not born of **technical or financial** constraints. Green design involves **questioning procedures and other operating methods** (it entails “rethinking” the product). It is, therefore, a fundamental approach for the medium/long term, which can only be adopted progressively. It is interes-

pronounced, once the discrepancies in terms of size of company in the national samples are taken into account (large companies are heavily represented in Japan).

4.1.4. Green design and regulations

Regulations also play an important role. For some companies, the green design approach is proactive, whilst for others it is a response to the implementation of directives aimed at reducing the use of hazardous substances. Among these directives, three recently-adopted laws merit particular mention: Restriction of Hazardous Substances (RoHS), Waste Electrical and Electronic Equipment (WEEE) and Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Waste recycling: the WEEE directive

In Europe, the WEEE directive sets out the framework for the recycling of electrical and electronic equipment waste. This directive requires electrical and electronic equipment waste to be collected and recovered, giving priority to reusing and recycling materials and products. Hazardous components within the waste must systematically be processed. This directive therefore requires manufacturers to set up recovery and recycling

channels for their products or components.

REACH:

The REACH directive is intended to have a considerable impact on all market sectors, as it requires “users” of chemical substances to provide proof of their non-toxicity.

4.1.5. The main green design measures

“Essentially, green design is about choosing less polluting materials and manufacturing procedures”

1- Substitution and choice of materials

The first step taken in a green design approach is to choose and use less polluting materials (20%). Avoiding hazardous substances in products helps reduce processing costs, and using recycled materials can prove less expensive.

For the companies surveyed, choosing to incorporate as many recyclable or renewable materials as possible in the design of products enables them to make savings on the recovery, dismantling and recycling of products.

2- Using clean technologies

The second action taken is the use of

clean technologies (19%). In this scenario, companies believe it is more profitable to invest in a clean technology rather than in equipment designed to process production waste and decontamination downstream in the production process (waste water treatment plants, waste processing centres, etc.)

4.1.6. Initial conclusions: the future of green design

The fundamental idea behind green design is to reduce ecological impact throughout all phases of a product’s life cycle, by employing better design. This approach helps minimise processing costs at the end of a product’s life, and maximise the profits from recovered materials.

4.2. Green sourcing

4.2.1. Concept and definition

In our study, the concept of **green sourcing** embraces everything sourced from suppliers, subcontractors, service providers and so on, which incorporates environmental criteria. These environmental criteria can be applied to all the phases of a sourcing process, but they mainly come into play when defining needs.

Japan is the undisputed leader of the pack of countries that are most active in green sourcing. 87% of the Japanese companies surveyed claim to have adopted a green sourcing approach, as opposed to just 50% of French companies, 50% of North American companies and 67% of British companies. The action taken by the Japanese government in the mid-1990s (cf. GPN case study) partly explains why this practice is so widespread.

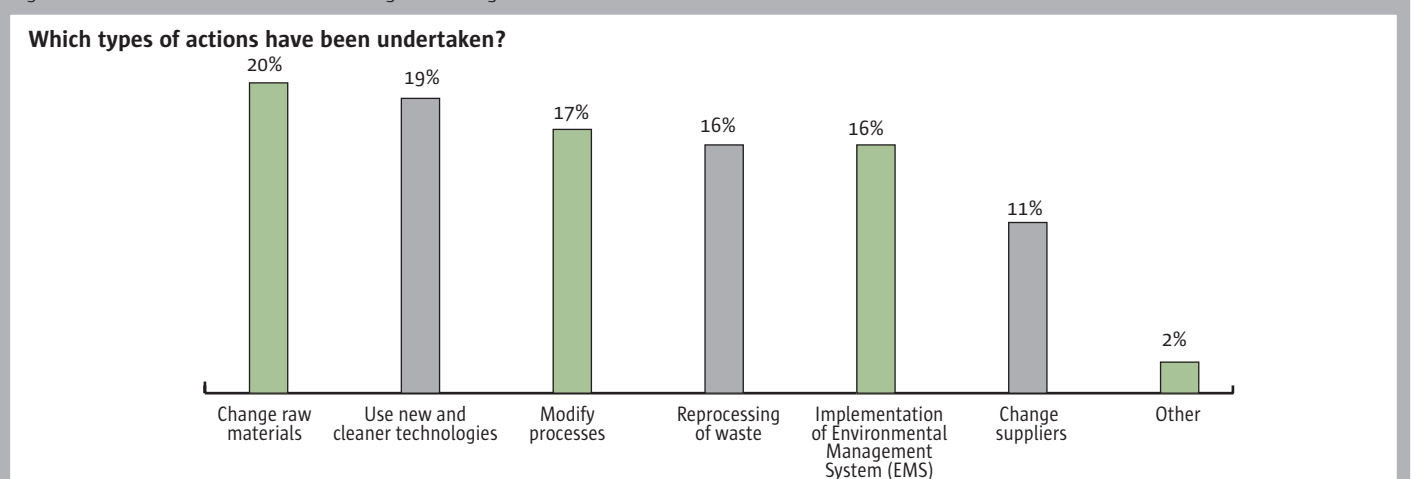
The “procurement” function is an essential function in any green sourcing approach, for two key reasons:

- This function involves numerous stakeholders (including suppliers, subcontractors and service providers) and can create a domino effect across all operators in the Supply Chain.
- Because of their “upstream” position in the chain, buyers are in a position to identify any environmental risks from the outset. By way of example, in low-cost countries the risks of non-compliant products can be considerable.

The main disincentives to the adoption of a green sourcing approach

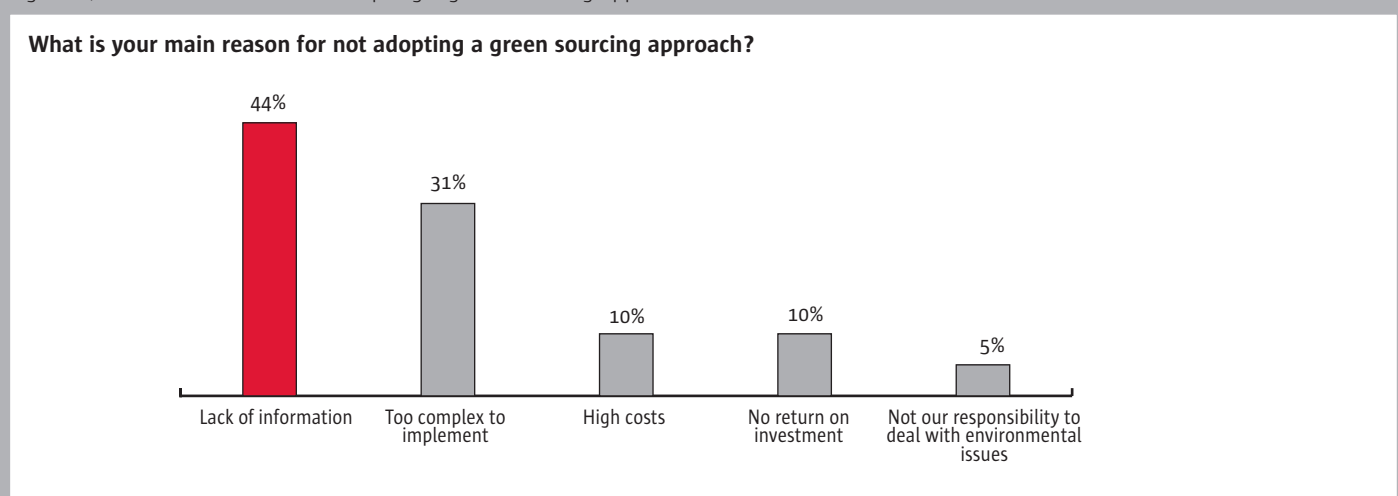
Green sourcing does not always enable companies to reduce their

Figure 16: Main measures involved in green design



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Figure 17: The main obstacles to adopting a green sourcing approach



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

procurement costs. As we have just seen in the green design section, green designed products can, in some cases, be more expensive than conventional products (due mainly to the investments in clean technologies).

When buying a "green friendly" product, it is vital to consider not just the acquisition cost, but all the costs generated throughout the product's life cycle, namely the cost of use, the cost of maintenance and the cost of processing at the end of the product's life (recovery, recycling and so on). This total cost of ownership (TCO), comprises all the costs of a product generated over the full length of its life cycle. For example, nowadays, when comparing the offers made by suppliers many companies take account of the energy consumption costs of a particular product or piece of equipment.

Besides cost, which is sometimes given as the reason for the reluctance of some companies to commit to a green sourcing policy (10%), a lack of information appears to be the major obstacle (44%). Buyers (and those working in small structures in particular) are impeded by a lack of information about risks and regulatory

frameworks. This situation is further compounded by the fact that these factors change very quickly, sometimes even from one year to the next.

The second barrier to establishing a green sourcing approach is the difficulty of establishing such an approach (31%): adopting a "green friendly" procurement policy entails reviewing the overall procurement strategy and, by extension, the internal procurement procedures.

4.2.2. The measures

The green sourcing approach has implications for every phase in the sourcing process. It is expressed in the action taken by the:

- Company,
- Supplier, subcontractor, etc.
- Company and supplier jointly.

1- Upstream phase of the sourcing process: definition of material/product requirements and identification of suppliers.
"42% of the companies that have adopted a green sourcing approach, claim the materials/products they buy from their suppliers are less polluting than the standard."

This stage, during which buyers voice their requirements, is the initial phase

of the sourcing process. At this stage, the buyer incorporates the technical and functional specifications for the product, and the environmental criteria, in the list of requirements.

Here, the main difficulty for the buyer is to identify suppliers who are capable of meeting the requirements in terms of quality, quantity and environmental criteria. Obtaining a sourcing guarantee from the supplier is one of the biggest challenges faced by some companies. Not all suppliers in Europe are able to offer and supply "green" products, due mainly to the introduction of recent regulations.

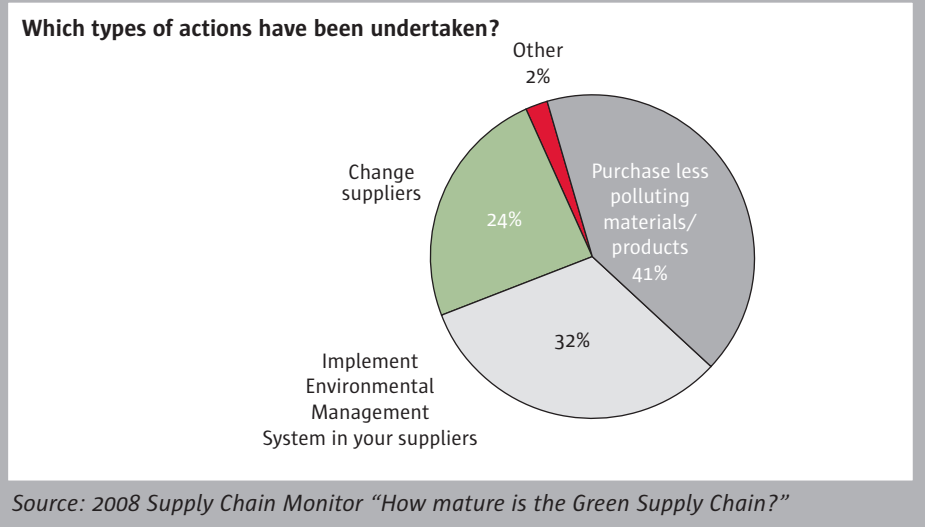
2- Downstream phase of the sourcing process: supplier monitoring and evaluation.

"Almost 80% of suppliers are involved in green sourcing."

Green sourcing is all the more effective when suppliers are "permanently" involved in implementing this strategy.

Supplier involvement in a green sourcing initiative takes the form of jointly developing and designing new products. This collaborative approach enables a better understanding of customer needs and creates transparency with regard to the materials/means employed in designing the product. It also enables both

Figure 18: Main actions taken to implement green sourcing



porting and driving suppliers, in order to improve their performance.

4.3. Green manufacturing

4.3.1. Context and issues

Lessening environmental impact

For the purposes of green manufacturing, lessening environmental impact per se involves two different approaches:

- **Better consumption:** reducing harmful emissions, the consumption of toxic products and the production of waste (concept: less polluting production).
- **Lower consumption:** reducing consumption of energy and raw materials, reducing waste (consumables).

Closely linked, these two approaches rely on the same production optimisation process, **Lean Manufacturing**, the primary purpose of which is to eradicate waste - clean - before taking action on flows - lean.

parties to improve their environmental performance and encourage innovation.

Three quarters of companies motivated by these issues claim that they conduct audits and produce product performance indicators to monitor and assess their suppliers. The objec-

tive of these audits is to verify that the requirements are being met, identify non-conformities/dysfunctions and establish an action plan.

This approach can only be successful if it is part of a sustainable process involving the suppliers. Audits and other action plans are a means of sup-

Figure 19: Supplier involvement and monitoring

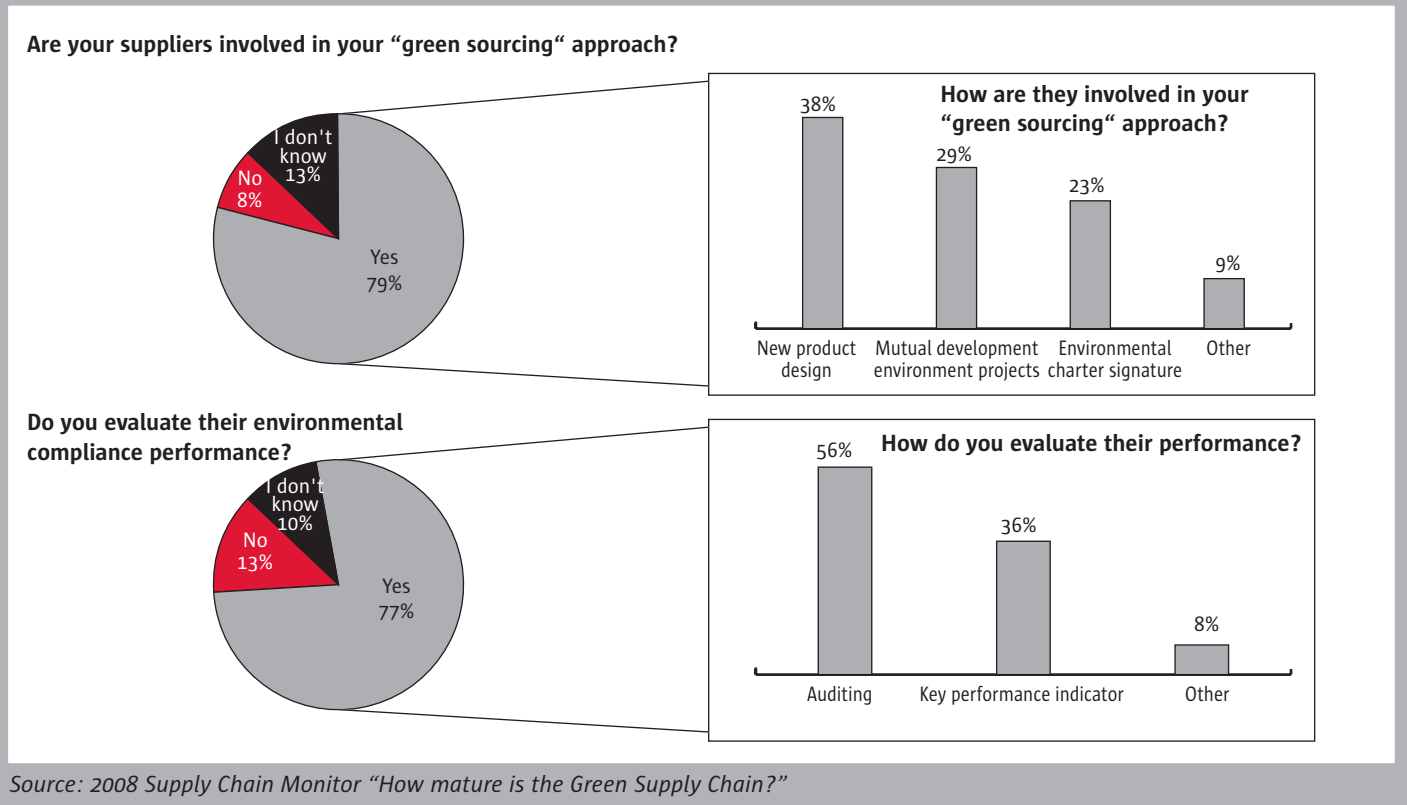
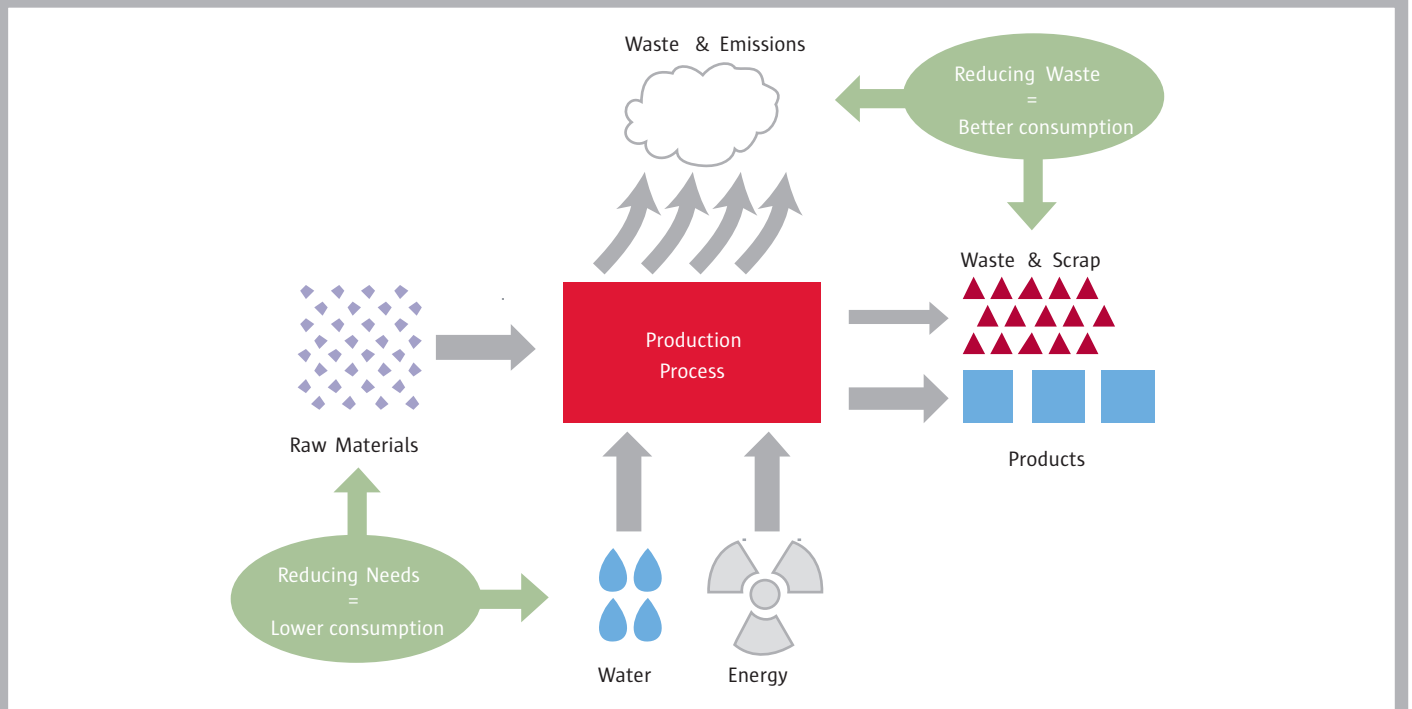


Figure 20: Green manufacturing process



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Beyond purely environmental considerations, these two issues reflect the concerns of manufacturers in terms of optimising both production costs and overall operating costs. By taking direct action with regard to resources and other means of manufacturing, companies guard themselves more effectively against more onerous remedial measures at the end of the production cycle.

4.3.2. Drivers for and against the adoption of a green manufacturing strategy

Although the move to sustainable development encourages companies to communicate more openly about their environmental activities, the primary reasons for adopting a green manufacturing approach are:

- Regulation: complying with current legislation (in 99% of cases, implementing a green manufacturing approach has enabled the company to comply with current legislation)
- Financial performance: reducing

costs by optimising energy consumption, reducing waste and so on.

4.3.3. The measures employed

Of the concrete measures taken by companies, the following merit particular mention:

1- Modifying the product process with a view to “reducing consumption of energy and raw materials”

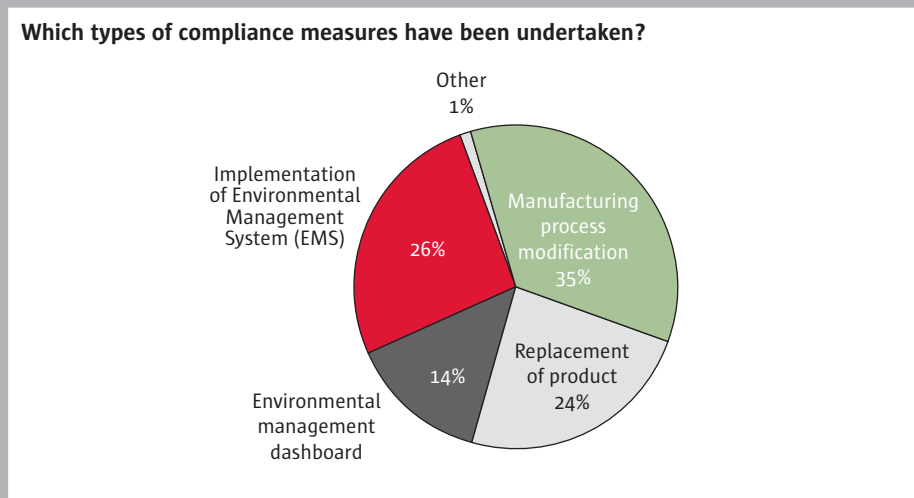
Among the companies surveyed, more than a third have taken action to optimise their manufacturing processes in order to limit the environmental impact of their production cycles. With the numerous Lean Manufacturing (and related) tools that have been developed (5S, Kaizen, SMED, 6 Sigma, etc.), companies have an arsenal of methods to reduce their operating costs and any form of waste. Several of the seven types of waste identified by the Toyota Productive System directly and indirectly have an environmental dimension, in particular over-production,

transport, reducing stocks and reducing rework or scrap.

Over-production and rework/scrap, in particular, result in the over-consumption of materials and energy, not to mention the large volume of waste and associated emissions. Consequently, refining sales forecasts and optimising sourcing methods to reduce stocks are amongst the first steps towards green manufacturing.

Modifying production processes is, therefore, a vast subject which can touch upon many improvement axes, the environmental aim of which is closely bound up with the financial performance sought. This type of approach evidently offers the best ratio of investment to environmental and financial performance.

Figure 21: Main measures taken in green manufacturing



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

2- The use of less polluting materials and/or equipment with a view to "better consumption"

24% of the companies surveyed say they have made sustainable investments by directly modifying their resources or their respective means of production, which suggests that there is a real awareness of environmental issues.

One can assume that change was motivated by two main reasons:

- The need to comply with a new regulation.
- The quick payback of such investments.

3- Establishing an Environmental Management System (EMS)

More than a quarter of the companies surveyed have established an Environmental Management System, so presumably the same proportion of companies has initiated a corresponding certification process.

Following the corporate enthusiasm for quality-based management, with the emergence of the ISO 9000 standards in the 1990s, the new environmental preoccupations have now engendered new regulatory requirements, and effectively placed

the series of ISO 14000 standards centre-stage.

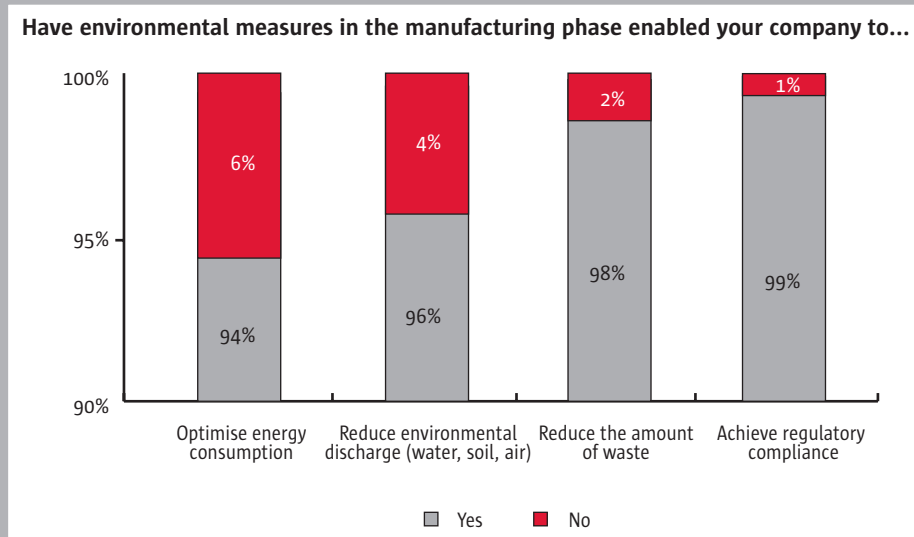
These standards enable companies to anticipate new, future regulatory requirements and ensure that the systems implemented are sound.

With regard to the **evaluation and reporting of performance**, 14% of the companies surveyed have created dedicated performance indicators to monitor and steer the various measures being taken and thereby gain a better insight into the efficiency of the environmental management system employed.

In general, there are a number of advantages to be gained from implementing a green manufacturing approach:

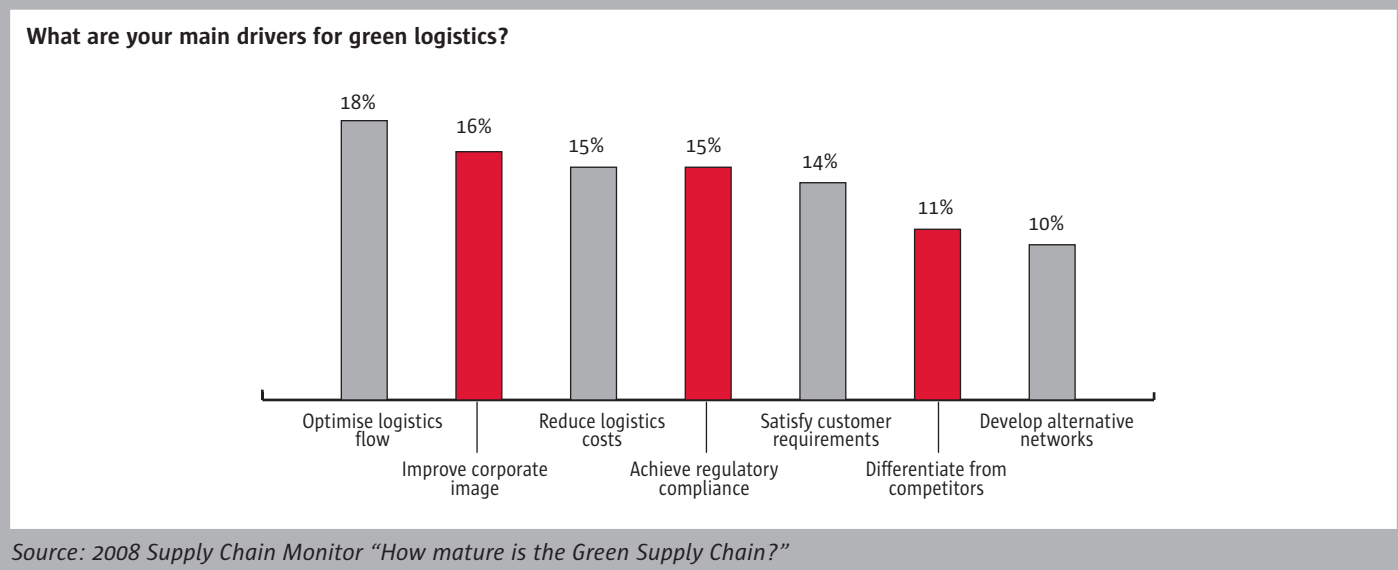
- Reduction in overall operating costs, due to the effective rationalisation of the consumption of energy and materials. In 94% of cases, the approach has enabled the company to optimise its energy consumption.
- Improvement in environmental performance, due to measures taken to reduce toxic emissions and optimise resources, as well as an increase in recovery and reuse of "waste". In 96% of cases, the return on investment from green manufacturing takes the form of less waste and in 98% of cases, the optimisation of energy consumption.

Figure 22: Benefits of green manufacturing



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

Figure 23: Drivers for green logistics



4.4. Transport

4.4.1. Context and issues

Transport is a fast-growing activity, both in Europe and globally. Since World War II, the rate of growth in international trade has outpaced the rate of growth in global industrial production. Because of this, optimising modes of transport is a top priority, both in terms of financial pressures (e.g. sharp rise in the price of oil) and environmental (greenhouse gas emissions).

Furthermore, the market is impacted by other inflationist tensions and structural difficulties such as:

- Liberalisation of transport at the European level with strong competition, but lack of social and fiscal harmonisation
- Strong pressure of loaders on prices
- Shortage of drivers
- Transport capacity lower than the increase in transported volumes
 - Saturation of road networks
 - Imbalance of the North South axis.

Sustainable transport is transport which generates less pollution while still meeting specific volume and cost performance targets. Essentially,

the aim is to reconcile financial performance with environmental performance.

The transport sector accounts for almost half the world's consumption of oil products. The other forms of energy used (electricity, biomass and gas) are still marginal. Moreover the transport sector has one of the highest levels of greenhouse gas emissions.

The development of trade within each economic region in recent years has benefited road transport, often to the detriment of other, less polluting modes of transport such as rail or waterways. At the same time the geographical distance between production zones and consumption zones is growing.

4.4.2. Business drivers and obstacles

The main drivers for implementing a green logistics approach include optimising logistics flows (18%) and improving the company's image.

The complexity and high cost of implementing measures to reduce environmental damage are the main disincentives noted by companies.

4.4.3. The measures taken to adopt a green logistics strategy

1- Optimisation of transport: overhauling the organisation of logistics

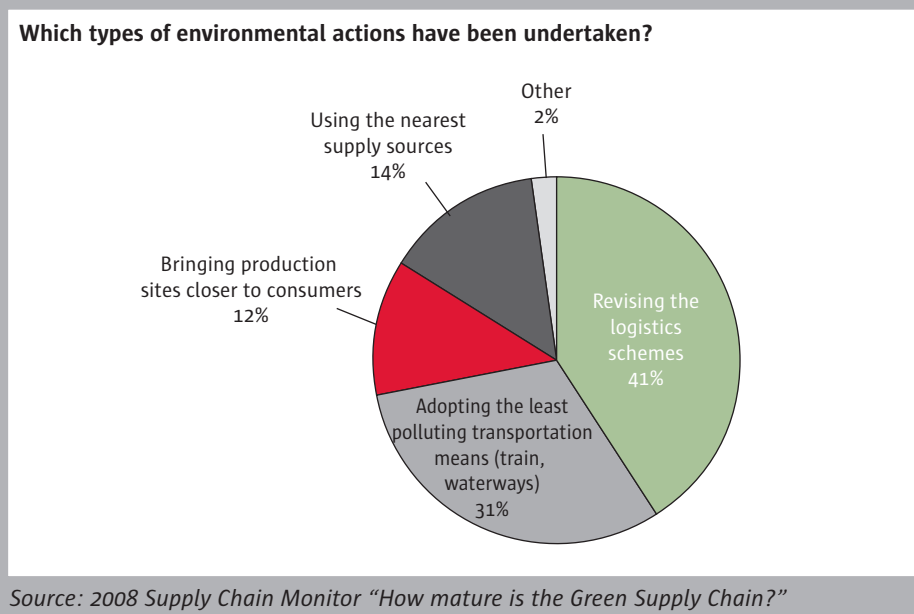
The most popular green logistics measure taken by the companies surveyed is an overhaul of the logistics organisation (41%).

Since road haulage is a major source of greenhouse gas emissions, overhauling the planning and organisation of logistics in order to optimise transport flows appears to be a powerful operational lever.

In some instances, overhauling the organisation of logistics takes the form of pooling logistics resources, which involves exploiting operational synergies between various players in the same branch of industry so as to optimise and rationalise the various transport flows (truck load factors and so on).

Pooling can just as easily be applied to circuits, vehicles and infrastructures (warehouses and so on).

Figure 24: Main measures taken to implement green logistics



2- The use of less polluting modes of transport

If we see pooling flows as the best model for organising sustainable logistics operations, then the shift in types of transport used should be seen as the best practice accompaniment. Recent European policy developments are contributing to the tightening link between logistics and transport in order to achieve sustainability.

It is therefore no surprise that the second most popular measure taken by companies to reduce transport-related emissions is the use of less polluting modes of transport (31%).

These alternative modes of transport are (in order of importance):

- Shipping
- Rail
- Combined transport (rail-road, sea-road, waterway-road)
- Waterway.

The principle behind 'combined transport' is to minimise the journey by road by combining at least two modes of transport along a logistics chain. There is no unloading and reloading of goods during the journey, much of which is covered by rail,

For example, to limit the number of trucks driven empty, and therefore polluting unnecessarily, some solutions involve:

- Searching for complementary flows with inversed seasonality.
- Using shared databases, managed by specialized companies, to optimise reloading.

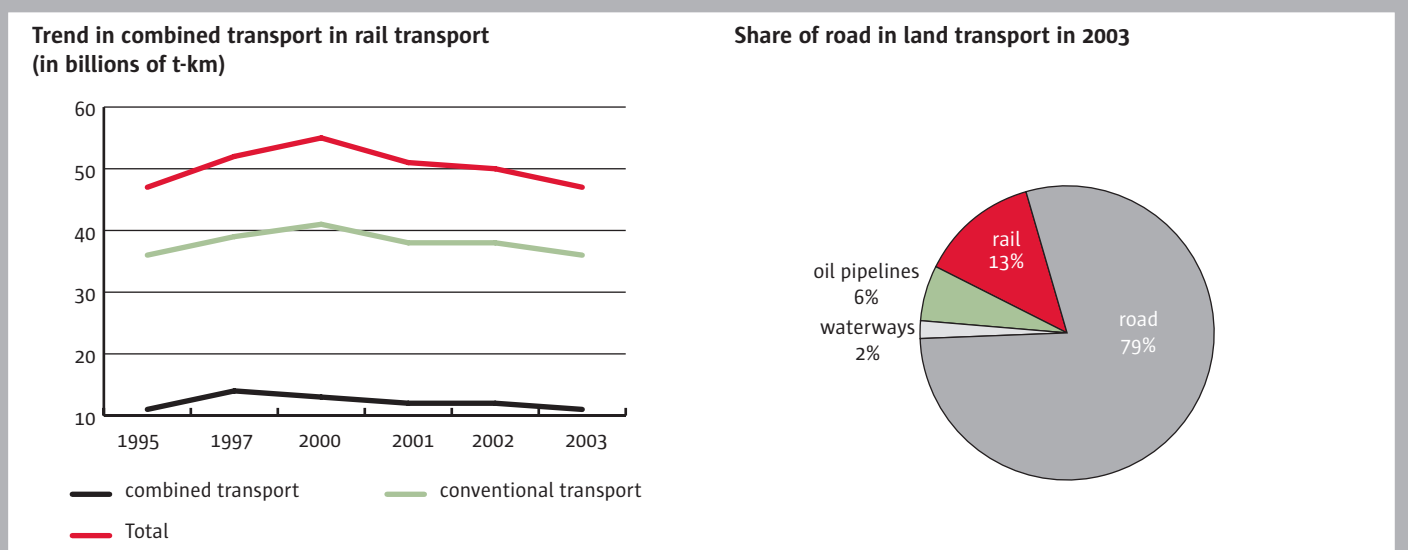
Thus overhauling the organisation of logistics is a means of rationalising transport and, ultimately, reducing

greenhouse gas emissions by optimising both vehicle load factors and road mileage.

Aside from environmental concerns, projects of this nature can also deliver savings by:

- Reducing the total number of warehouses along the logistics chain
- Reducing traffic volumes (number of journeys, distances covered, etc.)
- Reducing delivery times
- Reducing the cost of journeys.

Figure 25: Development of combined transport and land transport (scope: France)



Source : SNCF

Sources : VNF, SNCF, SES

inland waterways or sea. Therefore, only the container (swap body, semi-trailer, etc.) is moved from one mode of transport to another. Although combined transport has long been used in long-haul transport, some companies are exploring what benefits it can offer over shorter distances, particularly in urban areas, in order to overcome congestion and traffic restrictions (including timetables and delivery zones).

The goals for alternative transport are twofold:

- In financial terms, to offer a genuine and efficient alternative to 100% road-based transport
- To limit the environmental impact of a global logistics chain.

4.5. Reverse logistics

4.5.1. Concept and definition of reverse logistics

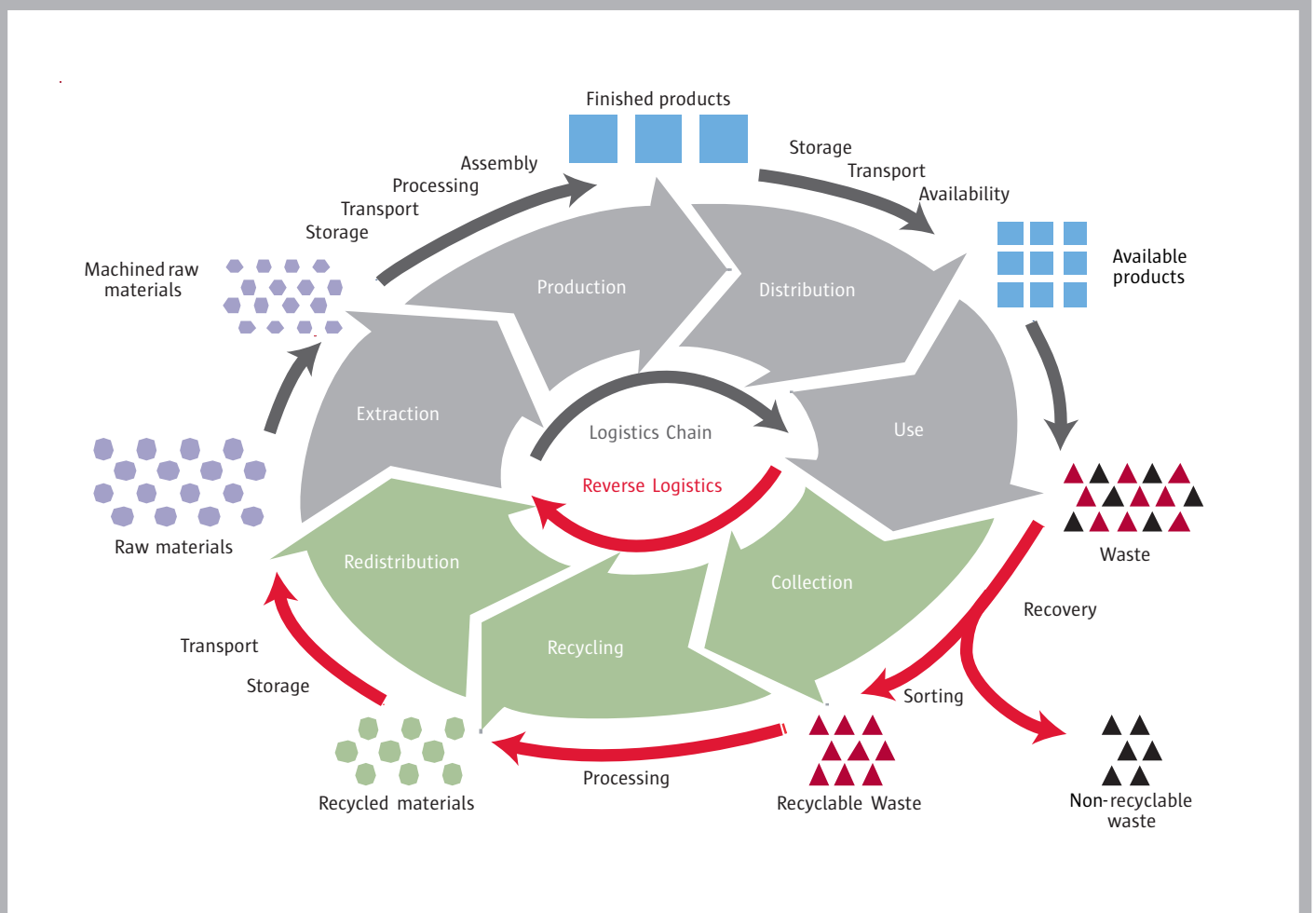
The purpose of the reverse logistics process is to ensure that products/materials are returned from the user to the producer in order to be recycled, reused or reconditioned. In traditional logistics, flows are defined unidirectionally, i.e. from the producer to the end customer. In reverse logistics the chain is covered in the opposite direction.

Reverse logistics therefore denotes a set of planning, execution and flow control measures for raw materials and finished products, with the aim of recovering and recycling those pro-

ducts or materials. Logistics involves a whole range of activities, including collection, sorting, processing and reconditioning.

Returns management embraces: returns at the end of a product's life, commercial returns (leasing, mail order, B2C), contractual returns (newspapers, publishers), returns under warranty (faulty goods), production waste and scraps, and "functional" returns, such as packaging to be reused for the same purpose (containers, packaging). Reverse logistics used to be the preserve of distributors of newspapers and magazines (products which have a very limited life span) and mail order distributors (covering products not wanted by consumers). Nowadays,

Figure 26: Reverse logistics process (example: product recycling)



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

however, the growth in reverse logistics is due to other factors:

- Mounting regulation concerning the environment (for example the WEEE directive which obliges manufacturers of electronic and electrical equipment to recover their products).
- Tough competition, forcing manufacturers to take account of customer expectations by offering the option to return faulty, unsatisfactory or old products.
- The possibility of recovering these products in order to reuse them or use the materials, thereby making savings.

A reverse logistics structure can be set up:

- by the company, in order to take charge of recycling, destroying or reusing products at the end of their life,
- by a group of companies,
- by a third party either as a commercial service or outsourced by one or several companies.

4.5.2. Drivers for and against establishing reverse logistics

Interestingly, one third of companies involved in a sustainable Supply

Chain believe that a reverse logistics structure is not necessary in their sphere of activity.

The decision to establish a reverse logistics structure depends, among other things, on the nature of the products and the market sector. As a result of the European WEEE directive, the electronics/IT sector is one of the market sectors most heavily involved in reverse logistics. This directive requires manufacturers to create recovery and recycling channels for their products or components. While manufacturers bear ultimate responsibility for recovery and recycling, it is the task of large-scale distributors to collect, sort, store and deliver the products to the manufacturers.

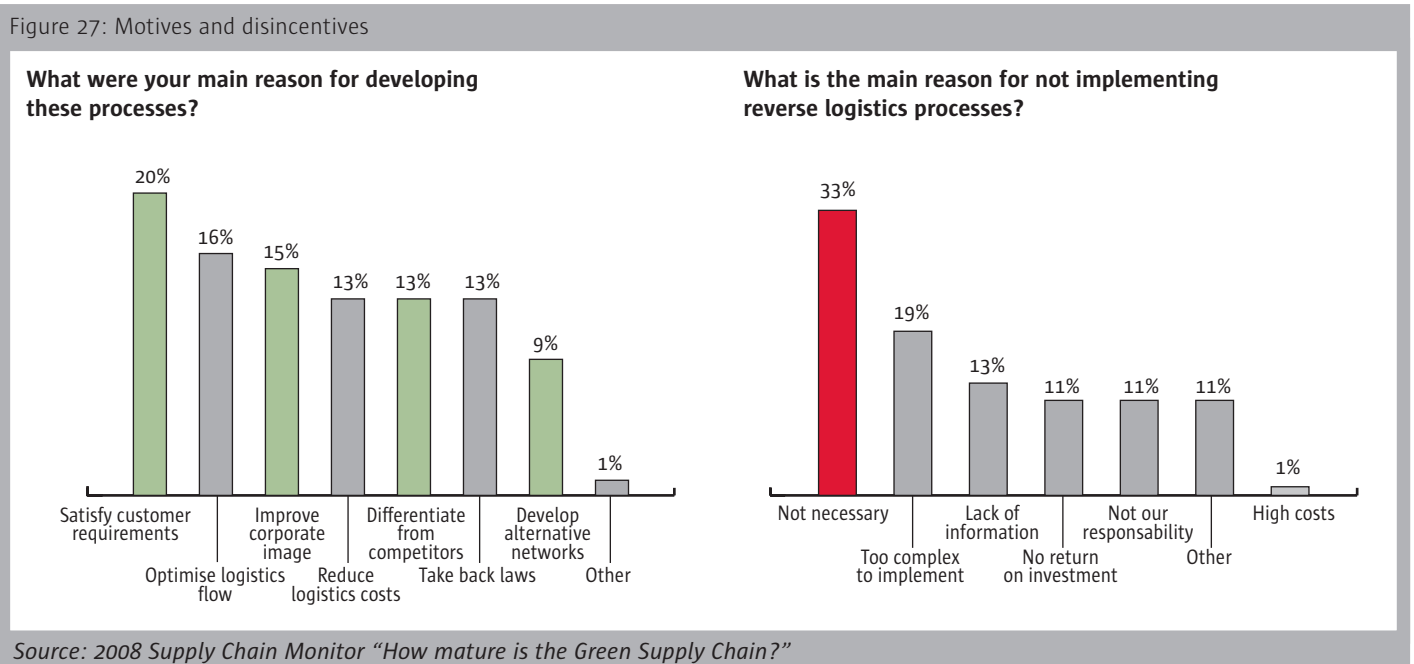
The degree of complexity and the associated difficulties are the second biggest disincentive to companies considering a reverse logistics structure (19%). Companies regard the whole reverse logistics chain as being complex, firstly because it entails a whole range of collection, sorting, warehousing and (re)processing activities and, secondly, because various intermediaries are likely to be

involved at each stage. In reality, the complexity of establishing a reverse logistics structure depends on the type of products involved.

Two features of a product determine the complexity of reverse logistics networks:

- The number of components and materials used in the design of a product may necessitate the involvement of several recovery and recycling channels. In this scenario, therefore, intermediaries are required to manage the distribution of the different components to the appropriate channels.
- The amount of processing necessary before the product or its components can be reused.

There are various measures that can reduce the complexity of reverse logistics. Green design, for example, seeks to optimise the number of components and the "dismantlability" of the products (e.g. modular products). This in turn can reduce the number of reprocessing channels and reduce the cycles involved in collection, sorting and so on.



However, in reverse logistics it is still quite difficult to predict the exact number of returns (faulty products), which can make the process more complex.

Consumer expectations are the main motive for companies deciding to establish a reverse logistics structure. Changing expectations and the consumer demand for products which will be easy to recycle are forcing companies to establish new procedures and, in particular, new networks to accommodate these priorities. Accordingly, companies deciding to establish a reverse logistics structure are motivated first and foremost by the desire to "respond to consumer expectations", which is cited

by 91%: reverse logistics is a means for companies to acquire the badge of a "corporate citizen" and reinforce their customer loyalty and satisfaction policies.

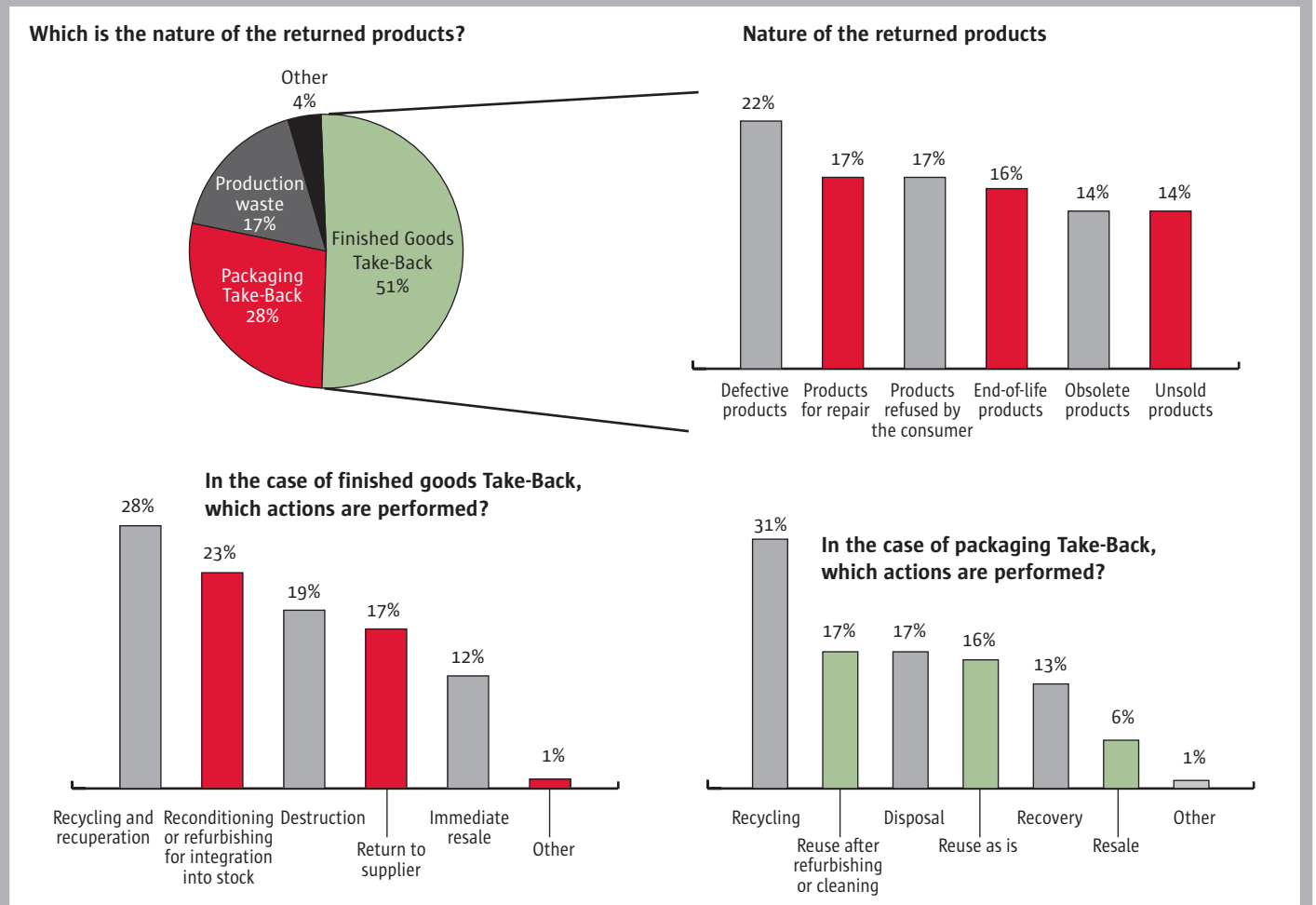
4.5.3. The measures employed

"Managing the disposal of products at the end of their lifecycle is an important environmental consideration. More often than not, recycling appears to be the most suitable response."

Reverse logistics is primarily the process of returning old/used products. Of the companies that have set up reverse logistics, most manage returns of their old/used products (50%).

In almost 40% of cases, these products have been returned because they are faulty or need repairing. The objective of reverse logistics is to make maximum use of the products or materials. Therefore, if the products cannot be repaired or reused in their current condition, they are destroyed then recycled. In a reverse logistics network, recycling is the number one "destination" for both finished products and packaging.

Figure 28: Source of products going into reverse logistics



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

CATEGORY	SOURCE	DESTINATION
Finished products	- Faulty products - Products for repair - Products rejected by the consumer	Recycling / Recovery / Reconditioning
Packaging	- Packaging materials	Recycling / Reuse
Waste / Scrap	- Production waste - Production scrap	Recycling

The outlook for reverse logistics

Nowadays, reverse logistics is strongly associated with environmental issues (recycling and recovery of products/materials). Clearly, the concept of reverse logistics is warranted by the environmental concerns of consumers and governments alike (cf. legislation).

The benefits to the environment are evident and tangible (recycling and recovery of hazardous substances, etc.).

Although reverse logistics is not as new a practice as green sourcing and green design, it has become a strategic issue in recent years.

5. Study methodology

This study seeks to gauge the maturity level of companies in regard to the Green Supply Chain, and identify the main trends in the field.

A survey was conducted among Supply Chain, operations, environment and purchasing directors and managers within large organisations as well as small and medium sized enterprises. Companies were surveyed simultaneously in several countries (France, United Kingdom, USA, Canada, Nordic Countries, Belgium and Japan). They represented a wide variety of vertical sectors including transport, energy, high-tech distribution, automotive, textiles, electronics/IT and consumer goods.

The survey was conducted in two phases:

- **Quantitative phase:**

This phase took the form of an online questionnaire sent to decision-makers involved in the supply chain in the broad sense. The data were processed and analysed for a total sample of 600 respondents.

- **Qualitative phase:**

The qualitative study took the form of face-to-face interviews. Around thirty interviews were conducted with supply chain directors and environment directors of companies directly involved in green supply chain operations.

The final study draws together the quantitative and qualitative data. The analysis and conclusions of this study aim to present companies' maturity level regarding Green Supply Chain and identify major trends.

6. Profile of the participants

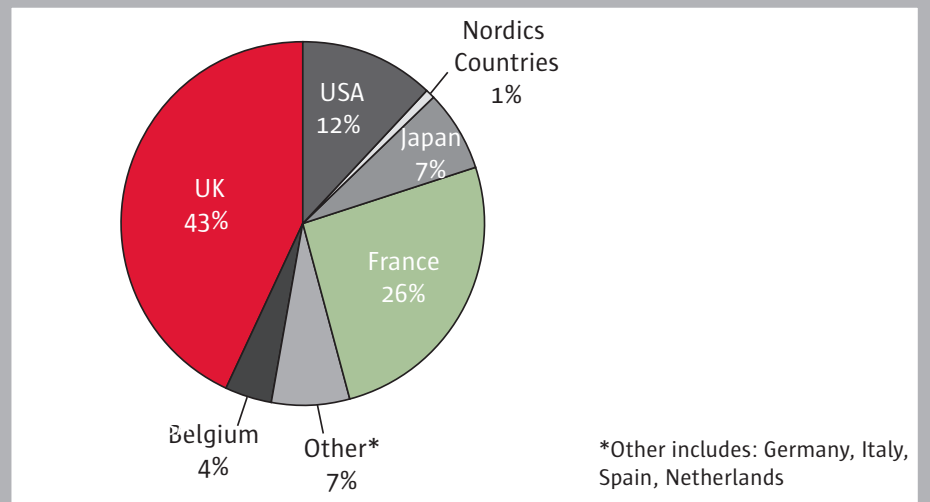
“An international sample, represented by diverse market sectors”

The sample is mainly represented by the United Kingdom (43% of the sample), France (26%), the United States (12%) and Japan (7%).

It includes large companies with a turnover exceeding 1 billion dollars (40%) and SMEs with a turnover of less than 100 millions dollars (26%).

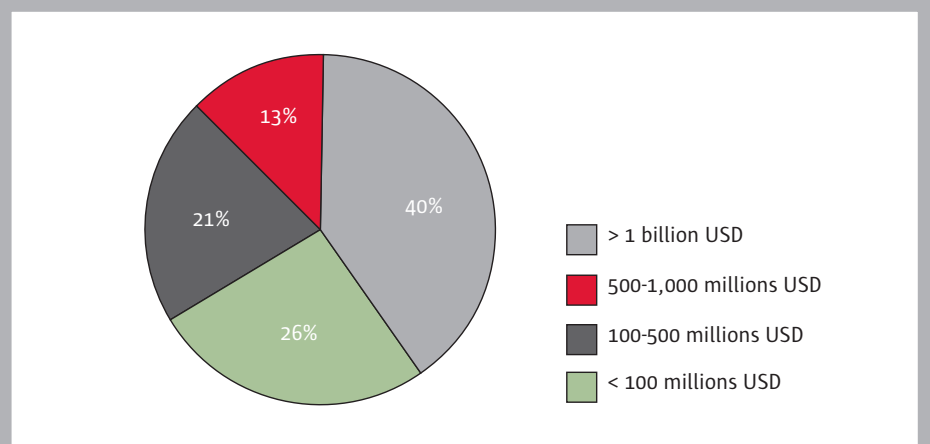
The spread of vertical sectors represented in this study is very broad. However 57% of the sample is accounted for by the following five sectors: consumer goods (16%), large-scale distribution (13%), transport (10%), electronics/IT (10%) and pharmaceuticals (8%).

Figure 29: Nationality of companies



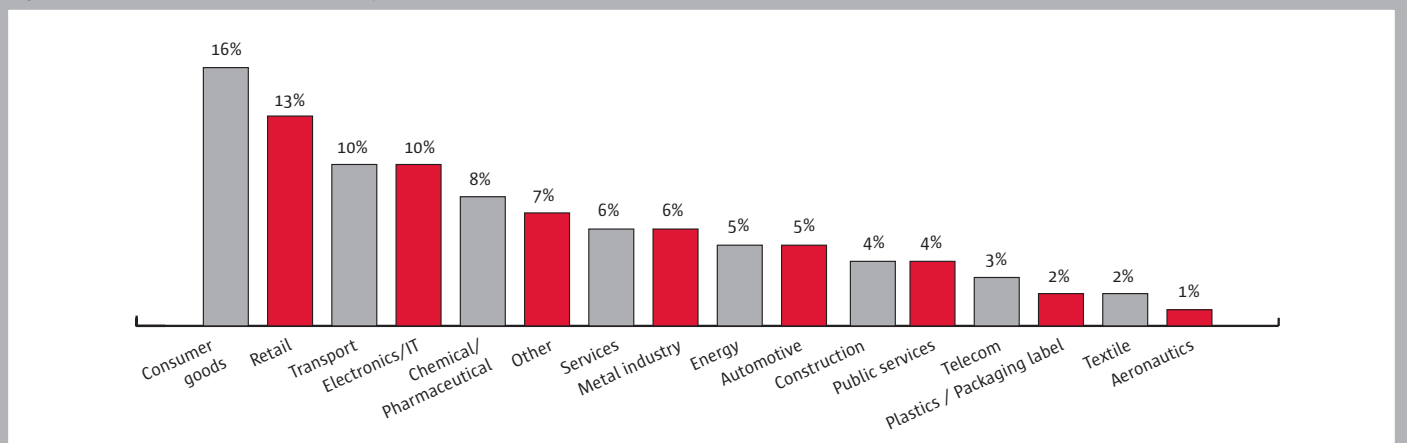
Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Figure 30: Size of companies surveyed



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Figure 31: Market sectors of the companies



Source: 2008 Supply Chain Monitor “How mature is the Green Supply Chain?”

Almost half of the executives who responded to this survey hold the position of Supply Chain director or manager.

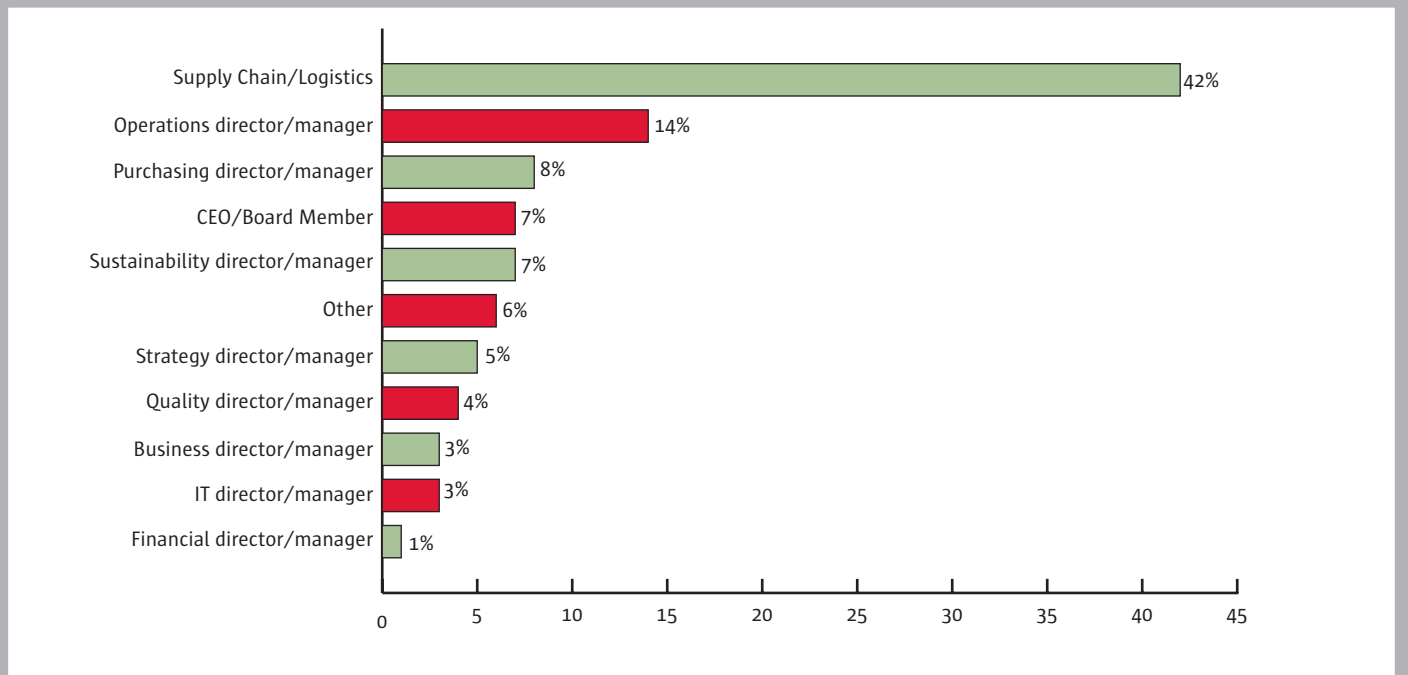
The second most-represented position is that of director/manager of opera-

tions (manufacturing), held by 14% of respondents.

Overall, almost two thirds of the respondents (64% excluding and 68% including quality managers) hold positions associated with the management

of a core part of the Supply Chain (production, procurement, logistics).

Figure 32: Positions held by respondents



Source: 2008 Supply Chain Monitor "How mature is the Green Supply Chain?"

7. Green Supply Chain in practice: GPN case study

GPN case study: implementation of the Green Purchasing Network in Japan: **“an initiative that is snowballing...”**

Based on an interview conducted by BearingPoint with **Hiroaki Koshibu**, Adviser of Green Purchasing Network and **Akira Kataoka**, Manager of International Green Purchasing Network.

With the aim to create an advanced green market structure, the Japanese Government initiated a move towards creating a network to promote green purchasing. In 1996, the Green Purchasing Network (GPN) was formed with 73 starting members who were a mixture of business organisations (mostly manufacturers of automobiles and electronic appliances), local governments, non-governmental organisations (NGOs) and academia. The members shared the view that if buyers at large organisations demanded that products met a specific level of environmental quality suppliers would naturally change their policies and their behaviour. In this way ‘green’ criteria would be treated as seriously as other requirements such as costs, quality and high level of service. Providers who did not meet the new standards would simply lose market share.

The main mission of GPN is to promote green purchasing and its approach is based on four main principles:

- Weighing up the real need for each purchase
- Taking account of a product’s environmental impact at every stage of its life cycle
- Taking account of the environmental performance of suppliers and distributors
- Gathering all the environmental

information necessary to make a green purchase.

The initiative owes its success to voluntary grass-roots action much more than government-led instruction. Although GPN initially received some financial support from the Government, its decision-making process has always been completely independent. This distance from the Government has encouraged various stakeholders to join GPN and allowed candid discussion amongst members. It has also increased the credibility of the GPN members in promoting green purchasing within each of their organisations.

The success of GPN was followed by the enactment of new legislation in 2000: the Law Concerning the Promotion of Eco-Friendly Goods and Services by the State and Other Entities. This law obliges the public sector, with around 20% of Japan’s market share, to buy green products and asks large businesses to follow suit. This Law gave another boost to GPN, creating a snowballing of commitment amongst Japanese organisations to buy greener products.

The strong demand by the Government and large businesses means that green products can be developed with less risk and at lower prices. It also ensures that more dealers stock green products, thereby making them accessible to the general public.

During the early years of GPN, assembly industries played a key role in encouraging a genuine behavioural shift in industry. They have acted as powerful promoters of green markets because they have a dual role to play; buyers and producers of materials as well as parts and complete products

providers in the supply chain. Alleviating environmental impact in a supply chain is a prerequisite for the production of green products. By coordinating with each other to produce what they themselves would like to buy, they acted as self-catalysts for the green market.

GPN is one of the most successful independent, non-profit making organisations in Japan. As of 25th January 2008, its executive board consists of 37 member organisations from businesses, local governments, consumer groups and academia. The GPN’s approach is supported by a further 2,439 companies, 303 non-profit making organisations and 294 local authorities or government agencies.

GPN played a key role in setting up the International Green Purchasing Network (IGPN) in 2005 with the following missions:

- Promote green purchasing practices at the international level
- Share information and know-how regarding green purchasing
- Harmonise efforts in this regard.

A government initiative has succeeded in causing a significant behavioural shift in Japanese industry. The Japanese government lit the pilot-light and allowed it to grow on its own. The scheme has snowballed so that the impact is now spread across the whole of Japanese industry.

About BearingPoint

BearingPoint, Inc. (NYSE: BE) is one of the world's largest providers of management and technology consulting services to Global 2000 companies and government organizations in 60 countries worldwide. Based in McLean, Va., the firm has more than 17,000 employees focusing on the

Public Services, Financial Services and Commercial Services industries. BearingPoint professionals have built a reputation for knowing what it takes to help clients achieve their goals, and working closely with them to get the job done. Our service offerings are designed to help our clients

generate revenue, increase cost-effectiveness, manage regulatory compliance, integrate information and transition to “next-generation” technology.

For more information, visit the company's Web site at www.bearingpoint.com.

About survey supporters

About ABCAL

Belgian Association for Purchasing and Logistics Managers, aims to promote a professional approach to purchasing and logistics. In order to achieve this, ABCAL organizes training and events, communicates on purchasing and logistics topics and encourages contact between different stake holders.

For more information, visit www.abcal.org/fr.

About APQC

For more than 30 years, APQC has worked with organizations across all industries to find practical, cost-effective solutions to drive productivity and quality improvement.

We are a member-based nonprofit currently serving more than 500 organizations in all sectors of business, education, and government.

For more information, visit www.apqc.org.

About Chain Store Age

Chain Store Age is published by Diamond-Friedman Co. The publication was launched in 1970 when the Diamond Inc of Japan and Lebharr-Friedman Inc of the US merged and has been supporting the modernisation and innovation of Japanese retailers ever since. Together with Chain Store Age, the company's other publications are read by management teams, store managers and buyers of leading retailers in Japan.

The information provided by Chain Store Age, and the company's supporting seminars, help solve the problems faced by the distribution industry and food manufacturers in delivering the products.

For more information, visit www.chainstoreage.com.

About ESCP-EAP

Europe's top Management Grande Ecole dedicated to management teaching and research with 5 campuses in Paris, London, Berlin, Madrid and Turin, 125 permanent professors and more than 800 contributors, ESCP-EAP welcomes 3500 students of 90 different nationalities each year. ESCP-EAP meets the highest international academic standards and is developing an original, trans-European management training programme for future managers and established executives. Today, the school has a network of 30,000 alumni and boasts the first European Foundation. Accredited by the AACSB, EQUIS and AMBA, ESCP-EAP is a higher education school of management of the Chamber of Commerce and Industry in Paris.

ESCP-EAP trains Supply Chain Management professionals on its Specialised Masters Programmes “Strategy and Operations Management: Supply Chain, Procurement, Quality” and STEGE (business management training course) “Supply Chain Management”.

For more information, visit www.escp-eap.eu.

About Logi-Biz

LOGI-BIZ is the leading Japanese magazine, which covers various issues of Supply-Chain Management in Japan such as inventory management, SCM software and RFID.

Through carrying as many case studies as possible, the magazine supports 3PL providers as well as shippers to achieve best practice.

The magazine is also well-known for its extensive coverage from Europe, North America or China, where many of its readers are developing their business.

For more information, visit www.logi-biz.com.

About Supply Chain Magazine

As a source of professional information, 'Supply Chain Magazine' is aimed at all decision-makers in the world of logistics. Its unique feature is that it offers concise and high quality information to subscribers, free of charge.

Compiled by renowned professional journalists, 'Supply Chain Magazine' offers three different products :

- a monthly paper (50,000 readers)
- a website (25,000 pages read/month, on average)
- a daily electronic newsletter (more than 50,000 readers/day)

For more information, visit www.supplychainmagazine.fr.

About Supply Chain Standard

Supply Chain Standard is Europe's leading Supply Chain management magazine.

Our mission is to bring together in print, via events and online, the best that Europe can offer in Supply Chain excellence. Our focus is on best practice, thought leadership and strategic development throughout the Supply Chain.

Our co-operation with the European Logistics Association, combined with our own extensive research, market knowledge, partnerships, and presence at leading industry events, ensures that the magazine is read by Europe's senior Supply Chain professionals.

For more information, visit www.supplychainstandard.com.

About VIB

Since 1981, the Belgian Purchasing and Logistics Association, has brought together purchasing and logistics managers from various sectors of industry, commerce, services and the public sector. VIB promotes the professional interests of its members and offers training and continuous education for all those involved in the Supply Chain. By organising seminars, conferences and workshops the association provides continuously updated information.

For more information, visit www.bevib.be.



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About BearingPoint

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