

INPACE Hackathon on Interoperability of Digital Public Infrastructure: Comprehensive Report and Final Communications

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



Executive Summary

The **2025 Hackathon on Interoperability of Digital Public Infrastructure** represents a landmark achievement in fostering cross-border digital cooperation between the European Union and the Indo-Pacific region. Held from October 11-13, 2025, in Bengaluru, India, this pioneering event demonstrated the remarkable potential for innovative solutions in one of today's most complex digital challenges. The hackathon culminated with **Team Builder** emerging as the overall winner, recognized for its comprehensive understanding of the complex layered landscape of digital identity standards and its general data sharing platform that enables secure cross-continental data exchange.



Project Context and Strategic Alignment

EU-India Trade and Technology Council Framework

The hackathon was strategically positioned within the framework of the **EU-India Trade and Technology Council (TTC)**, launched in February 2023 to create a high-level coordination platform addressing key trade, trusted technology, and security challenges between India and the European Union. The TTC's focus on Digital Public Infrastructure cooperation, interoperability, and cross-border enhancement of digital transactions provided the foundational context for this innovative competition.

The event aligned directly with the TTC's strategic pillars, particularly in areas of strategic technologies, digital governance and connectivity, where both regions recognized the critical importance of establishing interoperable digital frameworks that preserve data sovereignty while enabling seamless cross-border services. The EU's commitment to human-centric digital transformation and India's proven expertise in scalable DPI solutions, exemplified through systems like Aadhaar and UPI, created an ideal foundation for collaborative innovation.

Digital Partnerships with the Indo-Pacific Region

Beyond the EU-India relationship, this hackathon embodied the broader strategic vision articulated through the EU's Digital Partnerships with Japan (2022), the Republic of Korea (2022), and Singapore (2023). These partnerships aim to deepen digital ties, regulatory cooperation, and bilateral trade investments, ensuring that society and businesses in both regions benefit from opportunities in the growing global digital economy.

The **INPACE (INdo-PACific-European Hub for Digital Partnerships)** project, funded under the European Union's Horizon Europe Research and Innovation Programme, provided the institutional framework for this

hackathon. INPACE's mission to actively support the implementation of Digital Partnerships and facilitate cooperation through sustainable multi-stakeholder engagement created the perfect environment for this innovative competition.

Event Organization and Structure

Organizing Partners and Support

The hackathon was co-organized by a prestigious consortium of organizations, reflecting the high-level commitment to digital cooperation across continents. The **INPACE project** served as the primary organizer, working in close collaboration with the **FIWARE Foundation** and the **Centre for Development of Advanced Computing (CDPG) from IISc Bangalore**. Critical support was provided by **Gaia-X** and **GLEIF**, organizations at the forefront of digital identity and data sovereignty frameworks.

This partnership brought together complementary expertise spanning European digital governance frameworks, Indian DPI experience, and cutting-edge technologies for trusted data exchange. The involvement of FIWARE Foundation and its EGM member ensured access to proven open-source platform components for smart solutions and federated data sharing. CDPG's expertise in digital identity platforms, and MOSIP (Modular Open Source Identity Platform), provided essential technical foundation for the hackathon challenges.

Participation and Global Reach

The event attracted **approximately 30 individual registrants** from India and South Korea, demonstrating the strong interest in DPI interoperability challenges across the region. While the initial registration was broad-based, the intensive nature of the challenge ultimately saw **seven teams** enter the final competition phase, each bringing unique perspectives and technical approaches to the complex interoperability challenge.

The diversity of participating teams reflected the global nature of digital identity challenges, with solutions spanning multiple domains including supply chain management, travel and visa processing, education credential verification, customs clearance, and AI-powered DPI enhancement. This breadth of approaches underscored the versatility and wide-ranging applications of interoperable DPI solutions.

The Challenge: Digital Identity Interoperability

Technical Challenge Definition

The core challenge presented to participating teams was both technically sophisticated and practically relevant: "Create a functional prototype demonstrating seamless identity verification where an EU citizen, using their Digital Identity Wallet, would like to access a data resource from an Indian organization registered in MOSIP". This challenge encapsulated the fundamental tensions and opportunities in cross-border digital identity systems.

The challenge required teams to navigate complex technical landscapes involving multiple standards frameworks including eIDAS 2.0, MOSIP specifications, ETSI NGSI-LD, Gaia-X Federation Services, and GLEIF vLEI standards. Success demanded not only technical proficiency but also deep understanding of privacy preservation, data sovereignty requirements, and regulatory compliance across different jurisdictions.

Success Criteria and Standards Integration

Teams were evaluated on their ability to demonstrate cross-border digital identity interoperability that preserved data sovereignty, enabled selective disclosure, and worked across heterogeneous DPI systems while complying with both GDPR and Indian data protection frameworks. Bonus criteria included the use of NGS-LD contextualized information for semantic data representation, data resource discovery through dataspace connectors such as Gaia-X, and verifiable credential access through vLEI servers.

The challenge explicitly encouraged the integration of multiple cutting-edge standards and technologies, including W3C Decentralized Identifiers (DIDs), W3C Verifiable Credentials, OpenID Connect, and advanced trust frameworks. This multi-standard approach reflected the real-world complexity of achieving interoperability across diverse digital ecosystems.

Team Solutions and Innovation Landscape

Winner: Team Builder - Comprehensive Data Sharing Platform

Team Builder emerged as the overall winner with their comprehensive general data sharing platform designed for cross-continental secure and compliant data exchange. Their solution stood out for its comprehensive understanding and overview of the complex layered landscape of standards, addressing multiple use cases through a unified approach to cross-border data interoperability.

The Builder team's approach demonstrated exceptional technical sophistication in bridging diverse APIs, data formats, and legacy systems while maintaining strict compliance with varying legal frameworks across jurisdictions. Their solution addressed the fundamental challenge of enabling seamless data flow across borders while preserving data sovereignty and implementing privacy-by-design principles.^[1]

Runner-up Solutions: YourD and Brogrammers

Team YourD secured second place with their innovative **EU Global Visa Portal system**. Their solution addressed the critical pain point in international travel by facilitating seamless visa application and verification processes between EU member states and Indo-Pacific countries. YourD's approach leveraged advanced digital identity standards including DIIP v4, EIDAS 2.0, and MOSIP frameworks to create a unified travel credential system.

The YourD solution exemplified the practical applications of interoperable DPI by transforming the entire travel journey through a single verifiable visa credential. Their system demonstrated instant validation at immigration e-gates, simplified hotel and car rental processes through selective disclosure, automatic verification for hospitals and insurers, and streamlined visa extensions through machine-readable policy checks.

Team Brogrammers achieved third place with their **Digital Product Passport (DPP) solution** focused on EU and Indian supply-chain interoperability. Their approach enabled trusted product traceability and compliance verification across borders, addressing critical supply chain transparency needs in the era of increasing regulatory requirements for product provenance and sustainability.

Additional Innovative Solutions

The hackathon showcased remarkable diversity in approach and application domains through four additional innovative solutions:

Code Hunter proposed a **Cross-Border Education Credential Verification System** that revolutionized academic credential recognition between educational institutions. Their blockchain-based solution would address the significant challenge of credential fraud while reducing verification time from 30 hours to 2.8 seconds, demonstrating potential cost savings of 99.995% per verification. The system plans integration of W3C Verifiable Credentials, GLEIF vLEI for institutional trust, and NGSi-LD for data interoperability.

PanDPI created a **Trust-First Interoperability Fabric for Digital Public Infrastructures**. Their modular, standards-first approach enabled EU and Indo-Pacific DPIs to exchange identity, credentials, and context data securely through DIDs/VCs, NGSi-LD context exchange, selective disclosure, federated trust (Gaia-X/vLEI), and lightweight interoperability gateway layers for legacy systems. The solution aims at demonstrating end-to-end interoperability across diverse DPIs including identity wallets, national ID systems, and public services.

Quantum Maverick focused on **Cross-Border Customs Clearance solutions** that streamlined international trade processes through digital identity integration. Their approach addressed the complex regulatory and procedural challenges in international trade by leveraging digital identity systems to automate and accelerate customs processes.

Secontext developed an **Agentic AI Powered DPI** solution that leveraged artificial intelligence to enhance digital public infrastructure capabilities. Their approach addressed adoption challenges through natural language orientation, context-aware interfaces, and AI-powered schema mapping to bridge different technical stacks and regulatory frameworks.

Evaluation Process and Criteria

Two-Phase Competition Structure

The hackathon employed a two-phase evaluation process designed to ensure comprehensive assessment of both technical capabilities and practical implementation potential.

Phase 1 involved preliminary pitches presented to technical support teams, where each team delivered focused 5-minute presentations explaining their solutions, implementation approaches, and expected outcomes. This phase was designed to assess technical feasibility, innovation potential, and team capability to execute their proposed solutions within the hackathon timeframe. Three teams were selected from this phase: Brogrammers, YourD, and Builder.

Phase 2 was conducted during Track 1 of the broader symposium, providing a more comprehensive evaluation environment with a high-level jury comprising industry experts and technical leaders. This phase required more extensive 10-minute presentations that demonstrated not only technical solutions but also their broader implications for EU-Indo-Pacific digital cooperation.

Evaluation Criteria and Scoring

The evaluation process employed a comprehensive scoring framework with five key criteria:

Interoperability (30% weight) assessed the actual demonstration of end-to-end interoperability across EU and Indo-Pacific digital identity systems. This criterion was given the highest weighting, reflecting the fundamental challenge of the hackathon and the critical importance of achieving seamless cross-border digital identity integration.

Technical Excellence (10% weight) evaluated the robustness of architecture, scalable design, quality of implementation and code craftsmanship, and the team's ability to bridge diverse systems. Despite its lower weighting, this criterion was essential for assessing the long-term viability and sustainability of proposed solutions.

Real-World Impact (20% weight) focused on whether solutions addressed genuine cross-border DPI needs, demonstrated potential to serve citizens across the EU-Indo-Pacific region, and showed measurable benefits for government services, healthcare, or commerce.

Trust and Security (20% weight) assessed data sovereignty preservation across jurisdictions, privacy-by-design implementation, and cybersecurity best practices with compliance readiness. This criterion reflected the critical importance of maintaining user trust and regulatory compliance in cross-border digital identity systems.

Feasibility and Presentation (20% weight) evaluated the clarity of implementation roadmaps, realistic timelines, quality of pitch and demonstration, and evidence of effective team collaboration and project execution.

Expert Jury Composition

The hackathon's credibility and rigor were ensured through a distinguished jury comprising leading experts from the digital identity and public infrastructure domains:

Chandra Challagonda, CEO of FIWARE Foundation, brought extensive expertise in open-source platform development and smart solution architectures. His leadership of FIWARE, with its 200+ open-source components and proven track record in federated data sharing, provided critical perspective on scalability and implementation feasibility.

Sivanand Lanka, VP Engineering at MOSIP, contributed deep technical expertise in identity platform development and large-scale deployment. MOSIP's role as a modular open-source identity platform helping governments build secure, scalable digital identity systems made his evaluation particularly relevant to the hackathon's objectives.

Vasanth Rajaraman, VP Platform at IUDX, CDPG, IISc, provided crucial insights from India's digital public infrastructure development experience. His involvement with the Centre for Development of Advanced Computing and the Indian Institute of Science brought both academic rigor and practical implementation experience to the evaluation process.

Suna Akbayir, CEO of Beyond Barcode Artech, contributed expertise in digital transformation and technology implementation across diverse sectors. Her perspective ensured that solutions were evaluated not only for technical merit but also for their practical applicability across different organizational contexts.

The hackathon's technical execution was expertly managed by a **dedicated technical support team**. **Pierre Gronlier**, Chief Innovation Officer at Gaia-X Association and expert in cloud architectures and data sovereignty frameworks, provided crucial technical guidance throughout the event. **Thomas Boussein** from EGM contributed his expertise in backend engineering and cybersecurity systems, while **Aidar**



Nurmanov offered additional technical support to ensure seamless implementation of the complex DPI interoperability challenges.

This technical team played a vital role in the Phase 1 solutions construction and evaluation process, working directly with teams during their initial pitch presentations to assess technical feasibility and provide guidance on standards integration. Their deep expertise in relevant solutions was instrumental in helping teams navigate the complex technical landscape of cross-border DPI interoperability

Dr. Franck Le Gall, CEO of EGM and innovation leader of INPACE, served as the jury moderator, bringing his extensive expertise in standardization and emerging technologies integration.

Jury and Audience Alignment

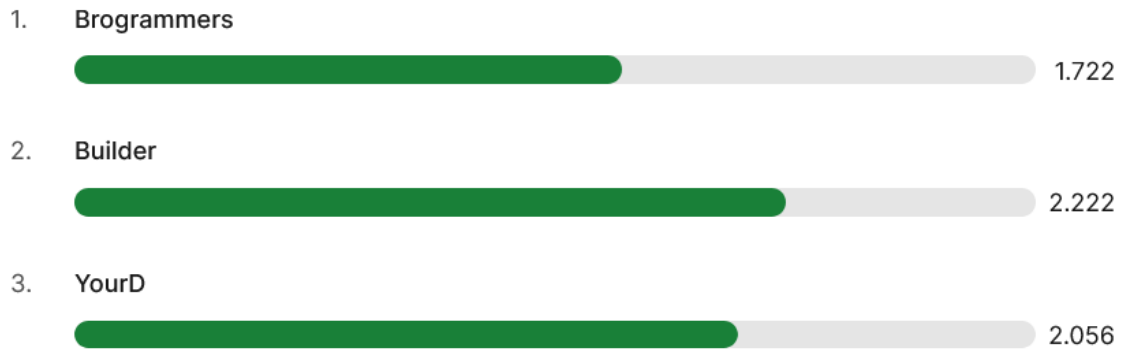
A particularly noteworthy aspect of the final evaluation was the alignment between jury assessment and audience voting. Both the expert jury and the symposium audience reached the same ranking: Builder first, YourD second, and Brogrammers third. This convergence of expert and public opinion validated the assessment process and demonstrated that the winning solutions resonated both with technical experts and broader stakeholder communities.



Which of the Hackathon competitor offer the most promising approach for seamless interoperability across DPI ?

Share

Ranking Poll 18 votes 18 participants



Technical Complexity and Innovation Recognition

Landscape Complexity Assessment

The hackathon highlighted the remarkable complexity of the Digital Public Infrastructure landscape, particularly in the context of cross-border interoperability. Teams were challenged to navigate multiple technical frameworks including eIDAS 2.0 for European digital identity regulation, MOSIP specifications for

modular identity platforms, ETSI NGS-LD for standardized data exchange, Gaia-X federation services for trustworthy data transactions, and GLEIF vLEI standards for verifiable entity identification. This technical complexity was compounded by the need to address varying regulatory frameworks across jurisdictions, different data protection standards (GDPR vs. Indian data protection frameworks), and diverse implementation approaches across different nations and regions. The challenge required teams to develop solutions that could operate seamlessly across these diverse environments while maintaining security, privacy, and regulatory compliance.

Team Performance and Innovation Capability

The teams demonstrated impressive capability to understand complex topics and build viable proposals within an extremely compressed three-day timeframe. This achievement is particularly remarkable given the sophisticated nature of digital identity interoperability challenges and the need to integrate multiple cutting-edge technologies and standards frameworks.

The diversity of approaches - from blockchain-based credential verification to AI-powered DPI enhancement - illustrated the creative potential of international collaboration in addressing digital infrastructure challenges. Teams successfully translated abstract policy objectives into concrete technical solutions with demonstrated functionality and clear implementation pathways.

The quality of solutions produced during the hackathon validated the concept of intensive collaborative innovation events as effective mechanisms for advancing complex technical challenges that require interdisciplinary expertise and cross-cultural collaboration.

Integration with the Data for Public Good Symposium

Strategic Positioning within India's Premier Digital Platform

The INPACE Hackathon on Interoperability of Digital Public Infrastructure was strategically positioned as an integral component of the **Symposium on Data for Public Good 2025**, India's premier platform dedicated to exploring how data, technology, and governance can work together to create an inclusive, secure, and sustainable future. This third edition of the symposium, organized by the Centre of Data for Public Good (CDPG) at IISc Bengaluru on October 14-15, 2025, provided the perfect institutional framework for showcasing cross-border DPI interoperability solutions to India's leading stakeholders in digital governance and public infrastructure.

The symposium's overarching theme of "Data for Public Good" aligned seamlessly with the hackathon's objectives of developing practical solutions for EU-Indo-Pacific digital cooperation. This integration ensured that hackathon results would be presented to a high-level audience comprising leaders from government, academia, startups, and civil society, all focused on accelerating innovation in public digital infrastructure and data-driven policy.

Track 1 Integration: Data Spaces and Digital Product Passport

The hackathon's final presentations were embedded within **Track 1 of the symposium, focused on "Data Spaces and Digital Product Passport"**. This track provided comprehensive context for understanding the technological foundations underlying the hackathon challenge, featuring a carefully curated program of presentations from leading European and global experts.

The session was strategically positioned to allow symposium participants to understand how the theoretical frameworks and policy initiatives discussed throughout Track 1 could be translated into practical, implementable solutions for cross-border digital cooperation. The presentations demonstrated real-world applications of the data spaces technologies, trust frameworks, and interoperability standards that had been explored in the earlier technical sessions.

Symposium Context and Broader Impact

The integration of the INPACE hackathon within the Data for Public Good Symposium ensured that the innovative solutions developed during the competition were contextualized within India's broader digital infrastructure development agenda. The symposium's focus on scalable, interoperable, and ethical data infrastructures that serve the public interest provided the perfect framework for understanding how cross-border DPI interoperability could contribute to national digital transformation objectives.

The symposium's emphasis on responsible AI adoption, indigenous innovation, and privacy-preserving technologies complemented the hackathon's focus on trust, security, and human-centric design in cross-border digital identity systems. This alignment ensured that hackathon solutions were evaluated not only for technical merit but also for their potential contribution to sustainable and inclusive digital development.

The presence of senior government officials, including secretaries from MeitY (Ministry of Electronics and Information Technology) and DARPG (Department of Administrative Reforms and Public Grievances), provided direct policy context for understanding how hackathon solutions could inform and support government digital infrastructure initiatives. This high-level engagement ensured that innovative solutions developed during the hackathon would be considered within broader policy development processes.

Strategic Impact and Future Implications

Advancement of EU-Indo-Pacific Digital Cooperation

The hackathon's success demonstrated the viability and potential of collaborative innovation approaches to advancing EU-Indo-Pacific digital cooperation. By bringing together technical expertise from multiple countries and creating an environment for intensive collaboration, the event produced tangible solutions that could serve as blueprints for broader cooperation initiatives.

The alignment between jury and audience evaluation suggested broad stakeholder support for the types of solutions developed during the hackathon. This validation provides a foundation for continued investment in collaborative innovation approaches and suggests strong potential for scaling successful solutions beyond the hackathon environment.

Contribution to DPI Interoperability Standards

The technical solutions developed during the hackathon contributed valuable insights to ongoing standardization efforts in DPI interoperability. Team approaches to integrating multiple standards frameworks (W3C DID, Verifiable Credentials, NGSID, Gaia-X, vLEI) provided practical validation of theoretical interoperability concepts and identified specific implementation challenges and opportunities.

The hackathon's emphasis on privacy-by-design, data sovereignty preservation, and selective disclosure addressed critical concerns in cross-border digital identity systems. Solutions demonstrated practical approaches to balancing interoperability with privacy protection and regulatory compliance across different jurisdictions.

Model for Future Collaborative Innovation

The INPACE hackathon established a successful model for international collaborative innovation events addressing complex policy and technical challenges. The two-phase evaluation process, expert jury structure, and integration with broader symposium activities provided a framework that could be replicated for future cooperation initiatives.

The event's success in attracting high-quality participation, producing viable solutions, and generating stakeholder engagement validated the investment in collaborative innovation approaches for advancing EU-Indo-Pacific digital partnerships.

Conclusion

The 2025 INPACE Pilot project formulated as a Hackathon on Interoperability of Digital Public Infrastructure stands as a landmark achievement in fostering practical collaboration between the European Union and Indo-Pacific partners on one of the most complex challenges in digital governance. The event successfully demonstrated that intensive collaborative innovation can produce tangible solutions to sophisticated technical and policy challenges within compressed timeframes.

Relevant links and contacts:

- Institutional links
 - <https://inpacehub.eu/>
 - <https://egcp.enrich-global.eu/>
 - <https://www.fiware.org/>
 - <https://dataforpublicgood.org.in/>
 - <https://www.egm.io/>
- Event links
 - <https://egcp.enrich-global.eu/communities/inpace/events/2025-hackathon-on-interoperability-of-digital-public-infrastructure>
 - <https://www.fiware.org/events/event-details/?id=202510-2025-hackathon-on-interoperability-of-digital-public-infrastructure>
 - <https://dataforpublicgood.org.in/symposium-2025/>
- Linkedin accounts from top-3 teams:
 - Brogrammers
 - <https://www.linkedin.com/in/gouher-danish/>
 - <https://www.linkedin.com/in/nfraz007/>
 - <https://www.linkedin.com/in/aaqib-gouher/>
 - YourD
 - <https://www.linkedin.com/company/yourd-ata/>
 - Builder
 - <https://www.linkedin.com/in/vishal-kriplani-a33181190/>
- Linkedin accounts from final jury and moderator:
 - <https://www.linkedin.com/in/challagonda/>
 - <https://www.linkedin.com/in/sunaakbayir/>

- <https://www.linkedin.com/in/swaminathanvasanth/>
- <https://www.linkedin.com/in/sivanand-lanka-0a9b685/>
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