

**Service ID** S00066

**Location** Poland



## Life cycle assessment for AI and robotic solutions

### Provider service

Lukasiewicz Poznanski Instytut Technologiczny (L-PIT)

### Link to content

<https://agrifoodtef.eu/catalogue-of-services/life-cycle-assessment-ai-and-robotic-solutions>

### Type of Sector

Arable farming, Food processing, Greenhouse, Horticulture, Livestock farming, Tree Crops, Viticulture

### Accepted type of products

Data, Design / Documentation, Physical system, Software or AI model

### Type of service

Collection of test data, Data analysis, Desk assessment, ELSA assessment, LCA assessment, People training, Test design, T

### Description

This service offers a comprehensive environmental analysis of the entire life cycle of your agri-food products, processes, or services, with a particular focus on innovative AI and robotic solutions. Our Life Cycle Analysis (LCA) gathers detailed data on natural resource extraction, environmental emissions, and fuel and energy consumption, specifically related to technologies tested within the agrifoodTEF project – such as AI-powered facilities, autonomous vehicles, and other robotic systems. This enables a robust assessment of environmental impacts across categories including climate change, ozone depletion, and resource scarcity. We also conduct a full carbon footprint analysis, focusing on greenhouse gas emissions and energy use directly linked to the operation and performance of these AI and robotic technologies. To support this process, we offer both general and technical assistance, guiding clients through each step of the LCA. The results help identify opportunities for resource optimisation and waste reduction, ultimately supporting informed business decisions based on tested, cutting-edge solutions. Additionally, our carbon footprint assessment facilitates voluntary emissions reporting and the development of decarbonisation strategies using secure, cloud-based data collection.

## How can the service help you

Our service directly addresses the need for a thorough understanding and quantification of the environmental impact of agri-food innovations. Before engaging our service, customers may lack detailed information on the environmental burdens and carbon emissions associated with their products or processes.

After utilising our Life Cycle Assessment (LCA) service, they receive a comprehensive report identifying key environmental hotspots and opportunities for improvement. This data-driven insight enables informed decision-making in areas such as resource management, waste reduction, and the adoption of more sustainable practices. Specifically, for companies seeking to voluntarily report their carbon footprint, our analysis provides the necessary data and supports the development of emission reduction strategies or a decarbonisation plan.

This is particularly relevant in sectors such as transport and logistics, where emissions reporting is becoming increasingly important. This proactive approach not only helps organisations demonstrate environmental responsibility but also prepares them for future regulatory expectations. The service is designed to support informed decisions regarding the environmental impact of products and processes, in alignment with sustainable development goals and presumption compliance with

## How the service will be delivered

As part of this service, we offer the development and execution of a full Life Cycle Assessment (LCA) tailored to your specific agri-food products, processes, or services. The analysis is based on a jointly agreed methodology and carried out in accordance with applicable legal, technical, and technological requirements.

A complete carbon footprint assessment is also an integral, customisable component of the service. To prepare a comprehensive LCA report, we conduct all necessary tests on the facilities and technologies under investigation.

These tests are performed according to the approved methodology and may require the presence of our experts. Testing may include both physical and virtual analyses, depending on the nature of the subject and the client's preferences.

For the service to be delivered effectively, the client must provide:

- Full access to relevant data, documentation, and prior research related to the innovation (product, device, technology, or

## Service customisation

Our service to perform a full Life Cycle Assessment (LCA) and carbon footprint analysis is based on a structured and collaborative implementation process, designed to ensure precision, flexibility, and alignment with the client's expectations. It includes pre-test support, detailed planning, comprehensive reporting, and post-test assistance.

The subjects of the study for which the service will be provided include the facilities being tested within the agrifoodTEF project, autonomous vehicles equipped with AI systems, and other state-of-the-art AI technologies.

A full carbon footprint assessment of products, processes, and services is an integral part of the offering. The service maintains strict adherence to predefined implementation requirements.

The process is carried out in the following stages:

- Initial input from the customer: The service recipient provides a detailed description of the product, process, or system to be analysed (e.g., a robot, vehicle, or production line), along with relevant parameters, performance metrics, and limit ranges.