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Chip Diplomacy

Analysis of technology
partnerships



Think Tank at the Intersection of Technology and Society



Julia Hess and Jan-Peter Kleinhans

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Executive summary

What roles do governments play in the global semiconductor value chain? Because of the global chip shortages during the early 2020s, governments started to have second thoughts about their domestic industries' dependence on chips from abroad. The answer was a flurry of subsidy packages in the European Union (EU), the United States (US) and by several others. But governments also realized that, after decades of specialization and transnational division of labor, one cannot simply re-shore the global semiconductor supply chain. The US and the EU recognized that their industries will continue to depend on foreign countries, such as Japan, Taiwan, the Republic of Korea and Singapore, for semiconductor production, chemicals, equipment and much more.

Thus, they increasingly turned their view outward – acknowledging the importance of strategic cooperation through technology partnerships to strengthen the resilience of this transnational value chain. In the EU, for example, this new form of chip diplomacy is operationalized via Digital Partnerships under the umbrella of the “Strategy for cooperation in the Indo-Pacific” with Japan, the Republic of Korea (ROK) and Singapore.

At first glance, all these forms of strategic cooperation between governments seem to be centered around very similar topics: supply chain resilience and diversification, crisis response, research and development, to name just a few. However, taking a closer look reveals clear differences in terms of scope, objectives and implementation strategies.

In preparation of this paper, we examined more than 150 public government documents – such as joint statements, speeches, readouts, Memorandums of Understanding (MoUs) and working group announcements – and concluded that the devil is in the details. Apart from the observation that governments seem to set different priorities when cooperating with different partners, our analysis results in three key take-aways:

1. Even though a shortage of skilled workers is one of the central challenges faced by the global semiconductor industry, **most government partnerships do not even mention semiconductor workforce development**, let alone provide concrete implementation strategies to achieve this objective. The US-India Initiative on Critical and Emerging Technology (iCET) and the Japan-US Commercial &



Industrial Partnership (JUCIP) are one of the few that mention this, at least in vague terms.

2. **The European Commission seems to focus on research cooperation, crisis preparedness and transparency about subsidies** in the EU-US Trade and Technology Council (TTC) and its Digital Partnerships with Japan, the ROK and Singapore. These objectives are aligned with those of the EU Chips Act, especially as one out of the three pillars is dedicated solely to semiconductor supply chain monitoring and crisis response.
3. **For the US, one key motivating factor for cooperation on the semiconductor value chain is geographic diversification away from China.** As some of the labor-intensive process steps with relatively low profit margins, such as back-end manufacturing (assembly, testing and packaging) cannot be re-shored to the US in an economically viable way, one reoccurring objective is commercial cooperation to “friend-shore” this and other production steps.

It remains to be seen whether and in which areas the various partnerships will be fruitful. That said, it is also obvious that the semiconductor industry continues to be at the center of policy makers’ attention – not just regarding geoeconomic measures, such as export and investment controls or subsidies, but also as a technology ecosystem that is relevant for foreign relations and trade: Dependence on foreign semiconductor technologies informs foreign and trade policy, and vice versa.



Table of Contents

Executive summary	3
Bi- and trilateral partnerships that talk about chips	6
Introduction	7
Results: When governments talk about chips	12
Partnership profiles	16
IN-EU: EU-India Trade and Technology Council	17
IN-US: India-U.S. Commercial Dialogue	19
IN-US: India-US Initiative on Critical and Emerging Technology (iCET)	21
JP-EU: Japan-EU Digital Partnership	24
JP-US: Japan-US Commercial and Industrial Partnership (JUCIP)	28
KR-EU: ROK – EU Digital Partnership	31
KR-US: US-ROK Supply Chain and Commercial Dialogue (SCCD)	35
SG-EU: EU-Singapore Digital Partnership	38
EU-US: EU-US Trade and Technology Council (TTC)	41
Other partnerships to watch	46
Announcements of bilateral cooperation	46
JP-NL: Japan-Netherlands semiconductor cooperation	48
JP-KR-US: Japan-ROK-US trilateral partnership	48
JP-UK: Bilateral partnership between the UK and Japan	49
MY-US: Bilateral partnership between the US and Malaysia	49
TW-US: US-Taiwan Technology Trade and Investment Collaboration Framework (TTIC)	49
US-VN: Bilateral partnership between the US and Vietnam	50
Group of Seven (G7)	50
Indo-Pacific Economic Framework (IPEF)	51
Quadilateral Security Dialogue (Quad)	52
References	58

Introduction

In the last few years, the United States (US) government and the European Union (EU) have been increasingly including chips in both their domestic and international industrial policy strategies. There has been a flurry of activity within the US government, the European Commission, and several EU member states to foster technology partnerships, with a focus on Indo-Pacific nations. Immediately after the EU published its “Strategy for cooperation in the Indo-Pacific” in September 2021¹—which explicitly mentions chips and the need to cooperate with Japan, Taiwan, and the Republic of Korea (ROK) for supply chain resilience—Thierry Breton visited Japan and the ROK on his “Tech and Chips Tour.”²

The US and EU are increasingly seeking technology partnerships in this field with Asian nations for three main reasons.

First, Asian nations are technology leaders: Countries such as Japan, Singapore, Taiwan, and the ROK play indispensable roles in today’s semiconductor value chain. Despite substantial investments in semiconductor manufacturing through the US CHIPS Act and the EU Chips Act, both regions continue to rely on Asian nations for semiconductor production. For example, they require chemicals from Japan and memory chips from the ROK, and rely on cutting-edge wafer fabrication performed in Taiwan. Today’s semiconductor manufacturing supply chain is the result of decades of economic pressure to innovate. This led companies to become highly specialized and to a transnational division of labor that will be hard to reverse.³

Second, Asian nations are back-end manufacturing hubs: Assembly, testing, and packaging (ATP), which is generally referred to as back-end manufacturing, has substantially lower value-add and profit margins than wafer fabrication (front-end manufacturing). Over the past decades, American and European semiconductor suppliers have offshored most of this labor-intensive process to China, Malaysia, the Philippines, Singapore, and other Asian countries. In addition, China and Taiwan control most of the outsourced semiconductor assembly and test (OSAT) market, or contract back-end manufacturing.⁴ While industrial policy efforts by the US and EU have resulted in several investments in front-end manufacturing, the same is not true for back-end manufacturing. Thus, US and EU semiconductor suppliers will continue to depend on back-end manufacturing performed in Asia for the foreseeable future.⁵

Third, there is a need to de-risk away from China: The US government is seeking partnerships in Asia to not only limit China’s technological capabilities in cutting-edge front-end manufacturing, as stated in the US export controls from October 2022⁶, but also to geographically diversify its semiconductor supply chain. China plays an important role in back-end manufacturing, final assembly, and front-end

manufacturing of legacy chips, which are critical for automotive, medical, and industrial applications.⁷ Successful geographic diversification of these process steps will only be achieved by “friend-shoring” (rather than re-shoring) the processes to nations with established semiconductor manufacturing hubs (e.g., Malaysia) and newcomers (e.g., India).

Thus, the reasons for the US to seek cooperation in the field of semiconductors are slightly different from those of the EU and its member states. Also, the US and the EU are motivated to seek partnerships based on the potential partner’s current position in the semiconductor value chain.

Contents and pitfalls of our analysis

Given the extensive activity at the international level and the multitude of motivations and policy goals associated with establishing partnerships, we decided to examine key documents that have been produced and put into effect, including partnership statements, memorandums of understanding (MoUs), press releases, principles, and working group announcements. The aim of this work was to analyze the intentions of governments seeking to establish partnerships. For this, we developed the following three key questions to study official government documents:

1. **How broad are the partnership’s objectives?** For example, is there a clear focus on specific objectives, such as supply chain monitoring or coordination on export controls and subsidies? Or does the partnership cover a range of issues, for example, research cooperation, commercial development, and crisis response?
2. **How will the partners achieve their goals?** For example, are the partnership’s objectives underpinned by concrete implementation strategies, responsible actors, and timeframes?
3. **Do different partnerships share priorities?** For example, are the scope and objectives (related to semiconductors) of the Japan-US technology partnership and the Japan-EU technology partnership different?

It must be noted, however, that analyzing governments’ intentions through official documents and announcements comes with several caveats.

First, **governments keep certain details confidential** and do not release information about certain initiatives, negotiations, and informal partnerships into the public domain. For example, during trilateral negotiations among the US, Japanese, and Dutch governments about aligning export controls on semiconductor manufacturing equipment toward China, the Netherlands’ Prime Minister, Mark Rutte, stated in January 2023 that “*those talks have been going on for a long time and we’re not saying anything about it.*”⁸ Another example involves the US-led “Chips 4” or “Fab 4”

initiative with Japan, Taiwan, and the ROK, for which the US government has been pushing for since at least early 2022.⁹ At the time of writing, no official document on this initiative has been released. Based on a statement by the Taiwanese Foreign Ministry, the “US-East Asia Semiconductor Supply Chain Resilience Working Group” held a meeting on 16 February 2023, and the focus of “*the participating quartet at the meeting was mainly on how to maintain the resilience of the semiconductor supply chain and explore the possible future cooperation directions of all parties.*”¹⁰ It is unlikely that the four participants will ever release a joint statement or MoU to the public about this initiative for several reasons. One reason is that the Chinese government, early on, perceived this initiative as “coercive diplomacy” by the US government.¹¹ These examples show that analysis of public documents will always only provide part of the picture.

Second, **most things are easier said than done**. Even if a government-level partnership has clear objectives and concrete implementation strategies, the outcome depends on the capacity of the assigned administrative resources—namely, government personnel—to follow through and bring the ideas to life. While this is true for any government policy, it is even more so for government-level partnerships, which rely on the actions of two or more partners.

Third, technology partnerships between governments can be highly ambitious and contain clear strategies, aims, and frameworks for implementation. However, implementation often relies on the private sector, and **if private sector stakeholders are not engaged**, for whatever reason, the real-world impact of a partnership might be negligible. It is not immediately obvious how governments can meaningfully cooperate to shape a private-sector value chain. In this specific case, it is currently unclear, for example, whether 1) private sector stakeholders will agree with governmental risk assessments, 2) the global semiconductor value chain will substantially geographically diversify, or 3) there will be better coordination on information sharing during crisis response situations.

Despite these inherent limitations of an analysis of official government documents, we are convinced that such an analysis can generate valuable information. When information about a partnership’s clear objectives and tangible implementation strategies is publicly released, this potentially speaks to the level of commitment of the involved governments. Furthermore, when such information is in the public record, legislative and regulatory bodies, as well as companies, and civil society entities can follow up and hold the partners accountable.

How we analyzed government documents

In our analysis, we included all types of official government documents, such as joint statements, speeches, readouts, MoUs, and working group announcements. In total, we examined more than 150 public documents.

We have placed the key partnerships into two sections in this paper. The **Partnership profiles** section presents milestones, quotes, and a brief background on the governance of specific partnerships. Partnerships that clearly focus on the semiconductor value chain (and include specific initiatives and goals) are included in this section. The **Other partnerships to watch** section introduces partnerships that are (a) broad, without a clear focus on semiconductors, or (b) very recent, with limited official information available to the public. Several of these recent partnerships were announced within the last year. Notably, the partnerships listed in the second section are not less important or impactful than those listed in the first section.

Furthermore, **we prioritized bilateral over mini- and multilateral partnerships.** While the Indo-Pacific Economic Framework (IPEF), Quadrilateral Security Dialogue (Quad), and Group of Seven (G7) are certainly important forums that are increasingly tackling semiconductor-related issues, concrete initiatives related to the semiconductor supply chain specifically are largely found in bilateral partnerships between the same countries.

Another aspect that we considered is the **vagueness and often careful phrasing of official government documents.** It takes a certain amount of interpretation to judge two governments' commitments to a specific initiative. The following are examples of the type of language used in the studied documents: *“exploring the creation of [a task force],” “intend to discuss potential coordinated or joint responses to economic coercion,” “strengthen the dialogue on economic resilience,”* and *“reiterate our commitment to reach a common understanding.”* However, government announcements can also effectively communicate solid implementation strategies, and we focused on such documents when preparing the partnership profiles.

Finally, **we use the term “government partnership” in a general way to describe a variety of relationships** and agreements. Among the analyzed partnerships are “dialogues,” “councils,” “frameworks,” “initiatives,” and actual “partnerships.” It is beyond the scope of this paper to provide an assessment, from a political science or international relations perspective, of the meaning of each of these terms in each context. In addition, we have not taken into account the different meanings of “consultation,” “coordination,” “cooperation,” and “collaboration.” While all four have different meanings in the English language, based on our analysis, we cannot



Julia Hess and Jan-Peter Kleinhans

October 2023

Chip Diplomacy - Analysis of technology partnerships

assume that the authors of the documents (a) had a shared definition of these and other terms and (b) deliberately chose a specific term for a specific objective or implementation strategy. Thus, we presume that the terms have been used somewhat interchangeably.

Results: When governments talk about chips

While we encourage you to read the partnership profiles listed below ([page 17](#)) and the associated government documents for yourself, we also outline here several noteworthy findings that emerged from our analysis for your perusal. As mentioned earlier, we studied partnerships with three guiding questions in mind: (1) How broad are the partnership's objectives? (2) How will the partners achieve their goals? (3) Do different partnerships share priorities?

The short answer to the final question is: yes. Though different partnerships do share priorities, **the analyzed partnerships differ substantially in their scope, objectives, and implementation strategies.** The ROK's partnerships with the EU (Republic of Korea-European Union [ROK-EU] Digital Partnership) and the US (US-Korea Supply Chain and Commercial Dialogue [SCCD]) are good examples that show how a government may set different priorities for agreements with different partners. Both of these partnerships emphasize research cooperation but tend to avoid workforce development. Yet, while the US-Korea SCCD involves a dedicated Export Control Working Group¹² and gives considerable attention to export control coordination, it is stated that the ROK-EU Digital Partnership members will only “exchange views on export controls.”¹³ Since the ROK's memory chip suppliers Samsung and SK Hynix were heavily impacted by the US export controls introduced in October 2022, it is understandable that export control coordination is high on the agenda of technology partnerships between the US and the ROK.¹⁴ In contrast, the ROK-EU Digital Partnership has a greater emphasis on preparedness and crisis response, with several implementation strategies articulated.

In terms of how priorities can shift over time, the EU-US Trade and Technology Council (TTC) provides us with an interesting case study. Launched in 2021, it is one of the oldest partnerships included in our list of profiles. Initially, in the aftermath of severe chip shortages, there was a clear focus on increasing transparency, collective monitoring, and early warning measures. A dedicated working group was set up and assigned the following task: “to focus on advancing respective supply chain resilience and security of supply in key sectors for the green and digital transition and for securing the protection of our citizens.”¹⁵ The goal was to “initially focus on short-term supply chain issues.”¹⁶

In the second (May 2022, Paris)¹⁷ and third (December 2022, Maryland)¹⁸ meetings, there was a shift toward greater coordination on policy tools, such as subsidies and export controls, and an intention to cooperate in research and development (R&D). This was a reasonable development given the large domestic subsidies packages provided by both participants (US CHIPS Act and EU Chips Act) and the intensification of the US-China technology rivalry.

In the most recent fourth meeting (May 2023), it was reported that progress had been made on the coordinated effort to develop a collective early warning mechanism and transparency on subsidies. In addition, tangible ideas were formulated on collective research to address the high greenhouse gas (GHG) emissions of current semiconductor manufacturing, such as replacing per- and polyfluorinated alkyl substances (PFAS).¹⁹ It will be interesting to see if and how the EU-US TTC's priorities continue to evolve and whether any of the newer partnerships will show similar shifts in their priorities over time.

Limited cooperation on workforce development

A shortage of skilled workers is one of the central challenges faced by the global semiconductor industry. According to a Deloitte study, the global semiconductor industry needs to grow from two million direct workers in 2021 to around three million in 2030.²⁰ At the national level, many governments have identified semiconductor workforce development as a critical policy area.²¹ One industry study has projected that by 2030, there will be potentially 67,000 unfilled jobs in the US semiconductor industry.²² **Yet, most government partnerships seem to not even mention semiconductor workforce development, let alone provide concrete implementation strategies to achieve this objective.**

The few partnerships that explicitly mention workforce development often do so in very general terms. The US-India Initiative on Critical and Emerging Technology (iCET) simply states that “*both countries intend to promote the development of a skilled workforce.*”²³ Similar wording is used in the Japan-US Commercial & Industrial Partnership (JUCIP), which states that the ministries in charge “*intend to cooperate on... workforce development.*”²⁴

One of the few partnerships that mentions a specific idea is the Digital Partnership between the EU and Japan. In their Memorandum of Cooperation (MoC) on Semiconductors, the Japanese government and the European Commission intend to organize “*EU-Japan workshops on skills for semiconductors, with a view to working towards facilitating and promoting joint EU-Japan skills-building initiatives in fields of mutual benefit and interest.*”²⁵

While it is understandable that a government would prioritize growing and strengthening its domestic workforce, it seems like a lost opportunity to not develop joint workforce development schemes through such partnerships.

US: Commercial cooperation for friend-shoring?

A key motivating factor for the establishment of several partnerships spearheaded by the US government is the geographic diversification of the semiconductor supply chain away from China. As mentioned earlier, some of the labor-intensive process steps with relatively low profit margins cannot be justifiably re-shored to the US (or Europe, for that matter). In an announcement about a new partnership with Vietnam, President Biden stated that the intended goal is to “*expand capacity in reliable partners where it cannot be re-shored to the United States.*”²⁶ This explains why **a key objective of several US-led partnerships is commercial cooperation—the commercial development and technological upgrading of the partner country to friend-shore back-end manufacturing and trailing-edge front-end manufacturing.** Both of these process steps are currently largely performed in China and Taiwan.²⁷ This also seems to be a key objective of a new US-India partnership, as it was noted in the inaugural meeting that the partnership would “*encourage the development of joint ventures and technology partnerships on mature technology nodes and packaging in India.*”²⁸

Notably, similar objectives and strategies seem to be largely absent in the European Commission’s Digital Partnerships. While, at the time of writing, an MoU²⁹ on semiconductors with India, announced as part of the EU-India TTC, has not been published, commercial cooperation does not seem to be an objective of the EU-India TTC, at least not in the same way it is in US-India partnerships.

EU: Supply chain monitoring and research and development

The European Commission seems to **focus on two objectives in the EU-US TTC and its Digital Partnerships with Japan, the ROK, and Singapore: research cooperation and crisis preparedness.** In particular, the Digital Partnerships with Japan and the ROK provide relatively concrete ideas about cooperation in R&D: an annual R&D forum³⁰ with the ROK and the intention to “*promote research in areas of combined strength*”³¹ with Japan.

In alignment with the EU Chips Act dedicating one out of three chapters solely to semiconductor supply chain monitoring and crisis response measures, both topics are often key points mentioned in the EU Commission’s partnerships. “*Sharing of information*” about the semiconductor supply chain and developing an “*early warning system*” are phrases found in most partnerships.

Another central theme in most partnerships co-led by the EU is transparency about subsidies. The rationale for this is to “*avoid a subsidy race,*” according to the EU-US TTC³². The same intention can be found in the EU Digital Partnerships, although different wording is used.



Governments are defining their role in the chips value chain

Governments care about chips, and **they realize that just as semiconductor companies must cooperate with each other to produce chips, governments must cooperate with each other to increase the strength and resilience of the vital semiconductor value chain.** It seems logical for government-level partnerships to focus on activities that can benefit from direct government mandates, such as coordination on export controls, sharing of information on government incentives and subsidies, research collaboration, and sharing of information about the supply chain itself.³³ It is also reasonable to say that governments are still refining their role(s) in this private-sector value chain. It remains to be seen how meaningful and effective government-driven supply chain monitoring will be in helping to identify and alleviate future chip shortages.

Another open question is to what extent companies will heed calls for geographic diversification of the supply chain. The US government, through its newly established International Technology Security and Innovation (ITSI) Fund³⁴, is actively trying to incentivize the commercial development of like-minded partners that could play a more central role in semiconductor production, such as Vietnam and Malaysia. It is not yet clear whether these efforts will be successful in the long term.

Partnership profiles

The following partnership profiles provide a structured overview of the governance, milestones, respective goals, and implementation strategies of selected partnerships. They are listed in alphabetical order, by the name of the non-EU or non-US partner. After careful analysis, we decided to only include selected government partnerships that cover chips in this chapter. We used the following guiding questions when selecting the partnerships to be included:

- Are there clear objectives guiding the partnership?
- Are the objectives underpinned by concrete implementation strategies?
- Does the partnership explicitly mention semiconductors?
- Are there target outcomes that focus on strengthening cooperation in the global semiconductor value chain?

After selecting the partnerships to be included, we clustered them into two groups based on their objectives and implementation strategies that explicitly mention semiconductors. In this **Partnership profiles** section ([see page 17](#)) are partnerships that focus on semiconductors, either in a workstream or in the entire partnership, and have solid objectives and implementation strategies. To see at first glance in which of the documents the citations can be found, we have added a bracket with an abbreviation after the respective citation (e.g. [IN-EU1]), which refers to the document that can be found at the end of a specific partnership profile.

In the **Other partnerships to watch** section ([see page 46](#)) are partnerships that reference semiconductors but are either too recent or too vague and lack clear objectives and implementation strategies. Some of these were announced very recently and only referenced in a single press release or a few news articles. In this section, we provide the documents altogether at the end of the chapter ([see page 53](#)).



IN-EU: EU-India Trade and Technology Council

“The Trade and Technology Council will provide the political steer and the necessary structure to operationalize political decisions, coordinate technical work, and report to the political level to ensure implementation and follow-up in areas that are important for the sustainable progress of European and Indian economies.” [IN-EU1]

Governance

European Union, India: **25.04.2022** (18 months as of 10.2023)

Annual ministerial meetings between the Executive Vice-Presidents (EVP) of the European Commission in charge of digital technology and trade and the Ministers in charge of external affairs, commerce & industry, and electronics & information technology. [IN-EU3]

Two of the three Working Groups relevant regarding semiconductors:

Working Group 1 on Strategic Technologies, Digital Governance and Digital Connectivity *“will work jointly on areas of mutual interest such as digital connectivity, Artificial Intelligence, 5G/6G, high performance and quantum computing, semiconductors, cloud systems, cybersecurity, digital skills and digital platforms.”* [IN-EU4]

Working Group 3 on Trade, Investment and Resilient Value Chains *“will work on the resilience of supply chains and access to critical components, energy, and raw materials. It will also work to resolve identified trade barriers and global trade challenges by promoting cooperation in multilateral fora. It will work towards promotion of international standards and cooperation on addressing global geopolitical challenges.”* [IN-EU4]

Milestones, Outcomes and Achievements

- 25.04.2022** ○ Official Launch of EU-India TTC in New Delhi [IN-EU1]
- 06.02.2023** ○ Establishment of EU-India TTC [IN-EU2]
- 16.05.2023** ○ First official meeting of EU-India TTC in Brussels [IN-EU6]
- Aim for a Memorandum of Understanding on semiconductors by September 2023 [IN-EU6]

Objectives and Areas of Cooperation



POLICY COOPERATION

Aim for a MoU on semiconductors:

“The two sides will coordinate their policies with regards to the strategic semiconductor sector, with the aim of concluding a Memorandum of Understanding by September 2023.” [IN-EU6] see also [IN-EU8], [IN-EU7]



RESEARCH COOPERATION

The partnership documents seem to lack a clear reference to this objective.



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

The partnership documents seem to lack a clear reference to this objective.



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.

References

Announcement, 2022:

[IN-EU1] [Joint Press Release](#) (archive.org)

Launch Meeting, 2023:

[IN-EU2] [Joint Statement](#) (archive.org)

[IN-EU3] [Terms of Reference](#) (archive.org)

[IN-EU4] [Press Release](#) (archive.org)

First Ministerial Meeting, 2023:

[IN-EU5] [Opening Remarks](#) (archive.org)

[IN-EU6] [Joint Statement](#) (archive.org)

[IN-EU7] [Fact Sheet](#) (archive.org)

[IN-EU8] [Press Release EU](#) (archive.org)

[IN-EU9] [Press Release India](#) (archive.org)



IN-US: India-U.S. Commercial Dialogue

Both governments want to “...utilize the Commercial Dialogue to enhance public and private efforts to promote industry cooperation in the semiconductor sector. These efforts will identify opportunities for growth and challenges to address in order to ensure that U.S. and Indian semiconductor industries develop stronger connections, complementary ecosystems, and a more diverse supply chain for semiconductors.”

[IN-US3]

Governance

India, United States: **10.03.2023** (5th ministerial level meeting, inaugural meeting in 2000) [IN-US1]

The Commercial Dialogue, between the **US Department of Commerce (DOC)** and the **Indian Ministry of Commerce and Industry (MOCI)**, supports/is part of the U.S.-India Comprehensive Global Strategic Partnership. [IN-US3]

Semiconductor Sub-committee, led by US DOC and Indian Ministry of Electronics and Information Technology (MEITY) and MOCI, **reviews recommendations from iCET’s industry-led task force.** [IN-US3]

Milestones and Outcomes

- 24.09.2021** ○ U.S.-India Joint Leaders’ Statement mentions intent to relaunch the India-U.S. Commercial Dialogue in 2022 [IN-US2]
- 10.03.2023** ○ 5th ministerial-level meeting of India-U.S. Commercial Dialogue [IN-US3]
 - Memorandum of Understanding** “Semiconductor Supply Chain and Innovation Partnership”, establishing a **Semiconductor Sub-committee** under the Commercial Dialogue [IN-US3]

Objectives and Areas of Cooperation



POLICY COOPERATION

Policy coordination (through iCET):

“Minister Goyal and Secretary Raimondo noted the importance of coordinating with the standing mechanism established by the two governments under iCET, which aims to address regulatory barriers and other issues that impede smooth economic and commercial ties.” [IN-US3]



RESEARCH COOPERATION

The partnership documents seem to lack a clear reference to this objective.



COMMERCIAL COOPERATION

Incentivizing stronger commercial connections:

“... identify opportunities for growth and challenges to address in order to ensure that U.S. and Indian semiconductor industries develop stronger connections, complementary ecosystems, and a more diverse supply chain for semiconductors. Towards that end... a Memorandum of Understanding establishing a Semiconductor Sub-committee under the Commercial Dialogue, led by [US DOC, Indian MOCI and MEITY]. The Minister and the Secretary charged the Semiconductor Sub-committee with convening its first engagement in advance of any Commercial Dialogue mid-year review and reviewing recommendations from the joint industry led task force launched in connection with the iCET.” [IN-US3]



PREPAREDNESS, CRISIS RESPONSE

The partnership documents seem to lack a clear reference to this objective.



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.

References

US-India Leaders' Meeting, 2000:

[IN-US1] [Joint Statement](#) (archive.org)

US-India Leaders' Meeting, 2021:

[IN-US2] [Joint Statement](#) (archive.org)

5th Ministerial Meeting, 2023:

[IN-US3] [Joint Statement](#) (archive.org)

[IN-US4] [Readout](#) (archive.org)

[IN-US5] [Announcement of Semiconductor MoU](#) (archive.org)

[IN-US6] [Statement on Semiconductor MoU](#) (archive.org)



IN-US: India-US Initiative on Critical and Emerging Technology (iCET)

“Prime Minister Modi and President Biden reaffirmed technology’s defining role in deepening our strategic partnership and lauded ongoing efforts through the India-U.S. Initiative on Critical and Emerging Technology (iCET) to build open, accessible, secure, and resilient technology ecosystems and value chains, based on mutual confidence and trust, which reinforce our shared values and democratic institutions.” [IN-US10]

Governance

India, United States: **24.05.2022** (17 months as of 10.2023)

The U.S.-India Initiative on Critical and Emerging Technology (iCET) is led by the **National Security Councils of both countries.**

The **iCET Task Force**, organized by U.S. Semiconductor Industry Association (**SIA**) and the India Electronics and Semiconductor Association (**IESA**), *“will make recommendations to the Department of Commerce and the India Semiconductor Mission on opportunities and challenges to overcome in order to further strengthen India’s role within the global semiconductor value chain, and will also provide input to the U.S.-India Commercial Dialogue.” [IN-US8]*

The newly established **India-U.S. Strategic Trade Dialogue** (inaugural meeting on 06.06.2023) *“is a key mechanism to take forward the strategic technology and trade collaborations envisaged under the India-US initiative on Critical and Emerging Technologies (iCET). IUSSTD focused on ways in which both governments can facilitate the development and trade of technologies in critical domains such as semiconductors, space, telecom, quantum, AI, defence, bio-tech and others.” [IN-US9]*

Milestones and Outcomes

- 24.05.2022** ○ Announcement of iCET as part of meeting between US President Biden and Indian Prime Minister Modi. [IN-US7]
- 31.01.2023** ○ Inaugural iCET meeting of National Security Advisors. [IN-US8]
Establishment of iCET task force jointly led by U.S. Semiconductor Industry Association (SIA) and the India Electronics and Semiconductor Association (IESA). [IN-US8]
- 22.06.2023** ○ Initial “India Semiconductor Readiness Assessment” commissioned by SIA and IESA. [IN-US11]

Objectives and Areas of Cooperation



POLICY COOPERATION

The partnership documents seem to lack a clear reference to this objective.



RESEARCH COOPERATION

Identify research areas (Task Force):

“The task force will also identify and facilitate... R&D including with respect to advanced packaging, and exchange opportunities to benefit both countries.” [IN-US8]



COMMERCIAL COOPERATION

Semiconductor production diversification:

“Enhancing bilateral collaboration on resilient semiconductor supply chains; supporting the development of a semiconductor design, manufacturing, and fabrication ecosystem in India; and leveraging complementary strengths;” [IN-US8]

Joint Ventures and Technology Partnerships:

“...encourage the development of joint ventures and technology partnerships on mature technology nodes and packaging in India.” [IN-US8]

Identify industry opportunities (Task Force):

“[The task force will] develop a “readiness assessment” to identify near-term industry opportunities and facilitate longer-term strategic development of complementary semiconductor ecosystems.” [IN-US8]



PREPAREDNESS, CRISIS RESPONSE

The partnership documents seem to lack a clear reference to this objective.



WORKFORCE DEVELOPMENT

Development promotion:

“... both countries intend to promote the development of a skilled workforce that will support global semiconductor supply chains...” [IN-US8]

Facilitate workforce development (Task Force):

“The task force will also identify and facilitate workforce development...” [IN-US8]



References

Bilateral Meeting in Tokyo, 2022:

[IN-US7] [Readout](#) ([archive.org](#))

Inaugural iCET Meeting, 2023:

[IN-US8] [Fact Sheet](#) ([archive.org](#))

Inaugural IUSSTD Meeting, 2023:

[IN-US9] [Press Release](#) ([archive.org](#))

US-India State Visit, 2023:

[IN-US10] [Joint Statement](#) ([archive.org](#))

India Semiconductor Readiness Assessment Report, 2023:

[IN-US11] [Press Release](#) ([archive.org](#))



JP-EU: Japan-EU Digital Partnership

“We emphasise our determination to strengthen cooperation in promoting economic security. We will strengthen the resilience of our economies in the field of critical infrastructure and supply chain resilience, as well as cyber security, and export.”

[JP-EU1]

Governance

European Union, Japan: 12.05.2022 (18 months as of 10.2023)

Annual ministerial meetings of the Digital Partnership Council between Digital Agency, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry and European Commission (DG CNECT). [JP-EU2]

Regular stakeholder participation and involvement. [JP-EU2]

Milestones, Outcomes and Achievements

- 09.03.2021 ○ Digital Compass Communication calls on International Partnerships for the Digital Decade [JP-EU11]
- 27.05.2021 ○ Digital cooperation first mentioned in Japan-EU Summit conclusions [JP-EU2]
- 16.09.2021 ○ EU Strategy for Cooperation in the Indo-Pacific [JP-EU12]
- 12.05.2022 ○ **launch of JP-EU Digital Partnership** at 28th Japan-EU Summit in Tokyo [JP-EU5]
- 03.07.2023 ○ **first meeting of JP-EU Digital Partnership Council** in Tokyo [JP-EU6]
- 04.07.2023 ○ **METI & EC sign MoC on Semiconductors** [JP-EU8]

Objectives and Areas of Cooperation



POLICY COOPERATION

Subsidies:

“... intend to share specific information about public support being granted in the semiconductor sector... intend to set up a common mechanism for informing each other on such public support” [JP-EU7] see also [JP-EU2], [JP-EU6]

Export Controls:

“Both sides intend to work towards achieving... coordination of export controls among the relevant authorities” [JP-EU2]



RESEARCH COOPERATION

Funding:

“... the Participants intend to put in place collaborative research programmes, for which the Participants endeavour to find the best funding possibilities. They tentatively propose to plan such cooperation with the support of the Chips Joint Undertaking on the EU side and under Japan’s relevant system on the Japanese side...” [JP-EU7] see also [JP-EU6]

Research Areas:

“Both sides intend to promote research in areas of combined strength, i.e. chip design, automotive and power technologies, sensing, as well as integrated photonics in order to strengthen the semiconductor supply chain and in order to address gaps in the value chain... Research cooperation will be set up in relevant domains for the future of the industry, e.g. design with open-source hardware, chips for AI, 5G/6G, HPC, and semiconductor integration technologies.” [JP-EU1]

“The Participants intend to establish in-depth cooperation on research and development in essential components for the manufacturing of chips and the next generation of semiconductor technologies, such as: ...alternatives to fluorinated chemicals, such as PFAS... and additional topics of common interest” [JP-EU7] see also [JP-EU6]

Cooperation among relevant organizations:

“Research and development cooperation for semiconductors aims at facilitating cooperation among relevant organisations in the respective jurisdictions of the Participants, such as universities, research and technology organisations, key industry actors and other relevant stakeholders.” [JP-EU7]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Information sharing:

“Both sides intend to work towards achieving joint monitoring, exchange of information...” [JP-EU2]

“The Participants endeavour to develop specific arrangements between the two administrations to implement... an information sharing mechanism.” [JP-EU7] see also [JP-EU6]

Early warning mechanism:

“The Participants intend to develop a joint early warning mechanism for the semiconductor supply chain, with a view to sharing information about and cooperate in addressing disruptions to the semiconductor supply chain.” [JP-EU7] see also [JP-EU2], [JP-EU6]

Designated points of contact:

“The Participants endeavour to develop specific arrangements between the two administrations to implement the early warning mechanism by establishing points of contacts” [JP-EU7]

Best practices:

“We will strengthen the EU-Japan dialogue on economic resilience to address or mitigate the risk of excessive dependencies, share best practices to address risks to critical global supply chains, in areas such as semi-conductors and raw materials, and to secure critical infrastructure.” [JP-EU1]



WORKFORCE DEVELOPMENT

Best practices:

“The Participants intend to establish in-depth cooperation to promote advanced skills for the semiconductor industry, with a specific focus on... exchange on respective approaches and related skills programmes; acquiring a better knowledge of respective skills strengths and weaknesses and to that end on aspects of commonalities and complementarities from which the Participants can mutually benefit and/or on which we can build up together” [JP-EU7] see also [JP-EU6]

Workshops:

“Organising EU-Japan workshops on skills for semiconductors, with a view to working towards facilitating and promoting joint EU-Japan skills-building initiatives in fields of mutual benefit and interest” [JP-EU7] see also [JP-EU6]

References

28th EU-Japan Summit; Launch of Japan-EU DP:

[JP-EU1] [Joint Statement](#) (archive.org)

[JP-EU2] [Digital Partnership Text](#) (archive.org)

[JP-EU3] [Digital Partnership Fact Sheet](#) (archive.org)

[JP-EU4] [Japan Press Release](#) (archive.org)



Julia Hess and Jan-Peter Kleinhans

October 2023

Chip Diplomacy - Analysis of technology partnerships

[JP-EU5] [EU Press Release](#) (archive.org)

First Meeting Digital Partnership Council:

[JP-EU6] [Joint Statement](#) (archive.org)

[JP-EU7] [MoC on Semiconductors](#) (archive.org)

[JP-EU8] [Press Release on MoC](#) (archive.org)

[JP-EU9] [Press Release](#) (archive.org)

29th EU-Japan Summit:

[JP-EU10] [Joint Statement](#) (archive.org)

Other sources:

[JP-EU11] [EU Digital Partnerships Overview](#) (archive.org)

[JP-EU12] [The EU Strategy for Cooperation in the Indo-Pacific](#) (archive.org)



JP-US: Japan-US Commercial and Industrial Partnership (JUCIP)

“JUCIP will initiate activities that promote investment and vitalize cooperation between the private sectors of both countries, including through the Department of Commerce’s SelectUSA and the Japan External Trade Organization’s J-Bridge programs. JUCIP will also advance innovation in areas such as digital and advanced technologies. JUCIP will promote the resiliency of supply chains for semiconductors...”

[JP-US2]

Governance

Japan, United States: **15.11.2021** (23 months as of 10.2023)

Annual ministerial meetings between Japan’s Ministry of Economy, Trade and Industry (METI) and the United States’ Department of Commerce (DoC).

Working groups on semiconductors, export controls, digital economy and trade and investment.

Investment cooperation via DoC’s SelectUSA and Japan External Trade Organization J-Bridge programs. [JP-US2]

Milestones and Outcomes

- 16.04.2021 ○ Establishment of US-Japan Competitiveness (CoRe) Partnership, parent partnership to JUCIP, that includes economic security [JP-US2] [JP-US1]
- 15.11.2021 ○ JUCIP launch [JP-US2]
- 08.04.2022 ○ Sub-ministerial meeting (virtually) [JP-US3]
- 04.05.2022 ○ 1st Ministerial Meeting [JP-US4]
Basic Principles on Semiconductor Cooperation [JP-US5]
- 01.12.2022 ○ Request for Public Comments Regarding Areas and Priorities for U.S. and Japan Export Control Cooperation for JUCIP Export Control Working Group [JP-US10]
- 26.05.2022 ○ 2nd Ministerial Meeting [JP-US9]

Objectives and Areas of Cooperation



POLICY COOPERATION

Export controls:

“Joint establishment of a Work Plan on Export Control Cooperation, which will further strengthen technical consultations on current and possible future legislative and regulatory developments, sensitive dual-use technologies, and advanced technologies that may be taken advantage of to further serious human rights violations and abuses.”

[JP-US4]

“DOC and METI reaffirmed their commitment to cooperate on export controls, including the following activities:... (2) engaging in capacity building and outreach to ASEAN and other third countries, and (3) implementing actionable recommendations received from the public, as appropriate, in response to the joint publication of requests for comments published in December 2022 by DOC and METI respectively.” [JP-US9]

Semiconductor production diversification:

“Under the Basic Principles, DOC and METI intend to cooperate on diversifying semiconductor production capacity...” [JP-US4]

“Continue to... cooperate to identify and resolve geographic concentrations of production undermining semiconductor supply chain resilience.” [JP-US9]

Subsidies:

“They also will continue to share information on support measures and incentives in both countries...” [JP-US9]



RESEARCH COOPERATION

Next-generation semiconductors:

“To explore the development of next generation semiconductors, they intend to encourage cooperation between the to-be-established National Semiconductor Technology Center of the United States and the Leading-Edge Semiconductor Technology Center of Japan in roadmapping for technological and human resource development under the Japan-U.S. Joint Task Force.” [JP-US9]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Coordination of emergency responses:

“The Minister and the Secretary also highlighted the importance of bilateral cooperation, especially on... increasing transparency, coordinating emergency response to semiconductor shortages” [JP-US5]



WORKFORCE DEVELOPMENT

No implementation strategy:

“Under the Basic Principles, DOC and METI intend to cooperate on... workforce development.” [JP-US4]

References

Japan-US Summit, 2021:

[JP-US1] [CoRe Fact Sheet](#) (archive.org)

Launch Meeting JUCIP, 2021:

[JP-US2] [Joint Statement](#) (archive.org)

Sub-ministerial Meeting JUCIP, 2022:

[JP-US3] [Press Release](#) (archive.org)

1st Ministerial Meeting JUCIP, 2022:

[JP-US4] [Fact Sheet](#) (archive.org)

[JP-US5] [Basic Principles on Semiconductor Cooperation](#) (archive.org)

Leading-edge Semiconductor Technology Center (LSTC), 2022:

[JP-US6] [First Announcement](#) (archive.org)

[JP-US7] [Second Announcement](#) (archive.org)

[JP-US8] [Overview](#) (archive.org)

2nd Ministerial Meeting JUCIP, 2023:

[JP-US9] [Joint Statement](#) (archive.org)

Other sources:

[JP-US10] [Federal Register, Request for Public Comments](#) (archive.org)

[JP-US11] [CISTEC Statement, Public Comments](#) (archive.org)



KR-EU: ROK – EU Digital Partnership

“We share the objective to strengthen the global competitiveness of semiconductor industries in the EU and Korea. To this end, we will explore developing a common mechanism for the security and resilience of semiconductor’s supply chain and we commit to conducting collaborative research and development in the field of leading-edge semiconductors including power semiconductors, automotive semiconductors, and advanced devices. In addition, we continue close consultations on our respective industry policies... and explore ways to collaborate on potential disruptions to semiconductor supply chains.” [KR-EU4]

Governance

European Union, Republic of Korea: **28.11.2022** (11 months as of 10.2023)

Annual ministerial meetings of the Digital Partnership Council between Korean Minister of Science and ICT Minister Lee Jong-Ho and the EU Commissioner for the Internal Market Thierry Breton. [KR-EU2]

Regular stakeholder participation and involvement, exchanges through existing cooperation mechanisms and through joint Digital Partnership dialogues with stakeholders. [KR-EU2]

Milestones, Outcomes and Achievements

- 30.06.2020** ○ ROK-EU Summit conclusions called for strengthening bilateral cooperation in responding to the Fourth Industrial Revolution and harnessing human-centric digitalization [KR-EU2]
- 09.03.2021** ○ Digital Compass Communication calls on International Partnerships for the Digital Decade [KR-EU8]
- 16.09.2021** ○ EU Strategy for Cooperation in the Indo-Pacific [KR-EU9]
- 28.06.2022** ○ 18th EU-ROK Joint Committee on 28 June 2022 called for closer cooperation on economic security, notably on the resilience of supply chains, and explored the potential cooperation agenda for the digital realm under a future ROK-EU Digital Partnership [KR-EU2]
- 21.09.2022** ○ ROK announced “New York Initiative” (Global digital innovation) [KR-EU3]
- 28.11.2022** ○ Launch of Digital Partnership [KR-EU2]
- 30.06.2023** ○ First Meeting ROK-EU Digital Partnership Council [KR-EU5]

Objectives and Areas of Cooperation



POLICY COOPERATION

Subsidies:

“... we continue close consultations on our respective industry policies including the enactment and implementation of the European Chips Act...” [KR-EU4]

“Both sides recall commitments in the competition chapter of the FTA, in particular with regard to ensuring transparency in the area of subsidies and avoiding distortions of competition caused by subsidies.” [KR-EU2]

Export Controls:

“... we agree to strengthen our dialogue on economic security, including supply chain resilience and exchange views on export controls and economic coercion.” [KR-EU4]
see also [KR-EU2]

International Standardization:

“... to explore the synergies for international standardization of trusted chips and chip security, led by the Ministry of Trade, Industry and Energy (MOTIE).” [KR-EU3] see also [KR-EU2]



RESEARCH COOPERATION

Funding:

“... make full use of instruments such as the Horizon Europe, the EU Framework Programme for Research and Innovation, and Korea’s national research and development projects to continuously seek to provide collaborative research opportunities in cutting edge technologies such as... semiconductors ...” [KR-EU2]

“Research collaboration may be explored under the Chips Joint Undertaking on the EU side, and next-generation semiconductor R&D project on the Korean side.” [KR-EU5]

Research Areas:

“Both sides intend to establish a ROK-EU forum for semiconductor researchers to discuss the latest technologies and trends in highly complementary areas such as advanced semiconductor processes, innovative power electronics, and heterogeneous integration.” [KR-EU2]

“... we commit to conducting collaborative research and development in the field of leading-edge semiconductors including power semiconductors, automotive semiconductors, and advanced devices.” [KR-EU4]

Annual R&D forum:

“In semiconductors, both sides agreed to establish a ROK-EU forum for semiconductor researchers to discuss the latest technologies and trends, which will be led by the MSIT.” [KR-EU3]

“In Semiconductors, both sides intend to organize an annual ROK-EU forum for semiconductor researchers, in Korea and in Europe alternatively, to discuss the latest technologies and trends in highly complementary areas to promote cooperation and exchange for semiconductor technology development between Korea and the EU.” [KR-EU6] see also [KR-EU5], [KR-EU7]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Information sharing:

“Concerning future work, they agreed to exchange information on the semiconductor supply chain between MOTIE and DG CONNECT...” [KR-EU5] see also [KR-EU7]

Early warning mechanism:

“Furthermore, we agree to strengthen cooperation on early warning systems to detect and address potential supply chain disruptions in key industries and items...” [KR-EU4]

“... we will explore developing a common mechanism for the security and resilience of semiconductor’s supply chain.” [KR-EU4] see also [KR-EU2], [KR-EU3]



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.

References

Launch Meeting Digital Partnership Council, 2022:

[KR-EU1] [Joint Statement](#) (archive.org)

[KR-EU2] [Digital Partnership Text](#) (archive.org)

[KR-EU3] [Press Release](#) (archive.org)

10th EU-ROK Summit, 2023:

[KR-EU4] [Joint Statement](#) (archive.org)

First Meeting Digital Partnership Council, 2023:

[KR-EU5] [Joint Statement](#) (archive.org)

[KR-EU6] [Press Release ROK](#) (archive.org)

[KR-EU7] [Press Release EU](#) (archive.org)



Julia Hess and Jan-Peter Kleinhans

October 2023

Chip Diplomacy - Analysis of technology partnerships

Other sources:

[KR-EU8] [EU Digital Partnerships Overview](#) ([archive.org](#))

[KR-EU9] [The EU Strategy for Cooperation in the Indo-Pacific](#) ([archive.org](#))

KR-US: US-ROK Supply Chain and Commercial Dialogue (SCCD)

“The Participants will strive to closely cooperate on advanced semiconductors to implement necessary measures that protect national security while minimizing disruptions to global semiconductor supply chains, maintaining viability of semiconductor industries, and encouraging technological advancement.” [KR-US6]

Governance

United States, Republic of Korea: **08.11.2022** (11 months as of 10.2023)

Based on MoU between United States Department of Commerce (DoC) and Republic of Korea Ministry of Trade, Industry, and Energy (MOTIE). [KR-US6]

Four **Working Groups** focused on (1) advanced manufacturing and supply chain resilience, including semiconductors; (2) dual-use export controls; (3) digital economy; (4) healthcare and healthcare technology. **Meetings** are on the level of Deputy Assistant Secretary/Director-General with dedicated announcements. [KR-US8]

Milestones and Achievements

- 21.05.2021 ○ US-ROK Partnership proposes creation of “U.S.-ROK Supply Chain Task Force... [for] bilateral cooperation in the high-tech manufacturing and supply chains” and to US-Korea SCCD [KR-US1]
- 08.11.2022 ○ Memorandum of Understanding to establish SCCD [KR-US2]
1st Meeting of Export Control Working Group (DoC, MOTIE) [KR-US4]
- 03. 2023 ○ 2nd Meeting of Export Control Working Group [KR-US6]
- 26.04.2023 ○ Announcement of Next Generation Critical and Emerging Technologies Dialogue, “interagency technology dialogue, convened annually and led by the two National Security Advisors, to expand partnership in... semiconductors” and other areas [KR-US5]
- 27.04.2023 ○ 1st Ministerial Meeting of SCCD [KR-US6]

Objectives and Areas of Cooperation



POLICY COOPERATION

Export controls:

“The Participants will strive to closely cooperate on advanced semiconductors to implement necessary measures that protect national security while minimizing disruptions to global semiconductor supply chains, maintaining viability of semiconductor industries, and encouraging technological advancement.” [KR-US6]

“Noting the various bilateral and multilateral exports controls talks and joint efforts that have been held and made between Korea and the U.S. thus far, Deputy Minister Moon Dong-min maintained that this newly launched working group can be a channel through which mutual understanding and coordination schemes can be more effectively sought together.” [KR-US4]

Subsidies:

“The Participants intend to continue close consultations on the implementation of government incentives and policies to support the growth of the semiconductor industry in our countries. ... The Participants jointly share the desire to create favorable conditions for investment from Korean and U.S. firms in both the Korean and U.S. semiconductor ecosystems.” [KR-US6]

Semiconductor production diversification:

“The Participants recognize the contributions of bilateral investments in semiconductor manufacturing to supply chain resiliency, as well as the importance of building a strong supply chain.” [KR-US6]



RESEARCH COOPERATION

Stakeholder engagement (joint forum):

“The Participants intend to establish, within the SCCD, a forum for discussions to connect interested public and private research institutions, including the to-be-established National Semiconductor Technology Centers of both countries, relevant industry associations, universities, government agencies, and companies. This forum will serve to identify opportunities for collaboration, including potential research and development (R&D) projects, based on each country’s strengths in the semiconductor industry. The forum may consider mutually beneficial opportunities for technology demonstrations and personnel exchanges to strengthen the innovation performance by businesses, universities, and research centers from both countries.” [KR-US6]

Identification of research areas (joint forum):

“Potential topics of collaboration may occur in the fields of leading-edge and next-generation semiconductors; advanced packaging, including heterogeneous integration; and advanced materials, parts, and devices.” [KR-US6]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Common understanding, value chain mapping:

“The Participants will work together to bolster the resilience of global supply chains in the semiconductor industry and engage in close discussions on their respective governments’ semiconductor industry programs and potential supply chain risk factors.” [KR-US6]



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.

References

US-ROK Partnership, 2021:

[KR-US1] [Fact Sheet](#) ([archive.org](#))

Bilateral Meeting in Seoul, 2022:

[KR-US2] [Readout](#) ([archive.org](#))

Bilateral Meeting in Washington DC, 2022:

[KR-US3] [Readout](#) ([archive.org](#))

1st Korea-U.S. Exports Controls Working Group meeting, 2022:

[KR-US4] [Press Release](#) ([archive.org](#))

US-ROK State Visit, 2023:

[KR-US5] [Fact Sheet](#) ([archive.org](#))

1st Ministerial Meeting of SCCD, 2023:

[KR-US6] [Joint Statement](#) ([archive.org](#))

[KR-US7] [Readout](#) ([archive.org](#))

Other sources:

[KR-US8] [Indo-Pacific Region \(ITA\)](#) ([archive.org](#))

SG-EU: EU-Singapore Digital Partnership

“Given the diversity of issues to be addressed, the Digital Partnership will adopt a flexible and living architecture that supports a range of cooperation modalities. The living architecture will allow the EU and Singapore to jointly address new areas as they emerge, which is important given the rapidly evolving nature of the digital space.”

[SG-EU4]

Governance

European Union, Republic of Singapore: **01.02.2023** (8 months as of 10.2023)

Annual ministerial meetings of the Digital Partnership Council between EU Commissioner for Internal Market Thierry Breton and Minister in-charge of Trade Relations S. Iswaran. [SG-EU2]

The **Secretariat** will be provided informally by Singapore’s Ministry of Trade and Industry and Ministry of Communication and Information, and the European Commission’s services (Directorate-General for Communications Networks, Content and Technology). [SG-EU2]

Technical workshops to further scope the content and processes of the Digital Partnership. [SG-EU2]

Milestones, Outcomes and Achievements

- 21.11.2019 ○ **Agreement** to strengthen bilateral digital trade with a view to advance towards a Digital Partnership [SG-EU2]
- 09.03.2021 ○ Digital Compass Communication calls on International Partnerships for the Digital Decade [SG-EU8]
- 16.09.2021 ○ EU Strategy for Cooperation in the Indo-Pacific [SG-EU9]
- 14.02.2022 ○ **Joint Statement** announcing partnership after videocall between Minister in-charge of Trade Relations S Iswaran and EU Commissioner for Internal Market Thierry Breton [SG-EU2]
- 14.12.2022 ○ **Substantial conclusion of Digital Partnership** between EU & Singapore [SG-EU3]
- 01.02.2023 ○ **Official Launch of Partnership, first meeting of Digital Partnership Council** [SG-EU6]

Objectives and Areas of Cooperation



POLICY COOPERATION

Subsidies:

“Both sides share the aim of encouraging private investments that would contribute to our security and resilience, while avoiding a global subsidy race.” [SG-EU4]

“At the same time, both sides recall commitments in the EUSFTA chapter on competition and related matters.” [SG-EU4]



RESEARCH COOPERATION

Research Areas:

“Both sides intend to explore possibilities of advanced research (e.g. advanced packaging, specialty semiconductors)... to strengthen our resilience across the semiconductor value chain.” [SG-EU4]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Information sharing:

“Enable seamless exchange of relevant information to monitor semiconductor supply chains and anticipate disruptions.” [SG-EU5]

“Both sides intend to work towards achieving cooperation on supply chain monitoring, exchange of information in anticipation of disruptions in the supply chain.” [SG-EU4]

Early warning mechanism:

“Both sides intend to work towards achieving cooperation on... effective early warning mechanisms, also taking advantage of Singapore’s position as a logistics hub.” [SG-EU4]



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.



References

1st Trade Committee meeting under EUSFTA, 2021:

[SG-EU1] [Joint Statement](#) ([archive.org](#))

Videoconference Iswaran and Breton, 2022:

[SG-EU2] [Joint Statement](#) ([archive.org](#))

EU-Singapore Digital Partnership announcement, 2022:

[SG-EU3] [Joint Statement](#) ([archive.org](#))

1st Meeting Digital Partnership Council, 2023:

[SG-EU4] [Digital Partnership Text](#) ([archive.org](#))

[SG-EU5] [Digital Trade Principles Text](#) ([archive.org](#))

[SG-EU6] [Press Release EU](#) ([archive.org](#))

[SG-EU7] [Press Release Singapore](#) ([archive.org](#))

Other sources:

[SG-EU8] [EU Digital Partnerships Overview](#) ([archive.org](#))

[SG-EU9] [The EU Strategy for Cooperation in the Indo-Pacific](#) ([archive.org](#))



EU-US: EU-US Trade and Technology Council (TTC)

“The EU and the US have advanced work on semiconductors, implementing agreements on supply chain early warning and subsidies transparency. They have put in place a mechanism to prevent subsidy races, deepened cooperation on their respective Chips Acts and will join forces in research to replace PFAS in semiconductor supply chains.”
[EU-US18]

Governance

European Union, United States: **15.06.2021** (28 months as of 10.2023)

Co-chaired by EU Commission Executive Vice-President and EU Competition Commissioner, Margrethe Vestager; European Commission Executive Vice-President and EU Trade Commissioner, Valdis Dombrovskis; US Secretary of State, Antony Blinken; US Secretary of Commerce, Gina Raimondo; and US Trade Representative, Katherine Tai. [EU-US2]

Meetings periodically at political level. [EU-US2]

“The TTC will be comprised of working groups led or co-led by relevant Departments, Services or Agencies, to operationalize the political decisions into deliverables, coordinate the technical work, and report to the political level.” [EU-US22] see also [EU-US2]

One of the 10 working groups focuses on **“secure supply chains, including semiconductors”**: *“Alongside the dedicated track on semiconductors, the Secure Supply Chains working group is tasked to focus on advancing respective supply chain resilience and security of supply in key sectors for the green and digital transition and for securing the protection of our citizens.”* ... The dedicated track on semiconductor issues will initially focus on short-term supply chain issues. Cooperation on mid- and long-term strategic semiconductor issues will begin in the relevant TTC working groups ahead of the next TTC meeting.” [EU-US3]

Milestones and Outcomes

- 15.06.2021 ○ launch of TTC at EU-US Summit [EU-US1]
- |
- 29.09.2021 ○ 1st Ministerial (Inaugural) Meeting in Pittsburgh [EU-US3]
- |
- 16.05.2022 ○ 2nd Ministerial Meeting in Paris-Saclay [EU-US6]
- |
- 05.12.2022 ○ 3rd Ministerial Meeting in Maryland [EU-US11]
- |
- 31.05.2023 ○ 4th Ministerial Meeting in Luleå [EU-US16]

Objectives and Areas of Cooperation



POLICY COOPERATION

Subsidies:

“Avoid subsidy races, provide each other information on incentives granted, and limit them to what is necessary, appropriate and proportionate to achieve public policy objectives.” [EU-US8]

“The European Union and the United States have completed... a transparency mechanism for reciprocal sharing of information about public support provided to the semiconductor sector.” [EU-US16]

“... discussed common elements of our respective public support frameworks, such as the possible use of upside sharing/claw-back of excessive profits and requirements for information from companies, with an aim to improve effectiveness and share lessons learned.” [EU-US16]

“... a reciprocal mechanism has been put in place for consultation at the principals’ level to facilitate communication to head off and prevent subsidy races.” [EU-US16]
see also [EU-US6], [EU-US11], [EU-US13], [EU-US15]

Semiconductor production diversification:

“... both partners commit to building an EU-US partnership on the rebalancing of global supply chains in semiconductors” [EU-US1] see also [EU-US3]

“... significant investments are needed, in particular in production capacity, but also in design, assembly and testing, as well as workforce development, to avoid disruptions in the future.” [EU-US6]

“The European Union and the United States also believe that semiconductor investments in both jurisdictions are mutually beneficial.” [EU-US16] see also [EU-US11]

Non-market policies and practices:

“To avoid negative spillover effects from excess global capacity that undermine the health of our respective semiconductor ecosystems, the European Union and the United States, in cooperation with like-minded partners, will exchange information and market intelligence related to non-market policies and practices and explore cooperative measures to address those policies and their distortionary effects.” [EU-US16]

Export Controls:

“The Export Control Working Group intends to evaluate licensing good practices for key technology sectors, including, but not limited to semi-conductors, by the next TTC meeting.” [EU-US6] see also [EU-US8]

Best Practices:

“Exchanges on best practices... will remain a useful tool for their implementation of efforts related to public support frameworks, workforce development, and demand forecasts.” [EU-US16]



RESEARCH COOPERATION

Funding:

“We share the common goal of the United States and European Union Member States investing in public semiconductor R&D to fill gaps in the innovation ecosystem.” [EU-US6]

Research Areas:

“Exchanging areas of interest and exploring cooperative initiatives in research in semiconductors.” [EU-US8]

“... cooperate on incentives for research on alternatives to the use of per- and polyfluorinated substances (PFAS) in semiconductor manufacturing.” [EU-US16]



COMMERCIAL COOPERATION

The partnership documents seem to lack a clear reference to this objective.



PREPAREDNESS, CRISIS RESPONSE

Common understanding and mapping of the value chain:

“... mapping capacity in the semiconductor value chain, and strengthening our domestic semiconductor ecosystems, from, research, design to manufacturing.” [EU-US3] see also [EU-US11]

Transparency:

“With the goal of identifying bottlenecks pertaining to supply and demand across the various segments of the semiconductor supply chain, we intend to enhance cooperation on measures to advance transparency and communication in the semiconductor supply chain.” [EU-US3]

“... we are committed to working with industry to promote initiatives aimed at advancing transparency regarding demand for semiconductors... we intend support such industry-led initiatives and strive to undertake a common project for promoting demand transparency. A dedicated workshop with stakeholders already engaged or interested in these initiatives is expected to take place before the summer to build further momentum and to discuss perspectives to advance the objectives and the next steps.” [EU-US6] see also [EU-US11]

Monitoring:

“Improving our understanding of forecasted global semiconductor demand to inform our common policy objective of avoiding overcapacity and bottlenecks. For this purpose, we expect to meet regularly and share information on demand forecast methodologies.” [EU-US11] see also [EU-US8]

Information sharing:

“... exchange information with a view to seeking cooperative solutions to supply chain disruptions.” [EU-US8]

Information requests:

“We recognise that certain measures, such as requesting information from stakeholders for monitoring the supply chain, can assist in mitigating the effect of supply chain disruptions, while protecting business confidential information.” [EU-US6]

Early warning mechanism:

“The European Union and the United States have completed a joint early warning mechanism for semiconductor supply chain disruptions...” [EU-US16]

“With regard to the early warning mechanism, the European Union and the United States have outlined the operational steps to be taken in the event of a future disruption” [EU-US16] see also [EU-US6], [EUTT8], [EU-US11], [EU-US13]



WORKFORCE DEVELOPMENT

The partnership documents seem to lack a clear reference to this objective.

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[EU-US2] [Press Release TTC Launch](#) (archive.org)

1st Ministerial Meeting TTC Pittsburgh, 2021:

[EU-US3] [Joint Statement](#) (archive.org)

[EU-US4] [EU Fact Sheet](#) (archive.org)

[EU-US5] [US Fact Sheet](#) (archive.org)

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[EU-US7] [EU Fact Sheet Main Points](#)

[EU-US8] [EU Fact Sheet Details](#)

[EU-US9] [US Fact Sheet](#) (archive.org)

[EU-US10] [Press Release](#) (archive.org)



3rd Ministerial Meeting TTC Maryland, 2022:

[EU-US11] [Joint Statement](#) (archive.org)

[EU-US12] [EU Fact Sheet Trade](#) (archive.org)

[EU-US13] [EU Fact Sheet Technology](#) (archive.org)

[EU-US14] [US Fact Sheet](#) (archive.org)

[EU-US15] [Press Release](#) (archive.org)

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[EU-US16] [Joint Statement](#) (archive.org)

[EU-US17] [Fact Sheet](#) (archive.org)

[EU-US18] [Press Release](#) (archive.org)

Other sources:

[EU-US19] [EU-US Trade Relations](#) (archive.org)

[EU-US20] [Consultation Platform Futurium](#) (archive.org)

[EU-US21] [TTC Working Group 3 Documents](#) (archive.org)

[EU-US22] [TTC General Fact Sheet](#) (archive.org)

Other partnerships to watch

The 13 partnerships listed in this section contain very limited or vague information about objectives, let alone implementation strategies regarding semiconductors. However, it is important to emphasize that these partnerships may prove to be critical in the future in terms of collaboration in the global semiconductor value chain. Government partnerships that cover the semiconductor ecosystem are currently developing at a rapid pace. In fact, the oldest partnership we analyzed, the EU-US TTC, is less than 30 months old at the time of writing. The newest partnerships were announced in the last few months.

Importantly, for a partnership to be covered in this section some form of **official documentation or announcement must exist** at the time of writing. Furthermore, the **partnership must be between two governments**. Partnerships between research institutes or commercial partnerships are not included in this section. An example for the latter would be a cooperation agreement between Slovakia and Taiwan from September 2023, in which the Slovak University of Technology and the Slovak Academy of Science will cooperate with Taiwan's Industrial Technology Research Institute (ITRI), to jointly build a semiconductor laboratory in Slovakia.³⁵

The following partnerships give an overview of the range of forums in which semiconductors are currently being discussed: from large multilateral partnerships, such as the G7 and the IPEF, to bilateral partnerships, such as the recently announced cooperation between Japan and the Netherlands.

Announcements of bilateral cooperation

As mentioned before, there currently is a flurry of activity among governments to cooperate in semiconductor technologies. While the EU has its Digital Partnerships and Trade and Technology Councils, member states additionally pursue bilateral partnerships with Asian nations, such as Japan, ROK and Taiwan. Following are examples of new partnership announcements from EU member states and the US. While some of those are mere press releases of discussions between two ministries, delegations or heads of states, they show the eagerness of several EU member states to shape cooperation with allies in their own ways.

- **Germany and Japan:** In March 2023, during their first Inter-Governmental Consultations on economic security, Prime Minister Kishida Fumio and Federal Chancellor Olaf Scholz agreed to cooperate more closely on economic security as well as “*strengthen cooperation in strategic sectors, including mineral resources, semiconductors and batteries, and implement best practices to address risks.*”³⁶

- **Poland and Taiwan:** In September 2022, Poland and Taiwan signed an MoU to “*foster close bilateral collaboration between Poland and Taiwan in the field of semiconductors and microelectronics, focusing on investment, business and R&D cooperation*”.³⁷ Both countries intend to set up a working group as a “*new platform for both sides to discuss and coordinate actions focused on deepening collaboration*”.³⁸
- **The Netherlands and ROK:** In March 2023, the trade ministers of both countries agreed to further strengthen complementary bilateral cooperation on “*various industries, especially in semiconductors amid growing pressures from the US to curb investment in China*.”³⁹ At the 7th Korea-Netherlands Policy Consultation, the countries’ foreign affairs ministries agreed “*on the importance of bilateral cooperation for global supply chain management and agreed to further strengthen cooperation in the field of economic security. The two sides also appreciated growing cooperation in the semiconductor industry... agreed to continue close communication between the two governments for further development of cooperation in this field*.”⁴⁰
- **US and Costa Rica:** In July 2023, the US State Department announced that a partnership enabled by the ITSI Fund was being established with Costa Rica to “*explore opportunities to diversify and grow the global semiconductor ecosystem and create a more transparent, secure, and sustainable global semiconductor value chain*.”⁴¹ This partnership seems to be **analogous to the commercial partnerships that the US has established with Vietnam and India**—there is a clear focus on expanding the semiconductor industry in Costa Rica. Just as a readiness assessment of India’s semiconductor ecosystem was conducted as part of the iCET, as a first step, the partners will review “*Costa Rica’s current semiconductor industry development, regulatory framework, and workforce and infrastructure needs*.”⁴²

In addition to these very early and rather vague announcements of bilateral cooperation, there are also several partnerships that seem a bit more mature – having published MoUs and MoCs or concrete next steps such as readiness assessments. The following section provides brief descriptions of these, starting with bilateral partnerships, followed by mini- and multilateral forums that also address issues related to the semiconductor supply chain.

JP-NL: Japan-Netherlands semiconductor cooperation

In June 2023, Japan and the Netherlands signed a MoC on semiconductors with the dual goals of strengthening private and public sector cooperation and R&D cooperation. The partners also plan to “share information on the status of policies and international collaboration”. [JP-NL1] A closer cooperation between both governments seems obvious since (a) their leading semiconductor companies – the manufacturing equipment suppliers ASML (NL) and Tokyo Electron (JP) – are already closely collaborating for two decades⁴³ and (b) the two governments coordinated their export controls on manufacturing equipment.^{44,45}

JP-KR-US: Japan-ROK-US trilateral partnership

During the August 2023 “Trilateral Leaders’ Summit at Camp David”, Japan, the ROK, and the US announced a new trilateral dialogue “*on supply chain resilience, particularly on semiconductors and batteries, as well as on technology security and standards, clean energy and energy security, biotechnology, critical minerals, pharmaceuticals, artificial intelligence (AI), quantum computing, and scientific research.*” [JP-KR-US1]

It is expected that the ensuing **high-level trilateral consultations will focus on a wide range of topics** that could potentially overlap with semiconductors in some areas, such as coordination on supply chain early warning systems or export controls. However, the factsheet published at the time of the first meeting lacks specific reference to semiconductors. [JP-KR-US2] Additionally, the nature of the partnership, which was described as a “commitment to consult” [JP-KR-US2], suggests that this partnership may actually manifest as a forum for exchange and coordination on a diverse set of topics and that tangible objectives and implementation strategies may continue to be placed in the related bilateral partnerships between the three countries, which are listed in the partnership profiles section.

JP-UK: Bilateral partnership between the UK and Japan

In May 2023, the UK's Department for Science, Innovation and Technology (DSIT) and Japan's Ministry of Economy, Trade and Industry (METI) published a joint statement announcing a new partnership on semiconductors, "*sharing a recognition that joint efforts are required to improve supply chain resilience.*" [JP-UK6]

This partnership is in its early stages; however, it sets out an ambitious framework for cooperation in areas such as R&D, infrastructure, skill exchange, and commercial development. [JP-UK6] The partners have also stressed their shared goal of strengthening the resilience of the semiconductor value chain in bilateral and multilateral forums. While it remains to be seen how this partnership will evolve in the future, it touches upon several objectives and implementation strategies that are found in other partnerships we have discussed in this paper.

MY-US: Bilateral partnership between the US and Malaysia

In November 2021, the US and Malaysia announced that they would collectively work on "*more transparency and trust in the manufacturing and manufacturing-related sectors and their supply chains*" [MY-US1] as an outcome of a semiconductor roundtable.

In May 2022, a MoC on Semiconductor Supply Chain Resilience was signed that provides "*guiding principles for both nations as they collaborate on strengthening semiconductor supply chain resiliency efforts.*" [MY-US2] The goal of the cooperation is two-fold: **1) to strengthen transparency and trust and 2) to promote commercial development.** The sincerity of the agreement was confirmed by the convening of a roundtable with industry experts to "*discuss current and long-term supply chain challenges, as well as opportunities for the two nations and the global economy.*" [MY-US2] At the time of writing, no further statements or press releases about the progress or additional outcomes of this partnership seem to be available.

TW-US: US-Taiwan Technology Trade and Investment Collaboration Framework (TTIC)

The US-Taiwan Technology Trade and Investment Collaboration Framework (TTIC) was announced on December 6, 2021, by US Secretary of Commerce Gina Raimondo and Minister of Economic Affairs Mai-Hua Wang. The goals are to **develop commercial programs and explore actions to strengthen critical supply chains**, and there is explicit mention of semiconductors. [TW-US1] During the first activity held under the new framework, an industrial forum on US-Taiwan Cooperation on

Global Semiconductor Resilience in April 2022, Taiwan's critical role in the global semiconductor value chain was acknowledged, and the need for closer global cooperation was stressed. [TW-US2]

Apart from the shared notion that “*complementary strengths could be harnessed in fortifying the resilience of the global semiconductor supply chain*” [TW-US2] and that Taiwan is an important location for foreign companies to conduct R&D, there are no objectives or implementation strategies outlined in the TTIC. There is a narrow focus on promoting two-way investments, and this was mirrored in seven MoUs signed by Taiwanese and American companies in October 2022. None of the specified areas of cooperation overlap with semiconductors; they focus on carbon reduction and 5G telecommunications. [TW-US3]

US-VN: Bilateral partnership between the US and Vietnam

In September 2023, the US and Vietnam announced a new partnership with the goal of increasing the resilience of the semiconductor value chain by expanding Vietnam's role in this ecosystem. They launched “*semiconductor workforce development initiatives – supported by initial seed funding of \$2 million from the US government, in conjunction with future Vietnamese government and private sector support.*” [US-VN1]

The signed “MoC on Semiconductor Supply Chains, Workforce and Ecosystem Development” clearly shows that this initiative is geared toward strengthening Vietnam's semiconductor industry to secure what “*cannot be re-shored to the United States.*” [US-VN2] The MoC outlines that under the ITSI Fund, Vietnam's ecosystem will be supported in terms of workforce, commercial, and infrastructure needs. More specifically, these investments will be used to further strengthen the ATP sector. Vietnam already plays an important role in ATP; thus, this partnership is designed to expand Vietnam's back-end manufacturing capacity and ensure it is a “reliable partner” for the US. [US-VN2]

Group of Seven (G7)

Since the Carbis Bay G7 Summit in 2021, the G7 has recognized the importance of collectively addressing “*risks to the resilience of the critical global supply chains, in areas such as critical minerals and semiconductors.*” [G7-1] Semiconductors are also repeatedly referenced in subsequent G7 statements, as well as the importance of cooperation on export controls. However, in all of these documents, semiconductors are only included in lists with many other products or emerging technologies, such as key raw materials or cyber surveillance systems that the G7 stress as critical. [G7-5]

In addition, the G7's latest statement on economic resilience and security, published on May 20, 2023, indicated that **the actual work on these topics will be undertaken in other bilateral and multilateral forums**: *"We will enhance resilient supply chains through partnerships around the world, especially for critical goods such as critical minerals, semiconductors and batteries."* [G7-7]

Indo-Pacific Economic Framework (IPEF)

The US withdrew from the Trans-Pacific Partnership (TPP) in 2017 under the Trump administration, and the IPEF was established as its replacement in May 2022 with the following members: the US, Japan, Australia, New Zealand, the ROK, India, Fiji, Brunei, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. [IPEF1]

From its inception, there has been a great deal of skepticism about the IPEF because it is not a typical trade agreement, as was envisioned with the initiation of the TPP; it lacks mention of lowering tariffs and greater access to the US market.⁴⁶ Officially, the goal of the IPEF is to define shared objectives around *"trade facilitation standards for the digital economy and technology, supply chain resilience, decarbonization and clean energy, infrastructure, worker standards and other areas of shared interest."* [IPEF1]

The IPEF consists of four pillars: Connected Economy (Trade), Resilient Economy (Supply Chains), Clean Economy (Clean Energy & Decarbonization), and Fair Economy (Infrastructure & Tax and Anti-Corruption). [IPEF3] Each participant is not required to sign agreements on all four pillars. In terms of semiconductors, only the second pillar (Resilient Economy) seems relevant, and there is one specific reference to semiconductors:

"We seek to coordinate crisis response measures; expand cooperation to better prepare for and mitigate the effects of disruptions to better ensure business continuity; improve logistical efficiency and support; and ensure access to key raw and processed materials, semiconductors, critical minerals, and clean energy technology." [IPEF2]

One year after the launch of the IPEF, in May 2023, the multilateral forum formulated the **IPEF Supply Chain Agreement**, which was signed by all 14 participating countries. [IPEF10] Although numerous points in the agreement could potentially be applied to the semiconductor value chain, such as diversification of concentrated sources in global supply chains, avoiding market distortions, and coordination on information, early warning, and crisis response measures, there is **no explicit reference to the semiconductor value chain**. [IPEF10] Thus, it remains to be seen whether the important, but rather general, statements in the agreement will be applied to the semiconductor supply chain. At the time of writing, the official text of the IPEF Supply Chain Agreement has not been published, as it must go through “legal scrubbing” first.

The IPEF could potentially be an important framework for international partnerships on semiconductors in the future. At the same time, it is highly likely that the US will work more closely with Japan, India, Malaysia, Vietnam, the ROK, and other IPEF members through existing bilateral technology partnerships that focus on chips.

Quadrilateral Security Dialogue (Quad)

The minilateral forum of the Quad was reaffirmed at the “First-ever leader-level summit of the Quad” (held virtually) in March 2021 by Australia, India, Japan, and the US. The Quad’s goal is to strengthen cooperation on the “*defining challenges of our time so that it may be the free, open, accessible, diverse, and thriving Indo-Pacific we all seek.*” [QUAD1]

One of the Quad’s six working groups focuses on critical and emerging technologies. Since launching this group, the four partner governments have mapped the “*collective capacity and vulnerabilities in global semiconductor supply chains.*” [QUAD9] The members have also agreed on various principles that apply to topics that range from international technology standards to critical technology supply chains. Even though semiconductors are explicitly mentioned a few times in official statements and documents, the Quad’s previous work lacks concrete objectives and implementation strategies related to semiconductors and focuses on critical and emerging technologies in general and many other topics, such as COVID-19, climate, and space. Furthermore, it is expected that, similar to the IPEF situation, the US government will use its existing bilateral partnerships (especially with Japan and India) to make progress in areas related to chips. Thus, it also makes sense that the Quad’s actions on semiconductors to date have not gone beyond mapping collective capacity and vulnerabilities in this technology ecosystem.



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[JP-KR-US2] [Fact Sheet](#) ([archive.org](#))

[JP-KR-US3] [Principles](#) ([archive.org](#))

JP-UK: Bilateral partnership between the UK and Japan

Digital Group Launch, 2022:

[JP-UK1] [Joint Announcement](#) ([archive.org](#))

Digital Group 1st Ministerial Meeting, 2022:

[JP-UK2] [Press Release](#) ([archive.org](#))

Digital Partnership Launch, 2022:

[JP-UK3] [Overview](#) ([archive.org](#))

[JP-UK4] [Press Release](#) ([archive.org](#))

Hiroshima Accord Launch, 2023:

[JP-UK5] [Policy Paper](#) ([archive.org](#))

Semiconductor Partnership Launch, 2023:

[JP-UK6] [Joint Statement](#) ([archive.org](#))

MY-US: Bilateral partnership between the US and Malaysia

Semiconductor Roundtable, 2021:

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TW-US: US-Taiwan Technology Trade and Investment Collaboration Framework (TTIC)

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[TW-US2] [Press Release](#) ([archive.org](#))

Announcement of Seven MoUs, 2022:

[TW-US3] [Press Release](#) ([archive.org](#))

US-VN: Bilateral partnership between the US and Vietnam

State Visit, 2023:

[US-VN1] [Joint Statement](#) (archive.org)

[US-VN2] [Fact Sheet](#) (archive.org)

[US-VN3] [Press Release](#) (archive.org)

Group of Seven (G7)

47th Summit Cornwall, 2021:

[G7-1] [Communiqué](#) (archive.org)

[G7-2] [Research Compact](#) (archive.org)

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Digital and Tech Ministers' Meeting, 2023:

[G7-5] [Ministerial Declaration](#) (archive.org)

49th Summit Hiroshima, 2023:

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Indo-Pacific Economic Framework (IPEF)

East Asia Summit/Announcement of IPEF, 2021:

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[IPEF3] [Fact Sheet](#) (archive.org)

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[IPEF4] [Ministerial Statement Pillar I](#) (archive.org)

[IPEF5] [Ministerial Statement Pillar II](#) (archive.org)

[IPEF6] [Ministerial Statement Pillar III](#) (archive.org)

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[IPEF9] [Overview Page Pillar II](#) (archive.org)

[IPEF10] [Press Release Pillar II](#) (archive.org)

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[IPEF12] [Summary of proposed Text, Pillar II](#) (archive.org)



Quadrilateral Security Dialogue (Quad)

1st Summit Virtual, 2021:

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[QUAD2] [Fact Sheet](#) (archive.org)

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3rd Summit Virtual, 2022:

[QUAD6] [Joint Readout](#) (archive.org)

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[QUAD8] [Fact Sheet](#) (archive.org)

[QUAD9] [Common Statement of Principles on Critical Technology Supply](#) (archive.org)

5th Summit Hiroshima, 2023:

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Julia Hess and Jan-Peter Kleinhans

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About the Authors

Julia Hess is project manager for "Technology and Geopolitics". Her focus is on the strategic relevance of semiconductors and the analysis of the global, interdependent value chain. Most recently, Julia presented her work to the Committee on Industry, Research and Energy in the European Parliament. Julia has been working at SNV since 2019, initially conducting research at the intersection of AI and foreign policy with a focus on AI governance. In 2021, she was a fellow at the Gesellschaft für Informatik's AI Camp. Before joining SNV, Julia worked in press and communications at various science and cultural institutions and NGOs, most recently at the Max Planck Institute for Human Development. She studied media culture and sociology at the University of Cologne and completed her master's degree in social and business communication at the Berlin University of the Arts.

Jan-Peter Kleinhans is director of the "Technology and Geopolitics" project. Currently his work focuses on the intersection of global semiconductor supply chains and geopolitics. Previously Jan-Peter worked on 5G security and presented his work at the German parliament's committee on foreign affairs and the NATO parliamentary assembly. After joining SNV in 2014 Jan-Peter analyzed why the market failed to produce reasonably trustworthy consumer IoT devices. He explored if and how standardization, certification and market surveillance can create economic incentives for IoT manufacturers to produce secure and trustworthy IoT devices. He is Fellow of the Transatlantic Digital Debates 2016 and studied communication sciences in Uppsala, Sweden and business informatics in Darmstadt.

Contact the Authors:

Julia Hess

jhess@stiftung-nv.de

Jan-Peter Kleinhans

jkleinhans@stiftung-nv.de

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Stiftung Neue Verantwortung e. V.
Ebertstraße 2
10117 Berlin

T. +49(0)30 81 45 03 78 80

F. +49(0)30 81 45 03 78 97

www.stiftung-nv.de

info@stiftung-nv.de

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