

**Knorr-Bremse Group****Industry**

- Manufacturing

**Solutions**

- OpenText<sup>™</sup> Analytics and Reporting



# Knorr-Bremse enhances analytics platform capabilities with OpenText

**OpenText<sup>™</sup> Analytics and Reporting provides embedded dynamic dashboards and reporting to help customers reduce maintenance costs and ensure better diagnostics for safety**

**Results**

- 20 percent reduction** in customer maintenance costs
- Scalable solution** capable of handling very large data streams
- Rapid development and deployment** for competitive advantage
- Dynamic analytics** for easier interpreted visualizations

A close-up, blurred photograph of metallic mechanical components, possibly brakes or sensors, with bolts and nuts visible, serving as a background for the quote.

*"OpenText Analytics and Reporting provides the perfect fit to embed into iCOM. It is easy to develop with, the interface is user-friendly for our customers and it provides the functionality customers told us they want."*

**Thomas Brauchle**  
Digital Platform and Services Director  
iCOM at Knorr-Bremse

**The safety of millions of trains and vehicles around the globe relies on Knorr-Bremse braking systems. Monitoring performance, tracking maintenance and identifying problems early is critical to keeping trains on tracks and passengers and cargo safe.**

The Knorr-Bremse Group, based in Munich, Germany, is the world's top manufacturer of braking systems for rail and commercial vehicles, such as freight trucks and metro lines. Since its founding in 1905, the company has been a leader in developing, manufacturing and servicing braking systems and other components. As of 2016, Knorr-Bremse employed approximately 25,000 people in 30 countries, and had sales of EUR 5.5 billion. The company continues its technical innovation and leads the way in Industry 4.0 and Internet of Things (IoT) solutions to address digital transformation.

Knorr-Bremse has developed its iCOM (Intelligence Conditioned Oriented Maintenance) platform, providing advanced diagnosis and maintenance for both large and small rail and truck fleet operators. iCOM is an IoT application framework for innovative fleet management, monitoring and analytics. The iCOM platform uses on-board sensor units and about 30 subsystems, such as brakes, heating and ventilation, wipers and doors to collect data. They continually generate data that is wirelessly transmitted to the iCOM platform, which reports back conditions such as temperature, duration of use, error conditions and other events.

iCOM uses the data to enable condition-based, rather than static, scheduled maintenance for Knorr-Bremse. This means any issue can be identified before it becomes a serious safety problem or needs a more costly repair or replacement. Customers of iCOM use the solution for their fleet rail vehicles, helping lower costs and improve safety because they can identify components requiring replacement or repair before they fail.

The Knorr-Bremse development team used a number of open source components to build the iCOM platform. For analysis and reporting on the vast quantities of data that the solution gathers, it used open source BIRT (Business Intelligence and Reporting Tools).

**"However, in order to meet customers' growing expectations for more sophisticated, predictive analysis, or to build their own reports without having to rely on IT, we started searching for a more powerful, customizable analytics solution that could also cope with customers' requirements,"** explains Thomas Brauchle, digital platform and services director, iCOM at Knorr-Bremse. **"Our customers wanted the ability to perform greater analysis of their data, for example to predict when components would fail, to extend the life of a component or to understand the causes of failure. Continually collected data results in significant volumes across a fleet, which meant an effective solution would also have to be highly scalable,"** says Martin Steffens, project manager and software architect for digital platform, iCOM at Knorr-Bremse.

**Ease of use for customers reduces reliance on IT**

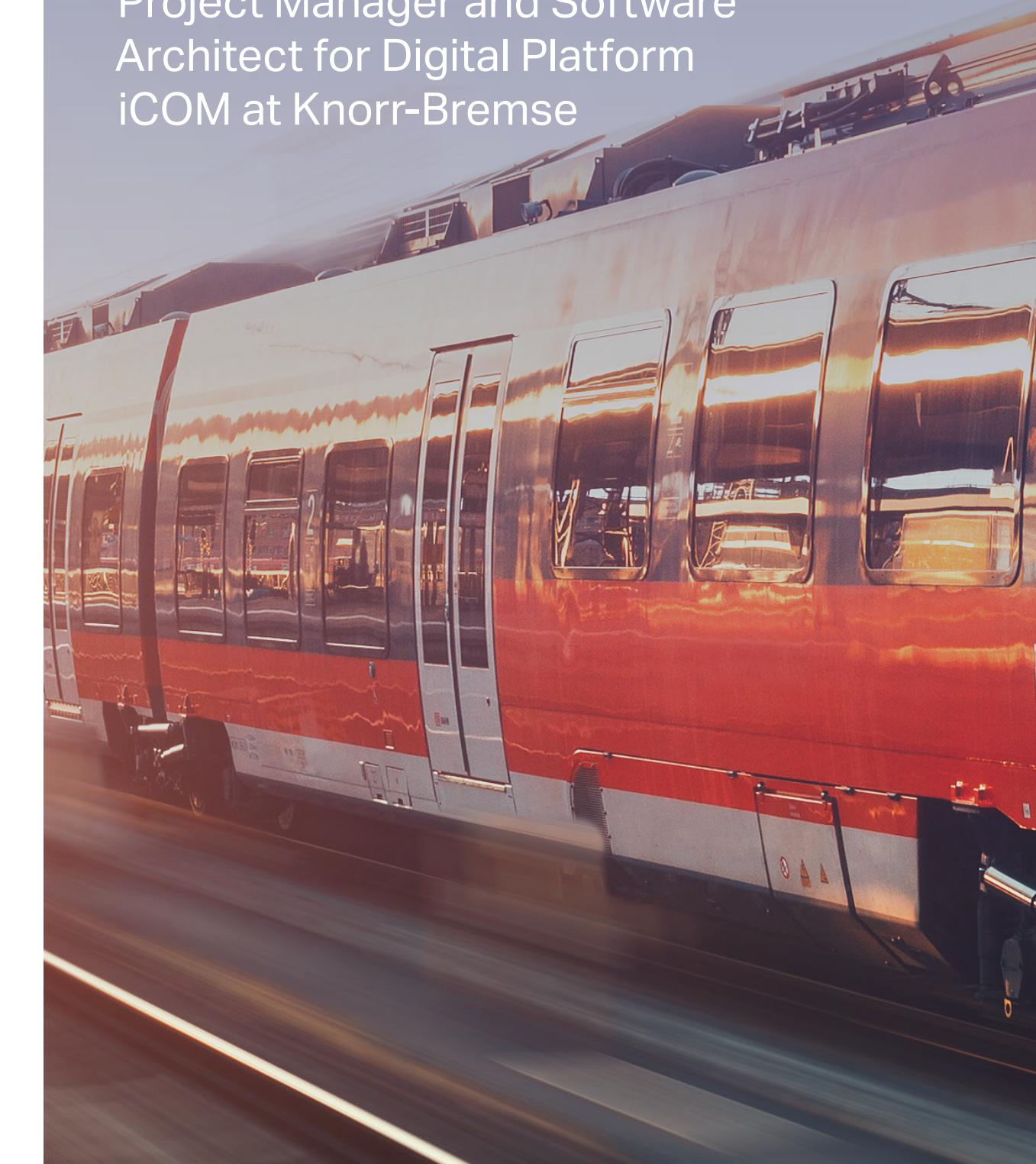
Having looked at a number of potential solutions, Knorr-Bremse selected OpenText Analytics and Reporting due to its superior built-in graphical design studio, dashboard capabilities, speed of development and usability. OpenText Analytics was also a natural choice for building on Knorr-Bremse's knowledge developed using Java and BIRT.

**"OpenText Analytics provides the perfect fit to embed into iCOM. It is easy to develop with, the interface is user-friendly for our customers and it provides the functionality customers told us they want. Visualizations of the data provide insights that are more meaningful, with the ability to drill down through graphical dashboards and create ad-hoc, dynamic views,"** says Brauchle.

**"OpenText Analytics is powerful, able to import data from various libraries and external sources, in real-time, providing them with visualizations in the field."**

**Martin Steffens**

Project Manager and Software Architect for Digital Platform  
iCOM at Knorr-Bremse



**"Our customers wanted the ability to analyze their data to understand why, when and even where something happens. For example, using OpenText Analytics, we can provide state-of-the-art visualizations and heat maps of condition-based events, such as over-heating brakes on a specific incline. This helps our customers put measures in place to reduce component failures, extending component life, and ultimately saving money,"** says Dirk Seckler, global head of Sales at Knorr-Bremse.

Customer reaction to the analytics and reporting available within iCOM has been extremely positive. With standard widgets delivered as part of their dashboard, users can quickly make adjustments to display what they need, such as performance indicators, component failure rates, environmental conditions and more, with no need to involve IT.

OpenText also supports Knorr-Bremse's business plan, providing the choice of an on-premises or cloud-based solution for those looking to focus on their internal operations rather than growing their IT infrastructure.

**"We want to offer our customers maximum flexibility. But the trend is clearly to use the Knorr-Bremse Cloud, where we collect and host the data and offer a web-based interface to iCOM. Thanks to OpenText Analytics we can seamlessly offer world-class analytics with both options,"** says Seckler.

### Faster development provides market agility

Developers and others within Knorr-Bremse have also reported their delight with OpenText Analytics as they continue to innovate the iCOM platform.

**"Feedback from our customers' users, such as service engineers, is they are happy too. OpenText Analytics is powerful, able to import data from various libraries and external sources, in real-time, providing them with visualizations in the field,"** says Steffens.

Knorr-Bremse looked at a number of alternatives, and evaluated the development times each would involve. OpenText Analytics demonstrated that developing and bringing to market the embedded solution would be faster than any other solution considered.

**"Due to the easy-to-use interface of the OpenText solution, our developers were quickly productive in developing the analytics and reporting aspects of iCOM. iCOM is based on Java and consequently it has been very easy to integrate and embed to the OpenText Analytics platform. It is not just about shortening the time to develop, though. The results have to look good and with OpenText, they do,"** says Steffens.

### Customers save on maintenance costs

Customers can decide what they wish to record across various IoT subsystems and can build their own reports and dashboards as needed. An event message is recorded when a specific condition is met, such as excessive temperature. iCOM continually records process data, providing the ability to view subsystem performance over time.

**"The iCOM platform has been designed to be flexible to meet the needs of our customers and OpenText Analytics is an essential element of this. By moving to condition-based maintenance and the predictive analysis that OpenText provides, our customers will reduce their maintenance costs by 20 percent. With the average lifespan of a train being around 40 years, depending on the subsystem in question, their return on investment with iCOM is around two to four years,"** says Seckler.

**"By moving to condition-based maintenance and the predictive analysis that OpenText provides, our customers will reduce their maintenance costs by 20 percent."**

**Dirk Seckler**  
Global Head of Sales  
Knorr-Bremse



## Future opportunities with OpenText Analytics

Knorr-Bremse initially developed the iCOM platform for rail vehicles. However, because it is an open system, the company seeks to adapt it to road vehicles.

***"Thanks to the open architecture, Knorr-Bremse could use iCOM to monitor any part of a fleet. So now the company can pursue strategic relationships to extend its reach to other subsystem manufacturers and maintenance operations,"*** says Brauchle.

Seckler says, ***"There are many systems performing data capture. The powerful and flexible analytics we are providing in iCOM is however, new and a real differentiator in the market for Knorr-Bremse."***



## About OpenText

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