



PhD in URBAN PLANNING, DESIGN, AND POLICY - 41st cycle

THEMATIC Research Field: MODELLING AND ASSESSING THE LAND-USE TRANSPORT INTERACTIONS

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

Transport planning and transport economics tend to consider the land-use as a fixed and static background. Land-use is an input for transport studies, providing the quantities and distribution of transport users and destinations. In reality, land-use choices are not independent from transport supply, although mutual interactions span over different timeframes and land-use changes are delayed with respect to mobility changes. Literature and planning practice is not alien to these concepts and has developed various tools to study the interactions transport-land-use. Interactions may be in the way land-use influence transport choices, or how transport supply influence location choices. However, theoretical or empirical tools only seldom become operative tools (only few agencies in Europe have developed them), extremely complex and based on algorithms that are not universally codified. The aim of the PhD is to deepen the study of land-use and transport interactions, not limiting to abstract modelling, but acknowledging the complexity of land-use and its dynamics and producing operational knowledge. Classical LUTI models tend to oversimplify territorial interactions to be manageable. At the same time, the observation of land-use alone, without a theoretical framework about the way it interacts with mobility and trip choices, drives to stylized and biased results. The expectation from the PhD is that the candidate will



	<p>develop a comprehensive approach to land-use - transport interaction, including, but not exclusively:</p> <ul style="list-style-type: none"> • an overview of existing methods and applications • an empirical analysis of one or more relevant case studies, selected in the Italian contexts, showing the multiple interactions between the two systems • a modelling part, for example developing a LUTI application or a method to evaluate transport projects including their land-use interaction
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The case study(ies) of the PhD must be a significant case of land-use interactions with a transport investment or policy.</p> <p>The case(s) should preferably be in Italy to exploit already available datasets and the transport model described below. Alternatively, or in addition, the proposal may include also another European context, whose inclusion must be justified for its relevance.</p> <p>The empirical part of the thesis will develop its own methods, based on the consulted literature, aimed at showing the extent and the forms of land-use effects of transport investment of the case study. For example, the analysis of the case study may be based on hedonic prices method, or spatial econometrics, or a quantitative analysis of territorial effects.</p> <p>The double-sided interaction between transport and land-use systems must be central in the choice of the method. For the modelling part, the PhD candidate will have access to the national-scale transport model i-TraM, developed by TRASPOL and META S.r.L, capable of modelling the entire Italian transport system. The model is a full 4-steps macro-transport model, based on extensive territorial statistics, but without a LUTI module.</p> <p>The candidate will use the model to assess the transport – land-use interactions and build an interpretative framework on it.</p>
<p>Educational objectives</p>	<p>The program aims at providing analytical and interpretative tools, as well as research/planning/design methodologies, able to produce further advancement in</p>



	transport and mobility planning, infrastructure design, spatial and land use planning.
Job opportunities	<p>According to its international orientation, the UPDP course intends to train highly qualified researchers and professionals in spatial planning, design and management of urban projects and policy, urban studies and urban governance.</p> <p>Italian and international academic institutions, public bodies and research centres, and public and private development agencies could employ Doctors with such a profile.</p>
Composition of the research group	16 Full Professors 9 Associated Professors 1 Assistant Professors 60 PhD Students
Name of the research directors	Paolo Beria, Eugenio Morello

Contacts

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*Further information on the PhD Program in Urban Planning, Design and Policy is available at:
<https://www.dottorato.polimi.it/corsi-di-dottorato/architettura/urban-planning-design-and-policy>*

Additional support - Financial aid per PhD student per year (gross amount)



Housing - Foreign Students	--
Housing - Out-of-town residents	--

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

List of 5 Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research:

1. Katholieke Universiteit Leuven
2. HafenCity Universitaet Hamburg
3. Bartlett School of Planning, UCL
4. Universidade de São Paulo
5. Sciences Po, Paris

Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year ("DOTE"): total amount: **5.913,80 euro**:

1st year: max **1.971,26 euro**

2nd year: max **1.971,26 euro**

3rd year: max **1.971,26 euro**

Teaching assistantship (availability of funding in recognition of supporting teaching activities by the PhD student)

There are various forms of financial aid supporting the teaching practice.

The PhD candidate is encouraged to take part in these activities, within the limits allowed by the regulations.

Workspace:

In the UPDP PhD room at Bldg. 14 in Leonardo Campus, workstations are available for shared use. All the PhD students can use their laptops with wireless or LAN connection.

Workstations and other equipment are available in the various departmental laboratories (Dastu) linked with the doctoral programme.