



Research School for Operations
Management and Logistics

Management of collaborative robotic actors in dynamic manufacturing processes

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Mass customisation and demand fluctuation are forcing manufacturing systems to become more flexible, while maintaining high volume and quality. This is achieved by utilising collaborative, autonomous actors (both humans and autonomous equipment) with a wide range of abilities. These actors can perform a larger variety of tasks, and collaboration between humans and robots opens up new manufacturing opportunities. However, increased possibilities and opportunities are typically accompanied by increased risk and the emerging situation in smart factories is no different. Smaller batches presents a planning and utilisation problem, while collaboration between humans and robots raises new safety threats and coordination issues.

Business process management has shown great prowess in orchestrating activities in certain enterprise systems. This is especially true for processes involving numerous tasks performed by a variety of actors. Clear similarities can be found between such business processes and modern manufacturing processes. The research aims to determine whether it will be of value to exapt (to extend or refine for a new application area) business process management technology for the management of operations processes in smart manufacturing systems.