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Matt Aslett
Director of Research, Analytics and Data

Using AI to Simplify Master Data Management and Trusted 360-Degree Views

Despite the efforts made by enterprises to be more data-driven, some of the most fundamental questions about an enterprise—such as how many customers it has—remain difficult to answer. Creating a "single version of the truth" that represents customers, products, suppliers or employees requires not just the ability to integrate and manage data from multiple business entities, regions, departments and applications, but also agreement on the definitions of those terms and the related data. This is a perennial challenge for many enterprises. One-half of participants in Ventana Research's Data Governance Benchmark Research say disagreement on the definitions of data are a primary concern in managing data effectively.

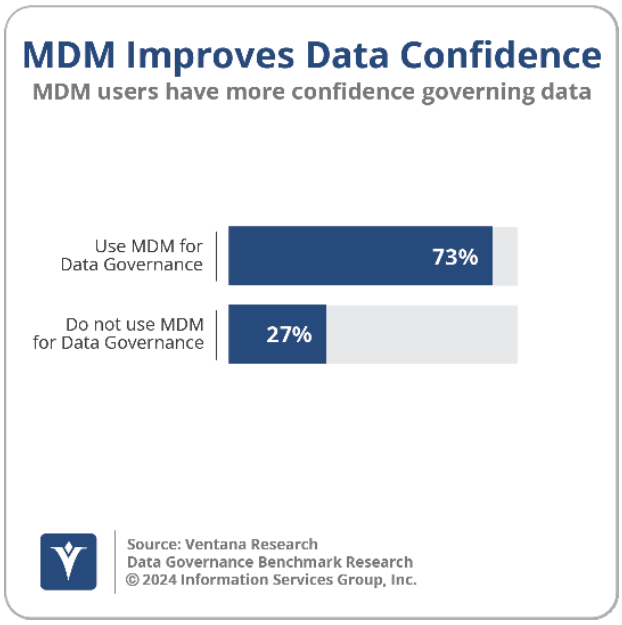
Data teams are tasked with accelerating the delivery of trusted data assets to support various business programs. Data unification facilitates a 360-degree view of customers, products, suppliers or employees by providing common definitions across multiple data sources and comprehensive attributes including transactions, interactions, relationships, and calculated or predicted scores. Master data management (MDM) is a well-established approach to improving confidence in data through the creation and enforcement of common data definitions. Encompassing data validation, data deduplication and data enrichment, MDM provides the foundational single source of truth for data unification and is a natural starting point for creating reusable data assets.

Despite its benefits, MDM has traditionally involved complex manual processes and expert users. This has led many to assume that MDM can be a bottleneck on data-driven innovation and has limited its use in many cases to tactical data stewardship projects, rather than enterprise-wide strategic data unification initiatives. This assumption is based on an outdated view of MDM. Next-generation MDM products are a primary enabler of innovation, running processes with millisecond latency to support real-time operational use cases and incorporating artificial intelligence and machine learning (AI/ML) to facilitate improvement in operational efficiency and time-to-value by automating previously manual and time-consuming approaches to data classification.

MDM software was initially developed with a focus on customer data integration and product information management. If enterprises are unable to properly track customers, customer service and retention are likely to be negatively impacted, while cross- and upselling opportunities could also be missed. Similarly, if enterprises cannot properly track the bills of materials for products, the ability to produce, market and sell those products will potentially be negatively impacted, along with product maintenance and customer engagement.

Customer and product data remain natural starting points for MDM initiatives, but data-savvy enterprises seek out multi-domain MDM products that can address customer and product data alongside data about employees, assets, suppliers, locations and any other pertinent business data. Managing data from across multiple domains can be easier said than done, given the increasing range of data sources and formats as well as growing data volumes. Innovation driven by AI is delivering improvement in operational efficiency and time-to-value from data unification initiatives by automating approaches to mastering data that have traditionally been manual and time-consuming.

The use of AI/ML in data unification initiatives can support personalization by identifying and providing access to information most likely to be relevant to a specific user and their role. AI-guided authoring and assistance can also automate data profiling processes, while pre-trained models can also be used to generate recommendations or automatically merge and deduplicate data. Additionally, automation facilitates collaboration between data stewards and data consumers and allows definitions and integrations to adapt as the business changes. Core MDM processes can also be enhanced with generative AI. For example, large language models can be used to match and deduplicate data using matching rules. AI can also be used to automate anomaly detection and accelerate entity resolution through dynamic data classification, data profiling and in-line data enrichment. AI can also be used to accelerate complex data models and configurations.



Many enterprises struggle to cope with the volume and range of data at their disposal. Two-thirds of enterprises state that they are not very confident in governing data across the business, while only 28% say data is well-trusted across the enterprise. If they are to deliver operational efficiency and analytics insights, enterprises must be able to trust the data used to conduct and analyze the business. MDM is a fundamental enabler of trust in data. Almost three-quarters of enterprises using MDM for data governance are confident in their ability to govern and manage data across the business, compared to only 27% that do not use MDM for data governance. We assert that through 2026, three-quarters of enterprises will be engaged in data integrity initiatives to increase trust in their data processes using data quality and MDM tools.

Holistically managing data with an underlying data unification platform allows consistent management of data across siloed systems and ensures that data definitions are agreed and current. Enterprises seeking to become more data-driven are recommended to examine the AI-enhanced data unification and MDM products to accelerate and automate data classification and improve trust in data.

Matt Aslett –Director of Research, Analytics and Data

Matt Aslett leads the software research and advisory for Analytics and Data at Ventana Research, now part of ISG, covering software that improves the utilization and value of information. His focus areas of expertise and market coverage include analytics, data intelligence, data operations, data platforms, and streaming data and events.