

# PhD in Aerospace Engineering

## Research Title: Novel Technology Perspectives for Urban Air Mobility Applications

<b>Funded by</b>	Distretto Aerospaziale Piemonte (DAP) ( <a href="https://www.distrettoaerospazialepiemonte.com">https://www.distrettoaerospazialepiemonte.com</a> )
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<b>Context of the research activity</b>	<p>The purpose of the project is to investigate (technical, societal, market and business, regulatory and legal) opportunities and barriers to entry related with Urban Air mobility, including its integration with mobility in future smart cities. The training path must include business model evaluation, acceptability for citizens regulatory and certification aspects.</p> <p>The project will be driven by a multidisciplinary approach with focus on both technological and scientific aspects and on skills related to the management of innovation. At the end of the project a new “skills profile” is expected with competences on: i) enabling technologies such as digital technologies (5G, Internet of Things, Artificial Intelligence, Quantum Computing), system design (which includes safety and sustainability aspects, eg low noise), ii) application domains such as Smart Cities and Communities, Aerospace, Mobility, Urban Security, iii) management of process of industrial innovation closely connected with the needs of citizens and communities.</p> <p>In synergy with the various initiatives promoted by the territorial partners who are members of the Clusters (CTNA - <a href="https://www.ctna.it">https://www.ctna.it</a>), during his doctoral course the student could have access to training experience aimed at developing technical and managerial skills. To deepen the knowledge of the industrial context of reference, the PhD student will spend at least 6 months of his/her training path with one or more of the members of Distretto Aerospaziale Piemonte.</p> <p>This PhD scholarship is expected to support the development of adequate interfaces among Public Players (e.g. Cities / Regions), urban planning communities, technology players and transportation players that will later support the collaborative deployment strategy and a roadmap for the next urban mobility generation.</p>
<b>Objectives</b>	<p>The scope of the project is to address the challenges pursuing the following high-level objectives:</p> <ul style="list-style-type: none"><li>• Definition of specific use cases to be studied along the project in term of technical, societal, economics issues (e.g.: parcel delivery</li></ul>

	<p>platform, security &amp; monitoring platform, people transportation, ...)</p> <ul style="list-style-type: none"> <li>• Analysis of related technology issues regarding enabling technologies: 5G networks, Artificial Intelligence, Cybersecurity</li> <li>• Integration issues: e.g. railway-tramway segments as support for drone transportation (or taxi / car sharing / TPL / waste truck) and multimodal integration including charging techniques for drones</li> <li>• Analysis of multi-disciplinary impact: traffic management and risk mitigation, energy efficiency and sustainability, green areas monitoring</li> <li>• Legal concerns and recommendations.</li> </ul>
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<p><b>Skills and competencies for the development of the activity</b></p>	<p>Openess and multidisciplinary approach is strongly recommended, with the ability to manage both technical, economics/legal, social acceptance and societal issues. Minimum “innovation management” skills are also mandatory. A background in at least two of the following fields is required as a prerequisite for the present research activity: aerospace, engineering, mechatronics, computer science and applied mathematics. Minimum programming skills are also mandatory.</p>
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