



PhD in ARCHITETTURA, INGEGNERIA DELLE COSTRUZIONI E AMBIENTE COSTRUITO / ARCHITECTURE, BUILT ENVIRONMENT AND CONSTRUCTION ENGINEERING - 38th cycle

INTERDISCIPLINARY Research Field: FORESIGHT FOR SUSTAINABLE SMARTER BUILT ENVIRONMENTS

Monthly net income of PhDscholarship (max 36 months)

€ 1275.0

In case of a change of the welfare rates or of changes of the scholarship minimum amount from the Ministry of University and Research, during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

Interdisciplinary PhD Grant

The PhD research will be carried out in collaboration with research groups of the PhD programme in "**INFORMATION TECHNOLOGY**".

See <https://www.dottorato.polimi.it/?id=422&L=1> for further information.

In recent decades we are experiencing an implicit transition towards more digitally-enabled buildings, cities and communities, with a view to smarter and more sustainable eco-systems in which to live. When we look at what is identified in the literature as a 'smart city framework', we find a dominant concept of integrating ICT solutions, sensors and other physical devices, data and human insights to improve building and city services and connect them to citizens. The current pandemic has contributed to the rapid acceleration of this process but, at the same time, has led to the rise of new needs and priorities that may lead to a significant rethinking of the ways and spaces where people will live, work and move in their daily lives, with a consequent reconsideration of the role of technology. Established trends in technological development may in fact be suspended by the emergence and convergence of alternative scenarios, or even



	<p>diverted towards new horizons for newly emerging needs. In the research community, especially when dealing with issues having a long-term impact, there is a growing consensus and attention towards the need of recognizing possible future challenges well in advance, to be able to have the most appropriate responses. In this context, the proposed research aims at exploring the different plausible futures for a human-centered smart built environment, scanning the horizon to envision possible scenarios in the broader perspective of future of smart cities and communities. Such a foresight process will allow to identify future opportunities, challenges and criticalities that may emerge, as the ICT technologies meet the built environment.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The fundamental method underlying the proposed research is foresight, a systematic process of analysis and construction of visions of the future, a multidisciplinary activity in its premises in order to be effective. In particular, the foresight methods and tools applied will be participatory and open, involving participants and collaborators from different disciplines and areas of expertise. ABC and DEIB departments are two leading actors (given the specific context) but extended to a wider community. This will allow the inclusion of the different definitions and narratives of the smart buildings and smart cities concepts that are often organized by industry sectors: ICT, electronics, mobility, governance and construction.</p>
<p>Educational objectives</p>	<p>The PhD Candidate will be trained in the adoption of <i>Systems Thinking</i> and <i>Futures Thinking</i> approaches for identifying the long-term issues and challenges shaping the future development of a human-centered <i>smart</i> built environment and to exploring their implications for research supporting sustainability targets in the horizon 2050.</p>
<p>Job opportunities</p>	<p>In line with the increasing market demand for professionals with long-term vision skills, the PhD graduate in this field will be able to find jobs:</p>



	<ul style="list-style-type: none"> • at engineering consultancies or research centres offering foresight services; • at governments, developers and other organization who want to set long-term strategy for their business in the construction sector.
Composition of the research group	2 Full Professors 3 Associated Professors 2 Assistant Professors 2 PhD Students
Name of the research directors	Profs. G. Iannaccone, C. Bolchini

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	637.5 €
By number of months	6

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

Budget for the research activity:

total amount Euro 5,197.62 per student

In detail:

- 1st year Euro 1,732.54
- 2nd year Euro 1,732.54
- 3rd year Euro 1,732.54

Interdisciplinary cooperation:

the PhD Candidate will benefit from initiatives organized by both PhD Programmes involved.

Additional information can be found in the Regulations for the 38th Cycle of ABC-PhD:

download is available at link:

<https://beep.metid.polimi.it/web/abcphd/documenti-e-media>



Additional information about ABC department and ABC-PhD programme:

available at link:

<https://www.dabc.polimi.it/>

Desk availability:

The ABC department provides non-permanent desks to be temporarily booked in common PhD rooms.