

Machine-data interconnectivity

Project challenge

When site plans change, it can cost you major time (and time is money). The time to travel between the office and job site, and more time uploading design data manually. And when machine issues occur, your operators may be delayed for hours waiting for technical assistance that must be handled on site.

The solution

With **Smart Construction Remote**, you can remotely connect to machines equipped with intelligent Machine Control (iMC) to share data, such as site plans and machine health — in real time. You can also easily search all connected assets to log into a machine and see exactly what your operator is seeing.

Results

- Increased collaboration – staying connected and saving time can help you maximize operation across all steps of the job.
- Save time not having to travel between the office and job site, transferring files to multiple machines.
- Reduce your machine downtime while your operators continue working as job files and machine health and performance data are shared wirelessly.
- When experts can log into the machine remotely to diagnose issues and plan efficient repairs, you're not losing production time.



Cycle management

Situational challenge

You're managing eight different project sites in a high-growth region and looking for ways to be more efficient, due to the shortage of skilled workers. By improving the productivity of your excavation and hauling operation you can better manage the work load.



The solution

Combine the productivity of intelligent Machine Control with Smart Construction Fleet which uses data captured by operator smartphones in any make or model of equipment to allow you to capture to help analyze productivity, haul routes and cycle times. You can then use this data to optimize your machine utilization for more efficiency.

Results

- The semi-automatic functions of the intelligent Machine Control machines can increase production as newer operators are able to match the productivity of more senior workers. The senior workers can refine their productivity, as well.
- You can reconfigure the number of haul trucks and their routing to maximize haul route cycle times. This also enables you to better distribute machines and operators among all the jobs.



Project management

Situational challenge

Your site foreman is unable to keep up with all the activity tracking on site, so data doesn't consistently match records in the office.

Solution

Smart Construction Field and **Smart Construction Office** work together for seamless project cost and material tracking/management, bringing together activities in the field and office to provide a comprehensive overview of the health of projects.

Key outcomes

- Accurate timecards give your project manager the ability to bill accurately, including overtime due to unforeseen site challenges and client changes.
- Daily comparison checks on material invoices compared to delivery records ensure accuracy, limiting material shortages that would delay the project weeks later and catching overcharges.



Site activity accuracy

Project challenge

When your foremen are buried in paperwork, such as tracking timecards, load counts and deliveries, your team becomes challenged to keep up with planning and scheduling deliveries on a timely basis.

The solution

Automate the collection of important machine data such as load counts and cycle times with **Smart Construction Fleet**. And then by connecting this summarized production data with **Smart Construction Field**, or other production management systems, you will have better information for impactful insights and easier tracking.

Results

- With loads automatically recorded, your foremen can spend time on other more substantial issues.
- Accurately bill loads hauled, as they are automatically recorded in the system. This helps maintain your profitability and, again, frees the foremen to focus on other issues.
- Improved planning and communications. For example, say an overnight storm creates a hazard at your job site. Your foreman can quickly and uniformly communicate the hazard to operators for safety, replan the day's work around the hazard and keep the job moving.



Site preparation and scope management

Project challenge

Without accurate tracking and bidding, you leave substantial margin on the table. It's difficult for the team to keep track and compare all the design changes, production capture and measurement of quantities and costs through the project.

The solution

Flying a **Smart Construction Drone** prior to site bid and throughout the construction process provides critical information necessary for planning that can impact the entire job progress by giving you more frequent updates on project status. Data from **Smart Construction Drone** and as-built data from **intelligent Machine Control (iMC)** can be fed into **Smart Construction Dashboard** to track changes as work progresses. When design changes are made, they can be quickly uploaded remotely to iMC machines. Together, these combined solutions prevent extra work so billing is accurate and margins are maintained.

Results

- Profit margins are maintained, as your project manager is able to produce compelling historical records showing the work not included in the original scope, ensuring payment for change orders.
- You save many hours of travel and upload time as design changes are easily sent to the intelligent Machine Control equipment from the office.
- Advanced planning capability enables you to better manage the materials on site. Less fill material can save costs; re-use of site material to another job can help win additional bids.

