Cleantech Forum
San Francisco

Next Generation ICT: AI in Energy

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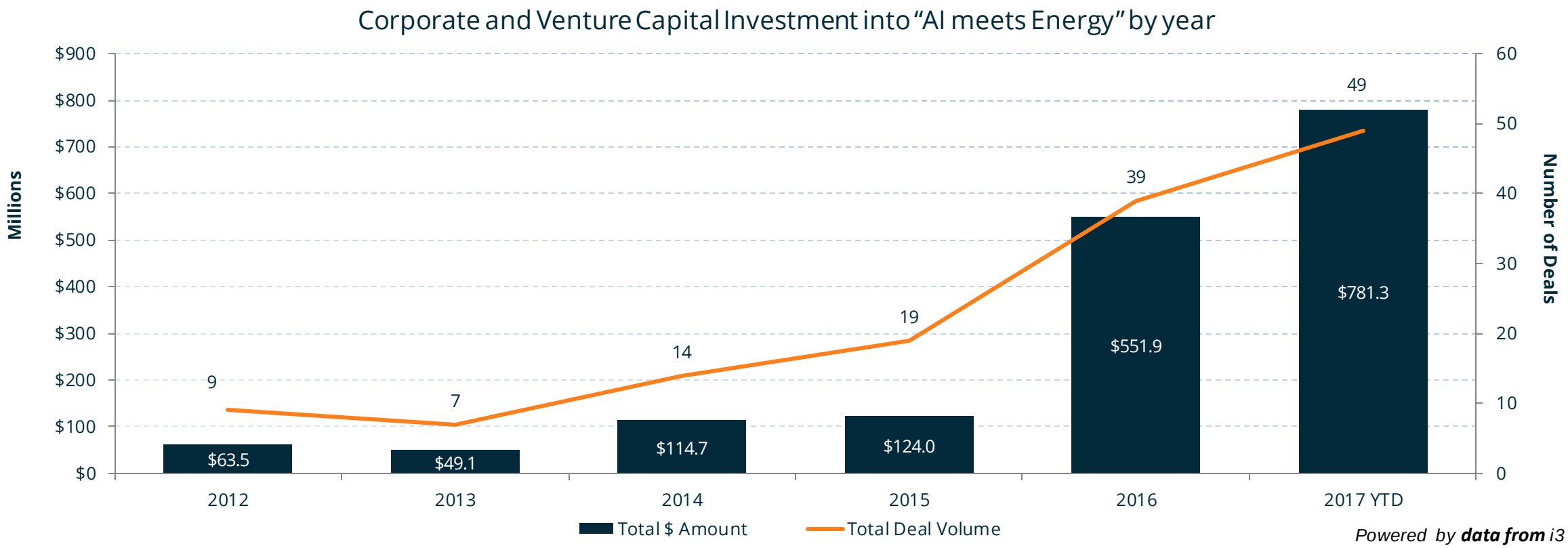
AI in Energy & Industry: A booming intersection



AI throughout the energy value chain

	Project development/ Customer acquisition	Generation	Transmission & Distribution	Consumption/ Retail Energy
Key use cases	▪ Marketing and sales of DER ▪ Meteorological models for optimized asset location ▪ Optimized design and engineering	▪ Predictive maintenance of generation assets ▪ Performance improvement ▪ Intermittency forecasts	▪ Grid optimization ▪ Microgrids and VPP management ▪ Storage-based flexibility ▪ Predicting demand ▪ Distribution Automation and Control (DMS)	▪ Premise-level analytics ▪ Consumption Disaggregation ▪ Smart home ▪ Customer engagement ▪ Transactive Energy
Example Innovator	PowerScout	sparkcognition	awesense	Innowatts energy at hand

Meet PowerScout: AI-driven Customer Acquisition Platform for the Smart Home

PowerScout

Lead Generation for Services & Product Sales

Machine Learning driven programmatic digital marketing

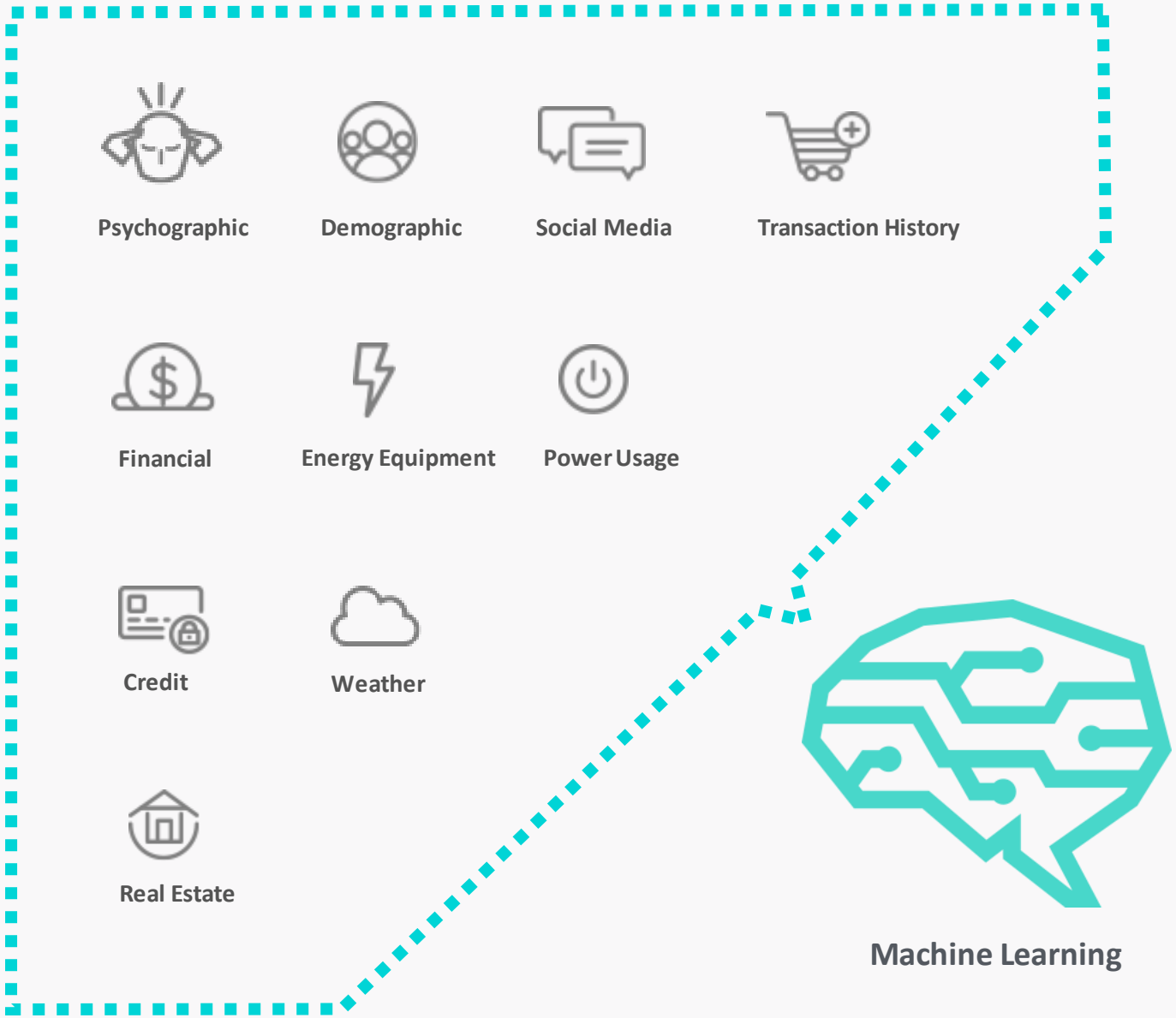
Quality content & helpful instant quoting tools

Curated local and regional service providers

PowerScout

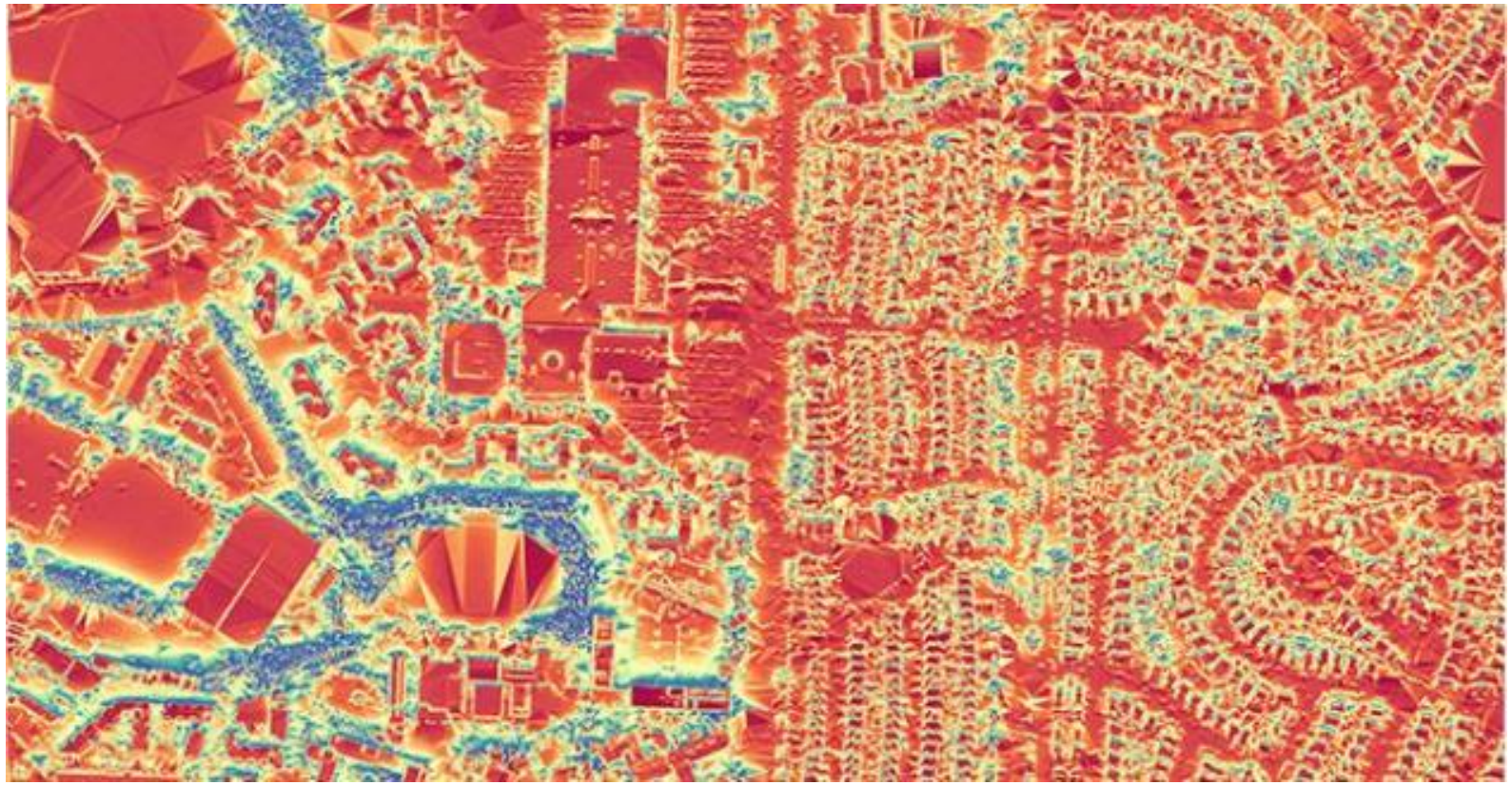
100 Billion Data Points on the platform

- Data-driven assessment of home improvement benefits
- Machine learning for effective targeting
- Propensity modeling
- Patent pending in US & EU



PowerScout

Computer Vision to Digitalize Large Amounts of Data on U.S Housing Stock



Visualization of LIDAR data acquired from a low flying aircraft for a neighborhood in San Francisco, CA

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Optimizing Humanity's Largest Machine

awesense

True Grid Intelligence® (TGI)

TGI is a (very) scalable and affordable approach to grid monitoring, energy balance, and grid analytics.

For utilities with <u>or without</u> AMI, TGI was built to unlock the potential of existing data (SCADA, GIS, Billing, etc.) layered with IoT data to provide meaningful intelligence.

awesense

True Grid Intelligence® (TGI)

TGI leverages state of the art technologies and innovations in IoT, Big Data, and ML. Using lightning fast data ingestion methods on geospatial (GIS) and time-series data to perform analytics, error checking, estimation, connectivity/topology correction, and more. TGI performs grid segmentation on GIS data, and constantly applies advanced algorithms against these segments to identify issues and prescribe resolutions on a wide range of grid operations and optimization applications.

awesense

True Grid Intelligence® (TGI)

TGI was built to understand **temporal assets** within the grid. First, to enable mobility of IoT sensors in the grid, and allow the temporal energy balances in these segments – a key factor in TGI's risk algorithm. In the future, these capabilities and algorithms will be used for other temporal grid elements (ex. EV's) that require require prediction on location, load, and source availability for the network.

awesense

True Grid Intelligence® (TGI)

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Tomorrow's Self Serving and Self Learning

e-Utility™

Responsive & Passive

- *More/ Better Engagement*
- *Helpful Insights*
- *Better Segmentation*
- *Improved Communications*
- *Better Analytics*

Predictive & Proactive

- *Relevant Engagement (often less)*
- *Actionable Intelligence*
- *Automated Actions*
- *Personalized Products and Services*
- *Automated Learning*
- *Customer Footprint Specific Strategy*

Opportunities to Monetize

Regulated Utilities

Retail Energy Providers

Who Wins?

Product/ Technology Vendors

New Retail Market Entrants

Global e-Utility™ Traction

14.2

Million meters worldwide

- 1.4 trillion load intervals,
- 3 Continents, 13 energy markets
- 10 Utilities, 14 Retail Energy Cos, Banks + end-consumers

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