



ESSERC 2024

SiNANO-ICOS-INPACE Workshop

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

Horizon Europe ICOS-International Cooperation On Semiconductors &
INPACE-Indo-Pacific-European Hub for Digital Partnerships

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Bruges, September 9, 2024



SiNANO Institute: 20th Workshop at ESSERC

Network of excellence connecting the European research & academic community in Semiconductor science and technologies

Members:

27 institutions, academics/RTOs, from 16 EU countries

in the area of fabrication, characterization, modelling, design and simulation of emerging nanoelectronic materials, devices, circuits and systems



ICOS

- 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

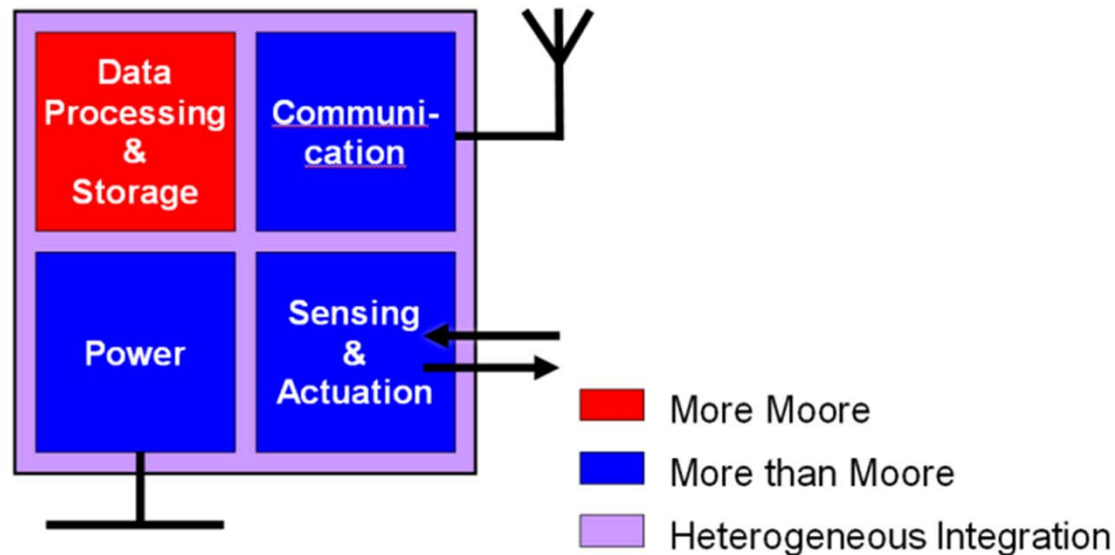
- **Semiconductors & Semiconductor-based photonics** are pivotal technologies for almost all existing industrial sectors, as demonstrated by the recent chips shortages
- **International cooperation** is key for **speeding up** technological innovation (e.g. ITRS/IRDS, IPSR-I), reducing **cost** by avoiding duplicated research, strengthening complex supply and value 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 and partner Country's position** in global value chains in this area and to contribute to the **EU Chips Act and Green deal**

Objectives of ICOS

■ 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



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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.**



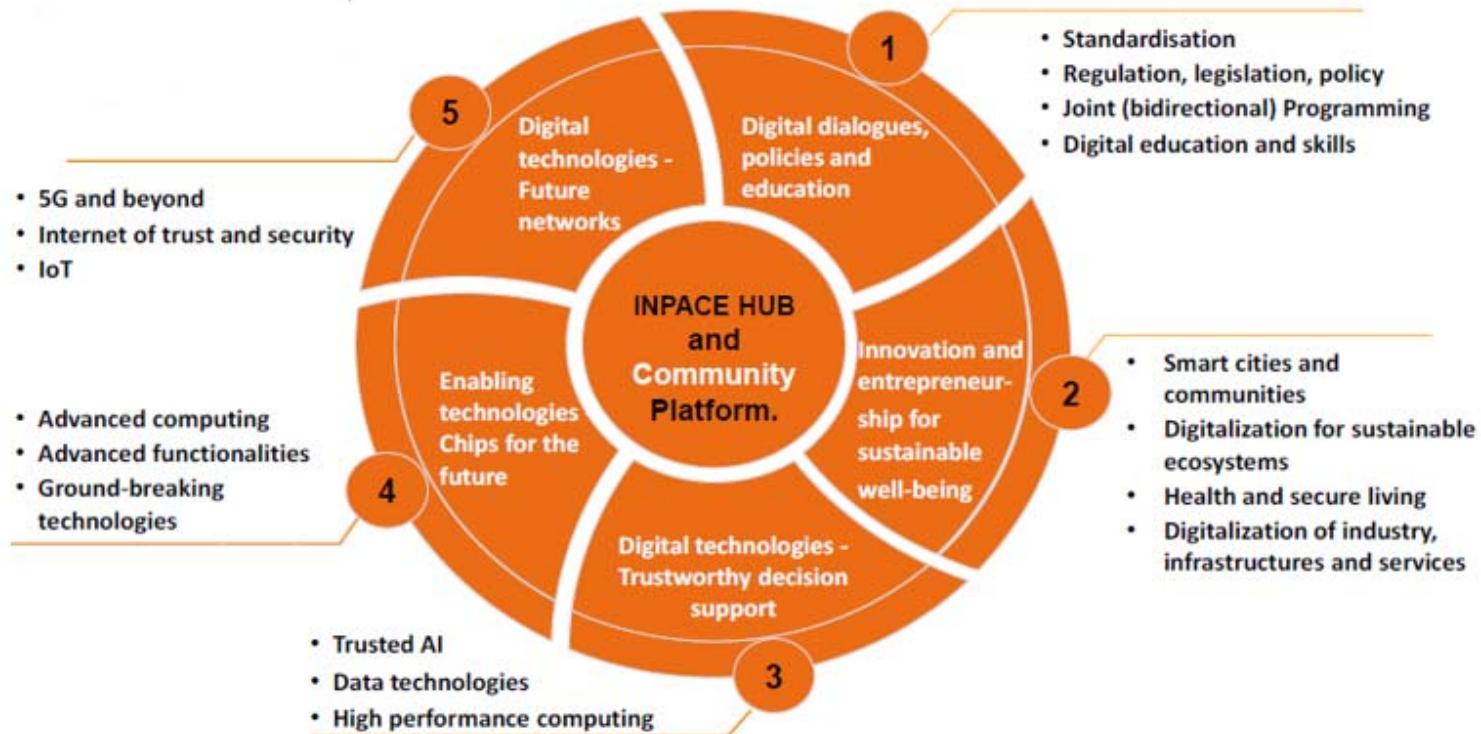
The INPACE Consortium



Partners



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

Summary of the Survey on Stakeholder feedback on EU International Cooperation on Semiconductors



CALL FOR PARTICIPATION

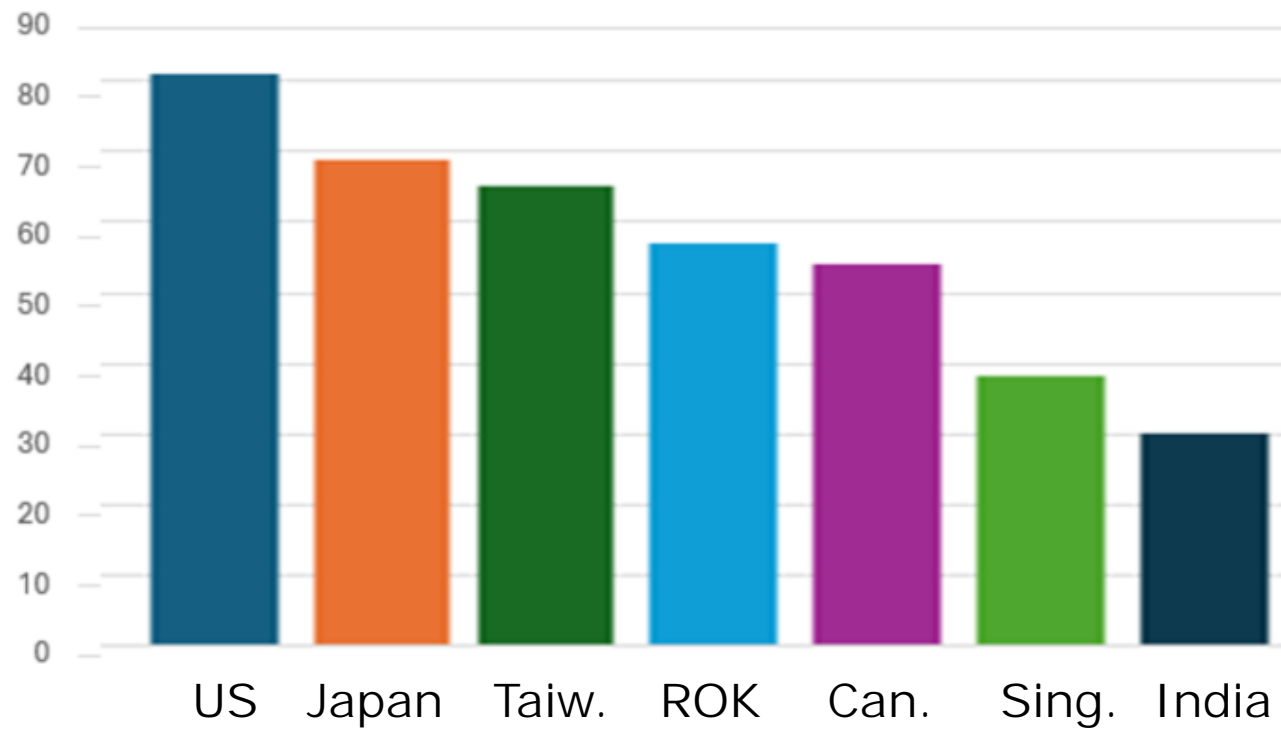


SURVEY

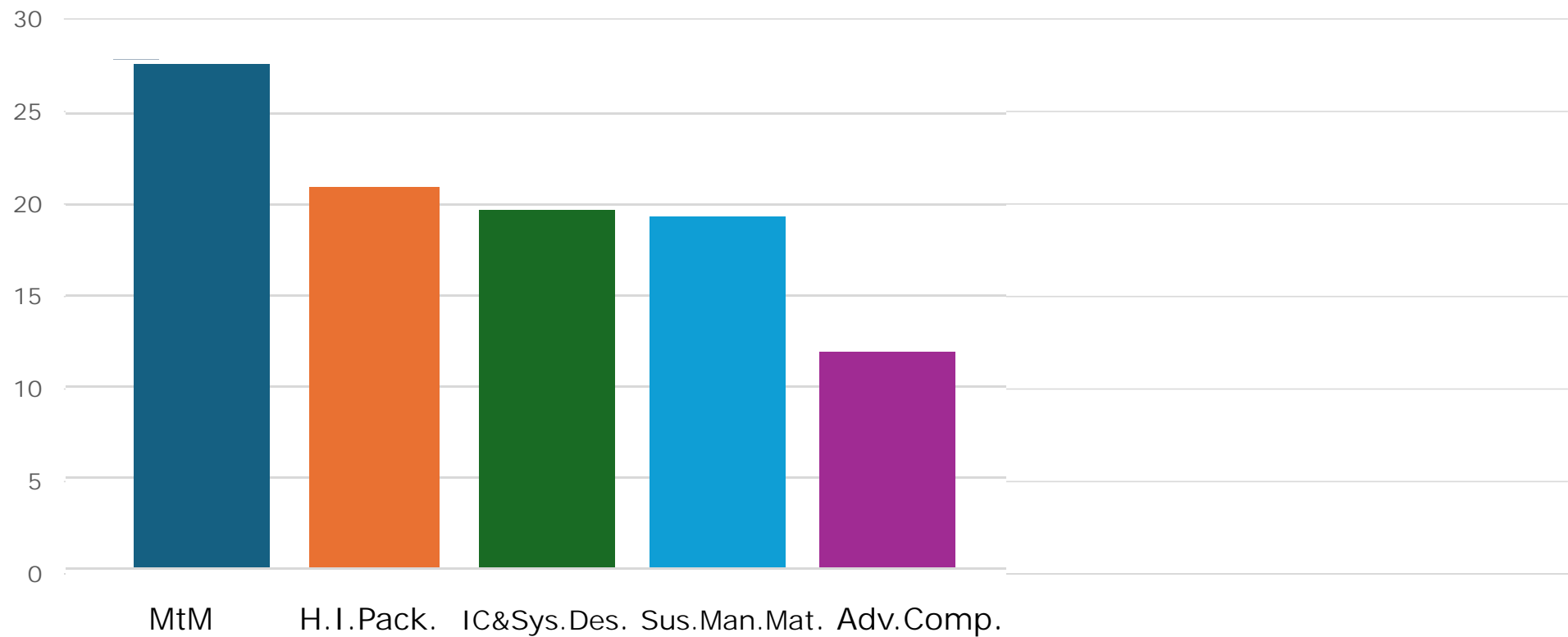
**STAKEHOLDER FEEDBACK ON EU
INTERNATIONAL COOPERATION ON
SEMICONDUCTORS**

 icos-semiconductors.eu

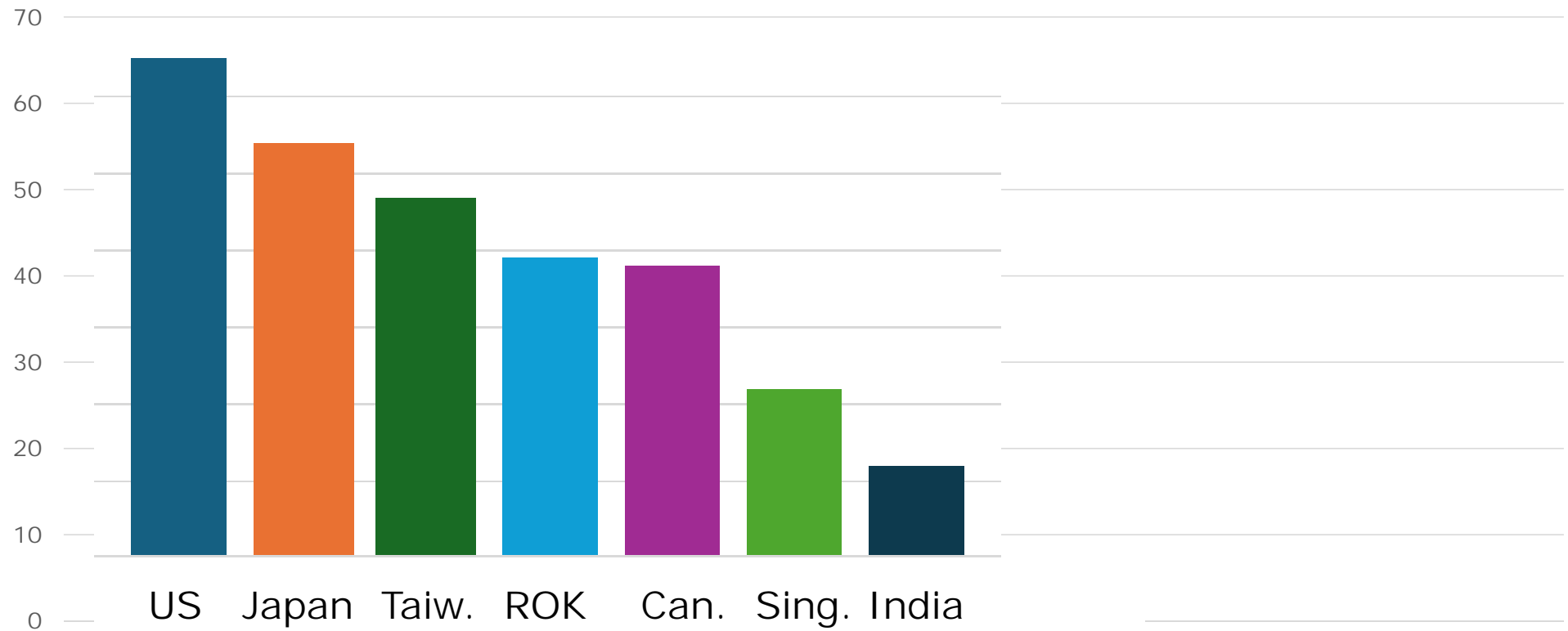
Countries for cooperation



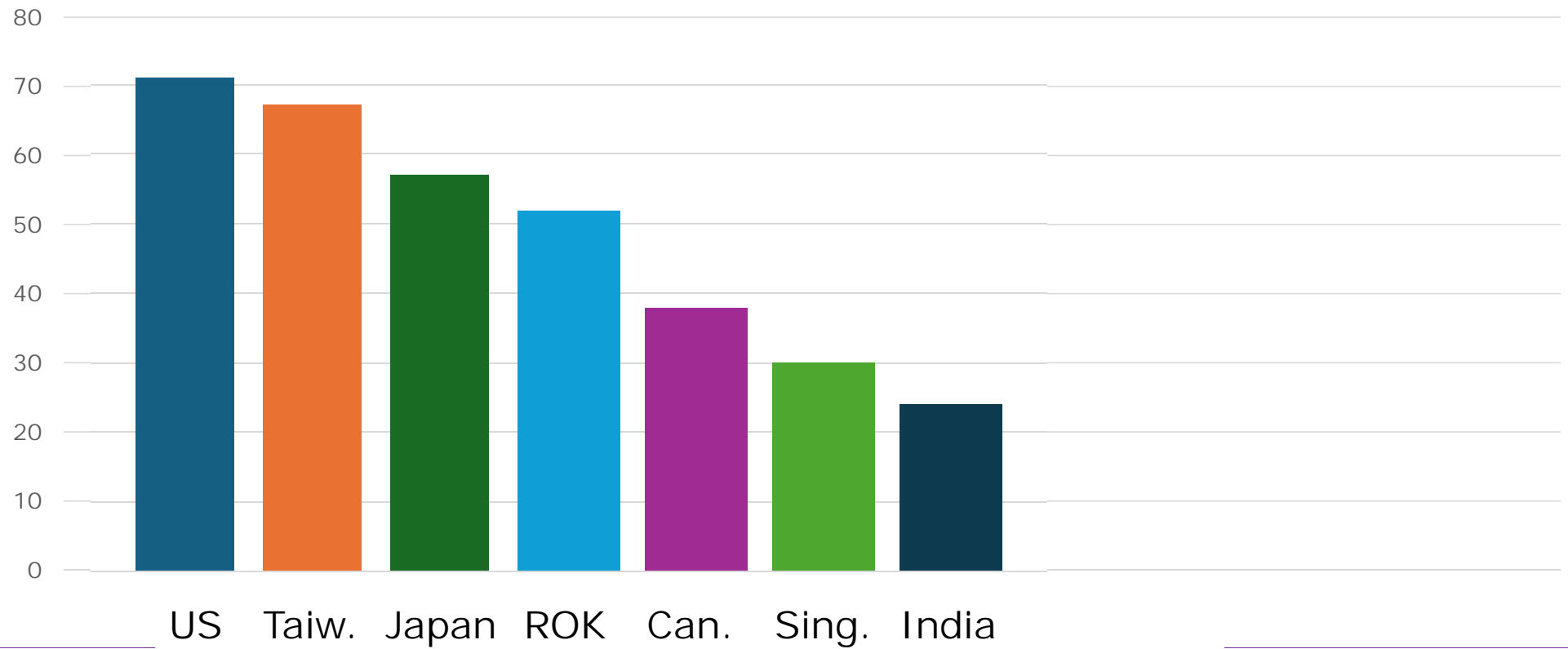
Topics for cooperation (average of the 7 countries)



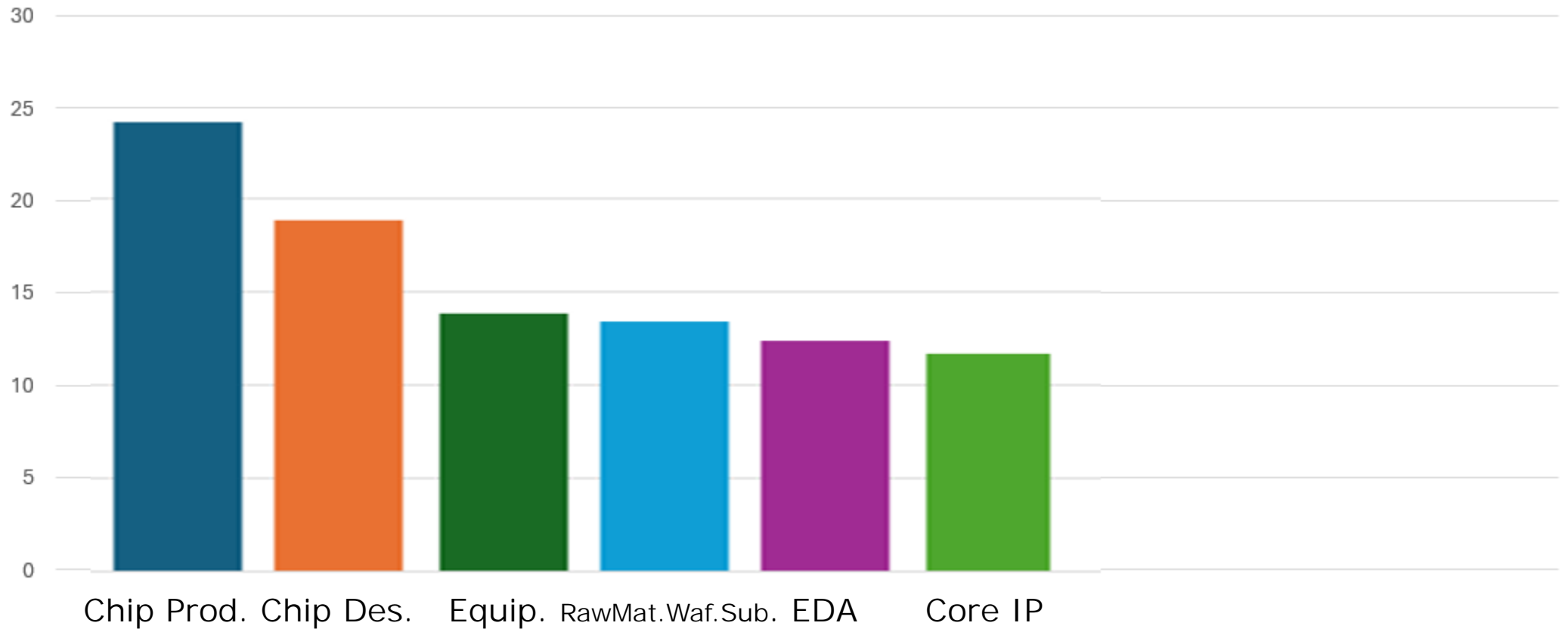
Access to Research Infrastructures



Cooperation in the semiconductor value chain



Topics for cooperation in the semiconductor value chain (average of the 7 countries)



Thank you for your attention

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inpacehub.eu

www.sinano.eu

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 **INPACE**

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