

ICT - BI CHAIN

D5.1. Roadmap Report for DIHs replication in the European Bioeconomy regions for Efficient Biomass Supply Chains aimed to sustainable chemical production

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Authors	Gloria de la Viña (CTA), Marta Macias (CTA), Maria Nieto (CTA)



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Acronyms and abbreviations

BBI JU	Bio Based Industries Joint Undertaking
CAGPDS (former CAPDER)	Andalusia Regional Ministry for Agriculture, Livestock, Fisheries and Sustainable Development of Andalusia
CTA	Fundación Corporación Tecnológica de Andalucía.
DIH	Digital Innovation Hub
DoA	Description of the Action
EC	European Commission
GDPR	General Data Protection Regulation
IBF	Irish Bioeconomy Foundation CLG
IBiOIC	The Industrial Biotechnology Innovation Centre
ICT	Information and communication technologies
IML	Fraunhofer Institute of Material Flow and Logistics
IoT	Internet of things
STR	University of Strathclyde
ITT	Institute of Technology, Tralee
VTT	VTT Technical Research Centre of Finland
NDA	Non-disclosure agreement

Executive Summary

The European Commission (EC) launched on 2016 the first industry-related initiative of the Digital Single Market package. Building on and complementing the various national initiatives for digitising industry, the Commission acts to trigger further investments in the digitisation of industry and support the creation of better framework conditions for the digital industrial revolution. One of the more important pillars of the Digitise European Industry effort is the activity dedicated to developing a network of Digital Innovation Hubs (DIHs).

It is the Commission's ambition that all companies should have a DIH within their region, through which they should be able to access competences in order to digitise their organisations and their products and services.

Hence, in order to build capacity, ICT-BIOCHAIN project has developed a clear roadmap for the establishment of DIHs for the Bioeconomy to allow replication of ICT-BIOCHAIN across the European Bioeconomy regions.

This deliverable reviews the motivations for the establishment of regional DIHs for the bioeconomy, including the contribution to regional development, upgrading and support to innovation, linking actors and boosting commercial opportunities.

Then, a suggestion for how to define the Hub structure and how to involve stakeholders is provided, making emphasis in identify the different stakeholder profiles so as to maximise the outreach.

Steps to stablish the Hub, once the structure has been defined are described as well, being these: regional baseline analysis, barriers mitigation, DIH shaping, stakeholder engagement and launch and mobilisation. For this last step, some recommendations about the type of events that can be organised are provided, namely: launch and knowledge transfer event, business opportunities and cross-sectorial value chains day, demo day and investors day. Moreover, the relevance of boosting and promoting cross-sectorial value chain coalitions is also discussed.

Furthermore, since the main aim after designing and establishing a DIH is to make it last as much as possible, funding and financing possibilities are presented.

Finally, and in order to make the most out of the ICT-BIOCHAIN project experience, a set of lessons learned is shared.

1 Introduction

The European Commission (EC) launched on 2016 the first industry-related initiative of the Digital Single Market package. Building on and complementing the various national initiatives for digitising industry, the Commission acts to trigger further investments in the digitisation of industry and support the creation of better framework conditions for the digital industrial revolution. One of the more important pillars of the Digitise European Industry effort is the activity dedicated to developing a network of Digital Innovation Hubs (DIHs). Since 2016, a lot of DIHs have emerged, as well as EC initiatives such as the DIHs catalogue, the DIH Academy, and 500 M€ from H2020 budget have been allocated between 2015 and 2020 to support the development of DIHs. It is the Commission's ambition that all companies should have a DIH within their region, through which they should be able to access competences in order to digitise their organisations and their products and services.

Hence, in order to build capacity, ICT-BIOCHAIN project has developed a clear roadmap for the establishment of DIHs for the Bioeconomy to allow replication of ICT-BIOCHAIN across the European Bioeconomy regions.

Once the DIH is shaped and implemented, mobilisation can be carried out through forming value chain coalitions (cross-sectorial value chains) around specific opportunity areas and multi-actors being supported through tailored knowledge transfer and demonstration activities. This will support the introduction of the identified technologies within relevant high potential supply chains to improve harvesting, supply and pre-processing, etc.

2 Motivations for the establishment of regional DIHs for the bioeconomy

2.1 Contribution to regional development

One clear role of DIHs in many regions is to make available support easier to find by making the system more transparent and communicating it more clearly to its potential beneficiaries, for example offering one-stop shops where a DIH help and guide SMEs through the innovation support system. In the case of DIHs in bioeconomy regions for efficient biomass supply chains aimed to sustainable chemical production, the main aim is to support the development of new products and services that are not fully exploiting the digital opportunities yet.

The DIHs have been envisaged by policymakers to play several roles in connection to the regional innovation strategy. As per definition, their main purpose is to support the

digitisation of industry. However, through their efforts they can also support the development of the regional innovation ecosystem as well as the business growth and upgrading of local suppliers.

Specifically, DIHs role is to lead the development of the priority area or a specific domain (in this case, efficient biomass supply chains). To do so, they organise actors to identify needs and opportunities in their economic domain and deliberate about industry needs. Through interaction with regional stakeholders they identify issues and needs that the stakeholders may have with regards to digitisation and activities that can support this. They then work with promotion of capacitation, networks animation and other cross-cutting initiatives (within thematic domains and cross thematic), in the promotion of R&D and Innovation projects and support services.

Finally, depending on the region, DIH could be given the role to support Smart Specialisation areas and enhance digitalisation of companies within these areas. This encompasses the support to cross-clustering / cross sectorial innovation in S3 to find new ways of integrating digitalisation in other more mature domains.

2.2 Upgrading and support to innovation

DIHs support mission is to enhance digitalisation of the biomass supply chains by supporting the adoption of new digital technologies. It also means supporting the development of new business models and innovation, which will allow companies to move into market segments where higher value is added.

In some regions, the DIHs have showrooms for local technologies. Their purpose is to show opportunities for innovation and upgrading for local companies, while at the same time attracting foreign direct investments by making local technologies and capabilities more visible.

2.3 Linking actors

One clear role of DIHs is to better organise the innovation support system in the region, and make available support easier to find, by making the system more transparent and communicating it more clearly to potential beneficiaries. In many places, the regional innovation ecosystem is complex, so it can be hard for companies to identify whom to work with or to approach for assistance. To overcome this complexity it is useful to offer one-stop shops, where a DIH help and guide SMEs through the innovation support system, as well as “no wrong door” policies, where all the actors in the regional innovation support system are provided maps and information about what other actors are doing to help the SMEs in the right direction. Matchmaking is another DIH common function, either directly by organising or participating in events, or through information

on the web. It's also important to connect actors, both by promoting complementarities of existing organisations and by supporting them to collaborate, so that they can provide better services.

2.4 Boosting commercial opportunities

One of the main barriers that can be overcome through DIHs implementation is the lack of commercial opportunities for the use of ICT, IoT and Industry 4.0 to increase the efficiency and sustainability of biomass supply chains. To ensure commercial opportunities are realised, DIHs will build on ongoing regional bioeconomy developments.

3 DIH structure definition and stakeholders to be involved

The figure below provides an overview on DIH structure, relevant actors (particularly in a bioeconomy setting), and displays the dynamics among them according to EIP AGRI considerations. Multi-actor partners, including primary producers, bio based industries and ICT, IoT and Industry 4.0 specialists are integrated into the regional DIH gaining access to identified ICT, IoT and Industry 4.0 opportunities. This approach can be used as starting point for the structure when implementing a DIH.

DIHs are diverse in terms of organisation – from regional bodies to clusters or research centres. They differ also in their geographical coverage – regional or beyond. The competences that are available in-house vary from business development skills, start-up support or technical skills to communication and engagement competences; however, these can be easily expanded through their networks since DIHs draw upon many external partner skills – either located in the region or further away.

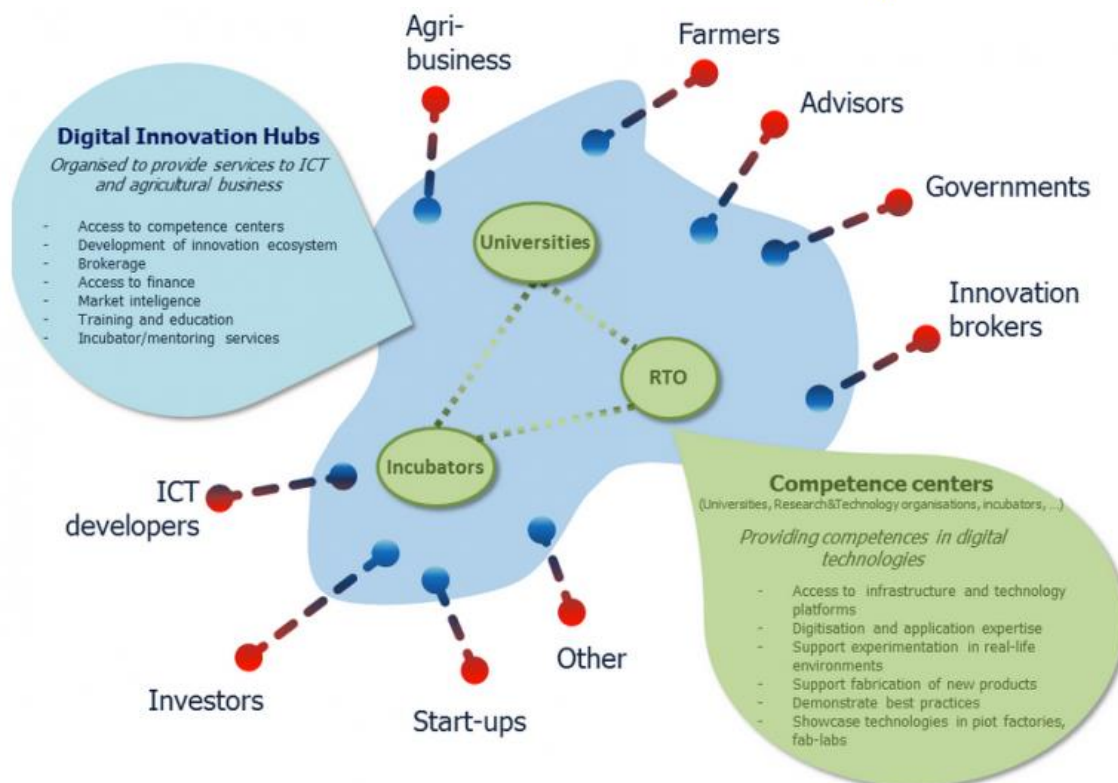


Figure 1. Digital Innovation Hub Dynamics¹

Main aspects concerning the structure to be enabled are presented next.

4 Starting point – previous initiatives in the region

Furthermore, when implanting the DIH it will be of paramount importance to analyse all relevant initiatives in the region. Consolidated initiatives, as those which have been included in the Digital Innovation Hubs catalogue², together with emerging initiatives that have their foundations in Smart Specialization Strategies aspects would need to be checked. This will allow identifying and defining the foundations for the Hub creation.

There is no specific starting point that benefits the DIHs implementation the most. In fact, what is more relevant and could unlock potential benefits, is to align efforts with already existing initiatives.

In the project ICT-BIOCHAIN, the two regions involved had different starting points. In the case of SE Ireland, there was no specific DIH devoted to bioeconomy or agro issues. Nevertheless, other initiatives such as the Manufacturing Industry Digital Innovation Hub, the Dingle Creativity and Innovation Hub, Smart Agri Hubs and Dublin Digital Hub Projects

¹<https://www.recap-h2020.eu/wp-content/uploads/2017/03/EIP-AGRI-Digital-Innovation-Hubs-768x537.png>

² <http://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>

were considered so as to establish synergies and leverage on already implemented actions. In the case of Andalusia, there was already a DIH established, devoted to agro aspects and called Agrotech. In addition, there was the Andalusian Bioeconomy Cluster, Linares 4.0-Knowledge City (DIH), OnGranada - Granada Plaza Tecnológica y Biotecnológica, and the National Pole of Digital Content, POLO. In this case, after analysing the context, it was decided that best approach in order to give targeted stakeholders a coherent message and avoid confusion due to the proliferation of initiatives was to include ICT-BIOCHAIN DIH inside the Agrotech DIH, the latter acting as an umbrella for all digitisation initiatives in the region.

4.1 Host organization

DIHs can be hosted by a diversified sample of organisations like regional development agencies, cluster organisations, professional associations, research centres, universities or public entity/body.

As for ICT-BIOCHAIN DIHs, in the case of Andalusia, the DIH is hosted by the regional government (Andalusia Regional Ministry for Agriculture, Livestock, Fisheries and Sustainable Development of Andalusia). Alternatively, in SE Ireland, the host is the Irish Bioeconomy Foundation, a non-profit private cluster. Both approaches are valid for implementing the DIH and have proven to be successful. Nevertheless, each case would demand different actions. For example, when hosted by a public administration, a stronger effort toward stakeholder engagement would be required, being perhaps necessary to link the initiative to a private cluster (as it is the case of ICT-BIOCHAIN in Andalusia and its connection with the Andalusian Bioeconomy Cluster). When hosted by a private cluster, efforts would be targeted to establish links with the corresponding regional authorities so as to align DIHs with regional policies, available funding instruments, etc.

Anyhow, in all these cases, it's relevant to align DIH scope with S3 priorities, achieving a strong support from regional government (either as host or as a key actor in the design and implementation).

4.2 Geographical scope

DIHs differ also in their geographical coverage: some focus only on their own region (the present case of Andalusia and SE Ireland), others on the national level or both, or work EU-wide.

4.3 Required competences

Both external partners and in-house competences will be needed when implementing the DIH.

Depending on the type of host organisation, the most common types of in-house competences the DIHs have developed vary from business development skills, start-up support or technical skills to communication and engagement competences.

In addition, DIHs draw upon many external partner skills, usually located in the region. In general, DIHs count with technology partners like research centres, universities, technical universities, training providers, vocational training, special competence centres and technology suppliers; and collaborate with innovation support organisations for intellectual property rights (IPR) management and business model activities. Holding a network of long-term partnerships between complementary organisations such as knowledge institutions, industry clusters, incubators and innovation agencies in the region/country is a good basis for DIH implementation. Examples of the different organisations and why would be interesting to involve them in the DIHs are provided next.

- Clusters, to better reach out to SMEs and industry.
- Research centres and universities, to be able to provide relevant technical support skills.
- Technology-using companies, to mobilise needs and provide development opportunities.
- Private tech suppliers, to provide solutions.
- Private consultants, to provide knowledge.
- Public innovation support actors (incubators, accelerators, etc.).
- Community based labs, training centres and professional associations as a connection to stakeholders.
- Regional/national development agency to link with available funding opportunities.

DIHs should also network with each other to be able to give companies in their region the possibility to work with the best experts/technologies addressing their needs (this being at the core of ICT-BIOCHAIN project where project partners have participated in the activities of the counterpart DIH).

4.4 Structure definition

When developing the DIH structure both, Andalusian and Irish partners, were asked about their expectations and ideas regarding the different roles to be considered. The key idea driving DIH structure design has been how to allow an easy DIH management and operation while involving the required knowledge and providing the direct contact with stakeholders. Thus, the following structure was designed.

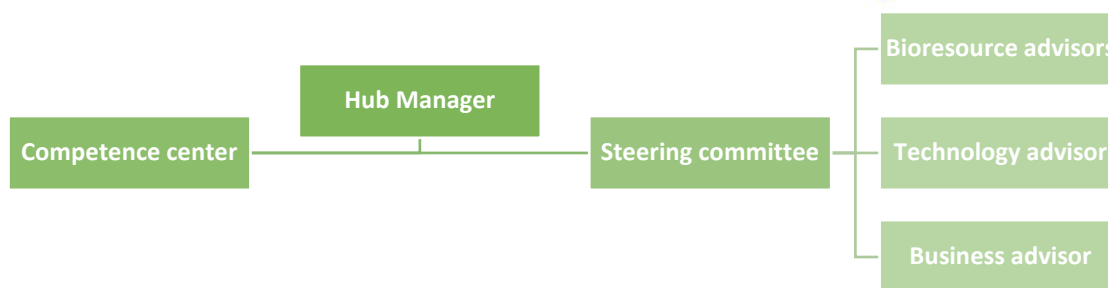


Figure 2. DIH general structure

Next subsections delve into the different foreseen roles and their corresponding responsibilities.

4.4.1 Hub manager

The Hub manager shall establish a steering committee, to oversee the development of Hub activities, and will liaise with the regional stakeholders, to deliver project activities and develop cross-national initiatives. It is suggested that the way to commit the Hub manager is to ask for a letter of commitment where main duties are detailed. It is expected that the Hub manager might be a person with a strong background in bioeconomy, with a strong network of stakeholders in the region and the capability of mobilizing main actors.

According to the letter of commitment, main duties are:

- To establish a steering committee to oversee the development of Hub activities.
- To liaise with the regional stakeholders to deliver project activities and develop cross-national initiatives.
- To provide feedback on events agenda and suggest speakers and/or participants when needed.
- To attend DIH events.
- To interact with DIH stakeholders at the events.
- To cooperate with other regions DIHs in order to swiftly move forward in the regional development of this initiative.

4.4.2 Steering committee

Main role of the Steering committee is to oversee the development of Hub activities. This committee shall include DIHs, ICT, IOT and Industry 4.0 specialists, biomass specialists and enterprise experts. The selection of the committee is to be conducted by the Hub manager.

Concerning how to ensure the commitment of the committee members, different approaches could be conducted (according to the duties assigned). When light duties are assigned and no final retribution is foreseen, a letter of commitment is enough. Other

cases where a more intensive work/contribution is expected could envisage to hire some members of the committee. As a rule of thumb, main duties would be:

- In cooperation with the Hub manager, to oversee the development of Hub activities.
- To suggest new organisations and entities to be involved in the DIH.
- To provide feedback on events agenda and suggest speakers and/or participants when needed.
- To attend DIH events.
- To support the Hub manager when contacting stakeholders out of its network
- To provide advice on:
 - “status of XXX value chain” (bioresource advisor).
 - “feedback about the use and opportunities that ICT, IoT and Industry 4.0 strategies can bring to the project”(technology advisor).
 - “the best approaches for business development for the different opportunities emerging from the DIH activities” (business development advisor).

4.4.3 Competence centre

The Hubs have at their core a competence centre that will provide access to the best knowledge, information and technology to promote opportunities for ICT, IoT and Industry 4.0 to be integrated into high potential biomass value chains. Aside from identifying state-of-the-art in ICT, IoT and Industry 4.0 solution in biomass harvesting, supply and utilization, the competence centre can also identify new opportunities for improving biomass supply chains through integration of existing and new ICT, IoT and Industry 4.0 solutions.

Depending on the region and the organisations existing there, this could be a university, research centre. Nevertheless, other approaches could be possible as it happened in the frame of the project. Specifically, after a careful analysis of the starting situation, it was concluded that both regions don't have a one single research centre that could play that role. Accordingly, it was decided to create a network composed by local research groups.

A letter of commitment could be asked to the groups, research centre or university, stating main duties as follows:

- To work closely with the DIH Hub manager and the Steering committee in order to ensure a smooth and effective implementation of the DIH.
- To gain access to the best knowledge, information and technologies related to ICT, IoT and Industry 4.0 that can be integrated into high potential biomass value chains.
- To identify new opportunities for improving biomass supply chains through integration of existing and new ICT, IoT and Industry 4.0 solutions.

- To discuss and exchange knowledge about how these technologies can be integrated within/adapted to regional biomass supply chains.
- To learn about assembly and financing of biomass supply chain related equipment and solutions.
- To sign appropriate NDAs, if would it be needed, in order to perform all or some of these mentioned collaborations.
- To attend DIH events.

4.5 Stakeholders

The term “stakeholders” refers to the people from society that will be involved in the Hub, benefiting from its activity. In order to tailor communication activities, three groups of stakeholders are defined: (1) private companies that own, treat, trade, manage biomass; (2) private companies with ICT, IoT, industry 4.0 solutions; and (3) other stakeholders that could be interested in the Hub such as universities, public administration, NGOs, etc. These profiles are characterised next:

BIOMASS OWNERS, END-USERS AND TRADERS

Organisation type

Private companies (especially large industries and SMEs)

Description

Companies that produce, use or trade biomass

Main benefits of joining the DIH

- Access to services to activate, support and stimulate the adoption of ICT, IoT and Industry 4.0 solutions aimed at improving biomass logistics.
- These services available through a DIH enable any business to access the latest knowledge, expertise and technology for testing and experimenting with digital innovations .
- Participation in networking, matchmaking, brokerage and dissemination activities.
- DIHs also 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.).
- The holistic view of digitisation as a company-wide transformation process enables companies not just to identify technical solutions, but to finance and nurture the innovations to a level that they may actually be implemented within the business and contribute to improved competitiveness.

Key messages

“DIHs are support facilities that help companies to become more competitive through the adoption of latest digital technologies in biomass logistics field”

“The DIHs act as a one-stop-shop, providing participants with:

- Access to digital technologies and competences
- Infrastructure to test digital innovations
- Training to develop digital skills
- Financing advice
- Market intelligence
- Networking opportunities.”

“DIHs help participants address their challenges in a business focused way and with a common service model, offering services that would not be readily accessible elsewhere.”

“What is different about DIHs? They bring all actors together in a region and develop a coherent and coordinated set of services that are needed to help companies (especially small companies or low-tech enterprises) that have difficulties with their digitisation through a one-stop-shop.”

“The added value of DIHs over existing initiatives and approaches may include one or more of the following:

- Acting as a one-stop-shop for companies and providing a gateway to specialist platforms and infrastructures.
- Possessing significant know-how spanning, for example, across technical disciplines and between technology and non-technology areas (e.g. business, finance, law, IPR).
- Ability to ‘speak the language’ of SME businesses and understand their needs.
- Understanding of business models and business transformation and being able to help companies to transform.
- Ability to work with companies at all levels of digital maturity, including offering low-tech transfer to companies lower down the maturity curve.
- Ability to broker between the needs of industry and relevant technology providers in an independent and unbiased way.
- Ability to assess current and future skills needs and provide appropriate support.
- Providing funding or facilitating access to funding from external sources.”

Preferred communication channels

Phone calls, emails.

ICT, IoT AND INDUSTRY 4.0 SOLUTIONS PROVIDERS

Organisation type

Private companies (especially SMEs, spin-offs and start-ups)

Description

Companies that have in their product portfolio/are developing ICT, IoT and industry 4.0 solutions aimed to improve logistics from biomass supply chain

Main benefits of joining the DIH

- Possibility for testing and experimenting with own digital innovation in direct contact with end-users.
- Knowledge transfer and direct collaboration with the competence centre in order to evolve own product portfolio according to trending technologies .
- Real and first-hand feedback about industry needs in the field of biomass supply chain and logistics .
- Participation in networking, matchmaking, brokerage and dissemination activities.
- DIHs also 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.).

Key messages

“DIHs hold significant potential to support and assist SMEs and start-ups to become key actors in bringing digitisation within the reach of all industry sectors.”

“The DIHs act as a one-stop-shop, provide solution owners with:

- Business point for products delivery to the market
- access to digital technologies and competences that could improve own products,
- infrastructure to test digital innovations,
- training to develop digital skills,
- financing advice,
- market intelligence and
- networking opportunities.”

“DIHs act serving companies within their local region and beyond to digitalise their business. They help customers address their challenges in a business focused way and with a common service model, offering services that would not be readily accessible elsewhere.”

“What is different about DIHs? They bring all actors together in a region and develop a coherent and coordinated set of services that are needed to help companies (especially small companies or low-tech enterprises) that have difficulties with their digitisation through a one-stop-shop.”

“The added value of DIHs over existing initiatives and approaches may include one or more of the following:

- Acting as a one-stop-shop, providing a gateway to specialist platforms and infrastructures.
- Possessing significant know-how spanning, for example, across technical disciplines and between technology and non-technology areas (e.g. business, finance, law, IPR).
- Ability to market themselves and proactively identify relevant customers for their services.
- Ability to work with companies at all levels of digital maturity, including offering low-tech transfer to companies lower down the maturity curve.
- Ability to broker between the needs of industry and relevant technology providers in an independent and unbiased way.
- Ability to assess current and future skills needs and provide appropriate support.
- Providing funding or facilitating access to funding from external sources.”

Preferred communication channels

Phone-calls, emails.

OTHER STAKEHOLDERS

(other companies, academia, public bodies, society)

Organisation type

Private companies from other fields interested in biomass supply chain and how ICT, IoT and Industry 4.0 solutions can improve logistics

Academia

Public bodies

Citizens, represented by associations, NGOs, etc.

Description

Any other stakeholder that, although not directly benefitted through technology adoption or development, might be interested in the outcomes of the activities conducted in the frame of the DIH implementation.

Main benefits of joining the DIH

- Participation in networking, matchmaking, brokerage and dissemination activities. For other private companies, enhancement of their network and identification of synergies and cross-sectoral opportunities.
- For academia, knowledge transfer with companies and competence centre.

- For public bodies, first-hand information about digitisation status and process in the region, gathering relevant information that can be used for policies shaping.
- For citizens, access to information about impact of digitisation.

Key messages

“The DIHs act as a one-stop-shop, provide solution owners with:

- Business point for products delivery to the market
- access to digital technologies and competences that could improve own products,
- infrastructure to test digital innovations,
- training to develop digital skills,
- financing advice,
- market intelligence and
- networking opportunities.”

“DIHs act serving companies within their local region and beyond to digitalise their business. They help customers address their challenges in a business focused way and with a common service model, offering services that would not be readily accessible elsewhere.”

“What is different about DIHs? They bring all actors together in a region and develop a coherent and coordinated set of services that are needed to help companies (especially small companies or low-tech enterprises) that have difficulties with their digitisation through a one-stop-shop.”

Preferred communication channels

Phone-calls, emails and face-to-face meetings

4.5.1 Criteria for considering the level of involvement of stakeholders

During the DIH implementation, and later during the organisation of the different events and actions, several stakeholders are expected to be involved. It becomes therefore a key aspect to identify the level of involvement of these stakeholders, as it is clear that not all of them would be engaged in the same way. By considering a “level of involvement” it will be possible to better quantify the success and effectivity of the DIHs and related actions, and it will be possible, as well, to identify the level of involvement vs. stakeholder profile. Other relevant conclusions such as which actions are preferred by the stakeholders could be also drafted from the use of this indicator.

Hence, “level of involvement” could be defined as the degree of engagement of a stakeholder with the DIH. Three levels are defined: low, medium and high. A set of indicators such as event attendance or social media follow-up have been identified as the following table depicts.

Table 1. Stakeholder engagement indicators

Indicator/Level of involvement	Low	Medium	High
Events attendance	No	1	>1
Information provision to the DIH	No	Yes	Yes
Contacting project partners asking for information	Yes	Yes	Yes
Social media follower	Yes	Yes	Yes

According to the table above, it can be defined:

- Low level of involvement: the stakeholder meets at least one of indicators marked as “Yes”
- Medium level of involvement: the stakeholder meets at least two of the indicators marked as “Yes”
- High level of involvement: the stakeholder has attended more than one event or meets the other three indicators marked as “Yes”.

5 Steps to establishing a Digital Innovation Hub

As for the design and development of the DIHs, the following steps need to be followed:

- Regional baseline analysis
- Barriers mitigation
- DIH shaping considering previously existing DIHs or other stakeholder groups
- Stakeholder engagement
- Launch and mobilisation

The aim is to adapt the DIH structure suggested by the EC to the regional context and stakeholder needs.

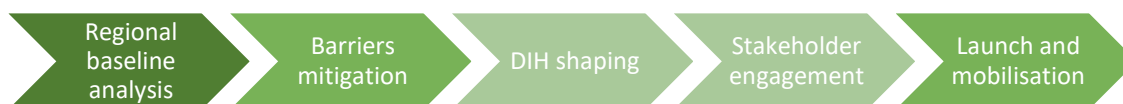


Figure 3. steps for establishing a DIH

Next sections delve into the steps that could be more troublesome when implementing the regional DIHs.

5.1 Regional baseline analysis and barriers mitigation

First step is to examine the regional situation, assessing value chains potential, regional organisations, knowledge gaps and expertise available. From there, an analysis of the main barriers for DIH implementation can be conducted. It will be of paramount importance to address these barriers as soon as possible, both during the Hub design stage and also during mobilisation activities. Some example of usual barriers that can be found and allocated mitigation actions to address them are provided in Table 2 as guidance (next page).

Table 2. Examples of barriers that could be found when implementing a DIH

Type	Barrier	Definition	How to address barrier through Hub design and activities
Information Availability	Accessing information on existing technologies/ best practices	Companies may be reluctant to provide information on technologies used to improve their supply chains	Communicate the opportunity that collaboration within the Hub structure has for technology providers and bio based industries – particularly technology companies
	Lack of regional focus	The information collated by the Hub is too general	Careful selection of relevant technologies for Knowledge Exchange and Demonstration activities. Ensuring regional relevance of technology to complement feedstock scoping
	Meeting the needs of industry/stakeholders	Unable to define relevant technologies due to lack of awareness on needs of industries	Feedback will be obtained from stakeholders on initial technology scoping and relevance for industry application (through a needs and opportunities survey and undertaken regionally). This will provide an opportunity to develop new relevant technology networks based on feedback
	Low data availability and specific applications to bioeconomy	Acquired data for agricultural sector need to be adapted to address main inputs needed for its implementation in bioeconomy. Most of the applications and data are focused in primary production for human consumption	Engage with technology stakeholders to see if existing agricultural technology can be integrated into bioeconomy value chains. European-wide technology scoping may deliver technology with regional application
Information	Knowledge gap within companies	Agriculture is a very traditional sector which innovation promotion and implementation are complicated.	Steering committee as contact points on specific areas of expertise for network developed
Available	Lack of specific financial instruments	There are not existing tools for DIH establishment in the regions. These structures	Identify and engage with funding agencies, Venture Capitalists, angel investors, research funding bodies

		should be built on the basis of partners contributions and a mix of existing tools	etc. Add someone from business and investment community to steering committee
Stakeholder engagement	Low stakeholder involvement	A lot of SMEs and small producers are family-owned business, with pyramidal decision-making mechanisms that make difficult the development of new cooperation opportunities for technology transfer	Direct and personal communication with stakeholders on project and its objectives/opportunities to partner networks. Build on existing networks and develop links with additional national/regional initiatives in Bioeconomy
	Low coordination between value chain stakeholders	There are several local groups of producers but there is not a coordinated effort for value chain development and new business opportunities development	Highlighting the potential of regional bioresources and networks will help to focus producers and industry on value chain development
DIH Regional Definition	Legal form for the DIH establishment	There are several strategies for the legal establishment of the DIH. Hence, final strategy must be carefully selected as it could limit the dynamics of the DIH	Consideration of legal advice on implementation depending on the host organisation profile
	Definition of DIH value proposition	A wrong definition of the value proposition can affect the future development of the DIH. A clear offer to the partners to meet their needs should be done, in order to ensure long term viability. Service level and funding scheme require a fine tune description during strategic DIH development	In terms of value-proposition the Hub is a one-stop shop for information on regional feedstock availability, technologies for use within regional supply chains, networking development and knowledge exchange

5.2 DIH shaping

5.2.1 DIH structure

Hub manager contact and Steering committee contacts should be available at project website. Same for competence centre.

5.2.2 Stakeholder contact guidelines

The implementation of the DIHs could involve stakeholders at different stages of the project and with different purposes. These stakeholders have different profiles, requiring different communication approaches (especially key messages). Furthermore, GDPR issues needed to be considered and implemented when contacting them. Guidelines for contacting stakeholders should be produced by each Hub. In Annex I an example of these guidelines can be found so it can be used as starting point. This could be used when reaching the stakeholders not only to involve them in the Hub, but also when trying to retrieve information in order to shape the DIH itself.

5.2.3 DIH participation guidelines

Concerning DIH participation, customised materials per each stakeholder category should be produced stating the benefits of joining the DIHs.

5.2.4 DIH services definition

While most DIHs offer a fixed range of services, the DIH should be flexible enough to work with experimentation and co-creation. Services that DIHs offer typically include access to test facilities, experimentation and piloting, business model development, skills training, access to knowledge and experts, workshops and matchmaking events, financing, project initiation and management, internationalisation and IPR assistance.

A list gathering some example of services that could be provided by the Hub is provided next:

- Awareness raising, i.e. to promote the use of new technologies (through activities such as showrooms, interactive demonstrations, factory tours, videos, commercials, online and printed media).
- Diagnosis, since most DIHs carry out analysis of the company's specific needs and possible digital solutions to improve their competitiveness.
- A transformation plan, which is the outcome of the diagnosis and proposes possible technologies, new solutions or new business models to the analysed company .
- Experimentation, testing, piloting .
- Collaborative research projects promotion and R&I project initiation by mobilising partners to form consortia and apply for different calls, also helping out in writing national and EU funding applications. Depending on the type of host organisation and partners the DIH counts with, technology solution implementation and/or support can be provided with internal resources or through partners, as well as using either off-the-shelf solutions or more customised ones.
- Matchmaking, which is quite common and may refer to favouring the encounter between supply and demand, including universities and research institutes as providers, or less

frequently between companies with similar needs or complementary solutions (which is closer to DIH ecosystem building role).

- Training and skills development.
- Promotion and marketing: some DIHs help companies to promote and market themselves.
- Internationalisation.
- Financing, which is a common feature and consist of different ways to provide funding assistance for digitalisation activities, either by providing subsidise services or innovation vouchers to purchase services, but also facilitating contacts with venture capital and other types of investors.

5.3 Stakeholder engagement

To engage successfully with SMEs and industry, DIHs need to provide services that are relevant and build trustful relations.

The challenge to reach out to the SMEs is significant and a lot of commitment and high-quality expertise is required to address the business needs of the local SMEs. Creating opportunities for demand-side companies to work together with supply-side companies and organisations in a trusted environment is a critical aspect of it. Using a language that SMEs can understand and propose them service procedures that keep bureaucracy to a minimum are also critical factors to approach SMEs effectively. A DIH needs to communicate its offer and raise awareness about itself using both online and offline strategies, such as having a web-page, using social media channels and newsletters.

Furthermore, to make tutorial-type videos is also useful. As many of the companies that the DIHs want to reach are less tech-savvy and not yet so digitised, it is equally important to use non-digital channels to reach them. Offline marketing includes printed presentation material, tech event, trade shows and conferences. Many Hubs use their own networks as communication channels, such as clusters and chambers of commerce. Furthermore, communication should both be about engaging with potential beneficiaries of the DIH services, but also to diffuse knowledge about different steps that companies can take themselves to digitise.

6 First recommendations for Digital Innovation Hubs mobilisation

In the frame of the project, different events have been carried out as a way to mobilise the DIHs and engage stakeholders, making the most out of this initiative. These events are presented next as a suggestion of potential activities to be conducted.

6.1 Launching and knowledge transfer event

Objective

To present the DIH structure, planned activities, methodology and potential benefits. Moreover, a Knowledge Transfer (KT) Workshop can be organised aiming to promote opportunities for ICT, IoT and Industry 4.0 in optimization of biomass supply chains. This event will facilitate networking, matchmaking, B2B, knowledge and innovation transfer between primary producers/industry, ICT, IoT and Industry 4.0 specialists, bio based industries, etc. having the competence centres as supporting node.

The combined launch and KT event can:

- Introduce the region which is to be centre point of the Digital Innovation Hub.
- Introduce the DIH: what is it? Why is it different?
- Introduce regional DIH structure (Hub manager, supported by Bioresource advisors, technology advisor, business development advisor, and the competence centre).
- Provide information on how to join the DIH and main benefits.
- Provide information about scheduled DIH actions and events.
- Facilitate knowledge transfer among stakeholders (e.g. industry, primary producers and tech providers) having the competence centre as supporting node.
- Foster networking so as to promote new business opportunities.
- Provide an introduction to the role of technology solutions for biomass supply chains.

Barriers and mitigation actions

The following barriers would need to be considered during the preparation of the event (implementing the corresponding mitigation actions): low stakeholder involvement and low coordination between value chain stakeholders. Moreover, the following barriers (and corresponding mitigation actions) would need to be considered when shaping the event: accessing information on existing technologies/best practices, lack of regional focus and meeting the needs of industry/stakeholders.

Required equipment, material, logistics

Tea/coffee, lunch, name tags, project communication material (e.g. roll-up and brochures), participant package (including DIH communication materials and feedback form).

Estimated attendees

Invitees will be consistent with Stakeholder database reaching across sectors including primary production, tech industry, bio based industry, ICT sector, academia and policy.

6.2 Demo day

A field trip or on-site exhibition where there are several company site visits with demonstrations of state-of-the-art technologies currently being used in the biomass sector to improve the efficiency of the bioeconomy.

Objective

The aim is to disseminate these practices in the region and therefore promote the use of ICT, IoT and Industry 4.0 solutions within the biomass sector and encourage its integration.

Barriers and mitigation actions

The following barriers would need to be considered during the preparation of the event (implementing the corresponding mitigation actions): low stakeholder involvement and low coordination between value chain stakeholders.

Required equipment, material, logistics

Tea/coffee, lunch, name tags, project communication material (e.g. roll-up and brochures), participant package. Specifically, each participant can be provided with an folder containing the DIH leaflet, the event agenda, site visit information (technology and company profile), a steering committee information leaflet, host organisation leaflet and feedback form.

Estimated attendees

Invitees will be consistent with Stakeholder database reaching across sectors including primary production, tech industry, bio based industry, ICT sector, academia and policy.

6.3 Boosting and promoting cross-sectorial value chain coalitions

At DIH events, stakeholders within the biomass sector can be asked to fill out questionnaires with their needs from the technology sector. Also, the feedback from the KT event and demo day can include a specific question asking the participant to point out which speakers, demo sites, etc he/she might be interested in cooperating with. Moreover, a workshop can also be included in the launch event to prompt stakeholders to have an in depth discussion about these needs and brainstorm any other ideas/problems/opportunities.

These needs would need to be summarised by the Hub team, identifying the different cross-sectorial business opportunities (i.e. those opportunities that enable the cooperation between a technology provider and a biomass related company) . For each selected opportunity, the Hub team will arrange the contact between the technology provider and the biomass related company or, in case the biomass company has not identified any preferred technology provider, it will arrange a meeting between the biomass related company and the competence centre or the technology advisor from the Steering committee.

6.4 Business opportunities and cross-sectorial value chains day

Involving suppliers, end users and ICT specialists, the event can be developed along specific value chains. With support of competence centre, newly established business opportunities will receive technical and business support and mentoring to consolidate regional innovations, understand technical implementation, identify barriers and develop business models following the concept of CANVAS (considering biomass resource and market, supply chain relationships, revenue streams, key activities, key partnerships, cost structure). To allow these innovations to progress to the next level this event can be followed by an investment day as explained below.

Objective

This event will boost the development of cross-sectorial value chains and will support the development and consolidation of new business opportunities emerging from the DIH. This action also will strengthen the cooperation of the competence centre with regional stakeholders.

Barriers and mitigation actions

The following barriers would need to be considered during the preparation of the event (implementing the corresponding mitigation actions): low stakeholder involvement and low coordination between value chain stakeholders and lack of regional focus.

Required equipment, material, logistics

Tea/coffee, lunch, name tags, project communication material (e.g. roll-up and brochures), participant package (business model development and assessment methodology templates, feedback form).

Estimated attendees

Main audience will be start-ups, spin-offs, entrepreneurs and also companies that, although being consolidated, have found new business opportunities in the biomass area.

6.5 Investment day

Consolidated business models will pitch for funding at an investment day using regional funds, or private investors. Both public and private funds can be presented. It could encourage start-ups and entrepreneurs participation the organisation of a pitch contests with a prize (this being for example one of the services that the DIH offers for free).

Objective

Main aim is to move forward from business opportunity spotting and development to real implementation, making easier going into market.

Barriers and mitigation actions

The following barriers would need to be considered during the preparation of the event (implementing the corresponding mitigation actions): low stakeholder involvement and meeting the needs of industry/stakeholders.

Required equipment, material, logistics

Tea/coffee, lunch, name tags, project communication material (e.g. roll-up and brochures), participant package (Funding programme fiches and feedback form).

Estimated attendees

Mostly private sector stakeholders that could benefit from funding in order to implement new business opportunities in the biomass supply chain field.

7 Funding and financing possibilities

The DIHs can work according to different business models, combining public funds, membership fees and commercial incomes. There are those with a base funding coming either from public funds (e.g. from European Regional Development Funds; from the H2020-based programmes for Digital Innovation Hubs or, more broadly, for the development of the ecosystem of innovation support to SMEs "INNOSUP"; from local, regional or national funds) or from membership fees. Others do not count with base funding coming from public budgets but receive funding for their digitisation-related services. Public funds are also granted to fund certain targeted activities or targeted calls for specific services or delivered through innovation vouchers that can be used for digitisation services provided by the DIH. The DIHs themselves should also look for different calls and public funding opportunities that could be interesting for stakeholders so they can materialise the different opportunities spotted. Many also charge for their digitisation services except those more basic, which are kept free-of-charge for their customers, while others commercialise all their services.

8 Lessons learned

During the whole process of DIHs design, development and implementation, several lessons have been learned.

It is very important to customize stakeholder messages in order to properly catch their attention. Since nowadays there are a lot of initiatives, events, workshops, associations, etc. it is a key aspect to highlight the added value of DIH engagement

Stakeholder profile categorization will ease the tailoring and further communication actions

Involving stakeholders as part of the steering committee has been identified by the rest of stakeholders as an evidence of the relevance of DIH and how it could contribute to improve their competitiveness

Main aim when design the Hub and corresponding services is to use as foundation the needs of biomass related companies and emphasise that a key success factor is to also focus on outreach and provide services to SMEs and companies that are not yet in their networks.

At the launch event, participants acknowledge the workshop sessions where participants are asked to present their needs (biomass profile) and available solutions and opportunities (ICT providers) as such exchange triggers networking opportunities. This kind of exchange should be scheduled before coffee or lunch break so attendees can have enough time for interact and conduct some matchmaking.

Events should be designed using a flexible approach since sometimes people cannot commit the whole day (e.g. specially in the demo day where they are subject to the bus transportation).

9 Information and support sources

ICT-BIOCHAIN project website <https://ictbiochain.eu/es/>

Smart Agri Hubs project website <https://smartagriHubs.eu/>

DIHNET.EU Community platform <https://dihnet.eu/>

DIH catalogue <https://s3platform.jrc.ec.europa.eu/digital-innovation-Hubs-catalogue>

Digital Innovation Hubs information on the Smart specialisation platform <https://s3platform.jrc.ec.europa.eu/digital-innovation-Hubs>

Annex I. Example of commitment letters

Place, date

Name of the person

Name of the organization

Legal address

Subject: Letter of Commitment as Hub manager for the Digital Innovation Hub

Dear Sir/Madam,

With reference to the Digital Innovation Hub (DIH) that will be implemented in (Name of the region), I (Name of the person) would like to express my commitment to act as Hub manager.

The aforementioned DIH aims to examine opportunities for ICT, IoT and Industry 4.0. to increase the efficiency of high potential value biomass supply chains. As a Hub manager, my main tasks and actions could be:

- Establishing a steering committee to oversee the development of Hub activities
- Liaising with the regional stakeholders to deliver Hub activities and develop cross-national initiatives
- To provide feedback on events agenda and suggest speakers and/or participants when needed
- To attend DIH events
- To interact with DIH stakeholders at the events
- To cooperate with other regional DIHs in order to swiftly move forward in the regional development of this initiative

In light of this, I (Name of the person) am willing to act as Hub manager from (date of signature) until xxxxxx

Looking forward to working with you.

Yours sincerely,

Name

Role in the organisation

Organisation

Place, date

Name of the person

Name of the organization

Legal address

Subject: Letter of Commitment as Steering Committee member of the Digital Innovation Hub

Dear Sir/Madam,

With reference to the Digital Innovation Hub (DIH) that will be implemented in (Name of the region), I (Name of the person) would like to express my commitment to act as member of the Steering Committee - Bioresource Advisors/Technology Advisor/Business Development Advisor

The aforementioned DIH aims to examine opportunities for ICT, IoT and Industry 4.0. to increase the efficiency of high potential value biomass supply chains. As a member of the Steering Committee, my main tasks and actions could be:

- In cooperation with the Hub manager, to oversee the development of Hub activities
- To suggest new organisations and entities to be involved in the DIH
- To provide feedback on events agenda and suggest speakers and/or participants when needed
- To attend DIH events
- To support project partners when contacting stakeholders out of ICT-BIOCHAIN regional partners networks
- To provide advice on xxxxxxxxxxxxxxxxxxxx

In light of this, I (Name of the person) am willing to act as Steering Committee - Bioresource Advisors/Technology Advisor/Business Development Advisor from (date of signature) until xxxxxx.

Looking forward to working with you.

Yours sincerely,

Name

Role in the organisation

Organisation

Annex II. Guidelines on how to reach stakeholders

Contacting stakeholders for information retrieving

Not only during DIH shaping, but also during the DIH implementation and services provision it might be necessary to contact the different stakeholders in order to retrieve useful information. This information might be related for example to the current state-of-the-art of the technologies they are using/developing, the regional context, their needs and requirements, etc.

When retrieving information, in order to create and maintain a trustworthy environment, it is necessary to provide brief information about DIH objectives and context, how it will benefit the stakeholder and why the requested information is relevant. Moreover, information about GDPR and gathered feedback handling procedures needs to be provided.

Suggestions about how to proceed aiming for a successful communication are provided next.

Finally, a register of the established contacts should be maintained. This register should be stored, maintained and handled at the DIH host solely discretion.

Stakeholder profile identification

Each stakeholder deemed to be contacted needs to be categorised according to the different profiles. This will allow choosing the right communication material.

Contact by-email

First, the most appropriate contact person for the information retrieval, inside the host organisation or within the steering committee should be identified. If the person in charge of the information retrieval is not familiar with the selected contacting person in the stakeholder organization, in order to maximise efficiency and results expected from the interaction, the approach by email to stakeholders should be done in two steps.

- As first step, the most familiar person or more recently in touch with the specific stakeholder should send an email to aware him/her that a colleague (name/position) will shortly send an email to him/her about the DIH initiative.
- As second step, the person from the host organisation in charge of the information retrieval will send the “retrieval information email” (see below).

Text addressing GDPR issues should be included in the email text, informing the stakeholder about the use of contact details in the frame of the project, making explicit mention to regulation involved.

General DIH brochure, customised project dissemination material (when available), questionnaire and GDPR consent (if selected option), should be attached to the email. Specific information about events scheduled (if there is any) could be also attached/included to the email.

Information retrieval email template

NOTE: It will be necessary to enclose the stakeholder profile targeted brochure corresponding to the stakeholder profile and the GDPR-related letter (if that option is selected).

Dear XXX,

Deliverable 5.1. Roadmap Report for DIHs replication in the European Bioeconomy regions for Efficient Biomass Supply Chains aimed to sustainable chemical production

From *[name of organisation]* side we are designing/implementing the DIH (*DIH URL* , please see attached brochure), which aims to promote the adoption of ICT solutions, IoT and industry 4.0 strategies in order to improve biomass logistics in the region

We contact you in order to kindly ask you to complete this online questionnaire (it will not take more than *[x]* minutes), which is aimed [...]. You can click *here* *[insert hyperlink]* to complete the questions or, alternatively, paste this link in your browser: *[https://....]*

Your contribution is very important: the answers to this survey will help us identify [...]. This information will be used during the design and implementation of the DIH, being possible to better adapt it to your needs and business expectations. The DIH will include activities that may be interesting for you as activities supporting business competitiveness (training sessions, rounds of investors and financing for the commercialization of products, and demo-days), as well as activities focused on the development of new business opportunities.

[GDPR text]

We hope you can participate and remain at your disposal to clarify any question that may arise.

Thanks in advance!

Greetings,

Xxx

DIH at Twitter: *@name of twitter account*

An e-mail reminder could be sent one week after the date when the information retrieval email was sent.

Once the contact with the stakeholder has been established, information needs to be included in the aforementioned register without further delay.

Contact by phone

Phone calls are foreseen as a follow-up action for the first approach done by the “Information retrieval email” in order to address two purposes: 1) accelerating the response time for stakeholder questionnaire filling up, solving potential doubts/concerns, 2) promoting stakeholder engagement and DIH participation using defined customized key messages.

In order to support the discussions to be maintained over the phone, a check-list is included at the end of this annex. This list summarises all main topics to be communicated to the stakeholder, covering project introduction, information about the questionnaire, information considered in the mitigation actions and any other relevant aspect about the DIH.

Contacting stakeholders for DIH involvement

A trustworthy environment must be created and maintained in order to achieve a proper involvement of stakeholders. Thus, being necessary to provide them with information about project objectives

and context, how it will benefit the stakeholder and real, tangible actions where the stakeholder could be involved. Moreover, information about GDPR needs to be provided.

Suggestions about how to proceed aiming for a successful communication are provided next.

Stakeholder and related profile identification

Once the stakeholder has been identified it is necessary to check whether it has been previously contacted in order to retrieve information or for any other formal/informal action done by the DIH as this will have an impact on the contact approach (specially related to GDPR issues). This requires full coordination between the Hub manager, steering committee and anyone in charge of communication issues. As a result, two scenarios can occur:

CASE A: The stakeholder has been previously contacted (being its profile previously categorized as well) and the DIH concept has been already introduced. In this case, it can be assumed that GDPR aspects have been fulfilled.

CASE B: The stakeholder has not been previously contacted, being necessary to present the DIH concept and its potential benefits as well as addressing GDPR issues.

Contact by e-mail

The approach will be different per each case scenario.

CASE A: An e mail inviting the stakeholder to be involved in the DIH will be sent.

(e-mail text, generic)

CASE B: Information related to DIH and how the involvement could benefit the stakeholder need to be provided prior to ask for involvement.

Contact by phone

Phone calls are foreseen as a follow-up action for the preliminary email contact as this could boost stakeholder engagement and DIH participation using defined customized key messages. In order to support the discussions to be maintained over the phone, a check-list is available at the end of this annex.

Contacting stakeholders for DIH events and actions invitation

Stakeholders will be invited to DIH events and related actions. The following recommendations have been defined in order to increase participation, boosting the event/action impact.

- A preliminary step is the approval, by each regional DIH team, of a first consolidated draft of event/action agenda, including venue and date.
- Stakeholders will be first contacted at least one month in advance in order to guarantee their availability to attend the event.
- A save the date can be communicated through social media as soon as date it is fixed among partners

- Once the first consolidated draft of the agenda is ready, it can also be communicated using the established project communication tools

Event/action invitations will be done by email following the steps detailed next.

Stakeholder and related profile identification

As previously described, the contact approach will be different depending if the stakeholder was already involved or not in the DIH. Thus, once the stakeholder has been identified it is necessary to check whether it has been previously contacted. Again, full coordination between the Hub manager, steering committee and anyone in charge of communication issues will be required. As a result, two scenarios can occur:

CASE A: The stakeholder has been previously contacted (being its profile previously categorized as well) and DIH concept has been already introduced. In this case, it can be assumed that GDPR aspects have been fulfilled.

CASE B: The stakeholder has not been previously contacted, being necessary to present DIH concept and its potential benefits as well as addressing GDPR issues.

Contact by e-mail

The approach will be different per each case scenario.

CASE A: An email inviting the stakeholder to be involved in the DIH will be sent.

Event/Action invitation email template

NOTE: agenda needs to be included either as enclosed document or using a link. In addition, a registration link needs to be provided.

Dear XXX,

[name of organisation] is implementing the Hub [DIH URL], please see attached brochure, which aims to promote the adoption of ICT solutions, IoT and industry strategies 4.0 in order to improve the logistics of biomass in the region.

We would like to kindly invite to the event [event name] that will take place in the frame of the activities organised by the DIH. It will be celebrated in [place] on the [day]. Enclosed you can find the attached agenda/The following link provides more information about the event agenda [https: // ...]. The main objective of the event is [event objective].

Attendance is free of charge, being necessary only the registration through the following link [http: //]

We hope you can participate and remain at your disposal should any clarification might be needed.

Greetings,

Xxx

DIH at Twitter: @name of twitter account

CASE B: *Information related to DIH needs to be provided prior to invite the stakeholder. A mail template is provided next.*

Event/Action invitation email template

NOTE: stakeholder profile targeted brochure and agenda needs to be included either as enclosed document or using a link. In addition, a registration link needs to be provided. GDPR-related documents need to be included as well.

Dear XXX,

[name of organisation] is implementing the Hub *[DIH URL]*, please see attached brochure, which aims to promote the adoption of ICT solutions, IoT and industry strategies 4.0 in order to improve the logistics of biomass in the region.

This DIH will include activities that may be interesting for you as activities supporting business competitiveness (training sessions, rounds of investors and financing for the commercialization of products, and demo-days), as well as activities focused on the development of new business opportunities.

We would like to kindly invite to the event [event name] that will take place in the frame of the activities organised by the DIH. It will be celebrated in [place] on the [day]. Enclosed you can find the attached agenda/The following link provides more information about the event agenda [https: // ...]. The main objective of the event is [event objective].

Attendance is free of charge, being necessary only the registration through the following link [http: //] [GDPR text]

We hope you can participate and remain at your disposal should any clarification might be needed.

Greetings,

Xxx

DIH at Twitter: @name of twitter account

Checklist for phone calls (information retrieval/gathering)

1. Reminder about the potential benefits for the stakeholder.
2. Relevance of stakeholder participation in the survey for the project success.
3. Did you have the chance to go through the questionnaire?
4. Do you need any clarification about the questions in the questionnaire?
5. Specific key messages for each stakeholder in order to engage him/her for the information retrieval and further DIH participation.
6. GDPR issues.
7. Specific actions for barriers mitigations
8. Other relevant issues (e.g. mention attached materials, scheduled events, etc ...).

9. Closing messages: reminder about the deadline for information retrieval “We will be very grateful if you could send us the GDPR consent and fill up the questionnaire by...DATE”.

Checklist for phone calls (DIH involvement)

1. Reminder about the potential benefits for the stakeholder.
2. Relevance of stakeholder participation in the DIH.
3. Brief overview of the different actions and events planned.
4. Specific key messages for each stakeholder in order to engage him/her for the information retrieval and further DIH participation.
5. GDPR issues.
6. Specific actions for barriers mitigations
7. Other relevant issues (e.g. mention to materials attached, events scheduled, etc ...).
8. Closing messages: main regional contacts for the DIH.