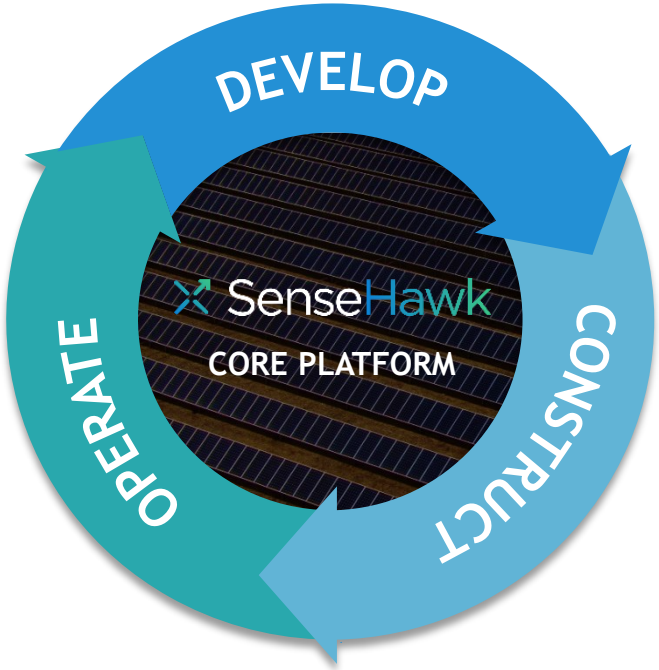
SenseHawk

Digitalization: Driving lower LCoE in Asset Management

ATA Insights
11th November 2020

SenseHawk: An overview

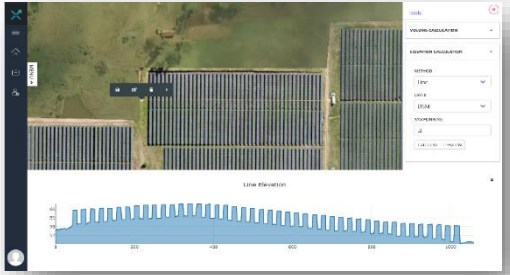


Key features

- ***Asset centric*** EALM (Enterprise Asset Lifecycle Management) solution
- Integrated workflow & collaboration
- ***Linked to digital model of asset***
- Supports machine learning based analytics
- Easily integrate new sensors and sensing platforms eg: drones
- Infinitely extendable functionality
- Ease of third-party software integration using APIs – eg: email, SAP/Oracle, design tools

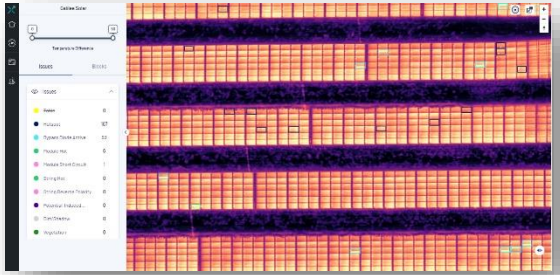
Enabling Digital Transformation of Solar PV Asset Lifecycle Management

SaaS for Solar Asset Owners & EPCs



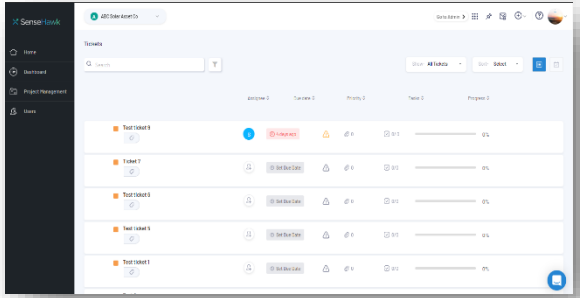
Terra is a GIS, design automation, and data management platform for terrain analysis and site planning

Eye is a powerful construction and quality management tool that simplifies on-site monitoring of large construction projects.

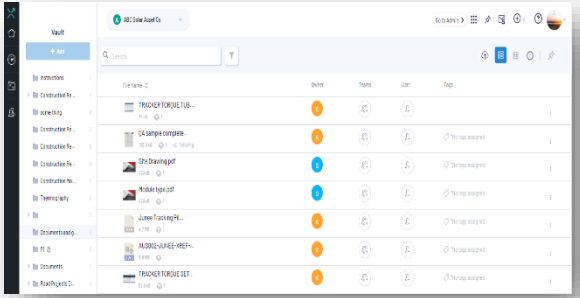


Therm uses drone acquired thermal imagery, to assess the health of solar sites.

SenseHawk App is our field application that provides a digital map-based view of the site to field operators allowing for mobile based tickets, image uploads and site navigation



Desk is our Field ticketing system, that works on a Digital Map of your solar plant.



Vault is our cloud-based file storage; files are associated with digital elements on the map

Global footprint

15 Countries

400 Sites

80 Customers

28 GWs

Solar assets are getting harder to manage

Increasingly dispersed assets, multiple non-integrated monitoring and reporting data sources, no standard method for keeping financial or operational records..

There is a need to..

- Automate processes across the lifecycle of solar
- Get all data relating to an asset in one place
- Effectively monitor performance & health of assets over time
- Track and isolate impact of multiple variables on asset performance
- Go from reactive to predictive actions
- Get high quality information to support transactions
- Drive design and build decisions with insights from existing assets

Digitalization is the key!

Digitalization is **improving processes** by leveraging digital technologies and digitized data

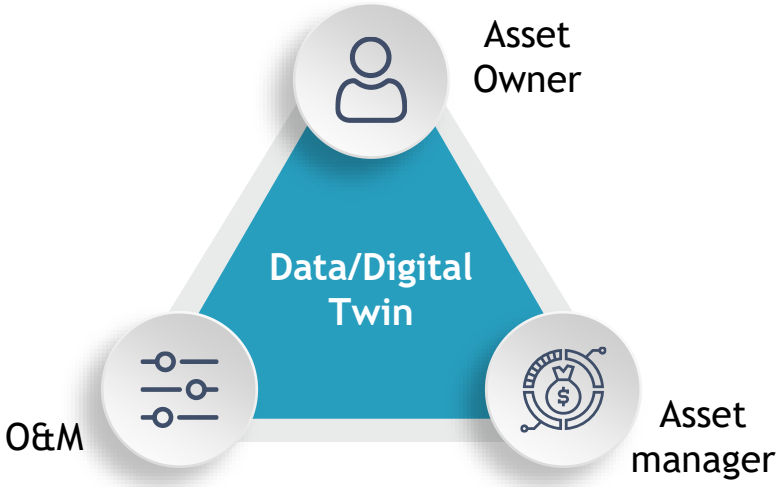
Digitalization enabled by a data centric Digital Twin

Asset Management is Data Management

Numerous Data sources

- *Weather data*
- *Plant SCADA*
- *New sensors & technologies eg: drones*
- *Field O&M data*
- *Spares parts inventory*
- *Quality & Warranty information*
- *Contracts & compliances*
- *Forecasting algorithms/services*
- *Grid operators (availability etc)*

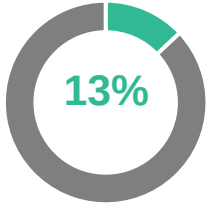
Digital Twin Approach



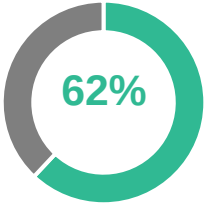
Seamless Collaboration & Workflows for Value Maximisation

Digital Twin Approach – Enabler of Digitalization

Top 10 Hot Technology Trends of the Year for 2019



of organizations implementing IoT claim to be using Digital Twins



in the process of establishing Digital Twin or planning to do so

"A digital twin is a software design pattern that represents a physical object with the objective of understanding the asset's state, responding to changes, improving business operations and adding value"

Aircraft Engines

Motors

Processing Equipment

Solar Digital Twin: *A* ***single integrated*** *virtual* ***learning*** *model of a solar PV plant that integrates* ***data from multiple sources*** *and grows (or becomes better) as the asset is designed, built and operated over its* ***entire lifecycle***

Digitalization Lever 1: Integration of All Asset Data

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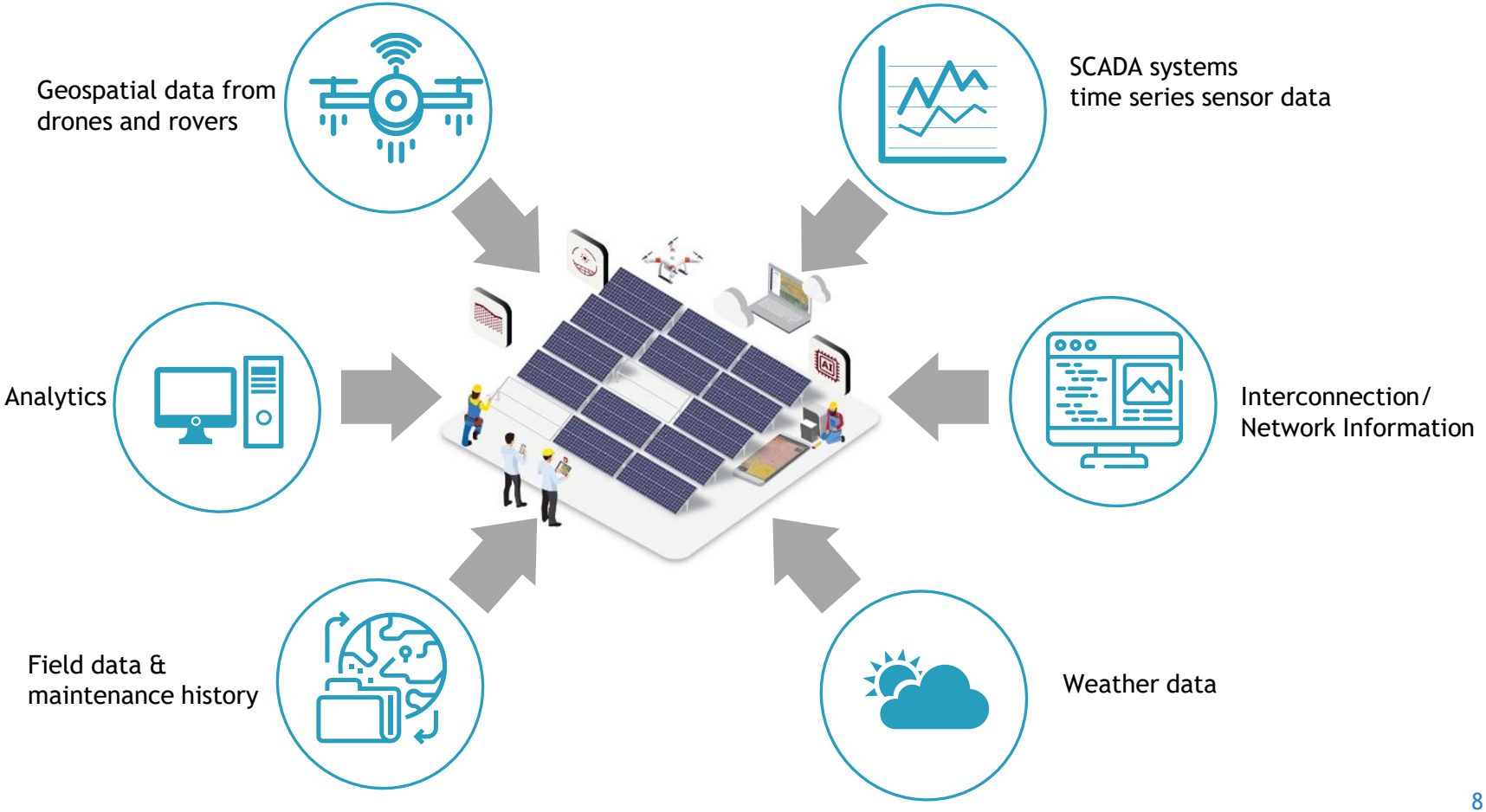
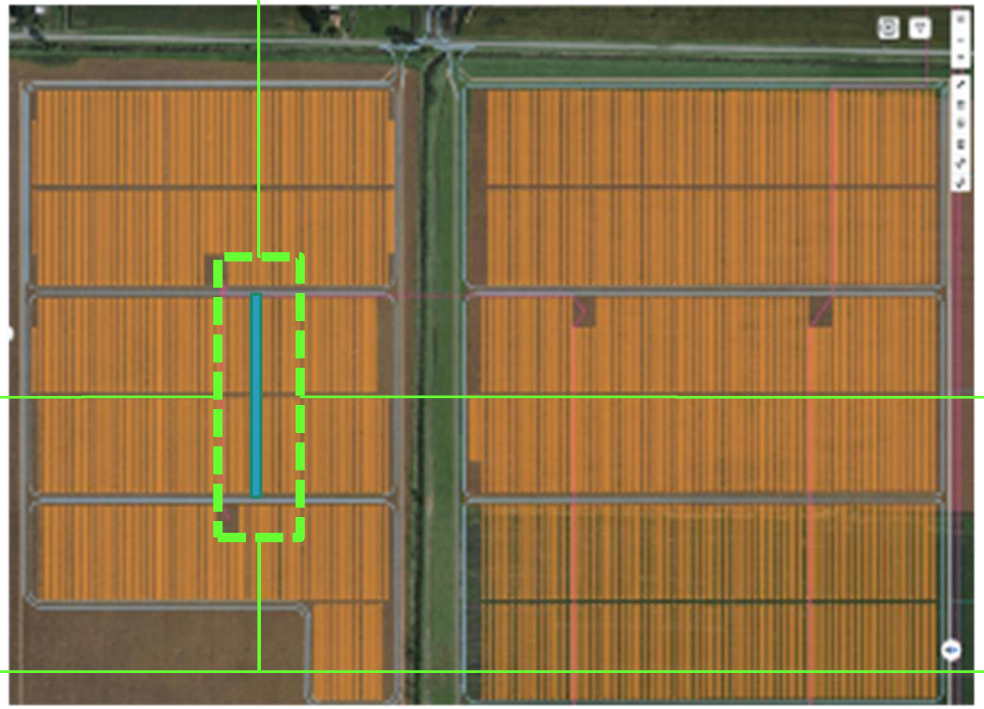


Digitalization Lever 2: Digital Twin Based Data Organisation

One click access to all data for any component

Power Generation Data

Maintenance History



Thermography Data

Flash Test Data

Module Cleaning History

String IV Curve Data

Digitalization Lever 3: Capture of Construction Data & Quality Information

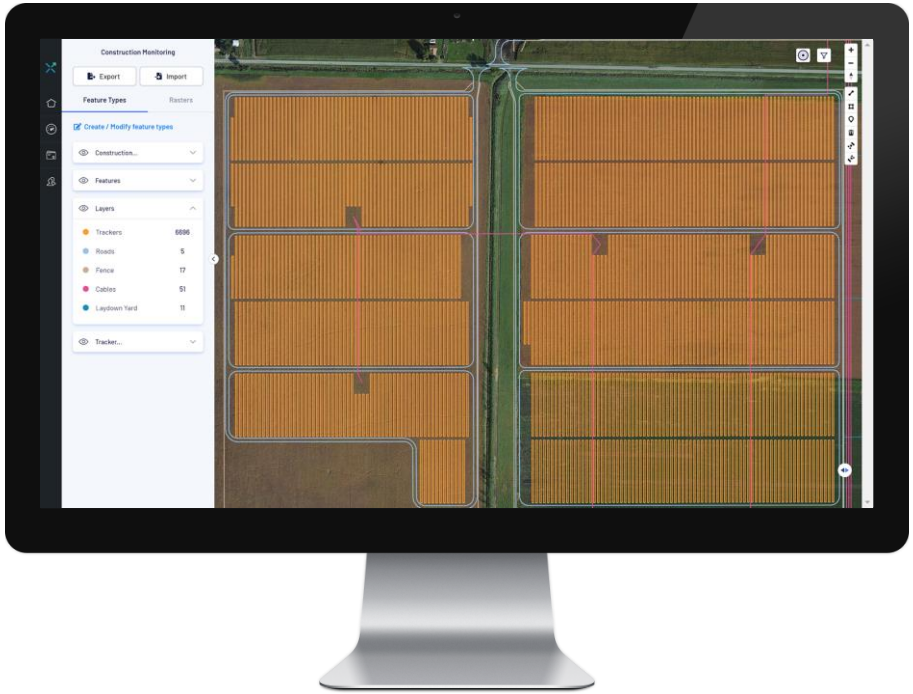
Well begun is half done…

- Organisation of all asset data & handover to AM teams
- Mapping of component serial numbers to locations in the plant
- Systematic Design vs As-built analysis
- Construction quality assurance processes
- Robust digital punch-list management
- Warranties/Warranty decisions
- Spare parts strategy & implementation
- Continuous Feedback to Development & Construction teams

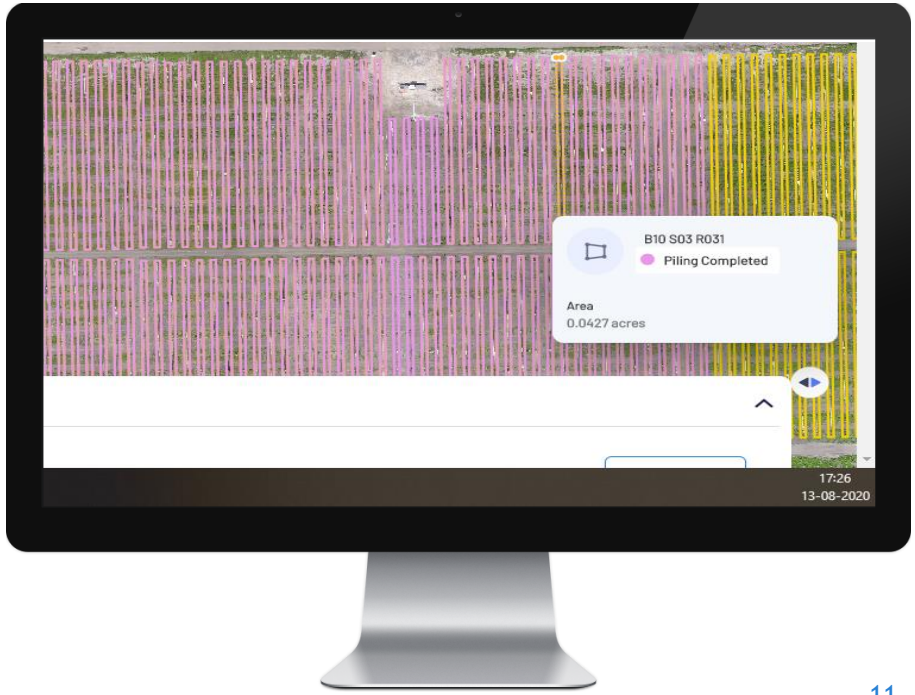
- Ensuring 'right spec' and 'build quality' of asset handed over for management critical
- Digitalized construction & HOTO processes very important for improving O&M and AM efficiency

How digitalized are your HOTO processes?

Digitalized Construction – Accurate Digital As-Built Capture



- Import site layout, design drawings (e.g. Autocad, ArcGIS etc)
- Civil, Mechanical and Electrical layouts



- Tag components with specific nomenclature – tracker #, combiner box #, string #
- Visualize multiple layers of information

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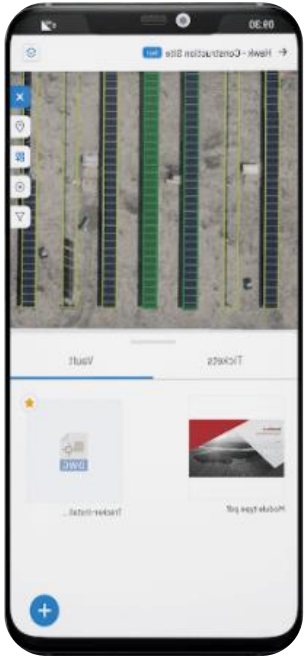
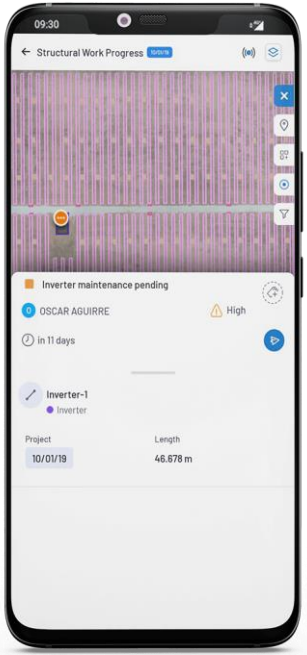
Digitalized Construction - Software & Workflows to Capture Site Data & Drive Site Actions

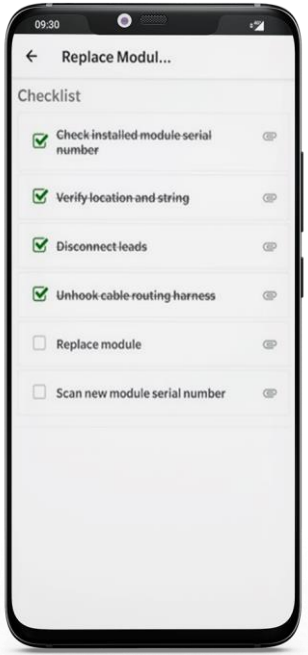
Map components



Design, data & files linked



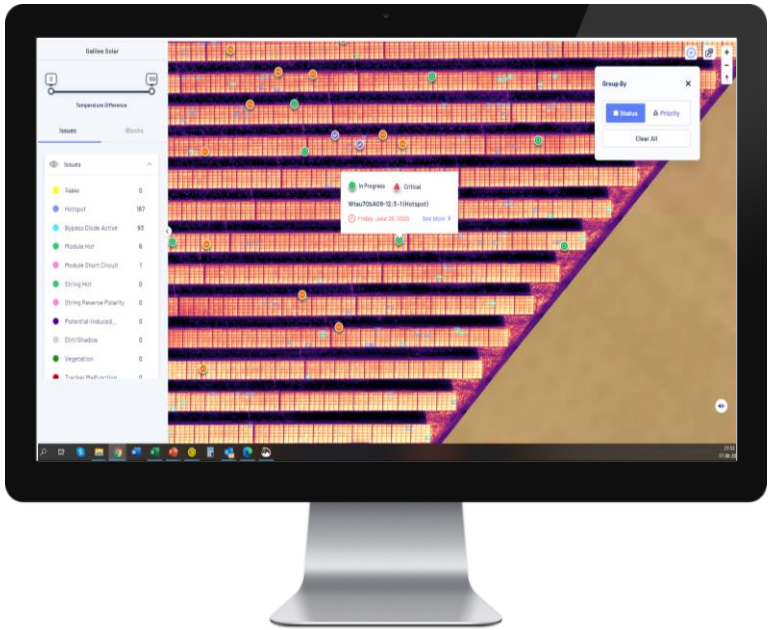
Collaboration on tasks/ resolution



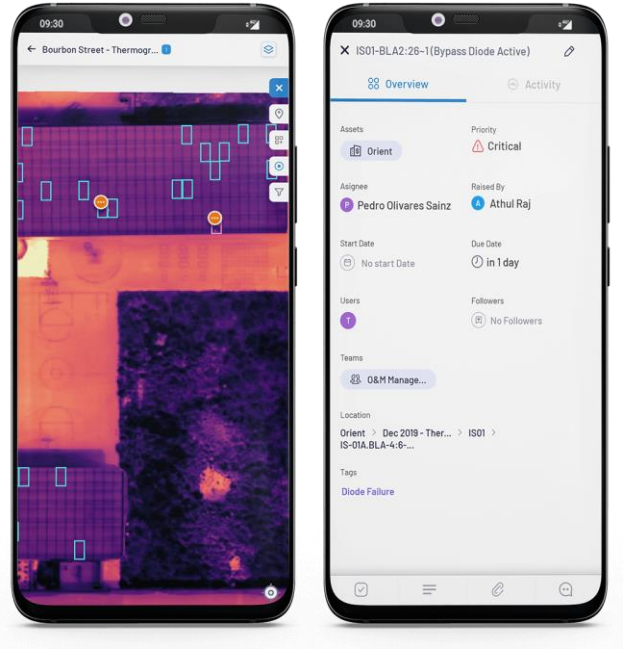
Punchlist resolution

Digitalization Lever 4: Implement digital O&M workflows across office & site

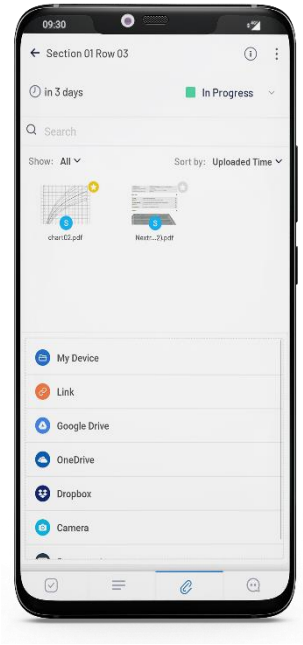
Tickets on GIS Plant Layout

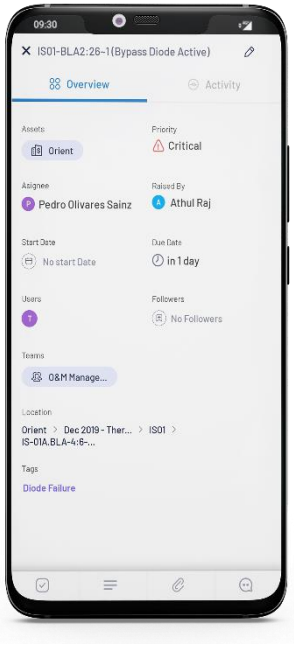


Visualize, create and act on tickets in the field with App



Benefit Example: Reduce MTTR





Digitalization to reduce time & labor costs on site

Access design/ warranty docs

Tickets for remediation & tracking issues

Team chat in real time

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Thank you

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