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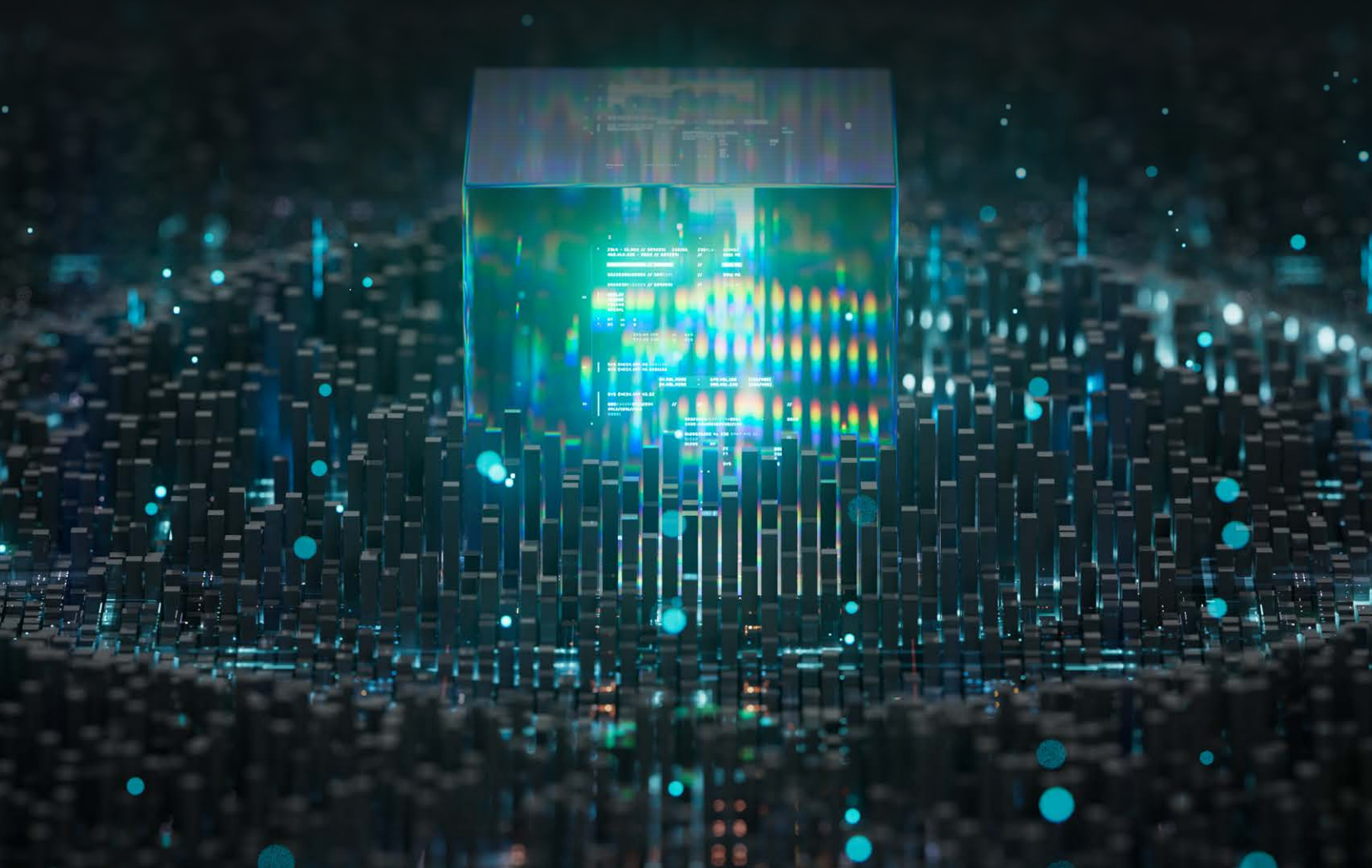
Whitepaper

Demystifying Data-as-a-Product

Seven Key Capabilities to Amplify Business Outcomes



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Executive Summary

Organizations today generate massive amounts of data but often struggle to derive meaningful insights, regardless of where they stand on the data maturity curve. The transition from collecting data to deriving actionable insights remains a significant challenge, exacerbated by issues of trust, accessibility, and usability. This whitepaper examines how a product-centric approach to data can turn raw data into dependable, scalable, and actionable insights.

This whitepaper offers valuable guidance for business leaders, data strategists, and IT professionals navigating today's data-driven economy. As businesses increasingly rely on data to drive success, the ability to unlock its full potential has become more critical than ever.

The Data-as-a-Product (DaaP) model provides a transformative way to convert fragmented, underutilized data into valuable, business-aligned assets that fuel innovation and competitive advantage. By treating data as a governed, scalable, and interoperable product, organizations can enhance data discovery, reuse, and integration.

Unlike Data-as-a-Service (DaaS), which focuses on data sharing, DaaP emphasizes delivering business value through well-defined, domain-specific data products. These products become trusted reference systems, catering to a range of consumers, from analytics teams to AI-powered applications.

This paper demonstrates how adopting a robust data strategy centered on DaaP can help organizations achieve operational excellence, enhance customer satisfaction, and boost market competitiveness. Additionally, it explains how AI-powered data products can evolve into decision products that automate and inform critical business processes, generating measurable business impact.

Through seven key capabilities, this whitepaper outlines actionable steps to improve decision-making capabilities and achieve tangible outcomes. From aligning data strategies with business objectives to leveraging AI-powered decision products, the roadmap empowers organizations to unlock the full potential of their data assets.

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Introduction

Data is the cornerstone of modern businesses, driving decisions, enabling innovation, and shaping customer experiences. Yet, its true potential often remains untapped due to fragmented ecosystems, inconsistent governance, and unclear ownership models. While businesses generate vast amounts of data through various functions, IoT devices, and AI or cloud applications, they frequently struggle to extract actionable insights.

Why Data is Critical for Business Success

Data Explosion: By 2025, the global data volume is expected to reach 181 zettabytes, fueled by connected devices, cloud platforms, and real-time analytics[1][2].

Economic Impact: Businesses lose an estimated US $3.1 trillion annually due to poor data governance, lack of integration, and underutilized data assets [3][4].

Revenue Growth Advantage: Companies embracing a data-driven approach are 91% more likely to outperform competitors in revenue growth and market share[5][6].

Key Industry Challenges in the Data Economy

Siloed Data Systems: Isolated storage of data hinders enterprise-wide visibility, delays decision-making, and stifles innovation.

Undefined Ownership: Lack of clear accountability leads to data duplication, governance failures, and inefficiencies.

Limited Data Usability: Raw, unstructured data demands significant preprocessing to generate actionable insights.

Compliance Pressures: Data privacy regulations like GDPR and CCPA require secure, well-governed ecosystems, making compliance essential.

The Current Issue

Traditional Data-as-a-Service (DaaS) models, which focus on sharing data without considering its context, no longer suffice. Businesses need to pivot to a Data-as-a-Product (DaaP) approach, treating data as a fully governed, business-ready asset embedded into core operations. This whitepaper outlines seven key capabilities to enable better decision-making, process automation, and data monetization through trusted, scalable, and domain-aligned data products.

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Challenges in Extracting Value from Data

The potential of data lies in empowering organizations with actionable insights that drive decisions, enhance efficiency, and uncover new opportunities. However, most businesses face three persistent challenges:

Is my data correct?

Trust in data is comprised by technical inconsistencies, fragmented ownership, and limited domain expertise. This results in several issues, such as:

- A lack of domain knowledge and ownership among those responsible for curating data for consumption
- An overemphasis on technical aspects of data quality, rather than focusing on building overall business trust

Is it easy to consume?

- Data is often inaccessible or hard to interpret for business users, limiting its usability. This leads to several challenges, such as:
- Difficulty in finding trustworthy data, even when it is available
- Business users being unable to interact with data in natural language
- Overlooking the need to create a consumption experience that goes beyond just functional requirements by technical teams

Is it actionable?

- Insights must seamlessly translate into measurable outcomes, but this remains a bottleneck due to disconnected processes. Common challenges include:
- Difficulty in providing insights back to the systems responsible for taking action
- A lack of mechanisms to measure the impact of actions, which hinders the ability to generate better insights over time and track progress effectively

Breaking Down the Challenges

These challenges when further broken-down span technical, operational, and strategic domains. They are as follows:

Data Quality and Trust: Governance practices often fall short in execution, and incomplete pipelines result in unreliable data. While automated validation frameworks can address certain gaps, their effectiveness is limited without domain-specific rules. For example, interpreting a Null value as “Not applicable” requires business expertise, which is frequently missing in technical teams.

Ownership and Accountability: Clear domain-based ownership fades once data moves to centralized systems, leading to silos and fragmented use cases. Establishing accountability across the data lifecycle prevents duplication and encourages collaboration.

Usability and Accessibility: Simplifying access through self-service platforms accelerates decisions. However, with tools like ChatGPT and large language models (LLMs), business users now expect conversational interactions instead of traditional dashboards or reports.

Operational Integration: Embedding data products into workflows bridges the gap between insights and actions. Yet, analytical systems and transactional systems often lack integration, slowing processes like automating order placements based on insights.

Compliance and Security Risks: Adhering to regulatory standards requires domain-specific actions. Generalized frameworks fall short without contextual interpretation from experts familiar with how data is processed and consumed in each domain.

Increased Processing Costs: While cloud-based platforms provide elastic scaling, misuse or lack of clear direction can drive up costs without yielding meaningful insights.

These challenges also present opportunities. By addressing issues of trust, accessibility, and actionability, organizations can unlock the full potential of their data assets through a product-centric approach.

The Product-Centric Approach to Data

Adopting a product-centric approach treats data as a reusable, trustworthy asset, redefining how businesses derive value from their data. Data products are designed to:

Be self-describing and discoverable: Enable users to easily search for and understand data with minimal friction.

Foster distributed ownership: Empower domain experts to oversee data quality and usage, ensuring context and accuracy.

Decouple production life cycle from consumption: Allow for continuous development and scaling independent of consumption cycles.

Deliver interoperable, business-focused solutions: Focus on creating products that address specific business challenges and provide measurable value.

This approach strengthens trust in data while aligning strategies with business goals. For instance, advanced data products powered by AI/ML can serve as decision-making tools, bridging the gap between insights and action.

A vertically integrated value chain further enhances this strategy, allowing data products to evolve into decision products tailored to business needs.

While many organizations equate data-as-a-service with extracting value, this perspective is limiting. A data-as-a-product mindset offers unique advantages:

Micro-focus: Products target specific use cases, ensuring they align with business needs.

Proactive design: Anticipate user needs to deliver solutions that evolve continuously.

Clear ownership: Unlike services with fragmented accountability, products provide singular accountability, fostering clarity and trust.

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From Vision to Execution
Turning Data Products into Business Value

A strong data strategy centered on monetization, data exchange, and integration ensures that data products deliver continuous business impact. Based on our experience across industries, here are seven key capabilities to unlock value:

1. A Business-Outcome-Driven Data Product Strategy

A successful data product strategy begins with a sharp focus on delivering measurable business outcomes. Organizations must align data products with specific business goals and track performance against well-defined KPIs.

Key elements

- **Clear business objectives:** Establish use cases that directly tie data products to business goals, ensuring value realization.
- **Prioritization:** Evaluate feasibility, desirability, and scalability of data products to focus on high-impact use cases.
- **Engineering excellence:** Build data products on scalable, secure, and high-performance platforms.

Example: A logistics company deployed a predictive data product to optimize shipping routes, reducing fuel costs and delivery times. The implementation began with tracking on-time and in-full (OTIF) deliveries by combining data from two domains—Order Management and Fulfillment. The order management domain exposed all order-related data as data products, while the fulfillment domain provided delivery data. These foundational data products enabled the broader supply chain domain to create interoperable higher-order decision products, improving operational efficiency.

2. Demand Driven Product Management

Data products must be treated as dynamic assets that evolve through continuous development and improvement. Businesses should follow a product lifecycle approach that spans from ideation to development, deployment, and iteration.

Lifecycle stages

- Define requirements with granularity: Establish product requirements with clear roles for data owners and developers.
- Agile product development: Use agile or DevOps frameworks for rapid iteration.
- Continuous monitoring and iteration: Refine data products based on business and user feedback.

Example: A bank developed a churn prediction data product to identify customers at risk of leaving. Over time, the product evolved as new churn patterns were identified through continuous monitoring. The organization implemented a two-track system: one track to update data rapidly and another for the stable definition of the data product. This approach ensured scalability across the enterprise while meeting user needs effectively.

Connecting business strategy with Data Product Life Cycle Management is critical to success

Techno-Functional Skillset close to Domain

As Domain ownership resides with the Domain, Domain team needs to account for technical competencies required

Shift in organization's way or working

- Data from being treated as asset should be treated as a product instead
- Organization need to adapt to new way of working

Manage Interoperability between domains

Several domains may need to leverage Data Products from each other, creating complex interoperability and robust governance /guidelines

Balance between centralization and autonomy

As each domain is independent in nature, there will be trade-offs due to legacy opinions of data centralization

Manage complexity involved in creating Self-Serve Infra provisioning platform

- Creating self-serve infra platform is a complex process
- Cross-functional teams with multiple skills
- Federated computational governance needs to be integrated with the platform

3. Empowering People Through Data Democratization

Data products are only valuable if teams across the enterprise can discover, understand, and use them. Empowering employees with data literacy ensures they can access data products efficiently and make data-driven decisions.

Key enablers

- Data marketplace: Provide self-service access to data through a centralized marketplace.
- Visualization playbooks: Offer intuitive dashboards for easy-to-understand insights.
- Conversational type interfaces: Use conversational type assistants for natural-language queries.

Example: A hotel chain built a self-service customer insights platform that allowed marketing teams to create targeted campaigns using data made available from partner firms. Data products were deployed in a marketplace and consumed through conversational interfaces or advanced dashboards. This enhanced user engagement by combining accessibility with intuitive design. This is illustrated below.

Key Interventions brought in the journey

Productize Data-as-a-Product

Implemented “Domain led Data Products” for D&A landscape scaling out Producers and consumers

Personalization Data Marketplace

Enhanced “Data Fluidity” delivered via "Netflix of Data“ leveraging FAIR (Findable, Accessible, Interoperable & Reusable) Data Principles

Building for Data Trust

Building “data trust” in the age of GenAI thru our Data Trust Framework and best practices to enforce Uniform Governance and Interoperability

Infrastructure Fluidity

“Self-serve data Infrastructure” for Increased agility and DevOps to abstract complexities in building secure, scalable Infra

Decision Products Leveraging Enterprise AI & GenAI

Leveraging “Applied AI / GenAI” to drive analytics @ scale driving efficiencies, deeper insights and business value from Data

4. Data Products Must Integrate with Business Processes

For maximum impact, data products should integrate seamlessly into existing business workflows and applications, enabling real-time, data-driven decision-making. Businesses can achieve this through a three-layered approach:

- **Source-aligned products:** Aggregate raw data from systems like SAP or Oracle.
- **Intermediate products:** Create canonical views for harmonized insights across domains.
- **Consumer-aligned products:** Provide actionable insights tailored to business needs.

Example: A manufacturer integrated factory production data into its planning processes. Data from individual factories using disparate systems like SAP or BaaN or PLM Systems or MES Systems or OT systems or Scada Software or Oracle was curated into source-aligned products. These were then transformed into intermediate data products offering a 360-degree view of production orders. Finally, consumer-facing insights, such as a 360-degree factory production plan, were delivered through API integrations. This approach reduced inventory costs and improved production planning. This is illustrated below.

Fig.1 : Data Products Integration

5. Evolve the Operating Model for Data Products

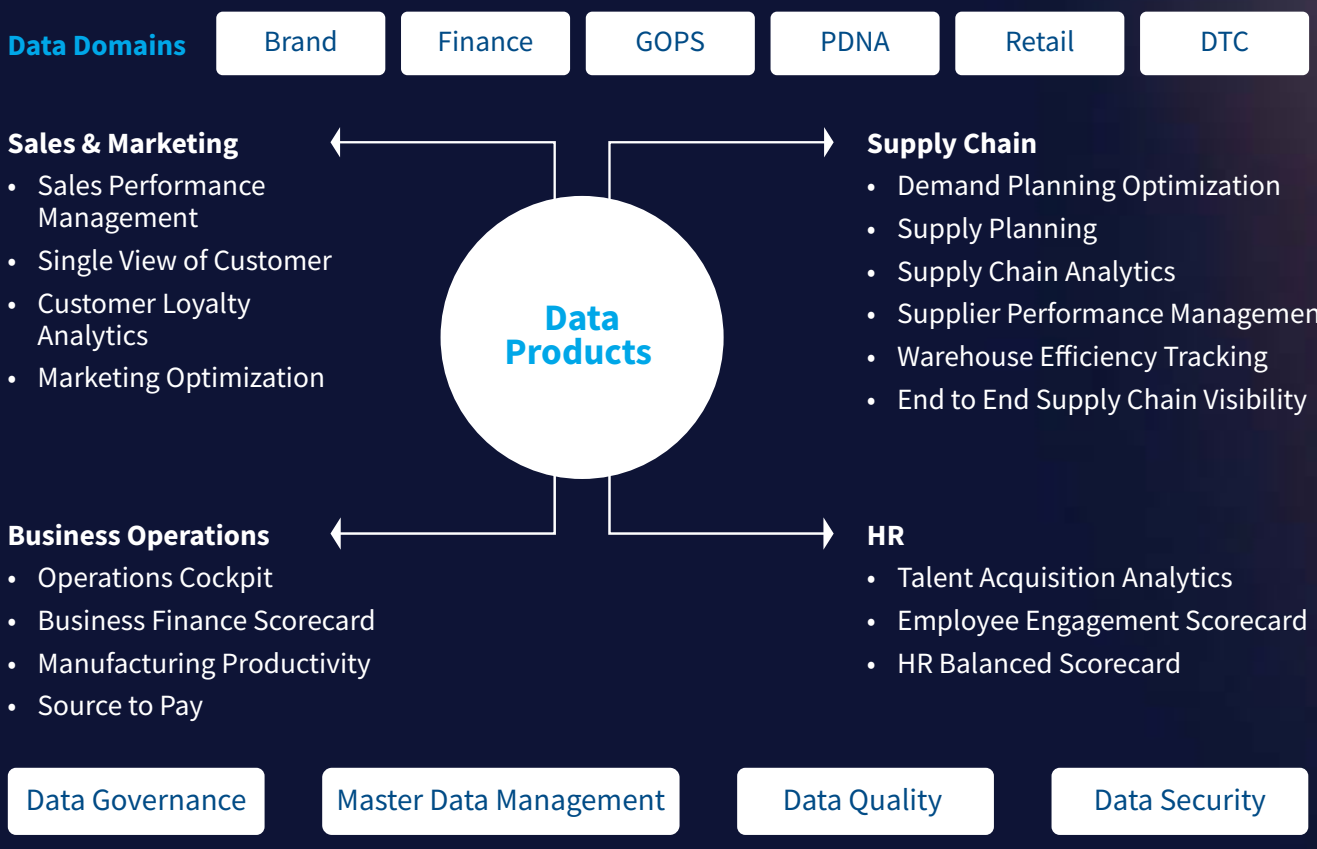
Adopting a product-centric approach requires an operating model tailored to managing data products effectively. Businesses must redefine roles and adjust responsibilities to ensure seamless product management.

Key roles to define

- Data product managers: Drive the data product strategy and oversee the lifecycle.
- Data engineers: Build and maintain data product pipelines, implementing business-aligned processing rules.
- Data stewards: Ensure data accuracy, privacy, and compliance.

Example: A shoe brand redefined its operating model by creating a centralized data product team responsible for all customer data products. Here, the data product managers were tasked with shaping the firm's data product strategy, covering areas such as data governance (MDM), data quality and security. These guidelines were developed by the central team and implemented within individual data products by data engineers and stewards, creating a robust and coordinated framework.

Industrialized Data Product for a sports major



6. Build Trust Through Data Governance and Automation

Trust forms the foundation of successful data product adoption. To ensure transparency, accuracy, and compliance, businesses must establish comprehensive data governance policies and leverage automation.

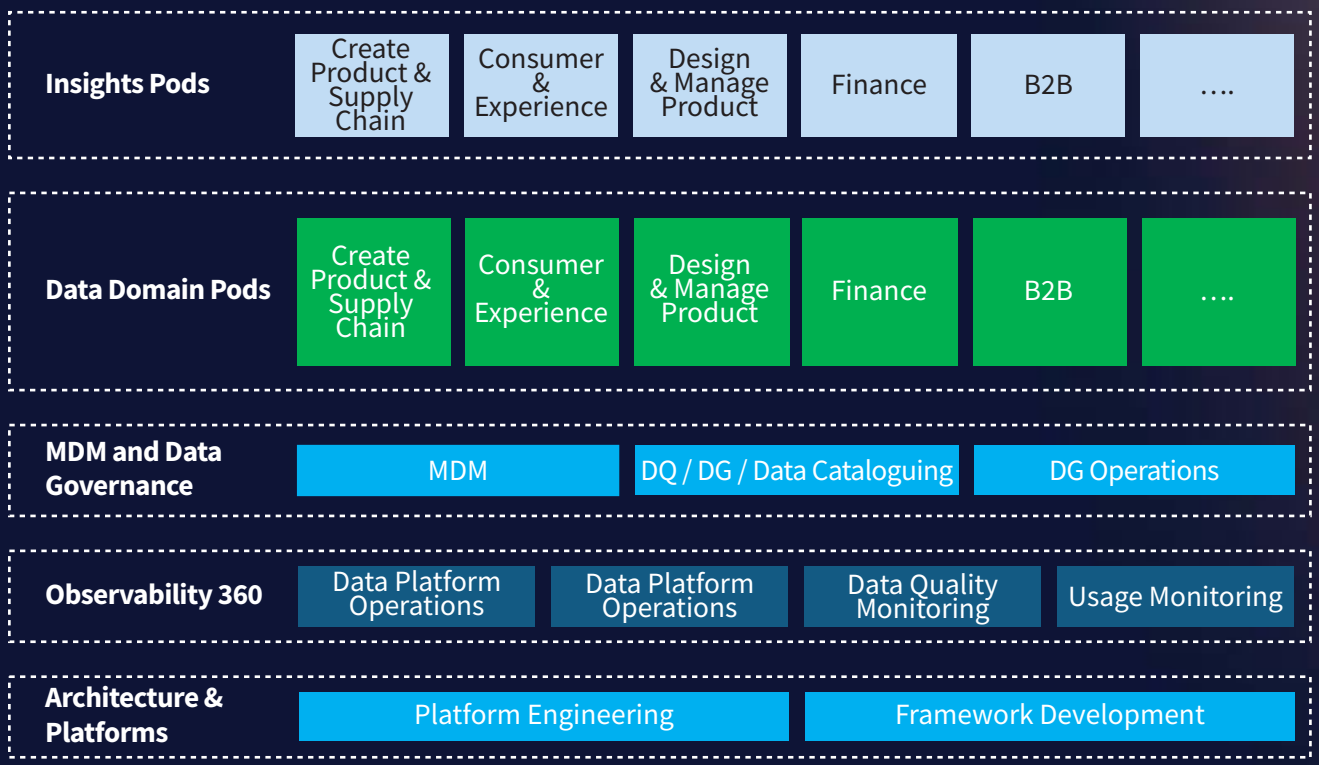
Key governance actions

- Metadata-driven governance: Define product metadata, data lineage, and business-specific data rules.
- Automated data quality checks: Implement automated validation processes to maintain reliability.
- Compliance and security frameworks: Adhere to data privacy regulations like GDPR and CCPA.

While centralized solutions and products exist at an enterprise level, their success hinges on effectively combining tools at the level of a data product, ensuring transparency, dependency, and usability for end consumers.

Example: A sports giant created business-aligned pods to drive data product delivery. By establishing a golden source of truth from billions of records, the company simplified data consumption and developed data products tailored to consumer needs. This is shown in the diagram below.

Operating Model Transformation: Business Value Stream Aligned D&A Pods driving data product delivery



Solving for trusted decisions requires a holistic view

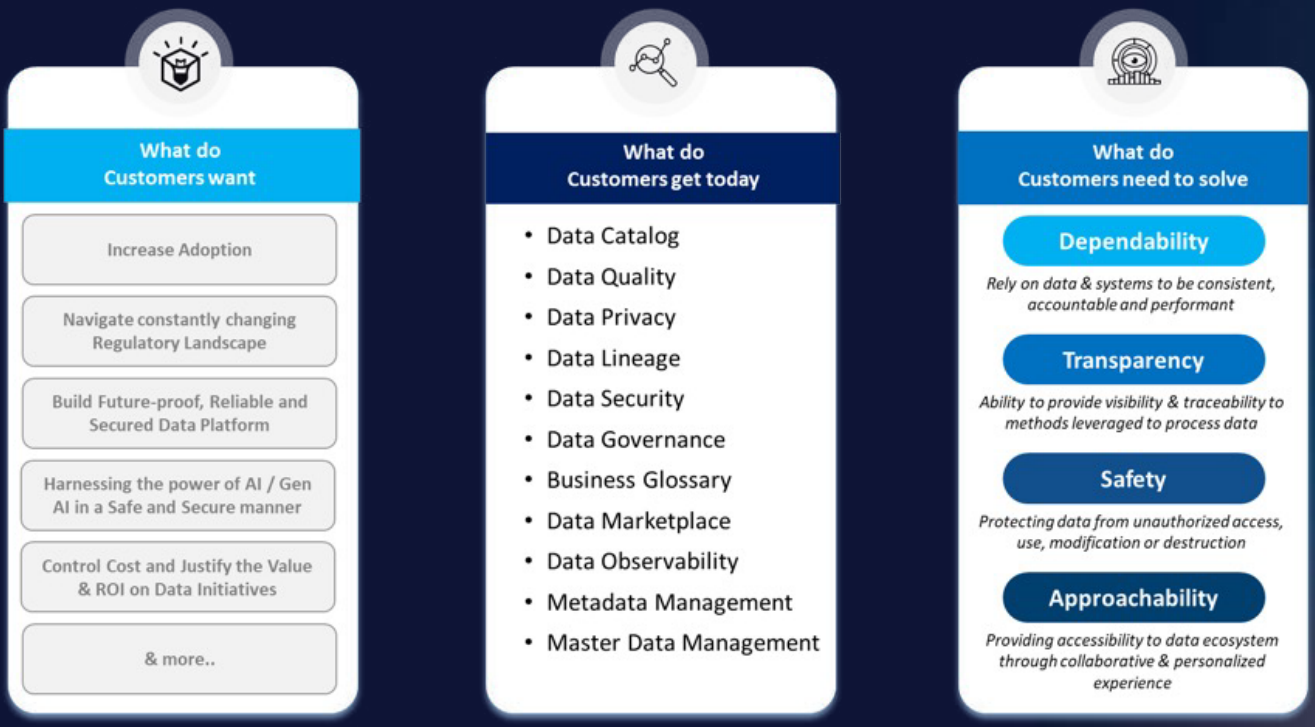


Fig. 2: Solving for trusted decisions

7. Embrace Continuous Innovation

Data products should be continuously improved through co-innovation with customers and internal stakeholders. Businesses must adopt a culture of experimentation, where products evolve through collaboration and customer feedback.

Ways to foster innovation

- Co-innovation programs: Collaborate with customers to define and refine new features.
- A/B testing frameworks: Test new features in controlled environments before full-scale deployment.
- Innovation labs: Establish dedicated teams focused on R&D for data products.

Example: A transportation company refined its data products through A/B testing and feature experiments. Updates were published in the final marketplace after by decoupling the production of data products from their final consumption. This iterative approach allowed for continuous improvement and better alignment with business needs. This is illustrated below.

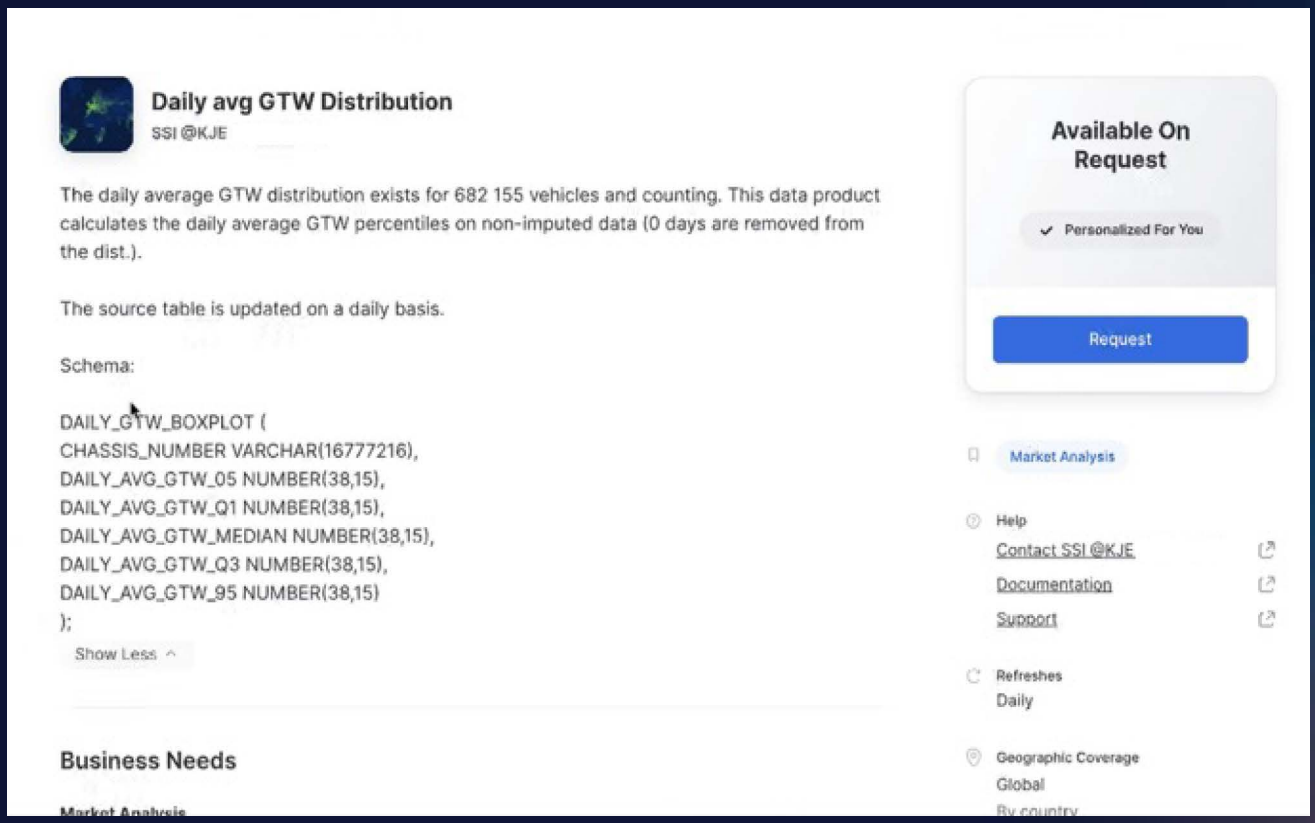


Fig 3: A/B testing and feature experiments for a transportation company

There will be a need for continuous innovation and the journey may never end

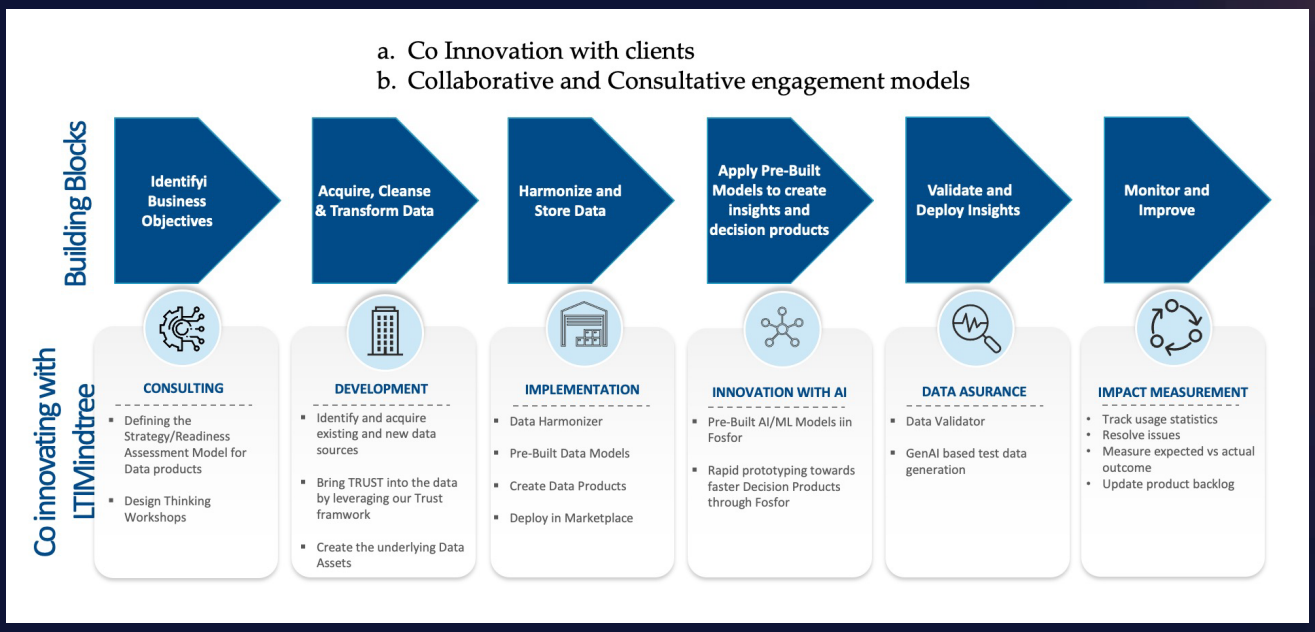


Fig 4: Co-innovation with LTIMindtree

In Summary

The journey from fragmented, siloed data to trusted, business-ready data products is transformative yet achievable with the right strategy. A product-centric approach enables businesses to unlock the full potential of their data, moving beyond simple data sharing to creating data products that are integrated, governed, and purpose-built for business outcomes.

The Data-as-a-Product (DaaP) model transforms data into a governed, scalable, and monetizable asset. It drives better decision-making, operational efficiency, and competitive advantage by shifting the focus from raw data management to building data products that fuel AI-powered insights, predictive analytics, and automation.

Success hinges on a robust data strategy, supported by cross-functional teams, AI-powered platforms, and automated data pipelines. Redefining roles, such as data product managers and stewards ensures accountability throughout the product lifecycle, while embedding data products into business processes fosters continuous innovation and faster time-to-market.

Transparent governance and automation build trust in data products, while KPIs and real-time performance dashboards measure impact and ensure long-term value.

By following the seven key capabilities outlined in this whitepaper, businesses can transform their data into a revenue-generating asset, driving sustainable growth, operational efficiency, and market competitiveness. This journey is not just about technology—it's about creating a culture where data is treated as a critical product, propelling innovation and long-term success.

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Indivar Nayyar is the Global Vice President at LTIMindtree, responsible for strategy, customer acquisition, and driving growth for the Data, Analytics & AI business. With extensive experience in practice building, he has a deep understanding of current and emerging trends in Data, Analytics, and AI, and their implications for business and IT leaders. Indivar is also a member of the Forbes Technology Council, where he shares insights on leveraging technology to drive business transformation.

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Sumukh Guruprasad is a Director of Data Products at LTIMindtree, specializing in transforming data into valuable, actionable assets. With a blend of consulting and business technology expertise, he is passionate about building scalable data products that drive strategic decision-making. Sumukh's approach focuses on delivering meaningful business outcomes by leveraging data as a product, ensuring usability, accessibility, and long-term value creation.