

Smart Manufacturing

From Insight to Action: Elevating Employee Efficiency with Smart Detection and Targeted Data Delivery (joint presentation with ST Microelectronics)

H. Smith
Director of Data Science
INFICON, Syracuse, United States of America

Abstract

In an era where it is increasingly easy to be overwhelmed by data, timely and efficient decision-making is critical to maintaining optimal factory operations. This talk will highlight the results of a joint collaboration between INFICON and ST Microelectronics. Together, we are developing an innovative application aimed at transforming how factories operate and respond to challenges.

In addition to providing real-time tracking of key performance indicators (KPIs), the application detects various types of operational anomalies. These anomalies are automatically assessed to determine their potential impact, and the application allows workflow management by assigning tasks to the appropriate factory workers, ensuring rapid response and resolution.

Our collaboration is focused on enhancing employee efficiency by delivering data that is specifically tailored to each worker's role, minimizing information overload, and providing actionable insights exactly when and where they are needed. By combining comprehensive operations tracking with smart detection and targeted data delivery, this solution enables semiconductor factories to operate with greater precision and reduced downtime.

Biography

Dr. Holland Smith is Director of Data Science at INFICON IMS, where he leads AI initiatives spanning classical machine learning to LLM-based agentic AI systems across INFICON's software and smart sensor portfolio. His team's high level focus is the transformation of semiconductor and industrial manufacturing operations through optimization, intelligent automation and predictive analytics.

Holland joined INFICON FPS in 2016, where he architected and deployed Smart Manufacturing systems in 200mm and 300mm fabs worldwide. As a semiconductor data systems expert and contributing developer of the INFICON FPS Digital Twin, he enables advanced fab scheduling, optimized WIP movement, and predictive manufacturing capabilities. Dr. Smith has published research and spoken widely on automated throughput and cycle time forecasting that enables high-fidelity fab modeling across multiple time horizons.

Prior to INFICON, Holland worked as a Technology Development Engineer at Intel D1D/X in Hillsboro, OR, focusing on thin film process development and subfab optimization for challenging deposition processes. Dr. Smith earned a PhD and M.S. in Materials Science and Engineering with a minor in Solid State Physics and a B.S. with Honors in Engineering Physics from UC Berkeley, plus a B.A. with Honors in Slavic Languages from Stanford University.

Joint Presentation with: Thomas Gimmig has twenty-five years of experience in semiconductor manufacturing. After holding various positions in maintenance, engineering, and production management at ST Microelectronics, finishing as Production Director of the Rousset plant in 2019, he moved to manufacturing central functions in 2022. Initially, he was in charge of Front-End Operational Excellence programs, developing the LEAN leaders community, and leading smart manufacturing transformation programs. He recently became the head of Industry 4.0 programs for ST Microelectronics manufacturing. Thomas Gimmig holds a master's degree in electronics.

Transforming production planning with an autonomous technology and prescriptive analytics solution - a joint case study with Seagate Technology.

J. Potter
CEO & Cofounder
Flexciton Ltd, London, United Kingdom



Abstract

Smart manufacturing is moving beyond monitoring and analytics toward systems that can plan and act autonomously. For semiconductor fabs, this shift is critical to cope with rising complexity and labour constraints. In this session, Seagate Technology and Flexciton present how autonomous planning was applied in Seagate's Northern Ireland facility. It replaced the manual production planning process using static models with optimised production targets to improve on-time delivery (OTD), line linearity, eliminate dynamic bottlenecks and starvation. It also provides proactive, quantified actions for improving fab KPIs.

Early results have shown improved throughput and linearity KPIs. The system can autonomously react to excursions (where a large number of lots are scrapped, and tools taken offline), avoiding starvation without manual intervention. This case study illustrates how autonomous planning is becoming a practical enabler of smarter, more resilient fab operations.

Biography

Robert Wallace, Solution Architect, Seagate Technology

With a career spanning three decades at Seagate Technology, Robert brings a wealth of experience to his role as a Solutions Architect. He began his journey in Manufacturing before transitioning to IT, where he now specialises in designing and implementing middleware integration solutions for the company's Wafer Factory systems. He has spent the past year dedicated to the Seagate/Flexciton project.

Jamie Potter, CEO & Co-founder, Flexciton

In 2016, Jamie co-founded Flexciton with a vision of transforming industrial and complex manufacturing sectors with AI and advanced optimisation technology. As CEO, he has led the company's solution from an initial concept to successful commercial deployment within the semiconductor industry. Under his leadership, Flexciton transitioned from its first client implementation to serving numerous customers across the US, Europe, and Asia.

Jamie is a founding member of the SEMI End-to-End Smart Manufacturing initiative. He has represented the UK deep tech sector in high-level engagements, including meetings with the UK government at Downing Street. He is a top-ranked Oxford University graduate in Mathematics and Statistics and was named to the Forbes 30 Under 30 list in 2018.

References

Enabling Sustainability through Digitization and AI

K. Kumar
Technologist
Tokyo Electron Europe Ltd, Crawley, United Kingdom



Abstract

The semiconductor market is expected to reach \$1 trillion by 2030, largely driven by AI technologies. This growth introduces complexities in device structures, leading to higher development costs and timelines. As equipment makers, we face the challenge of managing these complications while controlling expenses and time. We will explore how AI can help us tackle these challenges sustainably, enabling us collaborate to meet both operational efficiency and Net-Zero targets.

Biography

Kaushik started his career as an Etch Engineer in IBM Microelectronics in New York in 1999. He joined TEL in 2009 at its R&D center in Albany, New York. Since then he has had a wide range of responsibilities that includes managing the R&D Etch team in Albany, New York to managing the TEL teams in imec, Belgium. Currently, he serves in the role of a Technologist supporting TEL's customers and partners in Europe.

References



D. Suerich
Director of Marketing
PEER Group, Kitchener, Canada



Biography

Doug Suerich is Director of Marketing at PEER Group, a leading developer of SEMI® Standard-compliant tool and factory automation and connectivity software.

Doug is an active member of both the Governing Council for the Semiconductor Manufacturing Cybersecurity Consortium and the SEMI® SMART Manufacturing Technology Community, Americas Chapter. He also co-chairs the Advanced Process Control Smart Manufacturing Conference.

A software engineer by trade, Doug leverages his extensive technical background to present complex content in engaging and insightful ways.

References

Panelist

T. Gimmig
Director, Industry 4.0, ST Microelectronics
STMicroelectronics, Paris, France



Abstract

Panelist

Biography

Thomas Gimmig has twenty-five years of experience in semiconductor manufacturing. After holding various positions in maintenance, engineering, and production management at ST Microelectronics, finishing as Production Director of the Rousset plant in 2019, he moved to manufacturing central functions in 2022. Initially, he was in charge of Front-End Operational Excellence programs, developing the LEAN leaders community, and leading smart manufacturing transformation programs. He recently became the head of Industry 4.0 programs for ST Microelectronics manufacturing. Thomas Gimmig holds a master's degree in electronics.

References

Panelist

R. Wallace
Solutions Architect
Seagate, California, United States of America

**Abstract**

Panelist

Biography

Robert Wallace is a Solutions Architect has 30 years at Seagate in various roles, specialising in designing and implementing, high availability, scalable and integrated Factory Control Solutions.

References