

Evolving Sustainable Product Design Considerations for Electrical Household Products

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Considerable efforts have been made in product design and manufacturing mainly focusing on technological solutions for eco-efficiency, which hasn't essentially changed our highly consumptive everyday life (e.g. intensive resource and energy consumption, rapid disposal of products, etc.). The current view on the manufacturing system is predominantly linear, in which the products are conceived, designed and produced for a short life span through product obsolescence - both aesthetically and technically. Specifically in the Electronic and Electrical Equipment (EEE) sector, the production and consumption models are generating unsustainable and ever-increasing electronic waste and resource use. Various product design approaches are introduced with the aim of prolonging product life span through addressing environmental and social impacts of production and consumption, such as encouraging sustainable behaviour through engaging design solutions and eco-feedback (Fuad-Luke, 2009; Lilley, 2009), design for re-use, repair and upgrade tailored to local needs and preferences, etc. (Walker, 2011). Yet, the electrical household sector continues to produce products with even shorter life spans, which results in wasteful consumption patterns and conflicts with the notion of sustainability. Therefore, a substantial change in product conception, design, production and use is needed through innovative means of connecting new product and service design strategies with engaging and participatory use patterns.

This paper will present the initial findings and results of a governmentally funded research project. The main purpose of this project is to develop and disseminate sustainable design considerations for electrical household products evolved from and supported by local knowledge within the areas of effective use of resources, and product maintenance, repair and upgrade. Through conducting interviews with industrial designers and producers, the project compares various perceptions and understandings in industry, with leading research in the field of *design for sustainability*. To achieve this objective, the research will progress through two main steps. Firstly, a literature review will focus on and present the latest research on sustainability with a specific reference to electrical household products. This will lead to the creation of a preliminary set of considerations and recommendations for *design for sustainability*. Secondly, a field study will be conducted through interviews with design and production representatives of companies, which examines understandings and priorities in relation to *sustainability*, *product-user relationship* and *product longevity*, more specifically attitudes and perceptions of product value considering short-lived electrical household products. Emerged from the synthesis of two main phases of the design research, a more refined set of sustainable design considerations for electrical household products in the areas of *product maintenance*, *repair and resource effectiveness* will be developed and presented. The conclusions from and insights into this research will demonstrate a comprehensive and integrated understanding of product design for sustainability.