



PhD in DESIGN - 39th cycle

PNRR 117 Research Field: TOWARDS A NEW APPROACH FOR A HOLISTIC INTEGRATION OF SUSTAINABLE MATERIAL SELECTION AND ECODESIGN IN AN APPLIANCES COMPANY

Monthly net income of PhDscholarship (max 36 months)
€ 1400.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	<p>Multilevel impacts ascribable to "cradle to grave" models are nowadays tangible, ranging from adverse effects on the environment and human health to the reduction of profits for economic activities.</p> <p>Therefore, a transition towards circular models is urgently needed.</p> <p>At an institutional level, the EU unequivocally head towards the circular transition, as demonstrated by the Action Plan for the Circular Economy (CEAP), which aims to set sustainable product manufacturing as a standard practice within EU. The measures developed in the CEAP will have significant impacts on business contexts, as in the case of the new regulation on Eco-design for Sustainable Products (ESPR) issued in March 2022 which considers additional environmental requirements compared to the current directive (2009/125/EC) such as durability, reusability, upgradability, reparability, recycled content and recycling and/or remanufacturing of certain product categories. ESPR also establish the introduction of the Digital Product Passport (DPP) to track information along the value chain. Furthermore, a recent step in the CEAP timeline - the Proposal for a Directive on Green Claims - requires producers to substantiate the claims on the environmental performance of their products, using reliable methods, science-based and verifiable data.</p> <p>The implementation of the aforementioned measures requires strong effort for companies. To respond adequately, corporates must plan targeted strategies to update existing business practices and policies, starting</p>



	<p>update existing business practices and policies, starting with the departments most affected by legislative initiatives such as design departments that determine over 80% of product-related impacts. Thus, an ecodesign approach using appropriate quantitative and qualitative tools and methods is mandatory. Strategies for the implementation of sustainable practices can follow multiple approaches and cover different aspects related to the design, from product architecture to material selection. Within such framework, the research aim to support and offer a wide-ranging contribution on sustainable corporate practices capable to provide cutting edge innovation.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>Alongside reviewing the most recent regulatory framework, the candidate contribution will be rooted in the most recent ecodesign practices and strategies. The research will be based upon previous LCA-based studies and related metrics, focusing on the leading parameters' contribution to the overall impact categories. Additionally, the candidate will focus on the existing material selection methods with particular attention to the parameters that contribute to define the circularity in the use of the materials themselves. The research might also include further methods and tools typically involved in the design discipline. Proper methods could be used both to map the company state-of-the-art and to test and validate the achieved results.</p>
<p>Educational objectives</p>	<p>The candidate will develop a strong expertise on recent examples of implementation of strategies and frameworks for sustainability transition in appliances companies (or comparable contexts). Once acquired this theoretical overview, the student will enable a dialogue between academic knowledge and industrial practices, offering to the company critical tools to qualitatively prefigure as many implications as possible relating to sustainability at various levels. In the end, the candidate will be able to drive the change towards a more structured and science-based approach to sustainability. The candidate will participate to international conferences and will join the wide design research network by contributing to scientific journals.</p>



Job opportunities	The candidate will develop a considerable experience on the existing relationships between various company departments, suppliers and other involved third parties and how they affect sustainability. The professional figure that will be outlined at the end of the PhD could be able to spend the acquired skills within the company itself by continuing the path developed over the three years. Otherwise, the candidate might also be involved in other careers requiring high-level and transversal expertise in sustainable transition.
Composition of the research group	1 Full Professors 0 Associated Professors 2 Assistant Professors 2 PhD Students
Name of the research directors	Barbara Del Curto

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	700.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	SMEG S.p.A.
By number of months at the company	12
Institution or company where the candidate will spend the period abroad (name and brief description)	TU Delft
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
Educational activities (purchase of study books and material, funding for participation in courses,



summer schools, workshops and conferences):financial aid per PhD student per yearmax 5.707,20 euros per student (total for 3 years)

Teaching assistanship: availability of funding in recognition of supporting teaching activities by the PhD student there are various forms of financial aid both for research and teaching activities. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Computer availability: 1st year, 2nd year and 3rd year: Each research group will supply PhD student with a computer, if necessary.

Desk availability: 1st year, 2nd year and 3rd year: Each research group will supply phd student with a desk.