



**SMART  
AGRI  
HUBS**

## **D2.3 INTERACTION WITH DIH NETWORKS FOR OPEN CALL PREPARATION**

### **WP 2**

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<b>Author</b>	Ana Espert, Elsje Oosterkamp, Francisco Buján, Edouard Leonet, Rita Campos, Inma Nájera
<b>Contact details of the coordinator</b>	George Beers george.beers@wur.nl



## LIST OF ABBREVIATIONS AND TERMS

Abbreviation	Explanation
<b>EU</b>	European Union
<b>CC(s)</b>	Competence Centre(s)
<b>DIH(s)</b>	Digital Innovation Hub(s)
<b>DIH networks</b>	Organisations in the DIH ecosystem: CC, technology providers, farmers, Agri-tech SMEs, Universities, governmental agencies, etc.
<b>FIE(s)</b>	Flagship Innovation Experiment(s)
<b>IE(s)</b>	Innovation Experiment(s)
<b>Open call</b>	SAH planned call for proposals for funding additional actions to network expansion
<b>R&amp;D</b>	Research & Development
<b>RC(s)</b>	Regional Cluster(s)
<b>SAH</b>	SmartAgriHubs
<b>TRL(s)</b>	Technology Readiness Level(s)

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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 key to addressing the grand challenges for agriculture. Recent initiatives have shown 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 existing projects and ecosystems. 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

This deliverable shows results from 'Task 2.2 Match-making and DIH network interaction', and partial results from Task 2.1 'Regional Challenges'. Since both tasks have involved different interactions with DIH networks, a joint strategy has been set within WP2. This report summarises some key aspects gathered from the interactions with DIH networks through different means, but mainly through the Regional Clusters (RCs), who function as spokespersons for DIH in their regions. Main interactions have been focused on assessing the status of DIH networks regarding community building and matchmaking activities, as well as capability and knowledge of available funding by third parties (both public and private), and capability to access and leverage funding to DIH networks. Funding can be used for different purposes: research and development, innovation, strategic and support, set-up pilots and demonstrators, operational costs, etc. DIHs can be particularly active in leveraging one specific type of funding, but not others. Assessing this level of maturity will be used by WP2 members for two main purposes:

- Design the SAH foreseen open calls in the most suitable manner to leverage maximum impact, focusing on the main hindrances for DIH networks to access funding and to convert such barriers into opportunities to develop new IEs.
- Plan the matchmaking activities to maximise the outcomes thereof, allowing for fruitful collaborations based on the identified positive and negative key aspects of DIHs network functioning.

The outcomes of the interaction showed that:

- DIHs are well connected to specific players in their network, especially with technology-based organisation, although there is still a lack of connection with relevant industrial players and private initiatives such as start-up or accelerator programs.
- There is an important heterogeneity between the regions regarding availability of additional public funding, but also on private funding mechanisms available for new IEs and in general for Agri-tech or digitalisation projects.
- There are also significant differences in the maturity of DIH to leverage funding among their networks. While some DIH are very active and knowledgeable in terms of applying to different funding mechanisms, some other still need a lot of support, especially for private funding instruments.

All these key aspects have been extracted from different types of interactions: hackathons and events organised by RCs where DIH were present, interviews with the RC representatives and interaction with other WPs in SAH, especially WP4. Feedback has been gathered through the application of different methodologies such as semi-structured interviews and workshops, as well as gathering of opinions from various round tables or other scenarios. The most relevant and recurring aspects were highlighted.

# 1. INTRODUCTION

The main objective of the SmartAgriHubs (SAH) project is to consolidate and foster a European wide network of Digital Innovation Hubs (DIHs) for Agriculture to enhance the Digital Transformation for Sustainable Farming and Food Production.

SAH is organized in six work packages (WP):

- WP1 Ecosystem Building
- WP2 Network Expansion by Open Calls
- WP3 Monitoring and Evaluation of Innovation Experiments
- WP4 Digital Innovation Hub Capacity Building and Monitoring
- WP5 Competence Centres
- WP6 Project Coordination and Management

This deliverable is part of Work Package 2 (WP2), which focuses on network expansion by open calls. WP2 supports initiatives to expand, validate and strengthen the network of agri-food DIHs that are directly facilitating the usage of CC services and coaching the realisation of IEs.

Figure 1 visualizes the five basic concepts to build and foster this network of DIHs and CCs. DIHs are the key components to support Innovation Experiments (IEs) in their specific region. Next to the role of organiser and initiator of IEs, DIHs act as community builder connecting needs and solutions, identifying CCs and funding opportunities. DIHs are organised in Regional Clusters (RCs) to facilitate identification and addressing of regional challenges and opportunities.

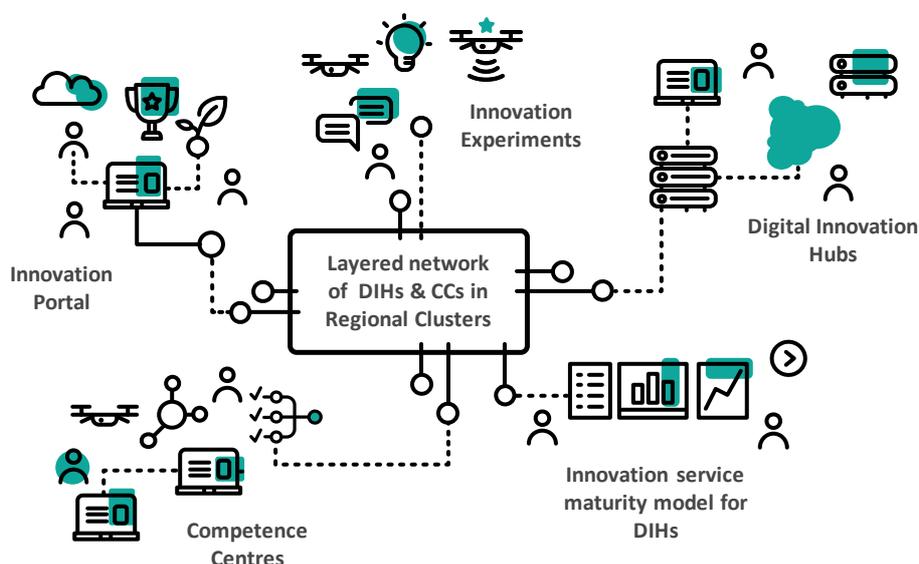


Figure 1. SmartAgriHubs route to a layered network of DIHs and CCs in RCs in Europe

The regional and sectorial needs are asking for a tailored approach, specifically in terms of matchmaking and funding of interested third parties, enabling a high leveraging effect on other sources of funding, in particular regional and national funding, but also on private funding.

By the interaction with DIH networks through different means, and based on results elaborated in WP4, specifically in D4.1 'Needs assessment report', partners in WP2 have gathered feedback of DIH networks regarding matchmaking and funding of interested third parties in preparation of the open call. From this, WP2 members will elaborate a plan for matchmaking activities in the scope of Task 2.2 'Match-making and DIH network interaction' to assure the maximum leveraging effect on other sources of funding.

In parallel, activities related to mapping of available funding instruments and the elaboration of appropriate expansions are also carried out and will be reported in the upcoming deliverables D2.4 'Stocktake of potential regional and national public/private funds for Agri-Food DIHs' and D2.2 'Roadmap for regional, sectorial and economical network expansion' respectively. This plan will be the results of a defined methodology described in the next section.

Task 2.2 'Match-making and DIH network interaction' has been planned to be carried out in two different and consecutive phases:

**Phase 1 – Gathering feedback from the needs of DIH networks regarding their needs for matchmaking.** This phase consists of scoping the needs of DIH networks in terms of match-making and assessing the capability of DIH networks to access funding of interested third parties (main hindrances and possibilities) and the awareness of DIH networks on available funding mechanisms that could serve for various meanings. The main result of this phase is an analysis of DIH networks main strengths and weaknesses towards matchmaking activities and funding opportunities, presented later in Section 3 of this deliverable.

**Phase 2 – Support to match-making activities.** This phase consists of the support to match-making actions to maximise the accessibility of DIH networks to available opportunities in terms of collaborative networks, and funding opportunities, both private and public funding. For this phase, preliminarily to the match-making activities, partners are compiling internally a map of available public and private funding instruments that will serve as the basis for the elaboration of appropriate network expansion routes through matchmaking

The main objective of this deliverable is to report on DIHs network feedback in preparation of the open calls. Open call can be tailored according to the needs, specifically in terms of match making and funding of interested third parties, enabling a high leveraging effect on other sources of funding, including public regional and national funding and private funding, and focusing on the main barriers for DIH networks to access funding and to convert such barriers into opportunities to develop new IEs. Feedback on matchmaking needs will be used to maximise the outcomes thereof, allowing for fruitful collaborations based on the identified positive and negative key aspects of DIHs network functioning

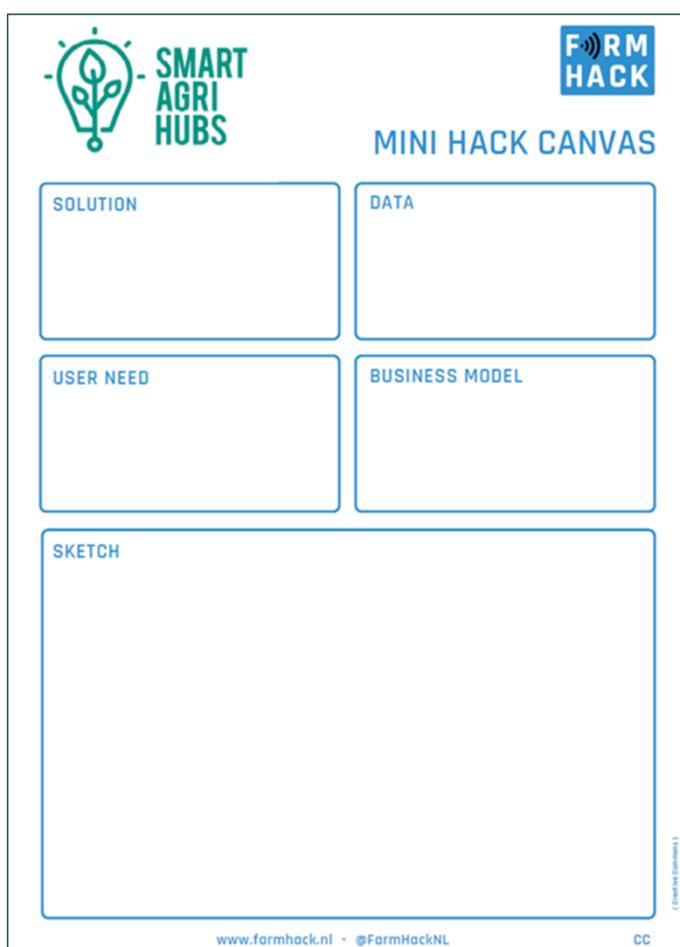
Therefore, this deliverable report covers mainly the outcomes from Phase 1. In section 2, the approach followed for the interaction with DIHs and for gathering feedback from other WPs is described. Section 3 summarises the most relevant feedback gathered from the different sources in terms of matchmaking and funding of third parties, followed by conclusions. Further outcomes of Phase 2 of Task 2.2 will be reported in future progress reports and deliverables (D2.4 and D2.5), as further explained in Section 4 of this report.

## 2. APPROACH AND METHODOLOGY

In the scope of Task 2.2 'Match-making and DIH network interaction', the interaction with the DIH networks was carried out by different means:

**Direct contact with DIH networks through various types of events.** This type of interactions had different characteristics and aim. Events organised and carried out in the scope of T2.1 'Regional Challenges' have been taken as an opportunity for interacting with DIH networks. A more detailed overview of these actions is provided in Deliverable D 2.1 – Regional Challenges, although the main are highlighted as follows:

- Two regional clusters meetings, one organised by the Iberian RC in Seville and one organised by the North-East Europe RC in Poznan. A peer to peer learning approach was applied during these regional cluster meetings. This approach was applied in the context of the workshops organised through the instrument of the Mini Hack Canvas (see Figure 2), allowing for the WP2 team to collect all the existing intelligence during different workshops specifically planned in the agenda. During each event, some of the WP2 team members were physically present allowing the team to take good note of the discussions and report of the feedback.



The image shows a 'Mini Hack Canvas' form template. At the top left is the 'SMART AGRI HUBS' logo, which features a stylized green leaf inside a lightbulb. At the top right is the 'FARM HACK' logo, consisting of the words 'FARM HACK' in white on a blue square background. Below the logos, the title 'MINI HACK CANVAS' is centered. The form is divided into five sections: 'SOLUTION' (top left), 'DATA' (top right), 'USER NEED' (middle left), 'BUSINESS MODEL' (middle right), and 'SKETCH' (bottom, a larger rectangular area). At the bottom of the form, there is a footer with the website 'www.farmhack.nl', the social media handle '@FarmHackNL', and a Creative Commons license icon (CC).

Figure 2. Mini-Hack Canvas from FarmHack used for workshops.

- Two hackathons: NIK Academy in Izgrev, Bulgaria on the 13th - 14th of September 2019; and the Wageningen Life Science Hackathon on the 25th – 26th of October 2019. WP2 members actively supported the organisation and participation in these two events. The approach followed in the hackathons consisted on the preparation of several specific challenges on different tracks that participants organised in teams needed to tackle by proposing technology solutions. Mentors and experts participated during the hackathons to orientate and support the teams. An evaluation of the work of the teams and the proposed solutions was done and prize money was awarded to the winning teams.
- A workshop on the Agripreneurs Summit in Thessaloniki in Greece, where members of WP2 held a workshop with the aim to collect ideas for the Open Call implementation and to identify needs and requirements in the region.

These five physical events gathered a total of 240 persons from 10 different European countries (Poland, Latvia, Lithuania, Serbia, Czech Republic, Netherlands, Bulgaria, Spain, Portugal, Greece) with the representation of the majority of profiles present in the agri-food ecosystem: DIHs, technology providers, ministries and governmental agencies, start-ups, private investors and banking, farmer associations, CCs and large industries.

**Gathering of relevant results from WP4 outcomes.** Results from the questionnaires to DIH and farmers of Needs Assessment carried out in WP4 and collected in D4.1 were analysed. Interactions with WP4 representatives were held through joint telephone conferences in order to better understand the feedback gathered by WP4 members through the questionnaires distributed to the DIHs.

**Interviewing the RC representatives.** Representatives from all nine different RCs in SAH were approached by WP2 members on a personal interview with a semi-structured format in order to gather feedback from them on the particular situation in each region, specifically on the needs of DIH networks in terms of access to funding from third parties and matchmaking. The collection of feedback from the interviews with the RC representatives has been completed by following a template of questions to structure the interaction as shown in Figure 3:

QUESTIONS
<p>1: Is there regional and national funding available for new IEs?            Are DIHs and RCs aware of this funding and able to deliver this information within their network?            Are entities in the RCs and DIHs networks in the region aware on the funding available for them and active in the search for funding?</p>
<p>2: Which is the most common funding for DIHs and their network currently? Public, private or a mix of both?</p>
<p>3: <u>In case of funding for DIHs</u>, which will be the main use of this funding?: a) expanding their service portfolio by developing and incorporating new technologies, b) covering operational costs to bring services more effectively to SMEs, c) enlarging their outreach to a major number of SMEs, etc.</p>

4: <u>In case of funding for farmers</u> , which will be the main use of the funding for?: a) developing new IEs, b) investment for implementation of digital technologies, c) improving personnel digital knowledge, etc.
5: Which are the main hinders for DIHs to access funding? Which are the main hinders for farmers to access funding?

*Figure 3. Questionnaire used for the interaction with RCs.*

Questions 1 and 2 were mainly designed to gather the level of maturity of DIHs and their networks regarding knowledge of funding, access and leverage thereof.

Also, question 1 intends to identify possible differences between regions regarding available funding schemes.

Questions 3 and 4 are intended to be used as a basis to design the SAH Open Calls in Task 2.3 but will also be helpful to plan the match-making activities. They can be used to get an insight on how and what RCs believe the available budget for the open calls could be used for.

Question 5 is more related to identify practical issues that currently hinder DIHs and their networks to access funding, in order to take into account this in the future roadmap for preparation of open calls and also for the planning of the matchmaking activities.

Interviews were held with the representative of the nine different RCs in SmartAgriHubs, representing the totality of DIHs in the SAH ecosystems. Regional clusters were chosen to act as intermediaries in gathering all necessary information regarding Digital Innovation Hub's knowledge of available funding. Gathering information directly from the DIHs is a challenging task, thus, the idea to use regional clusters as intermediaries was adopted, echoing the organisational structure determined by SmartAgriHubs project management, that RC act as the points of contacts for DIHs.

Being the methodology followed based on the gathering of information from different sources and through various types of interactions, most of it is self-assessed by the information sources. Therefore, the heterogeneity of the feedback gathered was identified as a limitation. This limitation is originally derived from the heterogeneity of the DIHs networks across Europe that present some geographical differences both in terms of number of DIHs present in the different regions, origin, cohesion and functioning systems. This heterogeneity, intrinsic of the SAH ecosystem, has been considered, and it is reflected in some of the results gathered and presented in the following Section 3. However, in other cases, this heterogeneity is not found to be a limitation, since feedback gathered was very similar regardless on where or by whom it was collected from.

### 3. RESULTS

The Needs Assessment conducted by the partners in WP4 of SmartAgriHubs and reported on D4.1 'Needs Assessment Report' marked the starting point for the project's activities on improving the capabilities of Digital Innovation Hubs (DIHs). By means of the assessment, gaps were identified between what DIHs deliver and what the farming sector needs. This in turn provides the SmartAgriHubs community actual demand-driven guidance on capability building priorities. Different topics were analysed: Ecosystem, Digitalisation Needs, Vision on digitalisation and DIH Innovation services.

By asking both the DIHs and the farming sector how important they consider a list of predefined services and whether they are, respectively, delivered or readily accessible, the gaps could be identified between the two respondent groups. 'Community building' was perceived by farmers as a High Importance service with a Big Gap, this implying that it is a service not fully delivered by DIHs. On the other extreme, 'Access to finance and funding' was perceived as a Low Importance service for farmers and with a Small Gap for DIH to leverage (see Figure 4). From this, it can be concluded that DIHs are capable of delivering this service to their network. Taking advantage of this fact, WP2 did a more profound investigation on the specific situation in each region to find out more specific conclusions and identify specific needs in terms of matchmaking and funding of interested third parties in order to set a roadmap for regional, sectorial and economical network expansion.

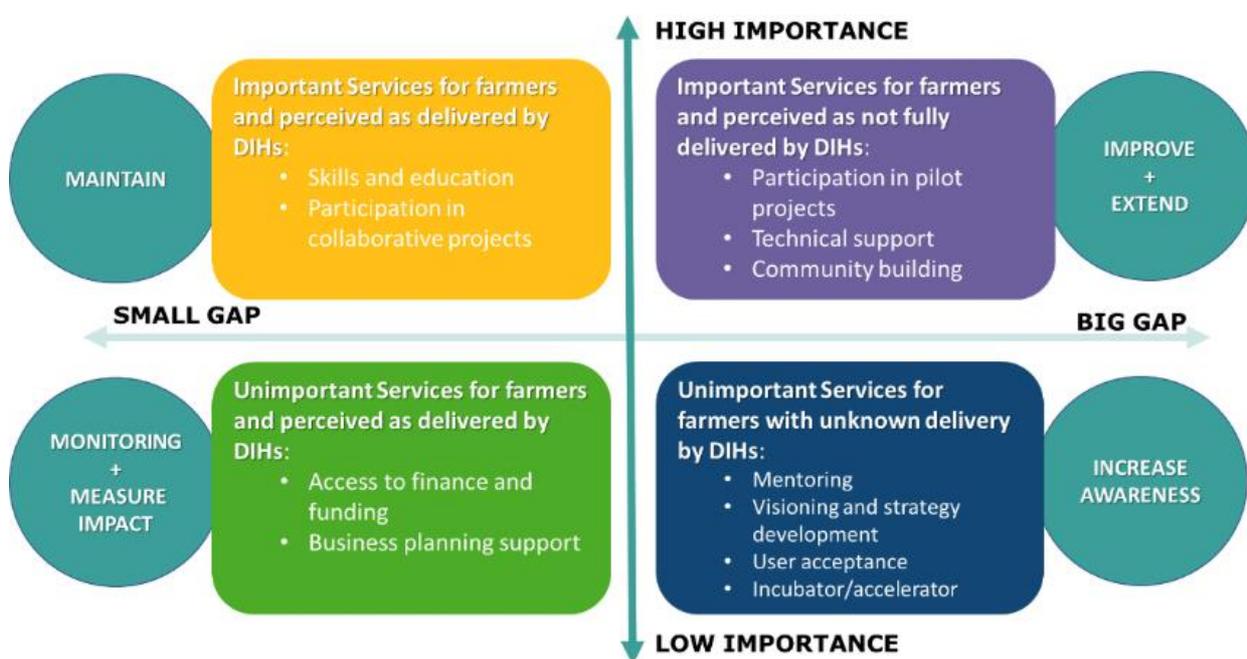


Figure 4. Summary factor matrix from D4.1 Needs Assessment Report.

### 3.1 SPECIFIC NEEDS ON MATCHMAKING

A DIH is a support facility that supports companies in the digital transformation of their business/production processes. DIHs act as a one-stop-shop, serving companies within their local region and beyond to digitalise their business. They help customers to address their challenges in a business-focused way and with a common service model, offering services that would not be readily accessible elsewhere. The services available through a DIH enable any business to access the latest knowledge, expertise and technology for testing and experimenting with digital innovations relevant to its products, processes or business models. DIHs also provide connections with investors, facilitate access to financing for digital transformations, help connect users and suppliers of digital innovations across the value chain, and foster synergies between digital and other key enabling technologies (such as biotech, advanced materials, etc.).

DIHs have an orchestrating function by connecting several actors in their network such as Universities and Research Centres, local SMEs, Competence Centres, farmer cooperatives, associations and communities, local governments, education & training institutes, large companies and industry associations, start-ups and incubators in order to generate Innovation Experiments (Figure 5).

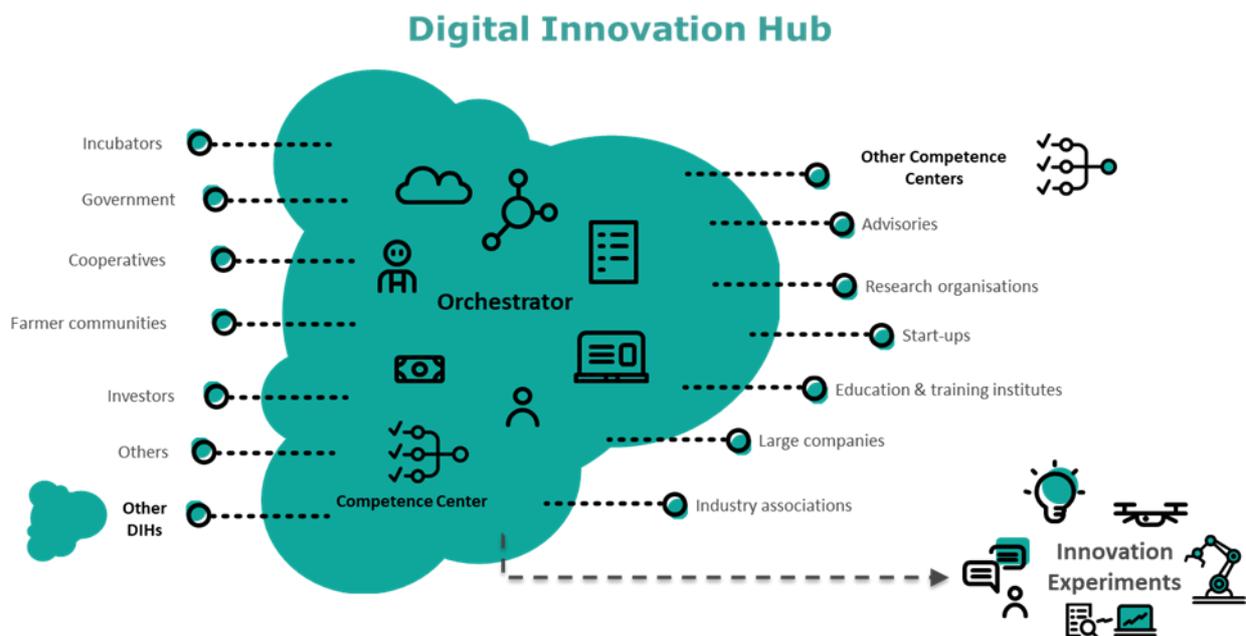


Figure 5. DIH network matrix.

Therefore matchmaking between all these different actors is one of the core ecosystem services that a DIH has to deliver.

Defining matchmaking as the capability for DIH to act as orchestrators capable of connecting the different dots in their network, specific needs assessed in D4.1 can be identified in each particular area:

- **Technology-based organisations**, such as universities and research centres, local technology providers (mainly SMEs) and competence centres are very well connected with DIHs. Many DIHs are originating or were grown from technology-based organisations and around 90% of the DIHs consulted in the Needs Assessment were connected to universities and research centres. SMEs providing technological solutions

also showed a high degree of connection, and around 73% of DIHs were connected to local SMEs.

- **Farmers, farmer communities and cooperatives and farmer associations.** These are also highly connected to DIHs, around 64% of DIHs have connection with farmer associations.
- **Governmental organisations and agencies.** The connection with local government is fairly good. Around 58% of DIHs are connected to local governmental agencies or organisations.
- **Large business and industry associations.** The connection with large industrial business players is lower than with smaller industrial players, lowering down the connections to 55%.
- **Other DIHs.** Results from the assessment report show a poor connection among DIHs, just above half of the DIHs are connected to other DIHs.
- **Start-ups, accelerator and incubator programs.** The disconnection here is more significant, since only 44% of DIHs are connected to this type of organisations. Therefore, there is an important gap here to be covered.

In order to maximise the outcomes of the SAH Open Calls, matmaking activities should be focused on the connection of the different players in the DIHs networks, specially focusing on those weak points where still the disconnection is high, i.e. large business and industry associations, other DIHs and start-ups, accelerator and incubator programs. Besides this, it is important also to take profit of the already established and well-functioning connections to facilitate connections among relevant actors.

In this sense, the following considerations should be revisited for the planning of matchmaking activities related to SAH Open Call:

- It is key to involve farmers in technology validation processes more actively, especially small agriculture and livestock farms who require technological solutions for their agronomic needs. Farmers play a central role on defining the needs of the agriculture sector, and small farmers are usually organised around cooperatives and associations at progressive levels and in defined sectors. This hierarchy must be used to reach the relevant representatives of farmers as spokesmen for local and sectorial farmer communities and get them involved in all types of interactions. However, involving individual farmers in Innovation Experiments is still challenging in practice and this is primarily related to the overall low adoption rate of digital technologies by farmers. Taking advantage of the good connection of DIHs with farmer associations, the latter must play an advisory role on translating the needs of farmer communities to technology-based organisations such as technology providers or CCs.
- Connections with start-up, accelerator and incubator programs clearly need to be improved. The lack of knowledge and connection to this type of initiatives is general, although there exist possibilities and interests from the main initiators of these to explore the possibilities of the agricultural sector. Communication is key for this aspect in order for different parties to get to know the benefits and possibilities of the other.
- Activities aimed to the transference of technology by disseminating the potential of available technologies and promoting the services of DIHs for final users are useful but must be always tailored according to the profile of the audience. Hackatons and other type of similar challenges have proven successful for the connection of different players in the agri-food ecosystem, by presenting proofs-of-concept of solutions to

specific needs previously indicated and identified. They also allow for the active participation of the attendants, including also private investors or large companies. Start-ups participate also in hackathons as mentors for the participating teams, so it is also a convenient approach to connect this type of organisation to the DIHs network.

- Connection with other DIHs is also another aspect that needs to be improved. Initiatives proposed by regional governmental agencies to foster collaboration among complementary local DIHs may play an important role here, and the good connection of DIHs with local government is a positive factor that needs to be exploited.
- In relation with the previous point, exploring international connections and collaborations with DIHs (and DIH networks) not directly related to the agricultural sector must be an activity continuously fostered. We refer particularly to the manufacturing, industrial and logistic sectors where digital technologies are already paving the way to transform European businesses while at the same time are promoting new income models and approaches that could be an inspiration to farmers and food-processing companies. At this very moment, there are collaboration agreements, memorandums of understanding (MoUs) and other cooperation schemes being put forward by a good number of DIHs across Europe that are resulting into “thematic Networks of DIHs” whose example might be interesting to explore.
- Benefiting from well-established matchmaking networks like the Enterprise Europe Network (EEN). This is the largest global network for commercial and technological SMEs cooperation and business expansion, that in many cases is managed, controlled or guided by institutions who might probably be also part of a DIH in the region. EEN organises hundreds of matchmaking events every year across Europe, sometimes fusing on a thematic technological, regional or market topic, but many times also cross-sectoral and simply with an international/multi-regional scope.

All these factors will be considered for the description of the needs and potentials for network expansion, that will be collected in Deliverable 2.2 ‘Roadmap for regional, sectoral and economical network expansion’ and in Deliverable 2.5 ‘Report on match making – needs and potentials for network expansion’ where a detailed approach and summary of the activities carried out for match making will be presented.

## **3.2 NEEDS ON FUNDING BY THIRD PARTIES**

There are a few observations or conclusions that can be extracted from the various interactions with DIHs and their networks. These conclusions have been extracted from different sources and pretend to serve as initial results for a deeper investigation of the current situation of DIHs and their networks regarding knowledge, access and capacity of leveraging funding.

The results from the interactions, specially from the dialogues with the RCs, are summarised below by different focus areas that are described below:

## Availability of regional and national funding for new IEs

This factor seems to be mainly dependent on the region considered. Most of the regions interviewed consider that there is public funding available for new IEs and for DIHs.

In Iberia, Scandinavia, Ireland & UK, North-West Europe, Italy, France and Poland (North-East Europe) there are public funding schemes available, mainly for research and development and innovation actions, addressed to companies, RTOs or collaborative networks. Also, in some regions, there is public funding available for DIHs. The funding intensity and specific conditions for these schemes are variable and depend mainly on the degree of innovation of the funded action. These can vary from non-refundable grants to partly refundable loans or guarantee for loans, depending if the action is considered an R&D action or an innovation or investment action. Also, in some regions the thematic of the different calls can vary from year to year. In some countries, funding is strongly linked to specific regions, since it indirectly depends on European structural funds.

In other regions, especially in South-East Europe, Latvia (North-East Europe), Czech Republic and Slovakia the available public funding schemes are very limited and even non-existing, due to different governmental factors, such as lack of R&D finance structures or funds. This fact hinders in a great extent the development of innovative actions in the agri-food domain.

However, some of the regional and national funding available in most of the regions is dependent on EU structural and regional development funds, and on agricultural funds. These last depend on the outcomes of the work of operational groups, and it is foreseen that the transition from the H2020 Programme to the Horizon Europe Programme will produce a lack of funds during the years 2020 and 2021.

Additionally, some regions have additional funding benefits in terms of 'tax credit' which are mainly tax reductions for the development of R&D&I activities.

## Knowledgeability of DIHs on funding

Most DIHs are aware and highly knowledgeable of the public funding possibilities available in their regions and are capable of leveraging this knowledge to their network, so their associated members can access funding, as it has been drawn from the results of the study performed in WP4 and the further interviews with RC representatives.

However, the main takeaway here seems to be the fact that there is very limited knowledge on the private funding possibilities. DIHs are very heterogeneous, but many of them come from initiatives by universities and research organisations that are not familiar with private funding. This, together with the fact that private funding is not often published publicly, produces a lack of knowledge that hinders the proper exploitation of the private funding possibilities. DIHs in contact with CC or SMEs, or coming from initiatives where CC or SMEs are involved are likely more familiar with private funding opportunities.

## DIH funding options

How DIHs are constituted and financed varies significantly not only depending on the region but also on how the DIH itself is constituted.

A hinderance for DIHs to access funding may be the fact that they are not a legal entity, for example in the case of private equity investment. Most DIHs are formed by two or more organisations of different types (universities and research centres which are often Competence Centres associations, SMEs, public organisations, etc.). DIHs can be partly

funded by public funds mainly coming from grants or competitive research funds given to their executive members. Also, DIHs may depend partly on private funding, mainly coming from their members' or users own resources dedicated to the activities of the DIH. Depending on the business model chosen by the DIH, as well as its level of maturity, the DIH will need to evaluate whether it is more advantageous to be a separate legal entity or a collaborative structure.

Private funds that exist are often used when the solutions are very mature, to support the go-to-market actions (using companies own capital or private investors' funds).

In North-West Europe most common funding for DIHs is public, which funding intensities varying from 50 to 100%. The EIP Agri initiative is an example of funding that can be addressed to DIH members.

### **Possible financing mechanisms for new IEs and/or DIHs**

The final objective of SAH is enlarging its network by the inclusion of new IEs but also by expanding the DIH network to create a highly leveraging DIH ecosystem in Europe, where DIH add value to the development of new IEs and ultimately, to helping farmers through offering useful digital solutions.

Funding possibilities should be directed to the development of new IEs arising from farmer's needs, with the involvement specifically of DIHs to ensure a proper de-risking of innovations. IEs would benefit from the experience, know-how and resources of Competence Centres and DIHs, who will play a key and necessary role in the development of the IEs, by for example by DIHs involving Competence Centres, or other ecosystem actors, to validate the technologies in relevant environments or disseminating the results of the IEs to assure replication and maximise impact.

DIHs should be capable of carrying out these tasks, thus implying that they should be technologically capable of delivering the desired services through their network (whether on their own or through Competence Centres, tech providers, etc.). They should also be very active in their interaction with the different players involved in IEs, playing the role of orchestrators of the digital transformation of the agricultural sector, which is one of the objectives of the SAH project. Therefore, DIHs should be capable of presenting a solid track record showing their activeness on service delivery or either a solid growth plan to be able to deliver additional services. This level of activeness should be measured by relevant KPIs and assessed by objective evaluators.

SAH is planning to provide a basic share of funding for the realisation of new IEs and the validation of DIH services. However, a major part of required financing for the DIH and/or IE realisation shall be mobilised by the DIH itself. In total costs required, SAH is currently discussing a ratio of 1 to 4 (one part from SAH and 4 parts representing funding from other national, regional or private funds as well as own investments of organisations carrying out a IE). Therefore, a DIH would need to develop a plan accordingly that would identify the different sources of funding as well as which costs should be covered by the SAH offered funding. Finally, it is expected that DIH are validating their services and even expand their service portfolio as well as enlarge their outreach as appropriate. Regarding IEs and funding, DIH shall support especially farmers and technology providers to acquire funding from available sources for developing new IEs, for implementation of digital technology and for training and improving digital knowledge.

## Main barriers to access funding

As for public competitive funding, one of the main problems for new IEs initiated by farmers with or without the help of DIHs to access funding is that the process of project proposal preparation is often seen as complicated, long and laborious. Small SMEs, DIH with limited resources, farmers and farmers' associations may not have the experience or the resources to successfully complete this process, leading to rejection of the funding or grants and subsequent frustration.

Collaborative projects can also be a hinderance since they imply the establishment of collaborations that are not always possible amongst many small and diverse entities. In most cases, more specific calls aimed to fund smaller projects, such as the case of many cascade funding calls in the scope of large collaborative projects, are more effective leveraging funding to small IEs.

Calls for projects under the European and national programs are highly competitive and just a few projects are funded among a large number of proposals that are presented. The main barrier for DIHs is to fund their activities of building the network, outreach companies and researchers, etc., which usually rely on own resources.

As for private funding, a limitation may be that new IEs seem to have a general lack of knowledge and awareness on private equity funding mechanisms. Traditional banking practices and schemes such as loans, warrants or other debt instruments are more easily identified as opportunities, compared to other options as equity, venture capital or business angels.

## 4. CONCLUSIONS AND FOLLOW-UP

DIHs network connections are well established in specific environments. In general, interconnection between DIHs and technology and/or research and experimental-based organisations, such as technology centres, universities, CCs and technology providers is settled. However, there is still a lack of connection with relevant industrial players and private initiatives such as start-up or accelerator programs, as well as a limited knowledge on the extent of private equity funding opportunities and initiatives.

Although there is a good connection between DIHs and farmers associations, as well as with regional governments, still there is a lack of connection between farmers and technology providers in terms of definition of farmers' specific needs and how they can align needs with available technological solutions. The introduction of the Technology Solutions Navigator in the SAH Innovation Portal has been designed to help address this need. Competence Centres and technology providers will be able to upload their technology solutions, and farmers and other users will be able to search for such solutions based on their specific needs. DIHs will be able to use this tool as well to align needs to solutions on offer, in addition to other activities, such as matchmaking activities and open calls under SAH.

Matchmaking activities need to be focused on closing this gap, offering the possibility for DIHs to connect these disconnected dots for a satisfactory leverage of new IEs. Matchmaking activities will be considered in parallel to the open call preparatory phase but also after the open call launch, for maximising network collaboration for proposal preparation.

Matchmaking approach will be suited to the characteristics of the SAH network, being mainly focused on a digital online strategy to both promote the open call and support self-steered matchmaking, with the Technology Solutions Navigator and the Innovation Portal being useful tools to do so.

The outcomes of the Phase 1 of Task 2.2 reported herewith will be taken into consideration for defining the approach of the matchmaking activities, which will be supported by WP2 in parallel with the launch of the open calls but also the period of preparation of proposal, therefore, it will be tailored according to the needs, specifically in terms of match making and funding of interested third parties, enabling a high leveraging effect on other sources of funding, in particular regional and national funding.

Further outcomes of Tasks 2.1 and 2.2 will be included in future Deliverable 2.2 'Roadmap for regional, sectoral and economical network expansion', where the potentials and targets for regional, sectoral and economic expansion will be presented. In this future deliverable, the complete reports prepared from the interviews with the RCs will be included. Also, in the upcoming Deliverable 2.4 'Stocktake of potential regional and national public/private funds for Agri-Food DIHs', further advances in the preparation of the funding map will be presented. In Deliverable 2.5 'Report on match making – needs and potentials for network expansion' a summary of the ongoing match making opportunities will be included, with a detailed description of the needs and potentials for network expansion, detailing the approach and activities carried out for match making.