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Enhance Europe to play a vital role in the semiconductor industry through Semiconductor-X, design capabilities and expansion of the Eco-System

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Germany – Change process starts

Germany under pressure

Missing value chain of
Digital Leading Edge
Semiconductors

USA & China digitize
Germany

US – China trade conflict

Sovereignty is key for Germany and Europe

15%/Year

yearly growth of Leading
Edge semiconductors in
Europe¹

43%

Leading Edge
semiconductors of all chips
in Europe by 2030²

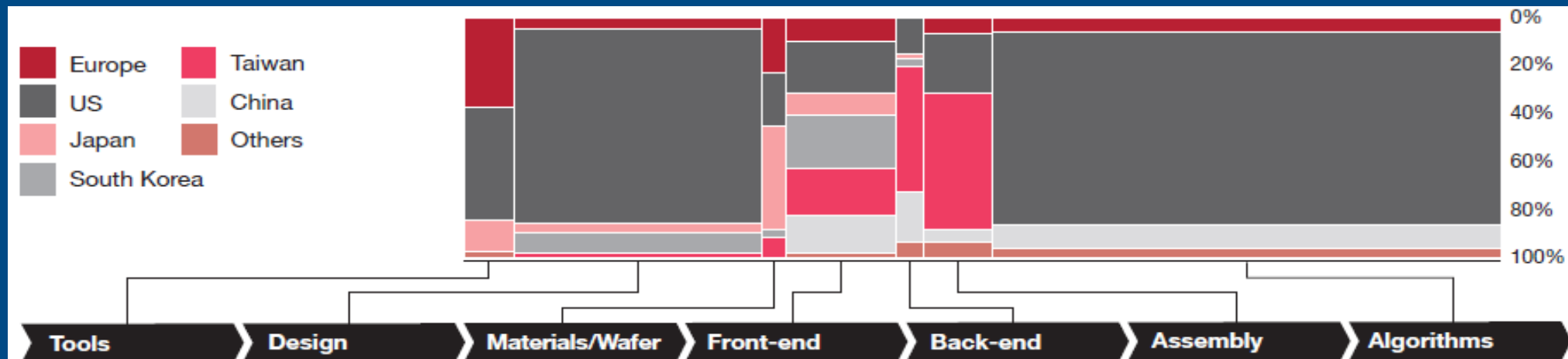
€34 Mrd.

Revenue for Leading Edge
semiconductors in the EU
by 2030²

¹ [Horizon Grand View Research - Europe High Performance Computing Market Size & Outlook](#)

² [Kearney – Europe's urgent need to invest in a leading-edge semiconductor ecosystem](#)

Status Quo of Semiconductor value chain in Europe



Contribution to the semiconductor value chain by country/region.

Source: Strategy& - "Forging Germany's digital destiny: The imperative of a sustainable microelectronics strategy", 2023

Research

- European R&D spending fragmented and lower than in other regions
(In spite of strong EU research environment)

Chip design

- Strong focus on the US (& Asia)
- Europe lacks leading-edge design skills

Production

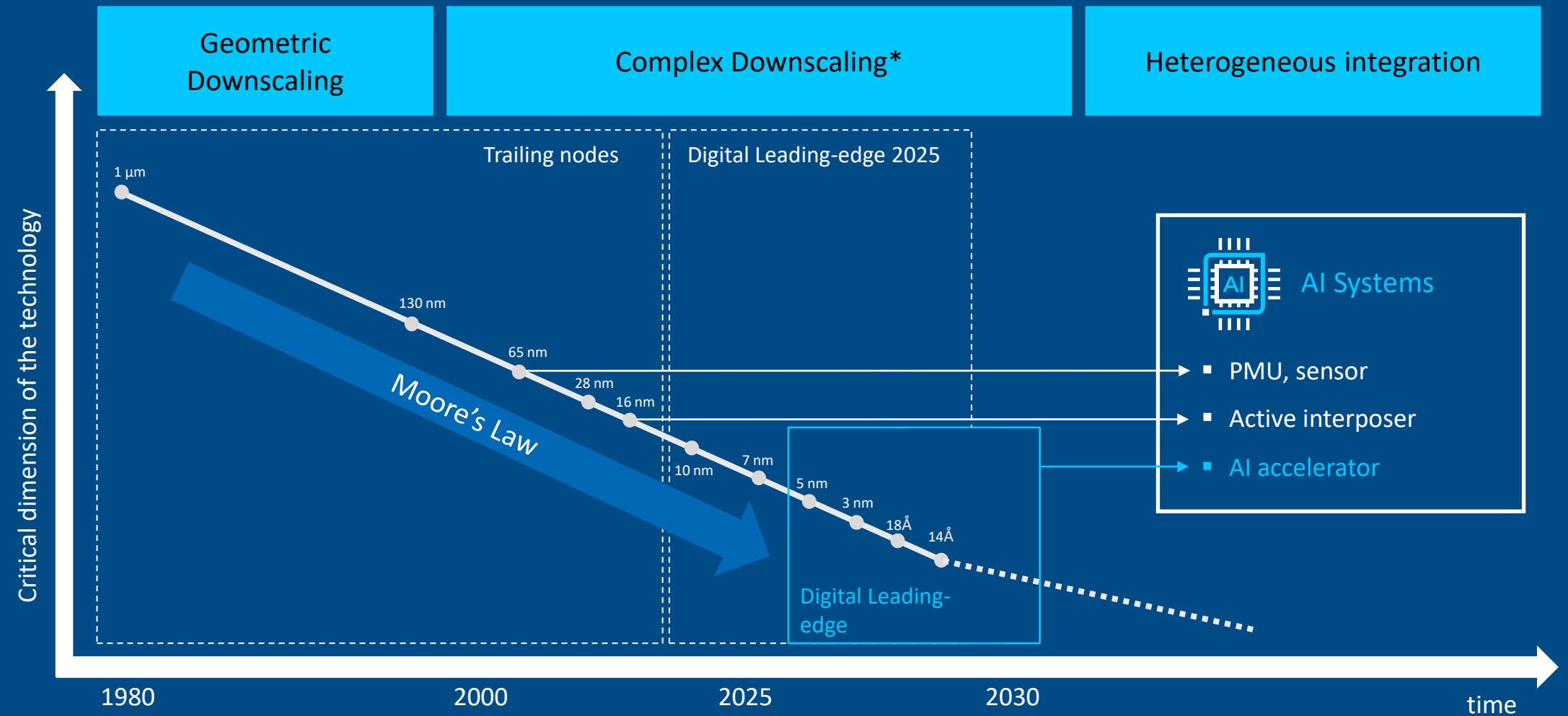
- Only 3 leading-edge companies worldwide: TSMC (TWN), Samsung (KOR) and Intel (US)
- Apart from Intel (Ireland i3), Europe does not have a lead-edge production to date

Applications

- The US led the way in the development of leading-edge applications, e.g. AI and self-driving cars
- China racing to catch up

What is Digital Leading-edge?

It is the driving force in the semiconductor industry



*new materials, Finfet, GAA, backside interconnect, DTCO

Why digital leading edge

From FinFET to GAA (Gate-All-Around):
Revolutionizing Semiconductor Efficiency and
Performance, just as Smartphones transformed
Communication



Embrace the Future with GAA Technology



Practical examples

Maximizing Value
for different
industries through
Leading Edge
Technology

Automotive:

ADAS needs high computational power for real-time processing, Software Defined Vehicle as well as enhance industry production

Telco:

5G and future 6G development require high-speed, low-latency processing

Defense:

Defense and aerospace applications need advanced computational capabilities for real-time analysis

Healthcare:

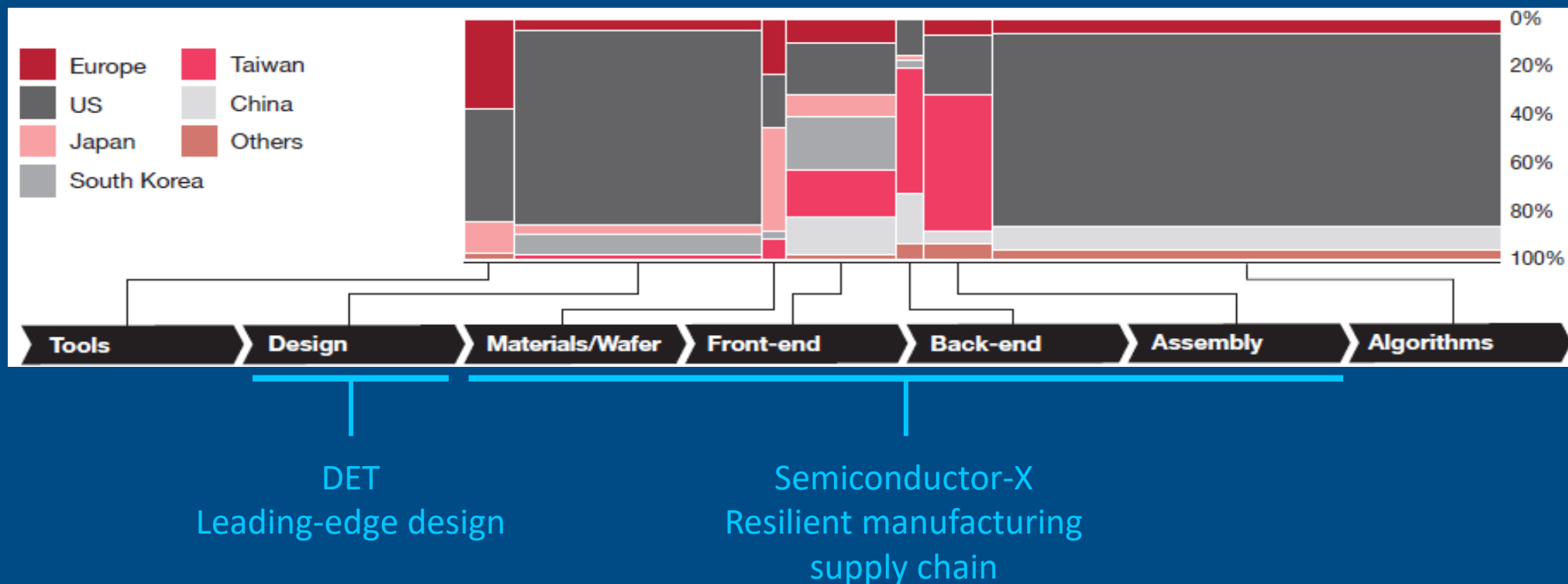
Genomics demand top performance and efficiency from applications.

HPC:

HPC needs high energy efficiency to manage best performance with optimized TCO, e.g. climate models

Status Quo of Semiconductor value chain in Europe

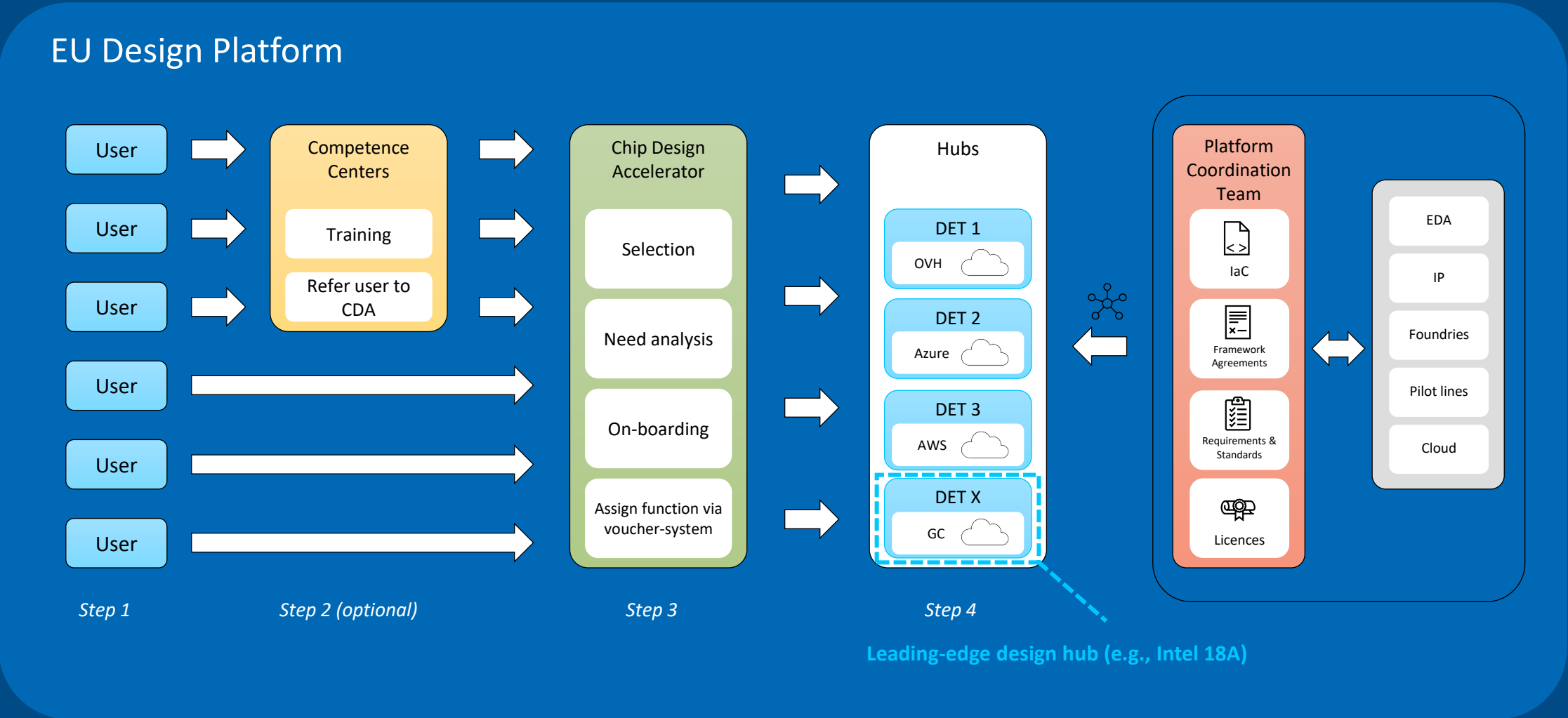
How to address the situation in Europe



How do we enhance ?
What we need from all of you!

Design Enablement Teams (DET)

Offering the opportunity to create a leading-edge design hub in Bavaria



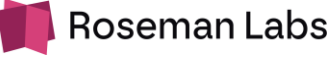
Semiconductor-X is a specialized initiative for the semiconductor industry



Semiconductor-X

Project Team

Partners across Industrial Supply Chain and RnD Organizations:

	Consortia Lead	Large Industry	Small Medium Enterprises	RnD	Industry Associations
Funded Partners	 	      	    	    	
Associated Partners		    	   		   

Semiconductor-X

Objectives of the overall project and priorities

“Building a sovereign data ecosystem and digital twin for the national and international Semiconductor industry to create a resilient value chain”

1

Digital tools for optimizing value chains

2

Technical solutions for sovereign information exchange

3

Open-source software solutions for digital twins

4

Base for international standards

Summary

Europe needs to secure semiconductor supply,

50% of the value-added for a semiconductor product is in the design *

with an increasing relevance of digital leading edge technologies for AI

*BCG and SIA, 2021: https://www.semiconductors.org/wp-content/uploads/2021/05/BCG-x-SIA-Strengthening-the-Global-Semiconductor-Value-Chain-April-2021_1.pdf

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