



PhD in URBAN PLANNING, DESIGN, AND POLICY - 39th cycle

PNRR 118 PNRR Research Field: EXPLORING INNOVATIVE LAST-MILE AND CITY LOGISTICS SOLUTIONS TO REDUCE EMISSIONS AND IMPROVE CITIZENS' QUALITY OF LIFE

Monthly net income of PhDscholarship (max 36 months)
€ 1195.5
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
<p>Motivation and objectives of the research in this field</p>	<p>Logistics and freight transport involve more than 70.000 companies in Italy with a turnover of about 80 billion euros. Business growth is constant despite the pandemic crisis. Unprecedented opportunities for a technological revolution and a complete digitalisation of logistics and freight transport are available, enabling new services and business paradigms. At the same time, the sector is under pressure due to energy tensions, global disruption phenomena, growing fragmentation of shipments and increasingly challenging level-of-service requirements related to e-commerce, unsustainable labour conditions, scarce attention to externalities and collective diseconomies in the optimisation of single distribution chains. Transport in Europe causes about 25% of CO2 emissions, 36% of which due to freight. Challenging objectives to reduce such carbon footprint have been set at EU level, imposing a radical change of logistics and transport operations. This is particularly relevant in cities, wherein increase of consumers' purchasing habits and new distribution problems can yield negative effects (inefficient performance, increase in traffic and emissions, scarce urban liveability) if faced with traditional logistic solutions. Achievement of sustainability targets is also difficult because logistics and transport are strongly perceived as commodities, with pressure on procurement costs that prevents investments and limits the development of a logistics culture. In this context, the</p>



	<p>opportunities of the circular economy and the synchro-modality are not yet fully exploited, as well as the potential of nudging policies to business establishments and final customers. In any case, unprecedented data availability and sensing capabilities on logistics and transport networks enable complex real-time optimisation, with evident potential economies of scale, cost savings and better environmental performance. The Logistics 4.0 paradigm fosters the implementation of data-driven approaches for decision-making, integrating different players and dealing with uncertainty. New technologies can enable the transition towards a greater digitalization and synchronization of logistics processes. Within this context, it is crucial to contribute to the development of efficient, effective, and environmentally sustainable urban logistics solutions by supporting key players: (i) logistics service providers; (ii) merchants; (iii) decision makers; (iv) citizens. To reach this goal, it should be developed a future logistics and freight transport systems leveraging four main pillars: (1) technological development, digitalization, and data analytics capabilities; (2) environmental, societal, and economic sustainability; (3) optimization of operations and new business models; (4) coordinated and effective policymaking and governance.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The study will focus on the analysis of the last mile delivery and urban logistics in Lombardy region and specifically the city of Milan. This analysis will allow to develop innovative solutions for last mile delivery and urban logistics through the integration of new technologies and models to ensure environmental sustainability, and the improvement of quality of life, traffic, public health, accessibility/inclusiveness, safety and management of public spaces.</p> <p>This study will (i) investigate theoretical knowledge on urban logistics and last mile delivery; (ii) explore the cases of innovative solutions for last mile delivery and urban logistics through the integration of new technologies and models; (iii) implement tools for mapping and quantifying the impact of last mile delivery on the quality of life, traffic, public health, accessibility/inclusiveness, safety and management of public spaces.</p>



	<p>It should be developed a roadmap to increase the sustainability of the sector: transportation mode rebalancing, supporting the synchro-modality and rebalancing unsustainable road transport by means of integration platforms, organizational solutions, and new technologies; reducing carbon footprint. The following methodologies will be adopted: systematic literature review, spatial analysis through GIS, descriptive statistics. This project relies on the collaboration with MAUD Lab at the Department of Architecture and Urban Studies.</p>
<p>Educational objectives</p>	<p>Through the study, the candidate will develop analytical and interpretative tools, as well as research/planning/design methodologies, able to produce further advancement in urban studies, spatial planning, urban policies and governance. Specifically, the educational objective of this research is twofold: firstly, to build new knowledge and critical positioning of the urban planning discipline towards the monitoring and assessment of the impact of city logistics and urban freight; secondly, to operationalize methods and spatial monitoring and decision-making support systems to assess the effects of city logistics and urban freight and develop solutions within the urban planning domain. Mixed-research methods, i.e., qualitative and quantitative analysis methods, will be applied by the candidate in order to assess the impacts of city logistics and urban freights, recurring to several techniques and always referring to spatial mapping and analysis to inform decision-making and monitoring of outcomes. The research program aims at building a profile of a qualified researcher able to recognize, address and assess the complex interplay of city logistics and urban freight with people, society and the urban environment, translating all the knowledge acquired in spatial planning methods and tools to inform decision-making and monitoring of the efficacy of policies and outcomes. In particular, the candidate will acquire knowledge in spatial analysis and planning, social, economic, and environmental impact techniques, and theoretical and practical tools for managing city logistics and urban freights.</p>



Job opportunities	According to its international orientation, the PhD program trains highly qualified researchers and professionals in the fields of spatial planning, design and management of urban projects and policy, social sciences, urban studies, and urban governance. Researchers with such profile may be employed by Italian and international academic institutions, public bodies, cultural foundations and research centres, public and private development agencies, and private firms.
Composition of the research group	12 Full Professors 13 Associated Professors 1 Assistant Professors 55 PhD Students
Name of the research directors	Prof. Ilaria Mariotti

Contacts

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Further information is available in the Handbook of the PhD Program on:

<http://www.dastu.polimi.it/index.php?id=1146>

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	597.76 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Not required
By number of months at the company	0
Institution or company where the candidate will spend the period abroad (name and brief description)	University of Antwerp, Department of Transport and Regional Economics
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Each PhD candidate has a research budget available as follows to purchase books and materials, and to finance the participation in courses, summer schools, workshops and conferences:</p> <p>1st year: max 1.624,30 euros 2nd year: max 1.624,30 euros 3rd year: max 1.624,30 euros</p> <p>Total amount: 4.872,90 euros per student</p> <p>There are various forms of financial aid for both research and teaching assistantship. PhD candidates are encouraged to take part in these activities within the limits allowed by the regulations.</p>