INTERNATIONAL

INVITED SESSION SUMMARY

Title of Session:

Managing the transition from Industry 4.0 to 5.0: opportunities and trends

Name, Title and Affiliation of Chairs:

Prof. Marco Bortolini, Ph.D.
Associate Professor
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Dr. Francesco Gabriele Galizia, Ph.D.
Researcher
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Dr. Francesca Calabrese, Ph.D.
Researcher
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Details of Session (including aim and scope):

Industry is one of the main driver of the economic development. However, disruptive changes caused by the advent of modern technologies, and the increasing complexity of production process and products, directly affect workers and industrial companies. At the ten-year mark of the introduction of Industry 4.0 (I4.0), the European Commission announced Industry 5.0 (I5.0). Therefore, the new industrial paradigm is appearing in the industrial context, triggering a debate about the role of, and reasons for applying, the new paradigm. I5.0 is now complementing the existing I4.0 paradigm with a strong focus on the human factor, which covers a key role in current production processes, and this role has been more emphasized by the COVID-19 pandemic.

The aim of this Invited Session is to attract contributions from Academics and Industrial Practitioners dealing with innovative strategies, models, tools and top-class experiences for smart production and logistics system design, management and optimization within the challenging framework of the transition between I4.0 and I5.0. Reviews, original models, quantitative methods, technologies, management techniques and disruptive approaches are welcomed as well as industrial case studies and field experiences.

Relevant topics include, but are not limited to:

- Design and management of advanced manufacturing and assembly systems
- Digital manufacturing and assembly
- Human-Automation interaction in production systems
- Reconfigurable manufacturing and adaptive cognitive manufacturing systems
- Design and management of Smart Factories
- Machine learning and artificial intelligence for manufacturing processes
- Self-adaptive and self-learning production systems
- Strategies and applications of I4.0 and I5.0 enabling technologies for production and inbound handling
- Dynamic simulation models including digital manufacturing and digital twins
- Big data management systems for production
- Methods, enabling technologies and case histories to increase production system reliability
- Methods for supply chain risk management
- Circular economy-based models for supply chain networks design
- Energy sources and renewables to fuel I4.0 and I5.0 solutions

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Researchers and Professors from Bologna, Modena and Reggio Emilia, Padua and Trento Industrial Systems Engineering research groups;
Researchers and Professors from the Italian Academic Industrial Plant Association;
Researchers and Professors from Universities in partnership with Bologna University (tentative);
Researchers from Interdepartmental Centres for Industrial and Applied Research (tentative);
Managers and Practitioners from SMEs and large-scale industries.

Website URL of Call for Papers (if any):

Dedicate positions on:
https://www.unibo.it/sitoweb/marco.bortolini3/en
https://www.unibo.it/sitoweb/francesco.galizia3/en
https://www.unibo.it/sitoweb/francesca.calabrese9/en
http://www.industrial-engineering.unibo.it/en
and dedicated messages to researchers and practitioners mailing lists.

Email & Contact Details:

E-mail addresses: marco.bortolini3@unibo.it; francesco.galizia3@unibo.it;
francesca.calabrese9@unibo.it

Tel. +39 (0)51 2093414 +39 (0)51 2093405 +39 (0)51 2090468