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Choosing the best eco-design technique

Eco-design is increasingly viewed as an important approach to sustainable and improved product development. A recent study explores the adoption of eco-design techniques for a new product in a specific company. It identifies three key eco-design techniques and provides manufacturers with guidelines on how to choose the best eco-design approach for them.

Eco-design is an approach to product design which takes special consideration of the environmental impacts of the product. The European Union has highlighted the importance of eco-design in its green paper on integrated product policy[1] and provided a toolbox of policies[2] to address this area, including the eco-label[3]. In addition, the EC has launched a comprehensive Sustainable Consumption and Production Action Plan on July 2008, which provides a dynamic framework to promote better products and foster their uptake by consumers[4].

The small-scale study took place in a light manufacturing company in the UK which had expressed an interest in eco-design. The researchers developed a short-list of eco-design tools which included checklists, guidelines, environmental effect analyses and Material Energy and Toxicity (MET) matrices. A MET matrix evaluates the environmental impacts of a product in terms of its materials, energy use and toxicity over its life-cycle.

A focus group within the company identified the top three tools in terms of their merits and their compatibility with the company. A product was chosen on which to test these tools, a chemical detector, and the tools were then 'translated' into the common language of the company and applied to the product development process.

The top three eco-design tools as ranked by the focus group were checklists, guidelines and Material, Energy and Toxicity (MET) matrices. Checklists were generated for most stages of the new product development process. Examples of items on the lists included avoidance of hazardous substances and design for minimum energy use. The company reported that these were useful and a good first tool for the adoption of eco-design.

A number of existing guidelines were also applied which again proved useful, but it was reported that their adoption did require some caution. For example, design for disassembly guidelines were less suitable for this company because it focused on producing products with a long life. This meant that there was little short term need for the products to be disassembled and the environmental impact of disassembly was not considered an immediate priority. MET matrices proved successful in identifying the environmental impact at each stage of a product's lifecycle, but it was thought they could be enhanced by including eco-indicators to provide detailed and quantified environmental impacts.

The study demonstrates a simple approach, called 'the applicability framework', for assessing the suitability of eco-design methods. This consists of investigating available tools, analysing their compatibility, adapting the most promising ones and testing them through use on a sample product. Although the study demonstrated that checklists, guidelines and MET matrices were the most appropriate eco-design techniques for this product, the authors stress that there is no universal 'one-size-fits-all' solution, and suggest that the applicability framework could help companies identify suitable eco-design tools for their own use in the future.

[1] See http://ec.europa.eu/environment/ipp/2001developments.htm
[2] See http://ec.europa.eu/environment/ipp/toolbox.htm
[3] See http://ec.europa.eu/environment/ecolabel/index_en.htm
[4] See http://ec.europa.eu/environment/eussd/escp_en.htm

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Additional information: LIFE has financed a number of important eco-design projects. Integrated Product Policy is a particularly important topic. For more information on LIFE-funded IPP projects please see here and here.