



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 40th cycle

THEMATIC Research Field: PEOPLE-CENTRIC, SUSTAINABLE AND RESILIENT MANUFACTURING

Monthly net income of PhDscholarship (max 36 months)
€ 1500.0
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>The research project seeks to contribute to the academic, industrial and policy debate surrounding Industry 5.0, which emphasizes people-centricity, sustainability, and resilience. Achieving these goals necessitates a deep understanding of the strategies, frameworks, and mechanisms essential for the effective design, integration and management of digital technologies within the industrial landscape to enhance the benefits of digitalization while mitigating its potential downsides.</p> <p>The research project's objectives include providing actionable insights to navigate the complexities of Industry 5.0 effectively and developing frameworks, methods, and tools to support industrial companies and their stakeholders in three key areas:</p> <ul style="list-style-type: none"> - Analyzing current production (eco-)systems to identify areas for improvement. - Creating innovative strategies and socio-technical solutions aimed at optimizing the triple bottom line performance. - Facilitating the transition process for companies, their people and stakeholders, including the development of necessary competences.
Methods and techniques that will be developed and used to carry out the research	<p>The following methodologies will be applied in the research project:</p> <ul style="list-style-type: none"> - Literature analysis in order to map the situation of research at international level;



	<ul style="list-style-type: none"> - Expert interviews/case studies/survey with Italian/European companies and industrial stakeholders; - Design and development of frameworks, methods and tools; - Validation and evaluation of the developed frameworks, methods and tools through experts' judgements and empirical investigations;
<p>Educational objectives</p>	<p>The doctoral program offers advanced training in a key topic explored by the scientific community and the industry. The educational objectives of this research encompass fostering research skills, interdisciplinary collaboration, development of domain-specific knowledge, empirical investigation, and effective communication. Therefore, engaging in this research project provides valuable opportunities that will contribute to the professional and personal growth of the PhD candidate. More specifically, the research aims to contribute to a high-skill profile who is able to design and conduct R&D&I projects in an international and multi-stakeholder environment and have advanced skills to:</p> <ul style="list-style-type: none"> - perform a structured literature review; - model complex problems identifying the key factors to consider to make decisions; - apply a multidisciplinary approach to deal with business, technological, social and environmental aspects; - use qualitative and quantitative research methods; - analyze qualitative and quantitative data to develop insights and methods/tools; - present and publish her/his research results;
<p>Job opportunities</p>	<p>High quality research and innovation jobs can be obtained thanks to the professional skills developed during the PhD research. Careers in research organizations, industrial companies, consultancy firms, universities are possible. Specifically, the following jobs could be addressed by the PhD graduate:</p> <ul style="list-style-type: none"> - research and development in the fields of industrial operations, with specific interest for challenges of Industry 5.0; - industrial engineering for manufacturing innovation and



	<p>improvement: the PhD graduate will be the right person to lead strategic transition projects in manufacturing companies, assuming a leading role in the transition towards manufacturing strategies that embed people-centricity and sustainability and leverage digital capabilities;</p> <p>- advisory and consultancy for those companies that want to invest on the next steps of sustainable and people-centric manufacturing enabled by digital technologies: the PhD graduate may be hired by consultancy companies which accompany manufacturing companies in their transition to Industry 5.0;</p> <p>- academic development is also a potential outcome (in Italy and abroad), considering the cutting-edge research and the different knowledge domains related to it;</p>
Composition of the research group	<p>4 Full Professors 2 Associated Professors 8 Assistant Professors 18 PhD Students</p>
Name of the research directors	Marta Pinzone; Marco Taisch

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	750.0 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

Funding for educational activities for the three years is available.

Teaching assistantship: There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.

Desk availability: shared use, Computer availability: individual use.



- Involvement in projects: "For the overall development of their capabilities, PhD candidates will work on synergical projects to favour empirical data collection and network development for their career. Projects will give candidates the opportunity to work in group (peers and other senior professors)".
- Teaching and tutoring: "If coherent with the development of their doctoral program, the PhD candidate will have the opportunity to be involved in: teaching activities, tutoring to master students, tutoring to PhD candidates for administrative processes".

Funding for educational activities: 6.100,00 Euros for three years.