

**EQUIPMENT
FEATURE**

EXCAVATION/EARTHMOVING



DIGGING INTO DATA

The earthmoving industry looks to data and analysis to drive operations and increase productivity

A drone in northern British Columbia surveys a new site in one hour instead of the days it would typically take a surveyor. The data captured is used to bid on a new job with unmatched accuracy.

When an excavator has been working overtime on a busy job site, the operator is automatically notified when the machine is due for service.

These are just two examples of how technology is assisting construction sites in Canada.

Construction companies are looking to technology as a means to keep costs low, production high and operators safe.

With new technology comes a lot of data. In the past, much of that data was collected and filed away, never to be seen again. But that is quickly changing.

Finning International, the world's largest Caterpillar dealership, recognized the opportunity to better harness technology in Canada.

"Adopting new technologies is just not enough; it's about the data that comes with it, understanding the benefits and harnessing that data to gain more insights and make better business decisions," said Jordan Reber, senior vice president Digital and Operational Excellence at Finning Canada.

Isolating information

Data isn't useful on its own, it's how the information is used that counts. Aggregating and integrating data across functions, machines, makes and models can provide a full picture of the operation and task ahead. From telematics and GPS to smartphones, drones and wearables, all these devices are creating mountains of data — and it can be overwhelming. Operators not only need the right understanding of technology, but also the right technology partner and analytics expertise to capture and apply data usefully.

"When data is used effectively it can almost completely eliminate re-work of sites, saving time and

money," Reber said. "Data can inform the operator of the precision of the task ahead of them, meaning they can get to grade faster, knowing exactly how much earth to remove or put back."

It all starts with equipment telematics; this ensures machines are running efficiently and provide real-time intel into what is happening on the site. This includes fleet hours and location, information on available equipment, effective fleet monitoring for idle time, fuel consumption and condition.

The data produced by hardware attached to the machine can alert equipment managers of fault codes and many other aspects of operation including hours, fuel consumption, speed and engine temperature.

Data analytics help operators understand how their machines are being used, and once this data is analyzed it can lead to reduced maintenance, a better understanding of performance and overall improved efficiencies.

An early adopter

North Construction of Vancouver, BC has 24 years in the business with consistent growth, making them one of Canada's most innovative heavy construction contractors.

Since the beginning of North Construction, Caterpillar equipment has been instrumental in the growth of the company, helping drive efficiency and performance on their jobsites. Starting with just one machine, they have more than 25 in their fleet today.

North Construction focuses on civil construction and project remediation, often through steep and challenging terrain with heavy logistics.

An early adopter of automated 3D machines, North Construction is now in the process of transitioning to Cat's Next Gen machines. They have reported up to a 45 per cent increase in production efficiency, up to 15 per cent reduction in maintenance costs and were able to double their revenue while only increasing their

costs by 25 per cent.

"The technology has been nothing but positive, from fuel consumption to increased efficiency and reduced maintenance costs," said Kevin M. Webb, president and founder of North Construction. "We have one of our most senior operators using the new Next Gen machine and he loves it."

Customized with 3D

North Construction is now customizing their new machines with 3D capabilities right from the factory, making sure they are integrated with the most recent technologies. They have noticed major productivity gains on-site and material waste has decreased due to the accuracy of the 3D grade control.

The time spent surveying sites also decreased, when they started using drones. What was previously a very labour-intensive process, now takes one to two hours.

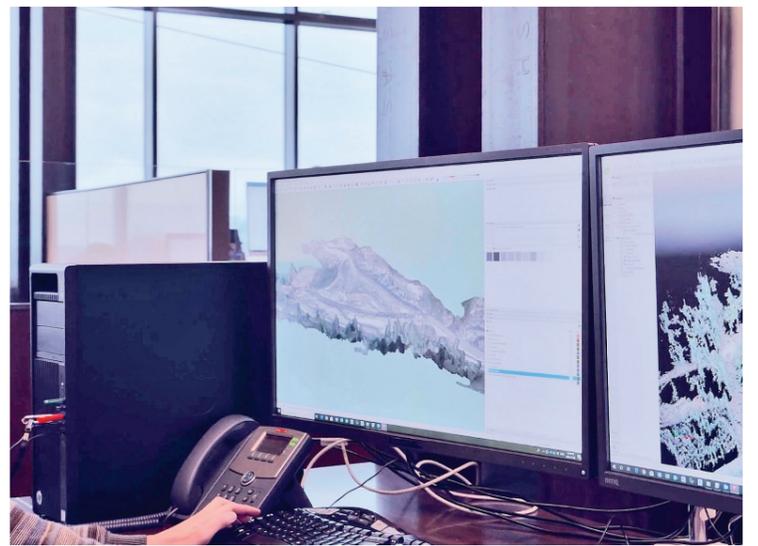
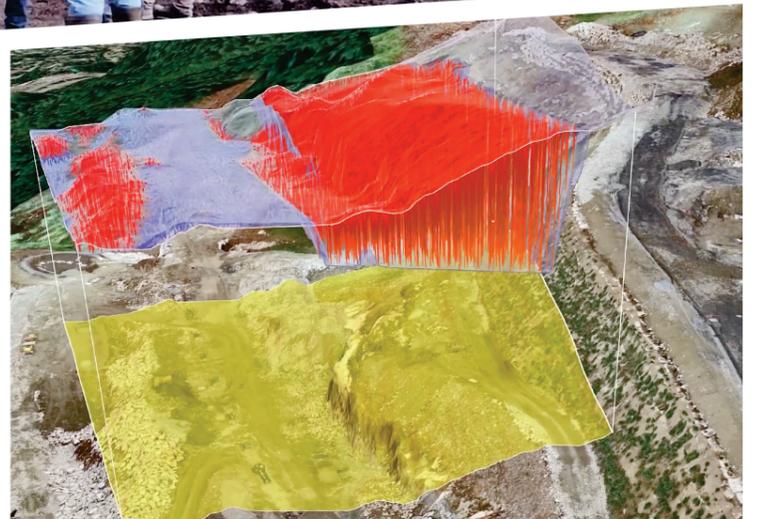
The drone scans the site for distances and terrain and then data is turned into a 3D model — giving North Construction accurate measurements to calculate quantities to price the job.

For a company always thinking about what the client will want as an end product, North Construction recognizes the key role technology has played in their success. "This business is about the one that wins the job, and that is the one who gets the job done while making the least mistakes," Webb said.

"Technology has given us that comfort level. Finning is a big part of how we have grown and evolved as a company, and we know they are always just one phone call away."

Operational productivity in the construction industry is being driven by the use of data and analysis. The latest in telematics, 3D GPS and on-board technologies, along with the experience of trained engineers and machine performance, can help businesses save money and keep equipment running.

Technology creates a more productive construction site, and the



data that comes with it ensures accuracy of future bids, increasing efficiencies of budgets and delivery of projects.

As technology continues to develop, from machine learning to artificial intelligence, more develop-

ments in data analytics and insights are likely.

Companies that understand the importance of leveraging data are putting themselves at an advantage for winning future work and maintaining existing business. ■