



EFORWOOD
Sustainability Impact Assessment
of the Forestry - Wood Chain



Project no. 518128

EFORWOOD

Tools for Sustainability Impact Assessment

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Report on analysis of the draft Pro-active Sustainability Strategies
and their implication upstream

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PP	Restricted to other programme participants (including the Commission Services)	X
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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1 Introduction

1.1 Objective

“Pro-active Sustainable Strategies and their implications upstream” report has an ambition to present on one hand the developed strategies, and on the other hand their implications for actors upstream.

The main goal of activities included in this part of Eforwood project was to detect upstream implications caused by defined and evaluated by Stakeholders and upstream Modules pro-active strategies. Pro-active strategies in draft form were developed in the previous stage of the project and are in detailed described in PD 5.3.2.

1.2 Limitation

All limitations concerning development of pro-active strategies, which is the previous stage of the project, are described in PD 5.3.2 and PD 5.3.3.

Activities in this part of the Eforwood project have been limited to four industries placed in different countries: printing and publishing in Sweden, bio-energy/pellets in EU, furniture in Spain, and wood construction in France.

Draft of strategies as well as guidelines was not communicated to other Modules and Stakeholders. This should be done in order to collect comments and implement improvements. Lack of this activity means that strategies are not evaluated and are on draft level. Final version of strategies is not achieved.

Detected upstream implications have not been communicated to upstream Modules and Stakeholders in order to collect comments and implement improvements. This part of work has been carried out mostly internally.

No in depth literature study has been carried out.

All mentioned limitations have mainly been caused by shortage of time and resources which have been prioritised to other activities, e.g. data collection for ToSIA

2 Methodology used for analysis of upstream implications

Each partner of M5 has been carried out process separately in relation to sector and geographical placement as follows:

- AIDIMA – furniture industry in Spain
- FCBA – wood construction industry in France
- Innventia – printing and publishing industry in Sweden
- Pöyry – bio-energy/pellets industry in EU

Methodology used while creating strategies as well as analysing upstream implications has not been unified for all sectors, so each partner had possibility to use own, the most suitable one.

2.1 Existing Methodologies

Since one of the project's objectives is to create strategies for future, some methodologies related to foresight field have been scanned, mainly technology foresight and scenario creation, such as Morphological Analysis.

There are a huge number of qualitative or semi-qualitative methods that are commonly used by researchers, policy makers, industry stakeholders and experts in order to identify current conditions as well as future trends on markets. This is a way to generate information that can be later analyzed and used while strategic decisions must be taken. Following methods have been scanned:

- Average Benefit Incidence Analysis
- Behavioral Analysis
- Marginal Incidence Analysis
- Behavioral Benefit Incidence Analysis
- Demand Analysis
- Supply Analysis
- Direct Impact analysis
- General Equilibrium Analysis including tools: Social Accounting Matrices, Input-Output Models and Computable general Equilibrium models
- Household models
- Monitoring and Evaluation
- Partial Equilibrium Analysis including Multi-market models, and reduced-form estimations
- Participatory Monitoring and Evaluation
- Scenario Analysis
- Social Capital Assessment Tool
- Social Impact Assessment
- Social Risk Assessment
- East of England Sustainability Toolkit
- Methods referring to social preferences such as: Dialogue Method, Policy Exercises, Mutual Learning Method, Delphi Method

Partners were also investigating PEST analysis which is useful for measuring business's market and growth potential according to external factors such as political, macro economical, technological and even social. Another tool is well known Porter's Five Forces model, which could be used while analyzing competitive position. The most known are SWOT, which could be used to evaluate the strengths, weaknesses, opportunities and threats involved in a business.

All mentioned above methods have different purposes and objectives of use. Results achieved while used them vary much in their character and usability.

2.2 Choice of methodology for the project purpose

Since the project has very limited resources dedicated, no sophisticated foresight simulating methodology could be used for scenario creation. Based on AIDIMAs

experience as well as internal discussion within M5, Morphological Analysis has been chosen.

For the second part, strategies creation, SWOT analysis has been used as a development tool, since this methodology was already recommended in WP description.

For the third part dedicated to analyzing of upstream implications no particular methodology has been investigated and chosen.

2.3 Methodology used for the project

Morphological Analysis is described in details in D5.3.1.

SWOT analysis is described in PD 5.3.2

2.3.1 Pöyry – bioenergy / pellet industry in the EU

The methodology used by Pöyry followed mainly the general methodology that was agreed to be the base of this study, adjusted suitable to the case of pellet industry. Several methods were utilized in the different stages. Impacts on the upstream in the forest-wood chain were analysed for some of the strategy recommendations. The scope of the work was the EU and the pellet industry clients were assumed to be both home-scale and professional users.

2.3.2 AIDIMA – Solid wood products / furniture industry in the EU

The methodologies used in this study by the researchers of AIDIMA principally follow the overall methodology agreed by the WP members and are of different characters, due to the different stages of the work. Some of the implications of the recommended strategies in the upstream processes of the EU FWC were identified and analyzed. The geographic scope of the work was the EU, and furniture industry clients are considered to be the business customers and consumers.

2.3.3 FCBA – wood construction industry

The methodology used by FCBA is very close to the general methodology that was agreed to be the base of this study. It involves some adjustments to the wood construction sector. FCBA evaluated also upstream implications in the forest wood chain with a European perspective.

2.3.4 Innventia

The methodology used by Innventia followed mainly the general methodology that was agreed to be the base of this study, adjusted suitable to the case of printing and publishing industry. Internal process has been carried out in order to identify upstream implications.

3 Result of analysis

3.1 Sustainable Strategies

Since draft of pro-active strategies has not been evaluated, not revised version has been developed. Following draft pro-active strategies with respect to both scenarios have been developed:

3.1.1 Pöyry – bioenergy / pellet industry in the EU

Question no 1, positive scenario

1. How to make business customers and consumers interested in environmental advantages of wood pellets?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Local supply in Europe ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Extensive removal of wood residues for raw material generates a need to fertilise forests ▪ Dependency on financial support ▪ Not totally emission free
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Competitiveness of pellets increases as the price of fossil energy increases ▪ Competitiveness of pellets increases with increased support/requirement for renewable energy ▪ Better availability and decreased raw material costs by combination of raw materials outside forest industry <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ More renewable energy used ▪ Wider renewable energy options ▪ Possibilities to replace fossil fuels with pellets ▪ Less transport thanks to local production <p>Social opportunities</p> <ul style="list-style-type: none"> ▪ More work in pellet industry, generally or locally 	<p>Economic threats</p> <ul style="list-style-type: none"> ▪ Competitiveness of other renewable energy sources increases, too, as the price of fossil energy increases ▪ People may choose other renewable heating options even if environmental awareness exists

Pro-active strategy recommendations

An important strength of wood pellets is that they are a renewable energy source. The increasing support / requirement for renewable energy is an opportunity for pellets, but simultaneously there is a threat of people choosing other renewable heating options. To prevent this, we suggest that the pellet industry could make business customers and consumers more interested in environmental advantages of pellets by promoting e.g. carbon footprints and other quantitative comparisons between pellets and other renewable energy options. This would give customers understandable and fact-based information about the pros and cons of pellets compared to other renewable heating options.

The industry could also emphasize the other strength of pellets, the locality of the product, to customers. Locality can be considered as an environmental, social and economic asset of pellet usage in heating. Independent information about pellet heating compared to other heating options by an industry external organisation would also help customers to make environmentally and socially friendly decisions. External assessment would make it more reliable to customers. To be able to affect the image of pellets, the industry could also consider a “facelift” of pellets to be trendier and especially sustainable way of heating compared to other possibilities.

Question no 2, positive scenario

2. How to strengthen the environmental credibility of wood pellets?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Local supply in Europe ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Extensive removal of wood residues for raw material generates a need to fertilise forests ▪ Dependency on financial support ▪ Not totally emission free
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Competitiveness of pellets increases as the price of fossil energy increases ▪ Competitiveness of pellets increases with increased support/requirement for renewable energy ▪ Better availability and decreased raw material costs by combination of raw materials outside forest industry <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ More renewable energy used ▪ Wider renewable energy options ▪ Possibilities to replace fossil fuels with pellets 	<p>Economic threats</p> <ul style="list-style-type: none"> ▪ Competitiveness of other renewable energy sources increases, too, as the price of fossil energy increases ▪ People may choose other renewable heating options even if environmental awareness exists

<ul style="list-style-type: none"> ▪ Less transport thanks to local production 	
<p>Social opportunities</p> <ul style="list-style-type: none"> ▪ More work in pellet industry, generally or locally 	

Pro-active strategy recommendations

Wood pellets have environmental strengths, as they are renewable and production uses raw materials efficiently. To strengthen the environmental credibility of pellets the cooperation with different environmental organisations would be recommendable. The evaluation and the communication of the strengths together with environmental organisations can give products environmental credibility more efficiently than “normal” campaigns.

Some kind of pellet certificate could be also designed for pellets, raw materials used in production and incineration instruments. Certificate should be agreed through the industry and it should require third party examinations.

Question no 3, positive scenario

3. How the pellet sector could maintain or increase competitiveness on the market?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Local supply in Europe ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Dependency on financial support ▪ Laborious energy source for small scale users
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Competitiveness of pellets increases as the price of fossil energy increases ▪ Competitiveness of pellets increases with increased support/requirement for renewable energy ▪ Better availability and decreased raw material costs by combination of raw materials outside forest industry ▪ More potential pellet users thanks to increased fuel flexibility in incineration system technology (allowing lower quality and higher ash content pellets) ▪ More potential small-scale pellet users thanks to small-scale pellet 	<p>Economic threats</p> <ul style="list-style-type: none"> ▪ Competitiveness of other renewable energy sources increases, too, as the price of fossil energy increases ▪ People may choose other renewable heating options even if environmental awareness exists

<p>heating systems that become easier to use</p> <ul style="list-style-type: none"> ▪ Pellets become a more desirable small-scale heating option thanks to a customer-friendly heating system purchasing process and improved service packs (e.g. an integrated heating system, architectural and furnishing design) <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ More renewable energy used ▪ Wider renewable energy options ▪ Possibilities to replace fossil fuels with pellets ▪ Less transport thanks to local production <p>Social opportunities</p> <ul style="list-style-type: none"> ▪ More work in pellet industry, generally or locally 	
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Pro-active strategy recommendations

In this scenario environmental issues are still impacting on the decisions of consumers, and so certification and provision of environmental information to customers (as suggested in the previous questions) can increase competitiveness of pellets on the market. Local supply is strength, and it is an opportunity to further develop logistics together with forest industry because it could increase competitiveness of pellets by reducing the costs of transport. Because the industry is still dependent of the governmental support, lobbying on behalf of the beneficiary support formats is crucial.

Due to laborious small scale pellet heating systems there is a threat that consumers choose other renewable heating options, but this could be avoided by developing easier-to-use and more comfortable pellet heating systems.

Question no 1, negative scenario

1. How to make business customers and consumers interested in environmental advantages of wood pellets?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Extensive removal of wood residues for raw material generates a need to fertilise forests
Opportunities	Threats
Economic opportunities	Economic threats

<ul style="list-style-type: none"> ▪ Opportunities for financial support <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ Environmental awareness starts affecting decision-making ▪ Opportunities for local supply in Europe 	<ul style="list-style-type: none"> ▪ Competitiveness of pellets decreases as the price of fossil energy decreases ▪ Competitiveness of pellets decreases due to support for other renewable energy sources ▪ Raw material prices increase with increased competition of raw material for other uses <p>Environmental threats</p> <ul style="list-style-type: none"> ▪ Less renewable energy used <p>Social threats</p> <ul style="list-style-type: none"> ▪ Less work in pellet industry
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Pro-active strategy recommendations

In this scenario business customers and consumers show no caring for the environment, it is challenging to generate interest in environmental advantages of wood pellets. However, based on the strengths of pellets it is recommended to campaign strongly (or even dramatically) for the benefits of pellet usage contributing to the slowing down of climate change.

To support the opportunity of growing impact of environmental awareness in decision-making, quantitative comparisons between the renewable heating options should be served to the potential users of wood pellets. To avoid the threat of people choosing relatively inexpensive heating options, lifting the image of pellets to a comfortable and fashionable heating option would be beneficial for the pellet industry.

Question no 2, negative scenario

2. How to strengthen the environmental credibility of wood pellets?

<p>Strengths</p> <ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<p>Weaknesses</p> <ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Extensive removal of wood residues for raw material generates a need to fertilise forests ▪ Not totally emission free
<p>Opportunities</p> <p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Opportunities for financial support <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ Environmental awareness starts affecting decision-making ▪ Opportunities for local supply in Europe 	<p>Threats</p> <p>Economic threats</p> <ul style="list-style-type: none"> ▪ Competitiveness of pellets decreases as the price of fossil energy decreases ▪ Competitiveness of pellets decreases due to support for other renewable energy sources ▪ Raw material prices increase with

	<p>increased competition of raw material for other uses</p> <p>Environmental threats</p> <ul style="list-style-type: none"> ▪ Less renewable energy used <p>Social threats</p> <ul style="list-style-type: none"> ▪ Less work in pellet industry
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Pro-active strategy recommendations

In this scenario people are environmentally aware, but do not care about the environment in their activities. Hence the effect of strengthening the environmental credibility of pellets might not be as efficient as in the case of the positive scenario. Anyway, increased credibility may lead to increased interest to care about the environment. The pellet industry could strengthen the credibility by cooperating with different environmental organisations and developing independent certificates for pellets and for pellet heating equipment. Naturally, this requires environmentally sound activities in the pellet and heating equipment production, too.

Question no 3, negative scenario

3. How the pellet sector could maintain or increase competitiveness on the market?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Wood pellet is a renewable energy source ▪ Efficient use of raw materials through creating a valuable product from a low-value side stream 	<ul style="list-style-type: none"> ▪ Limited supply of raw material ▪ Laborious energy source for small scale users ▪ Not totally emission free
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Opportunities for financial support <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ Environmental awareness starts affecting decision-making ▪ Opportunities for local supply in Europe 	<p>Economic threats</p> <ul style="list-style-type: none"> ▪ Competitiveness of pellets decreases as the price of fossil energy decreases ▪ Competitiveness of pellets decreases due to support for other renewable energy sources ▪ Raw material prices increase with increased competition of raw material for other uses ▪ Customers find other (renewable) heating options more desirable as there is no development in small-scale pellet heating system usability ▪ Consumers choose easier renewable heating options as the purchasing process services for other renewable heating systems

	<p>are further developed</p> <p>Environmental threats</p> <ul style="list-style-type: none"> ▪ Less renewable energy used <p>Social threats</p> <ul style="list-style-type: none"> ▪ Less work in pellet industry
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Pro-active strategy recommendations

In this scenario supply of wood pellet raw material is limited, so it is an opportunity for the pellet industry to develop exploiting other renewable raw materials for pellet production in addition to wood. So investing in this type of research would be recommendable. This would lighten the competition from the raw material. Optimisation of transports could bring cost-efficiency for the industry, too.

As the price of fossil energy decreases, renewable heating options are growingly depended on the governmental support. Ensuring support policies for renewable heating, especially for pellets, is important for the pellet industry.

Due to laborious small scale pellet heating systems there is a threat that consumers choose other renewable heating options, but this could be avoided by developing easier-to-use and more comfortable pellet heating systems, similarly as in the positive scenario.

3.1.2 AIDIMA – Solid wood products / furniture industry in the EU

Positive scenario

Question no 1:

- How to make business customers and consumers interested in environmental advantages of FWC products?

Strengths	Weaknesses
<ul style="list-style-type: none"> -Product is recyclable -European furniture sector is able to fulfill the norms of strict safety and health ruling -CSR is in focus of furniture companies -Good access of the industry to the well developed recycling facilities -European industry suppliers produce high quality materials -Rational use of resources and creation of renewable alternatives (means less contamination) -Closeness to one of the worlds biggest retail market 	<ul style="list-style-type: none"> -High labor and raw material costs in Europe so furniture industry is getting delocalized -Lack of design- and model protection of the products of the industry

-Closeness to the consumers	
Opportunities -Consumers have a positive perception of wood products (functionality, quality...) -Qualified and controlled immigration Environmental -Responsible mobility and consumption, demand for products responding to new values	Threats Economic: -Copying practices of emerging countries. Social -Values of CSR and local origin are not perceived by the final consumers. -Copying practice of emerging countries Environmental -Low environmental standards out of Europe (and other developed regions) -Copying practice of emerging countries

Pro-active strategy recommendations

Based on the positive scenario 2020

The following elements of the SWOT table were used for creating the pro-active sustainable strategies:

Strength: -Product is recyclable
 -Closeness to the consumers

Opportunity: -Positive consumer perception about products made of wood
 -Consumer demand for new values which include environmental aspects.

- | |
|---|
| - Information to consumers about European furniture's environmental aspects focusing on:
local origin,
safety and health issues,
production circumstances,
post -use destination,
the capability of EU industry to fulfill the norms of safety and health ruling
- Promotion of the concept of responsible consumption providing info on benefits of sustainable consuming habits
- Showing example for consumers by providing them with additional services for buyers covering:
sustainable disposal,
maintenance with ecological products
covering the costs of waste management |
|---|

Wooden furniture has undeniable environmental advantages compared to its substitutes due to the fact that it is recyclable, and consumers have a positive perception about products made of wood.

To obtain the objective to make consumers and customers interested in the environmental advantages of wooden furniture, the furniture industry is recommended to use the opportunity provided by the consumer and customer demands for new values to be incorporated into the product. Some of these new values are related to the environmental issues. Industry should have consumers informed about the aspects that make European furniture environmentally sound.

The environmental benefits of local production of the products should be underlined. CSR that is in focus of European furniture companies is also an important aspect that is linked to local origin and to health and safety issues; the consumers are worried about their health so they are looking for products that are safe and are not causing any kind of harm for them during the use and they are also concerned about the production circumstances and post-use destination of the products. As European industry and their local suppliers are able to fulfill the norms of strict safety and health ruling, at this point industry meets the demands of consumers. Industry should promote the concept of responsible consumption and provide the buyers with information about the benefits of sustainable consuming habits. Industry also should provide additional services to consumers and customers that cover sustainable disposal, and maintenance of the products amongst others. Industry should cover the costs of waste management as well, with the fact that European buyers are not ready to pay extra for environmentally sound products.

Positive scenario

Question no 2:

-How to strengthen the environmental credibility of the European FWC industries?

Strengths	Weaknesses
<ul style="list-style-type: none"> -Branding is quite strong, especially in kitchen and office furniture sectors, furniture industry has the possibility to link values of environment to brands buyers trust -CSR is in focus of furniture companies -European suppliers produce high quality materials -European industry suppliers produce high quality materials -Rational use of resources and creation of renewable alternatives (means less contamination) -Consumer closeness 	<ul style="list-style-type: none"> -End users requirements are largely unknown, very small number of companies carry out formalized consumer research. -Scarce communication capabilities of SME's -High costs of the production and labor in Europe, so production is getting delocalized

As in some segments of furniture the branding is very strong, and end users´ prefer European brands, it is possible to link environmental information to the brands. Industry should find the communication opportunities through branding, emphasizing the advantages of European furniture. The image of European furniture could be improved by a guaranteeing entity that buyers trust, and its contribution to the communication would build credibility towards the products.

The most common way of communication of furniture manufacturers to the consumers and customers is labeling and certification. Labeling system is not fulfilling its objectives in terms of the end users at the moment because the actual systems are not completely applied, and consumers do not understand the information stated on them. European industry is recommended to find a common system that is communicating to the buyers the origin of raw materials and the place of production of the furniture. It should emphasize all environmental characteristics.

In sales points consumers and customers should receive the information that is facilitating their decision making on favor of environmentally sound products. Interactive online and digital solutions on informing about eco-parameters of the products.

The industry can increase public trust concerning its products by strong cooperation with entities – that could be supranational organizations, NGOs – that have social acceptance and universal prestige in the field of environmental values.

Positive scenario

Question no 3.

- How the furniture sector could maintain or increase competitiveness on the market?

<p>Strengths</p> <ul style="list-style-type: none"> -European furniture manufacturer’s capability to create new designs and models is an undeniable competitive advantage -Ability to produce personalized products; -Closeness to consumer -Innovation in point of sales proliferation of complementary distribution channels 	<p>Weaknesses</p> <ul style="list-style-type: none"> -High raw material and labor costs make the sector weak in price competition -High labor costs are making the sector less competitive -Weak bargaining positions of manufacturers against retailers -lack of design protection of the sector’s product, can be easily copied. -End users requirements are largely unknown very small number of companies carry out formalized consumer research. -Low flexibility of furniture companies (slow reaction to changing market trends)
<p>Opportunities</p> <p>Economic</p> <ul style="list-style-type: none"> -Safe market , stability -proximity and access to one of the 	<p>Threats</p> <p>Economic</p> <ul style="list-style-type: none"> -Copying practice of emerging countries -Product quality of third country products

<p>world's largest and most sophisticated markets, geographical proximity allows reducing costs of logistics</p> <ul style="list-style-type: none"> -Qualified and controlled immigration -responsible mobility and consumption -Value added requirements of furniture consumers -Growing "experience" economy 	<p>are increasing, their design as well</p> <ul style="list-style-type: none"> -Unfavorable price competition with non-EU countries -Furniture is not a priority in the household expenditures
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Pro-active strategy recommendations

Based on the Positive scenario 2020

The following elements of the SWOT table were used for creating the pro-active sustainable strategies:

Strength:

- Closeness to consumer,
- Proximity to market
- Ability to produce personalized products
- Ability of industry to create highly personalized products, new designs and models,

Opportunity:

- Safe market, stability
- Growing experience economy
- Value added requirements of furniture consumers

<ul style="list-style-type: none"> - Consumer research - Consumer participation in value creating - Highly customized products by consumers - Increasing consumer loyalty by collaboration and experience - Extending the company size by cooperation - Industry providing services to distribution - Value creating by use of IT solutions - Creating value for the consumer in each stage of the product life cycle

Distribution:

S-O: innovation in sales points, proliferation of complementary distribution channels-growing experience economy

<ul style="list-style-type: none"> - Increasing the value perception at sales points by providing consumers with intangible values - Experiential marketing - Implementing new business formats; e.g. concept of manutailer, combination of it with other sector: e.g. hotel and restaurant, this way access not only to local consumers - Increasing the level of cooperation between distribution and manufacturing

A big advantage of the European furniture industry is the proximity and access to one of the world's largest and most sophisticated market, this geographical proximity allows a closer relation to the consumers and customers. This closeness is making the industry to be able to obtain the needed information about the consumer and customer demands to offer them products of the required value added. The needs of end users in each segment could easily be detected and European industry is able to manufacture personalized products and has a great potential in creating new design and models, its favorable situation can be maintained and taken advantage of.

Also due to the closeness, industry should provide additional services to the consumers, who also could participate in value creating. Their collaboration and experience can make them easily loyal to the product.

As European consumers are concerned about social and environmental aspects of the products, companies can provide a value through focusing on CSR.

Distribution:

As formerly furniture purchase was influenced by price and quality, under the positive scenario it is affected by components of the "feel good factor", the social acceptance and pride of ownership, environmental aspects, that are determining the antiquated perception as a functional item rather it is merchandise, but forms integral part of home and lifestyle.

The innovation in sales points and the proliferation of complementary distribution channels are offering the possibility to exploit the opportunity of offering experiences that sell the product as experience economy is growing.

Intangible values provided at sales points are increasing the level of value perception of the product. Also IT solutions should be incorporated to the value creating system of the industry. Adding value at each stage of the product life cycle, paying special attention to the post sales stages, providing services and values during the use, renewal, and disposal.

Business expansion plans are suggested to use the opportunity of focusing on the services that industry can provide to the distribution. The appearance of new business models that are including the fusion of the concepts of manufacturers and retailers, a manufacturer, becoming *manutailers*.

The word *manutailer* means a facility where the manufacturer(s) sell their products directly to the consumer. For consumers the idea of buying directly from the manufacturers and cutting the middlemen is very attractive because they are offered a better deal this way. Cooperation with other industries like hotel and restaurant business, offering concentrated services for the buyers at the sales point is also an opportunity that can create a shopping tourism and local enterprises can have access to consumers of other geographic locations as well

Negative scenario

Question no 1.

- How to make business customers and consumers interested in environmental advantages of FWC products?

- Remuneration of environmentally conscious consumers (e.g. discounts / gifts upon environmental products purchase, (costs transferred to non environmentally sound products)
- Buying process linked to a demonstrative experience
- Legislative obligation is also applicable in this scenario for increase the use of renewable resources and for forcing the spread of sustainable consumption – political decision is needed for achieving it.

In the negative scenario the circumstances are causing more difficulties to the industry. Furniture consumption is declined.

As the EU population is showing a resistance to change lifestyles, consumption of non-renewable resources is intense. A strong campaign showing the consequences of their environmentally non-conscious behavior is the recommended starting point of informing the consumers and customers about their attitudes' aftermaths. A social dialogue should be maintained between all stakeholders, to offer an attractive, environmentally sound lifestyle to the population. This lifestyle should be presented in all levels of the society in alliance with NGOs, governments and all industries.

An overall education could be incorporated into the program about the manners of an environmentally sound lifestyle. The attitude of people can be modified through their emotions so they should be influenced by their feelings. The possible negative effects of consumption in a non-ecologic way on their lives and on the future of the next generations, especially focusing on the possible negative circumstances of their family members.

Products produced in Europe are incorporating the advantages local production advantages.

Distribution:

Industry could remunerate those users and professionals who buy environmentally sound products. It could be a gift or a special discount assigned to environmental characteristics of the product.

As locally produced furniture that is incorporating the environmental values is more expensive than the imported ones, and buyers are price-sensitive, looking for simple and cheap products, they would highly appreciate great discount on them. As distribution is concentrated, and industry has no bargaining power against it, by a strong cooperation of all stakeholders discounts can be provided through the distribution system.

The shopping process is recommended to be accompanied by an experience that is helping to understand the environmental advantages of wooden furniture of local origin. The experience should be demonstrative and the industry should bear the costs of it. Cooperation with entities of environmental objectives

Negative scenario

Question no 2.

- How to strengthen the environmental credibility of the European FWC industries?

Strengths	Weaknesses
-Branding is quite strong, in kitchen and office furniture sectors, furniture	-No efficient use of resources

<p>industry has the possibility to link values of environment to brands buyers trust</p> <p>-Ability to produce personalized products; closeness to consumer, increased competitiveness against</p>	<p>-Branding is weak in the majority of home furnishing, so in home furnishing no opportunity to link values to brands the buyers trust</p> <p>-Environmentally sound characteristics are not values added to the product.</p> <p>-End users requirements are largely unknown, lack of focus on consumers</p> <p>-High price competition with emerging country products, so credibility is an extra cost, that buyers do not want to pay, so the costs should be bore by industry</p> <p>-Scarce communication capabilities of SME's</p> <p>-Not flexible companies</p> <p>-Information about consumer depends on the retailer</p>
<p>Opportunities</p> <p>Economic</p> <p>-Consumers' trust is strong in European brands, because values of European companies are trustworthy</p> <p>-Consumers have a positive perception of wood based products</p>	<p>Threats</p> <p>Economic</p> <p>-Difficulty in setting fair market rules among countries</p> <p>-For environmentally sound products consumers and customers are not willing to pay extra</p> <p>-Copying practice of emerging countries</p> <p>Social</p> <p>-There are no transmittable values</p> <p>-Copying practice of emerging countries</p>

Pro-active strategy recommendations

Based on the negative scenario 2020

The following elements of the SWOT table were used for creating the pro-active sustainable strategies:

Weakness:

- Industry is not credible
- Scarce communication capabilities of SME's
- No efficient use of resources

Threat:

- Values of CSR are not perceivable for buyers

<ul style="list-style-type: none"> - Companies should become transparent for public in all terms - Effective common communication and demonstration of industry's environmental commitment, and efforts on CSR: <ul style="list-style-type: none"> -use of new communication channels -demonstration of commitment -a continuous presence in media with results of CSR -cooperation with entities carrying strong environmental
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credibility and experience in the topic as a guaranteeing force.

The industry should gain credibility and be able to communicate effectively to the consumers and customers their commitment towards environmental issues. Demonstrating their commitment is possible through a perceivable CSR. As buyers do not perceive the values of CSR, the companies should focus on communication and demonstration. Industry is suggested to become transparent for each member of the community. For demonstrating purposes introducing new communication channels between the industry and buyers is recommended. As perceived value is dependent not exclusively on the aspects of design and sympathetic use of materials, but also the experiences that could forward the message to the buyer about the environmental aspects of the entire value chain, that should be combined to convince users about it .

Negative scenario

Question no 3.

- How the furniture sector could maintain or increase competitiveness on the market?

<p>Strengths</p> <ul style="list-style-type: none"> -European furniture manufacturer's capability to create new designs and models is an undeniable competitive advantage -Ability to produce personalized products; closeness to consumer, understanding western lifestyles 	<p>Weaknesses</p> <ul style="list-style-type: none"> -No efficient use of resources -End users requirements are largely unknown, lack of focus on consumers -high labor costs make the sector weak in price competition -Weak bargaining positions of manufacturers against retailers -No progress in alternative distribution
<p>Opportunities</p> <p>Economic</p> <ul style="list-style-type: none"> -Consumers' trust is strong in European brands, because values of European companies are trustworthy -Consumers have a positive perception of wood based products -New consumer segments appear on the market (due to aging population, new lifestyles, great number of immigrants...) <p>Social:</p> <ul style="list-style-type: none"> -Massive immigration, -New consumer segments appear 	<p>Threats</p> <p>Economic</p> <ul style="list-style-type: none"> -Difficulty in setting fair trade rules on the market -Permanent trade imbalance -Emerging countries become leaders in global furniture production -Narrow market low demand. -Furniture is not a priority in the household expenditures <p>Social</p> <ul style="list-style-type: none"> -Values of CSR and local origin are not perceived by the final consumers and customers.

	Environmental Environmental restrictions and regulations are not existing
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Pro-active strategy recommendations

Based on the negative scenario 2020

The following elements of the SWOT table were used for creating the pro-active sustainable strategies:

- Strength: - European Industry is able to produce highly differentiated products
- Weakness: - Delocalization of industry
 - Weak bargaining positions of manufacturers against retailers
 - Fragmented industry without bargaining power against concentrated distribution
- Opportunity: - Massive and not controlled immigration,
 - Appearance of new segments of the market

- Increasing competitiveness by minimizing cost differences between emerging country and local products in terms of labor by employing the migrated population
- Strengthening innovation and marketing processes of local industries – exploiting the efficiencies of clusters, cooperation between the clusters of the sectors of the habitat.
- Strong cooperation or fusion of the sector’s companies, centralized common operations, concentrated power against the external competence
- Reducing the chances of foreign imports by:
 - product differentiation due to the new market segments’ demands
 - Simply standardized products for the new segments
 - quick delivery, providing expected quality and services
 - updating EU furniture for adapting it to the changed circumstances.
- Strategic renewal; and completely new business model to be implemented:
 - mass customization
 - new manufacturing formats
 - lean manufacturing
 - Just in Time delivery
- Common value creating system with suppliers, business partners, allies, customers and consumers
- Role, relation, organizational practices reconfiguration:
 - mobilizing consumers and involving them in the value creating system
 - providing consumers with a unique experience, dialogue with consumers
 - maintaining the offers continuously competitive
 - offering attractive packages in new combinations
- Highly efficient transporting and logistic system:
 - close cross-sector cooperation with transporting sectors and/or introducing transport and logistics as competencies

- Extending vision for the strong emerging markets and export the products to the competitors market; promoting the creation of a consortium for exporting
- Increasing bargaining power of industry against distribution by establishing strong cooperation or fusion of the sector's companies, centralized common operations
- Access to distribution by implementing importing activities into the EU company profile
- Creating a second hand market for used furniture

Under the negative scenario one of the biggest disadvantages is the delocalization of the industry.

Becoming cost competitive against the emerging country imports is highly improbable. The competitiveness can be increased by minimizing the cost differences in terms of labor, using the cheap labor force that is migrating into Europe in an uncontrolled and massive form.

Local initiatives are recommended, to strengthen innovation and marketing processes of the local industry, local production is suggested because outsourcing is also not a viable solution due to the fact that the international political situation is not stable and safe.

A strategic renewal, and a completely new and more appropriate business model are needed; mass customization, new manufacturing strategies; lean manufacturing, just in time) delivery etc. The value not only has to be added, but also has to be reinvented. The value creating system is the one that should be stressed. The strategic duty is role-, relation- and organizational practices reconfiguration. Common value creating system of suppliers, business partners, allies, customers within the frames of co-working.

Also a recommendable way is to offer attractive “packages” of value that include customers, consumers and suppliers, allies and business partners in new combinations; new business systems and relationship reconfiguration is needed. Mobilizing costumers and involving them into the value creating system providing them with a unique experience, a dialogue is to be created with consumers and maintaining the offers continuously competitive.

Due to social changes; massive immigration, aging population, independent way of living there are more households that are consisting of one single person. New segments are appearing on the market with different demands to the former ones. Satisfying the needs and demands of the new segments is recommended to the industry and match the products with simple standards. In case European furniture industry is able to differentiate its products fitting into the model of new user requirements and is able to deliver quickly while providing the expected quality, and services, the market chances of foreign import could be reduced. Close cross-sector cooperation is to be established with transporting enterprises and/or introducing transporting and logistics as competencies within existing knowledge and innovation centre for furniture production to obtain a highly efficient logistic and transporting system.

Focusing on these factors European manufacturers can also extend their vision to the strong emerging country markets and export European furniture to the competitors

markets, where consumers and customers can pay more for personalized and value added products. The European furniture manufacturers which are still operating are flexible and can quickly adapt to the changed environment, should adapt their products as well: update furniture, using design, architecture, and construction, for adapting furniture to the changed circumstances.

Exploiting the efficiencies of clusters, establishing cooperation between the clusters of the different habitat sectors.

Distribution:

Innovation is needed, new sales channels should be applied, in case they do not exist, they should be invented by the industry with or without the support of the existing distribution system.

European furniture industry’s independent companies are recommended to establish strong cooperation with each other, or are suggested to fuse with each other and centralize their operations, this way becoming able to oppose the strong bargaining power of the concentrated distribution and to gain strength against the external furniture suppliers competing for the European consumers. Due to the fact that the remained European industry also plays the role of importer, also has access to the distribution. Using this advantage they also can get closer to the buyers and exploit this opportunity to strengthen the position by changing the traditional role in the chain and extend activities as the market desires.

3.1.3 FCBA – wood construction industry in EU

Positive Scenario

Question no 1:

- How to make business customers and consumers interested in environmental advantages of FWC products?

Strengths	Weaknesses
<p>Environmental :</p> <ul style="list-style-type: none"> -Product are renewable and recyclable - Wood sector generate Low pollution and low consumer of energy especially during the transformation and the transportation (distance and density) processes. -Wood construction products stocks CO2 for a long period (lifetime of the house) & Wood construction products substitutes to products based on fossils materials. -Rational use of resources and creation of renewable alternatives (means less contamination) 	<p>Economic:</p> <ul style="list-style-type: none"> -High labor and raw material costs in Europe so wood construction industry is getting delocalized - weak culture marketing, sales and lobbying. Professional structure with low cohesion - weak financial strength - Low value added to materials raport competitors that less interest to intermediate traders - lack of professional training in the use of wood in construction

<p>Social -European wood sector is able to fulfill the norms of strict safety and health ruling -Some Companies applies CSR system</p> <p>Economic: -Closeness to one of the worlds biggest retail market</p>	<p>Environmental : -Difficulty to collect and use the environmental information -Use of toxic additive (glue, biocid, paint,...) and indoor emission</p>
<p>Opportunities</p> <p>Economic : -Consumers have a positive perception of wood products (functionality, quality...) -the Energy Price increase -Qualified and controlled immigration</p> <p>Environmental -Responsible mobility and consumption, demand for products responding to new values</p> <p>Public policies -Pro. Env public policies (taxes on CO2 emissions, subsidies...) -The consumer association and NGOs are defending renewable materials</p>	<p>Threats</p> <p>Economic: -Low environmental standards out of Europe (and other developed regions) -Ability of competing materials: dumping, aggressive communication, marketing torced -Lobby of competing materials to reduce the effect of the environmental taxes</p> <p>Social -Values of CSR and local origin are not perceived by the final consumers.</p> <p>Environmental -Forest Intensive Use</p>

Pro-active strategy recommendations

Based on the positive scenario 2020

Strength: - Products are renewable and recyclable
 - Wood construction products stocks CO₂ for a long period (lifetime of the house) & Wood construction products substitutes to products based on fossils materials.

Opportunity: - Positive consumer perception about products made of wood
 - Consumer demand for new values which include environmental aspects.

<p>-Information to consumers about European Wood products environmental aspects focusing on: -Carbon advantages, -Local origin -Sustainable production, recycling and re-use.</p> <p>-Promotion of the concept of sustainable construction with wood and benefits of using</p>

wood (PassivHaus,...)

-Creation of Carbon market based on CO₂ in Building, in order to interest the consumers to use wood.

The environmental benefits of products of wood constructions are undeniable, indisputable. These benefits cover first production of a renewable material contributing to the fight against climate building, and secondly the use of a local resource that can reduce the impacts of transport. The perception of wood as a material global society is positive, but remains insufficient in the purchase decision.

To ensure that these environmental benefits are becoming a strong signal to buy, it should ensure that consumers will not only be informed of the benefits, but mostly he will be involved in the climate and environmental challenge.

Consumers are of two kinds, end users, and contractors. This is to inform and involve the first, and really train seconds.

The industry should disseminate accurate and understandable information to stakeholders in consumption, collecting environmental data and providing simple communications and easily assimilated. LCA, although full analytical tool, should be simplified to make its use easy and really decisive.

The contractors (builders, architects, local community, distribution of building product ...) will be trained in the use of wood products, and use environmental information.

The impact analysis will allow the industry to continue improving the environmental profile of its products and to maintain its advantage vis-à-vis competing materials. Reducing amissis transport, increased collection and recycling of products and building demolition are all axis of environmental progress .

To engage these consumers, creating a carbon market, allowing consumers the product timber to dispose of CO₂ credit that could be exchanged under a stock exchange from the fact that sequestration of CO₂ but also that the choice of wood products in place of more emissive products causes a substitution of fossil CO₂ .

Positive Scenario

Question no 2:

-How to strengthen the environmental credibility of the European FWC industries?

Strengths	Weaknesses
-The environmental credibility of European wood sector is good, in terms of CO ₂ particularly -construction products is accompanied by certification of recognized quality and moving towards environmental indicators	-Difficulty to collect and use the environmental information -Use of toxic additive (glue, biocid, paint,...) and indoor emission -End users requirements are largely unknown, very small number of companies carry out formalized

<ul style="list-style-type: none"> -Some Companies applies CSR system -Rational use of resources and creation of renewable alternatives (means less contamination) 	<p>consumer research.</p> <ul style="list-style-type: none"> - Scarce communication capabilities of SME's -High costs of the production and labor in Europe, so production is getting delocalized
<p>Opportunities</p> <p>Economic</p> <ul style="list-style-type: none"> -Consumers' trust is strong in European standards. -Increase in Energy price <p>Environmental</p> <ul style="list-style-type: none"> -Responsible mobility and consumption demand for products responding to the new values -Rational use of resources and creation of renewable alternatives means less contamination, that can be communicated and proved -Small group of consumers is ready to pay extra for environmentally sound products <p>Public policies</p> <ul style="list-style-type: none"> -Pro. Env public policies (taxes on CO2 emissions, subsidies) 	<p>Threats</p> <p>Economic</p> <ul style="list-style-type: none"> -Non European country competition (labor cost; environmental cost) -Quality perception of the retailers and customers is similar for European wood products and the imported one, -Ability of competing materials: dumping, aggressive communication, marketing torced (see the loss of credibility of wood products organized by the concrete industry in Europe) <p>Social</p> <ul style="list-style-type: none"> -Values of CSR and local origin are not perceived by the final consumers - uses of exotic timber from illegal or unsustainable harvesting

Pro-active strategy recommendations

- Strength: -construction products is accompanied by certification of recognized quality and moving towards environmental indicators
- Opportunity: -Consumers' trust is strong in European standards.

<ul style="list-style-type: none"> -strengthening or creation of marks and certificates for construction products incorporating environmental criteria -Implementation of a new common system of labeling and certification providing comprehensible information for purchasers of environmental aspects of the product. -creation of certification of buildings "bio" sourced

The credibility of the wood construction industry, in terms of respect for the environment is good. Nevertheless, some targeted attacks could have destabilized the confidence of consumers. It is therefore appropriate to reassure the consumer, and show exemplary industrial wood construction.

Consumers seeking an assurance of environmental quality of its products or its home.

For this it relies on a system of certification by a credible third party, including European standards, or environmental charters.

It is possible to link environmental information to various existing certifications. The industry must find opportunities communication emphasizes the advantages of EU products.

The implementation of a systematic labeling, simple and have little indicator and directly related to the expected benefit (from local, energy performance, ...) will allow consumers to more easily assimilate and enhance the credibility of the products .

Marketing systems will have the information and training necessary to provide explanations to consumers. Strengthening Internet communication in connection with recognized NGOs will also strengthen the credibility of the products.

Industry can increase public confidence in its products for strong cooperation with entities - which could be supranational organizations, NGOs - who have the social acceptance and universal prestige in the field of environmental values.

The creation of “bio” sourced buildings with independent certification, will be a strong integration of the concepts of sustainable construction. It will ensure the credibility of all, making the link between environmental quality of construction products and building itself.

Positive Scenario

Question no 3.

- How the wood construction sector could maintain or increase competitiveness on the market?

<p>Strengths</p> <p>Environment -Low consumption of energy especially during the transformation and the transportation (distance and density) processes.</p> <p>Economic -renewable product without link with oil cost volatility -Relevant Price: when the house is perceived on the long term. -Potential Market important -Potential of industrialization and optimization</p>	<p>Weaknesses</p> <p>-high labor costs are making the sector less competitive -distance market, subcontracting of major makers -lack of innovation -End users requirements are largely unknown very small number of companies carry out formalized consumer research. -Low flexibility of wood construction industries</p>
<p>Opportunities</p> <p>Economic - Increase in housing demand -Low interest rate -Increase in Energy price</p>	<p>Threats</p> <p>Economic -Unfavorable price competition with non-EU countries -the innovation capacity of competing</p>

<p>-proximity and access to one of the world's largest markets, geographical proximity allows reducing costs of logistics</p> <p>-Pro. Env public policies (taxes on CO2 emissions, subsidies...)</p> <p>- Qualified and controlled immigration</p> <p>-responsible mobility and consumption</p> <p>-Value added requirements of House sellers consumers</p> <p>-Growing "experience" economy</p> <p>Technology improvement</p> <p>-Improving WOOD products quality (robustness, lifetime, easy to use...)</p>	<p>materials, and advanced industrialization</p>
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Pro-active strategy recommendations

Strength: -Potential Market important
 -Potential of industrialization and optimization

Opportunity: - Increase in housing demand
 -Value added requirements of House seller consumers
 - Improving WOOD products quality (robustness, lifetime, easy to use...)

- | |
|---|
| <ul style="list-style-type: none"> - Increasing industrialization of industrial processes and practices to offer constructive components of buildings and buildings with a rate of standardization higher to cover larger markets at costs acceptable to the market. - Offer products for buildings to achieve the very high energy performance of buildings and adapted to be associated with the production system of renewable energy (solar, wind, heat pump, ...) - Reach a maximum level of prefabrication of all building lots, particularly in batch techniques to achieve very low costs. - Integrating the upstream production up, either through external growth, either as a partnership, able to make maximum use of local woods. - Develop a commercial offering by creating an internal force targeted and based on partnerships and alliances with other materials. Associated in particular with builders using mostly concrete. - Develop tools to optimize power supply to reduce transportation costs without reducing too heavily commercial areas. - Extending the company size by cooperation - Establish an internal management in light of the environment to be able to track and collect data on physical flows. Analyze the results to optimize costs and help demonstrate the environmental impacts. - -provide information specific product just enough to the real demand of consumers (decision-maker in the act of purchase) - Pool great public communication, policy makers, NGOs, ... |
|---|

The major advantage of the construction industries wood, is the size of the market potential of wood products. Indeed, it represents only 10 to 20% of the construction market in Europe. It is also a rapidly evolving market, especially in search of energy performance and in terms of bio-sourced materials.

Consumers are waiting for its levels of quality but at a price close of tenders competing materials.

The industrialization of the manufacturing process of building elements, but also the process of construction of the building will achieve these price levels. To this end, vertical integration, to cover in a single economic entity supply lumber to the construction of the building represents one of the major routes of response to this challenge. This organizational innovation will meet these new needs and to conquer larger markets.

Marketing, and strong involvement in the market is the sine qua non. New business models will allow for alliances, partnerships with major national manufacturers to enter the market. It will also produce an offer to the market that meets these requirements, and meet most industrial products.

This industrialization inevitably accompanied by an improvement of environmental profiles, a lower energy consumption, improved environmental performance, and greater product substitution of fossil fuels.

Negative Scenario

Question no 1.

- How to make business customers and consumers interested in environmental advantages of FWC products?

Strengths	Weaknesses
<p>Environmental :</p> <ul style="list-style-type: none"> -Product are renewable and recyclable - Wood sector generate Low pollution and low consumer of energy especially during the transformation and the transportation (distance and density) processes. -Wood construction products stocks CO2 for a long period (lifetime of the house) & Wood construction products substitutes to products based on fossils materials. -Rational use of resources and creation of renewable alternatives (means less contamination) 	<p>Economic:</p> <ul style="list-style-type: none"> -High labor and raw material costs in Europe so wood construction industry is getting delocalized -No efficient use of resources - weak culture marketing, sales and lobbying. Professional structure with low cohesion - weak financial strength - Low value added to materials report competitors that less interest to intermediate traders - lack of professional interested in the use of wood in construction -Environmentally sound characteristics are not values added to the product.

<p>Social -European wood sector is able to fulfill the norms of strict safety and health ruling</p>	<p>Environmental : -High Difficulty to collect and use the environmental information</p>
<p>Opportunities</p> <p>Economic : -Consumers have a positive perception of wood products (functionality, quality...)</p> <p>Environmental : -Intense consumption of non renewable resources in competing sectors</p>	<p>Threats</p> <p>Economic: -the Energy Price decrease -Ability of competing materials: dumping, aggressive communication, marketing forced -Lobby of competing materials to trust the market</p> <p>Social -no change in consumer behavior -Values of CSR and local origin are not perceived by the final consumers.</p>

Pro-active strategy recommendations

- Weakness: -lack of professional interested in the use of wood in construction
- Threat: -no change in consumer behavior

<p>-Strong communication campaign on negative consequences of non-conscious consumer behavior (frighten consumers with the unfavorable future perspectives of their children and future generations) -Dialogue between stakeholders to offer a new way of living, an attractive and environmentally sound lifestyle to the consumers; -Remuneration of environmentally conscious consumers (carbon market), (costs transferred to non environmentally sound products)</p>
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In the negative scenario, the economic and social circumstances are unfavorable to the use of wood products. Wood is perceived positively, but the production capacity and high costs are the main factors hampering the use of wood.

The EU population has not changed these patterns of consumption to move towards sustainable and renewable products. The consumption of products from non-renewable resources is the most important, motivated by cost more attractive. The timber industry will conduct communication campaigns and training very strong in two main targets: the end users especially through the younger generations, and policymakers. By focusing the communication to an awareness of younger generations, the industry aims to not only educate future consumers, but in the shorter term to use influence on these young parents.

Based on associations of environmental protection, industry interact with intermediaries and policy makers to create a Win-Win leading to increased use of

wood. The circuit courts marketing will be developed in particular highlighting the promotion of heritage and local jobs.

The positive externalities of the timber will be valued, not only to restore a little competitiveness in the sector, but also to engage positively the consumer in use of wood. Some examples of creating a market for carbon in wood products, and carbon avoid by substitution. Thus consumers in purchasing wood products earn carbon credits they will be able to exchange through international voluntary market.

Negative Scenario

Question no 2.

- How to strengthen the environmental credibility of the European FWC industries?

<p>Strengths</p> <ul style="list-style-type: none"> -The environmental credibility of European wood sector is good, in terms of CO2 particularly -construction products is accompanied by certification of recognized quality -Rational use of resources and creation of renewable alternatives (means less cost) -Ability to produce personalized products; closeness to consumer, increased competitiveness against 	<p>Weaknesses</p> <ul style="list-style-type: none"> -No efficient use of resources -Consumers and producers don't want to include environmental criteria in certification of quality products -Environmentally sound characteristics are not values added to the product. -End users requirements are largely unknown, lack of focus on consumers -High price competition with competing materials, so credibility is an extra cost, that buyers do not want to pay, so the costs should be bore by industry -Scarce communication capabilities of SME's -Not flexible companies -Information about consumer depends on the retailer -High costs of the production and labor in Europe, so production is getting delocalized
<p>Opportunities</p> <p>Economic</p> <ul style="list-style-type: none"> -Consumers' trust is strong in European brands, because values of European companies are trustworthy -Consumers have a positive perception of wood based products 	<p>Threats</p> <p>Economic</p> <ul style="list-style-type: none"> -Decrease in Energy price -Non European country competition (labour cost; environmental cost) -Quality perception of the retailers and customers is similar for European wood products and the imported one, -Ability of competing materials: dumping, aggressive communication, marketing forced (see the loss of credibility of wood products organized by the concrete industry in Europe)

	<p>-For environmentally sound products consumers and customers are not willing to pay extra</p> <p>Social</p> <p>-Values of CSR and local origin are not perceived by the final consumers</p> <p>- uses of exotic timber from illegal or unsustainable harvesting</p>
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Pro-active strategy recommendations

Weakness: -No efficient use of resources
 -Scarce communication capabilities of SME's

Threat: - Environmental values are not valuable for buyers

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| <ul style="list-style-type: none"> - Companies should involve stakeholders and populations on their territory, and create a social bond. - The timber industry will focus its marketing efforts in making a living experience "timber". the consumer in a situation that particularly appreciates (in particluier leisure) is surrounded by woods. |
|--|

The timber industry should enhance the credibility that it is rewarded. It should strengthen the demand for transparency and credibility of the consumer towards the productive sectors. As buyers do not give real value to environmental or social values, it should act through demonstration and involvement of consumers.

This will be an experience with a "timber" that conveys to consumers the environmental and social qualities of the wood industry (wood in TV, Wood in leisure park, wood in story, etc...)

Based on the concept of territory, the industry will directly involve the people, economic actors and decision makers located in the same territory. The defense of this territory, their way of life, preservation of culture, employment, will build a stronger link between the wood material and its users.

Negative Scenario

Question no 3.

- How the wood construction sector could maintain or increase competitiveness on the market?

Strengths	Weaknesses
-Ability to produce personalized products; closeness to consumer, understanding western lifestyles	-No efficient use of resources -lack of innovation -End users requirements are largely

<p>Environment -Low consumption of energy especially during the transformation and the transportation (distance and density) processes.</p> <p>Economic -Potential of industrialization and optimization</p>	<p>unknown, lack of focus on consumers -high labour costs make the sector weak in price competition -Weak bargaining positions of manufacturers against retailers -distance market, subcontracting of major makers -Low flexibility of wood construction industries</p>
<p>Opportunities</p> <p>Economic -Consumers´ trust is strong in European brands, because values of European companies are trustworthy -Consumers have a positive perception of wood based products -New consumer segments appear on the market (due to aging population, new lifestyles, great number of immigrants...)</p>	<p>Threats</p> <p>Economic -Decrease of housing demand - High Interest rate - Decrease in Energy price -Permanent trade imbalance -Unfavorable price competition with non-EU countries -Innovation capacity of competing materials, and advanced industrialization</p> <p>Environmental -Environmental restrictions and regulations are not existing</p>

Pro-active strategy recommendations

- Strength: - Potential of industrialization and optimization
 - European Industry is able to produce highly differentiated products
- Weakness: -Low flexibility of wood construction industries
 -Weak bargaining positions of manufacturers against retailers
- Opportunity: -appearance of new segments of the market

- | |
|---|
| <ul style="list-style-type: none"> - Increasing industrialization of industrial processes and practices to offer constructive components of buildings and buildings with a higher degree of standardization, to cover larger markets at costs acceptable to the market. - Offer products for buildings to achieve the very high energy performance of buildings and adapted to be associated with the production system of renewable energy (solar, wind, heat pump, ...) - Reach a maximum level of prefabrication of all building lots, particularly in batch techniques to achieve very low costs. - Integrating the upstream production up, either through external growth, either as a partnership, able to make maximum use of local woods. - Develop a commercial offering by creating an internal force targeted and based on partnerships and alliances with other materials. Associated in particular with builders using mostly concrete. |
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- Develop tools to optimize transportation costs and energy consumption with a limited impact on commercial areas.
- Extending the company size by cooperation
- provide information specific product just enough to the real demand of consumers (decision-maker in the act of purchase)
- Pool great public communication, policy makers, NGOs, ...

The force of production, financial and commercial building materials competitors is in this scenario the major disadvantage of the timber industry.

The industry as a whole may not match the price levels offered on the market. As a differentiated strategy will prevail:

1 - Based on its ability to offer products tailored, customized and near the place of consumption, some of the industry maintain and develop niche markets with high added values.

2 - Industry leaders will gather wood and create large groups based on highly competitive markets. They produce low cost products of standard construction.

The sector is then divided between these two types of industry, SMEs and large industrial groups, leaving no room for intermediate forms.

1 - The SMEs will use local material and local workers. The products are functionalized, sophisticated and well designed. They will develop a direct link with the market and the end consumer.

2 - large groups can employ low-skilled workers at low cost because of the industrialization of production lines. They aim to work lean, minimizing their capital (inventory reduction). These groups will join in various formats with great manufacturers employing all types of materials.

3.1.4 Innventia – printing and publishing sector in EU

Positive Scenario

Question no 1

How to make business customers and consumers interested in environmental advantages of sector products?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Strong recognition of changing trends and consequently adjustment of international processes ▪ Combining price and quality 	<ul style="list-style-type: none"> ▪ Low level of sustainability labelling
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Decreasing household size, which gives higher per capita consumption ▪ Migration groups structure (low 	<p>Economic threats</p> <ul style="list-style-type: none"> ▪ The way of disposal collection organised by public policies/rules is easy, everywhere but costly for customers, consequently interests in

<p>educated from EU and high educated to EU), which can secure higher environmental consciousness and consequently more interest in environmental advantages and willingness to pay for it</p> <ul style="list-style-type: none"> ▪ High education of 50% of population guarantees spending more resources on reading ▪ Dramatically increasing of GDP in Europe, which can secure higher consumption ▪ Forest Management allows intensive use, which secures raw material supply ▪ Price sensitivity while purchasing is only in combination with quality, which gives opportunity to get paid ▪ Consumer perception of paper as sustainable material is highly developed, which makes easy to get paid for environmental advantages ▪ Development of competitive products (e.g. e-media) is rather low, which means lower costs for marketing environmental advantages <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ Reason of purchasing printed products is related to education needs, where environmental advantages can be easy highlighted ▪ Protection policies and economic supports are general for the entire industry, which creates positive impact on environment ▪ Requirements for sustainability certification is regulated by legislation <p>Social opportunities</p> <ul style="list-style-type: none"> ▪ Reason of purchasing printed products is related to education 	<p>environmental advantages are difficult to get paid for.</p> <ul style="list-style-type: none"> ▪ Local origin request is nonexistent <p>Environmental threats</p> <ul style="list-style-type: none"> ▪ The way of disposal collection organized by public policies/rules is easy, everywhere but costly for customers, which means environmental obstacles with introducing more “environmental advantages” ▪ Open International trade rules ▪ Availability for purchasing is practically everywhere <p>Social threats</p> <ul style="list-style-type: none"> ▪ Local origin request is nonexistent, which means difficulties to highlight environmental advantages ▪ Decreasing Household size ▪ Request for additional services is highly developed, common and well expressed
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<p>needs, where customised products can be easy adjusted to individual needs even in terms of environmental advantages</p> <ul style="list-style-type: none"> ▪ Education of 50% population is high, encourages for more reading ▪ The way of disposal collection organized by public policies/rules is easy, everywhere but costly for consumers, any way saves environment 	
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Functional performance and value for money are typically the prime decisive factors for the buyers of printed products. This means that low-cost budget products are essential for some market segments while other segments demand more sophisticated products. In the negative scenario there will be more emphasis on and demand for low-cost budget products, while in the positive scenario there is more demand and emphasis for more sophisticated products. Content is of course a very decisive aspect, with more emphasis on pleasure and time killing in the negative scenario and more focus on high quality and education in the positive scenario. Environmental issues are in general a low priority issue. If everything else is the same, environmental factors will however have a decisive role in some markets. It is often so that environmental benefits are taken for granted, and hence that they offer limited advantages versus other competing products. On the other hand, if the product has environmental drawbacks, it will be disadvantageous.

Proposed strategy: To reduce or eliminate environmental drawbacks of paper printing and publishing products

“Educating” the consumers in sustainability matters is a big, complex and costly task. The forest based sector could hardly accomplish such a task successfully on its own. The credibility of the sector is in many consumers view very limited, so it seems to be a better option to communicate the benefits of the FWC to consumers through, community, government, consumer organisations and other NGOs for better results. In the positive scenario there is more emphasis on communication through consumer organisation, while in the negative scenario the role of community and government is stronger. Tools like Eforwood can be used to scientifically support sustainability performance claims, and are likely to be useful in the lobbying work in society. At the same time the sector should try to constantly improve in all dimensions of sustainability, and be transparent for higher sector credibility.

Proposed strategy: Constantly improving all dimensions of sustainability performance and apply scientific tools (e.g. Eforwood) to confirm progress. Communicate sustainability benefits through other organisations (e.g. NGO and governmental)

Renewability can be an important aspect to emphasise for the sector. This is quite unique for the sector and can put paper in a good position relative fossil-based alternative substrates. A debate focusing on land-use, may on the other hand put paper

substrates in a worse position versus some competing materials. In the positive scenario the sustainability and environmental image is quite well developed, but more efforts will be required in the negative scenario to develop the environmental image of paper. In the context of the future, the provision of adequate recycling systems seems to be a pre-requisite in all scenarios. Little use of sustainability labelling can be a potential weakness for the sector, but can be offset by support and recommendations from NGOs and governmental bodies etc.

Proposed strategy: Emphasise renewability as a unique property of the material. Actively engage and contribute to develop and implement efficient and convenient recycling systems based on a holistic view.

Clearly communicated environmentally adapted products may be a possibility, where a premium price can be charged to some customers for an environmental premium product. This segment is larger in the positive scenario, while low cost is more emphasised in the negative scenario. Traditional low-cost strategy in the sector can only be partially successful in the future. The level of success is somewhat higher in the negative scenario. There are many applications where standard printed products simply cannot compete with e.g. e-media (regardless of price). On the other hand, there are new applications where the unique properties of printed products and e-products can be combined to create totally new product concepts, where the growth potential is large, especially in the positive scenario. This could enable the sector, not only to strengthen its competitiveness and gain market shares, but also to expand the total market meaning more total revenue. According to the SWOT, sector strength factors are to combine price and quality and adapt to changing requirements. These could be utilised to realise the growth through differentiation potential.

Proposed strategy: Develop environmentally adapted products, both highly functional, innovative products and more standard type well performing products with a minimum price. Utilise sector strength factors to combine price and quality adapting to changing needs with a dynamic and differentiated product mix.

For general competitiveness, customised products targeting different user needs are opportunities for the printing and publishing sector. Needs range from lowest possible price (strongly emphasised in the negative scenario) to request for highly sophisticated products offering additional services and features, including recycling and environmental image aspects (more emphasised in the positive scenario). A differentiation strategy could be adopted focusing on innovative value-adding applications catering for the special requirements in different applications. The future outlook for migration patterns, education level, household size etc are very different in different scenarios. With the proposed differentiation strategy, the sector can develop and tailor products to suit the needs of various segments.

Proposed strategy: Use a differentiation strategy, where the sector can develop and tailor products to suit the needs of various segments. Environmentally conscious consumers is one such segment. The availability of adequate products for this segment may contribute to expansion of the segment.

Positive Scenario

Question no 2

How to strengthen the environmental credibility of the European FWC industries?

Question no 2 has been highlighted by stakeholders as non relevant for printing and publishing industry for direct concern of strategy development towards end-consumers and business customers. We will develop strategies that will present a way of overcoming **weaknesses** to pursue **opportunities**.

Weaknesses
<ul style="list-style-type: none">▪ Low level of sustainability labelling
Opportunities
Economic opportunities <ul style="list-style-type: none">▪ Education of 50% population is high▪ Protection policies and economic supports are general for the entire industry▪ Forest Management allows intensive use▪ Requirements for sustainability certification is regulated by legislation▪ Consumer perception of paper as sustainable material is highly developed
Environmental opportunities <ul style="list-style-type: none">▪ Migration groups structure: low educated from Europe and high educated to Europe▪ Protection policies and economic supports are general for the entire industry▪ Requirements for sustainability certification is regulated by legislation
Social opportunities <ul style="list-style-type: none">▪ Education of 50% population is high▪ Availability for purchasing is practically everywhere▪ Reason of purchasing printed products is related to education needs▪ Communication on positive environmental issues of FWC products is mostly initiated by consumer organisations

Since Stakeholder expressed opinion that this question should not be a subject in activities towards the market, we consider that certification and labeling strategy will increase environmental credibility and create fundamentals for lobbying activities between printing and publishing sector and consumer organizations.

It is important for industry while building up credibility to achieve environmental certificates that are compatible with environmental certifications for flow both upstream and downstream and which fulfill environmental directives.

Certification and labeling strategy

Certification and labeling strategy will support overcoming *low level of sustainability labelling*, which is recognised as a weakness. Strategy will enable usage of following opportunities:

- Education of 50% population is high
- Migration groups structure: low educated from Europe and high educated to Europe
- Reason of purchasing printed products is related to education needs
- Requirements for sustainability certification is regulated by legislation
- Consumer perception of paper as sustainable material is highly developed
- Communication on positive environmental issues of FWC products is mostly initiated by consumer organisations

Since no local origin is essential and sustainability requirements are governed and controlled by directives, and should be fulfilled by industries, no vertical integration is necessary in order to secure fundamentals for environmental certification.

Certification and labeling strategy should cover following fields:

- 1) own production control, fulfillment of requirements defined in directives
- 2) sustainable certificates of own work flow given by recognized certification authorities
- 3) request of environmental certificates from companies upstream and downstream along the value chain
- 4) implementation of labeling system that should be integrated in production work flow along the value chain in order to secure fulfillment of agreed environmental standards
- 5) label information clear and reliable

Positive Scenario

Question no 3

How to main objective is to create pro-active strategies in order to maintain or increase competitiveness of printing and publishing sector on the market?

Strategies will present a way of usage of strengths in order to exploit opportunities. Strategies will cover following elements:

- Product
- Distribution

Product Strategy

Product strategy for the sector mainly concentrates on improving products differentiation, implementing innovations in products and in their features as well as creating price/product quality structure that enables to follow up individual preferences of customers.

This allows generating combination of two basic advantages:

- cost advantage
- differentiation advantage

We can assume that combination of both advantages is possible since customers and end-consumers expressed price sensitivity while purchasing, only in combination with quality.

Sector can deliver printed and published products at lower cost since lower quality is accepted in specific cases.

On the other hand, delivering individualized products that carry benefits that exceed those of competing products enables to secure higher economical rate of growth.

IT system that enables creation of dynamic individual profiles should be implemented along the entire value chain.

Data system should allow detecting automatically changes in individual profiles.

Intimate cooperation between all actors along the value chain might require new forms of relationships that differ from nowadays. Some technological as well as economical alliances might be necessary in order to fulfill individual preferences.

Distribution Strategy

Taking advantages from well developed distribution while dealing with high mobility, and? usage of predictive and statistical modeling in order to follow up changes. It also requests continue updating of changes.

Creation of innovations in distribution requires cross-domain collaboration with governments, local authorities, suppliers, IT sector, etc. using extensible workflows that convert great amount of data.

Following well-detected structure of high mobility of well-educated population does not request major changes in traditional distribution of printed and published products. Innovations should be implemented in further exploiting relationships with traditional transport companies, wholesales and retailers places in new mobility areas.

Innovation process should also focus on finding novel distribution channels geographically related to new places of mobility.

Transparent and ease tax regulations enable new forms of relationship with suppliers and customers that might be necessary for the sector while following up business with population mobility.

Since household consists of both parents and children, request for response on individual new demands is well articulated as well as price sensitivity exists while purchasing only in combination with quality further model of distribution might be necessary to develop in order to add to the traditional one.

IT systems supporting both traditional as well as new distribution should be further developed. Systems might require over boundaries cooperation along the value chain.

In order to reduce distribution costs, systems should enable automate and streamline integrated internal and external processes.

Negative Scenario

Question no 1

How to make business customers and consumers interested in environmental advantages of sector products?

Strengths	Weaknesses
<ul style="list-style-type: none"> ▪ Strong recognition of changing trends and consequently adjustment of international processes ▪ Combining price and quality 	<ul style="list-style-type: none"> ▪ Low level of sustainability labelling
Opportunities	Threats
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Request for additional services is moderate and well expressed ▪ Communication on positive environmental issues of FWC products is mostly initiated by local community and governments <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ The way of disposal collection organized by public policies/rules is easy, everywhere and free for consumers ▪ Local origin is request by customers ▪ Communication on positive environmental issues of FWC products is mostly initiated by local community and governments <p>Social opportunities</p> <ul style="list-style-type: none"> ▪ The way of disposal collection 	<p>Economic threats</p> <ul style="list-style-type: none"> • Migration groups structure: high educated from Europe and low educated to Europe • Forest Management is protective • Requirements for sustainability certification is depending only on customers' consciousness • Consumer perception of paper as sustainable material is low developed <p>Environmental threats</p> <ul style="list-style-type: none"> • Request for response on individual new demands is low • Requirements for sustainability certification is depending only on customers' consciousness • Price sensitivity while purchasing is decisive <p>Social threats</p> <ul style="list-style-type: none"> • Migration groups structure: high educated from Europe and low educated to Europe • Education of 50% population is

<p>organized by public policies/rules is easy, everywhere and free for consumers</p>	<p>low, on primary school level</p> <ul style="list-style-type: none"> • Requirements for sustainability certification is depending only on customers' consciousness • Price sensitivity while purchasing is decisive
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Functional performance and value for money are typically the prime decisive factors for the buyers of printed products. This means that low-cost budget products are essential for some market segments while other segments demand more sophisticated products. In the negative scenario there will be more emphasis on and demand for low-cost budget products, while in the positive scenario there is more demand and emphasis for more sophisticated products. Content is of course a very decisive aspect, with more emphasis on pleasure and time killing in the negative scenario and more focus on high quality and education in the positive scenario. Environmental issues are in general a low priority issue. If everything else is the same, environmental factors will however have a decisive role in some markets. It is often so that environmental benefits are taken for granted, and hence that they offer limited advantages versus other competing products. On the other hand, if the product has environmental drawbacks, it will be disadvantageous.

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Proposed strategy: Constantly improving all dimensions of sustainability performance and apply scientific tools (e.g. Eforwood) to confirm progress. Communicate sustainability benefits through other organisations (e.g. NGO and and governmental)

Renewability can be an important aspect to emphasise for the sector. This is quite unique for the sector and can put paper in a good position relative fossil-based alternative substrates. A debate focusing on land-use, may on the other hand put paper substrates in a worse position versus some competing materials. In the positive scenario the sustainability and environmental image is quite well developed, but more efforts will be required in the negative scenario to develop the environmental image of paper. In the context of the future, the provision of adequate recycling systems seems to be a pre-requisite in all scenarios. Little use of sustainability labelling can be

a potential weakness for the sector, but can be offset by support and recommendations from NGOs and governmental bodies etc.

Proposed strategy: Emphasise renewability as a unique property of the material. Actively engage and contribute to develop and implement efficient and convenient recycling systems based on a holistic view.

Clearly communicated environmentally adapted products may be a possibility, where a premium price can be charged to some customers for an environmental premium product. This segment is larger in the positive scenario, while low cost is more emphasised in the negative scenario. Traditional low-cost strategy in the sector can only be partially successful in the future. The level of success is somewhat higher in the negative scenario. There are many applications where standard printed products simply cannot compete with e.g. e-media (regardless of price). On the other hand, there are new applications where the unique properties of printed products and e-products can be combined to create totally new product concepts, where the growth potential is large, especially in the positive scenario. This could enable the sector, not only to strengthen its competitiveness and gain market shares, but also to expand the total market meaning more total revenue. According to the SWOT, sector strength factors are to combine price and quality and adapt to changing requirements. These could be utilised to realise the growth through differentiation potential.

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Proposed strategy: Use a differentiation strategy, where the sector can develop and tailor products to suit the needs of various segments. Environmentally conscious consumers is one such segment. The availability of adequate products for this segment may contribute to expansion of the segment.

Negative Scenario

Question no 2

How to strengthen the environmental credibility of the European FWC industries?

We will develop strategies that will present a way of overcoming **weaknesses** to pursue **opportunities**.

Weaknesses
<ul style="list-style-type: none"> ▪ Low level of Sustainability labelling
Opportunities
<p>Economic opportunities</p> <ul style="list-style-type: none"> ▪ Increasing of Household size <p>Environmental opportunities</p> <ul style="list-style-type: none"> ▪ The way of disposal collection organized by public policies/rules is easy, everywhere and free for consumers ▪ Local origin is request by customers ▪ Communication on positive environmental issues of FWC products is mostly initiated by local community and governments <p>Social opportunities</p> <ul style="list-style-type: none"> ▪ Increasing of Household size ▪ Communication on positive environmental issues of FWC products is mostly initiated by local community and governments

Question no 2 has been highlighted by stakeholders as non relevant for printing and publishing industry for direct concern of strategy development towards end-consumers and business customers.

This question could be a key issue while developing strategies that will be used between sector and political circles. Strategies related to those questions should be developed with focus on expected results while lobbying sustainability of sectors.

Questions 2 should be connected to SWOT examinations and their results presented in both scenarios' environment, and should be reconsidered in the matter of target group.

Since Stakeholder expressed opinion that this question should not be a subject in activities towards the market, we consider that management strategy of vertical integration could be beneficial in order to underpin fundamentals for lobbying activity.

Vertical integration strategy

Industry should consider backward integrating into intermediate manufacturing and combine it with forward integrating into distribution in order to strengthen industry environmental credibility, however printing and publishing technology processes should meet environmental requirements and setup standards.

Vertical integrating allows following:

- Reduce transportation environmental implications
- Improve supply chain coordination both downstream and upstream in order to secure fulfillment of agreed environmental standards and issues

- Facilitate actions and investments in significant sustainable and environmental assets along the value chain that strengthen industry environmental credibility
- Increase level of Sustainability labeling for own industry and vertically integrated industries
- Communicate environmental achievement to local community and governments in order to build credibility

Negative Scenario

Question no 3

How to main objective is to create pro-active strategies in order to maintain or increase competitiveness of printing and publishing sector on the market?

Strategies will present a way of usage of strengths in order to reduce sectors exposure to external threats.

Strategies will cover following elements:

- Product
- Process
- Customer
- Distribution

Product Strategies

Printing and publishing sector competes on European market of the product in order to survive.

Product differentiation will not be a successful strategy since there is no request for response on individual new demands neither request for variety in and many combinations of functionality of the product (the same product but with different extra characters such as sound, video, etc.) is existing, and price is a decisive factor while purchasing.

Pro-active strategy could be focused on manufacturing modest products that can be consumed by any customer. Content should be relatively neutral in order to satisfy as large customer group as possible, however it should be related to major and global trends.

Since price is a decisive aspect while purchasing products, low price should be calculated, and a consequence no product sophisticated innovations should be implemented. Traditional content and layout related to “pleasure and time killing” should be taken into consideration.

Population mobility is rather intensive but not controlled, which means that industry cannot “follow up” streams with its products. No particular and refined segmentation and diversification of products are motivated that follow up mobility pattern, instead of, geographical placement of market should be direct connected to products.

Process strategy

Technology process regarding printing and publishing should be focused on usage of paper supplied by manufacturers that have raw material with local origin, since import of material is clearly restricted by international trade rules.

Efficiency and optimization of printing and publishing process regarding usage of paper with local origin should be taken into consideration, since management of forest

is of protective character, which can limit access to fiber. Focus should be on increasing yield of paper in printing and publishing process.

Waste from technology processes should be minimized, especially this part containing fiber.

Distribution strategy

Distribution strategy should cover adjusted transport mode for optimized distribution if in own management, strategic alliances with transport sector, and strategic alliances with business customers. Those actions should guarantee two solutions:

- decreasing distribution costs and
- overcoming of restricted International Trade Rules.

3.2 Implication of strategies upstream

3.2.1 Pöyry – bioenergy / pellet industry

3.2.1.1 Positive Scenario – Implications from Question no 1

To emphasize the strength of local origin to defend pellets against other energy sources, information on the effects based on the locality is needed. From the environmental dimension of sustainability this means e.g. emissions saved when the transports in the production chain are short. Additionally, pellets have positive social and economic effects locally, and these pros could be connected to the environmental advantages. The positive effect of using pellets on the usage country or EU could be demonstrated by showing some facts on how it supports the local society. This requires estimations on e.g. employment effects from all the organisations in the pellet value chain, as logistics companies, pellet producers and forestry companies.

3.2.1.2 Positive Scenario – Implications from Question no 2

To strengthen environmental credibility of wood pellets, cooperation with environmental organisations is recommended. To produce independent material on the environmental effects of the wood pellet life cycle, transparent environmental data is needed from every part of the pellet production chain. This means that organisations from forestry to pellet incinerators (or home scale system producers) should be able to give information on e.g. raw material use, energy use and emissions in their activities. The information should be verifiable by a third party.

3.2.1.3 Positive Scenario – Implications from Question no 3

To make pellets to be more attractive and competitive heating option, pellet heating systems should be developed to be easier-to-use and more comfortable. This requires investments in the product development of pellet heating equipment, in the sense of technical functionality, usability and aesthetic character.

3.2.1.4 Negative Scenario – Implications from Question no 1

The “facelift” of pellets would require investments in marketing, product and service design. So implications spread rather vertically outside the forest-wood chain than upstream in the forest-wood chain.

3.2.1.5 Negative Scenario – Implications from Question no 2

In this negative scenario the cooperation between the pellet industry and different environmental organisations is a recommendable mean to strengthen the environmental credibility of pellets, alike in the positive scenario. Hence the implications are basically the same; to produce independent material on the environmental effects of the wood pellet life cycle, transparent environmental data is needed from every part of the pellet production chain. This means that organisations from forestry to pellet incinerators (or home scale system producers) should be able to give information on e.g. raw material use, energy use and emissions in their activities. The information should be verifiable by a third party.

3.2.1.6 Negative Scenario – Implications from - Question no 3

To make pellets to be more attractive and competitive heating option, pellet heating systems should be developed to be easier-to-use and more comfortable. This requires investments in the product development of pellet heating equipment, in the sense of technical functionality, usability and aesthetic character.

3.2.2 AIDIMA – Solid wood products / furniture industry in the EU

3.2.2.1 Positive Scenario – Implications from - Question no 1

The strategy recommended for making consumers and business customers interested in environmental advantages of FWC products in the positive scenario situation is **corporate communication** aiming an increase of value perception of consumers, through environmental benefits of wood products. To achieve the goals, the principal important investments to be arranged are directed to the fields of marketing, communication and education within the industry. The responsibility of all the actors is high to provide demonstrative additional services to the buyers that need implications to facilitate the disposal of used furniture and making the production facilities being able to process them, so investment into logistics and technology is necessary of the production sight to be able to recycle the disposed furniture. Further implications are also needed to organize and structure the raw material supply in accordance to the needs that are changing by the use the extended quantity of recycled wood.

To achieve the goals, the principally important implications to be arranged are directed to the following fields:

- Implications at industry to consumer interaction level (M5), at processing and manufacturing level (M4), at forest to industry interactions (M3) at forest resources management (M2):

- Common actions in marketing, communication and education in each level of the industry aiming consumers and customers.
- All the actors of the FWC provide the buyers with demonstrative additional services.
- Financing the continuous communication campaign.

3.2.2.2 Positive Scenario – Implications from Question no 2

Building strong brands with environmental values is requiring the existence of those environmental values and their communication through a reformed and understandable labeling system. All stakeholders and their common will are needed to create new, environmental labeling and certifying system with understandable information. That is a crucial point in the communication. Industry should meet the requirements of the labels and should imply those requirements at each level of the value chain. All the terms stated in the specifications of the labels and of the certifications to be created should be fulfilled; that requires changes in the forestry wood chain in each level, in accordance with the specification. All the terms stated in the specifications of the labels and of the certifications to be created should be fulfilled; that requires changes in the forestry wood chain in each level, in accordance with the specification. The labels and certifications should be harmonized and unified; they should be continuous in the value chain and should provide understandable information for the consumers and customers.

- Implications at EU decision making level (legislation and industry representatives – associations):

- Common will and consensus on terms of a reformed eco-labeling system.
- Agreeing on the overall requirements of a reformed eco-certification.
- Setting up a new system of certification that is common within the EU.
- Participation in the communication and promotion of the new system, with all the necessary resources within the industry and on the market.
- Support for the industry to be able to meet the new requirements in each member state.
- Participation in the institutional, professional control of the fulfillment of the requirements in each level of the FWC in each country of the EU.
- Distribution of responsibility to member state level of control, to make it viable and a common.
- Overall coordination of the implementation of the new, reliable labeling system.
- Coordinating the institutional, professional control and the evaluation of raw materials of non-EU origin entering into the EU (in terms if they meet the new requirements and if they can enter into the value chain).

- Implications at industry to consumer interaction level (M5):

- Promotion of brands with environmental values that meet the requirements of the new system of certification

- Close collaboration with buyers,
- Investments of resources needed in the fields of:
 - Marketing,
 - IT
 - Improvement of sales establishments towards the new norms.
- Extended supply of those brands with environmental values.
- Careful selection of suppliers.
- Close cooperation and communication with up- and downstream actors of the value chain for achieving the control in the chain.
- Compatible communication system with the rest of the value chain.
- Fulfilling the terms at module level required by the environmental values carried by the product and the labels, e.g.:
 - Ecological transport
 - Sustainable disposal
 - All requirements of the new system to be
- Implications at processing and manufacturing level (M4):
 - Investments to fulfill the new norms of the reformed common certification system in production sites.
 - Changes in production to be established for sake of meeting the new requirements.
 - Close cooperation and communication with up- and downstream actors of the value chain for achieving the control in the chain.
 - Compatible communication system with the rest of the actors of the value chain.
 - Manufacturing processes that are allowed by the new system to be applied
 - Careful selection of suppliers (who meet the new requirements).
 - Use of those raw materials that are permitted by the new norms.
 - Control and treatment of residues due to the new legislation
- Implications at forest to industry interactions level (M3):
 - Investments to fulfill the new norms of the reformed common certification system in this level of the value chain
 - Changes in proceeding to be established for sake of meeting the new requirements
 - Changes in transporting to be established to meet the requirements of the new certification system.
 - Close cooperation and communication with up- and downstream actors of the value chain for achieving the control in the chain.
 - Compatible communication system with the rest of the actors of the value chain.
- Implications at forest resources management level(M2):
 - Sustainable forest management in the EU due to the requirements of the new labeling system

- Fulfilling all the requirements of the new certification system
- Close cooperation and communication with up- and downstream actors of the value chain for achieving the control in the chain.
- Compatible communication system with the rest of the actors of the value chain

The industry should bear the costs of all the investments.

3.2.2.3 Positive Scenario – Implications from Question no 3

The strategies recommended for increasing competitiveness that can be resumed as user centered innovation that needs extended consumer research, and in distribution as trade marketing through the cooperation of industry and distribution, offering unique values for the consumers and customers. These strategies can be handled as individual strategies or they can be combined and support each other.

- Implications at industry to consumer interaction level (M5):
 - Collecting information about the consumers and customers, satisfying their needs
 - Consumer research
 - Direct contact with the consumers
 - Proceeding information about the consumers for providing them with the demanded values.
 - Creating experience for the buyers in each stage of the product lifecycle
 - Direct contact with the consumers is required to be able to interpret the results of the research on their changed preferences in the adequate manner.
 - Involving consumers in the value adding procedure at M5 level.
 - Well developed and compatible communication system with the rest of the actors in the value chain
 - Close cooperation and communication with upstream actors of the value chain for being able to meet the demands detected on the market.
 - Close cooperation and communication with other companies of the sector.
 - Close cooperation and communication with companies of other sectors.
 - A supporting infra-structure is needed that takes into consideration the complexity of managing a big collaborative organization of companies within and out of the industry horizontally and vertically as well.
 - Well developed and compatible communication system within the stages of the value chain should be implemented, to be able to forward the information in the same format between each other, this way data consistency can be achieved, so investment in IT is required → Implementation of new IT technology.
 - The manufacturer concept needs a close M5-M4 collaboration as well

- Implications at processing and manufacturing level (M4):
 - Involving consumers in the value adding procedure at M4 level, for this there is a need for a well developed and compatible communication system with the rest of the actors in the value chain.
 - Close cooperation and communication with upstream actors of the value chain for being able to obtain the necessary information to meet the demands detected on the market.
 - Adapting the manufacturing processes to the needs of the experience economy, helping the M5 level processes with solutions for achieving the objectives
 - Well developed and compatible communication system within the stages of the value chain should be implemented, to be able to forward the information in the same format between each other, this way data consistency can be achieved, so investment in IT is required → Implementation of new IT technology.

- Implications at forest to industry interactions (M3) and at forest resources management (M2) levels
 - Ensuring the adequate supply of raw materials for the downstream actors in the value chain.
 - Involvement of consumers in the value creating system, at the upper stages of the FWC as well. (M3, and M2), for this there are needed a well developed and compatible communication system with the rest of the actors in the value chain for being able to establish close cooperation and communication with upstream actors of the value chain for being able to meet the demands detected on the market.
 - Close cooperation and communication with other companies of the sector.
 - Close cooperation and communication with companies of other sectors.
 - Well developed and compatible communication system within the stages of the value chain should be implemented, to be able to forward the information in the same format between each other, this way data consistency can be achieved, so investment in IT is required → Implementation of new IT technology.
 - A supporting infra-structure is needed that takes into consideration the complexity of managing a big collaborative organization of companies within and out of the industry horizontally and vertically as well.

3.2.2.4 Negative Scenario – Implications from Question no 1

As the recommended strategies for the first question in the negative scenario are strategies of institutional and corporate communication for increasing the value perception of consumers through environmental benefits of wood products, require investments in marketing, mainly of distribution, but furniture producers, institutions, governments, NGOs also should contribute to all the investments in all terms and to the efforts by providing access to relevant information for distributors and buyers .

As the emphasis of the strategies is on communication and demonstration, the objectives can be achieved by an overall investment, can not be expected only from distribution as the objective is of the entire industry and the society.

- Implications at EU decision making level (legislation and industry representatives – associations, and NGO-s):
 - Coordination of the social dialogue between stakeholders to offer a new way of living, an attractive and environmentally sound lifestyle to the consumers
 - Investment into education, training and coordination of them
 - Implementing legislative tools for forcing the spread of sustainable consumption within the society.
 - Coordination of communication activities
 - Coordination of investments.
 - Coordination of cooperation.

- Implications at industry to consumer interaction level (M5), at processing and manufacturing level, (M4), at forest to industry interactions (M3) and at forest resources management (M2):
 - Participation in the social dialogue, and in the process of offering a new way of living to consumers
 - Well developed and compatible communication system with the rest of the actors in the value chain.
 - Participation in the communication activities.
 - Contribution to the costs of promotion of the sustainable consumption.
 - Cooperation in the design and implementation of the remuneration of consumers (discounts, prizes, etc)

3.2.2.5 Negative Scenario – Implications from Question no 2

The recommended strategy in this case aims to achieve the objectives through a strongly communicated Corporate Social Responsibility (CSR).

CSR is a concept in which producers take into account the interests of the entire society by taking responsibility for the impact of their activities on consumers, employees, communities and the environment in all aspects of their operations. It is supposing voluntary steps to improve the quality of life of employees and their families as well as for the local community and society at large.

For achieving it, companies should implement the guidelines/standards actually in power into all levels of their operations, production, logistics, management, human resources, risk management, brand differentiation that is built on ethical values, enhanced image management and PR, etc....

Transparency and meeting the standards throughout the entire value chain and communication of the achievements are the most important implications upstream. To obtain transparency, consistent data is needed, to achieve the harmonized data supply observatories could be set up by a central institute that is coordinating this service and the communication. The observatories to set up should measure social, environmental

information in accordance with the rules and standards in power and provide understandable information to the society about them.

- Implications at EU decision making level (legislation and industry representatives – associations, and NGO-s):
 - Setting up the standards for an effective CSR
 - Controlling the transparency of the industry in terms of the rules of the CSR
 - Coordinating the creation of the needed observatories
 - Co-financing the creation of the needed observatories
 - Coordination of communication activities
- Implications at industry to consumer interaction level (M5), at processing and manufacturing level, (M4), at forest to industry interactions (M3) and at forest resources management(M2):
 - Implementing the guidelines/standards in power to the processes of the industry in each level
 - Providing the observatories to be set up with valid data
 - Implementing compatible communication system between actors

3.2.2.6 Negative Scenario – Implications from Question no 3

There are several strategies recommended for increasing competitiveness of furniture industry on the market in the negative scenario that can be considered individual strategies and also can be combined with each other to achieve the objectives more effectively. There are strategies that are recommended on the level of distribution, but the main strategy suggestion is the implementation of a global business model based on value constellation and the importance of relationships and roles. The new business systems need the reconfiguration of relationships. To implement this strategy and/or the one of increasing cluster efficiency, and/or cooperation and fusion of the companies of the industry and other industries, has great implications throughout the value chain that is impossible to imply without a common will of each actor, a new vision of the industry and alliances are needed between different sectors, not only of the habitat. Active participation of all stakeholders is required because needs global vision at EU level, a global structure at EU level, harmonizing will and force of all stakeholders, and investment in education and training.

- Implications at EU decision making level (policies, legislation and industry representatives – associations, and NGO-s):
 - Global vision, common will is essential.
 - Coordination of education and training of industrial actors to be able to meet the objectives.
 - Funding of education and training together with the actors of each stage of the value chain.
 - Coordination of the cooperation and communication between the different sectors
 - Providing financial support for implementing the strategies into the existing structure.

- Financing I+D throughout the value chain together with the industry actors.
- Creating flexible legislative environment for facilitating the fusions, alliances, cross sector cooperation among the actors of the value chain.
- Implications at industry to consumer interaction level (M5):
 - Development of services to the consumers and customers together with the needed partners within and out of the solid wood chain, within and out of the habitat sector.
 - Using and ensuring the established information flow in value creating
 - Covering the relevant costs of innovation in services.
 - Developing logistics together with the actors of other levels of the value chain.
 - Providing upstream actors with information about the consumers' and customers preferences to ease their participation in the common value creating system
 - Compatible communication system with all the actors of the value chain
 - Application of new IT solutions in the system
- Implications at processing and manufacturing level (M4):

Participation in the development of logistics together with the actors of other modules.

Ensuring the information flow and using the relevant M4 part about consumers to improve services for them

Setting up an infrastructure to ease cooperation with the different companies within and out of the chain level, and the habitat sector

- Implications at forest to industry interactions level (M3) level and at forest resources management(M2) level:

Using the information received from other modules' actors and making the companies able to establish flexible structure for the different cooperation types.

- Other, sub- or supporting-strategies and their implications in each level of the chain:

Exporting EU products to the competitors markets needs also efforts in the fields of marketing, logistics, (transport and storage), product development, design, etc. in accordance with the requirements of the consumers at the markets to be entered into. Investments should be arranged for internal and external communication, and education of the workers.

Creating a second hand furniture market would need storage facility development and investment in logistics to implement at the level of distribution and production, there are also investments required in terms of setting up the conditions and resources of product restoration and renovation.

3.2.3 FCBA – wood construction industry in the EU

3.2.3.1 Positive Scenario - Implications from Question no 1

In this case, set up of tracking system (such as the RFID) along the whole chain seems necessary in order to guarantee wood origins and the environmental impacts of each process within the FWC. Another major upstream in the development of a label guarantying the environment advantages of wood construction products. The creation of this label is highly related to the set-up of the tracking system.

3.2.3.2 Positive Scenario - Implications from Question no 2

The strategy has strong effect regarding to backward processes in the forest wood chain. The first is the set up of tracking system (such as the RFID) along the whole chain in order to guarantee wood origins and the environmental impacts of each process within the FWC. The second is the necessary improvement of properties of wood construction products (heat conduction, acoustic...) with the set up of new technologies. Furthermore the measure of the carbon footprint of solid wood construction products seems necessary as well as the measure of wood in building and consequently the measure of stock of carbon within the building.

3.2.3.3 Positive Scenario - Implications from Question no 3

The strategy involves to reduce production costs in order to have products competitive on the market.

Regarding to the secondary conversion processes a first point is the industrialization of the production process related to construction components. Furthermore a reduction of transport costs with a better logistics would also be necessary. However wood construction products can remain competitive on the market only if innovation is developed in order to improve properties of wood construction products. Consequently a technology improvement seems necessary in the secondary transformation. Lastly SMEs need to merge together in order to allow a reduction of production with scale economies.

In the first conversion processes horizontal, concentration involving scale economies can also be imagined for the competitiveness of the sector.

Some vertical integration may also appear for a better match with market and resource supply.

The development of vertical integration would succeed in the reduction of intermediary costs.

From the resource perspective, a forest more productive and more adapted to the market may be involved by a such strategy.

3.2.3.4 Negative Scenario - Implications from Question no 1

Upstream implications in the negative scenarios are basically the same as in the positive one. However these implications may be stronger in this case.

In this case, set up of tracking system (such as the RFID) along the whole chain seems necessary in order to guarantee wood origins and the environmental impacts of each process within the FWC. Another major upstream in the development of a label guarantying the environment advantages of wood construction products. The creation of this label is highly related to the set-up of the tracking system.

3.2.3.5 Negative Scenario - Implications from Question no 2

Upstream implications in the negative scenarios are basically the same as in the positive one. However these implications may stronger in this case.

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3.2.3.6 Negative Scenario - Implications from Question no 3

Upstream implications in the negative scenarios are basically the same as in the positive one. However these implications may stronger in this case.

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Some vertical integration may also appear for a better match with market and resource supply.

The development of vertical integration would succeed in the reduction of intermediary costs.

From the resource perspective, a forest more productive an more adapted to the market may is involved by a such strategy.

3.2.4 Innventia – printing and publishing sector in EU

3.2.4.1 Positive Scenario – Implications from Question no 1

Proposed strategy: To reduce or eliminate environmental drawbacks of paper printing and publishing products

Implications upstream:

- Higher demands to use the right fibre to the right application to get a higher total yield and better and/or more uniform quality. Optimising fibre utilisation will enable better yield, which in turn will make it possible to cut costs. More uniform quality will also make it possible to reduce paper weight with maintained performance. At the high end of the market, where many opportunities can be found in an optimistic scenario, it will be possible to develop highly functional premium products
- Try to address and reduce any potential environmental drawbacks at all levels in the chain. Collaboration in the supply chain is essential to do this, and application of e.g. LCA and SIA tools is useful to identify areas with potential environmental drawbacks.

Proposed strategy: Constantly improving all dimensions of sustainability performance and apply scientific tools (e.g. Eforwood) to confirm progress. Communicate sustainability benefits through other organisations (e.g. NGO and governmental)

Implications upstream:

- Collaboration between different actors in the chain and their suppliers is essential to have a common dialogue with NGOs, community and governmental bodies
- Request for higher transparency at all levels
- Joint application of tools to evaluate and confirm sector sustainability
- Holistic approach to avoid sub-optimisation

Proposed strategy: Emphasise renewability as a unique property of the material. Actively engage and contribute to develop and implement efficient and convenient recycling systems based on a holistic view.

Implications upstream:

- Increased supply of materials containing fibres to recycle from “urban forests”
- A holistic view on transportation of products and used collected products for recycling. Integrated solutions for outbound and reverse logistics are an opportunity.
- Optimising the mix of virgin and recycled fibres at geographical level as well as product level
- Sustainable forest management practices to avoid risk of over-exploitation, which may reduce and/or harm renewability
- Traceability of fibers is required to enable identification of product origin

Proposed strategy: Develop environmentally adapted products, both highly functional, innovative products and more standard type well performing products with a minimum price. Utilise sector strength factors to combine price and quality adapting to changing needs with a dynamic and differentiated product mix.

Implications upstream:

- A good collaboration and dialogue between different actors in the chain and their suppliers is essential to quickly adapt to changing requirements and develop environmentally adapted highly functional products
- Combining price and quality will demand efficient production processes at all levels.
- Wood allocation is a key to realise the right quality at lowest possible price.

- Request for higher transparency at all levels to support environmental claims

Proposed strategy: Use a differentiation strategy, where the sector can develop and tailor products to suit the needs of various segments. Environmentally conscious consumers is one such segment. The availability of adequate products for this segment may contribute to expansion of the segment.

Implications upstream:

- The starting point for differentiation is typically wood allocation. This will mean higher demands to use the right fibre to the right application. Optimising fibre utilisation will enable better yield, which in turn will make it possible to cut costs. More uniform quality will also make it possible to reduce paper weight with maintained performance. At the high end of the market, where many opportunities can be found in an optimistic scenario, it will be possible to develop highly functional environmental premium products utilising special fibre characteristics.
- Collaboration in the supply chain is essential to realise a competitive differentiation strategy
- Transparency will also be required to support environmental claims

3.2.4.2 Positive Scenario – Implications from Question no 2

Certification and labeling strategy should cover following fields:

- own production control, fulfillment of requirements defined in directives
- sustainable certificates of own work flow given by recognized certification authorities
- request of environmental certificates from companies upstream and downstream along the value chain
- implementation of labeling system that should be integrated in production work flow along the value chain in order to secure fulfillment of agreed environmental standards
- label information clear and reliable

Implications within M5

In order to secure fulfilment of environmental requirements defined in directives, printing/publishing industry should not only control own production process but also requires environment certificates from chemical sub-suppliers.

Besides, environment friendly *transport* of printed/published products to customers should be secured by environmental certifications achieved by distributors.

Risks

There are some risks related to certification and labelling strategy:

- different interpretation of directives concerning industries in value chain
- conflict of interests along the value chain while fulfilling sustainability requirements and achieving certificates
- complex and complicated control system
- complex and complicated labelling system

Costs

There are also some costs related to above described strategy:

- control, auditing and certification costs
- labeling system implementation costs
- costs of improvement production that meet directive requirements

Upstream implications

Implications concern:

- *Distribution* between pulp and paper mills (M4) and printing/publishing plant – requests of environment friendly operating in accordance with directives, and sustainability certificates
- *Pulp and paper manufacturing* (M4) - requests of environment friendly manufacturing in accordance with directives, and requirements for sustainability certificates
- *Distribution* between pulp and paper mills (M4) and production of pre-processed wood material (M3) – requests of environment friendly operating in accordance with directives, and sustainability certificates
- *Production of pre-processed wood material* (M3) - requests of environment friendly manufacturing in accordance with directives, and requirements for sustainability certificates
- *Forest management* (M2) – requests for sustainable forest management strategies as well as requirements for certificates guaranteeing sustainability

Besides, above mentioned implications for upstream actors as well as within M5 sphere, the entire value chain should implement compatible system that allows labelling of ready products with relevant environment data and significant for customers sustainability information.

3.2.4.3 Positive Scenario – Implications from Question no 3

Product Strategy

Product strategy for the sector mainly concentrates on improving products differentiation, implementing innovations in products and in their features as well as creates price/product quality structure that enables to follow up individual preferences of customers.

Sector can deliver printed and published products at lower cost since lower quality is accepted in specific cases. On the other hand, delivering individualized products that carry benefits that exceed those of competing products enables to secure higher economical rate of growth.

IT system that enables creation of dynamic individual profiles should be implemented along the entire value chain. Data system should allow detecting automatically changes in individual profiles.

Intimate cooperation between all actors along the value chain might require new forms of relationships that differ from nowadays. Some technological as well as economical alliances might be necessary in order to fulfill individual preferences.

Implications within M5

Risks

Some key risks should be in calculated while creating product strategy:

- Dynamic profiles are not reliable in 100 per cent
- It systems are not compatible internally and externally
- High production costs
- Difficulties in cooperation along the value chain

Costs

There are some significant costs related to product strategy:

- Changes in production process
- Implementation of supporting IT systems

Upstream Implications

Implications concern:

- *Pulp and paper manufacturing (M4)* - requests of high differentiation and variation in paper quality and functionality that will meet individual preferences of customers purchasing printed/published products. This means short series of paper kind, storage of different paper qualities. Request of implementation of supporting IT system for responding on individual profiles that are under management by printing/publishing sector
- *Distribution between pulp and paper mills (M4) and production of pre-processed wood material (M3)* – requests of implementation of supporting IT systems that is an integrated part of individual profiles system
- *Production of pre-processed wood material (M3)* - requests of differentiation in production that is adjusted to M4 demands. Request of implementation of supporting IT systems that is an integrated part of individual profiles system along the entire value chain.

Distribution Strategy

Taking advantages from well developed distribution while dealing with high mobility, and usage of predictive and statistical modeling in order to follow up changes. It also requests continue updating of changes.

Following well-detected structure of high mobility of well-educated population does not request major changes in traditional distribution of printed and published products. Innovations should be implemented in further exploiting relationships with traditional transport companies, wholesales and retailers places in new mobility areas.

Innovation process should also focus on finding novel distribution channels geographically related to new places of mobility.

IT systems supporting both traditional as well as new distribution should be further developed. Systems might require over boundaries cooperation along the value chain downstream.

In order to reduce distribution costs, systems should enable automate and streamline integrated internal and external processes.

Implications within M5

Risks

While talking about distribution strategies within 2020 scenario environment some major risks should be highlighted:

- Statistics that should be followed up are not reliable in 100 per cent
- Personal integrity might be an obstacle while following up mobility
- Different physical infrastructure on new mobility place which is not compatible with now existing
- IT systems which are not compatible with each other
- Lack of will for collaboration from new actors' side
- Communication, language and cultural problems

Costs

Following major costs should be taken into consideration:

- Development and implementation of complex IT systems
- Training and improvement of personal skills
- Adjustment of existing distribution

Upstream Implications

No implications concerning upstream flow have been detected.

3.2.4.4 Negative Scenario – Implications from Question no 1

Proposed strategy: To reduce or eliminate environmental drawbacks of paper printing and publishing products

Implications upstream:

- Higher demands to use the right fibre to the right application to get a higher total yield and better and/or more uniform quality. Optimising fibre utilisation will enable better yield, which in turn will make it possible to cut costs. More uniform quality will also make it possible to reduce paper weight with maintained performance. At the high end of the market, where many opportunities can be found in an optimistic scenario, it will be possible to develop highly functional premium products
- Try to address and reduce any potential environmental drawbacks at all levels in the chain. Collaboration in the supply chain is essential to do this, and application of e.g. LCA and SIA tools is useful to identify areas with potential environmental drawbacks.

Proposed strategy: Constantly improving all dimensions of sustainability performance and apply scientific tools (e.g. Eforwood) to confirm progress. Communicate sustainability benefits through other organisations (e.g. NGO and governmental)

Implications upstream:

- Collaboration between different actors in the chain and their suppliers is essential to have a common dialogue with NGOs, community and governmental bodies
- Request for higher transparency at all levels
- Joint application of tools to evaluate and confirm sector sustainability
- Holistic approach to avoid sub-optimisation

Proposed strategy: Emphasise renewability as a unique property of the material. Actively engage and contribute to develop and implement efficient and convenient recycling systems based on a holistic view.

Implications upstream:

- Increased supply of materials containing fibres to recycle from “urban forests”
- A holistic view on transportation of products and used collected products for recycling. Integrated solutions for outbound and reverse logistics is an opportunity.
- Optimising the mix of virgin and recycled fibres at geographical level as well as product level
- Sustainable forest management practices to avoid risk of over-exploitation, which may reduce and/or harm renewability
- Traceability of fibers is required to enable identification of product origin

Proposed strategy: Develop environmentally adapted products, both highly functional, innovative products and more standard type well performing products with a minimum price. Utilise sector strength factors to combine price and quality adapting to changing needs with a dynamic and differentiated product mix.

Implications upstream:

- A good collaboration and dialogue between different actors in the chain and their suppliers is essential to quickly adapt to changing requirements and develop environmentally adapted highly functional products
- Combining price and quality will demand efficient production processes at all levels.
- Wood allocation is a key to realise the right quality at lowest possible price.
- Request for higher transparency at all levels to support environmental claims

Proposed strategy: Use a differentiation strategy, where the sector can develop and tailor products to suit the needs of various segments. Environmentally conscious consumers is one such segment. The availability of adequate products for this segment may contribute to expansion of the segment.

Implications upstream:

- The starting point for differentiation is typically wood allocation. This will mean higher demands to use the right fibre to the right application. Optimising fibre utilisation will enable better yield, which in turn will make it possible to cut costs. More uniform quality will also make it possible to reduce paper weight with maintained performance. At the high end of the market, where many opportunities can be found in an optimistic scenario, it will be possible to develop highly functional environmental premium products utilising special fibre characteristics.
- Collaboration in the supply chain is essential to realise a competitive differentiation strategy
- Transparency will also be required to support environmental claims

3.2.4.5 Negative Scenario – Implications from Question no 2

Industry should consider *backward integrating* into intermediate manufacturing in *combination* with *forward integrating* into distribution in order to strengthen industry

environmental credibility, however printing and publishing technology processes should meet environmental requirements and setup standards.

Implication within M5 sphere:

Improvement and control of own production processes, control of sub-suppliers' activities and also distributors', as well as implementation of environment certifications.

Coordination of own production with upstream flow in order to secure supply chain.

Negative scenario conditions as well as vertical integrating strategy indicate mass-production with modest quality and low price.

Development of new competences and managerial fields.

Implementation of sophisticated steering and control IT system for supply chain coordination.

Risks

There are significant risks related to vertical integration such as:

- Request of new core competencies which might compromise existing competences
- Difficulties in coordination activities and environmental requests both backward and forward
- Opening for creation of conflicts caused by variety in industries upstream and downstream
- Increasing responsibility as well as enlarging managerial issues
- New effective tool for coordination and control
- Legislative obstacles
- Problems in communication with local community and governments and in lobbying activities

Costs

Some extraordinary costs may be connected to the strategy and risks, such as:

- Bureaucratic and managerial costs as well as investment costs in tool
- Costs for implementation of particular environment standards
- Costs for certifications, control and external auditing activities

Upstream Implication

The most significant implications along the entire upstream flow are as follow:

- Legislative changes related to vertical integrating requirements
- Improvement of production processes, technology, activities, etc. in order to fulfill environmental requirements and agreements set up by printing/publishing sector in cooperation with certification authorities
- Implementation of environmental certificates, and continuously auditing and control of conditions
- Adjustment of production and transportation to printing/publishing sector requirements, which means major changes in planning, management of production, storage and in all activities
- Implementation of sophisticated steering and control IT system, which is managed by publishing/printing sector
- Changes in production assortment
- Changes in transportation mode

3.2.4.6 Negative Scenario – Implications from Question no 3

Product Strategies

Pro-active strategy could be focused on manufacturing modest products that can be consumed by any customer. Content should be relatively neutral in order to satisfy as large customer group as possible, however it should be related to major and global trends.

Since price is a decisive aspect while purchasing products, low price should be calculated, and a consequence no product sophisticated innovations should be implemented. Traditional content and layout related to “pleasure and time killing” should be taken into consideration.

Population mobility is rather intensive but not controlled, which means that industry cannot “follow up” streams with its products. No particular and refined segmentation and diversification of products are motivated that follow up mobility pattern, instead of, geographical placement of market should be direct connected to products.

Implication for M5 sphere

Printed products should be rather modest with low price and high quality. This means high efficiency of production flow in terms of resources, materials, chemicals, etc.

Risks

Some obvious future risks should be considered:

- Easy, global and standard access to substituting products (electronic media) can compete out printing sector
- Cheap competing products from e.g. electronic media can take share of printed markets
- Since printed products are mostly related to “pleasure and time killing”, any other activity than reading, can take over market e.g. travelling.

Costs

No particular and extra costs have been recognized.

Upstream Implications

- *Pulp and paper manufacturing (M4)* – no variations in paper quality required. Modest quality for low price will be requested by printing/publishing sector, which means efficiency of manufacturing process and all supporting processes. It will also put requirements costs pattern.

Process strategy

Technology process regarding printing and publishing should be focused on usage of paper supplied by manufacturers that have raw material with local origin, since import of material is clearly restricted by international trade rules.

Efficiency and optimization of printing and publishing process regarding usage of paper with local origin should be taken into consideration, since management of forest is of protective character, which can limit access to fiber. Focus should be on increasing yield of paper in printing and publishing process.

Waste from technology processes should be minimized, especially this part containing fiber.

Implication for M5 sphere

Risks

There are risks related to assurance of total quality. “Half good” products could appear on market in order to minimize printing/publishing waste.

Requirements for local origin can also influence printing quality.

Costs

They might be costs related to optimization of printing/publishing process.

Additional costs could be linked with upgrading of technology line.

Upstream Implications

- *Pulp and paper manufacturing (M4)* - manufacturing only based on local origin of fibre. Request for improvement of yield of fibre material. Request for maximum optimization of manufacturing process and usage of resources. No import to EU of fibre is allowed which also means request of decreasing fibre waste in manufacturing process.
- *Distribution* between pulp and paper mills (M4) and production of pre-processed wood material (M3) – there is request of transport efficiency and cutting waste of fibre during transportation
- *Production of pre-processed wood material (M3)* – there is a request of efficiency and optimization of production technology as well as cutting waste.
- *Forest management (M2)* – there is a requests for sustainable forest management strategies giving the highest yield.

Distribution strategy

Distribution strategy should cover adjusted transport mode for optimized distribution if in own management, strategic alliances with transport sector, and strategic alliances with business customers. Those actions should guarantee two solutions:

- decreasing distribution costs and
- overcoming of restricted International Trade Rules.

Implication for M5 sphere

Risks

Some risks are allied with both action directions.

- Own management of distribution and transportation requires changes within sector
- Printing and publishing sector has limited experiences concerning optimizing and adjusting of transportation.
- Strategic alliances can mean legislative uncertainty

Costs

Costs might be connected to reorganization of sector, optimizing of transportation processes, and developing own transportation infrastructure.

Development of strategic alliances might also mean extraordinary costs.

Upstream Implication

- *Distribution* between pulp and paper mills (M4) and printing/publishing plant – there is request of transport efficiency and cutting waste of paper during transportation

4 Conclusions

Identified implications are mostly results of partners' internal discussions.

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