Stirling Council: Command Centre
Stirling, UK

Using their innovative ICL technology, IES are helping Stirling Council lead the way in facilitating centralised data monitoring, analysis and proactive maintenance across a portfolio of 35 public buildings via a customised Command Centre.

STIRLING COUNCIL: COMMAND CENTRE
STIRLING, UK

SECTOR: ICL

DATE: May 2020

COUNTRY: UK

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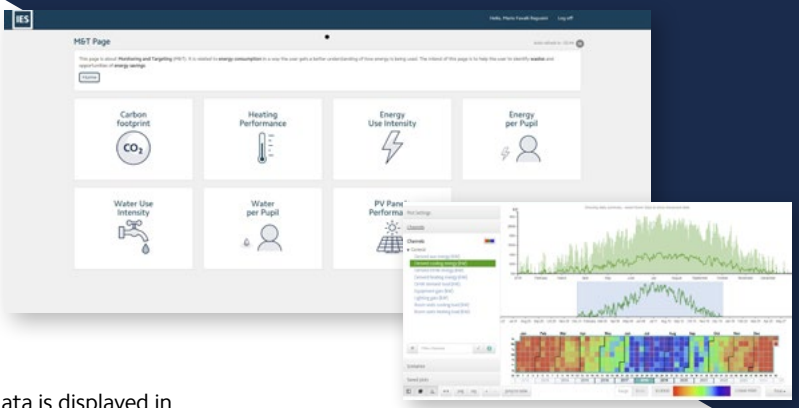
Stirling Council were awarded funding through the European Regional Development Fund (ERDF) programme, "Scotland's 8th City – The Smart City" which allowed them to embark on this project for an initial phase of 35 buildings.



The project began with a principle aim - to create a centralised smart energy platform where the council could easily monitor and manage energy and renewables data for its property portfolio. Although the council had strong vision and commitment, they were struggling to find adequate tools to achieve their goal. This is where IES and their ICL Digital Twin technology were able to help.

The council decided to begin with some of the school buildings within its portfolio. As a first step, IES created a Portfolio Information Model (iPIM) to map the location of the buildings and provide a platform for visualisation and central management of building assets.

The next step was to create a link between this portfolio model and the real building data. With 1,500+ data streams, 100+ sensors and 7 data sources, across 35 facilities, the council had a huge amount of data available to them. However, finding a way to centralise and make sense of it all proved challenging.

This is where IES were able to use iSCAN, which centralises any time-series data from different building and energy management systems, utility portals, IoT sensors and historic files in a single platform. The IES team were able to automate the process of uploading the various data sources into iSCAN, saving the council's Energy Team significant time and effort typically involved in manual data handling. The council could now view all of their data together and make correlations between the different data logs and sensor readings, simply by logging in to one system.

With the connection to the real building data established, IES began to look at the data quality. Analysis in iSCAN highlighted that the data from some of the data streams was sparse or incomplete, so it was important to fill these gaps and enhance the data quality to ensure confidence in decision-making.

Using machine learning and physics-based simulation, IES were able to quickly and accurately simulate the missing data, resulting in an overall improvement of 40-50% in data quality across the portfolio.

All of the data is displayed in a bespoke Command Centre which IES has tailored around the council's specific targets and KPIs. This provides views to assess performance of the portfolio at an overarching level, or delve down into a deeper level of detail with individual dashboards for each of the 35 facilities. The dashboards track and monitor energy demand, carbon emissions and renewables performance, amongst other key indicators. The Command Centre also provides clear visibility of the data quality from the different sources giving more confidence to the council when producing reports and performing analysis.

The machine learning and calibrated modelling techniques used by IES have made it possible to learn from historical data patterns to detect anomalies and create alerts to notify of any unexpected behaviours. This means the council can be much more proactive in their maintenance approach, by prioritising repairs across the portfolio and, in some cases, predicting faults before they happen.

In one instance, the council uncovered an estimated £2,000 saving when the iSCAN data flagged up a previously undetected issue with a PV panel which had been disconnected. Moving forward, they can continue to use the dashboards to monitor and target other potential savings opportunities and eliminate energy waste across their portfolio.

This project paves the way for other councils and those responsible for managing a portfolio of buildings to achieve more effective monitoring and management of their assets and to support progress towards net-zero targets and other KPIs.

KEY FACTS

- 35 buildings
- Centralisation of 1500+ Data Streams, 100+ Sensors & 7 Data Sources
- Data quality improved by 40-50%
- Bespoke Command Centre, Dashboards & Alerts

"IES managed to interpret our vision to create this exciting bespoke Smart Energy centre which allows us to quickly identify faults, anomalies and energy savings. The system has huge potential and I look forward to working with IES to bring the rest of our portfolio on board and to find out what further enhancements can be made."

Grace Conner
Energy Officer, Stirling Council

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