LoweConex

Unlocking Your Data to Build a Better Future.

Innovation through Data Analytics and Artificial Intelligence.

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Who are We?

Ian Lowry

Chief Operating Officer

Jessica Caldwell

Product Manager

Andy Williams

Data & Analytics Director

Fergus McIlduff

Chairman

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What is Our Product?

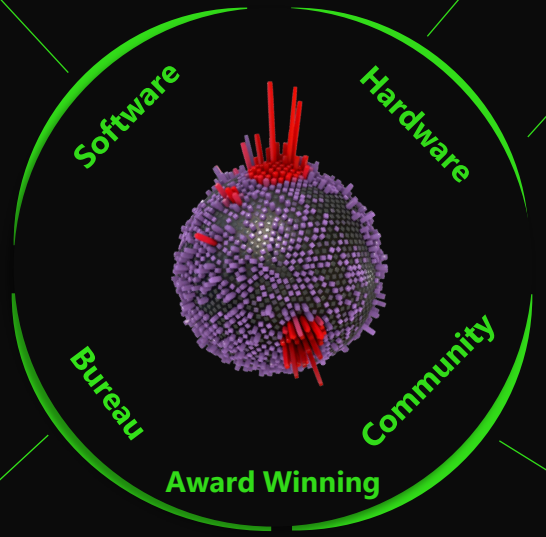
Patented data visualisation tool for connected assets.

Visualisation of multiple asset data points in one place allows for a true connected building.

Data storage for instant recall min. of 5 years, archived thereafter.

Dedicated team of data scientists, energy management experts and industry specialists.

Tiered service to support the monitoring, management and optimisation of estates.



Provides intelligent control to make instant estate wide changes.

Two-way communication enables mass setting changes for scalable control.

Unparalleled compatibility supports the diverse nature of asset types, models & controllers.

Innovative network empowering businesses with the knowledge and tools for true transformation.

Collaborative environment that shares industry best practice, driving continuous improvements and innovation.

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THE ENERGY AWARDS 2022

digital DNA awards 2022

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co op
Heron Foods
Dr. AirWair Martens
with Bouncing Soles
Morrisons
Since 1899
COSTA
COFFEE
foodpanda
Grab
Zapp
macai
ding dong
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Brands We Work With Across 4,000+ Commercial Buildings.

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What is Our Mission?

“

Unlocking your data to build a better future.

Offering innovative energy management techniques and cutting-edge automation protocols, our technology is helping retailers significantly reduce their environmental impact and meet energy reduction and carbon emission targets ahead of schedule.

Building not only a better future, but a greener future for us all.

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Aligned with NI Energy Strategy.

People – The Heart of Our Energy Future.

Do More With Less.

Flexible & Resilient Energy Systems.

The New State of Data:

Quality Over Quantity.

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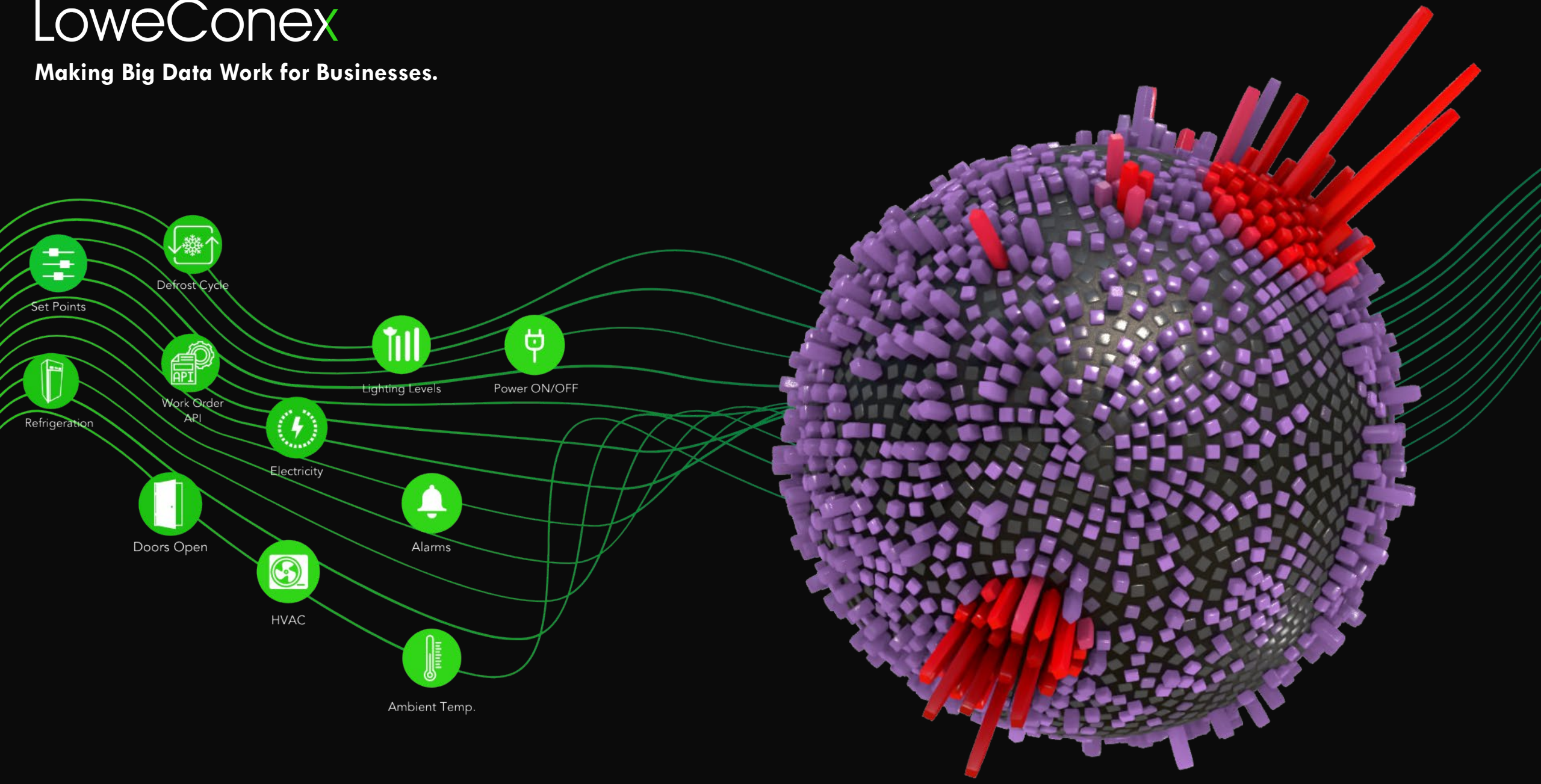
Making Big Data Work for Businesses.



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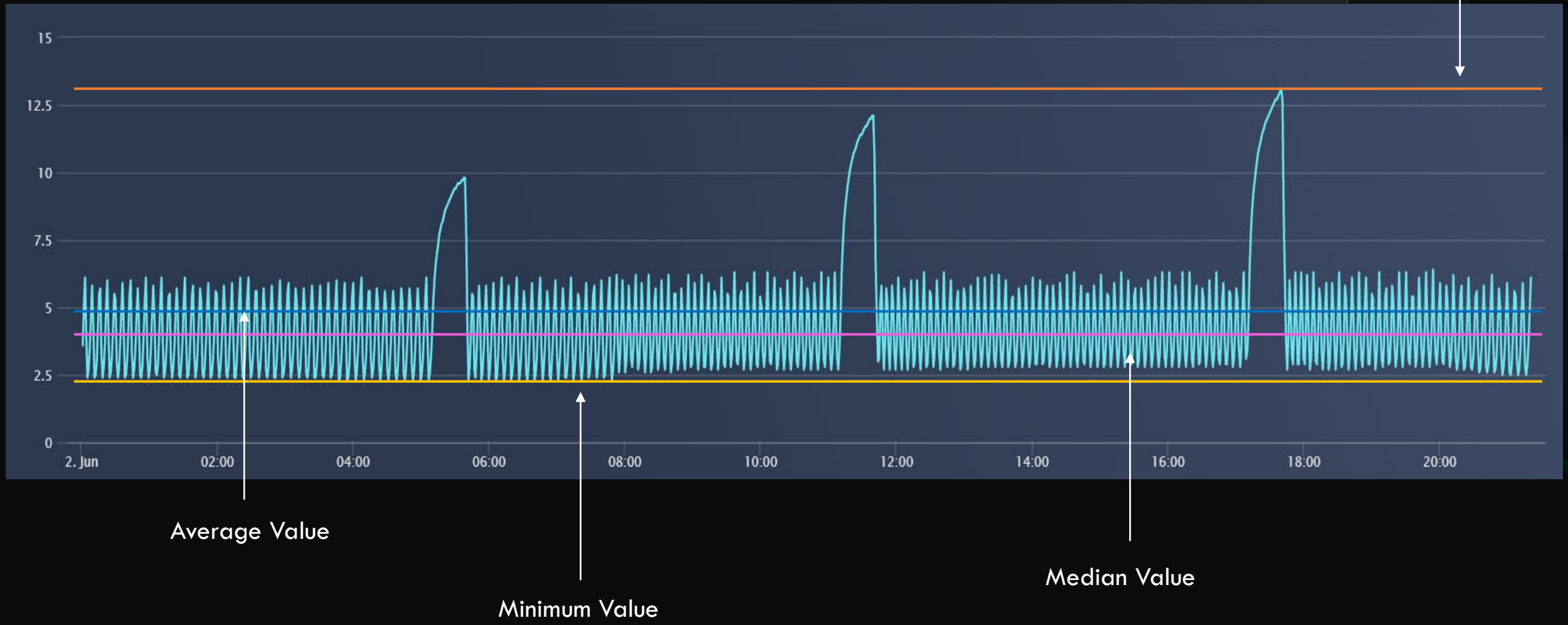
Moving From Data Quantity to Data Quality.



Data quality is defined as the ability of a given data set to serve an intended purpose.

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Data Visualisation:

Making Insights Accessible.

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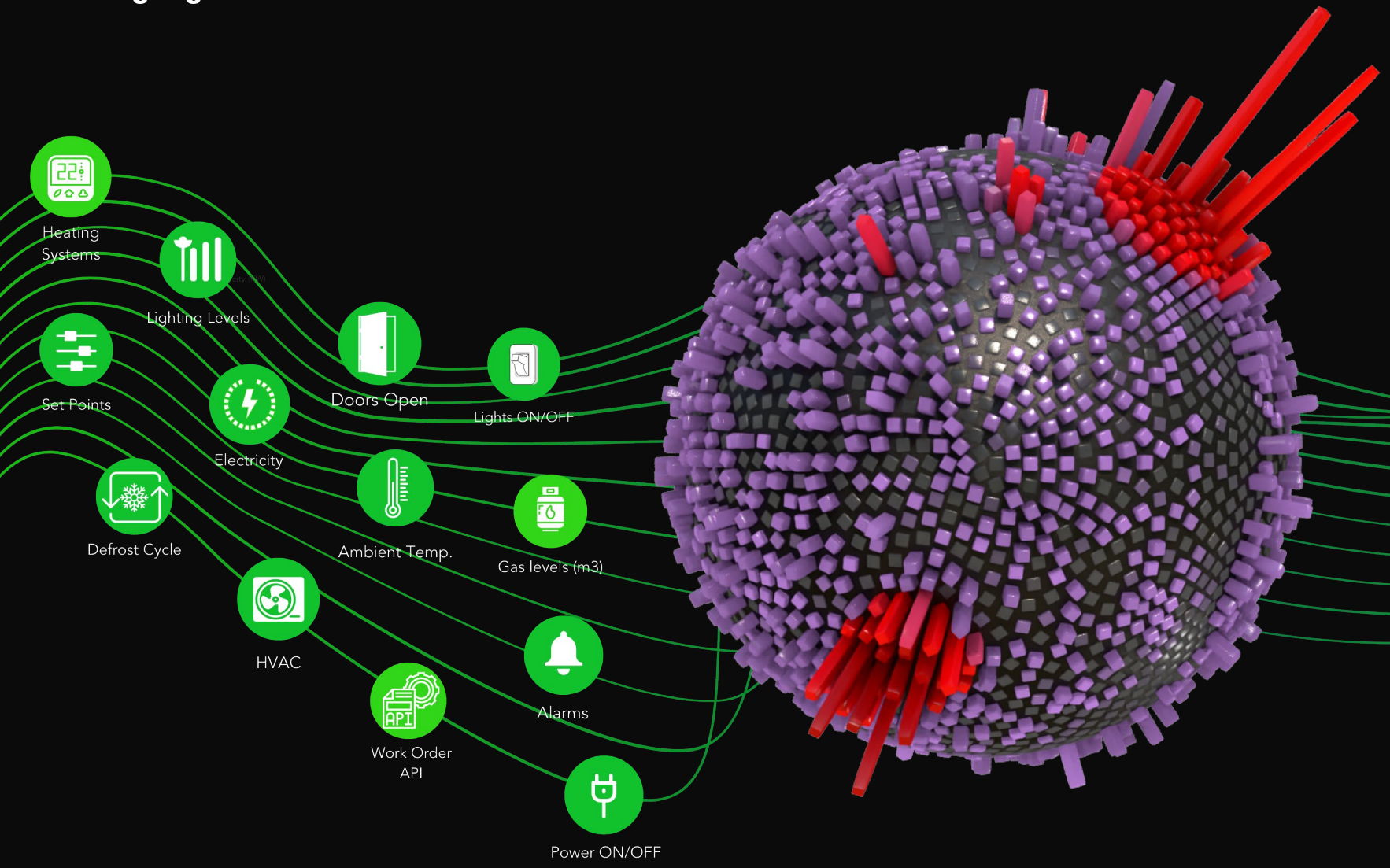
Making Big Data Work for Businesses.



Benefits:

- Identification of key trends.
- Easily understand correlations between related and unrelated data.
- Identification of quick wins.

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Data Visualisation In Action.

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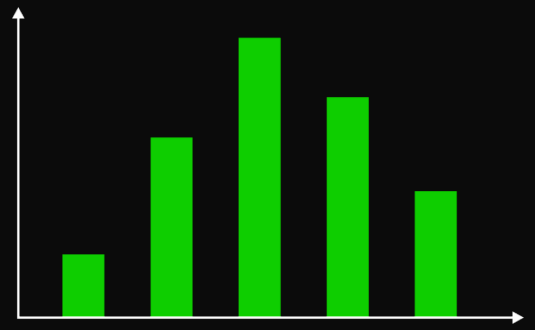
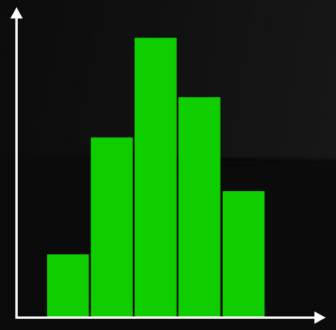
Selecting Data Visuals.

Bar Chart



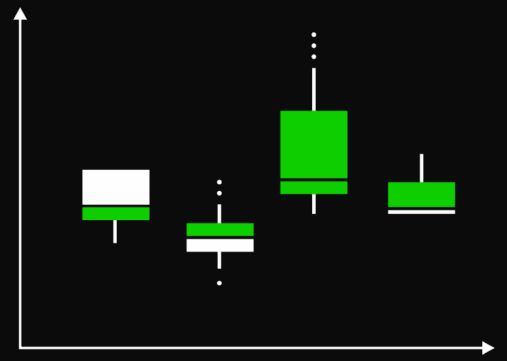
Displays comparisons between different groupings.

Histogram



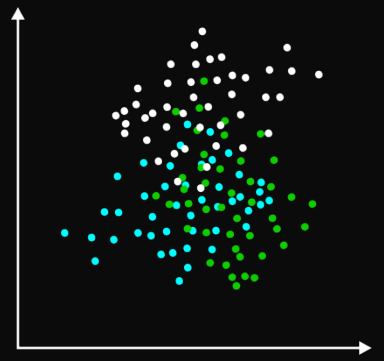
Displays the distribution of a set of data.

Box Plot



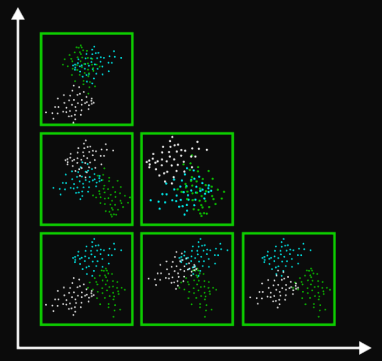
Displays the five number summary of a data set.

Scatter Plot



Shows the relationship between two different variables.

Pairs Plot



Shows the relationships between pairs of multiple variables.

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Data Simulation:

Optimising Energy Reduction.

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Models for Data Simulation.

Physics Based Model

$$Q = mC_p\Delta T$$

$$Q = mC_p\Delta T$$

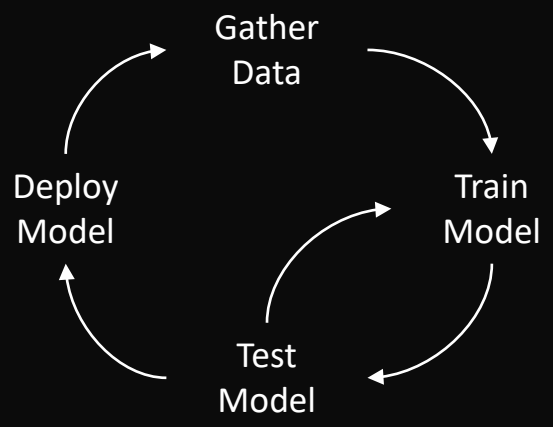
$$Q = mL_v$$

$$Q = mL_v$$

$$Q = mL_v$$

- No data required, easily interpretated solution.
- Theory and equation based.
- Low computational intensity.

Machine Learning Model



- Data based.
- Handles basic and complex problems.
- Easy to model complex or multiple component problems.

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Models In Action.

Q

How much energy is required to boil water?

Physics Based Model

Equation 1

Energy required to heat water to boiling point:

$Q = mC_p\Delta T$

Equation 2

Energy required to boil water:

$Q = mL_v$

Machine Learning Model

Observation	Mass	Start Temperature	Energy Consumed
1	…	…	…
2	…	…	…
3	…	…	…

$$Q = \beta_0 + \beta_1 \times Mass + \beta_2 \times Start\ Temperature$$

R To minimise energy consumption, either the mass of water or temperature difference needs to be reduced.

R Interpret the beta coefficients to determine the impact that a change in each of the variables has on the energy consumed.

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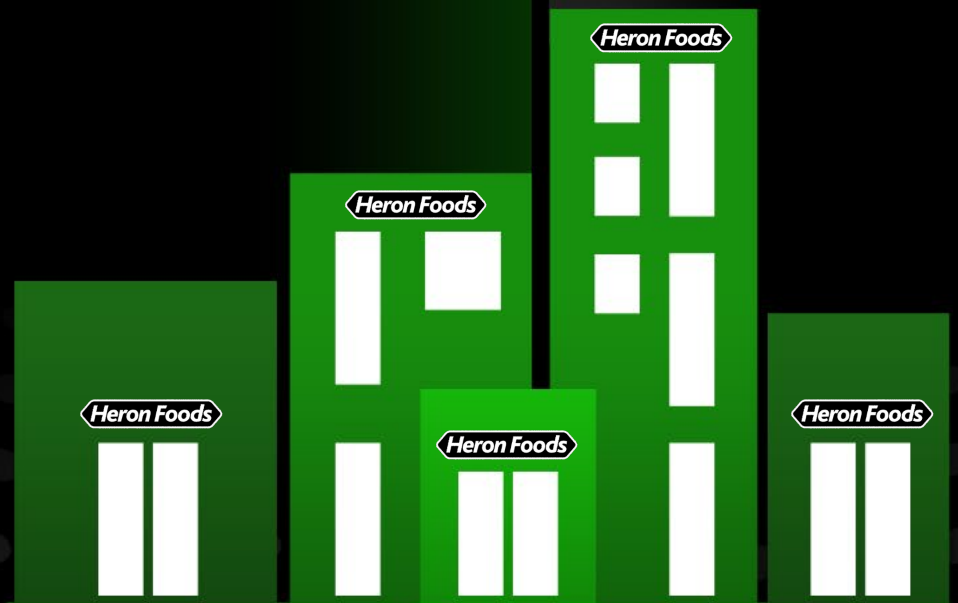
Intelligent Control Actions

- BWS **Switch-Off**.
- HVAC **Automation**.
- Set-Point **Standardisation**.

Annual Savings Across 5 Years

- **5.6 million** kWh of energy.
- **1,317 tonnes** of C02.
- **£860,000** in labour.



Heron Foods

LoweConex is transforming the estate performance of Heron Foods across c.300 stores.

The Future of Optimisation:

Dynamic Control.

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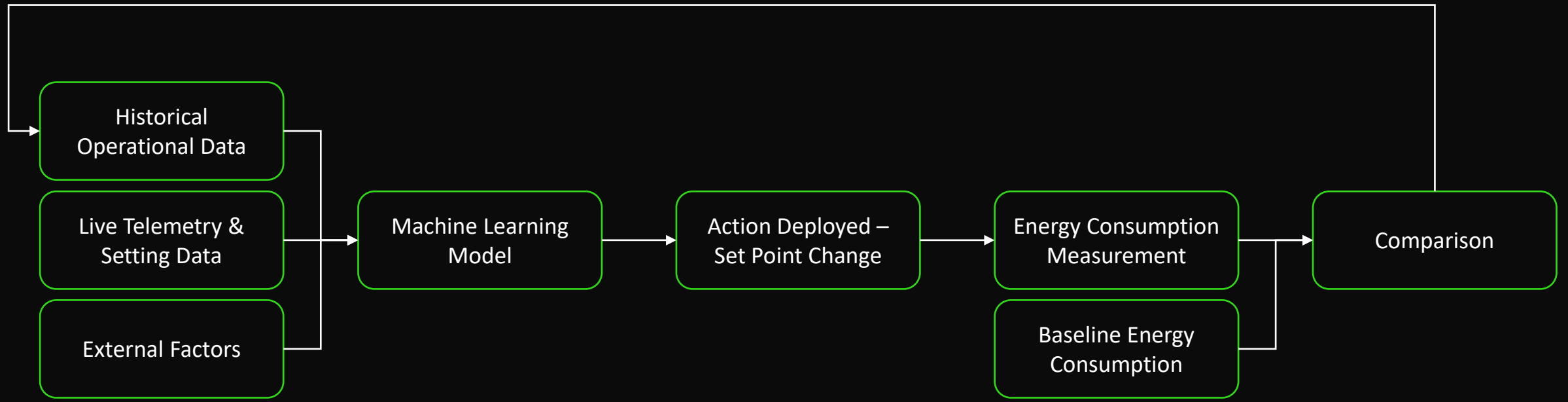
Dynamic Control.



- Actions carried out in real time utilising two-way communication with assets.
- Model constructed such that energy consumption is minimized.

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Key Takeaways.

- Your data foundation drives actions and decisions that can make or break businesses – do not underestimate the power of data quality.
- Time is money – data visualization enables businesses to identify quick wins that deliver transformative change today.
- Prepare for tomorrow, today – the energy market is changing and investing in future-proofing technology is critical.

Join the community, grow the innovation.

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Thanks for Listening.

Any Questions?