Biography:

Prof. Alexandra Brintrup is Professor in Digital Manufacturing at the University of Cambridge's Engineering Department, where she leads the Supply Chain AI Lab. She also leads Digital Manufacturing at the Alan Turing Institute, is external faculty at the Complexity Science Hub Vienna, and is a fellow of Darwin College.

Prof. Brintrup was the first researcher to empirically study large-scale supply chains as complex adaptive networks, examine their emergent properties, and take a data-driven perspective to characterise their resilience, which led to understanding of universal patterns that govern supply chains. She was also the first to develop algorithms to predict supply chain dependencies and disruptions. Over the past decade she advised policy makers, and national and European scientific committees, and worked with both start ups, SMEs and international organisations. She is a member of the All Party Parliamentary Groups in Artificial Intelligence and Data Analytics, and advises policy development in supply chain risk, economic performance and resilience. Her current research includes: Predictive methods for automated detection of supply chain dependencies, especially with collective learning paradigms; complex system approaches to model emergence in supply networks, autonomous and scalable optimisation and distributed decision making technologies, particularly with nature-inspired algorithms and Multi-agent Systems.

Title: Artificial Intelligence for Nudging Complex Supply Networks

Abstract: This talk will introduce participants to the field of Artificial Intelligence in Operations and Supply Chain Management. We will first talk about the state of affairs and major driving forces shaping supply chain today, to motivate the data driven era we are in. Then AI is introduced with multiple definitions, to cover what is AI and importantly, what is not AI. We introduce sub-fields of AI and data science, and how they are primarily used in supply chain management. We then delve deeper into an "exotic" selection of supply chain AI, deliberately so, in order to emphasise, that which could not have been done before.

This then brings us to state of the art research examples in network analytics, digital supply chain surveillance, collective-learning and distributed decision making and automation. Our aim is to encourage debate on how AI should be evaluated by breaking disciplinary siloes in the OM community. We will then discuss the potential pitfalls and challenges, such as loss of data traceability, complacency, lack of accountability, and cognitive atrophy. The talk concludes with supply chain management needing to become an irrevocably interdisciplinary field with challenges so varied and significant.