

# 4D digital twin improves worker safety and maintenance efficiency for a metals and mining company



Maintenance halts cost the metals and mining industry millions. To help a leading European mine, we created a 4D digital twin of the plant, enabling them to achieve higher maintenance efficiency and safety levels while reducing costs.

At metals and mining facilities, work stoppages for maintenance can cost millions of dollars in lost revenue. Moreover, due to the harsh environments, worker safety is a top priority.

Planning and effectively managing maintenance tasks leads to faster, more efficient repairs and a safer working environment.

## Lack of operational insight impacted efficiency and safety

Our client engages hundreds of employees to manage and implement repairs and maintenance at one of their key mines. They wanted an effective way to keep track of all maintenance work orders, including their location, to ensure the efficiency of repairs and the safety of their people.

As stops needed to be planned minute by minute, getting a digital overview of the situation would help operations teams remotely track and manage active maintenance work orders and teams to complete repairs quickly and efficiently.

## How we helped

Our experts developed a 4D digital twin of the plant that included Building Information Management (BIM) models created from scratch. The models were integrated with the company's ERP systems to enable visualization of work orders from the perspective of the maintenance system.

When a work order is created for a maintenance task, it has a reference position within the factory. Now, when maintenance personnel arrive to complete the job, they choose their work order and the new system updates the work order details and includes a map for guidance to the correct location. Through an interactive dashboard, operations teams can see the full plant and zoom into any location. They can also view all active maintenance orders at any particular time, including the contact information of maintenance



## Key benefits

Building a 4D digital twin of the mine has enabled our client to:

- Improve worker safety
- Achieve higher maintenance efficiency levels
- Remotely track and manage maintenance work orders and teams
- Schedule and simulate changes quickly
- Easily identify maintenance locations using a map interface, reducing transit time
- Access an interactive dashboard from any smartphone or web browser

crews. This dashboard can be accessed via smartphone or any browser.

By digitizing the process, work orders of active maintenance teams are tracked and managed remotely, while repairs are completed quickly and efficiently.

### Benefits delivered

An easy-to-navigate API to the maintenance management system enables the personnel to view, in real-time, a 4D model of operations and current maintenance projects. Information is displayed in different layers. Scheduling is fast and easy, and changes—big or small—can be simulated quickly with no risk to actual operations. The solution also allows users to access production data, process data and documentation.

This solution improves control and decreases overall maintenance time and costs. It also has increased worker safety and business agility by providing a quick overview of what will be affected by changes. In addition, the solution's map interface shows internal and external personnel exactly where maintenance is needed, saving time spent in transit or locating areas.

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