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Keynote Speech (VI)

Challenges for Discrete Event and Agent Based Simulation in Semiconductor Supply Chains – An Industry View

HANS EHM is Lead Principal Supply Chain and responsible for supply chain innovations of Infineon Technologies AG. He studied Physics in Germany at the University of Applied Science in Munich, where he received the Dipl. Ing. (FH) diploma in 1983. After that he received a Fulbright scholarship for the US and he finished his study there with a Master of Science in Mechanical Engineering from Oregon State University in 1985. Further university activities included studies of computer science at Fern-university Hagen and studying political science at LMU in Munich. In his 30+ years of experience in the Semiconductor Industry he was granted managing and consulting Positions at innovation, manufacturing, and for the global Supply Chains. Hans Ehm was part of JESSI (Joint European Submicron Silicon Initiative) in the 90' s and provided in this capacity Know How and Data for MIMAC, a Reference Data Model for simulation in Semiconductor Manufacturing. Since about that time he supports MASM (Microelectronics And Simulation for Manufacturing) as an industry advisor. A reference Model for semiconductor supply chain will be published soon by him and Professor Lars Mönch. He was responsible from 2009 onwards for the European Leadership Team of the SCC (Supply Chain Council) and coordinated since 2013 additionally the global team. After the merger of SCC with APICS in 2015 he entered the APICS SCC Board and he is now acting as a past Board Member of APICS SCC. He collaborates with Universities and Associations around the globe – e.g. he initiated in 2009 a long distance curriculum with the UL (University of Limerick/Ireland). Hans lectures at Universities (beyond others: University of Applied Science Munich,



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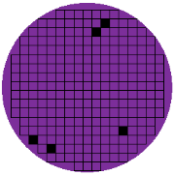


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TUM, KLU, MMU/Malaysia, UL and he supervises ~ a dozen Master and PhD students every year since more than a decade. Hans Ehm is since 2000 a Board member of camLine Holding AG, an IT company providing software for quality and supply chains – camLine is the #1 Software supplier for statistical process control in semiconductor wafer fabs. He is leading since 2013 the working group SCM of the ZVEI – the German association for electronic components and one of the largest industry associations in Europe. Hans Ehm has 30+ scientific publications in the field of semiconductor manufacturing and the supply chain with an h-index of 6 since 2012. He is a frequent speaker at conferences and received the LEO Award for Supply Manager of the year for Germany from the DVZ Media group in 2015.

Abstract – Semiconductors play a vital role in the world economy and enable via the Electronic system innovations in the Automotive, Industrial and Medical industries. Semiconductor manufacturing is highly capital intense, the demand is difficult to forecast, many of its products have short product life cycle despite intrinsic long internal cycle time. To master those challenges Flexibility is needed on Fab and supply chain level, which ends up in a global manufacturing network and an integrated business planning process. A tremendous amount of data and a combination of high tech equipment, sophisticated planning tools and well educated human actors give room for optimization. Discrete event and agent based simulation on all four levels: Equipment/Cluster, Factory, internal supply chain and End-to-End supply chain has the potential to drive those optimization. Although discrete event simulation has shown to be beneficial since decades on Level 1 & 2 there are challenges on the principal setup of simulation, on Fundamentals & Enablers, on the Simulation Applications and the collaboration setup with universities, educations and financing. Semantic web technologies is upcoming and could support solutions for the challenges on the data structuring level



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