What we do

- **BUILDING MANAGEMENT SOLUTIONS**
- **REMOTE MONITORING**
- **ENERGY SAVING**
- **MACHINE LEARNING APPLICATIONS**
- **ADVANCED METERING**
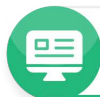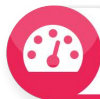
"We do not sell products, we provide solutions"

Let's monitor and control your business to save energy and reduce operating costs. Energy Solutions provides monitoring, measurement and control for any business environment via our unique cloud-based technology stack. Our technology has been developed 'in-house' and is supported by our engineers.

BUILDING MANAGEMENT SYSTEMS (BMS)

At ES we have developed a leading technology platform - Vantage - for smart building applications. With our scalable network, real-time data collection and high-value applications, ES is redefining what a smart building can be.

By connecting temperature control, power management, lighting, and HVAC it allows us to create smarter performance through data analytics, allowing for continual efficiency management of each building or destination.

Our BMS solutions allows clients to:

- Boost your bottom line with reduces energy costs
- Get real time visibility into your current and historical energy performance
- Make data driven decisions to promote continuous energy performance improvement
- Improve reliability and uptime of your systems and equipment
- Allows clients to centrally manage their energy footprint across various sites

WHY YOU NEED A BMS

- Reduced energy consumption
- Simplified business operation and maintenance
- Increasing demand for eco-friendly buildings
- Growing integration of IOT

REMOTE MONITORING

Our software platform provides clients with a realtime view of their business from any location. The system facilitates the option of switching equipment manually, from any location.
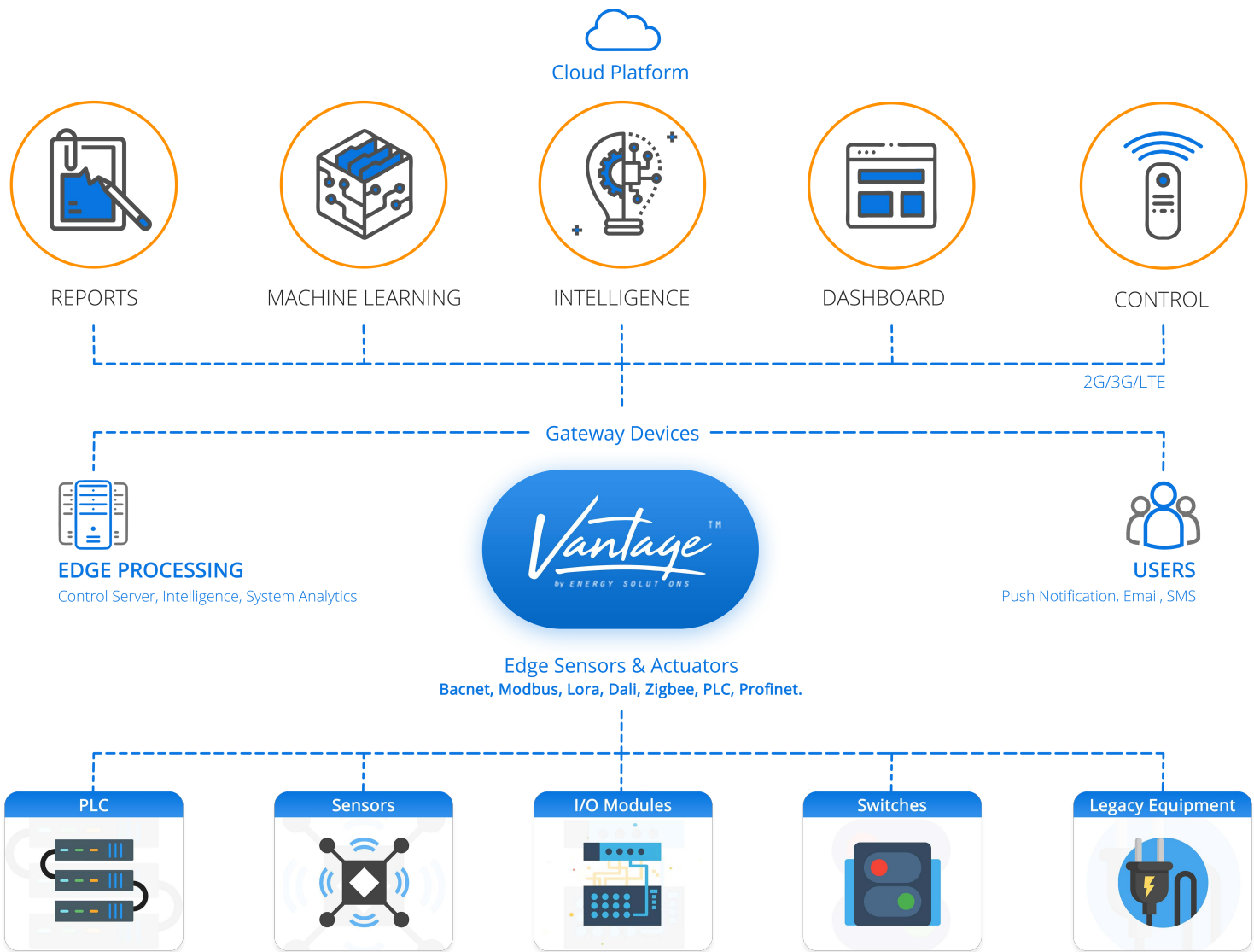
Examples of remote applications include:

Equipment runtimes, tank levels, irregular power usage, water leaks, temperature levels, automatic meter reading, HVAC monitoring, alarms and notifications.

Our Solutions

Cloud Platform

REPORTS

MACHINE LEARNING

INTELLIGENCE

DASHBOARD

CONTROL

2G/3G/LTE

Gateway Devices

EDGE PROCESSING
Control Server, Intelligence, System Analytics

Vantage
by ENERGY SOLUT ONS

USERS
Push Notification, Email, SMS

Edge Sensors & Actuators
Bacnet, Modbus, Lora, Dali, Zigbee, PLC, Profinet.

PLC

Sensors

I/O Modules

Switches

Legacy Equipment

ENERGY SAVING

We provide specialised hardware, energy efficiency strategies, automated reporting and consultancy to reduce the energy footprint of our clients. This is achieved via the management of power, waste, electrical, mechanical and gas operations.

The connectivity and interoperability of our edge controller allows us to interface with existing devices, regardless of protocol (BACnet, Modbus, Profinet, KNX, Lora etc). This robust, secure and flexible platform provides insight into business operations and provides understanding of the energy usage patterns. With our data modelling solutions, we are able to control energy usages.

HVAC Savings   5 - 30% saving of overall energy consumption of building

TYPICAL BUILDING ENERGY CONSUMPTION

HVAC	60%
Electrical auxiliaries	20%
Lighting	15%
Hot Water (sanitary)	5%

MACHINE LEARNING

We can predict future energy performance of a building utilising artificial intelligence-based alogorithms - Machine Learning. On a very basic level, machine learning in technology today is the process of elimination of human intervention wherever possible. It is allowing the data to learn patterns by itself and take autonomous decisions without a coder having to write a new set of codes.

The data sets allow us to measure and process the time series data sets into our summary statistics models, and allow us to apply our energy solutions strategies (as most building behaviours are linear dynamic environments).

In summary, with Machine Learning in IOT, we can reduce your energy footprint, utilising artificial intelligence tools.
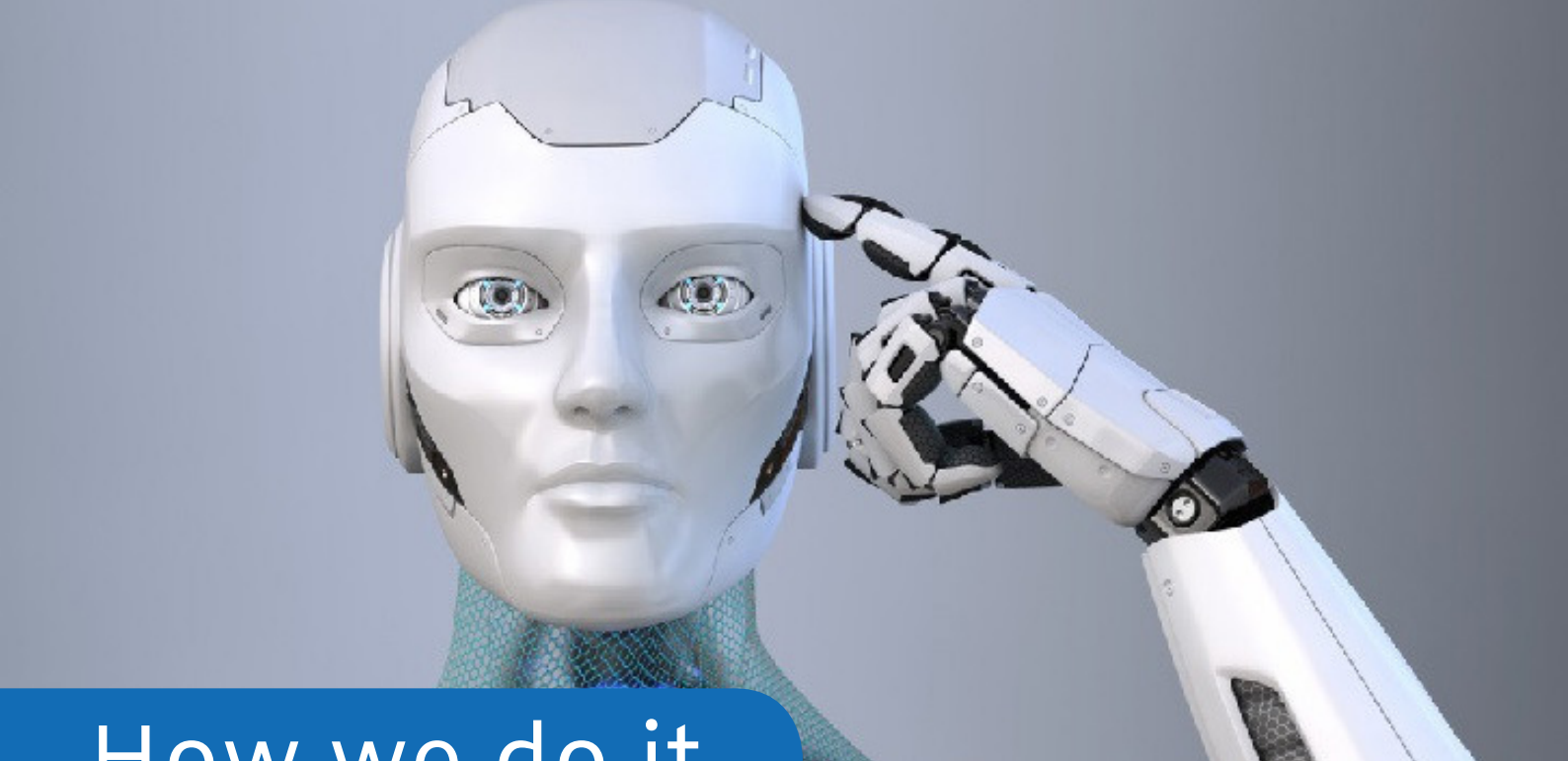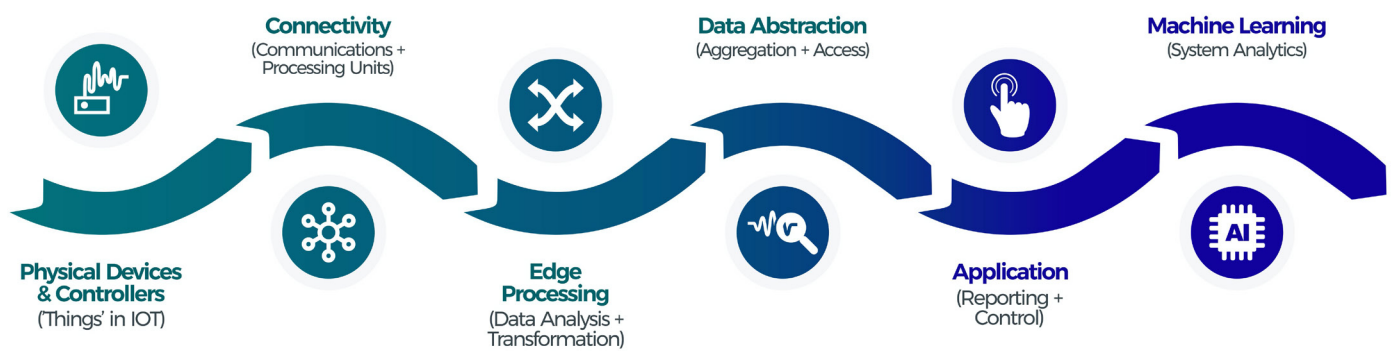
How we do it

EDGE PROCESSING

At ES, we apply our energy saving applications on the Edge (at the building). This means that we process, classify, interpret and apply solutions locally, without having to send the data into the cloud for further processing and return values to the building. This strategy reduces processing time, and eliminates data transfer costs.
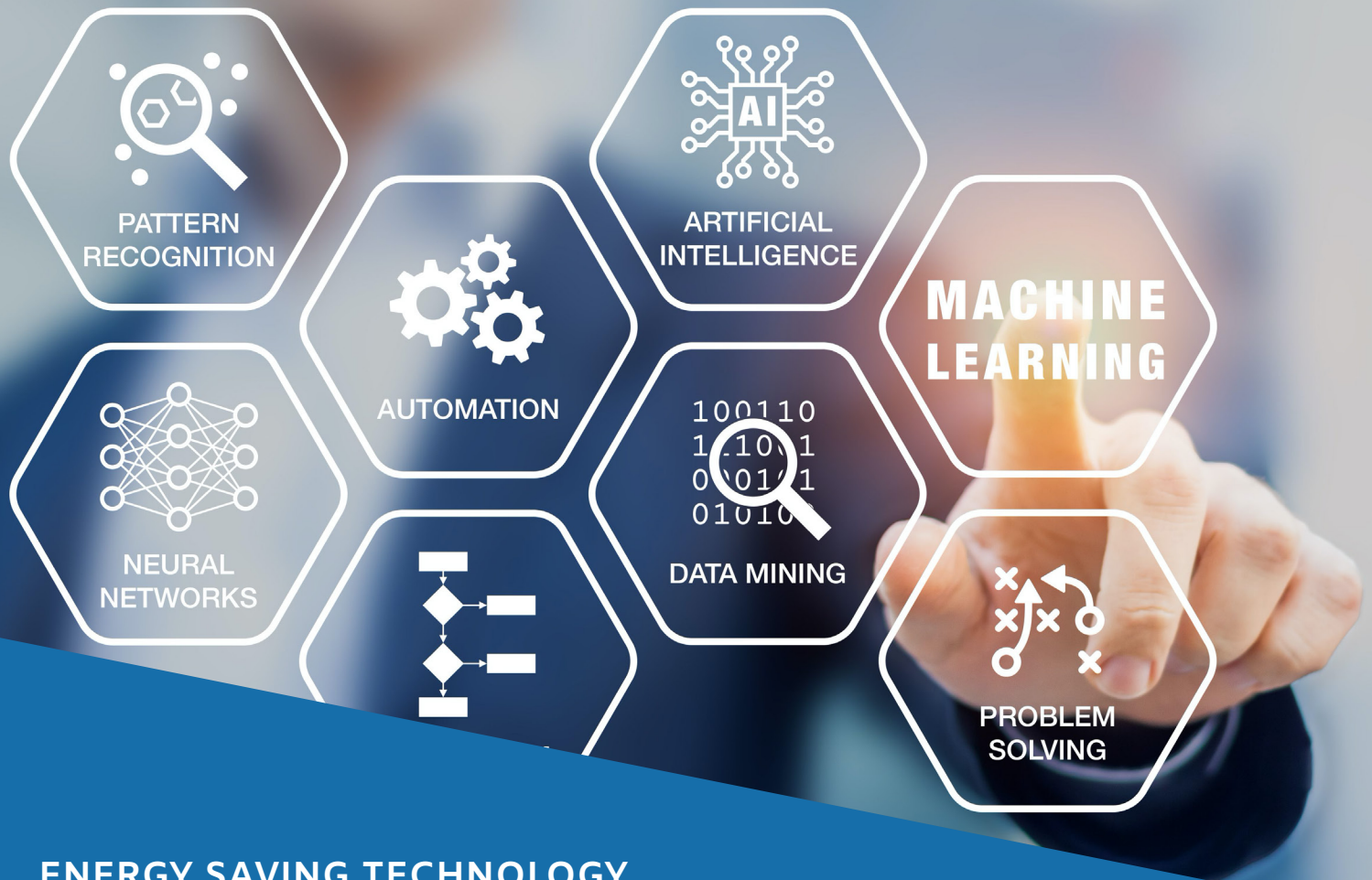
COMMUNICATION

We utilise power-line communication(PLC) protocol to communicate with the various sensors and controllers. This reliable hybrid PLC- Wireless technology, allows us to connect with various devices within a particular site, without the requirement of any network or control cabling being installed, making this communication solution perfect for retro-fit projects.

DATA ANALYTICS

Our Data Services enables organisations to integrate, transform and improve data through advanced data integration and master data management with adequate governance and control. Our Data Modeling Services can be seamlessly integrated with legacy systems leading to enhanced productivity and reduced costs. With smart and advanced Data Integration, our solution helps you gain authority on data over multiple formats with real time, actionable insights.

Connectivity
(Communications + Processing Units)

Data Abstraction
(Aggregation + Access)

Machine Learning
(System Analytics)

Physical Devices & Controllers
('Things' in IOT)

Edge Processing
(Data Analysis + Transformation)

Application
(Reporting + Control)

ENERGY SAVING TECHNOLOGY

Although ES provide monitoring and visualisation tools, our primary focus is on the reduction of energy.

Within this process we follow tried and tested processes.
1. ensure equipment is functioning as designed
2. monitor consumption of key electrical components
3. make occupants aware of energy usage profiles
4. apply edge processing systems
5. institute energy awareness programs
6. apply Machine Learning applications

For example, a hotel has an existing Building Management System (BMS) installed. The system receives data from the sensors and controllers that provides the heating and cooling. The BMS provides control for the regulation of set point temperatures.

With the application of our system - Vantage - the BMS system now receives data relating to realtime occupancy, weather conditions, thermal performance of different areas, operational conditions, seasonal influences etc. Our software platform performs data analysis on site, and provides additional control inputs. With our machine learning application, we can now predict the buildings energy performance.

This now allows our system to fine tune the BMS operation, and ensures the HVAC system operates more in tune with the hotels operations, without the requirement of additional programming being applied.
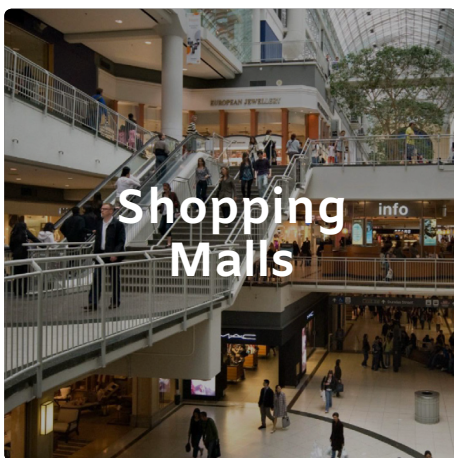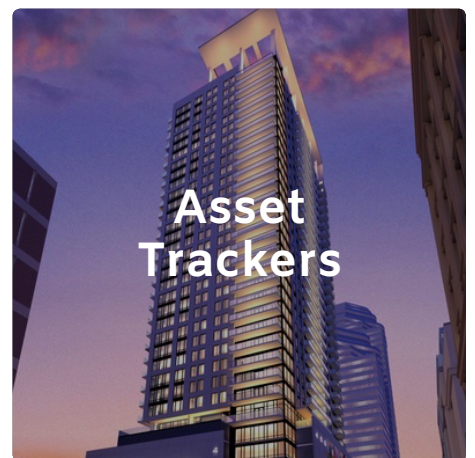
Industries

Precision Agriculture
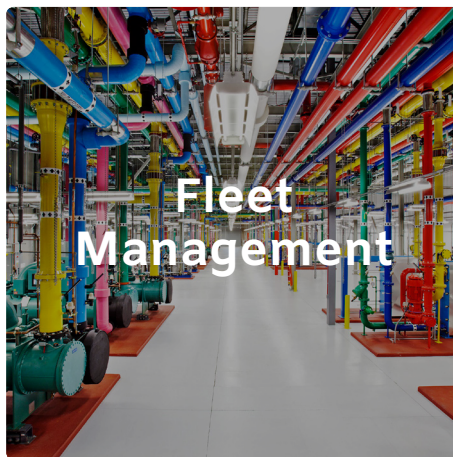
Fleet Management

Geolocation

Shopping Malls

Infrastructure

Asset Trackers

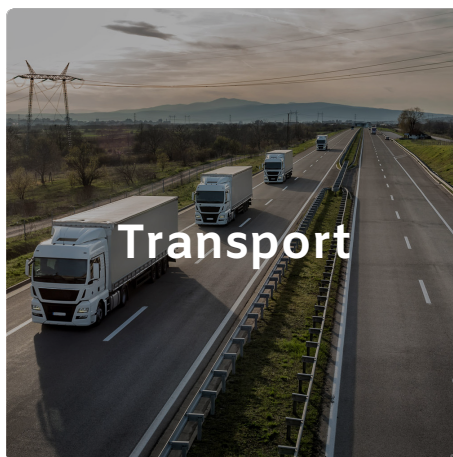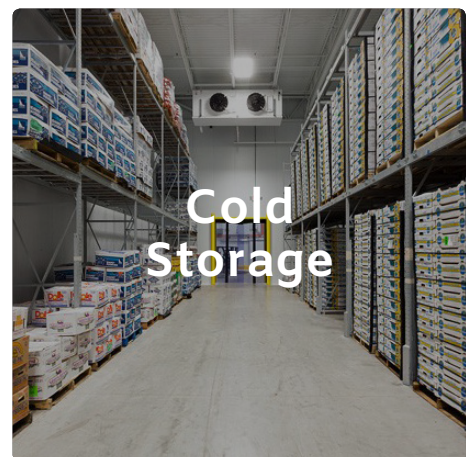**Mining**

Hotel & Resorts

Hospitals

Smart Cities

Transport

Cold Storage

RETURN ON INVESTMENT

Each project proposal supplied by Energy Solutions includes a financial business case, which correlates the anticipated financial spend to the expected savings. These Return on Investment (ROI) calculations take into account all aspects of the business operations. The ROI period is normally between 1 and 5 years.

The major advantages of our IOT solutions relate to:
- an increase in revenue streams
- a reduction in operating costs
- monitoring equipment behaviour
- an increase in productivity

EXAMPLES OF ROI			
INDUSTRY	**APPLICATION**	**BENEFITS**	**ROI**
Hotel	Room Control	Operational benefits. Energy saving	1 - 2 years
Hospital	Water heating & HVAC	Equipment monitoring. Energy saving.	2 years
Shopping Centre	HVAC	Sub-billing. Energy saving	5 years
Cold Storage	Compressor control	Product Quality. Energy saving	3 years
Infrastructure	Billing	Management. Energy saving.	2 - 4 years

energy solutions

OUR TEAM

"Our multidisciplinary team of engineers, project managers, solution consultants, programmers, IoT specialists, and machine learning experts, provide us with the edge to deliver an industry disruptive experience."

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