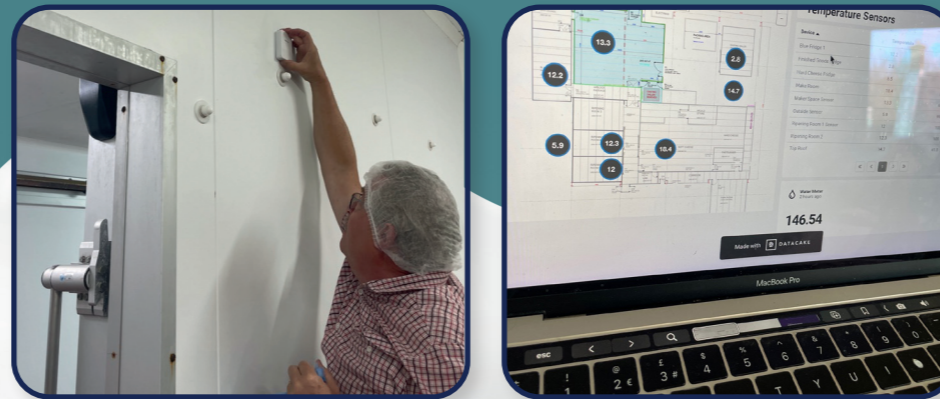


How a small dairy can gather new information from legacy equipment



Appleby Creamery is an award-winning artisan cheese making dairy in the rural Eden Valley, on the edge of England's Lake District. Like many small, independent dairies, Appleby runs an agile, batch cheesemaking process, including Mediterranean and Kosher cheeses.



Data driven operational change

Having access to the data stimulated a lot of discussion among the Appleby team members from curiosity to strategic:

Can I get this data to go directly into my compliance report?

Can we move some of these temperature sensors into the roof space to explore heat recovery?

Do we need to invest in air con for the maker spaces?

How long can the chiller door be open for?

How often is the boiler left on when we're not using it?

The challenge

The small-scale and versatile batch-processing dairy equipment has little automation or built-in monitoring capability.

Like many small dairy businesses, it can be challenging to understand where efficiencies can be gained from processes and operations when the information is not there.

How can new information be captured without committing to large investments for new, integrated equipment?

The solution

Battery powered IoT-enabled Sensors can capture new information from existing systems. Non-intrusive sensors can be easily retrofitted and networked and are ideal to show what kind of things can be measured, and what's going to be the most useful data to drive operational change.

Appleby identified processes and equipment they wanted new information from, and CENSIS created a network of battery-powered, IoT-enabled sensors that could gather the new information and send it initially to a web platform for the Appleby operational team to access and explore the data.

The benefits of retrofitting IoT-enabled sensors to existing equipment

- Saves time on manual tasks such as checks, logging and reporting
- Identifies operational areas where improvements would be most impactful
- Helps to identify what information is valued most
- Delivers economic benefits in time and resources
- Flexible system – sensors can be relocated with ease
- Enables incremental improvements

The whole system of 9 temperature and humidity sensors, hot water monitor, an energy meter, 3 mobile energy monitors and a LoRaWAN gateway cost less than £7,000 in hardware.

That IoT enabled sensors have value is not a question. They have a role to play in helping small businesses make big investment decisions and operational change at their own pace.

The take-home message is that creating these insights for small businesses in the dairy sector is a significant opportunity for small service providers in the supply chain. The challenge here is a skills gap and is one that the Milk Round Technology Accelerator would like to help with.

The Milk Round accelerator is hosted by CENSIS to assist individuals and SMEs to fast track innovative technologies from proof of concept to demonstration and testing. Accelerator winners receive a tailored support package to deliver products, processes or services to build digital capability and meet net zero targets. The programme is part of the UK Research and Innovation Strength in Places 'Digital Dairy Chain' project that aims to establish Cumbria and South West Scotland as a leader in advanced, sustainable and high-value dairy manufacturing.

