



Cintoo

e-book
Why Cintoo?

Laser Scanning: A Growing Market

The use of laser scanning is becoming a vital part of most construction, manufacturing, and energy project workflows, representing the need to combine as-built scan data with BIM (Building Information Modelling) and digital twin workflows.

Valued at \$3.72 billion in 2020, the global 3D scanning market size is projected to reach \$16.66 billion by 2030, registering a CAGR of 16.3% from 2021 to 2030.*

Laser scanning reduces survey time by up to 50% compared to traditional methods. Its precision minimizes human error and creates highly accurate as-built documentation, making it essential for renovation and maintenance projects. [13 Benefits of Laser Scanning in Construction - BuilderSpace](#)

Now, laser scanning represents the first step in creating 3D data synergy, where all information works together to streamline BIM/CAD and digital twin workflows. Enhance your project from start to finish, whether it's to build new, perform a rework, renovate a site, conduct maintenance, or digitally monitor the lifecycle of equipment and other site aspects. In this ebook, learn how you can maximize ROI, enhance collaboration across teams, and speed up project delivery without risk.

2020

\$3.72 billion



2030

\$16.66 billion



How Does The Process Work?

1

Project planning and setup

First, a project manager or coordinator will determine the goals for laser scanning, such as creating as-built models, monitoring progress, or ensuring quality control. The areas to be scanned and the data needed, including level of detail and accuracy, will also be determined. Even types of scanners may be discussed at this phase. Choosing a laser scanner depends on many different elements, including the type of environment, such as indoor and outdoor. A range of scanners can be evaluated, including mobile, terrestrial and drone scanners.

2

Data collection

A project team needs to ensure the site is accessible and clear for accurate scanning. Once the area is cleared, scanning takes place. Technicians use 3D laser scanners to capture millions of data points, converted into point clouds, across the construction site. But this may lead to challenges after laser scanning has wrapped up. It may cause a project manager to ask themselves what happens afterwards, considering the huge amount of data they've now acquired.

3

Data Processing

Once point cloud data is collected from a variety of laser scanners, it needs to be consolidated in one centralized place in order to view and share with others. However, this can be tricky to facilitate well as point cloud data is extremely large and hard to manage. One can use a variety of platforms for condensing point cloud data into 3D meshes, which optimizes viewing and navigation for ease of use and collaboration. At this point in the laser scanning process, team members and coordinators might also be interested in integrating BIM/CAD models into their workflows to run easy comparisons and make sure the project is on time and aligned.

4

Analysis and Application

Finally, analysis and application includes all aspects of optimizing your use of 3D laser scan data and creating 3D scan data synergy. Apply toolsets into your workflows once the data is centralized in an all-in-one platform. These tools include automatic measurements, annotating, progress monitoring and issue tracking, asset management, and BIM/CAD model comparisons. Creating 3D data synergy means that you and your team are equipped to make smarter decisions, enhance collaboration, and improve project outcomes.

The Challenges Still Remain

Managing Large File Sizes

Condensing massive laser scan data files without compromising quality remains a challenge, especially when sharing with internal and external stakeholders.

Interpreting and Navigating 3D Scan Data

Viewing and analyzing complex 3D scan data can be difficult, requiring intuitive tools that enhance accessibility and usability.

Data Silos

A no-silo approach is critical, but achieving seamless collaboration requires prioritizing web-centric solutions that facilitate cross-team access and integration.

Ensuring Data Security at Scale

With large scan files being shared across multiple teams, maintaining robust cybersecurity and access control measures is essential.

Balancing Access and Usability

Providing secure yet user-friendly access to key areas of a project for all stakeholders—regardless of technical expertise—can be difficult.

Tracking and Documenting Changes Effectively

Confirming reviews, approvals, and ad-hoc notes across teams without losing critical details demands an efficient, built-in documentation process.

Streamlining As-Built Comparisons

Accurately comparing scan data with as-built conditions requires easy-to-use tools, automated measurements, and annotations that simplify workflows.

Vendor Lock-In

Being tied to a specific laser scanner vendor can limit flexibility, making it challenging to merge scan data from different sources (static, mobile, and drone) into a single project.

Making 3D Data Intuitive for All Users

The complexity of 3D scan data can be a barrier for non-technical users, highlighting the need for a platform that is as intuitive as it is powerful.

The Solution



Leverage a Cloud-Based Solution to Upload and Manage 3D Scan Data

Leverage advanced compression and [cloud-based streaming](#) to condense massive laser scan data files, ensuring seamless sharing with internal and external stakeholders without loss of quality.



Use Built-In Navigation Tools

In your web-based solution, use visualization tools that simplify the viewing, interpretation, and navigation of complex 3D scan data for all users.



Eliminating Data Silos

Adopt a fully [web-centric platform](#) that enables real-time collaboration, cross-team accessibility, and seamless integration with other enterprise systems.



Look For a Solution with SOC Type 2 and ISO270001 Compliance

Utilize enterprise-grade encryption, role-based access control, and secure cloud hosting to protect sensitive scan data while ensuring authorized access.



Unlimited Access

Provide a [flexible, link-based access system](#) that allows users to interact with key project areas effortlessly, regardless of their technical expertise.



Automating Documentation & Review Processes

Integrate built-in tracking features to confirm approvals, capture ad-hoc notes, and document changes in a structured, easily accessible format.



Simplifying As-Built Comparisons

Offer a robust suite of automated measurement tools, annotations, and AI-driven comparison features to streamline the validation of scan data against as-built conditions.



Choose an Agnostic Solution

Support interoperability with all major laser scanners and 3D data sources (static, mobile, and drone) to enable seamless data merging within a single project.



Making 3D Data More Intuitive

Develop an [easy-to-use interface](#) with guided workflows and smart automation, ensuring that both technical and non-technical users can engage effectively with 3D scan data.



How It Works With Cintoo

[Cintoo](#) can process a wide range of laser scan data, whether from static, mobile, or drone scanners. Cintoo's hardware agnosticism means that there is no limitation on the types of unstructured and structured data you choose to import. Cintoo will automatically restructure point cloud data so that you can experience it as though it has come from a static scanner, including 360° panoramas. Mesh-based scan data becomes 10 to 20 times smaller in size and has the same resolution and accuracy as the source point clouds--you're never compromising on accuracy or visualization in Cintoo.

There's more:

Cintoo interoperability	Read more ▶
Upload BIM or CAD data	Read more ▶
APIs and SDK	Read more ▶
Project Management	Read more ▶
3D View	Read more ▶
Alignment Tools	Read more ▶
Comparison Tools	Read more ▶
Asset Tagging and Display	Read more ▶
Security	Read more ▶
Report Tab	Read more ▶

Different Scenarios where Digital Twin Workflows Can Help

Data Management

Manage all 3D scan data in a central hub, including integration-based data for scan to BIM/CAD workflows. Diversify your toolset options to perform crops and comparisons seamlessly, all powered by Cintoo's TurboMesh engine which converts point cloud data to high-fidelity 3D meshes.

Analysis & Measurements

Analyze your site and site conditions, including facility aspects and equipment pieces. Use annotations to track notes and share with other team members. Perform automatic measurements accurately and at-scale.

Sharing & Collaboration

With a simple web link, anyone can have access to a Cintoo project, regardless of expertise. Manage all projects and users in an easy-to-navigate interface.

Integrations

Plug in any integrations into Cintoo, including Autodesk Construction Cloud, BIM 360, BIM Track, Procore, and other scanner-based offerings, including Navvis and Revit. Don't get locked into only one vendor option.

Metaverse

Discover how an industrial metaverse experience can enhance use cases that require a high level of collaboration, simulation, and interaction.

Customization

The Cintoo Custom Branding is an option for customers who have specific requirements in terms of branding and security.

BIM Coordination

Use progress monitoring to enhance stakeholder communication and ensure better, data-driven decision-making. Use Cintoo's built-in issue tracking to help identify and address problems early, reducing the risk of costly delays and rework. Streamlined documentation and assignment tools ensure quick resolution that keeps projects on track and within budget.

Asset Management

Asset tagging allows teams to mark, track, annotate, and inspect equipment virtually. Teams can monitor asset health, evaluate installations, and classify pipelines and process flows for a holistic view of the site.

"Cintoo is an intrinsic part of how we collaborate with stakeholders and demonstrate value to our clients."

– Stantec

"Cintoo has exceeded what we originally wanted it to do. It has become a vital part of our point cloud management and we get value out of it every day."

– Arup

"In addition to avoiding project downtime, Cintoo has enabled the design team to virtually walk through sites, saving us thousands of dollars on tasks such as replacing a flow meter or determining dimensions for replacement. Our designers can model a solution easily and efficiently in Cintoo."

– BP

Cintoo has really bridged that gap for us. It's taken scan data from an expert-only application and made it usable by the masses. Cintoo is just a phenomenal platform."

– GM

Where We Started, Where We're Going

The development of Cintoo's core technology began in July 2013 with 3 PhDs. The goal was to find a new method to manage massive point clouds efficiently via the cloud, leveraging streaming and compression algorithms. This core technology was later embedded in Cintoo, which was first released in late 2018.

Now, Cintoo is prepared to enter their boldest year of development yet with iterations on progress monitoring, site map navigation, the Cintoo Metaverse, and more. With new innovations, Cintoo is transforming how large manufacturing and construction companies innovate and collaborate across their reality capture and digital twin workflows.

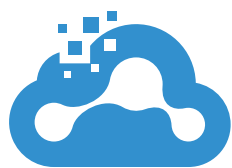
BIM EDITION

Manage your reality capture data and enable scan-to-BIM workflows, no matter how large or small your projects are, in the Cintoo platform. The BIM Edition is designed for AEC-centric workflows, making it easier than ever to upload and compare BIM and CAD models to 3D scan data. Use progress monitoring to populate quantitative data and analysis and spot discrepancies early, while integrated issue tracking helps eliminate risks before they escalate.

TWIN EDITION

The Twin Edition of the Cintoo platform is built for the demands of Industry 4.0, empowering teams in manufacturing, energy, and process facilities to manage complex environments with precision. Perform virtual site visits, streamline global collaboration, and maintain a single source of truth with a high-fidelity digital twin. Navigate to any virtual vantage point, install new assets, and manage asset lifecycles using AI-powered asset tagging. The Twin Edition enhances safety, reduces waste, and improves performance—putting your team in control of even the most complex facilities.





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