TADA
Beyond data.

The Big Future for Big Data

A deep dive into the Big Data Revolution in the world of manufacturing.

CONTENTS

INTRODUCTION

Right now, a revolution is taking place in the manufacturing sector – and it's focused on Big Data. But it has nothing to do with generating Big Data – after all, manufacturers have been doing that for decades – and everything to do with getting the most value out of the data you generate. With the ongoing expansion of IoT as well as edge, fog and cloud computing, the volume and velocity of that data is only going to get larger and faster. So how do you manage and get the most from these diverse and disparate data sources?

From machine sensors and real-time monitoring to machine learning and AI, manufacturers definitely know how to churn out data on their assets, processes and systems. But unfortunately much of that data remains siloed and its value is ultimately minimized, if not lost altogether. So the big challenge isn't collecting Big Data, but effectively leveraging all the value that the data can ultimately provide and not just a small fraction in one area.

⚠ THE BIG CHALLENGE:

GETTING THE GREATEST VALUE FROM BIG DATA

Big Data in the manufacturing sector comes from many sources: product and machine design data, machine operation data, product-and process-quality data, records of manual operations, manufacturing execution systems, costs related to manufacturing and operations, system monitoring, fault detection, third-party logistics, and customer information.[1]

These data sources can be structured, semi-structured or unstructured, and in most cases much of the data provided is limited to very specific uses and much of the value is wasted. Why does this happen? Well, there are two primary reasons. First, is a lack of interoperability across the various technologies and systems utilized in manufacturing. Second is the inability for conventional IT systems to not only store such large amounts of data, but also manage, govern and sort it all.[2]

INDUSTRY 4.0: WHAT THE FUTURE MAY BRING

In 2016, PwC conducted a survey of over 2,000 manufacturers from nine major industrial sectors in 26 countries. The point of the study was to "explore the benefits of digitizing your company's horizontal and vertical value chains" along with building a digital product and service portfolio. "On average, the respondents expected that by 2020 Industry 4.0 implementations, including Big Data analytics, would reduce their production and operation costs by 3.6%, representing a cumulative savings of $421 billion."[2]

From the research emerged several real-world examples of how Big Data can bring measurable value to manufacturers.

1. **Improving production**
   By comparing single-chip data from the end of the production process with data collected earlier in the process, a semiconductor manufacturer was able to identify faulty chips earlier in the production process which allowed them to improve their production systems.

2. **Empowering customers**
   In order to cost-effectively meet consumer demands, the automotive industry is striving to leverage Big Data generated from connected cars to provide seamless data to the manufacturer. This aggregated information not only helped improve after-sale service, it also helped to improve quality processes and future designs.

3. **Reducing downtime**
   Unscheduled downtime in any industrial sector can have a major impact on a company's bottom line. Now, big data analytics are being used to uncover patterns that can predict failures before they lead to costly downtime. By assessing machine performance, unplanned downtime can be avoided through routine maintenance and service.[3]

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WHAT ARE THE MARKET TRENDS FOR BIG DATA?

Expect Condition Monitoring to grow even more

Monitoring the condition of an asset with real-time data points is at the heart of the Big Data Revolution. But with all the different assets there's a flood of data – and not all of it speaks the same language. So how do you take all of this data and all of this actionable information to help adequately predict future disruptions?

North America is taking the lead

In this new world of Big Data, North America is leading the way in terms of innovation and adoption. According to the MAPI (Manufacturers Alliance for Productivity and Innovation) Foundation, manufacturing production in the U.S. will increase 2.8% through 2021. The Digital Change Survey conducted by IFS in 2017 showed 46% of the companies in all industries are looking to invest in the Big Data and analytics.[4]

A BIG VISION FOR BIG DATA

While manufacturers today want to achieve true business intelligence through the use of Big Data, they often fail for the simple reason that they cannot share that data across all key functional domains. When these different areas of operations begin sharing data and knowledge, then a manufacturer is better positioned to respond in a timely manner to changing business needs.

According to "Big Data Analytics in the Global Manufacturing Industry Market 2019-2024", Big Data analytics in manufacturing is expected to register a 30.9% CAGR over the next five years.[4]

With value chain providers already adopting and investing in technologies that allow for the real-time monitoring of stock supply, production systems and maintenance requirements, manufacturers need to monitor these assets as well as gain information about availability status and the location of raw materials and finished products.

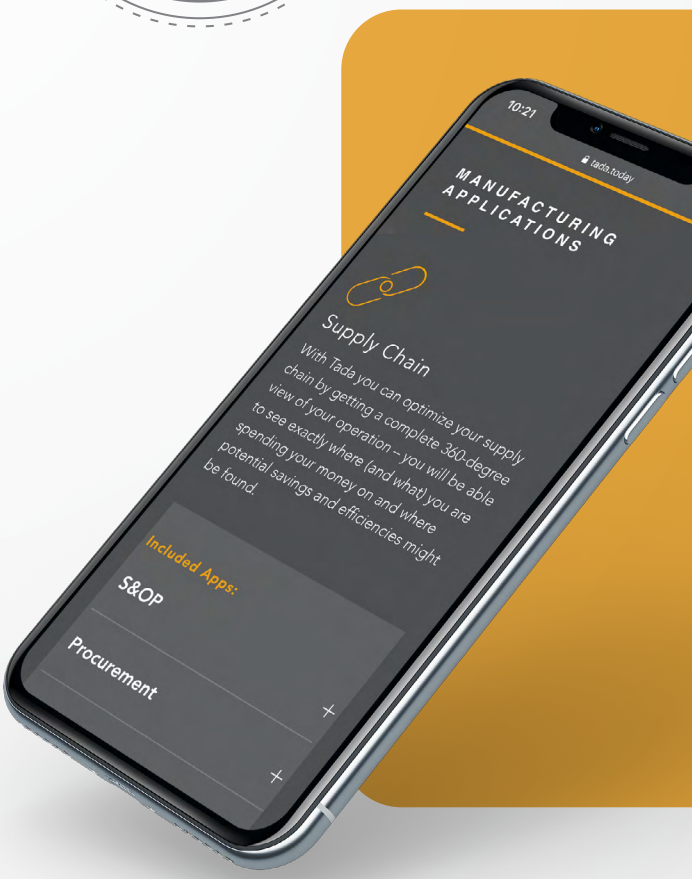
Also, manufacturing is highly targeted by cyber attackers with, according to the EEF, over 45% of manufacturers facing cyber security issues. With the increasing integration of technology throughout the manufacturing sector, cyber security concerns should be a priority for every manufacturer.

MANUFACTURERS: MEET TADA

Driven by technology and data, the manufacturing sector is in the middle of a Big Data Revolution in every part of its value chain. With the Tada platform, manufacturers can visualize their entire business end-to-end – thanks in great part to the proprietary Digital Duplicate® that uses the language of your business (the terms, metrics, and KPIs that matter to you) to organize information.

As a decision maker, you can navigate your entire business ecosystem 10 times faster than the traditional approach of using consulting resources and Business Intelligence tools by utilizing Tada's suite of highly customizable, purpose-built applications. This holistic perspective provides the opportunity to make informed operational decisions from customer acquisition to post-purchase customer support and insight (and all the data-driven details in between).

Learn more about how we can help you tap into the power of data analytics in your day-to-day decision making here.



1. "The Industrial Internet of Things Volume G1: Reference Architecture", Industrial Internet Consortium;
2. "Big Data Challenges of Industry 4.0", Datanami;
3. "Global Industry 4.0 Survey: Building the Digital Enterprise", PwC;
4. "Big Data Analytics in the Global Manufacturing Industry Market 2019-2024", Research & Markets.

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