



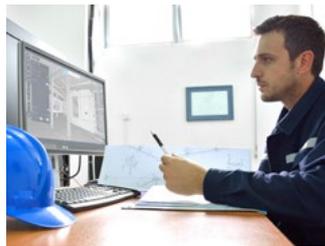
The detail's in the data:

How laser scanning and Cintoo Cloud can help Architecture, Engineering and Construction companies retain their competitive edge



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It's an intrinsic part of how we collaborate with stakeholders and demonstrate value to our clients."

Kevin Grover,
Land Surveyor & Professional
Engineer, Stantec.

The detail's in the data:

How laser scanning and Cintoo Cloud can help you retain your competitive edge

Laser scanning not only helps to capture a highly accurate snapshot of a building's as-built condition, it also allows comparisons to be made during construction between the as-built and the design intent (from a BIM or CAD model), helping to minimise costly errors.



If you currently use terrestrial laser scanning, you'll be familiar with the value the technology delivers in terms of design and quality assurance.

With the ability to record millions of unique data points in a single scan, this type of 3D data capture is now one of the most in-demand technologies within AEC. In fact, the unparalleled accuracy that laser scanning delivers has been so well proven that, in just two years, uptake of laser scanning within construction has more than doubled.

In a sector where the slightest deviation from plan can dramatically increase costs, it's no secret that a technology that limits margin for error has the ability to deliver a significant return on investment for each construction project.

Forecasters are predicting a \$1.4 billion growth in the terrestrial laser scanner market by 2023, as demand continues to outstrip supply, and VDC and BIM managers proficient with the technology are finding their expertise coveted.



The return on investment was immediate from day one and we now have 10-20 concurrent users using Cintoo Cloud daily. "

Myles Martin, Principal,
M3 Design Group.

Deconstructing one of construction's biggest barriers

– unlocking integrated workflows when using laser scanning

When using laser scanning as part of a BIM process, the sharing of information is an ongoing logistical issue. Terrestrial laser scan data has historically been confined to a specific data silo with limited accessibility. With insufficient collaboration repeatedly cited as a barrier to productivity in construction, finding a solution that facilitates concurrent access to laser scanning data would empower stakeholders to work far more collaboratively and facilitate a more inclusive BIM process.

Of course, for all the strides laser scanning has made in improving quality assurance, terrestrial scanning files remain extremely large (gigabytes to terabytes) in size - and point clouds continue to increase in density with each new generation of scanner released. In the absence of a platform that allows project stakeholders to access terrestrial scanning files simultaneously, teams are restricted to sharing data by Dropbox or hard disk. As a result, project stakeholders in differing geographical locations are limited to working from copies of the original source files, instead of one universally accessible set of scans. This convoluted process, in which multiple versions of point clouds are being worked on by different users, often leads to confusion and errors.

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Our entire team can now view and edit point cloud data for a project at the same time, on a single platform, without the need to install specialised software.

Tim Barnes, Senior BIM & Visualization Specialist, Architecture49 Inc.

How laser scan data provides value beyond the planning

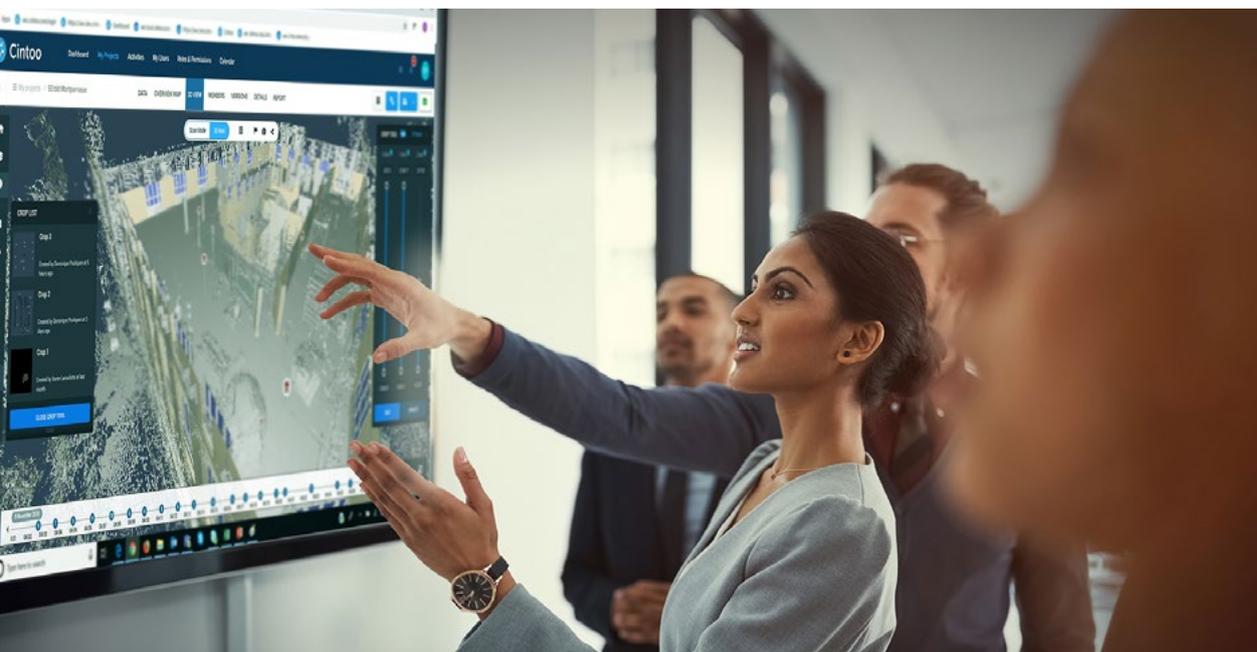
One of the reasons BIM and terrestrial laser scanning have been so well received within construction is the unparalleled accuracy delivered during the planning and development process.

For VDC and BIM managers, who engage with the technology daily, the ability to accurately plan projects to scale, time and budget is just one of many benefits. Having the ability to compare the scanned as-built to BIM generated models doesn't only prove its worth in the initial planning stages of a build, but also in quality assurance throughout a project's lifespan.

Systematic laser scanning allows stakeholders to identify if any aspect of a build has gone off plan, remedying mistakes before they escalate into delays and extra costs.

However, laser scans need to become ubiquitous and accessible, no matter the size of the raw source files. The original scan quality must also not be compromised in the cloud-sharing process. This is the next evolutionary step VDC teams must reach in order for construction companies to leverage BIM's full potential, and Cintoo has engineered the technology to do just that.

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A secure cloud platform for laser file sharing

Cintoo's core technology turns 3D point clouds into high-resolution 3D surface meshes, compressing the data without compromising its accuracy, so that it can be uploaded to Cintoo's secure cloud.

Panoramic Image



3D Mesh with RGB



3D Surfaced Mesh



Cintoo Cloud leverages a unique, patent pending point cloud-to-mesh technology. Each scan's point cloud is being transformed into a multi-resolution, compressed mesh prior to the upload to the cloud. This mesh retains the original point cloud's accuracy but is 10 to 20 times smaller in size than the source scans, making it high on details but easier (from a data perspective) to manage. This high-resolution mesh streamed in Cintoo Cloud's web viewer allows the end users to see details in the laser scan data that they would not be able to see in a typical point cloud viewer. These compressed files can also be safely reconverted back to point cloud format without impacting quality – something that, until this point, has proved impossible. So, when you need your point clouds back, you can download a single scan, a crop or even the entire dataset as either a point cloud (E57, RCS or RCP) or unified mesh (OBJ, FBX and STL) format.

The technology represents a turning point in how construction companies will be able to access and collaborate on terrestrial laser files generated by laser scanning. Now, instead of each stakeholder receiving an autonomous set of scans via Dropbox or hard disk, users can concurrently work on one centrally hosted data set, from any location. Furthermore, users can stream the laser scan files in 3D or compare scans with models from any standard laptop, tablet or PC with Wi-Fi and a Chrome, Firefox or Microsoft Edge browser enabled. There are no plug-ins, expensive hardware nor software licenses required.

Cintoo Cloud integrates with most BIM and CAD software applications such as BIM Track or Autodesk BIM 360, Revit and Navisworks. This ensures project members can access files simultaneously, from any location, at any time. VDC or BIM managers can invite contractors and team members to collaborate, ensuring everyone with authority to view, edit and comment on the scans has the access to do so. Users with VR devices will also be able to leverage Cintoo Cloud's integrated VR capabilities streamed directly from the cloud, without the need for any downloads.

For added peace of mind, Cintoo Cloud is protected by the highest-grade cybersecurity protocols and scans are stored on the most secure cloud hosting platforms to prevent any unauthorised access of information. Customers have a choice to host their scans on either Amazon Web Services or Microsoft Azure and select the datacentre geography they wish to use. Each collaborator is assigned a customisable set of permissions and is invited to join the platform and a unique user ID is established for each stakeholder. These stringent security protocols ensure that any confidential information hosted on Cintoo Cloud is only accessible to authorised parties.



[See the technology in action](#)

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Total transparency, zero travel

– the benefits of cloud-based working



Cintoo Cloud offers companies with large terrestrial scan data files to share, distribute and analyse with numerous benefits to productivity and profitability:

Greater visibility over quality assurance and quality control

Uploading laser scans to Cintoo Cloud as your build progresses gives all project stakeholders an advanced tool to monitor quality compliance. You can routinely take scans throughout the lifecycle of a build and compare the as-built data to BIM models, ensuring accuracy in accordance with specifications.

Immersion in a build without setting foot on site

Travelling to and from a site can eat into your day, negatively impacting productivity. With the ability to view progress from your tablet, laptop, desktop or smartphone, using Cintoo Cloud, you can limit the amount of time you spend away from the office, while still immersing yourself fully in the build.

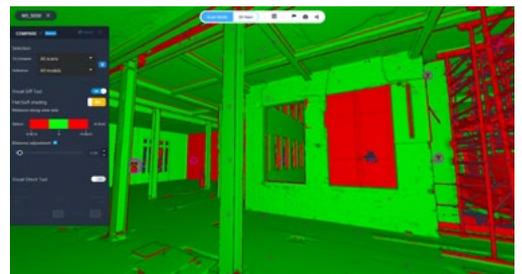
“ It’s delivered phenomenal value to our business for a very reasonable cost, and the intuitive interface is immensely simple to use.”

Christian Luchen, VDC Director, Clayco Construction

BIM Only *



Diff Map *



Scan Only *



* Courtesy of Art Graphique & Patrimoine, France
- <http://www.artgp.fr/>

Real-time collaboration with every project stakeholder

Collaboration and communication are intrinsic to achieving success and minimising costly errors in construction. With Cintoo Cloud making it possible for anyone, irrespective of geography, to work from the same set of scans, it creates total transparency between project stakeholders.

Using laser scanning and Cintoo Cloud, construction teams can:

- Communicate changes to a build design in real-time
- Identify and address potential issues during the planning process
- Improve productivity and efficiency across a building's lifecycle
- Negate unforeseen costs and maintain the highest levels of quality control
- Justify investment and spend to stakeholders worldwide

This reinvigorated and highly efficient way of working is a breath of fresh air from having to physically travel to worksites or share data files via Dropbox or hard disks. Now instead

of each project stakeholder working autonomously, everyone - regardless of geography - has the ability to access and comment on a single scan data set concurrently, setting a new best practice for the sector.

Best of all there's no restrictions on who can use the technology. As Cintoo Cloud consumes the data after it has been registered in other programs, it's completely laser scanning device agnostic and compatible with most BIM and CAD solutions.

Laser scanning throughout the lifespan of a build means that any deviation from plan can be picked up right away and corrected before it incurs costly changes and delays. With Cintoo Cloud, each contractor is able to access only the scans he or she needs, while stakeholders worldwide can share, comment on, or update files in tandem, facilitating a transparency that helps to avoid overlap and confusion.



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Cintoo Cloud Key Features



Share and distribute point clouds

Upload, store and download point clouds with no compromise on accuracy.



Collaborate remotely

Manage laser scans and enable customisable access for all project stakeholders.



High-resolution mesh streaming

Fast streaming of 3D meshes, at the scanner's resolution, for unmatched viewing quality.



Various display modes

Display the best of your scan data via the 3D RGB, 3D X-ray, 3D Height, 3D Surface or 2D Panoramic viewing modes. Avoid mistakes by selecting the relevant 3D points for measurements and annotations using the 3D surface mode.



Define work zones

Organise scans into different work zones for quick reference and contractor access.



Crop scans

Use Cintoo Cloud's advanced cropping features to segment, slice or isolate scan areas.



Integrate software

Integrate Cintoo Cloud with the Autodesk portfolio via the RCP (point cloud) format and by connecting to BIM 360.



Use in the field or in the office

Access Cintoo Cloud's web-based application on almost any Internet-enabled device (laptop/desktop/tablet/smartphone).



Secure hosting

Enjoy peace of mind, knowing your laser scans are secure in your choice of Azure or AWS cloud, and select the datacentre location.



See projects in VR

VR integration allows fast scan streaming, directly from Cintoo Cloud, with no download needed.



Measurements

Make accurate 3D measurements with no ambiguity.



Visual Analysis

Compare scans to a BIM model for QA/QC or two sets of scans for progress monitoring.



Issue Tracking

Create notes and issues. Export them using the BCF format or push them directly to BIM Track.

What AEC professionals say about Cintoo Cloud

BIM managers, surveyors and construction company owners are among those already using Cintoo Cloud to improve profitability and productivity in the field.

Below, genuine Cintoo Cloud users talk about how the ability to view, annotate, measure, crop, share and distribute laser scans via the cloud with project collaborators has delivered greater quality compliance and strengthened stakeholder relations.

Name
Myles Martin

Job role
Principal

Sector
Architecture

Company
M3 Design Group



“We had a team of 10-20 concurrent users up and running in no time.”

“We came across Cintoo Cloud while looking for a product that would enable our QA team to compare laser scans with BIM models and tag issues. The return on investment was immediate from day one and we now have 10-20 concurrent users using Cintoo Cloud daily. The visual comparison capabilities and the ability to export tagged issues as a .bcf are extremely beneficial. Not only does Cintoo Cloud save our business time, it’s improved our communication with non-technical stakeholders and proved to be a vital tool for quality assurance. I can’t stress enough how much of a difference Cintoo Cloud has made to the productivity of our business.”

Name
Christian Luchen

Job role
VDC Director

Sector
Construction

Company
Clayco Construction



“A simple to use platform that addresses an industry need.”

“No other software has allowed us to transfer and view data as easily as Cintoo Cloud. The platform lets us share Scan Capture Data with all project participants and view scans in 3D mesh, which has proved invaluable for decision making. Stakeholders can upload and download point cloud data and add comments for all to see - removing silos and democratising use of Scan Capture Data. It’s delivered phenomenal value to our business for a very reasonable cost, and the intuitive interface is immensely simple to use. Cintoo Cloud is now a daily part of our project workflows that has revolutionised the way our business works with Scan Capture Data.”

Continued 

Name
Kevin Grover

Job role
**Land Surveyor and
Professional Engineer**

Sector
**Architecture and
Engineering**

Company
Stantec



“We were looking for a cloud platform, compatible with our hardware – Cintoo was the only one to fit the criteria.”

“We came across Cintoo Cloud while searching for a secure cloud platform that would integrate with the hardware we use day-to-day. Cintoo Cloud was the only solution to address these criteria. Now it’s an intrinsic part of how we collaborate with stakeholders and demonstrate value to our clients. The technology is compatible with data from Faro, Leica, or Reigl scanners while integrating with our design solutions including BIM 360, and is so easy to use. With minimal training, we can now share data with no plugins and export cloud crops for Navisworks clash detection or Revit design. Even team members who are not point cloud data experts find it easy to extract meaningful information using Cintoo Cloud. Our stakeholders have also benefited from the immersive experience provided through VR.”

Name
Tim Barnes

Job role
**Senior BIM & Visualization
Specialist**

Sector
Architecture and Planning

Company
Architecture49 Inc.



“Cintoo Cloud allows for collaboration between us, our clients and subcontractors, increasing visibility and transparency for our as-built data.”

“We were looking for a platform to view the massive amounts of point cloud data that we’ve accumulated in one space, for technical and non-technical users alike. Cintoo Cloud requires minimal experience with point clouds and our office uses the platform daily. Now, we no longer rely on technical users to obtain information from point clouds for others. All personnel have access on their own workstations and Cintoo’s intuitive nature means most of our users learn from hands on training. Our entire team can now view and edit point cloud data for a project at the same time, on a single platform, without the need to install specialised software.”

Cintoo Cloud: the key to retaining a competitive edge in construction

Construction companies, seeking to offer their clients best-practice quality assurance, are increasingly adopting terrestrial laser scanning and the joined-up ways of working delivered to stakeholders wherever they are.

For too long, the industry has paid a steep price for costly errors resulting from a lack of transparent information-sharing and collaborative working. With Cintoo Cloud, every stakeholder, regardless of location, can concurrently access and edit the exact same set of scan data, using a regular laptop, desktop or tablet at any time.

This unprecedented way of integrated working marks an industry first, one that has already proven its value in the improved quality assurance experienced by Cintoo Cloud's early adopters. With these businesses now equipped with a technology that answers a burning industry need, the competitive advantage Cintoo Cloud delivers is unmatched anywhere else.

 [Discover more](#)
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