

ECODESIGN OF ALPINE SKIS AND OTHER SPORT EQUIPMENT - CONSIDERING ENVIRONMENTAL ISSUES IN PRODUCT DESIGN AND DEVELOPMENT

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This paper shows how to achieve environmental improvements of sport equipment. Two case studies are presented. For an alpine ski a classical product redesign is shown using available methods and tools. For a new Golf Swing Analyzer it is shown how to integrate Ecodesign in a new product development without having a reference product to evaluate.

1 Introduction

Product innovations are essential in a globalized market. Delivering a unique selling proposition can be realized by developing eco-products. A rising awareness about the environmental performance of products leads to competitive advantage for those having eco-products on the market. Ecodesign is a way to achieve competitive advantage. Ecodesign is a methodology for the design of products minimizing each product's environmental impact through all of its life cycle stages and life cycle costs respectively.

The basis for eco-product development is a good analysis through Life Cycle Thinking (LCT). By applying LCT all life cycle stages of a product are evaluated aiming at finding environmental improvement potentials. Table 1 lists the different life cycle stages. In this paper these five life cycle stages will be considered to obtain Ecodesign improvement strategies for sport equipments.

Table 1. Five life cycle stages of a product to be considered in LCT

Raw materials	Manufacture	Distribution	Use	End of Life
Polystyrene, Glass, Steel, Aluminum, ...	Injection molding, Machining, Welding, ...	Air, Rail, Road, ... Packaging, ...	Electricity, Batteries, ...	Recycling, Incineration, ...

2 Product improvement

In the following an alpine ski will be taken as a case study to demonstrate the product improvement approaches and strategies. In a first step the product structure has to be understood. Figure 1 shows a cross-section of such an alpine ski.