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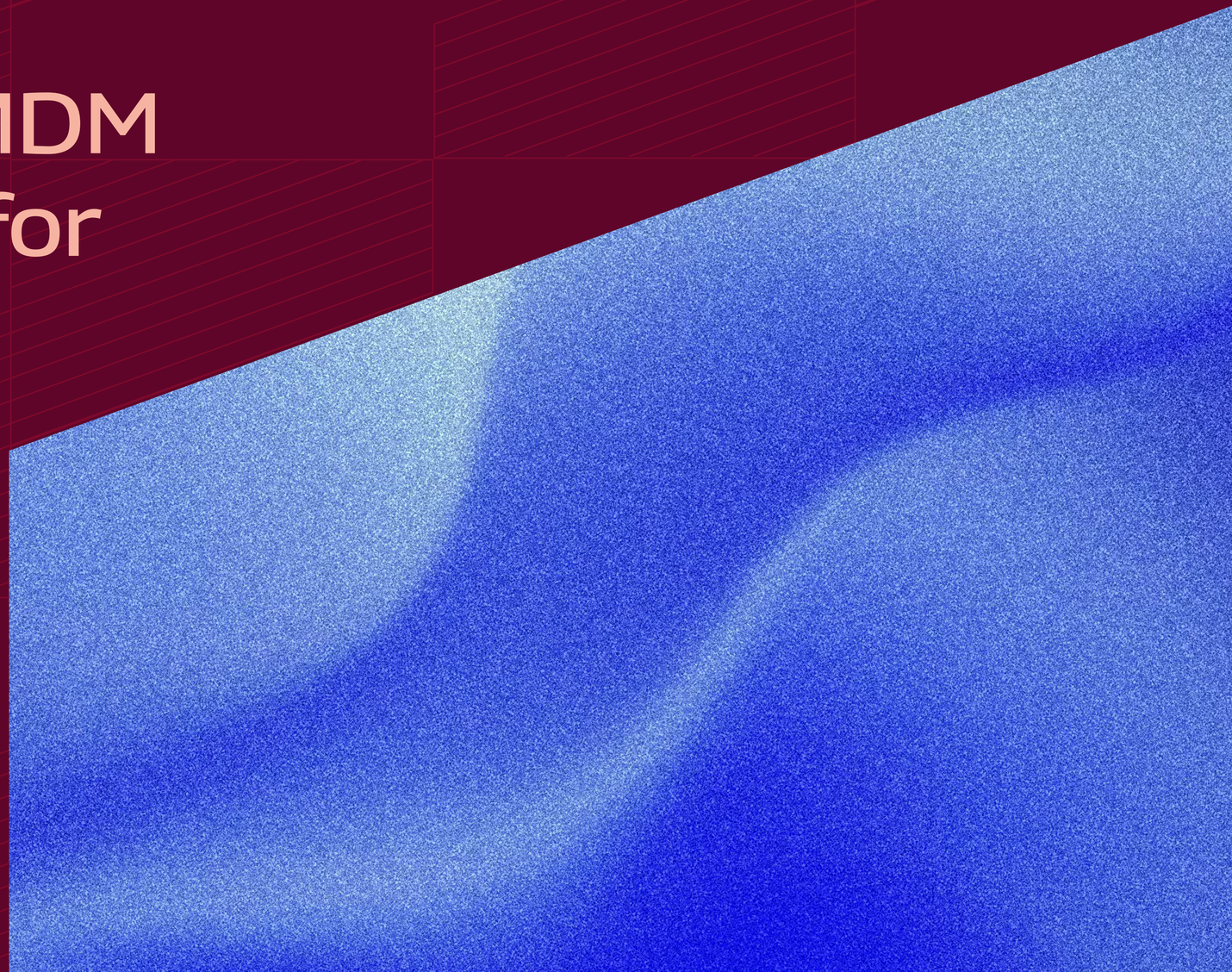
Whitepaper

Beyond the Silos: MDM as Intelligent core for Data Excellence



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Executive Summary

Master data management (MDM) is transforming from a foundational data management practice into an intelligent core that empowers the data-driven enterprise. This whitepaper explores the evolving landscape of MDM, its enduring importance in today's data-centric world, and emerging approaches to new-edge MDM that embrace artificial intelligence (AI), machine learning (ML), generative AI, and agentic AI. We will explore how leading MDM product vendors are integrating AI/ML and agentic AI approaches into their solutions to meet the evolving business needs and regulatory requirements of today's enterprises. This paradigm shift toward automated, intelligent, and adaptive MDM is paramount for modern enterprises to unlock the value of their data, make data-driven decisions, and gain a competitive advantage.

Enduring Importance of MDM in Modern Enterprise

MDM provides a single, authoritative source of truth for core business entities, including customers, products, suppliers, employees, and locations. While MDM remains a foundational pillar for an enterprise, the exponential growth in data volume and complexity of data-generating channels necessitates robust MDM strategies. The business drivers for the increasing importance of MDM are:

Emphasis on data quality

MDM ensures data health is checked and uplifted by cleansing, standardizing, and enriching it before creating a single source of truth for master data entities. This reduces data inconsistencies, remediates data errors, and improves data quality. Businesses with mature MDM practices reported up to 40% improvement in data quality metrics and substantially enhanced decision-making capabilities (McKinsey, 2025). An accurate and complete data definition is a prerequisite for advanced data analytics and AI model training, enabling the generation of high-quality outcomes and business value.

Increased operational efficiency

MDM simplifies and automates data management processes, from consolidating critical business data to data standardization, unification, and finally, synchronization of curated golden records with key enterprise systems like CRM, ERP, and enterprise DWH. This results in improved efficiency and significant operational cost savings. Master data management statistics indicate that many companies achieve reductions of between 20% and 30% in overall data management costs (McKinsey, 2025).

Streamlined data governance, security, and compliance

MDM defines clear data ownership and provides control to data stewards to ensure master data definitions are complete and aligned with business needs. It incorporates security controls, protects sensitive information, brings in auditability, and supports evolving compliance mandates. By ensuring data accuracy and consistency, MDM reduces the risk of non-compliance with regulations like GDPR, CCPA, HIPAA, and DPDA.

Enhanced decision-making

MDM establishes a holistic view of critical business elements, including customers, products, and suppliers, thereby enabling businesses to run targeted campaigns, focus marketing efforts, deliver customized products, and optimize supply chain processes. It empowers an enterprise to make informed decisions about customers, marketing, supply chain, assets, finance, and employees, driving strategic initiatives.

Emerging Approaches for Modern MDM

Traditional MDM systems are built on a static view of data, predefined data quality rules, and inflexible governance. These systems are ill-suited for handling complex data types and patterns, managing increasing data volumes, and adapting to continuously evolving business needs and changing compliance regulations. Modern enterprises demand real-time data insights, the ability to handle structured and unstructured data, automated processes, and governance over AI/GenAI-generated data. This necessitates a shift toward modern, scalable, automated, and adaptable MDM solutions.

Examples of key approaches to new-edge MDM are:

Cloud-Native MDM

Cloud-native MDM platforms offer agility, scalability, and rapid deployment. These solutions provide on-demand resources, integrate seamlessly with other cloud services, support multi-tenancy, and facilitate advanced application integration.

API-First and Microservices-Based MDM

Modern MDM solutions are increasingly built with API-first and microservices principles, enabling modular deployments, flexible scaling, and easier integration with the broader enterprise technology stack.

Augmented MDM

This approach leverages AI and ML capabilities to automate traditional MDM processes. AI/ML algorithms assist in processes like data anomaly detection, data cleansing, faster data discovery, identifying related data entities from knowledge graphs to facilitate data modeling, and automated matching and synchronization. Automation of these tasks reduces manual efforts and frees up MDM experts to concentrate on strategic data activities. The introduction of GenAI for user-friendly data stewardship and the adoption of AI agents to automate MDM processes are observed as emerging trends with a focus on proactive data management.

Event-Driven and Real-Time MDM

Modern MDM focuses on real-time, event-driven architectures. This enables immediate data updates—crucial for providing responsive customer service, detecting fraud, optimizing supply chains, and conducting real-time data analytics for a data-driven enterprise.

Data Virtualization and Federated MDM

This approach shifts from creating a centralized master data architecture to a federated model, leveraging modern data architecture paradigms like data mesh, data fabric, and data virtualization. It aims to create a unified view in a distributed data environment without physical data movement. This approach is especially valuable for organizations with diverse, global operations or stringent data residency requirements.

These transformed models indicate a significant shift toward establishing an intelligent and adaptive MDM capability, enabling an enterprise to transform itself into a data-driven organization. This transformation yields tangible results, as organizations implementing modern MDM solutions experience an increase in master record accuracy, rising from a typical 60-70% to an average of 92-95% post-implementation (Adapa, 2025).

How Leading MDM Platforms are Evolving

The introduction of AI, ML, and GenAI is transforming MDM platforms by embedding these technologies into core MDM processes. Features such as AI/ML-assisted data modeling, automated data integration, proactive data quality validation, self-healing data quality, automated matching, real-time data synchronization, and GenAI-supported data stewardship for business users can significantly reduce manual effort, enhance data accuracy, and increase efficiency.

Additionally, MDM architectures are transforming from monolithic to modular platforms with an API-first approach. AI agents distribute master data intelligence across multiple systems with minimal human intervention.

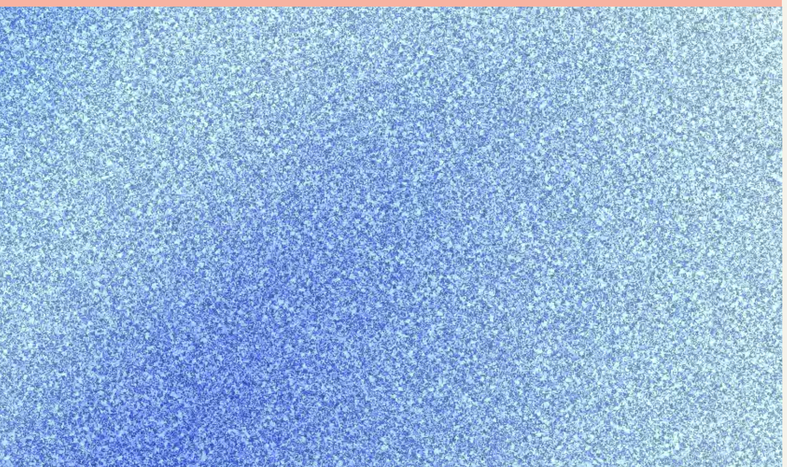
The global MDM market is set for robust expansion, with its value projected to grow from $20.5 billion in 2025 to $37.84 billion by 2029, reflecting a compound annual growth rate (CAGR) of 16.6% (Research and Markets, 2024).

Leading MDM product vendors are actively monitoring these transformations and refining their platforms to incorporate AI, GenAI, and agentic AI, providing solutions to the evolving needs of data-driven enterprises.

Feature	Informatica MDM	Reltio SaaS MDM	Semarchy xDM	Ataccama ONE MDM	Profisee
AI/ML Integration	AI-powered data integration. AI-assisted anomaly detection, cleansing, and enrichment. Domain-specific ML models.	Automated data integration. NLP-based DQ rule generation. AI-assisted data deduplication and cleansing.	AI co-pilot for data integration—automated data quality.	Automated data quality. Automated data cleansing, matching, and survivorship.	Native integration with MS Fabric.
Conversational AI Assistants	CLAIRE GPT for simplified data stewardship.	Reltio Intelligent Assistant (RIA) for simplified data stewardship. ML-powered Flexible Entity Resolution Networks (FERN) for rule-free matching.	AI copilot for match rule recommendations.	AI matching proposals. OpenAI data enricher. GenAI for text-to-SQL/SQL-to-text.	Leverages OpenAI service with native integration with Azure.
AI Agents	CLAIRE DQ-agent for DQ monitoring and remediation.	Private ChatGPT deployment.	AI assistant for the merge strategy. NLP-based data discovery.	ONE AI Agent for DQ management. GenAI-powered data discovery.	MDM product classification agent.

Setting Up an Intelligent Core for the Data-Driven Enterprise

For a data-driven enterprise, it is crucial to establish a robust data foundation using MDM and leverage AI/ML, GenAI, and agentic AI to enhance data quality, streamline data governance, and ultimately improve data reliability, thereby driving more informed business decisions. Here is our recommended approach:



Define business objectives

Identify which business problems MDM will solve and how it will support your data-driven initiatives. Clearly define goals and prioritize use cases for MDM to deliver tangible business value.

Assess current MDM capability

Conduct a current-state assessment to identify gaps and opportunities where MDM can contribute to digital transformation in your current data landscape. This will help define the strategy and roadmap for modernizing your enterprise MDM capability.

Emphasize data quality improvements

Data quality is the foundation stone of effective MDM and is paramount for the success of AI initiatives. Prioritize data quality processes and adopt AI/ML-driven automation for proactive DQ management, ensuring master data is always clean, accurate, complete, consistent, and reliable.

Establish a robust data governance framework

Data governance plays a crucial role in modern MDM by defining clear roles and responsibilities for data ownership. Define data standards, classification, sharing, and usage policies, and incorporate AI-governance aspects to remove data bias and increase explainability and transparency.

Establish cross-functional collaboration

Invite stakeholders from all relevant departments to gain a holistic understanding of the purpose and benefits of augmented MDM, secure enterprise-wide alignment, and establish regular collaboration to ensure easier adoption and maximize business value.

Embrace a modern MDM platform

Adopt a modern MDM platform that offers strong integration, scalability, and security to handle increasing data volumes and new data patterns. Ensure the platform can leverage AI/ML for process automation, enable self-service data stewardship with GenAI interfaces, and support real-time data synchronization in a federated architecture.

Streamline enterprise integration

Integrate MDM with the wider enterprise data ecosystem—in a data mesh federated architecture—to present accurate, trusted golden data that can be combined with other key transactional data in an enterprise data warehouse and then fed to advanced analytics.

Improve data literacy

Educate users on new ways of working with co-pilots, utilizing chat prompts to complete tasks more efficiently and derive detailed data insights without compromising data governance and security.

Start small and scale faster

Adopt a phased approach, establishing augmented MDM for critical data domains like customers, suppliers, and products that offer significant business benefits. Demonstrate best practices and scale successful models to help secure enterprise-wide stakeholder buy-in.

Enable AI-powered continuous improvement

Establish monitoring mechanisms to regularly measure and review KPIs for practical master data usage. Leverage AI/ML and AI agents to get a comprehensive view of the MDM platform, identify refinements, and remediate issues in a given business context.

Our Experience

At Tech Mahindra, we partner with our clients to redefine their master data management capabilities. For one of the largest public sector banks in the US, we partnered closely to realize their ambition of becoming a truly data-driven organization with an adaptive digital core. We conducted a current-state assessment of their MDM to refine their strategy. We carved out a roadmap to establish MDM as a core capability that serves curated, trustworthy master data as a product. We are now supporting the bank in implementing the recommended journey, establishing data governance and data quality as foundational pillars for critical data domains. A modernized digital MDM platform, supported by a “data-first” culture, is accelerating their transformation journey.

Conclusion

Master data management is evolving, driven by rapid developments in AI/ML, GenAI, and agentic AI. New-edge MDM approaches are establishing the intelligent core for an enterprise, shaping it as a data-driven organization. Leading MDM vendors are continuously embracing new technologies to deliver efficient, user-intuitive, and self-learning data management solutions. Establishing augmented, adaptive MDM is no longer a "good-to-have" capability; it is a strategic priority. MDM is the data foundation pillar that ensures trusted and complete data is input into AI business use cases, unlocking valuable insights to support strategic initiatives. The enterprises that have recognized the power of intelligent MDM as their core strength are leading the way in digital transformation and gaining a competitive advantage as truly data-driven enterprises.

Our Data & Analytics advisory and engineering experts can help redefine and establish your master data management as a core capability, enabling you to become a truly new-age, data-driven enterprise. Contact us here. DataAnalyticsUpdates@TechMahindra.com

About the Author

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Data evangelist with more than two decades of rich experience in Data Strategy , Data Governance, Data Quality, Data Security and Master Data Management. Track record of partnering with executive leadership, CDOs, Head of Data, business & data domain owners, to assess data landscape, advise, strategize, architect, formulate the roadmap and implement data modernization programs for financial services, healthcare, telecom, retail and manufacturing enterprises across the globe.

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With over 25 years of global experience, Asish has worked across clients in Europe & US. He heads the Data & Analytics Architecture portfolio, which helps enterprises realize business value, by defining their data strategies, architecture and design & implement data and AI transformation initiatives. He has worked across multiple global clients delivering on-premise, cloud-based, hybrid data analytics platforms. He has also served as chief architect for several large scale telecom data transformation initiatives.

References

1] Shaikh, A., Sontakke, S., Stanley, A., & Zarkesch, S. (2024, May 1). Master data management: The key to getting more from your data. McKinsey & Company. https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/master-data-management-the-key-to-getting-more-from-your-data

2] Adapa, C. S. R. (2025, April). Enterprise master data management: Trends and solutions. European Journal of Computer Science and Information Technology, 13(12), 96–105. https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/master-data-management-the-key-to-getting-more-from-your-data

3] Research and Markets. (2024, April). Master data management market report. https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/master-data-management-the-key-to-getting-more-from-your-data

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Tech Mahindra (NSE: TECHM) offers technology consulting and digital solutions to global enterprises across industries, enabling transformative scale at unparalleled speed. With 149,000+ professionals across 90+ countries helping 1100+ clients, Tech Mahindra provides a full spectrum of services including consulting, information technology, enterprise applications, business process services, engineering services, network services, customer experience & design, AI & analytics, and cloud & infrastructure services. It is the first Indian company in the world to have been awarded the Sustainable Markets Initiative's Terra Carta Seal, which recognizes global companies that are actively leading the charge to create a climate and nature-positive future. Tech Mahindra is part of the Mahindra Group, founded in 1945, one of the largest and most admired multinational federation of companies. For more information on how TechM can partner with you to meet your Scale at Speed™ imperatives, please visit https://www.techmahindra.com/.

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