Mining company adapts Industry 4.0 innovations

Metalloinvest creates unified company platform with SAP S/4HANA®

by Catherine Palmer

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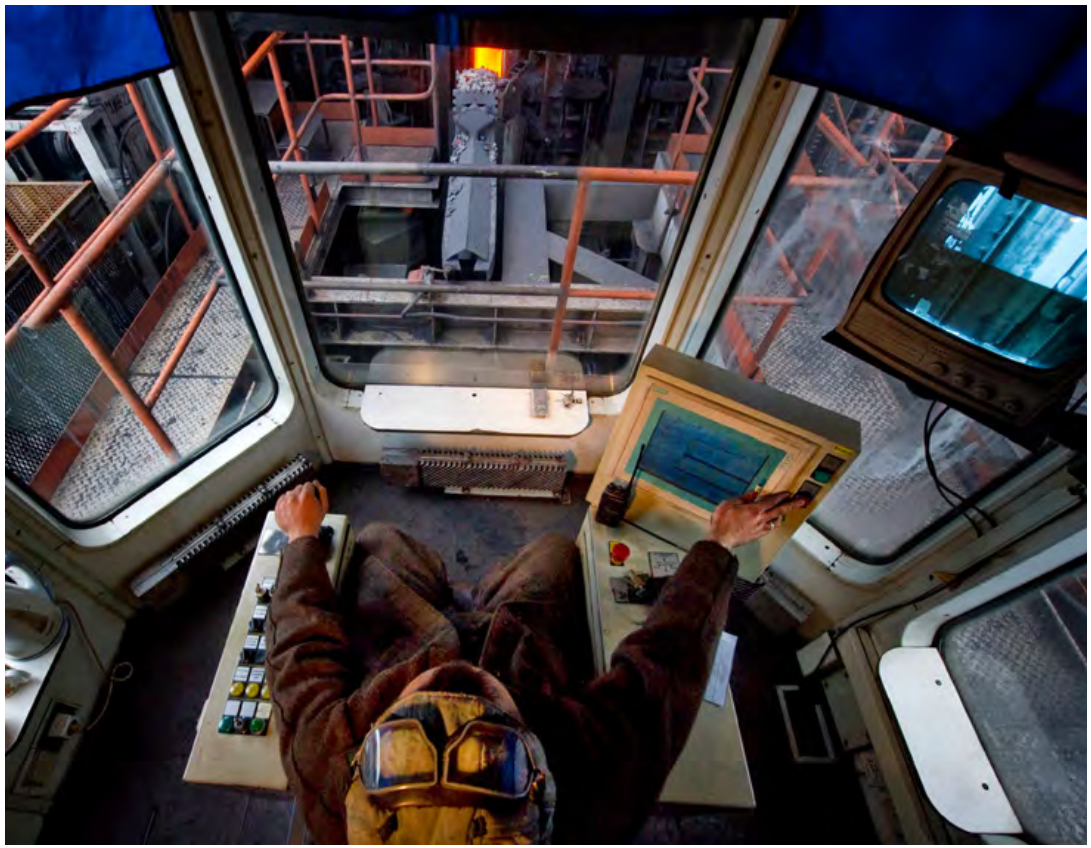
Metalloinvest has big goals. The Moscow-based organization—a holding company that includes a group of metals and mining companies—aims to hold its position as a leading global iron ore and HBI producer and supplier, and one of the leading regional producers of high-quality steel, while continuing to focus on sustainable development, safety and efficiency.



To achieve its goals, Metalloinvest wanted to adopt technology to support Industry 4.0. The Fourth Industrial Revolution, or Industry 4.0, is the digital transformation of traditional manufacturing processes. It's transforming traditional manufacturing processes and includes adding automation and smart technology to manufacturing equipment to improve efficiency and productivity.

However, the business's four different mining and metallurgical companies all had their own accounting systems. "Their processes were not so unified," says Oleg Laktyushin, Director of IT. "So, the main challenge that we had was to unify the business process between these four main facilities."

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Oleg Laktyushin, Director of IT, Metalloinvest

SAP S/4HANA replaces

100

IT systems

Forecasting scenarios takes

1/3

the time previously required

Large-scale digital transformation

Metalloinvest worked with IBM Business Partner TALMER and its technological partner, JSA Group, on a digital transformation project. It began its transformation with its mining and metallurgical companies, which include Lebedinsky GOK, Mikhailovsky GOK, Oskol Electrometallurgical Plant (OEMK) and Ural Steel.

The company adopted SAP S/4HANA to replace 100 disparate IT systems and improve overall efficiency. The SAP platform manages various processes and tasks, from plant maintenance and logistics to payroll and sales, and also provides advanced analytics to help support Metalloinvest in its Industry 4.0

transformation. As part of the project, Metalloinvest migrated more than 1.2 million historical maintenance orders to the SAP platform. The business uses numerous SAP solutions for areas such as HR, master data governance and business warehouse.

“This is the way to the future, to be more digitalized. But this project is just the first step. So, the major change that we’ve done, actually, is the unification of our business processes in one system.” says Laktyushin.

To create a robust enterprise foundation for its SAP S/4HANA environment, Metalloinvest, JSA Group and TALMER researched the various IT architecture options available. They then chose Red Hat® Enterprise Linux® (external link) for SAP Solutions running on IBM® Power® Systems hardware. In early 2017, the company installed three IBM Power System E850C servers for testing and development. Later that year, it installed two IBM Power System E880C servers to host its production systems. The company also plans to install three IBM Power System E950 servers.

Metalloinvest is also using IBM PowerVM® server virtualization software, which has helped with hardware planning. SAP modules can have fluctuating resource requirements, and the PowerVM application helps provide enough resources on an as-needed basis to keep all systems running smoothly.

“Sometimes, SAP modules require more resources than planned and PowerVM is able to manage those requests. All systems get the necessary quantity of resources like CPU and memory so there are no performance issues,” says Grigory Evdokimov, Deputy Technical Director of TALMER.

The company is also using an IBM TS3310 Tape Library to cost-effectively house its SAP application data. JSA Group implemented IBM Spectrum® Protect software to create a backup database for the SAP solutions. The IBM Spectrum Protect application allows backup data to be copied to a remote site so that Metalloinvest can quickly restore data if necessary.

The company is running the Red Hat Enterprise Linux operating system on its IBM hardware. In fact, Metalloinvest uses the Red Hat operating system throughout its organization. “In Russia, we see the benefit of choosing Red Hat because the vendor has offices here and was very involved in this project,” says Konstantin Zelenkov, Chief Technology Officer of JSA Group. “That means we have people who can provide support, which helps reduce the risks of implementing new technologies.”

Using the Red Hat OpenShift® (external link) platform, Metalloinvest is running a digital ecosystem for services that connect with the SAP manufacturing software. The solution supports the company's mobile plant maintenance workers, which make up nearly one-fourth of the business's employees. Workers can use an app on their mobile device to receive work orders and provide maintenance updates by radio frequency identification (RFID). The solution helps increase transparency into maintenance work and equipment statuses.

Red Hat Satellite (external link) software provides infrastructure management capabilities to help the Red Hat infrastructure run efficiently. Finally, Metalloinvest uses Red Hat Ansible® Tower (external link), an IT automation engine. "We're using it for two main use cases: automation and configuration compliance," says Zelenkov. "It helps us reduce the downtime in our data center."

A consolidated platform improves efficiency

By adopting the SAP S/4HANA platform, Metalloinvest was able to shut down 100 IT systems and slash operating costs. More than 7,000 employees are using the new platform, which has improved efficiency and manageability. More than 2,400 employees use the SAP S/4HANA platform daily to plan and execute more than 34,000 maintenance orders each month.

With more effective system integration, Metalloinvest improved the quality of data it gathers, leading to more accurate business decisions. “Metalloinvest is better able to forecast production, stock, sales and logistics based on historical data,” notes Zelenkov.

> “Consolidating different SAP S/4HANA systems on the IBM Power Systems server with RHEL has helped us reduce risks of initial performance sizing.”

Konstantin Zelenkov, Chief Technology Officer, JSA Group

“They can also forecast three different scenarios in less than a month, which is one-third of the time that it previously took to produce one model.” With more accurate data supporting more intelligent infrastructure, the company can predict and reduce future problems and better manage its resources.

This improved efficiency and accuracy helped the business during the ongoing COVID-19 crisis. “What we’ve seen in the era of COVID-19 is that we’re focused on three main things: speed, connectivity and continuity,” says Laktyushin. “The business asks us for something, and they need it faster than they did before COVID. So, we have to create a lot of networks that are connecting people, machines and so on.”

Metalloinvest reports that the Power Systems hardware has been extremely reliable. With it, the business is experiencing less than two minutes of downtime per year. There are other benefits to the IBM servers as well. “Consolidating different SAP S/4HANA systems on one IBM hardware server has helped us reduce risks of initial performance sizing,” notes Zelenkov.

Metalloinvest reports that it had a very positive experience working with Red Hat. “Red Hat culture is different from other vendors. It’s more agile. It’s close to our culture, actually,” says Zelenkov. “We are very happy with the Red Hat support.”

With the new infrastructure in place, Metalloinvest is poised to add Industry 4.0 components to its operations. The company also expects to continue to build on the new platform. “We will try to increase functional scope, and also the IT infrastructure scope,” says Zelenkov. “We expect to add more nodes, more workloads and just scale up our solutions.”

About Metalloinvest

Based in Moscow, Russia, Metalloinvest (external link) is a holding company consisting of metals and mining companies. It is a leading global producer and supplier of hot briquetted iron (HBI) and iron ore products and a regional producer of high-quality steel. The business has a net worth of USD 6 billion and over 62,000 employees along with proven reserves of 13.9 billion tons of iron ore.

About TALMER

IBM Business Partner TALMER (external link) is a system integrator and provider of IT solutions headquartered in Moscow. The business's services include constructing and modernizing data centers, network infrastructure, integration solutions, information security and big data.

Solution components

- IBM® Power® Systems
- IBM Power System E950
- IBM PowerVM®
- IBM Spectrum® Protect
- IBM TS3310 Tape Library
- Red Hat® Ansible® Tower (external link)
- Red Hat Enterprise Linux® for SAP Solutions (external link)
- Red Hat OpenShift® (external link)
- Red Hat Satellite (external link)
- SAP S/4HANA®
- SAP BW/4HANA
- SAP Fiori®
- SAP Master Data Governance
- SAP Process Orchestration
- SAP Solution Manager

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