



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

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유럽 및 인도 태평양의 경우

International Symposium on Digital Technologies and Policies:

Supporting the Indo-Pacific-European Digital Partnerships

*Republic of Korea, October 21-22, 2024
Summary Report*

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1. BACKGROUND OF THE SYMPOSIUM

1.1 CONTEXT OF THE SYMPOSIUM

The mission of [the INPACE project](#) (Indo-Pacific-European Hub for Digital Partnerships) is to support the Digital Partnerships and the Trade and Technology Council and to contribute to the deepening of the collaboration between Europe and India, Japan, the Republic of Korea and Singapore in the domain of digital technologies and their application for the well-being of the citizens in Europe and in the Indo-Pacific region. . As part of this effort, INPACE organised a two-day symposium at the Daeyang AI Centre, Sejong University, in Seoul, Republic of Korea, on 21-22nd of October, 2024, focused on Digital Technologies and Policies to strengthen Indo-Pacific-European Digital Partnerships.

1.2 OBJECTIVES OF THE SYMPOSIUM

The event addressed the intersections of technology and policy, **fostering dialogues between experts from both regions to strengthen digital partnerships with the Republic of Korea, Japan, Singapore, and the cooperation with India in the TTC context.** The Symposium aimed to delve into the latest advancements in digital technologies and transformative applications within the Indo-Pacific region and Europe.

The event offered a platform to discuss groundbreaking technologies and their impacts, including:

- **Trusted AI:** Unleashing AI’s potential while prioritising reliability and ethics
- **Chips of the Future:** Showcasing innovations in semiconductor technology
- **Future Networks:** Examining the progression of connectivity and communication
- **Cybersecurity:** Exploring strategies to protect our digital infrastructure

These sessions spotlighted cutting-edge developments and the policies shaping these fields. Additionally, the symposium was designed as a catalyst for collaboration, fostering mutual understanding and joint research initiatives between European and Indo-Pacific organisations.

1.3 ORGANISATION OF THE SYMPOSIUM

The Symposium was hosted by Sejong University, the INPACE associated partner from the Republic of Korea. G.A.C. Group, coordinator of INPACE, was responsible for the Symposium. The event was held physically, at the Daeyang AI Centre, Sejong University, Seoul, Republic of Korea, and was also live streamed and recorded, using the YouTube platform. The event gathered more than 100 participants, coming from Europe and the Indo-Pacific.

The Organising Committee of the Symposium was chaired by Prof. JaeSeung Song, Distinguished Professor at the Department of Computer and Information Security, Sejong University, Republic of Korea, and co-chaired by Prof. Sebastian Engell, Lead Scientist and Project Director at ENRICH GLOBAL, and Dr. Svetlana Klessova, Director, Research and Innovation Partnerships at G.A.C. Group.

The first day started with two sessions organised simultaneously: the Closed-Door Policy Roundtable “The EU-ROK Digital Partnership : from Policy to Practice” (upon invitation only) and the session “First results of the R&I panorama and roadmapping activity”. Then, 6 public technical sessions were held in parallel (3 in the morning and 3 in the afternoon). These sessions allowed to dive in depth into priority topics for the European Union and the Republic of Korea: CloudEdgeIoT, Chips for the future, Trustworthiness in AI, 5G/6G, Trusted AI in industry, and Digital education and skills.

The first day ended with the Reports from the technical sessions as well as an Information session on EU funding opportunities, with a focus on Horizon Europe and Eureka, moderated by Dr. Svetlana Klessova (G.A.C. Group) and Adam Kapovits (Eurescom).

The second day of the Symposium offered participants a complete understanding of the digital technologies and policies in the context of Indo-Pacific-European cooperation, through various sessions that covered the following topics: policy; smart and sustainable regions and cities; human-centric AI for the citizens; chips for the future; cybersecurity, IoT and 5G.

The following guidance were suggested to the sessions leads ahead of the event, to be included in discussions:

- The key challenges, major needs, activities, projects and initiatives related to the topic of the session.
- Specific national initiatives, networks, key players, major research projects, industry involvement, etc.
- How the experts’ work, experience and expertise, matter for digital cooperation between the EU and the Indo-Pacific.
- Sub-priorities in the topic of the session that could benefit both the EU and the Indo-Pacific, how could the two regions align.
- Areas where collaborations can lead to some concrete outputs and support Digital Partnerships.
- Concrete pilot projects and/or joint initiatives that could be facilitated under the INPACE framework.

The materials of the Symposium, including the slides, the present report, and the recording of the second day are available on the [INPACE Hub](#).

2. SUMMARY OF KEY RECOMMENDATIONS FROM THE SYMPOSIUM

| TOPIC | Main recommendations |
|-----------------------------|--|
| Policy | A main recommendation is to prioritise policy alignment between the EU and Indo-Pacific regions to facilitate digital partnerships. Aligning regulatory and governance frameworks, particularly around digital infrastructure, trustworthy AI, and resilient supply chains, can reduce barriers to collaboration, foster mutual recognition of standards, and support sustainable, cross-regional innovation in response to shared technological and geopolitical challenges. |
| Cloud Edge IoT | The discussion highlighted the need of common data and events definition along the continuum, which calls for interoperability and standardisation also among countries, leveraging Artificial Intelligence (AI) and Large Language Models (LLMs), but being attentive to facilitation of their applicability i.e. of standards, in particular for SMEs. |
| Chips for the future | The sessions emphasised the importance of international cooperation in the semiconductor sector to accelerate innovation, reduce costs by avoiding redundant research, and strengthen value chains. Key focus areas include More Moore, More than Moore, Beyond-CMOS technologies, new computing architectures, heterogeneous integration, sustainable electronics, and advanced packaging solutions. Recommended actions can be to the organise webinars and workshops, to foster joint R&D&I projects on shared priorities, or to facilitate students and researchers exchange initiatives. |
| AI | A unified framework for AI risk governance enables faster cross-region adoption, emphasising collaboration on shared application domains to ensure interoperability between European Data Spaces and Indo-Pacific data infrastructures. In addition, building trust in AI for industrial and healthcare requires rigorous development, extensive testing, and combining physics-based and machine-learning models, especially for advisory systems providing recommendations to human users. Finally, AI should complement human abilities through a human-centric approach, enhancing trust and aligning with ethics. The EU's AI Act ¹ promotes global leadership in ethical AI, balancing innovation and citizen protection. |
| 5G/6G | There is a very significant interest in non-terrestrial networks (NTN) in Korea exemplified by the substantial 6G R&D component |

¹ <https://artificialintelligenceact.eu/>

| | |
|--|---|
| | <p>focusing on low Earth orbit (LEO) satellites that is supposed to start in 2025 and the associated founding amounting to 260 million USD. As non-terrestrial satellite networks by nature are ideal to cover and provide access to services beyond the geographic boundaries of countries, this could be an area for collaboration to be further explored.</p> |
| <p>Digital education and skills</p> | <p>As a cross-cutting topic, digital skills are essential to achieve progress on most of the priority areas of the Digital Partnerships and TTC. Thus, a cooperation across the Thematic Working Groups is necessary to meet our objectives. The group recommends to focus mostly on Skills with relevance to AI and Cybersecurity.</p> |
| <p>Smart and sustainable regions and cities</p> | <p>The main recommendations from the symposium presentations focus on the requirements to develop citizen-centric and carbon-neutral smart cities. They emphasised the importance of implementing standardised and cross-sectorial data exchange architecture, considering the developing data space concepts. On the technology side, a gap is identified on privacy management and cooperation encouraged on that topic. Finally, twinning between similar organisations (e.g. campus) or comparable cities is foreseen as adequate to foster fruitful cooperation.</p> |
| <p>Cybersecurity</p> | <p>Cybersecurity is a particularly important aspect for the Republic of Korea for obvious geopolitical reasons. They are demonstrably interested and keen in international collaboration and standardisation in this field. This means that the EU should actively explore collaboration opportunities with the Republic of Korea regarding cybersecurity.</p> |
| <p>Funding opportunities</p> | <p>As part of the questions and answers following the presentations it became obvious that Korean entities would very much benefit from dedicated coaching to maximise the gain from the association to Horizon Europe programme, as this creates a completely new situation for ROK organisations who were used to dedicated joint or aligned calls, where the level of competition was much smaller.</p> |

3. POLICY SESSION (UPON INVITATION ONLY) – ROUNDTABLE: “THE EU-ROK DIGITAL PARTNERSHIP: FROM POLICY TO PRACTICE” (DAY 1)

3.1 MODERATOR, INPUT SPEAKERS AND EXPERT PARTICIPANTS

| Moderator | Organisation | Country |
|-----------------|----------------------------|---------|
| Dr. Eva Pejsova | Vrije Universiteit Brussel | Belgium |

| Input speakers | Organisation | Country |
|------------------------|---|-------------------|
| Dr. Raluca Csernaton | Vrije Universiteit Brussel | Belgium |
| Sunghun Cho | Korea Institute for International Economic Policy | Republic of Korea |
| Prof. Michael Reiterer | Vrije Universiteit Brussel | Belgium |
| Prof. Dongyoun Cho | United Nations Institute for Disarmament Research | Switzerland |

| Expert participants | Organisation | Country |
|-----------------------|---|-------------------|
| Dr. Monique Calisti | Martel Innovate | Switzerland |
| Paula Cantero Dieguez | Vrije Universiteit Brussel | Belgium |
| Karolina Gyurovszka | Martel Innovate | Switzerland |
| Prof. Hae-Won Jun | Institute of Foreign Affairs and National Security (IFANS) / Korea National Diplomatic Academy (KNDA) | Republic of Korea |
| Dr. So Jeong Kim | Institute for National Security Strategy | Republic of Korea |
| Dr. Svetlana Klessova | G.A.C. Group | France |

| | | |
|-----------------------|---|---------------------------|
| Dr. Koichiro Komiyama | JPCERT Coordination Center | Japan |
| Dr. Ji Soo Lee | Hankuk University of Foreign Studies | Republic of Korea |
| Dr. Karthik Nachiapan | National University of Singapore | Singapore |
| Julien Provenzano | Purple Hackademy | Republic of Korea/ France |
| Kseniia Savchenko | G.A.C. Group | France |
| Dr. Joonkoo Yoo | Emerging Technology Security Institute | Republic of Korea |
| Rainer Wessely | Delegation of the European Union to the Republic of Korea | Republic of Korea |

3.2 SUMMARY OF THE SESSION

The closed-door session aimed at taking stock of the advancement and the challenges related to the implementation of the EU – ROK Digital Partnership Agreement (DPA), notably in the field of semiconductor supply chains, 6G cooperation and quantum technology.

The meeting was attended by experts on the European and Korean sides, tasked to address several guiding questions, including identifying policy initiatives necessary to enhance both parties’ cybersecurity postures, ways to harmonise regulatory frameworks to enhance collaboration on emerging digital technologies, and addressing supply chain resilience in the context of the global semiconductor market.

The discussion focused mainly on:

- **Geopolitical and Strategic Implications of Emerging Technologies** like advanced semiconductors, AI, and quantum technology on global power dynamics.
- **Digital Cooperation in the Indo-Pacific Region against** heightened geostrategic and geoeconomic competition, comparing strategies for leveraging digital online platforms and initiatives in promoting digital rights, and interoperability of global standards.
- **Regulatory Alignment Mechanisms, including** legal and institutional barriers that impede on technological collaboration, to identify alignment between the EU and ROK to streamline processes and reduce these barriers.
- **Identifying Cybersecurity Collaborative efforts** to strengthen cybersecurity highlighting vulnerabilities, and eventual joint initiatives to protect critical digital infrastructure.

All four input speakers agreed on the benefits and the good course the DPA is taking, while providing examples and sharing additional insights based on their respective research and professional backgrounds. Various perspectives combined experience and views from active diplomatic service, UN, ROK Government, private sector and independent researchers.

3.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

- All-encompassing weaponisation and over-securitisation of digital and technological domains should not distract the focus from pursuing collaborative opportunities in enabling technologies, which should be developed through open innovation.
- A call for connecting the dots, between the needs of the public and the interests of the private sectors, but also with the research community and civil society.
- We need to balance security and supply chain profits. From an economic security perspective, private actors will always favour cost-saving, regional / local solutions rather than relying on global supply chains. Where regulations are imposed on private companies, governments should factor in compensation costs.
- Data protection is key to ensure their free and safe exchange. However, the EU should not seek full harmonisation (no “data imperialism”), but rather adequacy recognition – to avoid regulation competition and respect both parties’ legal and institutional specificities.
- Both EU and ROK agree on the importance of critical infrastructure. Agreeing on its definition (undersea cables, maritime, energy, transport, aviation) would greatly facilitate its regulation, including when it comes to investment screening.
- The UN proclaimed 2025 the year of quantum science and technology. In quantum, the greatest risk is fragmentation, with highly specialised and geographically dispersed supply chains. Lack of standardisation and interoperability is therefore a major hurdle.

4. PUBLIC THEMATIC TECHNICAL SESSION: CLOUD EDGE IOT (DAY 1)

4.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|--------------------|-----------------|-------------|
| Dr. Giacomo Inches | Martel Innovate | Switzerland |

| Speakers | Organisation | Country |
|-----------------------|--------------------|-------------------|
| Jordi Guijarro | OpenNebula Systems | Spain |
| Antonio Kung | Trialog | France |
| Dr. Monique Calisti | Martel Innovate | Switzerland |
| Dr. Hidenori Nakazato | Waseda University | Japan |
| Jinman Kwon | Dtonic | Republic of Korea |

4.2 SUMMARY OF THE SESSION

The working group on Cloud Edge IoT explored the convergence among the three layers: Cloud and Edge computing are essential technologies in a computing continuum to ensure data is managed more efficiently – closer to the originating source rather than transmitting raw data to remote data centres ; moreover, improvements in the IoT segment can reduce communication and storage costs, energy consumption and yield benefits for citizens and businesses alike, thanks for example to the integration of AI and Machine Learning. In the session we investigated the different aspects of this convergence.

Prof. Hidenori Nakazato, Waseda University (Japan) in his presentation (*Novel Networking Paradigms for Enabling Computing Continuum*) emphasised the innovative concept of disaggregated computing where computing resources are distributed across a "global computing continuum" leveraging edge computing, IoT, and microservices to decentralise processing, allowing data and functions to be accessed without dependence on location, which enhances flexibility and efficiency. By making use of identifier-based networking and optical technology, the system improves latency and transparency, making remote resources feel locally accessible.

Mr. Antonio Kung, Executive board, Trialog (France) covered cloud-edge-IoT interoperability in smart connectivity and computing environments (*The importance of standardisation along the Continuum*), with emphasis on ongoing initiatives in Citiverse and MetaOS. The presentation advocated for standards through ISO/IEC committees SC41 (IoT and digital twin) and SC38 (Cloud and platforms), which underpinned interoperability in data spaces, digital twins, and edge computing. The creation of a taxonomy is presented as the foundational step in developing these standards,

providing a structured approach to categorising and guiding the integration of IoT, edge, and cloud systems across a distributed computing continuum.

Dr. Jin Man Kwon, Vice President, Dtonic (ROK) presented Dtonic's Edge AIoT platform (*IoT and Data: Optimisation via AI and Edge*), designed to optimise IoT data processing and management across various industries by leveraging edge and cloud computing. He introduced several use cases where Dtonic platform is currently in use i.e. Smart Cities, Smart Edge platform, Smart factories, Smart retails and provided technical details of its implementation leveraging NGSI-LD FIWARE standard and ETSI AI middleware.

Mr. Jordi Guijarro, Principal Cloud-Edge Ecosystem Manager, OpenNebula Systems (Spain) introduced the IPCEI-CIS initiatives of the European Union, a €1.2 billion investment for the development of the first interoperable and openly accessible European cloud-edge computing continuum (*Why is Europe investing in a sovereign edge cloud?*). With more than 100 companies from 12 different EU member states actively involved in this initiative, the EU aims to reduce strategic dependencies on Big Tech vendors and hyperscale cloud providers, while fulfilling crucial requirements for open source, cloud interoperability, data privacy, energy efficiency, and cybersecurity, allowing for new real-time and low-latency services that require distributed computing resources at the edge, closer to end-users and IoT devices. The possibility for non-EU entities to contribute to the deployment and testing of IPCEI-CIS were also discussed.

Dr. Monique Calisti, CEO, Martel Innovate (Switzerland) highlighted the ongoing initiative in Europe promoted by the European Commission on Cloud Edge IoT (e.g. OpenContinuum, NexusForum) and their relevancy to the Digital Partnership. In particular, she highlighted the aspects of communication network as backbone of the connected society (*Smart and Sustainable Connectivity*) and the importance of societal, environmental and economic values in the development of digital technologies, which calls for an international multi-stakeholders and multidisciplinary approach.

This workshop in Seoul was preceded by a dedicated special session on the Jeju Island co-located with the [ICTC conference](#) during which other speakers could introduce their positioning on Cloud Edge IoT and their application: Prof. Rui Luis Aguiar, Head of Networks and Services, Instituto de Telecomunicações / Universidade de Aveiro (Portugal) presented some European views on the research opportunities needed to realise the future smart society and the role of AI in the innovation process. Dr. JeongGil Ko, Associate Professor, Yonsei University (ROK) presented state-of-the-art research on distributed AI in mobile sensing and computing technology, overcoming traditional mobile sensing/computing. Prof. Song JaeSeung, Professor, Sejong University (ROK) explored current technological advancements to oneM2M for enabling artificial intelligence (AI) and machine learning (ML) technologies.

4.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

Due to the complexity of the topic, which encompasses different layers (IoT, Edge, and Cloud) where data is generated, transferred, processed, transformed and interpreted, the discussion immediately highlighted the need of a precise and common defining of the notion of data, starting from the very basic concept of naming: of object and attributes belonging to data but also of events happening to them, to be able to express their relationship. This is the first recommendation. The second one is a follow up and calls for ensuring interoperability among systems and countries, leveraging these common data definitions but also standardisation, being attentive to harmonisation among different formats and standards. This could leverage two main technologies: AI and/or LLMs to help in augmenting and aligning data and their definition and Open Source software, in whose community often de-fact standards emerge. The third recommendation is about facilitation in the applicability of standards, which are often too abstract, in particular for SMEs.

5. PUBLIC THEMATIC TECHNICAL SESSION: CHIPS FOR THE FUTURE (DAY 1)

5.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|----------------------|-----------------------|---------|
| Dr. Francis Balestra | CNRS/SiNANO Institute | France |

| Speakers | Organisation | Country |
|------------------------|-------------------------|---------|
| Prof. Ken Uchida | The University of Tokyo | Japan |
| Dr. Mitsumasa Koyanagi | Tohoku University | Japan |
| Prof. Je-Hyung Kim | UNIST | ROK |
| Prof. Hocheon Yoo | Gachon Univ. | ROK |
| Prof. Joon-Kyu Han | Sogang Univ. | ROK |
| Prof. Giorgos Fagas | Tyndall | Ireland |

5.2 SUMMARY OF THE SESSION

This Session dedicated to Cluster 4 covered challenges and possible solutions of the enabling technologies for the chips of the future, with a focus on the main topics in this field, in particular Advanced Computing, Advanced Functionalities and Ground-Breaking Technologies.

These areas deal with the following technologies needed for all electronics systems: More Moore, More than Moore, Beyond-CMOS, New computing architectures, Heterogeneous integration and Packaging, and Sustainable electronics.

In this Session, the materials, devices and architectures needed to overcome the number of challenges we are facing for advanced computing have been presented. The focus was on high performance, low static and dynamic power consumption, device scaling and affordable cost. Considering these challenges, the following nanodevices and technologies have been considered as very relevant for advanced computing, including logic and memories: FD (Fully Depleted) SOI (Silicon-On-Insulator) MOSFET for low power applications and RF applications ; Multi-gate devices for high performance and/or low power applications ; Nanowire and nanosheet FETs for high performance and low power applications and ultimate integration ; Charge-based and non-charge-based resistive and capacitive memories to replace charge-based memories using PCRAM (Phase Change RAM), RRAM (Resistive RAM using a nanofilament), MRAM (Magnetic RAM, especially

STT/Spin Transfer Torque MRAM or SOT/Spin-Orbit Torque), or FeRAM or FeFET (using the polarization of a ferroelectric material) ; 3D integration with heterogeneous integration and advanced packaging for increasing device integration and performance using 3D stacking.

In the field of advanced functionalities, the focus was on the main functionalities added to logic and memories, for electronic systems in particular smart sensing, smart power, energy harvesting, flexible electronics, and heterogeneous integration of these technologies. In the Sensors area, many applications are covered, especially healthcare, automotive, environment, agriculture and energy, including sensors for car internal system performance, Advanced Driver Assistance System, environmental monitoring, physiological signal monitoring, implantable sensors, molecular diagnostics. The second domain which has been presented is devoted to Power devices, which are based on silicon or wide bandgap semiconductors like GaN, SiC, which are poised to play an important role in future power electronics systems, for the following applications: Efficiently feeding-in wind and solar energy to the grids ; Stabilisation of the power grids with increasing share of fluctuating renewable energy sources ; Highly efficient variable speed motor drives ; Energy efficient and low-emission mobility with hybrid and full electric vehicles ; Energy saving lighting technology ; Energy management of batteries. The third highlighted area deals with Energy Harvesting for autonomous systems. Targeting EH technologies with low fabrication cost, high efficiency, and without toxic/rare materials is the main challenge. Adding flexibility and/or transparency is also an increasing demand for compatibility with wearables applications. This field includes energy harvesting from Thermal, Mechanical, Photovoltaic, RF sources, micro-batteries, and power management circuits. The last domain which was shown covers Flexible electronics, with very interesting properties such as light weight, low cost, stretchability, and wearability, especially suitable for the development of personalised wearable devices.

Ground-breaking technologies have been highlighted for long-term applications, in particular neuromorphic computing, quantum computing including quantum photonics and cryo-CMOS, very low power technologies (Tunnel FET, FeFET, etc.), and alternative materials for Beyond-CMOS technologies (2D, 1D), including emerging materials in physically unclonable functions for security applications. It has been shown that as dimensional scaling of CMOS will eventually approach fundamental limits, new information processing devices and architectures for both existing and new functions have to be explored. This is driving interest in new devices for information processing and memory, new technologies for heterogeneous integration of multiple functions, and new paradigms for system architecture. Alternative device and computing architectures of particular interest have been highlighted, especially for reducing power consumption, which is one of the main challenges for future electronic systems, as well as novel materials that will be necessary in this Beyond-CMOS field, in particular 2D materials which are very promising.

5.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

Opportunities for international cooperation in the semiconductor field have been presented and discussed during this Session devoted to Chips of the future, which could contribute to speed up technological innovation, reduce cost by avoiding duplicated research, and strengthen complex value chains. These international cooperations are supported by the new strategies of leading semiconductor countries in EU and Indo-Pacific. This cluster is indeed in line with the semiconductor areas of the Digital Partnerships with Japan, ROK, Singapore and the Trade and Technology Council with India.

Possible areas of cooperation cover the main enabling technologies, from materials to systems, in the fields of More Moore, More than Moore, Beyond-CMOS, New computing architectures, Heterogeneous integration and Packaging, and Sustainable electronics.

6. PUBLIC THEMATIC TECHNICAL SESSION: TRUSTWORTHINESS IN AI: A DATA AND RISK MANAGEMENT PERSPECTIVE (DAY 1)

6.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|--------------------|--------------------------|---------|
| Dr. Antonis Ramfos | Athens Technology Center | Greece |

| Speakers | Organisation | Country |
|----------------------|---|-------------------|
| Prof. Nineta Polemi | Trustilio | Netherlands |
| Dr. Tuikka Tuommo | VTT | Finland |
| Prof. Mohania Mukesh | IIT Dehli | India |
| Prof. Sira Maliphol | Seoul University of New York | Republic of Korea |
| Junho Shin | Telecommunications Technology Association | Republic of Korea |

6.2 SUMMARY OF THE SESSION

This session was organised by Cluster 3 focusing on the pressing need for trustworthy Artificial Intelligence (AI) technology. AI technology continues to advance by leaps and bounds and is quickly becoming a potential disrupter and essential enabler for nearly every company in every industry. At this stage, one of the barriers to widespread AI deployment is, on the one hand, the technology itself but also challenges that ironically are far more human: ethics, governance, and human values. Trustworthy AI refers to AI systems designed and deployed to be transparent, robust and respectful of data privacy. The concept of trustworthy AI also encompasses the need for AI systems to be explainable, secure, accountable, and robust. Transparency in AI involves making the processes and decisions of AI systems understandable to users and stakeholders. Accountability ensures that there are protocols for addressing adverse outcomes or biases that may arise, with designated responsibilities for oversight and remediation. Robustness and security aim to ensure that AI systems perform reliably under various conditions and are safeguarded against malicious attacks. Explainable AI (XAI), either refers to an AI system over which it is possible for humans to retain intellectual oversight, or refers to the methods to achieve this.

Trustworthiness in AI is then a multi-factor concept. Moreover, the quality, quantity and availability of data must be equally considered. Therefore, trustworthiness must be understood as a process where technical, ethical/human, and business/commercial considerations are continuously monitored, and the risks of misbehaving AI are dynamically mitigated. Real-world examples of AI

gone awry include systems that discriminate against people based on their race, age, or gender and social media systems that inadvertently spread rumors and disinformation and more. Even worse, as AI is deployed on a larger scale, the associated risks will likely only increase — potentially having serious consequences for society at large, and even greater consequences for the companies responsible. From a business perspective, these potential consequences include everything from lawsuits, regulatory fines, and angry customers to embarrassment, reputation damage, and destruction of shareholder value.

The session covered the relevant EU Policies and main research challenges for achieving trustworthiness of AI systems. The role of the EU AI Act and Data Act were presented in the context of putting people first in developing AI technology, as well as on the need of defending and promoting European values and rights in how we design, make and deploy AI technology in the real economy. Also, the contribution of standards related to AI trustworthiness and established frameworks for companies to learn how to identify and manage AI risks effectively was discussed, including standards from ISO and frameworks from ENISA and NIST. Common European data spaces were presented as a means to ensure that more data becomes available for use in the economy and society, while keeping companies and individuals who generate the data in control. Specifically, the European vision of data spaces includes data-sharing tools and services, a decentralised approach, fair and transparent governance provisions for data access and provisioning rights, as well as standards to improve the availability, quality and interoperability of data. Also, the [Z-Inspection® tool](#), was also presented as a real-world implementation of a process to assess trustworthy AI, distributed under the terms and conditions of the Creative Commons license. Finally, the shared understanding and challenges of trustworthy AI between the EU and ROK were presented and discussed. An introduction to the ROK Guidelines for AI Ethics was presented and the commonalities to the EU regulatory framework were identified.

6.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

Opportunities for adopting and applying ISO standards as well as creating common frameworks for companies to identify and manage AI risks effectively as a common language by which to articulate trust between the EU and the Indo-Pacific regions were identified. Having a common framework and lens to apply the governance and management of risks associated with AI consistently across the regions can enable faster, and more consistent cross-region adoption of AI. Moreover, the need to focus on AI application domains of common interest was emphasised as a way forward to technically interoperate Common European Data Spaces with corresponding data infrastructures of the Indo-Pacific regions.

7. PUBLIC THEMATIC TECHNICAL SESSION: 5G/6G (DAY 1)

7.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|---------------|--------------|---------|
| Adam Kapovits | Eurescom | Germany |

| Speakers | Organisation | Country |
|-------------------------------|---------------------------------------|-------------------|
| Prof. Rui Luis Andrade Aguiar | Instituto de Telecomunicações, Aveiro | Portugal |
| Prof. HyeonWoo Lee | Dankook University | Republic of Korea |
| Prof. Sunwoo Kim | Hanyang University | Republic of Korea |

7.2 SUMMARY OF THE SESSION

The session was organised by the 5G and beyond Thematic Working Group, with a specific focus on the 6G research at the hosting country of the meeting, the Republic of Korea and Europe.

The session was opened by Adam Kapovits from Eurescom. First, professor Rui Aguiar presented the European set-up of 6G research and development, including the role of the Network Europe European Technology Platform (ETP) that prepares and updates the Strategic Research and Innovation Agenda (SRIA) regarding future networks, the 6G Smart Networks and Services Infrastructure Association (6G-IA) and the Smart Networks and Services Joint Undertaking (SNS JU) between the European Commission and the private sector. He went on to present the expected structure and details of the SNS JU call 4 in 2025. Since this is still under discussion his presentation was not made available for publishing.

Professor HyeonWoo Lee from DanKook University, who is the vice chair of the executive committee of the 6G Forum Korea gave a comprehensive presentation depicting the 5G deployment, penetration and usage situation in the Republic of Korea and gave very useful insight. He went on to present the 6G research strategy and R&D programme in the Republic of Korea. He emphasised the importance of the so called upper mid-band (frequencies between 7-24 GHz) in the coming period to respond to the various communication challenges and demands, on which, apparently there is a general agreement among stakeholders and standards development organisations (SDOs). It is understood that as part of the 6G strategy of the Republic of Korea 2026 represents an important milestone. A comprehensive pre-6G vision fest covering 47 core technologies from 11 strategic technology areas across 5 major sectors is planned in 2026 to secure the initiative in 6G commercialisation by technology innovators and large-scale public-private joint investment demonstration. A discussion of the different focal points ensued.

Finally, professor Sunwoo Kim from Hanyang University gave a presentation regarding integrated sensing and communications – an important value proposition of 6G –, focusing on aspects and results from algorithms to hardware development. He emphasised that with beyond 5G and 6G the sensing is much more than localisation, it is environment sensing.

7.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

The 6G research programme of the Republic of Korea receives approximately 900 million USD funding from the government and as such it is comparable in size to the public investment that the Smart Networks and Services Joint Undertaking programme (the public private partnership in Europe that is taking care of the research and development of 6G in Europe) receives, which is close to 1 billion Euros.

Interestingly and notably, almost a third of the funding in the Korean 6G research programme, approximately 260 million USD is dedicated to the research, development and launch of a 6G based LEO Satellite System consisting of two Low Earth Orbit satellites with communication payloads interconnected by intersatellite communication links. This element of the Korean research programme is to start in 2025 and planned to complete in 2030.

As the Republic of Korea is becoming an associated country to Horizon Europe, it is recommended that INPACE supports the briefing (and potentially the training) of Korean stakeholders and entities so they can truly benefit from the opportunities that this association opens up. The new situation that there will be no dedicated joint or collaborative calls, but in a number of calls Korean legal entities can participate by default is completely new to the Korean parties. The SNS JU call is among the very first that might be open to Korean participation, hence specific attention and support to Korean entities would be due and welcome by the Korean side.

8. PUBLIC THEMATIC TECHNICAL SESSION: TRUSTED AI IN INDUSTRY (DAY 1)

8.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|------------------------|---------------|---------|
| Prof. Sebastian Engell | ENRICH GLOBAL | France |

| Speakers | Organisation | Country |
|------------------------------|---|-------------------|
| Prof. Iiro Harjunoski | Aalto University / Hitachi Energy Research | Finland / Japan |
| Prof. Senthilmurugan Subbiah | IIT Guwahati | India |
| Joon Ho Kwak | Telecommunications Technology Association (TTA) | Republic of Korea |
| Prof. Shuzhi Sam Ge | National University of Singapore | Singapore |
| Prof. Stefan Krämer (online) | Bayer AG | Germany |

8.2 SUMMARY OF THE SESSION

The session dealt with the need for and approaches to establishing trust in AI (Artificial Intelligence) and ML (Machine Learning) based solutions for industrial applications. The speakers covered a broad range of applications:

- Iiro Harjunoski: Electric power systems
- Stefan Krämer: Chemical processing plants with a focus on plant control and operation
- Senthilmurugan Subbiah: Oil well drilling with a focus on monitoring and advisory systems
- Joon Ho Kwak: Healthcare systems
- Shuzhi Sam Ge: Autonomous driving.

Prof. Harjunoski described the challenges of large-scale power systems with a growing contribution of generation from renewable sources which are volatile in nature. He stressed the importance of

integrated monitoring and optimisation from the individual assets to the overall system and presented Hitachi's IoT platform LUMINA that supports this integration.

Possible applications of Machine Learning and AI in the power sector are:

- Improved probabilistic price forecasting algorithms for energy markets
- Estimate storm damage based on weather patterns for better resilience
- Intelligent alarm management for power grid operations to handle alarm flooding
- Data-driven information collection from the power grid (inertia, equipment state, disturbances, ...)
- Use of Large Language Models in operational data analysis

In terms of research challenges, he stressed reducing hallucination with LLMs (Large Language Models), technical approaches to improve trust in LLMs (e.g. chain-of-thoughts prompting) and physics-informed machine learning (PIML) for transformer diagnostics, monitoring and management.

Prof. Senthilmurugan Subbiah described the challenges of oil well drilling where the operators and managers are confronted with a large range of uncertainties and inadequate reaction to unforeseen events can cause large damage. Adequate decision support is mostly hindered by the fragmentation of the data that is collected in different sections of companies and the lack of an integrated approach. As examples of AI-based solutions, he presented the identification of activities during well drilling, the detection of failures, and real-time optimisation using ML models.

Concluding, he stressed the need for novel system architectures for the integration of data from different systems from different vendors to enable the development of machine learning based models. From their experience, neural networks hold promise for the modelling of complex processes like drilling but it is difficult to establish trust in these models due to their opacity. As the way forward, he advocated combining Explainable AI methods with neural networks to enhance interpretability and build trust.

Prof. Stefan Krämer described the challenges in the control and optimisation of chemical processes and presented examples and findings from the large German publicly co-funded project KEEN on applications of AI in the process industries. It turned out that a significant effort has to be invested to make AI-based controllers failure-proof, e.g. by monitoring whether the present operation is within the range where data was used to train machine learning based models. He advocated to combine physics-based and data-based models. He also pointed out that in the area of chemical synthesis Bayer is very successfully applying AI methods.

Joon Ho Kwak presented a Development Project for Healthcare Services using Large-scale AI for Children and Adolescents. It is a promising project where the use of LLM in medical systems would be actually implemented for Interactive Paediatric Health Consultation Service, Personalised Disease Prediction Service, Case Recommendation Service and Prescription Assistance Service. He informed that South Korea has passed the world's first Digital Medical Products Act, and as a result, extensive regulations on medical products and services are set to take effect early next year. The regulatory authority, MFDS, is preparing subordinate laws and enforcement regulations regarding the verification and approval of AI-based products. In particular, vulnerability analysis of advanced AI technologies is also being promoted through R&D efforts.

TTA supports corporates in the implementation of trustworthy, safe AI by providing guidelines and certification services for validating technical requirements. They developed a Guidebook for the

development of trustworthy AI in which 15 technical requirements for the implementation of trustworthiness of AI systems are provided covering the whole lifecycle of AI systems. The guidebook is targeted for self-checking. TTA advocates the combination of data-set based evaluation, human evaluation and red-team testing.

Prof. Shuzhi Sam Ge presented his research on Robust and Secure Systems for Autonomous Vehicles. Specifically he presented work on the generation of synthetic scenes for the evaluation of the robustness of algorithms, secure reinforcement learning, methods to deal with multimodal adversary attacks and theoretical guarantees for robustness and stability. In conclusion, he stressed that guaranteeing robustness and safety are key for machine learning based applications in real environments in real time.

8.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

From the session, it became clear that techniques for establishing trust in AI-based systems are of highest importance for industrial and health-care applications. When advisory systems are concerned, where recommendations are made to human users, techniques to ensure the quality of the development process and extensive testing using additional data sets, users and hostile testers were advocated. The closer the applications come to real-time operation in closed loop, the higher the requirements for safety and robustness become. All speakers who dealt with this type of problems advocated a combination of physics-based models and data-based (machine learning) models. To further explore such approaches clearly is an extremely important research area for the advancement of the use of AI in industry.

Further it was stressed that data integration in industrial operations and power grids still poses many challenges, but also offers a huge potential for better monitoring, support of operators and managers, and ultimately real-time optimisation.

In all fields of application that were covered in the session, uncertainty in the behaviour of the systems is a major challenge that calls for effective, reliable and non-conservative ways of modelling the existing uncertainties.

9. PUBLIC THEMATIC TECHNICAL SESSION: DIGITAL EDUCATION AND SKILLS (DAY 1)

9.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|---------------------|-----------------|-------------|
| Karolina Gyurovszka | Martel Innovate | Switzerland |

| Speakers | Organisation | Country |
|----------------------------|--|-------------|
| Julien Provenzano | Purple Hackademy | South Korea |
| Prof. Steve McCarty | Osaka Jogakuin University | Japan |
| Dr. Raluca Csernaton | Vrije Universiteit Brussel | Belgium |
| Dr. Giacomo Inches | Martel Innovate | Switzerland |
| Dr. Ramesh Sharma (online) | Indira Gandhi National Open University | India |

9.2 SUMMARY OF THE SESSION

In this session, participants explored the importance of digital skills in fostering effective digital partnerships between Europe and the Indo-Pacific. The discussions highlighted various innovative approaches and best practices from both regions to answer the key question of “How can digital education and skills support effective implementation of the Digital Partnerships?”

To sum up, the session underscored the cross-cutting nature of digital skills in achieving other Digital Partnerships priorities, such as AI, Cybersecurity and Data. So, the group will now focus mostly on achieving progress in these areas in close collaboration with other Thematic Working Groups.

Furthermore, given that the Republic of Korea would be associated with Horizon Europe from 2025 onward, it opens further opportunities for collaboration in digital education and skills development, such as co-developing education programs, conducting exchanges, collaborative research and organising hackathons to retain talent were also proposed.

9.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

As the moderator, Karolina Gyurovszka from Martel Innovate pointed out that even though the topic of digital education and skills may have dropped from the list of priorities of the Digital Partnership

between the EU and ROK, it is still a priority for the other countries, especially Singapore and India. Furthermore and most of all, having a high level of digital skills is essential for achieving progress in the other priorities, such as AI, Cybersecurity and Data.

Key Insights from the session:

Dr. Raluca Csernatonu from the Vrije Universiteit Brussel emphasised the need to build a culture of continuous learning, starting with enhancing digital literacy from an early age, even from kindergarten. She also advocated for promoting female participation in digital education, and discussed the importance of digital skills in a context where technologies could replace human jobs.

Dr. Giacomo Inches from Martel Innovate, introduced Martel's upcoming new project, SkillAbility, focusing on helping individuals gain skills through AI while also upskilling existing workforces. Furthermore, he also shared some learnings and recommendations from another one of Martel projects, Leads, which focused on advanced digital skills.

Professor Steve McCarty from the Osaka Jogakuin University highlighted that all working groups within INPACE incorporated an educational dimension. He then noted Japan's human-centric vision, advocating for collaboration between industry, government, and academia. He discussed Japan's egalitarian education system, national standard curriculum, and compulsory programming in schools. As best practice, he mentioned cooperation between Tokyo University and Finland in virtual reality and Japan's Giga School program as part of Society 5.0. The importance of sharing platforms and creating accessible online courses was stressed.

Julien Provenzano from Purple Hackademy in Seoul focused mostly on cybersecurity skills and training, pointing out that small companies often struggle to afford cybersecurity professionals, showcasing the use of AI to enhance agricultural production and the importance of easy best practice sharing. He also agreed with Professor McCarty that cultural adaptations and not just simple translations as well as training are necessary. In the end, he advocated for gamification in training to make learning engaging.

The session also profited from a very engaged audience. As an example of best practice, Gin Kim presented the Korean program "Best of the Best" for future hackers, funded by the government but designed to be engaging rather than solely academic. Drawing on his experience, professor Nineta Polemi mentioned the challenges in aligning cybersecurity curricula across Europe, referencing projects like Cybersec4all, but highlighted the role of ENISA in guiding standards. She then emphasised the need for adaptability to digital transformation, particularly in cybersecurity, and the importance of co-developing educational programs.

10. INFORMATION SESSION ON EU FUNDING OPPORTUNITIES & Q&A WITH THE INPACE CONSORTIUM (DAY 1)

10.1 MODERATORS AND CONTRIBUTORS

| Moderator | Organisation | Country |
|-----------------------|--------------|---------|
| Dr. Svetlana Klessova | G.A.C. Group | France |
| Adam Kapovits | Eurescom | Germany |

| Contributors | Organisation | Country |
|------------------------|--------------------------|---------|
| Prof. Sebastian Engell | ENRICH GLOBAL | France |
| Dr. Francis Balestra | CNRS / SiNANO | France |
| Dr. Franck Le Gall | EGM | France |
| Dr. Antonis Ramfos | Athens Technology Center | Greece |

10.2 SUMMARY OF THE SESSION

Dr. Svetlana Klessova focused on Horizon Europe, the European Union’s largest funding programme for research and innovation, with a budget exceeding €95 billion for the 2021-2027 period. Her intervention emphasised the strategic significance of fostering partnerships between Europe and Indo-Pacific countries, particularly South Korea, within this programme.

The session outlined the goals of Horizon Europe, which include advancing scientific excellence, addressing global challenges such as climate change, and promoting industrial competitiveness through collaborative research projects. Specific attention was given to South Korea’s association with Horizon Europe as of 2025 and its alignment with the Republic of Korea’s innovation strengths in areas such as digital transformation, green technologies, artificial intelligence, and cybersecurity.

Additionally, Dr. Svetlana Klessova shared practical advice to encourage South Korean and other Indo-Pacific organisations to participate in Horizon Europe by leveraging collaborative opportunities and aligning with upcoming calls for proposals in 2025.

Adam Kapovits (Eurescom GmbH) complemented the above with presenting another funding framework Eureka, the World’s widest public network for international cooperation in R&D and innovation that is also present in and includes the Republic of Korea. Eurescom GmbH hosts the office for the Eureka CELTIC-NEXT cluster focused on next-generation communications for the digital society. CELTIC-NEXT is industry driven, and is mostly bottom-up (proposers define their

project), although there are top-down organised flagship projects. Another difference with regard to Horizon Europe is that projects in CELTIC-NEXT are closer to market – so far CELTIC-NEXT projects have led to more than 1500 new or improved products and services. Finally, the funding decisions regarding CELTIC-NEXT projects are in the hands of the national public authorities. There are two regular calls per year for bottom-up project proposals, one in the Spring and one in the Autumn.

As part of the questions and answers following the presentations it became obvious that Korean entities would very much benefit from dedicated coaching to maximise the gain from the association to Horizon Europe programme, as this creates a completely new situation. They were used to dedicated joint or aligned calls, where the level of competition was much smaller. In the past those projects also were very much formed as a European subproject and a Korean subproject, while in the new system a single Korean participant, or a couple of them in a project are more likely.

10.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

- Main messages
 - The association of the Republic of Korea with Horizon Europe is an opportunity to strengthen bilateral research and innovation ties. This collaboration offers a lot of benefits, such as access to funding for collaborative projects, partnership opportunities between leading European and Korean research institutions and companies, and engagement in cutting-edge innovation networks across fields such as AI, quantum computing, and urban mobility.
 - Organisations from the Republic of Korea have had notable success in Horizon Europe and its predecessor (Horizon 2020), with improved participation rates and impactful collaborations.
 - Organisations from the Republic of Korea also successfully collaborated and benefited from Eureka, and specifically from CELTIC-NEXT.
- Key takeaways
 - Horizon Europe offers funding for three types of projects: Research & Innovation Actions (RIA), Innovation Actions (IA), and Coordination & Support Actions (CSA), all of which can benefit the Republic of Korea.
 - Participation to Horizon Europe requires understanding EU frameworks, forming partnerships with experienced European consortia, and aligning projects with thematic priorities such as health, energy, and environment.
 - The Republic of Korea has a strong alignment with Horizon Europe priorities, making it well-positioned to maximise opportunities in areas of mutual strategic interest.
- Recommendations
 - To explore the Horizon Europe programme framework, identify relevant calls, and prepare to submit competitive proposals.
 - To partner with successful European entities and leverage domestic government initiatives to enhance the likelihood of securing funding.

- To engage early with the Horizon Europe Work Programme 2025 (next calls are expected in spring 2025, with the notable exception of the SNS JU call that should open before 2025) to position projects for success.
- Regarding closer to market applications, such topics should be targeted towards Eureka, and specifically CELTIC-NEXT, in case the subject is next generation communication.

11. EU’S DIGITAL PARTNERSHIPS IN THE INDO-PACIFIC: CHALLENGES AND OPPORTUNITIES (DAY 2)

11.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|-----------------|----------------------------|---------|
| Dr. Eva Pejsova | Vrije Universiteit Brussel | Belgium |

| Speakers | Organisation | Country |
|------------------------|--|-------------------|
| Prof. Michael Reiterer | Vrije Universiteit Brussel | Belgium |
| Dr. Koichiro Komiyama | JPCERT Coordination Center | Japan |
| Dr. Karthik Nachiappan | National University of Singapore | Singapore |
| Dr. So Jeong Kim | Institute for National Security Strategy | Republic of Korea |

11.2 SUMMARY OF THE SESSION

The first session of the public segment of the symposium aimed at introducing the background and the rationale behind the EU’s Digital Diplomacy and engagement in the Indo-Pacific, including the choice of topics, partners and the main challenges. The four speakers covered their respective perspectives, notably from the EU (Prof. Michael Reiterer), the ROK (Dr. So Jeong Kim), Japan (Dr. Koichiro Komiyama) and India (Dr. Karthik Nachiappan).

Prof. Reiterer, a retired EU diplomat who served as the EU Ambassador to the ROK, elaborated on his experience and research in the field of cybersecurity. He attracted the attention on the different levels of digital literacy among global partners, which all need to be taken on board as “the chains is as strong as its weakest link”.

Dr. Komiyama spoke on the need for accreditation of IoT devices under the Cyber Resilience Act, highlighting their vulnerability to cyber-attacks and disruptions. The Korean representative, Dr. Kim highlighted the importance of cyber diplomacy between the EU and the ROK and “translating” each other’s policies to fully understand the benefits of the international partnership. Finally, Dr. Nachiappan zoomed at the specific case of the EU – India Trade and Technology Council deliberations, which mark a departure from the history of lukewarm bilateral relations. Cooperation in the digital domain is a promising start, but the two partners diverge on normative issues. India still needs to be convinced of the practical benefits of cooperating with the EU.

11.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

- Authoritarian regimes seek to control the information space/Internet. When engaging with partners, we need to make sure they understand the benefits of open, safe and free internet.
- In promoting cybersecurity cooperation, special attention needs to be put on weaker partners, not only the like-minded ones – as it is the weakest link that determines the strength of the chain.
- INPACE partners could work together on the development of an IoT device regulatory framework, benefitting from Japan’s experience with materials and software transparency bill.
- The EU and its Indo-Pacific partners would benefit from agreeing on a common definition of critical digital infrastructure, which would facilitate their cooperation on their protection and regulation.

12. SMART AND SUSTAINABLE REGIONS AND CITIES: NEED FOR TRUSTWORTHY AND HUMAN-CENTRIC DIGITAL PLATFORM ECOSYSTEM (DAY 2)

12.1 MODERATORS AND SPEAKERS

| Moderators | Organisation | Country |
|--------------------|--|-------------------|
| Dr. Daeyeon Cho | Ministry of Land, Infrastructure and Transport | Republic of Korea |
| Dr. Franck Le Gall | EGM | France |

| Speakers | Organisation | Country |
|------------------------|--|-------------------|
| Chandra Challagonda | FIWARE Foundation | Switzerland |
| Prof. Inder Gopal | Indian Institute of Science | India |
| Prof. Jeong Hyeok Park | Seoul National University | Republic of Korea |
| Dr. Heewon Lee | Ministry of Land, Infrastructure and Transport | Republic of Korea |
| Prof. Jaeho Kim | Sejong University | Republic of Korea |

12.2 SUMMARY OF THE SESSION

The INPACE Republic of Korea Symposium focused on advancing smart city development through innovative data management, technological integration, and collaborative strategies. The session brought together experts from various domains to discuss critical challenges and opportunities in creating citizen-centric, carbon-neutral urban environments.

The symposium centred on three primary domains: data architecture, technological innovation, and inter-organisational collaboration. Participants emphasised the critical need for standardised, cross-sectorial data exchange mechanisms that prioritise citizen needs and privacy protection.

Presentations underscored the importance of developing robust, interoperable data exchange platforms that enable seamless information exchange across different urban sectors. The discussions highlighted the necessity of creating open, transparent data hub architectures that can support complex administrative and technological services.

A significant focus was placed on identifying technological gaps, particularly in privacy management. Experts recommended developing more sophisticated privacy-preserving technologies that can facilitate data sharing while maintaining individual data protection standards.

The symposium proposed twinning approaches between similar organisations and cities as an effective method for knowledge transfer and collaborative innovation. This strategy aims to accelerate learning and implementation of smart city solutions by leveraging shared experiences and best practices.

12.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

Main Messages

1. **Citizen-Centric Approach:** Smart city development must prioritise the needs and well-being of citizens, ensuring that technological advancements and data-driven solutions directly benefit urban residents.
2. **Carbon Neutrality:** The pursuit of carbon-neutral cities is a critical goal, integrating sustainable practices and green technologies across all urban sectors.
3. **Data-Driven Decision Making:** Leveraging comprehensive, cross-sectorial data is essential for informed urban planning and management.

Key Takeaways

1. **Standardised Data Architecture:** There is a pressing need for standardised, interoperable data exchange systems that can facilitate seamless information flow across various urban domains.
2. **Privacy Concerns:** As smart cities collect and utilise more data, addressing privacy issues becomes increasingly crucial. Current technologies have significant gaps in privacy management that need to be addressed.
3. **Collaborative Innovation:** Twinning between similar organisations (e.g. campuses) or comparable cities presents a valuable opportunity for knowledge sharing and accelerated development of smart city solutions.
4. **Data Spaces:** The concept of data spaces is gaining traction as a means to create secure, controlled environments for data sharing and utilisation across different sectors and stakeholders.
5. **Technological Integration:** Successful smart city development requires the seamless integration of various technologies, from IoT sensors to AI-driven analytics platforms.

Recommendations

1. **Develop and Implement Standardised Data Exchange Architectures:** Cities should prioritise the creation of robust, cross-sectorial data exchange systems that adhere to common standards, facilitating easier integration and interoperability.
2. **Invest in Privacy Management Technologies:** Allocate resources to develop and implement advanced privacy-preserving technologies that can protect individual data while enabling necessary data sharing for smart city functions.

3. Foster Collaborative Partnerships: Encourage twinning programs between cities and organisations to share best practices, lessons learned, and innovative solutions in smart city development.
4. Prioritise Citizen Engagement: Implement mechanisms for continuous citizen feedback and participation in smart city initiatives to ensure that developments align with community needs and preferences.
5. Integrate Carbon Neutrality Goals: Embed carbon reduction strategies into all aspects of smart city planning and implementation, from energy systems to transportation networks.
6. Establish Cross-Sectorial Data Spaces: Create secure, controlled environments for data sharing that span multiple urban sectors, enabling more comprehensive and effective city management.
7. Develop Key Performance Indicators (KPIs): Create and implement standardised KPIs to measure progress in smart city development, focusing on both technological advancements and quality of life improvements for citizens.
8. Enhance Public-Private Partnerships: Strengthen collaboration between government entities, private sector companies, and academic institutions to drive innovation and accelerate the implementation of smart city solutions.

13. HUMAN-CENTRIC AI FOR THE CITIZENS: TECHNOLOGICAL AND REGULATORY ISSUES (DAY 2)

13.1 MODERATOR AND SPEAKERS

| Moderator(s) | Organisation | Country |
|--------------------|--------------------------|---------|
| Dr. Antonis Ramfos | Athens Technology Center | Greece |

| Speakers | Organisation | Country |
|-------------------------|----------------------------|---------|
| Dr. Raluca Csernatori | Vrije Universiteit Brussel | Belgium |
| Prof. Jan De Bruyne | KU Leuven | Belgium |
| Richard Stevens | IDC | Italy |
| Prof. Nineta Polemi | University of Piraeus | Greece |
| Rob van der Kranenbourg | IoT Council | Belgium |

13.2 SUMMARY OF THE SESSION

This session was organised by Cluster 3 which aims to allow the EU and the involved Indo-Pacific countries to tackle strategic challenges and deepen bilateral relationships for ethical and human-centric AI technology. The session was not meant to be technical but to have more of a policy orientation. The session rationale was that, on the one hand, researchers and innovators in both regions are excited with the promise of AI, e.g., the promise of freeing humanity from tedious labour, the promise of easing the effort of making decisions under complex circumstances, or the promise of rationality in a world of uncertainty. But, on the other hand, the citizen has concerns about the adoption of AI applications, including concerns about the ‘big brother’ situation, about pursuing erroneous and, even, fatal decisions, as well as about losing the pleasure of making mistakes and learning from them. The way to bridge the gap between researchers’ and innovators’ excitement about AI, and citizens’ concerns is to define technical as well as regulatory frameworks that put humans in the centre. The EU is a pioneer in developing human-centric AI technology and a human-centric regulatory framework. The session sought answers to the following questions:

- What steps can be taken to balance innovation with ethical considerations?
- How can we design AI systems that align with human goals & ethical preferences?
- How do policies and regulations in the EU and the Indo-Pacific differ or align?

- How do psychological and social factors influence the effectiveness of human-AI collaboration in different cultures?

During the session, the role of the EU in promoting human-centric AI technological and governance challenges amidst global geopolitical competition was presented. It was recognised that, although AI is a strategic asset for National and economic security in both the EU and the Indo-Pacific regions, fragmented global governance and lack of a comprehensive international AI framework give ground for ethical disparities and potential conflicts. On the other hand, Great Power & Corporate Competition in AI provides opportunities for accelerated innovation and economic growth in the regions but they present risks related to ethical concerns, data privacy issues, and algorithmic bias. Furthermore, it was argued that the adoption of the EU AI Act may need some further support in terms of legal definitions of trustworthiness and human-centricity, especially when it concerns interaction with countries outside the EU. Finally, the challenges of implementing the AI Act and the role of standardisation efforts towards a global governance framework for human-centric AI was also discussed.

13.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

AI technology should enhance, not replace, people’s natural abilities. A Human-Centric Approach enhances decision-making and user trust and aligns AI with human rights and ethical norms. The EU pioneers the regulatory initiatives on human-centric AI and has put forward a risk-based regulatory framework for AI applications (AI Act). International collaboration on human-centric AI can position the EU as a leader in ethical AI global governance that can balance innovation and citizen protection while safeguarding fundamental human rights and values.

14. CHIPS FOR THE FUTURE: TECHNICAL CHALLENGES AND COOPERATION FOR RESILIENT SUPPLY CHAINS, ROADMAPPING, R&D (DAY 2)

14.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|----------------------|--------------|---------|
| Dr. Francis Balestra | SINANO/CNRS | France |

| Speakers | Organisation | Country |
|------------------------|-------------------|-------------------|
| Prof. Ken Uchida | Tokyo University | Japan |
| Dr. Mitsumasa Koyanagi | Tohoku University | Japan |
| Dr. Je-Hyung Kim | UNIST | Republic of Korea |
| Dr. Taehyun Park | Gachon University | Republic of Korea |
| Prof. Joon-Kyu Han | Sogang University | Republic of Korea |
| Prof. Giorgos Fagas | Tyndall | Ireland |

14.2 SUMMARY OF THE SESSION

This session focused on the technical challenges and cooperation for resilient supply chains, Roadmapping, R&D, for the Chips of the future.

For **Advanced computing and Ground-breaking technologies**, the main challenges and cooperation opportunities for roadmapping, research activities to strengthen the supply chains have been presented and are summarised below:

- Classical Logic Scaling Roadmap beyond FinFET technology that extends devices structures through sub nm nodes (e.g., GAA and CFET architectures).
- Exploration of ‘Fully Depleted SOI’ technology for Power Efficient Analog and RF applications.
- Exploration of alternative channel materials, in particular 2D materials, for ultimate integration.
- Extension of the scaling of BEOL technologies, through the use of Ru, Airgap or Graphene-based metallization, by reducing the associated RC network.

- Added BEOL functionality through the introduction of new materials such as 2D, oxide semiconductors and ferroics.
- Exploration of the use of BEOL Non-Volatile Memories (using resistive and capacitive RAM such as FeRAM, MRAM, PCRAM, ReRAM) to supplement/replace charge-based memories, for in-memory computing (eNVM), and for Power Efficient Neuromorphic-based architectures.
- Photonic chips for optical interconnects and quantum information processing.
- Demonstration of the capability of the ‘Buried Power Rail delivery’ to decongest the interconnection density that is becoming the most limiting factor for the scaling at 2nm and below.
- Enablement of the High-NA EUV lithography for the patterning of 2nm nodes and beyond.
- Usage of 3D integration to desegregate the classical large area chips into chiplets that will be much more power efficient when reconstruct using 3D integration design flow and associated toolbox.
- Cryogenic electronics for power saving and quantum computing.

For **Advanced functionalities**, the main challenges and cooperation opportunities for roadmapping, research activities to strengthen the supply chains have been presented and are summarised below:

- Innovation in new, highly sensitive and more versatile sensors requiring more advanced sustainable (bio)materials innovation and integration.
- For energy harvesters the improvement of the performance/ efficiency is as important as the development of “green” materials.
- Wide band gap (e.g. SiC, GaN) and ultrawide band gap materials (AlN, GaOx, Diamond) for power applications.
- Flexible, Printable, Wearable Electronics: Future Hybridization of Flexible & Si-based electronics.
- Physically Unclonable Functions (Memristo-based).
- Heterogeneous integration of best materials for target applications.
- Advanced design tools, including multi-physics simulation for first-time-right modelling capabilities.
- Rapid prototyping to bypass long chip iteration cycles (e.g. PDK, ADK availability).
- Packaging that meets multiple design requirements such as optical, electrical, mechanical, thermal, RF, (bio-)fouling.

14.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

The following types of international cooperations have been proposed to strengthen EU-Indo-Pacific cooperation, implement the Digital Partnerships, and tackle the challenges presented above in the areas of Advanced Computing, Advanced Functionalities and Ground-Breaking Technologies:

- Webinars
- Workshops in EU & Asia-Pacific & Online
- Contribution to Regional & International Technology Roadmaps (IRDS)
- International R&D&I cooperation on topics of mutual interests
- Position papers for future joint activities
- International Summer Schools & Training activities
- Exchange of researchers
- Standardisation needs for emerging technologies

15. CYBERSECURITY, IOT, AND 5G: CHALLENGES, STAKES AND POTENTIAL SOLUTIONS (DAY 2)

15.1 MODERATOR AND SPEAKERS

| Moderator | Organisation | Country |
|---------------|--------------|---------|
| Adam Kapovits | Eurescom | Germany |

| Speaker | Organisation | Country |
|-----------------------|---------------------------------------|-------------------|
| Dr. NamSeok Ko | ETRI | Republic of Korea |
| Prof. Rui Aguiar | Instituto de Telecomunicações, Aveiro | Portugal |
| Prof. HyeonWoo Lee | Dankook University | Republic of Korea |
| Prof. JongHyun Kim | Sejong University | Republic of Korea |
| Dr. SeungMyeong Jeong | KETI | Republic of Korea |

15.2 SUMMARY OF THE SESSION

In this session, Dr. NamSeok Ko (Director, Mobile Core Network Research Section, Terrestrial and Non-Terrestrial Integrated Telecommunications Research Lab, ETRI) presented the 6G research and development in the Republic of Korea. The main focus and aim of the 6G R&D direction in Korea is on overcoming the limitations of 5G with the incorporation of cutting-edge technologies. Regarding spectrum, the emphasis in the Republic of Korea seems to be on the so called upper mid-band. Extreme multiple-input, multiple-output (MIMO) technology, as well as reconfigurable intelligent surfaces are key enabling technologies to achieve the planned goals. Other contributing technologies include cloud-native core network technologies and AI-native core and radio access network technologies. AI-based radio resource control and optimisation technologies are expected to provide the basis for an energy efficient 6G network. In summary, software-centric networking technologies together with advance wireless technologies will provide the technology foundation for a more energy efficient solution with improved supply chain security and an expanded role of networks.

Next, Professor Riu Aguiar gave a presentation on 6G and cybersecurity. He positioned cybersecurity in the very appealing vision of digital society. He contested that IoT, AI and 5G/6G are all represent major challenges towards resilience. In any case, there are clear security mandates inside the EU including a basic framework with components such as the NIS2 directive and 5G

toolbox. However, the implementation is questionable and there are supply chain challenges (how to judge future intentions) and geopolitical considerations to be factored in, but politicians and the geopolitical situation changes like the wind. Therefore, security as a technical notion is being overcome by the above aspects. A potential approach is to promote diversity of offers/chains/technologies, at a potential extra cost and with increased process dominance (e.g. NIS2 directive). 5G/6G potentials to consider include the imposition of resilience by diversity across the whole technology chain (including cloud, AI, etc.) and clear and auditable regulations. Another aspect to consider is to move towards risk-based approaches (a-la AI ACT), define dangerous/critical/simpler systems/applications, address the human-in-the-loop, develop consensual models for cost/risk decisions (security quantisation). A question to consider is whether to embed these concerns in the technology design? In any case, it is necessary to promote education and knowledge, transparent processes, user and expert awareness. In summary, Europe is good in regulation, but the realisation of these regulations is not easy. Development of technology cannot forget these aspects, both social and technology aspects have to be researched and evolve hand-in-hand.

The presentation of Professor HyeonWoo Lee (DanKook University, vice-chair of the 6G Forum Korea executive committee) surveyed the 5G deployment status and challenges in Korea, providing interesting insight. The 6G Forum Korea is the national 6G research and promotion forum in Korea and as such it is the counterpart of the 6G-IA in Europe and the XGMF in Japan.

Notably, to support 5G users with access to high-speed network regardless of the carrier they are subscribed to a 5G network sharing is put in place in 131 rural areas across the country. The 5G networks sharing is based on MOCN (Multi Operator Core Network) specified in 3GPP. Migration from NSA (Non-Stand-Alone) mode to SA (Stand-Alone) is done gradually.

Next, Professor Jonghyun Kim from Sejong University presented results and insight gained through an international research collaboration between Korean entities (ETRI, KISA, KAIST, Sejong University and KMU) and NIST from the US, VTT and University of Oulu from Finland focusing on trust model based intelligent incident response technologies in 6G open network environments. The project has a budget of 3.17 million USD, started in July 2024 and runs until the end of 2026. The objective is to develop intelligent intrusion response technologies and establish international collaboration. Distributed Ledger Technology (DLT) and distributed public key infrastructure (DPKI) are considered as the basis for the 6G trust models. One of the key outputs is a 6G DLT-based autonomous trust model validation SW tool. Concerning open Radio Access Network security and resilience enhancement, DPKI-based authentication SW tools will be provided for 6G network environments. Concerning distributed AI-based intrusion detection a distributed AI-powered 6G network threat detection engine will be developed. Finally, visualisation tools will be provided. The project is a nice example of promoting international standardisation of 6G networks security.

Finally, SeungMyeong Jeon, principal researcher at KETI gave a presentation on IoT and AI for autonomous IoT. For this activity the oneM2M global standard based IoT platform called "Mobius" is selected. This is the first global oneM2M certified IoT platform. It is an open source SW available [online](#). A number of H2020 research projects have used Mobius and collaborated with KETI. These included FIESTA-IoT, SynchroniCity and WISE-IoT. The management platform is AIoT enabled, and the AIoT interfaces are standardised (oneM2M TR-0071). Various drone applications using Mobius were highlighted. Next the [Smart City Data Hub](#) was presented, which was used in the epidemiological investigation support system during COVID to track confirmed cases. It should be noted that there is collaboration with FIWARE regarding the Smart City Data Hub. The extension of the Data Hub for AI and digital twins is in progress as part of the Korea-Singapore R&D collaboration on AI based urban cooling technology.

15.3 MAIN MESSAGES, KEY TAKEAWAYS AND RECOMMENDATIONS

The presentations in this session highlighted and exemplified the intricate relationship between cybersecurity, IoT and 5G/6G.

Cybersecurity is a particularly important aspect for the Republic of Korea, for obvious geopolitical reasons.

ANNEX: AGENDA OF THE SYMPOSIUM



INTERNATIONAL SYMPOSIUM ON DIGITAL TECHNOLOGIES AND POLICIES: SUPPORTING THE INDO-PACIFIC-EUROPEAN DIGITAL PARTNERSHIPS

With the participation of high-profile technical and policy experts

European Union – India – Singapore – Republic of Korea – Japan



October 21-22, 2024

09.30 – 18.00 (local time)

Daeyang AI Center, Sejong University, Seoul, Republic of Korea

Free but registration is required *by invitation*

Organising committee

Chair: Prof. Jaeseung Song, Sejong University, Republic of Korea

Co-chairs:

- Prof. Sebastian Engell, ENRICH GLOBAL, France and TU Dortmund, Germany
- Dr. Svetlana Klessova, G.A.C. Group, France

Committee members:

- Dr. Eva Pejsova, Vrije Universiteit Brussel, Belgium
- Dr. Franck Le Gall, EGM, France
- Dr. Antonis Ramfos, Athens Technology Center, Greece
- Dr. Francis Balestra, CNRS/SiNANO, France
- Adam Kapovits, EURESCOM, Germany
- Prof. Senthilmurugan Subbiah, IIT Guwahati, India
- Dr. S. D. Sudarsan, CDAC Bangalore, India
- Prof. Shuzhi Sam Ge, National University of Singapore
- Prof. Akihiro Nakao, The University of Tokyo, Japan

Public information

The mission of the INPACE project is to support the implementation of the Digital Partnerships between the European Union and Japan, South Korea, Singapore, as well as the Trade and Technology Council with India. In this context, we are organising a 2-day Symposium in Seoul, Republic of Korea on Digital Technologies and Policies: Supporting the Indo-Pacific-European Digital Partnerships.

Join us at the forefront of digital innovation as we explore the latest advancements in digital technologies and transformative applications in the Indo-Pacific Region and in Europe. The event will address the intersections of technology and policy, **fostering dialogues between experts from both regions to strengthen digital partnerships with the Republic of Korea, Japan, Singapore, and the cooperation with India in the TTC context.**

The Symposium will provide a forum to discuss groundbreaking technologies and their impacts:

- Trusted AI: Unlock the potential of AI while ensuring reliability and ethics
- Chips of the Future: Discover breakthroughs in semiconductor technology
- Future Networks: Explore the evolution of connectivity and communication
- Cybersecurity: Delve into strategies for safeguarding our digital world.

These sessions will highlight cutting-edge developments and the policies shaping these fields.

The symposium is a catalyst for collaboration, fostering mutual understanding and joint research initiatives between European and Indo-Pacific organisations. Don't miss the special information session on EU funding opportunities for Indo-Pacific researchers and innovators!

Experience a unique setting!

The symposium features thematic sessions and cross-cutting discussions on policy implications and real-world applications that impact citizens, spur economic growth, and promote sustainability.

Mark your calendar and be inspired at this pivotal event, where technology meets policy to shape our digital future!

See you there!

Audience:

The event will bring together 70 - 100 representatives from industry, research, governments and the civil society from the Republic of Korea, other countries of the Indo-Pacific region and the European Union.

How to attend?

The Symposium is free but by invitation only (registration is required, link will be provided later on via INPACE Hub). To express interest to be invited:

Contact:

Prof. Jaeseung Song, [jsong\(at\)sejong.ac.kr](mailto:jsong(at)sejong.ac.kr) -> if you are from ROK or other Indo-Pacific country (Japan, India, Singapore).

Dr. Svetlana Klessova, [sklessova\(at\)group-gac.com](mailto:sklessova(at)group-gac.com) cc Sofiane Bari, [sbari\(at\)group-gac.com](mailto:sbari(at)group-gac.com) -> if you are from European Union and other countries.

Agenda of the Symposium

Symposium Day 1 – Monday October 21, 2024

Technology and policy exchanges: workshops and thematic sessions organised by INPACE Thematic Working Groups

Policy session (upon invitation only, not public)

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| <p>9:30 – 11:00</p> | <p>Roundtable: “The EU – ROK Digital Partnership: from Policy to Practice”</p> <p>The 2022 EU-ROK Digital Partnership Agreement (DPA) has set the foundations for advancing cooperation in key technological areas such as semiconductors, high-performance computing (HPC), quantum technology, 5G/6G Cooperation, artificial intelligence (AI), and cybersecurity. This closed-door roundtable aims to discuss the progress, challenges, and explore future directions for bilateral cooperation, including possibilities to align with other EU’s DPAs with regional countries to build a resilient collective digital ecosystem in the Indo-Pacific.</p> <p><i>Moderator:</i> Eva Pejsova, Japan Chair, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB), Belgium</p> <p><i>Input Speakers:</i></p> <ul style="list-style-type: none"> • Raluca Csernatoni, Professor, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB), Belgium; Research Fellow and Team Leader for the EU Cyber Direct Project, Carnegie Europe • Sunghun Cho, Research Fellow, Department of International Trade, Investment and Economic Security, Economic Security Team, Korea Institute for International Economic Policy (KIEP), ROK • Michael Reiterer, Distinguished Professor, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB), Belgium; Ambassador of the European Union ret. • Dongyoun Cho, Senior Researcher on the Security and Technology Programme, United Nations Institute for Disarmament Research (UNIDIR) <p><i>18 Selected Confirmed Expert Participants</i></p> |
| <p>11.00 – 11.30</p> | <p><i>Coffee break & networking</i></p> |
| <p>9.15 – 15.00</p> | <p>TECHNICAL THEMATIC SESSIONS AND WORKSHOPS (parallel meetings)</p> |
| <p>9.15 – 10.30</p> | <p>First results of the R&I panorama and roadmapping activity by Sara Medina and Susana Seabra (SPI, Portugal)</p> |
| <p>10.30 – 11.00</p> | <p><i>Coffee break & networking</i></p> |

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| <p>11.00 – 12.30</p> | <p>Public thematic technical sessions - 3 sessions in parallel, 3-5 talks per session, and discussion</p> <ul style="list-style-type: none"> • CloudEdgeloT (Moderator Giacomo Inches, Martel Innovate, Switzerland): Jordi Guijarro (OpenNebula Systems, Spain), Antonio Kung (Dialog, France), Monique Calisti (Martel Innovate, Switzerland), Hidenori Nakazato (Waseda University, Japan), Jinman Kwon (Dtonic, Republic of Korea). • Trustworthiness in AI: A data and risk management perspective (Moderator Antonis Ramfos, ATC, Greece): Nineta Polemi (University of Piraeus, Greece), Tuomo Tuikka (VTT, Finland), Mukesh Mohania (IIT Delhi, India); Sira Maliphol, (The State University of New York, Korea), Junho Shin, (TTA, ROK) • Chips of the future (Moderator Francis Balestra, CNRS/SINANO, France) 7 expert presentations 15mn (10mn+Q&A): Francis Balestra (Introduction & More Moore Roadmap, CNRS/SiNANO, France), Ken Uchida (More than Moore Roadmap SDRJ, The University of Tokyo, Japan), Giorgos Fagas (Beyond CMOS Roadmap & Tyndall, Ireland), Jehyung Kim (Semiconductor quantum photonics Roadmap & UNIST, ROK), Mitsumasa Koyanagi (Heterogeneous 3D integration and Advanced packaging Roadmap & Tohoku University, Japan), Hocheon Yoo (Emerging computing devices and circuits & Gachon University, ROK), Joon-Kyu Han (Neuromorphic computing Roadmap & Sogang University, ROK) |
| <p>12.30 – 13.30</p> | <p><i>Lunch & networking</i></p> |
| <p>13.30 – 15.00</p> | <p>Public thematic technical sessions - 3 sessions in parallel, 3-5 talks per session, and discussion</p> <ul style="list-style-type: none"> • 5/6G (Moderator Adam Kapovits, Eurescom, Germany); Professor Rui Luis Andrade Aguiar, Instituto de Telecomunicações, Aveiro, Portugal, chair of the steering board of the Networkworld Europe technology platform; professor Sunwoo Kim, Hanyang University and professor Hyonwoo Lee, Dankook University • Trusted AI in industry (Moderator Sebastian Engell, TU Dortmund, Germany and ENRICH GLOBAL, France): Dr. Iiro Harjunkoski, Research Fellow at Hitachi Energy Research, Japan and Professor at Aalto University, Finland, Prof. Stefan Krämer, Bayer AG, Germany, Prof. Senthilmurugan Subbiah, IIT Guwahati, India, Prof. Shuzhi Sam Ge, National University of Singapore, Singapore • Digital Education and skills (Moderator Karolina Gyurovszka, Martel Innovate, Switzerland), Monique Calisti (Martel Innovate, Digital for Planet, Switzerland), Claudia Mattera (All Digital, Belgium), Steve McCarty (Osaka Jogakuin University, Japan), Ramesh Sharma (Indira Gandhi National Open University, India), Julien Provenzano (Purple Hackademy, ROK) |
| <p>15.00 – 15.30</p> | <p><i>Coffee break & networking</i></p> |

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| 15.30 – 16.30 | Reports from the 6 technical sessions Moderator: Dr. Franck Le Gall <ul style="list-style-type: none"> • Key findings and take aways • Next opportunities |
| 16.30 – 18.00 | Information Session on EU Funding Opportunities & Q&A with the INPACE consortium (Moderators Dr. Svetlana Klessova , G.A.C. Group, France & Adam Kapovits , Eurescom, Germany) |
| 18.00 – 19.00 | <i>Snacks and networking</i> |

Symposium Day 2 – Tuesday, October 22, 2024

Digital Technologies and Policies in the context of Indo-Pacific-European cooperation

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| 09.00 – 09.30 | <i>Gathering and welcome coffee/tea</i> |
| 09.30 – 11.15 | Opening session and digital partnerships session (organised by INPACE Cluster 1 – Policy) |
| 09.30 – 09.50 | Chair: <ul style="list-style-type: none"> • Welcome by the host (Prof. JaeSeung Song, Sejong University) • Welcome from INPACE (Svetlana Klessova, Project Coordinator) |
| 09.50 – 10.15 | Welcome words: <ul style="list-style-type: none"> • Prof. Wooyoung Hong (Vice President, Sejong University) • Dr. Chang-Won Ahn (IITP, Digital Convergence PM, ROK Government) |
| 10.15 – 11.15 | EU’s Digital Partnerships in the Indo-Pacific: challenges and opportunities > opening “macro” picture setting the tone for next sessions (perspectives on challenges, needs and policies in Europe and the Indo-Pacific), focus on long-term trends, resilience, whole-of-society approach, digital skills sets, science & tech base). <i>Moderator:</i> Eva Pejsova , Japan Chair, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB) <i>Speakers:</i> <ul style="list-style-type: none"> • Michael Reiterer, Distinguished Professor, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB), Belgium; Ambassador of the European Union ret. • Koichiro Komiyama, Director, Global Coordination Division, JPCERT, Senior researcher, Keio Research Institute, Japan • Karthik Nachiappan, Fellow, Institute of South Asian Studies, National University of Singapore, Singapore • So Jeong Kim, Senior research fellow, Institute for National Security Strategy, ROK |

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| 11.15 – 11.45 | <i>Coffee break & networking</i> |
| 11.45 – 12.45 | <p>Smart and sustainable regions and cities: need for trustworthy and human-centric digital platform ecosystem</p> <p><i>Moderators:</i></p> <ul style="list-style-type: none"> • Dr Daeyeon Cho, Ministry of Land, Infrastructure and Transport • Dr. Franck Le Gall, CEO, EGM, France, Cluster 2 leader <p><i>Speakers:</i></p> <ul style="list-style-type: none"> • Chandra Challagonda, CEO / FIWARE Foundation, Switzerland. “Building Interoperable and Cross-Sectorial Data Spaces Ready to Take on Emerging Technologies” • Dr Inder Gopal, Chairman, Centre of Data for Public Good / Research Professor, Indian Institute of Science, Bangalore, India. “How Data is Transforming Indian cities.” • Prof. Jeong Hyeok Park, Professor, Graduate School of International Studies, Seoul National University, ROK. “Towards Carbon Neutrality in Smart Cities: KPIs and Evaluation Scheme for Carbon-neutral Cities” • Dr Heewon Lee, Ministry of Land, Infrastructure and Transport • Prof. Jaeho Kim, Sejong University, Smart City, Metaverse & Cityverse, “Introduction to Digital Twin Campus and call for action” |
| 12.45 – 13.45 | <p>Human-centric AI for the citizens: Technological and regulatory issues (organised by INPACE Cluster 3) Explainability, fairness, transparency, human-in-the-loop, AI model training and Data Spaces, Trustworthy AI, GenAI</p> <p><i>Moderators:</i></p> <ul style="list-style-type: none"> • Antonis Ramfos, Director, Innovation and Business Development, Steering Committee Member, ATC, Greece, INPACE Cluster 3 leader • Prof. JaeSeung Song, Sejong University <p><i>Speakers:</i></p> <ul style="list-style-type: none"> • Raluca Csernatoni, Professor, Centre for Security, Diplomacy, and Strategy (CSDS), Brussels School of Governance (BSoG), Vrije Universiteit Brussel (VUB), Belgium; Research Fellow and Team Leader for the EU Cyber Direct Project, Carnegie Europe • Jan De Bruyne, KU Leuven, Belgium, Head of unit, Centre for IT & IP Law. Principal Investigator (PI) of many projects dealing with the legal and ethical aspects of AI technology. He is a member of Leuven.AI, the Robotics and AI Legal Society (RAILS) and Ethical and Trustworthy Artificial and Machine Intelligence (ETAMI) as well as of different other academic institutions. He was also involved in the adoption of the |

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| | <p>UNESCO Recommendation on Ethical AI and has been acting as an expert for several national and supranational institutions.</p> <ul style="list-style-type: none"> • Richard Stevens, IDC, Italy. • Nineta Polemi, University of Piraeus, Greece. Nineta Polemi is a cybersecurity Professor in the University of Piraeus-UNIP- (Cyber Security Lab, Dept. of Informatics). She served (2017-2020) as Programme Manager and Policy Officer in the European Commission DG (CONNECT H1 Unit entitled ‘Cybersecurity Technologies and Capabilities’). She acted (2021-2022) as expert and rapporteur in the ENISA AHWG that developed the European Cybersecurity Skills Framework, (ECSF). • Rob van den Kranenbourg, Founder IoT Council, Belgium. “New forms of Governance for a Hybrid Reality” |
| <p>13.45 – 14.45</p> | <p><i>Lunch & networking</i></p> |
| <p>14.45 – 15.45</p> | <p>Chips for the future: Technical challenges and cooperation for resilient supply chains, Roadmapping, R&D (organised by INPACE Cluster 4)</p> <p><i>Moderators:</i></p> <ul style="list-style-type: none"> • Francis Balestra, Director Emeritus, SiNANO Institute / CNRS, France, Cluster 4 leader • Ken Uchida, The University of Tokyo, Japan, co-cluster leader <p><i>Speakers:</i></p> <p>5 min. + Q&A (R&I challenges, possible solutions & cooperation opportunities):</p> <ul style="list-style-type: none"> • Francis Balestra, Introduction & More Moore Roadmap, CNRS/SiNANO, France • Ken Uchida, More than Moore Roadmap SDRJ, Univ. Tokyo, Japan • Giorgos Fagas, Beyond CMOS Roadmap, Tyndall, Ireland • Jehyung Kim, Semiconductor quantum photonics Roadmap, UNIST, ROK • Mitsumasa Koyanagi, Heterogeneous 3D integration and Advanced packaging Roadmap - Tohoku University, Japan • Taehyun Park, Emerging computing devices and circuits, Gachon University, ROK • Joon-Kyu Han, Neuromorphic computing Roadmap & Sogang University, ROK |
| <p>15.45 – 16.45</p> | <p>Cybersecurity, IoT and 5G: challenges, stakes and potential solutions (organised by INPACE cluster 5)</p> <p><i>Moderator:</i></p> <ul style="list-style-type: none"> • Adam Kapovits, Programme Manager, EURESCOM, Germany, Cluster 5 leader |

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| | <p><i>Speakers:</i></p> <ul style="list-style-type: none"> • Dr Namseok Ko, Director, Mobile Core Network Research Section, Terrestrial and Non-Terrestrial Integrated Telecommunications Research Lab, ETRI, Republic of Korea • Prof. Rui Aguir, chair of the Networld Europe European Technology Platform, Portugal, and editor of a Cybersecurity report for the Portuguese government • Professor HyonWoo Lee, DanKook University, vice chair of the executive committee of the 6G Forum Korea • Prof. Jonghyun Kim, Sejong University, Republic of Korea • SeungMyeong Jeong, principal researcher at KETI |
| <p>16.45 – 17:00</p> | <p>Presentation of the INPACE Hub and Final remarks (Svetlana Klessova, Project Coordinator)</p> |
| <p>17.00 – 17:30</p> | <p><i>Coffee break & networking</i></p> |