ASBUILT

A Smarter World. Digitally.

Connected Construction

Construction delivered smarter – with a digital twin.

Powered by:

VAULT

3D SPATIAL INTELLIGENCE

Connect people and data for a **smarter built world.**

When engineered on a digital foundation, construction projects can be delivered with reduced risk, errors, inefficiency and waste.

Our Connected Construction Solution optimises operations and construction via a cloud-based, internet of things (IoT) enabled platform that streamlines and improves management of the whole construction environment.

We make it easy to create a digital twin of a construction site (a spatial model) which:

- Provides live insights
- Connects the whole supply chain
- Digitises manual processes
- Provides a digital spatial frame
- References site data captured

What is Connected Construction?

A full 3D spatial model with metadata (a digital twin) of the construction site is built and integrated with onsite 1080p cameras and sensors to monitor site activity. This includes people, vehicles, and equipment.

Why do it?

Construction remains one of the least digitised industries, with poor productivity. By elevating the uptake of digital tools we can:

Improve Safety

The construction sector is well-known for its high risk of injury and even fatalities.

With so many moving parts on site, it can be a real challenge to monitor all that's happening. This leads to issues with health and safety and compliance.

Improve Efficiency

A lot of time onsite is wasted waiting for equipment to arrive, working out exactly where something should be installed, interpreting printed plans and documents and fixing errors. Delays cost money.

Digitisation has the power to transform the construction industry and in the process, drive positive social, economic and environmental outcomes.

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VAULT

3D Spatial Intelligence Platform

Powered by Microsoft Azure, Vault is a simple-to-use platform built as the construction site's digital twin.

Vault aggregates data from existing enterprise resource planning (ERP) systems and telematics providers, as well as data from artificial intelligence (AI)-powered cameras and sensors placed strategically around the site.

A 3D spatial representation of the construction site results in more efficient tracking of human and equipment resources, project status, and employee safety-without the need for endless manual paperwork.

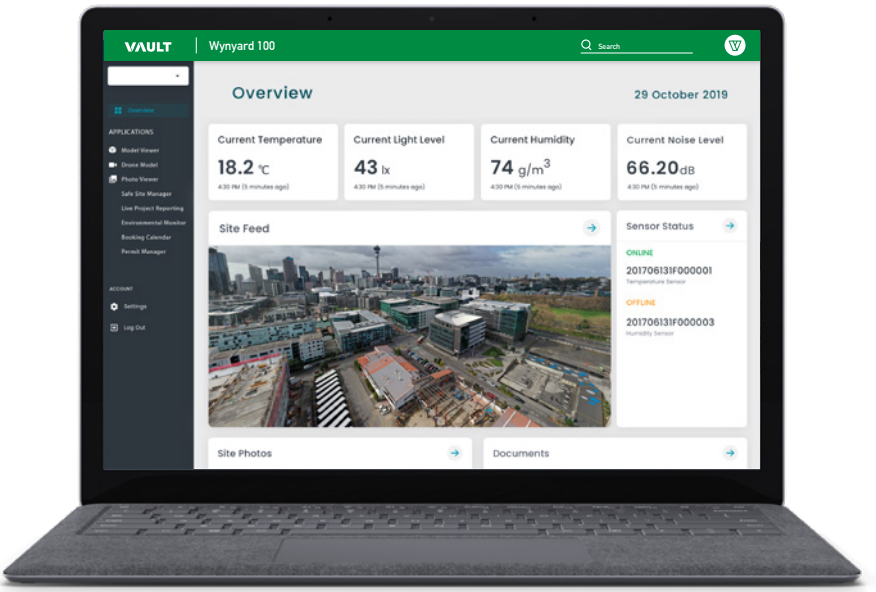
Site records can be digitised and captured with total spatial accuracy.

Microsoft Features

Vault uses the following Azure services in its solution:

- IoT Hub is used to ingest feeds coming from cameras and sensors.
- Stream Analytics processes data from sensors and cameras in real time.
- Cognitive Services add smart capabilities to enable contextual interactions.

Construction data is digitised into **one source of truth.**



Vault provides a robust, **cloud-enabled solution** for Connected Construction. Core **spatial intelligence** and **customisable applications** connect the whole supply chain.

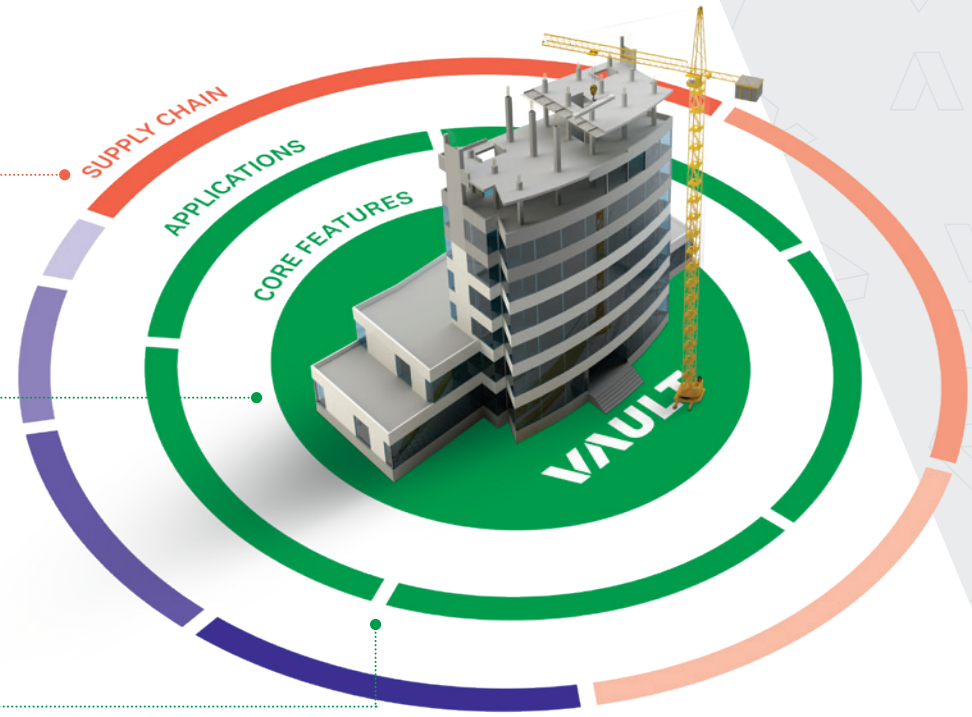
SUPPLY CHAIN

- Clients
- Project Manager
- Quantity Surveyor
- Design Consultants
- Main Contractors
- Subcontractors
- Suppliers

VAULT CORE FEATURES

Visualisation + Storage + Apps

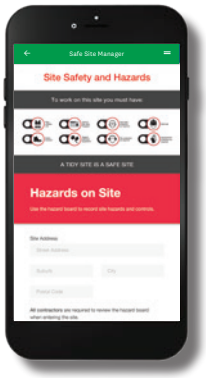
- Multi user viewer
- Real time spatial intelligence tool
- 3D model viewer with data mapped spatially
- 360 degree photo viewer
- Point Cloud manager
- Drone viewer
- File manager
- Microsoft Teams integration



VAULT APPLICATIONS

IoT + camera vision + Ai/ML (for live insights)

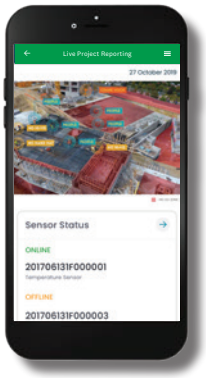
Integrate IoT devices and smart sensors to measure, monitor and manage construction; plant, environment and people in real time.



Safe Site Manager

Manage safety and high risk activities by alerting workers of hazardous zones and potential dangers.

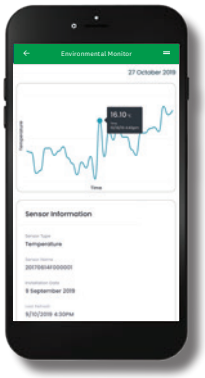
On-screen tags immediately flag whether workers aren't wearing the required safety equipment. Vault bot assists with worker site inductions.



Live Project Reporting

Manage worker interactions, plant movement, plant utilisation and worker attendance in real time and map it spatially.

Reporting uses live data feeds - allowing site decisions to be made more accurately. Enables better communication between project stakeholders.



Environmental Monitor

Environmental sensors provide temperature, humidity, wind speed, CO_2 and sound data (for noise control).

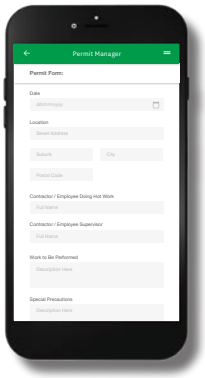
Enables proof of compliance with contractual environmental constraints.

Monitors carbon and tracks site waste and carbon footprint.

Booking Calendar

Team members can order plant equipment such as cranes and goods lifts or components - saving paperwork and downtime.

Track materials delivery and contractor access with Machine Learning (ML) powered license plate recognition.



Permit Manager

Streamline permit management and inform all stakeholders of permit status (managed spatially).

Eficiently digitally issue monitor and close permits for 'hot works', 'confined spaces' and more.

Wynyard 100 – A Connected Construction Site

asBuilt's collaboration with Microsoft, Spark and construction company NZ Strong has resulted in the first 'connected construction site' in New Zealand.

Stage one of the Wynyard 100 project is an exemplary mixed-use development featuring a 154 room hotel, car park, office, retail and residential spaces across 30,000sqm.

Technology

Wynyard 100 combines Intelligent Internet of Things (IoT) devices; Microsoft Azure cloud and Power BI technology; drone and 3D camera imaging; and geolocation.

A 'digital twin' of the building is hosted in asBuilt's Vault platform and is accessible to the Wynyard 100 team, from design to supply and project management.

Outcomes

The benefits of all stakeholders being connected to ONE hub of real time insights is paying off in:

- Safer construction
- Reduced costs
- Real time decision making
- Better communication and connection of all project partners.

Chris Hunter
Construction Manager
NZ Strong

"I can now see all the workers in real time and that helps me manage their safety to a level the industry hasn't achieved before. It also provides me real time insights around productivity on the site that I can feed back to my procurement team and supply chain, avoiding waste and unecessary cost".

PEOPLE

- Geolocated site tracking and employee motion sensors take safety and efficiency to a new level
- Wearable data can be used to improve site conditions and help keep everyone safe
- Improve data collection speed and accuracy
- Connect Health and Safety workflows and monitoring.

PLANT

- Improve efficiencies, measurements and utilisation of key plant and equipment. Workers simply 'connect' to book resources e.g. materials, plant, cranes and goods lifts
- Enable digital simulations to provide more accurate costing for future jobs
- Assist with predictive maintenance - linking asset data warranties to O&M applications
- Allow for real time flow and management of subcontractors and supply chain.

SITE/ENVIRONMENT

- Live monitoring of site conditions such as noise, air quality and movement, provides real time records of the environment
- Logged site conditions provide confidence in site records (automating parts of the traditional site diary).

We're passionate about creating a smarter built world, digitally.

asBuilt are digital engineering experts and software developers with proven solutions to improve the design, construction and management of built assets. Our ultimate goal is to improve the way people interact with the built world.

We engineer clever solutions that reduce the impact of construction, while connecting people to their built assets and importantly, each other.

asBuilt Connected Construction

From design to construction to ongoing management of finished projects - stakeholders across every construction phase gain crucial visibility. This includes; supply chain logistics, environmental conditions, materials inventory, permitting, safety, construction personnel performance and more.

DESIGN PHASE

Digital survey and capture workflows give design teams a more accurate, certain foundation for design and ongoing design coordination.

CONSTRUCT PHASE

Connected construction sites enable real time reporting and management while connecting the whole supply chain.

MANAGE & OPERATE

Spatially accurate digital twins provide the platform for better long-term performance, efficient operation and maintenance workflows.

Call us or email us today at info@asBuiltdigital.com to speak to one of our connected construction specialists.

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