Epicor® eBook

Data & Analytics:

The Next Frontier for Manufacturing

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Introduction

Processing the Data Revolution

In an industry like manufacturing that's remained the backbone of economies all over the world for centuries, change has always been a constant. After all, transformation is at the heart of manufacturing, utilizing the resources and raw materials of the world to create objects that are more valuable than the sum of their parts. But in 2021, the world's most valuable resource isn't something that can be formed into a shape. Well, not exactly.

In just about every industry you could think of, data and analytics have changed the way business is done in ways that still don't seem possible. It's changed the way publishers distribute information, the way banks buy and sell assets, and the way advertisers reach new audiences. And in this short but sweet e-Book, we're going to show you what data can do for you and your manufacturing operation.

Imagine if information technology didn't require an IT professional to process it. Imagine creating products that customers want, before they even know that they want them. Imagine machines that tell you they are in need of repairs, months before they break down. These might sound like futuristic fantasies, but in factories across the country, all of the above is already happening. And with modern Enterprise Resource Planning ERP software, capable of mining and processing data and analytics for all aspects of your business, they could begin happening at your factory as well.
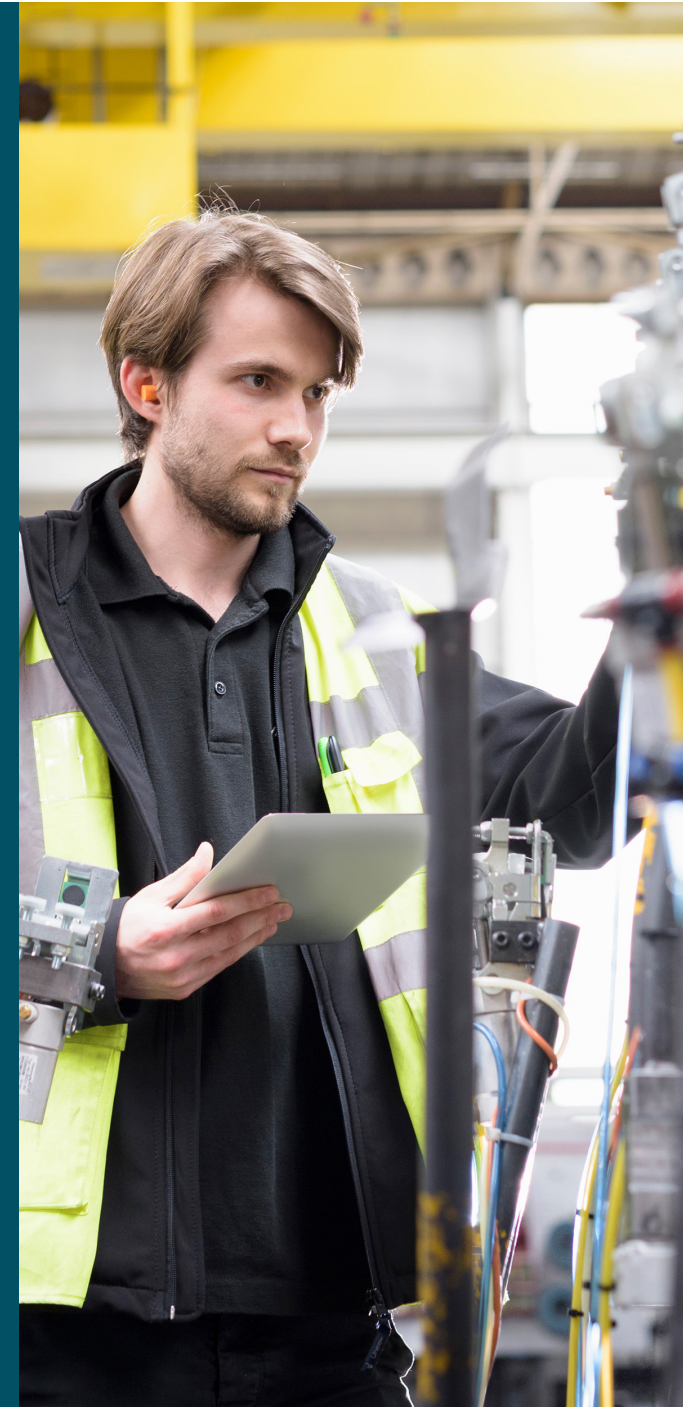
"Manufacturing industries are on the verge of a data-driven revolution. In the near future, they will collaborate in hyperconnected value networks employing a large variety of data and analytics applications. Data will be the lifeblood of these applications, driving productivity, new customer experiences and ensuring a positive impact on society and the environment."

Memia Fendri, Project Specialist, Advanced Manufacturing | World Economic Forum
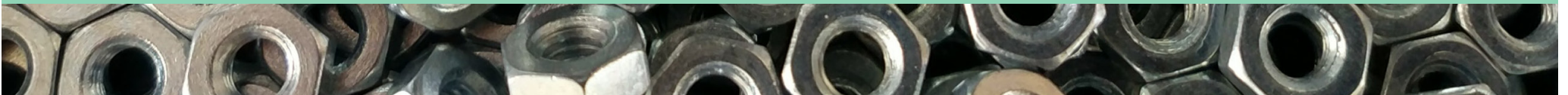
What Can Business Analytics Do for You?

With advanced software like Epicor ERP, all aspects of your business, from financial statements to supply chain and machine management, will begin generating data and then using that data to operate more efficiently and more profitably. The better question is what can't this elevated insight and understanding do for your manufacturing operation's success?

In this book, we'll go over just some of the many areas data is changing the way manufacturing businesses are run and operated. Analytics won't change what you already do successfully, or even how you do it. But it can help you do things better, faster and with less waste and more efficiency.

The Three Types of Analytics

1 Descriptive

Helps you better understand why things occured in your business.

2 Diagnostic

Reveals keys errors that need to be fixed.

3 Predictive

Shows you what may likely happen in the future.

According to a recently published study from Dressner Advisory Services:

89%

of manufacturers who use business analytics say they have been successful

62%

said analytics were essential to their business in 2020

Bridge Gaps in Communication

The average United States manufacturing operation employs anywhere from hundreds to thousands of employees, all working on different projects, in different departments, and often in different locations. Often times, it's nearly impossible to get that many people on the same page, even in moments where synchronization is most crucial. Well, that is without smart and data-driven business analytics.

Business insights make everyone's job easier, telling them exactly what they need to know to accomplish their tasks to the best of their ability. But more importantly, the information contained within this data will be consolidated and uniform across the board, giving all personnel access to the same insights and ensuring that everyone is working towards the same goal.

For instance, sales teams will have access to social network chatter analytics and regional consumer data that can help them identify pools of new potential clients. Statistical analysis can then be used for customer segmentation in order to enhance the effectiveness of new marketing efforts. Sales managers will also have access to data measuring performance across different teams, regions and customer pools that they could use to identify which areas their marketing dollars are best spent.

This data generated by sales can then be used by production teams to know exactly how much inventory they need to produce. Supply managers can use this knowledge to inform their relationships with suppliers and vendors, knowing how much supply to order and when it is most needed.

Free up time and cut back on mistakes

Here are just a few examples of what suddenly becomes possible when information is consistent, easy to interpret and at everyone's fingertips:

- No more manually inputting numbers into spreadsheets

- No more processing reams of raw data by hand

- No more interpreting data by intuition

Reimagine Your Research & Development

No manufacturing operation can expect to remain competitive, or even afloat, if they aren't consistently diversifying, optimizing and expanding their product and service offerings. As a result, there's no doubt that many of your investment dollars are spent on research and development. It's a time-consuming and costly process with a wide margin of error, but like many processes, it can be made more efficient, accurate and inexpensive with access to the right business insights.

Analytics open up the the door to expanding the the scope of your R&D; instead of doing it in a silo, analytics allow you to do R&D in collaboration with suppliers and customers. Many ERP systems are capable of creating a co-creation platform where customers and suppliers can influence the design of new products with crowd-sourced input, eliminating the guess work and ensuring better design-to-value margins. Traditional point-of-sale data is also complemented with information from new sources, such as social media interaction and market trends. With this kind of deep and predictive analysis, you can identify exactly where the market is headed, and know exactly how you need to pivot to keep up.

Customer involvement in the product design process doesn't just make innovation better, it makes it faster. In a competitive industry, time to market can often be the biggest difference-maker in profitability. More accurate market trend insights and customer involvement significantly shortens time to market by eliminating the need for elongated prototyping and research phases. Faster development times means the ability to hit market before the competition has even gotten started on production. This gives you the opportunity to increase market share, establish industry standards, and create more loyalty among customers.

Beyond the creation of new products, many manufacturing operations have even been able to significantly optimize their business strategy based on the identification of once invisible trends. For instance, by mining and processing key market data, a company might discover that one of their products has generated a secondary market for spare parts that their customers are turning to other vendors for. With this knowledge, they can expand their sales operation to include those valuable spare parts, and maybe even provide servicing and repairs for the product in question. A deeper understanding of market trends and enhanced customer communication is what makes it possible for small shifts in strategy that could lead to big shifts in profit margin.

Create More Links to Your Supply Chain

A manufacturing operation can only be as productive and profitable as its supply chain allows. When the need for supplies and raw materials is so great, and often so variable, it can lead to a clunky process that involves multiple vendors and pricing models that are difficult to track.

With a data-driven and easy-to-manage ERP however, you can gain new perspective on the inner-workings of your supply chain. You'll know when, how much and from who to order the materials that keep your factory producing. It can also help you get a clearer picture of your own inventory and a better understanding of how long that inventory might last when assessed through the lens of sales data and environmental factors.

Using analytics, a manufacturing operation can generate reports on all of the suppliers it currently uses, along with all of the other potential supplier relationships within a certain desired proximity. This will allow the manufacturer to make choices based on pricing, inventory and potential environmental constraints. It can also allow for better negotiation leverage, and the ability to consolidate the supply chain across as few vendors and pricing models as possible.
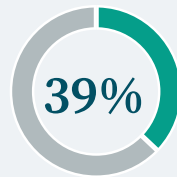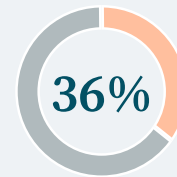
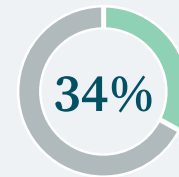**Top 5 uses of analytics in the manufacturing**
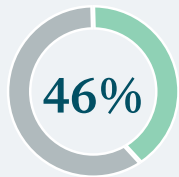
46%
Improving manufacturing quality
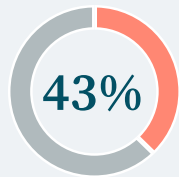
43%
Better forecasts of a production plant

39%
Operational Excellence programs
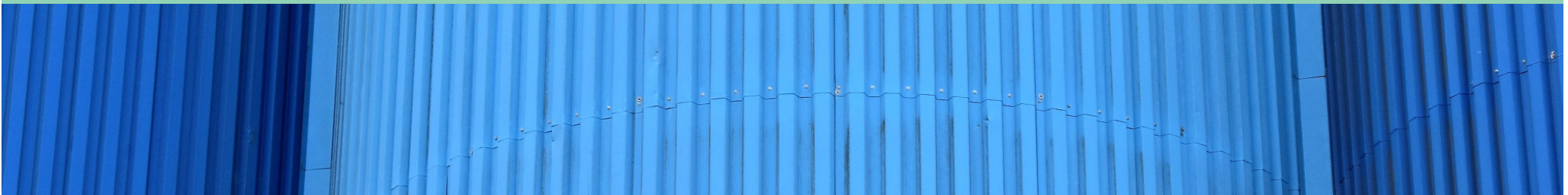
36%
Continuing manufacturing

34%
Improved customer service and support

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"Predictive analytics can deliver tremendous value, especially in asset-intensive industries where predictive maintenance and other processes in asset performance management (APM) add value."

*Andrew Hughes, Principal Analyst | LNS Research*

Up Your Smart Factory's IQ

We've already established that in manufacturing, the transformative power of technology has always had a place, often well before the rest of the economy has had a chance to catch up. In the past 10-15 years, there's been no technological thing that has impacted manufacturing more than the Internet of Things.

While IoT's primary function has always been allowing the user to communicate with their machines, business analytics allows the machines to communicate with you. A data-driven ERP can allow your smart factory to generate valuable data from your own operation, and identify your biggest opportunities for optimization. Predictive analytics can tell you exactly how much further output your system is capable of, while a new sale is still being negotiated. It can tell you where to add new production capabilities, how to better optimize your production layouts and scheduling, and where you could be cutting down on energy waste.

While in the past, addressing equipment failures has been a measure of how fast you can react, with data, it becomes a measure of how far ahead you can predict. While interacting with each machine's sensor, your ERP can tell you exactly which pieces of equipment are operating at diminished efficiency, and which ones are in need of repairs far ahead of their ultimate breakdown.

This allows you to ensure that the system will never let you down when it's most needed and allow you to better plan maintenance for times when operation needs might be slower.

As for your engineers, they'll be able to spend their time on more profit-driving endeavors such as optimization and expansion, rather than constantly having to play catch-up with the current system. Automation and smarter data generation saves everyone time, allowing your factory to operate basically on its own, while keeping you informed on all of the relevant particulars with an easy-to-use and actionable interface. The machines may be running the show on the factory floor, but enhanced visibility into their efforts and functions allows you to remain firmly in control of production.
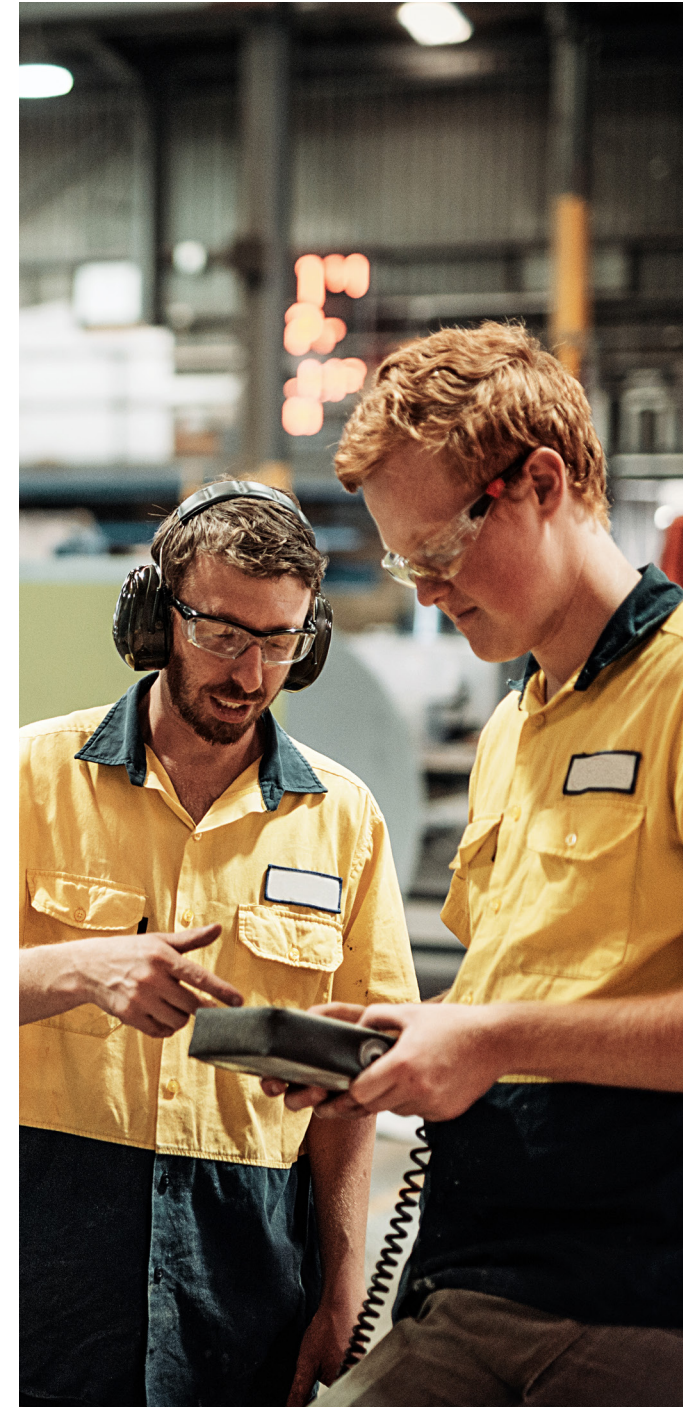
Join the Data Revolution

While this short summary of innovative data applications might seem incredible as is, it might excite you even more to know that this is only the tip of the iceberg. Even now, there are more ERP functions and applications available than could possibly fit in this little e-Book, and more being created as we speak.

It's all very intriguing, but you're probably asking where and how you could even get started. We'll end with a few helpful tips that can help you begin the process of turning your already successful production business into a well-oiled and automated machine. Data truly is the next frontier for our industry, and it's time to turn what once seemed like futuristic fantasies into present day possibilities.

1. Start small, expand big
With such wide sweeping functionality and implications, no software company would ever ask you to overhaul your entire operation all at once. When it comes to embracing business analytics, it's helpful to start with just a few easily implementable functions, such as financial and sales tracking.

2. Customization is key
No two manufacturing operations are the same, so of course a suite of relevant tools could never come in a one size fits all package. With solutions like Epicor, your system is customized to the needs of your factory, with different tiers of functionality that can be scaled up or down at any time.

3. Treat data like just another tool in your box
While new technology can always be a bit daunting, business analytics are not designed to fundamentally change the way you run your business. With relevant data and insights at your fingertips, you'll simply be able to apply your years of experience and intuition with expanded vision and control.

4. One final thought
Manufacturing's long history is a story of constant evolution and transformation. But in this industry, opportunities for transformation quickly become necessities. It's the trailblazers and pioneers who embraced them early who get to experience their true potential.

EPICOR

We're here for the hard-working businesses that keep the world turning. They're the companies who make, deliver, and sell the things we all need. They trust Epicor to help them do business better. Their industries are our industries, and we understand them better than anyone. By working hand-in-hand with our customers, we get to know their business almost as well as they do. Our innovative solution sets are carefully curated to fit their needs, and built to respond flexibly to their fast-changing reality. We accelerate every customer's ambitions, whether to grow and transform, or simply become more productive and effective. That's what makes us the essential partners for the world's most essential businesses.

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