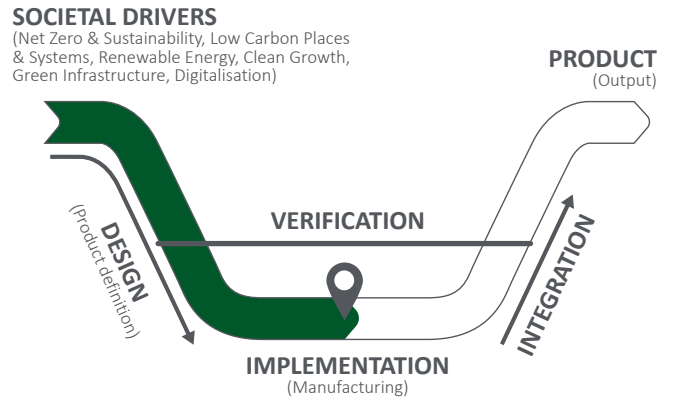


Calculating the carbon footprint of manufacturing products and processes



CHALLENGE

The greatest challenge facing society is the preservation of the environment. Net zero legal commitments have already been made to reduce emissions by 80% by 2050, with ambitions to make this happen by 2030. By the end of this decade, to deliver a low carbon global economy, everything we make will need to be completely re-imagined and re-engineered. A vital step towards reducing carbon emissions will be the ability to accurately measure the carbon footprint of our products and processes.

Engineers and manufacturers must focus on acquiring, analysing and accurately interpreting data such as energy and waste, which are vital to calculating

the carbon footprint of products and processes - but this is especially difficult on legacy equipment. By collecting and aggregating the data from sensors, the equivalent carbon footprint can be calculated in a standard way - and precisely allocated to individual projects and products to keep traceability.

Digital Catapult has partnered with the National Composites Centre (NCC) and other companies to drive innovation in the design and manufacturing of composites using Internet of Things (IoT) solutions, developing software that uses cutting-edge technology and specialist engineers to calculate carbon footprint more accurately.

RESULTS AND THE DIGITAL OPPORTUNITY

DETI has successfully developed a proof of concept for an application called the ‘eco-meter’ – which measures the carbon footprint of products manufactured by the Automated Fibre Placement (AFP) team in the Coriolis Cell at the National Composites Centre (NCC). AFP is where continuous fibre tapes are precisely laid to manufacture multi-layered composite products such as parts of aircraft wings, cars, etc.

Using sensors, and by streaming information on equipment’s materials, transport and storage, compute costs

and waste, the eco-meter will allow us to visualise carbon footprint data in real time, as well as providing retrospective data to enable decision-making and planning based on the carbon footprint.

This will allow the AFP team to price jobs, choose to use the equipment differently and perhaps invest in different, more environmentally friendly equipment in future. It will also allow the AFP team to start working on an offering that makes carbon footprint analysis and estimation part of their value proposition.

While only a proof of concept at this stage, there is a view to explore the provision of the eco-meter as a service to wider industry - aiding engineers and technicians in manufacturing businesses to make intelligent decisions and cut emissions across their programmes.

Partners

