

INTELLIGENT MANUFACTURING SYSTEMS

Global Research and Business
Innovation Program

Data Analytics



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Data Analytics

How to Use This Guidebook

Each Data Analytics Guidebook is created with the business growth needs of small and medium manufacturers in mind. By utilizing the information in this guidebook, you are taking the first steps to creating a competitive advantage for your company by innovating in the face of disruptive technologies.

This guidebook follows a logical flow to guide you as you learn more about Data Analytics (see Fig. 1). Review the sections as they apply to your individual opportunities and resources, either in the order they're presented or jump around to fit your immediate needs.

Figure 1: Data Analytics Guidebook Information Flow



This is your toolkit for plugging into the Data Analytics innovation network.

Together, all of our guidebooks work to uplift manufacturers through increasing digital readiness; working together to accelerate the understanding and investment in emerging technologies; and foster a culture of innovation in the manufacturing industry. We encourage you to also review the other guidebooks in this series.

Who can I contact at IMS?

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Data Analytics

Data Analytics at a Glance

What is “Data Analytics?”

“Data Analytics” in manufacturing is the strategic use of data collected from a wide range of business areas (eg. supply chain, finance, sales, marketing, machine sensors, distributors, customers, vendors, and more) to inform product and operational decisions. Data can be generated from external or internal sources, or even machine-to-machine interactions via the “Industrial Internet of Things (IIoT).” When in aggregate, this data is often referred to as “Big Data,” due to the large amount of information collected for analysis.

Why do Data Analytics matter to the manufacturing community?

Manufacturers are increasingly pressured to make decisions quickly, and even predictively, to retain product quality, achieve onsite safety standards, and remain competitive on national and global levels. Decision-making must be based on data. In order to make sense of all of a manufacturer’s data sources and analyze them for action, companies must have a Data Analytics strategy. Data Analytics is a critical component of every innovative manufacturer’s roadmap, informing decisions related to product development, supply chain optimization, sales and marketing spend, and other onsite efficiencies.

What are the biggest opportunity areas?

We have identified three key opportunity areas in Data Analytics for manufacturers (more information on each in the Identify Opportunities section on p.10):

Opportunity #1: Product quality control. Collecting data from machine sensors allows manufacturers to see and correct problems quickly, often in near real-time (or even predictively!).

Opportunity #2: Cost and operational efficiencies. Analyzing data throughout the supply chain, as well as other employee and operational data, contributes to lower costs, faster outputs, and easier long-term decision-making.

Opportunity #3: Predictive demand forecasting. Better data yields more accurate demand forecasting as manufacturers are able to use smaller amounts of current data to predict responsive customer behaviors in the future.

What are the business benefits of Data Analytics?

Though dependent on the Data Analytics opportunity area(s) you pursue, manufacturers witness many benefits from implementing these technologies, including increased operational efficiencies, lower manufacturing costs, streamlined value and supply chains, continuous process and product improvements, less downtime, and greater nimbleness leading to competitive advantage. For a full list of metrics, refer to the Metrics for Success section near the end of this guidebook.

Where can I find help to get started?

There are agencies who can assist you with full digital strategies or specific implementations of tactics on digital platforms that you’ve prioritized. There are also many free online resources, as well as educational courses offered by universities and colleges. Go the Find Help with Expert Partners for a full list of resources to help jump start your use of Data Analytics to grow your business.



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