



Be ready for
Industry 4.0
with cognitive
manufacturing

Are you ready for Industry 4.0?

Your industry is growing more complex by the day. You are expected to constantly improve plant efficiency, despite the fact that:

- Raw material and component costs are rising in traditionally low-cost production markets
- Demands for additional customization and reduced lead times are increasing
- Requirements are constantly changing
- Order sizes are shrinking
- Margins are thinner
- Competition is rising and increased pressure to adapt is jeopardizing quality and uptime
- Shop floor data from equipment and automation systems are growing exponentially

To thrive in the Industry 4.0 era, it is critical for manufacturers to unlock the potential of legacy, real-time and unstructured data to make daily decisions that balance quality and throughput. With the average manufacturing site running on over one hundred software applications, it is a tremendous challenge to make that data accessible and actionable.



150

the average
number of software
applications running
at a manufacturing site

Industry
4.0

Harness
the Power

Holistic
Insights

Cognitive
Manufacturing

Next
Steps

Harness the power of your data with cognitive manufacturing

Cognitive manufacturing unites millions of data points across systems, equipment, and processes to derive actionable insights across the entire value chain—everything from product design to operations to customer support. It discovers patterns and answers questions across the plant about users, equipment, locations, streaming sensor data and more.

By applying cognitive computing to manufacturing processes and systems, manufacturers can make informed decisions and take action. They can leverage current production technologies, such as the Industrial Internet of Things (IIoT), analytics, mobility, collaboration and robotics to drive tangible benefits at the plant level.

For example, with cognitive manufacturing you and your staff can:

- Continually assess machine or process performance and receive predictive insights, preventing unplanned downtime
- Mine years of structured and unstructured data enabling you to access relevant insights resulting in better decision making
- Avoid a potential critical parts shortage by leveraging supply chain, weather information and company expertise

With cognitive manufacturing, leaders like you have the power to think and act like 1,000 engineers or operators.

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Holistic insights deliver tangible benefits

A recent survey¹ of global manufacturers found that cognitive manufacturing initiatives can have a significant impact on both operations and the business:



64%

Improved decision making and planning



58%

Improved productivity and efficiency



54%

Improved security and compliance, reduced risk



52%

Improved customer service



49%

Enhanced the learning experience

The reliability, availability and performance benefits of cognitive manufacturing come from the ability to:

- Collect and curate both structured and unstructured data through connected sensors to generate new insights
- Predict issues, time to failure and probable cause for enhanced operational efficiency and decision making
- Leverage advanced analytics to optimize resources, supply chain management and quality control
- Transform processes and operational performance through continuous machine and human learning

¹ Responses specific to Global Manufacturing Industry, not necessarily IBM clients. October 2016 "The Cognitive Advantage," IBM: <https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?htmlfid=COW03020USEN&>

Cognitive manufacturing in action

Schaeffler, one of the world's leading automotive and industrial suppliers, is tapping the power of cognitive computing.

The company is pioneering the development of innovative 'mechatronic' solutions, which combine mechanical, electronic and software capabilities into individual components and systems which have the ability to monitor, report and manage their own performance.

Schaeffler's vision is a world where even the seemingly simple ball bearing has built-in intelligence and sensory capabilities. Using cognitive intelligence, Schaeffler will interconnect these digitally-enabled components and create virtual models of entire industrial systems.

Watch video



“Industry 4.0 is not the digitalization of the mechanical industry, because that is already here. It is about getting real-time data into the supply and manufacturing chain... If we use this IoT [Internet of Things] data and combine it in a different way, we can be more flexible. We can adapt faster.”

– Prof. Dr. -Ing. Peter Gutzmer
Deputy Chief Executive Officer
and Chief Technology Officer
Schaeffler

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Take the next step

To keep pace with market demands, evolving technology and global competition, manufacturers must find ways to harness the power of the data constantly flowing across their systems to dramatically improve their operations. By doing so, they will gain the visibility, flexibility and agility to grow, evolve and succeed in the digital age.

IBM is a recognized leader in predictive analytics and machine learning.² You may not have heard as much about us in the manufacturing and Operational Technology (OT) space, but we are helping many manufacturers adapt to Industry 4.0 and transform their processes through the powerful capability-rich IBM® Watson IoT™ platform. Our approach leverages your existing infrastructure—physical equipment, systems and applications, using powerful accelerators so you can achieve fast time to value.

Learn more about the benefits of cognitive manufacturing and how IBM can help you on your cognitive journey:
ibm.com/industries/manufacturing

Reduce quality costs using analytics and cognitive capabilities.
Get started with a 30 day free trial of Prescriptive Quality on Cloud:
ibm.com/us-en/marketplace/predictive-quality-on-cloud

² The Forrester Wave™: Predictive Analytics and Machine Learning Solutions, Q1 2017:
<https://www.ibm.com/analytics/us/en/technology/data-science/forrester-wave.html>

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