



# PhD in INGEGNERIA GESTIONALE / MANAGEMENT ENGINEERING - 40th cycle

**THEMATIC Research Field: HUMAN-CENTRIC OPERATIONS AND WAREHOUSE  
MANAGEMENT - COGNITIVE AND ERGONOMICS ANALYSES BASED ON HR THEORY  
ADVANCEMENT**

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| <b>Monthly net income of PhDscholarship (max 36 months)</b>  |
| <b>€ 1500.0</b>  |
| In case of a change of the welfare rates during the three-year period, the amount could be modified. |

| <b>Context of the research activity</b>   |  |
|---|--|
| <b>Motivation and objectives of the research in this field</b>                          | <p>In the context of an international PHD cooperation and scholarship together with TUM (Munich, Germany), the topic will be developed also in collaboration with the HumanTech CORE Lab facilities. Human-centric research for operations and warehouse management is still a developing topic in our field and the PhD research will contribute to this by implementing dedicated experimentation and empirical research informing theory development in this field.</p>   |
| <b>Methods and techniques that will be developed and used to carry out the research</b> | <p>Cognitive ergonomics analyses like EEG, ECG, Eye Tracking and EDA or MotionMining are implemented to inform analysis and design issues in human-centric warehouse and operations management settings. This will be implemented together with the CORE LAB facilities in MADE and the future HumanTech Garetti Lab context. These approaches are complemented with qualitative research in interview and observation studies as well as secondary data acquisition e.g. from companies in order to understand the empirical realities of operations management in an Industry 5.0 setting.</p> |
| <b>Educational objectives</b>   | <p>The PhD researcher will develop independent research valuation and design competences in order to complete high-level research in operations management, specifically logistics and warehouse management.</p>   |



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| <b>Job opportunities</b>                 | PhD researchers have excellent job opportunities as academic qualifications and especially research experience is highly appreciated by companies as they try to explore and implement human-centric and Industry 5.0-related management concepts. In addition, the way towards and academic career in an international setting is feasible. To foster these options, exchanges with academic institutions and companies in Germany will be further supported. |
| <b>Composition of the research group</b> | 3 Full Professors<br>5 Associated Professors<br>0 Assistant Professors<br>0 PhD Students   |
| <b>Name of the research directors</b>    | Matthias Klumpp  |

| <b>Contacts</b>           |  |
|---------------------------|--|
| matthias.klumpp@polimi.it |  |

| <b>Additional support - Financial aid per PhD student per year (gross amount)</b> |    |
|---|----|
| <b>Housing - Foreign Students</b>   | -- |
| <b>Housing - Out-of-town residents (more than 80Km out of Milano)</b>             | -- |

| <b>Scholarship Increase for a period abroad</b> |         |
|---|---------|
| <b>Amount monthly</b>                           | 750.0 € |
| <b>By number of months</b>                      | 6       |

| <b>Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information</b>   |
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| <p>International PhD with TUM where a dedicated time is allocated to research visits (e.g. 3 times 2 months each) in an intensive research collaboration with TU Munich, Germany. Furthermore, the facilities of the logistics group are used and incorporated. Visiting standard conferences like EurOMA, ERS and IWSPE will be part of the research work implemented.</p> <ul style="list-style-type: none"> <li>•Involvement in projects: "For the overall development of their capabilities, PhD candidates will work on synergical projects to favour empirical data collection and network development for their career. Projects will give candidates the opportunity to work in group (peers and other senior professors)".</li> <li>•Teaching and tutoring: "If coherent with the development of their doctoral program, the PhD</li> </ul> |



- Teaching and tutoring: "If coherent with the development of their doctoral program, the PhD candidate will have the opportunity to be involved in: teaching activities, tutoring to master students, tutoring to PhD candidates for administrative processes".

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

*At the end of the programme, the candidate will obtain a Double Degree PhD title awarded by TUM School of Management and Politecnico di Milano. As part of a double degree programme, this implies that the candidate meets all the training requirements at both universities. A full-time engagement in research activities during a four-year period is required. The candidate will work in a vibrant academic environment and will work both at Politecnico di Milano and at TUM School of Management. Furthermore, the facilities of the logistics group are used and incorporated. Visiting standard conferences like EurOMA, ERS and IWSPE will be part of the research work implemented.*