INTERNATIONAL DATA SPACES ASSOCIATION

IDSA Executive Brief – Evidence, alignment and the state of data spaces

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This brief reflects insights from experts across industry, research, public authorities, and civil society, providing a consolidated view of how data spaces are developing across regions.

Data spaces are entering a phase where expectations are shifting from experimentation to evidence. Organizations want clear value, workable governance, and alignment across regions and sectors. At the same time, the demand for high-quality industrial data is rising, driven by digitalization, automation, and AI. This creates pressure to move beyond pilots and build models that scale, interoperate, and deliver measurable outcomes.

Against this backdrop, the current landscape shows both solid progress and clear structural challenges.

Current state of data spaces

Several sectors already operate mature data-space implementations, including automotive ecosystems, satellite data services, battery traceability, and public-sector pilots across European cities. These implementations demonstrate operational platforms, active customers, and cross-border pilots. However, progress remains uneven. Many initiatives still lack clear business models, measurable value, or stable governance frameworks. Policymakers continue to ask why returns on public investment remain unproven, even after years of funding. Technical components are available, yet adoption remains slower than anticipated, and the market is fragmented – especially among cloud providers, small enterprises, and local governments.

Internationally, the concept of data spaces has gained visibility, but understanding varies. Some governments struggle to articulate economic rationale. Global actors see both opportunity and challenges: Regions differ in market structures, regulations, and maturity. Contributions from China highlighted the relevance of trusted data sharing for large

industrial and cloud ecosystems, as described by Huawei. US perspectives stressed the importance of linking data spaces to real operational needs, illustrated by examples from Ford and the Flex manufacturing platform. Japan continues to advance industrially motivated architectures, while exploring interoperability with European approaches.

Taken together, the landscape shows a field moving from conceptual development toward practical implementation but still facing the need for measurable impact, sustainable models, and cross-regional alignment.

Market evidence and measurable value

Across regions and sectors, there is a clear gap between technical progress and demonstrable economic value. Market adoption remains the main bottleneck. Many organizations continue to view data spaces as abstract infrastructure rather than sources of immediate business benefit. Suppliers often interpret participation as an attempt to introduce new software or platform obligations. Industrial users look for convincing evidence that data sharing will reduce costs, accelerate processes, or open new lines of business.

Parallel efforts are underway to quantify value more rigorously. Work at the OECD examines financial viability, returns on public investment, and global pain points that trusted data intermediation is expected to address. Researchers report difficulty obtaining concrete numerical evidence from industry use cases, partly because companies hesitate to share economic data. Even successful implementations seldom provide metrics that are comparable and replicable.

In Europe, research groups and industry consortia are developing systematic approaches for assessing value. The planned Business Value Report, initiated by IDSA, will gather real-world examples from manufacturing and potentially other sectors, with a focus on comparable indicators. The intent is to move beyond general claims and establish explicit, evidence-based demonstrations of gain.

From a market perspective, only a portion of current data-space initiatives is likely to remain viable. Many concepts mirror startup dynamics: they explore compelling ideas, but not all will achieve sustainable scale. Initiatives with a clear purpose and measurable outcomes will persist, while others will not. Mature implementations such as Catena-X already show paying customers and international uptake, signalling that value can materialize when business logic is strong.

Economic conditions in the data market also influence adoption. As AI increases demand for high-quality industrial data, enterprise datasets gain strategic importance. This trend drives interest in trusted data sharing across multiple regions, including Asia and the United States. At the same time, limited access to capital – in Europe and in parts of the Global South – constrains smaller technology providers. This has led to calls for greater engagement with venture capital and corporate investors to assess investability and stimulate aligned innovation.

Across current initiatives, the consistent finding is the need to translate pilots and prototypes into measurable business outcomes. Without clear economic drivers, adoption will continue to lag.

Governance aligned with economic incentives

Governance was repeatedly identified as an area where clarity and consistency lag behind technical development. Several recurring governance challenges illustrate this.

Local governments and public-sector actors often hold large volumes of data but work within siloed structures and legacy systems. Projects in European cities demonstrate how minimal interoperability mechanisms and reference blueprints help address fragmentation, while also showing that governance must balance local autonomy with federated coordination. Cities require frameworks that define data ownership, access terms, and responsibility distribution across public departments and private partners.

Manufacturing and mobility ecosystems emphasized that governance must align with business processes. Catena-X integrates governance with operational workflows to ensure that data sharing aligns with compliance obligations, supply-chain logic, and market incentives. Governance that remains abstract or purely technical does not generate participation.

International experience shows that interoperability alone does not guarantee adoption; governance must enable predictable, trusted interactions. At the policy level, the European Commission is advancing standardized governance practices through the European Trusted Data Framework. This effort includes harmonized standards for trust mechanisms, data catalogues, semantics, and internal maturity requirements for organizations participating in data spaces. The maturity model aims to offer transparency and benchmarking, supporting a consistent level of organizational readiness.

Governance must also be economically aligned. Only structures that reduce transaction costs, increase predictability, and match participants' incentives will scale. Experience shows that governance models adding complexity or diverging across regions risk slowing commercial uptake.

Interoperability as soft infrastructure

Interoperability has become one of the strongest cross-regional themes. It is increasingly viewed as foundational soft infrastructure rather than a fixed technology standard.

European pilot projects show how minimal interoperability mechanisms (MIMs) help cities coordinate data from different models and platforms. By embedding these mechanisms into procurement and implementation, cities ensure that new systems can federate. Blueprints with technical and non-technical building blocks serve as shared reference points, enabling local solutions to remain part of a broader ecosystem.

At industry level, interoperability enables scaling across thousands of suppliers. Automotive ecosystems require Data Space Connectors, identity management, and semantic models to support cross-border supply chains. Interoperability must support production-grade environments, not just pilots.

Cloud providers point to a different interoperability challenge. Europe's cloud market consists of a few dominant players and many small providers. Smaller actors often lack the

capital to adopt complex standards. Initiatives such as open-source AI agents and orchestration frameworks aim to enable participation by pooling resources and aligning core technologies.

Interoperability also needs to extend internationally. Europe, Asia, and the United States have begun testing cross-region compatibility in manufacturing and supply-chain contexts. Joint demonstrations in the automotive sector explore semantic alignment and connector interoperability. Several Asian regions, including Japan, are engaging in testbeds focused on harmonizing trust mechanisms and technical components.

Across regions, there is broad agreement that interoperability should not become rigid. Standards must allow modularity and variation while ensuring consistent trust and transaction mechanisms. Flexibility remains essential to accommodate sectoral and regional diversity.

Policy and market alignment

Policy frameworks shape how data spaces grow. Current developments show both supportive regulatory progress and areas where misalignment persists.

European policymakers note that demand for data sharing has become more urgent due to advances in AI. The Data Act, the Data Governance Act, the Interoperable Europe Act, and forthcoming harmonized standards aim to provide clearer rules for data access, trust, and interoperability. The challenge lies in ensuring these frameworks translate into practical and scalable models that businesses can adopt without excessive administrative burden.

Several perspectives caution that earlier regulatory enthusiasm drove the rapid creation of data-space initiatives without a full understanding of their purpose or value. This top-down momentum encouraged innovation but also produced fragmentation and uneven maturity levels. Public funding played a crucial early role; however, long-term sustainability depends on market acceptance.

There are also warnings against overlooking the role of government grants. For many companies – particularly in the United States and parts of the Global South – grants serve as essential non-dilutive capital used to bring minimum viable products to market. Some frameworks, such as U.S. commercialization financing plans, require evidence of business viability as part of funding criteria.

Policy must also account for international data flows. European authorities emphasize the need for interoperability beyond Europe's borders, as data does not follow political boundaries. Regulations such as customs initiatives that rely on data-driven processes show how data-space logic can support public-sector efficiency and economic benefits.

The OECD's analysis of global pain points provides another bridge between policy and market demands. Issues such as inconsistent standards, missing trust mechanisms, and fragmented governance regimes directly influence the economic feasibility of data spaces. Policy therefore needs to address these weaknesses to strengthen the economics of data sharing.

Overall, alignment between policy intent and market incentives remains incomplete but is improving as regulatory frameworks mature and industry experience grows.

Global convergence and shared logic across regions

There is clear global convergence on core principles of trusted data sharing, even as regional approaches differ. China, Europe, the United States, and several Asian regions are advancing data-space concepts tailored to their domestic industrial needs. Developments in China underline the importance of interoperability for large cloud and manufacturing ecosystems. U.S. experience highlights the need to link data-space approaches to concrete operational improvements, supported by examples from Ford and the Flex manufacturing platform. Japan participates in international testbeds and aligns industrial priorities with emerging global frameworks, although its architectural choices continue to evolve.

International organizations such as the OECD provide neutral platforms for discussing policy-relevant challenges, enabling countries to exchange practices and coordinate around shared pain points.

Perspectives from the Global South emphasize that regions with fewer resources are not necessarily behind. Some markets already deploy digital platforms in agriculture or other sectors and may outpace traditional industrial economies in specific areas. These regions stress the importance of affordable, flexible technology that still supports interoperability and trust.

Cloud-market fragmentation in Europe mirrors challenges seen elsewhere. Achieving international convergence will require support for smaller providers, common frameworks, and open-source tools that lower entry barriers.

Overall, while architectures vary, the shared logic across regions includes trusted data transactions, interoperable components, flexible governance, and market-oriented design. Global alignment is strengthening through practical collaboration rather than formal policy alone.

Forward-looking observations

Several forward-looking dynamics are becoming visible. The next phase of growth depends on visible, quantifiable value. Initiatives that demonstrate measurable outcomes will shape market expectations and attract investment, and efforts to establish standardized valuation methodologies will support this shift.

Governance will need to become more consistent and economically aligned. There is growing expectation for governance structures that support predictable interactions and reduce adoption overhead.

Interoperability will continue to develop as soft infrastructure. It will require modular standards, shared connectors, semantic alignment, and open-source implementations. Cross-region testing is likely to accelerate convergence.

Policy frameworks will also influence adoption trajectories. As AI and digital trade gain prominence, regulatory clarity and cross-regional alignment will become increasingly important.

Global convergence is emerging around shared principles rather than uniform standards. Data spaces are transitioning from experimentation to measurable practice, and their trajectory will depend on the ability of industry, governments, and international partners to reconcile incentives, reduce friction, and deliver clear economic outcomes at scale.

These insights draw on a closed-door dialogue in Brussels with around 70 experts from business, research, public authorities, and civil society. The group represented a broad mix of European and international perspectives and focused on business models, governance structures, interoperability, and global coordination. The brief reflects the central themes, questions, and priorities raised during that exchange.

Any Questions? Contact us!

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