Future Computing

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Biography
Coming Soon

References

Europe's Semiconductor Puzzle: Connecting the Missing Pieces



M. T. Aguilar Rojas
Senior Consultant
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Abstract
Strengthening Europe's semiconductor industry requires more than developing breakthrough technologies or expanding manufacturing capacity. It means bringing together the critical pieces of a complex and interdependent value chain, from advanced materials and equipment to chip design, manufacturing and packaging.
While Europe has established strengths across several segments, technological and industrial bottlenecks continue to challenge the development of a competitive and resilient semiconductor ecosystem. Scaling innovative technologies, meeting demanding qualification requirements and coordinating investments between suppliers, technology developers and manufacturers remain critical challenges.
This presentation explores the missing pieces in Europe's semiconductor puzzle and how targeted public funding can help connect them. Drawing on concrete examples from Important Projects of Common European Interest (IPCEIs) and the EU Chips Act, it examines how collaborative innovation, pilot-line

infrastructure and strategic industrial investments can help bridge technological and industrial gaps. Ultimately, Europe's semiconductor competitiveness depends not only on the individual capabilities it develops, but also on how effectively these capabilities are interconnected and brought to industrial scale.

Biography

Maria Teresa Aguilar Rojas, PhD, is an economist specialising in EU State aid and public funding for large-scale industrial and innovation projects.

As a Senior Consultant at european economics, she advises companies on financing and implementing strategic, capital-intensive investments within complex EU State aid frameworks. She supports public funding applications and State aid notification procedures, combining economic expertise with a strong understanding of European industrial policy and regulatory requirements. Her contributions form part of the firm’s broader track record of helping 200 companies secure €46 billion in public funding for 250 major projects.

Her expertise spans strategic sectors, including semiconductors, clean energy and emerging technologies, with a particular focus on strengthening European industrial competitiveness, technological sovereignty and resilience.

References

Energy-efficient electronics at the edge: what the EIC is funding, and why



M. J. Bojdys
Programme Manager
European Innovation Council and SMEs Executive Agency (EISMEA), Berlin, Germany



Abstract
Computing at the edge is limited by energy rather than by transistor count. The EIC's EffiTronics challenge funds six projects that tackle this from different directions: new materials and devices, alternative computing architectures, and ways to harvest and manage energy locally. The talk gives a short introduction to the EIC and its Programme Manager model, then sets out where energy-efficient edge electronics is heading and what the six projects work on. It closes with how start-ups, research organisations and industry can engage with the portfolio and with EIC funding.

Biography
Michael J. Bojdys is Programme Manager for Future-Proof Electronics at the European Innovation Council (EIC), within EISMEA, where he guides portfolios of breakthrough projects in energy-efficient and responsible electronics towards industry and investment. He previously led research groups in functional nanomaterials in Czechia, the United Kingdom and Germany, founded the deep-tech spin-out MANA.energy, and directed multi-stakeholder R&D partnerships in materials acceleration between academia, industry and government across Germany, Canada, the United Kingdom and Switzerland. He sat on DIN standards committees for rare earths and non-ferrous metals and contributed to ISO 24181-1, and was a member of the World Economic Forum's Young Scientists community.

References

Towards a renewal of memory from Europe



T. Rueckes
CEO
Ferroelectric Memory Company (FMC), Berlin, Germany

Abstract
Memory, not compute, is now the main bottleneck to AI scale-out. Memory accounts for around half the cost of a data center server and a major share of its power, and data centers are absorbing most of the world's memory supply. AI-driven demand, geopolitical pressure for sovereign supply chains, and incumbents shifting their focus to HBM have opened a rare window for new memory technologies, and for Europe, which has had no memory industry for the last 17 years.
Building on two decades of European R&D, FMC brings ferroelectric HfO_2 into DRAM+, a non-volatile memory with DRAM performance and density. Its roadmap runs from DRAM+ to 3D-Cache+ near-compute memory and on to HBM+.
The talk outlines FMC's push to set up a memory fab in Germany for DRAM+ and DRAM, the first DRAM production in Europe in two decades. It closes on the shared opportunity to re-establish memory manufacturing in Europe, and why sovereign memory is vital for the future of European AI.

Biography
Thomas Rueckes is the CEO of Ferroelectric Memory Company (FMC), where he leads the development and commercialization of high-performance non-volatile memory products spanning NV-DRAM+ in Memory Fabs and high density Near Compute Memory, 3D-CACHE+ in advanced logic foundries. His work bridges materials, devices, integration, packaging, and system-level deployment, with active engagement across tier-1 memory IDMs, hyperscalers, OEMs, and leading equipment and materials suppliers.
Previously, Dr. Rueckes was Co-Founder, CTO, and COO of Nantero, where he spent more than two decades building one of the industry's most advanced emerging memory platforms, overseeing R&D, operations, manufacturing scale-up, IP strategy, fundraising, government programs, and strategic partnerships. He holds more than 200 granted patents and has published extensively in leading scientific journals. Dr. Rueckes earned his Ph.D. in Nanotechnology from Harvard University.

References

Next-Generation Optical Switching and AI Infrastructure



K. E. Aguilar
CEO
Omnitron Sensors, Orlando, United States of America

Abstract
The rapid growth of AI is creating new requirements for high-bandwidth, energy-efficient connectivity and placing increasing pressure on conventional electrical network architectures. Optical circuit switching offers a path toward more scalable infrastructure, but achieving the required optical performance, reliability, and manufacturability presents significant MEMS design and fabrication challenges.
Omnitron is addressing these challenges through a proprietary 3D MEMS fabrication platform and large-aperture mirror arrays with in-situ feedback control. The technology enables high-performance optical switching while supporting flatter network topologies, lower interconnect power consumption, and reduced infrastructure cost. This presentation will explore the MEMS innovations behind the platform and how advanced microfabrication can enable a new generation of optical switching systems for AI infrastructure.

Biography
Eric Aguilar is the CEO and co-founder of Omnitron Sensors, where he leads the development of next-generation MEMS technologies for AI infrastructure and autonomous systems. His career spans more than two decades in advanced sensing and semiconductor innovation, including leadership roles at Google X, where he led avionics development for autonomous delivery drones, and Tesla, where he led firmware and sensor integration for Model 3. Earlier in his career, Eric developed advanced sensors for U.S. Navy research laboratories and defense programs before joining Lumedyne, whose technology was later acquired by Google. Today, he leads Omnitron’s commercialization of breakthrough MEMS technology designed to enable the next generation of optical networking for hyperscale AI data centers.

References

Building quantum computers atom by atom



D. Dreon
Head of Product Development
PlanQC GmbH, Berlin, Germany

Abstract
PlanQC's quantum computers store information in individual atoms - nature's best qubits. Quantum information is processed by arranging these qubits in highly scalable arrays and manipulating them with precisely controlled laser pulses. PlanQC's unique combination of quantum technologies is the fastest way to scale to thousands of qubits, a prerequisite for industry-relevant quantum advantage. Our quantum computers are built on the precision of the world's best atomic clocks, the world's best quantum gas microscopes, and high-speed Rydberg gates. PlanQC is the first startup to emerge from the Munich Quantum Valley, which with its vast network of research institutes and industrial partners fosters a unique quantum ecosystem for startups.

Biography
Davide Dreon is Head of Product Development at planqc, working on building and developing neutral atom quantum computers. An experimental physicist by training, he completed his PhD at the Laboratoire Kastler Brossel on highly magnetic quantum gases, and later conducted research at ETH Zurich on Bose-Einstein condensates coupled to optical cavity modes. Before joining planqc, he was Research Fellow and Head of R&D setups at Pasqal.

References