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10,000 Safer Cities

BUILDING INNOVATION

Using AI to manage strata buildings

5 OCTOBER 2023

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1. What is artificial intelligence and why?
2. Overview of uses of AI within the industry
3. Insights into the Voltin technology
4. Practical application/use of information captured

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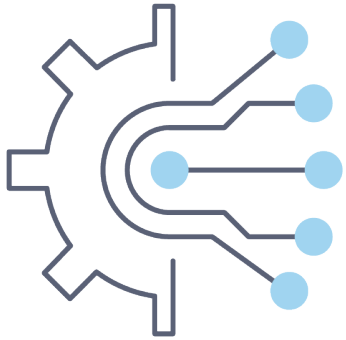
Artificial intelligence (AI)



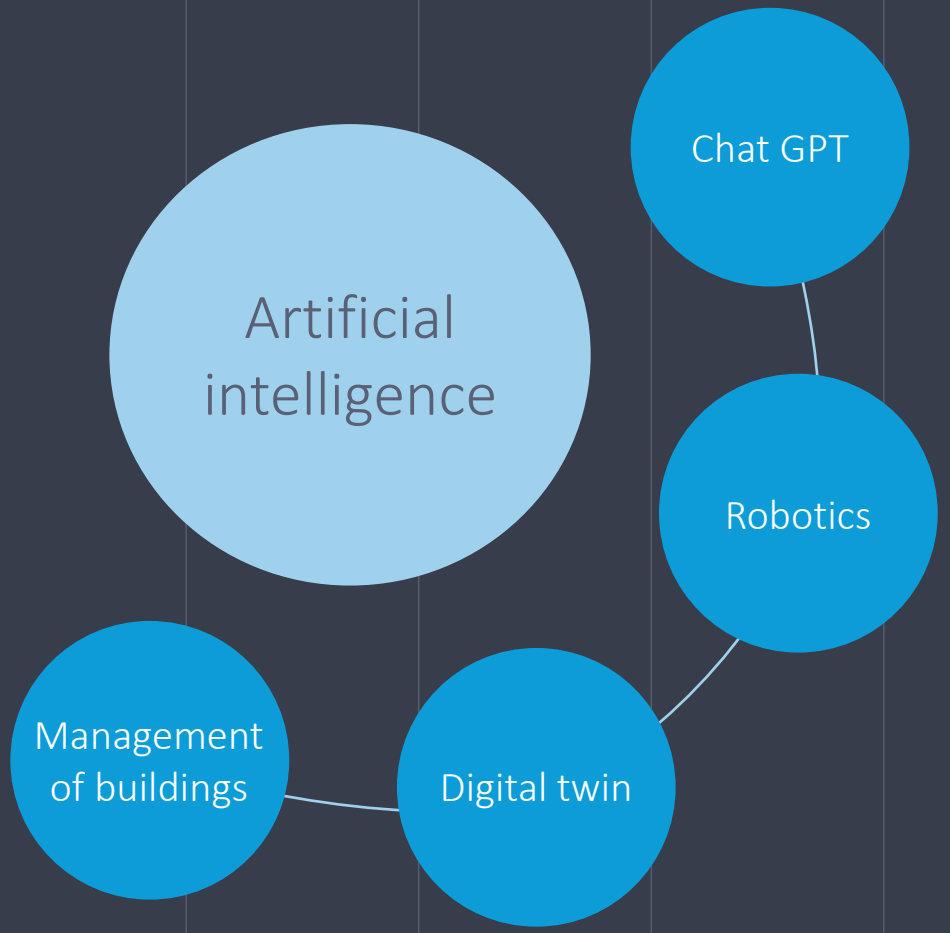
What is AI?

Artificial intelligence is the intelligence of machines or software, as opposed to the intelligence of humans or animals. It is also the field of study in computer science that develops and studies intelligent machines. "AI" may also refer to the machines themselves. Wikipedia

Why AI?

- Companies now have access to an unprecedented amounts of data
- AI has long been regarded as a potential source of business innovation
- Organizations are starting to see how AI can multiply value for them
- Automation cuts costs and brings new levels of consistency, speed and scalability to business processes

EXAMPLES – USES OF AI WITHIN THE INDUSTRY



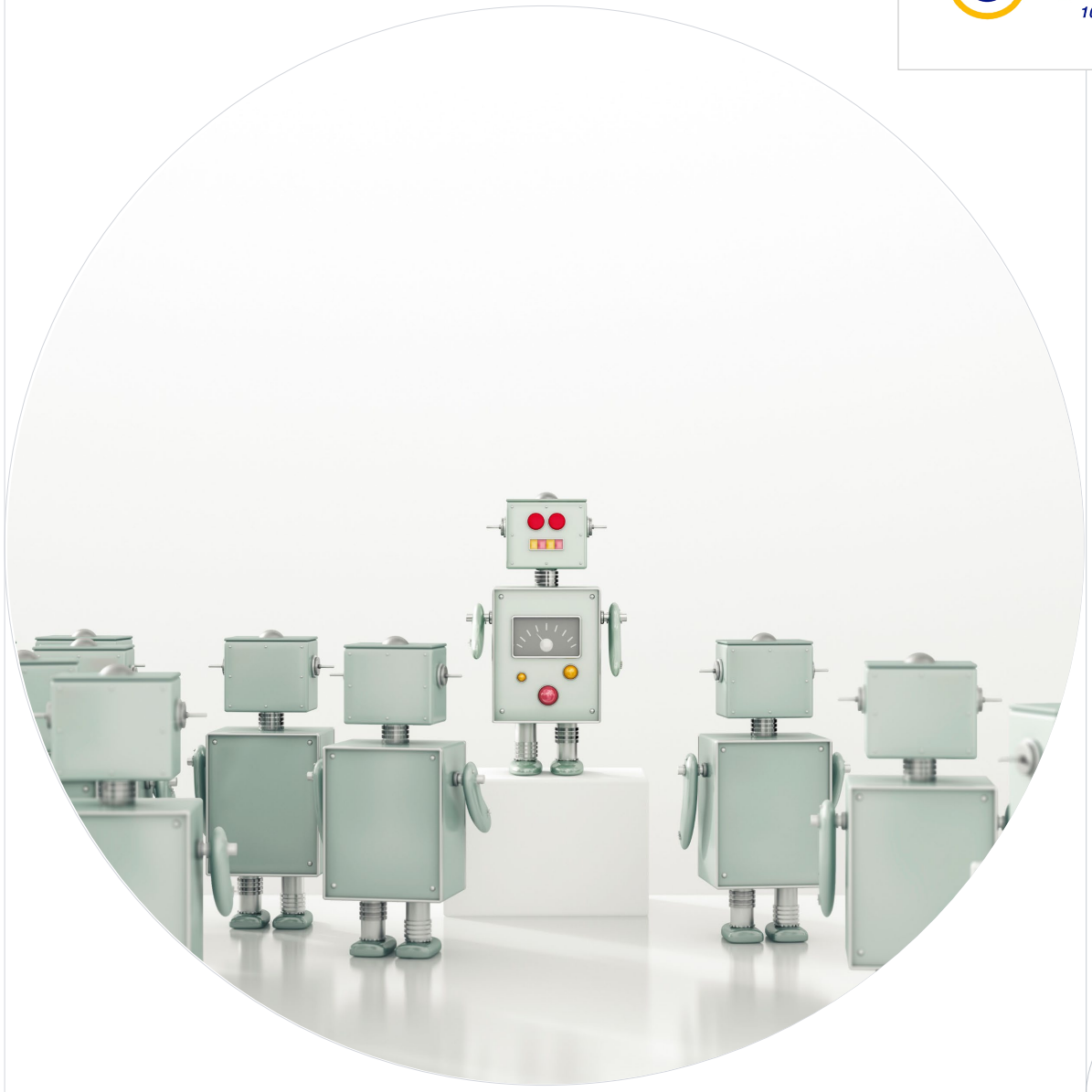
CHAT GPT

'Is a chatbot (chat generative pre-trained transformer) that uses natural language processing to create human like conversational dialogue'

ROBOTICS

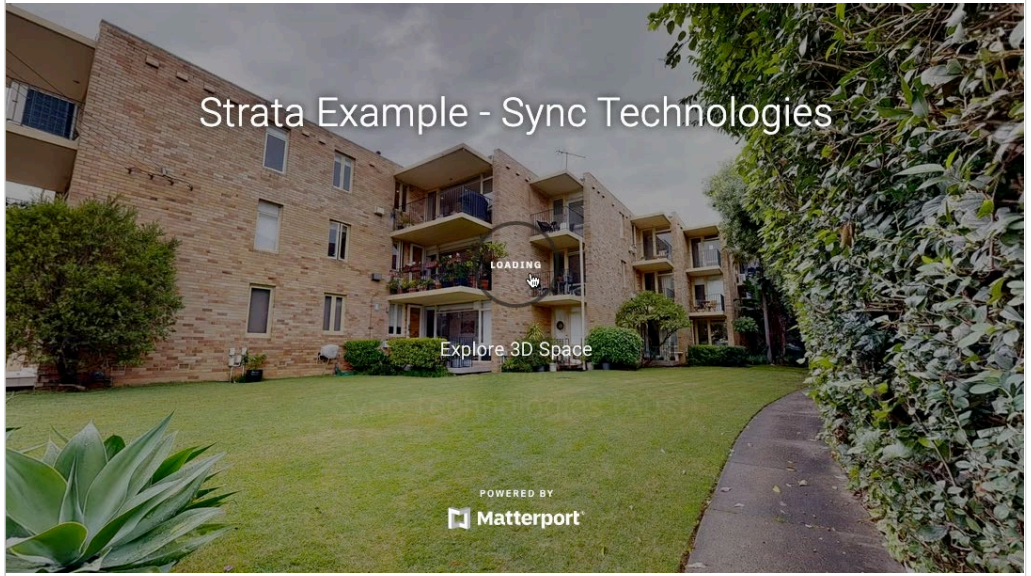
Claims management

Our forensic accounting team in Australia and USA are developing the use of machine learning to predict the value of business interruption claims.



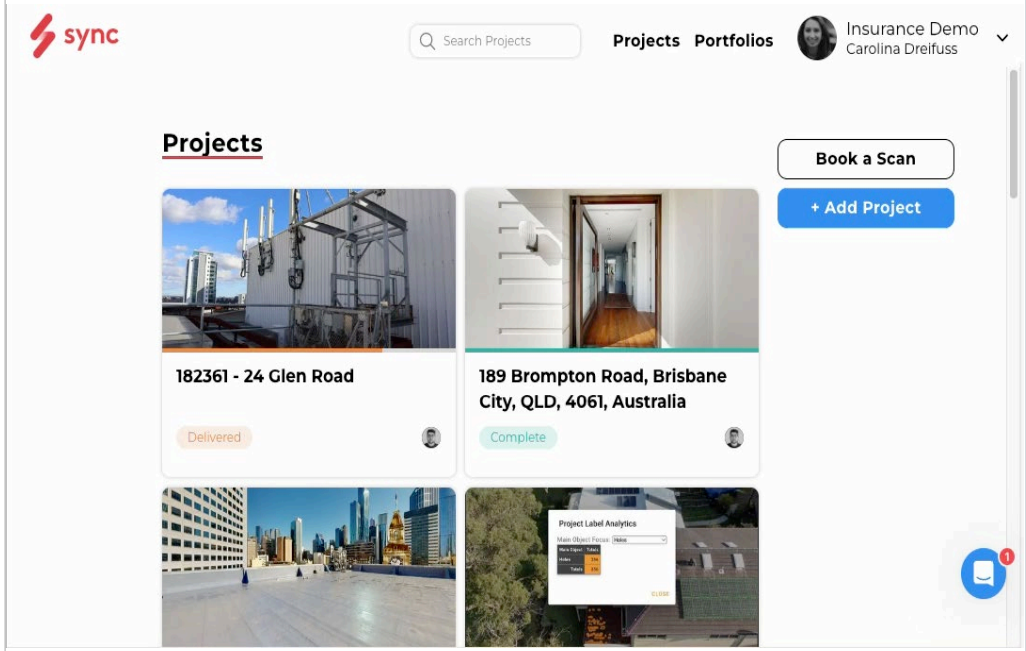
Digital twin

- How does it work and what does it produce?
- LiDAR (Light detection and ranging) technology
- Scans all types of surfaces: roofs, ceilings, walls, and floors
- Internal and external; specialised cameras, controlled via an app
- Creates a complete and detailed virtual replica of a space (or complete property) by stitching together all 360-degree scan points
- Multiple outputs – VR tours, 2D and 3D floor plans, measurement tools, layered multi-storey viewing capability
- Tagging function embedding text, documents, and videos
- Output is shared and distributed securely and encrypted
- Secure and encrypted cloud storage of data on the SyncTech platform



AI-powered defect detection

- How does it work and what does it produce?
- Specialised drones equipped with cameras and sensors capture aerial images and videos of rooftops and areas, providing valuable data for assessment without the need to step onto a roof
- Images and videos are uploaded into a trained AI engine to identify defects/anomalies
- A detailed defect report is generated to support off-site assessments and rectification
- Output is shared and distributed securely and encrypted
- Secure and encrypted cloud storage of data on the SyncTech platform



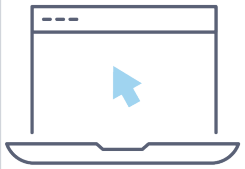
Digital Twin

Application to Strata

- Preparation of scope of works
- Creation of 2D and 3D floor plans
- Detailed cost estimates
- Building condition reports
- Defect assessments
- Dilapidation surveys
- Insurance valuations
- Maintenance management
- Measurement of building components

Digital twin

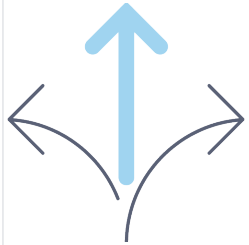
Benefits



A permanent digital record via weblink – no special license or application required

Faster more economical way to capture and store data and manage buildings – matter tagging and record keeping

Reduces the need for multiple experts to attend site



Virtual reality digital twin – can be shared with all stakeholders (e.g. insurers, experts, owners (interstate or international)

What is Voltin?

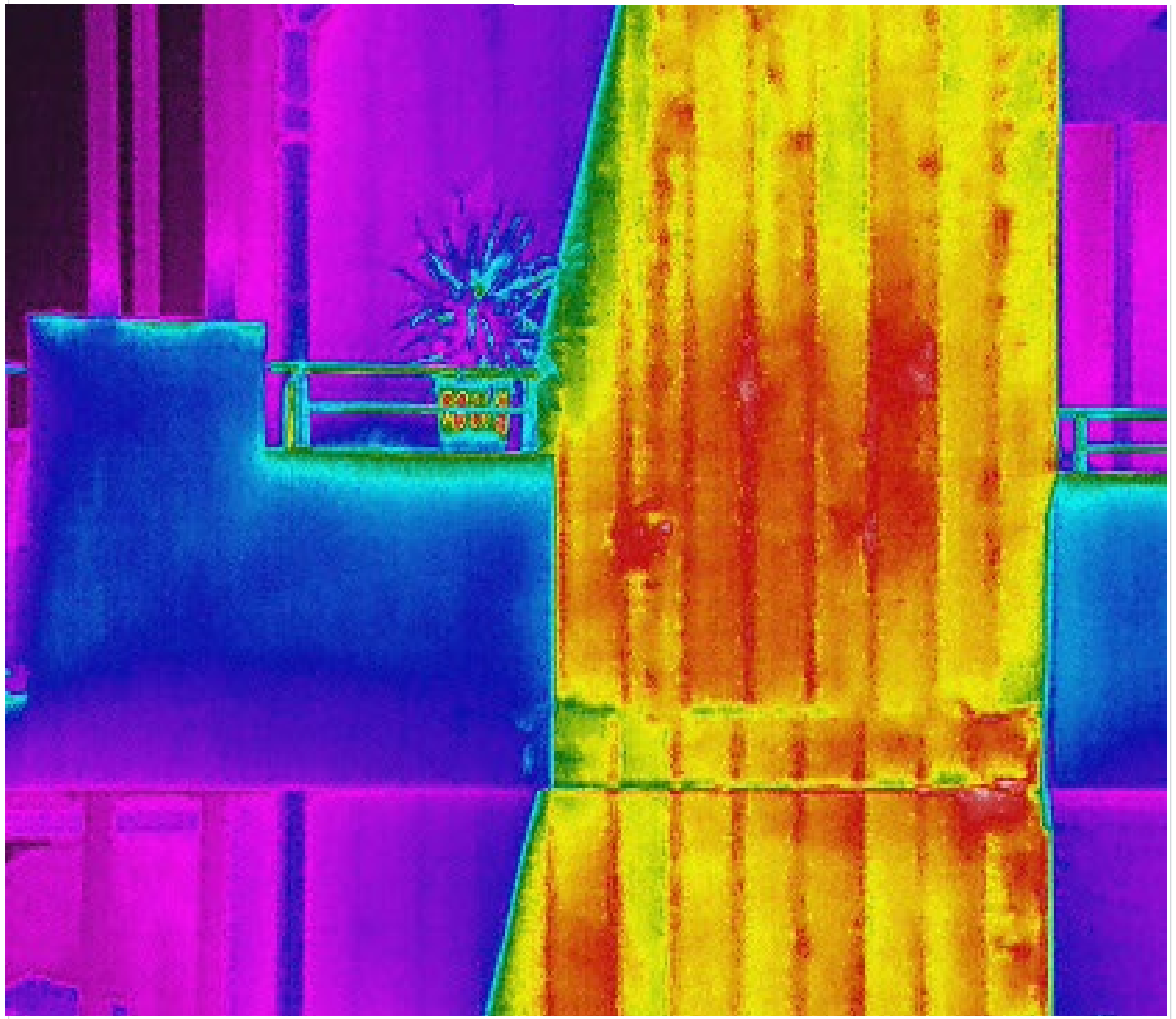
Above: The new Voltin AutoBAT 3.0

The Voltin System is a world first digitized commercial building façade survey and assessment system.

Voltin

How does it work?

Voltin combines sophisticated imaging and positional technology with an autonomous electro-mechanical device to deliver an innovative service that is less expensive, safer, and more accurate than existing systems in the market.



Voltin

Why use the Voltin System?

Building and asset owners have a commercial, compliance and regulatory need to monitor the condition and safety of the building envelope. This is currently done in a low-technology manual manner. Specialist engineering facade inspections are often limited in scope and make little use of technology.

Voltin's technology offering

Data collection

Automated boom

BMU

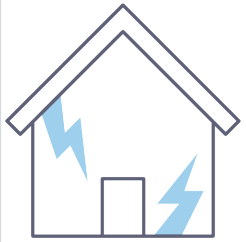
15m pole

Tethered drone

Voltin

Benefits

A new age digital assessment of a building exterior, revealing previously unseen flaws and precise defect location using geo tagging and defect image modelling



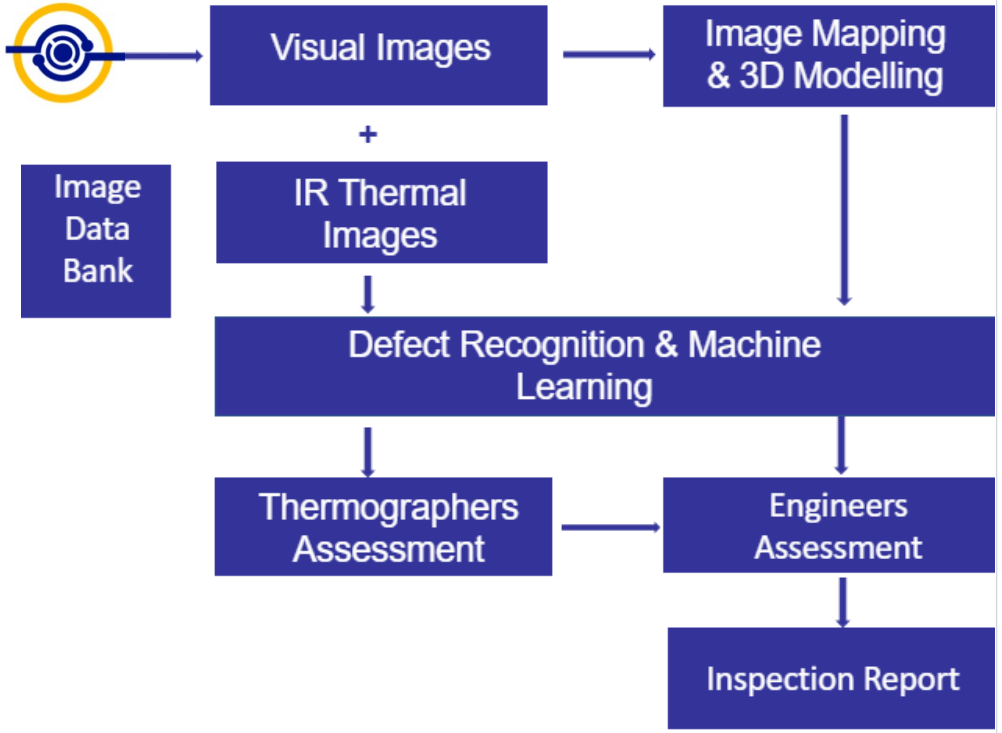
AI capability – detection of up to 50 building defect types (incl. cracks, corrosion, paint peeling)

Reporting capability - accuracy, through geo-tagging, of the defect image modelling along with digital representation on 2D and 3D images

The low impact and the safe operations the device has on property and people at a significant cost saving

Voltin's AI capability

- The data capture device takes hundreds of images in the white light and thermal spectrums
- Each image is geolocated and tagged with meta data to achieve locations accuracy to within 10mm
- The data images are then filtered to remove anomalies before it is processed through a machine learning algorithm which uses a data library of millions of images to identify and collate the defects
- This is a generative AI machine learning and computer vision process



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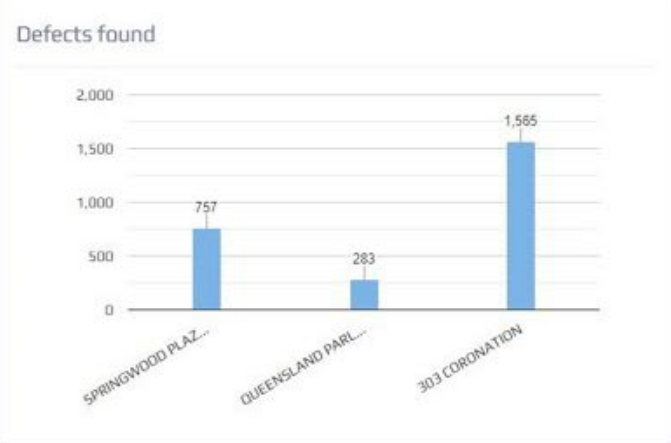
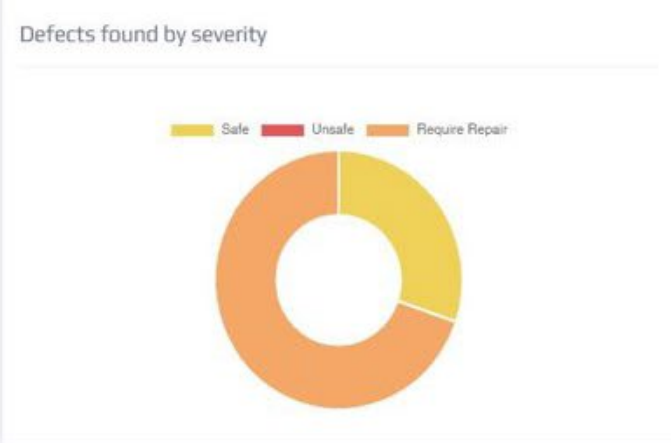
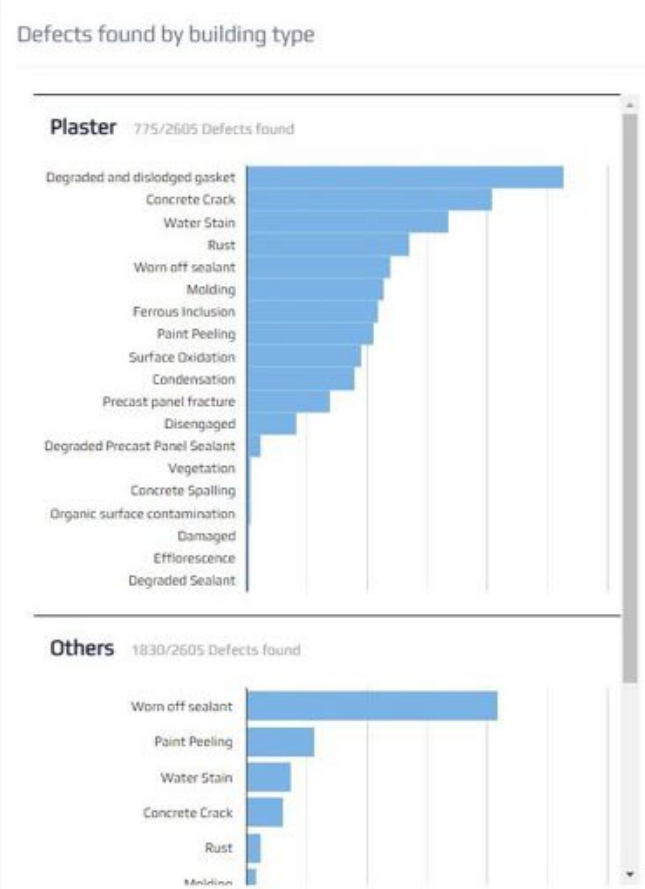
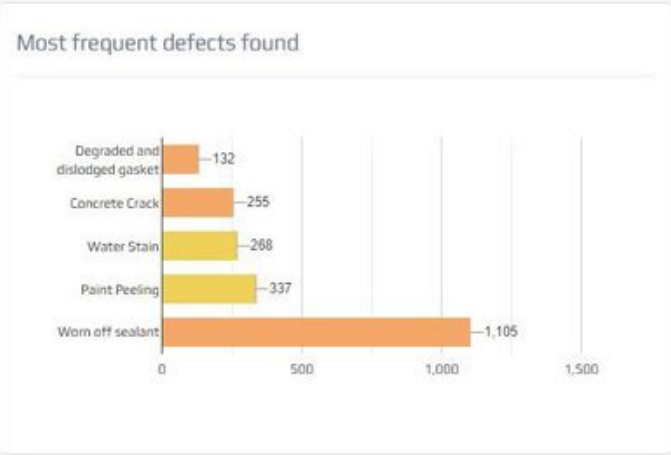
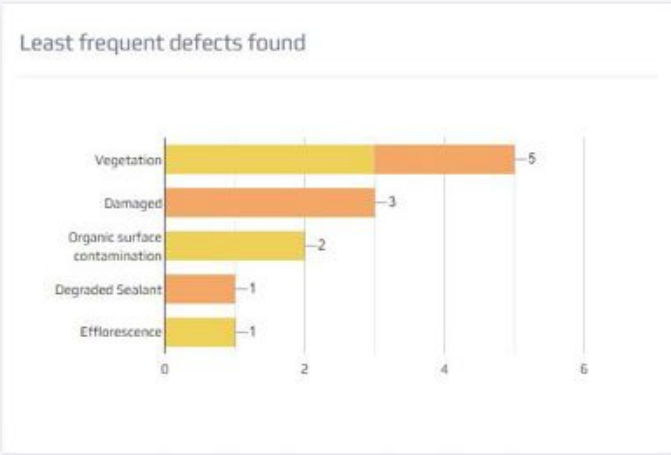
Inspection defect summary











Defect descriptive detail

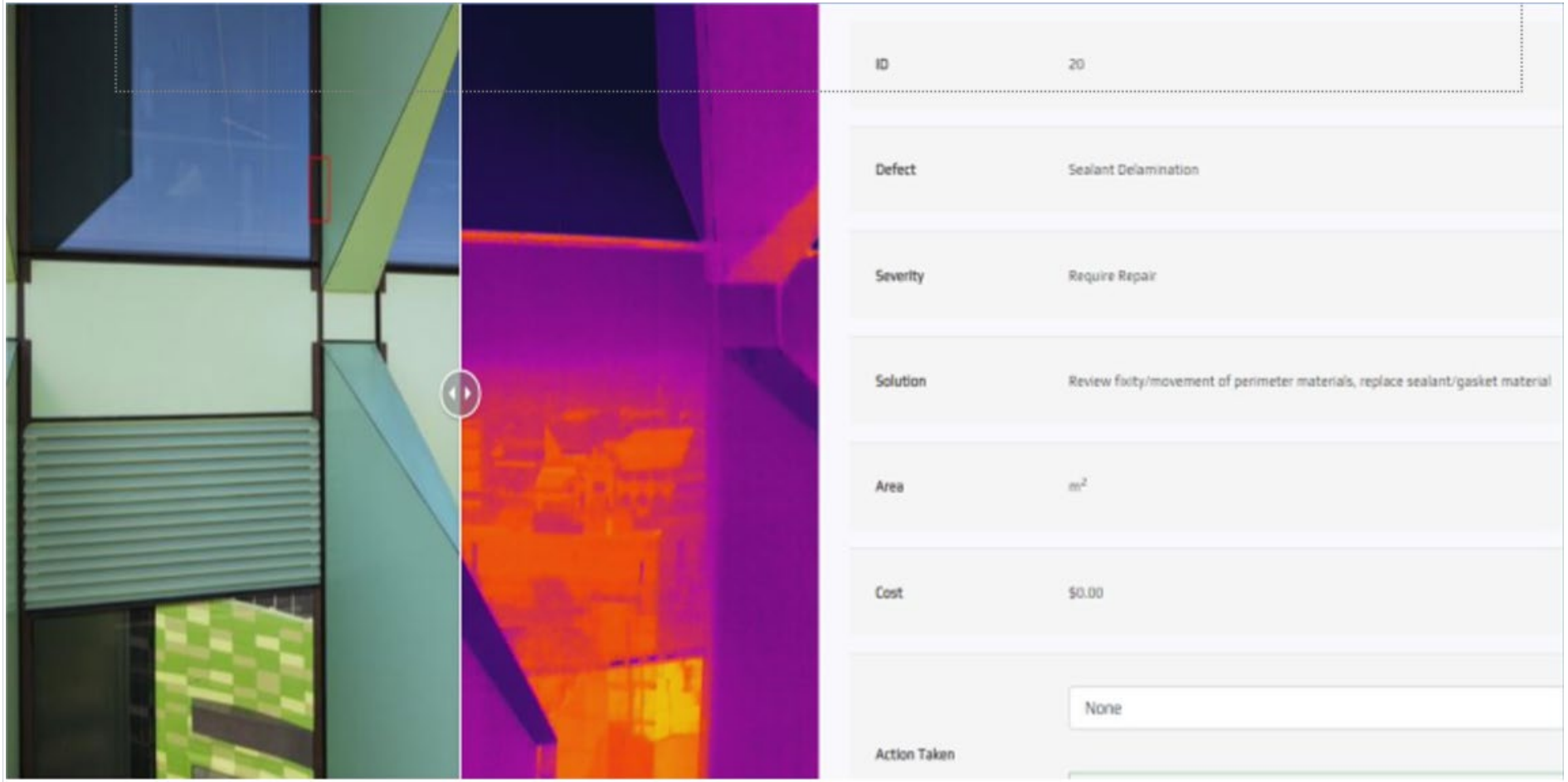
NOTE: Double click on below image to zoom in, out.

ID	37
Defect	Concrete Crack
Severity	Require Repair
Solution	Remove the plaster to check if this is structural crack. If it is structural crack, cut a groove and along the crack and repair with polymer modified mortar. If it is only a plaster crack, re-plaster and repaint the surface
Action Taken	In-Progress

Submit

Defect Action History

Thermal scanning comparison



Multiple applications

Application to Strata

- The Voltin System of condition assessments is applicable throughout the entire building lifecycle

It can be used for:

- Construction defect management
- Warranty and defect liability inspections
- Due diligence as part of the sales and acquisition process
- Monitoring for maintenance opex and capex management
- LiDIAR – capability to create of 2D and 3D plans

QUESTIONS

Sedgwick Strata landing page

Please scan the QR code to gain access to more information about Sedgwick building consultancy division and Voltin and the services we provide to the Strata industry.

THANK YOU

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