Case Study
AEC

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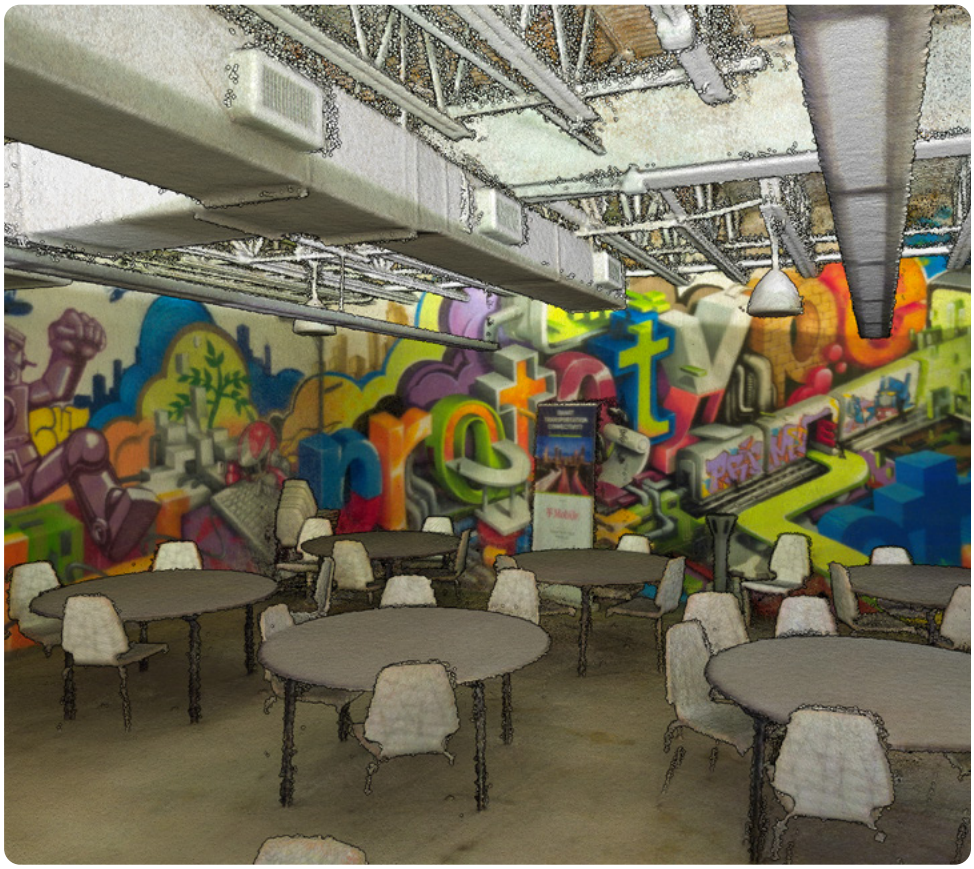
From Skeptic to Standard
How Orion Spatial Solutions Made SLAM an Everyday Tool



COLORIZED POINTCLOUD CAPTURED WITH THE GX1

Emesent Partner

orion spatial solutions

Orion Spatial Solutions provides survey and spatial services to the South-East Queensland market across the development, infrastructure and government sectors.

Background

Orion Spatial Solutions has been in the scanning industry for more than fifteen years. Some of their team have been scanning since the 1990s. They've seen the technology change from the ground up — they've learned, through experience, exactly when to trust it and when not to.

Learning to trust SLAM

When Orion first encountered SLAM-based scanning, the technology was promising but unfamiliar. For a team trained on terrestrial laser scanners, where accuracy was controlled and predictable, SLAM introduced a different kind of uncertainty. The data looked right. But would it hold up?

"The limitations around SLAM were probably the biggest thing to get used to and get confident with," says John Phillip, Director at Orion Spatial Solutions. "It's just come from quite a few years of using them now. You know when to use it, when not to use it, what sort of accuracies you can expect out of it. Most of the team are fairly comfortable with that. It's an everyday tool for us."

Building that confidence didn't happen overnight. Early on, the team ran Emesent Hovermap alongside other sensors, checking its outputs against known data and building an internal understanding of where the technology excelled. Two developments accelerated that trust significantly: the integration of RTK GNSS, which unlocked larger-scale projects with stronger positional accuracy; and the introduction of manual control point picking, which gave the team a practical, reliable way to constrain SLAM drift in more challenging environments, and verify they've met client specifications.

Changing what's possible for clients

As confidence in the technology grew, so did the way Orion approached client conversations. Before mobile scanning, a project had more limits to methods and pricing. Now, the team could offer options and that changed everything.

"Previously, a job might have taken three or four days using a terrestrial scanner, now we spend four or five hours scanning plus setup time with Emesent technology. One day — you're on and off site." John explains. "You can scan a lot faster with a SLAM scanner, get around things and be back in a fraction of the time."

The impact wasn't just efficiency — it was access. Jobs that previously couldn't proceed because of cost or time constraints became viable. Clients who needed scan data but couldn't justify a full TLS engagement could now get a result that was fit for purpose. "You're putting a job within the client's budget," John says, "so a job that might not have progressed before can progress because you gave them an option that wasn't on the table."

Today, Emesent's Hovermap STX is the firm's most-used scanner. "As a percentage, the Hovermap probably gets used more than any of the other scanners, because you can do a wide variety of things with it. It's kind of the workhorse. It just gets used for lots of different things." The team has even repurposed it as a quality assurance tool — running it over completed jobs to catch errors that more manual methods might miss. "I would say that Emesent technology has taken probably 80% of the TLS jobs away" John shares.

GX1 ON BACKPACK.

Entering the GX1 era

When the GX1 arrived for beta testing, Orion's team didn't need to be convinced of mobile scanning. What they were evaluating was whether the GX1 solved problems they'd been working around for years.

For Orion, the biggest operational friction with their existing mobile scanning setup wasn't the scanner itself — it was everything around it. Multiple GoPros with their own power banks, custom cables, separate GPS receivers, and a post-processing pipeline that required scripts to align imagery and scan data from different devices. On a multi-sensor MLS job, the roof of the vehicle could carry four cameras, two power banks, a GNSS receiver, and a tangle of cables before the scanner even came into it.

Emesent GX1 replaced that stack. Integrated RTK GNSS, onboard cameras, and a unified workflow in Aura meant everything came off the scanner together — no synchronization scripts, no mismatched timestamps, no chasing cables.

"I don't even need to go scrounging around for more receivers or GPS gear," says John. "With the GX1 I can turn it on and just log to a base if I want. I don't need to take anything else with me. That's a massive step forward."

Orion has already committed to adding the GX1 to their fleet — not as a Hovermap replacement, but as the right tool for the jobs where integration matters most. For a firm that's built its reputation on picking the right method for every project, that says plenty.