D4.6 DIH OBSERVATORY UPDATE

WP4 - DIH capacity Building and Monitoring

28 February 2022

smartagrihubs.eu

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LIST OF ABBREVIATIONS

Abbreviation	Explanation
EC	European Commission
IE	Innovation Experiment
SAH	SmartAgriHubs
EU	European Union
MS	Member State
DIH	Digital Innovation Hub
TRL	Technology Readiness Level
ITC	Information and Communication Technologies
WP	Work Package
CAGPDS	Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable Development of Andalusia (former CAPDER)
TNO	Netherlands Organisation for Applied Scientific Research
IP	Innovation Portal
WP	Work Package

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PROJECT SUMMARY

Digital technologies enable a transformation into data-driven, intelligent, agile and autonomous farm operations, and are generally considered as a key to address the grand challenges for agriculture. Recent initiatives showed the eagerness of the sector to seize the opportunities offered by ICT and in particular data-oriented technologies. However, current available applications are still fragmented and mainly used by a small group of early adopters. Against this background, SmartAgriHubs (SAH) has the potential to be a real game changer in the adoption of digital solutions by the farming sector.

SAH will leverage, strengthen and connect local DIHs and numerous Competence Centres (CCs) throughout Europe. The project already put together a large initial network of 140 DIHs by building on its existing projects and ecosystems such as Internet of Food and Farm (IoF2020). All DIHs are aligned with 9 regional clusters, which are led by organizations that are closely related to national or regional digitization initiatives and funds. DIHs will be empowered and supported in their development, to be able to carry out high-performance Innovation Experiments (IEs). SAH already identified 28 Flagship Innovation Experiments (FIEs), which are examples of outstanding, innovative and successful IEs, where ideas, concepts and prototypes are further developed and introduced into the market.

SAH uses a multi-actor approach based on a vast network of start-ups, SMEs, business and service providers, technology experts and end-users. End-users from the agri-food sector are at the heart of the project and the driving force of the digital transformation.

Led by the Wageningen University and Research (WUR), SAH consists of a pan-European consortium of over 160 Partners representing all EU Member States. SAH is part of Horizon2020 and is supported by the European Commission with a budget of €20 million.

EXECUTIVE SUMMARY

Work package 4 DIH Capacity Building and Monitoring aims to help Digital Innovation Hubs (DIHs) understand their level of capacities in order to deliver an adequate and efficient portfolio of services and technologies for the digitalisation of the European agri-food sector.

Digital Innovation Hubs are a new essential instrument for the development and dissemination of technologies and good practices for the digital transformation of the European agri-food sector. DIHs will have to develop and offer their services primarily with a local focus, as they are serving a "working distance".

In order to have a global vision of all DIHs involved in this project, in the document Deliverable 4.3 DIH OBSERVATORY WEB PLATFORM CONTENT AND FORMAT, a guide was given to develop possible applications within the Innovation Portal that would help achieve this purpose.

This document aims to take a trip through the current state of the observatory, review its functionalities, see possible problems encountered when carrying them out, in addition to proposing possible new functionalities that can help to have a better vision of the project.

The observatory is fully integrated into the Innovation Portal, so many of its features are not grouped together in a specific place as an Observatory, but rather are scattered throughout the Innovation Portal. This document will give guidance on how to get all the Observatory functionalities throughout the portal.

It is important to check how the observatory is evolving, and how it will evolve in the future.

1. INTRODUCTION

After defining the Observatory (see Deliverable 4.3. DIH Observatory web platform content and format; D.4.3., hereafter) and its tools, different elements made its implementation differ from what was designed in D.4.3. This document is an update of the status of each of the features proposed in D.4.3. and where they can be found throughout the Innovation Portal. Besides, the document proposes some improvements to better reach those Observatory goals, like how the SmartAgriHubs Observatory aims to foster and grow a solid connection between Digital Innovation Hubs and relevant stakeholders from the whole agri-food value chain.

Therefore, the structure of the document will be as follows:

- Current structure of the Observatory: this section describes the current state of the observatory in the Innovation Portal and the tools that have been already designed and implemented.
- Besides, the reader will also find some guide to reach these different functionalities.
- NEW potential FEATURES IN THE INNOVATION PORTAL: Some potential new tools or improvements in the Innovation Portal
- Conclusions: this last section includes findings, conclusions and recommendations.

2. APPROACH & METHODOLOGY

This document will analyse each of the features proposed in the D.4.3. and see how they have been implemented in the Innovation Portal. It will also analyse how some of the proposed tools can be found in the Innovation Portal with a different name from D.4.3 but equally useful for the observatory. Finally, a proposal of potential improvements or new tools will be made, taking into account the different barriers encountered by the project for the implementation of the Observatory as was thought initially.

3. CURRENT OBSERVATORY STRUCTURE

The following table shows whether each feature described in the D.4.3. has been developed, is in process, it has been developed differently, or its development has not been possible. In addition, to the points where they give us information about the DIH Journey process in the Innovation Portal.

Table 1 - Features proposals in D.4.3 for the Innovation Portal

Features proposals in D.4.3 for the Innovation Portal					
Feature	Already developed	In process	In another location	Development is not possible	DIH Journey process
DIH User Feedback				x	
Best Practices			x		x
Data and Indicators	x				x
Public data and indicators	x				
DIH Improvement guide				x	
DIH Registration	x				x
Updated Matchmaking tool		x			
DIH services available			x		x
OBSERVATORY PUBLICATIONS AND REPORTS					

In the following subsections, each of the features from the table will be analysed in detail.

3.1 DIH USER FEEDBACK

The DIH User Feedback intended to enable a comments section in the public profile of the DIHs. With the evolution of the Innovation Portal, this functionality has been discarded since no real utility has been seen in the IP. Although this system was not developed, there is another tool in the Innovation Portal, the SmartAgriHubs Forum, where experiences can be shared with the DIHs and comments can be made, that is the forum thread.

Also, the Peer exchange programme for DIHs can be used for this matter. There, groups of DIHs can share their experiences and talk about common worries/barriers/etc. with the help of an expert who conducts the session. DIHs can obtain in these sessions' comments and suggestions, good practices and lessons learnt from other DIHs.

3.2 BEST PRACTICES

Best practices are important for DIHs to learn and get inspired but also to be identified by other DIHs for those best practices. These can be found by the DIHs in two different places.

Users can get access to the Learning and Exchange Programme for Digital Innovation Hubs through the LXP platform. This platform contains several training sessions to support the capacity building of DIHs and gives them an opportunity to learn through the exchange of best practices with other DIHs over Europe.

In this course, users can learn with their peers how to improve their capabilities, starting with a maturity assessment and peer inter vision. In fact, users will be able to identify best practices and learning objectives. After the DIH exchange days, materials and assignments on selected topics and learning objectives are gradually added.

Apart from that, users have another place in the Innovation Portal by logging in their accounts on the main page. At the top menu of the portal there is a section called "Lessons learnt" where feedback from users (DIHs amongst them) are collected. Thus, helping each other to move forward.

3.3 DATA AND INDICATORS

DIH private data and indicators

DIHs are able to access their private data and indicators, mainly concerning services and maturity level. The information can be extracted from tools in the portal within which users can find all the related functions to manage their organisation's profile. Some tools are only accessible depending on the role a user has in its own organisation.

Figure 1 - Example of a DIH panel tool.

- Organisation information: Main users can consult and edit their data or update general information, contact information or services provided.
- Main Users/contacts: They can consult and edit the status of their organisations and they are the only ones who can accept other users who are working in their organisations.

- Partnerships: Main users of an organisation can consult and edit their organisations partnerships as well as accept partnership from other users from organisations they are collaborating with.
- Maturity self-assessment: Main users can access the Innovation Services Maturity Model (ISMM) page assessing the readiness of their DIH and development opportunities.
- LXP Platform: Users can access The Learning and Exchange Programme for Digital Innovation Hubs on the social learning platform (LXP). This platform contains several training sessions to support the capacity building of their organisations and gives them the opportunity to learn by the exchange of best practices with other DIHs over Europe.

DIHs can find a lot of information and some indicators in each of those tools. For instance, amongst other pieces of information, DIHs can find the following in the Organisation information section:

- Nº of ecosystem members. DIHs managers have access to an extensive list of all its linked members from the Innovation Portal.
- Nº of services offered. This provides information on the services and activities offered by the DIH since its registration on the SAH network (this is directly linked to the Maturity self-assessment tool).

DIHs can also have the "Level of maturity for its services" offered by using the ISMM. Refer to D4.2 v3. The use of this tool is simple and straightforward, users just have to follow the instructions that appear in every page of the Model. There, users are able to:

- Identify and record the current maturity level of their DIH
- Identify and record the current service offering of your DIH
- Identify their strengths and weaknesses.
- See where their DIH can be exactly improved.
- Find tailor-made learning material based on their current needs that will help the DIH evolve.
- Get valuable customised support from the SAHs Network with external (peer) review of the overall offering.
- Grow the overall maturity of their DIH over time.

In the tool, main users have to assess the degree of general DIH maturity of the following aspects:

- Governance
- DIH experience
- DIH Business plan
- DIH Income Generation
- Customers / paying members
- Ecosystem
- Infrastructure
- Strategic RDI
- Technology fields
- TRL level

After that, they have to have a look at the services that their DIH can offer choosing from the following ones:

- Community building
- Strategy development
- Ecosystem learning
- Representation
- Strategic RDI

- Contract research
- Technical support on scale-up
- Provision of tech infrastructure
- Incubator/accelerator support
- Access to finance
- Skills and education
- Project development
- Offering housing

Finally, users can see the outcomes of their results which can be considered to be an "x-ray" of their DIH. The main objective is to know how they can interpret and use them in order to improve their DIH maturity over time. All entries and results are stored. If necessary, users can pause and resume the completion process at any time but in order to be able to monitor the maturity progress, it is advised to use the ISMM 1 to 2 times per year.

- Regional Clusters private data and indicators

Regional Clusters also have a dashboard with information of their own ecosystems. All features are included in the Observatory tool, which is only accessible from the section "tools" on the personal page of each RC leader and co-leader. The objective is to show the average performance amongst all DIH organisations in the regional cluster.
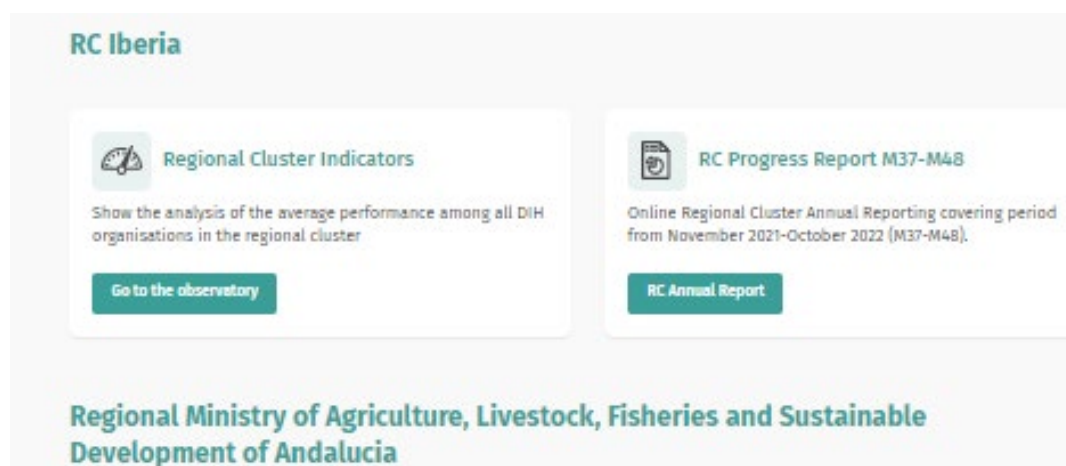

Figure 2 - Example of a Regional Cluster tool panel

The available indicators are the following:

- Benchmarking of maturity and availability of services in the regional cluster.
- Total DIH in the Regional Cluster.
- Average sectors.
- Average members.
- Last established DIH.
- DIH with the highest level of development.
- Number of DIH belonging to the RC.
- DIH with the lowest level of development.
- Number of services available in RC.
- Level of average maturity for the services provided by DIH belonging to the RC.

RC Indicators

Benchmarking of maturity and availability of services

- Overall
- Regional Cluster
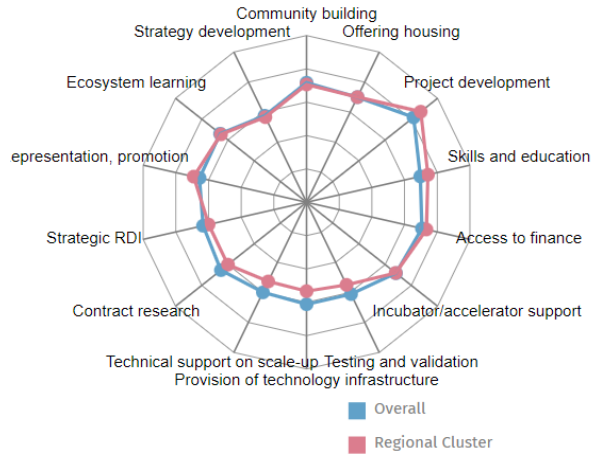
Total DIH in RC

46

Average Sectors

5

Average Members

4

Last established DIH

- Fundación Finnova
- Sostenibles DIH (Digital Innovation Hub on circular economy and access to market)
- InnovPlantProtect
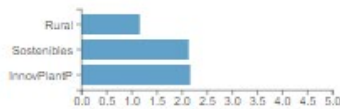- Equine Spanish National Reference Centre

DIH with the highest level of development

Number of DIH belonging to the RC

DIH with the lowest level of development

Number of services available in RC

Level of average maturity for the services provided by DIH belonging to the RC

Figure 3 - Example of a Regional Cluster dashboard

Public data and indicators

The original conception of this feature was to have an automatic and dynamic dashboard on the IP. However, displaying the global information in this way takes a big effort and a high quantity of resources.
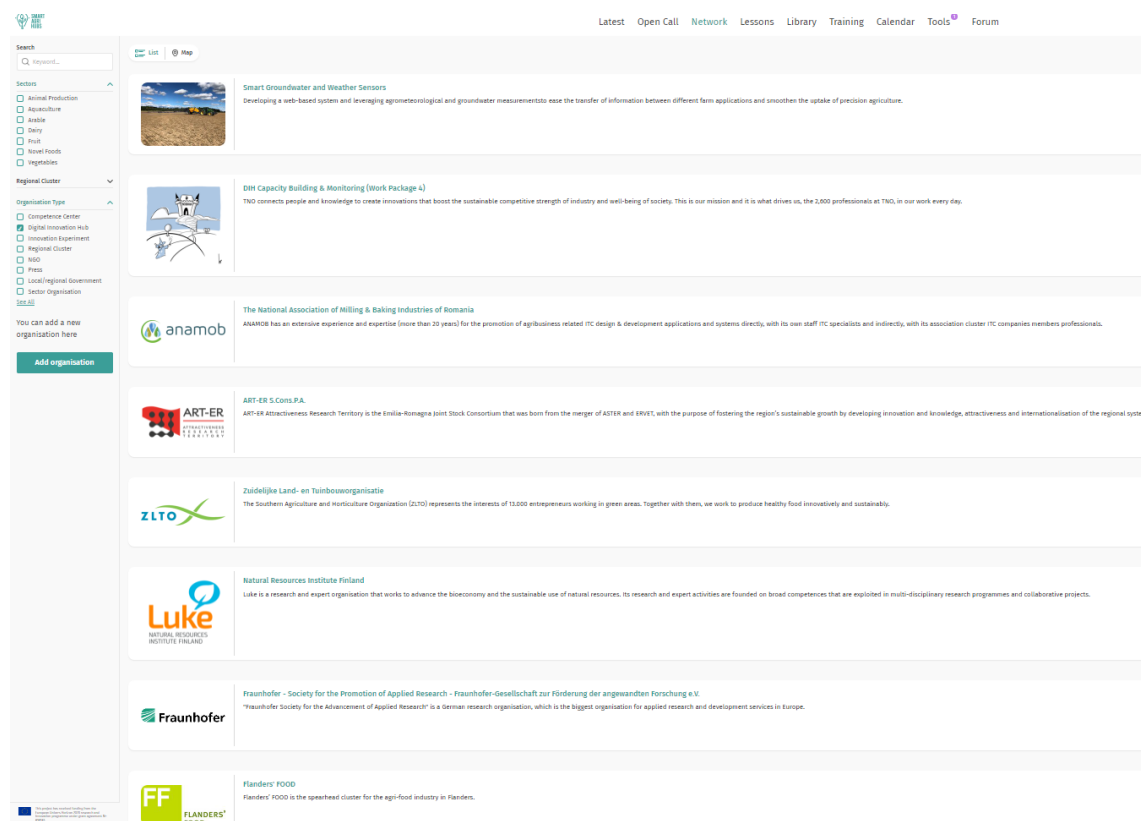
Therefore, as an alternative way to show this, a report in pdf can be created any time by WP1.

In spite of this, anyone can easily see the total number of registered DIHs or any other type of entity registered in the IP, being able to filter also by regional cluster or sector.

The information can be found in the option called "Network" in the portal at the top menu of the screen within which users can find a dashboard or a map with a filter made up of sectors (animal production, aquaculture, arable, dairy, novel foods and vegetables), regional cluster and other type of organisation.

The information in this section is open for all users registered on the SmartAgriHubs Portal.

For each organisation, users can see the sectors and regional cluster where they belong, personal data such as address or social media, contacts and the partners they collaborate with, and services they perform.

Figure 4 - Example of a search in the Network section in the IP, with results shown as a list. Filter used was "Type of organisation", option chosen: Digital Innovation Hub.

As the reader will see, there is a proposal of a new integrated dashboard in section 6 in this document.

3.4 BADGE SYSTEM

The Badge system for DIHs, as designed initially, was difficult to implement. On one hand, the system had to identify the activity of a DIH, but according to registration, the DIH is associated with a user, and there may be different users for a DIH. Tracking all this activity and grouping it for each DIH was not easy.

On the other hand, part of the badge system was also based on the DIH activity in the learning programme. The LXP has been developed on an external platform, which, though being linked to the Innovation Portal, is not configured to export the data from this platform to the Innovation Portal in order to feed a Badge system in the Innovation Portal.

Therefore, the development of this system was discarded.

A user-level badge system has been implemented for forum participation in the IP.

3.5 DIH IMPROVEMENT GUIDE

In the initial design, the improvement messages system was linked to the badge system (which in turn was based on the overall activity and status of the DIH), since it would send messages to the DIHs based on the scores they had from their participation in the different sections of the Learning Exchange Programme and the varied tools in the IP.

As mentioned before, this badge system, or alternative overview of activity, has not been developed, then, this DIH improvement guide has not been possible to be carried out either.

During the development phase of the Observatory functionalities, the possibility to link those improvement messages to the maturity tool score was discussed. However, this option was also found to be discarded.

Nevertheless, a sort of message system associated with the maturity level of DIH has been included on the maturity tool results page each time a DIH does the maturity assessment.

Figure 5 - Example of messages in the Maturity Self-assessment tool

3.6 DIH REGISTRATION

Users can register their DIH by filling in their personal data such as name, website, address, city, country, regional cluster to which they belong, social media, related sectors and a short description about the organisation. Apart from that, users have to specify which type of organisation is their DIH and other additional organisations (A DIH can also be a Competence Centre, NGO, etc.) with their respective personal data.

For each DIH, users can consult the sector in which they are working as well as the Regional Cluster to which they belong and the services they offer about technology, business and ecosystem services. The portal does not offer a public DIH profile where other users can provide their observations, comments or describe their experience using a certain service. Other users can only find the main information and contact details for each DIH.

Once the registration is done, main users of DIHs should properly connect the services included in the maturity self-assessment tool with the registered profile. That information is directly transferred from the maturity tool services to each DIH profile.

Services are structured as follows in the Maturity self-assessment tool:

- Ecosystem:
    - Community building.
    - Vision Strategy development.
    - Mentoring (in the network)
    - Ecosystem learning
- Technology development
    - Strategic RDI.
    - Contract research.
    - Testing and validation.
    - Commercial infrastructure.
    - Technical support of scale-up.
    - Provision of technology infrastructure.
- Business services
    - Incubator/accelerator support.
    - Access to finance and funding.
    - Skills and education.
    - Brokerage.
    - Market intelligence.
    - Access to competence centres.
    - Project development.

Name:
Andalucía Agrotech Digital Innovation Hub

Short name:
Andalucía Agotech DIH

Department:
You have not provided a Department yet. [edit icon]

Email:
dih.andalucia.agrotech@juntadeandalucia.es

Phone number:
You have not provided a Phone number yet.: [edit icon]

Website:
https://juntadeandalucia.es/organismos/agriculturaganaderiapescaydesarrollosostenible/areas/desarrollo-rural/dih-andalucia-agrotech.html

Address:
C/ Tabladilla, s/n -

City:
Sevilla

Postal code:
41001

Country:
Spain

Regional cluster:
Iberia

Twitter:
DIHAndAgrotech

Facebook:
You have not provided an account url yet. [edit icon]

LinkedIn:
You have not provided an account url yet. [edit icon]

Instagram:
You have not provided an account name yet. [edit icon]

Sectors:
Animal Production, Arable, Vegetables, Fruit

Organisation details
[Edit]

Year of establishment
2017

Legal Status
You have not provided this information yet. [edit icon]

Number of member organisations
120

Expertise
Andalucía Agrotech DIH is an public private alliance activity center for creating anticipating managing and accelerating digital innovation in the agrifood value chain. It aims at generating the ecosystem that provides the best conditions for long term success of agrifood companies.

Technology Services

(Collaborative) R&D ✔
Technical support on upscaling ✔
Commercial infrastructure
Testing and validation ✔
Other Technology Services

Business Services

Incubator/accelerator support ✔
Access to finance and funding ✔
Skills and education ✔
Brokerage ✔
Market intelligence ✔
Access to Competence Centers ✔
Other Business Services

Ecosystem Services

Community building ✔
Visioning & strategy development ✔
Mentoring (in the network) ✔
Other Ecosystem Services

Figure 6 - Example of a DIH registration

3.7 UPDATED MATCHMAKING TOOL

This functionality has not been developed per se as a "matchmaking tool", but users can somehow search at the Network section in the IP using the filters described in section "Data and indicators. The possibility to include two more categories to filter is still being considered within the project. These two filters are:

- Portfolio of available services (for DIHs)
- Technologies offered

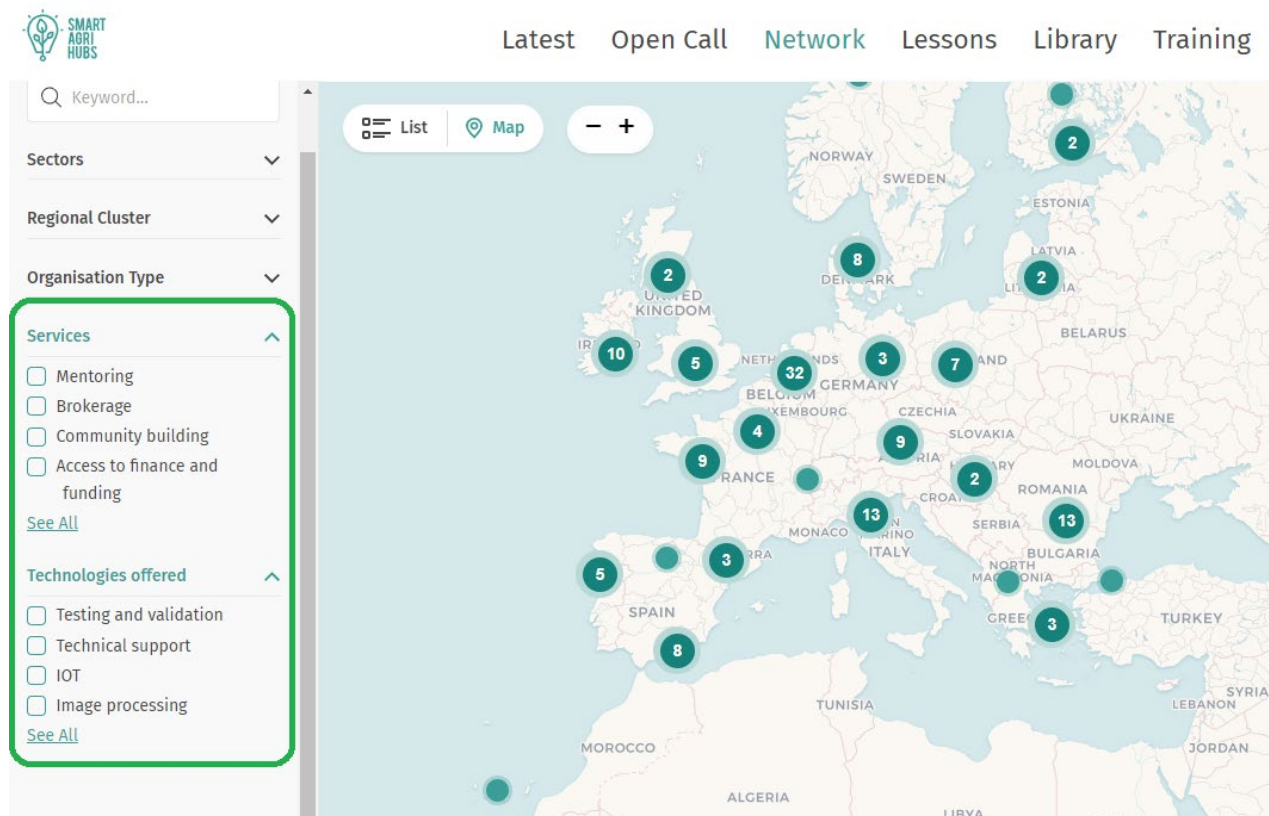This would greatly facilitate the search for DIHs that offer a specific service or technology.

Figure 7 - Example of how these new two filters could be integrated in the Network section.

3.8 DIH SERVICES AVAILABLE

The registration of DIH capabilities includes aspects on the portfolio of services offered and their level of maturity.

The Innovation Portal has set a procedure that allows extracting automatically this information from the data provided within the capability maturity (self-assessment) tool. So DIHs profiles are updated with their services offered once they fill in the self-assessment maturity tool.

Information about these services is offered to general users in the "Network" tool by clicking on each DIH.

Concerning DIHs level of maturity, each DIH is able to see its level of maturity after filling in the self-assessment maturity tool. This information is private so it can be only accessible by the owner of the information.

The Observatory proposed the integration of a list of technologies available. A classification aligned with the definitions from Deliverable 5.1 Categorisation of Digital Technologies related to Agriculture sector. However, this integration could not be implemented.

Note that the list of services indicated during registration and visible to the registered community is not synchronised with the list of services subject to the maturity assessment (as a DIH may wish not to expose all services' maturity).

3.9 OBSERVATORY PUBLICATIONS AND REPORTS

This functionality coincides with a tool that was already planned for development within the Innovation Portal. This tool is called Library and is located in the top menu.

Although its content is not specifically focused on reports for DIHs, very valuable information concerning community building, promotional material, the IoF2020 legacy, etc. can be found there.
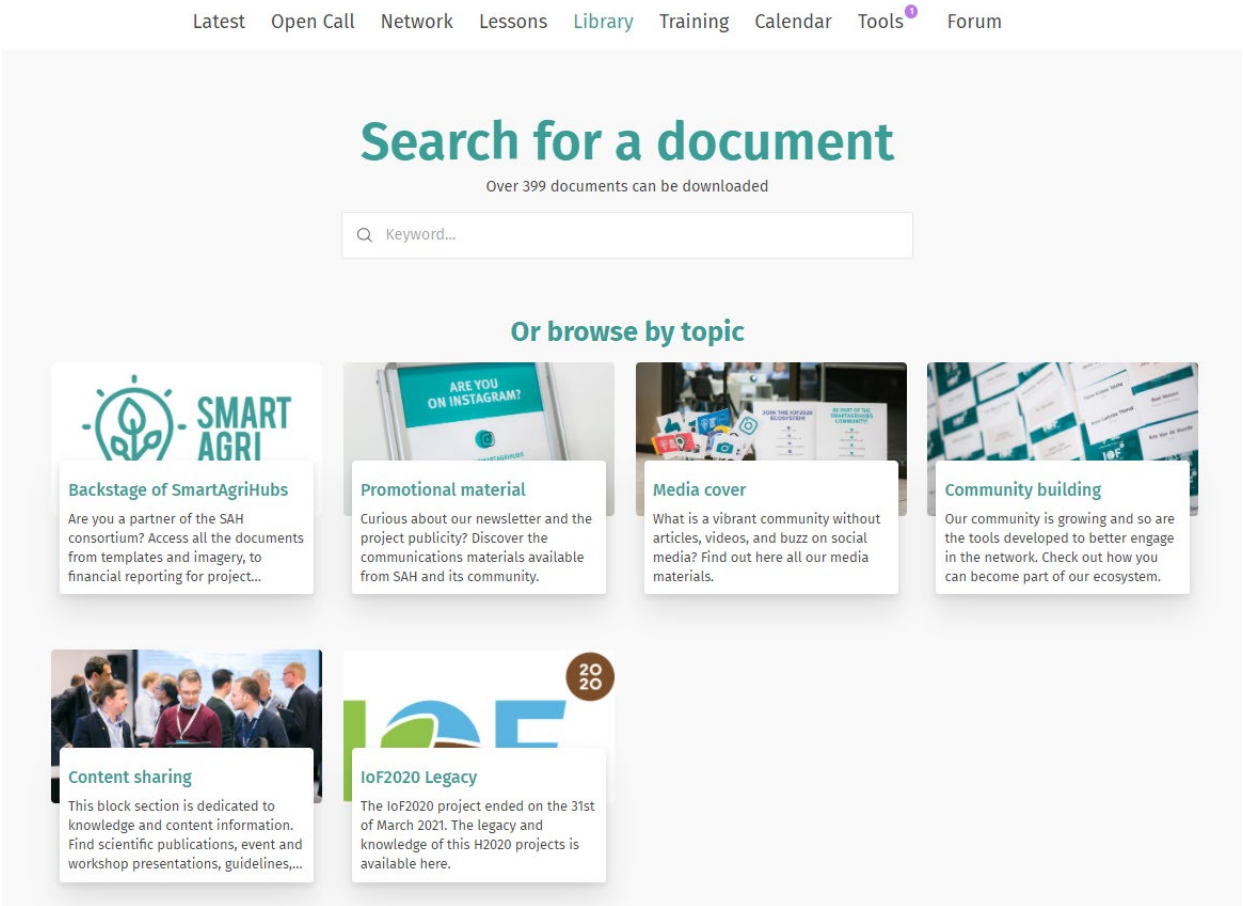

Figure 8 - Library section in the Innovation Portal

More specific material for DIHs can be found within the LXP Platform, with some reports, articles, etc. related to modules in the specific course.

4. SUGGESTIONS FEATURES IN THE INNOVATION PORTAL

4.1 AGGREGATED DIHS DATA IN A GENERAL VIEW.

Currently, the Innovation Portal includes a very powerful functionality for regional clusters, called "Regional Cluster Indicators." This tool can give a global vision of a regional cluster in relation to DIHs and the services they offer.

This tool gives a lot of information to Regional Clusters at a glance and would be of great utility having the same for the entire project. Part of the data could be public so general users could have an overall overview of the dimensions of the project.

On the other hand, part of these data will be private, only visible to WP4 members and members of the Project Steering Group.

This dashboard would allow users to identify at a glance how the project is doing globally in the main KPIs associated with the DIH capacity Building and Monitoring and make decisions based on that. It would be interesting to show, for example, the number of DIHs validated and their evolution, main services provided by DIHs, main sectors, and so on.
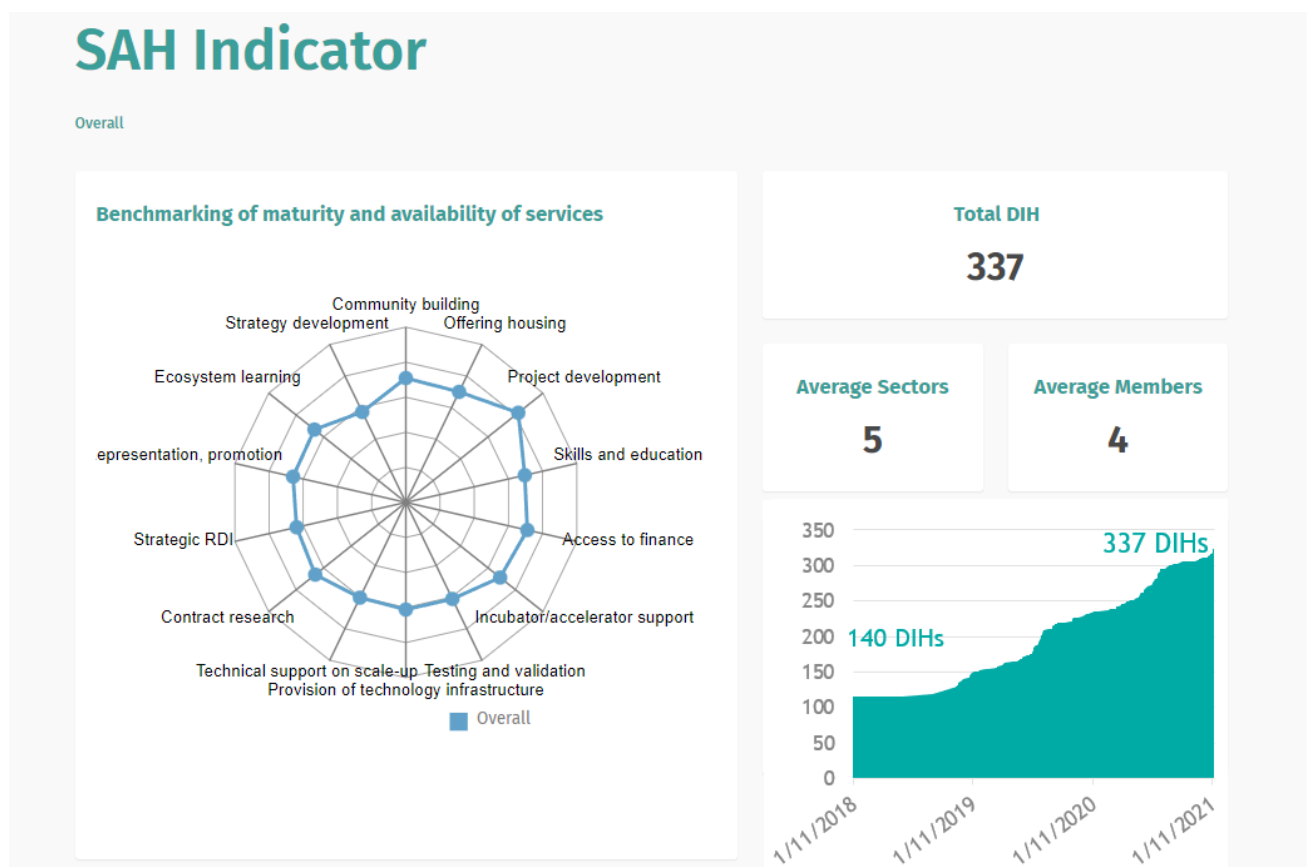

Figure 9 - Example of an integrated dashboard for the project.

The dashboard appearance would be similar to the RCs one but showing a general summary of the number of DIHs, last registered DIHs, number of DIH per RC, etc.

A more sophisticated dashboard was proposed in D.4.3. However, as mentioned, in section 5.3. Data and indicators, its development was discarded. The dashboard proposed in this deliverable, as it is easier, could be assessed for its implementation and replace the overall pdf report generated by WP1.

5. CONCLUSIONS

Going from an ideal observatory to a real one is not always easy. There are many issues on the way, barriers, difficulties, making adaptations needed to offer similar results. In this sense, SmartAgriHubs has been able to overcome those difficulties and offer the majority and most important functionalities of the observatory in the Innovation Portal.

An in-depth review of the Innovation Portal has been carried out to identify all the functionalities of the observatory in it, it has been verified that despite the fact that not all the features are available, the journey process followed by each DIH has begun with a registry detailed description of the organisation complementing the services they offer, as well as the training tool for best practices. Thus, the data and indicators that they complete in the registration process are public in the network tool.

The DIHs main users are able to take advantage of the information collected and provided by the Innovation Portal to carry out comparative analyses that help them improve the capabilities of their Hubs, taking advantage of experiences that have been successful in other territories as well as improving their skills through the training platform.

Different work packages have worked together searching for the practical options to let DIHs have similar tools as foreseen in D.4.3 and to let them grow. This document is a sample of that success, though work in this sense is still on-going.

Therefore, to improve the attractiveness and interest of the Innovation Portal, new functionalities/options have been proposed in this document. The new selection criteria proposed will allow agri-food companies to identify the DIHs that have the service offer that best suits their needs. And will also be highly valued both by DIHs and by other organisations, as this will help increase connections and build alliances within the sector.

And in terms of project, the new dashboard proposed will help the decision making but also a good assessment of the project success at a glance.