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EU CHIP CHRONICLES

Launching the Industrial Alliance

A first glimpse into the activities of the three Working Groups on Skills, Supply Chain and PFAS.

MARCH 2025

ISSUE 4

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Foreword

Welcome to the fourth issue of the **EU Chip Chronicles** magazine, the quarterly publication providing stimulating stories on the world of European semiconductors. This is brought to you by the ALLPROS.eu project, a coordination and support action funded by the European Commission Digital Europe Programme to enhance **Europe's digital sovereignty in the chips industry** through the consolidation of the community, and empowering it through the creation of a knowledge platform.

The release of this issue follows a lapse of time dense with events and activities in the realm of semiconductors, both for the ALLPROS.eu project and for Alliance members. It started with the presentation of the Alliance at the EFECS 2024 conference in December, where, as technical coordinator, I introduced the three Alliance working groups on Skills, Supply Chain and PFAS and gave a call to action to industry leaders to join the discussion to drive semiconductor innovation and EU competitiveness forward.

In the past 6 months, the ALLPROS.eu consortium has worked relentlessly to support the individual working groups to ensure smooth and seamless cooperation. As of the publication of this magazine, each working group has elected their co-chairs, held 6 working group meetings and defined priorities and scopes, which have just been presented to the European Semiconductor Board (ESB) on March 18th 2025. In this magazine, thanks to Trust-IT Services, IDC, and White Research, you will meet the three working groups and learn more about what they do, their initial insights and findings.

This fourth issue of the Chip Chronicles, having a strong focus on the progress made by the working groups, wants to celebrate the best practices and achievements of three Alliance members. Thanks to OpenForum Europe, you get to know SiPearl, LIST and EUROPRACTICE and you learn about how they are making strides in chip design, talent development and brokerage respectively.

Finally, as usual, the magazine closes with a summary of the most recent ALLPROS.eu publications: a policy brief by OpenForum Europe on chip design highlighting the opportunities and challenges for EU chip design and a whitepaper by IDC, recapping the main findings from the December market webinar on networking as a driving force for the semiconductor industry in Europe.

I hope this issue satiates your curiosity regarding what is brewing inside the Alliance. In the coming months, at ALLPROS.eu we hope to bring you more news on poignant topics and relevant questions from the semiconductor ecosystem. In the meantime, the Secretariat is preparing to hold the first official in person meeting of the European Industrial Alliance on Processors and Semiconductor Technologies later this year. If you would like to share some of your own stories with us, feel free to get in touch with the secretariat. I would be more than happy to include them in our future editions.

Silvana Muscella
ALLPROS.eu Technical Coordinator

The Industrial Alliance for Processors and Semiconductor Technologies

Roberta Fabrizi

The Industrial Alliance for Processors and Semiconductor Technologies is an initiative launched by the European Commission to strengthen collaboration across enterprises and institutions working to build **sovereignty and competitiveness in the EU microelectronics value chain**. From global businesses to SMEs, from higher education establishments to standards organisations, the Alliance stems from the need to complement the objectives set by the European Chips Act with an "agora", a dedicated discussion space where stakeholders can highlight pressing issues, discuss best practices, and move together towards creating long lasting collaborations in the sector.

While you can read about the EU Chips Act pillars in detail in the first issue of the EU Chip Chronicles, it's also worth noting that the basis of the Alliance builds on the Chips Act objectives to provide research and industrial infrastructures and to strengthen the microelectronics industrial ecosystem.

So far, the Industrial Alliance counts more than 100 members, of which 60+ are already taking part in 3 thematic working groups, identified for their strategic importance in building a more resilient digital Europe:

Working Group on Skills - It brings together stakeholders with expertise and/or interest in bridging the skills and gender gap in the semiconductor industry.

Working Group on Supply Chain - It aims to provide an industry perspective on how to increase the semiconductor supply chain resilience in Europe and direct future action.

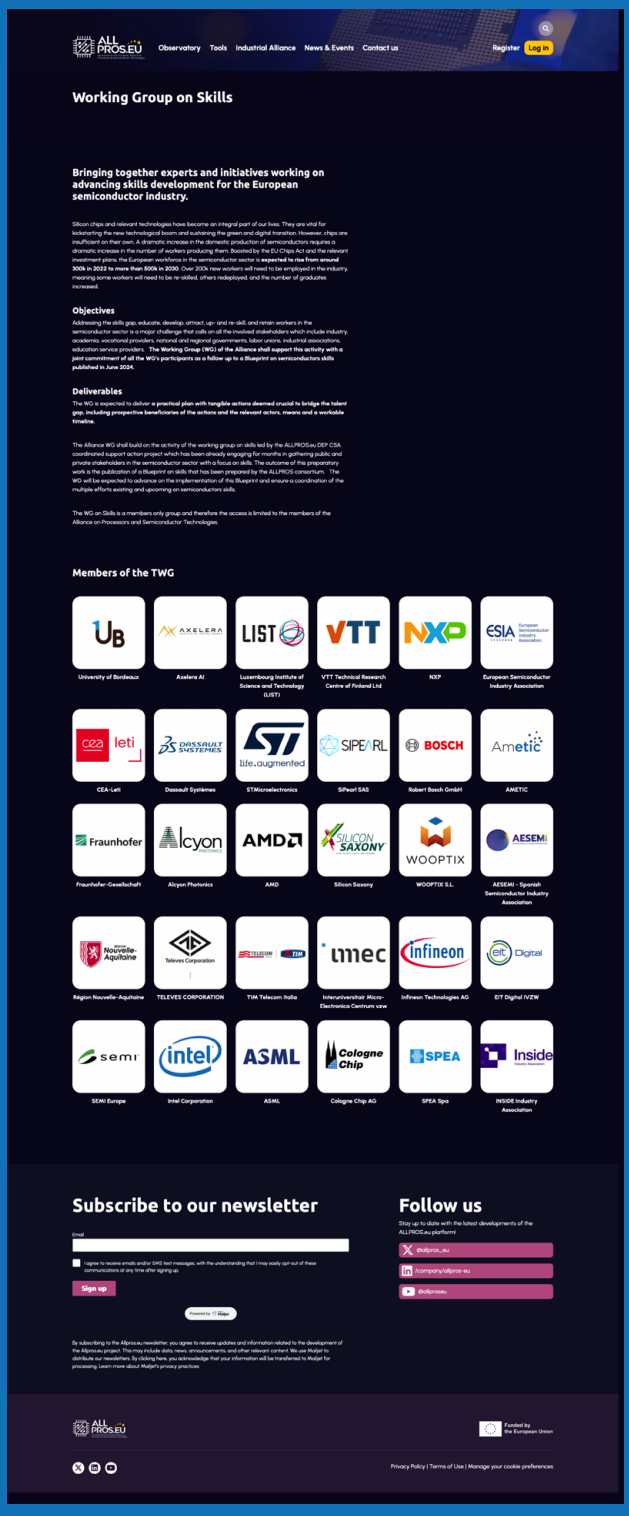
Working Group on PFAS - It promotes strategies to manage, mitigate and replace PFAS in semiconductor manufacturing by bringing together manufacturers, suppliers, academia and research institutions and encourage them to define the status quo and cooperatively work on recommendations.

Each working group is a closed secure space bringing together expertise from different stakeholders. In this issue of the Chips Chronicles, we will hear from partners of the ALLPROS.eu consortium on how each of the Working Groups is progressing. Each of them is a high priority topic for the European Commission; however, if by reading the rest of this magazine you feel as though the Alliance would benefit from a new working group to cover a different topic, feel free to get in touch via the ALLPROS.eu website. As more members join daily, vetted and supported by the ALLPROS.eu consortium, the conversation is open on the creation of more working groups to address new topics, thus expanding the scope of the Alliance.

Building the Talent pipeline - How the Skills Working Group is shaping Europe's semiconductor workforce

Niccolò Zazzeri

The semiconductor industry stands at the heart of Europe's technological ambitions, yet a critical challenge threatens its future: the **growing skills shortage**. Without the right talent, Europe's ability to innovate and compete globally is at risk. That's where the **Skills Working Group** of the **Industrial Alliance on Processors and Semiconductor Technologies** comes in-driving coordinated action to equip Europe with the workforce it needs to lead in microelectronics.



A Collaborative effort to secure the future

Since its official launch in October 2024, the **Skills WG has convened five times**, bringing together leading experts from **industry, academia, and policy** to define a shared roadmap. The group is co-chaired by **Victoria Cummings and Bernie Capraro (SEMI Europe) and Siddhesh Krishnan (EIT Digital)**, two leading voices in semiconductor education and workforce development. Their leadership ensures that discussions are firmly rooted in both academic excellence and industry demands.

At each meeting, the WG has tackled key issues and insights such as:

- **Mapping the landscape** – Europe is already home to numerous semiconductor education initiatives, but they are often fragmented. The WG is working on a **comprehensive mapping** of ongoing programs at national and regional levels to identify synergies.
- **A stronger industry-academia link** – The group is advocating for closer ties between **universities, research institutions, and semiconductor companies** to ensure that training aligns with industry needs.

- **Expanding training opportunities** – Whether through **vocational training, summer schools, or micro-credentials**, the WG is pushing for a diverse range of educational programs that cater to students and professionals alike.

What's Next? A call for collaboration

With a strong foundation established, the Skills Working Group is now focused on translating discussions into high-impact actions that will strengthen Europe's semiconductor talent pipeline.

One of the key priorities is launching a **pan-European awareness campaign** to **promote semiconductor careers** and inspire the next generation of engineers, researchers, and technicians. By showcasing real career opportunities, success stories, and the vital role semiconductors play in everyday life, the campaign will seek to make the sector more attractive to students, career changers, and professionals seeking upskilling opportunities.

Another major initiative on the horizon is the **organisation of a Flagship Event on Skills**, bringing together policymakers, industry leaders, and education providers to accelerate collaboration and drive solutions. This event will serve as a platform to discuss policy measures, best practices, and industry needs, ensuring that semiconductor skills development remains a top priority on Europe's agenda.

As Europe strives to **secure its leadership in semiconductors**, the Skills WG is playing a crucial role in shaping the workforce that will make it happen. But this is just the beginning - **collaboration is key**.

Photo: Mikhail Nilov

From risk to resilience: the Supply Chains WG's mission to reinforce EU's Semiconductor Industry

Matthias Zacher

Overview of the Working Group on Supply Chains

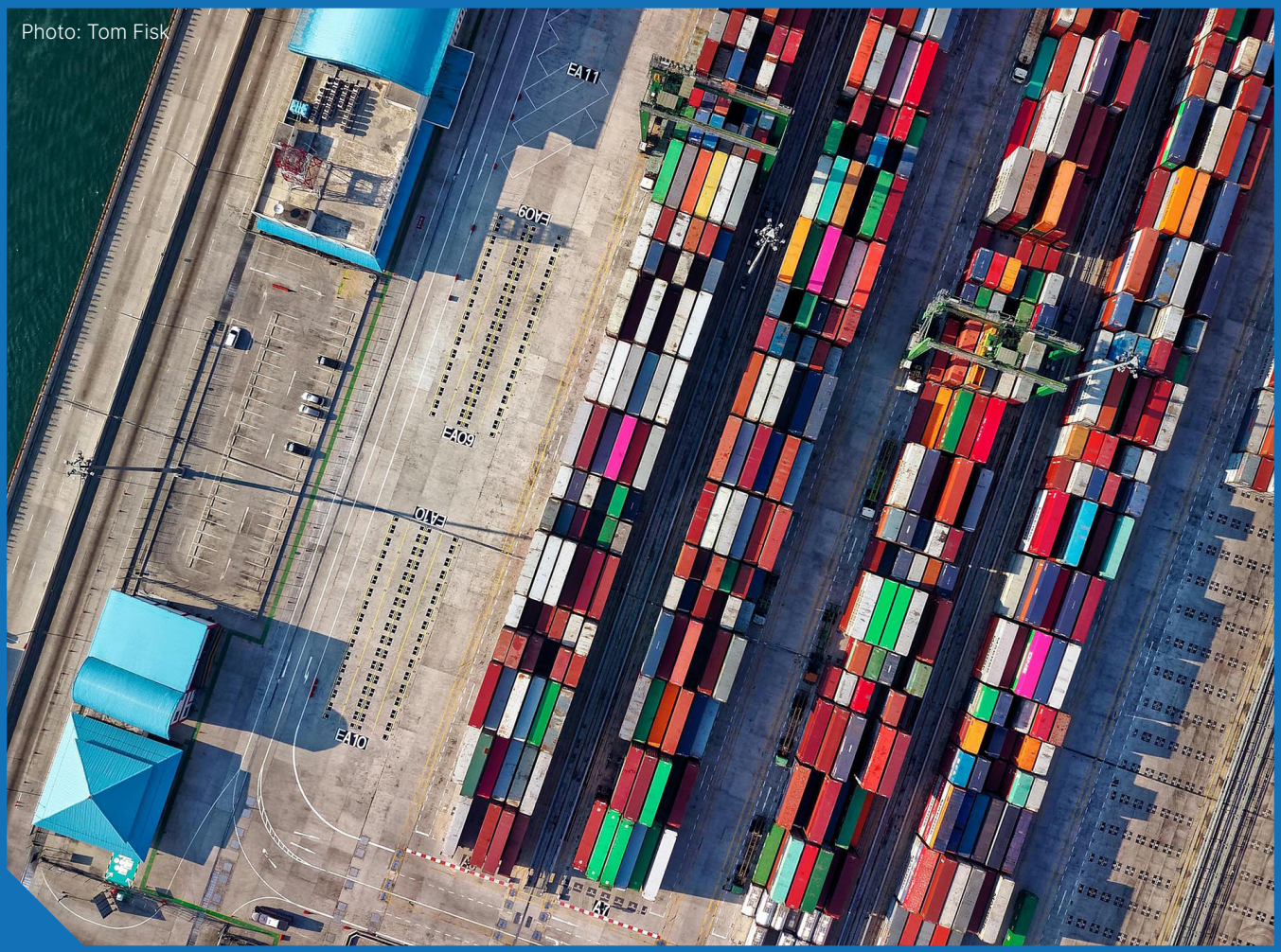
The Working Group on Supply Chains (WG SC), launched under the ALLPROS.eu initiative, is one of three formal groups established by the European Industrial Alliance, alongside those focused on Skills and PFAS. It was formed as supply chains in semiconductors are at the core of the digital agenda of the previous commission and will continue in the next commission. The importance and relevance of the seamless availability of semiconductors clearly results from the fact that every industry, governance and consumers need semiconductors.

With the guidance of an EC representative from DG CONNECT, the WG SC aims to achieve the following objectives:

- Enhance Supply Chain Resilience & Transparency: Develop and implement strategies to bolster the resilience and transparency of supply chains.
- Provide Practical Insights: Identify priorities, challenges, gaps, best practices, success stories, and future actions to strengthen supply chains.
- Advise on Policy Actions: Offer policy recommendations to the EC and support the EU with analysis, knowledge, and advice on potential future actions.

Overview of Discussions and Activities

Since October 2024, the Working Group (WG) has been convening monthly meetings to foster discussions and establish a collaborative agenda aimed at proactively addressing challenges with the



supply chain. The WG members represent the entire supply chain value chain, including key industry players from raw materials and chip production to specialists, end users, and alliances.

Despite their diverse perspectives and needs, all members have experienced risks in the global supply chain in recent years. The WG's declared aim is to present the industry's perspective on supply chains and resilience.

Open discussions have highlighted the need to cover the full supply chain ecosystem, utilize mid- and long-term roadmaps to address supply chain weaknesses, and develop a robust and resilient supply chain by reviewing existing initiatives and activities and launching own programs.

Participants engaged in two brainstorming sessions on the Mural platform, discussing various topics such as upstream and downstream supply chains, the value of Digital Twin technology for optimizing supply chains, and activities/workshops around supply chain stress tests and surveys.

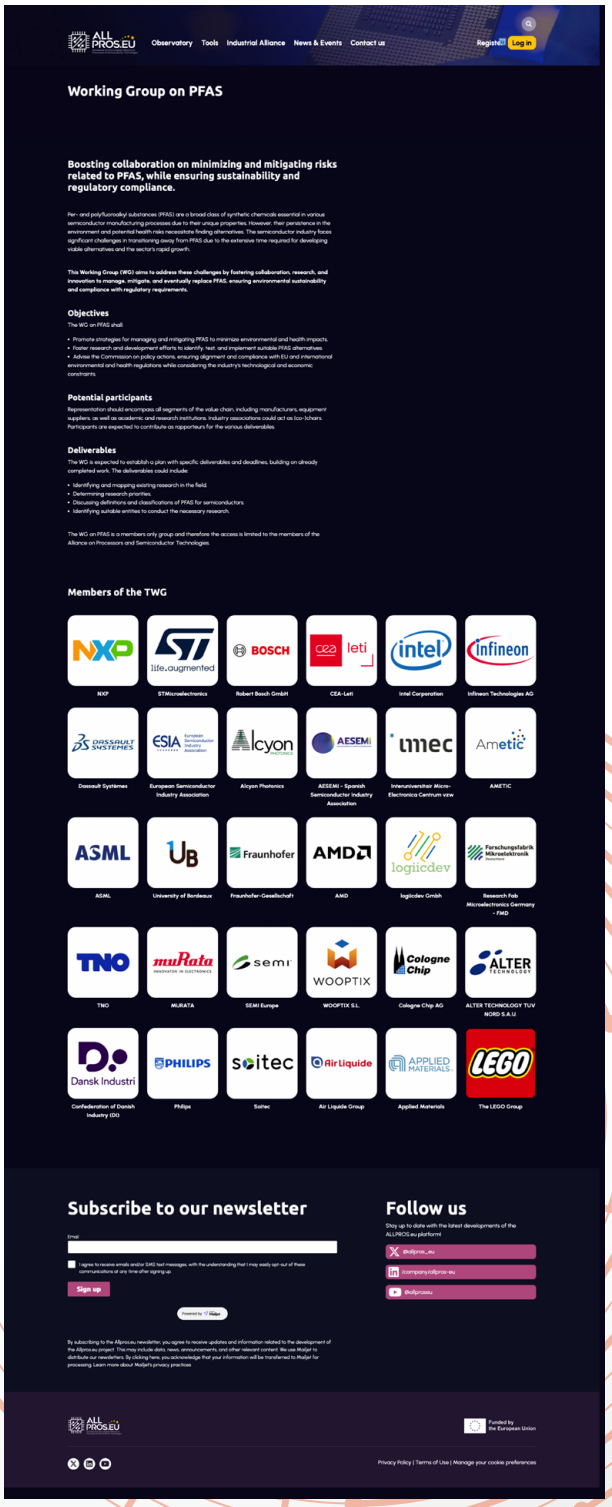
One milestone of the WG activities was the election of two co-chairs to proactively suggest and coordinate actions and outputs.

Looking Ahead and Next Steps

The newly elected **co-chairs, Carlos Pardo (AESEMI) and Hans Ehm (Infineon Technologies)**, are diligently working to translate members' input into actionable outcomes. They are developing initial steps and actions, including the formation of four sub-workgroups focused on Scope, Survey, Digital Twin, and Stress Test. This approach provides the Working Group with a solid foundation for developing a comprehensive set of deliverables for the upcoming term.

Exploring sustainability and risk reduction: the objectives of the WG on PFAS

Lottie Boas & Konstantina Mataftsi



Overview of the PFAS WG

The Per- and Polyfluoroalkyl Substances Working Group (PFAS WG), launched under the ALLPROS.eu initiative, is one of three formal groups established by the European Industrial Alliance, alongside those focused on Skills and the Supply Chain. It was formed in response to the EC's commitment to phasing out PFAS, a large group of synthetic chemicals widely used in the semiconductor industry. Due to their exceptionally strong chemical bonds, PFAS compounds persist in the environment and may pose significant health risks.

Objectives of the PFAS WG

The WG actively engages key stakeholders involved in semiconductor and processing technologies across the EU, with up to 60 members representing over 30 organizations. Under the guidance of an EC representative from DG CONNECT, the PFAS WG aims to achieve the following objectives:

- Promote strategies for managing and mitigating PFAS to minimize their environmental and health impacts.
- Encourage research and development to identify, test, and implement suitable alternatives to PFAS.
- Advise the EC on policy actions to ensure compliance with EU and international environmental and health regulations, while considering technological and economic constraints within the industry.

Overview of Discussions

Starting in October 2024, monthly meetings have been organized to hold discussions and set a collaborative agenda to tackle these challenges head-on. WG members range from key industry players to RTOs and scientific researchers.

PFAS were highlighted for their indispensable properties in semiconductor manufacturing, such as chemical inertness and thermal stability. However, their persistent environmental presence and potential health risks necessitate urgent attention. The need for **research-driven approaches to reduce or replace PFAS usage** was highlighted. Participants discussed the need for targeted research efforts, collaboration across industry and academia, and the importance of aligning with regulatory frameworks.

An open discussion revealed a shared consensus on the need to map specific needs across different fields to identify concrete steps for addressing PFAS issues. As pointed out by a TNO representative "*Understanding which materials are most critical to replace and what is already being addressed by industry will allow academia to focus on unmet challenges and ensure that their efforts complement industrial initiatives effectively*." An Imec representative additionally suggested that "*Research should focus on both the quantity of materials used and the environmental impact of different types to rank the most significant PFAS-containing materials*."

In an interactive brainstorming session using a Mural platform, members expressed a strong interest in mapping global R&D efforts on PFAS to identify gaps, setting industry priorities to replace PFAS with sustainable alternatives, and facilitating discussions across the entire supply chain, among other efforts.

Notable presentations included the ESIA-SEMI research roadmap, outlining key research priorities in PFAS serving as a foundation for the WG's future efforts. Additionally, a representative from CEA-LETI presented on the GENESIS project's objective to address sustainability in manufacturing, with a particular focus on managing critical raw materials, including PFAS.

Looking Ahead

With a balanced representation from industry, research, policymakers, and public interest groups, the WG ensures transparency and credibility by grounding its outcomes in scientific evidence. The newly elected co-chairs, Dimiter Prodanov (Imec) and Mathias Mueller (ESIA) will be responsible for translating the members' input into actionable outcomes and developing a high-level timeline, work plan and set of deliverables for the upcoming term.

Leading by example: best practices from the Industrial Alliance

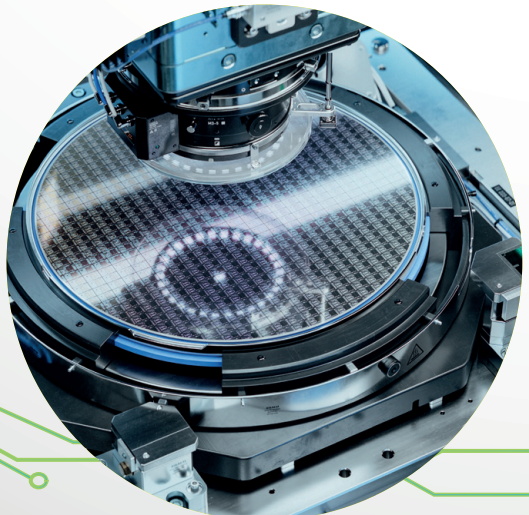
Ola Adach

As part of the ALLPROS.eu project, we're collecting a number of Best Practices from across the industry that highlight the innovation and ambition that drives the European chip industry forward. This effort goes hand in hand with the goals of the Industrial Alliance, which exemplifies how pooling resources and expertise can address critical challenges in semiconductor research, design, and manufacturing. For this issue of the Chip Chronicles, we're including the highlights of three Best Practices (find more on our website).

WG on Supply Chains: SiPearl

SiPearl, a founding member of the European Processor Initiative (EPI), focuses on delivering energy-efficient HPC solutions tailored for Europe's exascale computing needs. Leveraging public-private partnerships, SiPearl has adopted practices emphasising co-development with stakeholders, modular design for scalability, and energy efficiency. Their collaboration with ecosystem players ensures innovation aligns with the continent's sustainability and technological goals.

> *"SiPearl is contributing greatly to the reduction of the EU's chip design deficiencies by harnessing the collaborative nature of open source whenever possible"*



WG on Skills: LIST

LIST (Luxembourg Institute of Science and Technology) strengthens Europe's semiconductor innovation ecosystem through its cutting-edge facilities, talent development initiatives, and collaborative R&D projects. The Institute's focus on education includes internships, open-access cleanrooms, and outreach programs which aim to inspire the next generation of semiconductor experts. By addressing talent shortages and fostering innovation, LIST is a key contributor to Europe's global competitiveness in semiconductors.

> *"Through its strategic focus on collaboration, talent development, and hands-on research, the Luxembourg Institute of Science and Technology exemplifies the value of open collaboration in semiconductor R&D."*

Special mention: EUROPRACTICE

EUROPRACTICE, a pan-European platform established in 1995, has become a cornerstone of semiconductor innovation by providing accessible design tools and fostering advanced technology packaging (ATP) breakthroughs. Comprising five key partners, including two Alliance members (Imec and Fraunhofer-Gesellschaft), the consortium empowers over 600 academic institutions and 300 SMEs across Europe with access to tools, training and education to harness the power of semiconductor collaboration.

> *"EUROPRACTICE's brokerage and training services help to bridge the gap between global industry players and European research and academic institutes, promoting innovation."*

The Industrial Alliance on Processors and Semiconductor Technologies at EFECS 2024: Advancing Europe's Semiconductor Strategy

Valeriya Fetisova

*On December 5-6, 2024, the Industrial Alliance on Processors and Semiconductor Technologies took stage at **EFECS 2024** (European Forum for Electronic Components and Systems), a key event dedicated to microelectronics and semiconductor innovation. As Europe accelerates efforts to strengthen its semiconductor industry, the Industrial Alliance's presence at EFECS 2024 underscored its commitment to fostering collaboration, driving technological leadership, and reinforcing Europe's resilience in the global semiconductor supply chain.*

Key Highlights from the Industrial Alliance at EFECS 2024

EFECS 2024 brought together industry leaders, policymakers, and researchers, providing a crucial platform for the Industrial Alliance to engage with stakeholders, discuss key challenges, and outline strategic joint actions. **Silvana Muscella**, Coordinator of ALLPROS.eu and CEO of Trust-IT Services, presented the preliminary outcomes of the discussions held within the Alliance's Working Groups, as well as the support provided by ALLPROS.eu as its Secretariat.

With a high level of participation from industry representatives, research organizations, and RTOs, Ms. Muscella emphasized the crucial role of the Industrial Alliance in addressing the most pressing challenges in the European semiconductor landscape. **The Working Groups on Skills, PFAS, and Supply Chain** have already taken significant steps toward aligning priorities and defining actions needed to build a more resilient and competitive semiconductor sector in Europe.

While the Working Groups have only recently begun their joint efforts, they have already delivered tangible results. One key achievement is the Blueprint Report on the Skills Gap, a milestone publication developed by the Skills Working Group to address Europe's urgent need for specialized semiconductor talent.

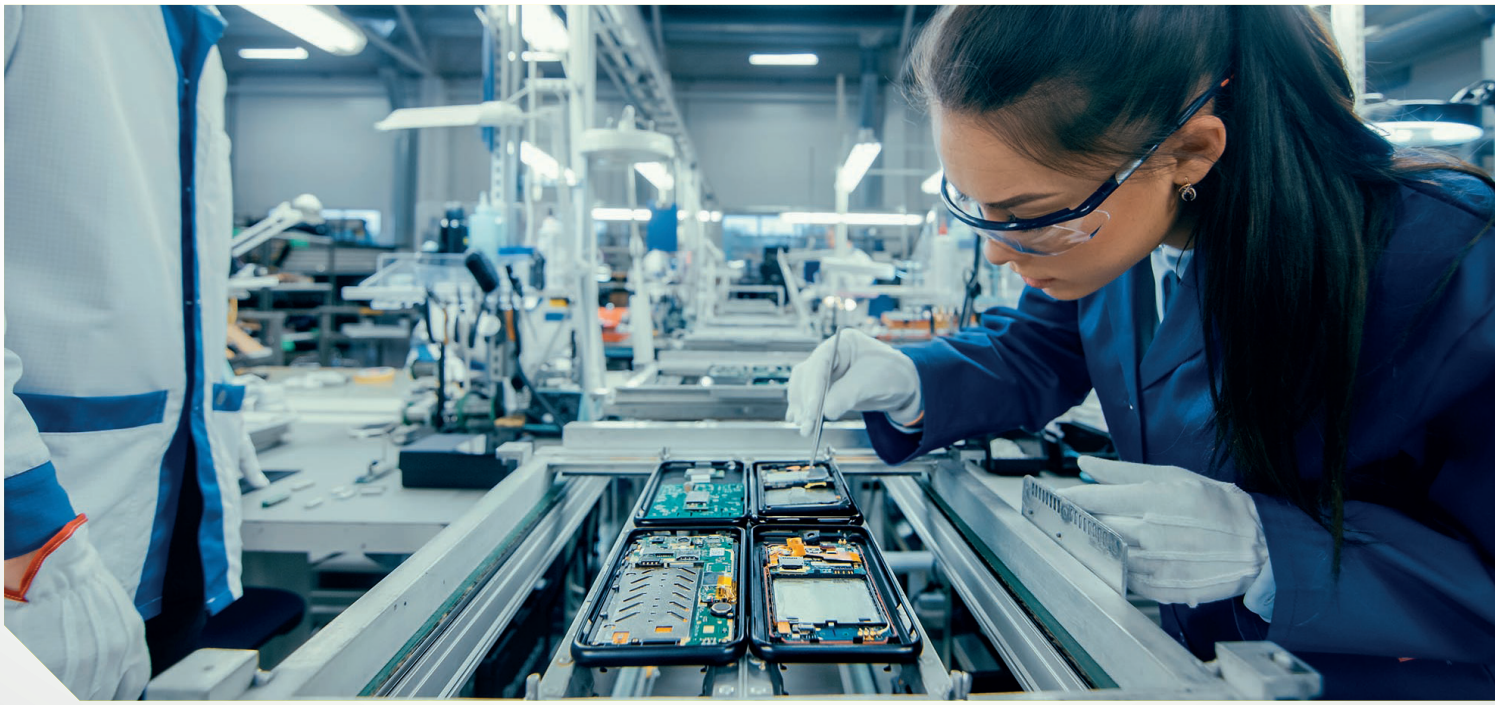
Join the Industrial Alliance's Working Groups

A key message from Ms. Muscella's address was that the Industrial Alliance remains open to new members. What sets the Alliance apart is its inclusiveness and industry-driven approach, ensuring that all relevant voices contribute to shaping Europe's semiconductor future. European organizations working on semiconductor design and manufacturing are invited to join, subject to approval by the European Commission.

With increasing global competition and geopolitical uncertainties impacting semiconductor supply chains, EFECS 2024 served as a unique opportunity for the Industrial Alliance to raise awareness about its mission. The event not only showcased the Alliance's progress but also highlighted the need for continued collaboration to secure Europe's leadership in semiconductor technologies.

> *"The Industrial Alliance on Processors and Semiconductor Technologies is built by industry, for industry. It unites key players across Europe—large enterprises, SMEs, research organisations, and associations—to tackle critical gaps in microchip production and drive long-term resilience. Through the working groups on Skills, Supply Chains, and PFAS, the Alliance is driving industry-led solutions to industry-wide challenges. Now is the time for stakeholders to step forward, get involved and actively contribute to shaping the future of Europe's semiconductor sector."* **Silvana Muscella, ALLPROS.eu Coordinator, EFECS 2024.**

Learn more about how to join the Industrial Alliance and its Working Groups: https://digital-strategy.ec.europa.eu/en/policies/alliance-processors-and-semiconductor-technologies



ALLPROS.eu Reports

The ALLPROS.eu project gathers key players in the industry, bringing forward ideas that can help address the challenges of the European semiconductor sector. Have a look at some of the key reports you may have missed.

Find them all here:
https://zenodo.org/communities/allpros-eu

Chip Design: Challenges and Opportunities for the Chip Design Industry in the EU

The newest policy brief produced by ALLPROS.eu considers the opportunities and challenges facing the chip design sector in the EU. In the analysis, we highlight some of the most pressing threats to the European semiconductor design industry, and offer targeted policy interventions to address them.

- The skills shortage – persisting across the semiconductor sector – has also affected the chip design industry, reaching reportedly over 20%.
- Startups are a vital part of the design space, but the EU funding and regulatory space has not accommodated well to the particular needs of these companies.

Networking as a driving force of the semiconductor industry in Europe

The post-event white paper report on the third Market Trends webinar, organised by ALLPROS.eu on 02/12/2024 about Networking as a Driving Force of the Semiconductor Industry in Europe summarises key issues regarding the necessity of reducing reliance on external supply chains, reinforcing sustainability in network design, and leveraging cutting-edge technologies like programmable silicon. The report advocates for:

- Strategic investments in sustainable, power-efficient network infrastructure
- Enhancing collaborative efforts amongst policymakers, industries, and innovators to secure Europe's semiconductor future.
- Positioning networking as a transformative force, driving innovation and resilience across the semiconductor landscape.

The EU Chips Chronicles is the quarterly magazine of the ALLPROS.eu project showcasing views and exemplary stories from across the European semiconductor community.

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ALLPROS.eu has received funding from the European Commission's Digital Europe Programme (DEP), under Grant Agreement No. 101083947. The content of this document does not represent the opinion of the European Union, and the European Union is not responsible for any use that might be made of such content.

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