

# FROM MACHINE CONTROL TO SITE CONTROL

ON TODAY'S CIVIL CONSTRUCTION SITES THE USE OF MACHINE CONTROL HAS BECOME COMMONPLACE RIGHT AROUND THE COUNTRY, PROJECT MANAGERS, EARTHWORKS SUPERVISORS, SITE FOREMEN, SURVEYORS AND OPERATORS ALIKE HAVE SEEN FIRST-HAND THE INCREASES IN EFFICIENCY AND PRODUCTIVITY THAT MACHINE CONTROL DELIVERS, IN ADDITION TO THE SAFETY BENEFITS AND COST SAVINGS ON MATERIALS.

**A**s the number of machine control systems increases, so too does the need to manage and support them quickly and effectively. Project managers and surveyors require a method to manage the productivity across multiple machines on a site, rather than on an individual basis.

Telematics – the ability to transmit computerised data wirelessly over long distances – has been available for some time, but its success to date has been factored by 3G coverage and limited data transfer capabilities.

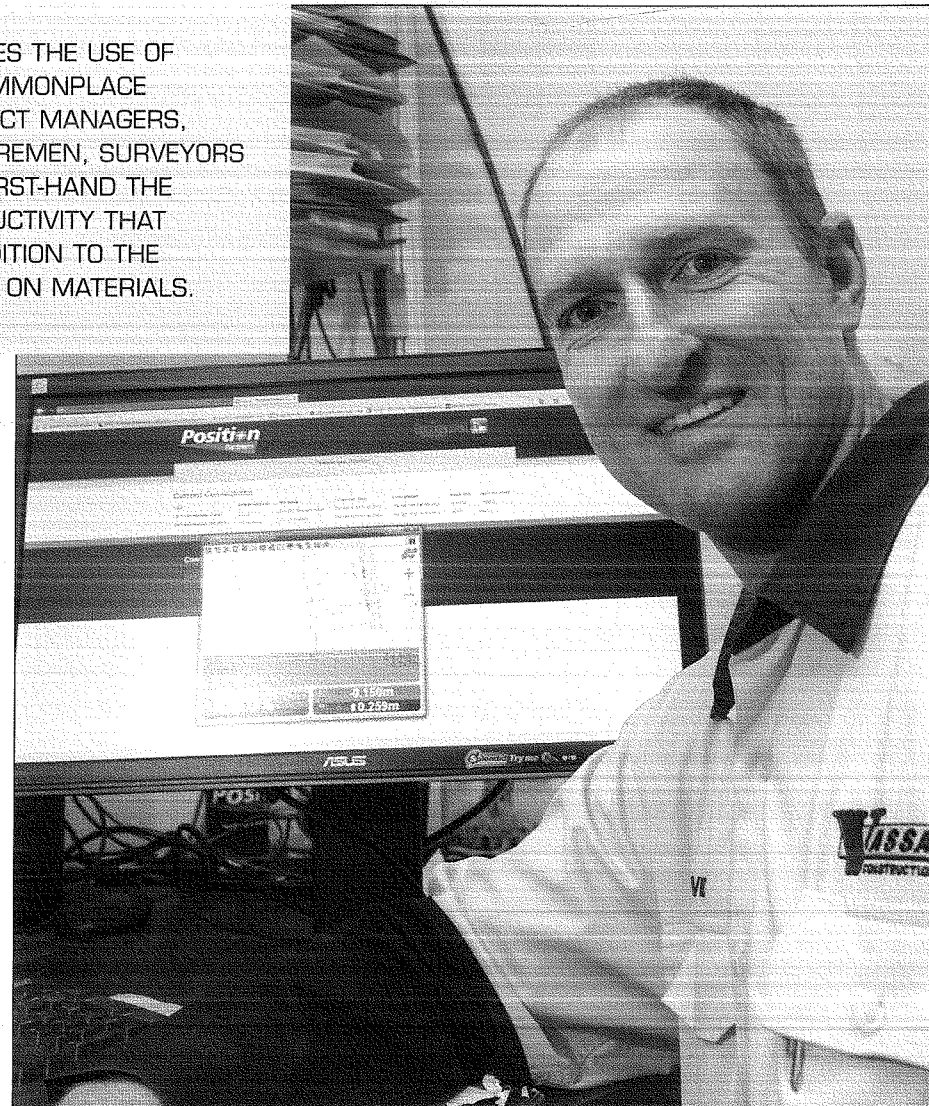
With dramatic improvements in 3G (now NEXTG) availability and GPS accuracy thanks to CORS network services such as AllDayRTK, telematics solutions are now providing the next level of control, with real time site management across all earthmoving activities.

## Instant support

Remote service tools such as Tokara Service by Position Partners enable technicians and survey managers to see the screen on the operator's control box in real time in order to update settings, send a new design file or troubleshoot without having to visit the machine in person.

By diagnosing technical issues remotely and keeping machines up to date with the latest software version and design file, customers keep their machines working efficiently. In a great deal of instances, a technical issue is actually an incorrect setting or someone pushing the wrong button – the ability to resolve such instances without having to wait for a technician to visit the site saves considerable time.

Shane Kelly from Morgan's Earthworks, based in Ballina NSW, has been using Tokara Service for managing design file transfers and machine control setup on



David Sheehan from Vassallo using Tokara Service.

the company's D6 CAT dozer, 140 H grader, John Deere 770 grader and Komatsu 20-tonne excavator for almost two years.

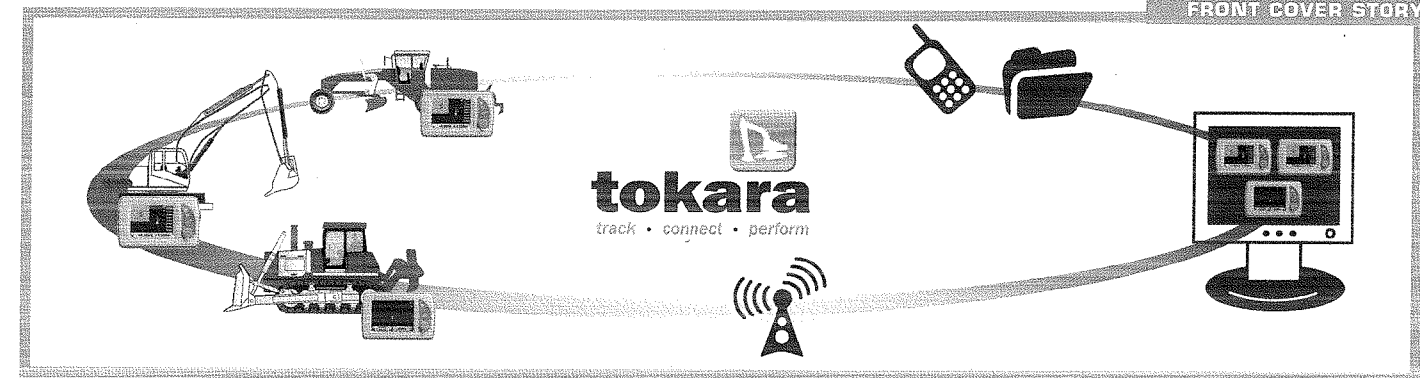
"You'd be crazy not to use Tokara Service for Topcon machine control systems," he said.

"80-90% of the time we use it to login to the control boxes in the machine to update the design file and handle the setup and remote training for the operator. Even if we're on site, we find it easier to call the operator and use Tokara to show him what line work he needs to follow or the surface he's chasing, rather than being in the machine with him," said Kelly.

"Sometimes the operator will also get in touch with us because he feels something is not quite right. Using Tokara Service we

can instantly login to his machine from the office and have a look, change settings or re-load the design file to resolve it. Without Tokara, that would involve physically going out to the machine, taking the design back to the office, fixing the file, going back to the machine and reloading the design. That could take up to two days, but with Tokara it's fixed within an hour."

When the company cannot resolve an issue internally, Kelly explains they can turn to the technicians at Position Partners for help. "It gives us a lot more confidence in the product knowing we have the support of Position Partners whenever we need it. They've always been able to solve any problem when we've got stuck."



Bringing the various elements of your business together in real-time ensures you have information in time to make the right decisions.

David Sheehan is the survey manager at Vassallo Constructions, based in Mackay, Queensland. He too uses Tokara Service to manage the company's Topcon machine control systems on their CAT H Series and M Series graders and D51 and D155 Komatsu dozers.

"Tokara is a massive time saver when it comes to support," he said. "If there's a technical problem we can't solve, it means a Position Partners expert can login and have a look without having to send someone out to visit the machine.

"Of course, if it's a hardware or wiring issue then the local service rep will come to site, but in most cases it's a wrong setting or the software needs updating – in all of those cases it can be resolved remotely and very quickly."

Sheehan puts together the design files for each machine, including the surface, line work and localisation for the job. Once the operator switches on the dozer or grader at the start of the day, he simply uploads the design and the operator is off to work.

## Total site control

While Tokara Service offers one-way 'push' notifications, remote troubleshooting and file transfers from office to machine, Position Partners' site management solution Tokara Site enables two-way communication between the machines and the office.

With Tokara Site, project managers can monitor all machines and rovers

simultaneously, with real time cut/fill volumes, as well as access machine data and customisable reports on the site's earthworks progress.

Having sophisticated reporting technology at a customer's fingertips, Tokara Site removes a lot of the guesswork on site. A site manager has extensive data available to him so that he can act quickly and potentially resolve or spot potential problems before they become critical.

John Keating is a surveyor with more than 20 years' experience managing survey work on major civil projects. He first used Tokara

"I experienced significant productivity benefits from using Tokara on that job, because it enabled me to monitor and update design files on all the machines from the office and in real time," Keating said.

"From my PC, I could identify any of the machines on site, view the display that the operator actually has in his cab, send him a new design file or a message to his control box or call him if we needed to discuss something.

"By not having to send someone out to physically update a design file on each machine, it was far more efficient and

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Site while working as the Survey Manager on Sydney's Hills M2 motorway upgrade project, where he was impressed with Tokara's safety and efficiency benefits.

The project posed unique challenges due to a narrow working corridor (between 3 to 5 metres wide), the fact that the motorway had to remain fully operational throughout the upgrade and some very steep, 50:1 batters. Being one of Sydney's busiest motorways, travel time from one end of the site to the other could also take up to an hour.

above all a much safer solution as it separated people from plant," he added.

Keating now advocates the use of Tokara Site on other projects and is currently using it to assist with data management services for a rail project in Auburn, NSW.

The client has a similar requirement to minimise interaction between surveyors and machinery, plus the need to protect exclusion zones around some new underground services cabling.

"I recommend Tokara because it helps me deliver a project safely and efficiently, but also because of the high level of support you get from Position Partners.

"The people behind a product are just as important as the product itself," he added, "and I have always found the team at Position Partners to be very responsive and quick to assist whenever we need support."

As telematics solutions become ever more intelligent, the future will bring greater synchronisation and connectivity between all machines involved in the earthworks and construction processes on a job site. Expansion to material management and tracking solutions such as DynaRoad mass haul software will enable site managers to monitor the entire site from a single interface, resulting in never seen before productivity and efficiency gains. □



John Keating using Tokara Site

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