# INCREDIBLE

## Innovation Networks of Cork, Resins and Edibles in the Mediterranean basin

Project no. 774632

Start date of project: 1 November 2017

Duration of project: 36 months

Coordination and Support Action H2020-RUR-2017-1

Thematic Networks compiling knowledge ready for practice

## D2.2 Web-based knowledge platform with associated long-term sustainability

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## Content



## Reference


Mauri, E. (2019) Web-based knowledge platform with associated long-term sustainability - Deliverable 2.2. H2020 project no. 774632 RUR-2017-1 European Commission, 12 pp.

## 1. Purpose of this report

This document describes the aim of the web-based knowledge platform, the reasoning supporting the selection of the platform where it has been developed, and its structure. It also includes the long-term sustainability plan.

The following topics are out of the scope of this deliverable:

- the workflow to develop, write, edit and upload data (in form of factsheets) in the web-based knowledge platform (this is explained in D2.4 *Submission of Practice and Research Abstract*);
- the content of the collection of knowledge (the collection of factsheets; this is presented in D2.1 *Compilation of co-developed ready-to-implement innovative knowledge*);
- the delay suffered by this deliverable and its potential impacts on the rest of the project (this is explained in D5.4 *Project Progress Report 1* and D5.5 *Project progress Report 2*).

## 2. Aim and requirements of the web-based knowledge platform

The aim of the web-based knowledge platform is be the knowledge repository hosting the output of D2.1 *Compilation of co-developed ready-to-implement innovative knowledge* (due in M35, September 2020). This output is a collection of 250 ready-to-use factsheets collecting relevant information on non-wood forest products innovation (research, success stories, best practices, databases, technical reports, policies). For more details on the factsheets, please, consult D2.4 *Submission of Practice and Research Abstract*.

The main requirements for the web-based knowledge platform were:

**Back-end requirements**

- the respect of the FAIR principles,
- the storage of the information of the collection of knowledge in an online database, accessible to all project partners,
- the automatic generation of the factsheets in HTML and PDF (downloadable and printer-friendly) formats from the online database,
- the application of a workflow to upload, edit, monitor and curate the information in the online database,
- the possibility to export this database and the reserve of the copyright of the content by the INCREDIBLE project partners (no exclusivity contract),
- the administrator rights for selected project partners to edit the content of the web pages of the platform other than the factsheets,
- the creation of multilingual factsheets,

**Front-end requirements**

- the end-users' capacity to access the factsheets through exploratory ways (a table of contents, a map or simply browsing the list of factsheets) and through a query (a search engine with multiple fields),
- the absence of need of registration to access the web-based knowledge platform content,
- a front-end design respecting the visual identify of the INCREDIBLE project,
- the possibility to use an application programming interface (API) to embed the query and the consultation of the factsheets into another website.

## 3. Selection of the platform to develop the web-based knowledge platform

During the fourth quarter of 2018, EFI explored two main possibilities: to develop an ad-hoc web-based knowledge platform (stand-alone platform) or to develop it within an existing platform.

### 3.1 Ad-hoc web-based knowledge platform possibility

EFI rejected this option for three main reasons: its high cost, its high time requirements to be developed, and the future high dependence on the developers' team for any future changes or transfer of information.

### 3.2 Integration within an existing web-based knowledge platform

EFI explored six existing (at that time) web-based knowledge platforms where the INCREDIBLE collection of knowledge (factsheets) could be either embedded (adopting the same information structure) or stored as a collection subset (maintaining the information structure required for D2.1). The evaluation of the six web-based knowledge platforms was done through two SWOT analyses (one technical and one financial) of each platform. EFI selected Oppla as the platform where the web-based knowledge platform would be developed. The results of the evaluation are summarised below:

**Oppla case studies**, by Countryscape Consultancy

https://oppla.eu/case-study-finder

Oppla acts as a curator or hub of knowledge for ecosystem services, natural capital and nature-based solutions data. They do not generate data. The main objective of Oppal is to provide free of charge and unlimited time storage of research and innovation projects' outputs when projects end. Oppla offers a place where project repositories can continue to exist. The repositories can join Oppla either at the start or at the end of their life. INCREDIBLE web-based knowledge platform could be developed within Oppla as a "microsite": a website with a front-end developed from scratch into Oppla platform, sharing, in the back-end, Oppla's services, structures and tools, while complying with the requirements for the INCREDIBLE web-based knowledge platform. Moreover, in 2019, Oppla will launch a new API that, when embedded in other website, will be able to perform queries in Oppla databases.

Part of the information stored in Oppla is in form of "case studies": an online database containing information structured in a very similarly to the INCREDIBLE factsheets. Therefore, Oppal offers the option to keep both databases (Oppla's collection of case studies and INCREDIBLE's collection of factsheets) independent (not accessible from one to another) or merged (accessible through the same search engine) in the front-end.

If INCREDIBLE web-based knowledge platform is to be in Oppla, it is suggested to develop it within Oppla since its beginning, as this will ensure that data is correctly structured, stored and archived. Oppla can develop a database with the structure needed for the INCREDIBLE collection of factsheets.

**AFINET Knowledge Cloud**, by AFINET project

http://www.eurafagroforestry.eu/afinet/knowledge-cloud/search

The AFINET Knowledge Cloud hosts information produced by the AFINET project partners (including factsheets). All data is stored in Zenodo, in the "community" AFINET. The search engine

in AFINET Knowledge Cloud is a Zenodo's API. Users can select if they want to perform the research only in the AFINET Zenodo community or in the whole Zenodo repository.

AFINET workflow to generate the factsheets is completely manual. This would be highly costly for the 250 factsheets INCREDIBLE intends to produce. Moreover, the information is only stored in PDF format, not as a database. Therefore, it is less flexible to adopt future uses outside the platform after the end of the INCREDIBLE project.

**StarTree Database**, by StarTree project

http://www.star-tree.eu/results/database

The StarTree project is already finished (2012-2016). The website is still available but not updated. This means that there is no possibility to add any material to the collection of Case Studies or to the Policy Portal wiki without cost. The Database in "Outputs" section is no longer working. However, the Policy Portal wiki material was transferred to the Forest Policy Database (see below).

**Forest Policy Database**, by EFI Central-East European Regional Office and BOKU

http://policydatabase.boku.ac.at/

The Forest Policy Database collects international, EU and national policies as well as interesting cases of innovations that affect the forest-based sector in Europe. The EFI Central-East European Regional Office (EFICEEC; no longer existing) and the University of Natural Resources and Life Sciences (BOKU) in Vienna host it. The Forest Policy Database is divided among the Forest Policy Database (sic), the Forest Genetic Resources, the Forest Innovation Database, the Publications Database and the Research Tools (currently under development).

The Forest Innovation Database hosts about 450 case studies about forest innovation. They are company-oriented very short sheets, with a link to external data required. It could be a place to disseminate the INCREDIBLE factsheets, but not a place to generate and store them.

**eNWFP database**, by Cost Action FP1203

http://www.nwfps.org/nwfp-advanced-search/

The eNWFP database is maintained by CFRI (one of the INCREDIBLE project partners). CFRI has an agreement with COST FP1203 Action to maintain the database until 2027. The space available in the server is enough to host the 250 INCREDIBLE factsheets.

Additional to the eNWFPs databse (descriptive sheets of the main non-wood forest products in Europe), there is also data from the institutions partners of the COST Action and also a reference database: there are three databases in the same website. The INCREDIBLE web-based knowledge platform would become the fourth one. The back-end structure would have needed to be developed from zero, as the current platform does not meet the requirements.

**Forum Synergies**, by Forum Synergies A.i.s.b.l.

http://www.forum-synergies.eu/rubrique23.html

Forum Synegies hosts simple descriptive sheets about sustainable rural development success stories and organisations in Europe. After exchanging with the coordinator team, Forum Synergies could be a place where factsheets with success stories could be uploaded at the end of the INCREDIBLE project.

## 4. Structure and functionalities

### 4.1 Back-end

The back-end structure is composed of three main elements:

**Online database**

The online database is where all data of the factsheets is stored. It can be accessed by all project partners after registering into Oppla platform, as they are all expected to create factsheets (except ESSET and EFI, although not excluded). Factsheets creators (designed as "rapporteurs") upload information in this database through an online form, containing all the fields of the factsheets, mainly text but also images (Figure 1). For a complete description of the workflow from obtaining the information to its publication, please, consult D2.4 *Submission of Practice and Research Abstract*.

The Oppla platform uses the data in this database to automatically generate the visual version of the factsheets, in HTML and PDF, based on layout designed by EFI. Only factsheets marked as "published" are visible in the front-end website, this allowing rapporteurs to save uncompleted factsheets or hold factsheets pending of revision and preventing them to be visible by end-users. For a complete description of the fields contained in the factsheets and their visual layout, please, consult D2.4 *Submission of Practice and Research Abstract*.

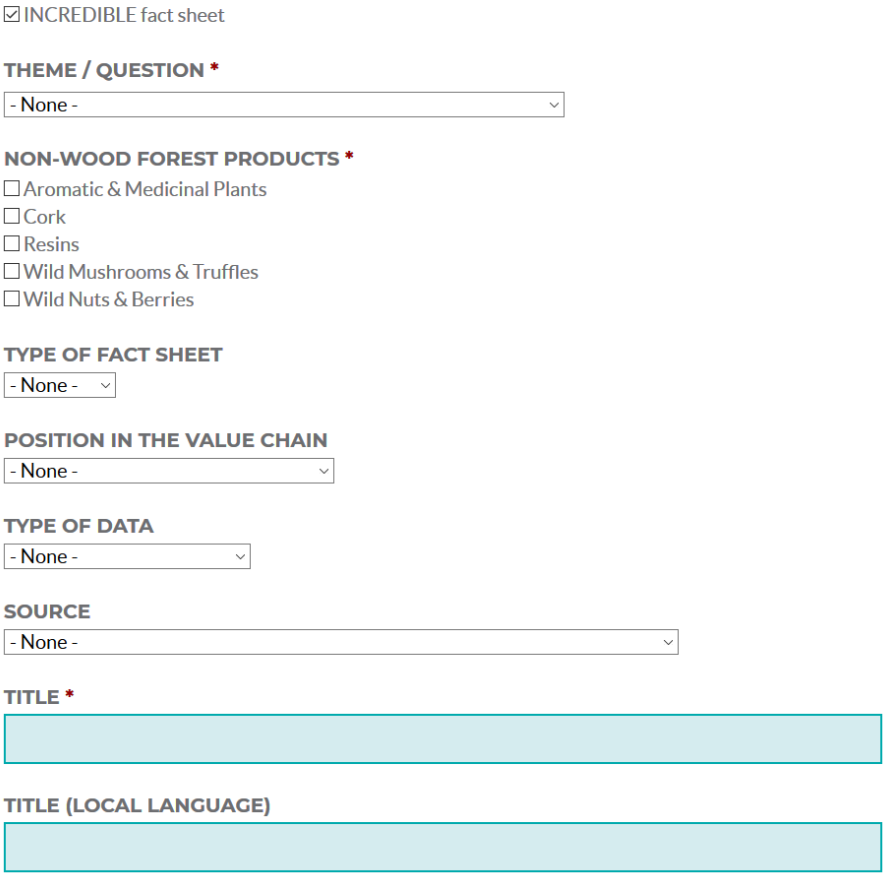


Figure 1. Online form to upload data of the factsheets in the database.

### Pivot tables

There are five pivot tables accessible to all partners. These tables track the relevant metrics for Task 2.1 *Collection of knowledge from research and practice* leaders to monitor the progress in the creation and publication of factsheets. They have several filters, the main one allowing to distinguish between published and non-published factsheets. These tables are:

- the number of factsheets per country and type of factsheet (research results or practical innovations; Figure 2),
- the number of factsheets per primary non-wood forest product and INCREDIBLE partner organisation,
- the number of factsheets per theme and question,
- a multi-filter search engine for monitoring purposes of factsheets,
- the list of INCREDIBLE project partners (individuals) registered to Oppla and their editing rights in the web-based knowledge platform.

## INCREDIBLE pivot table

PUBLISHED STATUS
- Any -

| Country | Type of factsheet (count) | Total number of factsheets |
|---|---|---|
| France | Practice (3)<br>Research (4) | 7 |
| Italy | Practice (1) | 1 |
| Croatia | Practice (2) | 2 |
| Portugal | Practice (1)<br>Research (2) | 3 |
| Spain | Practice (1)<br>Research (2) | 3 |
| Tunisia | Practice (1)<br>Research (2) | 3 |
| None | Research (1) | 1 |
| | | 20 |

Figure 2. Pivot table monitoring the number of factsheets per country and type of factsheet.

**Content management system (CMS)**

It allows administrators to edit content in the web pages visible in the front-end (expect the pages of the factsheets themselves).

### 4.2 Front-end

The front-end structure of the website is composed of four pages:

**Home** (https://repository.incredibleforest.net/)

It contains the title of the website, a short description of the web-based knowledge platform, a teaser (title, introduction and image) of a featured factsheet (Figure 3), six teasers (title and image) of the last published factsheets (one per non-wood forest product plus transversal topics), the six most recent twits from @Incredibforest and the footer.

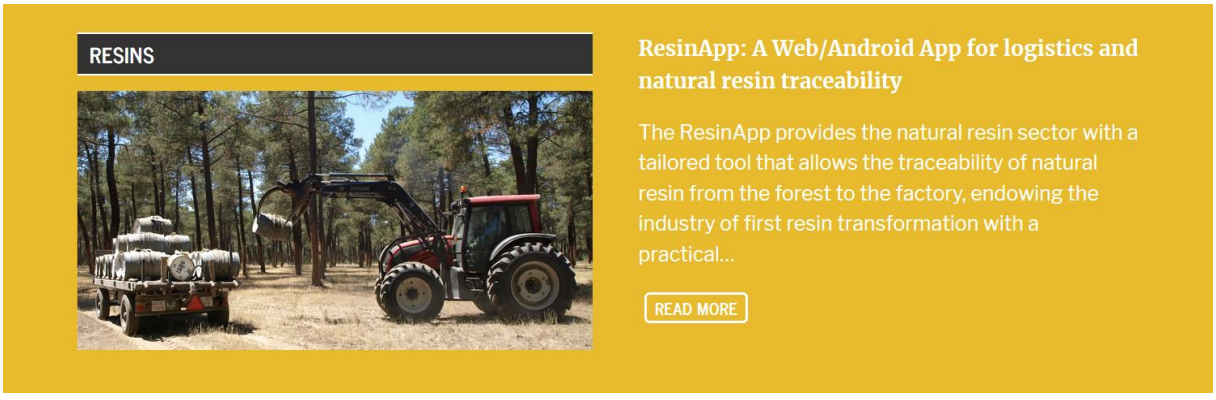


Figure 3. Teaser of a featured factsheet. The background colour corresponds to the colour of the resins non-wood forest product.

**About** (https://repository.incredibleforest.net/node/96)

This page describes what can be found in the web-based knowledge platform, the different ways to search for factsheets or to browse through the collection (the search engine, the table of contents or the map), how end-users can get more detailed information related to a factsheet's content and who are the rapporteurs and the editors of the factsheets.

**Factsheets** (https://repository.incredibleforest.net/oppla-factsheets)

This is the core page of the web-based knowledge platform. It allows end-users to access factsheets in two (out of three) exploratory ways and one query consultation way (a search engine to search for text and filter several fields of the factsheets; Figure 4). The two exploratory ways are:

- a map with the geographical location of the source of information of the factsheets, and
- the list of the whole factsheets collection (showing the title, the introduction and a picture or figure).

The search engine allows to perform a query based on:

- free text search in main fields,
- filter according to:
    - scale of application (six options),
    - non-wood forest products (five options),
    - type of factsheet (two options),
    - position in the value chain (eight options),
    - country (all European and all Mediterranean countries),
    - keyword (incremental option depending on the published factsheets)

When accessing a factsheet, an HTML file is automatically generated, containing all visible fields of the database (some fields are only for internal usage). All factsheets have the same visible fields and structure, but the base colour is different according to their primary non-wood forest product. For a complete description of the fields contained in the factsheets, please, consult D2.4 *Submission of Practice and Research Abstract*.


Figure 4. Three ways to access factsheets from the "Factsheets" web page: geographical location on a map, search engine, and the list of the whole collection of factsheets (only the first one shown).

**Questions** (https://repository.incredibleforest.net/questions)

This page is devoted to the third (out of the three) exploratory way to access the factsheets (Figure 5). It contains a hierarchical and expandable table of contents with three levels:

- twelve innovation themes,
- within each theme, several questions related to the theme,
- within each question, several factsheets that provide an answer to that question.

Thanks to this table of contents, the whole collection can be explored as a handbook, allowing the end-users to focus on the topics of their interest.

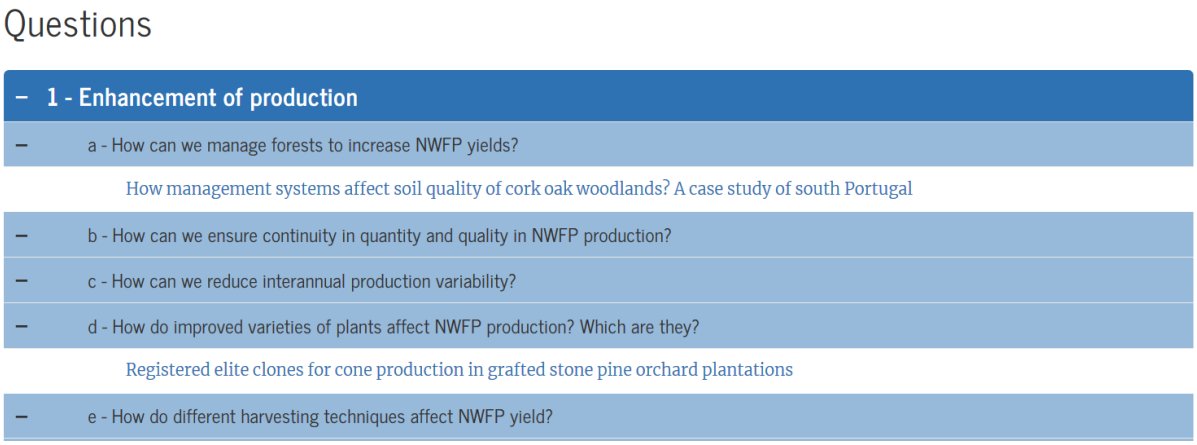


Figure 5. Example of the questions related to the 1st theme, and titles of the factsheets providing an answer to these questions.

At the moment of writing this document, three features of the web-based knowledge platform are still under development:

- the automatic generation of the factsheets in PDF format,
- the visualisation of the factsheets in other languages than English (however, the text in other languages than English can be stored in the database since its creation), and
- a search engine to browse through "Further information" material of the whole collection of factsheets.

## 5. Access and web hosting of the web-based knowledge platform

The official title of the web-based knowledge platform is:

**Knowledge repository for Non-Wood Forest Products**

It is accessible from the URL:

https://repository.incredibleforest.net/

All the web-based knowledge platform is hosted in Oppla's servers. The URL is a subdomain belonging to the domain of the project website (https://incredibleforest.net/), where there is a link that redirects to the *Knowledge repository for Non-Wood Forest Products* IP address.

Release date of the database (back-end): 30 April 2019

Release date of the website (front-end): 30 September 2019

Testing period: 1st November 2019 to 29 February 2020.

## 6. Long-term sustainability plan

### 6.1 Web hosting and accessing

Oppla engages to host and maintain online the *Knowledge repository for Non-Wood Forest Products* for unlimited time (see https://oppla.eu/sites/default/files/docs/Oppla-WelcomePack_0.pdf, consulted on 31 October 2019). Therefore, there is no need to search for an alternative long-term hosting solution during the life of INCREDIBLE project. This does not exclude that part or the whole collection of factsheets could be moved or copied to other hosting

services in the future. The fact that the content is structured in a database makes this procedure easier. Moreover, the Oppla API that allows to embed the query and the consultation of the factsheets into another website reduces the needs to copy or move the content to another server in order to grant access to it.

The current URL is guaranteed to remain the same at least until 31 October 2023. As the current URL is a subdomain of the INCREDIBLE project website, D4.2 *Website* states that "the maintenance of the INCREDIBLE web portal is under the responsibility of WP4 [CESEFOR] and the Project Coordinator [EFI] and will be so for at least three years after the project's termination." EFI and CESEFOR should, before 31 October 2023, reach an agreement about the continuity of this domain.

### 6.2 Maintenance and update of the content

At the end of the INCREDIBLE project (31 October 2020), Oppla will archive the *Knowledge repository for Non-Wood Forest Products*. After that moment, the content will remain unmodified unless there is an organisation willing to maintain and update it. This post-project maintenance and update can affect the whole collection of factsheets or just a part. Divisions are suggested to be done by primary non-wood forest product as the most probable *heirs* of the collection may be sectoral organisations devoted to one non-wood forest product. If the maintenance and update is to be done for the whole collection, the most appropriate organisation should be an international entity related to forestry, bio-based natural resources or rural development. These *heirs* of the collection could be current INCREDIBLE project partners or external third-parties. The INCREDIBLE General Assembly, during the Final Conference (expect in M35, September 2020) will have to make a decision concerning the maintenance and update of the content. Possible *heirs* will have to be contacted and requested in advance by the project partners.

The maintenance and update of the collection is independent of its hosting. It could continue to be hosted in Oppla platform or transferred to external servers. The fact that the collection is in a database eases the procedures of export, addition of new factsheets and addition of new fields, and allows to adapt the rendering of the collected information according to a new needed visual identity.