One trusted source of information for the mining enterprise

Trimble Connected Mine
Mine Information Systems
FROM POINT SOLUTIONS TO ENTERPRISE SOLUTIONS

Trimble's leadership in positioning, scanning and imaging technologies provides the foundation of accuracy and reliability required by industry-specific software applications used to improve operational processes and increase safety.

Today, our advanced capabilities in information management, 3D visualization and analytics are used in agriculture, construction, rail and mining. Implemented at the enterprise level, these technologies connect the field and offices with decision support tools to solve business challenges, make incremental productivity gains and achieve economic breakthroughs.

TRANSFORMING THE WAY MINES WORKS

Starting with decades of mining industry experience and spatial data leadership, Trimble has applied data integration expertise to connect all sources of mining data for use throughout the enterprise. Mining professionals in planning, production, processing, finance, accounting and human resource roles are able to make more informed and quicker decisions using data they can trust.

ONE CENTRAL TRUSTED SOURCE OF INFORMATION

The Trimble Connected Mine solution integrates data from disparate sources to produce a central trusted source of information for increased productivity, reduced risk and variability management throughout the mining enterprise.

In mining and other industries around the world, Trimble innovation enables productivity wins and economic breakthroughs while increasing quality and reducing risk.

Benefits include:

- Improved confidence in decisions by using one trusted source of data and business metrics throughout the enterprise
- Faster analysis of plan variances by monitoring and reporting on actual performance
- Rapid modeling, options analysis, cost scenarios and predictive analysis to react faster to exceptions and drive action
- Increased optimization by exposing buried data to interrogation, correlation and analysis
- Corporate benchmarking for greater insight into performance across multiple business units and remote locations
- Reduced reporting time by automating reporting of validated and trusted data
Connecting People and Data Across the Organization

INTEGRATING DATA ADDS VALUE

The Connected Mine is designed to exploit and extract value from all layers of technology. At the foundation of the Connected Mine are the data collecting instruments that are currently used in discrete operational areas. Positioning and communications are the technology infrastructure that allow remote sensing and imaging data to be used reliably in a network.

At mid level, planning and productivity software applications range from resource modeling software to fleet management systems to stockpile monitoring systems. Today, the information from these systems is underutilized. Integration in the Connected Mine allows unprecedented interrogation, correlation and analysis of this valuable data. The upper levels of the technology layers represent enterprise use of business reporting and analytics for decision support.

A COMPLETE VIEW

Our Connected Mine portfolio is an enterprise-level solution that integrates sensing, monitoring, control, 3D spatial data management, business intelligence and enterprise management.

The Trimble Connected Mine system empowers and assists mining professionals at levels to make the best possible decisions for the business.

Portfolio features

- Laser scanning for surface and underground mapping and slope stability monitoring applications
- Onboard laser scanning for mobile mapping and profiling
- Unmanned aerial surveying for surface photogrammetry
- Near real-time business intelligence for monitoring current and historical mine and plant production and operations statistics
- Integration of business intelligence analytics with third-party fleet management and enterprise business systems for advanced decision support
## Connecting Technology

**SPATIAL SENSING AND IMAGING**

At the foundation of the Connected Mine is accurate and reliable scanning and measurement devices that collect 3D and temporal data. Trimble’s innovation extends beyond the devices to the application of the data wherever it’s needed to solve real-world challenges.

**TECHNOLOGY AGNOSTIC**

Trimble is a global leader in aerial, terrestrial and underground remote sensors and scanners used to map the dynamic mining environment. The Connected Mine system is designed to exploit and extract the full value of these technologies with an agnostic approach to manufacturer or brand of the devices.

**TECHNOLOGY INFRASTRUCTURE**

Communications and positioning infrastructure support reliable and remote access to data critical for operations and planning. A key component to enabling the Trimble Connected Mine system is reliable, real-time access to data that can be integrated for added value in other operational areas.

The Connected Mine depends on accurate data collected by spatial sensing, monitoring and measurement systems. Trimble has been recognized as a global leader in these point solutions since the company was founded in 1978.

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Trimble S5 Total Station for Surveying

Trimble NetR9 GNSS Reference Receiver
The Connected Mine system uses data from resource modeling and productivity applications to track materials from origin through more processing.

OPERATIONS MONITORING AND CONTROL TECHNOLOGY

Fleet management systems, machine control and guidance systems and monitoring systems have enabled leaps in productivity and safety. The Connected Mine integrates data from all of these systems to achieve more improvement through correlation and analysis.

MINE PLANNING & PRODUCTIVITY

Trimble’s mine and alignment planning applications reduce planning and design time so more time can be spent on options analysis to make the best decision.

In the production environment, fleet management systems, vehicle health systems, machine control and guidance systems, monitoring systems and SCADA systems have enabled leaps in productivity and safety.

The Connected Mine integrates Trimble and third-party data from these systems to achieve more productivity wins and incremental improvement through correlation and analysis.

Connecting Applications
Connecting Data for Informed Decisions

CONNECT PROCESS AND DATA

Trimble Mine Information Systems enable the Connected Mine by applying processes, software and data warehousing to expose disparate sources of data to reporting and analysis throughout the enterprise.

MINE INFORMATION SYSTEMS

Mines, plants and business offices can make more informed and quicker decisions to increase productivity, reduce risk and manage variability by integrating siloed data from fleet management and mine monitoring systems, plant control systems and ERPs into one central, trusted source of information.

Trimble Mine Information Systems eliminate data silos by integrating operational information and exposing it for consumption, analysis and optimization throughout the enterprise.

VALIDATED, TRUSTED INFORMATION

Trimble Mine Information Systems are enterprise solutions that apply these processes to produce the central data repository and integrated reports.

The highest value provided by the Connected Mine is decision support. By connecting siloed data into a central trusted source of data and exposing it through reporting and analytics, all available information assets can be fully utilized to predict future outcomes, optimize processes, prevent losses and control costs.

Reports

- Validate data coming from disparate source systems and from manual records
- Integrate the data from each data source into a common data structure and repository
- Transform data into useable information such as KPIs and charts
- Expose data in reports, star schema, and data sets for analysis and transfers to customer systems
About Trimble

Trimble is transforming how the world’s work gets done. By applying our industry-specific solutions to solve business challenges, our customers gain access to better information to make better decisions, improving their operations and reducing risk.

Trimble solutions are used by customers in 150 countries for North Pole expeditions to Antarctic surveys and from re-measuring the height of Mount Everest to helping rescue miners trapped deep underground. Our regional offices and manufacturing centers are located in 35 countries with R&D centers in 15 countries.

Our global partner network provides local sales, training, support, service and repair in over 125 countries. Trimble is a publicly traded company (NASDAQ:TRMB) with annual revenue of $2.4 billion in 2014.

About Trimble Mining

Trimble Mining is transforming the way mines work by combining decades of mining experience with global leadership in spatial technologies, business analytics, visualization and decision support tools to deliver the Trimble Connected Mine system.

Trimble Mining has a proven track record of implementations and support of enterprise systems and critical operations systems in some of the largest mines worldwide.