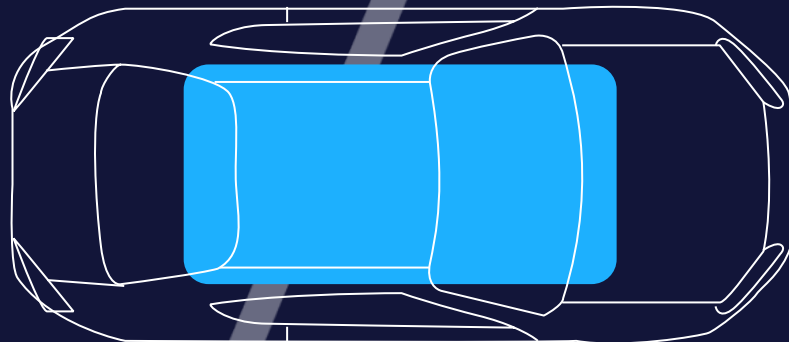


VOLTAIQ

Enterprise Battery Intelligence™

Enterprise Battery Intelligence

Leveraging data to win in a battery-powered economy



Tal Sholklapper
CEO & Co-Founder

NAATBatt Annual
Conference

February 22, 2023

- Founded in 2012 to turn data into actionable insights for the full battery ecosystem
- Pioneer of Enterprise Battery Intelligence (EBI) software which combines deep electrochemistry expertise & advanced data analytics
- In use by the world's largest automotive, consumer electronics, & battery supply chain organizations



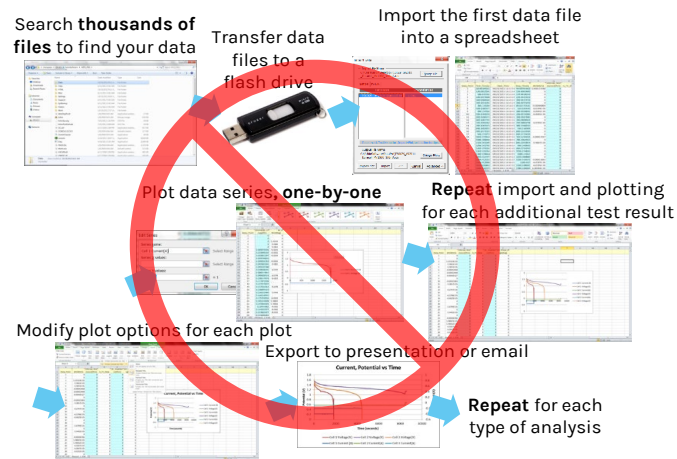
Mercedes-Benz
Research & Development North America, Inc.



Status Quo vs. Enterprise Battery Intelligence

EBI enables the agile, real-time learning & risk reduction needed to stay competitive

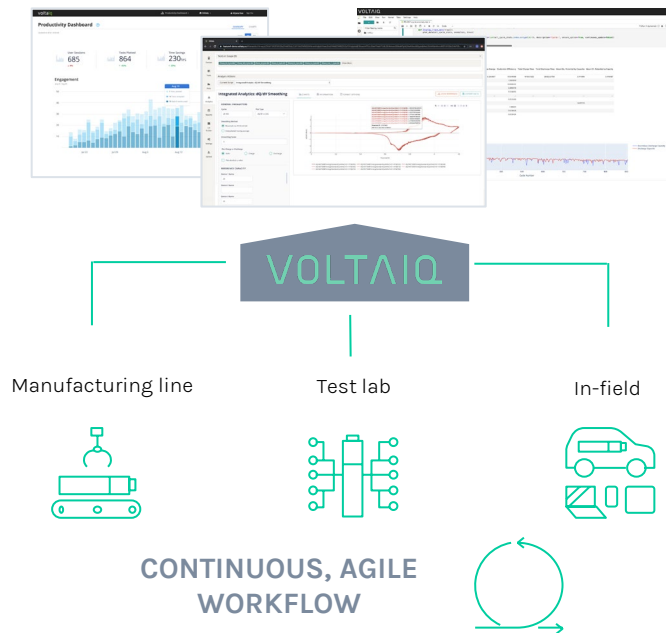
INDUSTRY-STANDARD ANALYSIS



REACTIVE, STAGE-GATE
WATERFALL APPROACH



VOLTAIQ-POWERED ANALYSIS



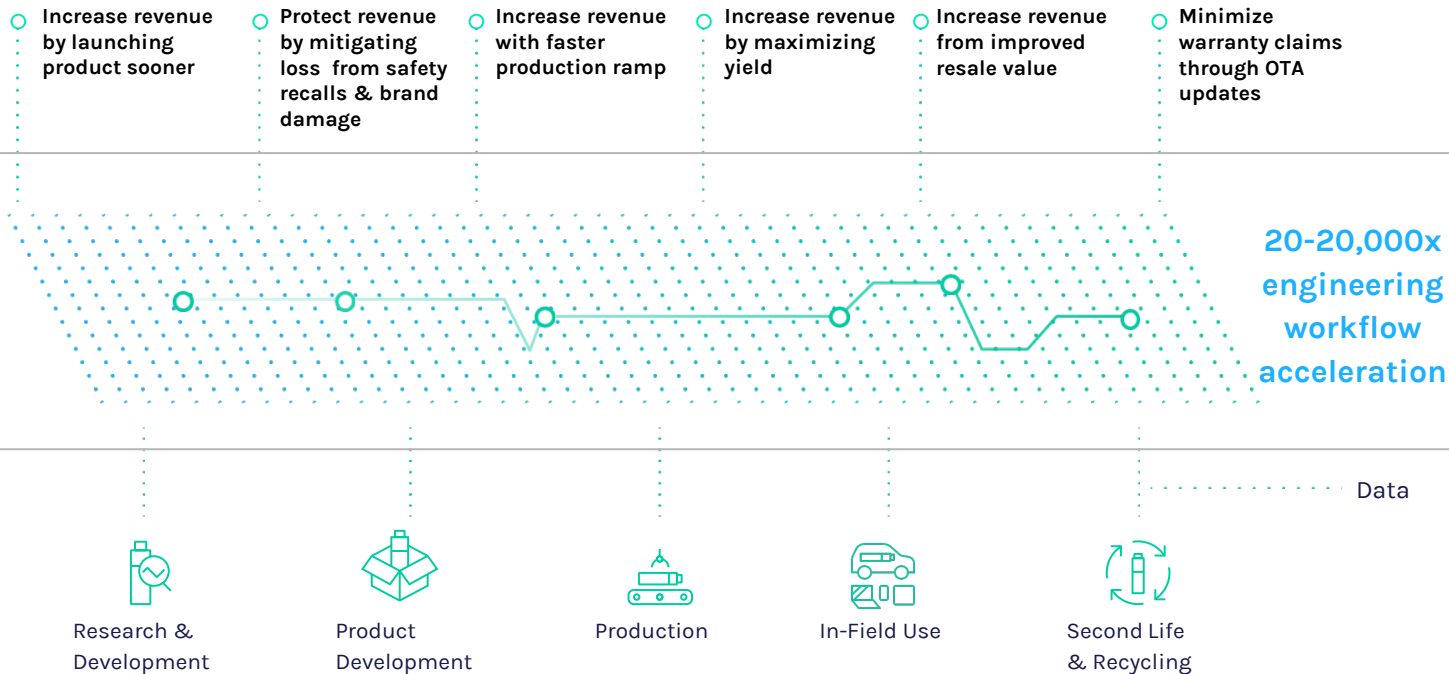
Enterprise Battery Intelligence Value Proposition

Increase margin, profitability, and speed to market

The Voltaiq Effect

Enterprise Battery Intelligence Platform

The Battery Lifecycle

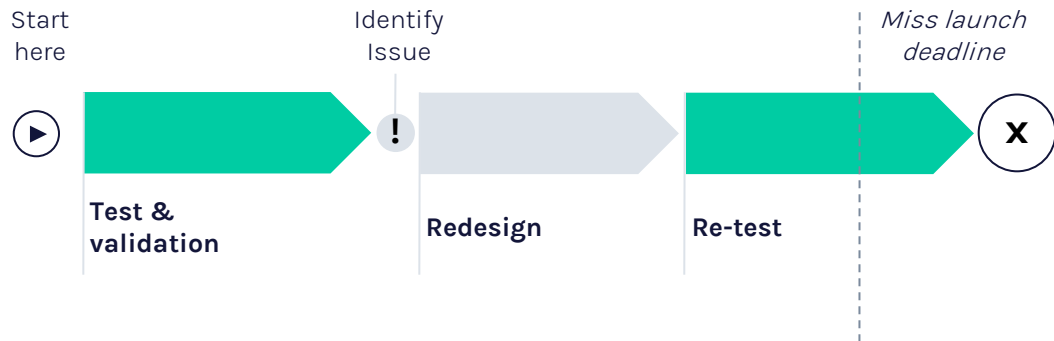


The fundamental challenge with batteries: It takes a long time to tell if they're good or bad

Voltaiq Enterprise Battery Intelligence provides a real-time look into battery behavior, so you can spot and correct anomalies early – to launch on time and de-risk battery-powered products

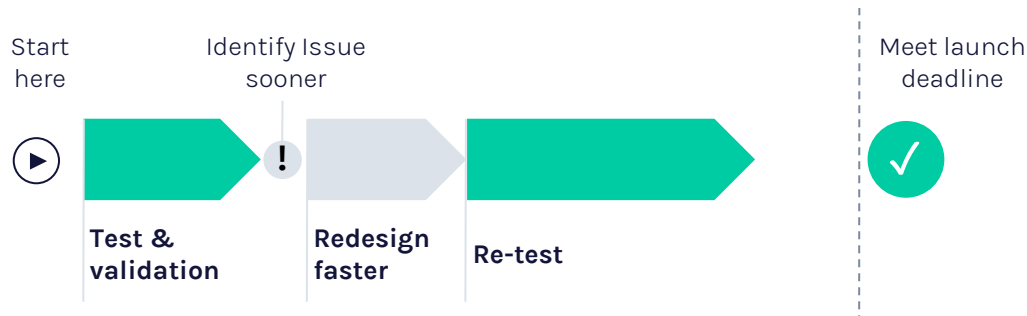
EV Product Launch: Typical Scenario

Battery fails qualification – product misses launch window



EV Product Launch: EBI-Optimized

Voltaiq detects battery failure early – on-time product launch



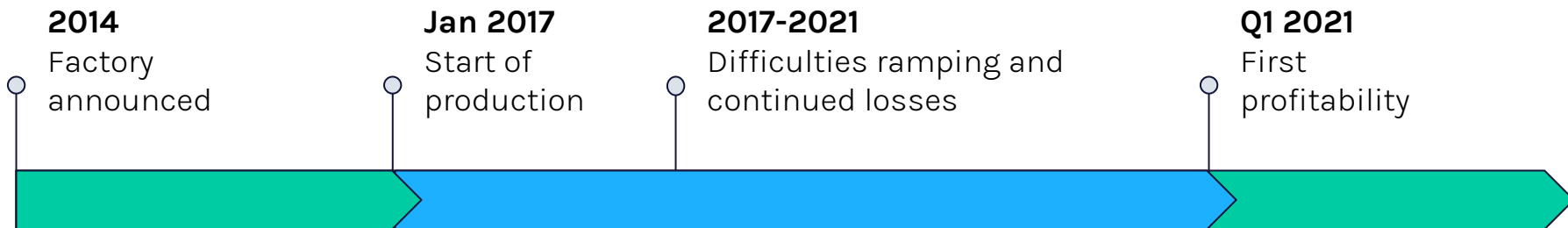


Battery Manufacturing 2.0

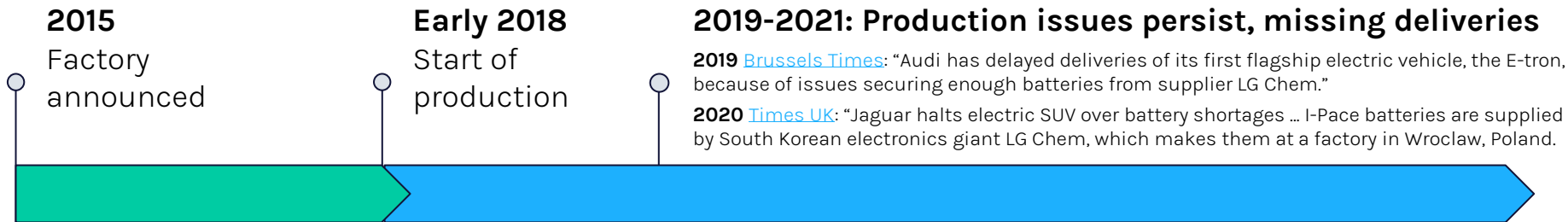
Cell Production is Slow & Difficult – Panasonic & LG Case Study

Even the industry's best **struggle** to achieve production **quality**, **throughput**, and **profitability**

Panasonic Energy North America (e.g. Tesla Gigafactory)



LG Energy Solution Wroclaw, Poland



Voltaiq & PDF Solutions: Analytics for Battery Manufacturing

Iterate faster to accelerate production ramp, improve overall yield and quality



Formation and
aging data, QC
measurements

Materials inputs,
production
parameters

Voltaiq EBI

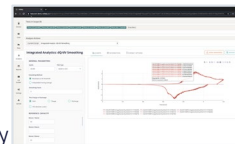
End-of-line characterization with over 100 time-series and per-cycle data features, automated extraction of formation KPIs

PDF Exensio

Collect, organize, and align all factory process and measurement data & automate control

1. Evaluate

Best-in-class battery analytics to determine cell-to-cell variability and quality at end-of-line



2. Correlate

Link root cause of quality issues to upstream process variability and materials inputs



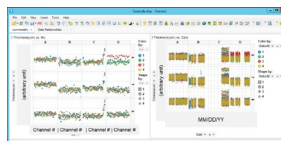
3. Remediate

Remediate issues and optimize upstream processes



4. Iterate

Automate improvement in process yield & efficiency and product quality & reliability





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