INPACE

Indo-Pacific-European Hub
for Digital Partnerships

ヨーロッパとインド太平洋のための
デジタルパートナーシップ強化

디지털 파트너십 강화
유럽 및 인도 태평양의 경우

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D2.5:
Summary of Factsheets and Policy Briefs

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Abstract	The D2.5 'Summary of Factsheets and Policy Briefs' provides a consolidated compilation of factsheets and policy briefs produced during the first 21 months of the INPACE project, within the framework of Work Package 2 (WP2). This compilation captures the outputs of the four policy-related Thematic Working Groups (TWGs) in Cluster 1 – the so-called "Policy Cluster" - focusing on Standardisation, Policy Dialogues, Joint Programming, and Digital Education and Skills.
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* *R: Document, report (excluding the periodic and final reports)*
DEC: Websites, patents filing, press & media actions, videos, etc.
DATA: Data sets, microdata, etc.
DMP: Data management plan
ETHICS: Deliverables related to ethics issues.

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EXECUTIVE SUMMARY

The D2.5 ‘Summary of Factsheets and Policy Briefs’ provides a consolidated compilation of factsheets and policy briefs produced during the first 21 months of the INPACE project, within the framework of Work Package 2 (WP2). This compilation captures the outputs of the four policy-related Thematic Working Groups (TWGs) in Cluster 1 – the so-called “Policy Cluster” - focusing on Standardisation, Policy Dialogues, Joint Programming, and Digital Education and Skills.

During the first period, the project chiefly focused on the implementation of activities with the Republic of Korea (ROK) and Japan, organising major events in Seoul, ROK in October 2024 (INPACE integrative event) and Tokyo, Japan in April 2025 (the “EU – Japan Digital Week”). With that in mind, most output presented in this report focus overwhelmingly, albeit not exclusively, on cooperation with the ROK and Japan.

“Factsheets” summarise the outcomes of various activities organised by each of the four TWGs in - or with – the respective partner country. “Policy Briefs” are produced mainly by TWG1 Policy Dialogues and in this case cover the developments related to the EU – Japan and the EU – ROK Digital Partnerships. The objective of the Policy Briefs is to provide a comprehensive analysis of the evolving interests of parties, monitor the progress achieved, identify institutional and political stumbling blocks, and finally formulate concrete recommendations for policymakers to take into consideration.

ABBREVIATIONS

AA	Administrative Arrangement
AI	Artificial Intelligence
ARIB	Association of Radio Industries and Businesses
BIS	Bureau of Indian Standards
CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
DFFT	Data Free Flow with Trust
DP	Digital Partnership
DPA	Digital Partnership Agreement
EDT	Emerging Disruptive Technology
ETSI	European Telecommunications Standards Institute
EU	European Union
EC	European Commission
HPC	High performance Computing
LLM	Large Language Models
MIC	Ministry of Internal Affairs and Communication
METI	Ministry of Economy, Trade and Industry
MoC	Memorandum of Cooperation
NGSI-LD	Next Generation Service Interfaces – Linked Data
NTN	Non-Terrestrial Networks
RAN	Radio Access Networks
ROK	Republic of Korea
SDO	Standard Development Organisation
SNS	Smart Networks and Services
TTA	Telecommunications Technology Association

1. FACTSHEETS

Below section presents the summary of key takeaways from activities conducted by the four TWGs part of WPs in each of the four partner countries of the INPACE project.

1.1. TWG1: STANDARDISATION

This factsheet provides an analysis of standardisation activities emerging from recent Digital Partnerships (DPs) between the European Union and Japan, Republic of Korea (ROK), Singapore, as well as the EU-India Trade and Technology Council (TTC). It explores the technological focal points, the roles of standardisation for interoperability, structural/mindset differences, the organisation of standardisation bodies, ongoing actions, and specific initiatives under the INPACE project, including both process-oriented and domain-specific activities.

1.1.1. Introduction

The rapid global digital transformation has led the EU to forge Digital Partnerships and councils with strategic Indo-Pacific partners, engaging Japan, ROK, Singapore, and India (TTC) to promote human-centric, open, and sustainable digital economies. These partnerships focus on a shared vision of inclusivity, security, and interoperability, but also reflect nuanced differences in digital governance, regulatory philosophies, and approaches to standardisation.

While all parties emphasise core technologies—AI, data governance, cybersecurity, next-generation networks, digital public infrastructure, and trusted data exchange—they translate this focus through unique policy lenses. Standardisation is recognised as a pivotal enabler for **interoperability**, ensuring that digital technologies, services, and infrastructures can work together across national and regional boundaries. Standardisation also serves as a key vehicle for embedding shared values, managing digital sovereignty, and ensuring technology trust and resilience.

However, there remain critical differences in regulatory mindsets. The EU, with its “Brussels effect,” prioritises formal, high-quality regulation that integrates values such as privacy and fundamental rights directly into standards, while Asian partners have historically favoured a more market-driven, pragmatic, and flexible integration of standards and regulation. Japan’s “Society 5.0” and data free flow with trust (DFFT) initiatives highlight trust and innovation, Korea emphasises technological sovereignty and private-public standardisation, Singapore adopts an adaptive, business-centric approach, and India’s public digital infrastructure stresses scale, inclusivity, and harmonisation with global norms.

1.1.2. Standard Development Organisations: Landscape and Structure

Levels and Functions

The global standardisation system comprises national, regional, and international bodies. These interact through formal standards development organisations (SDOs) and a network of technical fora, consortia, and industrial alliances.

National SDOs

Japan: The Japanese Industrial Standards Committee (JISC) is the apex SDO, supported by sectoral bodies such as ARIB (Association of Radio Industries and Businesses) and TTC (Telecommunication Technology Committee), which lead on ICT and telecoms standards. JISC coordinates with industrial actors and government (Ministry of Economy, Trade and Industry; Digital Agency), ensuring alignment with international efforts.

Republic of Korea: The Korean Agency for Technology and Standards (KATS, under MOTIE) acts as the primary national SDO, operating both directly (KS standards) and through the Cooperative Organization for Standards Development (COSD) scheme that involves industry consortia (e.g., TTA for ICT/telecom). Korea Standards Association (KSA) plays a central role in dissemination and promotion.

Singapore: Enterprise Singapore serves as the lead agency, working through the Singapore Standards Council (SSC), national SDOs such as the Singapore Manufacturing Federation (SMF-SDO), and technical committees including the Telecommunications Standards Advisory Committee (TSAC, under IMDA).

India: The Bureau of Indian Standards (BIS), Telecommunication Engineering Centre (TEC), and Telecommunication Standards Development Society, India (TSDSI) are the key SDOs for technical and ICT standards; their activities are closely linked to harmonisation with global standards, particularly through EU-TTC cooperation.

European SDOs

ETSI (European Telecommunications Standards Institute), CEN (general), and CENELEC (electrotechnical) are the formal recognised SDOs coordinating standards in support of EU values, regulation, and innovation. Their activities include engagement in global partnerships (e.g., 3GPP, oneM2M), and supporting the “Brussels effect” in global governance.

International and Consortium Fora

International bodies such as ISO, IEC, and ITU set foundational cross-border standards. Highly influential technical consortia—W3C, IETF, OGC, 3GPP—complement formal SDO processes, leading in internet, web, ICT, and cross-domain standards, especially where innovation outpaces traditional SDO cycles. Participation in these fora is essential for aligning on cybersecurity, digital identity, data management, and AI. The relationship between formal SDOs and consortia is both complementary and, at times, competitive; formal adoption into regional or national frameworks often involves the transposition of de facto/consortium standards.

Institutional Differences

The role of SDOs in Europe is intertwined with the regulatory process: standards are referenced or mandated within legislation, create market access, and encode key EU principles (e.g., GDPR). In Asia, standardisation can sometimes be more industry-driven or facilitate voluntary alignment, with regulatory adaptation following market maturation. In India, public sector actors lead, leveraging standards to drive national development agendas, while Japan and Korea blend government direction with industrial participation.

1.1.3. Ongoing Activities: Projects Supporting Standardisation

Digital partnerships have seeded several ongoing projects, focusing on:

- **AI and Data Governance**: Advancing mutual alignment of trustworthy AI (EU AI Act, Korea’s AI Bill, Japan’s G7 Hiroshima AI principles, Indian ethical AI guidelines), and data governance standards (privacy, cross-border data flow, DFFT).
- **Semiconductors, 5G/6G, and Quantum**: Joint calls for R&D, reciprocal researcher mobility, and mutual recognition/harmonisation of technical and security standards for key enabling technologies.

- **Cybersecurity and Digital Identities**: Extensive collaboration on platform regulation, cybersecurity frameworks, digital trust services, trusted web/eID interoperability, and labelling schemes, spanning the EU Cyber Resilience Act, Japan's IoT labelling, Korea's TTA activities, and Singapore's eID innovation.
- **Public Digital Infrastructure**: Interoperability pilots on digital identity, open APIs, and the architecture of digital public goods, notably under the India-EU TTC and Singapore DPs.
- **Hackathons and Innovation Workshops**: Collaborative events designed to bring together researchers, industry, and policymakers to pressure-test interoperability in real-world scenarios, translating standards into practical blueprints and reference implementations**.**

These activities are delivered through formal DP working groups, annual Digital Partnership Councils, technical workshops, INPACE-supported hackathons, and research-industry exchanges.

1.1.4. Action Priorities Supported by INPACE

INPACE provides support for coordinated standardisation action across the Indo-Pacific DPs, in cooperation with other support projects (Indico global, INSTAR).

Explaining the Standardisation Process

Standardisation begins with research and innovation, matures through multi-stakeholder engagement (including technical evaluation, regulatory analysis, and market needs), and is finalised through consensus in national, regional, and international SDOs. The INPACE webinar "Standardisation in Practice: From Research to High-Quality Standards" elucidates this trajectory, highlighting the value of early research integration and the necessity of policy and industry coordination.

Pilot activities like the INPACE hackathon on the interoperability of Digital Public Infrastructure offer a dynamic setting for translating draft standards into working solutions, validating architectural and technical recommendations, and stress-testing cross-border operability.

Domain-Specific Priorities

Trusted Data Exchange and Data Spaces: Pilot exchanges between EU and Japan (and extending to India and ROK) are advancing frameworks for interoperable, privacy-respecting data spaces and cross-border data sharing, building on technological specifications, API standards, and legal models.

Other Emerging Areas: Innovation in cybersecurity, AI ethics and safety (through multi-country sandboxes and joint standards development), smart city and IoT standards, and green ICT are evolving priorities, addressed through collaborative fora, technical pilots, expert task forces, and testbeds.

1.2. TWG2: Policy Dialogues

1.2.1. REPUBLIC OF KOREA

In November 2022, the European Union (EU) concluded the Digital Partnership Agreement (DPA) with the Republic of Korea (ROK), underscoring the two partners' **shared vision for the future of digital cooperation**, human-centric innovation, and willingness to enhance bilateral ties in a key strategic area that will determine the future of geopolitical competition. It reflects the growing importance of cooperation in an era of **Artificial Intelligence (AI) powered digital transformation**

and geopolitical realignments. For the EU, the DP opens the doors for **bolstering diplomatic, investment, trade, and security ties**, not only bilaterally but also in multilateral formats in the region. For South Korea, the Partnership **diversifies bilateral relations and strategic alliances** beyond the country's traditional reliance on the United States, as well as showcases its **role as a digital leader** in key high-tech sectors globally.

The first Policy Workshop organised by the TWG2 in Seoul in October 2024 focused on the progress, challenges, and future directions for EU-ROK Digital Partnership. Participants addressed critical questions, such as how can the EU and ROK harmonise their policy and regulatory frameworks to facilitate collaboration in emerging digital technologies such as AI, quantum, and 6G; what policy and strategic initiatives are necessary to enhance the cybersecurity posture of both the EU-ROK and ensure mutual trust in digital infrastructure; and how can the EU-ROK address the challenges of supply chain resilience and security in the context of the global semiconductor market.

1.2.2. JAPAN

The European Union (EU)-Japan Digital Partnership, set up in May 2022, vows to promote bilateral cooperation in a large array of sectors essential to economic security and cutting-edge innovation, such as next-generation networks, artificial intelligence (AI), quantum computing, semiconductors, cybersecurity, and undersea cables. The DP needs to be read against a **volatile geopolitical environment and escalating tensions between the United States (U.S.) and China, highlighting the necessity for the EU and Japan to decrease dependencies on a single foreign partner**, and invest into forging their research and innovation capital in the domains of emerging technologies and critical infrastructure. With both parties being strongly attached to multilateralism, good governance and rules-based international order, the Partnership aims to protect and promote an open, value-driven digital order in the Indo-Pacific and beyond.

The second Policy Workshop organised by the TWG2 in Tokyo in April 2025 addressed the future avenues for the EU – Japan Digital Partnership. The first session focused on **policy alignment in new technologies**, exploring how the EU and Japan can align research priorities, foster innovation ecosystems, and build resilient supply chains. Special attention was given to the importance of sharing best practices and mutual support, with an eye on balancing economic security, competitiveness, and ethical imperatives. The second session focused on **digital connectivity**, examining the role of cutting-edge initiatives, including space-based networks and submarine cable systems, in driving sustainable growth and fortifying digital infrastructures. Experts unpacked the strategic, regulatory, and technical dimensions necessary for safeguarding critical digital infrastructures while promoting seamless global digital integration and open, free, interoperable and secure digital connectivity.

1.2.3. SINGAPORE

The European Union (EU) - Singapore Digital Partnership Agreement (EUSDPA) establishes an overarching framework for strengthening cooperation in a wide range of areas, including artificial intelligence (AI), trade facilitation, trusted data flows and innovation, digital identity, digital trust, standards, digital skills for workers, and digital transformation of businesses and public services. The two main deliverables so far are the adoption of digital trade principles, a commitment that led to binding rules for digital trade through **the EU-Singapore Digital Trade Agreement signed in May 2025, and the EU-Singapore Administrative Arrangement (AA) on AI Safety**, signed in November 2024, building consumer trust and providing greater predictability and legal certainty for

businesses, notably for small, medium-sized and micro enterprises. The EU-Singapore DPA is also recognised as a **possible pathfinder to enhancing digital cooperation and connectivity between the EU and ASEAN** and contributing to the development of a global architecture of interoperable standards at regional and multilateral levels.

The third closed-door Policy Workshop will be held in Singapore on 29 October 2025. The discussions will aim to assess ways to leverage the Digital Partnership on two fronts. First, by **exploring opportunities to operationalise the EU-Singapore AA on AI Safety**, assessing convergence of the EU's AI Act with Singapore's AI Verify toolbox, identifying cooperation in promoting technological innovation, and examining how collaboration on AI safety can accelerate the deployment and responsible use of safe, trustworthy, human-centric AI. Second, it will examine the potential **relevance of the EU-Singapore Digital Partnership to ASEAN digital connectivity**, contributing to topics such as privacy, cybersecurity, platform accountability, and the development of regional and global standards and practices.

1.2.4. INDIA

The EU-India Trade and Technology Council (TTC) was launched in February 2023 to deepen cooperation between the European Union and India in trade, technology, and digital domains. Its main rationale is to enhance both parties' technological and industrial leadership, boost bilateral trade and investment, and promote shared values through collaboration in advanced digital technologies. The TTC aims to **strengthen strategic autonomy amid increasing great-power competition and to foster a fair, inclusive, and human-centric digital environment**. So far, two high-level ministerial meetings were held as part of the TTC, proposing plans for joint R&D projects, a memorandum of understanding on semiconductors, and collaboration on digital public infrastructure to support inclusive digital economies.

The TWG2 plans to hold a Policy Workshop in India in 2026; probably in October/ November. The topics for discussions remain to be defined, following closer analysis and consultation with the relevant EU authorities and local partners.

1.3. TWG 3: JOINT PROGRAMMING

1.3.1. REPUBLIC OF KOREA

The EUDEL to the ROK emphasised the importance of **facilitating Korean researchers' and innovators' access to Horizon Europe programme**. Following this request, a very well attended **information session on opportunities to participate in EU funding** was organized in the frame of the 1st INPACE Symposium in Seoul, ROK, in October 2024. This was preceded by two sessions in an international conference in Korea that supported to create ties between researchers and developers between the EU and Korea.

In 2025, a comprehensive webinar on participation in Horizon Europe was organised by the Ukrainian INPACE partner **LVIV Polytechnic Park on July 8, 2025**. The program comprised a long list of speakers from the EC and scientists in different domains of the Digital Partnership with Korea. The webinar covered various aspects of international collaboration in research and technology, focusing on the **digital partnership between the EU and South Korea**. Presentations

highlighted **ongoing joint projects, support mechanisms for Korean researchers participating in Horizon Europe**, **and specific research areas such as 6G, semiconductors, and quantum technologies**. The discussions also included insights from academic institutions and researchers, emphasising the importance of international cooperation in advancing technological innovation and addressing global challenges.

1.3.2. JAPAN

In Japan, collaborations are currently though individual projects. **INPACE will support the creation of proposals for the upcoming joint call on semiconductors by a workshop in the context of the EU-Japan Digital week in 2026**. The EU-Japan Digital Week 2025 led to numerous ideas and initiatives for joint projects, but **so far no concrete proposals for projects under EU calls are known.**

1.3.3. SINGAPORE

On of the key objectives of the **EU-Indo-Pacific Digital Partnership Conference in October 2025** is to **attract interest in joint projects with EU support**. An information session will be organised and it is intended to have an exchange between persons responsible for research strategies and the INPACE consortium and the EU Delegation about areas of interest and bottlenecks for joint funding.

1.3.4. INDIA

Related to India, through our associated partner **IIT Guwahati**, **INPACE connected to the newly established ANRF** (Anusandhan National Research Foundation) to create awarness of opportunities for collaboration. On March 31, the coordinator and several TWG and Cluster leaders of INPACE met with the Chairman of ANRF and other leading members to discuss areas of possible **joint projects, in particular related to AI and semiconductors**. However, in further discussions it became clear that **ANRF is predominantly targeting privately sponsored research** (via enterprises and not-for-profit associations and foundations) while the Indian government stays the main point of contact for public funding collaborations.

The connection to India has been strengthened a lot by the recruitment of a **new leader of the TWG on High-performance computing, Rossen Apostolov**, who is strongly involved in the GANANA project between the EU and India on High Performance Computing. In March 2025, INPACE and GANANA will organized overlapping events to foster technical exchange and collaboration, covering on the INPACE side related topics as e.g. AI and data sharing technologies and contributing to the generation of ideas for joint funding initiatives. The potential of such will also be explored during the EU-India INPACE Conference that is planned for the autumn of 2026.

1.4. TWG 4: DIGITAL EDUCATION AND SKILLS

1.4.1. REPUBLIC OF KOREA

In October 2024, TWG4 organized a **workshop in Seoul**, which brought together policymakers, researchers, and experts to exchange insights and highlight good practices in digital education. The session highlighted that **digital education and skills remain a critical enabler** for the EU–Indo-

Pacific Digital Partnerships, underpinning progress in other priority areas. Participants identified several actionable pathways forward:

- Strengthening collaboration between Europe and the Indo-Pacific in developing **AI, cybersecurity, and data-related skills**.
- Promoting **inclusive digital education** through continuous learning and targeted efforts (e.g., increasing female participation).
- Supporting **joint programs, exchanges, and hackathons** to foster talent mobility and retention.
- Ensuring that digital education initiatives are **culturally relevant, engaging, and accessible** across diverse contexts.

On the same occasion, TWG4 launched a **Survey on AI Skills (2025)** across the four countries, aiming to map existing capacities, identify gaps, and highlight opportunities for mutual learning. The survey results are now being analyzed and will provide a strong evidence base for future policy recommendations.

1.4.2. JAPAN

TWG 4 continues to maintain close engagement with Japan through its expert representative. At the request of the EU Delegation in Japan, TWG 4 has explored opportunities for practical cooperation, notably by identifying potential partners for a **pilot project on mutual micro-credential recognition**.

1.4.3. SINGAPORE

As part of the EU-Indo-Pacific Digital Partnership Conference in October 2024, TWG4 will host a dedicated session. The session will showcase results of the above-mentioned survey, findings from TWG4's work to date, share experiences on AI in education and research, and facilitate dialogue among regional and international stakeholders.

1.4.4. INDIA

Looking ahead to 2026, the country focus will shift to **India**, aligned with the symposium being held there, likely in March. TWG 4 will concentrate on **upskilling and reskilling the workforce, especially in relation to AI**, a theme of relevance given India's demographic profile, large workforce, and strong emphasis on digital transformation. The focus on AI for workforce development reflects both national priorities and the EU–India TTC agenda.

1.4.5. KEY OBSERVATIONS (CROSS-COUNTRY)

- **AI-related skills and competencies have emerged as a unifying priority across all partner countries**. Strengthening digital education is seen as an essential enabler not only for advancing AI, but also for supporting other strategic areas. A recurring insight is that digital skills must be approached inclusively, with a strong emphasis on continuous learning that begins in early childhood, alongside targeted measures to ensure equitable access for all learners.

- **Importance of cultural relevance and adaptability** in education and training initiatives, something the AI can help with. Effective digital skills programmes cannot rely solely on the content; they must reflect local contexts and employ innovative, engaging methods such as gamification to maintain learner motivation. Joint initiatives, including academic exchanges, hackathons, and collaborative research, were identified as key mechanisms for nurturing talent and ensuring that both Europe and its Indo-Pacific partners can attract, retain, and develop digital expertise.

- **Need to balance innovation with ethical safeguards**. Europe's academic institutions were recognised as playing a central role in shaping AI governance and ensuring sustainable, responsible integration of emerging technologies. Best practices shared by partners further reinforced this message: Japan's human-centric and egalitarian education system, compulsory programming in schools, and initiatives like the GIGA School Program demonstrate the value of long-term policy frameworks; South Korea's focus on cybersecurity training and applied AI in sectors such as agriculture shows the importance of practical, sector-specific solutions; while European initiatives like SkillAIbility and LEADS illustrate how AI can directly support workforce upskilling and reskilling.

- **Significant opportunities for collaboration developing AI-related skills**. Joint projects on mutual recognition of credentials, co-created educational frameworks, and shared ethical approaches to AI integration are all seen as promising pathways forward. In this sense, TWG4 is not only advancing dialogue but also laying the groundwork for concrete, impactful cooperation on digital education and skills.

- **Educating educators**. Ensuring that teachers are equipped with the knowledge and confidence to use AI effectively in schools. This highlights that AI, digital skills, literacy, and even emerging areas such as prompt engineering are not just relevant within the ICT field, but across all disciplines. There is a clear need for transversal courses that address digital skills in a holistic way, embedding them into diverse domains of education and professional practice. Crucially, these efforts must be guided by the principle that while AI can enhance learning, it must not replace or undermine cognitive development, critical thinking, and the broader human dimensions of education.

2. POLICY BRIEFS

Within WP2, Policy Briefs are produced by TWG 2 “Policy Dialogues”. The objective of the Policy Briefs is to take stock of the achievements of the DPs, to identify challenges laying ahead in their implementation, and to formulate policy recommendations that would allow further deepening cooperation in the field of digital technologies. The Policy Briefs combine rigorous desk research with insights from experts and policy practitioners from the EU and its partner countries. Beyond the technical focus, special attention is given to the geopolitical and geoeconomic context in which the EU’s DPs evolve.

During the first period of the project, the TWG2 focused on the analysis of the EU’s Digital Partnership with Japan and South Korea, drawing on insights gathered notably during INPACE activities conducted in the two respective countries in October 2024 (Seoul, ROK) and April 2025 (Tokyo, Japan):

- Csernatoni, R. & Pejsova, E. “From Policy to Action: The Way Ahead for the EU -Republic of Korea Digital Partnership”, accessible at https://csds.vub.be/publication/from-policy-to-action-the-way-ahead-for-the-eu-republic-of-korea-digital-partnership/
- Csernatoni, R. & Pejsova, E. “EU-Japan Digital Partnership: Towards a Robust Alliance for an Uncertain Geopolitical Era” has been reviewed and awaits publication.

Two remaining Policy Briefs, focusing on the EU-Singapore DP and on the EU’s TTC with India are expected to be produced in the second phase of the project.

2.1. EU – ROK DIGITAL PARTNERSHIP

2.1.1. Achievements

Since its launch, the EU-ROK Digital Partnership has already made meaningful progress across several key domains.

- **Semiconductors**: The **ROK-EU Forum for Semiconductor Researchers** is a critical platform for collaboration, fosters research in complementary areas and facilitates information sharing on global semiconductor supply chains. The EU and South Korea announced support for four jointly funded semiconductor projects as a deliverable of the Digital Partnership.

- **Quantum Expert Group**, proposed during the first Digital Partnership Council, aims to drive innovation by identifying common research topics that could be the basis of joint research cooperation.

- **High-Performance Computing** (HPC): the EU and South Korea are working on applications that address shared priorities, such as extreme weather modelling and material science. Both sides have committed to improving researchers’ access to their respective HPC infrastructures to support this collaboration.

- **6G:** The Partnership has made significant strides in building a shared vision for 6G technologies and increasing cooperation around AI. In the areas of 5G and 6G, the EU and South Korea have launched a **call for proposals** on research topics in the fields of Radio Access Networks (RAN) and 6G technology.

- **AI:** With the establishment of a permanent dialogue enabling regular updates and collaboration in initiatives for human-centric and trustworthy AI, both partners are working on developing shared approaches to **ethical AI governance, including Large Language Models (LLMs).** Both partners also share a similar vision for a fair and secure online environment and will continue implementing the principles of the Declaration for the Future of Internet in line with the European Declaration on digital rights and principles.

- **HORIZON cooperation. I**n July 2025, the EU and ROK signed the **Association Agreement**, allowing Seoul to participate in the EU finding scheme under the Pillar IIof its activities, focusing on "Global Challenges and European Industrial Competitiveness". The ROK thus became the first Asian country to be given the right to participate in joint calls and submit proposals within the scheme.

2.1.2. Challenges

Despite some considerable advancements, the Digital Partnership still faces several challenges, both in terms of the implementation, the disparities of both partners' EDT capacities, but also at the broader structural, and domestic political levels:

- **Implementation gaps:** Joint initiatives rely on forums, *ad hoc* funding, and research group coordination. Clearer timelines and consistent institutional and financial support are necessary to turning these socialisation platforms into lasting collaborations with tangible outcomes, like in the case of the four jointly funded semiconductor projects. While the Partnership provides flexibility, its non-binding nature poses risks to long-term commitments.

- **Evolving nature of threats:** The rapid evolution of cyber threats, also powered by AI systems and the advent of quantum technologies, demands adaptive and forward-looking responses, not least strategic alignment and trust. Both partners must make sure their collaboration includes real-time threat analysis and intelligence sharing, joint exercises, and innovative countermeasures to stay ahead of malicious actors.

- **Competitiveness & Disparities in EDTs**: One of the EU's critical challenges is its relatively weak technological and industrial base, especially in key EDTs. Compared to South Korea's excellence in semiconductors, advanced manufacturing, and AI, the Union faces growing gaps in these domains. Moreover, challenges persist in outlining common regulatory and normative frameworks in the case of AI. While both sides agree on the importance of trustworthy AI, differences in their respective regulatory and industrial environments could hinder further alignment.

- **Geopolitical Balancing**: South Korea's economic interdependence with China and its strategic reliance on the United States creates a complex geopolitical balancing act. Similarly, the EU must navigate its transatlantic ties in view of President Donald Trump's re-

election while also pursuing greater strategic autonomy in technology and security. These geopolitical pressures could create friction, distract both partners' attention and impede the Partnership's progress.

- **Domestic politics:** Neither the EU nor South Korea are safe from domestic instabilities. Recent political turmoil that has shaken South Korea following President Yoon's unexpected proclamation of martial law underscores the fragility and the possible impact of domestic political setbacks on advancing functional cooperation. Without formal obligations and enforcement mechanisms, the Partnership relies too heavily on sustained political commitment. Future administrations could, for instance, deprioritise such initiatives, thus jeopardising their long-term impact.

2.1.3. Recommendations

- **Deepen Cybersecurity Cooperation:** Establish permanent channels for real-time information sharing and threat assessment. Conduct joint cybersecurity exercises to strengthen resilience against hybrid threats.

- **Accelerate EDT Collaboration***:* Focus on high-impact projects in priority areas, such as semiconductors, generative AI models, and quantum technologies. Leverage Horizon Europe to fund initiatives with measurable outcomes.

- **Strengthen Supply Chain Resilience***:* Expand collaboration in semiconductor and battery production to reduce reliance on single-source suppliers.

- **Enhance Public-Private Partnerships***:* Facilitate matchmaking between start-ups, SMEs, and research institutions in both regions to foster innovation and knowledge-sharing.

- **Expand Minilateral and Multilateral Engagement***:* Use the Digital Partnership as a model to engage other like-minded actors in building a resilient and inclusive digital ecosystem.

- **Promote Inclusive Digital Societies***:* Support the implementation of training programmes for re-skilling, upskilling, and STEM skills and promote digital literacy and inclusion.

- **Create More Accountability and Sustainability***:* Develop mechanisms to track the implementation of joint initiatives and measure their impact. Reinforce the Digital Partnership Council's role as a forum for addressing challenges and maintaining political commitment.

2.2. EU – Japan DIGITAL PARTNERSHIP

2.2.1. Achievements

Since its entry into force in 2022, the EU-Japan Digital Partnership has recorded significant progress across several key areas.

- **Semiconductors:** Memorandum of Cooperation (MoC) from early 2023, committing to work together on next-generation chips, including via the established joint mechanisms, as

well as in the G7 semiconductors Point of Contact group by tackling risks posed by non-market policies and practices. In May 2024, both parties signed an Administrative Arrangement (AA) on a Semiconductor Public Support Transparency Mechanism, aimed at enabling the structured exchange of information about subsidies and public support in the sector.

- **Quantum technology:** partners have formalised a new phase of enhanced cooperation, with the signing of a Letter of Intent on 13 May 2024 in Tokyo. The agreement launched a jointly funded project called Q-NEKO - a 4-million-euro project bringing together 16 European and Japanese institutions to advance hybrid quantum-high-performance computing architectures for applications such as materials science, climate modelling, biomedical research, and natural disaster simulations.

- The EU and Japan have also started negotiations for **Japan's association with Horizon Europe**, the EU's flagship research and innovation framework, in the context of its "Pillar II", which tackles Global Challenges and EU Competitiveness through multinational collaborative projects.

- **Arctic submarine cables:** the EU and Japan aim to circumvent choke points like the Suez Canal, enhance redundancy in data routes, and reduce latency between Europe and Asia. The establishment a **Joint Working Group on Submarine Cable Connectivity,** announced during the EU – Japan Summit in July 2025, is a step in a right direction, set to develop shared approaches to incident detection, standards alignment, administrative streamlining, and exploring co-funding or demand aggregation models.

- **Next generation of wireless networks** (namely 5G and beyond 5G/6G): In April 2025, a joint research initiative on 6G - the "6G Mirai-Harmony" was founded as part of the EU's Smart Networks and Services (SNS) Joint Undertaking (JU) initiative, focusing on Machine Intelligence-Based Radio Access Infrastructure to shape the future of 6G cellular networks. Looking ahead, both sides are not only focusing on coordinated research and standards-setting for 6G but also on integrating non-terrestrial networks (NTNs) with terrestrial infrastructure.

- **Interoperability in digital governance:** aligning regulations, norms, standards, and frameworks that enable global digital exchanges. In 2024, the EU and Japan concluded the **Data Flow Agreement**, poised to generate tangible efficiency gains for firms operating in financial services, transport and logistics, advanced manufacturing, and cross-border e-commerce. The parties also advanced the operational roll-out of the Memorandum of Cooperation (MoC) on Digital Identities and Trust Services, an initiative designed to operationalise the G20 principle of DFFT.

- **Regulatory alignment on online platforms**: the EU and Japan reaffirmed their commitment to cultivating an online ecosystem that safeguards users' fundamental rights while supporting innovation. Japan's Ministry of Internal Affairs and Communications (MIC) and the European Commission's Directorate-General for Communications Networks, Content and Technology (DG CONNECT) engaged in structured dialogues on platform governance practices.

- **AI regulation:** Upon **Japan's endorsement of the EU-initiated Hiroshima AI Process** at the 2023 G7 summit, regulators launched structured dialogues to compare risk-based management frameworks, transparency requirements, and algorithmic accountability tools. **Negotiations of a formal Administrative Arrangement** that would establish data-sharing protocols, joint standard-setting venues, and crisis-response channels, is under way.

- **Cyber resilience:** The two partners hold regular EU-Japan Cyber Dialogues to share intelligence and best practices. To align cybersecurity standards and regulations, the third Ministerial meeting welcomed expert cooperation and standard development activities between the EU's Cyber Resilience Act and Japan's IoT labelling scheme JC-STAR. Brussels and Tokyo are also discussing **joint cyber crisis exercises** to bolster preparedness, to enable Japanese and European agencies to respond to cyberattacks on critical infrastructure.

2.2.2. Challenges

Despite a solid start, the EU-Japan Digital Partnership still faces significant headwinds.

- **Non-binding nature of the DP**: many joint initiatives, such as expert working groups, pilot projects, and forums remain *ad hoc.* While that allows for greater flexibility, the partnership lack of formal obligations and dedicated funding streams undermines implementation and risks reducing the impact of the initiatives. Both partners will need to bolster their efforts with consistent resourcing, leveraging tools like Horizon Europe to co-finance R&D, so that flagship projects, such as those on semiconductors, quantum, or AI, deliver tangible outcomes.

- **Rigid bureaucracies:** the rapid evolution of technology and threats demands great agility in responding to them. Cyber threats are constantly morphing, from state-backed hacking campaigns to AI-powered disinformation, requiring adaptive, real-time responses. Europe and Japan must ensure their cooperation mechanisms can keep pace, which requires institutionalising information and intelligence sharing, jointly monitoring emerging threats, or coordinating supply chain safeguards.

- **US - China technological competition**: China is aggressively lobbying international bodies to adopt its norms, from facial recognition standards to new internet protocols, while U.S. tech giants often set de facto standards via market dominance. With their emphasis on privacy and security, the EU and Japan need to work closely together to ensure their preferred standards gain traction. However, their approaches vary: while Brussels favour more prescriptive regulation, Tokyo has historically been more industry-driven, relying on voluntary compliance.

- **Asymmetric digital competitiveness:** To take the example of semiconductors, the EU may bring in research prowess through its SME ecosystem but continues to trail in leading-edge capabilities, while Japan retains world-class strengths in materials and specialised chips. Competitiveness can rely on niche strengths and supply-chain indispensability, but there is also the question of coordinating industrial policy to avoid duplication or even a race to lure each other's companies with incentives.

- **Geopolitical balancing**: Japan remains a treaty ally of the U.S., relying on Washington for its security guarantee, and it is working closely with the U.S. on many tech issues. While the EU, too, values its transatlantic bond and coordinates with the U.S., should the relationship sour, Brussels and Tokyo might feel pressure to pick sides or water down their bilateral projects. Walking this geopolitical tightrope, pursuing joint digital sovereignty without sliding into bloc confrontation will be a continuing challenge as great-power tensions mount.

2.2.3. Recommendations

- **Advance regulatory alignment on data and AI.** To move the needle of implementation, the EU and Japan should establish a structured regulatory dialogue that sets joint milestones on data adequacy and AI governance. This could include piloting mutual recognition of compliance mechanisms between GDPR and Japan's "Data Free Flow with Trust" model, launching an EU-Japan AI sandbox that allows firms to test applications under both regimes, and creating a standing expert group to coordinate on transparency, risk classification, and redress standards. Such actions would reduce compliance burdens, foster innovation, and ensure that democratic standards shape global digital norms.

- **Enforce semiconductor resilience.** Coordinated risk mapping, export controls and stockpile strategies, is required to shield manufacturing ecosystems from geopolitical shocks and further avoid dependence on third-country suppliers amid volatile cycles. Chips cannot be decoupled from gallium, germanium, and rare-earth magnets. And as Brussels and Tokyo both unveiled critical minerals strategies, both partners should explore joint coordination on stockpiles, recycling R&D, and coordinated outbound-investment screening as complements to the semiconductor MoC.

- **Coordinate to secure critical digital infrastructure.** Developing cybersecurity certification, vendor screening and rapid threat-intelligence frameworks is critical to safeguard data arteries against sabotage, espionage and extreme-weather disruptions along Arctic and Asia-Pacific supply corridors. Shifting icebergs, seabed movement, and severe storms threaten submarine cable routes and landing stations, making resilience planning crucial. Arctic cables, data centres, fabs and HPC clusters have heavy carbon and water footprints that both partners have pledged to curb; hence, green semiconductor manufacturing, renewable-powered data centres, and a shared Net-Zero Digital Infrastructure roadmap *should also be a priority.*

- **Deepen cybersecurity cooperation.** Expanding the existing permanent channels for real-time cyber threat intelligence sharing between EU and Japanese agencies, so that information on malware, breaches or hybrid attacks can be exchanged instantly. One way forward is to conduct regular joint cybersecurity exercises that simulate attacks on critical infrastructure, such as energy grids, financial systems, and undersea cables to improve collective response capabilities. These drills will build trust and preparedness, enabling a coordinated response in the event of a serious incident.

- **Accelerate joint research and development in EDTs.** The focus should be on a few high-impact, next-generation projects that leverage each side's strengths in priority areas, such as advanced semiconductors, AI, and quantum. A programme could be established to co-

fund R&D in post-silicon technologies, including quantum semiconductors or new materials. Both sides should expand collaboration on AI research, for instance, via a **joint compute fund for AI** that enables researchers from both regions to access cutting-edge computing resources and datasets. This would lower barriers for SMEs and universities, enable cross-border projects in areas like climate modelling or health AI, and reduce dependence on U.S. hyperscalers.

- **Emphasize inclusive, multistakeholder engagement, particularly with the private sector, academia, and civil society.** Governments alone cannot achieve the partnership's ambitious goals. Industry, academia, and civil society must also be on board. Both parties should further clarify how the Partnership will help not only large corporations but also EU and Japanese SMEs adopt cloud and AI technologies, and how it will narrow rural connectivity gaps. The EU and Japan should facilitate public-private partnerships that connect their vibrant tech ecosystems. This could take the form of an annual EU-Japan Digital Innovation Forum, which brings together startups, researchers, and investors to collaborate on topics such as smart cities or fintech. Such networks will fuel bottom-up innovation and commercial ties to complement the top-down political framework.

2.3. AI and society

Policy Recommendations from the Horizon AI Conference 2025 on AI and Society

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This memorandum synthesizes key insights from the **Horizon AI 2025 Conference in Davos**, focusing on Artificial Intelligence's profound societal impacts. The conference revealed critical paradoxes, including Europeans' "risk-based" approach, contrasting with global optimism and proactive attitudes. There is an urgent call to foster a sovereign, value-based AI ecosystem. Recommendations emphasize investing in European AI infrastructure, comprehensive education, transparent governance, and proactive environmental and societal impact mitigation, urging immediate action for Europe's competitiveness and strategic autonomy, based on collaboration with like-minded countries. The conference highlighted Europe's current position in the global AI landscape, characterized by a prevailing "**risk-thinking mode**". A core question emerged: "**What is or can be European AI? Just words or a geopolitical reality?**" This reflects a tension between the desire for global collaboration and the drive for regional autonomy. Europe is often perceived as a "loser" in this landscape, despite being a leader in AI regulation, which should be used effectively to tackle other aspects of the topic.

2.3.1. Emerging Trends and Challenges

Anticipated technological and societal shifts, alongside inherent challenges, define the AI horizon:

- **Anticipated Technological Advances:**
    - Continued rapid development of AI tools leading to AI developing empathy.
    - Development of **immersive AI environments** and AI self-awareness.
    - Emergence of **AI Agents** and potential for "co-intelligence/identity".

- **Major Challenges (Ethical, Technical, Societal):**
  - The conference identified more paradoxes than previously thought, suggesting a complex riddle that requires focusing on positive outcomes in recommendations.
  - **Paradoxes of AI Integration:**
    - **Collaboration vs. Competition:** A persistent tension between global cooperation and the drive for regional self-reliance. This paradox also applies to the business sector.
    - **Fear vs. Excitement:** Europe's prevalent skepticism contrasts with global enthusiasm, impacting adoption and development speed.
    - **Skills Divide:** AI's potential to exacerbate inequalities, creating a wider gap between "intelligent" and "less intelligent" individuals. Alternatively, it could lead to bridging the skills debate, equalizing skills and thus effectively limiting competition between humans.
    - The **Critical thinking paradox**: Critical thinking is essential to use AI properly, but using AI can also lead to the demise of critical thinking.
    - **Trust & Sovereignty:** The challenge of building "trusted AI" is complicated by a perceived lack of internal knowledge regarding its design and governance, and external control over its core infrastructure and data, often controlled from the US.
    - **Rights vs. Accountability:** It is essential to define who is accountable for AI actions, and who and how ensures that fundamental human rights are also respected in the AI ecosystem.
    - **Productivity vs. Labour Market Structure:** It is expected that the use of AI at work will lead to increased productivity, and thus many job categories, especially at the junior level, might cease to exist. There is a need to ensure generational knowledge transfer and training for future senior-level roles.
    - **Productivity vs. Unemployment:** It is expected that the use of AI at work will lead to increased productivity, and thus many job categories, especially at a low skill level, might cease to exist, thus there is a need to ensure social coherence and inclusivity.
  - **Societal & Human Impact:** Challenges include adopting AI and testing knowledge in education, AI usage implications in the labour market, ensuring inclusivity, managing AI's influence on human direction, and reducing societal fear while enhancing accessibility.
  - **Environmental Impact:** High energy consumption of AI, necessitating technological solutions to mitigate its footprint. We need technology to solve issues caused by technology, decrease consumption, and increase supply.

- **Areas of Uncertainty or Debate:**
    - **Wild Cards:** The end of the AI hype, disappearance of job sectors, no schools, unprofitable AI, increased discrimination, and "winners outside Europe take it all."
    - **Black Swans:** Societal collapse due to "too much AI," AI-powered global empires/despotism, infrastructure blackouts, robots taking over, AI-driven financial inequity, misuse of AI for social conflict, stolen identity.

Europe's current policy landscape is characterized by a leading role in **AI regulation** (e.g., the AI Act), but this has not yet translated into a robust industrial policy. There is an urgent need for action, as industrial policy and institutional willingness are crucial beyond mere regulation. Competitiveness was identified as a key policy discussion point that is gaining more prominence. As the discussions on the next MFF are underway, it should be ensured that strategic investment into AI research and related policies leads to a sovereign AI ecosystem based on EU values.

2.3.2. Recommendations

- **Building Sovereign AI Ecosystem:**
    - **Invest in building an AI ecosystem** based on EU values and respect for fundamental rights.
    - **Mandate Transparency & Interoperability:** Require all AI models to be transparent (showing "chain of thought") and all online applications to provide APIs for compatibility.
    - **Decentralize AI:** Explore technical and operational strategies to foster open, decentralized AI that scales through partnerships with like-minded countries.
    - **Develop Technical Solutions:** Propose concrete technical solutions to support European values, ensuring AI is developed, designed, and governed in accordance with EU values.
- **Education / Human Capital:**
    - **Integrate AI in Education Plans:** Include basic AI skills and access in all education plans, starting with young generations. Address the "culture of coding" and “prompt writing” in schools, while ensuring learners improve their critical thinking abilities.
    - **Upskilling & Reskilling:** Implement personalized AI-driven upskilling programs and inclusivity initiatives. Provide tech talent support.
    - **Labour Market Confidence:** Ensure job security and compensation for societal benefit (e.g., unemployment programs, reduce working hours, ensure basic income).
    - **Transparency in AI Use:** Require declaration if and how AI was used in work and research, potentially developing a standardized scale.
    - **Rights for Access:** Ensure free AI providers and public access for citizens.

- Education and awareness are paramount.

- **AI Governance & Security:**
  - **Define Accountability:** Clearly define responsibility and accountability levels for AI systems.
  - **Enforce Rights:** Ensure human and fundamental rights are applied and enforced in the EU AI ecosystem.
  - **Prevent Misuse:** Leverage the advanced AI Act for empowerment and prevent identity misuse.
- **Societal & Environmental Impact:**
  - **Energy Efficiency:** Require built-in energy solutions for AI infrastructure, leading to decreasing demand and increasing supply. Minimize disruptions on the network and ensure environmental compensation without hindering competitiveness. Develop independent, reliable, stable energy systems.
  - **Reduce Fear & Increase Accessibility:** Develop strategies to reduce societal fear of AI through updating social policies to compensate for AI's impact on the labour market and ensure AI is accessible to everyone.
- **Strategic Foresight & Institutional Willingness:**
  - **Industrial Policy:** Recognize that regulation is powerful but needs to be enforced properly and turned into action; a robust industrial policy and institutional willingness are crucial.
  - **Global Vision:** Build bridges and offer European solutions globally to like-minded countries, moving beyond protectionism towards self-reliance.

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