4th Workshop on Management for Industry 5.0 – MFI5.0

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IEEE/IFIP Network Operations and Management 2023 Symposium
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IMPORTANT DATES:

Submission deadline:
Jan. 31st, 2023 (Firm)

Author notification:
March. 1st, 2023

Final submission:
March. 10th, 2023

DESCRIPTION

The transition from ISA-95 to RAMI4.0/IIRA based automation for production automation in Industry 4.0 is ongoing. This includes the integration of legacy OT with emerging IT technologies. Another aspect is automation/digitalization across value networks involving a multitude of stakeholders in complex relationships. This organically leads to the consideration of multiple factors, firstly the human in the loop i.e. industry 5.0, and therefore dependencies like privacy, security and connectivity. Consequently, Management for Industry 5.0 covers three thematic themes: (1) connectivity, infrastructure, and security, (2) cyber-physical systems/system-of-systems, and (3) the human in the loop.

The recent developments of communications technology show a strong involvement of wireless communications even on the factory floor. This brings new requirements to integrate wireless and cellular technology, in particular 5G/6G and their resilience, into both OT and IT communication. Moreover, these technologies open a new class of management with more flexibility and challenge traditional industrial communication concepts including security aspects. Consequently, other fields like agriculture or logistics can benefit from the same strategies applied to industry 5.0 if not already seen as part of I5.0. Requirements such as privacy, dependability, or trustworthiness are key enablers of service- and data-driven automation, also and to some extent specifically in other production domains which facilitate electronic components and systems e.g. digitalization in production of food.

The consideration of previous mentioned aspects allows the formation of large to very large Systems of Systems (SoS). Such SoS will involve technologies like e.g. IoT, AI, Analytics, Big data and legacy technology. All in all, aiming for efficient production of products or services. Architectures like RAMI4.0 and IIRA have been presented but are still in early stages. Implementation platforms and frameworks are as well in early stages. Even less maturity is seen regarding engineering and management of such complex automation and digitalization solutions, which consider dependencies across all levels of abstraction for automatically or autonomically control digitalized production infrastructures. Autonomous decisions require trustworthy and reliable data, operations, and decisions. However, trust related to e.g., industrial AI may mean different things depending on the type of stakeholder it concerns and will also require the consideration of management and organizational aspects.

Finally, the inclusion of human actors in complex production contexts is crucial for the success and impact of these production systems in the real world. Trust in autonomous systems, acceptance of human-robot collaboration, competence development, training and knowledge management are among the challenges that Management for Industry 5.0 is facing. This includes explainable AI in production contexts and workplace integrated learning in the smart factory.

FOCUS ON:

The workshop will focus on several core engineering and management issues, focus topics are:

- Migration Management
- Operational Management
- Security Management
- Deployment Management
- Management of Networked Components in Industry 4.0/5.0 scenarios
- Transition of I4.0 to I5.0
- Automation evolution Management and Engineering
- Product Life Cycle Management
- Product Planning Management
- Manufacturing Change Management
- Manufacturing Process Management
- Manufacturing Operations Management
- Management of Digital Twins
- Cyber Physical System of Systems

Additional topics may be considered given adequate proposal, therefore.

SUBMISSION OF PAPERS:

Authors are invited to submit original contributions written in English that have not been published or submitted for publication elsewhere. Technical papers must be formatted using the IEEE 2-column format and not exceed 6 pages for full paper submissions or not exceed 4 pages for short paper submissions. Papers should be submitted through NOMS submission system