Data Management in Semiconductor Manufacturing Equipment: Current State and Challenges

Manuel Fritz[1]

[1]*Carl Zeiss SMT GmbH, Rudolf-Eber-Straße 2, D-73447 Oberkochen, Deutschland*

Abstract

Semiconductor industry is a key-enabler for technological advancements such as AI and Industry 4.0 by providing ever shrinking transistor sizes, more storage and more computing power for less energy and less costs. The production of semiconductor manufacturing equipment relies on machines which achieve high yield and high output, thus relying on ultra-precise manufacturing processes. In this talk, we look at how a lithography system is produced and unveil the interdependency with data management and analytics. We present data management as an enabler for automated, robust, high-end manufacturing processes, and show how data analytics can support the overarching company goals on a technical and organizational level to achieve competitive benefits, such as increased product output, reduced costs, improved processes, and even longer product lifespan.

Keywords

Data Management, Semiconductor Manufacturing, Data Analytics