



PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 40th cycle

PNRR 630 Research Field: ADVANCED TOOLS AND METHODOLOGIES FOR DIGITAL TRANSITION IN PROJECT MANAGEMENT

Monthly net income of PhDscholarship (max 36 months)
€ 1500.0
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	<p>The integration of advanced digital tools and methodologies in project management represents a transformative shift in how complex projects are conducted and controlled, especially in engineering and construction where companies like Tecnimont operate. The objective of this PhD research at Politecnico di Milano is to develop and refine these digital tools, thereby enhancing the efficiency, accuracy, and cost-effectiveness of project management processes. The research aims to address the challenges faced by the industry in project complexity and risk management by leveraging cutting-edge digital solutions, such as big data analytics, AI, and machine learning, to foster predictive analytics and decision-making processes. The goal is to enable companies to maintain their competitive edge by improving project delivery times, reducing costs, and enhancing overall project quality.</p>
Methods and techniques that will be developed and used to carry out the research	<p>This research will employ a variety of advanced methodologies and techniques critical for the development and implementation of sophisticated digital tools in project management. Initially, the research will focus on the identification and evaluation of current digital practices and the specific needs within a Project Based Company. Following this assessment, the PhD candidate will develop customized digital solutions utilizing methodologies such as data mining, process automation, predictive analytics, and AI-driven simulation models.</p>



	<p>predictive analytics, and AI-driven simulation models. Agile project management techniques will also be introduced to enhance adaptability and responsiveness to the dynamism of tactical and strategic decisions all along the project life cycle.</p>
<p>Educational objectives</p>	<p>The PhD program aims to equip the candidate with deep theoretical knowledge and practical skills in advanced digital project management, preparing them for leading roles in industrial and academic fields. The educational objectives include developing an in-depth understanding of digital transformation in project management, proficiency in the latest digital tools and technologies, and the ability to conduct independent research that contributes to this evolving field. Candidates will gain hands-on experience through collaboration with Tecnimont, applying their research in real-world settings. This program also focuses on enhancing soft skills such as strategic problem-solving, critical thinking, and effective communication, which are essential for leadership roles in complex project environments. Additionally, candidates will be encouraged to publish their findings in reputable academic journals and to present their work at international conferences, furthering their professional development and academic careers.</p>
<p>Job opportunities</p>	<p>Completing this PhD at Politecnico di Milano will open up numerous career opportunities in academia and various industries, particularly in engineering, construction, and technology sectors. Graduates will be well-equipped to take on roles such as Digital Project Manager, R&D Specialist, Data Scientist, and AI Project Implementation Consultant.</p> <p>In addition to opportunities within Tecnimont, where the application of research findings will be directly relevant, PhD holders can seek positions in other leading engineering firms, consultancy agencies, and tech companies focusing on digital transformation. The expertise gained will also be valuable for roles in academic and research institutions where ongoing innovation in digital project management continues to evolve. The skill set developed through this PhD program</p>



	will be useful for leading complex projects, improving operational efficiencies, and driving the digital revolution in project management across industries.
Composition of the research group	1 Full Professors 0 Associated Professors 0 Assistant Professors 1 PhD Students
Name of the research directors	Mauro Mancini

Contacts	
mauro.mancini@polimi.it	

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	750.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	Tecnimont
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	Tecnimont
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>1. Teaching assitanship; 2. Desk Availability; 3. Computer yes; 4. Involvement in projects;</p> <p>•Involvement in projects: "For the overall development of their capabilities, PhD candidates will work on sinergical projects to favour empiral data collection and network development for their career. Projects will give candidates the opportunity to work in group (peers and other senior professors)".</p> <p>•Teaching and tutoring: "If coherent with the development of their doctoral program, the PhD</p>



candidate will have the opportunity to be involved in: teaching activities, tutoring to master students, tutoring to PhD candidates for administrative processes".

- Periods in companies: "The development of the PhD project requires a compulsory period to be spent in the company (e.g. INAIL in Rome) to better understand the company strategy and processes".
- Italian knowledge (e.g. borsa co-finanziata da ente italiano): "The interaction with key stakeholders requires a fluent knowledge of the Italian language".

Funding for educational activities: 6.100,00 Euros for three years.