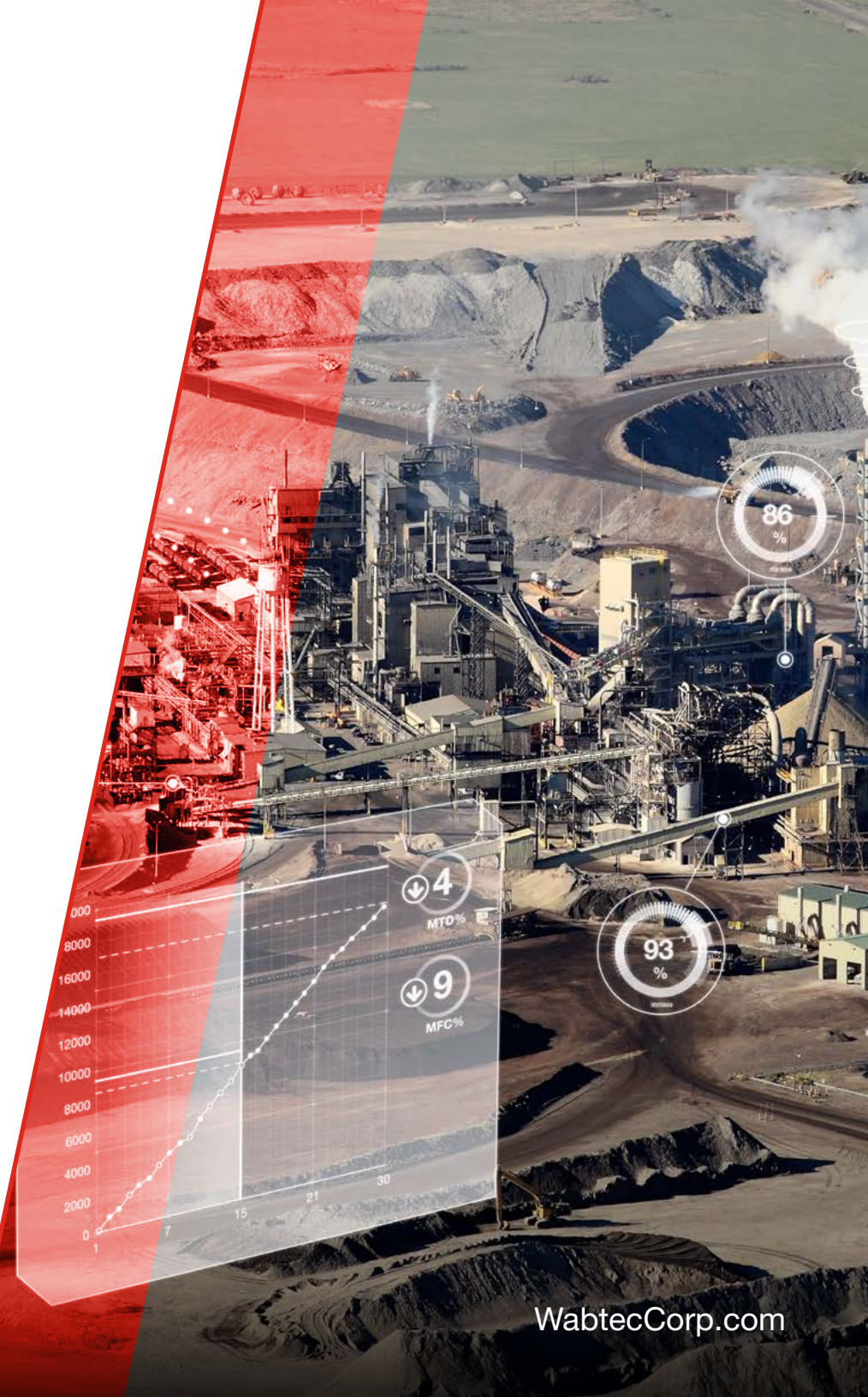


Digital Mine

Transform Your Mine into a Digital Industrial Company





The operating climate for mining facilities has never been more challenging. Mine sites are faced with cost volatility, shrinking profit margins, and constantly changing buyer preferences. In addition, mining operators are challenged with compressed cycle times, increased price pressure, demands for customization, knowledge attrition, and growing environmental scrutiny. Wabtec recognizes and helps our customers face these same challenges.

In response, Wabtec is reimagining how industrial companies, including many Wabtec companies, operate plants and deliver products using data as the fuel and advanced analytics as the growth engine. We embrace the vision of the Industrial Internet and the promise of driving disruptive, positive changes across the industrial landscape.

Modern mines are collecting massive amounts of data—but they are not digital. They are under pressure to increase efficiency and produce at the lowest possible cost.

Solutions are needed that:

- Reduce unplanned downtime
- Optimize operations
- Enable proactive processes

What if anomalies were predicted and maintenance was performed only when needed? What if every plant performed like your best plant?

This is Wabtec's Digital Mine

Wabtec Mining introduces the Digital Mine, a suite of technologies that can improve safety, performance, availability and reliability, and operations. Wabtec Mining rests on three key focus areas: leading surface propulsion systems and above ground mining equipment, as well as our world-class Industrial Internet solutions. Digital Mine solutions include Asset Performance Management (APM), Operations Performance Management (OPM), and Safe Technologies.

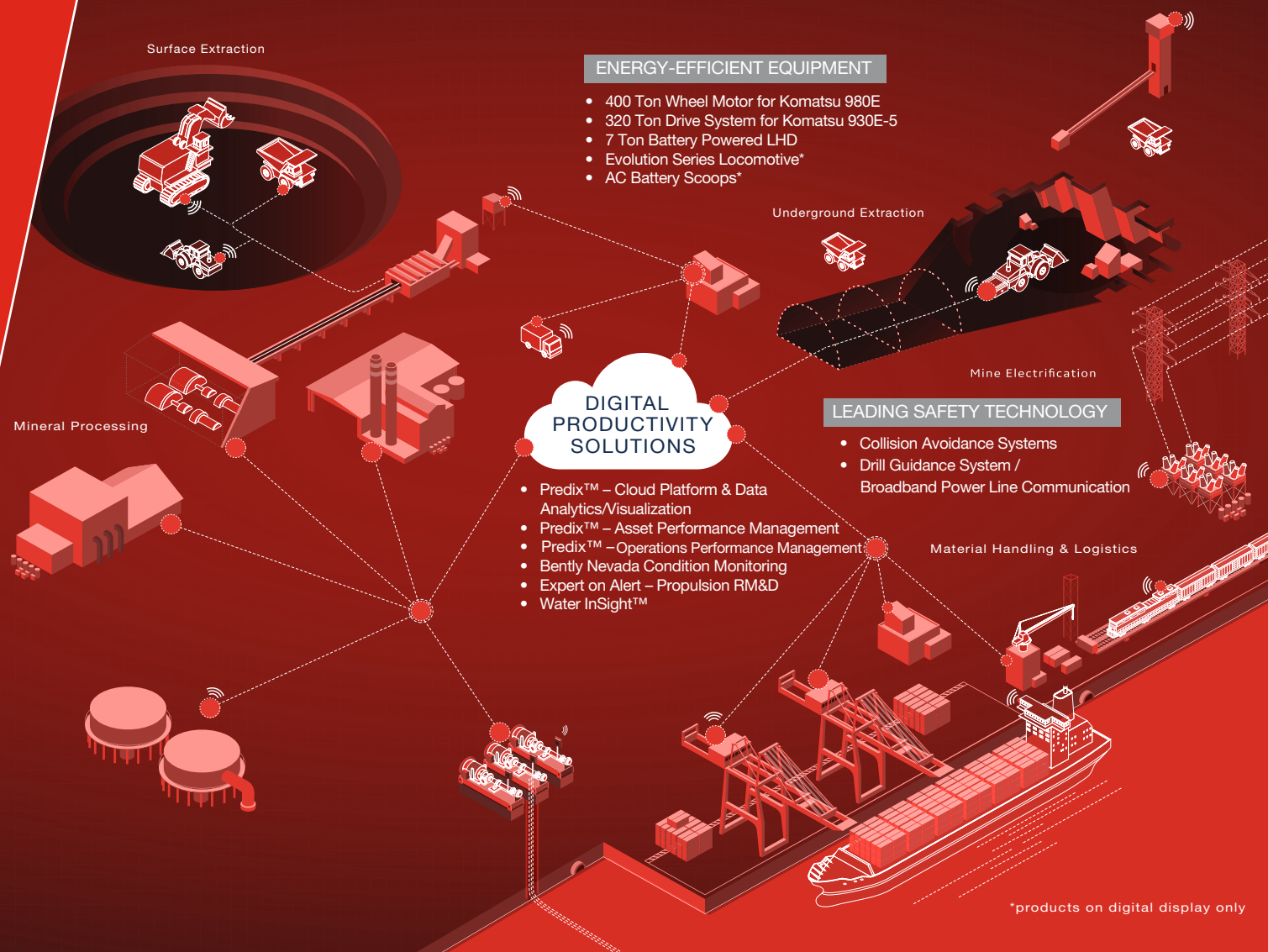
With this suite of solutions, the Digital Mine team's purpose is to collaborate with you to understand your operations, identify your specific issues, and develop strategies that integrate, automate, and optimize your operations by providing real-time, data-driven insights.

Intelligent real-time monitoring across the mine allows your operators to make data-driven decisions that improve equipment reliability and optimize mine operations. It combines machine sensors, connectivity, data capture, visualization, and analytics to support management of all your critical assets.



Wabtec solutions across the mining value chain

Wabtec's Digital Mine: Transforming your mine's operations together



The Industrial Internet changes everything

- Your mine sites are complex and challenging—giving you real-time visibility and control over all manufacturing processes
- Your mining facilities replace scheduled maintenance with just-in-time, predictive maintenance to prevent unplanned outages
- Your industrial data, control networks, and applications are protected from malicious software threats—automatically and continuously
- Your analytic capabilities are infinite and can be customized using open tools and pluggable software services—allowing you to minimize downtime, optimize performance, and react to market changes with flawless agility

This is the Industrial Internet. It is here now. It's powered by platform and application support for the Industrial Internet. It will change the face of global industries for generations to come.

Get Connected, Get Insights, Get Optimized, Get Results

The starting point for your digital industrial transformation journey is getting connected to build digital twins—digital models of your machines and processes within your mining facility. Sensors then can transmit data from your assets securely to your chosen storage topology: on premises, on the cloud, or any techstack of your choosing.

You can then use GE Digital's applications combined with Wabtec's Digital Mine support for APM, OPM and CAS for your assets and operations. You can also create custom analytic applications by assembling prebuilt platform and application services and building new services from scratch.

The platform for the Industrial Internet

Wabtec's Digital Mine works on GE's Digital Platform, the platform for the Industrial Internet, combining the scalability of cloud computing, big data management, and advanced analytics to power new generations of industrial mining facilities.

Born from GE Digital's own experiences as a global industrial leader, GE Digital's platform is purpose built to provide the connectivity, security, and performance needed to drive advanced industrial applications for your mining site. Using GE Digital's powered applications combined with Wabtec's Digital Mine Support you can quickly gain insights about powered applications, you can quickly gain insights about the availability and performance of your industrial assets, reduce downtime, and optimize agility and scale.

Get Connected

Wabtec's Digital Mine offers Starter Kits to digitally enable your equipment and devices and provides the Field Agent appliance for collecting data from a wide variety of devices and securely delivering it to your chosen storage topology: on-premises, on the Predix industrial cloud, or a hybrid. The Predix platform includes advanced features for maintaining security while data is in flight and at rest.

Get Insights

Leveraging advanced data management and analytic tools, powerful applications to unlock the power of your data to reveal critical insights. Gain instant visibility using Wabtec Digital Mine's APM, OPM, and Safe Technologies; assemble custom apps from pre-packaged services for machine learning, heuristic analysis, and physics- and engineering-based modeling; and in-house developed apps using popular programming/analytic languages.

Get Optimized

By delivering a pre-built, secure, scalable platform for industrial analytics, Wabtec's Digital Mine puts you in charge of your digital industrial journey. Whether you're leveraging GE Digital's platform and powerful application suites, assembling apps from pre-built services, or building custom applications from scratch, GE Digital and Wabtec's Digital Mine do the heavy lifting so you can focus on using your data to achieve measurable outcomes—improved uptime, reduced operating costs, increased market agility, and profitable growth.



Digital Mine: Portfolio at a glance

Asset Performance Management

- Machine & Equipment Health
- Reliability Management
- Compliance & Integrity Management
- Asset Strategy Optimization

Safe Technologies

- Collision Alert Systems
- Surface & Underground
- Drill Guidance Solutions & Broadband Power Line Comms Solutions

Operations Performance Management

- Operational Intelligence
- Forecasting & What-if Analysis
- Process & Performance Optimization

Advanced Monitoring and Sensing Solutions

- Machine Learning
- Condition based monitoring
- Real time information from distributed sensing capabilities

Platform & Applications / Cyber Security / Automation



The Digital Mine solution

Within our Digital Mine offering, we offer four core solutions:

- 01 **Asset Performance Management**
- 02 **Operations Performance Management**
- 03 **Safe Technologies**
- 04 **Advanced Monitoring & Sensing Solutions**

Asset Performance Management (APM) is about assuring the reliability, performance, and service operations for assets that are critical to the mining operations. The full range of asset needs—Machine & Equipment Health, Reliability Management, Compliance & Integrity Management, and Asset Strategy Optimization—to help asset-centric mining facilities increase uptime, decrease costs, and reduce operational risks.

With APM, you will:

- First understand how your machines are currently performing within the mining site
- Move to improving your performance, while reducing costs and minimizing risks to your people and the environment
- Focus more on preventative maintenance and developing intelligent actions to fully comply with regulatory measures

Operations Performance Management solutions support operational decision making to rapidly discover and respond to changing Mining conditions.

They provide accurate, clear, and complete situational awareness to help mining professionals reduce process related downtime while maximizing outcomes.

Operations Performance Management provides real-time operational intelligence at the control, site, fleet, and enterprise levels. It's an all-in-one, real-time, 24/7 solution that closes your analysis gap by helping you optimize throughput and increase yields while making timely and accurate decisions that balance process performance with maintenance and profitability goals.

With OPM, you will be able to:

- Instant access to operations, financial, and regulatory data
- Data-driven mapping to dramatically reduce implementation timeline and cost
- Manage process variability using predictive process modeling and troubleshooting
- Reduce waste while optimizing cross plant operations

Safe Technologies helps safeguard your people, equipment, and infrastructure with Wabtec Collision Management Systems, a sophisticated and adaptable collision—avoidance and reporting suite developed specifically for the mining industry.

Collision Management Systems contains a variety of proximity-detection methods, including GPS, radio frequency (RF), VLF magnetics, and cameras to provide the one of the most effective high-integrity systems on market. With Wabtec Collision Management Systems' reporting and analytics tools to monitor and manage operator behavior, you also can improve safety culture and compliance at your mine site.

The Wabtec Collision Management Systems suite has been proven in use over 14 years and 290 Million hours of operation.

Advanced Monitoring & Sensing Solutions

Digital Mine enables operators to leverage analytics and artificial intelligence to identify root cause and move from predictive to prescriptive analytics enabled by fiber optic monitoring technologies and prescriptive analytics.

Wabtec Digital Mine takes real-time information from acoustics, vibration, strain, and other critical factors, allowing operators to increase their confidence with the production monitoring of their assets and overall operations.

The unique synergy of fidelity optic sensing solutions provides distributed sensing capabilities while Digital Mine's condition-based monitoring techniques allow for early detection of abnormalities such as ground movement and compromised asset integrity issues like intrusions and leaks



Digital Mine tiered offering



Benefits

With Digital Mine, onboard analytics optimize:

- Recovery
- Throughput
- Energy efficiency

The equipment data is sent to the cloud and compared to a virtual copy of the individual machine—it's digital twin:

- Which predicts when maintenance will be needed
- Which optimizes availability and reliability

Individual machine data can be viewed on a mobile device, allowing the ground technician to see when and how maintenance should be performed, enabling immediate decision-making.

As the digital revolution expands, imagine the possibilities as all your assets become connected. Wabtec's Digital Mine is making this possible today. Digital Mine enables assets and operations optimization by connecting machines, data, and people on an industrial scale.

Leveraging the full suite of Digital Mine capabilities will allow you to:

- Increase asset performance
- Optimize operations
- Proactively manage safety within your plant



Imagine the possibilities with Digital Mine

40% Reduction in variation
– Impala Platinum

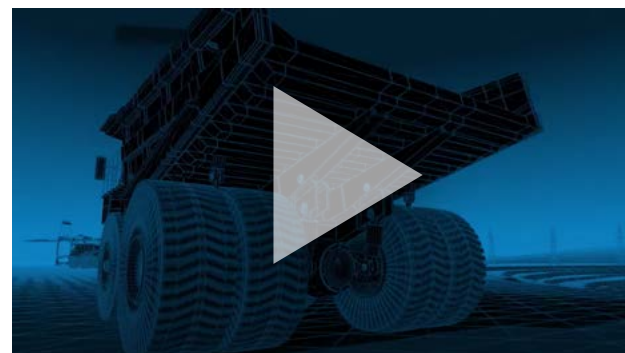
30%-40% Increase in operational capacity
– Lanxess

10% Increase in smelter throughput
– Lonmin Platinum

25% Reduction in maintenance costs
– Rio Tinto

115% Of ROI achieved in
12 months – Joy Global

Check out our Digital Mine video!



Imagine the possibilities with Digital Mine

Key business drivers

Typical benefits

Increase production



1%-10%

Reduce energy consumption



2%-10%

Reduce reagent consumption



1%-10%

Reduce yield loss



~25%

Increase recovery



1%-3%

Additional benefits

- Increase operational security
- Reduce environment emissions
- Stabilize process
- Reduce equipment maintenance
- Improve visibility into the status of productivity
- Increment the activities planning





Get started today

Wabtec's Digital Mine leverages decades of experience, cutting-edge data science and analytics technology, and the scale of \$1 trillion in managed assets to offer a full suite of solutions. GE Digital's depth, breadth combined with Wabtec's Digital Mine Domain expertise in large industrial-equipment and predictive analytics balances traditionally competing priorities—reducing costs, improving availability and reliability, and managing risk—to provide intelligent asset strategies that help maximize asset performance and productivity.

Are you ready to make your operations safer and more reliable while helping to ensure optimal performance at a lower sustainable cost?



About Wabtec and GE Digital

Wabtec is a re-seller for GE Digital Solutions. The Wabtec and GE Digital collaboration brings together decades of mining industry expertise with best-in-class OPM and APM software development practices, precisely the kind of collaboration needed for this incredibly dynamic space. Please contact your Wabtec Seller if interested in learning more about our Digital Mine Solutions.

For more information

please call 1-888-264-0011
or email info@wabtec.com



Wabtec Corporation (NYSE: WAB) is a leading global provider of equipment, systems, digital solutions and value-added services for freight and transit rail. Drawing on nearly four centuries of collective experience across Wabtec, GE Transportation and Faiveley Transport, the company has unmatched digital expertise, technological innovation, and world-class manufacturing and services, enabling the digital-rail-and-transit ecosystems.

Wabtec is focused on performance that drives progress, creating transportation solutions that move and improve the world. The freight portfolio features a comprehensive line of locomotives, software applications and a broad selection of mission-critical controls systems, including Positive Train Control (PTC). The transit portfolio provides highly-engineered systems and services to virtually every major rail transit system around the world, supplying an integrated series of components for buses and all train-related market segments that deliver safety, efficiency and passenger comfort.

Along with its industry-leading portfolio of products and solutions for the rail and transit industries, Wabtec is a leader in mining, marine and industrial solutions. Wabtec has approximately 27,000 employees in facilities throughout the world.

Visit the company's new website at:
WabtecCorp.com

GE Digital (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive, and predictive.

GE Digital is reimagining how industrials build, operate and maintain their assets, unlocking machine data to turn valuable insights into powerful business outcomes. GE Digital's Predix portfolio – including the leading Asset Performance Management, Operations Performance Management and MES – helps customers manage the entire asset lifecycle. Underpinned by Predix, the leading application development platform for the IIoT, GE Digital enables industrial businesses to operate faster, smarter and more efficiently.

