

# How a Leading Gold Miner Improved Operational Efficiency by 25% using groundHog

## A Case Study



## Customer Background

The customer is one of the largest gold mining companies in the world, with billions of dollars in annual revenue, tens of millions of ounces of reserves, and operations across multiple continents.

However, continuing volatility in the global outlook for gold posed a major challenge. To counteract this market uncertainty, the customer's leadership team weighed its options and decided to launch a digital transformation initiative in 2016. The overarching objective was to reduce all-in sustaining costs (AISC) by giving team members the enhanced decision-making capabilities required to drive operational excellence.

A key goal was established: Increase operational efficiency by 20% at the customer's mines in the United States. To evaluate the strategy, a leading management consulting firm was enlisted. It recommended that the customer implement a digital Short Interval Control (SIC) system to improve the effectiveness and efficiency of production within work shifts. At the same time, the customer needed to maximize equipment utilization and minimize deviations from the plan.

The customer engaged rapidBizApps as the technology partner for its key U.S. underground mining operations. rapidBizApps worked with the customer to build a digital SIC system, which included a customization of groundHog, rapidBizApps's flagship production control software platform.

## Key Points

- ✓ The total increase in revenue: more than \$250,000 per day
- ✓ 25% improvement in operational efficiency
- ✓ A significant increase in tons of ore hauled daily and monthly
- ✓ 25% increase in the throughput of truckloads of ore to stockpiles for further processing
- ✓ Achieved safer operations and minimized unplanned downtime

# Challenges

Several years before implementing digital SIC, the customer had deployed a basic fleet management system to help manage its underground mine operations. However, because the aging system provided limited visibility, executives could not make informed decisions to improve asset utilization and production performance. A system that was ideal would help decision-makers at all levels identify and eliminate sources of operational inefficiencies, by making the right data available to the right people at the right time.

Mining executives and frontline teams faced two sets of challenges: business and operational.

## Business Challenges

- Reduce all-in sustaining costs and improve operational efficiency by at least 20% without adding staff or equipment.
- Improve the bottom line by enhancing the team's decision-making capabilities with timely access to critical production and process data.

## Operational Challenges

- The old system did not provide a holistic view of mine operations, such as real-time data related to personnel, equipment, and material movements. As a result, management was limited in its ability to drive optimum production, causing frequent and significant deviations from operating plans.
- The old system could not dynamically update and distribute a schedule in response to operational disruptions, resulting in avoidable downtime and underutilization of equipment and personnel.

- Reporting of shift tasks was paper-based and required multiple manual steps, such as data entry and aggregation in Excel. As a result, the accuracy, completeness, and timeliness of the data were often compromised.
- Without real-time shift data, the opportunity to address delays and other critical items during the shift itself was lost.
- The old system did not enable the measurement of Overall Equipment Effectiveness (OEE), a key indicator of operational performance.
  - To ensure compliance with health, safety, and environmental regulations, paper-based forms were used for auditing equipment pre-ops & post-ops, and workplace inspections. The customer wanted to switch to an operator-immutable digital record-keeping system to make it easier to meet MSHA compliance.
  - To simplify conventional maintenance, the customer wanted to switch from paper forms to automated inspection. Going digital would ensure that all stakeholders would be notified instantly of a safety hazard or a critical item. Quick notification would allow them to take appropriate measures to ensure personnel safety and production continuity, and prevent unplanned downtime.
- The old system required operators to be within network range to update shift activities. However, because of connectivity limitations in underground mines, operators typically stayed outside of the range for long periods. As a result, some data entered was not captured and required re-entry.

# Customer Requirements

The customer developed two sets of requirements, one for the technology partner and the other for the solution.

## Technology Partner Requirements

The technology partner needed to offer a digital SIC product optimized for underground mines and customizable to meet the customer's requirements. Agility and flexibility also were critical and, perhaps most important, the partner needed to work closely with the customer every step of the way to achieve the customer's objectives.

rapidBizApps was chosen as the key technology partner for two reasons. First, groundHog, its cutting-edge mining production control platform, offered the critical functionality that the customer sought. Second, rapidBizApps had earned a reputation for extreme speed, responsiveness, and high-quality customer support.

## Solution

rapidBizApps worked with the customer to build a comprehensive digital SIC system. Critical to the mission was a customized version of groundHog.

groundHog is rapidBizApps's enterprise-grade production control software platform, which provides the right information to the right people at the right time. The solution met the following customer-specified requirements.

### 1. Track locations of equipment and workers in real-time via 2D/3D maps.

groundHog integrates smoothly with the latest location-tracking technology to pinpoint the precise location of equipment and people. Doing so helps to optimize and plan shifts. groundHog's real-time location tracking system integrates with a GPS transponder overlaying real-time location information of assets over a navigation display. A real-time positioning of all underground assets and their 3D visualization were part of the solution for this customer.

### 2. Display tasks in a dynamic Gantt chart format by shift, activity, and location.

groundHog works with existing scheduling software, which shows task progress and expected completion times in a Gantt chart updated in real-time. This format provides a visual representation of dependencies and their impact on production timelines. Real-time updates allow you to visualize the downstream consequences of any event at a granular level (individual operator and location), enabling the customer to take immediate corrective action.

### 3. Assign tasks to equipment and operators.

groundHog's cutting-edge scheduling system imports long-range schedule and "tunable parameters" from the customer's production plan. A capability matrix identifies skill and effectiveness index, matches operator to equipment, and creates shift task lists for supervisors to review and dispatch. Key performance indicators (KPIs) and reports allow supervisors, operations managers and management to derive insights and facilitate optimization as required.

#### 4. Communicate detailed task information, including all updates, in real-time to each operator.

groundHog simplifies the user experience for every operator type and optimizes the clicks (or taps) required to perform an action or reach a goal. After operators log into groundHog on their machine, they see their schedule for the shift or the day. Operators use the app to follow the schedule and update progress.

#### 5. Track production manually and automatically by operator, equipment, and location (heading) within the mine

During a shift, groundHog captures production data from each individual operator working on a piece of equipment at every location in the mine. As the shift progresses,

each operator uses a tablet to manually update progress. For activities that require only time data

— not counts, such as buckets or truckloads

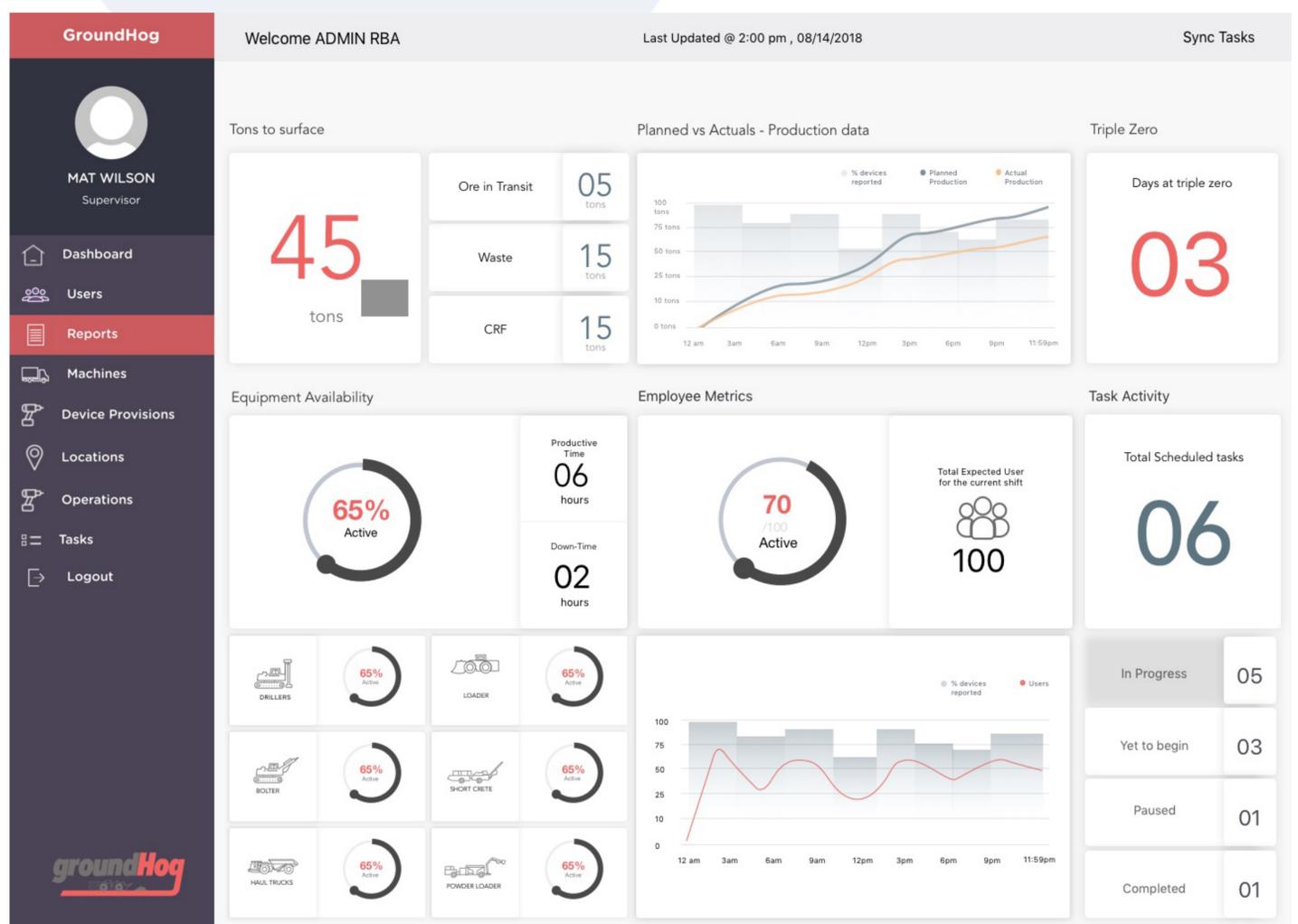
— tablets track progress automatically. The system updates progress instantly for all operators whose tablets are connected to wifi. For those who are not connected, the tablet stores data onboard and submits it automatically when wifi returns.

#### 6. Visualize production data in real-time.

groundHog captures data on mobile devices, such as smartphones and tablets, enabling quick operational assessments from the command center, while streamlining health and safety inspections and maximizing compliance with environmental impact regulations. The outputs produced from equipment and infrastructure are integrated to deliver insights. groundHog's intelligent analytics system simplifies complex data and presents it in an easy-to-understand format.

### Implementation

rapidBizApps worked closely with the customer team to implement a digital SIC system that integrated with the customer's technology systems at the site. User groups were formed and exposed to the technology platform. Feedback was collected several months before the solution rollout to ensure the change was managed effectively, the adoption rate was high, and the solution benefits were realized.



## About rapidBizApps

At rapidBizApps, we specialize in digitizing mines and oilfields by customizing apps, software, and platforms to meet mission-critical business needs in pursuit of catering to the ever-changing industry needs and trends.

We pride ourselves on a deep operational understanding of workflows within mining and energy, a willingness to adapt architecture to meet business needs, and an unmatched level of speed & responsiveness. These unique characteristics are all brought to bear when we deploy, train, and monitor at our customer sites.

For more information, please visit [www.rapidBizApps.com](http://www.rapidBizApps.com)

## Results

The digital SIC system has helped the customer achieve its goal of reducing all-in sustaining costs through superior operational efficiency. Mining executives and frontline personnel have been empowered with production and asset data in real-time. As a result, they can make informed decisions that minimize deviations from plans to actuals, while ensuring safety and improving compliance with regulations.

### The customer benefits include:

- 25% improvement in operational efficiency, resulting in a 25% increase in the throughput of truckloads of ore to stockpiles for further processing. Total increase in revenue: more than \$250,000 per day
- Improved personnel and equipment utilization through enhanced production scheduling and tracking, with insights available to facilitate optimization on a near-real-time basis.
- A significant increase in tons of ore hauled daily and monthly
- Improved response time for critical items with real-time shift data, enabling safer operations and minimizing unplanned downtime
- Simplified compliance requirements with automated equipment and work-site inspections