

Towards sustainable product design: an action workshop approach to eco design

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Abstract

The paper is specifically based on, along with the wider literature, ongoing research and consultancy work by the author for Envirowise, a UK government programme dedicated to helping UK companies be more profitable and increase national competitiveness through improved environmental practices. The paper looks at some of the key organisational aspects of eco-design considering the context, key barriers and potential solutions and success factors. The latter include such topics as product design, strategy and planning, strategic commitment, environmental checks and balances, and the skills and abilities of designers. The paper uses case study examples from more than ten action workshops with small and large companies to illustrate key points.

Context – Drivers and Benefits of eco-design

Eco-design or Design for Environment (DfE) is often not considered as a constituent part of core business processes. This paper looks at why this is and how companies, small and large, can successfully achieve improved business performance by integrating eco-design processes into mainstream product strategy¹, planning² and development activity. A general absence of eco-design awareness, particularly in small companies is compounded by the introduction of legislative frameworks. On the 11th October 2002 the EU passed the Waste Electrical and Electronic Equipment (WEEE) and the Restriction of Hazardous Substances (RoHS) directives. The first sets recycling/recovery targets for products, and all costs from the collection points to the environmentally sound treatment, re-use and recycling will be covered by producers for their own products. The second puts a ban on four heavy metals (lead, cadmium, mercury and hexavalent chromium) and the brominated flame retardants PBB and PBDE from 1 July 2006. This requires manufacturers, suppliers and designers to consider the implication of their product designs from the outset in terms of their obligation to EU directives.

Eco-design can be defined as the incorporation of environmental considerations into any design. The broad intention is to reduce overall life-cycle impacts while maintaining performance and value for money.

However, even where eco-design is an accepted approach, companies tend to embody its principles in unstructured and ad-hoc ways, without proper integration across the organization.

A potential barrier to the incorporation of eco-design principles is the awareness and expertise of designers. Are they on top of the environmental game? As designer Victor Papanek has pointed out, By creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become a dangerous breed.

From experience, a number of barriers to good eco-decision-making can be defined:

- Lack of awareness of motivating factors (commercial benefits, legal compliance)

- Poor strategic planning and absence of vision

Poor internal communication and functional integration
Lack of resources money, time, appropriate knowledge, and skills
Designers attitudes and skills

If only to proactively defend themselves, businesses should be thinking harder and doing more. By including environmental factors early in strategic planning, companies will be better able to anticipate regulatory changes and manage the potential risks of industrial operations and products downstream.

This paper will extract lessons from eco-design action workshops with 10 companies to exemplify practices of eco-design. Moreover, it will demonstrate the business benefits including significant cost savings that can be made through deploying eco-design principles. The paper concludes by asserting the need for systems of design and innovation management that acknowledge emergent and practical constraints on business and why eco-design should become part of mainstream development activity.

References

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- The paper is based on ongoing consultancy work by Giraffe/Holdway/Hilton notably:
- a recent study of small company attitudes and behaviour to eco-design in North London (Holdway 2001)
 - a study on sustainable design success factors for the European Foundation for the Improvement of Living and Working Conditions (Hilton 2001),
 - work by Ecotec and giraffe for Envirowise (DTI/DEFRA) on *Packaging Eco-Design, Packaging Design for Environment Reducing Costs and Quantities* to be published later this year.

Notes

- ¹ Product strategy in essentials sets out to detect opportunities that a business may exploit.
- ² Product planning refers to the process of decision making by which product characteristics are determined:
Source: Product planning The relationship between product characteristics and environmental impact. Environmental resources limited.1978 Commission of the European Communities, Directorate-General Scientific and technical information and Information Management, Luxembourg.

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