



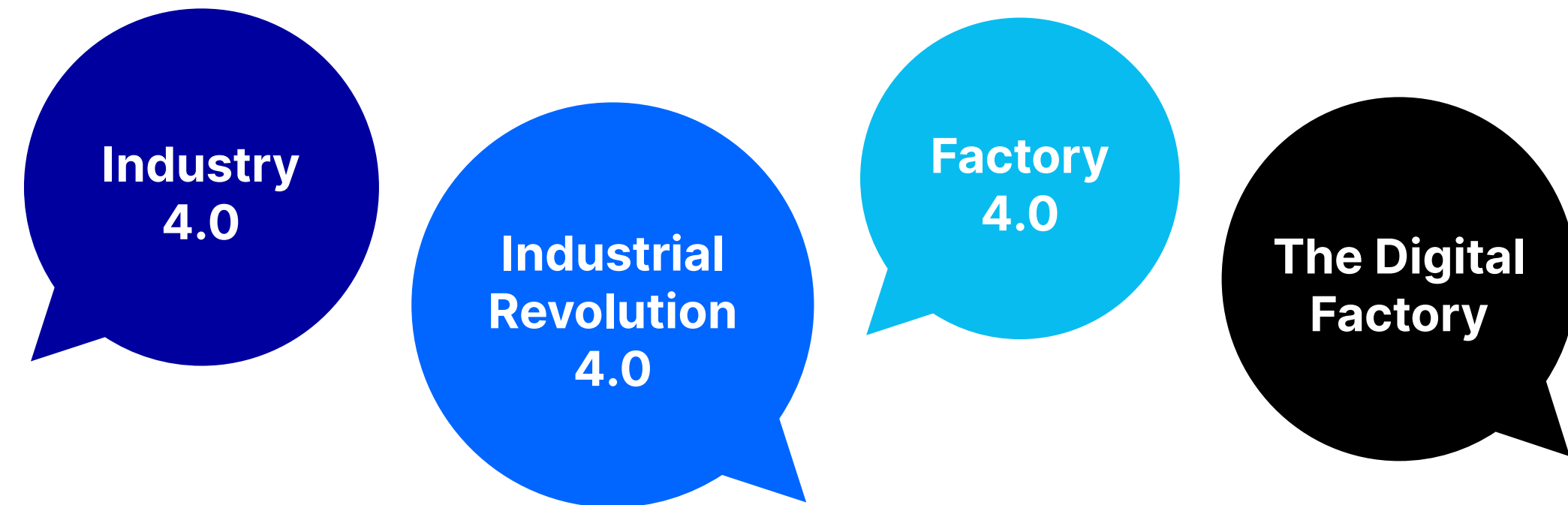
5 advantages of using analytics in manufacturing

Capitalize on Industry 4.0

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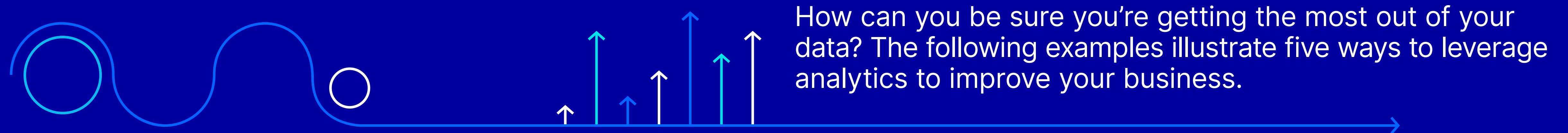
The role of analytics in Industry 4.0



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.¹

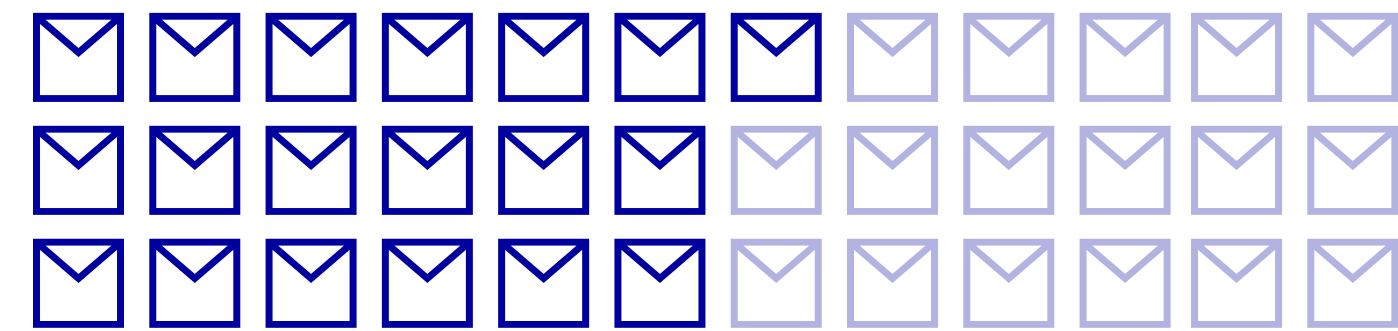


How can you be sure you're getting the most out of your data? The following examples illustrate five ways to leverage analytics to improve your business.

Advantage 1

Improve new product development

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.

 More than 50% of new products fail.²

Quality defects in production can eat as much as 30% of a manufacturer's annual revenue.³



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/>

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

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.



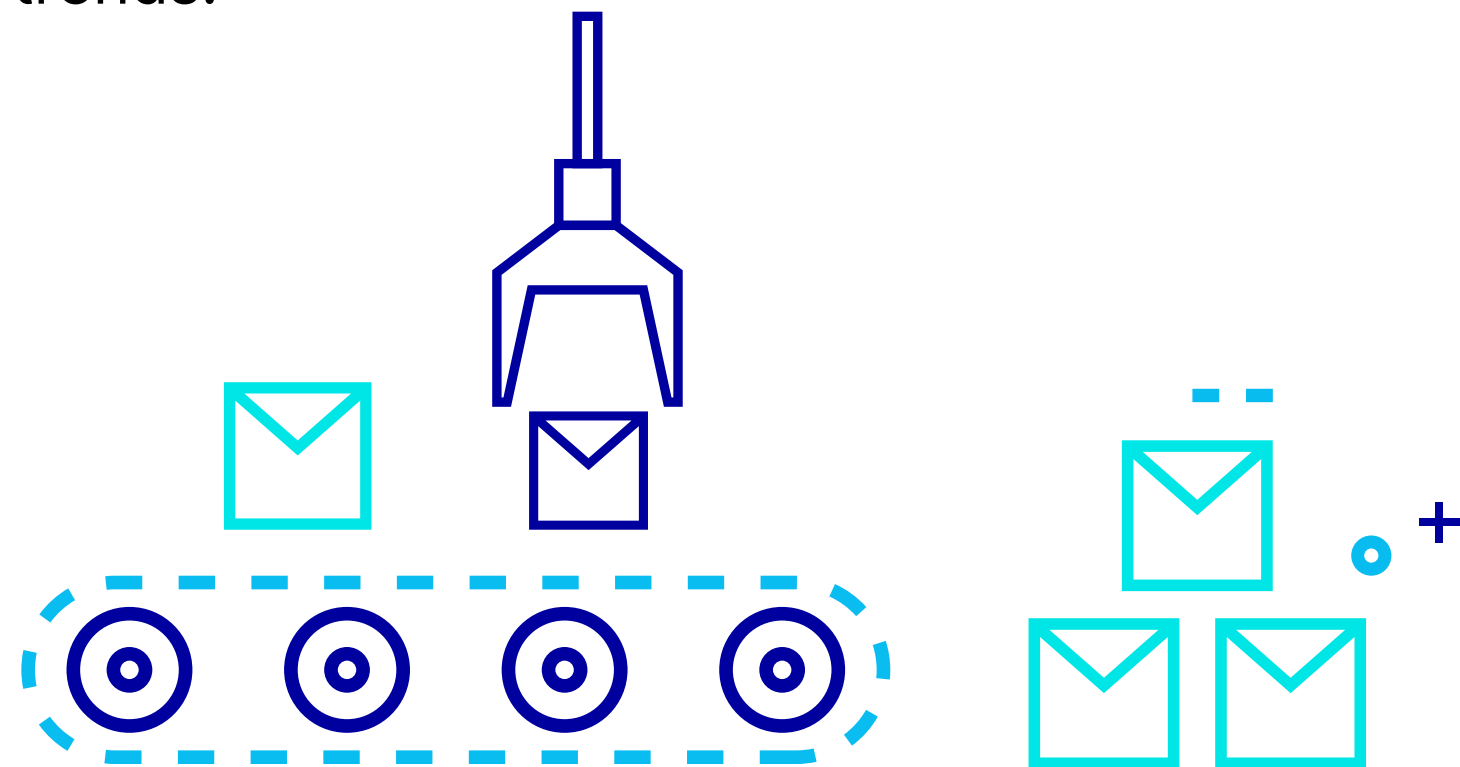
Use case

Automaker Mazda uses large volumes of data generated during design and validation processes to develop and calibrate its SKYACTIV engine technology.⁴ 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.

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

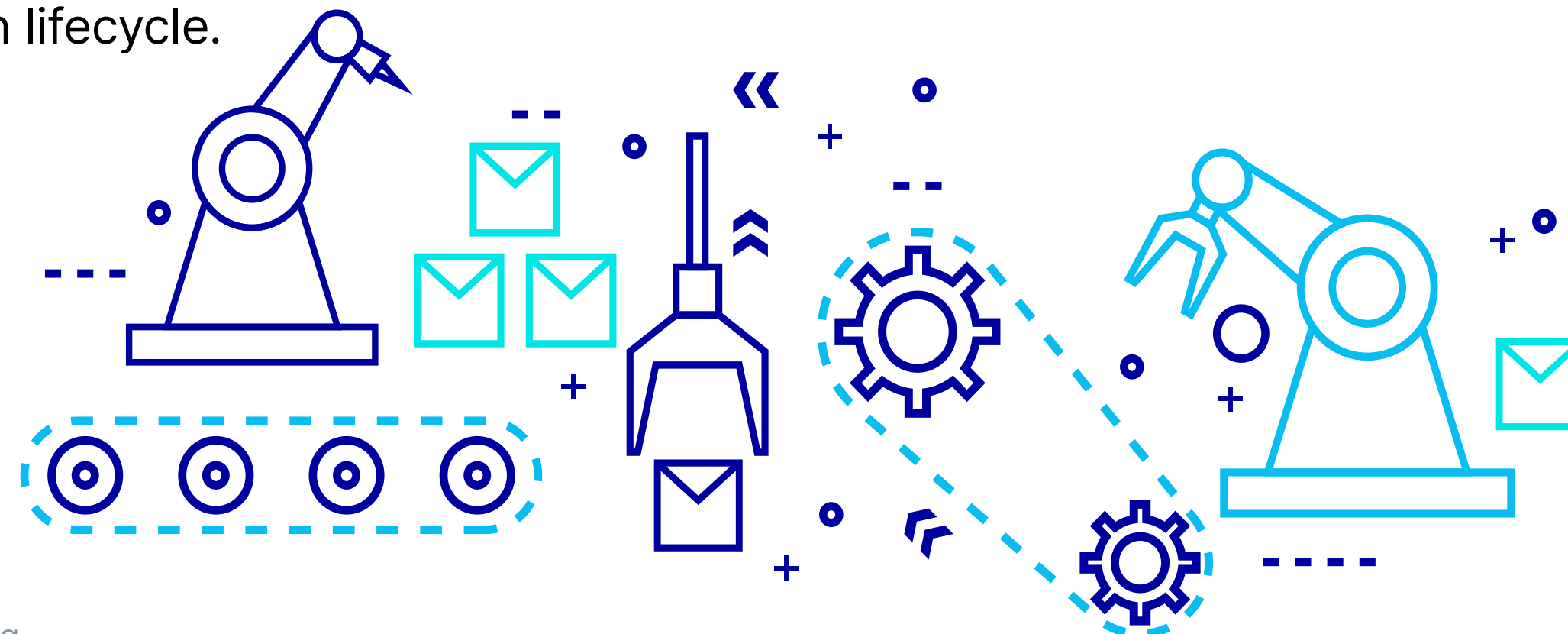
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Advantage 3

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.

[⇒ Success story »](#)

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%⁵ and analytics can reduce breakdowns by 26%.⁶



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

[Success story »](#)

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>

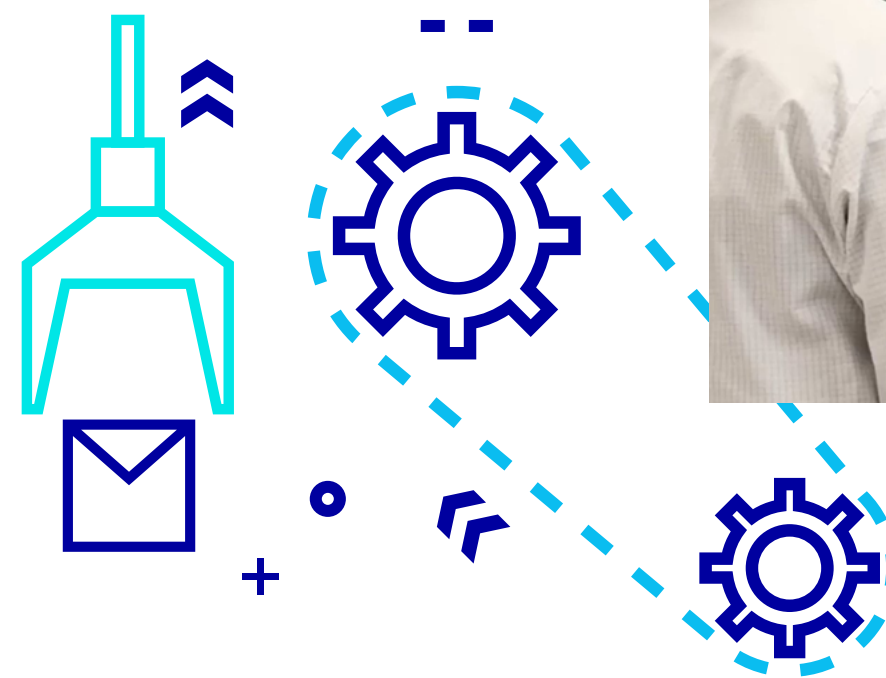
⁶ Columbus, Louis. Forbes, Big Data Analytics' Potential to Revolutionize Manufacturing Is Within Reach (2016)
<https://www.forbes.com/sites/louiscolombus/2016/09/18/big-data-analytics-potential-to-revolutionize-manufacturing-is-within-reach/#3f5b65b6187b>

Advantage 5

Automate repetitive human processes

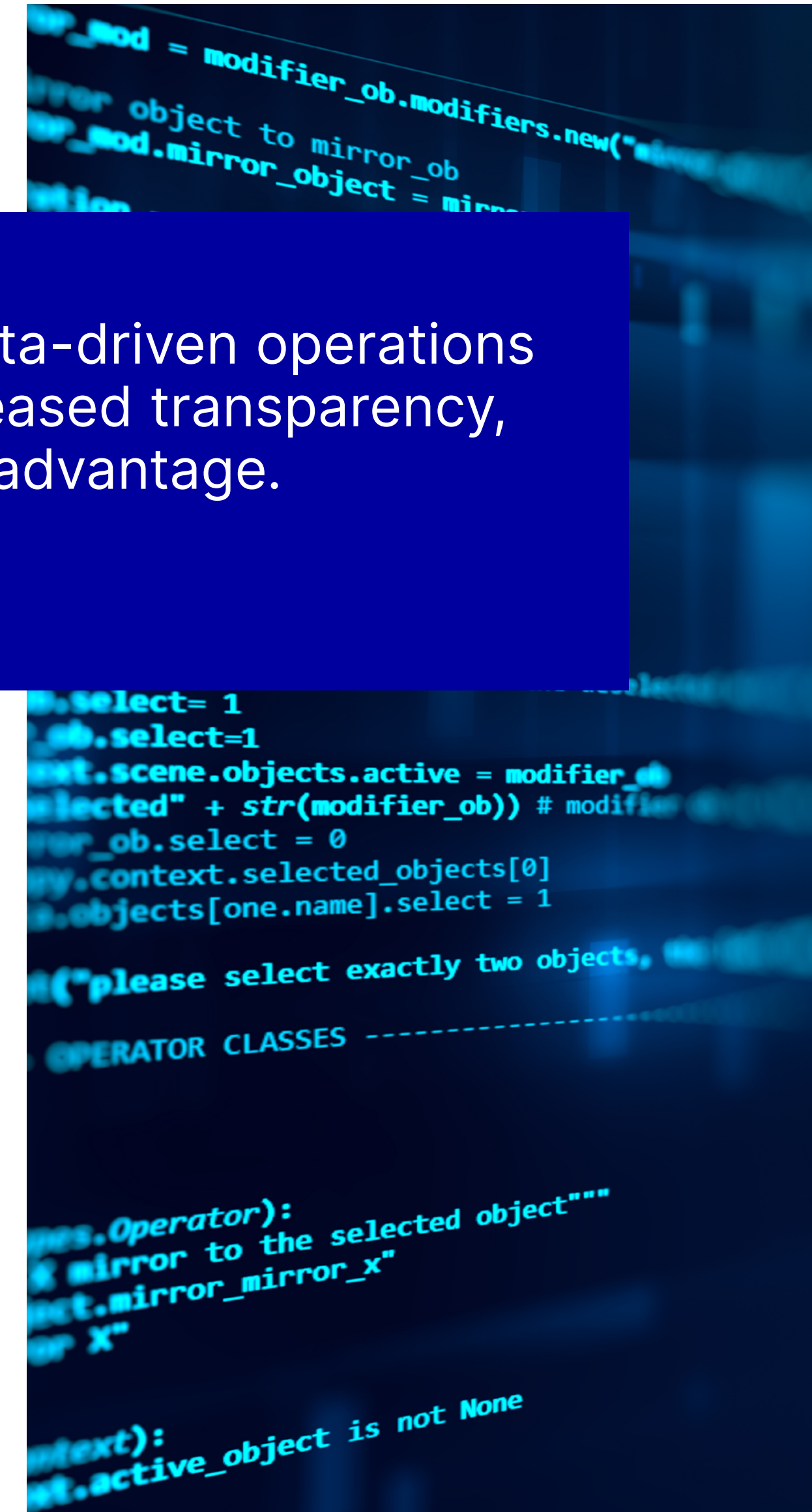
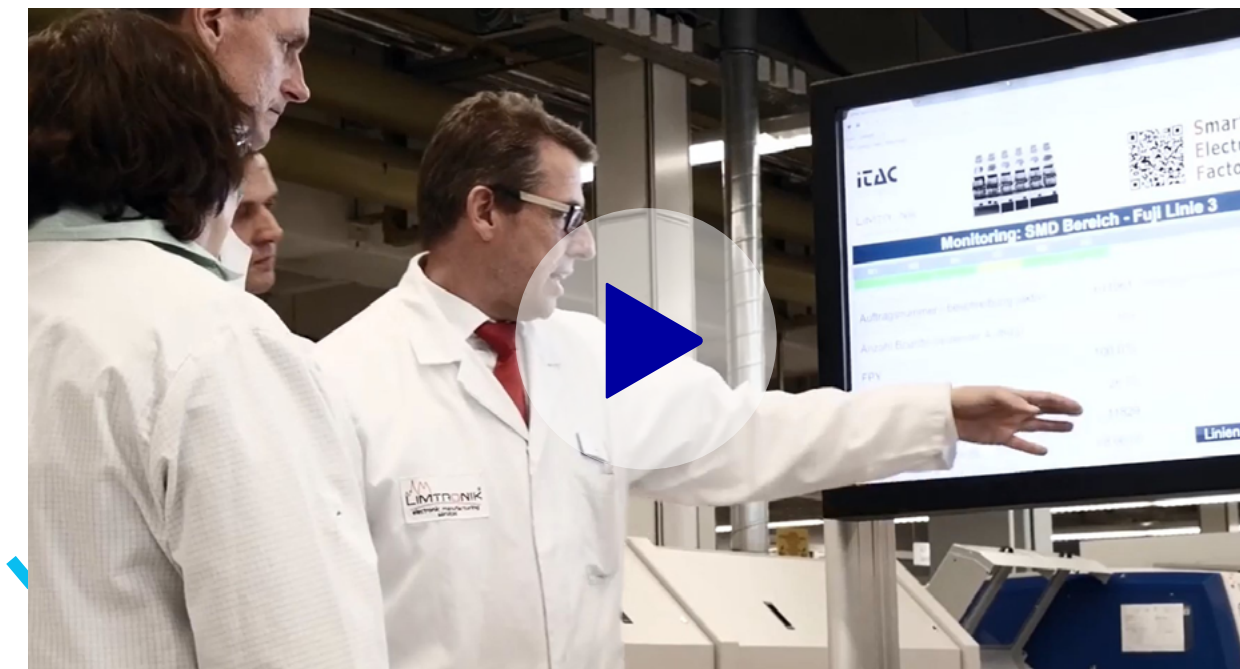
In addition to improving production, companies are also using analytics to revolutionize back-end processes. Robotic process automation (RPA) combines analytics, machine learning and rules-based software to capture and interpret existing data-input streams to process a transaction, manipulate data, trigger 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.



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

[Success story »](#)



Analytics provide 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.



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

[Download the white paper »](#)

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