Introduction

Manufacturing is on the cusp of a data revolution with manufacturing companies trying to decipher their data so they can increase productivity, develop new customer experiences, and ensure they have a positive impact on both the environment and society as a whole.

But even with a huge push toward data-driven manufacturing, only 39% of manufacturing executives report that they have successfully scaled data-driven use cases beyond the production process of a single product.

The importance of data management in the manufacturing industry

The Economist has called data the world's most valuable resource, saying that it is "the oil of the digital era." But if a company cannot manage their data or is unable to gain insights from their data, they fail to see the value of their most critical asset.

Manufacturing companies have massive amounts of data that are generated across various departments and systems. In fact, according to McKinsey, "The manufacturing industry is one of the most data-rich industries, with data volumes growing at a rate of 40% per year." They deal with large volumes of data, including product specifications, production schedules, inventory data, customer orders, and quality control data. The importance of data management cannot be overstated.

Manufacturing data volumes grow at a rate of 40% per year

BIG GAINS WITH DATA MANAGEMENT

- Improves operational efficiency by enabling real-time access to data, automating processes, and improving the accuracy of data.
- Enables better decision-making with accurate and up-to-date information that can be used to analyze trends, identify problems, and make informed decisions
- Ensures regulatory compliance
- Enhances collaboration, improves communication, and facilitates better teamwork
- Facilitates innovation by enabling the development of new products and services, optimizing manufacturing processes, and improving customer engagement

Data management is critical in the manufacturing industry empowering organizations to improve operational efficiency, make better decisions, comply with regulations, enhance collaboration, and facilitate innovation.

The challenges faced by manufacturers in managing their data

If data is so critical to the success of a manufacturing company, why are so many still struggling to manage and govern their data?

1. **They create large volume and complex data:** Manufacturing organizations generate large volumes of data from various sources, including sensors, machines, and systems. This data is often complex and requires significant effort to manage and process.

2. **They have disparate data sources and siloed departments.** Manufacturing companies have multiple systems and departments that generate and manage data. Typically these systems are not integrated causing data silos, inconsistencies and redundancies.

3. **Their data is inconsistent and/or incomplete** leading to costly delays, production issues, and compliance challenges. According to IndustryWeek, 84% of manufacturers have issues with data quality.

4. They have various **regulations and standards** that must be met or they face penalties and fines.

5. **They do not have real-time data.** Manufacturing organizations often struggle to obtain real-time data due to the complexity of their systems and processes, resulting in delayed decision-making and missed opportunities.

6. **They do not have a data governance framework** or a way to manage and maintain the quality of their data. This can result in inconsistent data practices and the proliferation of data silos.

Master Your Data with Master Data Management

What is Master Data Management?

Master Data Management (MDM) is a set of practices, processes, and technologies that help manufacturing companies manage and maintain the consistency, accuracy, and completeness of their critical data across multiple systems and applications. The primary objective of MDM is to create a single source of truth for all critical data, ensuring that data is consistent and accurate across different departments and systems.

What types of data can be managed by MDM?

MDM involves the identification, definition, and management of key data elements, also known as master data, which are essential to your operations. Master data includes product descriptions, customer information, vendor information, pricing information, and other key data elements that are critical to your business processes.

Companies that invest in MDM solutions see a 20-30% increase in operational efficiency

(Source: Forrester)

What are the benefits of MDM?

- **Improved data quality**
MDM ensures that critical data is consistent, accurate, and up-to-date across different systems andapplications, improving data quality, reducing the risk of errors, redundancies, and inconsistencies in data.

Chantelle Group chose Semarchy xDI for its digital transformation initiative that involved not only its adaptation to customer communication channels but also the testing of new sales models. This included omnichannel: crossing and combining sales and communications channels with the customer to improve the customer experience. With several companies grouped into one, and information systems that must communicate, the company needed an agile and comprehensive system that could handle their B2B and B2C requirements. READ THE FULL REPORT

- **Reduced data inconsistencies**
MDM can help organizations reduce data inconsistencies by providing a single source of truth for critical data, leading to improved data governance and a reduced risk of data silos and data redundancies.

Shake Shack needed an MDM solution to get up and running in a matter of weeks – not years – that could grow with them.

When Shake Shack started their MDM journey, the first asset they wanted to master was the "Shack List," a comprehensive database of all their restaurants.

With Semarchy, Shake Shack was able to centralize data from multiple sources and systems, leading to increased data accuracy and improved data quality. The success of these projects utilizing an iterative approach generated great outcomes in their digital transformation and efficiency. READ THE FULL REPORT

- **Improved operational efficiency**
  MDM can help organizations improve operational efficiency by streamlining data management processes and reducing manual data processing, leading to faster data processing, a reduction in production delays, and an overall improvement in productivity.

  With continued retail and e-commerce growth, Red Wing Shoes chose Semarchy xDM to meet its need for a central data hub that could manage all its customer data. By generating a 360° view for all divisions of the company, it was able to improve its customer's knowledge and eventual customer experience. READ THE FULL REPORT

- **Better decision-making**
  MDM can help manufacturing companies make better decisions by providing accurate, reliable, and up-to-date data. This high-quality data provides improved insights, enabling manufacturers to respond to changing business conditions quickly.

  This client is a world leader in aeronautical equipment and systems for commercial, regional, and business aircraft, as well as helicopters and space. It develops and manufactures cutting-edge solutions to improve comfort and on-board facilities, as well as high-tech systems to improve aircraft performance and flight safety.

  The need for improved Master Data Management became a necessity during the development of their services division, which offers a global distribution network of spare components, maintenance of equipment manufactured by the group's other divisions, and tailor-made support services for air operators. READ THE FULL REPORT

- **Regulatory Compliance**
  MDM can help manufacturers comply with regulatory requirements by maintaining accurate and complete records of their operations. This can reduce the risk of penalties and fines for non-compliance.

  Chantelle Group chose Semarchy xDI for its digital transformation initiative that involved not only its adaptation to customer communication channels but also the testing of new sales models. This included omnichannel: crossing and combining sales and communications channels with the customer to improve the customer experience. With several companies grouped into one, and information systems that must communicate, the company needed an agile and comprehensive system that could handle their B2B and B2C requirements. READ THE FULL REPORT

By providing a single source of truth for critical data, MDM can help organizations improve their ability to respond to changing business conditions, optimize their operations,reduce data inconsistencies, and gain a competitive advantage.

Best Practices for Implementing an MDM Strategy

Implementing a Master Data Management (MDM) strategy for manufacturing requires careful planning and execution, but once in place, manufacturers can improve data quality, reduce redundancies, and synchronize data across different systems and applications.

Best Practices for Implementing an MDM Strategy

1. **Establish a Data Governance Framework:**

   You first need to implement an effective data governance framework that defines data ownership, roles and responsibilities, and includes data quality metrics. According to a survey by Gartner, organizations that implement data governance frameworks see a 25% improvement in data quality (Source: Gartner).

2. **Identify Key Data Elements:**

   Next, identify, define, and determine which data elements are critical for operations and standardize their definitions.

3. **Develop a Data Model:**

   Then, develop a data model so that you can organize and structure your data effectively. This involves defining data relationships, hierarchies, and dependencies.

4. **Implement Data Integration:**

   Implement data integration to ensure your data is synchronized across different systems and applications. You will need to define data integration requirements, develop integration processes, and test your integration capabilities.

5. **Implement Data Quality Management:**

   And finally, implement data quality management processes that include defining data quality metrics, developing data quality rules, and implementing data quality controls.

With Semarchy's Unified Data Platform, customers are up and running in weeks, not months, decreasing their time to ownership and increasing their operational efficiency and ROI quickly.

Semarchy Changes the Way Manufacturing Gets Done

The power of MDM can completely change the way you engage your customers, empower your employees, and run your business. Semarchy Unified Data Platform is a comprehensive Master Data Management solution designed specifically for manufacturing companies and the unique challenges you face:

Engage your customers:
No matter what product you are manufacturing, your customer's care about on-time delivery, product quality, cost, and customer service. MDM can give you visibility into every step of your production process so that you can ensure operations, delivery, costs, and quality are running smoothly and efficiently.

> **Companies that invest in MDM solutions see a 30% increase in their cross-sell and upsell revenue**

Empower your employees:
With MDM, you will not have to guess what is putting constraints on production or why assembly lines are getting held up. MDM will give your team a shared view of the data, plus real-time insights, empowering them to confidently identify issues and immediately take action.

Optimize your operations:
Manufacturing must be able to scale their processes and jobs. MDM ensures your data is accurate, up-to-date, and unified into one platform. This single source of truth gives you real-time visibility into inventory, helping you optimize processes, reduce waste, and shorten order-to-cash and time-to-ship.

Transform your supply chain:
Managing your supply chain is one of the most critical aspects of manufacturing. MDM can help you connect your inventory data to your suppliers and distributors so that you can predict product shortages and surpluses and reduce supply chain disruptions.

From one single, unified platform, you can manage, govern, and secure all your company's data. You can move faster, ensure compliance, operate securely, and compete without compromise.
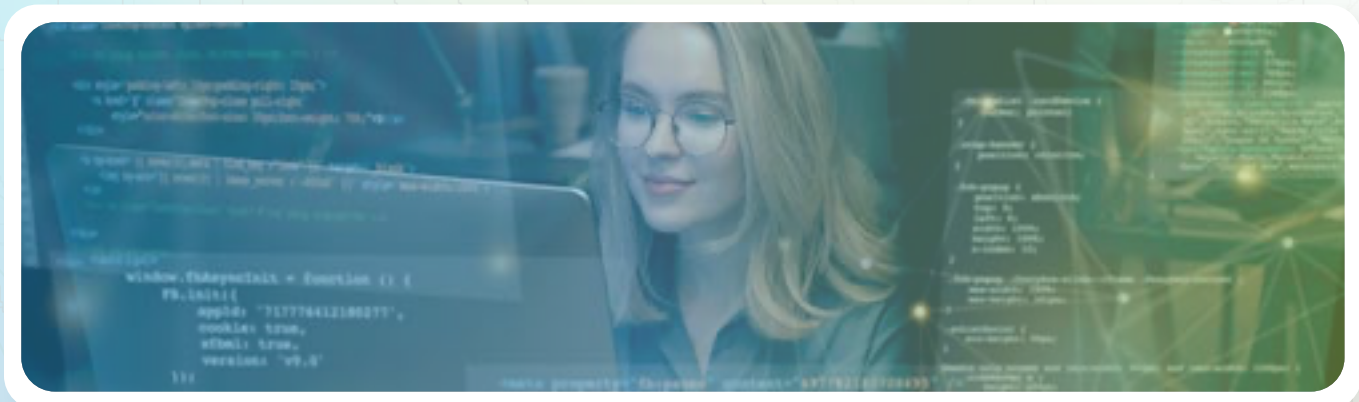
There is stiff competition for data superiority, and those without a robust, comprehensive data management strategy will fall behind theircompetitors. Luckily, there is a tried-and-true way to ensure your company is not left behind: Adopt and implement Master Data Management.

Semarchy's Unified Data Platform is a comprehensive suite of data management tools used to:

- Knock down siloes and integrate the data
- Turn data into actionable insights
- Maintains high-quality and reliable data
- Ensures compliance and regulatory standards
- Secures data onsite and in transit

Design and deploy tailored manufacturing data apps in days while capturing ROI in under 10 weeks

From one single, unified platform, you can manage, govern, and secure all your company's data. You can move faster, ensure compliance, operatesecurely, and compete without compromise.

"How Manufacturing Can Capitalize on the Data Revolution" by McKinsey
Link: https://www.mckinsey.com/business-functions/mckinsey-dig tal/our-insights/how-manufacturing-can-capitalize-on-the-data-revolution

"Data Quality Plagues Manufacturers, Study Finds" by IndustryWeek
Link: https://www.industryweek.com/technology-and-iiot/data/artcle/22032052/data-quality-plagues-manufacturers-study-finds

"Poor Data Quality: What It Is and How to Avoid It" by Gartner
Link: https://www.gartner.com/smarterwithgartner/poor-data-quality-what-it-is-and-how-to-avoid-it/

"The Business Case for Master Data Management" by Forrester
Link: https://www.informatica.com/content/dam/informatica-com/-global/amer/us/asset/ebook/the-business-case-for-master-data-management-ebook.pdf

By partnering with experts, manufacturers can quickly implement and begin capitalizing on the power of **industrial data analytics,** while ensuring that they keep up with innovations—especially if your partner allows you to be involved in ongoing improvements in the solution.

What's at stake? Just how critical is it that manufacturers master data analytics? Consider that the global business journal The Economist has dubbed data the world's most valuable resource, writing that it's "the oil of the digital era." Noting that the abundance of data changes the nature of competition, it explains:

By collecting more data, a firm has more scope to improve its products, which attracts more users, generating even more data, and so on. The more data Tesla gathers from its self-driving cars, the better it can make them at driving themselves—part of the reason the firm, which sold only 25,000 cars in the first quarter, is now worth more than GM, which sold 2.3m. Vast pools of data can thus act as protective moats[1].

The lesson for manufacturers? Don't wait to figure out data analytics on your own. Get started now and identify a partner with a solution that will accelerate your adoption of IIoT data analytics.

Further Reading: 10 Rules Behind Amazon's Success You Can Use on Your Digital Transformation Journey

1. moats = "The world's most valuable resource is no longer oil, but data," The Economist, May 6, 2017.

Improves operational efficiency: Effective data management can improve operational efficiency by enabling real-time access to data, automating processes, and improving the accuracy of data. This helps in reducing errors, minimizing downtime, and improving productivity.

Enables better decision-making: Accurate and timely data is critical in making informed decisions. Data management systems provide accurate and up-to-date information that can be used to analyze trends, identify problems, and make informed decisions. This helps in reducing waste, improving product quality, and enhancing customer satisfaction.

Ensures regulatory compliance: The manufacturing industry is subject to various regulations and standards that require organizations to maintain accurate and complete records of their operations. Effective data management can help manufacturers comply with regulatory requirements and avoid penalties and fines.

Enhances collaboration: Data management systems provide a platform for sharing data across different departments and systems. This promotes collaboration, improves communication, and facilitates better teamwork.

Facilitates innovation: Effective data management can facilitate innovation by enabling the development of new products and services, optimizing manufacturing processes, and improving customer engagement.

In summary, data management is critical in the manufacturing industry as it enables organizations to improve operational efficiency, make better decisions, comply with regulations, enhance collaboration, and facilitate innovation.

Conclusion

One of the key takeaways for implementing a strong data governance program is that it should be a collaborative effort that focuses on defined business needs. Successful data governance requires a number of factors, such as:

• Engagement with stakeholders and business units.
• Clearly defined business objectives.
• The right technology stack.
• A robust data governance framework.

Are you ready to take the next steps with implementing your data governance program? Our expert consultants are here to help.

Contact us here to learn more