

**Invited Speech: Big Data Analytics in Semiconductor Manufacturing and Test Operations: New Opportunities and Perspectives**



**Dr. Paul Simon**

*Executive Vice President - Marketing and  
R&D Operations, Qualtera*

**About the Speaker**

Dr. Paul Simon co-founded Qualtera after serving 20 years in several senior positions in yield, product and test engineering management at Philips Semiconductors, NXP and PDF Solutions. Dr. Simon holds an M.S. and a Ph.D. degree in DFM and semiconductor yield modeling, and currently is EVP of R&D and marketing at Qualtera.

Qualtera is an ISO 9001 and 27001 company, providing leading edge end-to-end big data analytics platforms for operational intelligence, data analytics, and accelerated decision making capabilities across world-wide semiconductor test and manufacturing organisations.

**Abstract**

In this talk the far reaching implications of state-of-the art big data technologies in semiconductor test and manufacturing operations are discussed. Much like in other domains, these new technologies provide unprecedented opportunities for improving operational excellence by real-time mining of massive amounts of incoming data in high-volume production. Data stream-computing platforms allow for deep analytical insights, issue breakdowns and alert signals to be automatically generated across the entire supply chain in real-time. Consequently, business objectives can be achieved much faster and more systematically.

In order to fully capitalise on these new big data analytics technologies, classic approaches where data is simply collected and stored in central databases to be retrieved for potential future analysis, are no longer sufficient. The real value of big data platforms only materialises when all the available data-types are fully automatically sanitised and aligned across all manufacturing stages before being stored. Additionally, a full mapping of relevant domain- and analytics knowledge into automatically triggered analysis flows and a wide range of smart algorithms allow organisations to benefit from a real-time breakdown of production issues and instant access (< 2 seconds) to meaningful operational insights, dashboards and detailed analytical drill-downs. Google-like response times and user experiences are achieved, and key engineering decisions are taken orders of magnitude faster, and maybe even more importantly: more reliably and systematically.

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This talk will also highlight the unique capabilities of modern big data technologies for secure and real-time sharing of data between various suppliers across the supply chain: foundries, fabless and OSAT companies, enabling them to more effectively cooperate on common engineering and business objectives without compromising sensitive proprietary data.