

Future Fabs

EIC engagement with the European Sustainable Semiconductors Ecosystems

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European
Innovation
Council



Abstract

EIC is Europe's most ambitious innovation initiative is a **€10 billion** programme to identify, develop and scale up breakthrough technologies and disruptive innovations in Europe. It is unique in the world to combine research on emerging technologies with Accelerator for startups, SMEs and scaleups. The **EIC Fund** is the largest VC deep-tech investor in Europe.

A **pro-active approach** with flexible funding is the way the EIC is led with an important role of the Programme Manager. The programme manager for Sustainable Electronics will give examples of projects in the 3 instruments: Pathfinder, Transition and Accelerator of interest for the Sustainable Semiconductors ecosystem. Special emphasis will be given to the start-ups in our portfolios and ways to actively engage with them.

Biography

Isabel obtained a Master Degree in Physics (Semiconductor Physics) from the University of the Basque Country (Spain) and subsequently, earned a Doctoral Degree in Science (Microelectronics-Materials for Sensors) from the University of Navarra (Spain).

She started her career at AT&T Microelectronics transferred to AT&T-Bell Laboratories (USA) in the field of modelling and simulation of electronic components. Back in Spain, she joined one of the leading manufacturers of Power Discrete components, as an R&D Engineer and later, became Manager of Engineering and Production of the Wafer Fab, what gave her a wide picture of the microelectronics industry. At that position, she started her links with the European Commission as the representative of the group in Eurimus (Eureka Initiative for promotion of microsystem uses) Technical Committee.

Several years later, Isabel transitioned to Project Management in the field of Materials and Microtechnologies for Electronics in the largest technology center in Spain, Tecnia, where she has initiated, managed and coordinated several new initiatives like the Nanotechnologies Program or the Printed Electronics Platform. She has also been Director of several Business Areas leading their market-technology and IP strategy. During all those years, she has been managing a large portfolio of European and private projects in the field of Micro-Nanofabrication, Functional Surfaces, Sensors and Printed Electronics.

All along her career, she has combined her job with activities as expert in innovation by performing Technology Due Diligences, evaluating new business opportunities for Venture capitals and Family offices or as Innovation Radar Expert for EU projects. She holds a title in Expert in Management of Innovation and Technology from Deusto Business School.

In September 2022 she joined the European Innovation Council as Programme Manager for Sustainable Semiconductors

References

Plan Virtual, Build Sustainable: Combining the Real and the Digital World

K. Westrich
Global VP of Electronics & Semiconductors
Siemens AG, Munich, Germany

Abstract

As global semiconductor demand accelerates, the industry faces a dual challenge: scaling rapidly while scaling sustainably. Greenfield fabs offer a unique opportunity to embed net-zero principles from the outset—but the transformation must also extend to brownfield sites through modernization and retrofitting.

What if every decision in fab planning and operations could be validated virtually—before a single foundation is laid, a system installed, or a solution deployed?

At Siemens, we are making this vision a reality. By applying digital twins across the entire fab lifecycle—from conceptual design through construction and operations—we enable sustainability to be engineered in from day one. Our approach integrates: Deep domain expertise, AI-powered analytics, IT/OT convergence and real-time simulation.

The result? Smarter, faster decisions that optimize energy use, reduce emissions, and minimize downtime. With Siemens, the fab of the future isn't just more cost-effective—it's inherently more sustainable.

Biography

Katharina heads Siemens' global activities for Electronics & Semiconductor and Simulation, leading a team dedicated to unlocking the potential of resilient, smart, and sustainable semiconductor manufacturing across the entire value chain. As an elected member of the Semiconductor Climate Consortium (SCC) Governing Council, Katharina reinforces her commitment to drive positive change within the semiconductor ecosystem. Her dynamic leadership places her at the forefront of digitalization and sustainability solutions – transforming the everyday through innovative technologies.

Previously, Katharina held various strategic positions within Siemens, including heading the Research & Pre-Development department. She championed sustainable practices and contributed to the development of next-generation Siemens products.

She holds a Master of Science degree from the Catholic University Eichstaett-Ingolstadt.

References

Closing Europe's Greentech Talent Gaps

R. Barberis
Regional President Northern Europe and France
ManpowerGroup, Dieman, North Holland, The
Netherlands



Abstract

Despite recent geopolitical changes, nearly half (47%) of employers worldwide plan to increase green business transformation investment and most (91%) do not have the talent they need to achieve their sustainability goals. The role of the semiconductor industry in Europe will become increasingly important to sustaining green innovation and energy security as geopolitical uncertainty continues to disrupt global supply chains. The challenge will grow as most employers (74%) report difficulty finding skilled talent today and aging populations continue to decrease the size of the total workforce.

This presentation will leverage data from nearly 40,000 employers and 14,000 workers to explore the challenges and opportunities this poses for the semiconductor industry.

Current tech talent shortages

Tech worker sentiment

Tech skills gaps

Employer best practices

Regional partnership opportunities

ManpowerGroup Employment Outlook Survey

The ManpowerGroup Employment Outlook Survey is the most comprehensive, forward-looking employment survey of its kind, used globally as a key labor market indicator. The Net Employment Outlook (NEO) is derived by taking the percentage of employers anticipating an increase in hiring activity and subtracting from this the percentage of employers expecting a decrease in hiring activity.

ManpowerGroup Global Talent Barometer

The ManpowerGroup Global Talent Barometer measures worker well-being, job satisfaction, and confidence around the world. The Talent Barometer leverages independent survey best-practices and statistically significant samples to create a powerful tool to better understand what workers want globally. The research aims to improve the future of work through deeper understanding of key drivers of workforce sentiment today.

Biography

Riccardo Barberis was appointed Regional President, Northern Europe in May 2021, and in January 2025 expanded his responsibilities to include France, ManpowerGroup's largest market in the region. In this role, Barberis oversees all of ManpowerGroup's brands and offerings across the region – Manpower, Experis, and Talent Solutions. Barberis will lay the path to further accelerate ManpowerGroup's diversification, digitization, and innovation plans, creating even more value for clients and candidates and strengthening our performance in the region.

Riccardo joined ManpowerGroup in 1998 and has held numerous leadership positions in Europe and Latin America, most recently as country manager for ManpowerGroup Italy. With more than 25 years of experience including many international roles his deep industry knowledge and passion for a client-first, candidate-centric approach consistently delivers superior results.

An accomplished executive, Riccardo holds an Executive MBA from Bocconi University (Milan), has completed management programs at INSEAD and speaks five languages. Currently serving as Board Member of Junior Achievement Europe, he has previously held positions as Vice President of the Italian Industry Association (Assolavoro) and President of ManpowerGroup's Human Age Institute. Riccardo lives with his family in Paris.

References

Water Resilience in the Semiconductor Industry

G. Townsend
Industry Fellow
Ecolab, RD&E, Northwich, United Kingdom



Abstract

Water has emerged as a defining resource for Europe's economic prosperity and climate resilience. After years of compounding droughts, floods, and shifting weather patterns, Europe stands at a pivotal moment. While water scarcity and uncertainty present real challenges to growth, financial stability, and social well-being, this inflexion point also offers a powerful opportunity to rethink how we value and manage water — unlocking new pathways toward resilience and innovation.

This context is especially important for the water-intensive industries central to the EU's strategic autonomy. Chip manufacture requires enormous amounts of ultra-pure water for cleaning and etching. This creates a challenge for Europe, particularly in areas with water scarcity, as the EU faces a tension between boosting such strategic industries while ensuring water resilience. Recognising this challenge, the European Commission unveiled its Water Resilience Strategy in June 2025. The strategy places water at the heart of the EU's agenda for climate and economic adaptation. It promotes the 'Water Efficiency First' principle, encouraging Member States to prioritize reducing demand, improving efficiency, and reusing water before increasing supply. Aligned to this is the need to accelerate water-saving technologies, promote 'digital water' initiatives, address obstacles to water reuse, evaluate closed-loop industrial systems, and encourage innovation.

As we pursue a water resilient future, the first step is to recognise that our current inability to determine sustainable water use at the local level is one of the greatest obstacles to ensuring long term sustainable growth and competitiveness for Europe. We would not tolerate an analogous situation on energy supply or indeed any other critical resource in our manufacturing supply chain. As water stress increases, the realities of water shift outside an organisation such that meaningful risk reduction cannot be *directly* controlled - it's only as strong as the collective resolve to achieve it. It is therefore vital to build strong, cross-sectoral collaboration at the local level leading to effective governance based on solid data – 'one source of truth'. This is foundational to accurately assess vulnerability and to provide the necessary confidence to invest in securing a water future.

Biography

Geoff engages in the strategic direction of Ecolab's water and energy related innovation with a particular emphasis on the water-energy-productivity nexus. He has 34 years direct experience in industrial water management including sales, project management, auditing, research & development and technical training. He has been involved in the design, optimisation and troubleshooting of many key utility processes across a variety of industries including manufacturing, power production and the petrochemical sector.

Geoff is also actively involved in Ecolab's sustainable development initiatives, especially in water stewardship and decarbonization. He initiated and continues to support the industrial affiliation and applied research activities at KAUST, KSA.

Since 2017, Geoff has led Water Europe's Cluster Theme 'Water Smart Industry' and he now chairs their Water-Smart Industries Community of Practice. He also engages with NGOs to lessen industrial impacts on

vulnerable river basins (e.g. Lake Taihu, China). He represented the Netherlands in the development of ISO14046 “*Water footprint – Principles, requirements and guidelines*”.

Dr Townsend has a BSc (Hons) in Ecology (UEA) and a PhD in Environmental Chemistry from the University of Cambridge.

References

Optimizing water usage footprint: Direct water recycling from abatements

P. Osten
DAS Environmental Expert GmbH, Dresden,
Germany



Abstract

As semiconductor manufacturing advances, exhaust gas treatment systems—particularly point-of-use (POU) abatement units—play a vital role in maintaining safe and stable operation. These systems often rely on water to manage byproducts generated during gas treatment. By rethinking how this water is managed and treated, new opportunities arise to reduce overall water consumption without compromising process integrity. This presentation explores how aligning gas and water treatment at the POU level enables significant water recycling, with fresh water savings of over 90% achievable through targeted strategies.

Our work focuses on enhancing water reuse by introducing a tailor-made particle removal system installed directly after the abatement POU. This system is designed to address process-specific particle loads, which can otherwise limit recirculation potential. By removing these particles efficiently, the treated water becomes suitable for reuse within the same abatement units—creating a closed-loop solution tailored to the demands of the gas treatment process.

This approach builds on field observations across multiple fabs and process types, where we observed that particle characteristics in abatement wastewater are closely linked to the upstream semiconductor processes. Recognizing this dependency, we have developed a flexible particle separation solution that can be adapted to different tool sets and chemistries. Early application of this system has shown that water quality can be stabilized sufficiently to support continuous reuse, while maintaining abatement performance and reliability.

In addition, we address the issue of salt accumulation, a common challenge in high-recycle environments, through conductivity-based monitoring and control strategies. This ensures long-term operational stability even as recycling rates increase.

This presentation highlights the potential of integrating gas and water treatment strategies in a purposeful way. Rather than viewing abatement systems as isolated water consumers, they can be transformed into platforms for water efficiency through the application of process-informed treatment technologies. A key takeaway is the importance of considering wastewater characteristics early in fab planning and collaborating with treatment technology providers to enable point-of-use or semi-centralized recycling concepts.

Biography

Pascal Osten is a German engineer currently serving as Technical Director for Global Water Treatment at DAS Environmental Experts GmbH.

Born in Berlin, he studied physics and water management in Dresden, earning a degree in engineering. He began his professional career at wks Technik GmbH, working as a project engineer in environmental engineering for water and wastewater treatment facilities. During his time there, he contributed to several research and development efforts, some of which resulted in patent applications.

Over the years, he took on increasing responsibilities, including leading a team in process engineering. In this role, he supported the successful implementation of a variety of customer projects, focusing on practical, reliable solutions.

Today, at DAS Environmental Experts GmbH, Pascal draws on his hands-on experience in water treatment to support the development and execution of sustainable solutions for the semiconductor industry and

beyond. He remains committed to advancing technologies that balance performance with environmental responsibility.

References

Sustainable Fabs Start Here: Integrate, Commit, Innovate

T. Heger
President Semiconductor Chamber Solutions
Division
Edwards Vacuum, Burgess Hill, United Kingdom



Abstract

Embedding sustainability in semiconductor manufacturing is a shared responsibility—one that depends not only on advanced technologies but also on strong partnerships and empowered people.

This challenge calls for a thoughtful balance—investing smartly in both technology and talent.

This session will explore how a shared commitment, open interaction between cross-functional teams, and a culture of innovation are enabling fabs across the EMEA region to drive meaningful progress. We'll highlight the role of next-generation pumps, abatement systems, and digital tools that enhance uptime, support predictive maintenance, and lower operational costs.

Biography

Tim Heger took on the role of President of Edwards Semiconductor Chamber Solutions Division earlier this year, where he leads the division's strategic direction and growth, building on Edwards' strong reputation as a trusted partner to the global semiconductor industry.

He joined the Atlas Copco Group in 2020 with Leybold in Cologne as a Process Development Manager and has since built a successful international career within the Group. In 2023, he was appointed General Manager and President of Ceres Technologies in the USA, following a series of leadership roles across operations, supply chain, and product management.

A German citizen, Tim holds a B.Eng. in Mechanical Engineering from the University of Applied Science Bochum and an M.Eng. in Mechanical Engineering from the University of Applied Science Südwestfalen. His career spans global organisations and regions, including roles as Process Development Engineer at Ford Motor Company, Technical Manager for the ASEAN region at Mapal Dr. Kress KG, and Global Product Manager at Federal Mogul GmbH.

Tim brings a strong track record of driving innovation, operational excellence, and customer-focused solutions, underpinned by his international experience and engineering expertise.

References

The embodied Carbon Challenges for the Telecom Network provider

P. Johansson
Program Manager
Ericsson AB, Networks, Gothenburg, Sweden



Abstract

As a front line Telecom Network provider and enablers. Ericsson wish to work stragegicaly and colloborativly to enable an sustainable factbased embodied carbon transformation for the industry. This presentation will adress the needs, challenges and differculties that we forsee for a semiconductor provider.

Biography

I have the position of Program Manager for Ericsson HW sustainability transformation journey related to embodied carbon and have been working in Ericsson HW R&D since 1998.

References

Introduction to GENESIS

I. Chaki
Senior Policy Coordinator
SEMI Europe, Advocacy & Public Policy, Brussels,
Belgium

Abstract

In this introduction, the GENESIS project will be presented to the audience, providing an overview of one of the largest consortia ever formed in Europe's semiconductor sector. The project brings together key actors from across the value chain, united in their commitment to advancing a more sustainable future.

Biography

Iranda Chaki is a Brussels-based young professional working closely with European institutions at the core of EU policymaking. With experience across public affairs, stakeholder management, event management and international collaboration, gained through roles in public organisations, NGO's and industry association environments. She enjoys building bridges between sectors to shape forward-thinking, sustainable outcomes. Currently working in the semiconductor sector with a particular focus on EHS & Sustainability.

References

Sustainability@Fraunhofer – Semiconductor Innovation for a Better World

W. Weinreich
Fraunhofer IPMS, Center Nanoelectronic
Technologies, Dresden, Germany

Abstract

This presentation highlights Fraunhofer's commitment to sustainability, with a particular focus on pioneering initiatives in the semiconductor sector. We begin with a brief introduction to the *Green ICT* project, showcasing Fraunhofer's contributions to the development of environmentally responsible information and communication technologies. The core of the presentation centers on the ongoing *GENESIS* project, in which Fraunhofer plays a key role across multiple work packages and leads *Work Package 4 – Minimization of Waste and Emissions*. GENESIS aims to advance sustainable innovation in semiconductor manufacturing by integrating resource-efficient processes and circular economy principles. We will present the activities and key achievements within WP4, providing insights into collaborative strategies and technological advancements that are shaping a more sustainable future for the semiconductor industry.

Biography

Dr. Wenke Weinreich joined Fraunhofer Center Nanoelectronic Technologies for PhD on new high-ks for DRAM in 2006. Since 2011, she worked as a senior scientist at Fraunhofer IPMS in the division CNT and continued the development of new high-k materials as well as their integration in MIM capacitors for memories and passive devices. Since 2016 she headed the group Energy Devices dealing with CMOS integrated Si-capacitors, Li-Ion batteries as well as piezo-, pyro- and thermoelectric energy harvesting and sensor concepts. Since 2019, she was heading the business unit IOT Components & Systems within CNT combining activities like low power sensors, power management, nanopatterning and RF as well as AI processors. Since 2020, she is director of the division CNT which combines three business units Next Generation Computing, Emerging Memory Solutions and IOT Components & Systems as well as a 300 mm cleanroom infrastructure. Since 2021, she is also deputy director of Fraunhofer IPMS and since 2022, head of Center for Advanced CMOS and Heterointegration, Saxony.

References



S. Ramundo Orlando
Advocacy Manager
SEMI Europe, Brussels, Belgium

Biography

A young professional working at the heart of the European Union in Brussels, with a profound passion for international affairs, foreign policy, and a strong interest on the impact of EU policy on socio-economic development in Europe.

In-depth knowledge and experience with the legislative processes and internal dynamics of the EU institutions (European Commission, Parliament and Council), particularly regarding the EU policy approaches towards issues related to trade, industry and innovation.

Relevant professional background dealing with institutional and public relations, events organization and stakeholder management, both from the perspective of private consultancies and industry associations.

References

NA / Panelist

A. Wittmann
Vice President Front End Facility Management &
Capital Projects
Infineon Technologies, Vienna, Austria



Abstract

Andreas Wittmann

Vice President Front End Facility Management & Capital Projects

Education

Diploma & PhD in Industrial Engineering at Technical University Vienna

Career path (3 major positions)

2020 Infineon: Vice President Front End Facility Management

2008 Infineon Villach: Director Facility Management, EHS & Security

2006 Infineon Kulim: Director Production Support

Biography

Andreas Wittmann

Vice President Front End Facility Management & Capital Projects

Education

Diploma & PhD in Industrial Engineering at Technical University Vienna

Career path (3 major positions)

2020 Infineon: Vice President Front End Facility Management

2008 Infineon Villach: Director Facility Management, EHS & Security

2006 Infineon Kulim: Director Production Support

References

Environmental Responsibility & EHS Strategies at GlobalFoundries

T. Clarius
Director EHS&S
Globalfoundries, EHS&S, Dresden, Germany

Abstract

Coming Soon

Biography

Coming Soon

References

Panel Discussion on Industry Sustainability in Europe

A. Beard
Senior R&D Engineer
CSEM, Nanoscale technology, Neuchatel,
Switzerland

Abstract

The transition to sustainable semiconductor manufacturing requires greater transparency in how chemicals are used and monitored throughout fabrication processes. At SEMICON's panel on "Industry Sustainability in Europe," this challenge will be addressed with a focus on detection gaps, traceability limitations, and the complexity of chemical interactions in production environments. Insights will be drawn from the Genesis project an EU-funded initiative working to improve environmental accountability across the semiconductor supply chain. The discussion will explore how collaborative innovation and standardized frameworks can help the industry move toward more responsible and sustainable practices.

Biography

Alexandra Beard, PhD

Responsible for electrochemical sensor development within the Nano-Scale Technology group at CSEM in Neuchâtel Switzerland, with a focus on advanced sensing solutions for environmental applications. Her work bridges cutting-edge microtechnology with sustainability driven innovation.

With extensive knowledge in electrochemistry, having conducted research at Paul Scherrer Institute on energy conversion systems such as electrolyzers, fuel cells, CO₂ reduction, and redox flow batteries. Her contributions span both academia and industry, including several years developing sensor technologies at leading companies in Zurich. Throughout her career, her focus has remained on enabling sustainable technologies through electrochemical science.

References