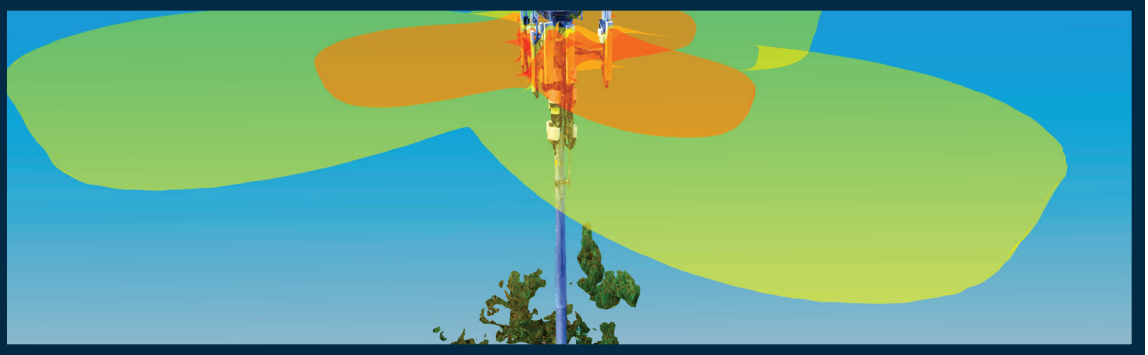
Bentley
Advancing Infrastructure



SiteSee Uses AI Powered Inspection Method for Telstra Corporation Towers

ContextCapture Streamlined Modeling Process to Reduce Project Delivery Time by 86 Percent

Project Summary

Organization
SiteSee

Solution
Reality Modeling

Location
Brisbane, Queensland, Australia

Project Objectives

- Conduct asset inspection, antenna equipment audit, corrosion assessment, and radiation hazard safety compliance assessment for Telstra Tower.
- Create a reliable and repeatable tower inspection method.

Products Used
ContextCapture

Fast Facts

- Telstra Corporation needed an alternative to traditional inspection methods to improve efficiency and reduce personnel safety risks.
- The project team produced a detailed 3D model of the asset and its surrounding environment with ContextCapture.
- ContextCapture helped link the reality mesh to an outside internal asset management system, aligning client records with data to bridge the information gap.

ROI

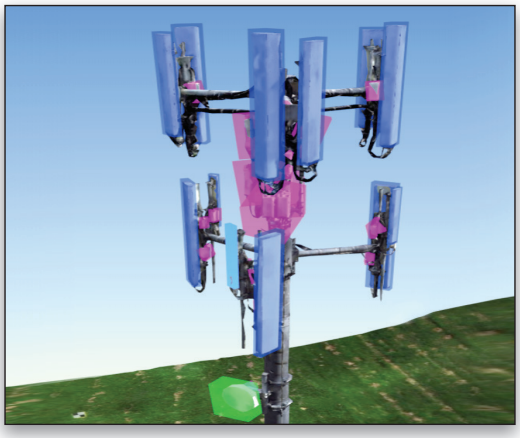
- SiteSee created an efficient telecommunications tower inspection method that improved personnel safety, limited site visits, and streamlined workflows.
- The project team reduced site survey time from 10 days to two.
- The project team reduced asset inspection and maintenance costs by 69 percent and project delivery lead time by 86 percent.

Seeking Alternative Inspection Methods

Telstra, the largest telecommunications company in Australia, has a portfolio of over 8,000 cell towers providing coverage across vast distances in Australia. Traditional inspection methods are costly as cell tower inspections typically require mobile elevating work platforms (MEWP) as most of Telstra's towers are non-climbable. The elevated work platform allows for close-up inspections of the antennas and the equipment to check for damage or necessary upgrades. To find an alternative to these traditional inspection processes, which would reduce operating costs and increase safety risks for personnel, Telstra engaged with SiteSee.

Because of Telstra's commitment to driving world-leading innovation, it contracted SiteSee to provide automated artificial intelligence (AI) for equipment identification, 3D modeling and analysis for 25 cell towers. Using tower data captured by Telstra's internal UAV team, SiteSee's AI-powered analysis service allowed automatic identification of tower features, delivering an accurate record of the state of the site and tower equipment.

Founded in 2016, SiteSee produced the world's first AI-powered 3D equipment recognition for cell towers. This allows for reduction of operational expenses and more informed decision making. The organization's work has already been recognized as a globally ambitious and innovative tech solution for virtual infrastructure management.



Artificial Intelligence asset tagging of cell tower equipment.

Artificial Intelligence Powered Asset Tagging

SiteSee captured high-quality aerial imagery of the unascendable cell tower in less than one hour using unmanned aerial vehicles (UAVs). This process eliminated health and safety risks for the tower climbers. The project team produced a detailed, engineering-ready 3D model of the asset and its surrounding environment from the UAV imagery with ContextCapture. The model provided precise real-world context for the owner's operations decisions.

ContextCapture also enabled the team to export a dense point cloud for further analysis using AI, as the application allows for hybrid processing of both images and point clouds. This AI capability allowed automatic identification of tower features, delivering an accurate record of the state of the site and tower equipment. The project team needed to maintain accuracy with this new inspection method and used ContextCapture's high-fidelity models to deliver it.

Improving Information Sharing

Another benefit was improved information sharing and collaboration among all involved parties. ContextCapture made it simple to take the analyses from the dense point cloud and create documentation of the as-built conditions. Team members could also load the original photograph to generate the mesh in ContextCapture, aiding in the client's decision-making process.

Additionally, the project team exported a reality mesh of the tower in ContextCapture. Users could access the reality mesh via a web browser, enabling the client to directly view, interact, and analyze its assets no matter their location. This practice provided a collaborative interface for the engineering team and field crews. The team also linked the reality mesh to its own internal asset management system through the application. This interoperability enabled SiteSee to align client records with data extracted from the reality mesh.

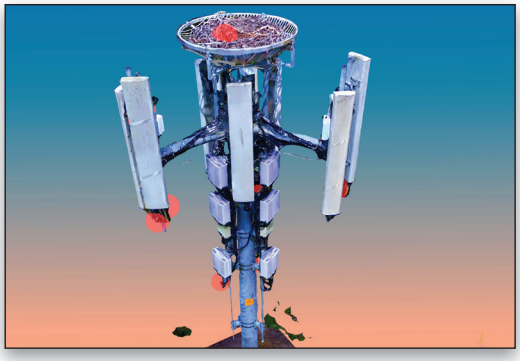
"Bentley's ContextCapture enables SiteSee's 3D reality capture, visualization, and analysis service to deliver an accurate record of the state of the site and accurate records of what equipment is on the tower."

– Lucio Piccoli, CEO, SiteSee

Creating a More Efficient Inspection Method

The reality mesh that SiteSee created with ContextCapture and UAV image provides an efficient method of inspecting cell towers.

Overall, ContextCapture's 3D reality modeling capabilities accessed through the trial, highlight the opportunity to reduce asset inspection and maintenance costs, and project delivery lead times. Since the site did not need to be closed for the inspection, Telstra could continually ensure that communities had mobile network coverage and internet access. SiteSee created an automated, reliable, and repeatable method for inspecting towers that it could be develop for future projects.



The reality mesh enabled users to directly view, interact, and analyze its assets no matter their location.

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