Plant Audit

360° Personalized Performance Audit, based on [6 months - 1 year] Historical Data

Pick one plant, follow a simple data requirement checklist and get actionable audit with advanced analytics in 5 days.

Directly actionable, revenue quantified and prioritized tickets (structural and temporal loss categorized), for immediate confirmation by your site O&M team

Historical, current losses and anomalies identification with granular loss buckets (DC, Inverter, AC sides)

Forward-looking insights with full visibility on areas of underperformance and leaky losses

Ticket accuracy easily verifiable by site O&M team

Time to Value = 8 days total (5 days for us, 3 days for you to confirm accuracy of tickets

- Plant size-based pricing
- Speedy, hassle-free deployment managed by our Technical Experts with no risk or disturbance to your existing systems
- Available as interactive Audit Results dashboard
- Add on Quadrical ROC to support your site O&M team for ticket accuracy verification and remediation
- High ROI: Well, we had a customer find $110,000 in leakages last year* (*For completeness, this was an older plant with very high PPAs)

Built to Scale, Iterative system in a SaaS Cloud makes it Future-Proof. Fully Extensible. Open Architecture.

You will know exactly what to do to improve your portfolio's profitability, and what is worth doing first. Quadrical's Audit identifies losses with granular bucketization, and catches faults, failures, and degradations with much higher accuracy than traditional approaches.

Our Plant Audit is a Proof of Concept (PoC), that can show the "what" of your solar plant. It acts as your reliable decision support tool, which you can use to deep dive into plant - inverter - SCB – string level performance analysis, supported by lists of initial failures and degradations flagged by our Audit.

With this state-of-the-art performance analysis and revenue prioritized ticket lists, you not only save significant amount of time in finding the right issues, doing root cause analyses and foreseeing impending failures, but also achieve O&M targets faster, as you proactively act on the issues.

Working with us means true data-driven decision making due to significantly improved data quality available in RealTime.

No. risk. High ROI. Low upfront costs.

10 Days Time to Value - It's how we put you on the path to 2-4% Generation Improvement!

Deployed on 2300MW Solar + 450MW / 1800MWh Storage

Our Secret Sauce - Digital Twins

Digital Twins are at the core of Quadrical Solar Asset Management Platform

We start by building a detailed digital replica of your plant, by creating and adding up digital twins of each node. The bottom-up addition of yield expectations for each string in RealTime, produces the most accurate estimate of your plant's generation capacity at any time with unprecedented granularity and accuracy.

This means not one Digital Twin, but Twins, Triplets, often 500 Mini Twins for a 50MW Plant.

Next, we leverage these special purpose mini twins for identifying and quantifying shading, soiling, insulation, long term degradation, anomalies, due diligence etc. This lets us arrive at the most precise benchmark for your plant.
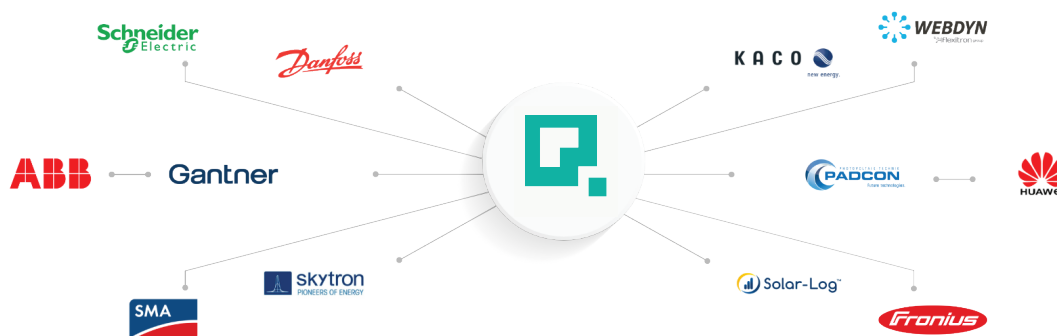
This true Condition based Maintenance guidance, with alerts, are benchmarked to our proprietary Digital Twin baseline. They help you improve plant generation by 2 – 4% and O&M efficiency by 15%

Seamlessly integrating with your plants, our cloud-only solution causes zero disruption to your existing systems.

We then optimize your asset performance as our Digital Twins learn and adapt to your plant's inherent characteristics over time. You can call these iterations and their compounding effect *stitch-in-time*, or *daily improvements* like the *Toyota way*. It all means increased profitability today, and better plant monetization even in 2027 and 2034.

Features

Integration Capability	Compatible with top platform providers (SCADA, Inverter portals, analytics systems, dataloggers, CMS, DAS, SQL, FTP)
Onboarding Speed	Plant onboarding with historical data in 2 days
Advanced Analytics Tools	Advance Performance Analysis leveraging Digital Twin AI for extremely accurate and granular expectation from every device, at any location, weather conditions, and time Quick Audit: Comprehensive Audit of last 6-mos data for actionable analysis (and revenue based tickets) of Temporal Loss and Short-term Degradation Deep Audit: Multi-year due diligence Audit for granular and quantified view of Structured and Long-term Degradations Alarm & Event Analysis Trend Analysis Ad hoc analysis (XY Analysis) Basic RT Analysis Heat Map and GIS Visualization Comparative Analysis (Peer analysis) Soiling Loss Analysis (Beta) Loss Analysis

We've successfully integrated with 10+ cloud APIs/data systems already using out-of-the-box frontend integrations.

Why Quadrical

Proprietary Digital Twin Technology

Personalized understanding of a plant's exact yield potential: Extremely accurate, granular (PR/efficiency) expectations from each in-strumented device, at any location, weather condition, & time
Predictive capabilities: Error-free, highly accurate O&M guidance that starts with pinpointing underperformance & root causes
Specialized Digital Twins purpose-built separately for identifying and quantifying shading, soiling, insulation, ground-faults, long-term degradation, due diligence, classifications etc.

Condition based Monitoring

Degradation & Anomaly Detection

Better planning + Revenue prioritized execution

Optimized Tickets

Condition based Monitoring, Alerts + Predictive Maintenance

Prioritization & dispatch based on revenue impact, distance clusters & ticket count

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Remote Operations Center (ROC)

Quadrical to manage ticket execution/ closure directly with site O&M

Fast Onboarding

Hit the Cloud running with **speedy and smooth onboarding**. Seamless integration with your current systems. **Plug & play cloud Products and Services** to swiftly integrate across portfolios of all sizes. Quadrical Ai Integration team is the fastest in the business with an average of ~1 GW installed in ~30 days

Immediate Value & RoI Gains

Strong experience in establishing secure remote connections (>400 different types) to the full spectrum of manufacturers of renewable assets, associated devices and CMMS

Standardized Data Migration Process

Independent of plants' hardware infrastructure and PV monitoring solutions. Flexible backbone architecture and technical expert support to surface RealTime current snapshots of portfolio performance, up and running on a custom-built dashboard

Ease of Deployment

Platform fully compatible with all inverter, data-loggers, DAS, FTP and SCADA systems
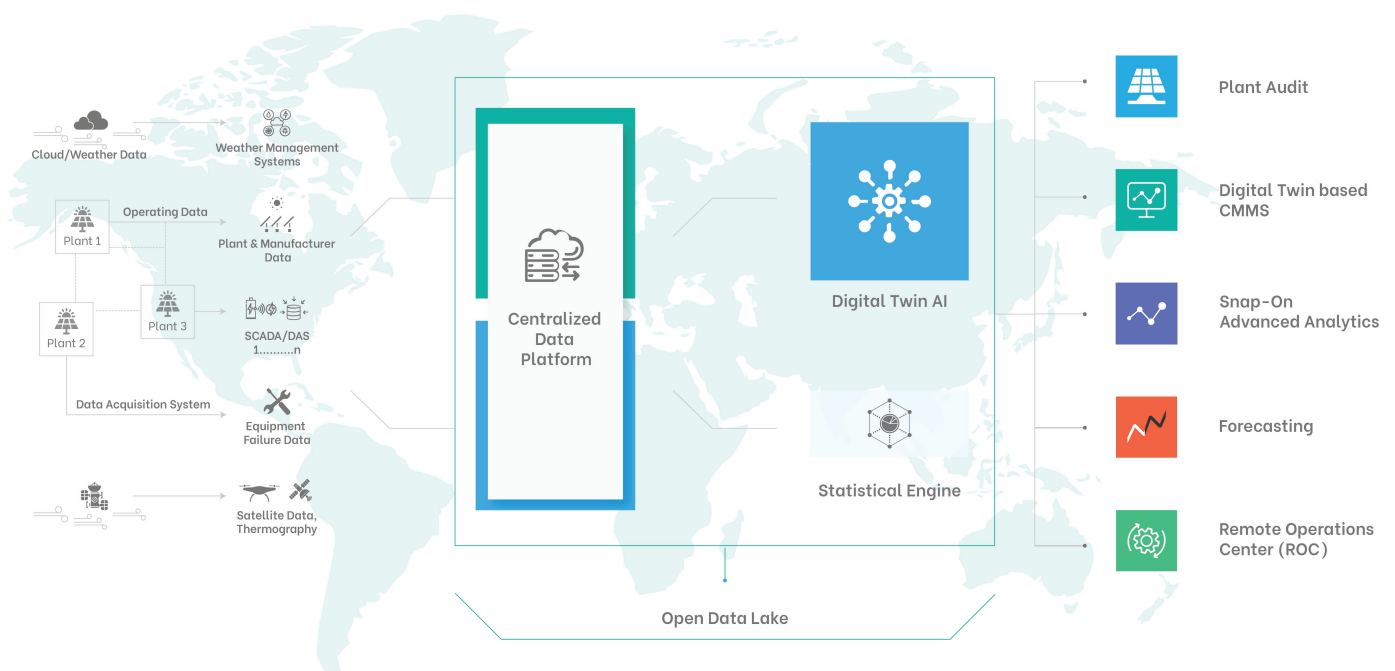
Cutting-Edge Satellite Weather Integrations

Alleviates need for (& quality issues from) weather station

Reporting Extensibility (via Power BI, Notebooks)

Active Innovation Roadmap

Near-term roadmap includes Storage Analytics and Renewable Energy Certificates:

• Satellite Imaging - University of Cambridge
• IoT Soiling Platform - University of Waterloo
• iREC platform
• Utility Scale Storage

Our Clients say...

James V Abraham
(Founder and Director - SolarArise)

We worked with Quadrical to build a data platform, consolidating our plant data onto a common schema. Quadrical built out the schema with AI capabilities to help O&M teams to identify and rectify anomalies, prioritised by revenue impact. There are many players who claim capabilities and tools in Artificial Intelligence, but none have the true depth of technical abilities that Quadrical brings to the table.

Ramesh Kumar Modalavalasa
(Business Head - O&M, Vikram Solar)

As we onboarded 25 plants with Quadrical in 45 days, we've been impressed with their ability to fully own data quality and connectivity. With advanced Analytics-as-a-Service, we're already seeing the benefits with insights available for our operations team to identify the plant performance issues and possible breakdowns proactively. I am now confident that this platform has the potential to transform the way we do our operations. Look forward to us optimize our entire 1000MW+ portfolio while monitoring it in near RealTime.

Our Founders

Sharat has been a Global VP at Adobe Global, CTO at MMT (MakeMyTrip), and MD at Scale-Ups, prior to a career in the US with startups and companies like Microsoft. His sweet spot is building teams which do great things together and passion is making the benefits of AI and Big Data available to everyone. Sharat did his B. Tech at IIT Delhi, with an MBA from New York University.

Hugh has most recently been the CEO at Cognitive Systems, a hardware startup. Prior to that he was a VP and early employee at Blackberry, and is one of the people responsible for their superior security reputation. His interest in AI goes back to being a PhD student at Cambridge University. He also has an M. Eng from University of Waterloo.

Quadrical Ai

Plant Audit | Digital Twin based CMMS | Snap-On Advanced Analytics | Forecasting | ROC