Report: ALICE - JPIC webinar on the PI Maturity Model

The Physical Internet was presented as a practical framework for improving collaboration, standardisation and system-wide performance in Japan.

The ALICE-Japan Physical Internet Center webinar on the Physical Internet Maturity Model, was held on 28 April 2026.

The session was organised by ALICE in collaboration with the Japan Physical Internet Center (JPIC), with contributions from Fernando Liesa, Secretary General of ALICE, and Tadashi Mizutani, Expert Consultant at Nomura Research Institute. The webinar was also connected to the Horizon Europe IKIGAI project, which supports the scale-up of Physical Internet-related innovations in Europe.

The main purpose of the webinar was to present and discuss the Physical Internet Maturity Model for Corporations, developed in Japan as a structured framework to help companies assess their progress and help advancing towards Physical Internet implementation. The Japanese and European challenges and approaches were also discussed, showing how corporate maturity, innovation readiness and policy-level frameworks can complement each other.

The webinar was particularly relevant because both Europe and Japan are facing similar logistics challenges, including driver shortages, low asset utilisation, fragmented systems and increasing pressure to improve efficiency and sustainability. The Physical Internet was presented as a practical framework for improving collaboration, standardisation and system-wide performance in Japan.

Executive summary - conclusions & key takeaways

The webinar presented Japan's approach to implementing the Physical Internet through structured frameworks, policy support and collaboration initiatives. PIMM was introduced as a tool to support companies in assessing and improving collaborative logistics operations.

The session highlighted the importance of practical tools for implementation and the role of international exchange in advancing the Physical Internet.

Key conclusions and takeaways included:

- The Physical Internet was presented as a practical framework for improving collaboration, standardisation and system-wide performance in Japan.

- Europe and Japan face similar logistics challenges, including driver shortages, low asset utilisation, fragmented systems and increasing pressure to improve efficiency and sustainability.
- Japan's Physical Internet Roadmap and related policy measures are driving structured implementation and collaboration across industries.
- PIMM provides companies with a practical framework to assess maturity, benchmark progress and identify next steps towards Physical Internet implementation.
- The model focuses on real collaborative logistics operations rather than theoretical strategies or short-term pilots.
- International collaboration between ALICE and JPIC continues to support exchange on Physical Internet implementation, maturity approaches and innovation scaling.

Key discussion points and findings

1. Welcome & purpose of the session

Speaker: Fernando Liesa

The webinar opened with Fernando Liesa welcoming participants on behalf of ALICE. He explained that the session reflected the collaboration between ALICE and JPIC, which he described as a sister organisation in Japan. This collaboration is supported by a memorandum of understanding and developed through the Horizon Europe IKIGAI project.

Fernando positioned the webinar within the objective of strengthening international exchange on Physical Internet deployment. He stated that Japan and Europe are facing comparable logistics challenges, including rising costs, driver shortages, inefficient asset utilisation, low load factors and fragmented logistics systems.

He explained that Japan is using the Physical Internet as a guiding framework for addressing what they call the logistics problem and is actually driving policy, supporting collaboration, improving efficiency and enabling systemic transformation across industries. He also referred to initiatives related to transport platforms, collaboration between manufacturers and retailers, and emerging business ecosystems.

From the European side, Fernando introduced the IKIGAI project as a complementary initiative focused on scaling up Physical Internet-related innovations such as pooling assets and flows for multimodality (ALICE EXPRESS), smart boxes to increase efficiency of multi-retailer and multibrand distribution networks, collaborative and shared micro-hubs in urban logistics, digitalisation tools and platforms to embrace e-FTI, and emission book and claim approaches. He explained that this work focuses on readiness, viability and processes for scaling up innovation, while the Japanese model focuses on company-level maturity.

He also highlighted IPIC 2026 in Bordeaux as an opportunity for further exchange, noting that a Japanese delegation is expected to attend and face to face exchanges will be possible and effective.

2. Context: Global PI vision and the gap PIMM addresses

Speaker: Tadashi Mizutani

Tadashi Mizutani from Nomura Research Institute then introduced the Japanese logistics context and the reasons why the Physical Internet Maturity Model was developed. He began by presenting two core problems in Japanese logistics: low truck fill rates and the inefficient use of driver time.

According to the presentation, Japanese trucks often run half empty, with a truck fill rate of around 40%. At the same time, regulatory changes limiting driver overtime have intensified the risk of truck capacity shortages. Tadashi explained that this is not a future challenge, but a current crisis affecting logistics operations. In addition, driver time is not used efficiently, with drivers spending significant time waiting, loading and unloading at warehouses. In simple terms, Japan faces both underused assets and wasted human capacity.

Tadashi explained that these challenges were one of the reasons behind the creation of Japan's Physical Internet Roadmap. The Japanese government published the roadmap in March 2022, with the goal of achieving the Physical Internet by 2040. He noted that the Japanese roadmap was developed with reference to ALICE's roadmap, showing the connection between European and Japanese thinking on the Physical Internet.

The Japanese government has also introduced legislation to improve logistics. Tadashi explained that the law targets major logistics players, including sellers, buyers, franchisers, warehouse operators and road freight carriers. These actors are required to register with the authorities, submit medium- or long-term improvement plans, report progress annually and appoint a Chief Logistics Officer. This elevates logistics to a more strategic level within companies and creates a stronger basis for collaborative action.

After the Japanese PI Roadmap was published, industry-specific working groups began to form in sectors such as grocery, apparel, building materials, chemicals, pharmaceuticals and home appliances. These initiatives expanded collaboration within individual industries. However, this also created a new challenge: companies needed a way to measure progress and understand what practical steps they should take next. The roadmap provided a destination, but companies needed a "map and compass" for their own implementation journeys.

This gap led to the development of PIMM. Tadashi explained that companies wanted answers to practical questions: What should we do to realise the Physical Internet? What are the first steps? Who should we collaborate with? PIMM was designed to provide a common yardstick for progress, helping companies identify their current position, compare themselves with others and plan their next actions.

3. ALICE × JPIC collaboration update + Japan visit highlights

Speaker: Fernando Liesa

Fernando Liesa then provided an update on ALICE-JPIC collaboration and shared highlights from his recent visit to Japan. He explained that his visit confirmed the strong momentum around Physical Internet implementation in Japan. He met high-level representatives from companies that are actively working on Physical Internet-related business ecosystems, as well as entrepreneurs and startups developing PI-based solutions.

He also met representatives from Japanese ministries, including the Ministry of Land, Infrastructure, Transport and Tourism and METI, the Ministry of Economy, Trade and Industry. These meetings provided insight into Japan's public-sector approach to logistics transformation and Physical Internet deployment.

One of the most striking examples shared by Fernando was Japan's long-term plan for dedicated infrastructure between Tokyo and Osaka for automated transportation. The concept aims to support the movement of very large freight volumes, potentially equivalent to more than 100,000 trucks per day, through automated systems along this major corridor. Fernando described this as a long-term project, but one that clearly responds to driver shortages and recognises the continued importance of road freight transport.

He also reflected on the level of government support for Physical Internet implementation in Japan. The positive aspect is that Japan is making visible progress, with strong public-sector engagement. However, Fernando also noted that Japan may focus more strongly on internal Physical Internet development at this stage, which could limit high-level international collaboration in the short term. Nevertheless, he explained that ALICE is working to ensure that Physical Internet cooperation remains visible within EU-Japan policy discussions.

Fernando concluded this part by positioning PIMM within a broader global set of maturity and readiness approaches. In his view, three layers are emerging internationally: company-level maturity, innovation-level readiness and government or public-policy maturity. The Japanese PIMM focuses on companies and collaborative operations, while IKIGAI contributes from the perspective of scaling up innovation. Together, these approaches can support companies, innovators and public authorities on their Physical Internet journey.

4. The Physical Internet Maturity Model for Corporations

Speaker: Tadashi Mizutani

What is PIMM? Vision, purpose and structure

The main part of the webinar was Tadashi Mizutani's presentation of the Physical Internet Maturity Model for Corporations. He described PIMM as a tool that translates the abstract concept of the Physical Internet into a concrete evaluation framework. To make the structure memorable, he introduced three key numbers: 3, 5 and 17.

The number 3 refers to three essential functions of PIMM: self-assessment, benchmarking and action planning. The number 5 refers to five maturity levels and five evaluation dimensions. The number 17 refers to the 17 evaluation items included in the framework.

Tadashi explained that PIMM was created to support two core values: continuous improvement and trusted partner discovery. Continuous improvement means that companies can understand where they are, compare themselves with others and identify what they need to do next. Trusted partner discovery means that companies can use certification and a shared framework to identify reliable collaboration partners.

The model is especially important because the Physical Internet depends on collaboration. A single company cannot implement the Physical Internet alone. It requires shared standards, open systems, compatible processes, data exchange and governance across multiple actors. PIMM therefore helps companies move from isolated or intra-industry initiatives towards broader cross-industry collaboration.

PIMM is not designed to assess an entire company in a general sense. Tadashi made this point clearly. Instead, PIMM assesses a specific collaborative logistics project or operation involving multiple companies. For example, it may assess a joint truck transport operation between two manufacturers. The certification is then issued jointly to the participating companies.

This is an important distinction. PIMM focuses on real collaborative logistics operations, not on theoretical strategies or short-term experiments. To be assessed, a project must be ongoing and active for at least one year. Short-term proof-of-concept projects and experimental pilots are excluded. This ensures that the maturity model evaluates real operational practices rather than temporary demonstrations.

The structure of PIMM is based on five interrelated dimensions:

- Physical space
- Business processes

- Digitalisation
- Ecosystem
- Human resource development

These dimensions follow a logical sequence. Physical space concerns the sharing and use of logistics assets and infrastructure. Business processes concern the synchronisation of operations between companies. Digitalisation becomes essential when coordination becomes too complex for manual processes. Ecosystem refers to the governance, goals and structures that allow collaboration to become stable and long-lasting. Human resource development recognises that skilled people are needed to sustain multi-company collaboration.

These five dimensions are divided into 17 evaluation items. For example, the physical space dimension includes items related to containers and equipment, including standardisation, openness and sharing. Business processes include similar concepts, but also distinguish between horizontal collaboration and vertical integration, reflecting the Japanese PI Roadmap. Digitalisation covers containers, equipment and business processes. Ecosystem includes shared goals, organisational structures and governance. Human resource development is treated as a dedicated item because people and capabilities are essential to implementation.

Tadashi explained that PIMM was not developed from scratch. It draws on several existing frameworks, including the Capability Maturity Model Integration, the Global SCM Scorecard and frameworks for collaborative governance. However, these existing tools were not sufficient on their own. Some were strong on maturity levels but weak on logistics operations. Others assessed internal supply chain capabilities but did not cover collaboration beyond a company's own supply chain. PIMM combines their strengths while adapting them to Physical Internet implementation.

How maturity is assessed: levels and scoring/evaluation logic

PIMM uses five maturity levels. Level 1 represents the starting point, where there is awareness and willingness to initiate Physical Internet-related action. Tadashi distinguished this from level 0, which would mean no awareness. Level 5 represents the target state, aligned with Japan's 2030 PI Roadmap objectives.

The framework is built as a 17-by-5 matrix: 17 evaluation items, each assessed across five maturity levels. This creates 85 detailed definitions. Tadashi emphasised that PIMM avoids vague labels such as "good" or "bad". Instead, it uses milestone-based criteria, making the assessment more concrete and transparent.

To illustrate this, he gave the example of container standardisation. At level 1, there are no shared rules. At level 2, standardisation exists within the company. At level 3, standards are shared with specific partners. At level 4, a common industry standard is adopted. At level 5, multiple industry standards are used together efficiently, for example smart boxes and pallets. This shows how maturity grows from internal action to wider collaborative capability.

A second example focused on digitalisation. At level 1, operations are manual and paper-based. At level 2, containers receive digital IDs. At level 3, systems are connected and cargo can be tracked. At level 4, data is visible through dashboards and used for analysis. At level 5, AI analyses data and automatically suggests improvements. This example showed that PIMM evaluates outcomes rather than prescribing specific technologies. This makes the model more resilient, because technologies will change over time.

Applicants receive both a single overall score and a multi-dimensional profile. This is important because companies and projects may have different strengths. Some may be specialists, performing strongly in one dimension. Others may be generalists, performing moderately across many dimensions. A single score alone could hide these differences. The multi-dimensional profile allows the assessment to reflect the specific quality and character of each collaborative project.

To ensure fairness, PIMM uses a flexible scoreboard. It focuses on the items that are actually relevant to the project being assessed. Items that are not applicable can be excluded from the score adjustment. The process then calculates weighted averages and determines the final five-tier maturity level.

The assessment process includes four steps:

- Application and evidence submission
- Individual expert review
- Committee review for fairness and consistency
- Final evaluation and multi-dimensional profile

The model requires concrete evidence from real operations, including quantitative data and qualitative documents where available. Reviews are conducted by academic and industrial experts. For borderline cases, committee discussions and online interviews are used to ensure that the assessment captures the full reality of the operation.

Initial trial and practical validation

Tadashi also presented the results of an initial trial conducted in early 2026 with five companies. The trial confirmed that the model can work in practice but also highlighted the importance of interviews and direct dialogue. Document review alone was not enough to

capture real operational innovation, especially where on-site practices were not fully visible in written evidence.

The feedback from participating companies was positive. According to Tadashi, 80% of the companies said that one of their main reasons for using PIMM was to find future partners. In addition, 100% said they planned to work together in the future. This confirmed one of the model's central purposes: supporting trusted partner discovery.

The trial also showed that certification could become a useful basis for identifying best practices and encouraging wider adoption. Fernando noted that, as more certificates are issued, the model could generate a body of practical examples and lessons for the wider Physical Internet community.

5. Wrap-up & next steps

Speakers: Takayuki Mori and Fernando Liesa

Fernando invited participants to share questions during the session and also encouraged them to contact him and Pablo Segura by email for follow-up with Japanese colleagues. He also invited participants to continue the discussion at IPIC 2026 in Bordeaux.

One of the participants asked how Japan managed to establish the evaluation structure for the PI maturity model, noting that a similar structure does not currently exist in Europe. Tadashi explained that JPIC and Nomura Research Institute developed the model and that the ambition is for it to support the medium- and long-term plans companies are required to submit under Japanese logistics policy. In the chat, Jaco also commented that PIMM could be used as a basis for other programmes.

Tadashi also asked participants to reflect on three questions: whether PIMM is practical for daily work in Europe, whether it can serve as a common language among companies, and how it can align with tools already used in Europe. He positioned these questions as a starting point for ongoing dialogue rather than requiring immediate answers.

Q&A / Discussion synthesis

The discussion with participants was brief due to time constraints, but the chat showed clear interest in the model.

Key discussion points included:

- Interest in how Japan established a structured maturity evaluation framework for Physical Internet implementation.
- Questions regarding the applicability of PIMM within the European logistics context.

- Reflection on whether PIMM could function as a common language for collaboration between companies.
- Discussion on alignment between PIMM and existing European tools and frameworks.
- Interest in the certification approach as a basis for trusted partner discovery and future collaboration.