

TOOLS AND APPROACHES FOR INNOVATION THROUGH ECODESIGN - SUSTAINABLE PRODUCT DEVELOPMENT

H. Ostad A. Ghorabi, W. Wimmer

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1. Introduction

ECODESIGN aims at minimizing the environmental impact of products throughout the entire product life cycle [Wimmer, Züst 2003]. This is a new task for many manufacturers but at the same time a driver for stimulating innovative ideas in product development.

The term 'product' includes hardware as well as software respectively services. When applying the concept of ECODESIGN, resources shall be used intelligently to increase the benefits for all actors involved along the value chain.

For innovative and marketable products the fulfillment of customers needs and requirements is an important task. The term customer not only includes a single user, but also stakeholders, such as the new EU directives 'waste electrical and electronic equipment' (WEEE) [Directive 2002/96/EC], the directive on the 'restriction of the use of certain hazardous substances in electrical and electronic equipment' (RoHS) [Directive 2002/95/EC] or the directive on 'establishing a framework for the setting of Eco-design requirements for Energy- Using Products' (EuP) [Directive 92/42/EEC]. Society can also be considered as a 'customer' where society requirements can be expressed e.g. by environmental related requirements.

An engineer in product development chooses and defines the materials needed for the product, affects the process technologies needed, influences the mode of transport and determines consumptions in the use stage as well as treatment possibilities in the end of life stage of the product.

The earlier ECODESIGN aspects are considered during product development processes, the larger is the innovation potential throughout the life cycle stages.

Industry projects often show that Life Cycle Thinking and the idea of ECODESIGN among engineers in product development as well as implementing ECODESIGN into the product development process are still not well established. Therefore the Institute for Engineering Design of the Vienna University of Technologie (VUT) has developed ECODESIGN tools to help engineers in product development to achieve the described aims. These tools will be briefly introduced in the following.

2. ECODESIGN PILOT

The ECODESIGN Product, Investigation, Learning and Optimization Tool (PILOT) [Wimmer, Züst, 2003] as well as its adaptations for companies help to identify appropriate ECODESIGN measures for the improvement of a product. It also helps to integrate ECODESIGN along product development. But the PILOT cannot be used if the absolute environmental impact of a product needs to be identified [Wimmer, Züst, Lee, 2004].

The PILOT CD-version has three main entries, as shown in Figure 1.: