



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 39th cycle

**THEMATIC Research Field: DIGITAL PRODUCT PASSPORT FOR SUPPORTING CIRCULAR
VALUE CHAINS**

Monthly net income of PhDscholarship (max 36 months)
€ 1450.0
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	Considering that 1) the twin transition is one of the main topics in literature, 2) the adoption of Digital Product Passports (DPPs) will become mandatory at EU level within few years, 3) the end-of-life management of electronic products still suffers of several issues in terms of critical raw materials recovery yields and quality, this action wants to empower high-profile competences, specifically in Key Enabling Technologies, related with the smart reuse of materials in electronics for new high-value applications.
Methods and techniques that will be developed and used to carry out the research	The research project will leverage on a tight collaboration between the candidate and partners of a European project named CIRC-UITs, focusing also on DPPs. Together with the CIRC-UITs consortium, the following activities will be executed: 1) identification of the state of the art, 2) identification of the baseline scenario, 3) development of a conceptual model, 4) material validation in relevant environment 5) assessment and validation of the model in a relevant industrial context.
Educational objectives	The research is multidisciplinary in nature. The candidate will develop advanced research skills in the areas: 1) digital product passports, 2) circular manufacturing, 3) electronics green materials, 4) circular value chains, 5) material recovery techniques and optimization, 6) European standards in critical raw materials.



Job opportunities	Considering the current evolution of the electronics sector towards green materials and the European interest in semiconductors, there is a strong need for high-profile competences and skilled people able to propose/apply circular practices in relevant industrial contexts. To this aim, the expected market request for these profiles will increase in the next future.
Composition of the research group	3 Full Professors 1 Associated Professors 4 Assistant Professors 1 PhD Students
Name of the research directors	Sergio Terzi, Paolo Rosa

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	725.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information	
The candidate will be provided of all the needed tools (PC, desks, licences, etc.) and he/she will be able to work on the Industry 4.0 Marco Garetti Lab,	