



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 38th cycle

**PARTENARIATO PNRR Research Field: CIRCULAR MANUFACTURING AND INDUSTRY 4.0
FOR MADE IN ITALY**

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

Given the direct exploitation of materials and natural resources, the manufacturing sector is on the forefront of sustainability and circular economy. This way, the negative impact of this sector in terms of sustainable development and climate changes must be adequately monitored and reduced. During the last decade, both circular economy and Industry 4.0 approaches have been adopted by manufacturing companies to cope with environmental issues and technological advances. However, current research is showing that digital technologies could support and enable even more sustainable practices if adequately integrated and managed. The intent of this research is to establish new ways to do it in practice and support companies during the transition from linear to circular behaviors. Made in Italy is rooted in manufacturing and both circular economy and Industry 4.0 are key drivers for the renovation of the Made in Italy. Specific analyses are therefore needed to this national context.

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, companies as well as policymakers involved in circular economy and manufacturing, in most of the promising Made in Italy sectors.

The following activities - part of the "3A-Italy" project - will be executed: 1) identification of the state of the art, 2) identification of the baseline scenario, 3) development of



	identification of the baseline scenario, 3) development of new guidelines, 4) guidelines validation by relevant experts. The project will be carried out within the Extended Partnership "3A-Italy", funded by the PNRR.
Educational objectives	The PhD candidate will develop competences and attitudes aimed at developing and implementing circular manufacturing approaches, as well for managing the introduction of industry 4.0 technologies.
Job opportunities	The successful completion of the PhD program will open several job opportunities in both academia and companies, in research, consulting and managerial roles. The candidate will develop distinctive knowledge to master the key managerial activities and decisions in the manufacturing arena.
Composition of the research group	3 Full Professors 1 Associated Professors 7 Assistant Professors 10 PhD Students
Name of the research directors	Sergio Terzi, Paolo Rosa

Contacts
sergio.terzi@polimi.it

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 PhD candidate will have the opportunity to attend courses on Management Engineering research methods and manufacturing research at Politecnico di Milano and other Universities and



research centers (e.g. MADE - Competence center Industry 4.0). He/she will be supervised by the research director through meetings and will receive feedbacks on his/her intermediate results during regular meetings with the Doctorate board and scientific conferences. The candidate will be involved in some teaching and communication activities, which are seen as a major opportunity to practice with dissemination of own and other relevant research results. He/she will be offered a desk and office facilities at the department building.

CUP: D43C22003120001

Decreto Direttoriale Avviso:

D.D. 341 del 15/03/2022 Avviso pubblico per la presentazione di Proposte di intervento per la creazione di Partenariati estesi alle università, ai centri di ricerca, alle aziende per il finanziamento di progetti di ricerca di base nell'ambito del Piano Nazionale di Ripresa e Resilienza, Missione 4 Istruzione e ricerca - Componente 2 Dalla ricerca all'impresa - Investimento 1.3, finanziato dall'Unione europea - NextGenerationEU

Decreto di concessione: D.D. 1551 del 11/10/2022