



28-30 August 2024, Vienna, Austria

## Invited Track: Industry 5.0 - Human-centered production and logistics systems

*Organized by IFAC TC 5.2 working group 7:*

Prof. Eric Grosse	Saarland University, Germany	<a href="mailto:eric.grosse@uni-saarland.de">eric.grosse@uni-saarland.de</a>
Prof. Fabio Sgarbossa	NTNU, Norway	<a href="mailto:fabio.sgarbossa@ntnu.no">fabio.sgarbossa@ntnu.no</a>
Prof. Daria Battini	University of Padua, Italy	<a href="mailto:daria.battini@unipd.it">daria.battini@unipd.it</a>
Prof. Christoph Glock	Technical University of Darmstadt, Germany	<a href="mailto:glock@psecm.tu-darmstadt.de">glock@psecm.tu-darmstadt.de</a>
Prof. W. Patrick Neumann	Toronto Metropolitan University, Canada	<a href="mailto:pneumann@torontomu.ca">pneumann@torontomu.ca</a>
Prof. Martina Calzavara	University of Padua, Italy	<a href="mailto:martina.calzavara@unipd.it">martina.calzavara@unipd.it</a>

Despite the opportunities that the automation of industrial and logistic systems offer, many companies still rely on human work in many areas. Most models proposed in the past to support managerial decision-making in industrial and logistic systems have neglected the specific characteristics of human workers, which often leads to unrealistic planning outcomes or systems that underperform or may even be harmful to workers. To guarantee high productivity and efficiency and ensure that decision support models reflect reality as much as possible, it is necessary to consider human factors (synonymous with ergonomics) in designing industrial and logistic systems that are reliable, efficient, and safe workplaces. Even though recent research has started to integrate human factors issues into decision support models – for example by modeling learning effects or human energy expenditure – there is still a significant gap in the literature concerning the development of decision support models for industrial and logistic systems that take account of the interactions between the human worker and the design of the logistics system. The technical system can, unlike the worker, be comprehensively influenced by the system designer. Generally, human factors (perceptual, cognitive, physical and psychosocial aspects in the workplace) determine the performance of industrial and logistics systems to a large extent if human operators are employed. This aspect becomes more challenging in light of an aging workforce, which will likely put human factors-related issues in logistics – such as the risk of making errors at work or developing musculoskeletal disorders – on top of the agendas in many companies. In addition, the consequences of using Industry 4.0 technologies that substitute or assist operators in their manual work, such as augmented reality, adaptable workstations or cobots, are not yet fully understood in light of human performance, errors, work motivation, and technology acceptance. However, research in this area is an inevitable and important step toward the vision of **Industry 5.0**, emphasizing **human-centered** work, environmental sustainability, and system resilience.

This open invited track aims to investigate the development of innovative approaches for integrating human factors in Industry 5.0 system design to create highly reliable and humanly sustainable production and logistics systems of the future.

### Topics may include, but are not limited to:

- Human-centricity in Industry 5.0 and Resilient Operator 5.0
- Opportunities to utilize human factors in Industry 4.0 for human-centered production and logistics systems
- Human factors in Logistics 4.0
- Technology adoption, reliability and maintainability
- Behavioral issues and the interactions of humans and new technologies in production and logistics
- The impact, chances and challenges of using technical assistance systems (wearables, AR, exoskeletons etc.) in manual industrial work
- Physical, cognitive and psychosocial human factors in operations and logistics management
- Learning and forgetting in industrial systems
- The impact of system design on human errors
- Reduction of injury risks in manual operations
- The impact of demographic changes/ an aging workforce on industrial system performance and safety

### INVITATION CODE r4ir4

Draft papers reporting original research (limited to 6 pages in IFAC format) are welcome.

When you submit your paper to the IFAC system, you will be required the **invitation code r4ir4** in order to associate your paper to the invited track: <https://ifac.papercept.net>

### IMPORTANT DATES:

Draft papers submission deadline:	31.01.2024
Reviewing papers:	15.03.2024
Final papers submission deadline:	15.04.2024
Early registration deadline:	tba

Conference website:  
<https://www.incom2024.org>

Accepted papers will be published open access in Elsevier's IFAC-PapersOnLine. Post-conference special issues for extended versions of accepted papers are planned in IFAC and other high-ranked journals.