

**Special Session on “Knowledge Modelling for Digital Transformation and Digitalization of Companies”**

**for IFAC MIM 2019**

**Invited session identification code *????***

IFAC MIM 2019

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**Session Chairs:**

- Prof. Dr. Kurt Sandkuhl, University of Rostock, GERMANY*
- Prof. Dr. Alexander Smirnov, SPIIRAS, RUSSIA*

Digital transformation of companies brings to the agenda a number of problems to be solved when new or changed (intelligent or connected) products, improved end-to-end operational processes or changes in business models are required. Solutions for these problems often require a formal representation of the relevant knowledge and contextual constraints in the application domain. Knowledge modelling using ontologies, semantic technologies or fuzzy logic contributes to this task.

Among the problems to be addressed in digital transformation are knowledge modelling of business units & processes based on customer requirements and preferences (trends leading to Industry 4.0, Logistics 4.0, and Mobility 4.0), managing different physical and information resources and providing for their efficient interaction (the Internet of Things and the Internet of Everything concepts, Industrial IoT), handling cultural differences of making business between employees and companies from different countries (organizational behaviour issues related to international dimensions and cross cultural aspects of collaboration and decision making) are among them. This causes a heavy dependency of the companies on how they maintain their knowledge.

Ontological modelling is defined as a complex set of relations between people, processes and technology bound together with cultural norms. Ontologies provide for a shared understanding of a domain that can be communicated across the multiple business resources. They facilitate knowledge sharing and reuse in open and dynamic distributed systems, and allow entities not designed to work together to interoperate.

**Topics include but not limited to:**

- Upper ontologies for general concepts of digitalization;
- Domain specific and multi-aspect ontologies for different PLM stages;
- Ontologies of task patterns for company digital transformation;
- Ontology and context-based self-organisation of resources;
- Ontologies for collaboration support;
- Practical Applications of ontological modelling.
- Semantic technology applications in digital transformation
- Fuzzy logic use for knowledge modelling in digital transformation
- Strategies and methods for knowledge elicitation and knowledge modelling

**Submission**

For author guidelines, please refer to [www.ifac-control.org](http://www.ifac-control.org) and <https://www.ifac-control.org/events/authors-guide>. All papers must be submitted electronically using Symposium Manuscript Management System (CMMS). All papers must be prepared in a two-column format in accordance with the IFAC manuscript style. Please use the official IFAC instructions and template to prepare your contribution as full-length draft paper and submit it online by December 15, 2018. Submission details are available on the symposium website. All submissions must be written in English. All papers that conform to submission guidelines will be peer-reviewed by IPC members. The corresponding author submits the paper online (pdf format) as **invited session paper**. Submission as an invited paper requires the **invited session code *int39***. Several international journals are associated with the MIM 2019 for publication of special issues.

**Important dates:**

December 15, 2018 Deadline for the submission

February 20, 2018 Notification of acceptance/rejection

March 15, 2019 Deadline for the final submission