Digitalizing Global Trade:

Maersk Line Uses Data to Power
a New Age of Shipping

Goals	Solution	Results
Modernize their infrastructure with a cloud data lake to feed predictive analytics and machine learning models with timely, high-quality data from diverse sources, including telematics data from ships at sea	Use Informatica Big Data Management, Informatica Data Quality, and Informatica Multidomain MDM solutions to integrate, verify, and deduplicate data from ships and legacy systems	Helps Maersk more accurately track customer cargos, reduce costs and maintain its competitive edge
Improve and accelerate data governance while tracking end-to-end data lineage and empowering users to easily locate data with a simple search	Discover data assets enterprise-wide using Informatica Enterprise Data Catalog and automate data governance with Informatica Axon Data Governance	Saves 90 percent of employee time previously spent on manual data discovery and governance, resulting in 10x faster processes
Provide self-service analytics to data analysts and business users to generate faster insights and reduce their reliance on IT	Prepare cataloged data for analysis using Informatica Enterprise Data Preparation, providing simple self-service access with visualization	Allows analysts and business users to generate their own insights on containers, vessels, and customers, without relying on IT

Informatica Success Story: Maersk Line

Digital transformation is fundamentally changing the transportation and logistics industry, offering new opportunities for improving efficiency, transparency, and speed. Using artificial intelligence (AI) and machine learning, shipping companies can be much more proactive, driving innovation while reducing risk and costs. By analyzing big data and applying predictive analytics to weather conditions, shipping traffic, container data, and customer order information, they can choose the best routes and ports while more accurately forecasting demand.

Maersk Line is the world's largest container shipping company, with a larger fleet and more cargo capacity than any other container line. To maintain and grow its already substantial market share, it's adopting new AI and analytics-based strategies to boost its competitive edge by gaining deeper insights.

"There are a lot of disruptors coming into freight forwarding, and we want to use AI and machine learning to help us maintain our leadership position in the industry," says David Falder, Senior Technical Specialist at Maersk Line. "We've also seen that our users want to get their hands on the data, and they want to be able to generate their own insights without relying on IT. We want to democratize the data, get it out in front of people, and make it easy for them to discover and govern."

Mastering and integrating enterprise data

In order for predictive analytics and machine learning models to be effective, Maersk must feed them with timely, high-quality data from diverse sources, including legacy business systems and ships at sea. Maersk Line set out to modernize its systems, creating a data lake on Microsoft Azure to serve as the eventual destination for all enterprise data.

The shipper also needed a way to migrate data from nearly 100 on-premises data sources, including booking systems, container terminals, financial systems, and a Teradata data warehouse, into the Azure data lake. Maersk Line also wanted to bring in more than 300GB of telematics data each day from container vessels, as well as information about container contents and attributes.

Based on its experience using Informatica PowerCenter for ETL, Maersk decided to use Informatica Multidomain MDM to create golden records for customers and geographies. Once the records are deduplicated and mastered, Informatica Big Data Management (BDM) manages data flows into Azure Data Lake Storage (ADLS). Informatica Data Quality performs automated data quality checks, while the Databricks Unified Analytics Platform integrates with Informatica BDM to perform data processing and transformations. Informatica Enterprise Data Catalog provides the end-to-end visibility into data lineage and transformations required to support the migration from on-premise systems to the Azure data lake.

"We've chosen Azure because it integrates well with a lot of other platforms like Informatica," recalls Falder. "It's the elasticity and the scalability of the platform, which is most beneficial to us, especially as we scale out."

"We are also happy to have ADLS as a provider because of the integration that we see with Informatica and its product sets," he adds. At some point soon, all of our applications are going to be using the Azure data lake as a data repository, and they will read and write to the data lake as a preferred data platform."

Improving operations, reducing costs, tracking cargo

Ingesting, processing, and analyzing data on a huge scale helps Maersk Line make more informed and proactive business decisions to defend its share of the global container shipping market against would-be disruptors. The company is also improving operations by identifying empty containers, reducing costs by monitoring fuel consumption and weather patterns, and more accurately identifying and tracking customer cargos to maximize revenues while providing better customer service.

"Informatica provides the data our machine learning models need to identify if someone is incorrectly booking a container of straw when they are actually transporting televisions, for example," says Falder. "We can make sure that customers are booking what they're actually transporting and protect our revenues."

Automating data governance and discovery

As Maersk Line continues to migrate data into the Azure data warehouse, it must accelerate and simplify data governance, know where critical customer and shipping data resides, and understand its lineage. To this end, Maersk uses Informatica Axon Data Governance along with Informatica Enterprise Data Catalog, a machine-learning-based data discovery engine that scans and catalogs data across the enterprise.

"Informatica Axon Data Governance helps us manage our business processes, our business initiatives, and our stewardship of that data," says Falder. "We also use it to crowdsource and build business glossaries, allowing users to collaborate, add business context to data, and identify the right data for visualization and analytics purposes."

Informatica Enterprise Data Catalog is a natural companion to Informatica Axon Data Governance, empowering users to easily locate data with a simple search. The solution incorporates AI-driven metadata management so that no relevant or useful data remains hidden.

"Informatica Enterprise Data Catalog has been very well received, and it is proving to be very valuable on our data migration journey from on-premises data warehouses into the Azure cloud data lake," says Falder. "We found it very valuable in enabling the engineers who are doing that data migration to understand the data, understand the transformations that were taking place previously, and replicate those in the data lake going forward."

The impact of automating data governance, understanding data lineage, and extracting data transformation logic is saving time and reducing costs for Maersk Line.

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Senior Technical Specialist

Maersk Line

"What we can do with a press of a button in Informatica Enterprise Data Catalog can take days to achieve manhandling that data from the Teradata catalog," says Falder. "We are saving a significant number of hours in analysis and impact analysis, resulting in a 90 percent time savings over manual processes."

Democratizing data for self-service analytics

To enable data analysts and business users to prepare cataloged data for analysis without help from IT, Maersk Line uses Informatica Enterprise Data Preparation to provide simple self-service access, allowing users to generate their own insights about containers, vessels, and customers.

"Our users enjoy the interface of Informatica Enterprise Data Preparation, and we've been able to add data visualization tools for self-service analytics on top of that using our MicroStrategy toolset," says Falder. "One of the important factors of Informatica Enterprise Data Preparation is the ability to extract the mappings, which enables us to quickly operationalize if someone has done a successful proof of concept."

Enhancing security and compliance

In the near future, Maersk Line plans to use Informatica Dynamic Data Masking and Informatica Secure @Source to strengthen compliance with EU General Data Protection Regulation (GDPR) and improve data security.

"We're very passionate about our data platforms, and we have to be very careful about GDPR compliance, especially with our human resources data," says Falder. "As we re-platform all of our data into the Azure data lake, we're looking at Informatica Dynamic Data Masking to obfuscate sensitive information and Informatica Secure@Source to help us access audit logs and understand who's looking at what data."

Falder concludes, "We've had a long and productive relationship with Informatica, our account team, and the Professional Services team. Informatica has been a pleasure to work with over the years, so it was a natural choice for us to build on the success of that relationship."

Inside The Solution:

- Informatica Axon Data Governance
- Informatica Big Data Management
- Informatica Data Quality
- Informatica Enterprise Data Catalog
- Informatica Enterprise Data Preparation
- Informatica Multidomain MDM
- Informatica PowerCenter

Digital transformation is changing our world. As the leader in enterprise cloud data management, we're prepared to help you intelligently lead the way. To provide you with the foresight to become more agile, realize new growth opportunities or even invent new things. We invite you to explore all that Informatica has to offer—and unleash the power of data to drive your next intelligent disruption. Not just once, but again and again.

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