



LEAN Power Distribution Management

The landscape for utility companies is changing rapidly. An aging infrastructure combined with mandated energy transitions in many countries, along with decentralised generation and storage is leading to a cosmic shift in the way utilities operate their grid.

To make the right decisions and to enable dynamic changes along the way, the principles of LEAN manufacturing have been considered applicable to energy generation and distribution¹.

Rapid Feedback and Iteration as the core of LEAN

The main issue facing utilities is that most of their infrastructure investments are high-capital expenditures with long lead times and multi-decade technical lifespan. It is easy to see how in a rapidly changing world the wrong decisions can lead to obsolescence.

LEAN Gemba, an essential part of the LEAN philosophy, which emphasises the importance of obtaining information from the place where real value is created, is also touched through this strategy. Taking that, how can we harness information that can be captured from the current grid to better predict what is necessary? How can we make incremental changes and test their outcomes in real time?

¹ Oil & Gas Journal, Lean Energy Management Part 7



THE LEAN CYCLE

Our intent is to enable utility companies to understand their grid a few levels deeper than currently is the case. We do this by providing tools to implement a Deming Cycle (Plan, Do, Check, Act). The steps a utility would go through are:

1. Working from a pain point or planned action/ investment, set up certain hypothesis about (parts of) their grid. Use a software tool to predict what data is required and where any additional sensors may need to be placed;
2. Set up a localized sensor network of low cost, live-line rapidly deployable sensors to work in accordance with currently deployed network sensors (SCADA, AMI/AMR etc.);
3. Visualize & analyze live data in a software platform. Assess power imbalances, view connectivity issues, understand the impact of changes in the grid and pinpoint issues;
4. By connecting field crews and grid operations teams through a synchronized application & platform, changes can be made on-the-fly;
5. Repeat process until desirable understanding of the grid has been achieved.

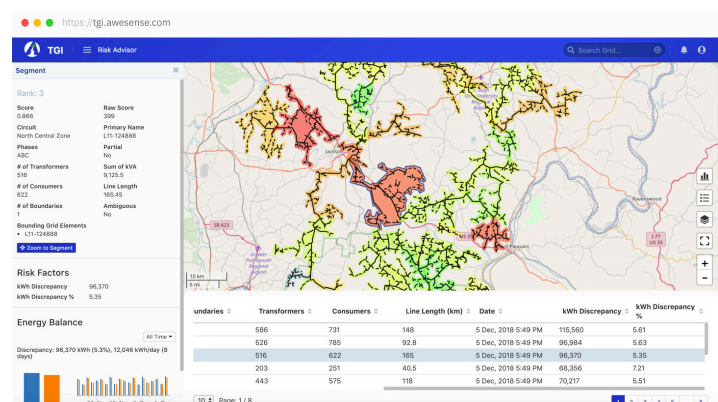
KPIs such as Reliability, Loss Percentage, Response Time, Risk Mitigation, Operation Costs, Customer Engagement and others all improving as a result.

The power of IoT and cloud software

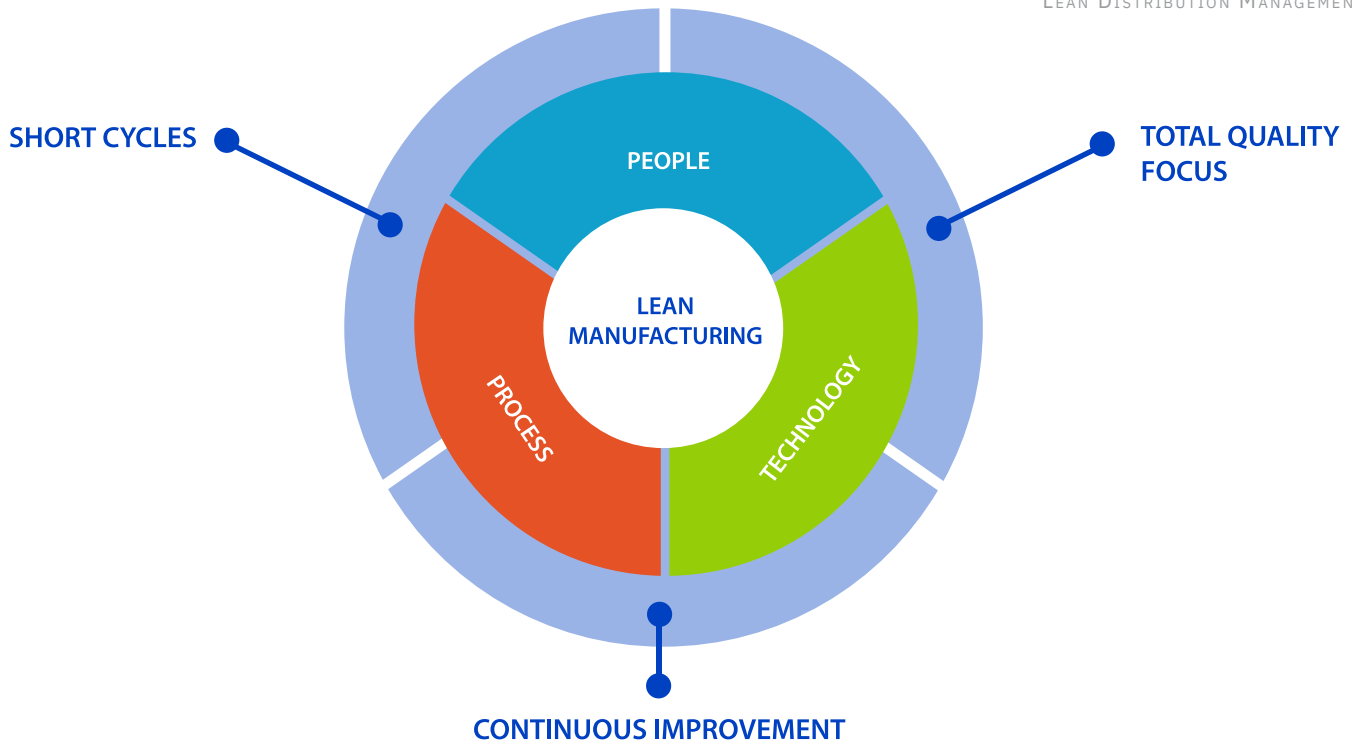
Software and sensors are ever declining in cost and increasing in capability. Awesense is at the forefront of this development with its rapid deployment kit. We have implemented this approach a number of times with clients such as BC Hydro, Duke Energy and others

“Utilities are sitting on a wealth of opportunity from data analytics, with more information than ever before flowing from smart meters and other sensors, along with traditional sources of data about their operations.”

- Christophe Guille & Stephan Zach, Bain & Co.



Real-time display of grid performance dashboard in TGI.



Use cases

The cases that we have solved so far revolve around helping utilities better understand their grid. These are sometimes driven by revenue protection targets (localizing non technical losses) and sometimes by events (outage detection & recovery). Our clients find that they can use the improved insight into their grid dynamics to improve planning and prediction requirements. Disaster recovery has been another area where improved real-time sensor data can decrease response time, reduce costs and increase customer engagement.

We believe that hypothesis testing can lead to a more practical and achievable approach to integrating renewables. With utilities often over-spending on resources and struggling to innovate in the right ways, a segmented approach to understanding your grid through dynamic, easily deployable sensors and synchronized software will make operations and field teams more effective. This allows you to speed up your transition to the Grid 2.0 and renewables faster and more effectively.

Book a demo at awesense.com to learn more.

True Geospatial Intelligence

- Energy Balancing
- Outage Detection
- Feeder Analysis
- Automated Data Processing & Analysis
- Geospatial VEE



TGI Raptor Sensor

- Deployable in 60 seconds
- Cellular and RF communication
- Outage Detection
- High accuracy current and power factor readings
- Manageable from the TGI Platform



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