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27 June 2023

10.00 am – 11.00 am | PDT, Los Angeles

1:00 pm – 2:00 pm | EDT, New York City

7:00 pm – 8:00 pm | CEST, Berlin



Tristan Rayner

Editor
pv magazine

pv magazine
webinars

Smarter utility-scale solar construction with digital tools




James Pagonis

Vice President of Sales – North America
Above

Welcome!

Do you have any questions? ? 

Send them in via the Q&A tab.  We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 

We'll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience.  



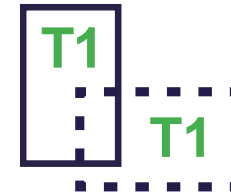
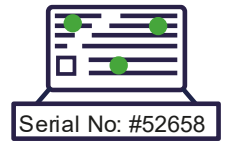
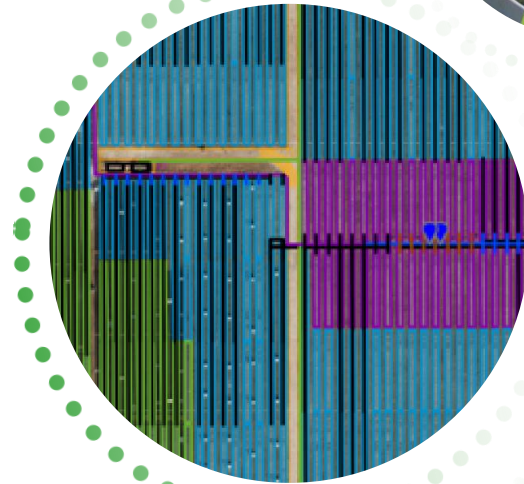
27 June 2023

Smarter utility-scale solar construction with digital tools



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Topics for Discussion

Digital tools to help manage construction projects.

Above and the growth of solar

Solar construction technology at the beginning

Solar starts to evolve

The data revolution

Possibilities of Digital Construction Management

Use Cases of Digital Construction Management

Technology for the future

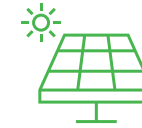


About Above

A holistic view of your asset health throughout the entire lifecycle. Using aerial, mobile and specific test data.



Exceptional Quality

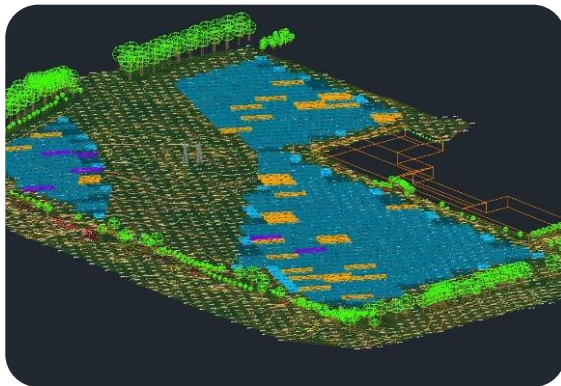


Innovators with solar expertise

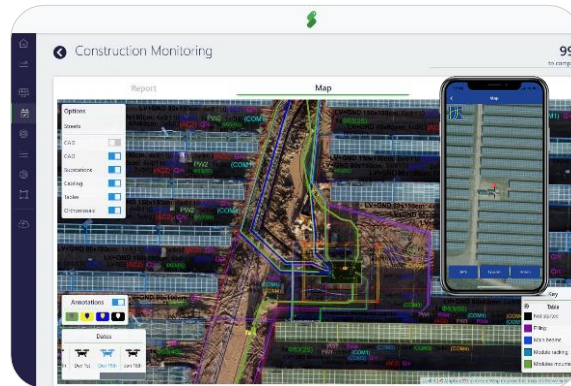


Global Scalability

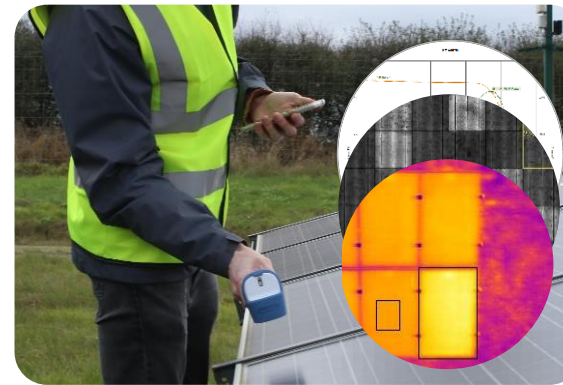
Development



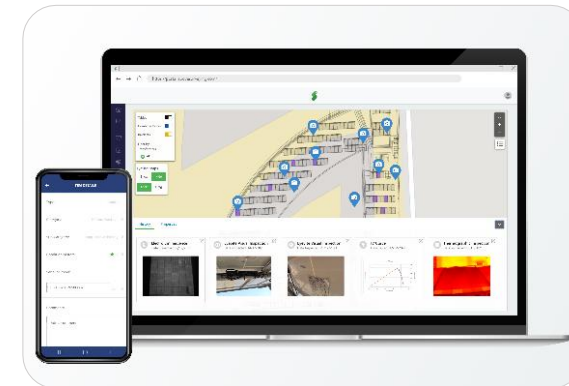
Construction



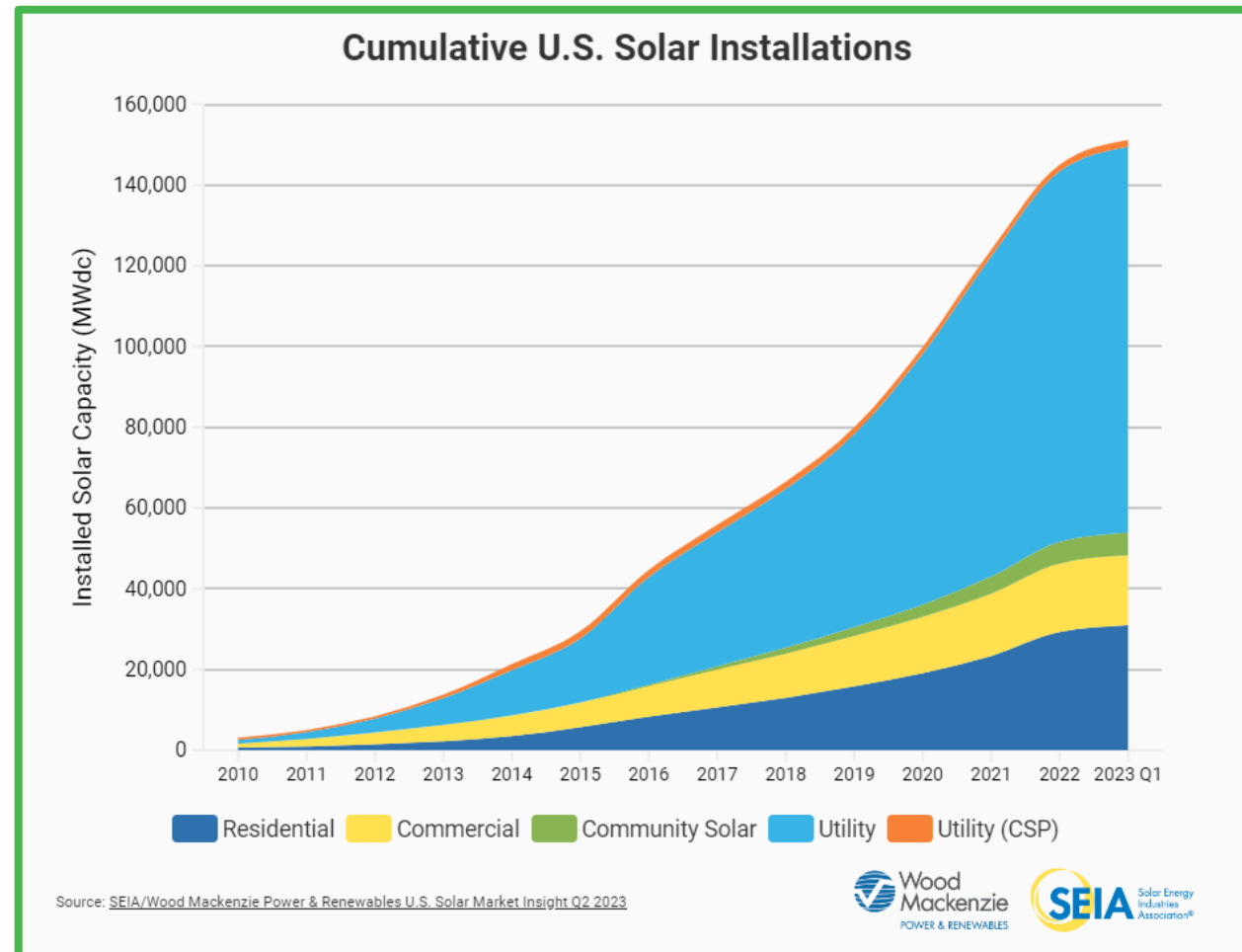
Commissioning



Operational Life



Industry Growth



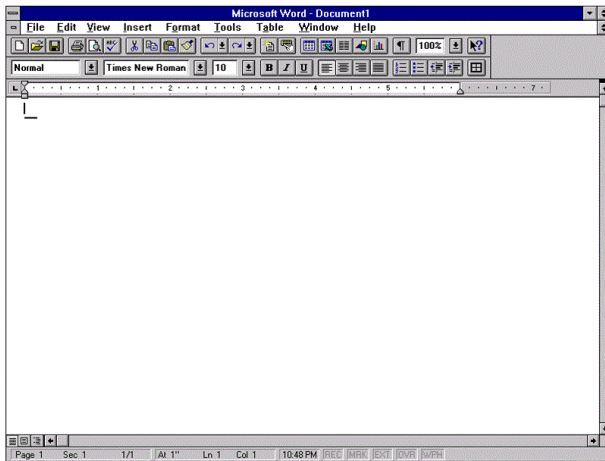
Solar Construction Technology at the Beginning

2001

2009



Solar Construction Technology at the Beginning



A screenshot of a complex data table, likely a project schedule or resource allocation chart. The table has multiple columns and rows, with some cells highlighted in yellow, orange, and red. The table is titled "SOLAR CONSTRUCTION" and contains various data points related to project tasks and resources.



Disconnected information and small amounts of data

Early Challenges

**Tracking
progress**

**Lack of
scale**

**Identifying problems
and design changes**

**Inadequate infrastructure
in remote areas**

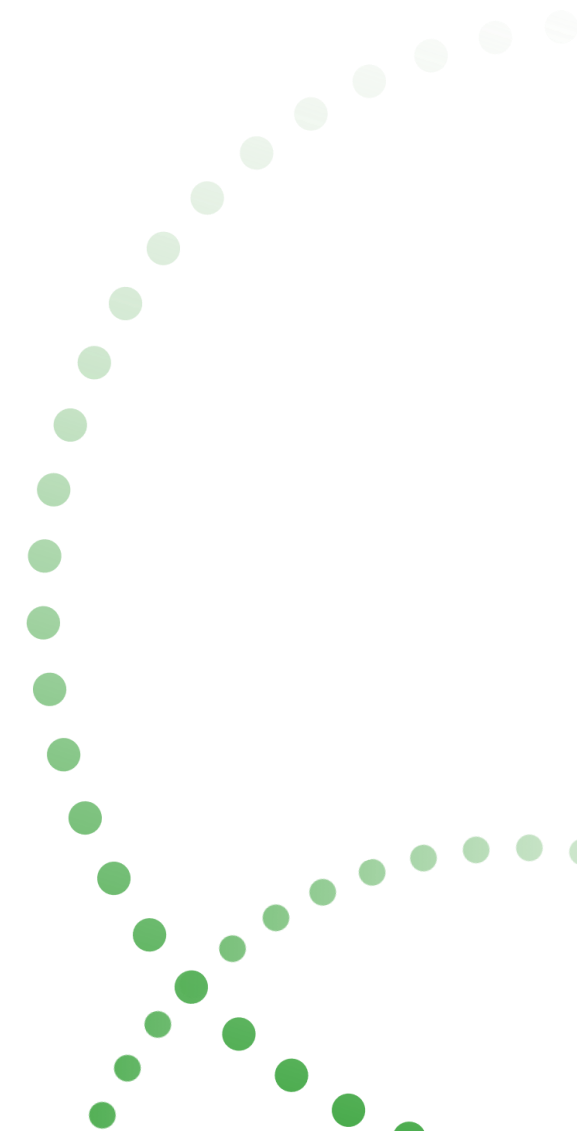
**Technical
limitations**

**Managing information
between stakeholders**

Solar starts to evolve

2009

2015

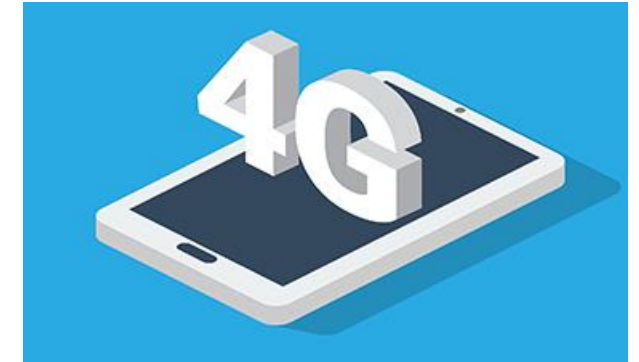


Solar starts to evolve

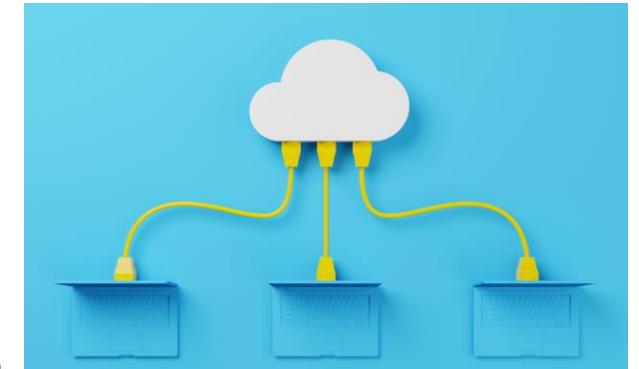
Global Solar
Deployment



Solar
Equipment
Costs



BIG DATA



Growing fast, better technology & lots more data



The Data Revolution

2015

2021

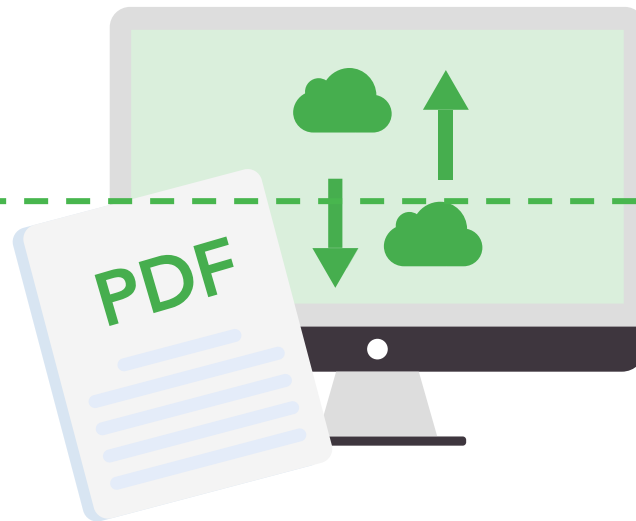


The Data Revolution

Manual data processing



Early adoption of software



Widely adopted globally



The industry starts to adopt solar specific software

2015

2021



The Data Revolution

Manual data collection



Early adoption of drones



Widely adopted globally



The industry starts to adopt drones

2015

2021

Possibilities of Digital Construction Management

2020

Today



Current Challenges

Labor Shortages **Project size**

Shortages

Less experienced labor

Cost pressure on construction
and development costs

**Deliver 300+ GWs of
Solar in the next 5 years**

**Transmission
availability**

Projects underperforming

**Higher need for
transparency**

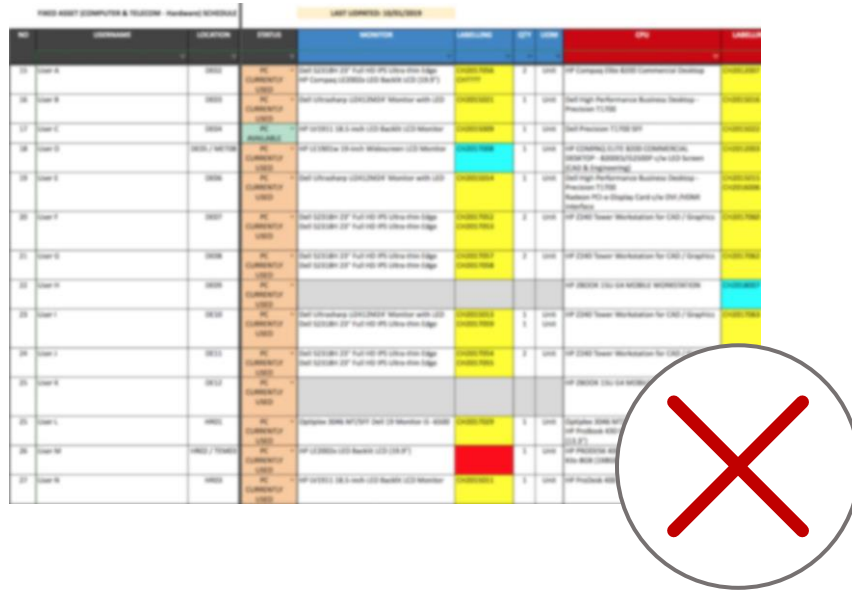
Use cases of Digital Construction Management – Increased efficiency

2020

Today

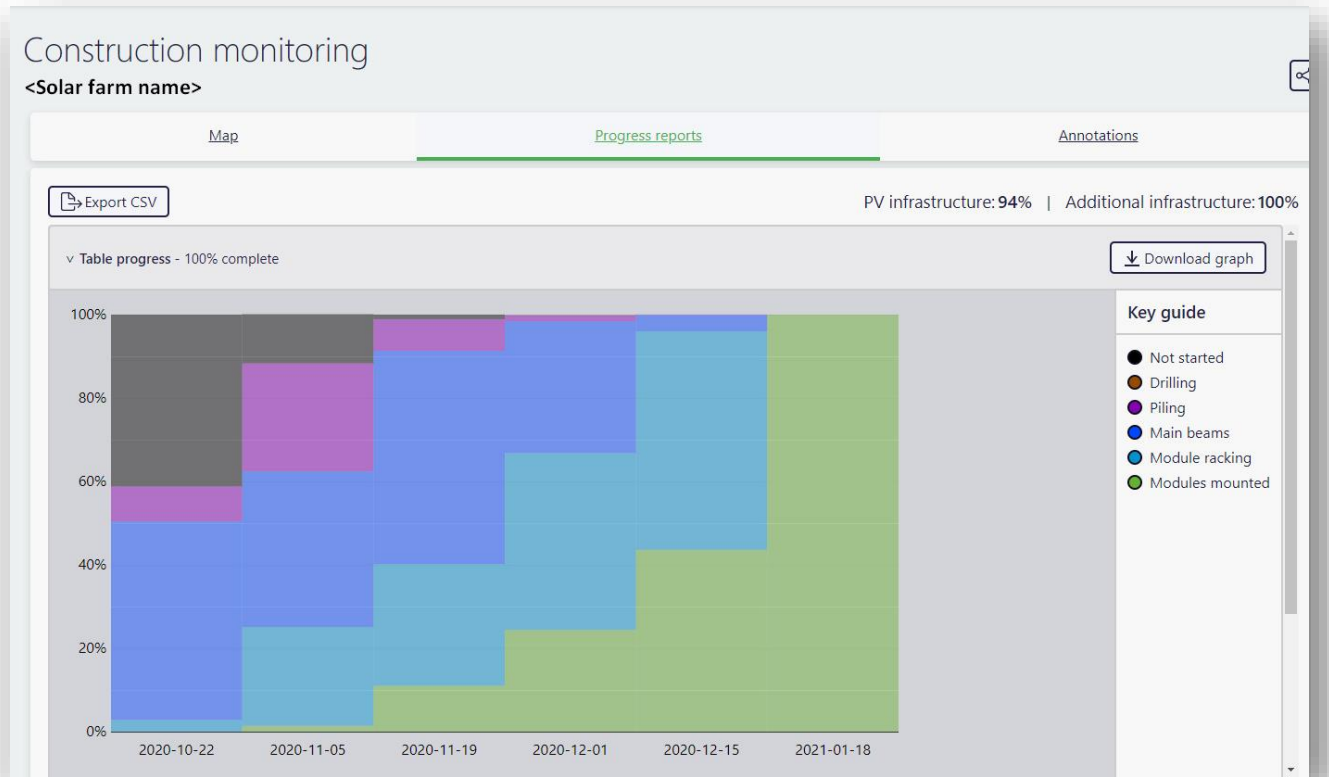


Successful digitalization in solar construction: Increased Efficiency



Centralize using smart digital twin technology

Best Practice: Solar construction





Easily monitor progress both visually and statistically

Best Practice: Solar construction

Map Progress reports Annotations

Filter by: Description Entries 1 to 25 of 25

Event date	Category	Description	Location on map	Image	Actions
2021-01-18	Quality	Clear rubbish			<input type="button" value="Add to tasks"/>
2020-11-05	Quality	Foundation not built properly.			<input type="button" value="Add to tasks"/>
2020-12-15	Safety	Clean mess, close to the road.			

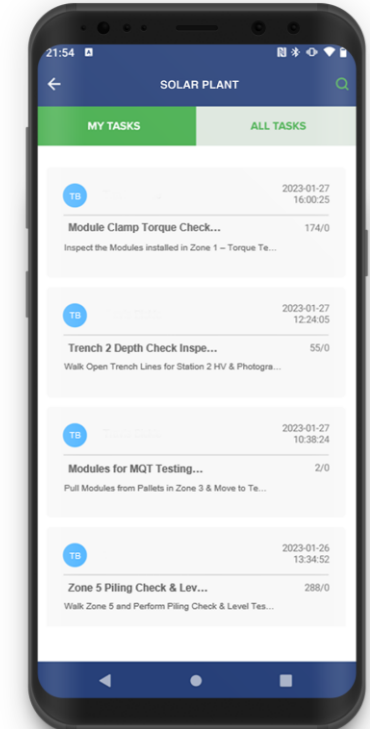
Edit task list

Task details

Title*

Description

Add user / organisation



Interact with individual tasks both on desktop and mobile

Use cases of Digital Construction Management – Improved Quality

2020

Today



Successful digitalization in solar construction: Improved Quality

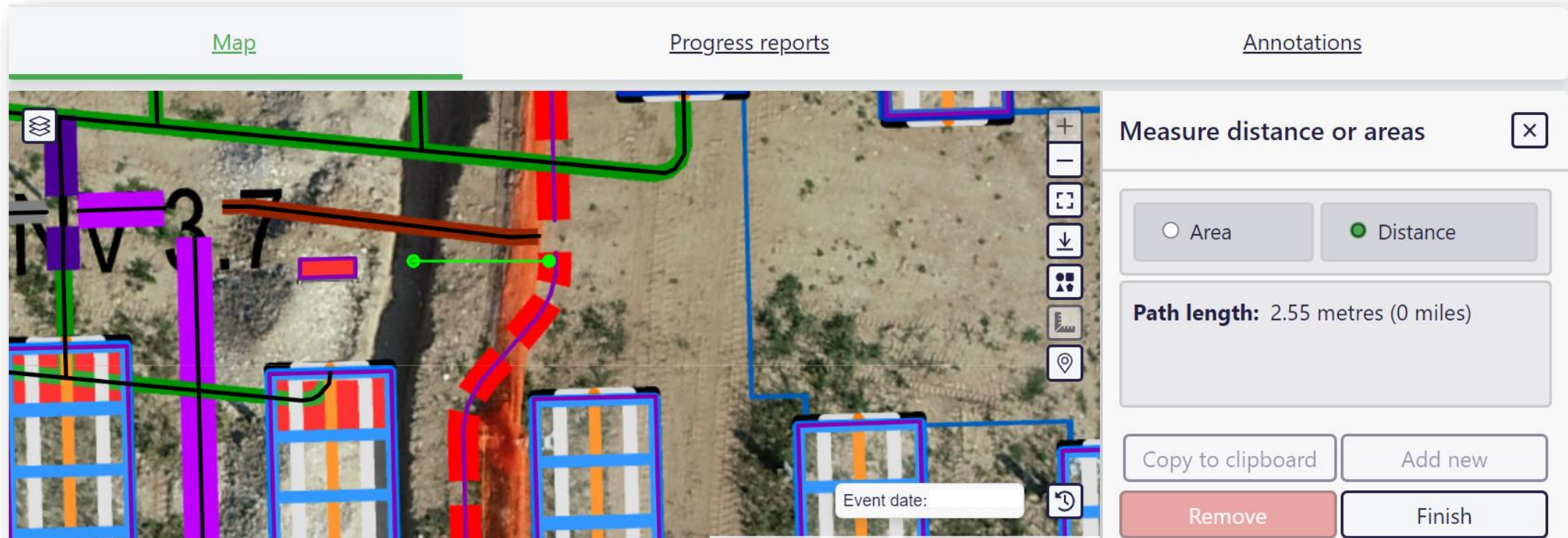


Freeing up engineering resources to focus on quality

2020

2023

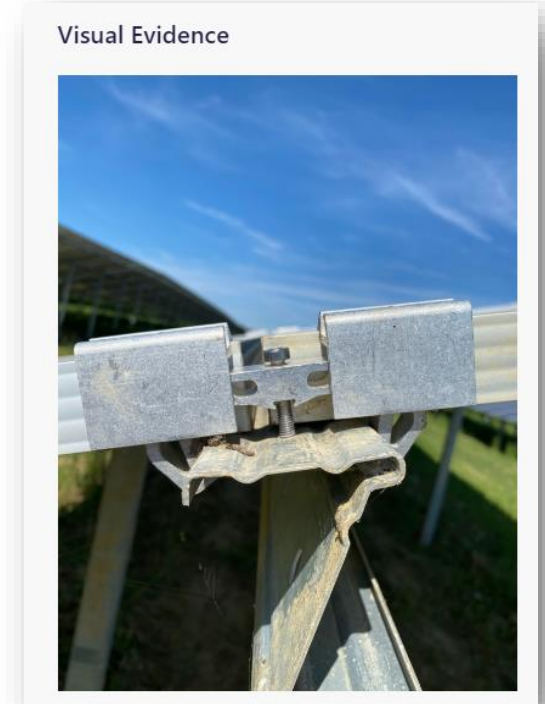
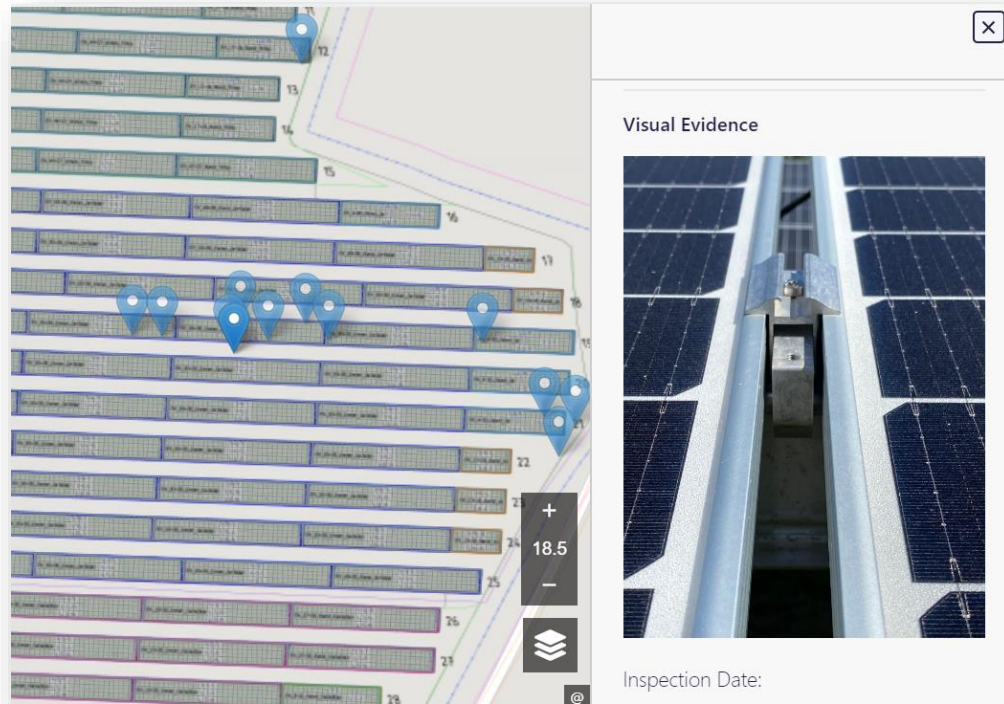
Example: Deviations from as-designed



The screenshot displays a software interface with three tabs: Map, Progress reports, and Annotations. The Map tab is active, showing an aerial view of a construction site with various colored lines (green, purple, orange, blue) and shapes overlaid on the terrain. A green line is highlighted, and a measurement tool is active over it. The measurement tool panel on the right is titled "Measure distance or areas" and includes a close button (X). It has two radio buttons: "Area" (unselected) and "Distance" (selected). Below the radio buttons, it displays "Path length: 2.55 metres (0 miles)". At the bottom of the panel are four buttons: "Copy to clipboard", "Add new", "Remove", and "Finish". A small "Event date:" input field is visible on the map interface.

Identify construction issues

Example: Evidencing construction issue



Site with clamping issue evidenced via mobile app

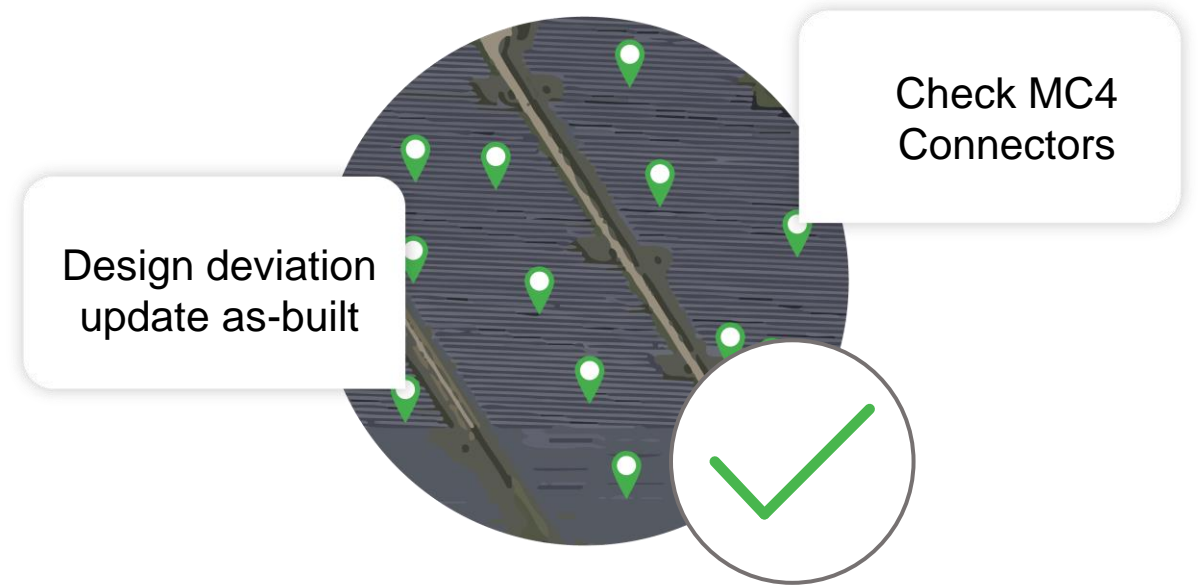
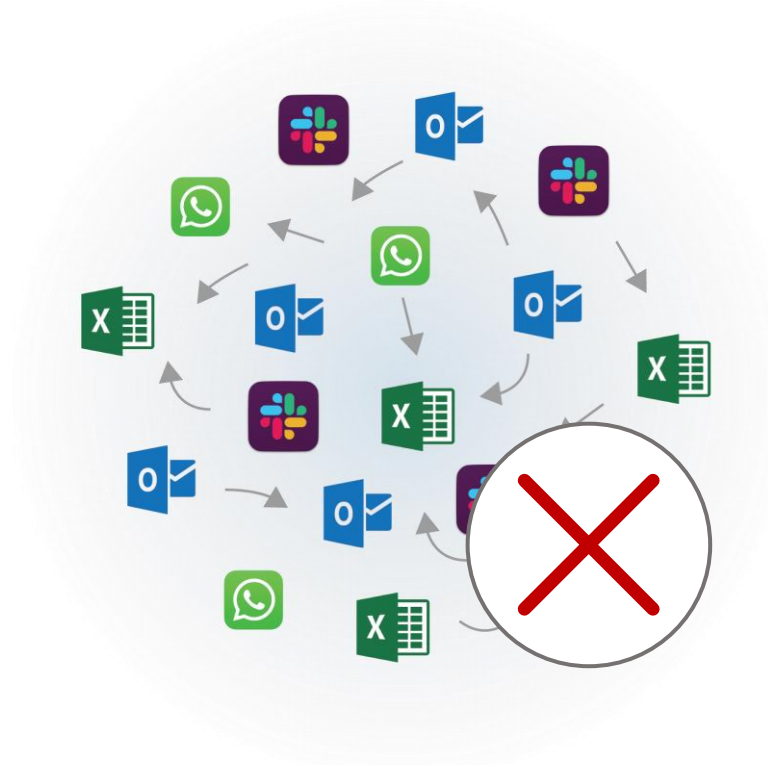
Use cases of Digital Construction Management – More Power

2020

Today

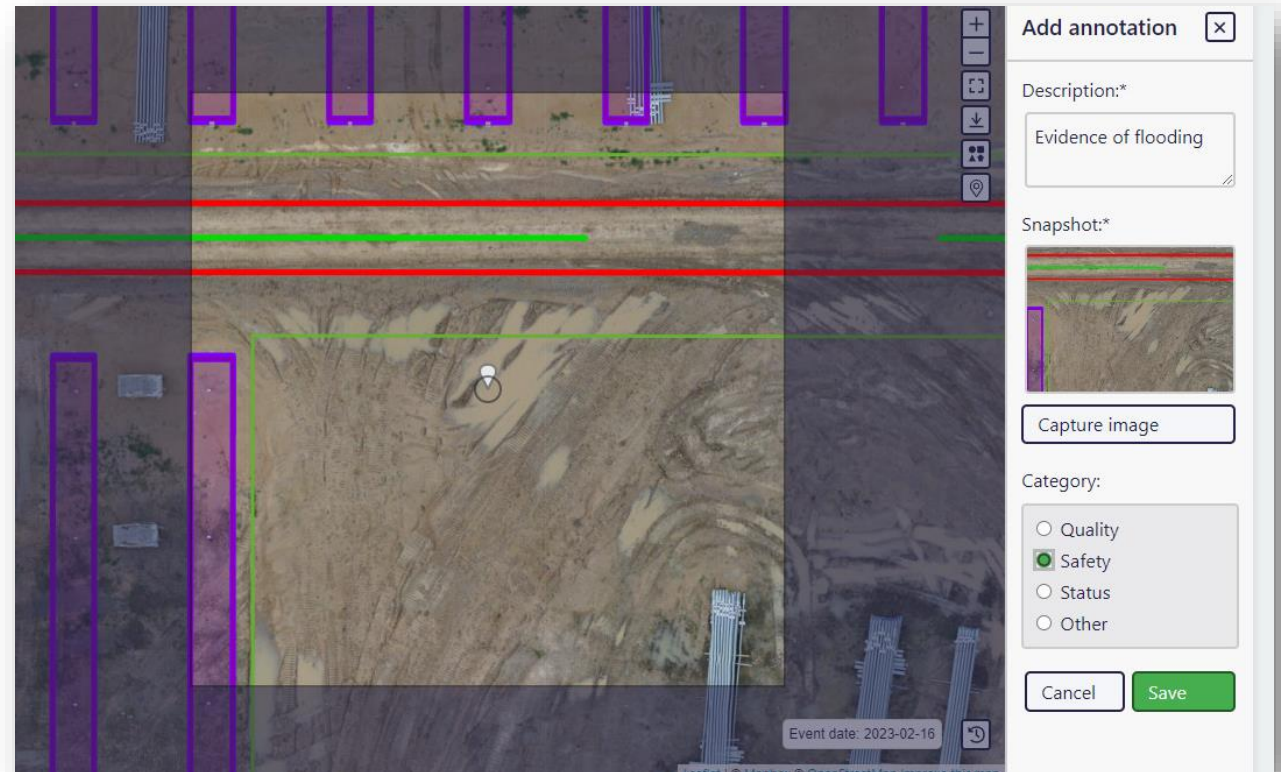
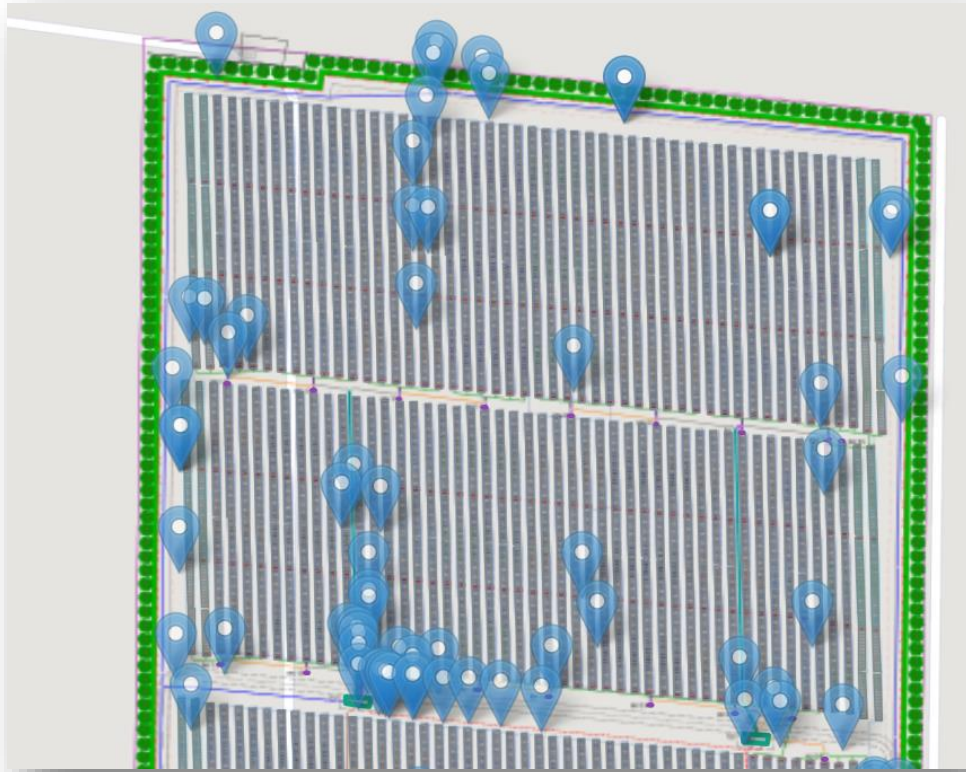


Successful digitalization in solar construction: More Power



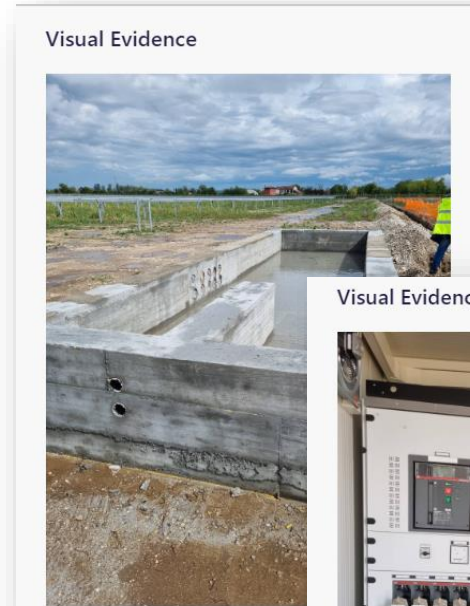
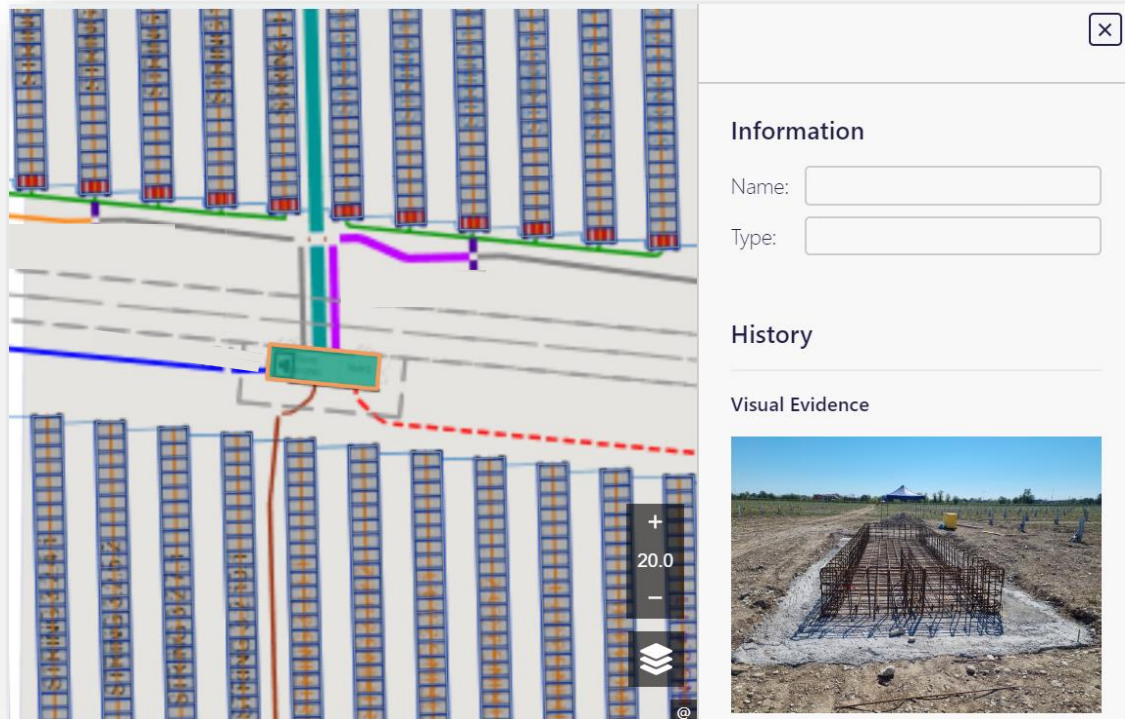
Connecting data points in digital twin technology

Best Practice: Solar construction



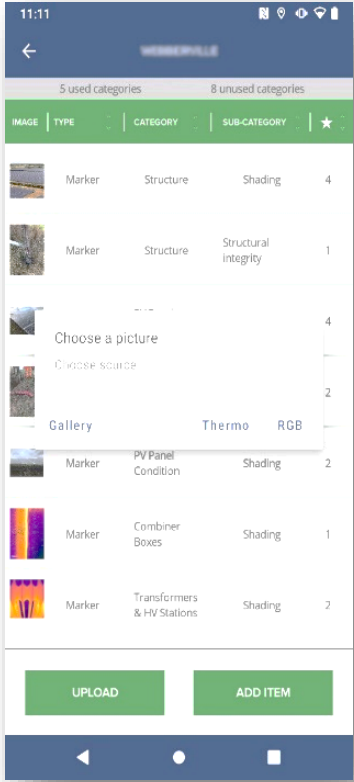
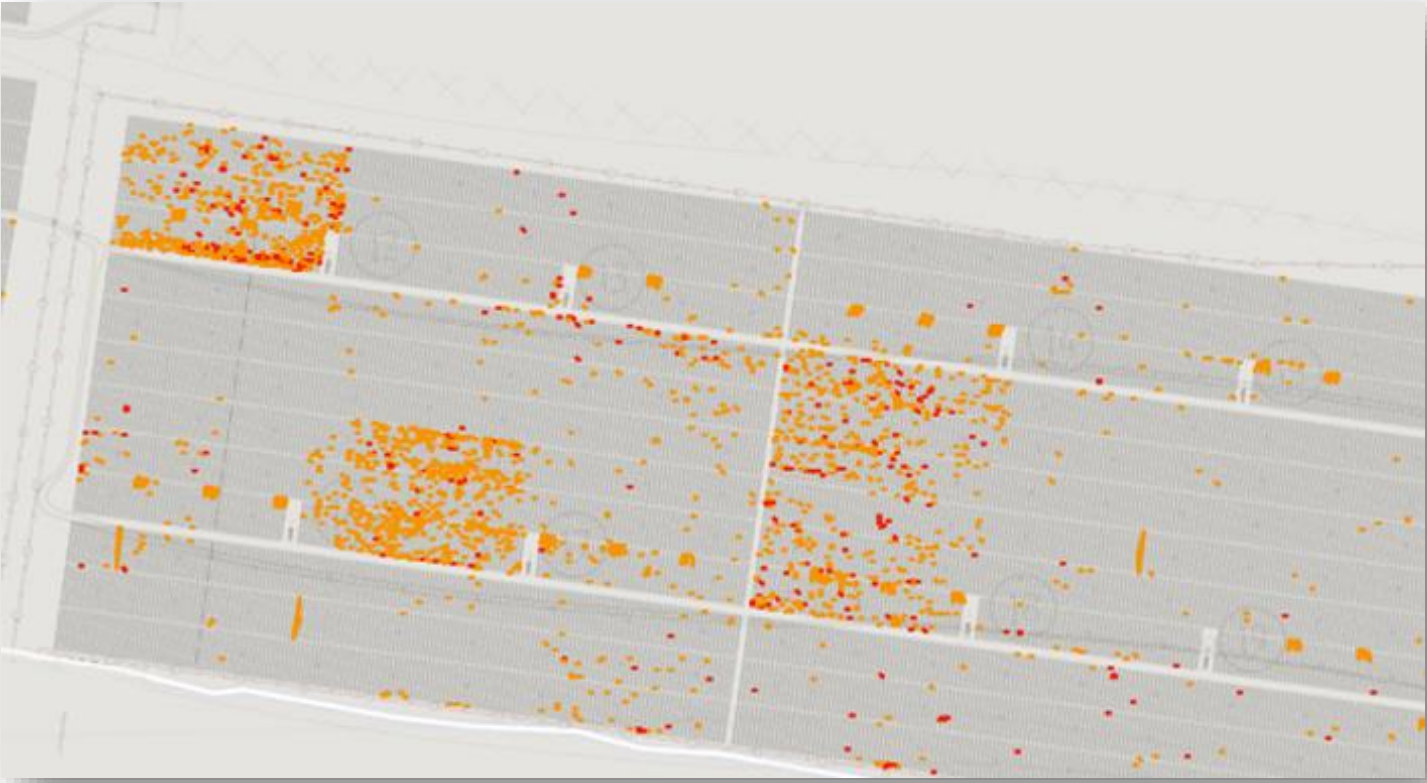
Annotate and evidence items geospatially and per component

Example: Track component history



Build complete asset health registry – component based

Best Practice: Solar commissioning



Evidence and collect any test data digitally



Use case: Preventative maintenance

Advanced Search

+ Add Rule + Add Group AND OR

Thermal Defects Defect Type in Heated Substring
Heated Junction Box
Hot Spot
Multiple Hot Cells - Delete

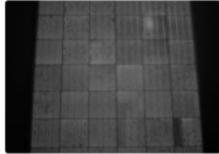


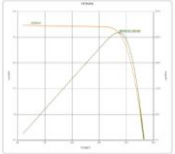
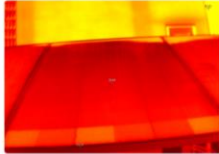
Thermal Defects Root Cause is empty - Delete

EL Tests Has Any - Delete

Module Properties Serial Number begins with - Delete

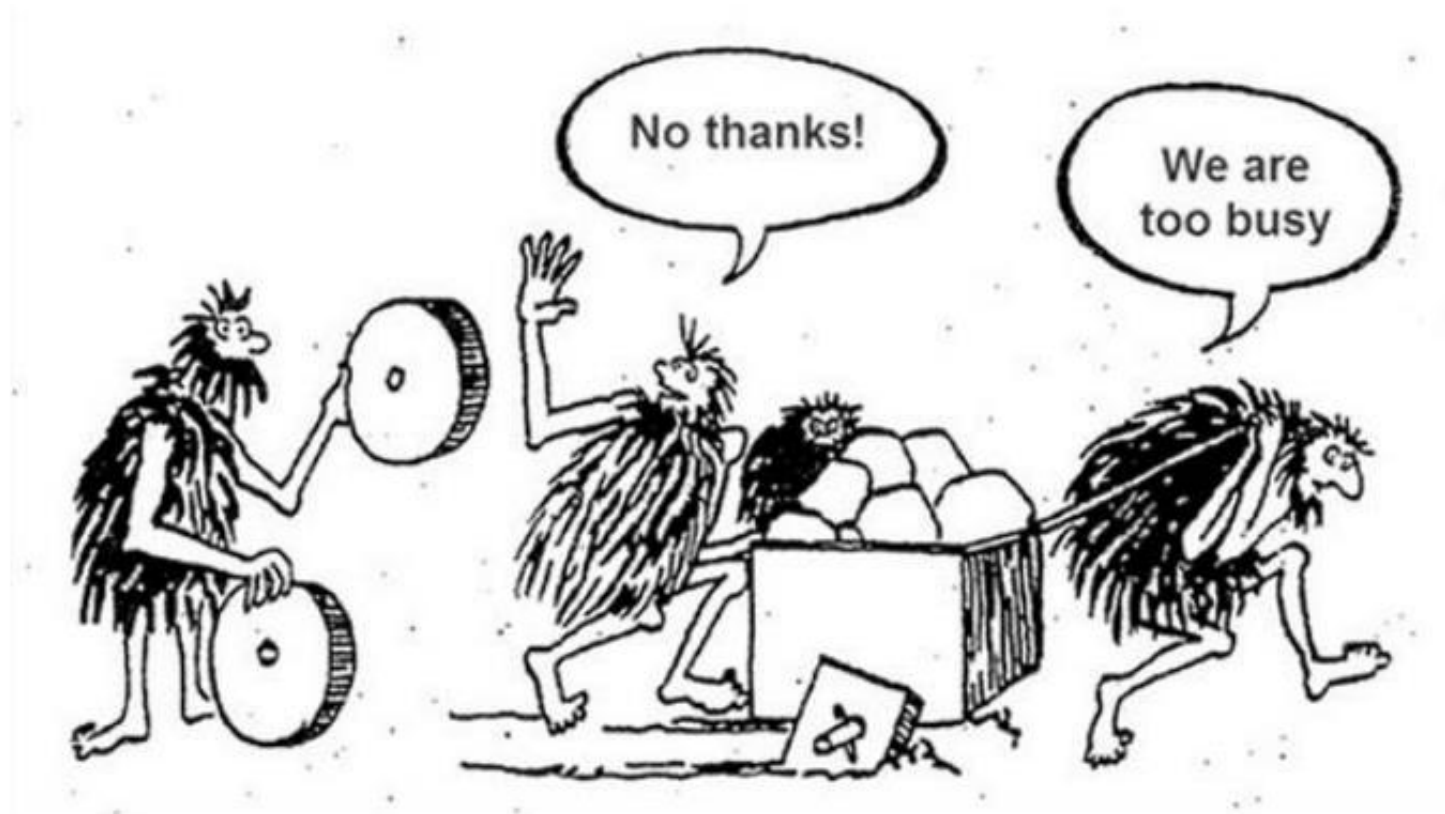
Submit



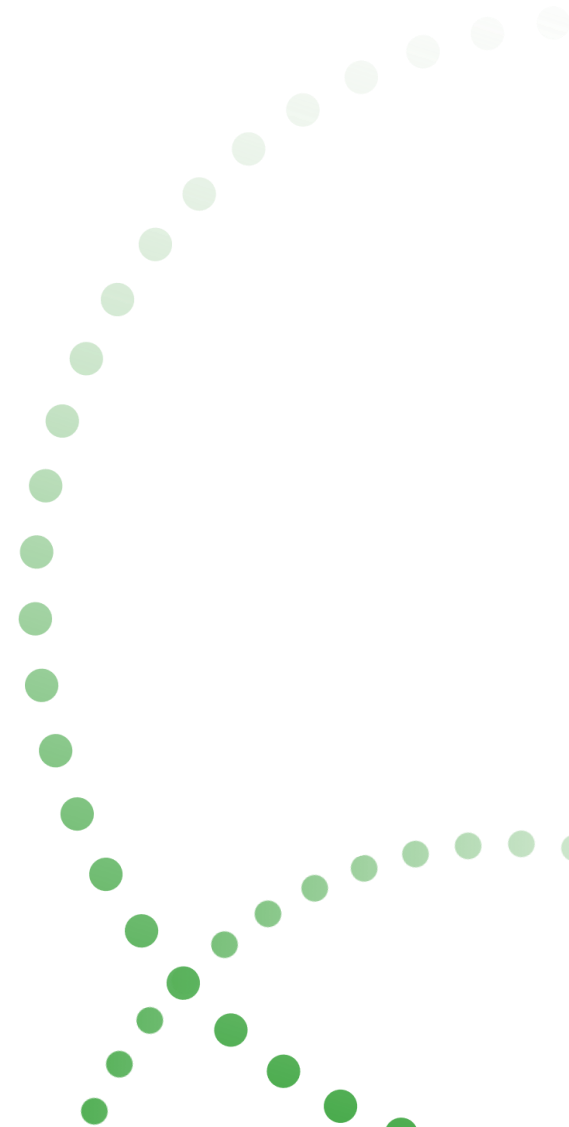
- Electroluminescence**
Date Inspected: 12/12/2021

- Visual EyeSite Inspection**
Date Inspected: 14/12/2021

- Visual EyeSite Inspection**
Date Inspected: 23/12/2021

- IV Curve**
Date Tested: 12/12/2021

- Thermographic Inspection**
Date Inspected: 12/12/2021


Analyse all test data in a smart and connected way

Adoption – don't get left behind



Technology for the future



Technology for the future

Autonomous
drones



Augmented
reality



AI and predictive
analytics



Get in touch

\$30 Billion

In inspected asset value

3500+

Solar projects worldwide

1500+

Software users

500+

Companies using our solutions

341

Delivery partners in 49 countries

 **above**
Power from data.



James Pagonis

Vice President of Sales North America

James.pagonis@abovesurveying.com



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Q&A



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Flywheel mechanical battery with 32 kWh of storage in Australia

by Bella Peacock



Main causes of solar performance issues

by Ryan Kennedy



Coming up next...

Wednesday, 28 June 2023

11:00 am – 12:00 pm EDT, New York City
5:00 pm – 6:00 pm CEST, Berlin

Wednesday, 5 July 2023

3:00 pm – 4:00 pm CEST, Berlin
5:00 pm – 6:00 pm GST, Dubai

Many more to come!

**Weather
parameters and
their effects on PV
performance**

**Right on Smart
Track: Bankability
criteria for single-
axis trackers**

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**Thank you for
joining today!**