

# **ECODESIGN DECISION BOXES – A SYSTEMATIC TOOL FOR INTEGRATING ENVIRONMENTAL CONSIDERATIONS INTO PRODUCT DEVELOPMENT**

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## **1. Introduction**

Industry projects often show that Life Cycle Thinking and the idea of ECODESIGN are still not well established among engineers in product development. Available tools such as the ECODESIGN Product, Investigation, Learning and Optimization Tool (PILOT) [Wimmer, Züst, Lee 2004] as well as its adaptations for companies, e.g. for an office furniture-developing company [Wimmer, Bey 2004], may help to implement ECODESIGN into product development considerations and to improve an already existing product for further designs. However, an application of those tools in the decisive early stages of the product development process may be difficult for design engineers.

In order to help engineers in product development to develop an environmentally sound product which already has an optimised environmental performance a systematic tool, the “Ecodesign Decision Boxes”, was developed for integrating the concept of ECODESIGN into product development [Ostad Ahmad Ghorabi 2005].

## **2. Objective**

The idea of the proposed Ecodesign Decision Boxes is to allow the implementation of environmental considerations in technical product designs. The intention was to develop a tool that allows optimizing the entire product as well as tracking and controlling the influence on environmental aspects of a product along its life cycle phases. An overall evaluation of the environmental performance of the product design as well as a detailed view on the performance of each component, part and of each material used in the components should be assured.

According to [Luttrupp 1999] around 30 aspects need to be addressed in the product development process. Some of the aspects are e.g. materials, reliability, quality or profit. The environmental aspect is also one of the aspects which has to be considered in product development.

The Ecodesign Decision Boxes were developed to give special attention to this part and aspect of the product development process.

## **3. Method**

For the developed first version of the tool, product data from a multinational company producing office chairs were taken into account.

At first, life cycle data for the product obtained in a Life Cycle Assessment (LCA) according to the EDIP method [Wenzel, Hauschild, Alting 1997] have been gathered and further processed to suit an