

connected  
everything.

## Demonstrating Resource Efficiency and Energy Efficiency through Data-driven Smart Food Manufacturing Processes

### Project Team:

#### Uni of York (PI)



Prof Sonal Choudhary

#### AMRC, Uni of Sheffield



Dr Cansu  
Candemir



Mr Artur  
Grigals



Dr Victor  
Guang Shi

#### Uni of Manchester



Dr Raymond  
Obayi

Co-funded by STFC Food Network+



### The project team and timeframe

Our transdisciplinary team comprise:

Prof Sonal Choudhary (Chair in Sustainable Management and PI, STFC Food Network+) and Dr Raymond Obayi (Lecturer in Operations and Supply Chain Management, SFN+ Policy Liaison) will be Co-directing this project and will offer people, process, and system-thinking expertise to map the hotspots of the resource and energy consumption within a factory. AMRC Team (Dr Victor Guang Shi, Dr Cansu Kandemir and Mr Artur Grigals) will offer their engineering, technology and modelling expertise in sensors and meters deployment, data modelling and dashboard making. **Four out of five core members of the academic team are all Early Career Researchers (except Prof Choudhary).**

The team will collaboratively work with Two Sisters Food Group and apply the sensors in one of their factories for obtaining process level data granularity that could be helpful in reducing factory level waste, energy and water consumption.



Engineering and  
Physical Sciences  
Research Council

# connected everything.



## What does the project demonstrate?

Our research primarily falls under “**Data-driven Manufacturing**” and “**Industrial Internet of Things**” Themes of Connected Everything. The overall aim is to demonstrate resource and energy improvement opportunities in food manufacturing sub-processes through application of smart meters, sensors, conduct multi-scale analysis and scenario modelling.

## Additional information regarding project, and key highlights wanting to address

### Our project will also help food manufacturers for Net Zero Reporting:

In process, water and energy consumption contribute significantly to scope 1, and 2 carbon emissions. The models developed through this study would **enable the processor to visualise energy and water consumption patterns and account for savings from process improvement using in-process evidence**. Consequently, the study holds both long and short-term value for the company by being able to demonstrate improvements in water and energy use by providing **“granular” evidence can be used to facilitate clarity in scope 1 and 2 accounting and Net Zero reporting** of energy and resource efficiency.

