Service ID S00179

Location Italy, Remote

Desk assessment activities for digital systems or data

Provider service

Politecnico di Milano (POLIMI)

Link to content

https://www.agrifoodtef.eu/services/desk-assessment-activities-digital-systems-or-data

Type of Sector

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

Accepted type of products

Design / Documentation

Type of service

Desk assessment

Description

Through this service, we offer customers a complete feasibility study of their digital systems and/or data, evaluating their suitability for the test use cases identified by the customer. The study involves both technical and agronomic aspects. The goal of this service is to provide the customer with a comparison between the features of the system or data submitted for review and the requirements of the use cases chosen for (possible) subsequent testing. Examples of systems and data requiring digital testing include (but are not limited to) software modules for data processing (e.g., machine vision modules), AI models, software architectures (e.g., control systems of robots), simulations, datasets collected in the field, synthetic datasets, designs of software systems, and so on. This assessment is crucial to provide customers with key information on elements of their system that need to be further developed to become “fit for testing.” It can also identify changes to apply to either the system or AgrifoodTEF’s testing facilities to meet the requirements for experimentation.

How can the service help you

Developing digital systems to be incorporated into AI- or robotics-based agrifood applications in real environments is a very complex task. Collecting and/or preparing the datasets needed for the development of such digital systems (e.g., training datasets for an AI deep learning model) is difficult and time-consuming, so it is important to prevent mistakes.

For these reasons, it is often beneficial for a company to discuss with AgrifoodTEF the features of the systems or subsystems and the chosen use cases before any experimentation takes place, as well as the features and suitability of any dataset that the company already possesses or plans to generate.

This service allows the customer to examine such issues in detail together with personnel specialised in AI, robotics, advanced agricultural machinery, and agronomic research.This service is very flexible in order to meet each customer's specific needs.

How the service will be delivered

This service description is intentionally generic. Every instance of this service is, in fact, customised to adapt it to the needs and requirements of the specific customer.

The following is an example of a service instance (please note that the service is available for many agricultural sectors, not only the one considered by the example).

Example service: The customer is a company that is developing a weeding robot equipped with cameras and a computer vision module, used to discriminate weeds from crops to select zones that require weeding. While the hardware of the machine is already at an advanced state of development, the software is at an earlier stage of development. The company has the design of the software system and a preliminary implementation of it, along with a few preliminary datasets collected with their robot.

They would like to further develop their software module and generate high-quality datasets to build a prototype software

Service customisation

The service typically requires 2-4 weeks.The desk assessment starts from analysing, together with agronomists, the use cases specified by the customer in order to clearly identify the customer’s needs.

The second stage is an analysis of system/subsystem features to be tested and/or an analysis of the datasets that the customer already has or plans to generate. In the case of data, custom software may be developed and employed to process the data in order to highlight relevant features.

During this second stage, the customer can decide to share technical details about their solution and/or the results of preliminary testing, under NDA if needed.

Finally, we evaluate how the features of the current systems/subsystems and/or data align with the desired outcomes and test requirements and provide guidelines and advice about how this alignment can be improved. If required, this service can be tied to other AgrifoodTEF services aimed at designing the elements of experimental testing campaigns (services S00176, S00177, S00178).