

Emrah Arica, PhD candidate

Emrah Arica holds a Master of Science (MSc) in Industrial Logistics from Molde University of Logistics, Norway. During his master study, he has gained solid background and knowledge about applications of quantitative methods in logistics and supply chain management problems.

Emrah started his PhD study in September 2009 under the SFI Norman Programme. His research focuses on how real-time events can be managed efficiently for production control in a dynamic manufacturing environment. Emrah is also serving as a teaching assistant at the ERP/PLM and Production Logistics courses at IPK, NTNU. Moreover he works at SINTEF Technology and Society and is involved in national and international research projects in close collaboration with industry.



Motivation

Despite the considerable efforts and significant progress in development and use of advanced PPC systems, the planning and control of manufacturing operations still remains a considerably difficult task in practice. This view is not new and has been discussed by several authors since the early 1960s and is still being underlined (Cowling and Johansson, 2002, McKay and Wiers, 2003, Maravelias and Sung, 2009, Ouelhadj and Petrovic, 2009, Meyer et al., 2011). One of the widely reported factors for this gap is that both the theoretical research in production control and information systems are not able to address the general issue of uncertainty on industrial practice (Cowling and Johansson, 2002, Vieira et al., 2003, Meyer et al., 2011). Some other important factors are also pointed out in some studies, such as integration of information systems for PPC, visualization, and not least the implications of the human factor in PPC.

Aim

The overall aim of this PhD project is to develop a model for production control in the presence of random real-time events, emphasizing the practicality and applicability issue in real-life manufacturing environments.

Research Questions:

RQ1: What are the main factors behind the gap between production control theory and practice? And to what extent do different factors affect the practitioners in different manufacturing environments?

RQ2: When to react on a real-time event/ disturbance and initiate a rescheduling action without increasing the system nervousness?

RQ3: How can real-time events in a dynamic manufacturing environment be managed in an effective way?

“How can the applicability and practicality of the production control systems be improved in a dynamic manufacturing environment?”

Facts

- PhD period September 2009-2013
- Supervisor:
Prof. Jan Ola Strandhagen
- Co-supervisor:
Prof. Hans Henrik Hvolby
- Thesis title:
Managing Real-Time Events for Efficient Production Control in a Dynamic Manufacturing Environment.

Contributions:

1. A comprehensive framework for better understanding and evaluation of factors behind the gap between production control theory and practice
2. A decision support model and tool for filtering rescheduling actions to reduce system nervousness in a dynamic production control environment.
3. A model for managing real time events in a structured, holistic, and interactive way in a dynamic manufacturing environment