



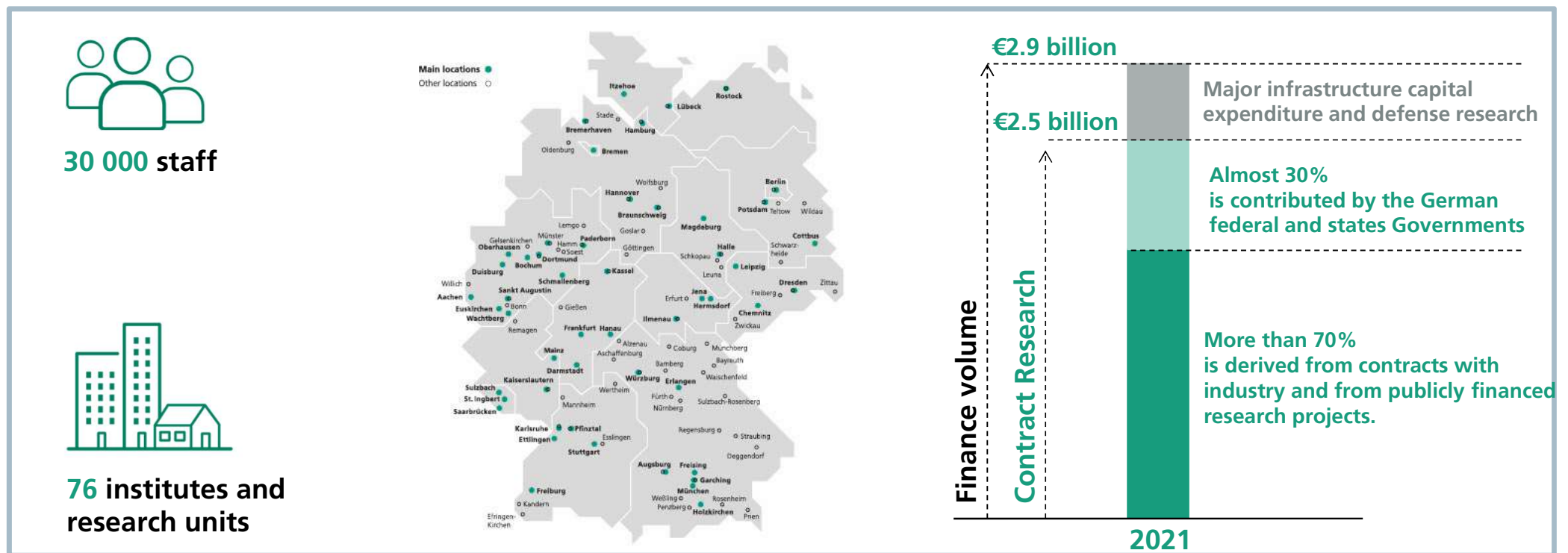
Peter Ramm
**Fraunhofer Institute for Electronic Microsystems and
Solid State Technologies EMFT**

Implementation of Applied R&D and European Activities in the „Chips Act Age“

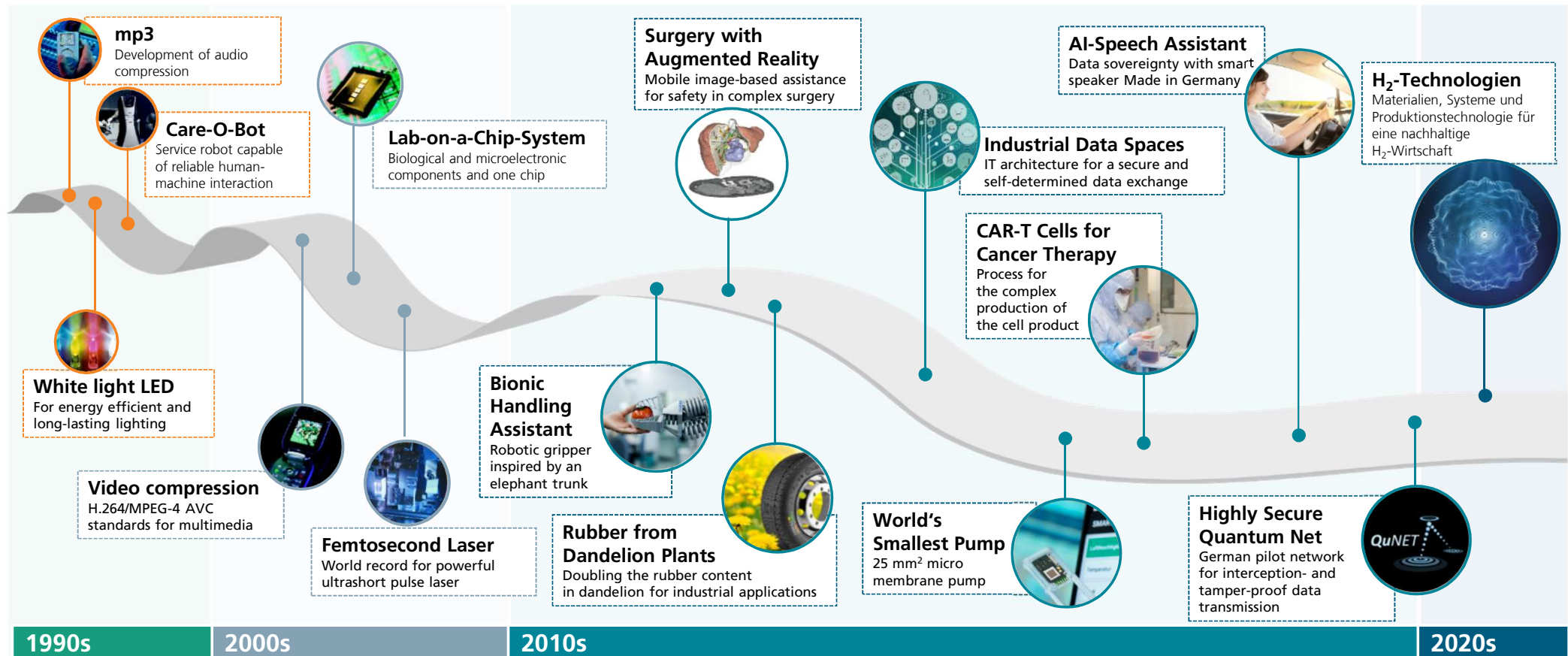
Fraunhofer-Gesellschaft

At a Glance

Applied research organization prioritizing key future-relevant technologies and commercializing its findings in business and industry. A trailblazer and trendsetter in innovative developments and research excellence.



From Fraunhofer R&D Highlights



Research Fab Microelectronics Germany FMD

Facts & Figures



13 institutes from
Fraunhofer and
Leibniz (4/2022)



Investment of
EUR 350 million
for **infrastructure**
and **future**
developments
(1.4.2017-30.9.2021)



27,7 % female
quota (4/2022)

Approx. **4.500** employees
with **2.635** scientists (4/2022)



893 Publications
(4/2022)



563 Mio FMD Budget
204 Mio EUR industrial revenues
(12/2021)



Our foreign partners come from
38 countries in the world, **21** of
which are in the **EU** (12/2021)



In 2021, we worked together with
almost **1000 companies**, **531** of
which were from **abroad** (12/2021)



19.500 m² cleanroom space
with **ISO9001** certification; **1**
MES over 10 institutes (4/2022)



Over **2.200** equipment in
13 cleanrooms all over Germany
(4/2022)

A cooperation of



— European Pilot Line: Test and Experimentation Facility for Edge AI Components and Systems (TEF HW AI)

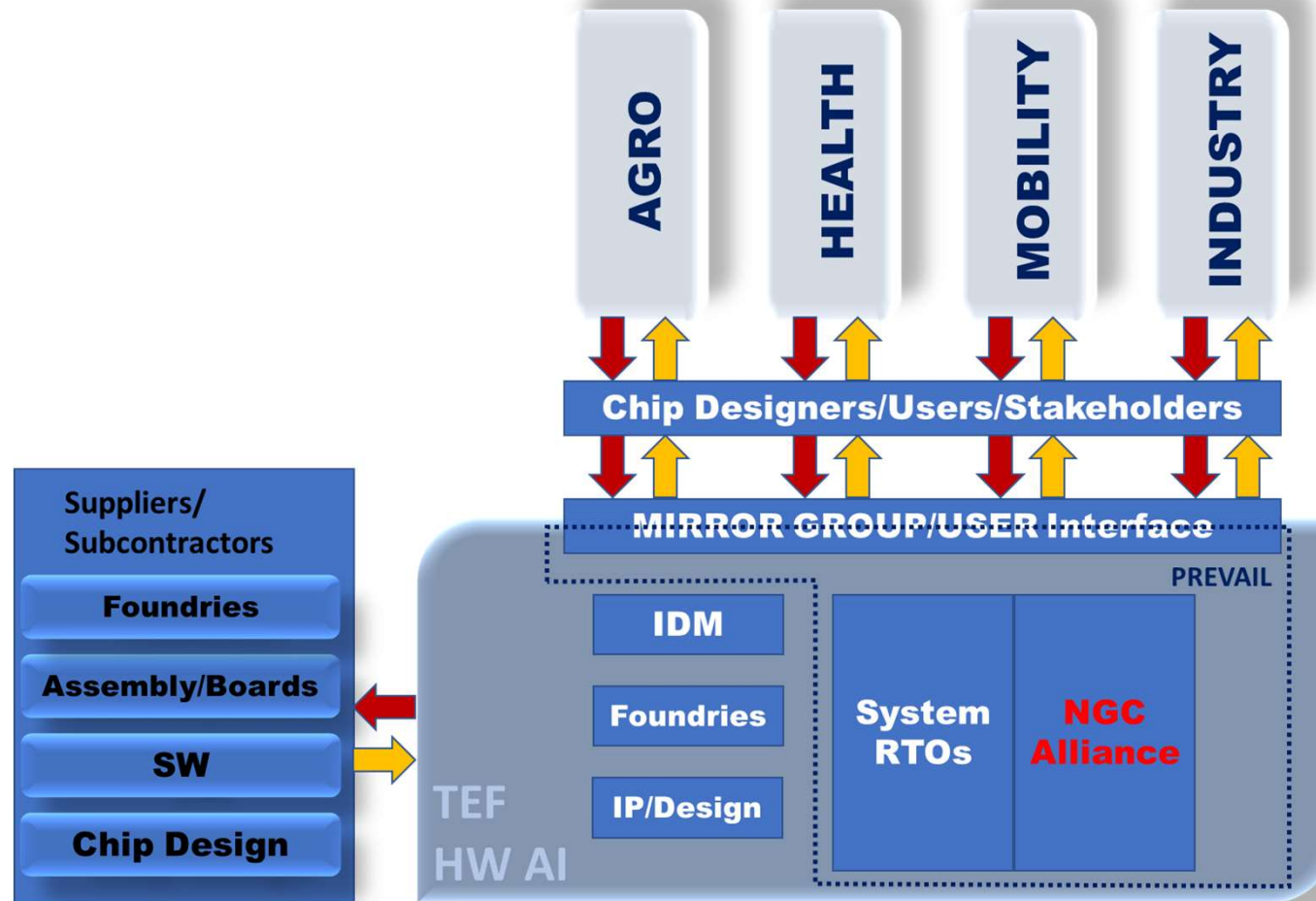
PREVAIL

(Partnership for Realization and Validation of AI hardware Leadership)

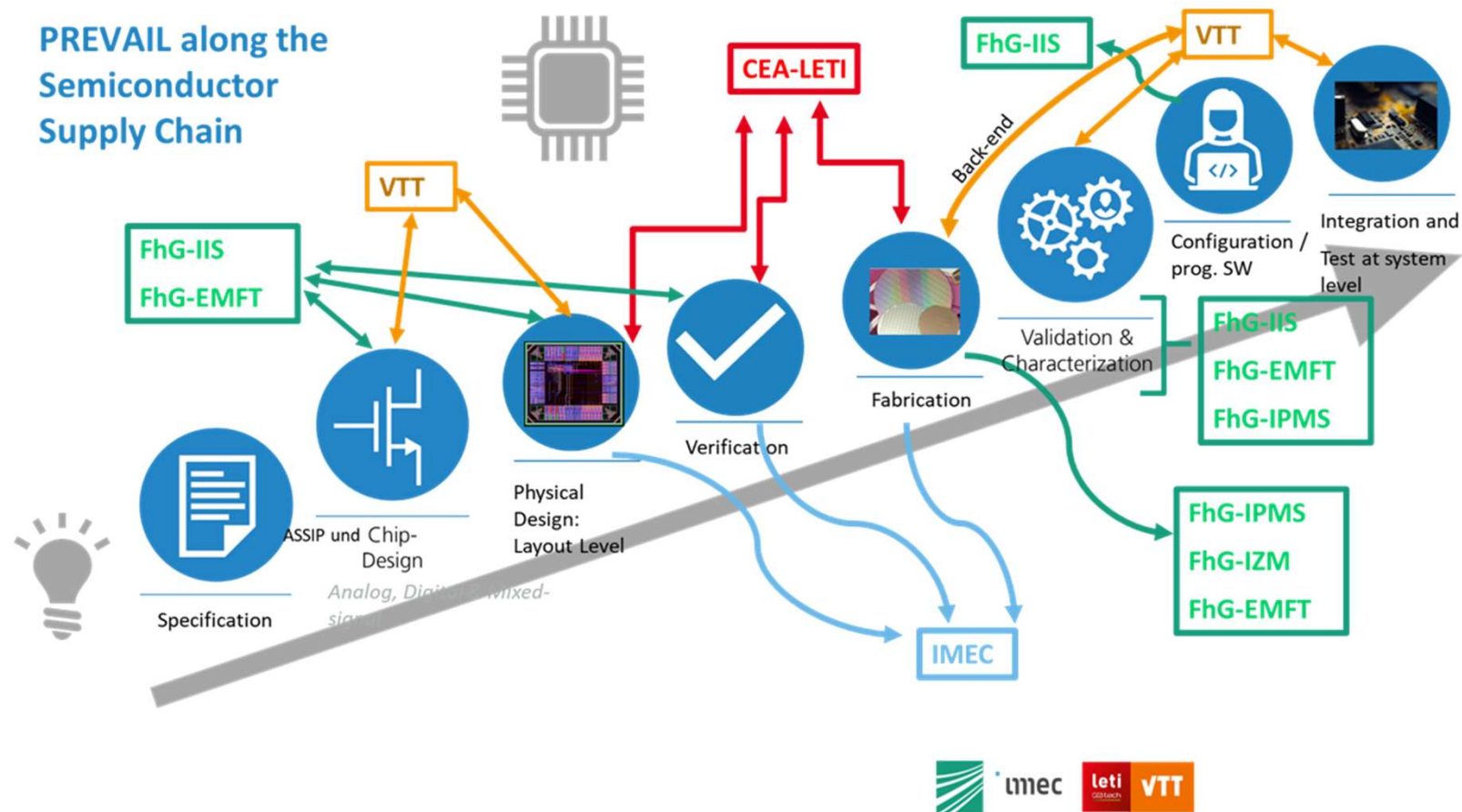
PREVAIL brings together CEA-Leti, Fraunhofer, imec and VTT to establish a networked 300mm technology platform for the fabrication of chip prototypes



PREVAIL – Open Access Pilot Line for Edge AI Chip Prototyping



PREVAIL – Network of European Partners

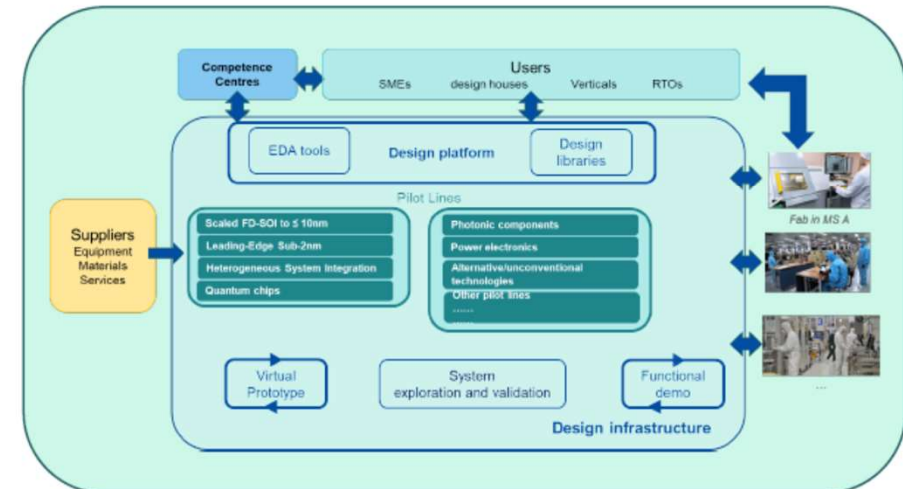


Pilot lines in the Chips Act

Goal

To establish a Pilot Line Infrastructure consisting of

- a set of new pilot lines that will play a central role, such as
 - *Scaled FD-SOI down to 10nm and below*
 - *Leading-edge process technology at 2nm and below*
 - *Advanced Heterogeneous System Integration*
- a set of new and existing pilot lines that will be established or upgraded to integrate complementary competences
- a link with the design platform as well as the whole ecosystem, including competence centres





Horizon Europe project ICOS « International Cooperation on Semiconductors » has been officially launched on January 19, 2023 in Brussels.

ICOS, a three-year Coordination and Support Action (CSA) from the European Commission in the frame of Horizon Europe, was launched on 19 January 2023 with its kick-off meeting held in Brussels. ICOS aims to support the growth of the European Semiconductor and Semiconductor-based photonics industry through focused international research cooperation. The strategic importance of semiconductors and the dependence of Europe from other regions of the world were evidenced by the recent international crises. ICOS will play a significant role in helping our continent to regain sovereignty and leadership in that domain, in line with the objectives set out by the **EU Chips Act**.

An ambitious project in the framework of the European strategy of semiconductors

In this context, ICOS will identify and support the establishment of the most promising scientific collaborations by targeting leaders in the sector worldwide. The project will start with an exhaustive analysis of the value chains of semiconductors for electronics and photonics, the strengths and gaps of European and International industries in this area. The next generation and emerging technologies, especially in advanced computation and functionalities will be identified and the most interesting countries for International Cooperation will be determined. Based on the obtained results, ICOS will then highlight the research subjects likely to benefit the most to the European strategic goals, and translate them into proposals for future bilateral or multilateral research initiatives and practical cooperation modalities.

CONTEXT

- **Semiconductors & Semiconductor-based photonics** are pivotal technologies for almost all existing industrial sectors, as demonstrated by the recent chips shortages.
- In particular, semiconductors are essential enablers for **digital and green transitions** and for SDGs.

ICOS is an ambitious 3 years project in the framework of the EU Chips Act, funded by the EC Horizon Europe.

Coordinator



Technical co-Coordinator



ICOS General Presentation



Funded by the European Union

PARTNERS & ADVISORY BOARDS

PARTNERS



ICOS General Presentation

OBJECTIVES

- **International cooperation** is key for speeding up technological innovation (e.g. ITRS/IRDS, Optica)
- To build **balanced semiconductor partnerships** with like-minded countries
- To set out cooperative framework on *initiatives of mutual interest*
- To identify and support the establishment of the **most promising scientific international collaborations**
- To support the growth of the European Semiconductor industry through **focused research alliances** based on awareness of advanced research activities
- To strengthen **Europe's position** in global value chains in this area

IMPLEMENTATION

IMPLEMENTATION

EXHAUSTIVE ANALYSIS OF SEMICONDUCTORS' VALUE CHAINS, FOR ELECTRONICS & PHOTONICS

Identification of :

- EU's economic and industrial strengths & weaknesses
- Strategic dependencies
- Market and cooperation opportunities

IDENTIFICATION OF RESEARCH AREAS FOR INTERNATIONAL COOPERATION

Identification of next generation & emerging technologies, especially in advanced computation and functionalities.

DETERMINATION OF MOST INTERESTING COUNTRIES FOR INTERNATIONAL COOPERATION

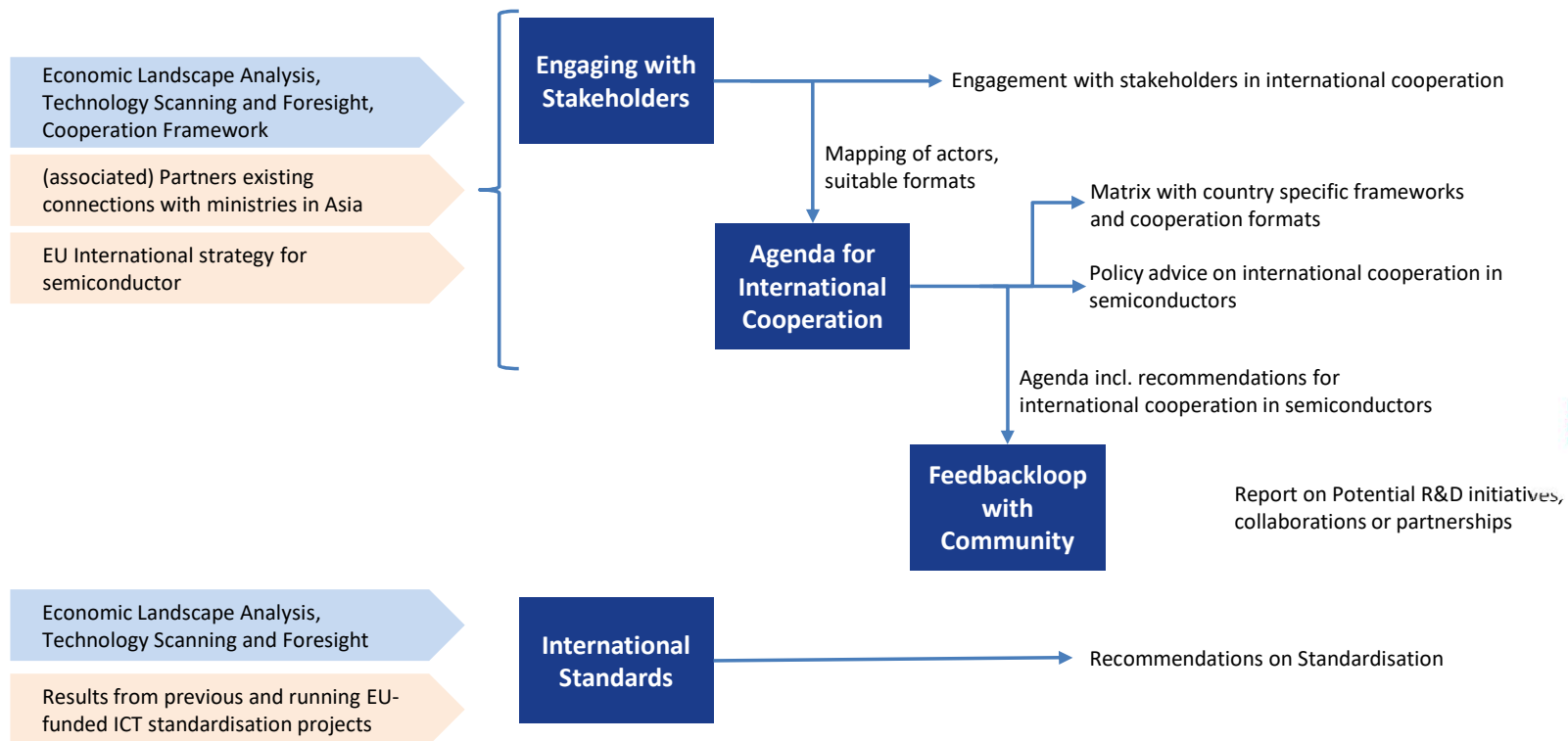
Identification of challenges for which international cooperation is critically important.

AGENDA FOR AND INITIATION OF INTERNATIONAL COOPERATIONS

- Dialogue with actors of existing cooperation
- International collaboration with non-EU national authorities
- Define standardisation needs and activities
- Support the European Commission

WP5 – Foundation for international cooperation

VDI | VDE | IT



Fraunhofer
EMFT

Source: VDI/VDE IT

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Thank you for your attention

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Munich Quantum Valley

