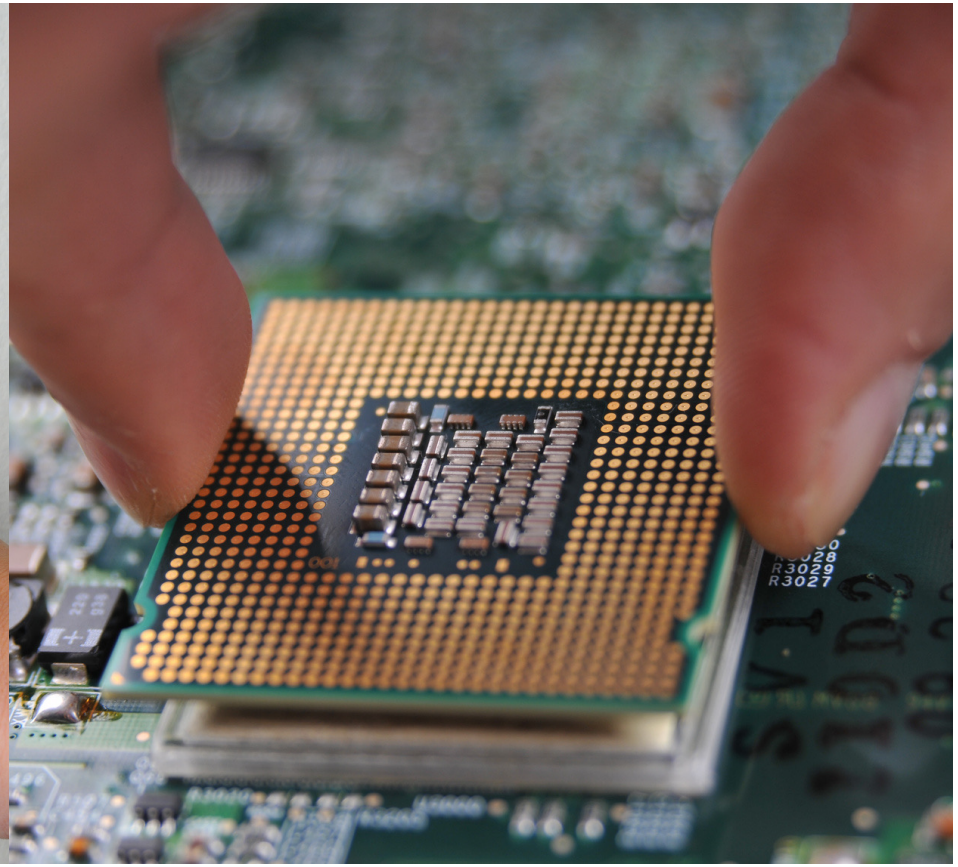
Empowering the EU Single Market via joint education & certification

(European Commission - High Level Forum)

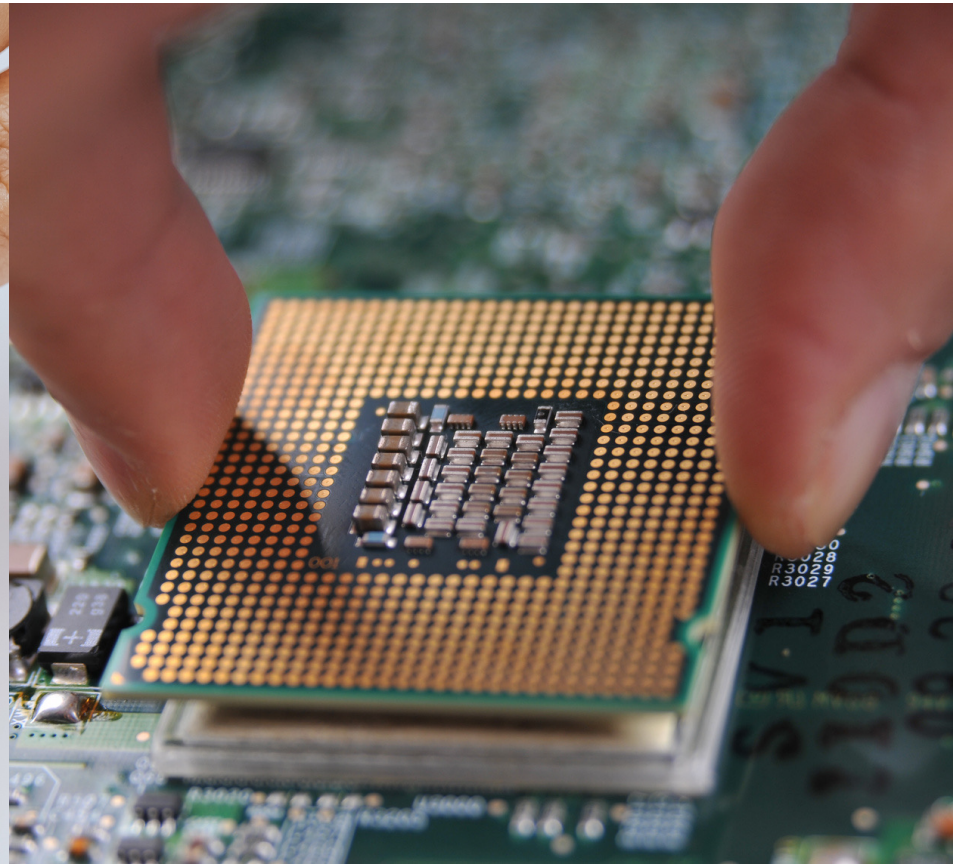
17.06.2024

Hans Ehm (Infineon Technologies),
Henrik Schmielau (Opaix GmbH)

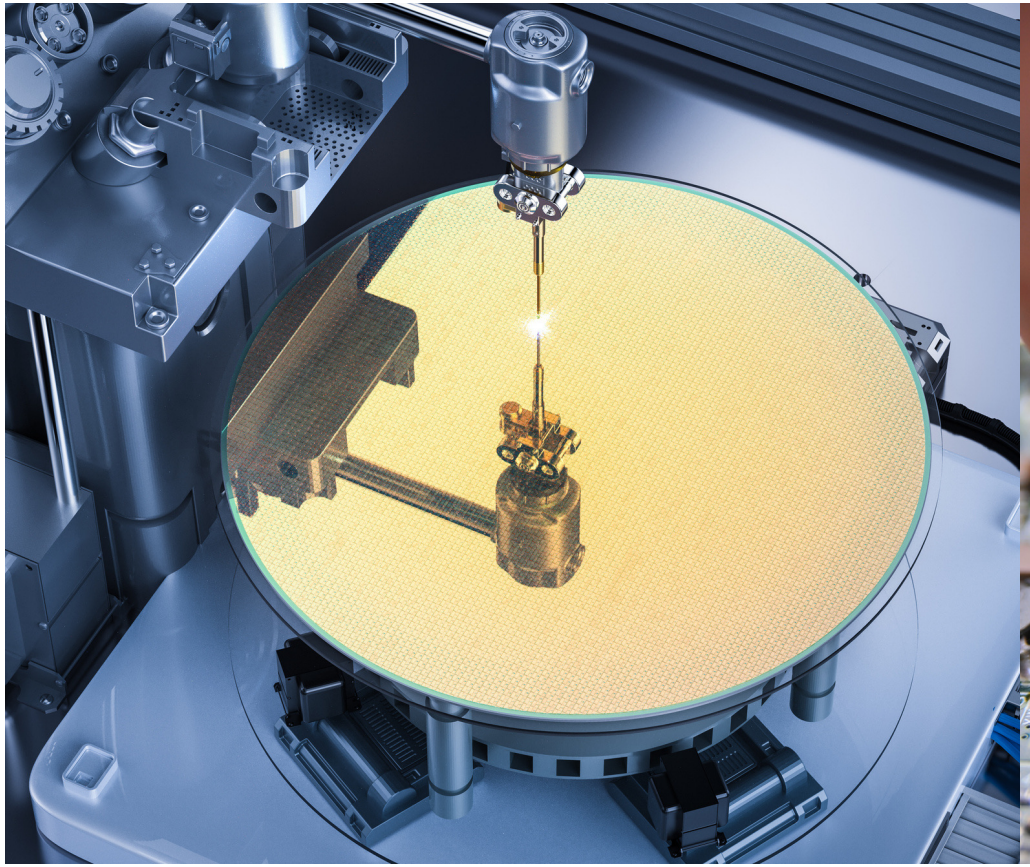
Powering our connected and electrified world – But what is a transistor?

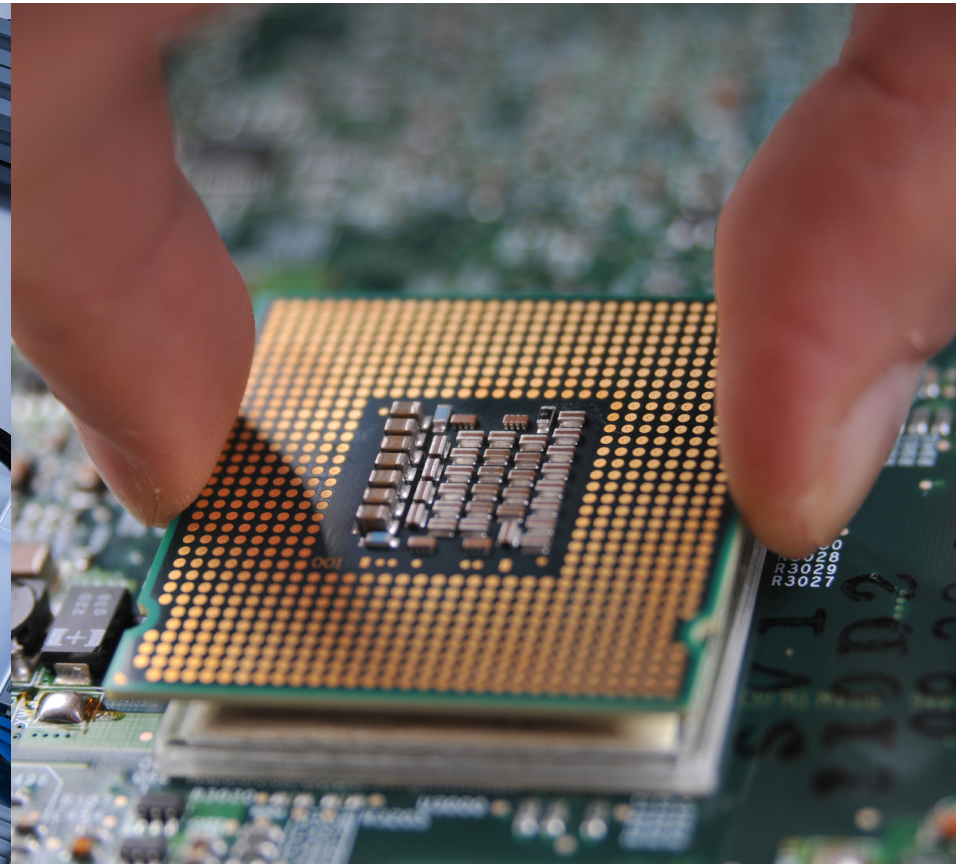


What do finger nails and transistors on a chip have in common?



Tiny products – but how long does it take to manufacture?



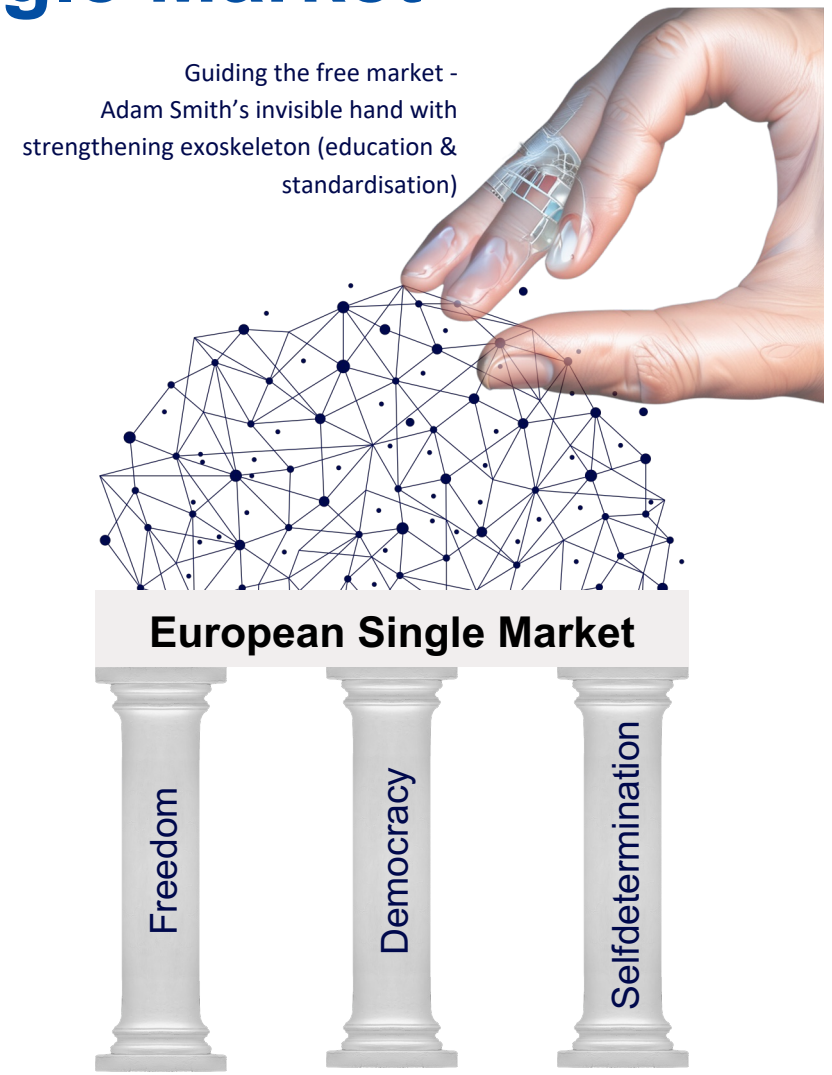


Promoting our values in global competition by strengthening the European Single Market

Our **values** like **freedom** and **democracy** **compete** with e.g., **authoritarian systems** worldwide.

Kondratiev cycles bring **economic challenges**, leading to **significant fluctuations**.

To **mitigate economic fluctuations**, we need **mechanisms** that simultaneously **strengthen** our **economical competitiveness** and **promote** our **values**



Guiding the free market - Adam Smith's invisible hand with strengthening exoskeleton (education & standardisation)

Adam Smith on Standardisation and Education in the EU-Single Market

Adam “GPT3.5” Smith on 07.05.2024

*"**Standardisation**, the **scaffold** upon which **commerce stands**, finds its **strength** in **widespread education**. Through the **dissemination** of **knowledge**, we **imbue** each **rivet** of **standardisation** with **understanding**, ensuring its **seamless integration** into the **fabric** of our **economy**. Let **education** be the **cornerstone** of our **progress**, for in its embrace, we erect a **structure of resilience** and **efficiency** that **withstands** the **pressures** of **global competition** while **upholding** the **values of our society."***

How to strengthen the European Single Market:

Enabling fast and agile collaboration through:

Standardisation

Education & Skills

Innovation

We need a systematically organised ecosystem of educational resources

Ensuring broad-based availability of state-of-the-art knowledge within European Single Market

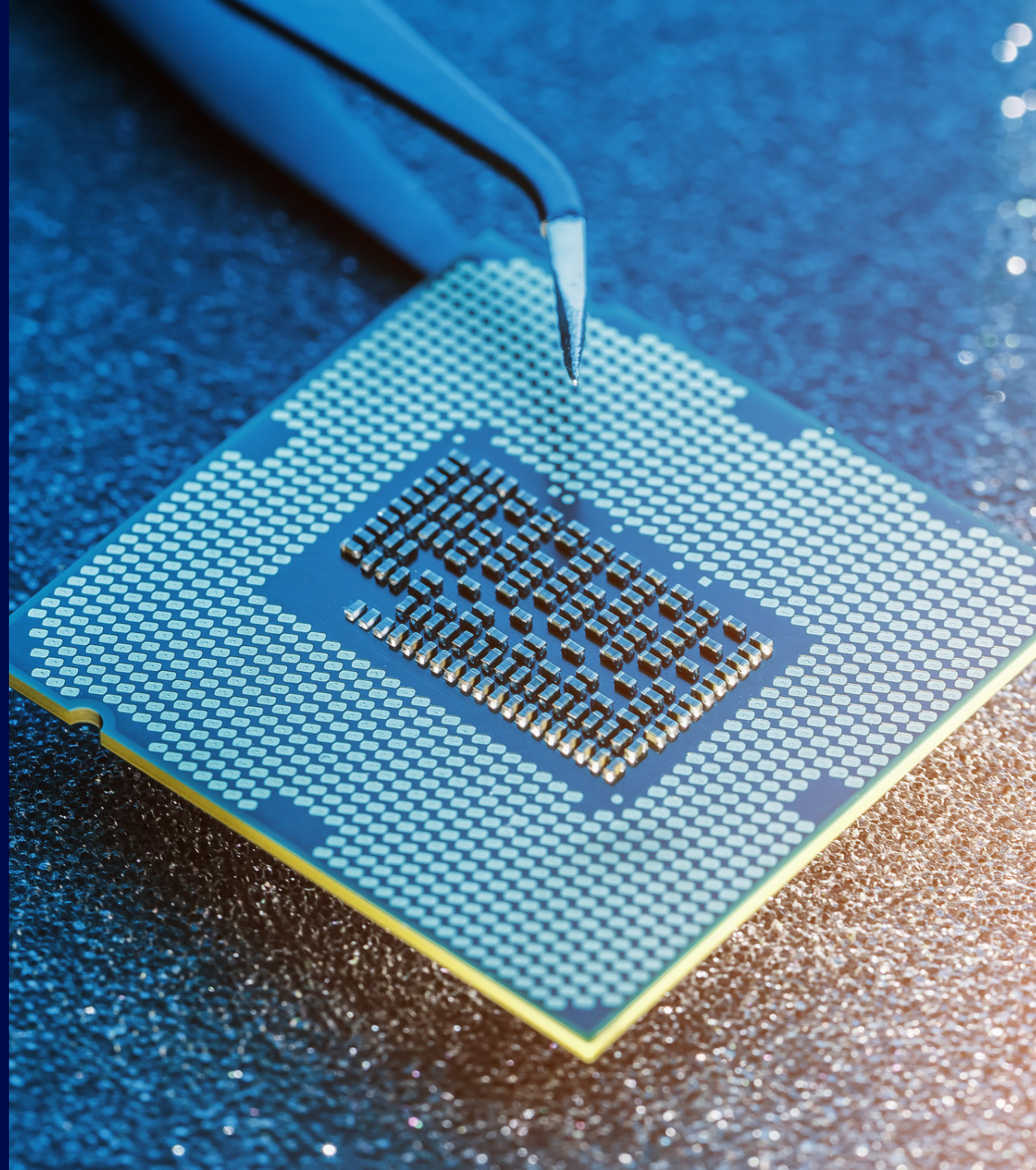
- **Outdated university curricula**
- **High entry barriers in key industries**

- **Selective efforts not enough**
- Creation of **knowledge imbalances** between **countries** and **organisations**

Next-level ecosystem of **educational resources incentivizing** people for **relevant education** in **key industries**

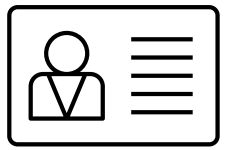
Use Case - Semiconductor industry

Infineon’s & Opaix’ efforts to strengthen European supply chains containing semiconductors

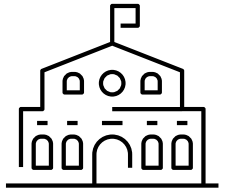


The semiconductor industry is particularly strongly affected..

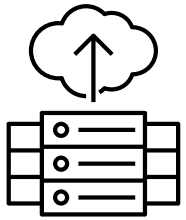
..but also offers great potential for the development of new solutions



1. Transformation of the skill requirements



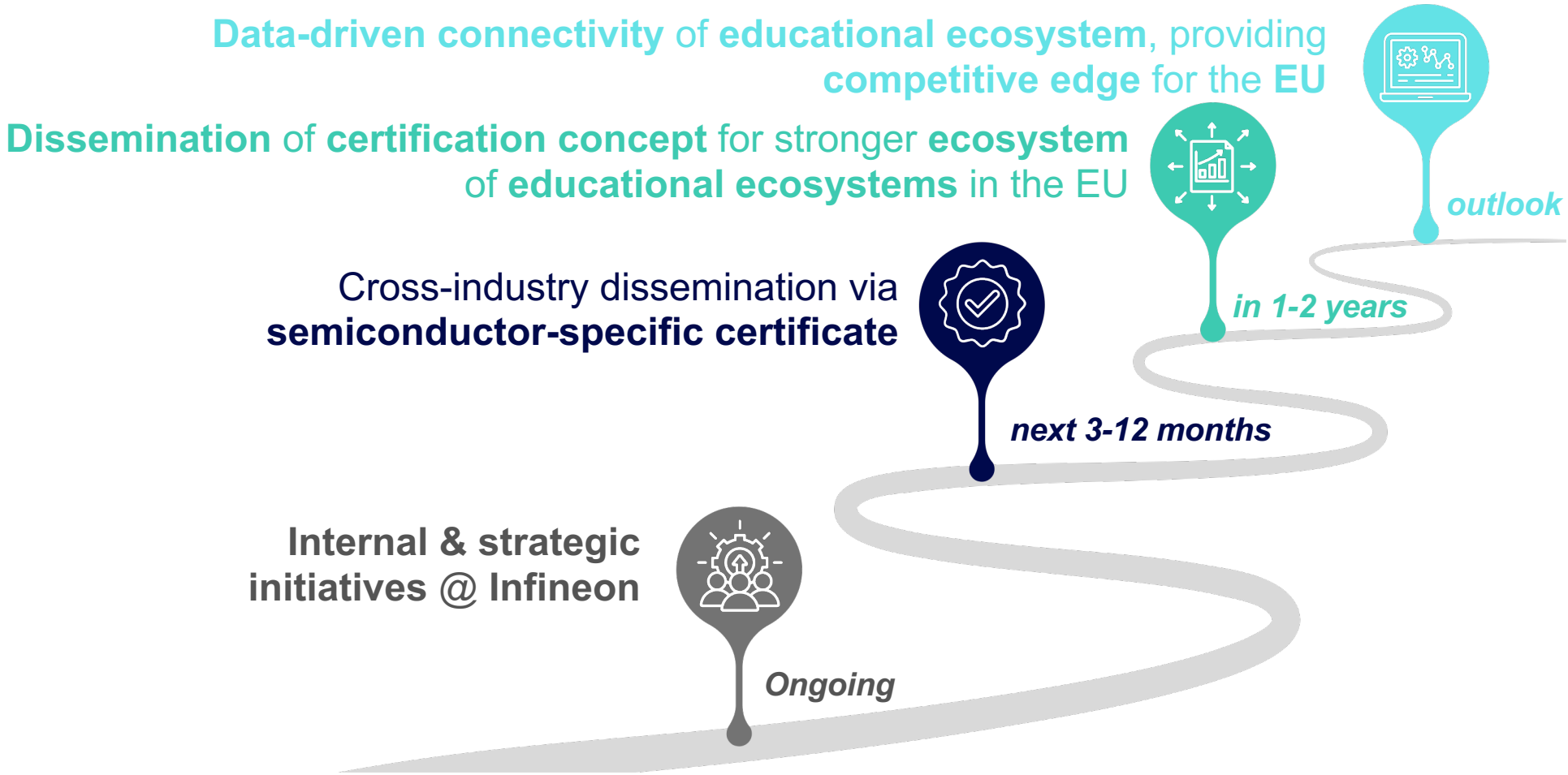
2. Impending global skills shortage



3. Willingness to innovate & data availability

4. Drivers for climate-friendly technologies

We are addressing the imminent skills shortage in the semiconductor industry and beyond

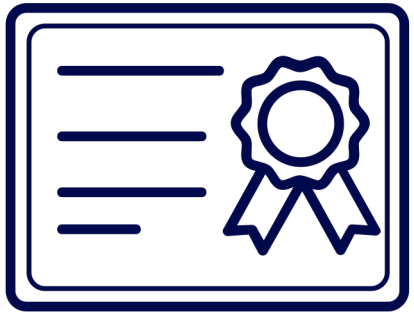


Currently in action: Global training initiative for operational excellence with certification

440+ participants in **face-to-face trainings** already

Next step

Scalability with **AR/VR**

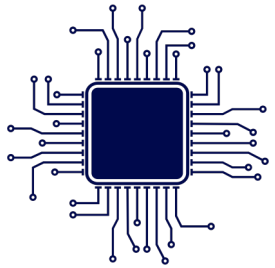


Certificate as an **incentive for participation**

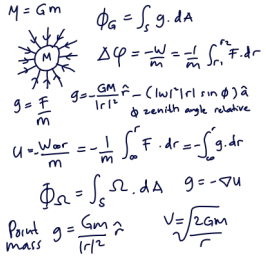
For End-to-End competitiveness, we need to disseminate this knowledge in the EU

Contents of global initiative

Resilience & innovation in **E2E supply chains**



Intricacies of **semiconductor industry** & **manufacturing**



Business Physics in **semicond. supply chains**

Next step: Knowledge Dissemination among our **partners** for **E2E competitiveness** in **global markets**

For dissemination, we want to quickly introduce a semiconductor-industry-standard certification

Building upon exisiting infrastructure, we need to provide state-of-the art knowledge ensuring transparency and comparability

Our approach

Join forces with **industry partners** & **universities** through work embedded in **funded projects** (e.g., SC4EU, GAIA-X and more)

Embedding efforts in **cross-industry working groups** (e.g., **ZVEI SCM**, **semi.org** etc.)

Mid- to long term: Possible **embedding** on **European level** as part of **greater effort** to enhance **education** on **standardisation**

Design of possible European certification concept for E2E resilience, innovation & standardisation

Overcoming selective efforts to mitigate imbalances of knowledge in Europe

Key Elements

State-of-the-art knowledge hub, accessible by all involved partners (academia and non-academia)

Transparency & **Comparability** via **transferable credit system** (ECTS), integrable in existing degrees and further education

Hybrid learning & **certification formats**, **easily accessible** for **broader public** (students, employees, unemployed etc.)

Opaix

SUSTAINABLE EXCELLENCE

Hit me up, if you want to exchange more!

Contact

Henrik Schmielau
CEO

Web
opaix.com

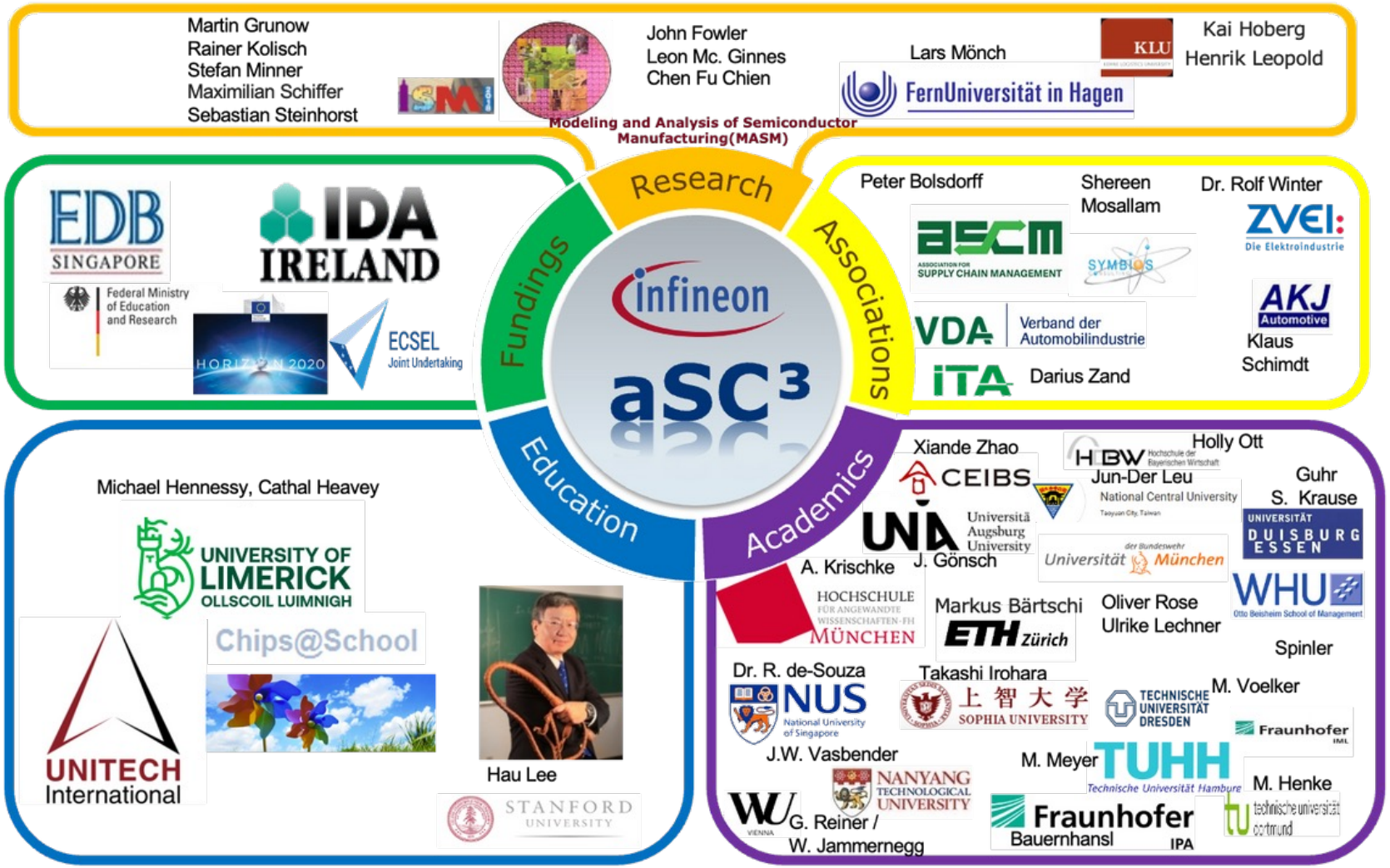
Phone
+49 (0) 157 85820600

Email
henrik.schmielau@opaix.com

Post
Gruener Weg 54, 23566 Lübeck

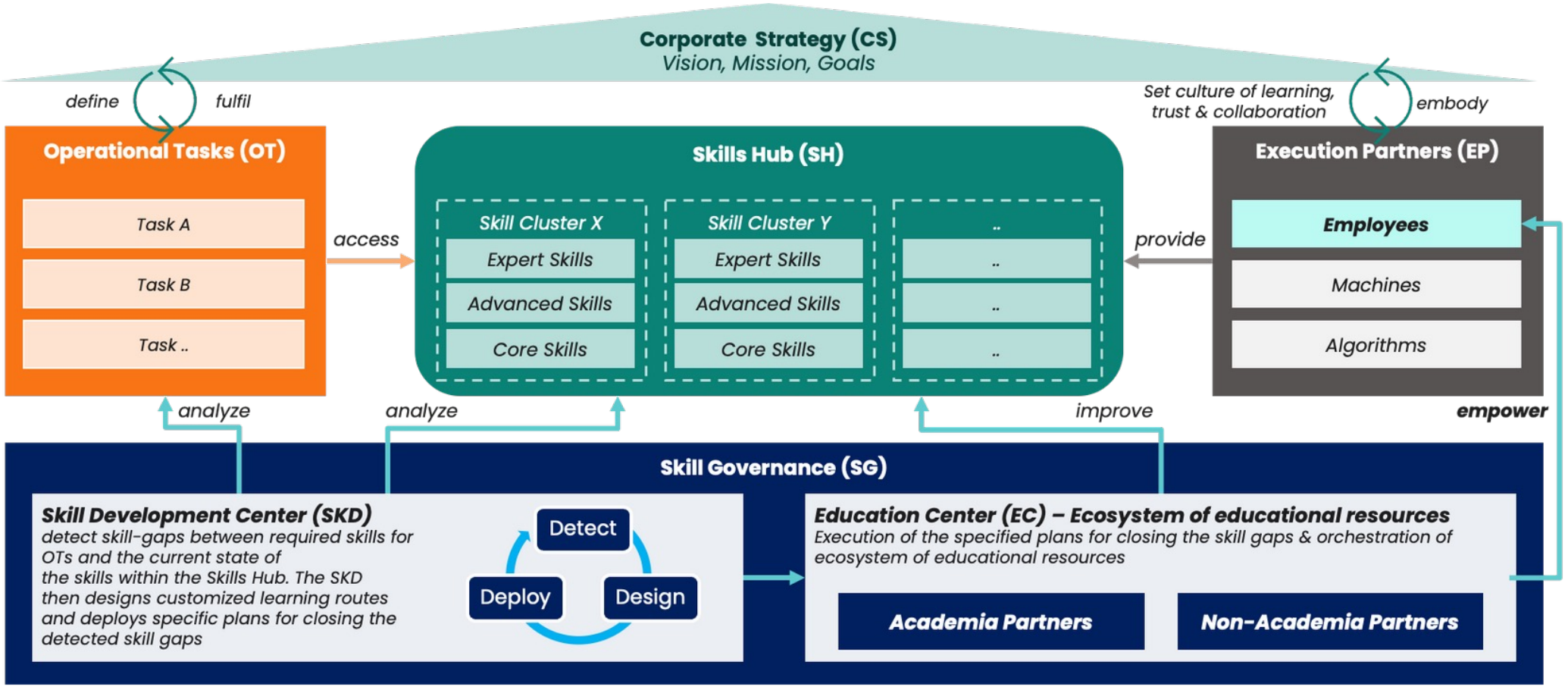
Backup

Infineon has been collaborating with academia & industry for years

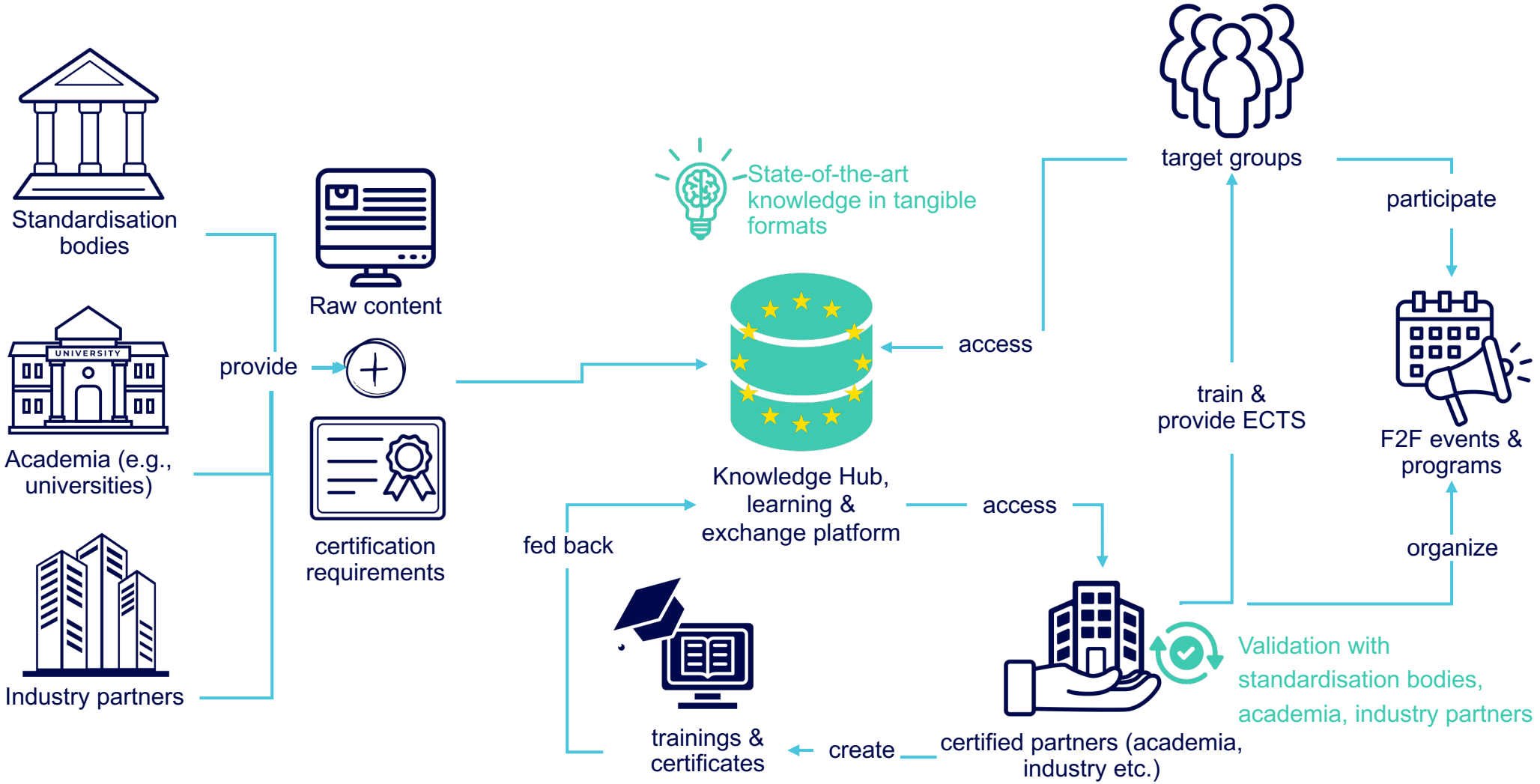


Developed with Infineon: Framework for future workforce excellence

How can we systematically upskill our people?



Orchestrating the ecosystem of educational resources for education on standardisation



Benefits for stakeholders to join the effort

EU/ German Federation

- Many investments are currently being made in the EU/Germany, supported by funds for semiconductor investment. Spreading the knowledge beyond semiconductor companies increases the effectiveness of these investments
- Semiconductors are one of the key industries of our time. Strengthening end-to-end supply chains containing semiconductors through knowledge and education promotes the overall competitiveness of the European Single Market
- Well-trained employees reduce the risk of disruptions (e.g., COVID-19) in semiconductor supply chains

Academia

- Universities that offer certifications in semiconductor supply chain management can strengthen their reputation and become more attractive to potential students and professionals
- Universities can build close partnerships with companies and expand research opportunities with access to state-of-the-art industry knowledge
- Certifications provide students with additional qualifications and improve their chances on the labour market, which promotes their professional development

Industry partners

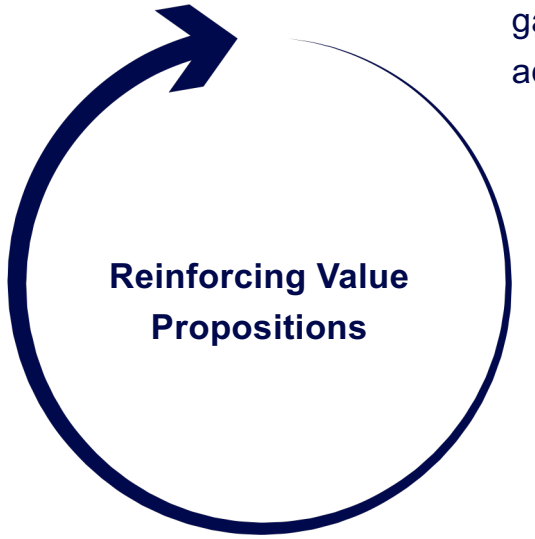
- Additional knowledge of key technologies, such as semiconductors, promotes the innovative strength of companies
- Understanding the characteristics of supply chains containing semiconductors increases the chance of acting properly in the event of disruptions and promoting resilience (e.g., COVID-19 chip crisis in automotive)
- Semiconductors are the key technology for driving decarbonisation and digitalisation. Stronger networking between companies through joint knowledge initiatives strengthens the integration of sustainable technologies into new products and solutions

We need to provide compelling incentives for target groups to participate in joint effort

Incentivising teachers, students, employees and unemployed to upskill in the field of standardisation

International & cross-university & -organizational effort, enabling deep inter-cultural exchanges, following the role model of ERASMUS

Gaining credits for already pursued degree or gaining certificate for personal career advancement in various fields



Alignment with industry-standards and up-to-date knowledge

Networking in professional context for career opportunities

Mobility within the EU: A European certification allows for easier mobility within the EU job market.

Acknowledgement of newly acquired/ already possessed skills