

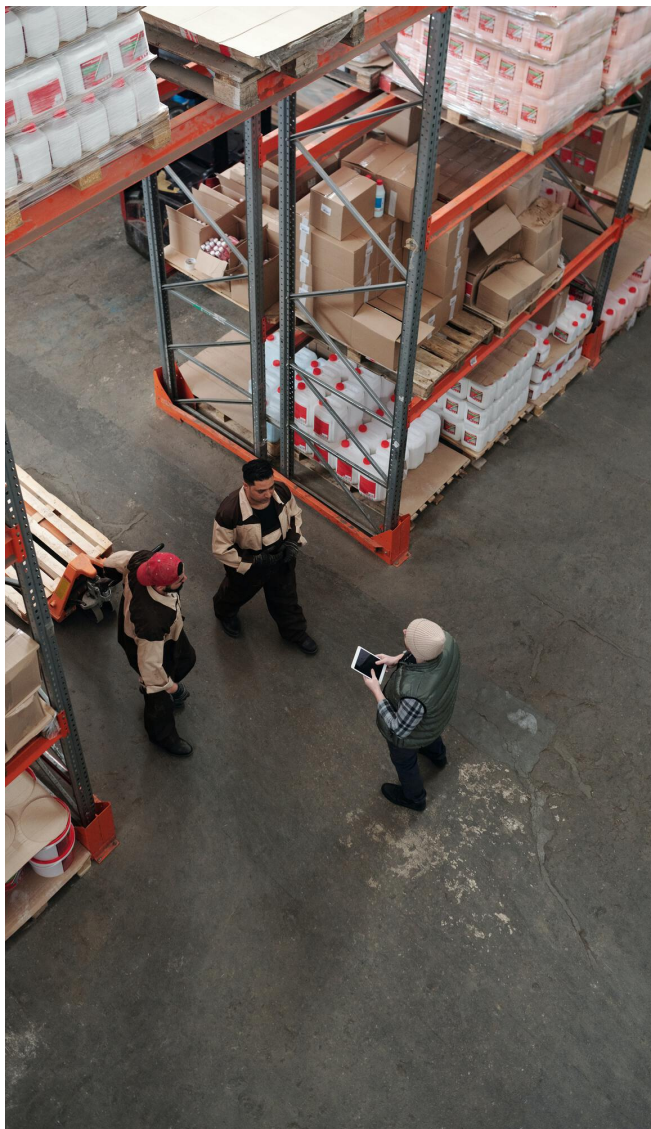
Manufacturing with MongoDB

Gain a Real-Time, Single View of Operations from Raw Materials to Final Product



Making a difference with real-time data





Gain a Real-Time, Single View of Operations from Raw Materials to Final Product

From rapidly advancing automation opportunities to the recent impacts of the global pandemic, the manufacturing landscape is evolving at a breakneck pace.

The first step in dealing with so much change is to look at how your data is working for you. Whether it's adopting IIoT solutions or gaining a single view of your business from raw goods to shipped products, data underpins the entire operation.

Instead of depending on reactive data analysis, slowed by siloed and legacy systems, learn how MongoDB's developer data platform (Atlas) connects your operational technology and IT data for improved overall equipment effectiveness (OEE), and enables the jump from manufacturer to a business able to accelerate customer satisfaction and monetize connected, smart products.



How Global Companies Use MongoDB for Transformative Manufacturing

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MongoDB's developer data platform (Atlas) is the proven solution for modern manufacturers.

Daimler

Use case: Connected Car

Daimler is one of the biggest producers of premium cars and the world's biggest manufacturer of commercial vehicles with a global reach. They provide financing, leasing, fleet management, insurance and innovative mobility services.

In 2019, they replaced DB2 for their [Telediagnosis Service with MongoDB](#), which is a core component for Mercedes-Benz services and is offered to their customers. The parallel operation of both the old and the new system allowed for a seamless migration as data simply ages out and the new system took over completely after several months.

[Learn more](#)



“We don't want to invest now in a technology that won't be here next year, and we'd have to do it all again from the beginning. ... We decided we wanted to use MongoDB.”

Mădălin Broscaru, IT Architect - Diagnostics and Connected Car Data, Mercedes-Benz Aftersales



Vaillant

Use case: Industrial IoT

[Vaillant](#), a developer of products for heating, cooling, and hot water, solves scaling IoT challenges with [MongoDB Atlas](#). It didn't take long for the company to have over 60,000 IoT-connected devices in the field. Just a year later, the number of devices almost doubled. And these devices were sending more data than Vaillant ever expected.

Adding so much new data, so quickly, meant scaling Vaillant's existing Azure CosmosDB database became difficult. Their new database had to be able to handle the unique demands of IoT time-series data and provide a single view of insights across all collected data. When they implemented MongoDB Atlas, there was no downtime at all, and customers immediately noticed the performance improvements.



"When we implemented MongoDB Atlas, there was no downtime at all, and our customers immediately noticed the performance improvements. The whole experience was fantastic."

Jürgen Stauvermann, Senior Java Software Engineer,
Vaillant

[Learn more](#)



Toyota Materials Handling

Use case: Smart Factory

[Toyota Material Handling](#) created a smart factory by moving from a monolith codebase toward a microservices approach, allowing the development teams to be more productive. Underpinning this change is MongoDB Atlas, being run on Microsoft Azure. Toyota Material Handling had eight evaluation criteria that were used to decide on which database platform they would use to make the switch: performance, automatic scalability, security and compliance, data locality, automatic backups, cloud agnostic, developer friendly, and developer productivity.



“For the developers, it is easy – really easy – for them to work quickly. They’re spending time on building business value rather than data modeling.”

Filip Dadgar, Principal Solutions Architect and IT Manager, Toyota Material Handling Europe

[Learn more](#)



Bosch

Use case: Industrial IoT

[Bosch Group](#) is a multinational engineering conglomerate with nearly 300,000 employees. Known for its appliances in the U.S., Bosch is also the world's largest automotive components manufacturer. From smart power tools and advanced telematics to microelectromechanical systems (MEMS), it's at the forefront of IoT.

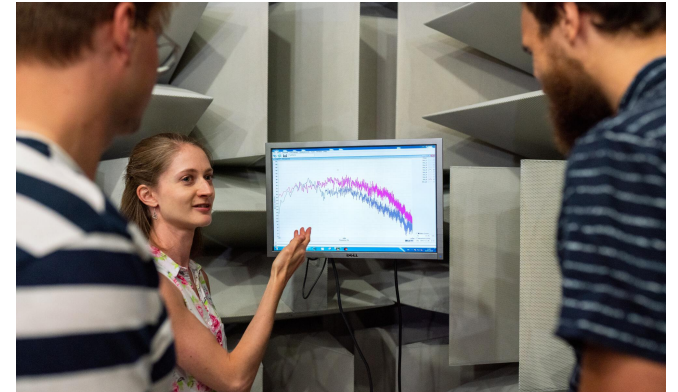
Bosch has built its IoT suite on MongoDB, bringing the power of data to a new range of industrial internet applications including manufacturing, automotive, retail, energy, and many others.

[Learn more](#)



“MongoDB 5.0 and its time-series collections radically simplify our technology stack and improve user experience. IoT data is automatically stored in a highly optimized format that reduces storage consumption while also enabling fast and efficient queries and analytics against the data.”

Erwin Segerer, Software Developer, Bosch.io



THL Digital

Use case: Realm

[THL Digital](#) powers a fleet of 6,000+ rental vehicles throughout the world with operations in Australia, New Zealand, the United Kingdom, and the United States. The company's core product, Insights, is a driving coaching application that improves driver behavior and reduces driver risk. A telematics device is installed in every rental vehicle, recording key information like driver speed and location.

The technology – and customer satisfaction – relies on delivering real-time notifications to a fleet of vehicles moving across remote areas. THL Digital was up and running with MongoDB [Realm Sync](#) in under a week, seamlessly integrating multiple event-driven backends with dozens of endpoints and huge amounts of data, covering GPS locations, customers' movements, availability, and

pricing, all while using less overall data than before.



“MongoDB Realm Sync gives us the ability to communicate in real time with minimal latency. It lets me do with one person what would've taken an army of developers to build.”

“You can build your app how you want it to run offline then incorporate sync, and it just works!”

Emanuel Balea, Solution Architect, THL Digital

[Learn more](#)



Longbow Advantage

Use case: Supply Chain

[Longbow Advantage's](#) warehouse visibility platform, Rebus, enables clients to optimize their supply chains by combining real-time performance reporting with end-to-end warehouse visibility and intelligent labor management.

Longbow needed real-time warehouse visibility and reporting at the heart of Rebus, and it knew monolithic, time-consuming spreadsheets wouldn't suffice. Instead, MongoDB's document database model was a good match, providing a robust, scalable, high-performing database platform and enabling Longbow's customers to see exactly what is happening across their entire supply chain in real time.



“We knew the expectation from our customers would be nearly zero data loss and we had no point-in-time recovery. MongoDB Atlas allowed us to solve these issues almost instantly.”

Gerry Brady, Founder and Chief Innovator, Longbow Advantage

[Learn more](#)



Inelo

Use case: Fleet Management

[Inelo](#) is the leading provider of transportation and monitoring solutions in Europe. Inelo's core offerings, GBox and GBox Assist, form an advanced telemetry solution that monitors driver working time, a key part of Inelo's business. Other features of the solution include route planning, driver updates, and real-time messaging between truck drivers and shippers.

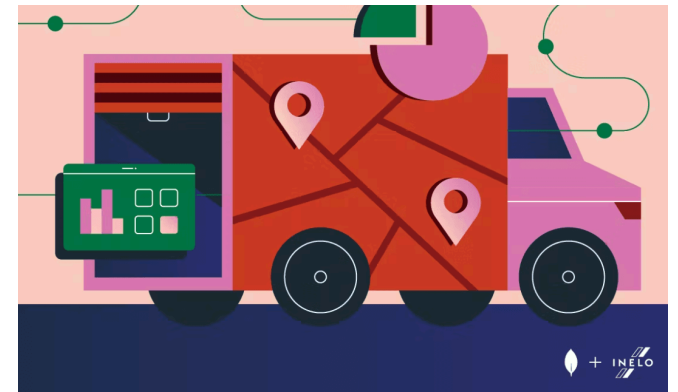
Since adopting MongoDB Realm Sync, events like driver updates, driver hours worked, and order status are now processed and sent to the shipper – or driver – in real time. GBox Assist customers are saving time and money with the increased visibility to fleet location, routes, fuel consumption, driver time, and more.



“The best thing about MongoDB Realm Sync is that it just works. It's fast, it's scalable, and it's reliable. That's what's most important to us: data syncs as expected, every time.”

Maciej Grajcarek, Head of GBox Software, Inelo

[Learn more](#)



Cox Automotive

Use case: Atlas + Realm

[RideKleen at Cox Automotive](#) is a national leader in eco-conscious, full-service fleet cleaning, disinfection, and maintenance, servicing a range of shared fleet providers including some of the country's largest car rental and rideshare companies.

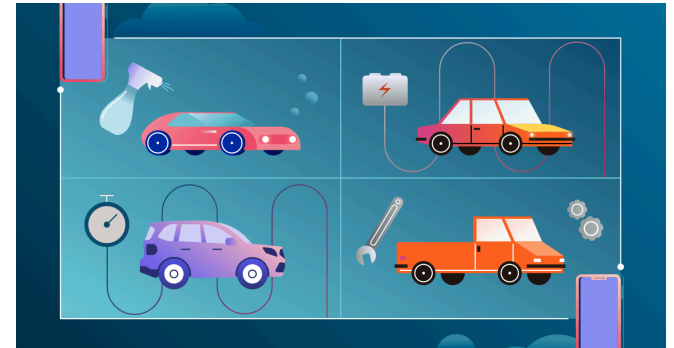
After acquiring tech company WeKan, RideKleen set their sights on operational excellence and expansion. The company chose a combination of MongoDB Atlas on AWS, MongoDB Realm, and Atlas Data Lake to power their technology end-to-end, allowing RideKleen to deliver a fundamentally better experience to its staff and clients.

[Learn more](#)



“Field technicians are more productive, jobs are scheduled and completed faster, and communication across the business is easier. At the same time, we can scale the business much faster to respond quickly to new client challenges. MongoDB has made it possible.”

Ranjan Moses, Chief Technology Officer, WeKan



Why MongoDB for Manufacturing



Why MongoDB for Manufacturing

The manufacturing industry is under constant pressure to produce more, with better quality, at a lower cost. With MongoDB's developer data platform (Atlas), you can combine the enormous variety and volume of data you produce into a single view and analyze it all in one place. Make real-time decisions that increase OEE, automate your factory, and serve customers long after your products have left the shop floor.

Here's how MongoDB meets your needs.

Built for real-time Industrial IoT

Being able to combine the huge variety of data in a unified data platform will unlock innovative use cases that enable you to make real-time decisions, increase OEE, improve product quality and expand in innovative customer experiences.

Increases Supply Chain Visibility

Develop a single view of your supply chain so you can support innovative initiatives, aggregate inventory updates, and act on trends in real time. MongoDB scales seamlessly, capable of ingesting enormous amounts of sensor and event data to support real-time analysis for catching any critical events or changes as they happen.

Powers Industrial IoT Platforms

IIoT is becoming increasingly more critical in manufacturing and engineering, connecting thousands of sensors and actors of devices in

the processes before, during, and after fabrication. The implementation of IIoT applications using MongoDB, from raw materials to the product or smart products, can become a key differentiator for successful manufacturing companies throughout the entire supply chain.

Provides Dynamic Scalability

MongoDB Atlas and Realm provide automated scalability allowing you to start small and dynamically adapt your clusters with increasing/decreasing demand. Especially as sensor data gets colder over time, you can automatically offload cold data into object stores, such as S3, while maintaining the ability to query the hot and cold data through a single API.

Enables Insightful Time Series Applications

Build and run time series applications of any scale for any industry with greater ease,

speed, and economy than ever before. Analyze trends based upon [time series](#) information in real time for predictive maintenance and reduced downtime.

Deploy Where You Need it

The MongoDB database can also be deployed next to the shop floor for data collection and analysis, making the shopfloor independent of the cloud. Pre-aggregated or raw data can then be seamlessly replicated or streamed into the public cloud for global views across factories.

Leverage Multi-Cloud for Greater Flexibility

MongoDB is a multi-cloud database, which gives you the flexibility to use the cloud provider you want how you want to use it. With multi-cloud clusters, your data can be distributed across multiple cloud providers – Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure – simultaneously.

Enable Your Workforce

Workers need instant access to critical information, and in a manufacturing environment, they need that crucial information on the go. Use MongoDB Realm to provide your workforce with real-time insights and [offline-first](#) applications.

Looking to find out more, take a look at the below resources

[\[Panel discussion\]](#) An IoT Discussion with AWS, Cloudflight, and MongoDB

[\[Blog\]](#) Manufacturing at Scale: MongoDB & IIoT

[\[Landing page\]](#) MongoDB for Manufacturing Hub

[\[Solution brief\]](#) Mastering IIoT and Industry 4.0

[\[Video\]](#) MongoDB & Bosch AIoT Discussion

[\[White paper\]](#) IIoT Reference Architecture