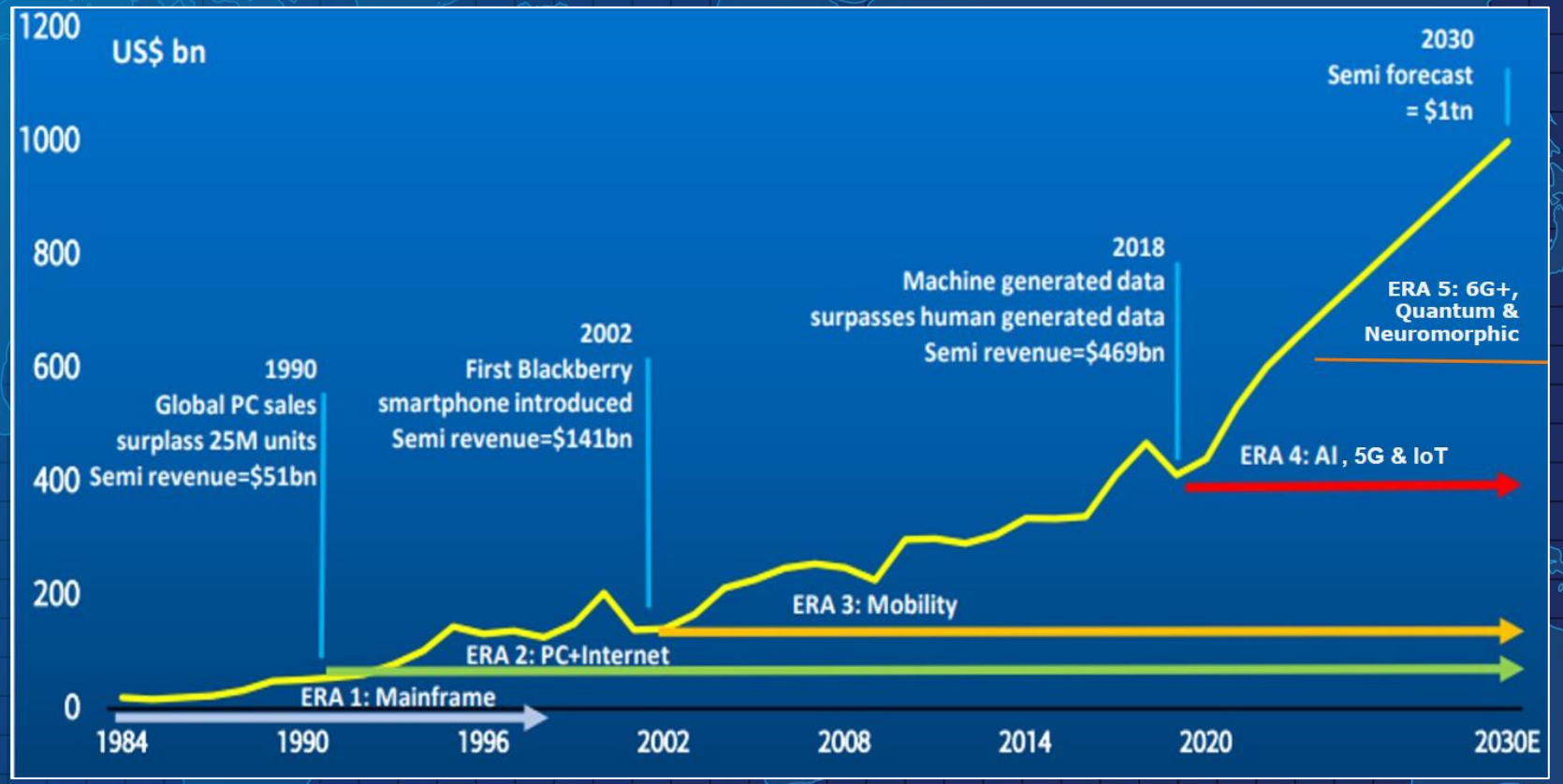
ECoVEM CONFERENCE

Welcome and introduction

Christopher Frieling, SEMI Europe

30/05/2024

Global Semiconductors Industry to double by 2030



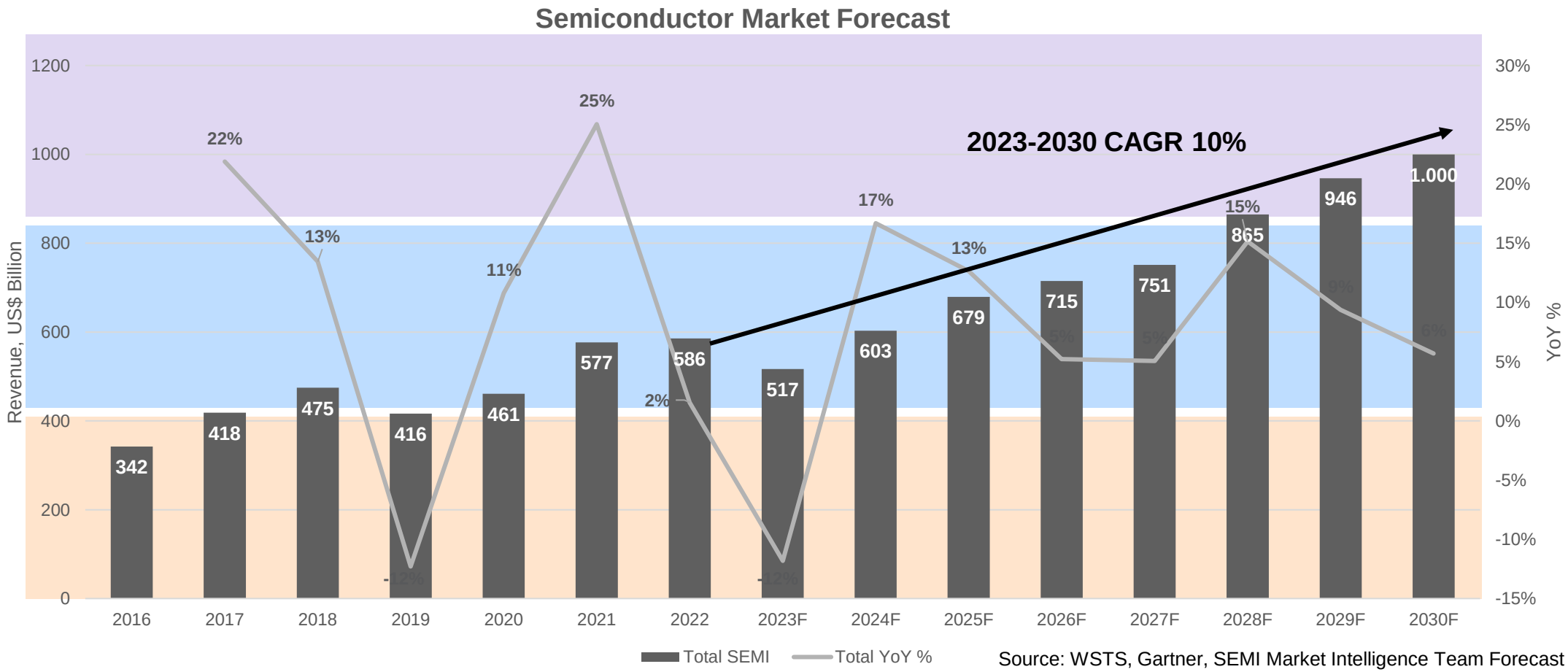
Sources: Bank of America, SEMI

3 Waves of Disruptions Driving Exponential Growth to $1T by ~2030 – Still on Track

3rd Wave
Quantum

2nd Wave
AI

1st Wave
IoT



Source: WSTS, Gartner, SEMI Market Intelligence Team Forecast

$ 500B+ sales in ~50 years → ~$1T by 2030 → ~$5T in 2050?

Current Semiconductor Supply Chain
% Global Manufacturing Capacity 2020

USA
10

EU
8



S. Korea
20

Japan
15

China
20

Taiwan
20

European objective: Reach 20% Global Market Share by 2030 and a More Resilient Ecosystem

semi™

Europe's Microelectronics Ecosystem

European Excellence



Semiconductor Research



Semiconductor For Automotive, IOT, MS/RF, Sensors, Power



Lithography Equipment & Materials



Mobile Network Equipment

Audi · BMW · Mercedes-Benz · Volkswagen · Porsche · Bayer · Philips · ZF · Ericsson · Renault · Continental (The Future in Motion) · Airbus · Thales · Valeo · AVL · Nokia (Connecting People) · orange

RTOs

imec · cea leti · Fraunhofer · VTT

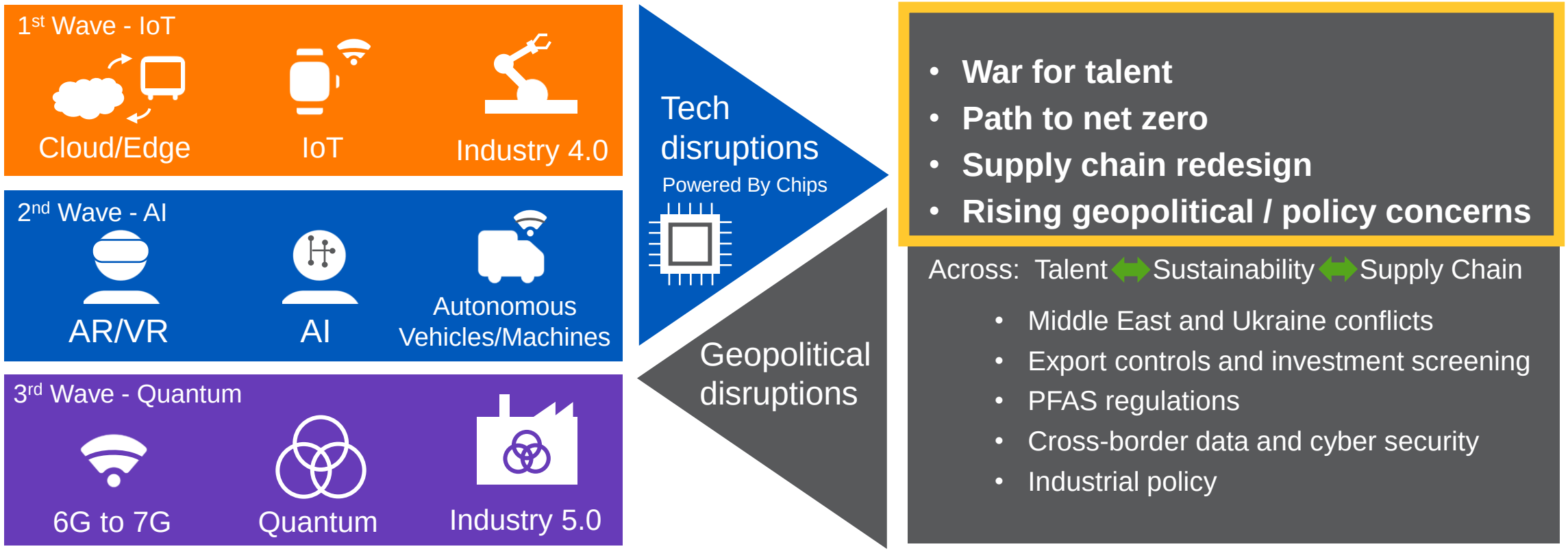
Suppliers

AEM Afore · Air Liquide · Rixtron · ASM · ASML · BASF (We create chemistry) · beneq · umicore · Besi · comet · DAS (Environmental Experts.) · Edwards · EVG · evatec · mks | Atotech · Merck · OKMETIC · Ovivo · picosun · Recif Technologies · Schneider Electric · siltronic · soitec · SPTS (A KLA Company) · SUSS MicroTec · Trumpf · VAT · Zeiss

Design & Manufacturing

ams OSRAM · arm · Bosch · cadence · GlobalFoundries · Infineon · intel · Melexis · nexperia · NXP · tsmc · Siemens Mentor Graphics · ST life.augmented · II-VI · xfab

Powerful Tailwinds from 3 Waves of Technology Disruptions, but Significant Global Headwinds Must be Overcome



Sources: Albright Stoneridge Group, SEMI

Unpresented Global Challenges require Unprecedented Global Collaboration

Unprecedented Fab Production Capacity Expansion

109 300mm and 200mm New Fabs Coming Online Between 2022-2026*

- 89 have either begun operation, equipping or construction



Region	300mm	200mm
Americas	14	4
China	36	8
Europe/ Mideast	9	3
Japan	8	2
Korea	4	-
SE Asia	3	4
Taiwan	13	1
Total:	**87**	**22**

War for Talent!!

* Source: SEMI World Fab Forecast 4Q23 (Dec. 2023)


The European Chips Act
Goal of having 20% of global microchip production by 2030

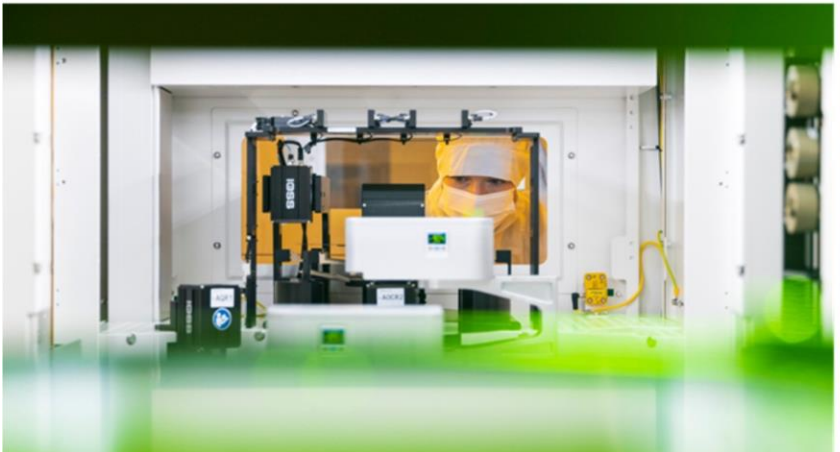

GREGG LOWE
Chief Executive Officer
Wolfspeed Inc.
SHAPING
TRANSFORMATION
GESTALTEN


Olaf Scholz
Chancellor of Germany
"Germany welcomes Intel and the significant investment the company plans to make, creating 3,000 high tech jobs and many more along the value chain. The first of its kind fab site in the EU will help rebalance global silicon capacity and create a more resilient supply chain."
Photo credit: Federal Government/Thomas Köhler




onsemi


FRANCE




infineon
Part of your life. Part of tomorrow.



Investments on the rise under the EU Chips Act and a growing need for workers

New fabs in Europe have increased the demand for people

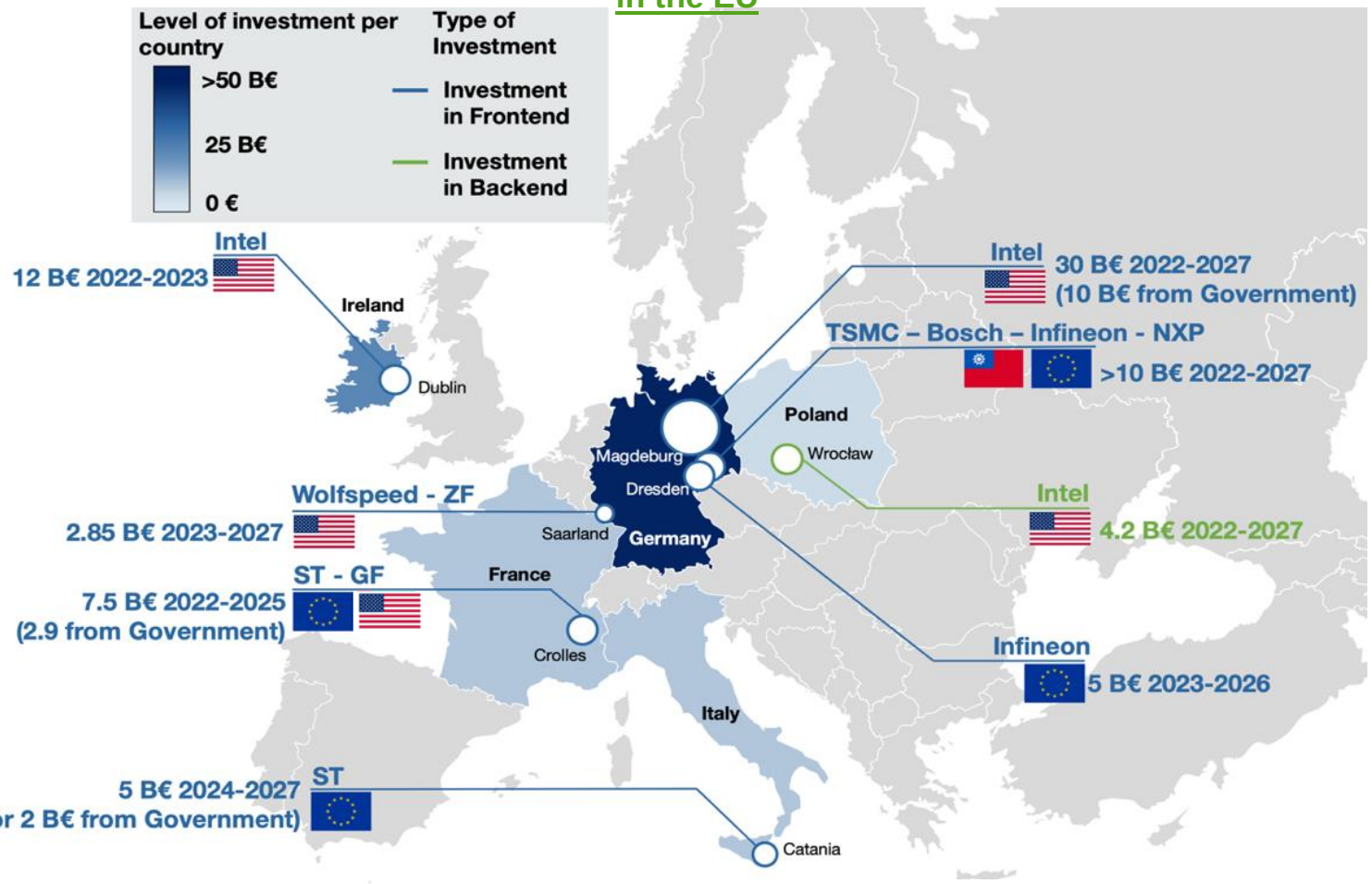
2 300mm fabs are currently ramping

5 300mm fabs are announced, in planning or move-in stage

2 200mm fabs are announced and in planning stage

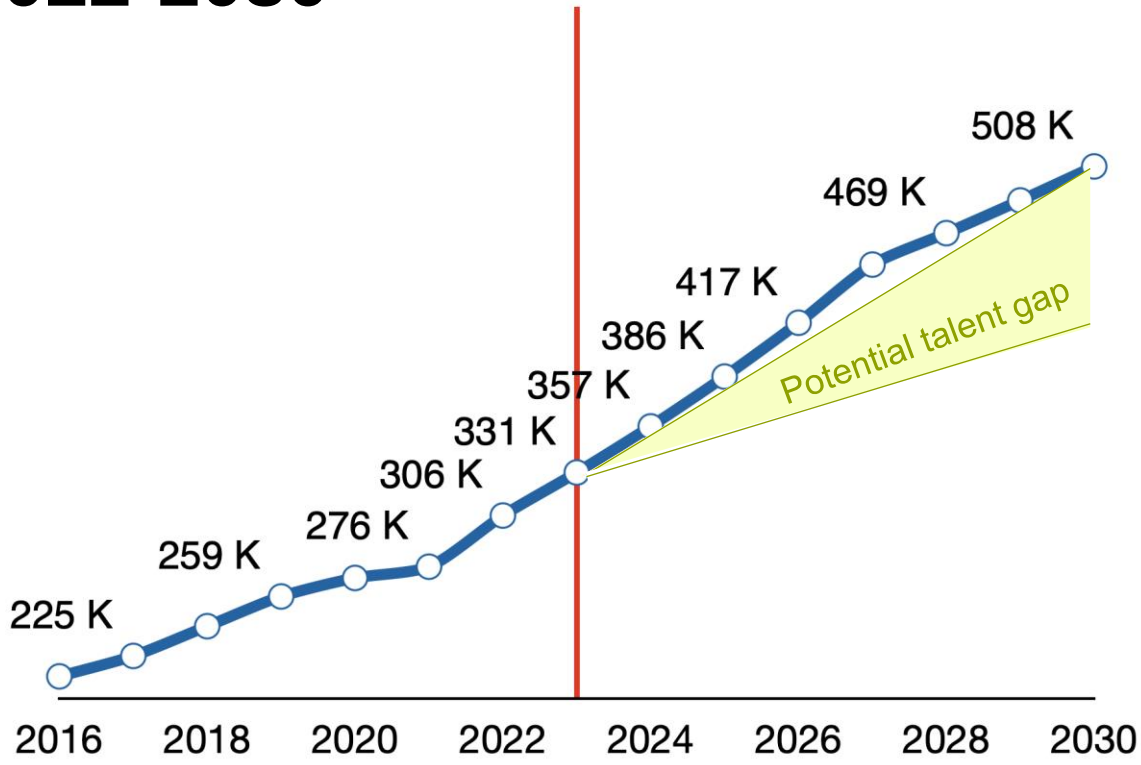
3 150mm fabs are announced

Ongoing investment plans exceeding 1 B€ in the semiconductor in the EU



Source: DECISION Etudes & Conseil,

EU Semiconductor workforce 2016-2022 and forecasts 2022-2030



Source: DECISION Etudes & Conseil,

- 2016-2021 period: **+5.4% / year** for the EU semiconductor workforce
- 2021: **Only 2% growth** due to the COVID crisis
- 2022-2030 period: **expected 6.5% / year**
  - Boosted by EU Chips Act and the numerous investment plans
- 2022 to 2030:
  - + 200,000 employees
  - EU workforce multiplied by 1.7

Key Takeaways

European Semiconductor Industry

- Key mega trends are driving semiconductors growth
- Investments on the rise under the EU Chips Act (and around the globe)
- Additional 200,000 staff needed to reach EU Chips Act ambitions

- Diversity enlarges the talent pool: the industry must collectively address the topic of diversity; currently women make up 20 to 25% of the global semiconductor workforce.
- Barriers to EU mobility must be lowered to attract qualified candidates from abroad.


SEMI, the “lighthouse” navigating our members through the $1T industry headwinds!
Thank You!
laltimime@semi.org

European Chips Skills Academy

Christopher Frieling

semi™

EUROPEAN CHIPS SKILLS ACADEMY

Co-funded by the European Union

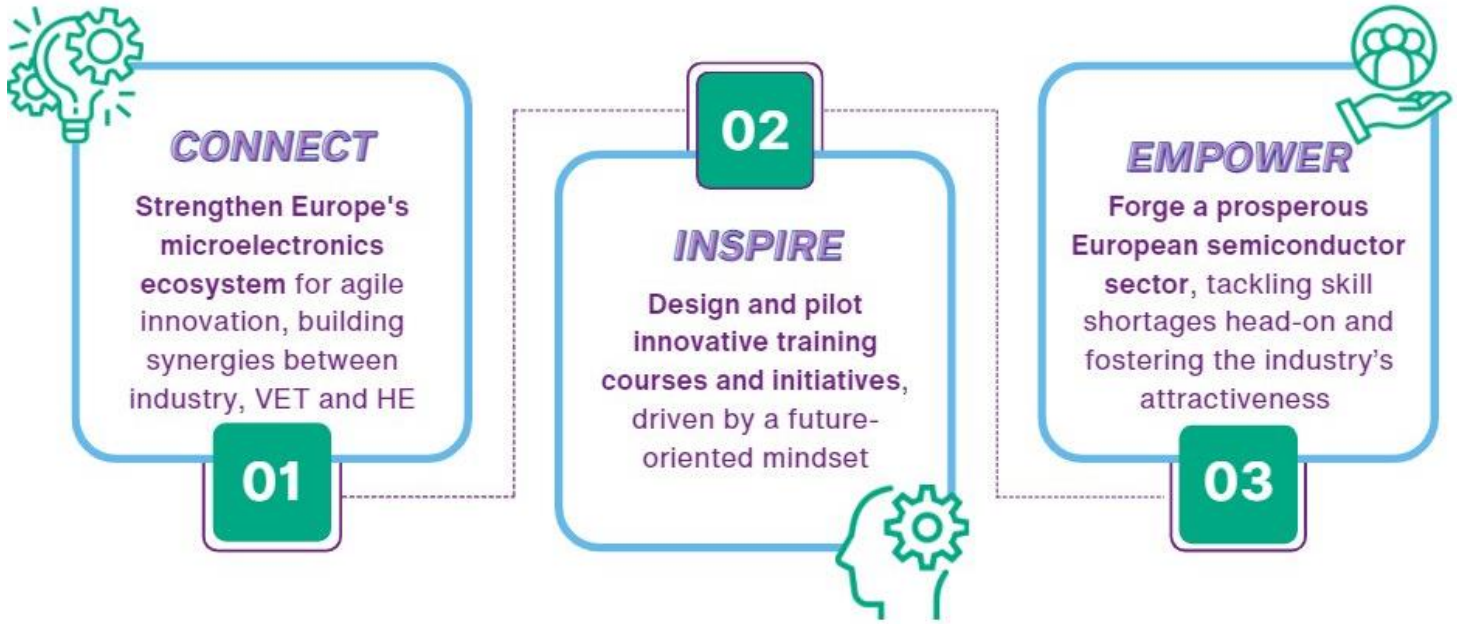
Ecovem Meeting

May, 2024

European Chips Skills Academy

At a glance:

- **Objective**: Create an **Alliance** between educational systems and the microelectronics industry to develop a decentralized **Academy** to meet the growing demands for skills.
- **Funding:** 4 M €
- **Duration:** 4 years - Oct. 2023 to Sep. 2027



- 18 Consortium Members + Associate Partners
- Quantify the **skills gap** to better understand the current and upcoming needs of the sector.

Meet the partners

European Chip Skills Academy

Industry

semi

Infineon

Melexis
INSPIRED ENGINEERING

OKMETIC

Aeneas
Engage in the Digital Future

SILICON SAXONY
THE HIGH-TECH NETWORK

knolyx

DECISION
ETUDES & CONSEIL

Research & Innovation

imec academy

Tyndall
National Institute
Institiúid Náisiúnta

Accreditation

CIMEA
THE ART OF CONNECTING ACADEMIA
SINCE 1984

Social Partner

Platform
Talent voor
Technologie

Higher Education & Training

TECHNISCHE UNIVERSITÄT DRESDEN

TU Graz
Graz University of Technology

MŰEGYETEM 1782

VSB TECHNICAL UNIVERSITY OF OSTRAVA

IALFVG

ANCEP
ASOCIACIÓN NACIONAL DE CENTROS CON CERTIFICADOS DE PROFESIONALIDAD

Our mission



ECS-Academy

Specialized training, courses, internships, Summer School, Student Forum...



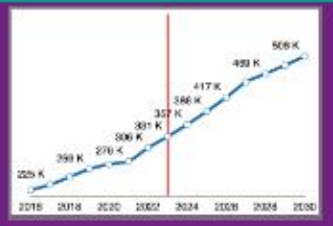
ECSA e-Learning Platform

Tailored pathways for individual career development



European Chips Skills Alliance

Network building and cross-discipline dialogue

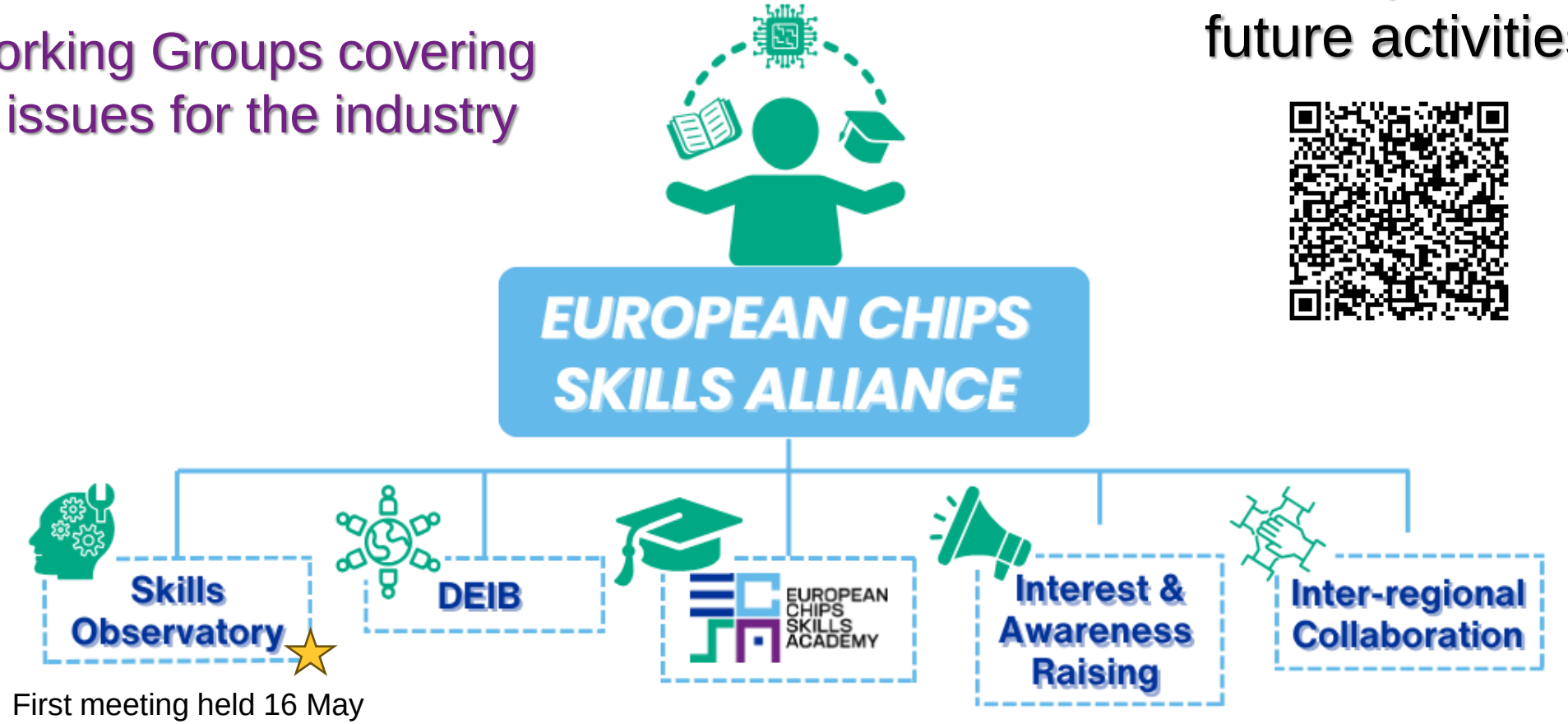


Underpinned by robust skills intelligence

Quantify skills gap, monitor trends and skills needs...

The Alliance

5 Working Groups covering top issues for the industry

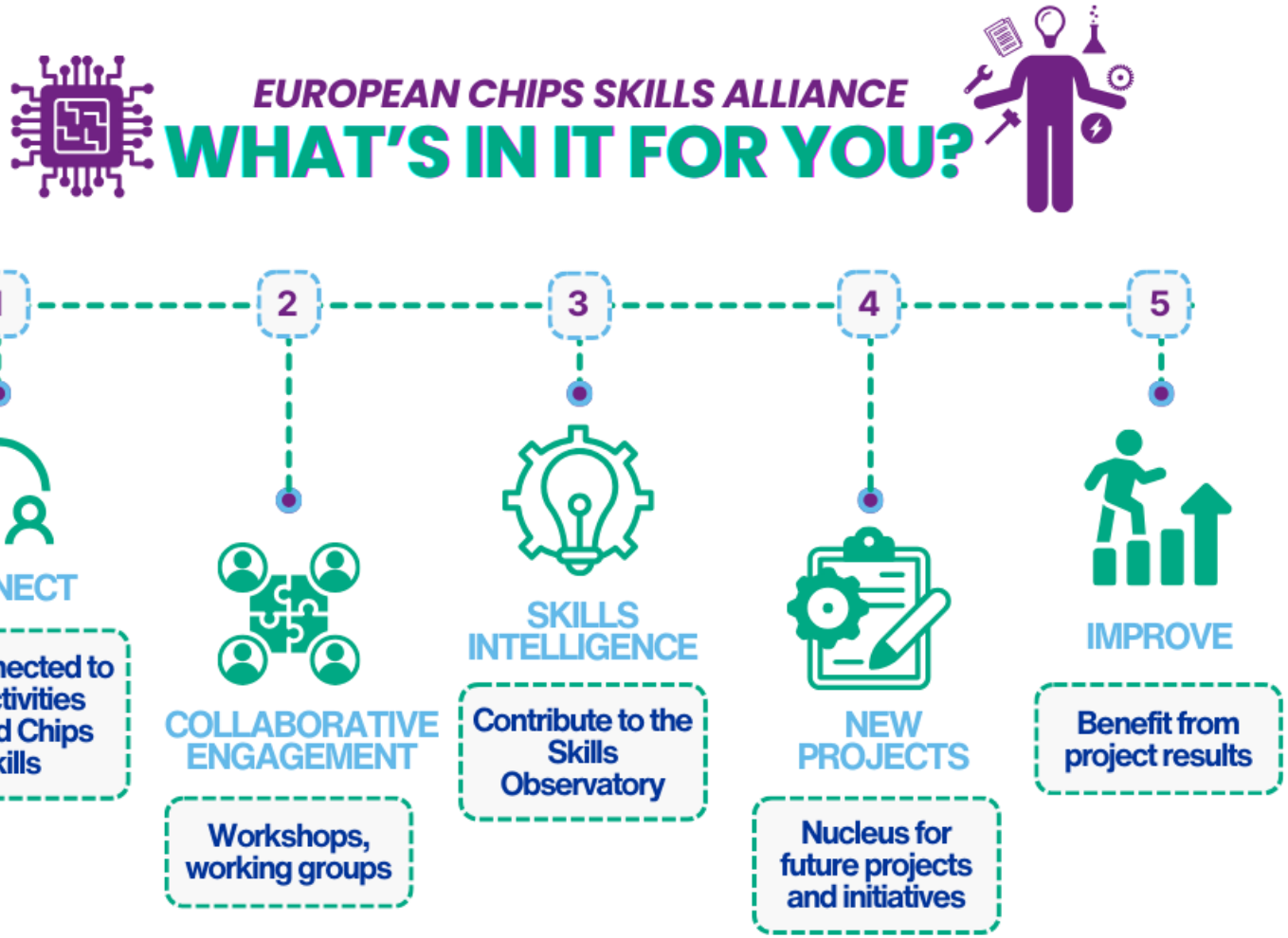


First meeting held 16 May

Be a part of future activities

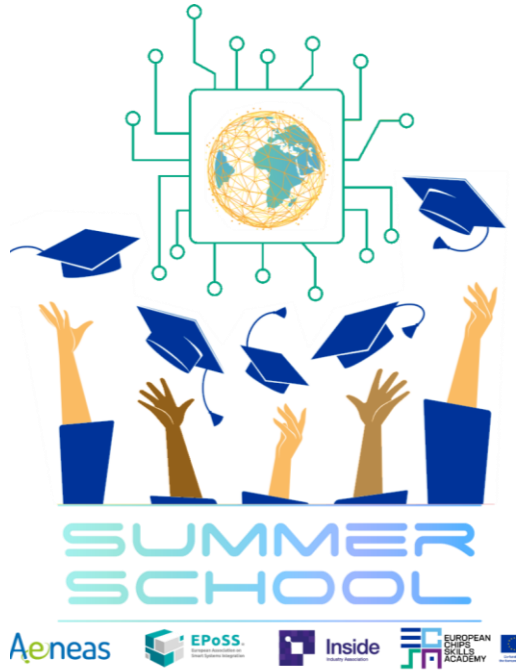
Want to get involved?

Sign up now!



ECS Summer School

- Developed in collaboration with AENEAS, EPoSS, and Inside who first piloted the school in 2023.
- Opportunity for students to
  - Connect with like-minded students from across Europe
  - Engage with a wide range of topics such as microelectronics technology, IC design, integration, digital systems, career guidance and DEIB.
- 2024 edition will be held on 18 – 23 August in Bertinoro, Italy.

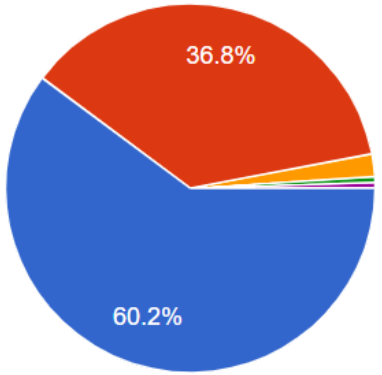


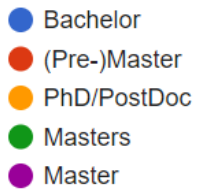
ECSA Student Forum

- Hosted at TU Delft on 24 April
  - 222 students registered and ~ 120 attended
- Program included:
  - Speakers from industry showcasing different semiconductor applications / jobs
  - Student research presentations
  - Panel discussion with students, professors, and industry on barriers for students
- Next edition coming soon!









Student Ambassador Program

- Opportunity for students to
  - connect with the project
  - engage with the industry through structured events such as SEMICON, organized ‘field trips’ to companies
  - access the tools, resources, and support to pilot their own projects.
  - Engage in mentorship programs (as both mentors for younger students and mentees with industry professionals)

- Program launched on 24 April -> now up to 20 ambassadors from around the EU.



E-Learning Platform

- The ECS Academy E-Learning platform will officially launch in **July 2024**.

- The platform incorporates features such as:
  - community engagement
  - gamification mechanics (e.g., badges for learning achievements)
  - certificates for completion
  - mobile learning

Education Leaders

Pan-European network of educational providers to facilitate cooperation in:

- → Standardizing curricula
- → Sharing best practices between institutions
- → Lowering the barriers for student exchanges
- → Creating university clusters based on specialization
- → Carrying out joint initiatives in the realm of image campaigns to attract students and pilot programs

Initial partners + EC as observer



1 BME
2 Brno University of Technology
3 FMD
4 Hellenic Mediterranean University
5 IAL-FVG
6 KTH Sweden
7 KU Leuven
8 MINES ParisTech
9 Polytechnic University of Madrid
10 SupraTix
11 TU Dresden
12 University College Cork
13 University College Dublin
14 University of Bologna
15 University of Rennes

The road ahead



Work Based Learning to combine practice with theory



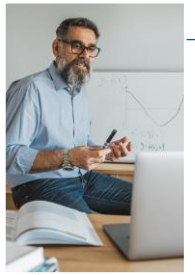
Internship models at various stages of the education path – complementing WBL



Placement/career development paths which define mechanisms for transition from education to work



Online and physical curricula to upskill/reskill workers using microcredentials



Professorship guidelines to expand teaching opportunities



Summer schools and other structured learning programs

Where to find us

- Stay up to date on latest events and activities through our website → ChipsAcademy.eu



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