Future scenarios of Industrial Supply Chain Digitalization - Key Trends and Uncertainties

Venue: Mengwi 1 & 2, Bali Nusa Dua Convention Center

Sunday 8th July 2018 (14:30 – 17:45 hrs)

Workshop leaders:
Senior Scientist Jukka Hemilä, VTT Technical Research Centre of Finland, Finland
Associate Professor Erik Sandberg, Department of Management and Engineering, Linköping University, Sweden

Background

Digitalization has been recognized as one of the main trends shaping the industrial economy. As a meaning of the word, digitalization is the conversion of analog information in any form such as text, images, sound or physical attributes to a digital format so that the information can be processed, stored, and transmitted through digital circuits, devices, and networks (Ng and Wakenshaw, 2017). Digitalization has potential to provide remarkably increased visibility over the industry processes and over the whole lifecycle of the products (Hemilä, 2017). The digitalization advantages from the supply chain management perspective are enormous by optimizing service deliveries, maintenance and spare-part logistics, through access to product data and the ability to anticipate, reduce, and repair failures (Hemilä and Vilko, 2015). As an example, recent development of digital twins are said to be the next step in the digitalization of industrial world (Fei et al. 2017). A digital twin is a digital representation of a physical object, which includes the model of the physical object, data from the object, and the ability to monitor the object. The spread of digital twins could shake up supply chains. For example, suppliers could be asked to submit a digital twin of their product so that it can be tested in a manufacturer's virtual factory before an order is placed. By utilization of digital twin, the supply chain practices are addressed in both digital and real life at the same time, which gives companies advantages to make better real-timed decisions and save time and money (Papert and Pflaum, 2017).

Despite many success stories and case examples of digitalized supply chains, industrial companies have faced major difficulties to find out where to start with the digitalization. There are several uncertainties, why practitioners have difficulties to start with the digitalization. Firstly, the identification of opportunities in upstream resources or downstream chain has been challenging, despite benchmarking best practices might bring ideas for opportunity mapping (Ehret and Wirtz, 2017). Secondly, the supply chain partners (suppliers, logistics service providers, and other stakeholders) should be selected according to their capabilities and competencies. Today, companies are lacking competencies for digitalization, e.g. data analytics, sensor technologies, which directly hampers efforts taken towards digitalization. Based on the identified key trends and uncertainties future scenarios could be developed for practitioners as well for researchers.

Purpose of the workshop

This year's workshop will discuss the future of industrial supply chains digitalization, within the five years' period, based on the identification of key trends and uncertainties. Participants will pool their diverse backgrounds and expertise to discuss and debate the key issues from their perspective. To shape the discussion, we will focus on the following issues (with the emphasis on logistics and supply chain management):

- Identify the current key trends related to industrial digitalization;
- Identify the current uncertainties in industrial digitalization;
- Based on the identified trends and uncertainties we define a few major future scenarios on how to implementation of digitalization in industrial supply chains

The workshop will be based on the PEST framework (Political, Economic, Societal and Technological) for brainstorming the future scenarios (Levä et al. 2009).

Outline Structure of the Workshop

The workshop will follow the approximate timetable below:
14:30 – 15:00 Tea/coffee & networking
15:00 – 15:15 Welcome and introduction by Jukka Hemilä and Erik Sandberg
15:15 - 15:45 Keynote presentation by:

- Dr Yasanur Kayikci – Sustainability and digitalisation
- Prof Svetan Ratchev - Cloud Manufacturing & industrial Supply Chain
- Prof Reza Pouraghabagher - Impact of Data Analytics Curriculum on Future Enterprise Research and Development

15:45 - 16:00 Workshop process and key questions by Jukka Hemilä and Erik Sandberg
16:00 – 17:15 Workshop, discussion and break-out groups
17:15 – 17:45 Summary and concluding discussion

REFERENCES

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