

Challenges in Advanced Computing and Functionalities International Cooperation on Semiconductors

Introduction to the ICOS/INPACE International Session

ICOS Workshop
Athens, May 13-14, 2024
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INTRODUCTION

- ICOS Project starts in January 2023 for three years, it is funded by the Horizon Europe research program.

Coordinator



Technical co-Coordinator



- An ambitious project in the framework of the European strategy for semiconductors.

PARTNERS & ADVISORY BOARDS

ACADEMICS



RTOS



INDUSTRIAL ADVISORY BOARD



ASSOCIATIONS & CONSULTING COMPANIES



INDUSTRIALS



INTERNATIONAL ADVISORY BOARD

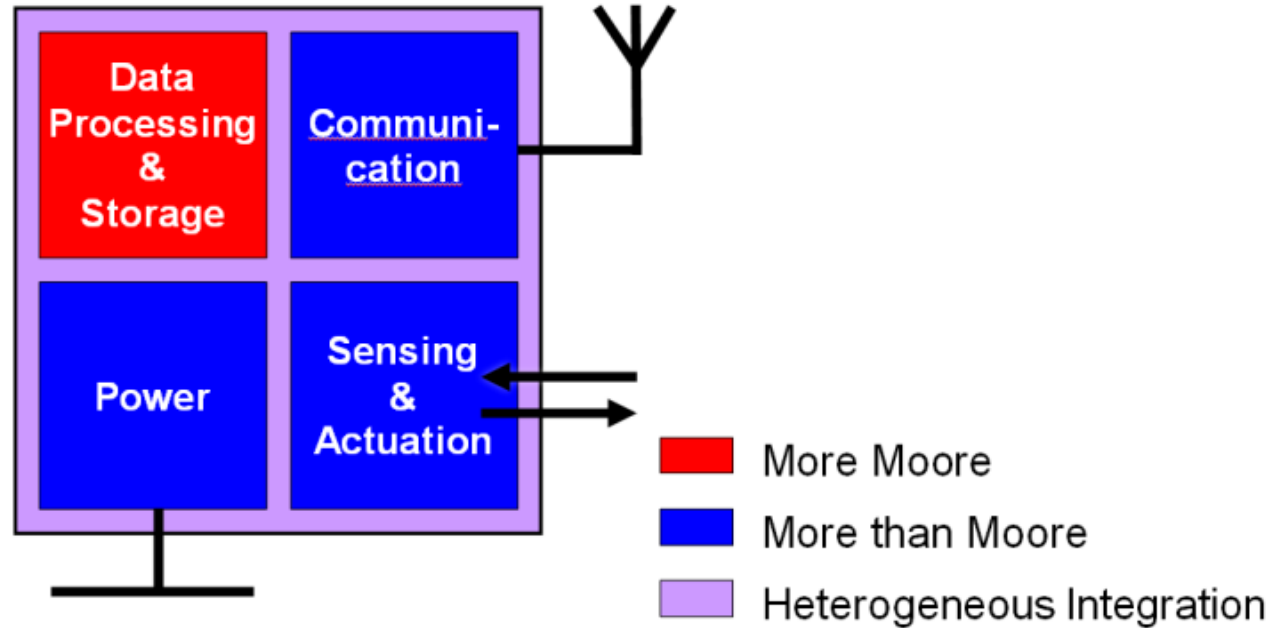


Motivation & Objectives

- **Semiconductors & Semiconductor-based photonics** are pivotal technologies for almost all existing industrial sectors, as demonstrated by the recent chips shortages
 - **International cooperation** is key for **speeding up** technological innovation (e.g. ITRS/IRDS, IPSR-I), reducing **cost** by avoiding duplicated research, strengthening complex supply chains, and is encouraged by the new **strategies** of leading semiconductor countries
- => 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 and to contribute to the **EU Chips Act and Green deal**

- Investigated countries:
 - The United States of America
 - India
 - The Republic of Korea
 - Japan
 - Taiwan
 - Singapore
 - China
 - Canada (for some analysis)

MAIN SCIENTIFIC TOPICS



- **Advanced computing & Advanced functionalities:** sensing, RF & optical communications, optical devices, energy harvesting, power devices, ...

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

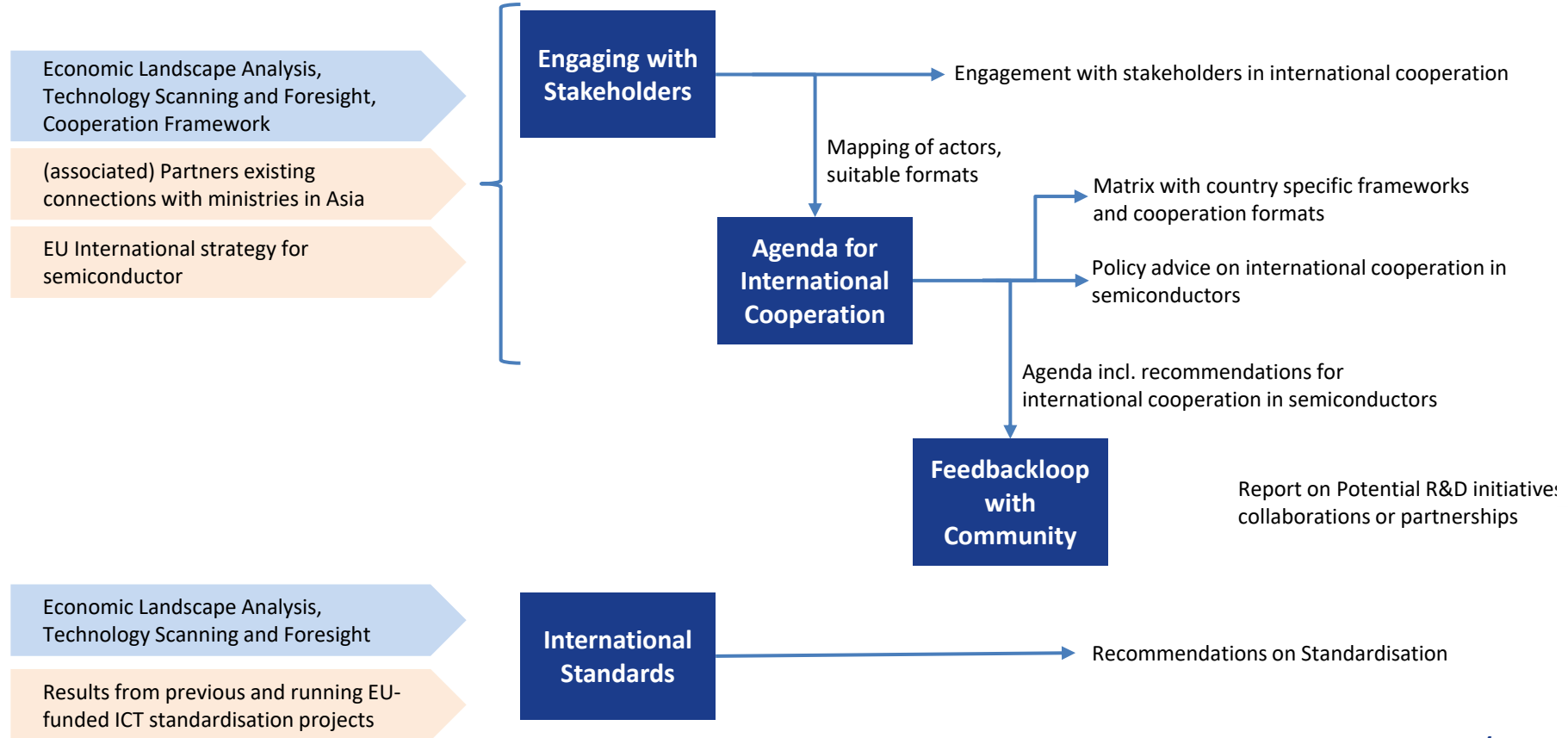
Identification of next generation & emerging technologies, especially in advanced computation and functionalities.

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



**Feedbackloop
with
Community**

Task starting now!

VDI|VDE|IT

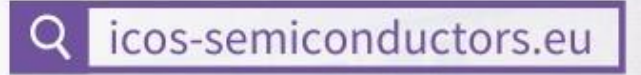
**We are looking
forward to your
Feedback**

 **Fraunhofer**
EMFT

Source: VDI/VDE IT

NEXT EVENTS

with subsequent ICOS studies



Emerging technologies in Advanced Computation, Advanced Functionalities,
Ground-breaking Technologies: Impact on International Cooperation



Bruges, Belgium | September 9th

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Athens' Workshop, May 13-14, 2024





Context

Why is INPACE important?

- The **EU aims to strengthen its connection to the Indo-Pacific region** for research, innovation, technology deployment, regulation alignment, and supply chain stability.
- Promotion of digital technologies being one of the highest priorities, the EU has established Digital Partnerships with Japan (2022), the Republic of Korea (2022) and Singapore (2023), and a Trade and Technology Council (2022) with India.
- The goal is that society and businesses in both regions **benefit from opportunities in the growing global digital economy**



Mission

What is INPACE aiming to achieve?

The mission of INPACE is to **support digital partnerships and the Trade and Technology Council** and to contribute to the deepening of the **collaboration between Europe and India, Japan, the Republic of Korea and Singapore** in the domain of digital technologies and their application for the well-being of the citizens in Europe and in the Indo-Pacific region.

To achieve this mission, INPACE will work on three levels:

- ▶ Establishing **regular exchanges between leading experts from Europe and the four partner countries** on policies, further developments of key digital technologies, and their implementation and commercialisation
- ▶ Supporting the **digital policy dialogues on the governmental and institutional level** and the implementation of the Digital Partnerships and the Trade and Technology Council
- ▶ Informing and involving a large community of stakeholders in Europe and in the partner countries into the **dialogues via online and in-presence events and via the INPACE Community Platform.**

<●/> DIGITAL FOR PLANET



The INPACE Consortium



Partners



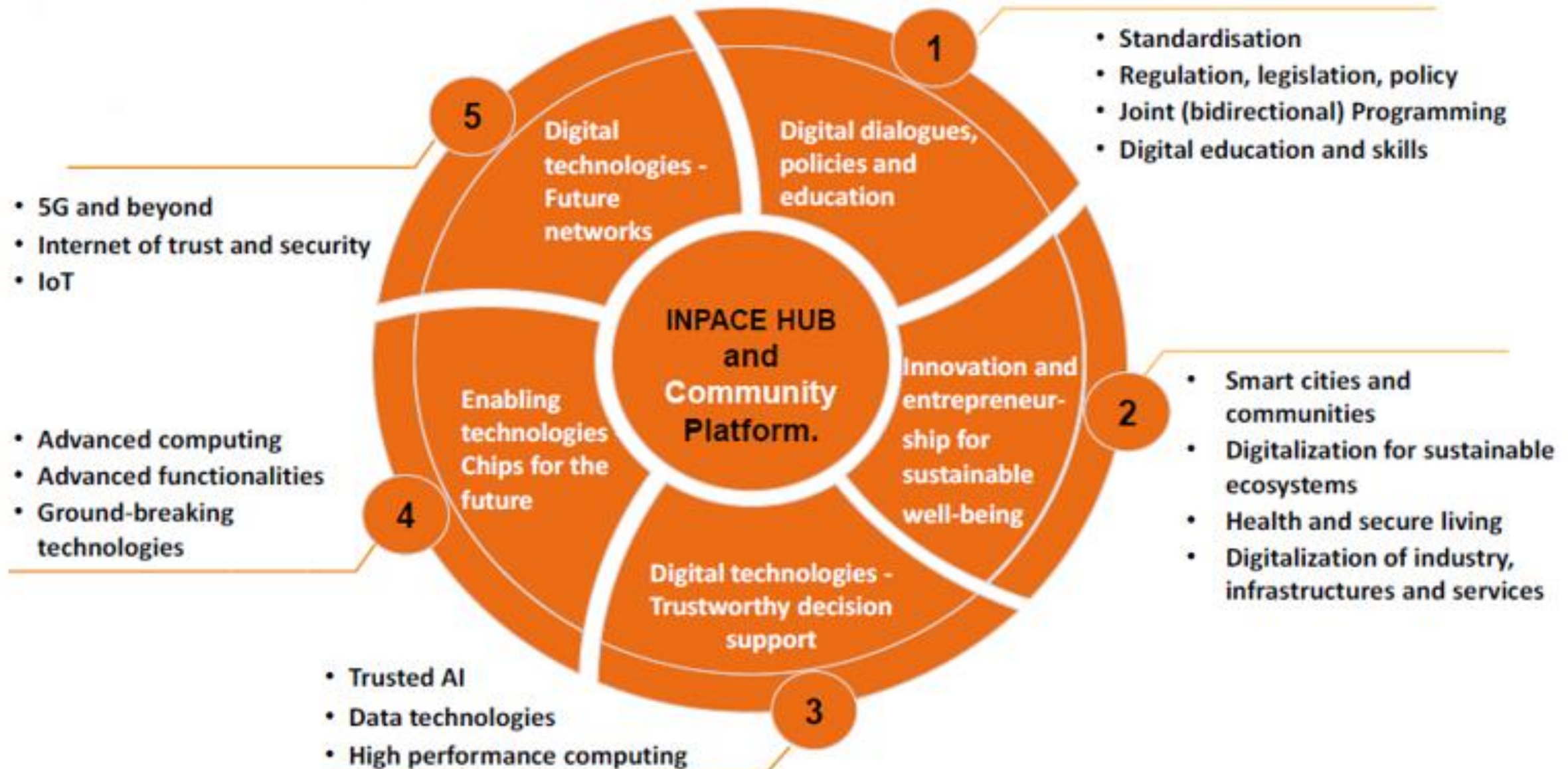
Countries



Thematic Working Groups

INPACE organises exchanges through Thematic Working Groups that bring together **experts from industry, associations, government institutions and the research communities** from the partner countries and Europe.

Their mission is to foster **joint research and innovation, business collaboration, market opening, policies collaboration**, and to support the implementation of the Digital Partnerships and the Trade and Technology Council with the partner countries.



Expected outcomes of INPACE

- ▶ **Convergence on principles in regulation, legislation, and standards for digital technologies** and new joint major policy initiatives between the EU and the Indo-Pacific region
- ▶ **Harmonized research and innovation** funding programs and joint calls
- ▶ **Reduction of barriers** for trade and commercialization of new digital technologies
- ▶ **Long-term collaborations in the field of digital technologies** and their applications

Thank you for your attention

<https://icos-semiconductors.eu/>

www.inpacehub.eu

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 **INPACE**

Funding from Horizon Europe under grant agreement 101135568

ICOS WORKSHOP – May 13-14th 2024, Athens

This project has received funding from the European Union's Horizon Europe research and innovation programme under GA N° 101092562

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