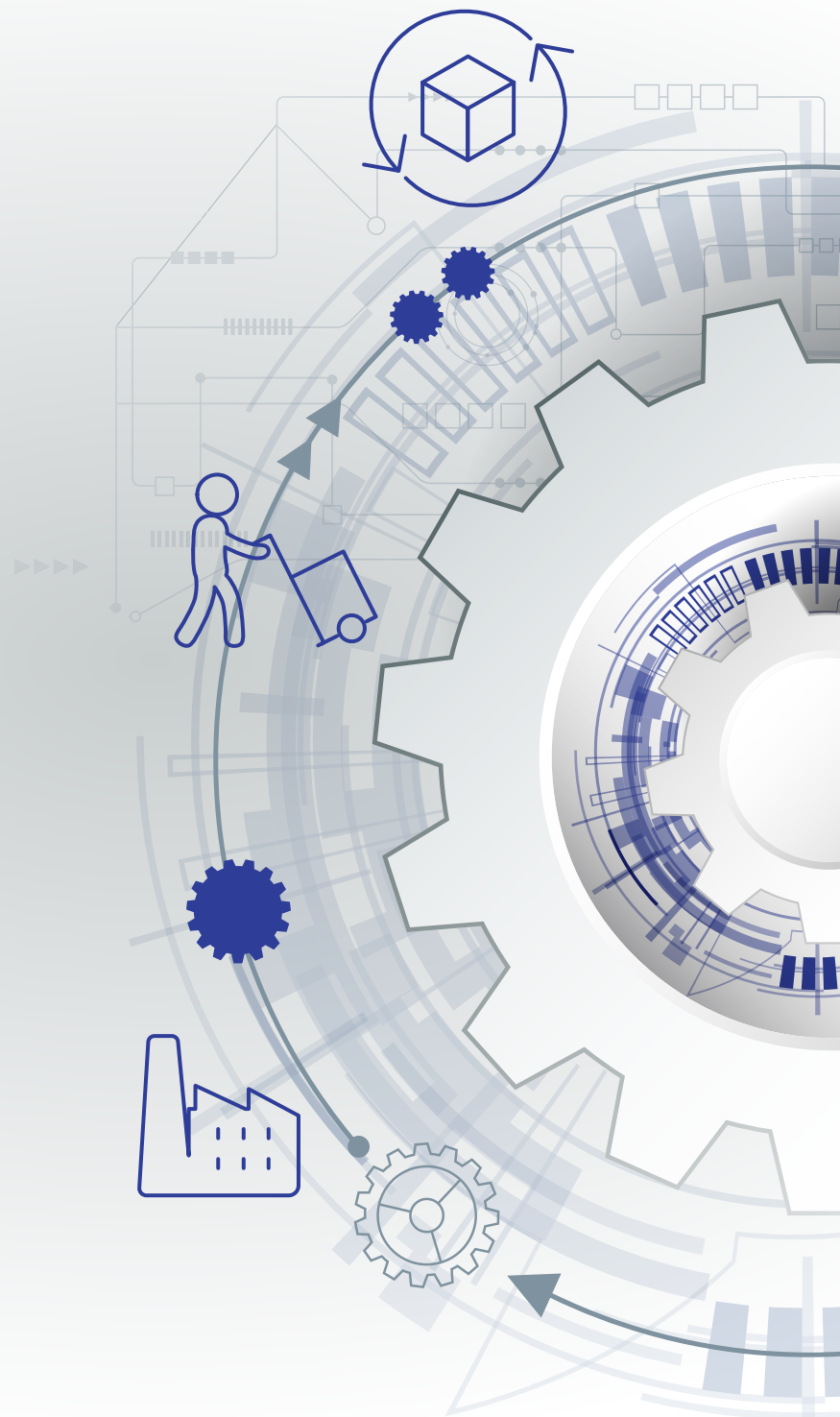


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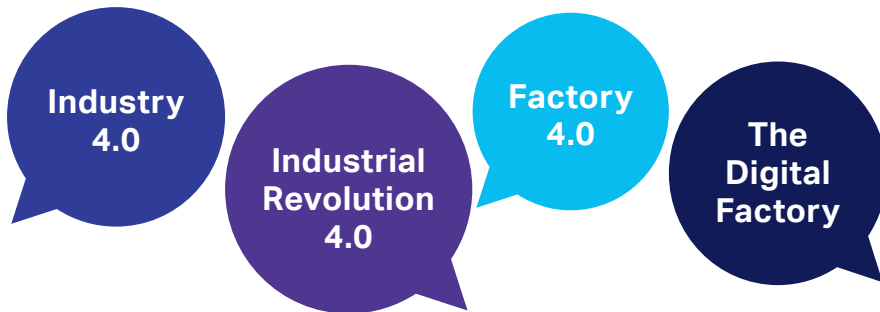
# 6 advantages of using analytics in manufacturing

Capitalize on Industry 4.0



- 1 Improve new product development
- 2 Enhance customer experience
- 3 Improve operations to boost profitability
- 4 Extend existing product lines
- 5 Automate human processes
- 6 Optimize supply chains

## The role of analytics in Industry 4.0



These four terms all describe the same thing: the digital transformation of manufacturing. This transformation is being driven by disruptive technologies, increased automation and the addition of intelligence to manufacturing processes. And there's no going back.

**The key to mastering Industry 4.0 is data.** It has become the Manufacturing industry's most valuable business asset.

*The path to success is applying analytics to turn data into actionable insights that improve decision-making. If all that data is optimized, manufacturing companies are poised to increase efficiency, create competitive advantage and develop new business opportunities. However, research shows that only a quarter of manufacturers believe the millions of dollars they have invested in digital technologies are delivering real advantage.<sup>1</sup>*

***How can you be sure you're getting the most out of your data? The following examples illustrate six ways to leverage analytics to improve your business.***



**1** Improve new product development

**2** Enhance customer experience

**3** Improve operations to boost profitability

**4** Extend existing product lines

**5** Automate human processes

**6** Optimize supply chains

## Advantage **1**

### Improve new product development

**More than 50% of new products fail.<sup>2</sup>**

Developing a new industrial product is an expensive and risky proposition. Analytics can remove much of the guesswork involved in designing a product to help ensure you're delivering the features and level of quality your customers expect.



### Product design

With the advent of Natural Language Processing (NLP), reams of data from sources such as support engagements and social channels can be processed for key concepts, entities and sentiment. With these insights, your manufacturing organization can pinpoint trends, customer preferences and market changes to design offerings that are more likely to appeal to your customers.

### Product quality

**Quality defects in production can eat as much as 30% of a manufacturer's annual revenue.<sup>3</sup>**

Analytics can help improve product quality by capturing machine-level information to boost production yield and throughput. Data that shows the cost and effort involved in developing products helps quickly identify problem areas and predict issues. This improves production while significantly reducing costs.

**Automaker Mazda uses large volumes of data generated during design and validation processes to develop and calibrate its SKYACTIV engine technology.<sup>4</sup> This allows engineers to see more of what's going on inside the engine so they can improve fuel efficiency and performance. They can also build early-stage virtual engines based on data before committing to expensive prototypes.**

Use case

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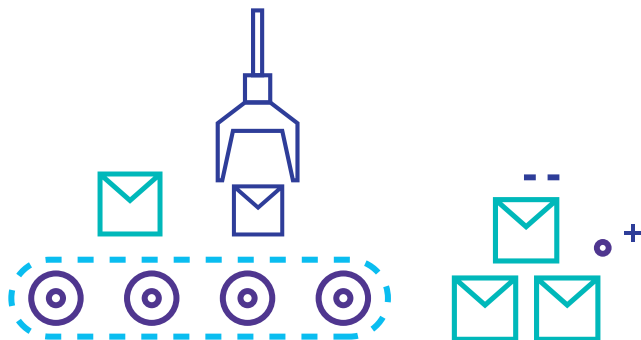
6 Optimize supply chains

## Advantage 2

### Enhance customer experience

Superior customer experience has become essential for success. Analytics can help leverage your data to identify customer preferences, buying trends and engagement levels, while beginning to personalize communications via customer touchpoints, such as account or service interactions. In addition, analytics improve demand forecasting by replacing the manual interpretation of spreadsheets with automated collection and analysis of information to give a comprehensive view of data across business processes that more effectively identifies recurring trends.

The ability to analyze data collected at different customer touchpoints—sales, delivery, installation, warranty and repair, for example—provides a more cohesive view of the customer. This informs employees across all parts of the business on how to improve customer service to increase retention.



***"This is an attempt to obviously improve profitability, but also to increase the margin for every coil that we produce. A lot of that depends upon the buying habits of our customers, so we are going to be giving our sales folks much more detailed analytical information."***

Director of Technology  
North Star BlueScope Steel

[Read more >](#)

Success story

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## Advantage 3

### Improve operations to boost profitability

Operational efficiency in manufacturing is based on optimizing all aspects of the production line, as well as the inbound and outbound supply chains. Analytics is a vital tool for minimizing downtime, scheduling production and predicting demand in-line with capacity and logistics constraints. Preventing breakdowns or incidents before they happen is a critical step in risk management and the key to ensuring your plant is operating at maximum efficiency. Total visibility into logistics, inventory and dealer networks can also help to eliminate bottlenecks in the end-to-end production lifecycle.



*"We are able to get clear visibility on business operations by integrating information from the back end to the front end of the BI system, allowing us to analyze the information coming from the back-end system."*

Subodh Patil  
IT Manager  
MOBIS Parts Australia Pty Ltd.

[Read more >](#)

Success story

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## Advantage 4

### Extend existing product lines

Although product design and quality are key, after-sales and service are often more profitable than the original purchase.

#### After-sales

By using data collected from sensors installed on products and equipment, analytics can help create additional service packages to generate new revenue streams.

#### Service

Analyzing real-time data about a product's performance in the field can provide valuable insight. Gathering data consistently enables you to benchmark the product's typical performance. When anomalies are discovered in the data, you can predict potential problems that may lead to product failures and equipment breakdown.

With this ability to predict problems, you can schedule corrective maintenance and repair before an actual failure occurs, maximizing product use while delivering superior customer service.

***Predictive maintenance reduces machine downtime by 30 to 50%<sup>5</sup> and analytics can reduce breakdowns by 26%.<sup>6</sup>***

***Knorr-Bremse Group collects sensor data and applies analytics to provide customers with an array of after-market services, including predictive maintenance.***



Success story

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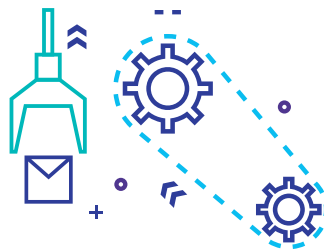
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## Advantage 5

### Automate repetitive human processes

In addition to improving production, companies are also using analytics to revolutionize back-end processes. Robotic process automation (RPA) combines analytics, machine learning and rules-based software to capture and interpret existing data-input streams to process a transaction, manipulate data, trigger responses and communicate with other enterprise applications. Most repetitive, data-intensive tasks and workflows, previously handled manually, can be conducted more efficiently and accurately by "analytics robots." Industrial robots significantly improve the production line and RPA can bring similar benefits to business areas such as accounting, human resources and customer service.

*The International Federation of Robotics estimates by 2019 the number of operational industrial robots installed in factories will grow to 2.6 million from 1.6 million in 2015.<sup>7</sup>*



*Software maker iTAC uses analytics for data-driven operations that enable continuous improvement, increased transparency, better decision-making and a sustainable advantage.*



Success story

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## Advantage 6

### Optimize supply chains

Today's supply chains are more intricate and diverse than ever, containing valuable information about partners, inventory and cost. By applying analytics to B2B transactions, you can derive actionable intelligence and gain greater visibility into what's happening across your trading partner ecosystem. The insight generated by analytics can also help optimize your supply chain performance.

With analytics, your supply chain can do more than integrate suppliers and automate transactions. It becomes an essential source of intelligence to help better understand your current business, address issues and formulate a strategy for improved performance.



**Operational metrics** deliver transactional data intelligence and volume trends needed to improve operational efficiencies

- Volume by document type
- Volume by trading partner (top 10, bottom 10)



**Business metrics** deliver out-of-box key performance indicators to support common supply chain evaluation models e.g., SCOR and drive business growth

- ASN timeliness
- Delivery timeliness
- Price variance
- Invoice accuracy
- Quality variance
- Order acceptance
- Top trading partners by order amount
- Top products by invoiced amount
- Top partners by invoiced amount



**Custom metrics** deliver customer-defined metrics to support specific business processes, delivered through a Professional Services engagement



VDA



Tradacoms



RosettaNet

A manufacturer could use supply chain analytics to measure trading partners' performance against a number of metrics to make better decisions about the partnerships. **Download [Supply Chain Analytics For Dummies](#) to learn more.**



1

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2

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3

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product lines

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Automate  
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6

Optimize  
supply chains



To learn more about the benefits of analytics in manufacturing, read this white paper.

Read the white paper



## Analytics provides the competitive edge

Manufacturers must evolve to stay ahead of competitors. With a comprehensive analytics strategy, you can gain the insight into

- **operational productivity**
- **business efficiency**
- **customer demand**

to give you the competitive edge you need.

With the vast amounts of data you possess, combined with new predictive and cognitive options, your manufacturing organization can take full advantage of the powerful, intuitive and constantly learning features of today's analytics platforms.

1 Industry Week, Manufacturing digital transformation: Is your company leading the way or falling behind? (2017) <http://www.industryweek.com/sponsored/manufacturing-s-digital-transformation-your-company-leading-way-or-falling-behind-research>

2 Collins, Mike, Forbes, Reducing the Failure Rate of New Products (2015) <https://www.forbes.com/sites/mikecollins/2015/04/30/reducing-the-failure-rate-of-new-products/#2578b24f5318>

3 The Economist, Automation and the data-driven future of manufacturing (2016) <https://perspectives.eiu.com/technology-innovation/data-dimension-robotics-and-automation/blog/automation-and-data-driven-future-manufacturing>

4 Feinleib, David, Big Data Bootcamp: What Managers Need to Know to Profit from the Big Data Revolution (2014) <https://books.google.ca/>

5 McKinsey & Company, Manufacturing: Analytics unleashes productivity and profitability (2017) <https://www.mckinsey.com/business-functions/operations/our-insights/manufacturing-analytics-unleashes-productivity-and-profitability>

6 Columbus, Louis, Forbes, Big Data Analytics' Potential to Revolutionize Manufacturing Is Within Reach (2016) <https://www.forbes.com/sites/louiscolombus/2016/09/18/big-data-analytics-potential-to-revolutionize-manufacturing-is-within-reach/#3f5b65b6187b>

7 Walker, John, TechEmergence, Machine Learning in Manufacturing – Present and Future Use-Cases (2017) <https://www.techemergence.com/machine-learning-in-manufacturing/>

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## Resources



### 1. Webinar

*Improving Business Outcomes in Manufacturing with Leading-Edge Analytics*



### 2. Blogs

*Manufacturers Invest Millions in Digital but Struggle to Find Advantage*

*Steel Mill Gains Insight, Makes Better Decisions Through Analytics*

*Manufacturers Using Analytics to Drive Operational Efficiency and Opportunities*

*Analytics Is Key to Digital Transformation in UK Manufacturing*

*Why Slow Big-Data Analytics Adoption Might Be Great News for Manufacturers*



### 3. Webpage

*OpenText Analytics for Manufacturing*



### 4. Special report

*Industry Week—Manufacturing's Digital Transformation: Is Your Company Leading the Way or Falling Behind?*



### 5. Executive brief

*Move from Rear-View to Future Analytics*

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## Glossary

*There are four distinct types of analytics that can be applied to manufacturing. Each has its own set of benefits and loosely builds upon the previous type.*

**Business intelligence** analyzes business operations, production activities and supply chains to give an accurate view of what is happening at that moment.

**Prescriptive analytics** inform users which action they should take based on the potential future outcomes using a combination of techniques and tools, such as business rules, algorithms, machine learning and computational modeling procedures.

**Predictive analytics** can forecast future performance by providing a data mining solution with specific algorithms and analytics techniques to determine potential outcomes based on trends and patterns in historical data.

**Artificial intelligence-enhanced analytics** provide real-time answers in vast amounts of data, reducing the need for human intervention. They combine advanced analytics capabilities with AI features, such as machine learning and Natural Language Recognition, to uncover what is contained in content.

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