EFORWOOD

Sustainability Impact Assessment of the Forestry - Wood Chain

Project no. 518128

EFORWOOD

Tools for Sustainability Impact Assessment

Instrument: IP

Thematic Priority: 6.3 Global Change and Ecosystems

Deliverable D5.2.3
Case study report containing analysis of the most relevant value chains from a FWC sustainability, consumer/market and micro-economic perspective. The report is based on a range of qualitative and quantitative methods including surveys, interviews and focus groups

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CO	Confidential, only for members of the consortium (including the Commission Services)	

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Organisation of lead contractor for this draft report:

AIDIMA; Furniture, Wood and Packaging Technology Institute (AIDIMA in the deliverable)

Partners involved:

STFI Packforsk (STFI-Packforsk in the deliverable),
Pöyry Forest Industry Consulting (Pöyry in the deliverable)
Furniture, Wood and Packaging Technology Institute (AIDIMA in the deliverable)
Cei-Bois (European Confederation of woodworking industries)
CEPI (Confederation of European Paper Industries

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Contents

1 ABSTRACT

EFORWOOD aim is to provide methodologies and tools that will, for the first time, integrate Sustainability Impact Assessment of the whole European Forestry-Wood Chain (FWC), by quantifying performance of FWC, using indicators for all three pillars of sustainability; environmental, economic and societal. The project will provide methods to assess the sustainability impacts of modifications of Forestry-Wood Chains as influenced by policy changes, market drivers, or technological innovations.

Within the Module 5 of EFORWOOD the main activity is to comprehend the perception of consumers that can indicate upgrading actions on forest-based products impact on general functionality and sustainability in relation to the final-product value chains. Consumers and customers are essential as social, economic and environmental actors: it is not worth speaking about sustainability for the future without considering citizens' opinions, which really drive markets evolution.

This study investigated perceptions on different FWC products, at the supply and also at the demand sides by qualitative methods, based on the opinions of experts, professional buyers and adult end users. The qualitative methods were: focus group sessions, face-to-face interviews and questionnaires. The objectives were to detect the attitudes and perceptions of consumers on wood based products, and on sustainability supporting this way the assimilation of sustainable forest-based products by end-users, and trying to find the key points of acceptance or refusal of sustainable policies or market actions. The wood based products involved in the research are the following: solid wood sector: furniture, energy/bioenergy sector: pellets, fibre based packaging sector: juice packaging, fibre based printed material industry: books.

Within the frames of this research qualitative information is provided for the development of ToSIA (Tool for Sustainable Impact Assessment).

The research resulted to consider two main groups of European consumers: those who are **conscious** about sustainability, who are ready to act and are ready to pay a certain extra cost for ecologic products, and those who are **not conscious** about sustainability, who are sceptic about it, who are not ready to pay any extra cost for ecologic products.

Keywords: wood based product, consumers, perception, attitude, comparison, eco-friendly, sustainability, trust, education.

2 EXECUTIVE SUMMARY

This document is written by the researchers of Aidima (Spain), STFI-Packforsk (Sweden) and Pöyry Forest Industry Consulting Oy (Finland), researching consumers attitudes from different aspects on different FWC product groups and sustainability (books/printed materials, packaging, furniture), at the supply side, and also at the demand side of two different purchasers profiles: end users (business to consumers, B2C) and professional purchasers (business to business, B2B), to present new trends and new requirements from markets in a straight line connected to printing and publishing, packaging, wood products/furniture, and bio-energy industries. Present document is intending to change the perspective for sustainability analysis, changing from an industry driven development to a market orientated development, and to reflect on the future evolution of forest-based business models.

The methods applied to the investigation were qualitative and quantitative; consumer surveys, face to face interviews with experts, focus groups. The markets involved in this research were specially Sweden, Spain and Finland, with some research done in Germany. In case of packaging we also examined the consumption in Slovakia and the United Kingdom according to previous extra EFORWOOD research.

The results reflect that in Europe consumers are not valuing only the price and functionality of the products, but intangible assets as well (emotional, social, experience, meta-preferences) and there is also the phenomenon of cultural homogenization, and the globalization of the markets to count with.

There were differences to be observed between perceptions of the end users (B2C) of **furniture** in Sweden and in Spain: for Spanish consumers the determining factors are price, functionality, additional services, while for Swedish consumers besides the three factors mentioned before are also determinative the design and environmental characteristics. Professional buyers (B2B) have highlighted the design, services, and adaptation to safety requirements.

The perceptions of the end consumers on the **packaging** materials are different in Spain and in Sweden, with the fact in Sweden the buyers are taking into consideration the environmental aspects of the products, not only the functionality, appearance, and price. In Spain end users were very neutral towards the fibre based packaging, and consider it to be expensive. Amongst professional purchasers there were not realized strong preferences of fibre based packaging to the other materials.

The perceptions of the end users on **books** and **other fibre based printed materials** are similar in Sweden and in Spain. Functionality, price, quality and recyclability are the most significant aspects that are important for them, but also the time that they can spend reading. The professional purchasers are also taking into consideration the emotional values that these products are carrying, and that their purchases are influenced by the price and quality.

There are certain advantages and disadvantages of **pellets** that both B2B and B2C market players have perceived; the high one-time investment costs, the large storage capacity that pellets need, and also the time and effort that maintenance requires are considered to be disadvantageous characteristics, and the factors that are advantageous are the following: environmentally sound way of heating, low running costs, and independency from fossil fuels.

Analyzing the results of investigation on sustainability there were two major consumers´ attitudes to be observed:

- CONSCIOUS CONSUMERS, with knowledge about sustainability and its dimensions, who have political concerns about sustainability impact, who are ready to act (e.g. Sweden) through their habits for it, who have trust in information labels of sustainability, and who have a certain (limited) willingness to pay extra for sustainable products.

- NOT CONSCIOUS CONSUMERS, with no information about sustainability and its dimensions, scepticism about sustainability, who don't trust the communication on sustainability, who need to be educated on the topic and who are not ready to pay any extra for sustainable products. The profile of professional buyers fits into the group of not conscious buyers.

The negative impacts of globalization to economic and social sustainability on the production of wood based goods in Europe are mainly influencing the future sustainability of the industry. The forest based industry should provide education for the consumers, should bear the costs of information deficit, and build credibility.

3 INTRODUCTION/ BACKGROUND

A development of forest wood chain (FWC) towards sustainable production and the promotion of sustainable consumption of renewable resources require a well-founded understanding of the attitudes and demands of consumers. The Module 5 is integrating the phase of the forest wood chain (FWC), where it arrives to the consumers who are closing the chain**.** Within the module 5 the main activity is to comprehend the perception of consumers that can indicate upgrading actions on forest-based products impact on general functionality and sustainability in relation to the final-product value chains.

Valuable benefits can be created by implementing the results of the investigation to practice, that could make companies and other actors of the market to understanding better and react quickly to the needs and demands of consumers in relation to FWC and sustainable consumption.

Present report is containing a collection and analysis of information related to consumers' attitudes and demands on FWC products. This report is analyzing the main attitudes and perceptions of consumers on the final products of different FWC product groups, that we have selected and are the followings:

- Solid wood: Furniture
- Fibre: Juice packaging
- Fibre: Books
- Bio energy: Pellets

The selection of the final products listed hereabove was based on the role that they play in the European consumers´ life, the regularity, and range of consumption, and also the quantity and traditions of production. Concerning bio energy (pellets) an increasing and widely spreading new product was used in the research.

The present document is also analyzing the attitudes and perceptions of consumers generally on sustainability, and is analyzing their attitudes towards sustainability at the purchasing process.

Methodology tools: Present document is based mainly on qualitative methods, including consumer surveys (quantitative analysis and evaluation of purchasing behaviour parameters of the consumers on different FWC products) focus groups (qualitative research on identified socio-psychological, cultural and demographic segments of consumers) and expert interviews (qualitative research on products' consumption and trends based on personal interviews of key stakeholders in the sector. The investigation was conducted in Spain, Sweden, Germany and Finland.

The results based on analyzing the information obtained from the investigation making us understanding the behaviours of consumers. The conclusions are highlights of the results obtained by the investigation and also an analysis of different business models on sustainability that could give an economic, social and environmental sustainable development to the industry while meets market

demands and maintains the competitiveness of the EU industry in competition with low-costs countries.

4 METHODOLOGY

The methodologies used for the different parts in this study are based on **gathering market information**, **interviews** and **focus groups.**

The main activities in the study include market information: data collection on the markets, production, consumption, exports, imports, qualitative methods to collect information and attitudes on the supply side and the demand side (Business to Business and Business to Consumer) for the chosen FWC products: furniture, books and juice packages, pellets and on sustainable development.

4.1 End Users

The objective of this investigation is to collect information of the attitudes and perception of juice packaging, knowledge gaps on consumer's relation to the FWC, the chosen products and the sustainability concept, identification of key variables derived from consumer's needs and consumption trends, two focus groups have been performed of Swedish and of Spanish consumers.

The goal of the focus group sessions is to collect information, opinions and attitudes by a qualitative method.

4.1.1 Spain

Objectives of the Focus Group sessions:

- Getting in possession of information about the attitude of Spanish consumers towards wood-based products in different product groups (furniture, packaging, books (bookbinding)).
- Evaluation the relative importance of sustainability of the decisions made by Spanish consumers of the indicated products.

Target of the focus groups:

Age:	*First session*: consumers between 40-55 years, (adult consumer group) *Second session*: consumers between 25-40 years (young consumer group)
Number of participants:	16 people, each focus group consisted of 8 people
Distribution according To sex in each group:	50% male, 50% female
Common characteristics of The members of each group:	Each person has bought furniture and book in the last 2 years

Running the sessions of the focus groups:

There were organized two sessions of focus groups; each session was lasting 2 hours. Both focus group sessions took place in Valencia, Spain. All the discussions were recorded and notes were taken as well. The participants were told to concentrate on the material of the products, not the shape, design or content.

Each member of each group was scanned before the sessions by questionnaires to get information about their lifestyles. After a short summary of the project all the participants have introduced themselves, so we are able to identify each focus group member by lifestyle by name and age, and according to our notes taken during the sessions their individual opinion about each topic.
During the sessions the members of the groups had to compare different aspects of wood-based and non-wood-based (substitute) raw materials in 3 different product groups: furniture, packaging of juices, and books, (book bindings).

We prepared presentations that consisted of photos of the products. We collected 5-6 photos of each product group of different materials. The questions for the focus group protocol were developed jointly between Aidima in Spain and STFI-Packforsk in Sweden. The same focus group protocol was used in both countries. The results from the focus groups were summarised in a report on the focus groups, see annexes I. and II..

4.1.2 Sweden

Both focus groups took place at the STFI-Packforsk Usability Lab in Stockholm, Sweden, and the discussions were recorded and notes were taken. In both groups there were discussions about furniture, books, juice packages and sustainability.

Each focus group lasted approximately 2.5 hours and it was possible to go through all the key questions in the focus group protocol.

The participants were told to focus on type of products and packages, not the content.

The persons were selected to the focus group by means of a survey company. The following criteria should the participants fulfil, they should have bought furniture during the last 12 months, have bought a book during the last 12 months as well as juice on a regularly basis. The persons were divided into two groups one with the age of 18-35 years and one with the age of 36-65 years. A so balanced allocation between men and women were aimed at and the optimal number of participants to each group was 8 persons.

In the mature group (36-65 years old) 7 persons did participate. The age range for this group was 40-64. (group B2C1). In the young group (20-35 years old) 8 persons did participate. The age range for this group was 22-29. (group B2C2).
The questions for the focus group protocol were developed jointly between Aidima in Spain and STFI-Packforsk in Sweden. The same focus group protocol

was used in both countries. The results from the focus groups were summarised in a report, see annexes I and II.

4.1.3 Pellets

A consumer survey was conducted by telephone interviews. Number of interviewees was 30, 10 from each country (Finland, Germany and Spain). A half of the interviewees were small-scale users and another half was medium-scale users. The age of interviewees was between 25 and 60. Selection criteria for interviewees were that they had pellet heating, to find interviewees familiar with the concept. In addition, some consumers that had been making heating system purchase decisions lately but had not chosen pellets were interviewed to understand their opinions, too.

The interviews were structured, including both closed and open ended questions. The questionnaire was sent to interviewees in advance and it was a base in telephone conversations. The questions were gone through and interviewees were allowed to give additional comments on pellets.

Interviewed small-scale users were private households and farm houses, and medium-scale users were public buildings and business premises. Most of the interviewees had pellet heating as their only heating option, but in some interviewed private households pellets served as an additional heating option. Some households had another heating option on the side of pellets, these are for example solar cells and pine cone. In Finland, many medium-scale pellet users had oil heating for back-up.

4.2 Professional buyers

4.2.1 Spain

The objective of the survey is to analyze the furniture purchasing process carried out by the different agents that intervene in the purchasing process in furnishing and decorating of **hotel chains in Spain** and its relation to sustainability criteria.

In order to do that, we analyze critical aspects in the purchasing process (who buys, how, from whom, where, what, etc.) and their relation to sustainability. We pay special attention to the agents involved in the process, their functions, those with a prescriptive role, and the selection criteria and requirements demanded from products and suppliers of the hotel furniture market known as “contract”.

Characteristics of research:	Qualitative, explorative
Scope of survey:	Furniture purchasing process in the hotel sector

Method of investigation:	Deep interviews, according to a semi structured screenplay
Target of the interviews:	Hotel furniture purchasing agents
Total number of interviews:	13
Distribution of the interviews: (Types of hotels)	Hotel chains: 4 Prestigious and independent hotels: 3 Family owned hotels: 1 Accommodations of rural tourism: 1
Other entities relationed To the hotel sector:	Associations, institutes: 2 Furniture manufacturers for hotels: 2

4.2.2 Sweden

- **Furniture**

Totally five interviews have been completed with decision makers at customer organisation while dealing with purchasing of furniture. In order to identify trends, two different private hospitals were chosen. Hospitals have different fields of business: one – modern plastic surgery and another – traditional business. While investigating trends in the hotel sector, multinational international chain has been chosen in two countries.

- **Packaging (Juice)**

Along the value chain for juice packaging a number of companies/actors such as wholesalers and retailers were chosen. In the hotel sector large international companies were chosen and for hospitals private as well as public hospitals were chosen. The persons who were interviewed were responsible for purchasing juice, marketing manager or similar position.

The main goal for this part of the project was to identify some elements of business model and demand chain. The main choice criteria were established due to collect information about buying process and perception on juice packages.

Totally six in-depth interviews have been completed with decision makers while dealing with purchasing of juice.

- **Books**

In order to identify and define customer demands in the B2B segment, a number of interviews with decision makers have been performed. Project has gathered information regarding weighting criteria and hierarchy of criteria while purchasing books. Aspects of latent demand and willingness to pay for sustainable products have been highlighted.

4.3 Sustainability

- **Furniture industry**

Survey dedicated to exploration of sustainability aspects has been performed from three perspectives:

- Customers of furniture industry
- Experts working with the industry
- Non EU industry

Regarding customers of the industry, inquiry focused on hospitals and hotels. Experts from European market as well as from Asian market have been interviewed. Project has also performed study concerning Asian furniture industry.

One multinational international hotel Group has been investigated in order to highlight their perspective on sustainability aspects. Since hotel Group represents a significant number of hotel chains established world wide, and policy as well as sustainable strategy is top down managed and implemented, in depth interview was carried out with one CEO of hotel chain. This interview enabled to identify practical aspect of strategy implementation process as well as the grade of commitment with sustainable policy on the single hotel level.

There were also investigations conducted amongst the members of the supply side of the furniture market on sustainability: By experts' interviews on sustainability by questionnaire, deep interviews. Questions prepared on sustainability asking experts what are the hypotheses of the manufacturing companies, on the market changes and on the behaviour of their clients relating sustainability as a new factor to be calculated with.

- **Packaging industry**

Along the value chain for juice packaging a number of companies/actors such as wholesaler and retailer were chosen. In the sector of hotel, large international companies were chosen and for hospitals private as well as public hospitals were chosen. The persons who were interviewed were responsible for purchasing juice, marketing manager or similar position.

The main goal for this part of the project was to identify some elements of business model and demand chain. The main choice criteria were established

due to collect information about buying process and perception on juice packages.

Totally six in-depth interviews have been completed with decision makers while dealing with purchasing of juice.

Additionally, reports from previous project called Sustainpack have been consulted (source: “What consumers want from packaging” Consumer attitudes and needs survey, Sustainpack 2005). In the EU 6th Framework research project SustainPack the report “What do consumers want from packaging?” was prepared. Consumers from Sweden, UK and form Slovakia were interviewed and focus groups were conducted. All in all more than 350 consumers’ opinions were heard and then processed and finally summarised in the report. The objectives of the research in this survey were:

- To identify consumer needs: what do consumers want from packaging, and specifically, from fibre based packaging.
- To identify consumer attitudes to fibre based packaging.

Methodology:

- 80 telephone interviews
- 3 focus groups with a representative sample of consumers in each of the selected countries: Sweden, Slovakia, UK

The research work was carried out by:

- STFI Packforsk AB (Sweden)
- STU – Slovak University of Technology (Slovakia)
- Pira International (UK)

For more details see annex IV., the Sustainpack report.

- **Printing industry**

Due to collect information for the first part of survey, one in depth interview has been made with a large company/ retailer working worldwide with everyday commodities as well as company’s sustainability report has been analyzed. One of the largest international multi-format groups, working with everyday commodities, which are operating in 30 countries world wide, has been investigated regarding sustainability issues while dealing with packaging aspects. The group is combining a global approach of economic progress, environmental progress, and social progress for sustainable development.

Structured interviews have been also performed with multinational international hotel chains, Swedish private and state owned hospitals, Swedish retailers and non EU experts dealing with emerging markets, particular India.

- **B2B**

The methodology used to gather information about companies operating in the juice packaging, book and furniture sector were based on interviews with people who were responsible for purchasing the product for hotels, hospitals and schools, or are in possession of a decision-making position.

Additional activity within B2B sphere in order to gather information was a set of interviews with experts.

Methodology of survey consists of following elements:

- choice criteria
- survey tool – questionnaire
- analyze tool

The process has been carried out in sequenced steps:

- defining and identifying interviewed objects with usage of choice criteria
- developing relevant questionnaire
- gathering information with usage of questionnaire
- summarizing collected information
- analyzing the results

The main goal for this part of the project was to identify some elements of business model, demand chain and competitive environment. The main choice criteria were established due to collect their opinion regarding future trend regarding consumption of the product - books, packaging or furniture, in order to identify possible direct impact on the sector development opportunities. Geographical choice was limited primary to Swedish market. Since Swedish market is rather limited, a limited number of persons from each organization have been chosen for survey. Structured questions were used as an information gathering tool.

Summarizing process has been organized in two steps. Firstly, identifying questions/answers that are relevant for a particular perspective of sustainability: economic, social or environmental, secondly the answers are processed and placed in a table.

Finally, analyzing process focuses on creating conclusions based on summarized information in the tables from all interviews.

5 RESULTS BY PRODUCT GROUPS

5.1 FURNITURE

5.1.1 Product description

Furniture is a product that is an essential need in each household and traditionally the furniture production is a sector that is based on wood. In Europe the furniture sector in the last years had to face the challenges of the globalization. The challenges that have radically impacted the consumption and the production in the continent.

With the fact that European producers have to compete with the increasing import from the “low cost “ countries, we have to examine very carefully the present and the future of the sector from the customers point of view taking into consideration the aspects of sustainability as well.

Wood is a material that can be substituted by different other raw materials for the furniture production. This is why we have selected this product group for preparing this survey.

5.1.2 Market information

In 2004 the members of the European Union were producing the 43.1% of the global furniture production, with a value of 95.421 billion Euros. With these results the EU was the most productive furniture manufacturing zone of the world.

The countries of NAFTA (North American Free Trade Agreement) the manufacturers of Canada, USA, and Mexico, were producing the 25.8% of the global furniture production, of a volume of 57.064 billion Euros.

The third biggest furniture producing area of the World was Asia obtaining the 23.2% of the global production, with a volume of 51.445 billion Euros.

The non EU member countries of Europe, together with the producing capacity of Russia and Turkey are producing the 3.2% of the global furniture production obtaining a quantity of 9.02 billion Euros, followed by the Latin-American countries, which are with a volume of 5.163 billion Euros are obtaining the 2.3% of the global production. The two smallest producing areas from the point of view of quantity are Oceania with a global share of 1.6% described in Euros: 3.55 billion Euros, and Africa of 1.825 billion Euros which means the 0.8% of the global production

Figure 1: furniture global production in 2004

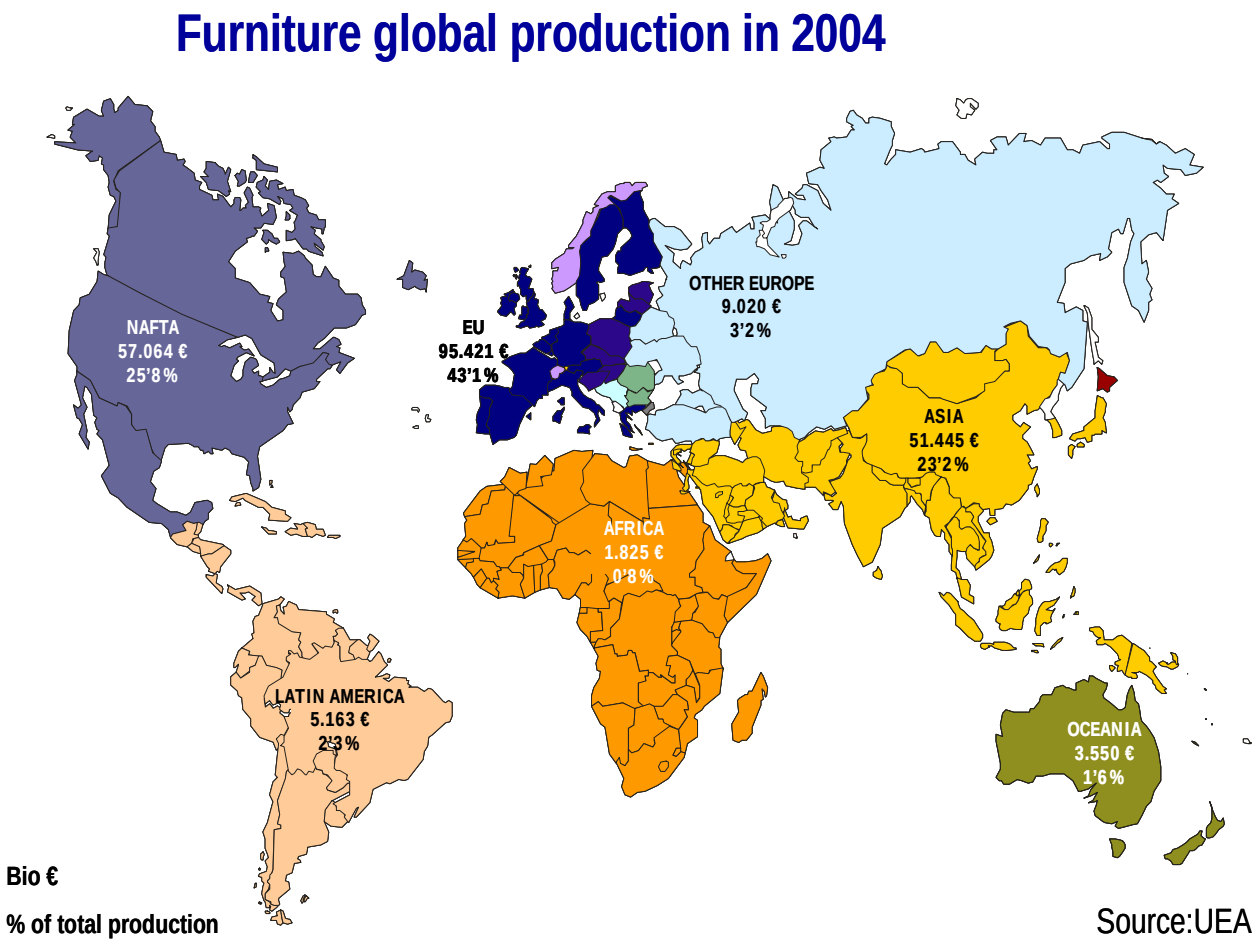


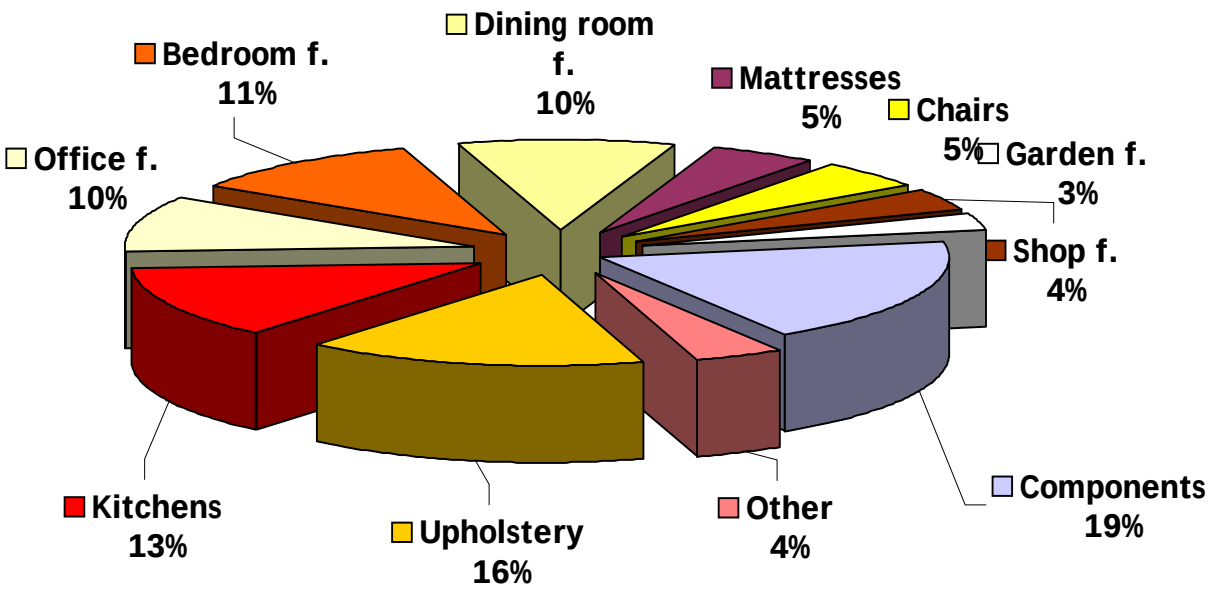
Table 1: Production (Millions of Euro) industry of the world furniture, by countries. Year 2004.

Countries	Production	%
USA	45434	20,8%
Italy	20447	9,4%
Germany	20062	9,2%
China	19430	8,9%
Japan	16250	7,4%
France	9122	4,2%
Spain	8577	3,9%
United Kingdom	8398	3,8%
Canada	7330	3,4%
Poland	4522	2,1%
Mexico	4300	2,0%
Brazil	3433	1,6%
Australia	2900	1,3%
Malaysia	2850	1,3%
Netherlands	2849	1,3%
Others	42637	19,5%
TOTAL	**218541**	**100,0%**

Source: AIDIMA

The 25 countries of the European Union in 2005 were increasing their production compared to 2004 by a 0.8%, from 95.421 billion Euros to 96.2 billion Euros. As soon as international trade of furniture in 2004 reached the value of 69700 million Euro, a growth of the 7% with respect al 2003. The producers of furniture of the European Union exported 34900 million Euro (37,7% of their production and the 52,1% of the world total). The Asian countries are now the second more important exporting region. They exported 20200 million Euro (growth of the 13%), a 30% of the total of the exports. China heads the group of the Asian countries, in 2004 exported 13400 million Euro (registered a growth of the 25%). The fundamental destiny of the Asian exports they are the European Union and the United States. The European furniture manufacturing capacity by types of furniture produced. The following figure (figure 1) shows the types of furniture manufactured in the 25 member countries of the European Union in 2005:

Figure 2.: Furniture production in the EU in 2005.

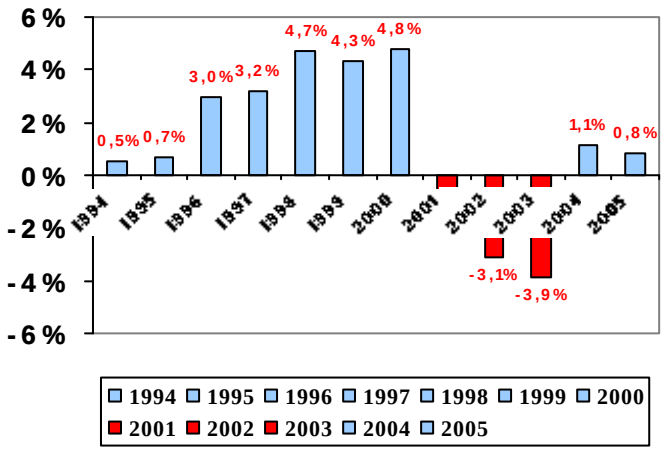


Source: AIDIMA

The sector of the furniture in terms of consumption finds the major market in the European Union, the apparent consumption of this zone is 92600 million Euros, or what is the same thing 204 Euro by inhabitant. The countries from third parties importing represent the 9,8% of the market of the EU (13% in volume). The level of consumption is quite different from a country to another with consumption that exceed the 300 Euro by inhabitant in the countries of German and northern speech and with countries as the new members with a consumption around 50 Euro by inhabitant the second great market is the zone NAFTA with a total of 69700 million Euro. The importing in this zone has a quota from the 32% of the market. The importing originating in Asia hoards the 20% of the market. The annual consumption by inhabitant itself fixed in 165

Euro. In Latin America, the apparent consumption elevated to 4400 million Euros, 8 Euro by inhabitant. The Brazilian market is that of greater importance since supposes the 65% of the total.

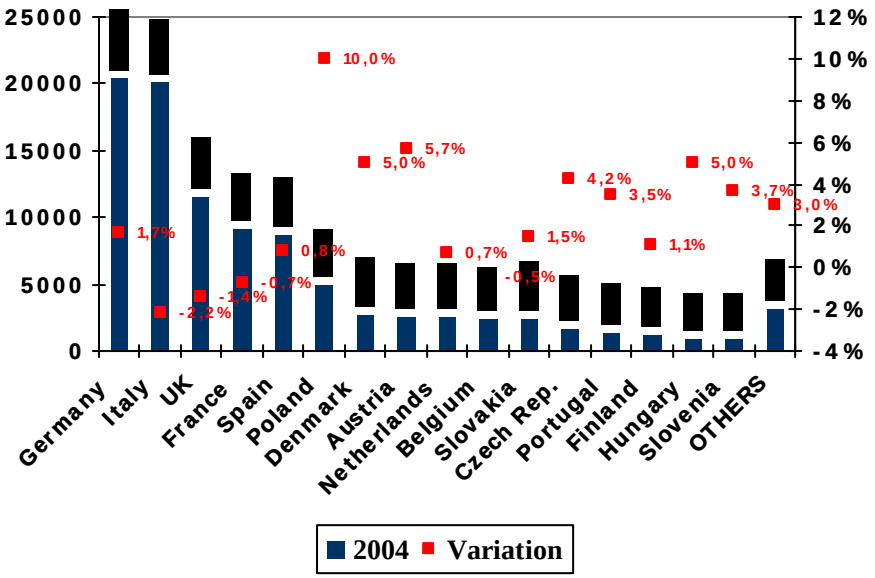
Figure 3.: total furniture production in Europe: 96.2 Billion € Year: 2005



% variation rate

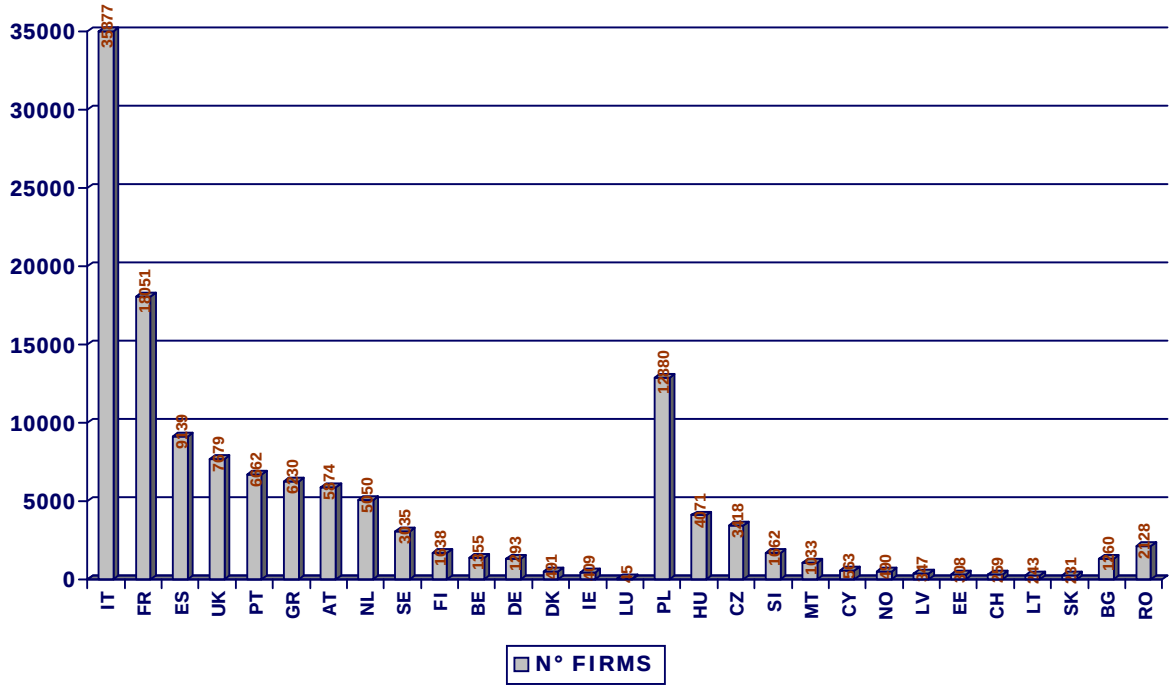
Source: UAE

Figure 4.: Furniture production in European countries



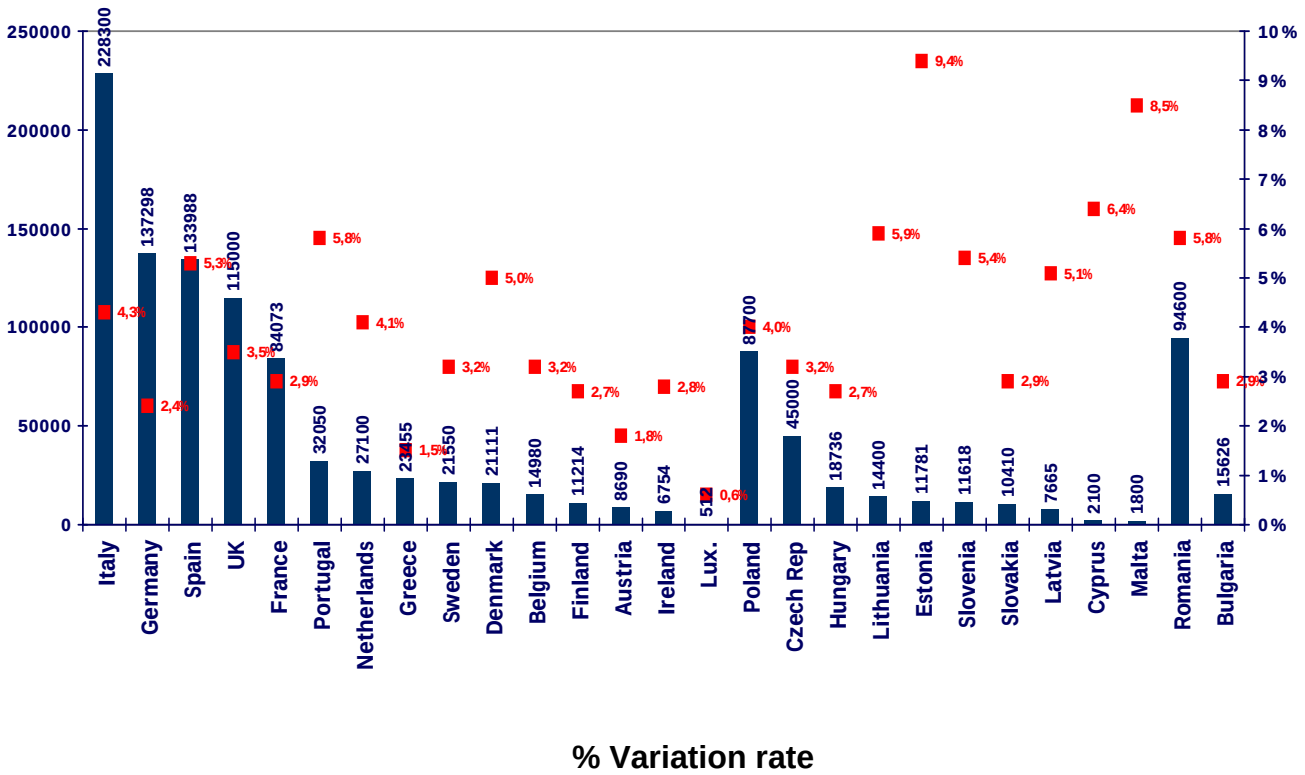
Source: UAE

Figure 5.: Number of firms



Source: UEA

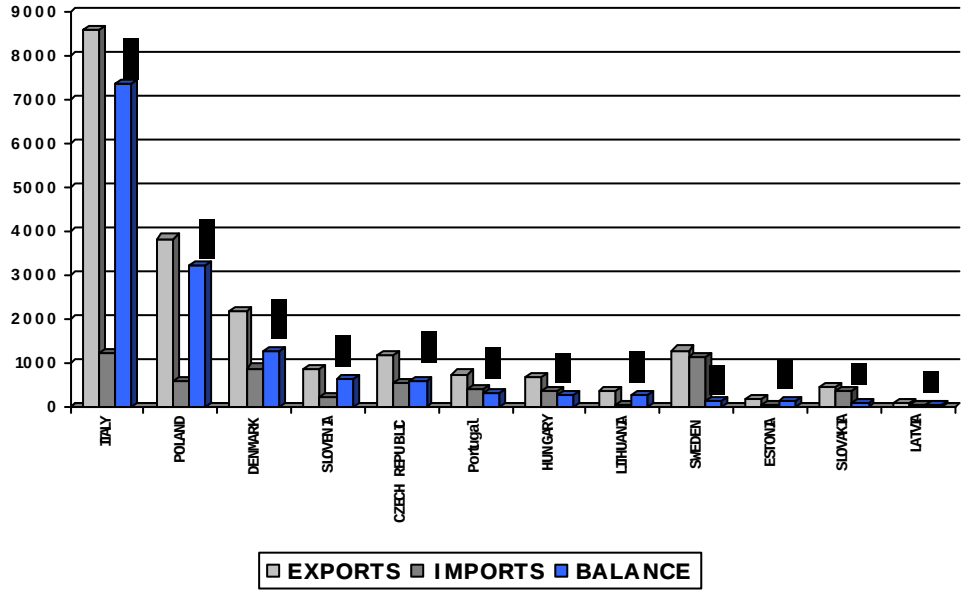
Figure 6.: number of employees in total industry



Source: UEA

In the following figures are presented the trade balance of furniture industry, and it is clear that from the main European countries only Italy and Poland had a positive trade balance in 2005. Germany, France, Spain and the United Kingdom have a negative trade balance, so the volume of imports is over of the exported quantity.

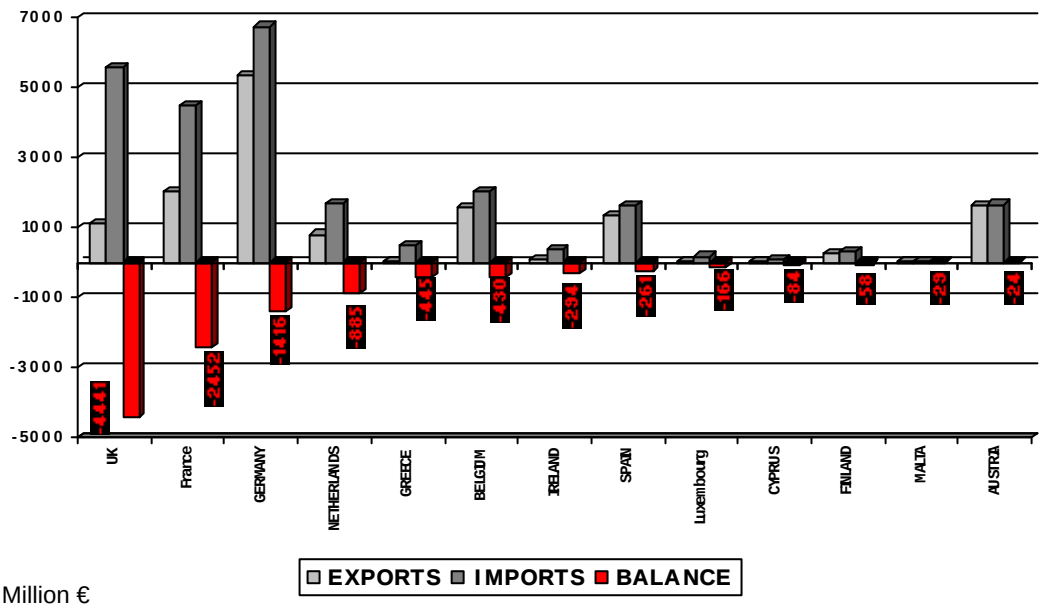
Figure 7.: Furniture trade balance



Million €

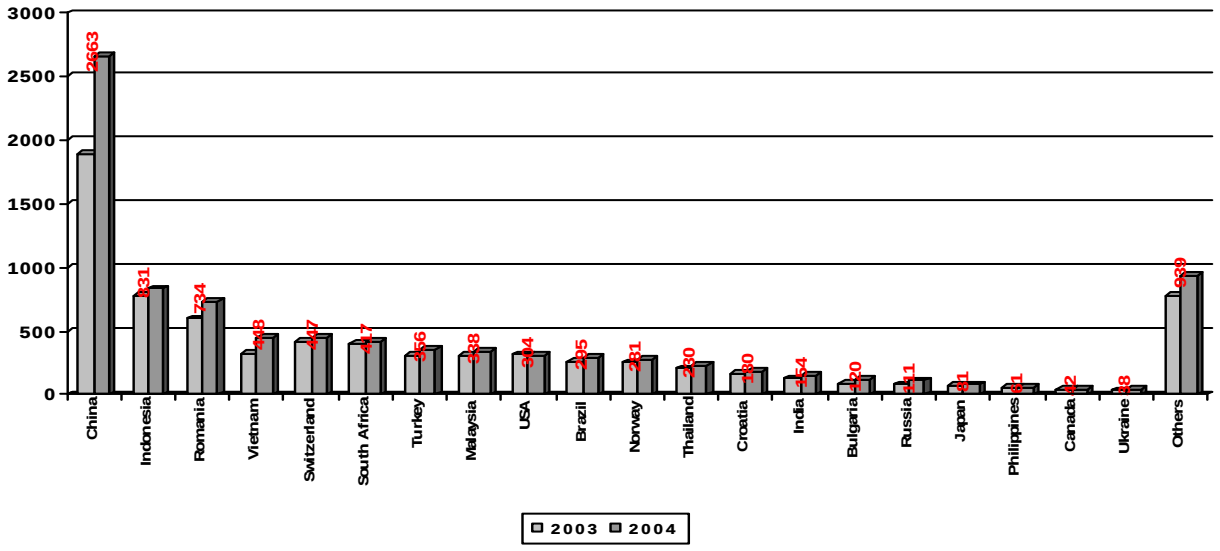
Source: UEA

Figure 8.: Furniture trade balance



Million €
Source: UEA

Figure 9.: furniture extra EU imports



Million €

Source: UEA

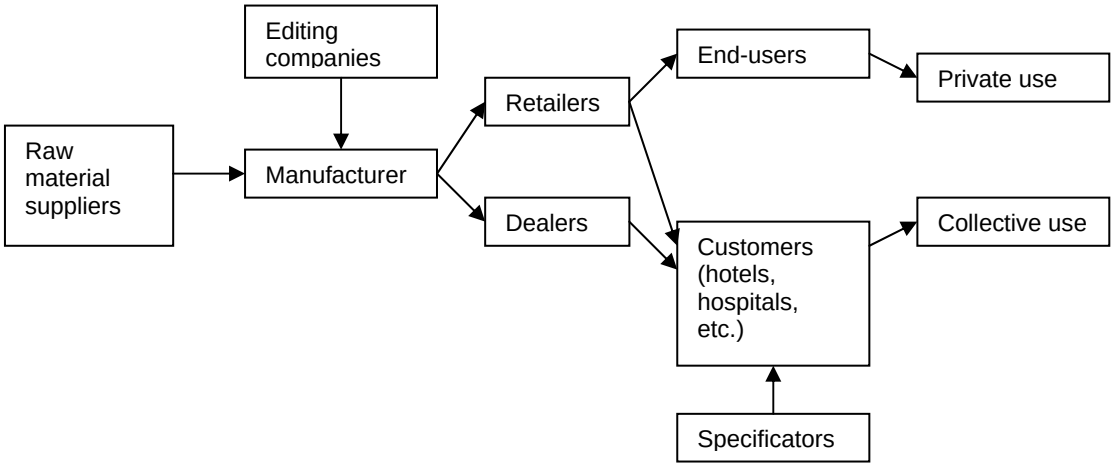
- **Data on retailing home furniture in Europe**

Home furniture is distributed to the end-users through retailers, in 100 000 sales points, employing 600 000 people. The distribution usually is not integrated to production. Only some manufacturers develop their own brands, the brands are identified by the retailers. In case of large scale retailers the imports are growing. The 50% of home furniture sold is of imported origin. 30% of the market is controlled by buying groups, and 20% of the market is controlled by chains.

In Europe there are different distributing structures existing, hereinafter we are mentioning the three main situations:

- An advanced retailing consolidation process: large scale retailing, in Germany the 80%, in France the 60% of the sales is distributed this way.
- Retail consolidation in process: the 31% of the sales in the UK, and 22% of the sales in Spain are realized this way.
- The distribution is realized in Italy and in small countries through few large retail sales points.

Figure 10.: Traditional supply chain players



Source: AIDIMA

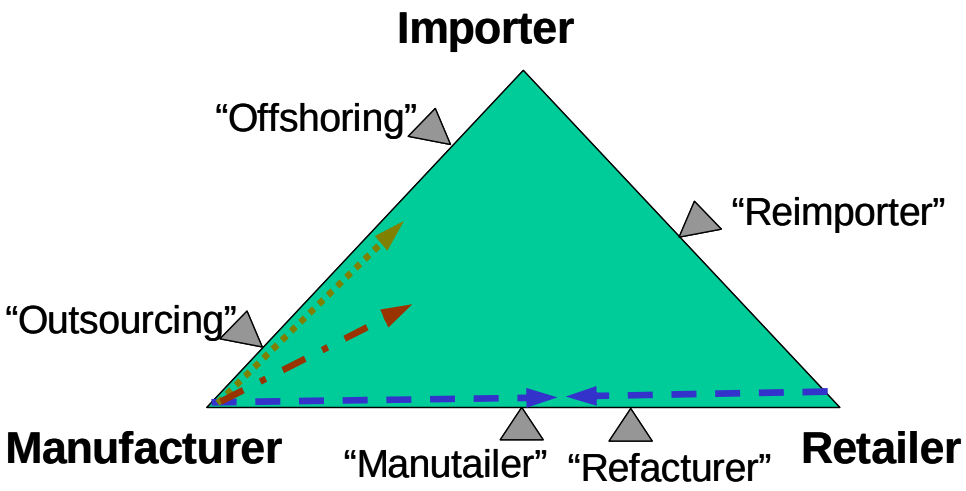
The foreseen evolution of the industry that are impacting sustainability:

Globalization has a negative impact on economic and social sustainability of European furniture industry with the fact that manufacturing to a great extent is mainly re-located to emerging countries, manufacturers at their European plants are focusing on the processes where real value is created, the rest of the processes are usually outsourced. Competition is mainly focused on price and low costs, while value-added strategies should be implemented.

Nowadays, there are new trends impacting the furniture business models:

- The consolidation of retailers, meaning a more concentrated power of retailers.
- The re-location of production and outsourcing of activities makes producers be able to reduce their costs.
- The integration of strategies all along the supply chain (backward and forward integration) resulting a more effective inventory adjustment.
- There is also a trend that not only retailers, but manufacturers are investing in branded articles, their development, and trade marketing.
- There is also an increasing participation of consumers in the supply chain to be observed. In the different phases of consumption (not only at the moments of purchasing) there is a certain value generated.

Figure 11.: Implications of globalisation on furniture business models



Source: AIDIMA

5.1.2.1 Spain

The furniture industry in Spain contemplates numerous activities and agents, both in the field of manufacturing and in relation to other auxiliary activities and of the sector itself. From a Vertical focus, the furniture industry analyses itself below the concept of the value system. In the furniture Value System, it includes all the activities and agents that participate in the generation of the value associated with the product, including the group of activities that cover from the supply of materials and the manufacture of the furniture to the sale of the product to the final customer through distribution channels. In this sense, the furniture industry consists of suppliers of materials, manufacturing companies and distributors of furniture. Locating the activity of the furniture manufacturers in the value system results important for the following reasons:

The profitability of the companies depending on the generation and redistribution of value in the system consisting of suppliers, manufacturers and retailers. In this sense, the value system constitutes how the axis of reference of analysis for explaining and understanding the evolution of the furniture industry. In the search for better profitability the companies can adopt strategies of integration: in the case of suppliers, vertical integration can exist forwards, assuming their own furniture manufacturing processes (for example, a supplier of wooden boards deciding to produce their own furniture Kit). In the case of distributors, the integration can be backwards, assuming functions that are traditionally occupied by manufacturers (for example, the design of programs). The most common case is manufactures opening their own retail outlets, in response to the loss of negotiating power which is a result of the tendency for concentration in the Retail sector
All this implicates a strategic change in the way that value is generated in the furniture sector, given that the companies assume processes that until the

moment fulfil other agents in the value system. It's about global focus on the whole system, in which the subdivisions are more diffuse and the interrelations stronger each time.

The evolution of the activity of the manufacturers this relates with the evolution of the rest of the agents (suppliers and distributors), therefore the importance to know and understand the business changes in the following stages of the value system.

In a harmonious way with the segmentation and terminology utilized in the Spanish Observatory of the Market of the Furniture, the own subsectors of the industry furniture-maker in Spain are presented in the following table.

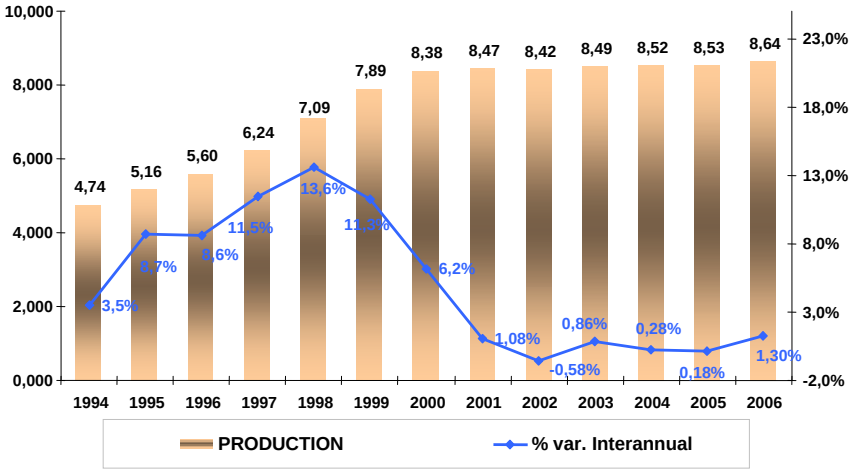
Table 2.: Productive Subsectors of Furniture in Spain..

Home Furniture: Classic Style. Modern Style. Rustic Style. Design. Rattan. Upholstery.
Kitchen and Bathroom Furniture
Office Furniture.
Others: Community furniture, furniture kits, Exterior furniture and garden...

SOURCE: Spanish Observatory of the Market of the Furniture, AIDIMA.

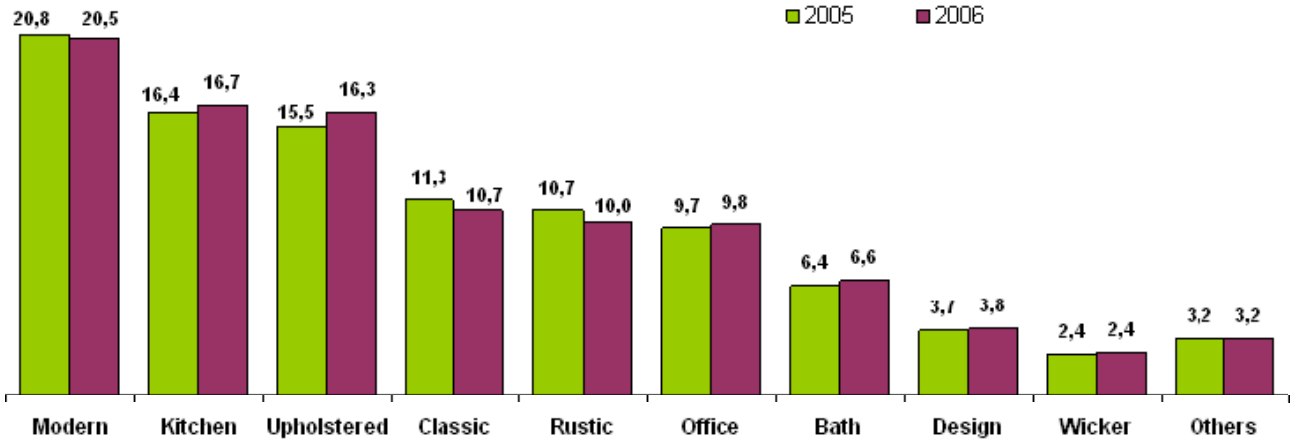
The Spanish production of furniture for the year 2005* (data reckoned in function of the expectations for the fourth quarter of the 2005) was valued in 8.573 million Euro, what supposes approximately the 1'2% of the GDP of Spain. This estimation is based on the results obtained in the Spanish Observatory of the Market of the Furniture (industrial board of businesses), carried out by AIDIMA. This value of the production is the highest one since has data (year 1993), in spite of the fact that since the year 2000 the growth rate of the production is maintained practically stagnant, oscillating between the 1'08% of 2001 and the –0'58% of the year 2002 (in nominal terms).

Figure 12.: Furniture production in Spain and annual variation



Source: AIDIMA

Figure 13.: Distribution of furniture production by subsectors in Spain . Percentages with respect to the total production of furniture in Spain. Years 2004 and 2005*.



Source: AIDIMA

Table 3.: Furniture production by the subsectors in Spain

Segment	2005	% above total 2005	2006	% above total 2006
modern home furniture	1.771.700.715	20,80%	1.774.624.021	20,50%
classic home furniture	965.146.654	11,30%	924.152.049	10,70%
rustic home furniture	911.582.872	10,70%	860.237.967	10,00%
upholstered furniture	1.320.816.134	15,50%	1.411.457.141	16,30%
design furniture	319.746.364	3,70%	328.067.763	3,80%
rattan furniture	201.492.146	2,40%	204.806.692	2,40%
Total home furniture sector	**5.490.484.884**	**64,40%**	**5.503.345.633**	**63,70%**
kitchen furniture	1.396.045.058	16,40%	1.447.279.912	16,70%
bath furniture	542.756.657	6,40%	572.581.135	6,60%
office furniture	828.783.521	9,70%	850.207.575	9,80%
others	272.660.706	3,20%	272.660.706	3,20%
TOTAL SECTOR	**8.530.730.826**	**100,00%**	**8.641.203.790**	**100,00%**

Source: AIDIMA

Table 4.: Furniture production by subsectors between 2001 and 2006

Subsectors	2006	2005	2004	2003	2002	2001
modern home furniture	**1.774.624.021**	1.784.219.006	1.818.890.126	1.825.782.455	1.817.738.960	1.825.940.884
classic home furniture	**924.152.049**	970.960.572	966.213.782	989.973.137	1.044.000.144	1.119.451.156
rustic home furniture	**860.237.967**	909.365.395	915.902.820	929.850.579	953.913.035	939.255.707
upholstered furniture	**1.411.457.141**	1.335.929.806	1.328.020.892	1.272.477.260	1.220.116.897	1.202.589.160
design furniture	**328.067.763**	319.300.578	323.124.206	322.157.733	314.883.914	303.222.627
rattan furniture	**204.806.692**	200.873.255	215.960.299	208.758.143	220.587.127	226.882.069
Subtotal of home furniture	**5.503.345.633**	**5.520.648.612**	**5.568.112.126**	**5.548.999.307**	**5.571.240.077**	**5.617.341.603**
kitchen furniture	**1.447.279.912**	1.394.743.714	1.320.524.119	1.301.329.509	1.280.584.048	1.258.308.992
bath furniture	**572.581.135**	540.811.753	539.255.129	524.439.707	520.316.201	528.103.326
office furniture	**850.207.575**	838.914.260	805.210.154	830.970.231	808.258.176	826.589.978
Others	**272.660.706**	278.018.875	282.436.643	286.234.193	238.957.844	237.977.806
TOTAL SECTOR	**8.641.203.790**	**8.573.137.214**	**8.515.538.171**	**8.491.972.946**	**8.419.356.346**	**8.468.321.705**

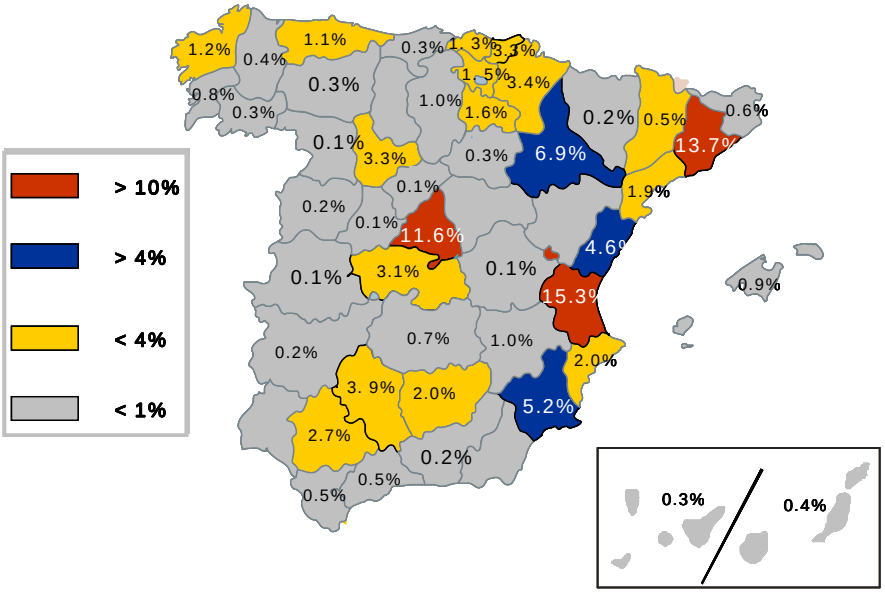
Source: AIDIMA

Table 5.: Consumption by distribution channels in Spain 2006 Percentage distribution of the volume of market according to channels of distribution.

Distribution channels	Volume of consumption (€)	Volume of consumption (%)
Independent shops	3.399.088.649	41,70%
Big territory	1.096.731.248	13,40%
Franchise	1.078.993.976	13,20%
Department store	981.517.419	12,00%
Chain of shops	877.832.118	10,80%
Buying groups	243.202.292	3,00%
Hypermarkets	222.466.690	2,70%
Do it yourself shops	115.349.518	1,40%
Others	100.004.641	1,20%
Carpenters	33.050.197	0,40%
Websites	6.357.369	0,10%
TOTAL	8154594118	100,00%

Source: AIDIMA

Figure 14.: Geographical distribution of the production of furniture In Spain in 2003.

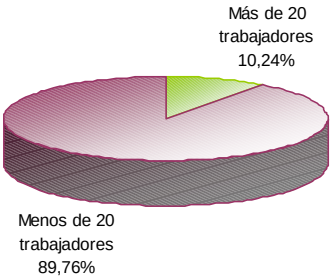


Source: AIDIMA

According to data of the National Institute of Statistics (INE), in 2003 there were in Spain 13.315 businesses with wage earners in the sector of the furniture. It is estimated that around the 90% of the businesses of the sector in Spain they are PYMES (Small and Medium Businesses), having less than 20 workers in staff. Only the 10'2% of the businesses employed more than 20 workers in 2003.

Figure 15.: Size of the **Furniture** manufacturer companies in Spain according to the number of employees in 2003.

Source: Elaboration AIDIMA from data of INE.



- **Exports**

The exports of Spanish furniture registered a negative growth rate of the –3'4% in the 2004 with regard to the results of the 2003. In 2005, foreseeably this rate will be situated in around al 3'14%, this supposes a change of very important tendency since after 5 exercise of recession Spain enters a dynamics of growth.

The main market of destiny of the exports of Spanish furniture is the European Union (74'8% of the total of exports, data 2004), being France the main country, with a quota from the 30'2% of the total of the Spanish exports of furniture in the 2004. Portugal and United Kingdom are the following Spanish furniture receiver countries, with quotas of the 14'7% and 7'2% respectively. Therefore, the national furniture exports half (52'1%) they are directed to three countries of the European Union (among France, Portugal, United Kingdom, Italy and Germany reach the 62'7% in 2004). This structure has been maintained practically stable in recent years, except for the exports to Germany, which they have passed to be the third Spanish furniture receiver country to be the fifth one in 2004. In 2005, France and Portugal hoarded approximately the 36% of the sales of furniture abroad. The European Union continues being the market of fundamental destiny for the European exports that nevertheless, also they have found market in the United States (3'53%) and some points of Latin America as Mexico (2'19%).

Table 6. Main countries of destiny of the exports of Spanish furniture, 2001-2005*. Millions of Euro.

Country		2001	2002	2003	2004	2005*	% 2005*	Evolution 05*/04
1	FRANCE	371'09	388'69	408'99	420'95	444'73	30'95%	5,65%
2	PORTUGAL	237'36	231'31	215'63	204'95	208'99	14'54%	1,97%
3	UNITED KINGDOM	103'86	95'11	107'17	100'05	93'3	6'49%	-6,75%
4	ITALY	73'11	69'67	74'06	74'52	77'5	5'39%	3,99%
5	GERMANY	152'54	110'23	90'95	74	71'1	4'95%	-3,92%
6	UNITED STATES	76'46	69'04	62'82	63'61	50'7	3'53%	-20,30%
7	NETHERLANDS	44'33	41'47	40'66	40'47	42'49	2'96%	5%
8	RUSSIA	59'41	49'78	47'43	45'20	42'17	2'93%	-6,71%
9	BÉLGIUM	39'53	33'94	34'94	37'04	33'98	2'36%	-8,25%
10	MÉXICO	25'09	31'07	26'86	26'15	31'51	2'19%	20,50%
11	GREECE	17'37	18'57	15'80	18'04	20'95	1'46%	16,14%
12	ANDORRA	15'96	18'99	19'09	16'69	18'19	1'31%	13,17%
13	MARRUECOS	7'80	13'06	11'41	20'34	16'36	1'14%	-19,59%
14	SOUTH AFRICA	20'79	18'35	14'10	12'04	14'78	1'03%	22,79%
15	IRELAND	13'01	14'38	15'01	14'49	14'7	1'02%	1,45%
REST OF THE WORLD		333,00	295'51	257'70	224'91	255	17'74%	13'38%
TOTAL		1590,71	1.499'17	1.442'62	1.393'45	1437'16	100%	3'14%

Source: AIDIMA

- **Imports**

The main origin of the Spanish importing is France since 2003 the purchases of French furniture from Spain do not they do without or that to enlarge, at present they suppose the 18'34% of the total importing that Spain has received. The French industry supplies al Spanish market of many goods, therefore no wonder their position emphasizes in the environment of the furniture. In second Chinese place appears noticeable like another of the origins of the Spanish purchases of furniture. The Asian power is finding an attractive market in the European Union. Its potential capacity turns out to be gaudy since with a growth rate of the 40'48% in 2005 seems the Chinese furniture still have a lot travelled through in front in Spain.

Spain continues buying Italian furniture perhaps by the strong image of quality and design of their products set against the low prices of other they offer complexion. Nevertheless certain stagnation of the Italian sales in our country is observed. The series that reproduces the following Board, permits to observe the lack of dynamism of the importing with origin in Italy, in the last five years barely they have gone maintaining a path of growth less and less pronounced.

Germany is the fourth market of origin of the Spanish importing, in spite of surpass not to Italy in absolute value, the German case is more dynamic than the Italian. A point of inflection in the year is observed 2004, at this time the sales of German furniture in Spain were put to the height of the large commercial associates. As opposed to the Italians, the importing with origin in Germany present an important growth rate grazing the ten points, this permits to predict a good future development. The remainder of countries of them reflected in the following board do not they present absolute volumes close to the markets of origin already commented, but nevertheless some of them they leave to make out a great potentiality of their sales of furniture in Spain by means of its growth rates in 2005, some examples are: Poland (33'62%), Vietnam (44'94%), Turkey (155'25%) and Czech Republic (40'91%)

Table 7.: Countries origin of the Spanish importing of furniture. Period 2001-2005*. Millions of Euro.

COUNTRY		2001	2002	2003	2004	2005*	% 2005*	Evolution 05*/04
1	FRANCE	173'15	165'72	248'87	279'68	363'29	18'34%	28'89%
2	CHINA	81'34	98'48	164'66	219'90	308'92	15'59%	40'48%
3	ITALY	215'96	224'56	258'88	280'54	289'14	14'59%	3'07%
4	GERMANY	153'37	145'82	171'08	232'09	253	12'77%	9'01%
5	PORTUGAL	88'02	81'31	117'63	154'22	139'45	7'04%	-9'58%
6	INDONESIA	63'93	70'48	83'80	83'53	95'11	4'80%	13'87%
7	POLAND	17'22	32'35	24'91	45'01	60'14	3'04%	33'62%
8	VIETNAM	19'68	21'54	23'07	34'69	50'28	2'54%	44'94%
9	USA	17'34	13'13	12'53	15'16	39'48	1'99%	160'42%
10	BRASIL	4'50	9'23	12'62	26'13	35'45	1'79%	35'66%
11	UNITED KINGDOM	37'03	31'88	35'00	31'58	29'26	1'48%	-7'24%
12	TURQUÍA	7'42	4'27	7'42	9'04	23'1	1'17%	155'25%
13	AUSTRIA	9'15	9'55	12'39	19'71	22'58	1'14%	14'58%
14	CHECH REPUBLIC	6'65	9'1	8'66	15'38	21'67	1'09%	40'91%
15	NETHERLANDS	19'54	19'60	17'12	17'13	19'36	0'98%	12'99%
REST OF THE WORLD		123,78	138'06	138'82	171'70	231'05	11'66%	34'56%
TOTAL		1.038,43	1.085'44	1.349'80	1.643'29	1981'27	100%	20'5%

Source: ICEX, elaboration AIDIMA.

5.1.2.2 Germany

The production of furniture in Germany was situated around the 20.000 million Euros during the year 2004. Germany is one of the main producing countries of furniture of the world, although the evolution of the production of furniture in emerging countries has done him to lose weight as world producer during 2002 and 2003. Thus therefore, the production of furniture in Germany has suffered a descent in the last two years, falling since the 22'7 thousands of millions of Euro produced in the year 2000 to the 20'07 thousands of millions in 2004.

Table 8.: Industrial production of furniture in Germany. Year 2003 and 2004

Type of Furniture	Turnover 2003 (Thousands of €)	Turnove2004 (Thousands of €)	Evolution 2003/ 2002	Evolution 2004/ 2003
Chairs and seats	7.314	7.554	+2,5%	+3,3%
Kitchen	3.352	3.504	-3,6%	+4,5%
Home	6.035	5.939	-3,5%	-1,6%
Mattresses	905	922	+4,3%	+1,9%
Office	2.192	2.149	-12,3%	-1,9%
TOTAL	**19.798**	**20.069**	**1,4%**	**-2,1%**

SOURCE: VDM/HDH.

Despite the decrease of the figure of business since the year 2000, the year 2004 registered a positive data since broke the recession of the three last years. The sector of the German furniture grew a 1'4% with regard to 2003, this growth was supported fundamentally by the subsector of kitchen that evolved negative from rates until reaching the greater growth rate of all the subsectors (4'5%). All the subsectors with the exception of mattresses have rapid their growth rate in the 2004 with respect to which they had in 2003. Special mention deserves office furniture (Germany is the major manufacturer inside the European Union) since despite be maintained in negative growth rates in the 2004, their thickness has managed to reduce of decrease passing from the –12'3% (in 2003) al –1'9% (in 2004).

One must indicate that despite that the size of the German business is raised has been reduced the furniture businesses number that include more than twenty workers. Thus same also the employment with regard to 2003 has fallen. A possible cause of this decrease of the employment is the delocalization of the productive activities toward emerging countries with lower labour prices.

Table 9.: Employment in the industry of furniture in Germany. Year 2004 y 2003.

	Year2004	Year 2003	Evolution 04/03
Nº of Furniture	1196	1293	-7,5%

Companies			
Number of Workers	127623	137223	-7,0%

SOURCE: UEA-EUROSTAT

The scarce dynamism of the internal consumption has affected in a special way al sector of the furniture, therefore the German consumer has relegated the purchase of furniture to subsequent positions among its priorities of consumption in the last three years. In the following board the evolution of the indicator can be observed more directly related to the internal demand, the sales al in detail.

Table 10.: Evolution of the sales al in detail in Germany. Year 2002-2003.

	Year 2002	Year 2003	Year 2004
Sales to Final Consumer	-2,20%	-0,60%	-1,73%

Source: La Caixa.

As soon as foreign trade, Germany is one of the main exporting countries of furniture of the world. The total volume of German exports of furniture elevated to 5.258 million Euros in 2004, having enlarged a 0'3% between the years 2004 and 2003 (emphasizing especially the increment of the exports to Belgium in a 25'6%). In the year 2004, Spain occupied the eighth place in the ranking of the countries of destiny of the German exports of furniture. On the other hand, in 2004 a negative tendency in the German exports to three of the main countries of destiny of the same was appreciated: Netherlands, Austria and France.

Table 11.: German exports of furniture: main destinies. Millions of Euro. Years 2004 and 2003.

	PAÍS	2004	CUOTA 2004	2003	Var. 04/03
1	Netherlands	763	14,5%	847	-9,8%
2	Sweden	595	11,3%	576	+3,4%
3	AUSTRIA	538	10,2%	574	-6,3%
4	France	494	9,4%	559	-11,6%
5	Belgium	466	8,9%	371	+25,6%
6	United Kingdom	433	8,2%	428	+1,2%
7	USA	215	4,1%	201	+6,7%
8	**Spain**	**201**	**3,8%**	**192**	**+4,4%**
9	Czech Republic	150	2,9%	159	-5,5%
10	Italy	140	2,7%	137	+2%
	Others	1.263	24%	1.197	+5,5%
	Whole World	**5.258**	**100%**	**5.241**	**+0,3%**

source: Oficina Comercial de España, Düsseldorf.

Germany is the major importer of Europe. In 2004 the furniture of home imported reached the figure of 6.328 million Euros, what supposes a decrease of the 1'8% with regard to 2003. The growth of the German purchases al exterior in the period 1998-2003 supposed a 3'1%. From ends of the ninety, the German importing of furniture of home have their fundamental origin in Europe of the east, especially in Poland and the Czech Republic. This fact causes notes that an important degree of these importing they incorporate product manufactured in businesses of German capital established in these countries, where the labour prices are notably lower. The importing originated in the EU (EU 15) decreased to a rhythm of the 1'3%, they suppose the 33'2% of the German total importing. The new members of the European Union suppose the 40% of the German importing, they have registered a decrease of the 10'9% in 2004 with regard to 2003. The European Union of the 25 countries provides to Germany of the 73'3% of its importing. The importing originating in Asia and the Pacific they suppose the 11% and they originate fundamentally of China. The Asian giant has gone increasing their sales al German market registering a growth of the 38% in 2004; already they cover a quota from the 6'1% of the total of the German importing. The major importing associate of furniture to Germany is Poland, followed by Italy. Poland supposes the 22% of the importing and has registered a growth of the 9'1% yearly in 2004. Italy supposes the 10'7% of quota, nevertheless has registered a decrease of its sales to Germany of the 5'6% since 1998. The decrease more significant has been that of the importing originating in the Czech Republic, a -18'9% in 2004.

Table 12: German importing of furniture: main countries of origin. Millions of Euro. Years 1998-2004.

	Million ECU-EUR							% share		% annual changes	
	1998	1999	2000	2001	2002	2003	2004	1998	2004	04/03	aver. 98-04
Poland	934.6	1006.2	1184.2	1282.2	1306.1	1533.9	1394.2	17.7	22.0	-9.1	6.9
Italy	959.7	903.4	953.7	874.0	781.5	710.6	677.7	18.2	10.7	-4.6	-5.6
Czech Republic	348.1	389.6	439.4	517.4	543.4	572.6	464.4	6.6	7.3	-18.9	4.9
Denmark	370.0	343.0	364.8	368.1	353.1	378.4	400.8	7.0	6.3	5.9	1.3
China	69.4	97.9	158.5	176.2	199.0	278.5	384.5	1.3	6.1	38.1	33.0
Austria	296.5	349.7	354.1	325.3	392.1	355.2	326.6	5.6	5.2	-8.1	1.6
South Africa	270.3	251.8	268.5	270.0	265.4	267.7	296.5	5.1	4.7	10.8	1.5
Slovenia	230.3	277.6	279.5	315.2	296.5	266.7	279.6	4.4	4.4	4.8	3.3
Hungary	117.1	145.6	188.2	201.0	213.2	222.6	198.3	2.2	3.1	-10.9	9.2
France	171.5	158.1	174.1	171.7	158.6	180.3	175.4	3.2	2.8	-2.7	0.4

Source: CSIL

5.1.2.3 Sweden

Table 13.: economic indicators of Sweden in 2004.

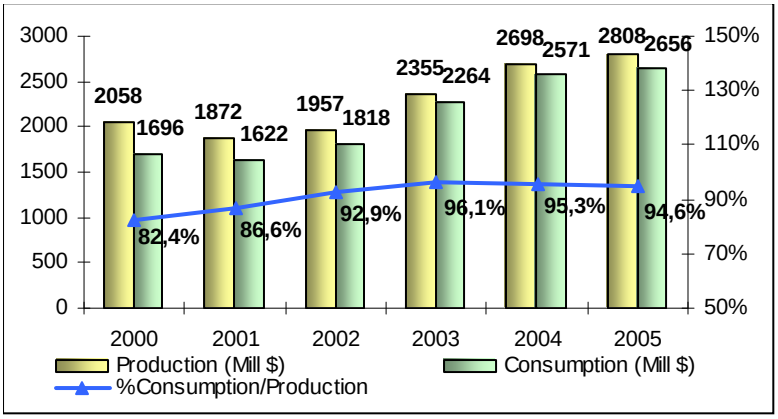
Economic indicators

			Ranking*
Population	millions	9	37
Area	thousand square km	450	20
Total GNP	billions of US$	321	19
Per capita GNP	US$	35770	6
Household Consumption Expenditure	billions of US$	148	23
Data at Purchasing Power Parity (PPP)			
Total GNP at PPP	billions of US$	267	29
Per capita GNP at PPP	US$	29770	13

Source: World Bank (2004) * Ranking of Sweden among 60 countries, last available year

After a small decline in the growth of Sweden's furniture manufacturing industry in the year 2001, in the year of 2002 the level of production has not reached the amount of production of the one in 2000. The Swedish furniture industry could get out of this negative wave only in 2003, when the production has increased by 303 million euros, compared to the output of the year 2000. Since 2003, the production is increasing each year, but the growth production of 2005 has slowed down again. There are no data available at the moment in respect of the year 2006.

Figure 16.: Furniture production and consumption in Sweden.



Source: AIDIMA

As hereabove mentioned, there are no data available on production for 2006, nor for consumption for the relevant time, but according to some estimations detailed herebelow, there is expected a slower growth of consumption.

Table 14.: Estimated real growth of furniture consumption in Spain for 2006, 2007

Real growth of furniture consumption. Forecasts

2006	2007
3%	2%

Source: CsilMilano

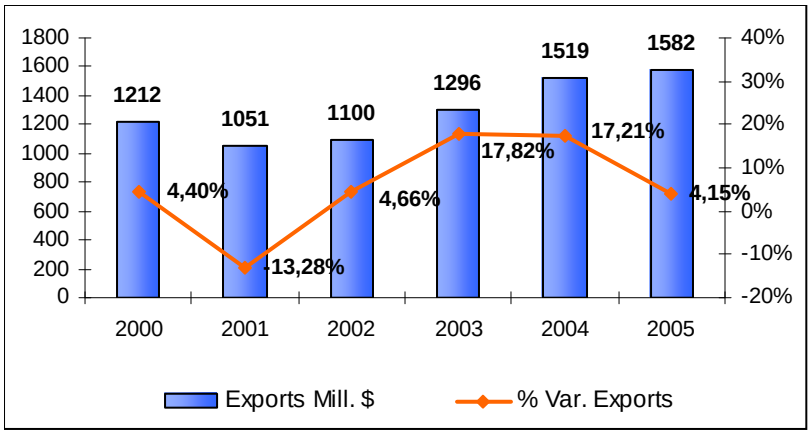
- **Exports**

As earlier seen the data on production we can discover the same tendencies concerning Sweden´s furniture exports; there was a big decrease in the volume of production in 2001 that has affected the exported quantity, so there was a big

decline in the volume of exports in 2001. The volume of exports in 2002 has grown compared to the numbers of 2001, but did not reach the volume of 2000. After this crisis, the exports have started to grow, but in 2005, the rate of growth has slowed down again, and with the fact there are no data available on the years 2006 and 2007, the forecasts indicate an estimated decline of exports of Swedish furniture industry. According to the data of 2005, the destinations of furniture exports are mainly in the European Union, the biggest importer of Swedish furniture is Norway (which is not EU member); almost the 30% (29.8%) of Sweden's exports are destinated to Norway. The second largest importer of Swedish furniture is Denmark, bearing 10.7% of the total Swedish exports.

UK, Germany, Finland are following Denmark, by 8.4%, 8.1% and 7.9%. The 6% of the Swedish exports are going to the United States which is the only country amongst the destination countries that is not European. France, Belgium, The Netherlands and Switzerland are following the US, by the following shares of the total exports: 5.1%, 2.9 %, 2.6%, 2.5 %.

Figure 17.: Swedish furniture exports from 2000 to 2005

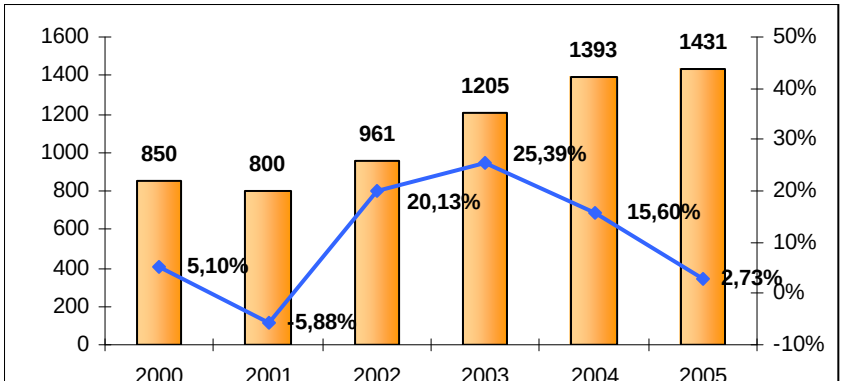


Source: AIDIMA

- **Imports**

In 2005 the majority of the furniture imported to Sweden is arriving from Denmark, which covers the 14.5% of the total imports. The second biggest importer to Sweden is China with the 12.9% of the total imports. All other origins are European countries. Poland is exporting the 12.4 % of the Swedish imports, Germany, Italy and Lithuania are also the major exporters to Sweden, there are arriving the 11% of the imports from Germany, 6.4 % from Italy, and 6% from Lithuania.

Figure 18.: Swedish furniture imports from 2000 to 2005.



Source: AIDIMA

Table 15.: Origins of Swedish furniture imports, Destinations of Swedish furniture exports in 2006.

Origin of furniture imports				Destination of furniture exports		
		2005				2005
Denmark		14,5%		Norway		29,8%
China		12,9%		Denmark		10,7%
Poland		12,4%		United Kingdom		8,4%
Germany		11,0%		Germany		8,1%
Italy		6,4%		Finland		7,9%
Lithuania		6,0%		United States		6,0%
Norway		4,9%		France		5,1%
Finland		4,1%		Belgium		2,9%
Romania		2,5%		Netherlands		2,6%
Estonia		2,20%		Switzerland		2,5%

Source: AIDIMA

Table 16.: Swedish apparent consumption from 1996 to 2005.

The furniture sector. Millions of US$

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Ranking**
Production	2024	1851	2094	2071	2058	1872	1957	2355	2698	2808	16
Exports	1168	1121	1204	1192	1212	1051	1100	1296	1519	1582	15
Imports	591	621	730	838	850	800	961	1205	1393	1431	13
Consumption*	1448	1350	1621	1717	1696	1622	1818	2264	2571	2656	17

* Apparent consumption = Production - Exports + Imports ** Ranking of Sweden among 60 countries, last available year

Sources: CsilMilano, Eurostat, Statistics Sweden

5.1.3 Consumers´ attitudes and perceptions on wood-based products

5.1.3.1 Professional buyers

5.1.3.1.1 Spain

5.1.3.1.1.1 Furniture purchasing process

Hotels

As the first step we encounter procedure disparity among different hotel businesses. A general pattern of furniture purchases of hotels will be modified by the characteristics of companies. Besides, our analysis is not exclusively limited to purchasing, it also includes the whole installation process; it covers from the choice of a design to the final installation. As a consequence, there are four stages in the process: the initial decision, the design project, the selection of suppliers and the execution of the hotel furnishing project.

The agents that are taking part are: The hotel proprietor (investors), the managing company (responsible for installation projects through different specialized departments (building, purchases…)). Interior designers, architects (specifying role) (They define the installation project according to the directives of the proprietor and of the management company), the specialized installation company (it manages the hotel installation project and offers management, execution and final installation service, and occasionally, even design) and the product supplier (the manufacturer of the different elements that makes the installation (furniture, fabrics, lighting, carpets, etc.).

The process of furniture acquisition for hotels is clearly determined by the design project in the early stages of the hotel installation.

The indications and orientations established in the design project must be followed in the choice of the different interior design elements (furniture, lighting, fabrics, carpets, etc.). For this reason design is the first requirement of clients. In the case of large hotel companies, it is frequent to find the production of pilot rooms and models that show the design project idea: suppliers that obtain the project allocation must be faithful to pilot models, adjusting the design of their products to the project (in later stages of the process some modifications are admitted in relation to materials and details concerning products).

It is usually interior designers who define the outline of the hotel design and they make one or several design proposals to the Proprietor and the Management of the hotel, so that they can choose the proposal which suits better their initial idea. The proposal selected is the basis for a project that usually specifies the design of the elements for the future installation (type of finishing, of woods, colours, etc.). Therefore, in the project definite aesthetic indications are found. On the other hand, the project does not normally indicate manufacture manes, except for particular pieces and special elements. Technical features of products (quality, thickness, etc.) are not usually included in the project, this aspect is left pending for the selection of supplier stage.

A total prescription can also be offered to the managing company and to the proprietors. In that case, the offering enterprise will have a high degree of specialization and provide specialists in collective use installations that are highly conscious of quality, safety and environmental regulations.

In the “contract market” suppliers are required a high degree of specialization,

not just concerning the manufacture of products, but also in relation to services connected with it. A hotel, as a client, does not just expect the products, it will also demand their installation.

The supplier may present a quote adequate to the client's budget, good products and a reasonable service. But there are other aspects that determine the allocation of projects. Due to time factors, the flexibility of suppliers is particularly important, flexibility concerning the adaptation of the product design to the project specification and the manufacturing capacity. The exact timing of delivery is also of great importance. Besides, a previous acquaintance with suppliers (especially for international chains) and certain exclusivity are also important.

Quality of the product is another criteria used for the choice of a supplier. Sometimes hotel businesses have a quality department that defines the characteristics of products, however it is those responsible for purchases or projects that decide at a later stage. In some cases, the characteristics of products are defined at the time of the installation project or are detailed when dealing with the supplier. Quality is an essential aspect that determines often what is purchased, but those responsible for purchases in the hotel trade lack objective criteria to determine if a piece of furniture has the quality required. It is surprising that they, despite having some knowledge concerning furniture materials and finishing, do not contrast the quality of furniture. Usually the supplier's name and previous experience of it at other projects is enough for the hotel trade client to trust the quality of furniture. Ignition chances and response to fire of the different elements in a hotel installation, especially mattresses, is the only aspect concerning technical specification that interests those responsible for purchases in the hotel trade.

5.1.3.1.2 Sweden

5.1.3.1.2.1 Furniture purchasing process

Hospitals

For the traditional hospital, the most important key point is the price as well as the function in order to satisfy different demands such as wash ability and the ability to pile up the furniture's during room cleaning. Good wearing qualities are important as well as the supplier agreement.

For the modern hospital, the most significant aspect was design of peaces that suites to the total image of the hospital. Material that peaces were made of did not play any role.

Hotels

For the hotels, the most important key point is the price. The quality and the design are also important. Environmental aspects are considered, but definitely not significant.

5.1.3.1.2.2 Perception on wood as material for furniture

Hospitals

For the traditional hospital wood was considered to be a material that was more beautiful and with a warmer feeling compared to other materials. The negative aspect was that wooden furniture's was worned out faster than metal furniture.

The hospital, which business is in plastic surgery expressed negative opinion about wood as furniture material that associates with "old" image.

Hotels

One of the hotel chains did prefer wood as material for furniture, another was more material neutral. Material should fulfil safety requirements.

5.1.4.1 End Users

5.1.3.1.3 Spain

5.1.3.1.3.1 Lifestyles

In case we dig into the mentality of the people we can find a big variety of lifestyles which set and provide more inputs to describe the individual persons and/or their home in function which shows how the consumers live in reality.

In our focus groups, we can find very different people, with different priorities, different principles, different opinions:

The major part of the adult group (six of them) has modern lifestyle, which means modernity, active life, high social status, progressiveness, ability to adopt technology, and a general optimism. In case of the adult focus group the modernity explained hereabove is accompanied by idealism, which means: solidarity, preference of personal values, trusting the people, independency in different aspects, they are liberal, nonconformism, so they are having a tendency to change the things instead of accepting them as they are coming, they like adventures and taking risks, deep way of thinking and environment consciousness. They are ready to make efforts for environmental issues, they evaluate nature very high, but they are having a pessimistic attitude concerning the environment´s deterioration. There were only two people in this group who were closer to a traditional lifestyle that means a traditional way of thinking, lower social status, a general pessimism towards the future, inactivity, and the refusal of using modern technology. People of traditional way of thinking are worried about their own and about their relatives´ health and security, they prefer natural medical methods, and they are religious, believing in traditional values, traditional models of social relations and orders. They are nostalgic, they prefer traditional habits to modern ones. They are not really interested in environmental issues.

The majority of the young focus group (5 of them) is having a modern lifestyle, coupled by idealism, as we have already described hereabove in case of the adult group. Three of them are having traditional lifestyle, coupled by materialism, with the following characteristics: impulsive way of thinking and also shallowness in this aspect, consumerism, materialism, individualism, dependency on others, and disability to make their own decisions.

The two focus groups according to their lifestyles seem to be more or less homogeneous, and very similar to each other even if the 16 people are divided into two different age groups. We can say that their opinion is representing the opinion of the average Spanish consumer.

5.1.3.1.3.2 Buying process

Adult Group: Collecting information from magazines, catalogues, and through the internet before buying. Common decision making. According to their necessities (age of their children, lifestyle…) they are buying furniture of good quality for themselves that they are not changing in a short time-slot, for their children they are buying modern ones of cheap retail chains and they have tendency to change it in short time (each 4 yrs). Some exception: according to the lifestyle there are tendencies renovating antique furniture, or buying renovated antique furniture. They are also buying furniture directly from the factory. The factors that are mainly influencing their purchase: functionality, price.

Young group: Collecting information mainly through the internet and catalogues. It takes a long time for them to make a decision, so it is a long process to make a purchase, decision making depends on lifestyle, marital status, etc. The members of this group are buying cheap, modern furniture mainly in small furniture shops in their neighbourhood, because they receive a better service and more attention than anywhere else, at sales points of cheap retail chains of wide range of products and of big territory, but they are not satisfied neither by the service, nor by the quality of the products that are offered at big department stores of big surface .They are also arranging their purchases directly in the furniture factories. They are changing their furniture frequently, and they are intending to buy furniture made of wood. The factors that are mainly influencing their purchases are: price and design.

5.1.3.1.3.3 Perceptions on wood as raw material

General opinion of the Adult Group: The products made of wood are the most natural ones, aesthetic and very expensive, especially products made of solid wood. Good furniture means solid wood furniture.

The wood from the aspect of functionality is covering all the expectations: it is persistent and long lasting, very convenient and functional. Furniture made of wood is expensive. Generally the consumer confidence is high, concerning the quality of furniture made of wood, and this material is ideal for each kind of design. Wood is a material for furniture of a very high social acceptance

General opinion of the Young group: Products made of wood are very expensive.

Wood is clean and practical, but could be very dirty for example the furniture made of wenge. It is a material for furniture that is very expensive, but sometimes it is worth to pay more for furniture, that is made of wood. There is no high confidence towards the wood as material for furniture, because it can crack and humidity can ruin it very easily. Wood can be shaped in many different ways so it is acceptable for designed furniture .The members of the group have denied their sensibility for social acceptance, but agreed that wood is a material of high social acceptance

5.1.3.1.3.4 Perceptions on wood in comparison to other materials

There was compared wood to other raw materials for furniture production in the following order: aluminium, rattan, plastic, glass and cardboard (carton): Wood is positioned as the second most aesthetic, and some people have ranked it as the second one .

Adult group: Wood as material is clean, nice, natural and long lasting. The weight is not ideal. Aluminium is easy to clean, but it is not having as good appearance as wood. Wood is expensive, wood is a material that is carrying a value , only glass is estimated to be more expensive. The materials of highest quality are wood and glass, they are followed by the aluminium. Wood and glass are the most prestigious ones as materials, but wood is not unequivocally the first one in the ranking.
Glass is seen as the most aesthetic material Wood is positioned as the second most aesthetic, and some people have ranked it as the second one .
The materials socially most accepted are wood and glass, followed by the aluminium.

Young group: Aluminium is a very functional material for producing furniture, and this is their opinion about the plastic as well. Rattan and cardboard are the less functional ones. Wood and glass are ranked as medium functional materials. Wood and glass are estimated to be the most expensive ones. Some people have indicated wood as the material of the highest quality, but some of them have indicated aluminium to be at this position of the ranking, and wood was put by them into the middle of the ranking. Spanish consumers have indicated beyond doubt glass to be the material of design furniture, followed by wood and aluminium. The members of the group have agreed on that wood is unequivocally the most prestigious material for furniture.

5.1.3.1.4 Sweden

5.1.3.1.4.1 Buying process

Adult group: For the consumers it is important that the furniture's fit into the style of the home. The design and look of the furniture's are important as well as the quality. Many consumers prefer Nordic wood and likes environmentally friendly materials in their furniture's. It is important that the furniture's feels right, attract the consumer in the right way.

The quality, the function and the price are important for consumers when they buy furniture's as well as that the furniture's should be comfortable.

It is considered to be a problem to transport old furniture's to the recycling station, it is heavy and there is a need of a car. When they deliver new furniture's it would be preferable if they took care of the old one's at the same time.

There is a demand/wish for more environmentally labelling and classification of furniture.

Young Group: For the consumers the most important key point is the design and look of the furniture's in combination with the price. Other factors that are important are quality and how well the furniture fit into the home. Furniture's that are made of wood are considered good but to "dark and heavy" look are not preferred. Plastic furniture is not popular.

5.1.3.1.4.2 Perception on wood as raw material

Adult Group: Wood is a genuine material and is considered to be an environmentally friendly material. The wooden furniture's have a better look compared to plastic furniture.

Young group: Furniture's made of wood are considered to have a nicer look compared to plastic furniture's and are lighter compared to metal furniture's. Wood is a nice material and can easily be redesigned (repaint, adjust its' size, add a screw etc).

5.1.3.1.4.3 Perception of wood in comparison to other materials

Adult group and Young group:

Wood is a genuine and nicer material compared to plastic, lighter than metal. Wooden furniture's is changing during time, wooden furniture is easy to renovate (paint or adjust its' size).

5.1.4 Sustainability

Germany has been analysed, as being one of the most sustainable concerned markets in Europe. According to the experts of the German market the factors that are the most important when people are buying furniture in Germany are quality and design. They have also mentioned as key factor the relation of quality to the price, and also the brand. According to their opinion other factors are also appearing in these decisions. German buyers are looking for ecologic products and the best additional services.

Answers concerning the importance of sustainability and environmental issues in the German furniture market have reflected that German buyers are taking care of their and their families´ health. This means that they are looking for products that are made of the most possible natural materials. They are choosing products that are made of non-toxic and non-polluting materials and also those ones that are produced in an environmentally sound way without contamination of the environment. German consumers are very exigent on this topic and they require information about this directly from the producers in practice as well. German buyers know quite well that their life standards are rising by selecting environmentally sound products.

They are also paying attention to social aspects so they are refusing products that are manufactured by children. One of our experts have mentioned, that even if German buyers are very keen on environmental issues, the increasing quantity of furniture imports from Asia (where these are issues are not considered) to Germany is not reflecting this attitude.

Influence of sustainability on marketing mix:
Price: All the experts agreed on that the use of ecological products and environmentally sound processes in manufacturing are resulting higher final product prices.
Product: According to the experts quality is the most important aspect of the German furniture industry. Until now the high prices were making ecologic products very exclusive and from now there is a perceptible trend that sustainable and "green" products are getting more "democratized".
Service is not influenced by sustainability during the purchasing process in Germany.

Only German and some other European producers are integrating the values of sustainability in their products. On goods imported from "low cost" countries (India, China) there are no information provided about ecological and social aspects. They have also agreed, that for suppliers it takes more effort to offer sustainable materials, for the producers it means higher pricing and a little bit limited range of materials, for retailers it also means higher pricing and less

variation of materials, and this all is based the moral principles of the suppliers, producers and retailers.

According to the opinion of the experts, for German consumers sustainability is a critical factor when they are buying furniture, they are making the decision on buying ecological or non-ecological products. It is important for them when they are using them as well, cause it is essential to have furniture that are not putting in danger their health by toxic components, and at the end of the life of the furniture they are focusing on the recycling opportunities. The limit could be the lack of information on sustainability communicated. The communication costs are limiting the companies to provide information for the buyers.

5.1.4.1 Business model sustainability

5.1.4.1.1 Economic sustainability

Economic sustainability of the furniture industry in high cost countries, understood as the feasibility of current business model for manufacturers, is not clear. Three main facts change the scenario of furniture manufacturers in Europe:

1. Globalisation: increase of extra-European competition at very low cost (China, India, etc.). Competition in price is no longer a sustainable strategy.

   Experts active at market, especially at non-EU market such as India expressed strong believe that there is an increasing rivalry from this region. Strong annual growth rate, active development in many sectors, average annual pay for job lower that in China, young educated nation which is a great source of knowledge and skills, established R&D, as well as governmental projections about India to become the world's 3rd largest economy by 2032 are crucial factors that can have significant role while considering competition from outside Europe. India's government concentrates on activities leading to decrease fiscal deficit, increasing import and export, opening good opportunities for foreign investments, which increased four times since 1995.

   Non EU furniture industry is determined to expand on European market. Interviewed Indian furniture manufacturer identified current trends on European market regarding individualization of preferences, more money for spending, design and quality consciousness. They responded on these trends by employing young designer, making production more flexible, and delivering required certifications. One of important factor is also access to raw material which does not exist in Europe, and which

enables offering unusual products. Long transport distance and high logistic costs are these aspects which were mentioned as hinder for expansion.

2. Retail consolidation: large retailing companies win market share, increasing their bargaining power and ability to buy large amounts of product in low cost countries. This market situation reduces the power of SME furniture manufacturers in Europe.

3. Consumers: Customers are very conscious about their individual preferences regarding quality, design and functionality. Price is important but not decisive while purchasing furniture. This clear trend requires customer centred policy and strategy implemented at manufacturing companies. Identifying customer demands and adjusting production in order to fulfil requirements are two key aspects that can secure economic progress. Customer Relationship Management that covers marketing, sales, customer support, distribution and communication is necessary. Study also identified a latent demand from customer perspective that is directly connected to “after sale” activity (creating business around furniture use, and not only around furniture sales).

5.1.4.1.2 Social sustainability

Employment and social conditions of current furniture workers are threatened by extra-EU competition. Europe should look at United States case, where several thousands of workers lost their job at furniture plants due to increasing imports from China and other Asian countries. In the States, the situation of the furniture industry has dramatically changed in the last decade, considering furniture as just a commodity that may be easily imported. Europe should develop policies for preventing the industry from falling in a cost competition and stop the relocating race that will only teach Asian countries how to produce the product, arradicating employment in Europe. Instead of competing in cost, European producers should develop value-added strategies and train labour force for creating value to consumers.

5.1.4.1.3 Environmental sustainability

Issues regarding pollution and emissions are controlled in the industry by European law, compelling companies to fufil with ecological requirements.

However, there are only some environmental friendly labels for furniture or boards, but without a general European presence. This is especially worrying when many consumers do not know about these labels. Even doubts arise between end-users about environmental desirability of wood as material for furniture, as they do not know if wood usage as furniture source is good or bad

for environment (there are cross-missleading arguments in one and other sense).

5.1.5 Conclusions on furniture

5.1.5.1 End users

Conclusions about wood as material:

In Spain, the consumers have ambiguity about wood as environmentally sound material.
In Sweden there is a common perception of the end users that wood is environmentally sound.

Advantages of solid-wood furniture are the followings: good quality, nice design, warmth, it is a long-lasting material, convenience, social acceptance.
Disadvantages of solid-wood furniture are the followings: high price, maintenance of a living material (humidity, dry…), transport/ disposal.

5.1.5.2 Professional buyers

Advantages:
Design capabilities
Adaptation to project
Ordering

Disadvantages:
Fast wearing out process
Old image for modern establishments
Need for adaptation to safety conditions for public use of furniture

Professional buyers are not considering sustainable aspects when purchasing furniture, although may show communicating labels related to environmental concern.

5.2 PACKAGING

5.2.1 Product description

Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use. Packaging also refers to the process of design, evaluation, and production of packages.

Packaging is heavily integrated into our daily lives, we see it all around us, on everyday items such as chocolate bars and potato chip (crisp) packets- As explained below, the main use for packaging is protection of the goods inside, but packaging also provides us with a recognisable logo, or packaging, we instantly know what the goods are inside.

Packaging has several objectives:

- **Physical Protection** - The objects enclosed in the package may require protection from, among other things, shock, vibration, compression, temperature, etc.
- **Barrier Protection** - A barrier from oxygen, water vapour, dust, etc., is often required. Package permeability is a critical factor in design. Some packages contain desiccants or Oxygen absorbers to help extend shelf life. Modified atmospheres or controlled atmospheres are also maintained in some food packages. Keeping the contents clean, fresh, and safe for the intended shelf life is a primary function.
- **Containment or Agglomeration** - Small objects are typically grouped together in one package for reasons of efficiency. For example, a single box of 1000 pencils requires less physical handling than 1000 single pencils. Alternatively, bulk commodities (such as salt) can be divided into packages that are a more suitable size for individual households.
- **Information transmission** - Information on how to use, transport, recycle, or dispose of the package or product is often contained on the package or label. With pharmaceutical, food, medical, and chemical products, some types of information are required by governments.
- **Marketing** - The packaging and labels can be used by marketers to encourage potential buyers to purchase the product. Package design has been an important and constantly evolving phenomenon for dozens of years. Marketing communications and graphic design are applied to the surface of the package and (in many cases) the point of sale display.
- **Security** - Packaging can play an important role in reducing the security risks of shipment. Packages can be made with improved tamper

resistance to deter tampering and also can have tamper-evident features to help indicate tampering. Packages can be engineered to help reduce the risks of package pilferage: Some package constructions are more resistant to pilferage and some have pilfered indicating seals. Packages may include authentication seals to help indicate that the package and contents are not counterfeit. Packages also can include anti-theft devices, such as dye-packs, RFID tags, or electronic article surveillance tags, that can be activated or detected by devices at exit points and require specialized tools to deactivate. Using packaging in this way is a means of loss prevention.

- **Convenience** - Packages can have features which add convenience in distribution, handling, display, sale, opening, reclosing, use, and reuse.
- **Portion Control** - Single serving or single dosage packaging has a precise amount of contents. It is also aids the control of inventory when selling sealed one-litre-bottles of milk, rather than having one's customers bring their own bottles to fill themselves.

Juices are products that have gone through large changes during the last couple of years in Sweden. About 5 years ago there was an intense debate about sugar in food and the consumption of carbonated soft drinks as well as for juice was decreased. The trend has twisted and the consumption of juice is increasing. Especially the consumption of refrigerated, fresh squeezed juices. Many consumers today want juice with good quality and that gives well-being and health.

Juice is a product that is packed in a large selection of varying packages and sizes. The juice can be packed in liquid cardboard packages, plastic bottles as well as in glass bottles. Pure metal packages for juice are very rare in Sweden. There are packages for short and long shelf life as well as for storage in room temperature and for chilled storage. Different functions are added to the packages as e.g. screw cap for effective reseal ability and transparent for showing the content.

5.2.2 Market information

Table 17.: Trade data for packaging, carton and boxes in Germany, Spain and Sweden during 2001-2005

Packag, carton, boxes	2001	2002	2003	2004	2005
Germany					
Import value (1000 US $)	0.00	577,612.00	734,628.00	756,418.00	756,418.00
Export value (1000 US $)	0.00	1,525,790.00	1,815,712.00	1,952,590.00	1,952,590.00
Spain					
Import value (1000 US $)	0.00	185,519.00	90,003.00	271,772.00	271,772.00
Export value (1000 US $)	0.00	230,072.00	182,815.00	322,842.00	322,842.00
Sweden					
Import value (1000 US $)	108,060.00	125,680.00	146,580.00	167,129.00	167,129.00
Export value (1000 US $)	173,487.00	193,153.00	193,109.00	207,208.00	207,208.00

Table 18.: Statistic data for European Union (25) during 2001-2005, for Package, carton boxes etc.

Packag, carton boxes, etc.	2001	2002	2003	2004	2005
European Union (25)					
Export value (1000 US$)	2,104,145.00	5,321,493.00	6,253,054.00	7,050,910.00	7,050,910.00
Import value (1000 US$)	2,504,805.00	4,309,853.00	5,244,420.00	6,001,131.00	6,001,131.00

Source: Eurostat databank 2007

For Juice in Sweden the statistics show that Juice in Rigid Carton has increased a little and HDPE bottles have increased a lot during the period of time 2001-2005. The consumption of juice in concentrate has significantly decreased during the time period.

Table 19-20.: Consumed volume (M Litre) of juice in different types of packages, in Sweden 2001 and 2005.

Consumed Volume MLtr as values	Carton Rigid	Carton Rigid	change	HDPE Bottle	HDPE Bottle	change	PET Bottle	PET Bottle	change
	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	1,9	2,2	16%	3,8	5,4	42%	0,5	1,0	100%
Family	75,6	76,8	2%	1,2	2,2	83%	0,0	0,0	
LSC	43,0	44,8	4%	0,1	0,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
All Package Sizes	120,5	123,8	3%	5,1	7,6	49%	0,5	1,0	100%

Consumed Volume MLtr as values	Glass Bottle	Glass Bottle	change	Metal Can	Metal Can	change	Concentrate (Pack Type)	Concentrate (Pack Type)	change
	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	3,5	5,0	43%	0,5	0,5	0%	0,0	0,0	
Family	0,0	0,0		0,0	0,0		0,0	0,0	
LSC	0,0	0,0		0,0	0,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		53,8	37,0	-31%
All Package Sizes	3,5	5,0	43%	0,5	0,5	0%	53,8	37,0	-31%

Source Tetra Pak, Sweden. (LSC = Large Size Container)

For Juice in Germany the consumption of juice in rigid carton packages has increased with 54% and PET bottles has increased a lot during the period of time. Glass bottles have decreased with 49%. The statistics regarding German market are presented in table 21-22.

Table 21-22.: Consumed volume (M Litre) of juice in different types of packages, in Germany 2001 and 2005.

Consumed Volume MLtr as values	Carton Rigid	Carton Rigid	change	HDPE Bottle	HDPE Bottle	change	PET Bottle	PET Bottle	change	Plastic Pouch	Plastic Pouch	change
	2001	2005	%	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	63,0	59,0	-6%	0,0	0,0		0,0	68,0		1,0	1,0	0%
Family	766,0	1 038,0	36%	0,0	0,0		2,0	138,0	6800%	0,0	0,0	
LSC	205,0	498,0	143%	0,0	0,0		0,0	6,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0		0,0	0,0	
All Package Sizes	**1 034,0**	**1 595,0**	**54%**	**0,0**	**0,0**		**2,0**	**212,0**	**10500%**	**1,0**	**1,0**	**0%**

Consumed Volume MLtr as values	Glass Bottle	Glass Bottle	change	Metal Can	Metal Can	change	Concentrate (Pack Type)	Concentrate (Pack Type)	change
	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	18,0	9,0	-50%	1,0	1,0	0%	0,0	0,0	
Family	1 425,0	722,0	-49%	0,0	0,0		0,0	0,0	
LSC	3,0	0,0		0,0	0,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
All Package Sizes	**1 446,0**	**731,0**	**-49%**	**1,0**	**1,0**	**0%**	**0,0**	**0,0**	

Source Tetra Pak, Sweden. . (LSC = Large Size Container).

In Spain the consumption of juice in Rigid Carton has increased with 9% and PET bottles has increased from 0 to 15.4 M Litre during the period of time. The total juice consumption has increased with 13 % during the period of time. Statistics are presented in table 23-24.

Table 23-24. Consumed volume (M Litre) of juice in different types of packages, in Spain 2001 and 2005.

Consumed Volume MLtr as values	Glass Bottle	Glass Bottle	change	Metal Can	Metal Can	change	Concentrate (Pack Type)	Concentrate (Pack Type)	change
	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	25,9	30,1	16%	0,4	0,4	0%	0,0	0,0	
Family	28,1	33,9	21%	0,0	0,0		0,0	0,0	
LSC	0,1	0,1	0%	0,0	0,0		0,0	0,0	
Bulk (>5000 ml)	0,0	0,0		0,0	0,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
Powder (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
Loose (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
All Package Sizes	**54,1**	**64,1**	18%	**0,4**	**0,4**	0%	**0,0**	**0,0**	

Consumed Volume MLtr as values	Carton Rigid	Carton Rigid	change	HDPE Bottle	HDPE Bottle	change	PET Bottle	PET Bottle	change
	2001	2005	%	2001	2005	%	2001	2005	%
All Portion	114,6	133,7	17%	0,3	0,3	0%	0,0	0,7	
Family	333,4	340,0	2%	2,4	2,7	13%	0,0	14,7	
LSC	26,9	42,7	59%	0,1	0,3	200%	0,0	0,0	
Bulk (>5000 ml)	0,0	0,0		0,0	0,0		0,0	0,0	
Concentrate (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
Powder (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
Loose (Pack Size)	0,0	0,0		0,0	0,0		0,0	0,0	
All Package Sizes	**474,9**	**516,4**	9%	**2,8**	**3,3**	18%	**0,0**	**15,4**	

Source Tetra Pak, Sweden. .(LSC = Large Size Container).

The total juice consumption for Sweden, Germany and Spain shows that the largest changes during the time period has been in Spain were the total consumption of juice has increased with 13 % during 2001-2005. Comparison of these three markets is presented in table 25.

Table 25.: Comparison of market data for Sweden, Germany and Spain. Data for 2001 and 2005.

Total	Sweden			Germany			Spain		
Consumed Volume MLtr as values	Packed 2001	Packed 2005	change	Packed 2001	Packed 2005	change	Packed 2001	Packed 2005	change
All Portion	10,2	14,1	38%	83,0	138,0	66%	141,2	165,2	17%
Family	76,8	79,0	3%	2 193,0	1 898,0	-13%	363,9	391,3	8%
LSC	43,1	44,8	4%	208,0	504,0	142%	27,1	43,1	59%
Bulk (>5000 ml)	0,2	0,2	0%				0,0	0,0	
Concentrate (Pack Size)	53,8	37,0	-31%	0,0	0,0		0,0	0,0	
All Package Sizes	184,1	175,1	-5%	2 484,0	2 540,0	2%	532,2	599,6	13%

Source: Tetra Pak Sweden.

Statistic data from AC Nielsen for the time period 2005-2006 show that the sales volume of juice packages sold in Sweden are increasing with 7,3% during the time period, specially the plastic bottles which have increased their volume share from 3,4 to 4,8. In Germany the statistics for juice packages are divided into a large number of groups compared to Sweden and Spain but different kinds of carton packages are still dominant at the market though plastic packages are increasing their sales volume in Germany. In Spain glass and plastic packages are increasing, though from a very low level. For all three countries fibre based packages still are dominant at the market but the trend is that different kinds of plastic packages are increasing more.

Table 26-27-28.: The allocation of different juice packages in Sweden, Germany and in Spain

SWEDEN	Sales Volume			Volume Share		
	Vol Unit: 1000 Selling Units					
12 Months Ending:	YEAR 2005	YEAR 2006	% Chg	YEAR 2005	YEAR 2006	Pt Chg
TOTAL JUICE PURE 100%	**89 459**	**96 000**	**7,3%**	**100,0**	**100,0**	
T. CARTON	85 461	88 545	**3,6%**	95,5	92,2	**-3,30**
T. PLASTIC	3 027	4 589	**51,6%**	3,4	4,8	**1,40**
T. UNDEF.	372	2 178	**485,1%**	0,4	2,3	**1,85**
T. GLASS	598	688	**15,0%**	0,7	0,7	**0,05**

GERMANY	Sales Volume			Volume Share		
	Vol Unit: 1000 Selling Units					
12 Months Ending:	YEAR 2005	YEAR 2006	% Chg	YEAR 2005	YEAR 2006	Pt Chg
TOTAL JUICE PURE 100%	**1 405 758**	**1 400 799**	**-0,4%**	**100,0**	**100,0**	
TBRIK - CARTON	471 237	418 719	**-11,1%**	33,5	29,9	**-3,63**
COMBI - CARTON	340 461	320 122	**-6,0%**	24,2	22,9	**-1,37**
PURE - CARTON	234 474	233 601	**-0,4%**	16,7	16,7	**0,00**
PETFL - PLASTIC BOTTLE	106 948	170 683	**59,6%**	7,6	12,2	**4,58**
BOTTLE	175 440	165 193	**-5,8%**	12,5	11,8	**-0,69**
COMBIFIT - CARTON	49 552	55 956	**12,9%**	3,5	4,0	**0,47**
TREX - CARTON	23 038	28 797	**25,0%**	1,6	2,1	**0,42**
TPRISMA - CARTON	4 391	6 995	**59,3%**	0,3	0,5	**0,19**
DOY - PLASTIC STAND UP	16	389	**2307,6%**	0,0	0,0	**0,03**
CARTON	94	89	**-4,8%**	0,0	0,0	**0,00**
ALL OTHER	107	254	**138,0%**	0,0	0,0	**0,01**

SPAIN	Sales Volume			Volume Share		
	Vol Unit: 1000 Selling Units					
12 Months Ending:	YEAR 2005	YEAR 2006	% Chg	YEAR 2005	YEAR 2006	Pt Chg
TOTAL JUICE PURE 100%	**323 644**	**313 377**	**-3,2%**	**100,0**	**100,0**	
CARTON	304 519	291 116	**-4,4%**	94,1	92,9	**-1,19**
GLASS	18 331	21 160	**15,4%**	5,7	6,8	**1,09**
PLASTIC	745	1 061	**42,5%**	0,2	0,3	**0,11**
CAN	58	48	**-16,6%**	0,0	0,0	**0,00**

Source: AC Nielsen.

5.2.3 Consumers´ attitudes and perceptions on fibre based products

5.2.3.1 Professional buyers

5.2.3.1.1 Buying process

Hospitals

When ranking each factor's importance in the decision making process for the product juice most important key point is the product in the packaging. The packaging should possess high quality due to protect the product. The price is secondary choice. Fibre based packaging is not necessarily the choice. The negative aspect of fibre based packaging is the high weight.

Hotels

For the hotels the most important key point is the high quality of product itself and the functionality of the packaging. It should fulfil legal environmental requirements. No preferences for fibre based packaging. In the mini-bar and in the restaurant, generally the preferred packaging is small size glass packaging. However during breakfast and in the bar juice is served from large size "industry packaging" placed in tap machines.

Retailers and wholesalers

For the retailers and wholesalers the most important key point is variation of packaging size, as well as functionality in order to satisfy different trends such as chilled juices, drink on the go, and health trends. No strong fibre-based packaging preferences have been identified.

The positive aspects of fibre based packaging is that it is cheaper, easier to expose, easier to transport and easier to recycle. The negative aspects of fibre based packaging are that it is more difficult to form into a unique design.

5.2.3.1.2 Perception on fibre-based packages as material for packaging

Hospitals

The perception on fibre-based packages is that they are easy to recover but they are heavy compared to some of the other alternative packages for juice.

Hotels

For the hotels the opinion is that they don't see either advantages or disadvantages with fibre-based packages compared to other materials. However, while dealing with small packages in mini-bar, glass packages are preferred due to having higher image.

Retailers and wholesalers

For the retailers and wholesalers the perception on fibre-based packages is that they are cheaper, easier to expose, less problem with leakage, easier to transport and easier to recycle than other materials. Fibre-based packages

have good printability, have good functionality in the refrigerated display counter and are easy to handle.

The disadvantage with fibre-based packages is that it's not so easy to vary the design, it's a rather boring packaging, hard to get a unique shape of the packaging and not so flexible. The fibre-based packages have a lower image compared to plastic and glass bottles.

In sum, major findings regarding packaging sector, with emphasis on juice packaging purchased in segment B2B are as follows:

- Packages should be functional and adjusted for current trends.
- Fibre-based packages posses low image.
- No major advantages with fibre-based packages have been identified in opinions.

5.2.3.2 End users

5.2.3.2.1 Spain

5.2.3.2.1.1 Buying Process

Adult group: The members of this group are buying juices every day, or at least once a week. Some of them are buying according to the packaging, some of them are not influenced by the packaging even if their attention is caught by it. Some of them are not sensitive for the price, some of them take into consideration the price. The most important factor at juice-buying is the quality of the content.

Young Group: They are buying juices on a daily, weekly base, in the supermarket, they are influenced by the commodity of the use of packaging, they are influenced by the novelty of the packaging and the price is also very important for them when they are buying juice.

5.2.3.2.1.2 Perceptions on fibre-based materials for packaging

Adult Group: Generally they are not very satisfied with the characteristics of packaging of carton, and they seemed to be very neutral towards this material. They are not sure if it is recyclable or not. Packaging of juices made of carton is not heavy, easy to carry, and to store. Relatively expensive way of packaging.

The members of the group did not express any special attitude on the carton-juice-package, but presumed that juices in glass bottle have excellent quality.

Packaging of juices in carton packaging does not have an attractive appearance according to the members of the focus groups. Carton is seen well as a packaging of juice.

Young Group: They are buying juices on a daily, weekly base, in the supermarket, they are influenced by the commodity of the use of packaging, they are influenced by the novelty of the packaging and the price is also very important for them when they are buying juice.
It is convenient to use tetra brick package, it is not heavy and it is easy to transport and store.

Carton-juice-box is relatively expensive, and recycling it is also expensive, more expensive than glass packaging.
It is not fragile, and they like the ones that are possible to close again.
The members of the group did not have any perception about the appearance of carton juice boxes, they preferred the glass bottle.
Carton-juice-packaging is highly accepted socially.

5.2.3.2.1.3 Perceptions on fibre based packages in comparison to other materials

We have compared carton to other (substitute) materials for packaging juices in the following order: glass bottle, plastic bottle, aluminium cans, plastic bags

Adult Group: The members of the group perceived as the most functional one the glass packaging, but according to some other opinions this material is too fragile and weights a lot. The carton packaging along with aluminium packaging is situated in the middle of the ranking. Concerning the price the members agreed on perceiving as the most expensive material for packaging juice is the bottle made of glass that is followed by carton-boxes as the second most expensive packaging material for a juice. The cheapest material for juice packaging is perceived the plastic bag. According to some opinions, the material of the best quality for packaging juices is perceived to be the bottle made of glass, but some other opinions have ranked this material to be of the worst quality, because of its weight and the risks of accidents that could be caused by being fragile. At this aspect we have to note, that bottles made of glass are making an impression in the consumers that not only the packaging, but the juice inside of the packaging is of the highest quality; this characteristics of the material used for packaging are transmitted to the product itself. Plastic bags and plastic bottles are perceived to be the materials of the lowest quality. Carton and aluminium packaging are considered to be of a medium quality, without any extreme characteristics in this aspect.

According to the group, the best appearance as material for packaging juices is having the bottles made of glass. The group also ranked very high the plastic bags, mainly because of being unusual in retail trade in Spain and also because it is a novelty in packaging for the final consumers. Plastic bottles are perceived

to be the less attractive way of packaging from the point of view of aestetics. Plastic bottles are followed by carton packaging in the ranking of materials of juice-packaging, meaning the second less attractive way of packaging juices is paper. Aluminium is perceived to have an acceptable appearance, is situated by the members of the group in the middle of the ranking, it is considered to be more attractive than tetra brick packaging. Socially most accepted material for packaging juices, according to the perceptions of the focus group is glass-bottle, followed by paper and aluminium package.

Young Group: The members of this focus groups have perceived that the most functional packaging for a juice is carton box because of being convenient for using it in the everyday life, it is of lightweight, easy to transport, and easy to store. The carton-juice packaging was followed by glass packaging, even if the perceptions of this material were negative from the point of view of functionality, because of being a material heavy and fragile. The packaging of plastic bottles was ranked in the middle. According to the opinions of some focus-group members: it is lightweight, and it is easy to recycle. Glass packaging for juices are the most expensive ones. A bit less expensive but still perceived to be expensive, is ranked the carton packaging. In the middle of the ranking is situated the aluminium packaging for juices, and the lowest price estimated by the group is having the plastic bag and plastic bottle packaging.

The group considers as materials of the best quality for packaging juices are carton and aluminium. Plastic bottle as material is also perceived to be a material of very good quality, following carton and aluminium in the ranking. The material for juice packaging perceived to be of the worst quality: glass bottles because of being fragile. Plastic bags are also considered to be of low quality because of the possibilities to splotch all over.
The bottles made of glass are perceived to have the best appearance. Plastic bottles and aluminium are considered in different ways. According to some perceptions plastic bottles are very attractive materials for packaging juices, so ranked right after glass bottles, but according to other opinions aluminium is the one that should follow glass bottles in the present ranking. Carton packaging is very neutral for Spanish consumers, they are not really like it, but also not refusing it. Glass bottle is perceived to be the material of the highest social acceptance, and also carton-juice-packaging is considered to bear a high social acceptance as material for packaging juices.

5.2.3.2.2 Sweden

5.2.3.2.2.1 Buying process

Different packages were preferred to buy by the participants based on the context of use. The smaller - ready to drink – packages were preferred “on the go”. To consume during a longer period of time the larger (1 litre) packages were suggested together with the juice in a concentrated form (2 dl)

The following reasons were mentioned:

- The amount of material used is less for the small Tetra (2 dl)
- The small ones are easier to carry
- Re-closeability
- Waste handling – easy to “flatten”
- Appearance

Other aspect that the participants had considering the different juice packages were;

-Environmental issues, both material and transport
-Storage : small packs are easier to store, so are packs with re-closure, they may be stored in different ways in the refrigerator
-Re-closeability – necessary to keep the quality of the content, some has no re-closure
-Transport from store to home – the smaller and lighter the easier to carry, glass is heavy.
-Eco-labelling

Adult group: For the consumers the most important key point is the quality and the price of the product as well as the shelf life. The handle ability of the packaging was also important and the function e.g. re-closeability.

Young Group: For the consumers the most important key point is the price and size of the packaging as well as the quality of the product. Where the juice will be consumed affects the consumer’s choice of packaging. When it should be consumed “on the go”, a small sized bottle with screw cap is the choice. For consumption in the home 1l liquid board packaging or 2 dl concentrate packaging (small ones are easier to carry) are chosen.

5.2.3.2.2.2 Perception on fibre based packages

Adult Group: fibre based juice packages are light to carry and are considered to be an environmentally god alternative of package. It will be broken down in the nature and is an effective package to transport and to store.

Young Group: Fibre based packages are environmentally friendly and Tetra Brick is considered to be a very effective package. The fibre-based packages are easy and are easy to recover – energy recover or material recover.

5.2.3.2.2.3 Perception of fibre based packages in comparison to other materials

Adult and young groups: Juices are available in fibre-based packages, in plastic bottles and in glass bottles. Fibre based juice packages are light to carry, have high functionality and can easily be folded compared to glass bottles.

Plastic bottles can easier be reused compared to fibre-based packages.

Fibre-based packages are considered the most environmentally friendly alternative of package.

Functionality and ecofriendly packages are preferred.

Functional and eco-friendly packages and products were preferred, but the participants chose products based on context of use, taste, and price along with product durability, as the main parameters.

Carton packages were considered as more environmentally friendly than both glass and plastic packages.

Fibre-based products and packages were preferred based on environmental reasons.

5.2.3.2.2.4 What consumers want from packaging

(Consumers from Sweden, UK and form Slovakia)

The participating Swedish consumers are environmentally conscious, they prefer paper and cardboard packages in front of plastic, glass and metal. Paper and cardboard packages are easy to recycle, they are biodegradable and compressible – which means lower quantities of waste – the manufacturing processes are supposed to be less energy requiring than for both metal and glass packages.

These Swedish consumers consider that Germany besides Sweden is an environmentally conscious country in Europe and in the rest of the world are parts of the USA (some states like California) and Singapore environmentally conscious.

The Slovak consumer generally does not think much about packaging. If the packaging is harmless and protects goods, he does not see it.

There is a group of consumers taking care (or, better said, they declare to take care) of packaging recyclability and environmental friendliness. However, there is also a group of at least the same size, for whom the recyclability, waste separation, etc. is strange. They even thing that it is not their business. A small number of people know about biodegradability.

The consumers who are not chemists, consider irrelevant the question which material the packaging is made of.

The Slovak consumer thinks that many products are over-packed. He is of the opinion that strict legislation measures should be adopted to minimize the packaging waste.

According to focus groups' results, most British consumers prefer paper and board packaging rather than plastic, glass or metal, the latter being the least appreciated packaging material among them all.

Consumers mostly think that paper and board are the most environmentally friendly materials as well as the easiest to recycle.

Advantages:
Disadvantages: some carton is not recyclable

Although some participants were not very much in favour of glass, this was the second best packaging material chosen by the majority of them. Some of its advantages are that it is clear so you can see what the content is, it is attractive and it does not change the taste of the product (like metal or plastic). Some of the disadvantages mentioned were that it is heavier than plastic, it can cause damage when shattering and is not very convenient when dispose of.

Plastic came in the third position. Some of the participants pinpointed that it is clean and convenient. It can reclose easily and it is easy to dispose of as it is squashable.

British participants are generally more interested in the content than in the actual packaging. Therefore, although it could sometimes come into consideration, they tend not to think about how environmentally friendly a packaging is when buying a product. They just buy things because they are value for money and quality, not for the packaging.

British consumers tend to choose their packaged products, depending on their purpose and necessity. Therefore if it to take away (e.g. work), they would choose a smaller and more convenient type of packaging, if it is for a family meal they would choose a larger type, etc.

Although most British consumers usually recycle at home, it seems that recyclable facilities depend very much on the area or locality you are living so sometimes it could make recycling more difficult. Plastic does not seem to be widely collected in this part of the country.

The survey has been carried out in different European countries, some common findings could be identified:

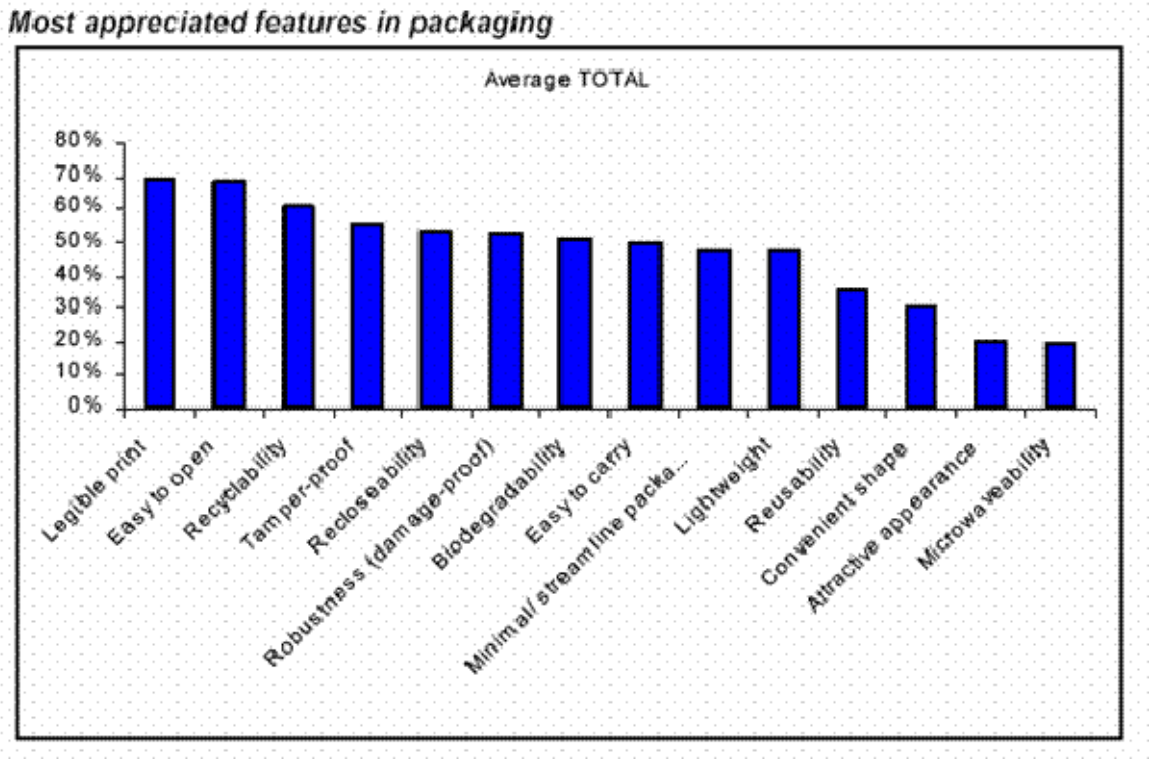
- Consumers have a practical yet responsible attitude towards packaging.
- Consumers like paper and board packaging best.
- Plastic packaging has some important advantages in the consumers' eyes.
- Consumers say that visual impact is an important but not decisive factor when buying a product.
- Consumers still perceive over-packaging to be a problem, but this does not prevent them from product purchasing, and environmental issues are not a decisive factor in consumers' purchasing decisions.
- Consumers believe that paper and board is the most environmentally-friendly packaging material.
- Consumers say they would like to see an environmental rating on packaging.
- Consumers' views on communicative packaging showed national differences. In general however, consumers prefer silent than audible interaction with packaging
- Consumers claim they would be willing to pay a premium for more functional or more environmentally friendly packaging

The most significant aspect while talking about the gap between end-user expectation and satisfaction reached is in package functionality. Having in our mind that European population getting older, this aspect might be of crucial character while describing possible future for fibre-based packaging.

In the following, some of the results from the report are presented.

The three most appreciated features in a pack indicated by the interviewees in the three surveyed countries are:
• Legible print
• Easy to open
• Recyclability

Figure 19.: The most appreciated features in packaging



Source: SustainPack 2005

The fact that recyclability is in the third place on the list, comes as a relative surprise, but nonetheless, it is very encouraging to learn that consumers are becoming increasingly more environmentally-friendly, albeit very often only in declarations. As this report will show later, environmental issues are not a decisive factor in consumers' purchasing decisions. The British and Swedish consumers have similar preferences. Their preferred features in packaging are "easy to open" and "legible print". Some of them mentioned that, in many cases, elderly people find packaging difficult to open. Recloseability and tamper-proof are also much-appreciated features for them. In the other hand, Slovak consumers have preference for packaging robustness, recyclables and lightweight.

Table 29.: The most appreciated features in packaging

Most appreciated features in packaging, by country

Feature	UK	Feature	Sweden	Feature	Slovakia
Easy to open	**79%**	**Legible print**	**81%**	**Robustness**	**68%**
Legible print	**68%**	**Easy to open**	**78%**	**Recyclability**	**63%**
Recloseability	**53%**	**Tamper-proof**	**73%**	**Lightweight**	**61%**
Recyclability	51%	Recyclability	69%	Legible print	58%
Biodegradability	50%	Recloseability	58%	Recloseability	50%
Easy to carry	50%	Biodegradability	55%	Easy to open	49%
Tamper-proof	49%	Easy to carry	52%	Biodegradability	48%
Minimal/streamline	46%	Minimal/streamline	51%	Easy to carry	48%
Lightweight	40%	Robustness	51%	Tamper-proof	46%
Robustness	39%	Reusability	44%	Minimal/streamline	45%
Convenient shape	33%	Lightweight	41%	Convenient shape	37%
Reusability	30%	Attractive appearance	30%	Reusability	35%
Microwaveability	29%	Convenient shape	22%	Microwaveability	9%
Attractive appearance	23%	Microwaveability	19%	Attractive appearance	7%

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Source SustainPack

The three most annoying features in a pack indicated by the interviewees in the three surveyed countries

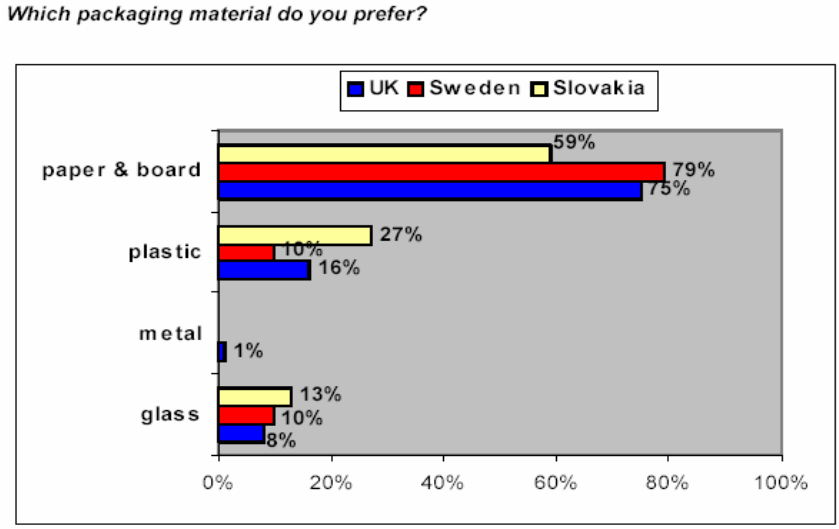
- difficult to open
- difficult to read
- excessive packaging

The British and Swedish consumers seem to be most annoyed about difficult to open packaging. The Slovaks though believe that the most annoying packaging is the one that is flimsy or easy to damage.

Difficult to read and excessive/heavy packaging are also among the most annoying features for consumers in the three countries. The least annoying features for consumers are unattractive appearance and the lack of microwave ability.

Figure 20.: The material preferred by the consumers

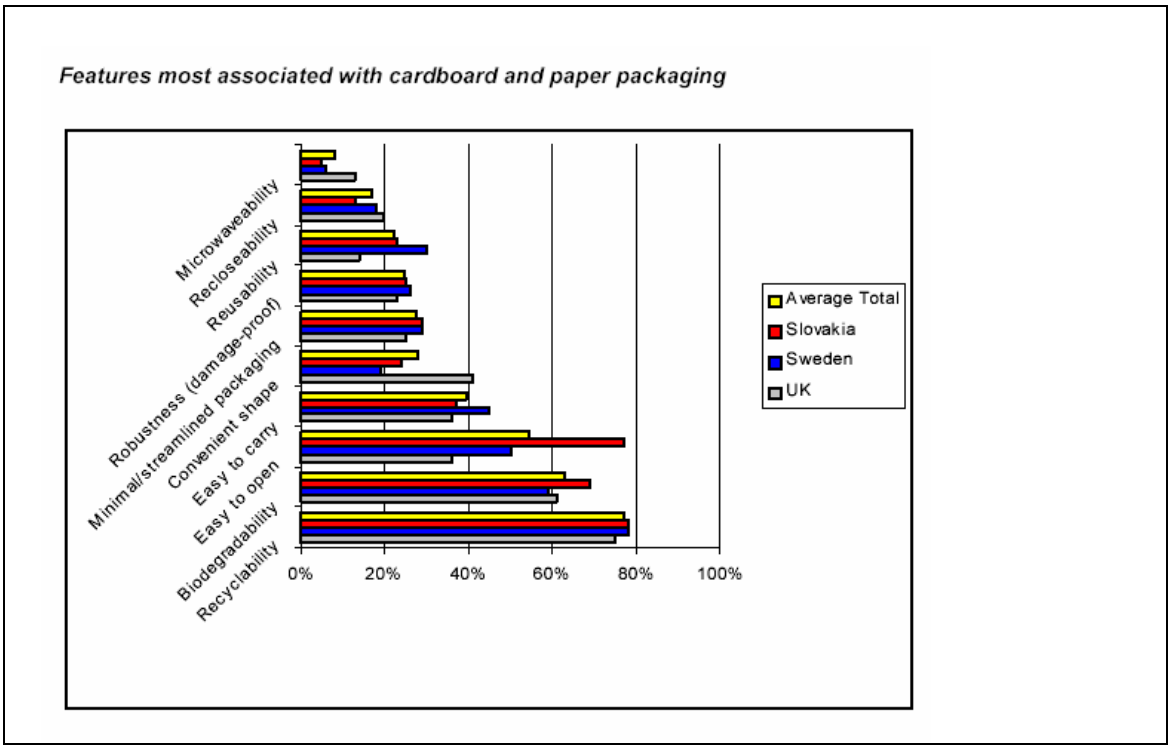
Paper and board is chosen as the preferred type of packaging material by 59% of Slovak consumers, 79% of Swedish consumers and 75% of British consumers.



Source SustainPack 2005.

The majority of respondents associate cardboard and paper packaging with environmental features like recyclability and biodegradability. As we can see on the chart below, microwave ability, recloseability and reusability are the less linked with paper and cardboard.

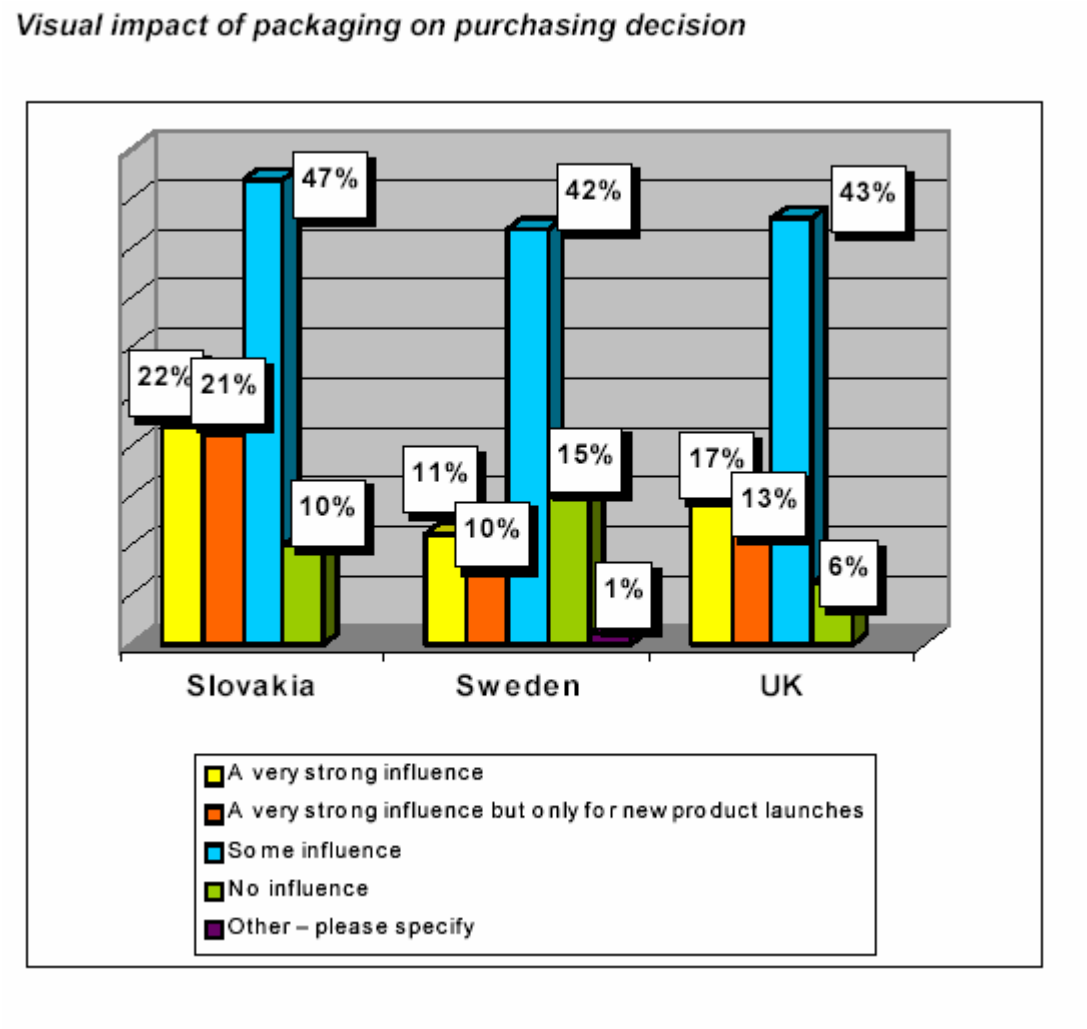
Figure 21.: The features most associated with cardboard and paper packaging



Source SustainPack 2005

According to the respondents, in general, packaging appearance has some impact on purchasing decisions. However, it does not have the same sort of importance in every country. In Sweden, visual impact is unlikely to be a very decisive factor for consumers when buying a product. The British and Slovak respondents, however, do tend to place greater emphasis on the visual impact of packaging.

Figure 22.: Visual impact of packaging on purchasing decision

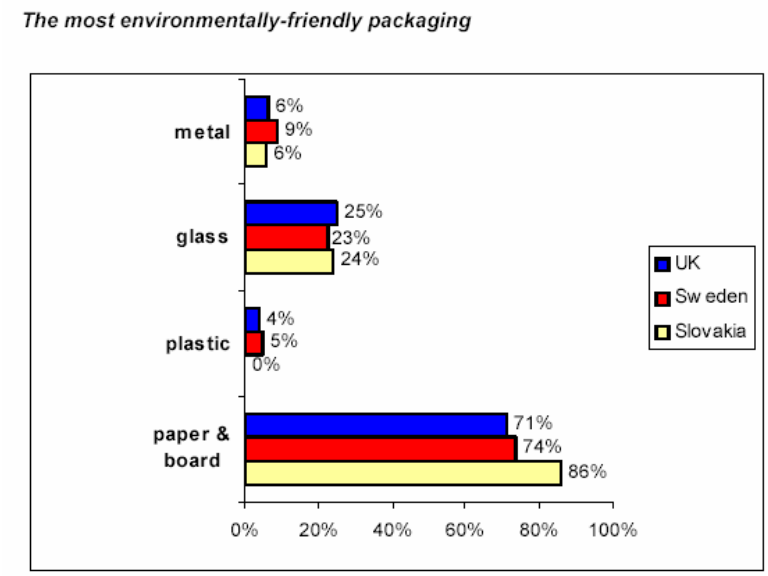


Source SustainPack 2005

When asked to think about which type of packaging they consider the most environmentally-friendly, the majority of the interviewed consumers chose paper and board (71% of British, 86% of Slovak and 74% of Swedish consumers).

Consumers seem to be more used to recycle more paper than any other packaging material. One of the reasons for this appears to be the fact that paper and board packs usually have recycling signs that indicate that the material is 100% recyclable. Another reason for it is that paper-recycling bins are easily accessible.

Figure 23.: The most environmentally-friendly packaging



Source: Sustainpack 2005

5.2.3.2.2.5 Conclusions B2C

The project could conclude following aspects concerning fibre-based packaging

- Spain: Neutral perceptions although habitual use. After glass, is the second in the price ranking. Glass is main competitor material.
- Sweden: environmentally sound (recycling), light to carry, functionality.

Costs:

- Reduced perception of costs (Spain: not always available infrastructure for recycling)

Advantages:

- Easy storage, easy handling, easy carrying.

Disadvantages:

- Functionality, boring design, difficult to flatten.

5.2.3.2.2.6 Conclusions on packaging

Summarising survey results we can conclude that there is a gap between expectation and satisfaction reached in both segments B2B and B2C. Proper functionality adequate for customer needs as well as variation of packages that fulfil strong current life trends is needed. No strong requirements regarding sustainability aspects have been recognised. No particular willingness for extra pay for sustainability has been detected.

5.2.4 Sustainability

5.2.4.1 Business Model Sustainability

Business model sustainability has to be analyzed from three perspectives: economic, social and environmental.

5.2.4.1.1 Economic sustainability

To investigate economic sustainability project has been looking at purchasing criteria for commercial activities.

Hospitals as a “large customer” segment consuming great amount of juice, does not consider juice packaging as a question for discussion. High quality of the product is the major factor, and packaging has a secondary role focused on protection and preservation of the product.

There is not necessary for packaging to be attractive and “eye catching”. Large – industry like, strong but light packages are requested. This means that technology and material development are crucial while assuring economic progress for packaging industry.

Hotels have top down policies and decisions making processes. Local supplies are preferred and promoted. Two major demands have been recognized concerning juice packaging: small high image and design packages for mini-bar, and large-industry like packages for kitchen/restaurants. Close cooperation with local approved juice suppler is crucial for economic profitability. Satisfying mentioned different demands can decrease production costs. Intimate collaboration with local juice supplier can open sustainable development opportunities for the industry.

Retailers as a customer group focus on satisfying a huge variety of consumer demands. “Eye catching”, communication, attracting, marketing, proper functionality are the significant aspects for retailers. This group follows trends but not create them, which means that market is “producer market” and major local juice suppliers offer their packages that fulfil different demands. Fibre-based packages are easer to recycle due to less space requirements.

Asian expert pointed out that India invests in improvement of food sector, both processed and non-processed, which consequently requires packages. India, South-East Asia and China are nowadays leader in fresh and processed fruit

production and export. Need of packaging in these regions is increasing and governments promote development of packaging industry. Strong competition from emerging markets can negatively influence European sector. Packaging company in Europe can partly limit this threat by globalizing business.
EU packaging standards and regulations are still difficult to fulfil by external suppliers, language barriers and lack of knowledge can hinder external expansion in short-term.

5.2.4.1.2 Social sustainability

The retailer group received recognition for its initiatives in areas such as stakeholder relations, supply chain management and sustainability focused governance structure. Key initiatives of social sustainability implemented in retailer organization could contribute to fulfil CSR in packaging industry in order to correspond with retailer's aims:

- Developing skills for greater professionalism - Based on the subsidiary principle, each country defines its training policy in accordance with its strategic priorities. The Group HR is responsible for training executives and promoting the dissemination of best practices by relying on local training managers. To boost their training capacity, nine countries have training centres.
- Managing teams on an ethical, participatory basis - Management of store teams needs to be participatory in nature. Since 1989, the Group has developed a survey tool for in-house satisfaction, listening to Staff, which is conducted by neutral outside facilitators in 13 countries. Thanks to this tool, managers can measure the social atmosphere within their teams and identify and correct any problems. This helps them to optimize the organization of work and training programs. In 2005, 21,905 employees were surveyed; in addition, Group HR conducted a Making Progress Together survey among 2,000 Group directors in order to explore their opinions about the company and their expectations in terms of the management of human resources.
- Ensuring respect for health and safety rules - the proper upkeep of stores and respect for the cold chain and food safety are key elements of the Group image. Thus, the Group mobilizes all its employees in every country to ensure respect for health and safety rules. This involves training, establishing procedures, and systematic hygiene and quality audits in stores and warehouses.
- Promoting a diverse range of talent - With a presence in 30 countries, The Group stresses local recruitment above all and employs more than 436,000 people from highly diverse cultural and social backgrounds. The Group emphasizes a multicultural approach to management and human resources and the diversity of talent, offering more than 30 different jobs and giving every profile an opportunity: not only young university and business school graduates but also young people without diplomas to whom The Group offers jobs and training. To fight against discrimination and encourage opportunity, in October 2004 the Group also signed the Corporate Diversity Charter, which each retail banner applies to its own particular situation.

- Constructing a social Europe - The Group is also helping to develop social dialogue within the European Union. At the Group level, the European Consultation and Information Committee (CICE) – whose founding agreement was signed with UNI – enables trade union representatives from each of the countries involved to benefit from a wide range of information and exchanges that go well beyond simple regulatory obligations. At the labour management level, The Group and UNI together participate – within the framework of Euro commerce – in promoting European dialogue in the sector, discussing proposed European directives on social issues and reflecting upon various aspects of corporate social responsibility.
- Promoting dialogue with social partners - As a multinational corporation, The Group is committed to social dialogue and cooperation with the various social partners in every country where it operates. Country management teams are autonomous in handling relations with local organizations, in particular with trade unions. Social dialogue often helps The Group to make coordinated improvements in working conditions and to sign agreements that set up new benefits or new social guarantees for its employees.
- Encouraging access to franchise and entrepreneurship - The leading franchiser in France and Europe, The Group is developing franchises and partnerships abroad with a network of 12 partner companies in 16 countries and territories. All formats, from the hypermarket to the convenience store, are open to franchising and partnerships, enabling individual investors and companies to belong to a retail banner. Access to franchising is facilitated for employees through a system of gateways. The Group is thus continuing to develop an entrepreneurial spirit, to support the creation of SMEs, and to foster the rise of a new class of company heads in many countries.
- Transmitting values and know-how - Being a franchisee or partner to The Group means having access to the brand, a retail banner and the Group's know-how. Franchisees and partners benefit t from the modernity, choices, quality, prices, services and products of the Group retail banners. While respecting the Group's values, franchisees combine their local experience with the business expertise provided by the Group. The Group provides support for their development and growth strategies by working with them to adapt store concepts to local consumers, by developing a product range and discount price strategy and by training the teams.
- Promoting supplier responsibility for the respect of social rights - The Group is careful to respect basic rights, in particular ILO international labour standards. To carry this out, since 1997 the Group has decided to work in partnership with the International Federation for Human Rights (FIDH). In 2000, The Group adopted a Social Charter (revised in 2005) along with a set of benchmarks and an audit methodology so as to monitor suppliers. The creation of the Infans association has established a working framework for FIDH-and The Group cooperation. The FIDH is completely free to conduct random spot checks. The results of this approach are pooled with French retailers as part of the Social Clause Initiative (ICS), a platform for exchange. In 2005, The Group took a position in favour of an international standard aimed at clarifying the scope of corporate social responsibility and the division of responsibility between government and private players in order to establish clear playing rules that are applicable to everyone.

- Guaranteeing food safety - The Group has taken part in drawing up an international standard for auditing supplier food safety (IFS). To guarantee the quality of its own-brand and retail-banner food products for its customers, systematic hygiene and quality audits are conducted. Supplier production sites are audited by The Group, its service providers or certification agencies.
- Giving special emphasis to local supplies from SMEs - To contribute to the economic and social development of the areas where it operates, The Group seeks local sourcing for a substantial portion of supplies and long-term partnerships with SMEs. Store product mixes thus include products negotiated at the international level by the Group Merchandise department, national products negotiated by the country purchasing offices, and a mix of regional products. Many countries have also developed own-brand and retail-banner lines that offer regional products, including Refl ets de France (France), De Nuestra Tierra (Spain), Terra d'Italia (Italy), Souvenirs du Terroir (Belgium) and Tierra de Colombia (Colombia).
- Making our suppliers special partners - The Group has decided to develop special relationships with its partners to provide them with long-term support. Some countries have established supplier clubs with liaison systems to share know-how; others organize forums or conventions with their suppliers every year. The Group also offers its French SME partners export assistance, thus opening the doors for international growth.
- Respecting ethics and transparency in all situations - Relations with suppliers are based on respect for ethics and transparency in every country regarding the assignment of contracts. To ensure this, at the global level the Group uses online negotiations with suppliers of goods and general produce. In 2005, The Group conducted 10,000 auctions on the Argentrics electronic marketplace (created via a merger between GNX and WWRE) in 18 countries with a base of 24,000 suppliers.
- Opening dialogue in every country - The Group strives to respect local cultures and lifestyles and to commence a dialogue with the community and the public authorities in every country where the Group operates. As an economic player and corporate citizen, it mobilizes at every level – Group, country, banner and store – to maintain a constructive dialogue at the local, regional, national and international levels.
- Contributing to local development - The Group is committed to community life and contributes to local development by creating jobs, using local services and goods providers and paying its taxes. Its diverse formats enable The Group to have a presence in city centres and suburbs as well as in rural areas. Its convenience stores help to revitalize city centres and to revive rural areas by maintaining services and activities, and its supermarkets and hypermarkets contribute to the development of suburban areas by creating a focus of life in sometimes-difficult neighbourhoods.
- Offering solidarity to the community - Solidarity is a core value for The Group, a value that underpins its corporate social responsibility and good-citizen approach around the world. In every community – countries, cities and neighbourhoods – where The Group operates, it contributes to local development and acts to help disadvantaged areas and people in difficulty.
- Acting at the global and country level with the support of our employees - Solidarity actions are overseen at Group level by The Groups International

Foundation and at the country level by specialized bodies for a given country, retail banner and store. In 2005, The Groups International Foundation, whose annual budget is 4.57 million euros, focused on two goals: emergency reconstruction aid and the fight against social exclusion. It was active in the countries where The Group operates by supporting local teams, based on the involvement of employees, stores and local charity organizations. The Foundation's new principles will help to create a chain of solidarity involving employees in every country.

- Establishing a fully transparent dialogue with the Socially Responsible Investment world - The Group submits its global performance to the evaluation of ratings agencies and SRI investors. The Group thus maintains a regular, transparent dialogue with extra-financial ratings agencies, SRI index groups, investors and insurance companies. The Sustainability department answers questionnaires as well as one-off requests for information concerning the Group's policies and the actions taken by Business Units. It also meets with investors and answers their questions at road shows and meetings organized to cover corporate social and environmental responsibility.

5.2.4.1.3 Environmental sustainability

Contemporary retailers are increasingly looking for suppliers who include environmentally responsible procedures and practises in their business. Following activities are implemented at international every day commodity actor:

- Limiting the environmental impact of our stores - The Group employees mobilize every day to reduce the environmental impact of the stores. The first goal is to limit energy, refrigerant and water consumption and to promote clean energy as much as possible. The second goal is to cut waste by reducing the packaging of own-brand and retail-banner products, developing the use of reusable containers and encouraging the sorting of waste and innovative recycling networks. The third goal is to conserve natural resources, in particular by taking action with regard to the paper used to print advertising catalogues and brochures. The Group's goal at the European level is to use only paper made from certified and/or recycled sources by 2008. In 2005, the Group's European paper-purchasing office bought 203,000 tons of paper, of which 84% is from certified wood and/ or recycled sources, up from 71% in 2004.
- Reducing CO2 emissions in the logistics phase - Logistics, which includes the transport of products from suppliers to stores and the storage of products in warehouses, is also developing projects to reduce impact and protect the environment. The Group is developing a national logistics network in every country where volumes are substantial enough; it streamlines flows and transport trips by pooling logistics and using backhauling; and it is also testing alternative methods of transport.

In order to achieve above mentioned the environmental goals, retailer corporate requests from supplier initiatives leading to promotion of environmental management, innovation in environmentally friendly products and company-wide adoption of green purchasing.

Multinational international Group has a great impact on sustainability aspects world wide. Organization can create requirements that have to be fulfilled internal within the organization as well as external by suppliers and even communities. By cooperating with international bodies, company enables development of wide perspective of sustainability. Setting up internal and external sustainability goals, improving own performance, encouraging suppliers and stakeholders, establishing transparent dialogues with international organizations, Group strives for sustainable development.

Different customers have different roles and can influence suppliers. Understanding rules of cooperation is crucial.

Nowadays sustainability of business model is strictly depending on the success of combining the global approach of economic, social and environmental perspective. The key aspect is balance in sharing values, commitment, responsibilities with customers, employees, partners, suppliers, shareholders, financial institutions, government and communities. Identifying variety of demands, understanding them and their consequences, and satisfying them is a vital aspect.

Packaging major raw material, fibre, often comes from well managed forest plantations. Paper itself is a renewable and sustainable resource. But as an industry, packaging sector, need to be able to acknowledge their environmental activities and promote their social responsibility in a climate where technology is challenging.

5.2.5 Conclusions on packaging

5.2.5.1 End Users

In Spain: Neutral perceptions although habitual use. After glass, is the second in the price ranking. Glass is main competitor material.
In Sweden: it is perceived to be environmentally sound (recycling), light to carry, functionality.

Costs: Reduced perception of costs (Spain: not always available infrastructure for recycling)

Advantages: Easy storage, easy handling, easy carrying.
Disadvantages: Functionality, boring design, difficult to flatten.

5.2.5.2 Professional buyers

There are existing emotion values which are the followings: No strong fibre-based packaging preferences have been recognised

Costs: Mixed opinions; according to retailers and wholesalers it is cheaper then other materials

Advantages: Easy to recover and recycle (common), easy to expose, less problem with leakage, easy to transport, good printability, have good functionality in the refrigerated display counter and are easy to handle.
Disadvantages: Heavy, low image, difficult to vary design, not flexible

Professional buyers are not paying particular attention for total sustainability aspect (3 elements), and there is no willingness to pay extra.

5.3 BOOKS

5.3.1 Product description

A book is a set or collection of written, printed, illustrated, or blank sheets, made of paper, parchment, or other material, usually fastened together to hinge at one side, and within protective covers. A single sheet within a book is called a leaf, and each side of a sheet is called a page. A book produced in electronic format is known as an e-book.

Book may also refer to a literary work, or a main division of such a work. In library and information science, a book is called a monograph, to distinguish it from serial periodicals such as magazines, journals or newspapers.

Though papermaking in Europe had begun around the 11th century, up until the beginning of 16th century vellum and paper were produced congruent to one another, vellum being the more expensive and durable option. Printers or publishers would often issue the same publication on both materials, to cater to more than one market.

Paper was first made in China, as early as 200 B.C., and reached Europe through Muslim territories. At first made of rags, the industrial revolution changed paper-making practices, allowing for paper to be made out of wood pulp.

Paper made from wood pulp was introduced in the early-19th century, because it was cheaper than linen or abaca cloth-based papers. Pulp-based paper made books less expensive to the general public. This paved the way for huge leaps in the rate of literacy in industrialised nations, and enabled the spread of information during the Second Industrial Revolution.

However pulp paper contained acid that eventually destroys the paper from within. Earlier techniques for making paper used limestone rollers, which neutralized the acid in the pulp. Books printed between 1850 and 1950 are at risk; more recent books are often printed on acid-free or alkaline paper. Libraries today have to consider mass deacidification of their older collections.

The proper care of books takes into account the possibility of physical and chemical damage to the cover and text. Books are best stored out of direct sunlight, in reduced lighting, at cool temperatures, and at moderate humidity. They need the support of surrounding volumes to maintain their shape, so it is desirable to shelve them by size.

In Sweden today, there are mostly hard back books, pocket books and sound books. The 1 of January 2002 the VAT for books were reduced which resulted in a large increase of book sales to consumers. Today more and more people buy their books via internet. Pocket books are sold in a lot of different places and the costs are low which contributes to an increased sale of this segment of books. The sound books importance on the Swedish market increases more and more but the cassette tape books are disappearing from the market.

5.3.2 Market information

Trade Data

Table 30.: Trade data for printed books in Germany, Spain and Sweden

Printed books	2001	2002	2003	2004	2005
Germany					
Export value (1000 US $)	0.00	1,297,131.00	1,389,176.00	1,425,824.00	1,425,824.00
Import value (1000 US $)	0.00	645,257.00	732,425.00	717,296.00	717,296.00
Spain					
Export value (1000 US $)	0.00	678,160.00	748,622.00	868,057.00	868,057.00
Import value (1000 US $)	0.00	188,459.00	222,144.00	247,720.00	247,720.00
Sweden					
Export value (1000 US $)	79,213.00	94,196.00	98,801.00	101,036.00	101,036.00
Import value (1000 US $)	143,741.00	145,641.00	152,961.00	167,686.00	167,686.00

Source Eurostat 2007

We can notice that in these three countries both export and import values are increasing during the period 2002-2005. The net balance is positive.

Table 31.: Market information about printing and writing paper, printed books, newsprint and recovered paper for the European Union (25) during the time period 2001-2005.

Printing + Writing paper	2001	2002	2003	2004	2005
European Union (25)					
Export value (1000 US$)	18,611,874.00	20,579,604.00	24,297,675.00	27,177,455.00	26,912,105.00
Import value (1000 US$)	15,417,519.00	15,394,662.00	19,439,869.00	20,392,989.00	19,902,004.00
Quantity produced (tonnes/m3)	32,347,600.00	33,553,355.00	34,758,421.00	37,677,446.00	37,373,995.00
Import Quantity (tonnes/m3)	19,284,280.00	19,286,059.00	22,086,306.00	21,983,890.00	21,914,433.00
Export Quantity (tonnes/m3)	23,864,518.00	26,451,063.00	28,716,549.00	30,818,061.00	30,451,322.00

Printed books	2001	2002	2003	2004	2005
European Union (25)					
Export value (1000 US$)	2,904,745.00	6,066,278.00	7,077,291.00	7,780,837.00	7,780,837.00
Import value (1000 US$)	2,745,109.00	4,570,462.00	5,125,785.00	5,869,808.00	5,869,808.00

Newsprint	2001	2002	2003	2004	2005
European Union (25)					
Export value (1000 US$)	2,883,093.00	2,612,844.00	2,828,560.00	3,189,632.00	3,147,308.00
Import value (1000 US$)	3,758,365.00	3,300,411.00	3,341,257.00	3,620,708.00	3,632,447.00
Quantity produced (tonnes/m3)	9,992,500.00	9,153,290.00	9,651,300.00	9,900,797.00	9,710,450.00
Import Quantity (tonnes/m3)	6,810,329.00	6,216,668.00	5,921,789.00	6,125,419.00	6,020,836.00
Export Quantity (tonnes/m3)	5,547,812.00	5,478,871.00	5,622,929.00	5,995,309.00	5,725,178.00

Recovered paper	2001	2002	2003	2004	2005
European Union (25)					
Export value (1000 US$)	859,590.00	1,127,194.00	1,501,658.00	1,889,101.00	2,025,092.00
Import value (1000 US$)	788,006.00	971,140.00	1,192,999.00	1,287,543.00	1,280,441.00
Quantity produced (tonnes/m3)	40,894,217.00	42,657,163.00	44,376,953.00	47,801,330.00	48,652,064.00
Import Quantity (tonnes/m3)	8,960,879.00	9,223,785.00	10,055,386.00	10,554,006.00	10,974,011.00
Export Quantity (tonnes/m3)	11,185,703.00	11,764,924.00	13,405,364.00	16,159,033.00	17,193,680.00

Source: Eurostat 2007

Market information about printing and writing paper, printed books, newsprint and recovered paper for the European Union (25) during the time period 2001-2005 is presented in table 31 . Positive trends of increasing export and import values can be recognized in the entire European Union.

Overview of the Swedish market
(Source: Förläggareföreningen, The Swedish Publishers' Association)

Year 2001
Publishers estimated sales to pure Internet-based booksellers have increased by 79% from a low level to ca. SEK 49 million which represents ca. 7% of total sales in Sweden from publishers to booksellers and wholesalers.

Year 2003
In all ca. 40 million books were sold in 2003 and this is a record. Never before have the members of the Association sold so many books. The figure refers to total number of sold volumes, both new titles and backlist.

Publication and sales of talking books increase

The importance of talking books on the market is increasing. In the latest statistics this category is included for the second time. Publication as increased – more that 100 new titles were published in 2003 and the number of sold copies has doubled to ca. 660 000. In economical terms, however, sales has increased more moderately, by ca. 4%, which shows that prices have gone down.

Sales to booksellers and wholesalers grow
Mainly the publishers' sales to booksellers and wholesales are increasing. Here also the sales to Internet booksellers is included and this is becoming increasingly larger.

Sales to department stores are decreasing for the first time in three years. One reasong could be that the books published in 2003 are caracterised by width rather than by spectacular best-sellers, which suits booksellers better than department stores.

Year 2005
The sales from publishers to booksellers, including Internet booksellers, and wholesalers were still good and increased by 4% in 2005. Sales to Internet booksellers are included in the figures, but no specifics are given. However, it is obvious that Internet booksellers continuously increase their share of the total sales in this category by an estimated 15% in 2005.

Pronounced increase of publication and sales of talking books
The importance of talking books on the market growed also in 2005; thus publication increased by 22 titles to 190 in 2005 and by SEK 58.1 million to a total of SEK 154.5 million.

The reduction of VAT on books introduced on January 1, 2002, resulted in a considerably increased sales for the publishers. This was most evident in 2002, when sales in economical terms increased 14%. In 2003, 2004 and 2005 sales increased by an additional few percents annually and we have every reasong to say that book sales in Sweden have never before reached the same level as in 2005.
In all, the members of the Association sold somewhat fewer copies of new titles in 2005 that in both 2004 and 2003, the latter being an absolute record year as far as sold books is concerned. In 2005, however, increased sales of so called backlist titles were noted.

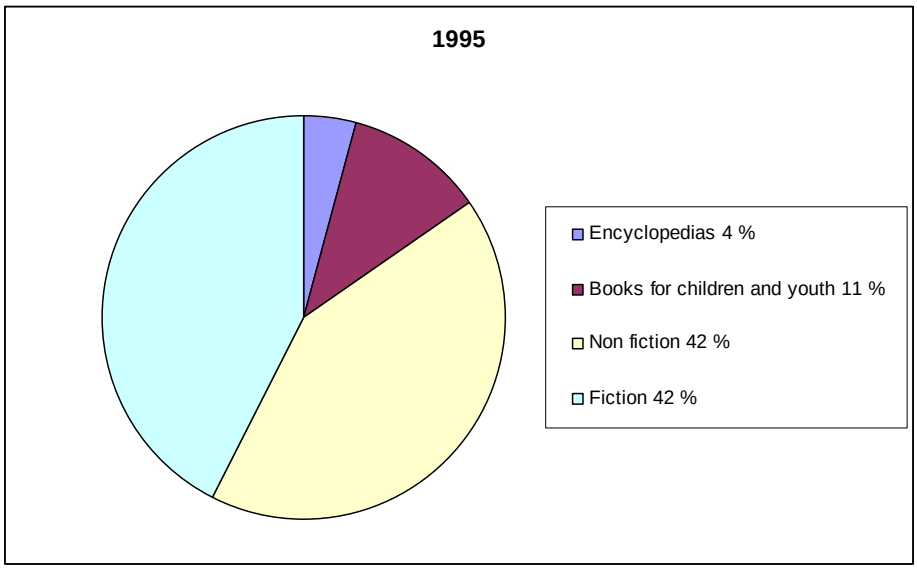
Table 32. presents data on sales from publishers to retailers (in publisher net prices, less returns, VAT excluded)

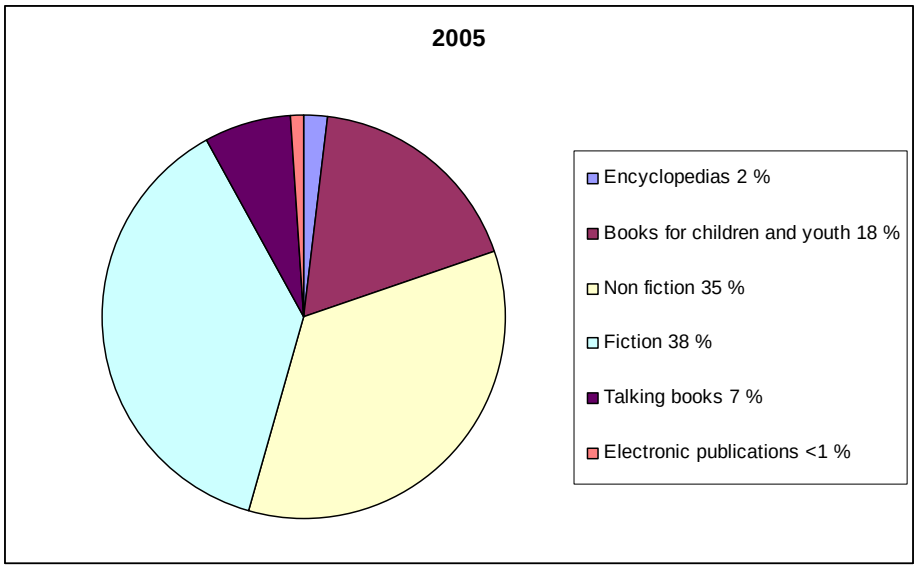
Table 32.: Sales from publisher to retailers (MSEK), Sweden 2001-2005.

	Changes 2004-2005	2005 MSEK	2004 MSEK	2003 MSEK	2002 MSEK	2001 MSEK
bookseller's shop		759,2	776,2	783,0	718,8	588,2
wholesaler		262,5	210,3	184,8	151,2	139,1
Pocket wholesaler						
Sum	4%	1021,7	986,6	967,8	870,0	727,3
Other retailer						
department store	7%	282,2	264,8	260,0	276,3	259,6
Book clubs	3%	254,8	248,4	259,8	255,2	217,2
Other	-23%	117,2	152,7	167,4	144,2	115,0
Library	10%	76,1	69,0	69,5	73,7	72,5
Total	2%	1752,0	1721,5	1724,6	1619,4	1391,5

Table no 32 presents the trend is that a the amount of books sold in department stores are increasing and in booksellers shops the amount is slowly decreasing. This means that traditional sales channels are loosing market shares.

Figure 24.: Sales development in Sweden distributed in literature categories in percent of total sales(1995-2005).





Source: The Swedish Publishers' Association

During the period of time (1995-2005) two new literature carriers for books has been established, electronic publications and talking books.

Table 33.: Different ways of procure books, 2003

Different ways of procure books among the persons in the age of 9-79 who have read any book the latest week 2003 (in percent)

		Gender		Age					Education (16-79 years old)		
The latest book read was	Total	Male	Female	9-14	15-24	25-44	45-64	65-79	low	middle	high
Bought in a book shop	35	40	33	11	34	44	39	36	31	40	44
Borrowed at the library	18	19	18	38	23	13	11	20	17	15	13
Received as a gift	14	15	14	23	14	11	12	15	14	12	13
Borrowed from a friend/relative	13	9	15	10	14	5	6	5	6	5	7
Got in another way	7	9	6	10	14	5	6	5	6	5	7
Bought from a book club	6	4	8	4	1	6	10	5	7	9	5
Bought in a pocket shop or a department store	3	3	3	1	1	5	4	2	4	4	4
Bought from a internet book shop	1	1	1	0	1	1	1	-	-	1	1
Borrowed in a book circle	1	0	1	1	-	0	1	2	3	0	1
Bought in a antiquarian bookshop	1	1	1	-	-	1	1	2	2	1	1

Table 34.: Different ways of procure books, 2004

Different ways of procure books among the persons in the age of 9-79 who have read any book the latest week 2004 (in percent)

		Gender		Age					Education (16-79 years old)		
The latest book read was	Total	Male	Female	9-14	15-24	25-44	45-64	65-79	low	middle	high
Bought in a book shop	35	39	32	15	30	42	40	30	31	36	45
Borrowed at the library	19	19	19	42	27	13	13	20	18	15	13
Received as a gift	14	15	13	23	12	14	10	17	14	15	10
Borrowed from a friend/relative	10	7	12	4	9	10	11	13	13	11	10
Got in another way	7	9	6	10	15	5	6	3	5	4	6
Bought from a book club	7	5	9	3	1	6	12	9	10	9	7
Bought in a pocket shop or a department store	4	3	5	0	3	5	5	5	6	6	4
Bought from a internet book shop	2	2	2	-	1	3	2	1	1	1	3
Borrowed in a book circle	1	-	1	0	0	1	1	1	1	1	1
Bought in a antiquarian bookshop	1	1	1	0	0	1	1	1	-	1	1

During the period of time (2003-2004) there is no significant change in the pattern of purchasing. This situation might be caused by very short time of survey.

Table 35.: Book reading: Daily use 1995-2005 (per cent)

Book reading: Daily use 1995-2005 (per cent)

Year	Finland[1] Age: 12+/10+[2]	Norway[3] Age: 9-79	Sweden[4] Age: 9-79
1995	..	19	44
1996	32	19	40
1997	..	17	38
1998	34	18	39
1999	..	19	37
2000	36	20	39
2001	..	22	38
2002	32	23	39
2003	..	23	35
2004	32	23	37
2005	32	25	38

[1] Figures for 2002 and onwards are not fully comparable with the figures until 2000.

[2] 10+ from 2005.

[3] Occupation- and school related reading and reading aloud to children not included.

[4] Included is all reading/book use.

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Source: TNS Atlas Intermedia / TNS Gallup Finland, Statistics Norway, Nordicom-Sweden

During a period of ten years in three Nordic countries three different trends regarding book reading can be recognized: Finland stagnation, Norway increasing and finally Sweden decreasing.

Table 36.: Time used for media in Sweden, 1980, 1990, 2000-2005.:

Time used for media in Sweden

Time for use of media for the whole population 9-79 years one average day (in minutes)

	1980	1990	2000	2001	2002	2003	2004	2005
Radio	115 [1]	126 [1]	129 [2]	127 [2]	124 [2]	117 [2]	124 [2]	105
cassette tape	25	22	5	4	4	2	2	2
CD-/gramophone	16	14	24	26	25	25	22	20
Mp3								7
Television	118 [1]	106 [1]	105	102	102	106	102	96
teletext		..	4	3	3	3	2	3
Video/dvd	1 [1]	5 [1]	10	10	11	11	11	12
Internet	..	..	21	23	19	23	25	32
morning paper	24	22	23	21	21	22	21	21
evening paper	12	9	8	8	7	8	8	8
weekly/monthly paper (magazine, journal)	8	5	11	12	10	10	10	10
Special/technical journal	7	8	9	5	4	5	4	4
Book	19	20	23	23	21	19	20	21
Time for use in total	345 [1]	337 [1]	372	364	351	351	351	341

Source: Nordicom-Sveriges Mediabarometer 2005.

During the period, 1980-2005 usage of different media has changed. E.g., electronic media, internet has increased dramatically.

5.3.3 Consumers´ attitudes and perceptions on fibre based products

5.3.3.1 Professional buyers

5.3.3.1.1 Sweden

5.3.3.1.1.1 Buying Process

Hospitals

The most important for hospitals is to have a large selection of magazine for different tastes and for children as well as for adults. The price is also an important factor.

It is difficult to identify any particular latent demand regarding printing and publishing products in hospitals segment.

Schools

Following trends have been recognized in education field: more expensive books with colour and pictures, more modern kind of fact books, less text that need to be updated, the books are to a larger extend used together with other teaching aids. Students are more active to search information by themselves from different sources.

For the schools the most important key point is quality of the books content, as well as the price of the books. For paper books, it is important with the paper quality. The books are more expensive today with more colour and pictures.

Paper books are the most common kind of teaching aid that are used but DVD film, internet and sound books are used as complementary teaching aid.

Schools are conscious about sustainability concept in general manner in educational purpose, which can lead to request for environmental labelling of books. This could lead to exclusion of not certified suppliers.

Publishers and Wholesalers

Following trends have been identified by publishers and wholesalers:

- Increasing interest for true stories and fact books such as practical books, health books, cook books, lifestyle and travelling
- More sound books are consumed
- Increasing numbers of books are bought by customers via internet
- More pocket books are sold

Those trends are caused by many factors such as: economy is not crucial while buying books, people are more exposed for campaigns' from different media, the availability of books have increased a lot due to internet and the possibility to buy pockets books everywhere as well as time limitation that influences increasing selling volume of sound books.

The most important for Publisher and Wholesalers are the quality of the book and then the price. Other demands that are important are customer demand, trends, image and environmental certificate.

The accessibility of books, to be able to buy books everywhere increases the demand for pocket books. For pocket books the key issue is the price not the paper quality.

Due to that consumers have less time to spend on reading books the consumption of sound books have increased during the last period of time.

Publisher request environmental labelling and certificates for papers and this kind of requirements are strongly increasing.

5.3.3.1.1.2 Perception on fibre-based books in comparison to alternatives

Schools

Paper books catches the readers attention in a unique way, are pleasant to read, feels safe and the paper book have a long tradition as a information messenger. Visual memory works better with paper books compared to other teaching aids.

Paper books can easier get damaged, take a lot of space to store, will sometime rather quick become out of date, are not so easy to update compared to other teaching aid and are expensive.

Paper books are used as teaching aid as well as magazines, internet, video, DVD, and sound books.

Publisher and Wholesalers

Paper books give a total experience, a more visual memory compared to other media. Paper books can be filed away and can also be recycled.

To read a paper book demands time, you have to hold it in your hand and can't do anything else at the same time.

5.3.3.1.1.3 Conclusions

The vital issue is content and variation of books. Since customers can choose can choose titles by themselves, this demand is totally fulfilled by providers that follow trends. Wholesalers require environmental labelling and certificates for papers and those requirements is strongly increasing. Accessibility of books is required. Purchasing channels, both traditional and internet based should be well developed.

5.3.3.2 End Users

In order to collect information of the attitudes and perception of books, knowledge gaps on consumer's relation to the FWC, the chosen products and the sustainability concept, identification of key variables derived from consumer's needs and consumption trends, two focus groups have been performed together with Swedish and Spanish consumers.

5.3.3.2.1 Spain

5.3.3.2.1.1 Buying Process

Adult group: The members of the group are buying books frequently. Some members of the group are buying books of weekly, monthly frequency, some of them like places where they can find second hand books, antique books, some of them prefer classic bookstores to big department stores. The members of the focus group are buying for themselves books of paperback edition and hard cover books are usually bought as gifts. Books of special contents are valuated very high.

Young group: They are also buying books, but not too often, some of them said that they are not buying, but receiving as gifts for different occasions. For some of them it is very important to buy books made of recycled paper, but some of them don't give any importance to this detail.

5.3.3.2.1.2 Perceptions on paper as book binding

Adult Group: General opinion: Paperback editions are easy to handle, during the journeys it is very convenient, and in lots of cases it is made of recycled paper.

Young group: General opinion: The cheapest and best way to read a book.

5.3.3.2.1.3 Perceptions on paper as book binding in comparison to other materials

Adult group: The paperback edition was selected by several members of the focus group as the most functional one, and the digital and electronic are also perceived by them to be amongst the top functional ones. The cheapest type of this product group is the book of paperback edition, that is followed by the cardboard covered edition, and they appointed as the most expensive one the book bound by leather.

The members of the group have perceived books bound by leather to be of the best quality, and the second one in the ranking is the digital version (audio CD, DVD). Electronic books and paperback editions are considered to be at the worst places of the ranking of products pursuant to their quality. The members of the focus group have perceived to be of the best design the electronic books, followed by books bound of leather, and digital books. Amongst the products of the product group, paperback books are considered to be the less attractive products. Paperback editions are having the lowest social acceptance, and cardboard covered books are of the second lowest acceptance.

Young group: The most functional products perceived by the focus group are the digital books, followed by the electronic ones. Paperback edition is the third most functional one for Spanish consumers. The products of the lowest price are considered to be the electronic books followed by the paperback editions. . Paperback edition and digital books are sharing the place of the editions of the worst quality. According to the perceptions of the focus group, the quality of electronic books is situated among the products of the worst quality.

Paperback editions are located in the end of the ranking as products of the worst appearance together with digital and cardboard covered books. Some of them considered the electronic and digital editions to have the highest social acceptance and some of them perceived paperback edition as the products of the highest social acceptance. Those who appointed paperback edition as of the highest social acceptance, considered electronic and digital books as products of the lowest social acceptance, and those who perceived electronic and digital books to be of the highest social acceptance, considered paperback edition as of the lowest social acceptance

5.3.3.2.1.4 Conclusions

Spanish consumers are considering paperback editions to be the most ecologic ones, and the most functional ones, because of their size, weight, and price. Electronic books are also well seen mainly by the young group, the adults do not like because it is tiring the eyes more than the paperback editions, or other printed books.

5.3.3.2.2 Sweden

5.3.3.2.2.1 Buying process

Adult Group: Most consumers prefer paper books, pocket books or hardback books. The choice of book depends on the situation. Pocket books are light, cheap, easy to carry in the handbag and are considered to be the most environmentally friendly paper book alternative. Hardback books stand for high quality and reading for enjoyment.

Sound books are preferred by the consumers while doing something else at the same time.

The ranking hierarchy is: 1. price and weight (pocket), 2. quality (hardback books), 3. function (sound books).

Books are bought in bookseller's shop, in grocer's store, in department store, in pockets shop and in antiquarian bookshop.

Young Group: When ranking each type of book the pocket book are number one and then hardback books and sound books. Pocket books are cheap and light and you can bring it everywhere. Hardback book gives a better feeling and stands for high quality.

The ranking hierarchy is 1. the price (pocket), 2. the quality (hardback books), 3. the function (MP3 books).

Books are bought in bookseller's shop, in grocer's store, at internet bookshops, pockets shop and in antiquarian bookshop.

5.3.3.2.2.2 Perception on fibre based books

Paper books are pleasant to read. Fibre-based books are considered to be environmentally friendly and there is a tradition that books should be made of paper. It’s easy to look through a paper based book and to turn back and forward a few pages.

While reading a paper based book it’s not possible to do something else at the same time.

5.3.3.2.2.3 Perception of fibre based books in comparison to rest of alternatives

Paper based books more pleasant to read and easier to look through. Sound books are not so easy to wind and rewind. Sound books and MP3 don’t get damaged as easily as paper-based books.

The most environmentally friendly alternative is the MP3 for B2C1 and the pocket book for the B2C2. The main reason for not selecting the electronic format was the usage of batteries and the electronic equipment to enable listening

5.3.3.2.2.4 Conclusions B2C

Regarding the books, pocket books were preferred by both groups. The main reasons for their choices were weight, price and environmental aspects. Even though the downloaded format was considered as environmentally friendly, the young group selected the pocket book as the most environmentally friendly format for the books. The main reason for not selecting the electronic format was the usage of batteries and the electronic equipment to enable listening.

5.3.3.2.2.5 Conclusions on Books

Summarising the results for books market indicates that availability of the product is the main issue and this leads to development of new sales channels

such as pocket books shops everywhere, internet, e-trade and every day commodity warehouses.
Since the general living pattern is shortage of time new expectations of printed editions have been developed. Books are treated as a fundamental source of information, which is complemented with other sources such as MP3, sounds books, DVD, internet etc.

Competitiveness from e.g. Asia is growing regarding printing and publishing services. This trend is based on local lower costs, acceptable quality and better logistic system.

Generally, no strong requirements regarding sustainability aspects have been recognised. No particular willingness for extra pay for sustainability has been detected.

5.3.4 Sustainability

5.3.4.1 Business Model sustainability

5.3.4.1.1 Economic sustainability

Business customers such as schools, hospitals and book wholesalers represent different expectations concerning published products.

- Hospitals experience books and magazines as a side path in their business, consequently demands are not very high concerning content, lay out or updating issue. Variation of titles that can satisfy different tastes is crucial. Price should be low.

- Education sector investigated by the project, used printed and published material as education tool and expressed high expectations. Following trends that created expectations have been recognised:
    1. Children have access to updated information from alternative sources such as internet, DVD, video, TV educational programmes.
    2. Published education material used by schools should be of very high quality regarding substance, containing fundamental knowledge. Publishers are expected to provide also with other sources of corresponding knowledge on their websites.
    3. Schools accept high price of published products, but with connection to very high technical quality of paper, printing, binding, etc.
    4. Educational programmes are created as frames that allow more individual perspective of education for student groups or even individual student.
    5. No local publisher is promoted or preferred. Especially textbooks in English can be printed anywhere e.g. in India

where there is a strong printing and publishing sector with export traditions.

- Book wholesalers differ from two mentioned above customer groups while defying demands and expectations, logically since their business is based on sale of books.
    1. Combination of price and quality, especially technical one is crucial while purchasing items.
    2. General time shortage for book reading creates need for sound books, LP3 or CD. This put stress on publishers to supply paper based books and electronic versions of the same title.
    3. Mass production in large scale and four colours is expected to be of low price, so publishers from China and generally Asia are welcome. Communication is not a hinder since English became “business language” almost all over the world, and internet is a 24 hours communication channel.

Table 37. Total investments, in million €.

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
In million €	2002	2003	2004	2002	2003	2004	2002	2003	2004
Germany	1201,6	951,7	1036,9	94,4	61,5	52,3	972,9	765,5	867,3
Spain	573,3	437,6	436,3	41,2	17,0	16,3	434,5	333,1	355,3
Sweden	185,0	135,3	206,9	53,9	13,5	58,1	105,9	89,2	129,5
	Bookbinding			Prepress activities			Divers services related to printing		
Germany	59,7	53,3	45,0	51,4	44,2	49,3	23,3	27,3	22,9
Spain	46,3	49,2	19,5	33,9	20,9	33,0	17,5	17,3	12,2
Sweden	6,5	6,8	4,4	4,9	5,2	6,5	13,0	20,3	7,8

Source: Intergraph report 2007

Table 38. Investment in machinery and equipment, in million €..

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
In million €	2002	2003	2004	2002	2003	2004	2002	2003	2004
Germany	1072,9	869	nd	nd	60	52	nd	694,5	784,8
Spain	453,4	388	375,4	30,9	15,4	14,6	356	297,9	305,6
Sweden	161,3	nd	187,6	47	nd	55,5	93,4	nd	116

	Bookbinding			Prepress activities			Divers services related to printing		
Germany	56,4	44	41,7	45,2	nd	48,8	23,1	nd	22,7
Spain	32,2	40,7	17,3	20,9	18	27	14,3	16	10,9
Sweden	6,3	nd	4,2	4,1	nd	4,3	10,5	nd	7,5

Source: STFI

Table 39. Added value at factor cost, , in million €..

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
In million €	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Germany	9100,5	7867	8428,9	577,9	589,1	498,6	6880	5795	6489,9
Spain	3248,1	3327,2	3470,5	97,1	97,4	150,4	2472,6	2574,4	2703,5
Sweden	1055,9	nd	1033,7	105,8	nd	134,2	713,8	nd	664,2

	Bookbinding			Prepress activities			Divers services related to printing		
Germany	513,5	482,8	511,4	841,1	760,9	702,4	288	239,2	226,6
Spain	331,5	334,4	128,8	186,5	187,2	275,4	160,3	133,9	162,5
Sweden	50,4	nd	46,3	66,5	nd	67,5	119,3	nd	121,5

Source: STFI

Publishing industry outside EU (India) is growing and 30% of production is in English. India can present strong (approx. 8%) annual growth rate and strong development in some sectors. In India exists elite educated middle class with increasing interest for books about yoga, Indian culture, food, meditations, relaxation, etc. Outside India, books about culture and food published in English are very popular. Exports of books production in India is value = 100 M US$. Experts expressed opinion that this trend is general and world wide observed.

Economic sustainability for printing and publishing sector in Europe is threaten by the fact that e.g. India has reasonable prices, average annual pay for various job is even lower than in China. India is a strong actor on a global market due to a huge young nation, which is a competitive source of knowledge and employee basis, especially when English became educational language. However, the quality of printed products is lower but still acceptable. Besides, India has already competitive educated people, R&D outsourcing, strong demanding middle class. Off shoring and service boom that requires English skills is essential for young and educated people. All those factors together are driving forces for Indian printing and publishing sector's strong development and potential expansion.

Therefore, all experts agree that EU is a potential market for printed and publishing products manufactured in India and therefore a threat for domestic European industry.

5.3.4.1.2 Social sustainability

The European graphic industry development during 2002 to 2004.

Table 40. Gross value added per employee, in thousand €..

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
In thousand €	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Germany	48.8	47.5	52.2	59.7	65	62.5	49	47.9	53.9
Spain	38.2	40.2	41.2	62.9	78.2	87.1	38.8	41.1	41.8
Sweden	46.7	nd	51.7	57.3	nd	67.7	46.9	nd	49.6
	Bookbinding			Prepress activities			Divers services related to printing		
Germany	36.8	35	36.5	54.4	47.6	53.2	42	42.4	37.9
Spain	32.4	30.4	29.6	37.8	40.5	34.5	35	40	41.5
Sweden	38	nd	42.2	46.8	nd	57	42.6	nd	52.2

Source: STFI

Table 41. Number of enterprises.

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
	2002	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Germany	12,934	12,574	11,294	87	133	154	8,517	8,951	8,143
Spain	14,445	13,958	15,070	80	26	65	10,468	10,459	11,734
Sweden	3,683	nd	3,673	27	nd	40	2,461	nd	2,448

	Bookbinding			Prepress activities			Divers services related to printing		
Germany	871	955	853	2,211	1,760	1,413	1,248	775	731
Spain	2,783	1,400	319	719	1,779	2,625	395	294	327
Sweden	226	nd	197	373	nd	405	596	nd	583

Source STFI

Table 42. Number of employees..

	Printing and service activities related to printing			Printing of newspaper			Printing n.a.c.		
	2002	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
Germany	186,432	165,511	161,553	9,679	9,061	7,975	140,485	121,036	120,404
Spain	84,949	82,864	84,311	1,545	1,246	1,727	63,660	62,637	64,648
Sweden	22,606	nd	19,986	1,847	nd	1,983	15,211	nd	13,395

	Bookbinding			Prepress activities			Divers services related to printing		
Germany	13,971	13,791	13,996	15,448	15,976	13,191	6,849	5,647	5,987
Spain	10,225	11,017	6,034	4,933	4,617	7,985	4,586	3,347	3,917
Sweden	1,325	nd	1,096	1,423	nd	1,185	2,800	nd	2,327

Source: STFI

Corporate Social Responsibility at Heidelberg - The value system operated by Heidelberger Druckmaschinen AG lays down the following principle: "We support the principle of sustainability and promote social and cultural life at our company's sites." How this "Corporate Social Responsibility" (CSR) is exercised and managed in practice is now discussed in the company's newly published Sustainability Report 2005/2006. For Heidelberg, the world market leader in sheetfed offset, the "complete sustainability system" covers the CSR cornerstones of economics, ecology, and social commitment.

For example, the company operates a training centre for printers in the Afghan capital Kabul, in collaboration with the Gesellschaft für Technische Zusammenarbeit (GTZ, Society for Technical Cooperation). Locals learn printing skills on presses provided by Heidelberg, a project that offers people

career prospects and is helping revitalize the Afghan printing industry.

Corporate Social Responsibility also means boosting efficiency and thereby ensuring long-term job security. "The commissioning of our new production site in Shanghai, China, is an important step in this direction," says Bernhard Schreier, CEO of Heidelberg. Up to now - particularly in the lower market segments in China - little could be done to counter national competition. Now, production is tailored specifically to the needs of this market with locally developed products. "The advantage is we can now supply our customers directly, thereby reinforcing our strong position on the growing Asian market."

Nowadays the sub optimized Indian educational system gives only frames for lectures and curricula, and no pressure on reading and therefore caused the trend that only 3% of people within the group 11-18 years old read books outside the school material and approx. 30% of Indians under 15 years are illiterate. Such system is not sustainable and is planned to be changed in a near future. That will have a positive impact on further development of Indian printing and publishing sector and influence sector strength as a competitor on a global market.

The table below presents some data regarding printing and publishing industry's employment and other elements of social corporate sustainability.

Table 43. Large establishments (Employment over 9 persons)

	2002	2003	2004	2005	2006
No. of large establishments	42	49	47	47	43
Total employment	2423	2567	2684	2857	2771
Output (1)	1783	2084	2511	2800 (2)	N/A
Export (RsM)	-	161	301	283	219(Jan-Sep 2006)

(1) – includes reproduction of recorded media

(2) – estimate

Table 44. SME (Employing less than 10%)

	2002
No. of SME establishments	292
Total employment	1053
Output (Rs Mn)	347
Added Value (Rs Mn)	210

Source: Presentation by Rajesh Jeetah, Minister of Industry, SME, Commerce and Cooperatives, 01 March 2007

Table 45.: Main export products of Indian paper industry

Main Export products	**(Rs m)**	**% Total**
Books and directories	208	69
Brochures and leaflets	71	24
Postcards/Greeting Cards	10	3.4
Calendars	5.4	1.8
Instructional Charts/ Pictures & Designs	3	1
Advertising materials Commercial catalogue	2	0

Source: Presentation by Rajesh Jeetah, Minister of Industry, SME, Commerce and Cooperatives, 01 March 2007

Main features of printing and publishing industry in India

- Some companies are capable of producing quality works
- Around 10% are large establishments
- Large establishment account for around 80% of total output
- Good pre-press facilities in a number of companies
- A few of the large companies have modern equipment, including colour separation machines
- The vast majority of enterprises are poorly equipped
- Most lack technical expertise in tone reproduction, press, proofing systems and electronic media publication
- Has been traditionally domestic oriented

- Enjoy high profit margin
- Have a captive market
- The industry have spare capacity

Main challenges for the industry

- HR Issues: Training & Mastering of production techniques
- Upgrading of equipment
- Availability of precise, detailed market

Source: Presentation by Rajesh Jeetah, Minister of Industry, SME, Commerce and Cooperatives, 01 March 2007

5.3.4.1.3 Environmental sustainability

There are many related to environment sustainability initiatives that involve printing and publishing industries in European countries.

- The Environmental Paper Network is a consortium of nonprofits including Environmental Defence that provides resources for calculating the environmental benefits of switching to recycled paper.
- The Global Reporting Initiative (GRI) is a multi-stakeholder process and independent institution whose mission is to develop and disseminate globally applicable Sustainability Reporting Guidelines. These Guidelines are for voluntary use by organizations for reporting on the economic, environmental, and social dimensions of their activities, products, and services.
- Green Press Initiative - The mission of the Green Press Initiative is to work with publishers, industry stakeholders and authors to create paper-use transformations that will conserve natural resources and preserve endangered forests.
- Earth Trends is a comprehensive online database that focuses on the environmental, social and economic trends that shape our world. The site presents information from world renowned data sources.

Environmental responsibility at Heidelberg – Ecology plays a wholly practical and enduring role in product development at Heidelberg. All presses are developed in such a way that they save resources, such as energy and paper. Production itself is constantly optimized, with the result that, in the past year, environmental performance at many sites improved significantly, despite major increases in production. For example, water consumption at the world's largest printing press facility, Wiesloch, fell eight percent thanks to extensive modernization measures. And this was despite a 17 percent upturn in production. Environmental data, contacts, and general information on the company's production and development sites are also available online at company sites.

Sustainable printing and publishing requires the simultaneous pursuit of economic prosperity, environmental stewardship and social equity in combination with effective exchange of visual information. The business and technical challenges facing corporates call for leadership, urgency and direction. However, the challenges of sustainability require more. They require creativity, collaboration, restless inquiry and thoughtful consideration of the very purpose and nature of graphic communication.

As one of the world's largest and most influential industries the graphic arts is likely to face a growing array of challenges and opportunities that are directly related to sustainability.

Addressing the issues at the nexus of commercial opportunity and sustainable presents the printing and publishing industry with new opportunities to reinvent the ways in which the industry packages knowledge and "goods" for human consumption. There is opportunity to design, produce and distribute knowledge and "goods" in ways that manage their lifecycle costs and measure their quality-of-life benefits.

Customers from segment B2B and B2C are not striving for sustainable published/printed products. Customers are conscious about sustainability, mainly environmental issues, but this is not a decisive aspect. Some of them, especially book retailers require certification that there is not children job involved in production. However, this is relevant while purchasing books from outside Europe.

Project identified key issues that have to be taken into consideration while describing possible future of graphic arts industry in Europe.

Major findings are presented below:

1. Understanding of demands and challenges is crucial
2. Sustainable printing and publishing requires the simultaneous pursuit of economic prosperity, environmental stewardship and social equity in combination with effective exchange of visual information.
3. Cooperation and creativity are required.

5.3.5 Conclusions on books

5.3.5.1 End Users

Costs: there are no relevant costs.

Advantages: Acceptable price, easy handling, recycling, social acceptance for elder consumers, not for young people (due to time shortage).

No significant attitude toward books as sustainable good.

5.3.5.2 Professional Buyers

According to professional purchases there is a certain emotional value carried by the books, and this value is : Tradition

Costs: Environmental labelling and certificates required by retailers Combination of price and total quality

Advantages: Paper books catch readers' attention in a specific way and the visual memory is working better.

Disadvantages: Lot of storage space, heavy, easy to damage and costly to replace, complementary sources required, difficult to update.

No particular attention for total sustainability aspect (3 elements), and there is no willingness to pay extra.

5.4 PELLETS

5.4.1 Product description

Wood pellets are the most traded form of biomass fuels alongside with wood chips. The burning of wood pellets does not produce fossil carbon dioxide emissions. Pellets are produced of wood residues such as sawdust, chips, shavings and planning dust that mainly come from the mechanical forest industry. Raw material is pressed to cylindrical pellets that have diameter of 6-12 mm and length of 10-30 mm. The compression process causes the raw material to heat up, releasing lignin which binds the material together. As a result of this, pellets have regular shape and shine surface. The production requires less than 5 percentage of the pellets' energy content, so the process is efficient.

Biomass fuel trade in Europe is helped by the development of new technical specifications made by the European Committee for Standardisation (CEN), within the technical committee CEN/TC 335 "Solid bio fuels". The specifications will become a European standard that will form a basis for future standard quality control of traded biomass fuels. Solid biomass fuels are described in the CEN/TS 14961 according to fuel type and origin, traded form of the fuel and fuel properties. Wood pellets are one possible form of solid biomass fuels.

The current energy policies support renewable energy, including pellets. The Kyoto Protocol requires reducing greenhouse gas emissions and the EU White Paper on Renewable Energy has a target to increase biomass consumption.

5.4.2 Market information

5.4.2.1 Production and trade

The wood pellet markets studied in this case study are Finland, Sweden, Germany and Spain. Focus is on business to consumer and business to small business.

The growth of pellet markets in Europe has been rapid during the past years. The growth rate has been approximately 20% per year. The largest and the most advanced markets are in Sweden and in Denmark. Growth has been rapid and several heat and power plants have been transformed to bio fuels. Sweden is the largest producer of pellets in Europe.

The table 46. shows the wood pellet production capacities in studied countries. The capacity is not fully utilised, the utilisation rate is approximately 70%.

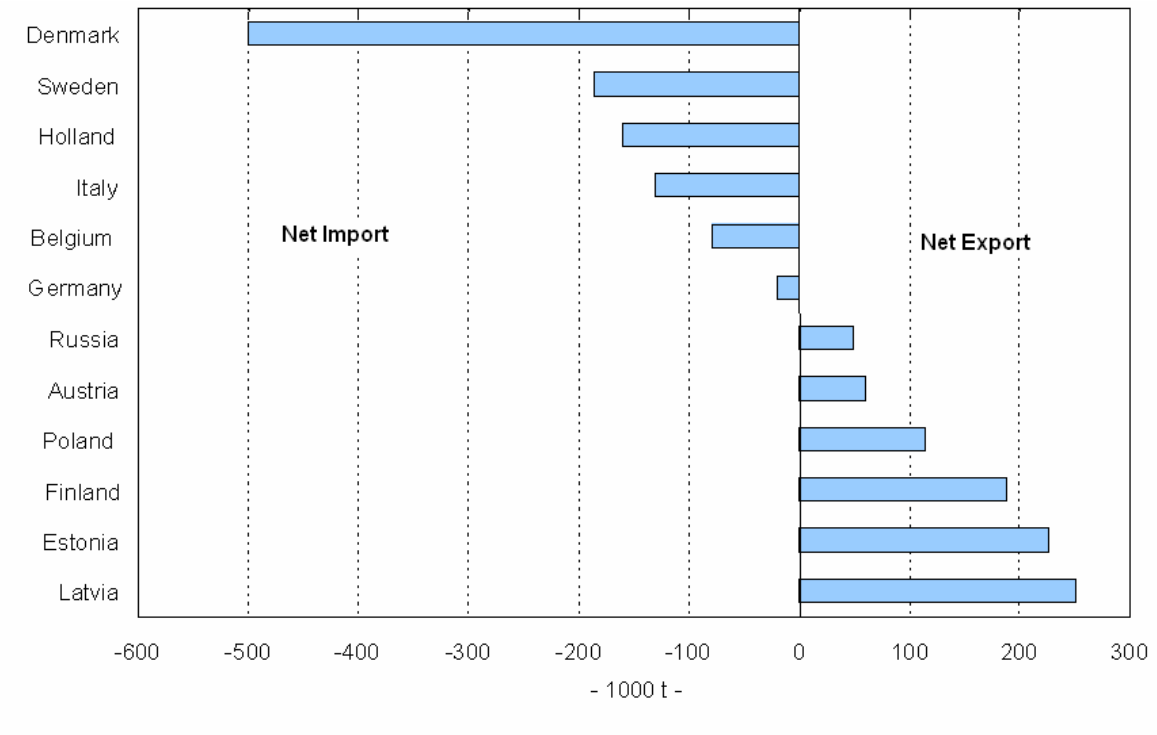
Table 46. Pellet production capacity in the studied countries in the end of 2006.

Country	Production capacity (1000 tons)	Planned new capacity	Number of existing plants
Finland	2835	70	22
Sweden	12430	0	39
Germany	7425	460	61
Spain	70	0	3

Source: Pöyry database.

The figure 25. presents the net trade of pellets in Europe in 2005. Sweden and Denmark are the largest importers of pellets in Europe. Holland and Italy are also notable importers. On the contrary, Finland is among the largest exporters in Europe. Germany both imports and exports, but the production is concentrated on domestic supply. In Spain the wood pellet production is very small, hence its trade is not significant in the European trade.

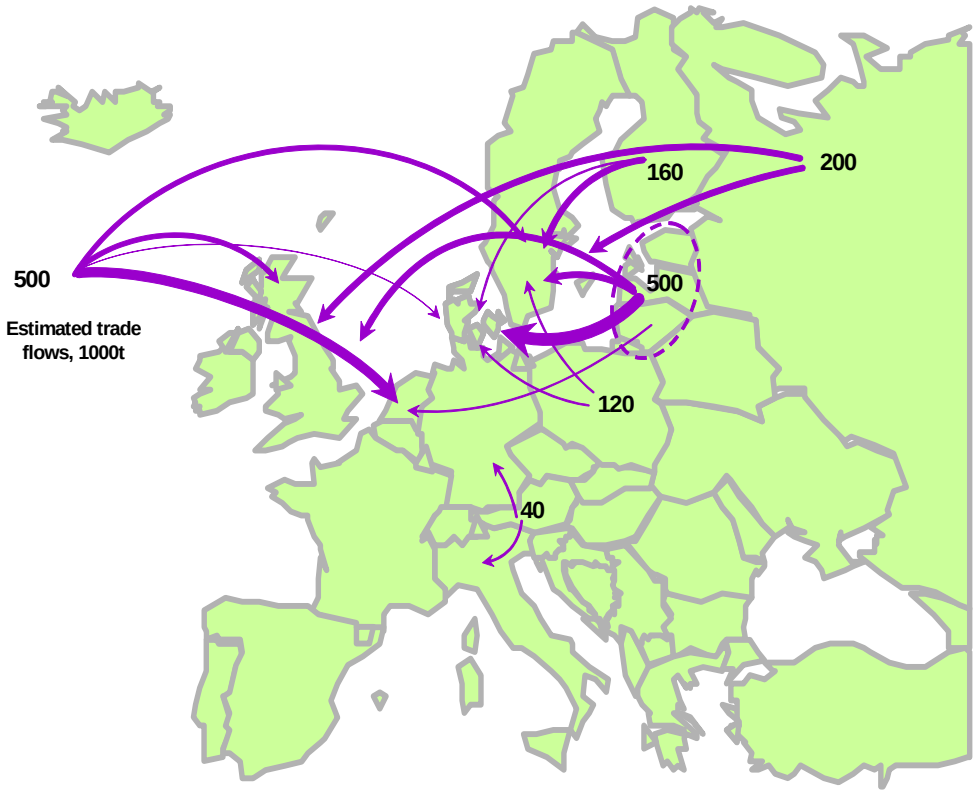
Figure 25. Net trade of pellets in Europe 2005.



Source: Pöyry

The main trade flows of pellets in Europe in 2005 are presented in the figure 26. The trade is focused on the Baltic Sea area. Sweden imports pellets from Finland, North America and the Baltic countries. Finland exports mainly to Sweden and Denmark. Germany has some exports to Sweden and Denmark.

Figure 26. The main trade flows of pellets in Europe 2005



Source: Pöyry

5.4.2.2 End Users

Pellet end-users can be categorised into three segments:

- Small-scale users
  - Private homes, farms and villas
  - Annual consumption 4 – 8 t
  - Pellets are used in central heating (pellet burners) or additional source of heat in houses heated with electricity (pellet stoves)
  - In northern Europe central heating system is more common whereas in southern Europe consumption is focused more on pellet stoves
  - Bulk pellets and large sacks are delivered directly from the plant/storage and bag pellets usually from a retailer. Pellets are usually ordered from a retailer but delivered from the plant

- Medium-scale users

- Industrial and office buildings, schools, house complexes
- Annual consumption 100 – 500 t
- Used exclusively (the most common option) or with wet chips
- Normally an option for oil or electricity heating in areas where there is no connection to district heating
- Pellets are mainly delivered in bulk or in large sacks directly from the plant

- Large-scale users
  - CHP (combined heat and power plants) and district heating plants
  - Annual consumption 3 000 - 300 000t
  - Used exclusively (not common), mixed with fossil fuels, mainly coal, for environmental reasons or with wet fuels (chips, peat) especially during the wintertime
  - Use only bulk pellets, which are transported by truck or ship to buyers' storage or intermediate storage. Some consumers are located directly by harbours

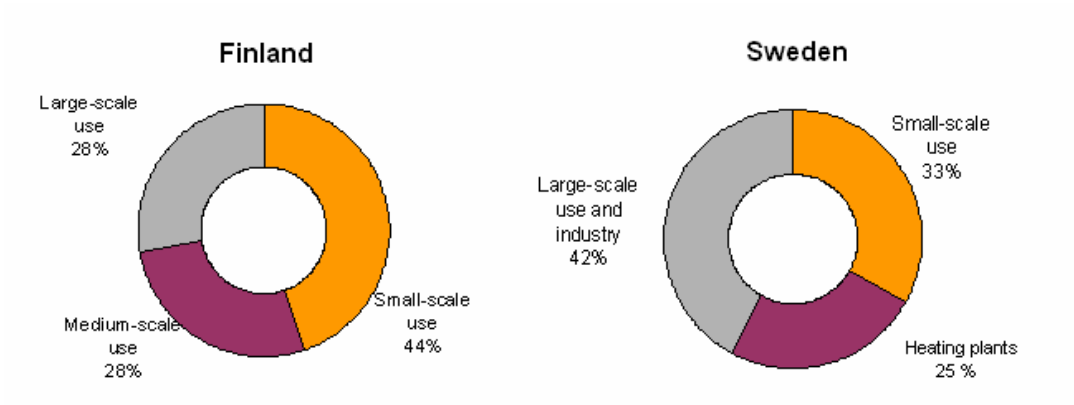
5.4.2.3 Finland and Sweden

Swedish pellet market is 70% supplied by own production. Sweden has sufficient capacity to supply the current demand, but pellet imports are growing due to competitive prices.

Distribution of pellets in Finland is different from Sweden. Pellet distribution for small-scale customer is similar in both countries, either straight from producers or via an intermediate. In Finland medium-scale users' distribution is corresponding to small-scale customers' distribution but in Sweden there are middlemen and co-purchase companies that act as intermediate authority in both domestic and imported pellet supply. Large-scale users mainly do business directly with producers.

The figure 27. presents the percentages of user segments is pellet markets in Finland and Sweden. In Finland small-scale use is definitely the largest user segment. In Sweden the markets are concentrated on large-scale and industry use. In Sweden there are large individual users that form a considerable part of the total consumption of pellets, but in Finland there are no corresponding users. However, small-scale consumer market is the fastest growing segment in Sweden.

Figure 27.: Percentages of user segments in pellet markets in Finland and in Sweden.



Source: Pöyry

In both Finland and Sweden the use of renewable energy is encouraged by many supporting policies. In Finland it is possible to apply financial support for the investments that promote the use of domestic energy sources. Taxes imposed on heat are calculated on the basis of the net carbon emissions of the input fuels and are zero for renewable energy sources. /2/

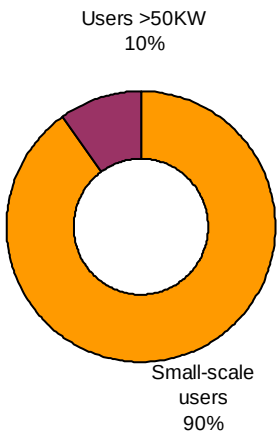
In Sweden, heat from renewable energy sources is supported in an indirect way by raising taxes on fuels. Bio fuels, solid waste and peat are tax-exempt for most energy uses. /3/

5.4.2.4 Germany

Germany is a growing market which shows a stronger growth than other European countries. Within Germany there are regional differences: pellet market in southern Germany is stronger due to cultural reasons and better availability of wood raw material. Rapid increase of gas and oil prices has lead to high demand for pellet heating, causing supply shortage of pellets in winter 2005. Majority of pellet producers are large saw mills. New investments and expansion of existing production capacity take place.

The figure 28. shows the percentages of pellet user segments in Germany. Majority of pellet users are small-scale users (households), but the share of larger-scale users is expected to grow.

Figure 28.: Percentages of user segments in pellet markets in Germany.



Source: Pöyry

Pellets consumption is subsidised well in Germany. At the federal level "Regulation for the stimulation of the utilisation of renewable energies" supports pellet consumption in energy production. In private sector, support is paid for each KW that is installed. In commercial/industrial sector, each KW installed is supported, and in addition, consumption is supported by low interest credits and partly remission of debt. The support has some restrictions.

5.4.2.5 Spain

The Spanish wood pellet market is extremely small. Pellet producers face difficulties in having a guaranteed supply of raw material, both in quantity and quality. The recycling of wood waste in the place of origin is increasing and the rest of the wood waste has a high demand. The pellet producers have to compete from the wood waste with the board manufacturing industries.

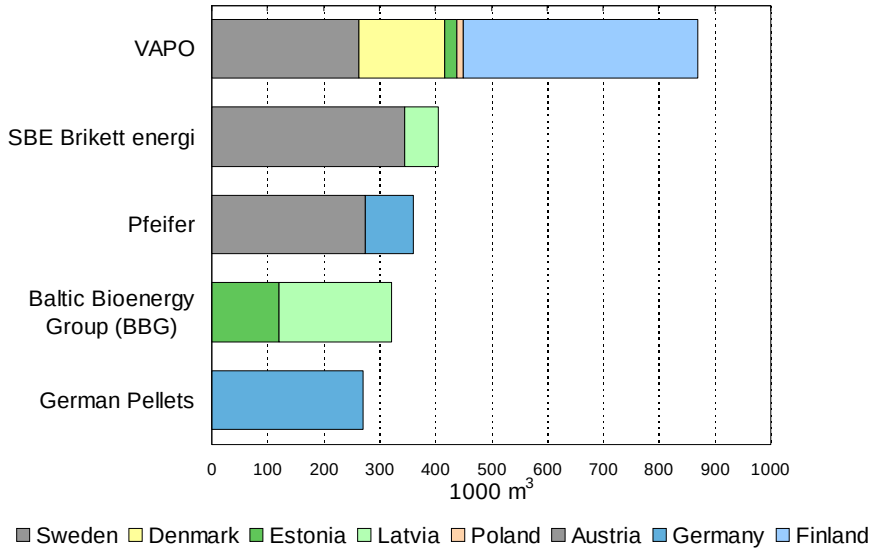
The consumption of wood pellets is mainly concentrated on small-scale use, for residential heating. Consumption is higher than production, and Spain imports pellets from Canada and other European countries. Because of the market prices, Spain simultaneously exports pellets to Italy, France and Germany.

Institutional and financial support of wood-pellet use is low.

5.4.3 Supply side

The largest European pellet producers operate in many countries. The figure 29.. shows the top 5 of pellet producers in Europe. The largest pellet producers have grown through acquisitions and have become international players. Ten largest producers account for approximately 30% of the total capacity, but there are also a large number of small producers and distributors. Growing production in continental Europe is mainly directed to local and surrounding markets.

Figure 29.: Top 5 pellet producers in Europe.



Source: Pöyry

The main problem with increasing pellet production is the availability of raw material. The development of technologies enables more versatile use of wood residue from the forest industry in pellet production, but wood residue is valuable material in other businesses, for example in board manufacturing industries, too.

A possibility to overcome the problem with raw material is to find substitute raw materials. In Central Europe agro biomass is a possible option for pellet raw material. In Northern Europe the main resources for pellets are forestry-based, but peat could be used as raw material. One possibility is to develop pellets that could use different biomass blends, for example wood and agro biomass.

Different end-user segments have different requirements for pellets. Small-scale users need high quality when medium-scale users' focus is on low running costs and automation. In large-scale use pellets are usually mixed with other fuels so the quality of pellets does not play a major role.

5.4.4 Demand side

5.4.4.1 Buying process

The use of pellets requires first a one-time investment on the pellet heating system. Pellets are delivered straight to a customer's storage by a tank truck as a bulk or in large sacks. Small pellet sacks can also be purchased in retail stores. Pellets need to be stored inside and transported so that they are not exposed to water. When exposed to water, pellets swallow and lose their properties.

The interviewees were asked to mention three main reasons for choosing pellet heating. Almost every interviewee in every country mentioned environmental friendliness, ecology or sustainability. In Finland and in Germany lowering energy costs, the low pellet price compared to oil and gas or inexpensive use of pellet heating were mentioned. In Finland domesticity of energy is important, in Germany subsidies for pellet heating have affected to heating decision in some cases and in Spain the social aspect of seeing flames has counted in heating decision making.

In Finland and in Spain most of the pellet users are aware of the origin of the pellets. In Germany the origin of the wood and the manufacturer country are not always known.

5.4.4.2 Perceptions on pellets in comparison to rest of alternatives

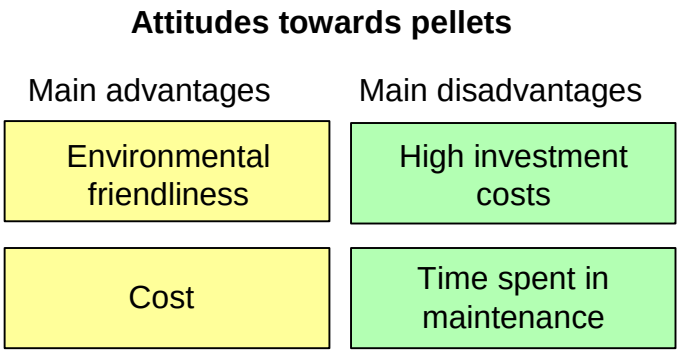
Traditional alternatives for heating are oil, gas and electricity heating. Most of the interviewees had some of these options in use before choosing the pellet heating. Renewable alternatives for heating recognised by the interviewees are woodchip heat, heat from firewood, geothermal heat, solar heat, heat from wind energy, heat from peat, agricultural bio energy (straw, reed canary grass), and heat produced by energy from waste.

The benefits of pellets compared to other heating options are environmental friendliness and costs. Private users often rank environmental friendliness above costs whereas medium-size users consider costs as the most important benefit. Independence from fossil fuels was also seen as a benefit. The opinions on the importance of utility and performance and social value of pellets vary. The image is not seen as an important benefit of pellets.

The factors the consumers experience as sacrifices in pellet use are mainly time and effort and high investment costs. Pellet heating requires more maintenance and repair than oil heating, some time has to be spent in cleaning ash, and storage of pellets requires room. The investments costs are experienced to be high, but the actual use of pellets is considered inexpensive.

Finding information of product properties is not seen as disadvantage of pellet use, but in some cases difficulties have occurred in finding a designer of pellet heating system or pellet supplier. Psychological costs are not experienced as a problem. In one case a pellet consumer was named freak because of his heating choice, but this was only right after the decision and was not experienced as a disadvantage. The figure 30. represents the main advantages and disadvantages of pellets according the interviews.

Figure 30. The perceived main advantages and disadvantages of pellets according to the interviews.



Source: Pöyry.

Pellets are seen to have competitiveness compared to other heating options in the future. Explanations users have for their opinions are for example stable price development (this far), increase of oil and electricity prices, limitedness and insecure availability of fossil fuels, good availability, lack of other good options and development of technologies related to pellets. One barrier in the competitiveness of pellets mentioned is that pellet heating system requires more interaction, like maintenance and cleaning, by the operator.

5.4.5 Sustainability

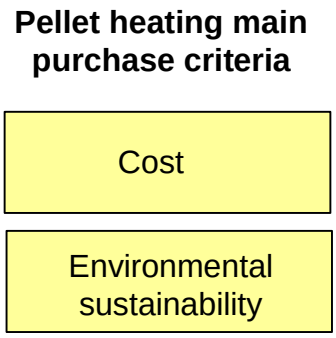
5.4.5.1 Consumers and sustainability

5.4.5.1.1 Purchasing process and sustainability

The interviewees define the concept of sustainability environment-oriented, but agree with three dimensions that were presented during the interview. In pellet heating purchase decision making process, cost and environmental sustainability are on the top of list of the most important factors with some exceptions. In this context, cost refers to costs for the consumer, when economic sustainability covers economic welfare of the whole society.

Economic and social sustainability are not as significant as environmental sustainability. Economic sustainability is considered to have slightly more importance in purchase decision making process than social sustainability. Social sustainability consists of factors such as labour conditions in the pellet industry and corporate social responsibility of the producers. Possible brightening of one's own image does not affect the decision of choosing pellets. The figure 31. shows the main heating purchase criteria according to the interviews.

Figure 31. :The main purchase criteria in purchasing pellet heating according to the interviews.



Source: Pöyry

Differences between countries occur in small-scale users' opinions on importance of performance of pellet heating system. Finnish small-scale users consider it more important than economic and social sustainability whereas German and Spanish small-scale users do not see performance very important. Especially Finnish medium-scale users see economic sustainability as one of the main reasons in choosing pellet heating. They want to support Finnish economy and employment.

5.4.5.1.2 Responsibility towards sustainability

Generally, the interviewees regarding sustainability behave positively. They try to purchase sustainable products when sustainable options can be found. Recycling and lengthening the lifetime of the products are performed when possible, but only when it is economically reasonable.

Pellet heating does not produce fossil carbon dioxide hence it is sustainable form of heating from the carbon dioxide balance's point of view. However, burning pellets produce some particle emissions. Most of the interviewees feel they are responsible for the environmental effects of their heating systems, but not all of them are concerned about the particle emissions caused by the pellet use. Reasons for this are for example that emissions are minor compared to particle emissions caused by other sources like transport, particle emission cannot be noted outside the house, particle emissions are compensated by carbon dioxide balance and believe in already having chosen the best possible alternative. Especially the Finnish interviewees have no concerns on particle emissions. On the other hand, reasons to be worried about the particle emissions are for example that negative effects are not yet identified or predictable, health risks and possible laws related to particle emissions that may require large investments. These worries come up among the German interviewees, especially regarding the possible laws, because particle emissions are in focus of political conversations currently.

Large part of the interviewees is aware that there is some development on particle filters in progress, but the general opinion is that they are not developed enough to make investment in them with a reasonable price.

5.4.5.1.3 Ideal product

Pellets are already considered rather sustainable and so the interviewees do not have many additional requirements for an ideal sustainable pellet. A gap between current and ideal pellet cannot be defined as the interviewees do not have information of the current situation on a level detailed enough.

Ideal pellet is expected to support all three dimension of sustainability. Examples of very important properties are that environmental effects of pellet production are minimised, that raw material comes from well-maintained forests that pellets do not cause health risks and that pellet production supports domestic economy.

5.4.5.2 Business model on sustainability

The European wood pellet markets have grown fast and are still growing. The most advanced markets are in Sweden and in Denmark. Pellet end-users can be segmented to three groups according to their consumption: small-scale, medium-scale and large-scale users. In this study the concentration was on small- and medium-scale users. The structure of the markets in the studied countries, Finland, Sweden, Germany and Spain, is different from each other. The European supply side of pellets is divided into few large and many small producers. The most probable barrier in the pellet markets is the lack of raw material. The solution could be new technologies that could combine various raw materials in pellets.

A pellet user survey was conducted to discover pellet users' attitudes towards pellets and sustainability. According to the survey, the advantages of pellets compared to the other heating options are low running costs and environmental friendliness. The disadvantages of pellets are high investment costs and time and effort required to maintenance and repair of the heating system. The environmental dimension of sustainability is the most important dimension of sustainability in purchase decision making. However, the customers are generally willing to support sustainability only if the price is reasonable.

5.4.6 Conclusions on pellets

5.4.6.1 End users and professional buyers

Advantages: It is a combustible that is environmentally sound, ecologic, and from the point of view of sustainability is satisfying the criteria. Low running cost compared to oil/gas energies, and it is not depending on fossil fuels.

Disadvantages: There is a bigger one-time investment (pellet heating system), and a large storage (space) facility needed. The maintenance and cleaning are requiring time, effort and money.

6 ATTITUDES ON SUSTAINABILITY

6.1 Spain

6.1.1 End users

6.1.1.1 General perceptions

Adult Group: Generally the group wasn't conscious about the terms of ecologic products. They were confused because they did not know if the origin (natural or not) makes a product ecologic, or the recycling process.
According to their knowledge: everything that is wood-based is recyclable, and also plastic is recyclable. Their opinion about glass is the same.
Young Group: "Wood is more natural than ecologic" lack of basic knowledge of the topic. They are not buying any product according to environmental criteria, and when they are realizing a purchase they are not taking into consideration any environmental factor.
This focus group is also price-sensitive, only two members of the group expressed their willing to pay more (of 10-15%) for an ecologic product, all the others have refused the idea to pay more for a product that is manufactured in accordance with the criteria of sustainable development.
They also don't pay attention to the origin of the product, because of their price-sensitivity.

6.1.1.2 Attitudes on Sustainability

Adult Group: The members of the focus group have evaluated the three columns (environmental sustainability, social sustainability and economic sustainability) of sustainable development as follows:
They expressed that it is impossible for them to divide sustainability into parts because sustainability is a complex chain, so they did not make a ranking that we could evaluate.
According to their opinion environment consciousness is a question of education, culture; they do everything that their children are teaching them about how to pay attention to the environmental issues in their everyday life (selected waste collecting, stop water wasting, stop using non-ecologic packaging materials). They named some factors that according to their opinion are the most contaminating ones for our environment:

- preference of individual use of cars instead of using the means of public transportation
- batteries
- plastic packaging materials

- plastic materials in the household

According to a common opinion of the group nowadays sustainability is used as a tool of marketing, and politics and this fact is generating less confidence especially towards multinational companies and politicians. The members of the group expressed doubts concerning the credibility of the information provided by transnational companies.
They are not really interested in the origin of the products, in case they like a product of a local or domestic manufacturer and it does not cost more than a product of foreign origin, then they prefer the domestic one to the foreign one, but as they are price-sensitive, they would not pay more for a domestic product than for an imported good. They also expressed that they would not pay more for a product only because it is on the favour of sustainability, or because it is ecologic. They expect producers to bear the costs of using ecologic materials instead of shifting these costs to the consumers.
Their attitude is determined by the lack of information about the topic, and also the scepticism of their generation concerning the environmental problems nowadays. They also have expressed their scepticism about he timing, according to their opinion it is too late to act successfully. For sake of successful changes in the approach to the environmental issues, legislation should be more active creating norms and laws in favour of sustainable development.

Young Group: Some of them have experienced it because of the environment-conscious actions of their workplace. They consider it to be in fashion, and they are admitting that it is an important issue of nowadays. They have mentioned Cuba, as a good example because of the lack of consumer-society, and also a good example of recycling. According to their opinion we are living in a society that is lavishing the sources, wasting energy, wasting water, and polluting the atmosphere. They also have mentioned that this is a question of education, lifestyle, traditions, habits, and financial situation.

They have criticised the method of trading quotes of the CO_2 emission amongst states.

They mentioned also as a good example for using renewable energy, the new legislation of construction in Spain that is obligating the new and reformed households to install thermic solar collectors.

They have mentioned the importance of public transportation, and also the importance of developing the level of public transportation, and they would recommend inventing restrictions in use of individual cars.

The members of the group would elect environmental and economic sustainability as the most important ones, but some expressed that all the three elements are equally important, they see them as a circle where there are no priorities.

The members of the group expressed their dislike towards the extreme quantity of plastic objects for household use. They prefer using natural and recyclable

materials, but according to their opinion, the society and the market does not let them do it (e.g.: the plastic bags of each retailer in case of aliments, plastic bottles of mineral bottle, the individual packaging of vegetables and fruits, generally, the extreme use of plastic for packaging purposes).

Some of them when they are realizing purchase, are selecting products upon contents, and ecologic origin. The state and local administration does not help to live according to requirements of sustainability, puts limits, such as: containers for selected waste are not provided, or not in an available distance, services do not fulfil any environmental criteria, the level of public transportation is not developed to the challenges emerging nowadays.

They agreed on that state administration should control this issue by legislative tools, forcing the citizens to act correctly by norms, laws, terms and/or inventing penalties to educate the people.

Obligation is very effective tool to put the norms in the everyday life.
With the fact that they are not experiencing and perceiving the consequences of the destruction of environment, they are not showing any willing to act. The source of information on environmental issues should be of high acceptance from the point of view of credibility.

The members of the focus group appointed wood furniture, rattan furniture and cardboard furniture to be the most ecologic ones.

6.1.2 Professional buyers

We analyzed sustainability from the economic, social and environmental point of view.

The integral solution for the purchase and installation mentioned above involves large organization structures. This means that worker social rights are better defended, workers are in a stronger position in larger companies. The “contract” sector in Spain is not characterized by the presence of large companies, due to the fact that only few enterprises opt for integral solution. The general pattern is purchase by means of processes that involve independent small enterprises where trade unions and the defence of social rights are weaker.

In general we have observed lack of attention to the environmental characteristics of furniture and processes used for the manufacture of it. The hotel trade client trusts the furniture supplier and the degree of his adequate adaptation to current norms and legislation. Those in charge of purchases give little attention to these matters.

However, we have observed a tendency in the hotel trade client to offer a product in the tourist trade that takes into account environmental aspects. There

are, within the hotel trade different environmental certifications as ISO 14000 environmental managing systems or the Q sign for Quality in Tourism from the ITCE (Spanish Institute of Quality in Tourism) that contains a section that deals specifically with care for the environment. At an international level there are recognized green labels such as the following :

- “Biosphere Hotels” from ITR (Institute for Responsible Tourism), in co accordance with the World Chart for Sustainable Tourism.
- “Quality for Life” for hotels located in Biosphere Reserves, in their areas, or in natural spaces declare Humanity Heritage.
- “Heritage for Life” for hotels in buildings considered historical and cultural heritage.
- “Animal Embassy” for lodgings in parks that involves watching animals.
- The European Union Ecological Label.
- Eco-label “Green Globe 21” based on Agenda 21 from the 1992 Rio Conference.
- “Green Key” from the Federation of Environmental Education.
- EMAS (Eco Management and Audit Scheme) that follows European regulations to which all business under “Paradores de Turismo” in Spain are gradually adhering to.

There is a clear tendency in the tourist sector to show concern for climatic and environmental changes. This has led to the existence of many environmental quality labels and to the use of environmental management systems in the part of some hotel businesses. However, the cost for environmental quality and management certifications is still high, so small hotel businesses can often obtain them due to financial limitations.

6.2 Sweden

6.2.1 End users

6.2.1.1 General perceptions

The **young group** was well informed about “Sustainable Development” and was keen on discussing the subject. They had both positive and negative viewpoints: Sustainability is something essential to consider, but it feels like a buzzword and something that everybody want but can not achieve (like “Peace on earth”).

Two of the participants in the **mature group** have not heard about the concept “Sustainable Development”.

When the participants described sustainable development, they mentioned:

- Think about the future, what we are going to leave to the next generation
- Economizing with resources
- Environmental matters

- Renewable products and sources of energy
- A political matter, the exploitation of the developing countries must stop
- Products that will last
- Development including social, economical and environmental parts
- New modes of transportation, new kinds of energy sources

Sustainable development gave the following associations to the participants: Recycling, Reuse, Environment, and Long-term thinking.

In the participants, daily life the concept sustainable development meant; choosing products with a label (for an environmentally friendly alternative or for “fair trade”), housekeeping with resources (energy, water), sort out household waste and to teach the young children not to waste and throw away was mentioned in the group.

6.2.1.2 Attitudes on sustainability

Adult group: This is what the participants think of when they hear the expression sustainable development:

- Renewable products.
- Renewable energy
- Not to use all of the earths resources.
- Environmentally friendly
- To think about the future
- To use more environmentally friendly alternatives.

The environmentally part of sustainable development is the most important one right now, the situation is alarming and it is maybe irreparable. Sweden is one of the countries that have come a bit on the way. Social aspects are more important for the developing countries. The economics aspects is to a large extent a political question, those that already have a lot of resources tend to use even larger part of the remaining resources at the same time it is them who have the biggest opportunity to act in the right way.

Products that are associated med Sustainable development are locally produced products, eco-labelled products, products labelled fair trade and bikes (only uses renewable resources and are healthy to use).

Products that are not associated med Sustainable development are electronic equipment, oil, products that are transported from far away e.g. exotic fruits and furniture that is made of rainforest wood.

Young group: This is what the participants think of when they hear the expression sustainable development:

- The way we live now is not sustainable, everybody need to take their responsibility.
- We have to think more about the future and what we will leave behind to the next generation.
- We have to find new energy sources and we can't keep on using so much oil. We need to find new techniques for transports.
- It is a trend to use the word sustainability; it starts to be worned out. Sustainability means that environmental, economics and social aspects are considered all together.
- People have to think more, buy CO2 rights when they travel.
- I think most of all of the environmentally part of sustainability.
- Everybody wants sustainable development and everybody wants peace.

7 CONCLUSIONS

7.1 Perceptions towards forest-based products and materials

7.1.1 Furniture

7.1.1.1 End Users

In Spain, the consumers have ambiguity about wood as environmentally sound material. In Sweden there is a common perception of the end users that wood is environmentally sound.

Advantages of solid-wood furniture are the followings: good quality, nice design, warmth, it is a long-lasting material, convenience, social acceptance.

Disadvantages of solid-wood furniture are the followings: high price, maintenance of a living material (humidity, dry…), transport/ disposal.

7.1.1.2 Professional Buyers

Professional buyers are not considering sustainable aspects when purchasing furniture, although may show communicating labels related to environmental concern.

Advantages:
- Design capabilities
- Adaptation to project
- Ordering

Disadvantages:
- Fast wearing out process
- Old image for modern establishments
- Need for adaptation to safety conditions for public use of furniture

7.1.2 Packaging

7.1.2.1 End Users

In Spain: Neutral perceptions although habitual use. After glass, is the second in the price ranking. Glass is main competitor material due to quality perception.

In Sweden: it is perceived to be environmentally sound (recycling), light to carry, functionality.

Costs: Reduced perception of costs (Spain: not always available infrastructure for recycling)

Advantages: Easy storage, easy handling, easy carrying.
Disadvantages: Functionality, boring design, difficult to flatten.

7.1.2.2 Professional Buyers

Professional buyers are not paying particular attention for total sustainability aspect (3 elements), and there is no willingness to pay extra.

There are existing emotion values which are the followings: No strong fibre-based packaging preferences have been recognised

Costs: Mixed opinions; according to retailers and wholesalers it is cheaper then other materials

Advantages: Easy to recover and recycle (common), easy to expose, less problem with leakage, easy to transport, good printability, have good functionality in the refrigerated display counter and are easy to handle.
Disadvantages: Heavy, low image, difficult to vary design, not flexible

7.1.3 Printing industry

7.1.3.1 End Users

Costs: there are no relevant costs.

Advantages: Acceptable price, easy handling, recycling, social acceptance for elder consumers, not for young people (due to time shortage).

No significant attitude toward books as sustainable good.

7.1.3.2 Professional buyers

No particular attention for total sustainability aspect (3 elements), and there is no willingness to pay extra.

According to professional purchases there is a certain emotional value carried by the books, and this value is tradition.

Costs: Environmental labelling and certificates required by retailers Combination of price and total quality

Advantages: Paper books catch readers' attention in a specific way and the visual memory is working better.

Disadvantages: Lot of storage space, heavy, easy to damage and costly to replace, complementary sources required, difficult to update.

7.1.4 Pellets

7.1.4.1 End users and professional buyers

Advantages: It is a combustible that is environmentally sound, ecologic, and from the point of view of sustainability is satisfying the criteria. Low running cost compared to oil/gas energies, and it is not depending on fossil fuels.

Disadvantages: There is a bigger one-time investment (pellet heating system), and a large storage (space) facility needed. The maintenance and cleaning are requiring time, effort and money.

7.2 Consumers´ attitude on sustainability

There are big differences observed on sustainability in Europe's different countries. Generally the **consumers in Sweden and Germany are well informed on the environmental and sustainability issues**. In Spain the consumers´ attitudes on the topic are less consciousness.

- **Attitudes on sustainability in Spain:**

Attitudes are very diversified.

- Spanish consumers are price-sensitive when talking about sustainability, although other factors such as quality, service, design and social acceptance are also important when purchasing different products.

  - In case of furniture, besides the price, there are other things influencing the buying process: the structure of the family, the design and the quality, and also the functionality. Aspects of sustainability are not appearing in their preferences.

  - In case of juices the design and appearance is the most important factor besides quality. Spanish consumers like trying the novelties, they like trying products that are having different packaging from the conventional ones, or they have not seen before. Sustainability is not appearing in their decisions on buying juices.

- In case of books Spanish consumers are interested in the contents. For their personal use they are buying paperback editions that are the less expensive and most functional ones. Sustainability as a factor does not play any role in buying books.

- **The knowledge of Spanish consumers on sustainability is very basic, and generally they are not paying too much attention to it when they are buying**. The environmental activities of Spanish households are not going further than collecting waste selectively, and this is still a spreading process.

- The Spanish consumers are not in possession of enough information about the environmental characteristics of wood, they are confused and their knowledge is ambiguous about the topic; they can not decide whether wood is ecologic because it is recyclable and natural, or non-ecologic, because by using wood, nature and environment is suffering a harm.

- **Spanish consumers need education on general environmental issues** and also on sustainability.

- **Communication of sustainability and all environmental issues should be credible** and the cost of credibility should be paid by the producers (use of symbols, investing in publicity, etc.). The producers should take care of the communication, and build credibility, because amongst the Spanish consumers there is a certain scepticism concerning the producers´ and politicians´ declarations. T

- The extra costs of environmentally sound products, and packaging should be covered by the producers, because the **consumers are not willing to pay any extra amount regarding the environmental aspects of a product.**

- Spanish consumers consider that legislative regulation could be the only way for assuming general sustainable behaviours/products, because on voluntary base a part of the society is not willing to pay more. **Spanish consumers are missing the activity of the community in environmental issues** (organizing better public transportation, etc.).

❖ **Attitudes on sustainability in Sweden:**

The Swedish society is well informed about the environmental issues and also the about sustainable development.

- In the Swedish consumers´ daily life the concept of sustainable development means; choosing products with a label (for an environmentally friendly alternative or for “fair trade”), housekeeping with resources (energy, water), sort out household waste and to teach the young children not to waste and throw away. The use of public

- **Swedish consumers are environmentally conscious**.
- Functional and eco-friendly packages and products preferred by Swedish consumers, price along with product durability, are the main parameters.
- In case of furniture probable manufacturing processes and their impact on the environment is also an important aspect, on top of functionality, design and price.
- Carton packages are considered as the most environmentally sound one. Fibre-based products and packages are preferred on environmental reasons.
- Regarding the books, paperbacks are preferred by Swedish consumers. The main reasons for their choices are weight, price and environmental aspects. The paperback is considered to be the most environmentally sound format for the books.
- **Swedish consumers would like to act in a useful way concerning sustainability**; they would like to take active part of actions towards sustainable development by their attitudes and behaviour.

Consumers in Europe:

According to the conclusions concerning sustainability detailed hereabove there are **two main profiles of consumers** in Europe, with the following characteristics:

CONSCIOUS CONSUMERS

- Social consciousness about sustainability.
- Trust on sustainable information labels.
- Political concern about sustainability impact and social/ economical responsibility of rich countries.
- Limited willingness to pay extra for sustainable products.

NOT CONSCIOUS CONSUMERS

- Lack of information about what sustainability is and its dimensions.
- Sustainability is thought to be linked excluvisely to environmental aspects.
- Certain attitudes towards sustainability (especially recycling), coming from companies' culture and new generations.
- No trust and scepticism: sustainability is perceived as just a trend: marketing and political purposes without real facts (credibility problem).
- Need for consumers' education and investment on credibility about sustainability (needs, attitudes, benefits, etc.).
- No willingness to pay extra for sustainable products.

In professional markets (business to business) main profile is the not conscious one, although companies may try to show a ecological friendly image to markets.

We can state that in Europe there is an essential need for educating the consumers on the topic of sustainability, particularly, not only when referring to environmental issues, but also in economic and social dimensions. This education should be provided by the producers or public agents, and bear the costs of educating as even those consumers who are sensitive towards sustainability, are not always willing to pay more money for it.

There is a very important question of credibility, as some consumers find sustainability arguments to be spurious, so they are sceptic about them (they think sustainability as a fashionable or politically correct issue). Hence, educating people and making them aware of sustainability importance when consuming wood-based products, will have some costs of credibility. These costs (advertisements, consciousness campaigns, etc.) should be assumed by the producers or governments.

Thus, the role of the governments is also very important for promulgating legislative elements concerning sustainability habits to the everyday life, just for guaranteeing that most of people assume the desired behaviour.

8 Annexes

8.1 Annex I. Focus Group Sessions in Spain

8.2 Annex II. Focus Group Sessions in Sweden

8.3 Annex III. Sustainpack "What do consumers want from packaging?"

8.4 Annex IV. Questionnaire on sustainability