
## Smart Manufacturing

# From Insight to Action: Elevating Employee Efficiency with Smart Detection and Targeted Data Delivery

J. Behnke
General Manager Smart Manufacturing
INFICON, Cologne, Germany

**Abstract**
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Joint Presentation INFICON and ST

**Biography**
Holland Smith is Director of Technical Marketing for INFICON IMS. Prior to this, Dr. Smith directed Smart Manufacturing systems architecture and installation projects at fabs across the world. Dr. Smith is a semiconductor data systems expert and a contributing developer of the INFICON FPS Digital Twin, which powers optimized Fab Scheduling among other industrial engineering-related applications. Dr. Smith has spoken widely across industry events (like Semicon West, FOA, SEMI Digital Twin Workshop, ASMC, etc.) on topics at the intersection of operations research, data science and computer science. Dr. Smith has a B.S, M.S. and Ph.D in Materials Science and Engineering from University of California, Berkeley, as well as a B.A. From Stanford University.

References

## 150-200mm Fab Modernization

J. Schwartzmann
Senior Industrial Strategy Director
Soitec, Bernin, France

**Abstract**

The European semiconductor industry is at a pivotal moment, where modernization of 200mm fabs is crucial to sustaining exponential growth and maintaining global competitiveness. This presentation will explore how the latest innovations in digitalization, automation, and artificial intelligence (AI) can transform traditional fab operations, making them more productive, agile, and sustainable.

By integrating advanced technologies such as intelligent storage, automated material handling systems (AMHS) like Autonomous Mobile Robots (AMRs), and control room optimizations, fabs can achieve significant improvements in operational efficiency. Furthermore, advanced scheduling algorithms and AI-driven decision-making systems will empower fabs to manage production workflows more effectively, reduce downtime, and improve throughput.

This session will emphasize the importance of collaboration across the European semiconductor ecosystem to enhance fab attractiveness and productivity. By embracing digital transformation, Europe can position itself as a global leader in semiconductor manufacturing, supporting the industry's goals of sustainable, exponential growth.

**Biography**

Jerome SCHWARTZMANN is Senior Director in charge of Industrial Strategy reporting to Soitec's COO.
He joined Soitec in 1998 and served different functions such as manager for industrial engineering, IT & strategic programs (new fab startup, new business diversification, post M&A integration, digitalization).
From 2015 to 2017 after the termination of Soitec Solar Business, Jérôme joined Oberthur Technologies (IDEMIA) as Corporate Industrial Strategy Director to deploy Industry 4.0 practices in all fabs across the world (NORAM, LATAM, China, India, Middle East, Europe).
Back in Soitec in 2017 he has been leading the project to restart Soitec Singapore Fab and then took over the head of Information Technology position for Soitec.
Jerome is currently managing growth projects to deliver two new fabs, one in France for SmartSiC business (150/200mm) and one in Singapore to extend SOI 300mm capacity. He is also overseeing the Industry 4.0 roadmap of Soitec.
Jerome earned a master degree in Applied Mathematics and Computer Science from Grenoble University and a strategic negotiations degree from Harvard Business School,

References

# New Approaches and Innovations to Improve Effective Use of Vacuum Assets in Cleanroom and SubFab

P. Johnson
Chief Architect
Edwards Vacuum, Business Transformation, Semiconductor Service, Burgess Hill, United Kingdom

**Abstract**
Edwards is developing new technology solutions and business models to minimize risk and uncertainty from maintenance events on process-critical vacuum assets. We are already successfully deploying our domain knowledge with on-prem AI solutions, enhancing tool uptime and efficiency, UD prevention and MTBS extension, and identification of wider vacuum infrastructure issues.

Building on this, we are developing a long-term easily scalable approach to data capture and analysis. This is driven by several innovations including cloud-based technologies addressing data volume, AI scope and accuracy, and a flexible document-based data store, to allow easy extension to additional data sets.

We have also developed a Wi-Fi solution to the first-mile equipment connection problem, allowing for economically viable data collection and analytics will that benefit many fabs.

Together with portable data analytics tools it will accelerate demonstration of AI solutions to process issues, and subsequent deployment at scale for all fabs. In the presentation we will discuss these current and new approaches and technologies, illustrated with relevant case studies.

**Biography**
Name : MR.Paul Johnson
Job Title: Chief Architect
Department: Business Transformation, Semiconductor Service

Education:
Bachelor of Engineering degree in Electrical & Electronic Engineering, University of Sunderland
Experience:
Paul joined Edwards Vacuum in 2023, he is focused on building new software tools to aid predictive maintenance within the vacuum & abatement space.
He started his career in Semiconductors in 1993 at Fujitsu Microelectronics, before moving to Applied Materials in 2000, working in a range of increasingly senior roles in Field Service.
He then joined Netflix in 2010 as Director of Engineering where he oversaw software development including various projects using Artificial Intelligence to predict failures.
He is now bringing this experience with Artificial Intelligence and big data systems to semiconductor manufacturing.

References

# Roadmap for Semiconductor Exhaust Gas Treatment Equipment Towards Carbon Neutrality

A. Morihara
CTO of Kanken Techno
Kanken Techno Co., Ltd., Kyoto, Japan

**Abstract**
Various efforts are being made across industries to achieve carbon neutrality by 2050. In this context, at semiconductor manufacturing facilities, the abatement of greenhouse gases (GHGs) such as fluorinated gases emitted from manufacturing equipment represents a significant challenge. Additionally, achieving carbon neutrality across the entire supply chain for Scope 1, 2, and 3 is necessary. From Kanken Techno, a specialist manufacturer of abatement systems in Japan, we will present guidelines and recommendations and introduce the technology that addresses these directions.

**Biography**
*Atsushi Morihara*
*Chief Technology Officer*
*Headquarters*
*Kanken Techno Co., Ltd.*
*Professor, Ph.D*
*Laboratory for Zero-Carbon Energy*
*Tokyo Institute of Technology*

***Education:***
*•Professor Tokyo Institute of Technology 2012-*
*•Visiting Researcher Massachusetts Institute of Technology 1994-1996*
*•Doctor Degree Tohoku University 1991-1994*
*•Graduate TOKYO University 1977-1981*
***Experience:***
*•CTO KANKEN Techno 2017-*
*•CTO Global Environment Group Mitsubishi Corp 2008-2017*
*•General Manager Power generation Group HITACHI Ltd. 1981-2007*

References

# Fire Risks & Challenges in Semiconductor Manufacturing Environments

M. Donaghy
Business Development Manager
Honeywell, Business Development, Bracknell,
United Kingdom

**Abstract**
The semiconductor manufacturing process taking place inside the Wafer FAB present's extreme fire risks and challenges on a FAB facility, there are two main building types - manufacturing facilities (FAB & assembly & test and packaging and offices. The manufacturing building is typically a large-volume, high-ceiling structure with intricate and convoluted architecture that does not lend itself to traditional smoke detection, maintenance access for regulatory checks may also not be easy to achieve. Within these complex buildings, there are several functional rooms with their own individual fire risks.
Honeywell Building Automation serve's the Semiconductor market globally through a variety of life safety solutions including :
Fire Systems & Sensors - Protect people and premises with leading integrated and networked solutions including voice alarm and emergency lighting
Advance Detection - Proactive early warning detection solutions to overcome specific challenges and keep mission critical semiconductor FAB's running
Software Solutions - Provide software that supports remote-assisted inspection and maintenance, alarm transmission, site monitoring, digital compliance
Projects Support - Work directly with end-users, consultants, and system integrators to support the standardization of fully compliant, EU integrated fire systems
Our comprehensive approach to safety can help support increased productivity, performance, and operational uptime.

**Biography**
Mark Donaghy is an experienced international business development leader currently based in the UK with 13 years' experience in the areas of automation & robotics, battery manufacturing and fire & life safety. Mark holds a construction Batchelors in construction management and a further degree in leadership & management from the Royal School of Military Engineering. Mark spent 22 years in the British Army (Royal Engineers) deploying on global operations throughout his career in UK Armed Forces. Mark began his second professional journey outside of the military in 2012 and has been a part of the Global automotive industry working for companies such as Porsche Consultancy, KUKA Systems Battery BU, ABB Robotics & Honeywell.

Mark is spearheading the business development in Europe for Battery Gigafactory's & Semiconductor manufacturing verticals, supporting clients with life safety solutions strategies & design (fire & gas advanced detection). Mark is also part of a global Building Automation team that provides expertise & guidance in early warning detection solutions to overcome specific challenges and keep mission critical European sites running.

References

## Maximizing Equipment Productivity: Harnessing the Power of AIx

B. Eaton
Sr Director Marketing
Applied Materials, Applied Global Services, Santa Clara, United States of America

**Abstract**

In the rapidly evolving semiconductor industry, maximizing equipment productivity is crucial for maintaining competitive advantage and optiming operational effficiecy. This presentation will explore the use of the AIx analytics platform to enhance productivity in in production semiconductor fabs. AIx leverages predictive component failure models to minimize unscheduled downtime, ensuring continuous operation and efficiency. Additionally, AIx employs advanced AI/ML models to monitor hundreds of process chamber parameters across a fleet of tools simultaneously, effectively managing fleet process matching variability.
in the near future, AIx is set to introduce self-diagnosing capabilities, which will significantly expedite repairs and maintenance, further enhancing operational efficiency.

**Biography**

Brad Eaton is the Senior Director of Strategic Marketing at Applied Global Services. In this role, Brad leads a team responsible for driving capabilities for the $AI^X$ analytics platform utilized by Applied field engineers to enhance and support Applied Materials service contracts. With more than 24 years of extensive experience in the semiconductor industry, Brad has been instrumental in the development of both equipment and integrated circuits (ICs) for the automotive and consumer electronics sectors and holds more that 90 patents and technical publications.

References