

# Data as a product and beyond

A progressive approach to data mesh and data spaces



**Atos**

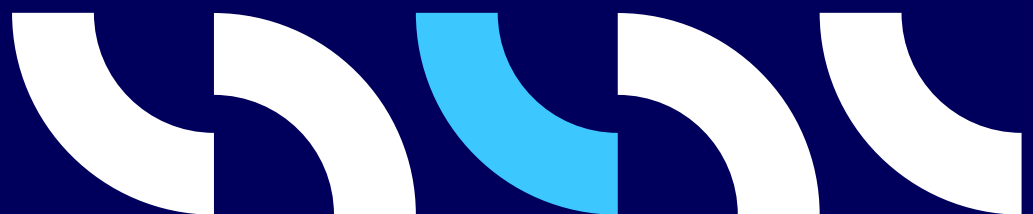
# Executive summary

**Organizations are struggling with siloed, non-trusted, and non-shareable data, limiting both internal value realization and external collaboration. With growing data volumes, diverse domain requirements, and evolving regulatory landscapes, traditional centralized data architectures often fail to scale. Organizations that continue with centralized data approaches will struggle to scale data-driven initiatives.**

**This paper presents a progressive solution approach to modern data challenges leveraging data as a product to make data usable, discoverable, and valuable, data mesh to scale data ownership and operations across the enterprise, and data spaces to enable secure, governed collaboration across organizations. Adopting this progressive model enables businesses to achieve sustainable, enterprise-wide, and ecosystem-driven data value realization.**

**Atos supports this journey by helping organizations design data products, build scalable data mesh architectures, and enable secure data sharing through data spaces. With strong experience in data platforms and analytics, Atos helps turn these concepts into real, working solutions.**

**Let's explore how these three key ideas are shaping the future of data ecosystems and how Atos is transforming organizations' business strategies around Data and AI as we know it.**



# Unlocking value with Data as a Product (DaaP)

Data as a Product (DaaP) refers to the practice of treating data as a distinct entity that can be packaged, marketed, and sold like any other product. It represents a shift in mindset, recognizing that data has its own intrinsic worth and can be leveraged to create new revenue streams and insights.

The following are the top 4 business benefits of DaaP:

1.



## Monetization and revenue generation

Businesses can generate additional revenue streams by selling datasets or providing access to specific data segments to interested parties. This can be done through subscription models, one-time purchases, or licensing agreements.

2.



## Market differentiation

Offering data as a product can set a company apart from its competitors. Quality, unique datasets can be a significant value proposition for clients seeking specialized information.

3.



## Customer insights and engagement

By providing relevant and valuable data to customers, businesses can deepen their relationships and build trust. It fosters a sense of partnership and demonstrates a commitment to helping clients succeed.

4.



## Internal process optimization

Treating data as a product encourages companies to refine their data collection, storage, and management processes. This, in turn, leads to cleaner, more accurate datasets that benefit all areas of operation.

While these are significant benefits, Data as a Product alone cannot scale across complex enterprise landscapes with multiple domains, distributed ownership, and increasing data volumes.

## From data products to data mesh

Data as a Product introduces product thinking, but organizations still face challenges such as centralized bottlenecks, lack of domain ownership, and scalability limitations. Data mesh addresses these challenges by operationalizing data products within a decentralized, domain-oriented architecture.

# Data mesh: Scaling data across the enterprise

As data volumes grow exponentially, traditional centralized data architectures face scalability challenges. This is where a data mesh steps in, offering a decentralized domain-oriented approach to data management.

Following are the key principles of a data mesh:



## Domain-oriented data ownership

In a data mesh, data ownership is distributed to individual domain teams, each responsible for a specific business function or area. These teams are accountable for the quality, availability, and usability of their data.



## Product thinking for data

Data is treated as a product with defined interfaces, documentation, and a clear value proposition. This encourages domain teams to think about data products in terms of their consumers' needs.



## Federated computational governance

The concept of federated data governance implies governance is distributed across multiple entities or teams. In the context of a data mesh, it means that the decision-making authority regarding data is not centralized but spread out among domain-specific teams.



## Self-service infrastructure as a platform

A data mesh provides a platform that supports the entire data product lifecycle, from ingestion and storage to processing and consumption. This platform offers domain-agnostic tooling and services to empower domain teams.

## An overview of the data mesh approach

The data mesh concept revolutionizes data management by adopting a decentralized approach.

It empowers individual business domains to take charge of their own data, supported by a decentralized data architecture encompassing pipelines, storage, and computing capabilities. Instead of viewing enterprise data as one monolithic repository, the data mesh sees it as a collection of specialized data products.

This means domains like finance or sales offer data as a ready-to-use product for analysis, leveraging their deep domain expertise. This eliminates the risk of losing critical domain knowledge during translation into technology and avoids bottlenecks with a central data engineering team.

The data mesh architecture comprises of three key domains – source, aggregate, and consumer.

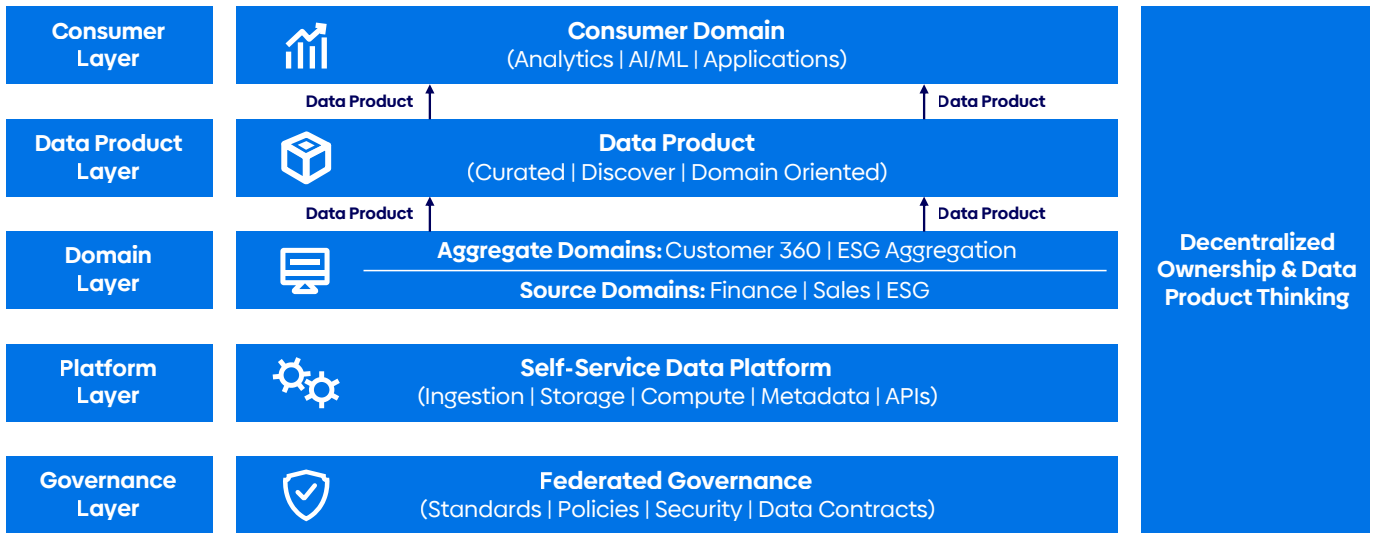
- **Source domains** handle raw, unprocessed data from specific business units, overseeing data ingestion and taking ownership of its entire lifecycle.
- **Aggregate domains** play the role of consolidators, refining data from diverse sources to create unified, domain-agnostic views. They focus on tasks like data fusion and enrichment, delivering reliable, well-structured data for downstream consumption.
- **Consumer domains** are adept at crafting bespoke datasets or services tailored to precise business requirements. They leverage data from both source and aggregate domains to generate value-added products, analytics, or applications, emphasizing the delivery of actionable insights or services.



Each domain operates independently, guaranteeing the quality and accessibility of its data product. Collaboration and standardization are facilitated through well-defined contracts, APIs, and metadata, ensuring seamless integration and the easy discovery of data products.

This makes data mesh not just an architectural choice, but a necessary shift for organizations aiming to scale data ownership, agility, and innovation. It establishes a scalable, governed, and product-driven data foundation across the enterprise.

However, as organizations increasingly need to collaborate beyond their boundaries, the next evolution lies in extending these principles to enable secure and trusted data sharing across ecosystems.



**Note:** Data Mesh enables domain-owned data products to be created, governed, and consumed through a self-service platform and federated governance model.



# Beyond the enterprise: Data spaces

While a data mesh decentralizes data management within an organization, data space takes this approach a step further by enabling trusted data collaboration across multiple organizations.

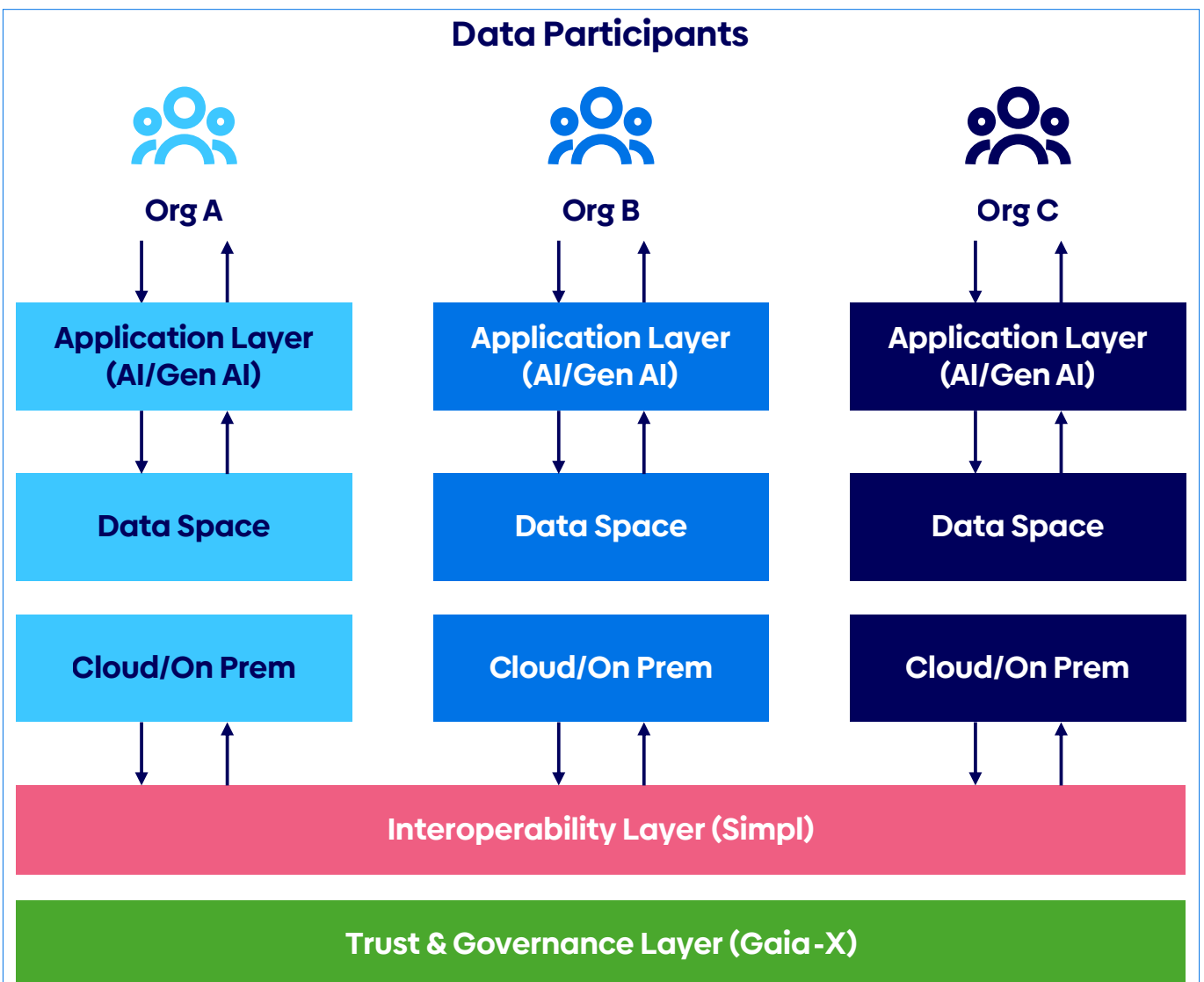
Built on interoperability platforms like Simpl Middleware and governance frameworks such as Gaia-X, data spaces create a federated ecosystem of shared data, driving innovation, AI collaboration, and transparency at scale.

This is a secure, collaborative environment where different organizations can share and use data for a common goal without a central party controlling it. It is built on a shared set of rules and technology, allowing each participant to keep full control over their own data. Data spaces enable businesses, governments, and researchers to share and use data securely for AI, analytics, and innovation, while maintaining full ownership and privacy.

Below are the core principles of data spaces:

- ☑ **Data sovereignty:** Data stays at the source and can only be accessed with permission.
- ☑ **Decentralization:** There is no single controlling entity.
- ☑ **Interoperability:** It requires companies to comply with common standards for seamless data exchange.
- ☑ **Trust by design:** Built-in security and governance are important.
- ☑ **Peer-to-peer:** Organizations are both data providers and consumers.

## Decoding the data space architecture with a diagram



## Explaining key layers

- **Data participants** - Internal data meshes help teams build and manage trusted data products within each organization.
- **Application layer** - Each organization runs its own applications that consume data through a data space connector.
- **Data space** - Each organization has its data space to store data locally, run analytics, and manage data flows, maintaining full control over its data.
- **Infrastructure layer** - Each organization chooses its own infrastructure for storage, compute and networking.
- **Interoperability layer (such as Simpl)** - This shared layer connects different clouds and data spaces to communicate seamlessly for data exchange.
- **Trust and governance layer (such as GaiaX)** - It defines common identity, access, and compliance standards that make sharing safe and fair.

## Driving value with data spaces

Data spaces offer a trusted and interoperable foundation for sharing data across industries and borders. They promote data sovereignty, ensuring organizations retain control over how their data is accessed and reused. By enabling collaborative innovation, data spaces help businesses, governments, and research institutions develop AI models, analytics solutions, and new digital services faster and more responsibly.

Together, these principles mark the natural progression from data product to data mesh and then to data spaces, shaping the next stage of data-driven transformation.



# A case study: The ESG performance indicator

A leading financial services provider aimed to enhance its Environmental, Social, and Governance (ESG) assessment capabilities across global operations.

## Business challenges

- Evolving ESG regulations requiring dynamic data models
- Diverse and distributed data sources across regions
- Lack of standardized data sharing and governance

## Atos's solution

- Domain-based ingestion of ESG, financial, and risk data
- Region-specific aggregation enabling localized governance
- Designed and implemented a unified ESG scoring model – the Risk Assessment Score (RAS)
- Federated governance aligned to regional regulatory needs
- Standardized data products for consumption across stakeholders

## Architecture alignment in the ESG solution with modern data principles

Concept	Implementation in ESG Solution
Data product	RAS score delivered as a consumable ESG data product
Data Mesh	Domain-based ingestion, aggregation, and scoring layers
Federated Governance	Region-specific ESG rules and compliance frameworks
Data Space	Secure sharing with regulators and ecosystem partners

## Extending this to Data Space

The ESG solution was implemented using Data Space model, enabling regulators to access trusted ESG data securely, financial institutions to collaborate on ESG benchmarks, and cross-border data sharing with compliance and sovereignty.

## Business outcomes

- Improved ESG compliance and transparency
- Enhanced decision-making through standardized insights
- Reduced regulatory risk
- Scalable architecture supporting 19,000+ firms and 300+ indicators

This implementation demonstrates how Data Products, Data Mesh, and Data Spaces can be practically combined to address complex, real-world data challenges at scale.

# Transform your data strategy with Atos

DaaP and data mesh represent a quantum leap in data management and utilization. By treating data as a product and adopting decentralized architectures, organizations can unleash the full potential of their data ecosystems, driving innovation, and gaining a competitive edge in the data-driven landscape. As businesses continue to evolve, those that effectively leverage these concepts will be at the forefront of the data revolution.

Extending these principles further, data spaces take this evolution beyond a single enterprise, enabling secure and governed data collaboration across organizations. Together, they form the foundation of a truly connected and intelligent data ecosystem.

Atos is a global leader in AI-powered digital transformation, focused on unlocking data insights and accelerating AI adoption to create smart, connected ecosystems in which your business can thrive. Our service offerings fuel informed decisions, innovation, agility and sustainable growth in the digital world.

Atos has been recognized as a leader in the [ISG Provider Lens® 2025 for advanced analytics and AI services](#), highlighting its data and analytics modernization services.

Find out more about how Atos is building and managing scalable data platforms to deliver actionable insights for your organizations and ecosystems: <https://atos.net/en/services/data-and-ai/data-services>.

Connect with our team of experts to explore opportunities around DaaP, data mesh and data spaces in your organization.



# About the author



## **Parag Dharmadhikari,** Principal consultant

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Parag is a principal consultant in Atos's Data and AI vertical. Based out of Mumbai, India, he works across global enterprise engagements and multi-geography delivery programs.

Across his illustrious career, he has led enterprise-scale data modernization and cloud migration programs, established Big Data Centers of Excellence, delivered AI-augmented analytics platforms, and published a white paper on Data Mesh and modern data platform architecture.

Parag believes data is still an untapped powerhouse and looks to help organizations transform complex data into intelligent, actionable, and business-driven insights through modern, scalable, and governed data platforms.

He has a Bachelor of Engineering (Electronics) from S.A.K.E.C., Mumbai and has completed his post graduate diploma in business administration (E-Business) from Welingkar Institute, Mumbai.

## About Atos Group

[Atos Group](#) is a global leader in digital transformation with c. 56,000 employees and annual revenue of c. €7.2 billion (at the go-forward perimeter), operating in 54 countries under two brands - Atos for services and Eviden for products and systems. European number one in cybersecurity and a leader in cloud, Atos Group is committed to a secure and decarbonized future and provides tailored AI-powered, end-to-end solutions for all industries. Atos Group is the brand under which Atos SE (Societas Europaea) operates. Atos SE listed on Euronext Paris.

The [purpose of Atos Group](#) is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

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Let's start a discussion together



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107728- AT + ST - Whitepaper Data as a product

The Atos logo, featuring the word "Atos" in a bold, blue, sans-serif font. The letter 'o' is stylized with a white dot in the center.