Closing the loop – Exploring circular business models for household appliances

Background
Product lifespans of household appliances are declining, leading to increased levels of material usage and environmental impact. The appliance industry follows a linear model of fast sales that is subject to high price competitiveness, which does not support companies in designing appliances that are made to last. Many times, it is both easier and more economical for users to simply replace their old appliances with new ones rather than having them repaired.

Project description
In the move towards a more circular economy, new design solutions need to be supported by smarter business models.

Theoretical part:
Your task in this project is to explore:

- ‘Product’ and ‘service system’ components of the various home appliances;
- Evaluate the lifecycle of the ‘product’ and ‘service’components;
- Develop several concepts of different home appliances PPS types;
- Develop several business model scenarios for different PSS types towards more circular.

Next considerations should be incorporated into the project:

- Both the producer and the user should benefit from the final concepts solutions;
- New business models should be adapted to different kinds of users;
- Full lifecycle of the PSS should be evaluated;
- The design and quality of appliances need to be considered to reduce maintenance costs, frequency of non-functionality, profitability of recycling etc.

Practical part (case study):
Apply the theoretical knowledge from the theoretical part to the HSB Living Lab as a case study (specific user group, specific PSS type).

Keywords: circular business models, product-service systems, home appliances, home appliances LCA

Qualifications
We are looking for students with an interest in Circular Economy and a good ability to work interdisciplinary and individually. You will be part of an exciting international research projects focusing on sustainable living, circular kitchen design and future home appliances. The project can be established as a collaboration between two master’s students from the following programmes: Industrial Design Engineering, Product Development and Management and Economics of Innovation.
Research team

Paula Femenias, Professor, Building Design, ACE
Elena Malakhatka, PhD Postdoc, Building Technology, ACE

Industrial supervision

Electrolux - Nick Sakellariou

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