Research School for Operations
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Integration of agents using Semantic Web Technologies (SWT) in a smart (multi-agent) manufacturing environment

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The research will take place at Semaku, a small software company providing semantic web and linked data solutions, mainly to manufacturing companies. In the coming years they also participate in an EU funded research project for the European manufacturing industry. The goal of this project is to develop and demonstrate a Multi-Agent System (MAS) in the context of Smart Industry (Industry 4.0), integrating smart scheduling and machine learning solutions. Modular and flexible production systems are important for European companies to deal with mass customization requirements, while maintaining their competitive position. An important aspect of the MAS is the semantic representation of knowledge. Semaku will be involved in the knowledge representation and semantic integration of (software) agents. This research will mainly revolve around the semantic integration of agents using Semantic Web Technologies (SWT). SWT are a collection of standards and solutions related to the Semantic Web, which aims to make data interoperable and machine readable. In collaboration with other research partners a knowledge representation will be developed, together with methods to update and reason over this knowledge. Furthermore, this research will investigate how semantic knowledge can be used in combination with smart scheduling and machine learning solutions.