

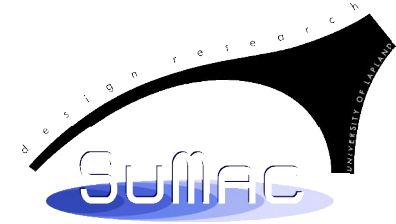
SUSTAINABLE INNOVATIVE MATERIALS IN HIGH TECH APPLICATIONS

An Interdisciplinary Approach to Design, Engineering Technology, and
Chemistry of Environmentally Sound Products and Production

Helsinki 17.1.2007

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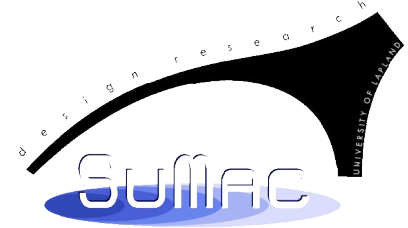
The Aim of the Research Project

The aim of the research project is to establish scientific competence in elaborating product life cycle thinking and innovative proactive design for sustainability.

The project aims to make a broad impact on industrial practices, and its findings will be formulated to serve the challenges of the future green economy.

We approach the phenomenon from three scientific inter-disciplines: material technology, (chemistry), design research, and ergonomics.

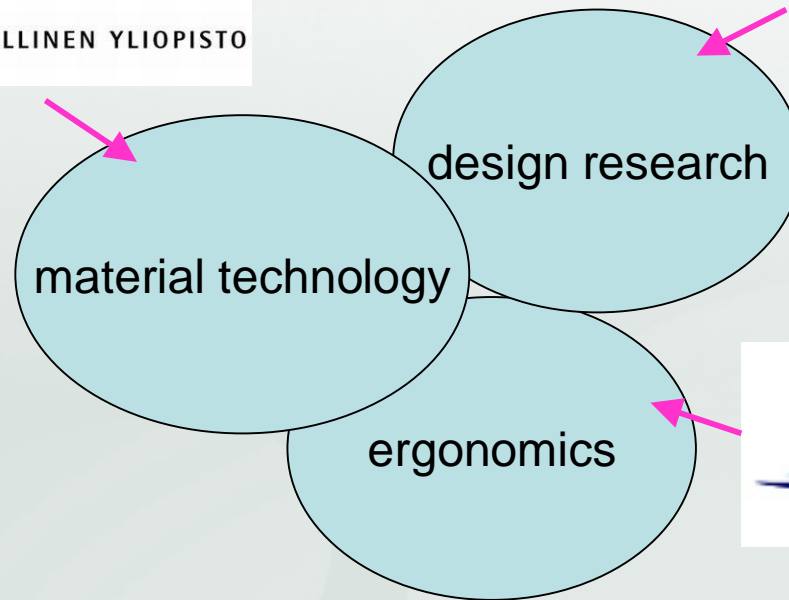
The SuMaC –Consortium

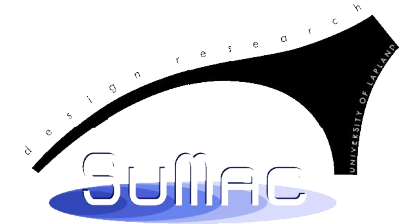


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Contribution of the Project to the Objectives of KETJU

Industrial ecology.

The project will produce insights needed in designing sustainable products. These will presume to produce design tools, product concepts and prototypes wherein sustainability is 'designed-in'. This may stimulate real change in consumption patterns, and create markets for value-added products and long-term sustainable business success.

Sustainable material technology and chemistry.

The project will study high tech materials, their sustainability and use in environmentally sound production and products, based on cleaner production processes and chemistry.

Chemicals in industrial production.

The project aims to create sustainable ergonomic production environments which cause no harmful chemical, physical or biological exposures to workers, and where products support the health and wellbeing of end-users as well as the adoption of new skills.

The Project Procedure - Workpackages 1-5

WP1 (2007) Challenging Traditional Sustainable Materials, Products and Production.

WP2 (2007) Scenarios and Concepts for Radical Eco-Innovations.

WP3 (2008) Sophisticated Tools and Strategies for Environmental Sound Research and Design.

WP4 (2008/2009) Sustainable and Ergonomic Product Chains.

WP5 (2009/2010) Emergence of Environmental Sound Sport Brands.

WP 1. Challenging Traditional Sustainable Materials, Products and Production

We will define modern principles to facilitate environmental sound design and sustainable production in sport business by analysing the encounters between designers, producers, and consumers of the products and services.

WP 2. Scenarios and Concepts for Radical Eco-Innovations

We will create scenarios and concepts for sport and asses them by using 3D simulations and animations.

We will assess the innovative sustainable materials in order to verify their functions and suitability for specific purpose and look for innovative sustainable product chain options.

We will create user-friendly products which have no harmful effects on end-users and products that promote wellbeing and the adoption of new skills among end-users.

WP 3. Sophisticated Tools and Strategies for Environmental and Ethically Sound Research and Design

We will create strategic tools for designing and decision making in design intensive companies.

We will create strategic tools for industrial production, based on corporate responsibility and Life Cycle thinking.

We will create strategic and operative tools for sustainable ergonomic production.

WP 4. Sustainable and Ergonomic Product Chains

We will produce a prototype of radical eco-innovation for sport business, and

We will evaluate the environmental impact of the prototype with LCA methodology, including the material options.

We will promote health, wellbeing and professional competence of workers.

WP 5. Emergence of Environmental Sound Sport Brands

We will create a sustainable vision for future sport product markets and deepen the understanding of *the economy of environmental and ethical sport design*.

Expected Results

The results of the research can be used in efforts to promote the use of environmentally sound products and to extend the range of groups who use it. The project will yield more exact knowledge of the interaction between the designer, producer and end user, as well as knowledge on the utility of sophisticated design tools for the future green economy. We will produce:

- 1) sustainability indicators,
- 2) environmentally sound design strategies, and
- 3) indicators for human risk analysis.

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