EU-FarmBook

Deliverable 1.6

Data Ingestion Pipeline and Upload Interface v1

Report | Public

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Version 0.6	29/09/2023	Louis Powell	Final edits and formatting

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Abbreviations

AGROVOC	AGROVOC is a multilingual controlled vocabulary covering all areas of interest of the Food and Agriculture Organization of the United Nations, including food, nutrition, agriculture, fisheries, forestry and the environment.
AI	Artificial Intelligence
AKIS	Agricultural Knowledge and Innovation Systems
API	Application Programming Interface
C4	Software visualisation architecture model (Context, Container, Component, Code)
CORDIS	Community Research and Development Information Service
CRUD	Create, Read, Update, Delete
DEM	Demonstrator/Pilot/Prototype
DL	Deep Learning
DMP	Data Management Plan
DOI	Digital Object Identifier
EIP	European Innovation Partnership
ETL	Extract, Transform, Load
EU	European Union
EURAKNOS, EUREKA	Predecessor projects for the EU-FarmBook project
FAIR	Findability, Accessibility, Interoperability, and Reusability
FAQ	Frequently Asked Questions
FoodOn	A broadly scoped ontology representing entities which bear a "food role"
GDPR	General Data Protection Regulation
GET	GET is used to request data from a specified resource
GUI	Graphical User Interface
ID	Identification
JSON	JavaScript Object Notation
JSON-LD	JSON Linked Data
KG	Knowledge Graph
KO	Knowledge Object
M[0-9]	Month (month number starting from August 2022)
MA	Multi-Actor

MS	Member States
MVP	Minimum Viable Product
NLP	Natural Language Processing
OG	Operational Group
PBIS	Product Backlog Items
PPT	PowerPoint
PU	Public
RDF	Resource Description Framework
RIA	Research and Innovation Action
SE	Sensitive
SPARQL	SPARQL Protocol and RDF Query Language
SSO	Single Sign-On
UI	User Interface
UX	User Experience
WP1/2/3	Work Package 1/2/3

Executive Summary

The following document provides the initial release of the Data Ingestion Pipeline and Upload Interface deliverable. The primary data uploaded to the EU-FarmBook are practice-oriented materials ('Knowledge Objects') and their metadata. This document is the outcome of extensive consultation between the technical partners in the project, analysis and discussion of the lessons learnt from the preceding EURAKNOS and EUREKA projects, and response to feedback and feature requests during the EU-FarmBook "Platform Day" in February 2023 and the "uploadathon" exercises during the May 2013 consortium meeting. The Data Ingestion and Upload Interface components of the EU-FarmBook platform enable Horizon Europe projects, Operational Groups and National/Regional platforms to contribute Knowledge Objects, which will be persisted for long-term storage and made available to EU-FarmBook users via the main EU-FarmBook website interfaces. A series of Annexes provide further details, including the EU-FarmBook upload manual. This deliverable will be revised and extended every 18 months during the project's life.

1 Introduction

This document describes the Data Ingestion Pipeline and Upload Interface at the core of the EU-FarmBook platform's database and Knowledge Graph. It includes details of the process in which Horizon Europe projects, Operational Groups and National/Regional platforms can contribute Knowledge Objects and the interfaces which make this possible.

The purpose and objective of the EU-FarmBook project are to support knowledge exchange between all EU and national AKIS actors by further developing, expanding, exploiting and maintaining an easily accessible and user-friendly, EU-wide digital platform for practitioners in the agriculture, forestry and other rural sectors (including farmers, foresters, advisors, educators and trainers). The EU-FarmBook project will deliver a cross-media platform, focussing on ease of use and enabling user-friendly multilingual access to practice-oriented materials ('knowledge objects') generated by EU-funded and national research and innovation (R&I) projects.

The platform, on the one hand, will make it easy for existing and upcoming EU-funded and national agriculture and forestry research and innovation projects to share their knowledge outputs, and on the other hand, for a large variety of users to easily find access and reuse these knowledge objects for their agronomic practice, for their agricultural advisory services and wider stakeholder benefit.

End user ease of access across multiple platforms (web, mobile, tablet) using different modalities (simple text, chat, voice) will further stimulate research and innovation, enabling the outputs of EU-funded Multi-Actor (MA) projects, national projects and EIP Operational Groups (OGs) to have real impacts on agronomic and forestry practice across the EU and beyond.

The overall concept of the EU-FarmBook project is deeply embedded in the ambition of the European Commission to make European agriculture, forestry and rural enterprise more sustainable by strengthening the so-called Agricultural Knowledge and Innovation Systems (AKISs) that exist at regional, national and EU levels. Further, the project is complementary to the overall EU objectives in Open Science in enabling access to and reuse of all results from EU-funded projects.

The platform being developed in the EU-FarmBook project builds upon the work done in the EURAKNOS and EUREKA projects, including feedback from individuals and projects involved in the uploading Knowledge Objects to the EUREKA pilot platform, as well as multiple user experience tests and "uploadathons" at both the EU-FarmBook consortium and Platform Day events in 2023.

The EU-FarmBook is an RIA project that is designed for interactive action research. The project implements an approach to plan and coordinate project activities and the operation of a sustainable digital knowledge platform to respond to the 'evolving AKIS ecosystem' in all Member States (MSs) and sectors. This iterative and incremental approach facilitates flexibility, adaptation, and responsiveness to the dynamic needs and capacity of the EU (sectoral) and national-level AKISs.

1.1 Relationship to other work packages

This deliverable provides details of the process and specifications, enabling contributors to the EU-FarmBook to upload Knowledge Objects, metadata and other key information. These processes and specifications form part of the technical features specified in D1.10. Further versions of this deliverable will be provided at regular intervals (i.e., every 18 months), reflecting revised requirements as the project progresses. These revisions will reflect a combination of a) the experience of the technical team, b) requirements resulting from front-end user testing, and c) improvements in available software and security.

There is two-way communication between WPs 1+2. Other work packages have influenced and continue to influence the overall platform primarily through discussions undertaken as part of T1.1 and feedback processes under development for delivery together with the first release. This deliverable has been written in tandem with D1.10 System Infrastructure and API, D1.13 - Data Standards and Knowledge Graph v1, and the three deliverables should be read as an integrated whole.

The current document is the version for M12.

1.2 Structure of the Deliverable

This deliverable is structured as follows: Section 2 explains the purpose and intention of this document and how it should be used. Section 3 sets out the scope for the specifications included in this document. Section 4 gives the context and key considerations for the Data Ingestion Pipeline and Upload Interface in relation to the EU-FarmBook platform and project, including what content is being ingested, who are the contributors, and under what criteria can data be provided. Section 5 provides detail of the main steps in the pipeline, including graphical representations of the primary stages in the upload and ingestion process. Section 6 gives detail on the different upload interfaces available, namely the upload form, and the API.

2 Purpose

This document introduces the Data Ingestion Pipeline and Upload Interface of the EU-FarmBook project. We describe a set of distinct pipeline stages, each involving a set of user interactions, functionalities and technical resources, including standards and ontologies, as documented in D1.13 - Data standards and Knowledge graph.

This document intends for readers to understand the process by which Knowledge Objects are uploaded to the EU-FarmBook, and how metadata is associated with each Knowledge Object.

While the content in the main body of this document is deliberately non-technical and aimed at all stakeholders, the annexe is deliberately more technical and references specific information on the implementation and tools involved.

3 Scope

The scope of the specifications in this document relates to the Data Ingestion Pipeline and Upload Interface, which sit at the core of how the platform collects and stores data.

Conceptually, the Data Ingestion Pipeline can be described as a set of human-in-the-loop workflow stages supported by technical and automated processes embedded in the software and hardware. Each stage or process involves a pre-defined set of inputs and outputs in the form of data and digital documents. These stages first enable project coordinators to register a research project with the EU-FarmBook and then sign (where necessary) a Data Transfer Agreement. Upon entering into the Data Transfer Agreement, authenticated contributors from their project are then able to upload Knowledge Objects (e.g., a PDF document) and specify the relevant metadata (e.g., Title, Creator, Keywords).

A set of guidelines, including data specifications (I.e., the EU-FarmBook data standards and ontology), are provided to contributors. The proposed metadata is subsequently validated during the Data Ingestion Pipeline. This facilitates projects in providing Knowledge Objects and metadata in line with the FAIR (Findable, Accessible, Interoperable and Reusable) principles.

The Upload Interface provides the mechanisms by which a contributor can upload Knowledge Objects and specify its metadata to the EU-FarmBook platform. For the EU-FarmBook 1st release, there will be two interface formats available.

The **Upload Form** is a web-based user interface that guides the user through clearly defined steps and question-and-answer prompts, starting with uploading a Knowledge Object and then asking the uploader to provide metadata such as keywords, topics, and purpose. The form is located on the main EU-FarmBook website, accessible for users with the necessary rights to upload Knowledge Objects.

The **"API" (Application Programming Interface)** is a programmatic alternative to the Upload Form, enabling bulk upload of Knowledge Objects and metadata. This is aimed at projects with many Knowledge Objects to contribute at once, for example, those that have already come to a close.

While the upload form is aimed at users of minimal technical expertise, it is important to note that there is a requirement on projects that use the API directly to build and implement technical programs or "scripts" to interact with the API. The popular programming language Python (www.python.org) is anticipated in most cases.

In the coming months (during the EU-FarmBook internal release phase), partners from WP1 and WP2 will collaborate with early adopter projects which have platforms already able to contribute Knowledge Objects. From this exercise, case studies will be documented and made available for future projects, including scripts. A common element of these case studies will be a mapping exercise. This comes from the requirement to map metadata (e.g., metadata already available on a project's website) from the project's standard and structure (or its data model) to that of the EU-FarmBook. Some documentation of the scenarios which would require such a mapping exercise has already been produced and communicated to stakeholders in early 2023, and these are referenced and made available in section 6.2.1 below.

To avoid doubt, the technical specifications (I.e., the actual software and infrastructure) which facilitate the Data Ingestion Pipeline and Upload Interface are out of scope for this document. Information on these specifications can be found in D1.10 - System Infrastructure and API.

4 Context

The explicit need for a Data Ingestion Pipeline in the context of the EU-FarmBook is evident in the project's proposal, specifically the requirement for the long-term storage of Knowledge Objects and metadata. To further define the requirements for the pipeline, we reviewed the project's strategic objectives, and translated the implicit requirements into explicit design details.

The primary considerations are:

- What is the **content** of the contributions that will be made?
- Who will **contribute** this to the EU-FarmBook?
- Under what **criteria** does the EU-FarmBook accept contributions and the content itself?

4.1 Content

At the core of the EU-FarmBook platform are Knowledge Objects and their metadata. These are research outputs, deliverables and practice-oriented materials generated by EU-funded and national research and innovation (R&I) projects. Knowledge Objects have heterogeneous digital formats, for example, videos, podcasts, PDFs, databases, etc. Every Knowledge Object should be associated with corresponding metadata, following the FAIR principles and enabling it to be found and accessed through the EU-FarmBook platform.

At least in the short to medium term, Knowledge Objects and their metadata are the primary content that will be contributed to the EU-FarmBook using the Data Ingestion Pipeline and Upload Interface.

4.2 Contributors

As introduced in D1.1 - Platform Requirements and Design, contributors create, provide, upload, and maintain Knowledge Objects and their associated metadata. The teams and individuals involved in Horizon 2020, Horizon Europe and EIP Operational Group (OG) projects are responsible for creating and uploading Knowledge Objects to the EU-FarmBook. A key contributor role is the project coordinator, as these individuals are responsible for registering projects in the platform and signing a Data Transfer Agreement (see section 4.3.1).

4.3 Criteria

Although the EU-FarmBook does not want to unnecessarily restrict the formats and types of data provided by contributors, several key criteria must be met for a Knowledge Object and metadata to be accepted. These criteria are enforced during the Data Ingestion Pipeline and largely centre around the Data Transfer Agreement and EU-FarmBook data standards.

4.3.1 Data Transfer Agreement

The Data Transfer Agreement is entered into by the EU-FarmBook project itself and a coordinator of another EU project (or other such contributors as identified in section 4.1). This agreement is signed when the coordinator registers their project with the EU-FarmBook. At this point, they or someone on their behalf (e.g., a Knowledge Object creator/author) can upload relevant content to the EU-FarmBook. This agreement gives the EU-FarmBook the necessary rights to store and share the content on the EU-FarmBook platform. The specifications of the Data Transfer Agreement can be found in deliverable D6.12 - Data Transfer Agreement.

4.3.2 Data Standards

As introduced and detailed in D1.13 - Data Standards and Knowledge Graph, data standards refer to pre-defined syntactic and semantic standards that contributors directly or indirectly adhere to for Knowledge Objects and FAIR metadata to be ingested into the EU-FarmBook platform.

Syntactic standards encompass the format and structure of the data, and semantic standards refer to the vocabularies and ontologies used to label data, such as title, authors, keywords and topics.

There are several ways in which these standards are automatically enforced during the ingestion pipeline, including schema validation (see deliverable D1.10 System Infrastructure and API, and D1.13 - Data standards and Knowledge graph), which enforces consistency and validity of data without the need for human intervention or manual verification.

The project makes additional resources such as guidelines and manuals available to promote transparency and clarity of the requirements contributors must satisfy to upload Knowledge Objects.

5 Data Ingestion Pipeline

The Data Ingestion Pipeline encompasses stages supported by data inputs and dependencies, which ultimately enable a contributor to upload Knowledge Objects to the EU-FarmBook platform. In this section, we start by introducing the pipeline at a high level to set the context, followed by in-depth details of each stage, dependency and input.

5.1 Concept

A simple representation of each stage and its description is available in Figure 1 to introduce the pipeline.

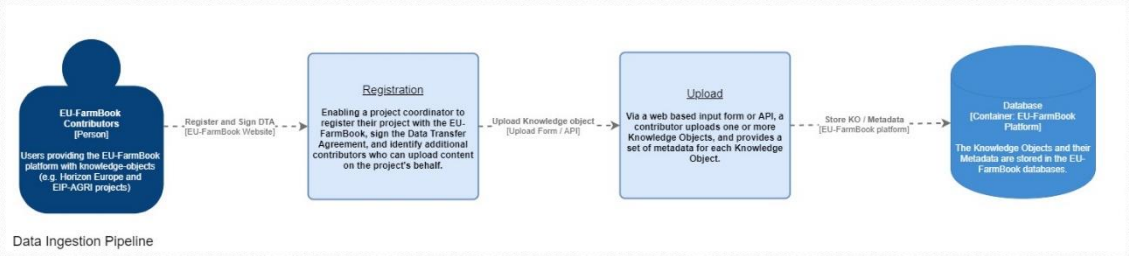

Figure 1 – Simple conceptual representation of Data Ingestion Pipeline

In this simple representation, we identify the user role of "contributor, " specifically a project coordinator, responsible for registering their project in the EU-FarmBook platform and signing the Data Transfer Agreement. To avoid doubt, this stage is only required once per contributing project.

After that, authorised individuals (users) from the contributing project can upload their Knowledge Objects and metadata manually via the EU-FarmBook website's Upload Form or programmatically via the EU-FarmBook API (Application Programming Interface). Assuming all necessary criteria and validation are met, the Knowledge Object and its metadata are stored in the EU-FarmBook platform and simultaneously made available for other users, namely consumers, to search for and access via the EU-FarmBook website.

5.2 Pipeline stages

Technically, the data ingestion pipeline and upload interface are facilitated by interactions between contributors, EU-FarmBook front-end interfaces (I.e., the website), back-end services (I.e., databases and the API) and external databases, including resources such as CORDIS (https://cordis.europa.eu/), and ontologies including AGROVOC (https://agrovoc.fao.org/browse/agrovoc/en/).

The process and order in which these interactions occur are logically described in 5 stages encompassing many human and automated substages. The following subsections in Section 5.2 focus on those stages and their interactions with services and databases, as identified by the green boxes at the centre of Figure 2.

For the avoidance of doubt, it should be assumed (unless otherwise stated) that any stages below which mention some form of user interaction, e.g., a project coordinator registers a project, or a contributor uploads a Knowledge Object, is being facilitated by the EU-FarmBook Upload Interface, specifically the Upload Form, as introduced in Section 3. The Application Programming Interface process is similar in concept, although specific contrasts are made clear in section 6.

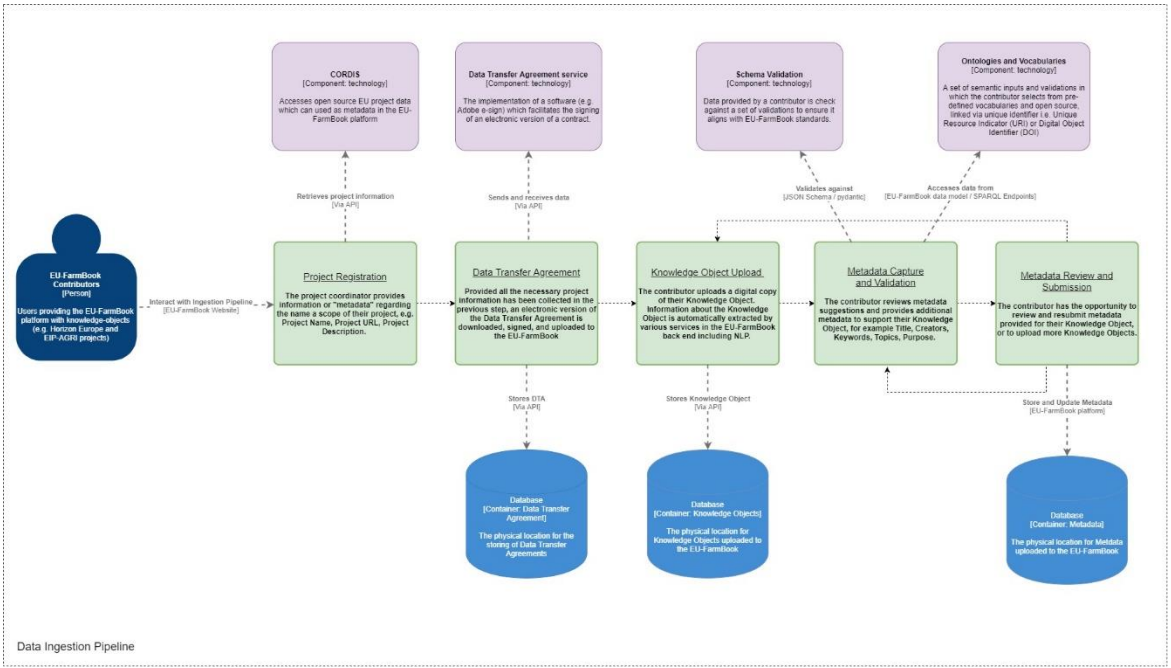

Figure 2 - Data Ingestion Pipeline

5.3 Project Registration

A mandatory metadata property relates to a Knowledge Object's provenance. Therefore, before Knowledge Objects can be uploaded, the contributor, namely the project coordinator, must register their intent to share data with the EU-FarmBook by identifying and registering their project. The coordinator can manually enter this information or via the Upload Interface's integration with CORDIS.

CORDIS is an open-access platform which "gives access to comprehensive information about EU Research & Development projects" [1]. It is expected that in most cases, rather than manually entering such information, it can be automatically found in CORDIS, which saves contributors time and enables interoperability, for example, by reuse of persistent identifiers (e.g., DOIs) with other European Commission platforms.

5.4 Data Transfer Agreement

The EU-FarmBook project has several strategic objectives, the first of which is to collect as many relevant agriculture and forestry practice-oriented materials ('knowledge objects') as possible from all multi-actor (MA) Horizon 2020, Horizon Europe and EIP Operational Group (OG) projects.

Before such Knowledge Objects can be collected and subsequently shared via the EU-FarmBook platform, the project coordinator must enter into a Data Transfer Agreement (DTA) with the EU-FarmBook. The DTA states that the project coordinator has all the necessary rights to share content with the EU-FarmBook. It sets out the framework for using and making it available, e.g., sharing a Knowledge Object with a farmer or forester via the main platform website. More information about the DTS can be found in deliverable D6.12 - Data Transfer Agreement.

In the short term, the signing of the Data Transfer Agreement will be on offline process, however WP1 and WP2 are exploring different software implementations, for example, Adobe e-signatures (https://www.adobe.com/sign.html) which would support the project to embed the Data Transfer Agreement signing process in the digital platform itself.

5.5 Knowledge Object Upload

Once a project is registered and the DTA has been signed, a contributor, for example, the author of a Knowledge Object, begins the Upload process by logging into the EU-FarmBook platform, navigating to the Upload Form. Here they can select the Knowledge Object they wish to share from their local drive.

This step involves both the persistence and storage of the Knowledge Object in the EU-FarmBook database and the automated extraction of information within the document, in part used to create a unique identifier to be referenced in the object's metadata, which is also stored.

Depending on the size of the Knowledge Object, the upload may take a few seconds up to several minutes, although the latter case will be very rare. The contributor will receive a notification once the upload is complete, and they can progress to the next stage of the Upload Form.

Note that, at this stage, the Knowledge Object is not yet available via the platform’s main interface as the necessary metadata (specified in D1.13 – Data Standards and Knowledge Graph) needs to be added in the next stage.

5.6 Metadata Upload

Metadata is the data about data i.e., a set of properties for each Knowledge Object. These include Title, Creators/authors, Keywords, Topics, DOI and license information which label a Knowledge Object and make it findable via the various ways to search for material within the main EU-FarmBook site.

The contributor is guided through a series of steps, each with their interface (a webform), where they can a) review and edit automatically extracted suggestions for properties and b) add missing information. The upload form provides prompts and clear labelling for each property to ensure the contributor knows the information they should provide.

As the upload form follows a pre-defined structure (I.e., as defined by a schema), the structure of the information provided by a contributor will automatically adhere to the EU-FarmBook standards by validation against this schema. Any failure to meet the specifications within this validation will return a clear message to the contributor to support them in resubmitting their information accurately.

Wherever a property is based on a pre-defined vocabulary, for example, the topic (i.e., Economics, Forestry, Livestock, Environment, Society, Crop farming), the contributor selects the relevant value(s) from the pre-populated options. In the background, this enables the metadata to be FAIR, as each value has its unique identifier (e.g., a URI) and is formally defined in the relevant ontologies and vocabularies.

It is intended that beyond the mandatory properties, and there will also be an additional metadata property whereby project or domain-specific metadata outside of the EU-Farmbook data model can be provided. Using the open-source standard JSON enables flexibility as many other structures of data can easily be ingested to further improve the interoperability of metadata, e.g., by links to domain-specific ontologies not yet referenced in the EU-FarmBook.

5.7 Metadata Validation

The final stage allows the contributor to review all their metadata before submitting it to the EU-FarmBook and then becoming available to platform users. They can return to any of the steps in the previous stage and edit their inputs before the final submission.

At this point, the contributor can exit the Upload Form or upload another Knowledge Object. As Knowledge Objects must be individually annotated to provide necessary metadata, the EU-FarmBook project recognises that this process may not be suitable for projects which have already ended and/or collected large numbers of Knowledge Objects that they would like to upload in one batch.

As a result, the EU-FarmBook permits projects direct access to the Application Programming Interface (API) where Knowledge Objects and their metadata can be provided programmatically, thus bypassing the Upload Form. Further information on API can be found in Chapter 6.2, and technical details can be found in D1.10 - System Infrastructure and API.

6 Upload Interface

6.1 Upload Form

It is envisaged that most contributors to the EU-FarmBook will interact with the platform via the Upload Form.

The Upload Form has been designed and developed in WP2, largely based upon feedback and knowledge gathered from the Upload process in the previous project EUREKA.

The visual elements and user experience of the Upload Form have been evaluated at numerous events, including the EU-FarmBook platform day and consortium events in 2023. WP2 will continually build upon and optimise the upload form, with support from WP1 in response to further feedback-gathering exercises and analysis of how contributors interact with it, for example, by using website analytics.

Access to the upload form itself will be available in the upcoming internal release, and further information, including the upload manual will also be made available. Some screenshots of the upload form and user interfaces are available in annexe section 7.2.

6.2 API

The EU-FarmBook offers a programmatic solution for projects that wish to upload multiple Knowledge Objects simultaneously, namely access to an Application Programming Interface or API. In some scenarios, for example, when an EU Project has already come to an end and has a large number of Knowledge Objects to contribute to the EU-FarmBook, the Upload Form may be considered too time-consuming a process, especially if metadata already exists for each Knowledge Object, albeit in a different standard to the EU-FarmBook.

The API is the mechanism which takes information from the Upload Form and transfers it to downstream databases and services, as well as returning information to the form itself. It can bypass the form, sending data via programmatic input messages directly to the API. It automatically receives responses regarding the success or key information required to continue the process.

The framework the EU-FarmBook uses for its API is FastAPI, which automatically generates documentation for contributors to test their inputs against before submitting data to the platform.

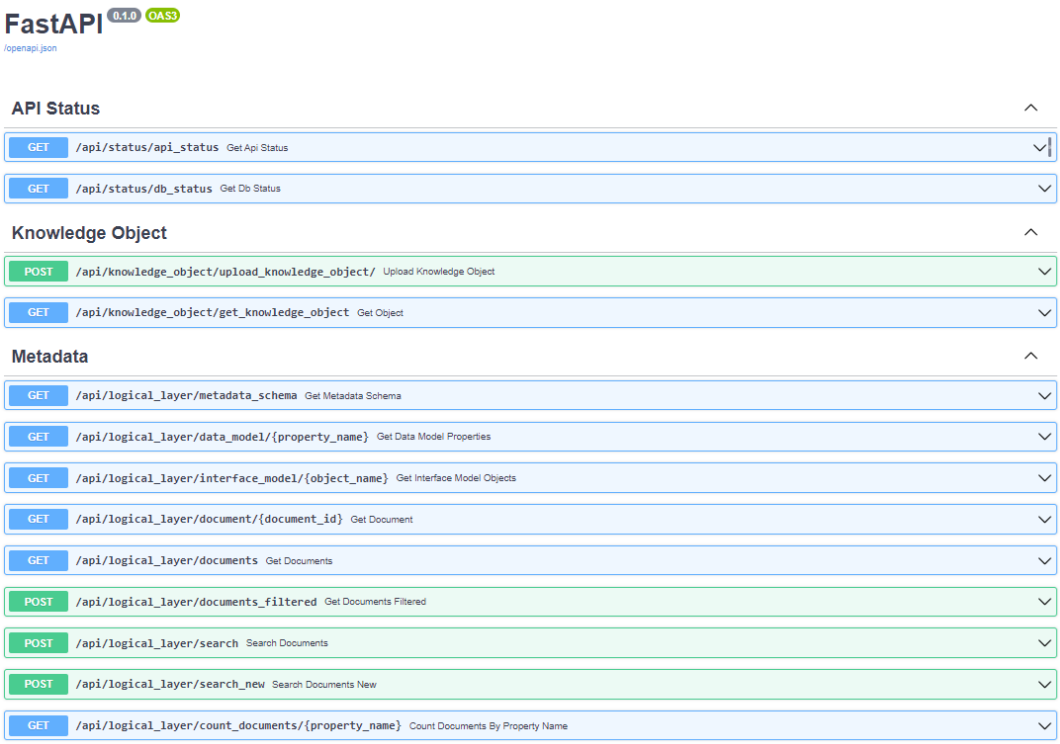

Figure 3 - API Documentation

6.2.1 API considerations for other platforms

As explained in Section 3, projects with existing platforms or platforms under development may already have collected Knowledge Objects and wish to upload them via the API. Depending on the state of the platform and its data, each project or platform should consider the following scenarios as a mapping exercise from their existing metadata standard into the standard for the EU-FarmBook must be performed. For new projects or platforms, they may consider already structuring some of their metadata standards in line with the EU-FarmBook to enable little or no human interaction in future uploading of Knowledge Objects and metadata. For projects with platforms under development or already completed, different options are available, as detailed in the following figures.

Platforms not yet developed

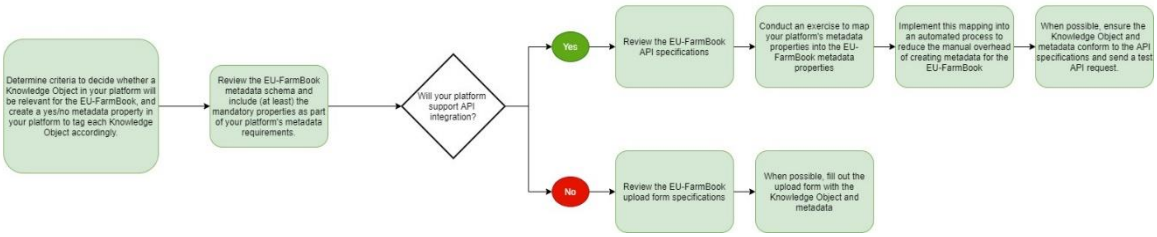

Figure 4 - Decision Tree for platforms yet to be developed

For platforms not yet developed, the ability to use the API can be greatly simplified by reviewing the EU-FarmBook mandatory metadata properties, and their value sets (e.g., list of topics) and ensuring these are similarly implemented as mandatory properties in the platform's own metadata data model.

In doing so, the project would not need to transform or map their data from their platform format and structure to that of the EU-FarmBook. They could simply tag which of their knowledge objects to send within their own database, and perform the necessary API calls (e.g., PUSH requests) to upload them accompanied by the required metadata.

Platforms with development in progress

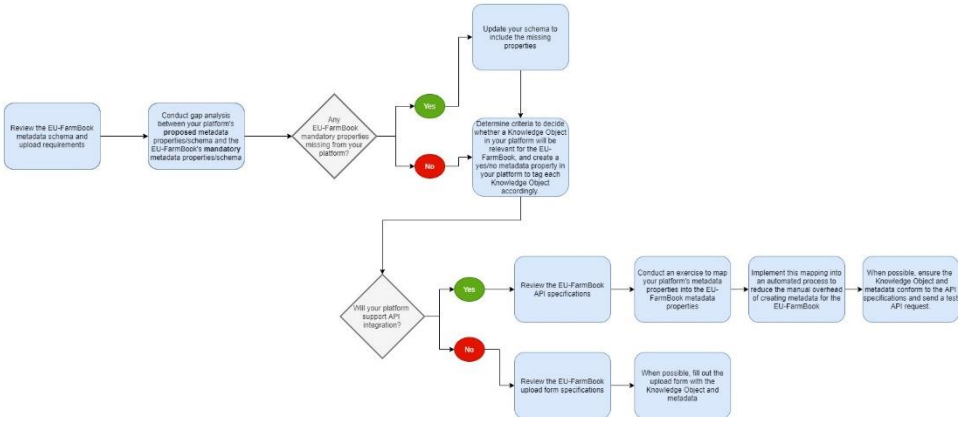

Figure 5 – Decision Tree for platforms under development

For platform with development in progress, there will be a requirement for a mapping exercise from their existing metadata to that of the EU-FarmBook, as well as a gap exercise. For example

- The EU-FarmBook required property “summary” may already exist in the project's platform but be names something alternative like “document description”. This would require mapping.
- The projects platform may not have the property “purpose”. This gap in their metadata would require a review of each knowledge object to provide the necessary information. This could be achieved, for example, but the project updating their own platform’s metadata model to creating and updating this property for existing Knowledge Objects, while also making it mandatory for new Knowledge Objects they may produce and upload in the future.

The project’s platform must also review the EU-FarmBook criteria for what qualifies as a Knowledge Object, as there is the potential that their platform stores other objects which are not applicable for the upload. In such cases, it is recommended that the platform creates an EU-FarmBook “tag” within their data model which can be populated based on the given criteria for a Knowledge Object. This tag can subsequently be used to filter their set of Knowledge Objects to only include those which they wish to upload via the API.

Platform development complete

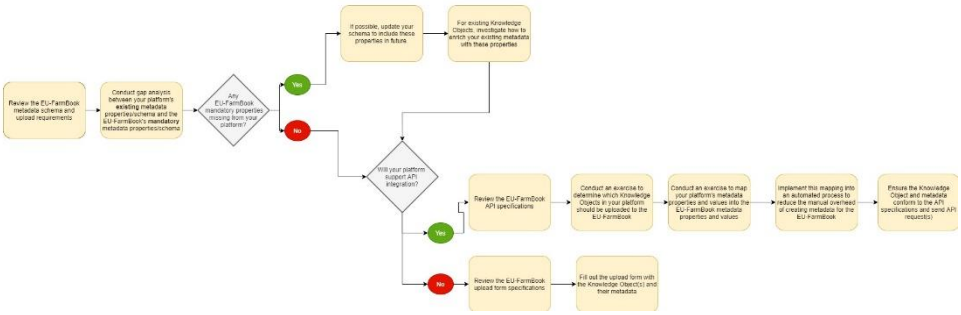

Figure 6 – Decision Tree for platforms already developed

For platforms already developed, it is expected that making changes to existing data models will be limited. The considerations are similar to the previous section, however for missing properties, an inevitable exercise will need to be performed to retrospectively assign values for these properties to existing Knowledge Objects, based on some given logic or mapping of existing properties with a similar meaning.

References

[1] - https://cordis.europa.eu/

7 Annexes

7.1 API Infrastructure

Figure 7 below, taken from D1.10 System Infrastructure and API highlights the architecture of the API itself the core of the EU-FarmBook, responsible for enabling communication between the different components, and allowing projects to directly upload Knowledge Objects without need for the upload form.

The API hosts a set of web addresses or endpoints which can receive information and different inputs criteria in the form of an HTTP request.

The main gateway is available via the internet and directs requests into internal APIs which cannot be reached publicly. This adds an extra layer of security on top of the platform, as we will not expose the methods and software being used to perform operations.

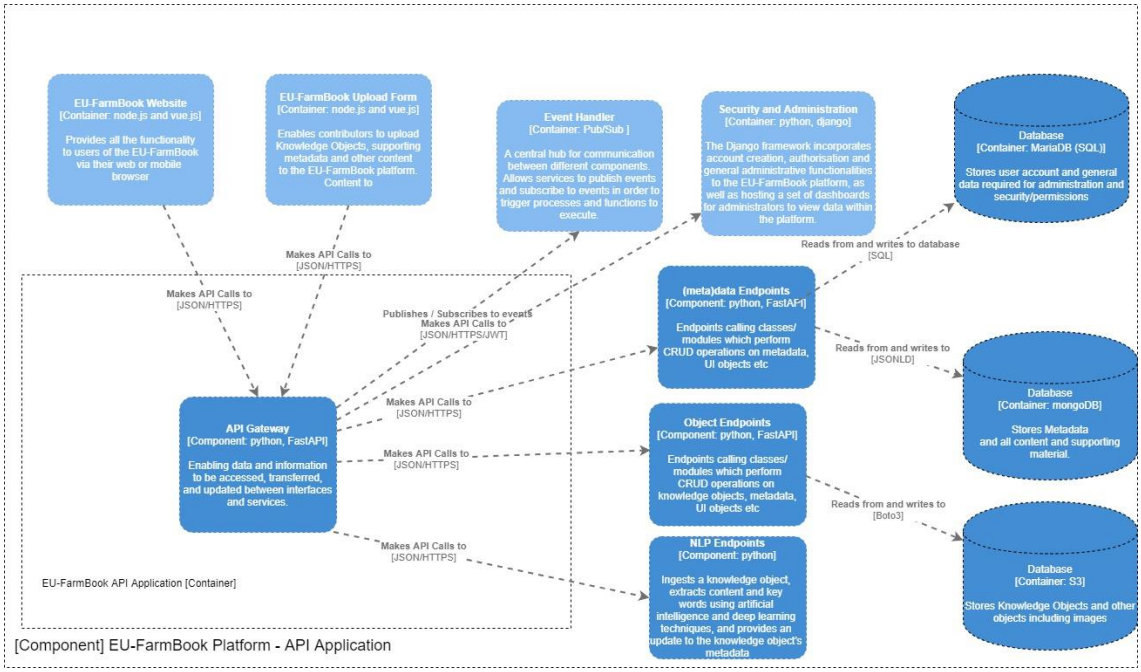

Figure 7 - The C4 Model of the API (Component, Layer 3)

7.2 Screenshots of upload form

This section provides some visual examples of the Upload Form process including logging in, uploading Knowledge Objects, metadata and the review stage.

7.2.1 Login Screen

Only authenticated users are permitted to upload Knowledge Objects to the platform. After creating account, users can log into the upload form via the standard login page below within the EU-FarmBook platform.

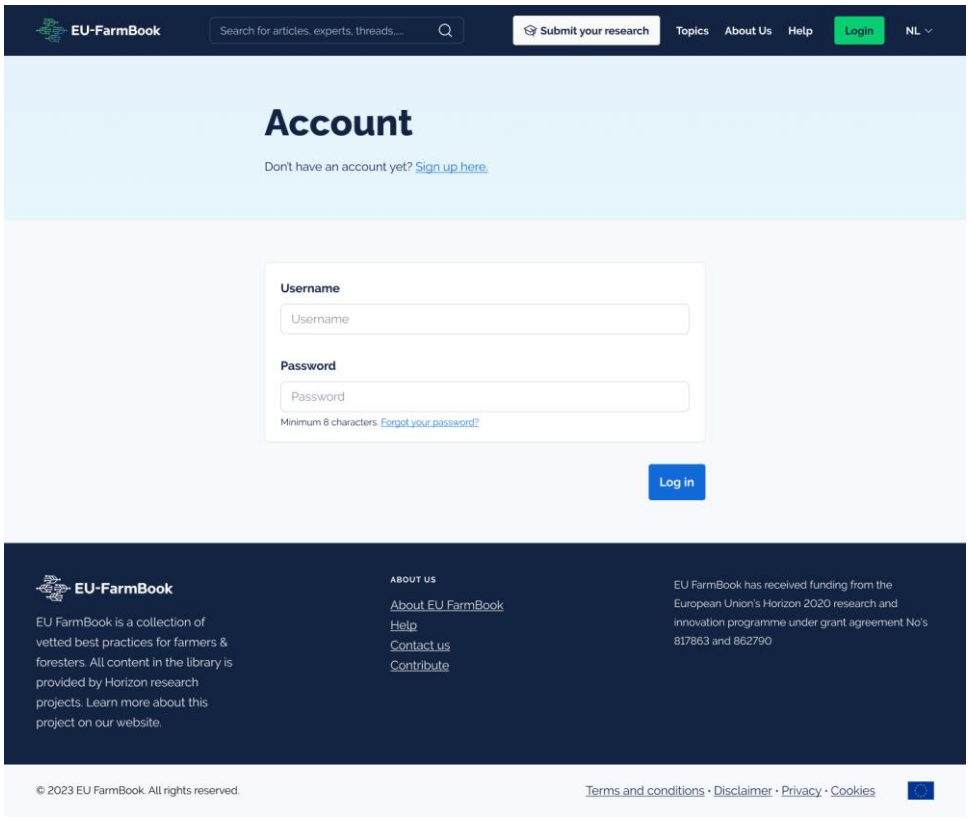

Figure 8 – The account login page of the EU-FarmBook

7.2.2 Register Project

The EU-FarmBook is integrated with CORDIS to automatically pull project information for a given contributor. The contributor can enter a project name and press the "search" options to retrieve data from CORDIS rather than having to enter the information manually.

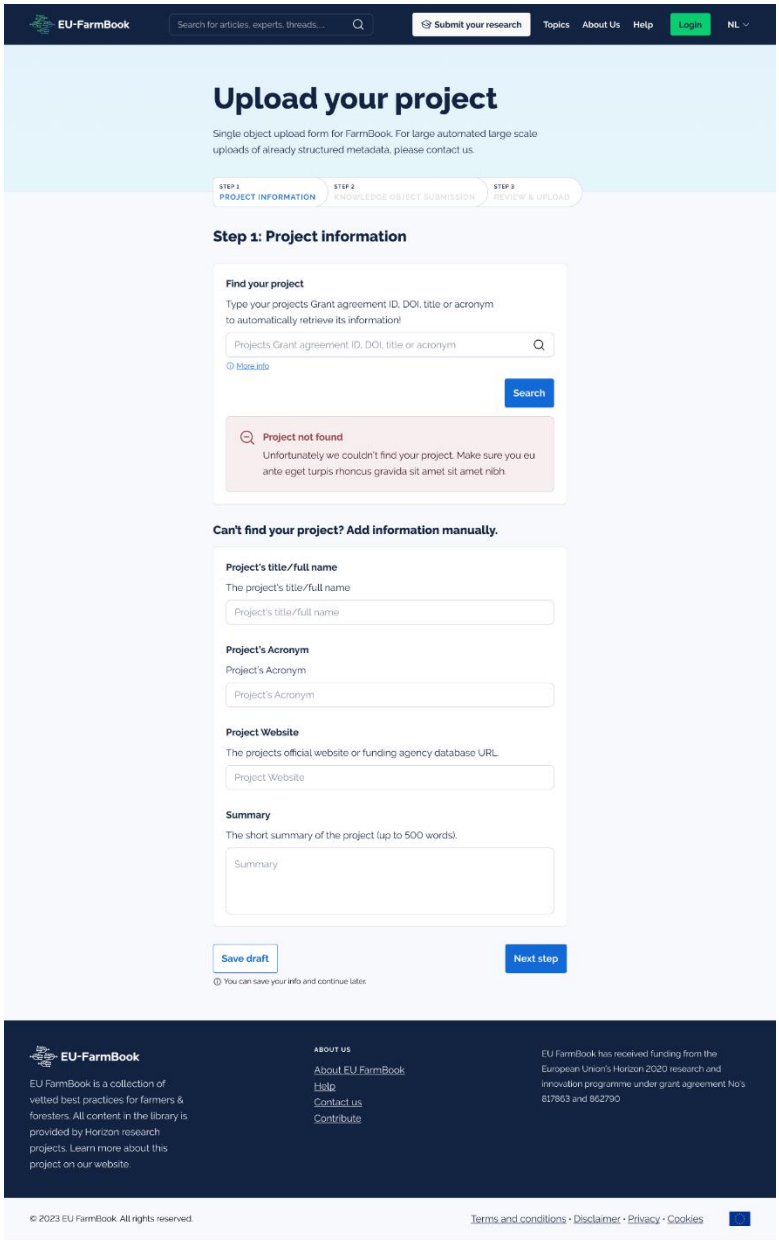

Figure 9 – The "upload form" interface – Project registration

7.2.3 Knowledge Object and Metadata Upload

Once the project details are collected, the Knowledge Object upload begins, with the user selecting the relevant file, or dragging it into the interface.

The following input are related to the metadata properties that must be collected including the summary, topics, subtopics etc.

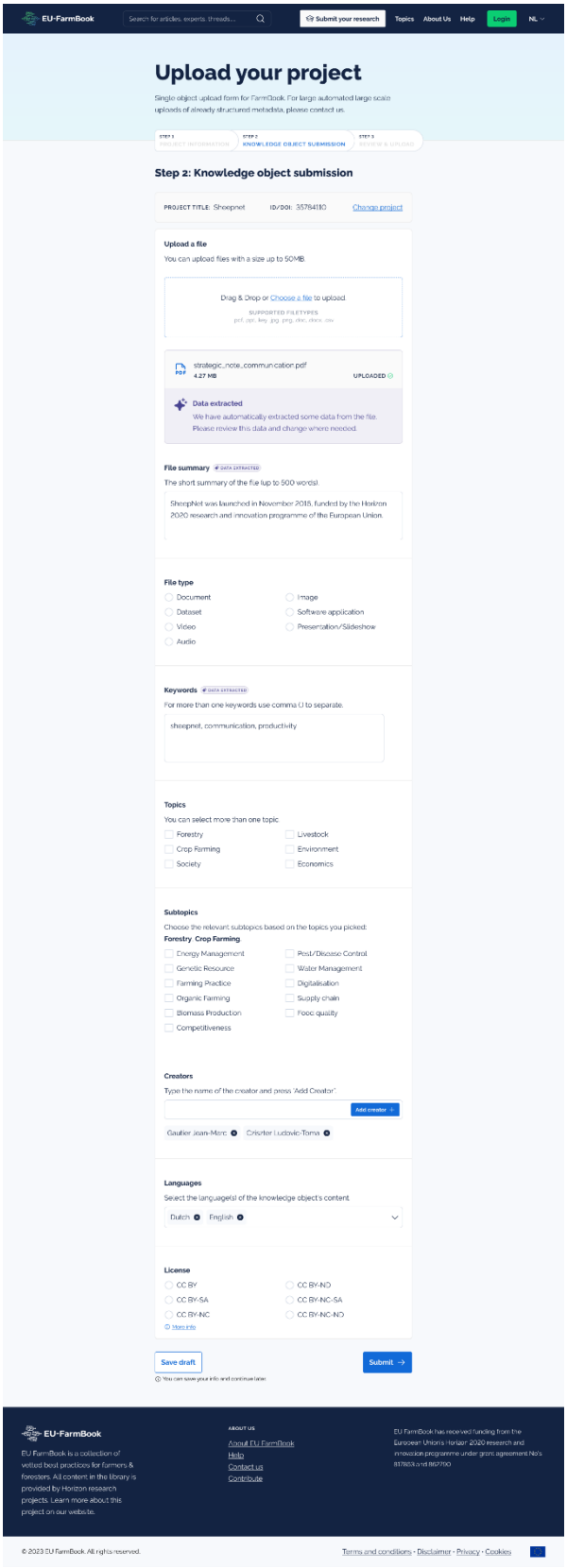

Figure 10 – The "upload form" interface – Knowledge Object and Metadata upload

7.2.4 Metadata Review

One the metadata has been collected; the contributor can review the information before submitting to the EU-FarmBook. They can select “edit” which will return them to the previous screen.

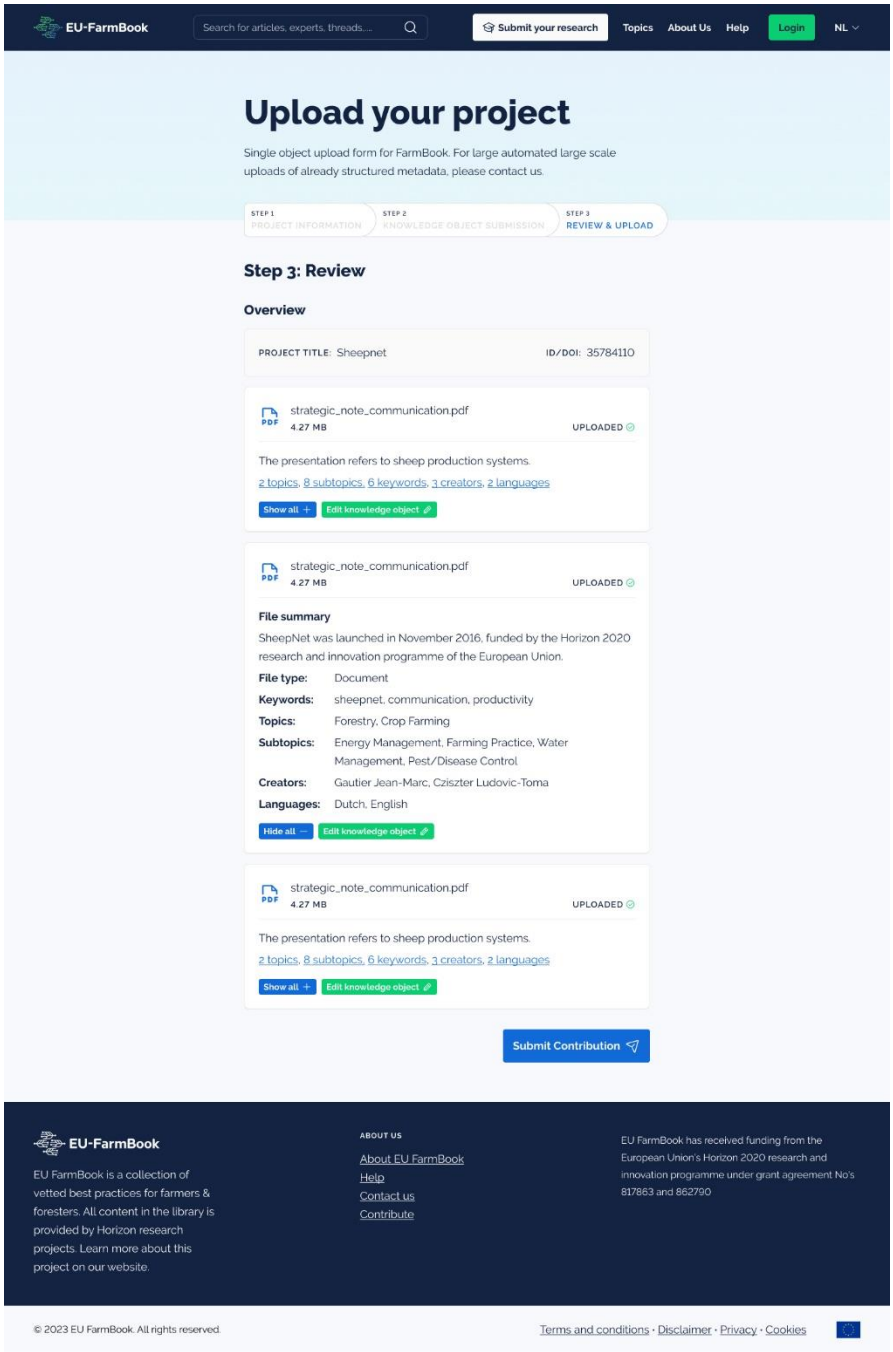

Figure 11 – The “upload form” interface – Metadata review

7.2.5 Contributions Overview

In Figure 12, a contributor can see an overview of all their Knowledge Objects and the status of each upload (e.g., published or draft).

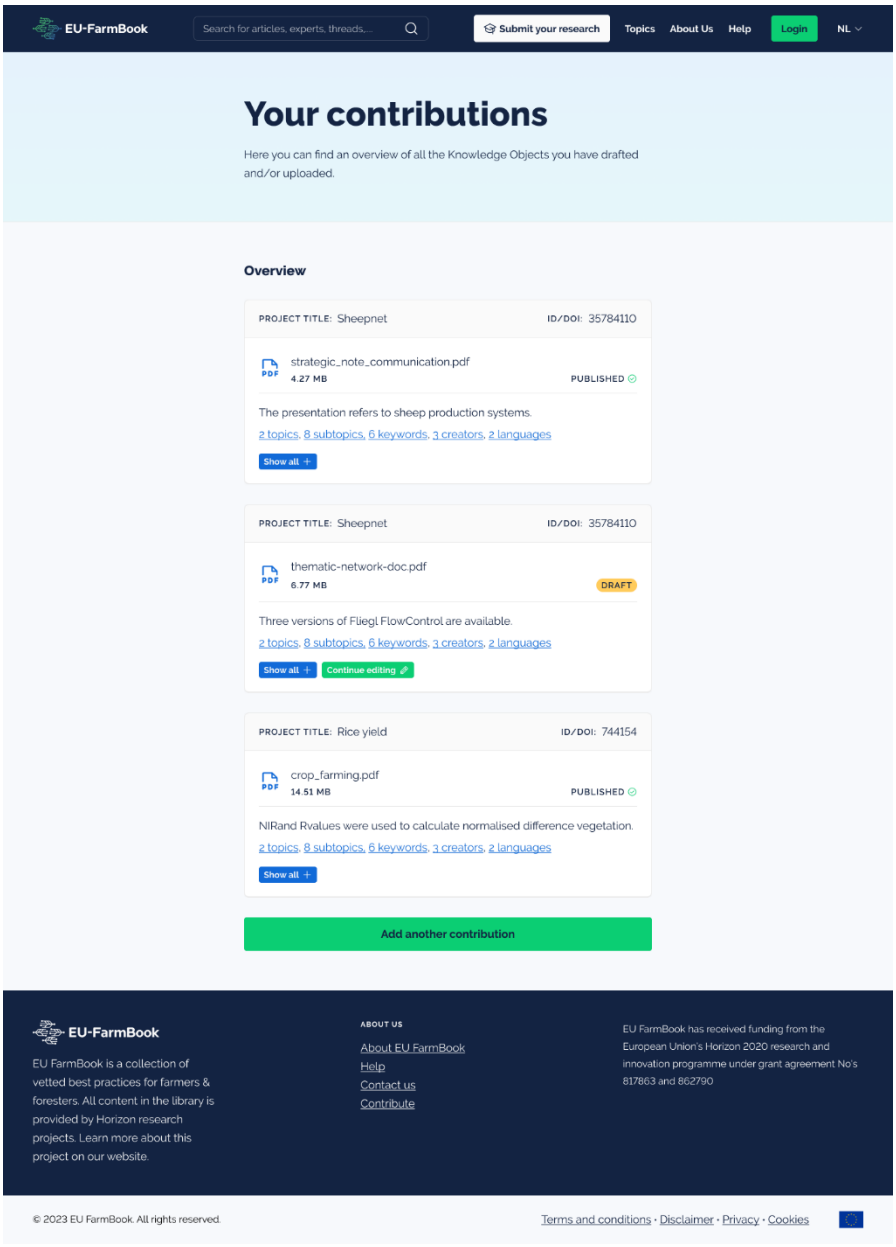

Figure 12 – The "upload form" interface – Contributions overview