Sustainable production through innovation in the wood and furniture sector:

Promoting policy-making and eco-design tools from a joint administration-research-industry project

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   Product 1: edTOOL®furniture
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1. Introduction

Current production model:

Population growth

Economic activities

Consumption of resources → Demand for products and services → Emissions Environmental impacts

Demand for products and services → Consumption of resources
1. Introduction

Current production model:

Future sustainable industrial processes:
Implementation of eco-design:

“integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle” (Directive 2009/125/EC)
1. Introduction

Some eco-design experiences in Spain

- Household products
- Clothes and footwear
- Urban elements
- Wood and beverages
- Furniture
1. Introduction

Some eco-design experiences in Spain

- Household products
- Clothes and footwear
- Urban elements
- Wood and beverages
- Furniture

Research

Companies
1. Introduction

The wood and furniture sector

Wood & Furniture in Europe

- 113,696 companies
- 882,321 employees
- 5,000 million € exports

Competitiveness

Environmental performance of the product

Role of the consumers

Policies

1. Introduction

The wood and furniture sector

Competitiveness

Environmental performance of the product

Role of the consumers

Policies

Environmental assessment

Life Cycle Assessment (LCA) integrated into the eco-design process

Communication

Certification standards
2. Objectives

The “M-ECO” project aims to generate multiple tools for supporting the implementation of eco-innovation practices for improving product sustainability in the wood and furniture sector.

Supported By
2. Objectives

The “M-ECO” project aims to generate multiple tools for supporting the implementation of eco-innovation practices for improving product sustainability in the wood and furniture sector.

MILESTONES

- Development of a sectorial software for implementing eco-design in companies
- Publication of the Product Category Rules (PCR) for the furniture sector that establish the framework for certifying and communicating through Environmental Product Declarations (EPD)
3. Methods

Background → ECO-SCP-MED project
3. Methods

Background → ECO-SCP-MED project

Final product: edTOOL® eco-design software

Aim of the tool
To improve the sustainability of products by implementing ecodesign in companies through a step-by-step intuitive process.

http://edtool.sostenipra.cat/
3. Methods

Background → ECO-SCP-MED project

Final product: edTOOL® eco-design software

Characteristics

• Useful to guide companies through the implementation of the eco-design process

• Flexible and intuitive

• Applicable in the proposal of recommendations for the environmental improvement of the product

• Practical, with real-life examples from the partners’ experience
3. Methods

Application to the Spanish wood and furniture sector

M-ECO project
3. Methods

Application to the Spanish wood and furniture sector

M-ECO project
Application to the Spanish wood and furniture sector

### Role of the stakeholders

<table>
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<tr>
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<th>Company</th>
<th>R+D entity</th>
<th>University</th>
<th>Public administration</th>
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<tr>
<td><strong>Knowledge transfer</strong></td>
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<tr>
<td>Workshops</td>
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<td>edTOOL training</td>
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<td>Critical review</td>
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<td><strong>Practice</strong></td>
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<td>Follow-up meetings</td>
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<td>EPD certification</td>
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</table>

Knowledge transfer

Practice

Policy
4. Results

**Product 1: edTOOL® furniture**

http://edtoolmueble.sostenipra.eu/
4. Results

Product 1: edTOOL®furniture

STEP 1: INITIAL DEFINITION
1.1) Eco-design Team
1.2) Description & Objectives
1.3) Legal requisites
1.4) Market study
1.5) Customize criteria

http://edtoolmueble.sostenipra.eu/
4. Results

Product 1: edTOOL® furniture

STEP 2: ENVIRONMENTAL ASSESSMENT
2.1) Qualitative Assessment of Life Cycle Criteria (QALCC)
2.2) Results

http://edtoolmueble.sostenipra.eu/
4. Results

Product 1: edTOOL® furniture

**STEP 3: STRATEGY ASSESSMENT**

3.1) Selection of eco-design strategies
3.2) Prioritization of eco-design strategies
3.3) Eco-design Action Plan

<table>
<thead>
<tr>
<th>Description</th>
<th>Social</th>
<th>Economic</th>
<th>Technical</th>
<th>Avg.</th>
<th>Action plan</th>
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<td>Lifecycle stage: Raw Materials</td>
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<td>Reduce material input by means of dematerialization</td>
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<td>Prioritize recyclable materials</td>
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<td>Prioritize materials with a high recycled content</td>
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<td>Lifecycle stage: Production</td>
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<td>Minimize and simplify the production processes</td>
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<td>Use water efficient technologies in the production process</td>
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<td>3</td>
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<td>Use technologies that optimize raw materials use in the production process</td>
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<td>Use techniques that reduce the generation of waste and emissions</td>
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<td>Recycle process materials whenever possible</td>
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<td>Introduce environmental communication in order to foster a responsible use of the product/service</td>
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<td>5</td>
<td>4</td>
<td>4.87</td>
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<td>Promote an efficient use of materials during use</td>
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<td>5</td>
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<td>Promote an efficient use of energy during use</td>
<td>3</td>
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<td>2</td>
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<tr>
<td>Ensure high appreciation of the product</td>
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</table>

http://edtoolmueble.sostenipra.eu/
4. Results

Product 1: edTOOL® furniture

STEP 4: FINAL REPORT GENERATION

3.1) Generate a customizable summary of main results

4.2. Customized report

Choose the elements you want to include in the report:

- 1.2. Description & Objectives
- 1.3. Legal requisites
- 1.4. Market study
- 2.2. Environmental assessment
- 2.2. Spider diagram
- 2.2. Criteria average chart
- 3.1. Ecodesign Strategies
- 3.2. Ecodesign Strategy Prioritization
- 3.2. Strategies assessment bar chart
- 3.3. Action Plan

http://edtoolmueble.sostenipra.eu/
4. Results

Product 1: edTOOL® furniture

From general to sectorial edtool®

(1) Definition of the life cycle criteria considered in the QALCC assessment

(2) List of eco-design specific strategies for the different life cycle stages of the wood and furniture sector

(3) Elaboration of examples for applying the new edTOOL® furniture

http://edtoolmueble.sostenipra.eu/
4. Results

Product 2: Product Category Rules (PCR)

Development of general PCR for the wood and furniture sector that harmonizes the PCRs of different types of furniture products.

**Step 1.** Revision of specific PCRs

**Step 2.** Elaboration of a proposal

**Step 3.** Certification entity validates proposal (in Spain: AENOR)

**Step 4.** Certification entity verifies companies for obtaining EPDs

The PCR criteria were applied in the environmental assessment (LCA) of a select product in each company.
5. Conclusions

1. The toolkit developed in the M-ECO project can improve the **sustainability of wood and furniture products**.

2. **edTOOL®furniture** supports the **knowledge transfer** from research to companies while including **practical experience** through case studies.

3. The **PCR** also encourages the **quantification and communication** of environmental data through EPDs.

4. The M-ECO project aims to act as a driver for developing new policy frameworks and **specific tools for other industrial sectors**.

5. The project enabled an **interdisciplinary environment** with the participation of companies, R+D entities and universities for the **generation of new experiences and knowledge**.
Thank you for your attention!

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