



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 38th cycle

PARTENARIATO PNRR Research Field: SUSTAINABLE LOGISTICS: TRANSITIONING TOWARDS NET ZERO

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

With increasing quantities of goods moving across the globe, business practices, customers' orientations and regulations are emerging to limit the impact on the environment and on the society. Hence, sustainable logistics has now become one of the key business areas for companies to compete, be successful and thrive in nowadays business environment. Sustainable logistics processes need to be analyzed and redefined, with a specific focus on energy-efficient solutions for logistics activities, involving different actors and logistics nodes. More in detail, practices that facilitate sustainable logistics operations and related impacts on operational strategies, as well as tools and metrics to monitor the environmental impact of logistics processes are examples of key topics to address.

To date, the academic literature has mainly focused on logistics sustainability in general terms, without providing a detailed analysis on some key elements of the logistics network, such as warehousing. Moreover, the impact of specific energy-efficient solutions on logistics processes has not been studied in-depth. The PhD research project has a twofold aim. First, to understand how the available energy-efficient solutions can enable the development of new sustainable logistics models and managerial approaches towards net zero logistics systems. Second, the objective is to develop and validate new methodologies and tools to support the design and management of sustainable logistics systems and quantify



	the related benefits.
Methods and techniques that will be developed and used to carry out the research	The thesis will require an initial phase of conceptualization on the sustainable logistics practices and energy-efficient solutions available, with a focus on the entire logistics network. The second phase will involve the development of new models and managerial approaches for sustainable logistics systems, and then methodologies and tools to support the design, management and control of such systems. Tools can involve qualitative frameworks, as well as analytical and simulation models, possibly using the digital twin approach. Collaborative projects with companies are planned.
Educational objectives	<p>The PhD student is supposed to become a researcher with a specific capability to design and manage sustainable logistics system. The PhD student should become able to:</p> <ul style="list-style-type: none"> • Understand the potential of energy-efficient solutions and sustainable practices from both a scientific perspective and in terms of industrial applicability; • Identify and analyze the new sustainable logistics models; <p>Develop new methodologies and tools to support the design and management of sustainable logistics systems.</p>
Job opportunities	<p>Logistics engineer in logistics facilities</p> <p>Logistics director</p> <p>Logistics manager in logistics services providers and shippers</p>
Composition of the research group	<p>0 Full Professors</p> <p>2 Associated Professors</p> <p>0 Assistant Professors</p> <p>0 PhD Students</p>
Name of the research directors	Prof. Marco Melacini

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
<p>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.</p> <p>Computer and desk availability of individual use.</p> <p>CUP: D43C22001410007</p> <p>Decreto Direttoriale Avviso: Avviso è il Bando, nel vostro caso D. D. 3138 del 12/16/2021 rettificato con D.D. 3175 del 18/12/2021 Avviso pubblico per presentazione Proposte di intervento per il Potenziamento di strutture di ricerca e creazione di campioni nazionali" di R&S su alcune Key Enabling Technologies da finanziare nell'ambito del Piano Nazionale di Ripresa e Resilienza, Missione 4 Componente 2 Investimento 1.4 Potenziamento strutture di ricerca e creazione di campioni nazionali di R&S su alcune Key Enabling Technologies finanziato dall'Unione europea - NextGenerationEU</p> <p>Decreto di concessione: D.D. 1033 del 17/06/2022</p>