European Chips Skills Academy

Victoria Cummings | SEMI Europe

6 December 2024

Agenda

Introduction to ECSA

Skills Strategy 2024: talent gap forecast

Opportunities for collaboration

European Chips Skills Academy

EUROPEAN CHIPS SKILLS ACADEMY

Co-funded by the European Union

Creating Opportunity

Hands-on initiatives to attract students, cultivate their curiosity, and support their career development

01

E-Learning

Design and pilot innovative training courses and initiatives, driven by a future-oriented mindset

02

Network Building

Strengthen Europe's microelectronics ecosystem, building synergies between industry, VET and HE

03

- Erasmus+
- Oct 2023- Sept 2027
- Coordinated by SEMI
- 18 partners from 11 countries
- Research, education, industry

semi · Aeneas · Tyndall National Institute Institiúid Náisiúnta · DECISION ETUDES & CONSEIL · VŠB TECHNICKÁ UNIVERZITA OSTRAVA · OKMETIC · MŰEGYETEM 1782 · TU Graz · Melexis INSPIRED ENGINEERING

SILICON SAXONY THE HIGH-TECH NETWORK · imec academy · IALFVG · Platform Talent voor Technologie · Infineon · knowledge · TECHNISCHE UNIVERSITÄT DRESDEN · CIMEA THE ART OF CONNECTING ACADEMIA SINCE 1984 · ANCEP ASOCIACIÓN NACIONAL DE CENTROS CON CERTIFICADOS DE PROFESIONALIDAD

European Chips Skills Academy – year one

EUROPEAN CHIPS SKILLS ACADEMY

Co-funded by the European Union

- **ECSA Skills Strategy Report** quantified the talent gap in the European Semiconductor industry and highlighted critical skills needs and in-demand job profiles
- Created the **Educational Leaders Board** to align curricula across Europe and support high quality course development
- Launched the **ECSA E-Learning Platform** for training, education, and networking
- Grew the **European Chips Skills Alliance** to over 140 member companies/universities
- **ECS Summer School**, hosted in collaboration with AENEAS, EPoSS, and Inside
- First **Student Forum** held at TU Delft on 24 April with 120 attendees
- **Student Ambassador** program with 32 active ambassadors in the first 6 months

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Skills Strategy 2024

Read the full study

Qualitative analysis identifying:

- Sought after skills
- Critical job profiles
- Emerging skills needs

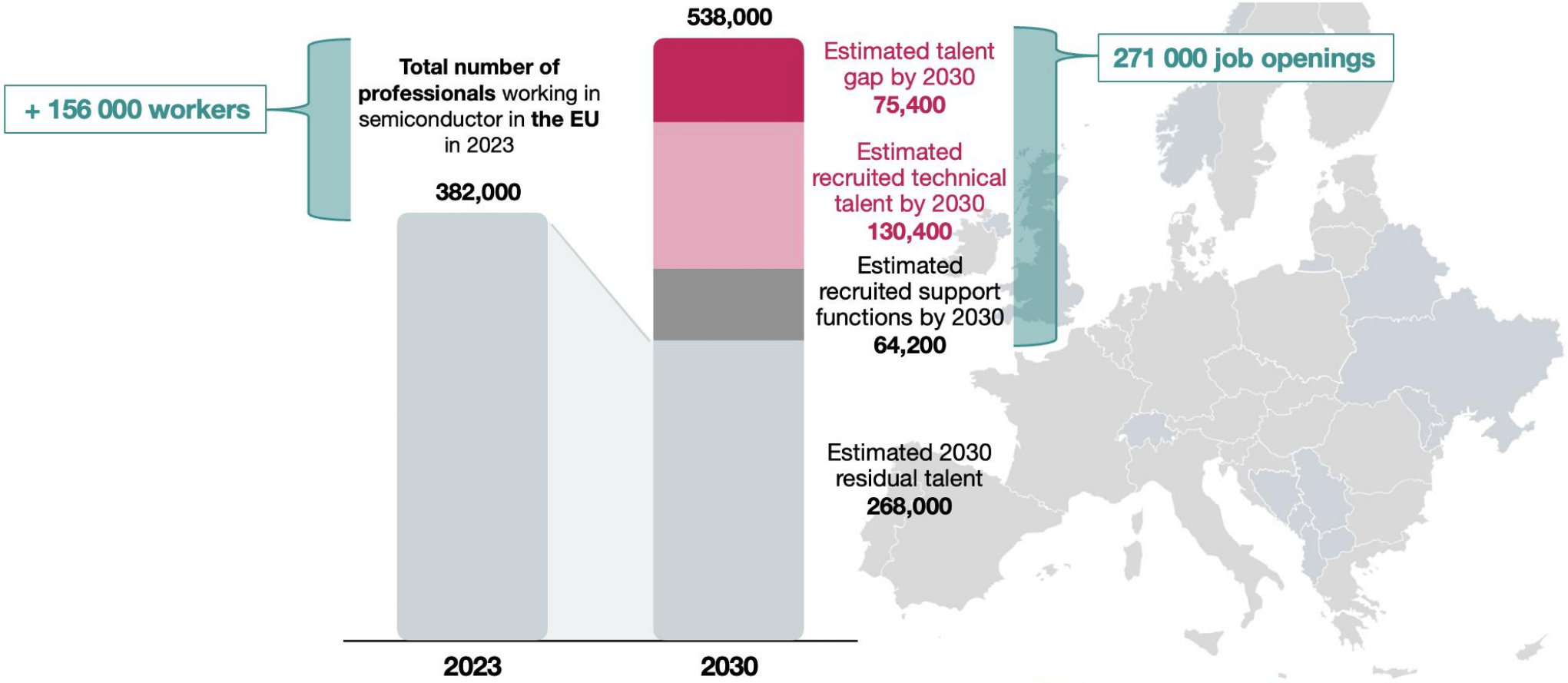
Quantitative analysis projecting:

- Employment growth
- Annual job openings
- Number of STEM graduates entering market
- **Talent gap by 2030**

Written by DECISION Etudes & Conseil

- Technical questions please reach out to Raphaël Beaujeu (beaujeu@decision.eu)

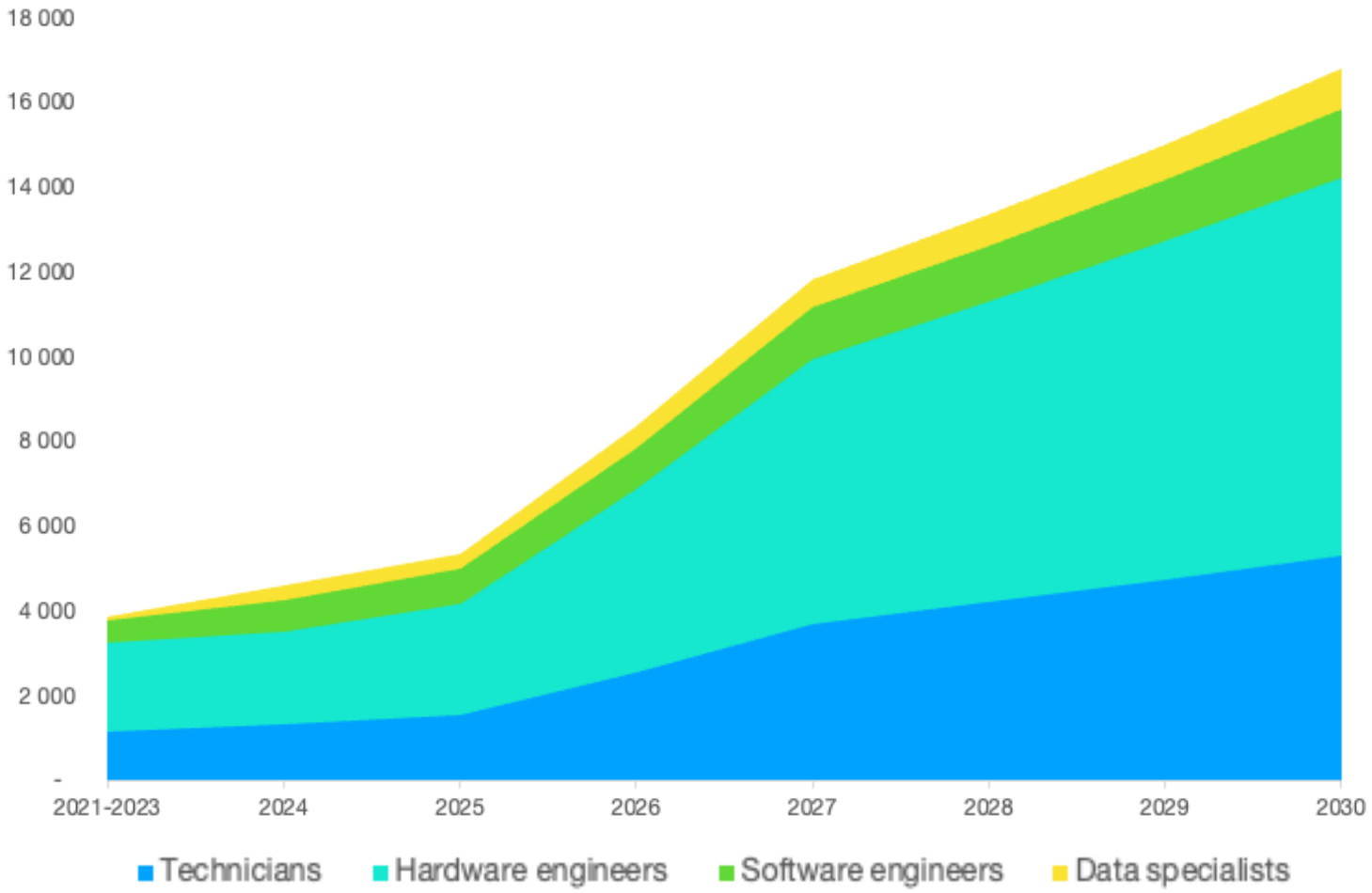
Estimating the talent gap (2023-2030)



Source: DECISION Etudes & Conseil

* Employment data from SEMI's latest forecasts (June 2024) of installed production capacity for the period 2024-2027

Annual projected semiconductor talent gap in the EU (2024-2030)



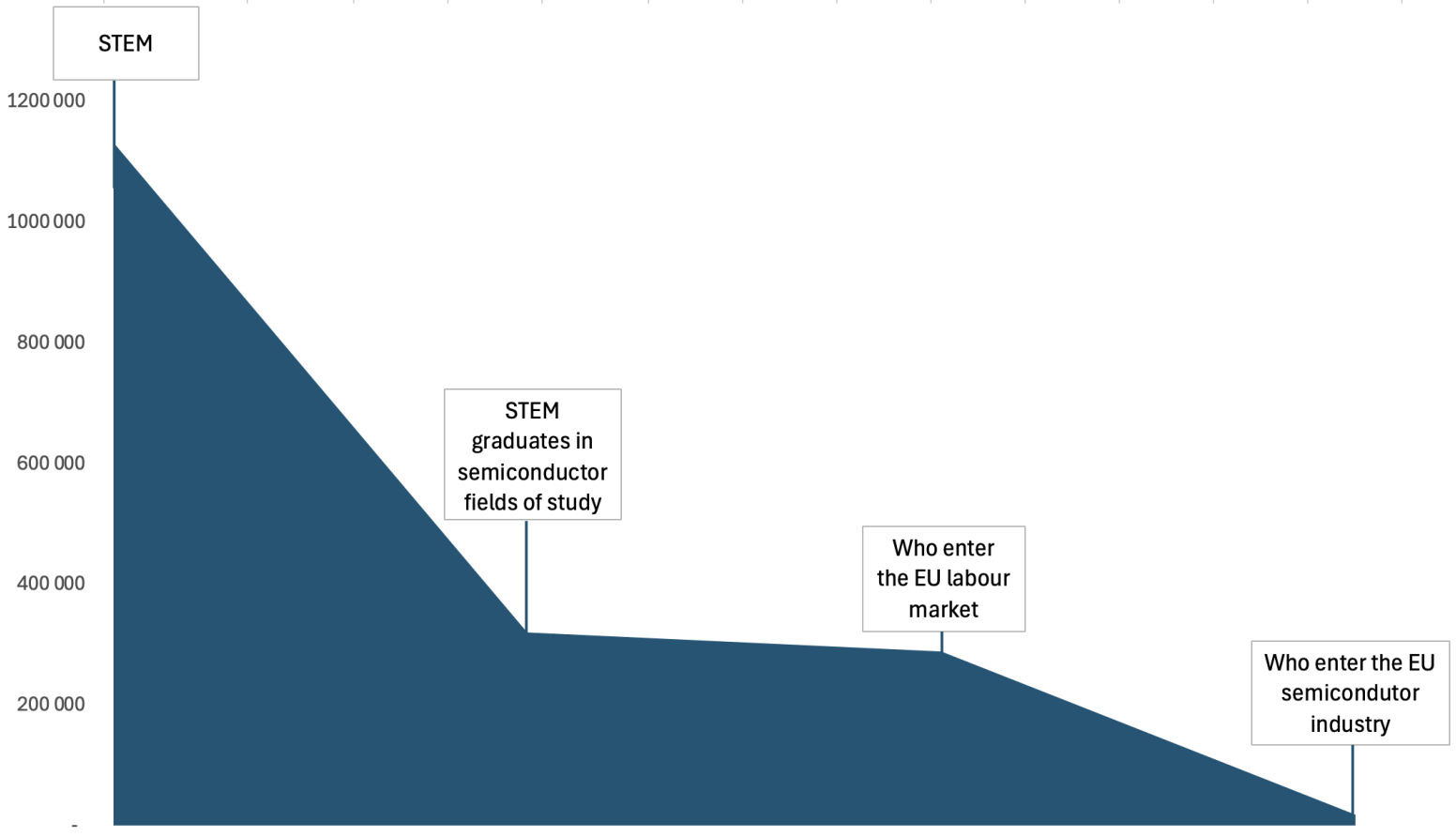
Source: DECISION Etudes & Conseil

Talent gap projected to rise due to a surge in job openings (+5%/year) outpacing the growth in graduates (+1%/year)

By 2030, the EU will miss **75,380** skilled professionals including :

- 40 000 hardware engineers (52%)
- 23 500 Technicians (31%)
- 11 300 software engineers and data specialists (15%)

EU graduates entering the EU semiconductor industry, 2022



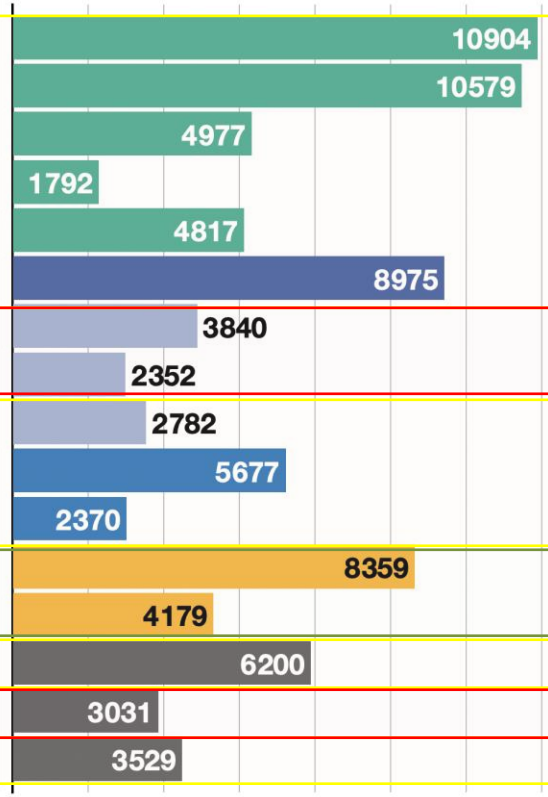
Source: DECISION Etudes & Conseil; Eurostat

The EU produced **1.2 million** STEM graduates in 2022

- **28 %** with a semiconductor-related field of study, of which:
- **90 %** entered the EU labor market, of which:
- Only **6 %** (17,800 graduates) entered the EU semiconductor industry.

Talent gap by job profile on EU soil by 2030

Field	Semiconductor workforce shortage in the EU from 2024 to 2030	% total	Per year
TOTAL workforce shortage	75387	100 %	12565
Manufacturing (33 000)	Process technicians	10904	14 %	1817
	Process engineers	10579	14 %	1763
	Maintenance technicians	4977	7 %	829
	Operator / quality inspector technicians	1792	2 %	299
	Others (Automation, materials, quality / reliability)	4817	6 %	803
Design (9 000)	Design engineers	8975	12 %	1496
	Of which system designers	3840	5 %	640
	Of which analog designers	2352	3 %	392
	Others (digital, layout, simulation enablement)	2782	4 %	464
Test (8 000)	Test engineers (test, verification, characterization)	5677	8 %	946
	Test technicians	2370	3 %	395
ICT (12 500)	Software engineers	8359	11 %	1393
	Data specialists	4179	6 %	697
Application engineers		6200	8 %	1033
Experts in cybersecurity (by design, secure HW)		3031	4 %	505
Other technical positions (Sustainability, etc.)		3529	5 %	588



Source: DECISION Etudes & Conseil, European Chips Skills Academy

(Only long-term needs, not considering the workforce needed to build the fabs).

Design and cybersecurity profiles ranked as the **most challenging** to fill.

The issue is twofold:

- Lack of training capacities / interest (especially electrical engineering)
- Lack of interest from students in STEM that prefer ICT studies.

Course development

- Courses targeting 4 key areas, particularly emerging/critical skills as identified in Skills Strategy

- **Opening the platform for other projects**
  - Building partnerships with projects to integrate their trainings and consolidate efforts

Core skill areas

Microelectronics
- Design
- Manufacturing
- Testing

Digital
- AI / ML
- Cybersecurity
- Data analysis

Entrepreneurial
- High-tech startups
- Accessing the Chips Fund
- Risk financing

Green
- Circular economy
- Environmental legislation
- Sustainability in microelectronics

The ECSA platform

Beyond the courses

Internship / job listings	Career exploration	Gamification & Skills Challenges	Cooperation with National Chips Competence Centres	Microcredentials
Improving access to resources and hands-on learning	What do careers in the industry look like?	Practical demonstrations of skills	Access to platform to host trainings / educational resources	Community recognized model of certification
Streamlining path from education to career	Introducing students and young professionals to different companies	Community building to engage and excite learners	Collaboration with Centres and support network to share results	Linkages with existing / upcoming projects to support standardization

Scaling up activities

Help us host tours of companies/fabs

Guest lecture at a **summer school**

Be interviewed by students

Share your experience in your career and research

Where to find us

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

Follow ECSA on social media:

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