

Project Summary

Organization:

Genesys International Corporation Ltd

Location:

Mumbai, India

Project Objective:

- Perform inventory management through inspection automation
- Facilitate planning for a next generation 5G network
- Enable downstream workflow for engineering and BIM

Products Used:

OpenTower iQ

Fast Facts

- Genesys International was tasked with helping a major telecom company digitalize their workflow through tower inspection automation.
- Bentley's OpenTower iQ was used to capture the entire lifecycle management of telecom towers.
- A reality model that included reports and other aspects of the project was created within a few days. All the tower data was available in digital form.

ROI

- With the accurate and current data available in OpenTower iQ, the telecom owner is able to save time and cost from labor-intensive tower inspections and data gathering.
- The telecom owner has already realized benefits in the ability to measure capacity and tower utilization.

Genesys International Uses Digital Twins to Increase Accuracy of Tower Inspections

Deploys Bentley's OpenTower® iQ to Enable Smart Inventory Management of Telecom Infrastructure

Facilitating a Previously Labor Intensive Process

Due to the ever-increasing demand for data along with reliable connections, telecom owners are increasingly trying to digitalize their workflows to accurately understand available spaces, estimate tower ratings for proposed loading, understand defects and, more importantly, update their inventory with as-built information. The current process is manual, labor intensive, and expensive.

As telecom infrastructure is now shared by multiple mobile network operators, and as tower owners are adopting 5G evolution, a major telecom company in India looked to its geospatial partner, Genesys International Corporation Ltd for help with digitalizing their workflow through tower inspection automation.

Nikhil Jani, vice president, telecom and utilities at Genesys International responsible for the company's telecom and utilities business, said, "Tower inspections are typically manually intensive processes. Few telecom operators have current (as-built) data about all the equipment on their towers."

"This technology brings transparency by capturing the reality from the ground and bringing it to the desktop."

— *Nozer Turel, Assistant Vice President, Geotechnology at Genesys International*

As a result, when it comes to maintaining, installing, or modifying a tower to support, for example, a 5G infrastructure, the data necessary to make decisions is simply not available. As a consequence, operators send teams into the field to gather the information, take some pictures, and perform rudimentary analysis. That data is then used by tower engineers to determine structural load bearing, capacity utilization, tower health, and so on.

"At the same time, as drawings are often not current, the design data versus the as-built conditions are almost never aligned," adds Nozer Turel, assistant vice president, geotechnology at Genesys International. "Many companies have sold towers within their portfolio or share towers with other telecom service providers. Over time, it becomes very difficult to maintain and upkeep these towers, a problem that is compounded as operators upgrade from 3G to 4G and now to 5G."

Turel and Jani turned to leveraging digital twin technology for their customer, which can enable smart inventory management, along with BIM, and the reality model to go with it.

One Source of Truth

Established in 1995, Genesys International is a mapping, survey, and geospatial services company that provides remote sensing, LiDAR, aerial survey, photogrammetry, and ICT based e-governance solutions. Headquartered in Mumbai, India, the company operates several geospatial production and application development centers in India and is one of the largest LiDAR acquisition companies with expertise in processing capabilities, delivering some of the world's most challenging projects.

Genesys understood its telecom client's problem and reached out to technology partners who might be able to help. "Bentley offers a digital twin solution called OpenTower iQ that looked like it might help," said Turel. "This technology brings transparency by capturing the reality from the ground and bringing it to the desktop, essentially a true digital twin that marries reality data with the BIM model. We believe this to be the first true attempt to capture the entire lifecycle management of telecom towers. The reality model, along with machine learning and AI for added intelligence, is where the value lies for our customer."

“Bottom line, a purpose-built solution, OpenTower iQ for tower planning and management is a game changer for the telecom market segment.”

*– Nikhil Jani
Vice President
Telecom and Utilities
Genesys International*

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Designed for engineers and owner operators, OpenTower iQ includes features and functionality to capture the entire lifecycle of telecom tower management, including analysis, planning, visualization, and collaboration.

With a single source of truth and innovative artificial intelligence, engineers can leverage next-generation software to visualize and model towers with precision while owners can use the same data to manage assets, monitor tower health, make informed decisions with predictive analytics, and develop plans for future development directions. The platform is purpose-built for tower design, modification, management, and maintenance. Features and functionality include the ability to make tower modifications, precisely position equipment, conduct multiple scenario evaluations, and perform foundation checks and connection designs.

Actionable Intel

Genesys International worked closely with the Bentley team and used Bentley recommended flight paths to incorporate tower data gathered from drones into the OpenTower iQ application.

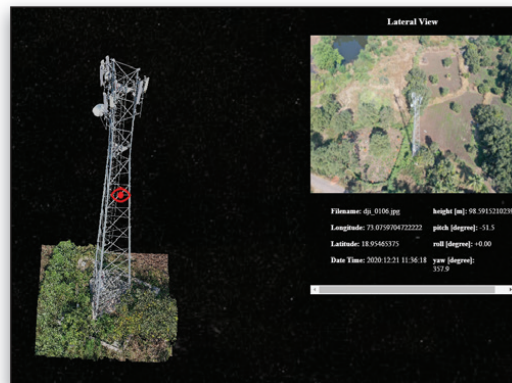
Turel said, “Within a couple of days, we had a high-quality reality model available with the reports and other aspects

of the projects. Now, all the tower data is available in digital form—and it’s accurate and current.”

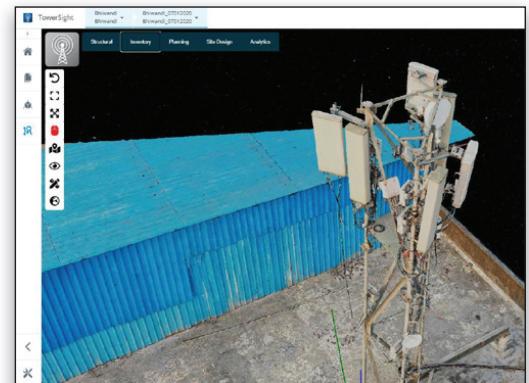
Since implementation this summer, the telecom owner has already realized benefits in the ability to measure capacity and tower utilization. “They greatly appreciate the quality of the data that is available within the system. They are no longer dependent on someone traveling to the towers to gather data, which can be laborious and dangerous,” said Turel.

Already, operators in India and around the world are seeing considerable demand on existing towers, and operators are continually removing and adding more equipment, which without jeopardizing structural integrity. The demand on these towers will only increase with the move to 5G, which requires more and larger antennas, depending on which frequency is selected.

Jani concluded, “It’s imperative that operators make sure the cell towers are in good shape and optimized for space and effectiveness. Down the road, our client will be able to combine the day-to-day management of existing towers with forecasts for new tower construction. Bottom line, a purpose-built solution, OpenTower iQ for tower planning and management is a game changer for the telecom market segment.”



Lateral view.



Roof-top reality model.