Life Cycle Thinking to promote Sustainable Production and Consumption strategies in SME's

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1. Introduction

The promotion of sustainable production and consumption patterns is identified as a priority for sustainable development policies by the Integrated Product Policy and other European Strategies. Moreover, during the World Summit for Sustainable Development held in Johannesburg in 2002, emerged the necessity of using Life Cycle approaches for this field of research. In this context, the analysis of existing supply chains helps to identify applicable solutions and to develop practical guidelines for transferring scientific results to companies, especially SME's. The present study focuses on the furniture industry, presenting a methodology to promote life cycle thinking ant to disseminate scientific results among SME's.

The presented case history regards a consortium of enterprises that includes entrepreneurs of the whole supply chain, from designers to manufacturers to retailers. The study was performed for identifying how to involve SME's and how to disseminate life cycle thinking starting from the identification of the most important impacts trough a qualitative LCA of the entire supply chain (from cradle to grave) and a quantitative LCA of a specific piece of furniture. Guidelines were provided to SME's to ensure better approaches for finding solutions inspired by ecodesign principles; for producing reducing environmental impacts; for communicating effectively environmental performance to retails and to consumers.

2. Materials and methods

The necessity of a more sustainable approach to production and consumption patterns has been widely highlighted by international resolutions and directives as a way to promote sustainable development in daily life activities (see, for instance, the EU Strategy for Sustainable Development and the Integrated Product Policy). Within this context, Life Cycle Assessment represents a useful tool for the investigation of impacts and the identification of more sustainable solutions within the whole supply chain (from the choice of raw materials to the delivery services and recycle or waste processing) (Hertwich ,2005).

Poor environmental performance of SME's (Small and Medium Enterprises) has been attributed to a wide range of barriers, both internal and external to firms. Among barriers, empirical studies have found a lack of engagement with environmental issues amongst owner-managers, due to: a belief that environmental "footprint" of SME's is negligible; a lack of expertise and understanding in tackling of environmental issues; a low level of compliance amongst small firms due to a lack of awareness of existing environmental regulation; a low level of uptake of environmental management system due to lack of time, money, technical knowledge (Revell, 2003).

To overcome these difficulties, the involvement of association of firms seems crucial to disseminate properly results and to promote a new culture of business focused on the implementation of life cycle approaches, bridging the gap between scientific results and business choice.

This study presents a pilot project conducted in Northern Italy, in a furniture district characterized by a high number of SME's representative of the entire supply-chain: from designer to retailers. The project were undertaken by "Progetto Lissone", a consortium of over 200 SME's.

The idea was to support a group of company willing to work on the sustainability concept with environmental knowledge and to put the conveyed knowledge into every-day practice, involving the whole related supply chain and rise awareness among the customers. Final aim is to provide a set of tools that enables to identify scenarios of business development and to define decision support systems, to improve awareness and responsibility of organizations that provide goods and of retailer and consumers.

Project was developed in seven steps:

1. research on market opportunity and market share related to sustainable environmental friendly furniture and products
2. creation of prototypes by designers

3. sustainability assessment of prototypes trough LCA, supporting choice of rough materials and best available technologies for the production,
4. realisation of prototypes
5. guidelines for designers and producers, with schematic approach to overcome main categories of impacts and to use existing user-friendly tools and methodologies
6. development of a label for retailers and consumers to identify products with higher environmental performance
7. involvement of retailers

The analysis of a specific piece of furniture produced by a company associated to the consortium (step 3), helped to highlight relevant impacts generated during the production, use and dismantling phases, and to identify handy solutions, applicable also in similar context. In the furniture sector, details of the existing products are very often based on industrial traditions developed and implemented before environmental concern became an issue. Hence, significant environmental improvements can in many cases be achieved by replacing traditional solutions with new materials or processes or even recovered solutions from the past (Nielsen, 2002). The assessment was performed also with free software (Masoni, 2004) in order to allow designer and SME's to easily try the LCA approach.

Thence, a questionnaire on Eco-innovation were distributed to over 100 SME's trying to understand company needs and demands to the scientific community. The results highlight the importance of networking firms, of involving the entire supply chain, and of simplifying the tools.

The assessment and the questionnaire results lead to the development of guidelines which are based on scientific results but communicated in a easily way so they can be used by entrepreneurs as a supporting tool for decision making.

Furthermore, also retailers were involved in the project due to their role of "translator" of environmental performance to customers. A course about ecodesign and labels was organized, to promote knowledge among retailers, and standards for an eco-label type III were defined, with the aim of communicating environmental performances of companies and products to consumers.

3. Conclusions

The promotion of sustainable production and consumption patterns requires a set of strategy to simplfy access to methodologies and tool and to their user-friendliness, especially when SME's are involved.

The outcomes of the pilot project highlight the importance of a widen involvement of supply chain stakeholders. In this context, the role of a firms consortium is crucial in promoting and disseminating best practices among associated firms.

Accordingly with questionnaires results, seems that it is important for further tools development to be based on solid research and information, but the key factor for influencing product design decisions is the translation of this information into a usable format for the users, both retailers and consumers.

4. References

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Acknowledgement - The authors thank the consortium of SME's "Progetto Lissone" for the involvement and the Chamber of Commerce, Industry, Craft Trade and Agriculture of Milano for funding the activities.