



# DigiFed

Digital Innovation Hubs Federation  
For Large Scale adoption of  
digital technologies by European SMEs

## D4.3 - Report on State of the Art on Regional DIH Support (June 2022)

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<b>Authors</b>	Fredy Rios Silva, Sarah Mortimer, Olivia Uguen, Bastien Hualpa, Ana-Maria Gheorghe, Katy Ho, Xavier Eguiluz, Ender Ferenc, Marta Rencz, Jure Trilar, Meike Reimann

### Short Description / Executive Summary

This should be the abstract of the delivery

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## List of abbreviations

<b>AI</b>	<i>Artificial Intelligence</i>
<b>ARA</b>	<i>Auvergne-Rhône-Alpes</i>
<b>BW</b>	<i>Baden-Württemberg</i>
<b>DIH</b>	<i>Digital Innovation Hub</i>
<b>EC</b>	<i>European Commission</i>
<b>EDIH</b>	<i>European Digital Innovation Hub</i>
<b>ETI</b>	<i>Intermediate Size Enterprise</i>
<b>EU</b>	<i>European Commission</i>
<b>IT</b>	<i>Information Technology</i>
<b>R&amp;D</b>	<i>Research and Development</i>
<b>R&amp;D&amp;I</b>	<i>Research, Development and Innovation</i>
<b>R&amp;I</b>	<i>Research and Innovation</i>
<b>RII</b>	<i>Regional Innovation Index</i>
<b>RTO</b>	<i>Research and Technology Organisation</i>
<b>SME</b>	<i>Small and Medium Enterprise</i>

## Executive Summary

The following document provides a concise analysis of the DIH-ecosystem support network in the six DigiFed DIH-regions, namely Auvergne-Rhône-Alpes, Baden-Württemberg, Central Hungary, Slovenia, Basque Country, and Northeast of England. This analysis took part under Work Package 4 Task 4.3 - *Identification of synergies to enhance regional-European cooperation in DIH support: case studies and recommendations*. Each of the DigiFed Regions analysed the state of the art of their respective local ecosystem including relevant stakeholders from their region or even beyond (regional or local DIHs, DIHs from other European regions, EDIH-applicants, policy makers as well as other regional entities and initiatives with an interest in DIH development).

Relevant outcomes can be categorized into four groups, **Financial and policy support initiatives towards DIHs**:

- Research and technology policies should capitalize on existing well-established and long-term collaboration between science organizations and business enterprises at the least.
- Rationalizing the benefits collaborating between companies and (E)DIHs remains one of the biggest challenges. Companies do not clearly understand the value of engaging with (E)DIHs. This issue was transversal to all ecosystems, both in top innovation regions as well in lower innovation regions. As a consequence, achieving support from local policy-makers becomes increasingly harder.
- DIHs should achieve a balance between regional priorities and national agenda. Nevertheless, as organizations, DIHs might become overstretched and there is a risk that DIHs become EU-project dependent entities, rather than service-providing entities.
- Establishing clear and achievable funding models to ensure sustainability of innovation hubs and organization beyond public funding. In this regard, it was not clear whether all hubs have set up business models to increase their chances for financial sustainability without public funding support.
- Testbed and facilities need to be supported by adequate innovation funding to generate new use cases and value. This will facilitate the access to such infrastructure to SMEs.
- Relevant discrepancies were observed between highly populated regions and sparsely populated regions. For example, highly populated regions tend to have a very structured support initiatives by the state and internal ecosystem. Conversely, sparsely populated region tends to have to fight to produce and create innovators because of fragmented support initiatives and ecosystems. Typically, the latter also need to fight the urge from innovators to flee to more competitive and commercially attractive ecosystem. The rural and dispersed setting of the region, including the dispersion of the ecosystem and its actors, results in a lack of overarching institutional setting or networks that enables a good communication and distribution of activities across the border region. Thus, there is an excellent opportunity to create DIH-like support structures in these regions.

### Ecosystem features and requirements:

- The landscape of the DIHs and their regions is remarkably diverse. This also includes the way in which DIHs are constituted in each region, e.g. public initiative, private initiative, private initiative with public support, etc. Nevertheless, several if not most of the DIHs are financed directly by public money or EU-funds in some capacity. This makes most DIHs vulnerable and mostly dependent on financial and access support from higher levels within the European hierarchy.
- DIHs should actively incorporate local actors, such as universities of applied sciences or vocational schools, such that their service provision is properly in tune with their local ecosystem. Overall long-term institutional support is essential for the sustainability of the DIHs.
- In some ecosystems a significant number of stakeholders do not want to invest time and money in digitalization or updating their business processes. Their view is that *"the company operates fruitfully under the current conditions"*. Hence, a shift of mindset is required, which does not only focus on the benefits and risks of innovation and digitalization, but also the dangers of not innovating and losing competitiveness.
- Many initiatives do not directly contribute to DIH-establishment but contribute to achieving and promoting a thriving ecosystem focused on technology advancement and innovation. These initiatives facilitate the operation of DIHs and increase their potential impact, by fostering local strengths that are actively utilized and further fostered by the corresponding DIH-services.
- Clear need for a structured approach to support collaboration and coordination at a regional and national level between national-DIHs. The lack of familiarity with the DIH concept within the scientific-, innovation-, and entrepreneurial-ecosystems has also been identified as relevant challenge and deterrent to further success and impact of DIHs-services and activities. Structured support and policy-level initiatives may dramatically increase the reach, success, and impact of the operations of DIHs. The impacts of such support may be even stronger where the existing ecosystem provides favourable conditions to capitalize and create structures that foster the thrive of SMEs. In this sense, trust building with SMEs in local

ecosystems remain a challenge for DIHs. Achieving long-term collaboration with the SME and start-up ecosystems has also been identified as a challenge, particularly in areas of enhanced skills development and fostering participation in the different services and programmes developed by DIHs.

- In general, the lack of institutional support creates a cap on the ability of certain DIHs to grow and increase their impact. However, political support is by no means enough or necessary for their thrive. The real drivers of the success of DIHs are the ecosystem and non-policy related stakeholders, e.g. RTOs, universities, SMEs, etc., as well as the cultural aspects regarding openness to digitalization and understanding of the importance of innovating, among others. Such conditions enable services to not only be strongly embedded in the local ecosystem but also to exploit operating networks and experience of successful stakeholders in an organic manner.

**DIH-performance and information access:**

- There is a clear need for detailed information on the support mechanisms for DIHs, especially at a regional level.
- There is a clear need for accessible information on how do the different DIHs operate and the services they provide. Moreover, performance indicators and success cases emerging of DIHs are not easily available in each DIHs, and neither in each ecosystem. This translates into reduced impact on the ecosystems and support from local authorities and policy-makers. This also extends to information about the financial requirements for the operation of their services.



# 1. Introduction

## Objectives of the Deliverable and Task 4.3

The underlying aim of this Deliverable is to identify the regional support landscape towards Digital Innovation Hubs (DIH) in the DigiFed-regions as well as selected external regions. It shall also aim to identify synergies between the DIH-regions analyzed and to enhance regional-European cooperation in terms of service support.

Under DIH support landscape, DigiFed defines:

**Any national or regional programme that supports the goals of Digital Innovation Hubs in a particular region; that is providing services to SMEs (e.g. financial support, infrastructure/ testing facilities, resources) to initiate and/or consolidate their path to digitalization**

## Approach for Task 4.3 “Identification of synergies to enhance regional-European cooperation in DIH support: case studies and recommendations”

In line with T4.3, the different DigiFed DIH-partners run a diagnosis of their local ecosystem and presented their results in a report. In addition, two DigiFed DIH-partners, Minalogic (MNL) and Steinbeis Europa Zentrum (SEZ), organized local liaison events in which they connected and engaged with stakeholders and representatives responsible for the implementation of programs and initiatives meant to support the consolidation and operation of local/regional/European DIHs. The result of this process, ecosystem diagnosis and local liaison events, produced the necessary information regarding each of the partner’s ecosystem, as specified later in this document. Additionally, three selected non-partner regions, i.e. East Bavaria in Germany, Helsinki-Uusimaa in Finland, and Thessaly in Greece, will be investigated and included in the regional analysis. The analysis of these additional regions will serve to increase the diversity of the ecosystems under analysis, thus, enriching the understanding of the state of support initiatives towards DIHs across Europe.

Finally, advantages and disadvantages of the respective regional approaches will be compared, lessons learned from DIH-activities will be extracted, and recommendations for future activities will be derived from this analysis. These results will contribute to improve the understanding of the success and failure factors in DIH operation, as well as the understanding and meeting the requirements of companies, especially SMEs, in their path towards digitisation.

Remainder of this paper is organized as follows: Section 2 compiles the reports provided by the six DigiFed DIH-partners that have performed the ecosystem analysis of the support initiative towards DIHs, i.e. Minalogic in Auvergne-Rhône-Alpes, SEZ in Baden-Württemberg, BME in Central Hungary, University of Ljubljana and 4PDIH in Slovenia, Ikerlan in Basque Country, and Digital Catapult (Digicat) in Northeast of England. These reports have been produced individually according to a template and later normalized to be included in this deliverable. Section 3 introduces the analysis performed by DIH external to the DigiFed-consortium. These analyses serve to understand whether the results obtained by the DigiFed-partners are scalable and if they repeat in other ecosystems. Section 4 provides recommendations and highlights the main results obtained from these analyses.

## 2. Ecosystem Mapping of DigiFed-DIHs

DigiFed-partners specified in Table 1 are also considered as DIHs within the DigiFed-project, i.e. providing DIH-related services. During the course of Task 4.3 each of them has analysed their ecosystem and provide a comprehensive diagnose.

Table 1. DigiFed-partners which also participate in the project as DIH

DIH Name	Region	Country	Lead (DigiFed Partner)
<b>Steinbeis-Europa-Zentrum</b>	Baden-Württemberg	Germany	<b>Fredy Rios Silva, Sarah Mortimer</b>
<b>Minalogic</b>	Auvergne-Rhône-Alpes	France	<b>Bastian Hualpa</b>
<b>Ikerlan</b>	Basque Country	Spain	<b>Xabier Eguiluz</b>
<b>Digital Catapult</b>	Northeast England	UK	<b>Katy Ho, Ana Gheorghe</b>
<b>4PDIH</b>	Slovenia	Slovenia	<b>Jure Trilar</b>
<b>BME, Budapest University</b>	Central Hungary	Hungary	<b>Marta Rencz, Ferenc Ender</b>

In the following, each the local ecosystems are comprehensively analysed particularly from the perspective of the support provided to DIHs from a policy level, including the financial mechanisms provided to facilitate the establishment and operation of DIHs.

### 2.1. Baden-Württemberg – Network of DIHs and other Digitization Initiatives

#### Introduction, profile and initiatives to the digitalization of the economy

According to the Regional Innovation Scoreboard<sup>1</sup>, the region is one of the *Innovation Leader* regions in Europe and is typically recognized as one of the world's most innovative economic regions. Being home to market leaders like car producers Daimler AG and Porsche, a number of automotive OEMs, e.g. ZF, manufacturer Bosch GmbH, food retailer Lidl, IT company SAP AG, as well as 492.000<sup>2</sup> SMEs, so called "*hidden champions*" and backbone of the BW economy like Trumpf or Festo AG, and international headquarters of IBM Germany and Hewlett Packard Enterprise, industrial activities in BW account for 32% of its GDP. Thereof, according to the Statistisches Landesamt<sup>3</sup> 5.8% accounts for R&D expenditures, mostly done by private sector institutions.

These numbers are further complemented with the performance recorded by the Regional Innovation Index (RII). In this case it can be observed that the region as a whole has a solid policy to foster the development of new knowledge and that this policy is also mirrored by the private sector that concentrates one of the highest performances in Europe regarding private investment for R&D. Furthermore, efforts in the development of new developments are also followed by concrete investments from the private sector to transfer these developments into concrete innovations that increase efficiency and effectiveness of business processes, unveil new opportunities commercial opportunities, and increase the competitiveness of several sectors that are essential for the region.

Thus, it can be said that research and technology policies in the region of Baden-Württemberg (BW) are characterized by established and long-term collaboration between science organizations, business enterprises and political decision-makers. Moreover, these policies actively benefit from existing institutions, organizations, and companies that create an ecosystem in which DIH-operation may achieve a relevant log-standing impact.

<sup>1</sup> [https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/regional-innovation-scoreboard\\_en](https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/regional-innovation-scoreboard_en)

<sup>2</sup> Digitalisierungsstrategie der Landesregierung Baden-Württemberg (2022)/ Digital Strategy for the State of Baden-Württemberg, p. 35 ff: <https://tinyurl.com/4275fk6z>

<sup>3</sup> <https://www.statistik-bw.de/>

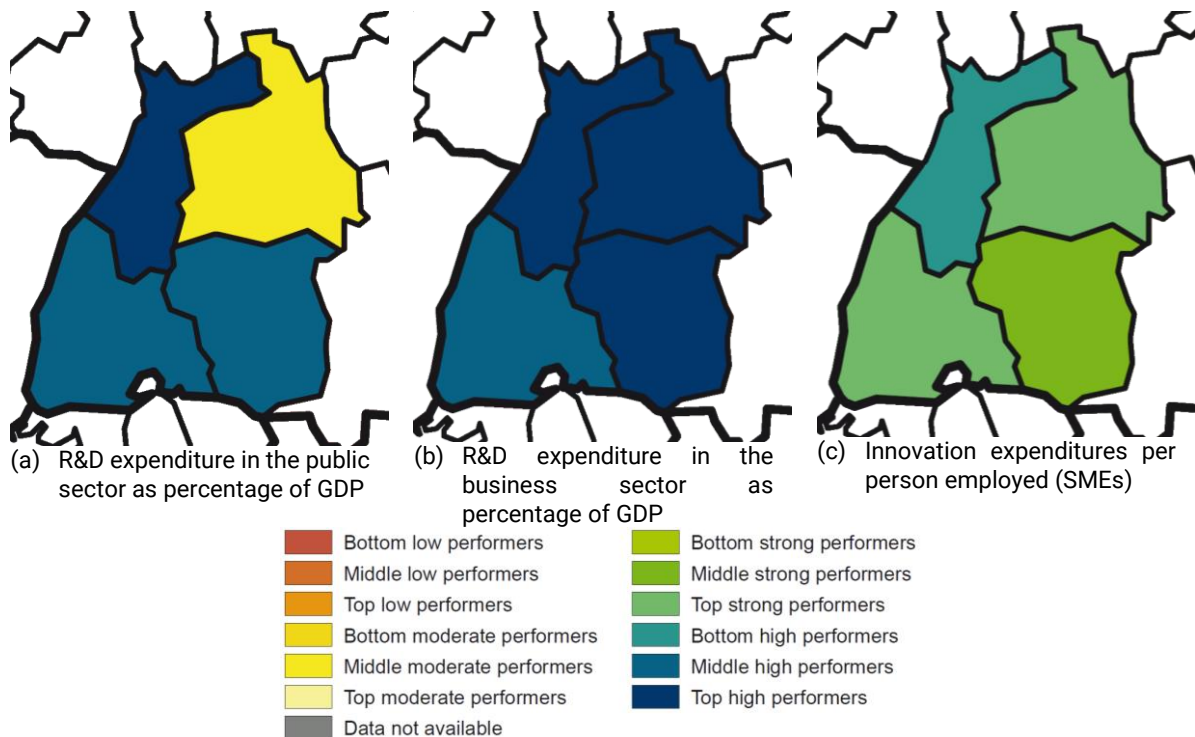


Figure 1. Description of R&D expenditures and innovation expenditures in the BW region according to RII

The region also marked strong ties between universities, RTOs, and different business sectors that collaborate with each other within the framework of either privately or publicly funded R&D projects. The region has a considerable track record in digitizing its economy and invested over 2bn€ in digitization endeavors. In addition, as stated in BW's Digital Strategy for the State (see footnote) digital transformation will create new opportunities for the economy, especially when it comes to enhancing digital capabilities of SMEs, which often face specific challenges in digitizing their businesses and services. To foster further digitization of the economy, the State of Baden-Württemberg has therefore founded the initiative **Wirtschaft4.0 / Economy 4.0**. The initiative aims to support SMEs on the path to the digital future and make BW further visible as a premium international location for the digital economy. More than 20 partners from business, chambers of commerce, associations, trade unions, politics and sciences aim to make digitization services generally available across different branches. *Wirtschaft4.0* is an important addition to the already existing "**Allianz Industrie 4.0 / Alliance Industry 4.0**" (many partners of Allianz4.0 are also partners of *Wirtschaft4.0*) as well as a number of other important funding initiatives.

As a direct result of these two initiatives, the region has founded and funded a **network of 13 Digital Hubs** that are operating at different locations in the region: 10 Regional Digital Hubs (Heilbronn-Franken, Kurpfalz, Landkreis Böblingen, Neckar-Alb und Sigmaringen, Nordschwarzwald, Ostwürttemberg, Region Bruchsal, St. Georgen, Suedbaden, Ulm/Alb-Donau/Biberach), which have received 10Mio€ of funding from the Ministry of Economics, Labour and Tourism of the state of BW, and three Thematic Digital Hubs (Digital Hub Karlsruhe Applied Artificial Intelligence, Digital Hub Mannheim/Ludwigshafen Digital Chemistry & Digital Health, Digital Hub Stuttgart Future Industries) selected within a national competition initiated by the German Government, which each received funding of 2Mio€ over a period of three years from the Federal Ministry of Economic Affairs and Climate Action.

The ultimate goal of these hubs is to exchange of experience, knowledge transfer, and establish customer and cooperation relationships. In this way, regional 'ecosystems' for digital innovations are created, which support the joint development of new business models and other digital projects among large industries, SMEs as well as start-ups and scale-ups. Services offered by these Hubs include joint development of digital business models, seminars on change management and digital transformation of companies, digital checks to assess the digital maturity level of companies, innovation workshops, user experience (UX) checks, offering of infrastructure and co-working spaces, etc. The Digital Hub Network was coordinated by the Digital Innovation Centre (DIZ) Karlsruhe; the public financial support for the network has already ended in 2021; however new applications for funding have been submitted to the Federal Ministry in Mai 2022. According to Kevina Glaser (DIZ), who was deeply involved in the coordination of the network until 2021, the hubs "*made things happen*" and have proven to be an essential and effective means for cooperation with local and regional stakeholders.

Two more important regional initiatives are the **'Mittel stand 4.0-Competence Centre'** in Stuttgart and Karlsruhe (with a focus on Smart Mobility, Smart Production, Smart Building und Smart Health) as well as the **"Mittelstand 4.0-Competence Centre Usability"** (Usability and User Experience), which were established by the German Federal Ministry of Economic Affairs. Within these frameworks about 25 contact points exist in BW, which offer support to SMEs and the sectors of skilled crafts in particular; they help starting their digital transformation, provide information and concrete, practice-oriented demonstrations, and testing opportunities in the respective locations.

In addition to this, the Federal Ministry provides direct financial support to establish BW as an international center for Artificial Intelligence. In 2021 and 2022 the Federal Ministry has hosted a competition to select the most outstanding examples of Artificial Intelligence (AI) excellence in BW and selected 9 winners as **AI Champions Baden-Württemberg** (Fraunhofer Institut für Physikalische Messtechnik (IPM), J.M. Voith SE & Co. KG (VPH), Heidenheim, 100 Worte Sprachanalyse GmbH, Heilbronn, Adtelligence GmbH, Mannheim, Aleph Alpha GmbH, Heidelberg, Incontext.technology GmbH (INCTEC), Heidelberg, Qymatix Solutions GmbH, Karlsruhe, Prenode GmbH, Karlsruhe, Vialytics GmbH, Stuttgart)<sup>4</sup>. Furthermore, the Ministry of Economics, Labour and Tourism chose the city of Heilbronn to be home of a regional **Innovation Park for Artificial Intelligence**. The AI Park shall establish the region of BW as a sustainable location for AI value creation and aims to build an ecosystem within which new ideas are created and implemented.

From a supra-regional perspective, BW takes part in the **Vanguard Initiative**, an alliance of the 29 economically most powerful regions across Europe. The alliance aims to build synergies and complementarities based on their smart specialization strategies and to foster world-class clusters and cluster networks, especially through pilots and demonstration activities. Moreover, BW belongs to the network **'Four Motors of Europe'** (Auvergne-Rhône-Alpes, BW, Catalonia and Lombardy), one of the first European networks of regions. The network was primarily related to economics and research as well as to art and culture and is nowadays active in various areas (e.g., contributing to European affairs, especially by issuing common positions on EU policy initiatives and supporting inter-university agreements, etc.). The network has an active part in shaping regional-EU digitalization policies.

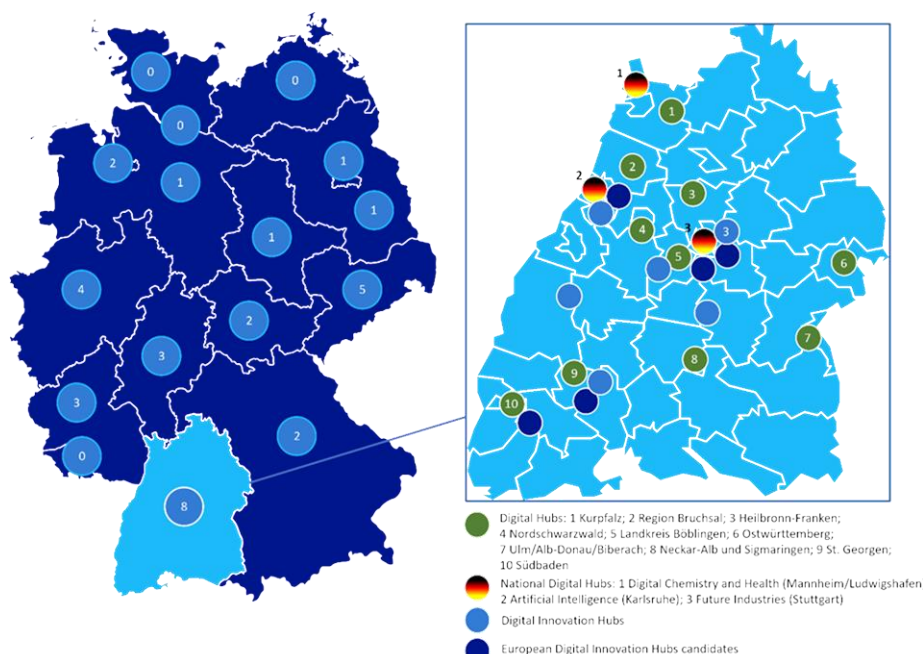


Figure 2: Digital Hub Network in BW and distribution Digital Hubs in Germany (left) and Digital Hubs including European Digital Innovation Hubs candidates in BW (right)

<sup>4</sup> More information provided in German: [https://www.baden-wuerttemberg.de/fileadmin/redaktion/m-wm/intern/Dateien\\_Downloads/Wirtschaftsstandort/PM\\_47\\_Anlage\\_PM\\_KI-Champions\\_BW.pdf](https://www.baden-wuerttemberg.de/fileadmin/redaktion/m-wm/intern/Dateien_Downloads/Wirtschaftsstandort/PM_47_Anlage_PM_KI-Champions_BW.pdf)

Finally, several institutions from BW have produced five different bids to European DIHs calls, that may be granted funding from the European Commission by end of the year 2022: Stuttgart: **EDIH Digitization.Beyond.bw** and **EDIH High Performance Data Analytics**; Mannheim: **EDIH Data of the future - secure, sustainable and value-adding (DoFuture)**; Villingen-Schwenningen: **EDIH Southwest**; Freiburg: **EDIH Quantum Technology**; Karlsruhe: **EDIH Artificial Intelligence & Cyber Security**.

## Important stakeholders involved in DIH and digitization support network BW and their contributions

The following table provides an analysis of the most important stakeholders and partners of the DIH-support system in BW per initiative / program giving the name of stakeholders involved, their type of organization, members of consortium and their main mission and contribution to the regional network as well as special services offered.

Table 2. Analysis of partners and stakeholders by DIH-support initiative in the BW region

<b>Wirtschaft 4.0 / Economy 4.0</b>		
<b>Stakeholder Name</b>	<b>Type of Organisation<sup>5</sup> and members of consortium</b>	<b>Mission, contribution, or services offered</b>
Federal Ministry for Economics, Labour and Tourism	Initiator and financier of Digital Hub Network BW; 10€Mio funding for regional Digital Hubs and 2€Mio each for de:hubs over period of three years <b>pu</b>	Helping SMEs to digitise, bringing about digital change for BW in all dimensions with help of interdisciplinary network of regional partners <b>digital@bw</b>
<b>Allianz Industrie 4.0</b>	Allianz Industrie 4.0 Baden-Württemberg is a network founded and sponsored by Germany's federal state of BW. The aim is to pool technological expertise in <b>production</b> as well as <b>IT</b> and <b>communications</b> to provide support for medium-sized industrial companies in their shift towards Industry 4.0. The coordination office is located at VDMA e.V. Baden-Württemberg.	Fosters direct collaboration among all partners involved; expand and further network established partners; Services: technological support implementation, networking events, initiating and strengthening innovation processes, education offers to employees, data security
<b>Partners of Wirtschaft4.0 and Allianz Industrie.4.0: companies, institutes of applied research, associations, chambers of commerce and social partners</b>		
Baden-Württemberg International mbH	<b>pr</b>	Each of these organisations has committed to foster digitisation endeavours in their respective sectors and branches; services offered stem from networking activities to direct technical support
Bwgv - Baden-Württembergischer Genossenschaftsverband e.V.	<b>np</b>	
BWHT – Handwerkstag e.V.	<b>np</b>	
Baden-Württembergischer Industrie- und Handelskammertag	<b>np</b>	
Bio Pro Baden-Württemberg GmbH	<b>pr</b>	
Bundesagentur für Arbeit (Regional section BW)	<b>pu</b>	
Bwcon Baden-Württemberg connected	<b>pr</b>	
CeXGat	<b>pr</b>	
CyberForum	<b>np</b>	
DGB Baden-Württemberg	<b>pu</b>	
Digitales Innovationszentrum (DIZ)	<b>pr</b>	
e-mobil BW	<b>pu</b>	
FZI	<b>rto</b>	

<sup>5</sup> (pu) –public governmental organizations, (pr) – private organizations, (rto) –technology transference organizations, (np) non-profit organizations.

IGM BW	pr	
L-Bank (Federal Bank BW)	pr	
Leichtbau BW	pu	
Steinbeis Foundation (stw)	Pu / rto	
Südwestmetall	pr	
Fraunhofer IAO	rto	
<b>Additional Partners of Wirtschaft4.0</b>		
AOK Baden-Württemberg	pr	<p>Each of these organisations fosters collaboration among SMEs and all partners involved of every sector willing to digitise; dedication to promote digital pioneers; in addition to:</p> <ul style="list-style-type: none"> <li>- Bundling activities for the digitization of the economy under one roof</li> <li>- Supporting the economy in digitization for specific target groups</li> <li>- Shaping the world of work 4.0</li> <li>- Support the digital transformation with vocational training and further education</li> <li>- Expand digital infrastructure</li> <li>- Digital flagship initiatives with international appeal and digitization across all sectors</li> <li>- Enable digital innovations</li> <li>- Strengthen digital start-ups</li> <li>- Strengthen IT security as a prerequisite for digitization</li> <li>- Create suitable framework conditions for the digitization of the economy</li> </ul>
Smart Technology Solutions GmbH	pr	
Handelsverband Baden-Württemberg HBW	pu	
DEHOGA Baden-Württemberg	pu	
Labdesfrauenrat BW	pu	
Messe Stuttgart	pr	
LFB- Landesverband der freien Berufe	pu	
MFG BW	pu	
REWE FIETZ	pr	
RKW BW (Consultancy)	pr	
SAP	pr	
Trumpf	pr	
UBW Unternehmer BW	pu	
Umwelttechnik BW	pu	
VDMA	pu	
Wirtschaftsförderung Region Stuttgart GmbH	pr	
<b>Allianz Industrie 4.0 / Alliance Industry 4.0 only</b>		
Arena 2036	pr	Innovation platform run by private companies from <b>automobile</b> and <b>production</b> sector – focus on shaping of work, mobility and production of the future in the context of digitization
Baden-Württemberg Stiftung	pu	<p>Each of these organisations has committed to foster digitisation endeavours in their respective sectors and branches; services offered stem from networking activities to direct technical support (also see above under Allianz Industrie 4.0)</p>
Bodenseezentrum Innovation 4.0	rto	
cyberLAGO Digital Competence Network	pr	
Duale Hochschule BW (DHBW)	pr	
Deutsche Institute für Textil und Faserforschung (DITF)	rto	
Fraunhofer IOSB	rto	
Fraunhofer IPA	rto	
Fraunhofer ISI	rto	
Hahn Schickard	rto	

HAW- Hochschule für angewandte Wissenschaften BW	pr	
IMS Chips – Institute für Mikroelektronik Stuttgart	pu	
Intralogistik-Netzwerk BW e.V.	np	
Automotive-BW	np	
Landesnetzwerk Mechatronik BW	np	
Landesrektorenkonferenz	np	
LVI – Landesverband der Baden-Württembergischen Industrie	np	
Manufuture-BW	np	
microTEC Südwest	np	
Forum Soziale Technikgestaltung	np	
Netzwerk Smart Production	np	
Packaging Excellence Centre (PAC)	pu	
Packaging Valley Germany	pu	
Photonics BW	pu	
Technology Mountains	pu	
Umwelttechnik BW	np	
Virtual Dimension Centre	pr	
VDE	np	Associations: technology organisations fostering digital innovations; sectors: electronics, mechanical engineering and education offers and qualifications for engineers
VDI	np	
VDMA	np	
Wwib Schwarzwald AG	pr	
ZVEI	np	
<b>Regional Digital Hub Network BW</b>		
<b>Relevant for all Regional BW Hubs:</b>	Support to regional SMEs in digitalizing their business operations. All are funded from Federal Ministry of Economics, Labour and Tourism	Networking, know-how transfer, matchmaking between demand side and supply side, collaboration offers, (connecting SMEs with research institutions)
<b>DigiHub Südbaden</b>	<b>Consortium:</b> Gesellschaft für Projektentwicklung mbH, Albert-Ludwigs-Universität Freiburg, Handwerkskammer Freiburg, bwcon GmbH, Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG, Hochschule Offenburg; np	
<b>Digita Hub Kurpfalz@bw</b>	<b>Consortium:</b> City of Heidelberg, Deutsch-Amerikanisches Institut Heidelberg, Digital-Agentur Heidelberg, IHK Rhein-Neckar, inno.space (Hochschule Mannheim), innoWerft Technologie- und Gründerzentrum Walldorf Stiftung GmbH, Internationale Bauausstellung Heidelberg (IBA), Landratsamt Rhein-Neckar-Kreis, Stabsstelle Wirtschaftsförderung, Netzwerk Smart Production, Stadt Buchen, Stadt Mannheim np	

<b>Digital Hub Nordschwarzwald</b>	Locations in 3 cities: Pforzheim, Nagold und Horb, <b>Consortium:</b> Sparkasse Pforzheim Calw, Wirtschaftsregion Nordschwarzwald, Enzkreis, Hochschule Pforzheim, IKH Nordschwarzwald, Technologiezentrum Horb am Neckar, Wirtschaft und Stadtmarketing Pforzheim (WSP), Regional Nordschwarzwald Regionalverband, Landkreis Calw, Horb am Neckar, Handwerkskammer Karlsruhe <b>np</b>	Operates regional KI-Lab (Artificial Intelligence), AI consulting for regional companies
<b>Digital Hub Region Bruchsal – HubWerk01</b>	Steering Committee: DR. MARC WILLEMS, STEFAN HUBER; 72 members: companies and public institutions from the region <b>np</b> , received additional funding from private companies in the region	Testing facilities, access to infrastructure
<b>Digital Mountains St. Georgen</b>	Consortium: bwcon, Hahn Schickard (RTO), IHK Schwarzwald Baar Heuberg, imzimity, Karlsruhe Institute of Technology, St. Georgen Technologiezentrum, Technology Mountains, Virtual Dimension Centre <b>np</b>	Education offers, research and development projects, support for foundation of new companies / start-ups, specialised in the following domains: <ul style="list-style-type: none"> <li>- 3D printing</li> <li>- Cyber Physical Systems (CPS)</li> <li>- Extended Reality (XR)</li> <li>- Artificial Intelligence (AI)</li> </ul>
<b>Digitalisierungszentrum Ostwürttemberg (DigiZ)</b>	3 locations: Aalen, Heidenheim, Schwäbisch-Gmünd; membership based: more than 28 regional partners, public institutions and private companies <b>np</b>	Public financial support and consulting, networking, co-working spaces and testing facilities, education, match-making events, Thematic Focus: <ul style="list-style-type: none"> <li>- Industrial applications</li> <li>- IT- Security.</li> <li>- AI</li> <li>- Augmented Reality,</li> <li>- Virtual Reality,</li> <li>- Mixed Reality,</li> <li>- 3D-technologies</li> <li>- Cost-calculations</li> <li>- Digital competences for skilled workers and executives</li> <li>- Machine2Machine interconnectedness and robotics</li> </ul>
<b>Digitalisierungszentrum Ulm</b>	3 locations. Ulm, Biberach, Riedlingen; Members: IHK Ulm, City of Ulm, Landkreis Biberach, Alb-Donau Kreis, Ehingen (Donau), Riedlingen, Gemeinde Amstetten, City of Laupheim, Neu Ulm, Landkreis Ulm <b>np</b>	Co-working spaces, innovation Lab: VR applications, events and consulting, education offers, testing facilities. Thematic Focus: <ul style="list-style-type: none"> <li>- digitalisation for construction sector,</li> <li>- VR &amp; AR AI</li> <li>- 3D printing</li> <li>- IoT</li> <li>- Building information Modelling (BIM)</li> </ul>
<b>Digital Hub Neckar-Alb Sigmaringen</b>	<b>Consortium:</b> Technologiewerkstatt Albstadt, City of Sigmaringen, City of Reutlingen, City of Albstadt, Landratsamt Zollernalbkreis <b>np</b>	e-learning offers, technologie transfer from university of applied sciences to SMEs, consulting Specialisation: digital twin
<b>Heilbronn Franken Connected</b>	Private entity (subsidiary of bwcon GmbH), Partner: ebmpapts,optima, Würth, bwcon <b>pr</b>	Public financial support for digital endeavors (start-ups), technology transfer, education, innovation workshops, consulting for founders, collaborative projects, co-working spaces
<b>Zentrum Digitalisierung Landkreis Böblingen</b>	Partners: City of Böblingen, City of Sindelfingen, IBM, Fachkräfteallianz Stuttgart, IHK Stuttgart, University of Stuttgart, ZBB, Software Zentrum Böblingen, Start Cooperation, Wirtschaftsförderung Region Stuttgart, Kreishandwerkschaft Böblingen, Hochschule Reutlingen, Landkreis Böblingen, LGI, Start HAW, Herman Hollerith Zentrum, coworking 711	Digitalisation consulting, innovation workshops, events, match-making, co-working spaces, education offers



	np	
<b>Digital Hub Karlsruhe Applied Intelligence</b>	<b>Consortium:</b> FZI, CyberForum np	Innovation workshops, collaborative AI projects
<b>Digital Hub Mannheim/Ludwigshafen Digital Chemistry &amp; Digital Health</b>	<b>Partners:</b> BASF, SAP, Pepperl+Fuchs, Metropolregion Rhein-Neckar, mg:gmbh, Regionales Innovationszentrum Ludwigshafen, Technologiepark Heidelberg np	Thematic Workshops, collaborative projects and consulting, co-working spaces, marketing support, soft-landing (for start-ups from abroad),
<b>Digital Hub Stuttgart Future Industries</b>	<b>Partners:</b> Fraunhofer IPA, Fraunhofer IAO, Fraunhofer IBP, Universität Stuttgart np	Match-making events, international innovation cluster, consulting, and collaborative projects, Thematic Focus: - Smart Products - Industrie4.0 - Mobility
<b>Mittelstand 4.0-Competence Centres</b>		
Mittelstand 4.0 Kompetenzzentrum Stuttgart & Karlsruhe	Led by Fraunhofer IAO	Thematic Focus: Smart Mobility, Smart Production, Smart Building und Smart Health
Mittelstand 4.0-Kompetenzzentrum Usability	Ley by Hochschule der Medien Stuttgart	Thematic Focus: Usability und User Experience

## Local liaison and networking event – BW

The comprehensive analysis of the BW-ecosystem support structures towards DIHs was further complemented by a local liaison event. DigiFed's local liaison and networking event in Baden-Württemberg took place on 19<sup>th</sup> May 2022 under the name **INTRODUCTION TO REGIONAL AND EUROPEAN DIH ECOSYSTEM COLLABORATION – A DigiFed Networking Event for Baden-Württemberg and Beyond**. The event was set to introduce regional and European DIH-ecosystems for collaboration and featured Baden-Württemberg's regional DIH-landscape, DIH-best practices and success stories from Greece, Hungary, and Finland, next to other European regional DIH networks and their experiences, which were analyzed in group work in an interactive session.

Table 3. Agenda – Local Liaison Event Baden-Württemberg

9:20		Presenter/Moderator
9:30	Introduction to DigiFed and Objectives of the Event	<b>Fredy Ríos Silva</b> Project Manager, Steinbeis-Europa-Zentrum (SEZ)
9:40	The Ecosystem of Digital Innovation Hubs in Baden-Württemberg	<b>Meike Reimann</b> - Senior Project Manager, Steinbeis-Europa-Zentrum
09:50	Good practices of Regional Digital Hubs in Baden-Württemberg: approach, support offered and success stories	<b>Kevina Glaser</b> - Digital Innovation Centre Baden-Württemberg and FZI Research Center for Information Technology
10:05	Panel Discussion with regional representatives: How do other regions operate? - Other DIH support Initiatives (including SME success case)	<b>Dr. Vicze Gábor</b> – CEO in nomine <b>Ferenc Ender</b> – Budapest University <b>Maria Pournari</b> – Senior Project Manager, Insitute of Entrepreneurship Development (Greece) <b>Dr. Katri Valkokari</b> – Research Manager at VTT (Finland)
10:30	Interactive Session: Compilation of support mechanisms for local DIH ecosystems	<b>All participants,</b> Moderators: <b>Sarah Mortimer / Fredy Ríos Silva</b>
11:30	Mural analysis and final conclusions	<b>Sarah Mortimer</b> - Project Manager, Steinbeis-Europa-Zentrum
11:45	How to foster EU-national-regional DIH collaboration	<b>Maurits Butter</b> - Senior Scientist TNO, DIHNET.EU

### Keynote speakers and DIH-ecosystems external to DigiFed

The event started with an introduction to DigiFed. Dr. Meike Reimann from the SEZ Team presented the overall Ecosystem of Digital Innovation Hubs (including initiatives) in Baden-Württemberg (see description in chapter 3.1).

Kevina Glaser from the Research Centre Informatics (FZI – Forschungszentrum Informatik) in Karlsruhe and former member of Regional Digital Hubs Consortium presented the Digital Hubs BW Network in more detail including their different services. These services consider from networking and innovation workshops to digitization consulting and digital maturity assessment as well as two success cases. One company sought help of a digital hub to be able to use digitization for more efficient and targeted customer service as well as process optimization. The hub helped in identifying customer needs and implementing the new digital business model ideas using creative methods, searched for a suitable service provider, and pointed out available funding opportunities. Another example was the development of a digital ticketing solution, which was needed by the client to reopen a water park in compliance with applicable COVID-19 regulations. The regional hub supported in bringing together company and startup for the development of the digital solution and support in initiating of an extensive information campaign.

Kevina Glaser's recommendations for a well-functioning system of digital hubs include:

- Clarification of the processes and responsibilities of a hub,
- establishing a good network with motivated partners to build up and offer joint services,
- defining target groups very clearly, maintain access to them and ensure that the hub speaks their language,
- monitoring the needs of your hub and your clients on a regular basis,
- offering fewer, but well-functioning services,
- cultivate cooperation and exchange with local and regional stakeholders,
- reach out to multipliers and use every opportunity to present the hub and its services.

A panel discussion with regional representatives from Hungary, Greece and Finland gave insight into their DIH operations and how collaboration has helped them to grow their networks. It was also pointed out that rationalizing the benefits of a strong collaboration between companies and (E)DIHs remains one of the biggest challenges. Companies tend to not understand the value of becoming a leading player or role-model. Moreover, companies have troubles assessing how they can increase and ameliorate their productivity and connectedness by engaging with (E)DIHs. Hence, there is limited understanding about the benefits of collaboration. In addition, it is still difficult to gain the support of local policymakers and bridge the gaps between different European regions, thus creating value from a DIH-support system.

The presentation set was concluded by Maurits Butter from TNO Netherlands, who gave insights into his learning from the DIHNET.EU, RODIN and BOWI projects, which each work on interregional collaboration. Mr. Butter pointed out the importance of interregional collaboration, which can be advantageous for:

- accessing leading edge technologies and skills/expertise at European level,
- supporting and initiating new business opportunities to broaden and reinforce innovative markets in other regions,
- exchanging experience on good practices to support digital transformation between regional stakeholders, facilitating cross-border synergies, co-creating and complementarities in technology and knowledge development,
- helping to create pan-EU value chains to increase the competitiveness and dependency of the EU industry,
- increasing the impact of public funding, avoiding unnecessary duplication infrastructures/investments, and accessing EU funds.

Successful collaboration between digitalization supporting-structures, e.g DIHs, clusters, etc., may lead to an easier access to European markets for both industry and research, economies of scale, increased funding, allowing higher quality collaboration activities, access to European networks to EU-funds and strong EU partners, and showcasing use cases to inspire innovation and collaboration, among others.

#### *Interactive Session - Support mechanisms for local DIH ecosystems*

During the interactive session, participants were organized into four groups and collected national and regional initiatives that support the goals of DIHs of their respective regions on a mural whiteboard<sup>6</sup>. Thereby participants were divided into DIHs and non-DIHs. Participants also gather outcomes and particular results of each initiative as well as lessons learnt and exportable results with relevance to other ecosystems. Further details can be found in the Annex to this report.

<sup>6</sup> Please see compilation of Mural Boards in Annex to this Deliverable.



## 2.2. Auvergne-Rhône-Alpes – Ecosystem Diagnosis by Minalogic

### Introduction to the AURA-Region

The Auvergne-Rhône-Alpes (AURA) region is a unique ecosystem in France where SMEs are the leading employer and almost 50% of French mid-cap companies are located. It is the **first industrial footprint region in France** (over 480,000 jobs) with more than 30,000 industrial companies, including many start-ups, equipment manufacturers, and top-tier partners of major industries in the country. The Region is also considered to be a **highly innovative hot spot**, thanks to the presence of two international research technical organizations (CEA & INRIA) within a network of eight major national research centers, one of the four national Multidisciplinary Institutes in Artificial Intelligence (MIAI), 22 innovation clusters dedicated to the Region's fields of excellence, among many others.

The RII performance further confirmed these results, positioning AURA as one of the leading innovation regions in Europe. Notably, these results do not only reflect a comprehensive support network from a policy perspective, but also a strong involvement from the private sector not only in technology transfer but also in the creation of new knowledge and developments that can later be translated into innovations that increase competitive of the leading sectors of the region.

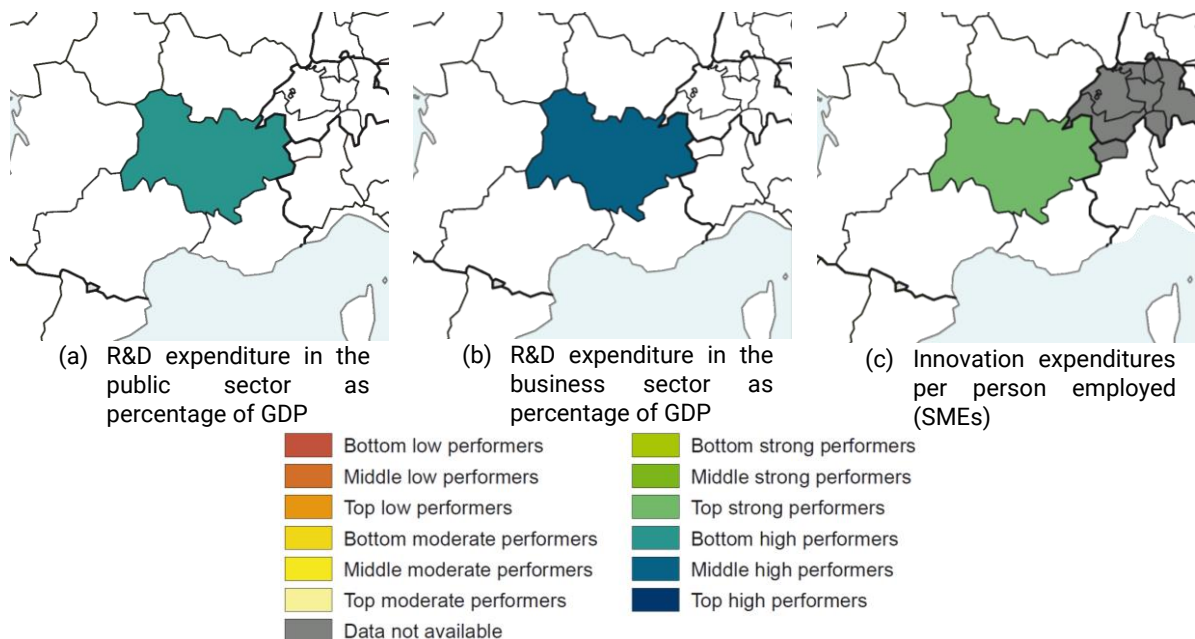


Figure 3. Description of R&D expenditures and innovation expenditures in the AURA region according to RII

The AURA region is very dynamic in the development of the digital economy and has invested more than 650M€. As a result, in 5 years, the number of **companies in the sector has risen from 2,500 to more than 4,800 and the digital sector employs close to 70,000 people**. There are eight mesocenters with 32,000 processor's hearts. France is the second European country that produces electronic components, and the region holds 40% of the working staff, representing 480,000 jobs. In its Regional Plan for Economic Development, Innovation and Internationalization, the AURA Region has set itself **the goal of becoming a leading region in Europe, particularly in the industrial and digital fields**, by focusing on innovation and supporting 10,000 companies per year. The objective of the Plan for the AURA region is to become the European Silicon Valley. This ambition involves two priority actions: (1) Developing the digital excellence sector and (2) supporting the digital transformation of traditional sectors.

In line with these objectives and to capitalize on the suitable conditions for innovation observed in this ecosystem, different programmes have been implemented, e.g. Easytech<sup>7</sup>, and several DIHs have been founded as highlighted by the DIH-Catalogue. For the purpose of this report and the analysis of the AURA ecosystem, we will focus on

<sup>7</sup> The programme is aimed at SMEs and start-ups, in all sectors wishing to integrate intelligence into their products. It considers support and co-financing of innovative projects integrating digital technologies, originating from the region's research organisations.

Minasmart. Minasmart was created to capitalize the Region strengths and tackle its limitations. The core of the Minasmart ecosystem is constituted by 13 partners, which assist SMEs and small midcaps in their digitalization. Thus, the DIH operates as an orchestrator of the “digital evolution” at a regional level in several application domains bringing together key technologies partners and stakeholders to different activities to foster and promote the digitalization of products, services, or processes, both industrial and organizational, of local companies. For example, “traditional companies” can benefit from support to launch their digital transformation plan and “technological company” can request expertise and high-tech innovation to enhance their existing innovation. The goal is fostering digitization of companies, especially from traditional sectors – with a target of 1,000 companies by the third year of operation of Minasmart.

Minasmart relies on the support of the key stakeholders in the AURA region – research centers, technology and innovation labs, associations, industrial partners, gravitating around its core team (Figure 4). These entities interact with Minasmart on flexible- rather than mandatory-basis. Minasmart implements a cluster-centric approach with high representation of such organizations from technology and field-oriented applications. The 13 founder members, e.g. digital clusters, sectorial clusters, RTOs, and regional authorities, are led by the innovation cluster for digital technologies (Minalogic) and tackles **six fields of application** through its partner, e.g. Lyonbiopole (health), Techtera (textile), Axelera (environment), Tenerrdis (energy), Cara (mobility), Vegepolys-valley and innov’alliance (agri-food). The two main RTOs of the region, the CEA and INRIA, provide the consortium with the technological competencies.

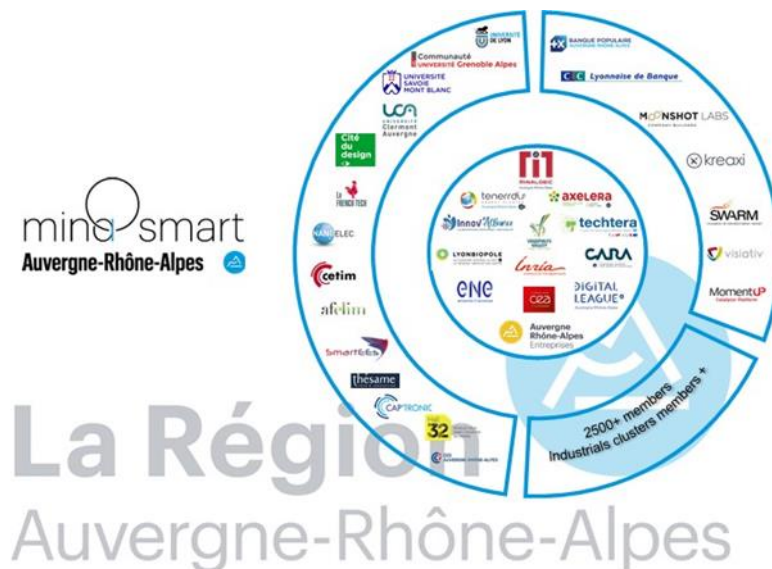


Figure 4. Minasmart ecosystem

### Analysis of stakeholders and support structures in the AURA-region

The two RTOs, e.g. CEA with its two entities CEA LETI, pioneers micro and nanotechnologies, and CEA LITEN, dedicated to the energy transition, and INRIA, National Institute for Research in Digital Science and Technology, provide the region with a solid foundation for R&D activities and facilitate a permanent input of disruptive technologies and innovations:

- **CEA:** CEA Tech is the "technological research" division of CEA, with a historical presence in the Auvergne-Rhône-Alpes region with the presence of its three institutes Leti, Liten, List. These institutes are at the global state of the art in digital technologies, covering embedded AI, cybersecurity and Cyber Physical Systems (CPS), high performance computing (HPC), and circular electronics (including energy efficiency, eco-design and materials).
- **INRIA:** INRIA is a public research institution dedicated to information and communication sciences. For more than forty years, it has accompanied the economic and social changes linked to the diffusion of digital technologies.
- **IRT Nanoelec :** Technology Research Institute are Public Private Partnership supported by French government. IRT mission is to bring out innovations in future economic sectors through balanced public-

private strategic partnerships. They operate research programs based on the co-location of researchers and on state-of-the-art technological platforms.

**IRT Nanoelec institute runs multi-partner programs in R&D, technology dissemination and human capital to make the microelectronics sector more competitive.** One of IRT Nanoelec program called PULSE is dedicated to DIGITAL TRUST, which mission is to develop and test new security features for components and systems in three fields of application: Industry 4.0, Homecare and Robotics. CEA-LETI STM and MINALOGIC are all partners of IRT Nanoelec  
<https://irtnanoelec.fr/pulse-digital-trust/>

Ten Competitiveness clusters galvanize the ecosystem and accelerate the innovation process of SMEs in several fields. Specifically: Three Digitally/Technology oriented (Minalogic, Digital League, ENE) and seven application sectors clusters (Axelera, Cara, Innov'Alliance, Lyonbiopole, Techtera, Tenerrdis, Vegepolys Valley) in strategic fields for the Region (energy, mobility, textile, environment, agri-food and health):

- **DIGITAL LEAGUE:** Brings together the main software publishers (SMEs and ETIs) and digital service companies (SMEs). All the regional software and service skills are present in the Digital League network.
- **ENTREPRISE & NUMERIQUE (ENE):** From consulting to deployment assistance and/or the realization of proof of concept, a team of project managers and experts is mobilized to respond to various digital issues, multi sectors and adapted to the level of maturity of each company.
- **MINALOGIC:** Is the competitiveness cluster for digital technologies in the Auvergne-Rhône-Alpes region, which supports its members in their innovation and growth projects. Minalogic supports the region's innovators by facilitating networking, fostering collaborative R&D and supporting business growth.
- **AXELERA:** AURA Chemistry-Environment competitiveness cluster focusing on 5 strategic areas: renewable raw materials, eco-efficient factories, materials and products for industrial sectors, waste and by-product recovery, preservation, and restoration of natural resources (water, air, soil).
- **CARA:** European Cluster for Mobility Solutions mobilizes the entire industry and its skills to support changes in urban mobility, passenger and freight transport systems and create the vehicles of tomorrow.
- **INNOV'ALLIANCE:** INNOV'ALLIANCE is the leading competitiveness cluster in France in the Food, Well-Being and Naturalness sector. Its mission is to support the ecological and technological transition.
- **LYONBIOPOLE:** LYONBIOPOLE supports the emergence and development of technological innovations, products and services for personalized medicine in four areas: human drugs, veterinary drugs, in vitro diagnostics, medical devices and medical technologies.
- **TECHTERA:** The only competitiveness cluster dedicated to the textile and soft materials sector in France. TECHTERA supports its members in three strategic areas: intelligent and high-performance materials, the circular economy and resource efficiency, factory 4.0 and new business models.
- **TENERRDIS:** cluster for the energy transition. Its mission is to promote the growth of sustainable activity and the creation of permanent jobs in the new energy technology sectors, in line with the challenges of the energy transition.
- **VEGEPOLYS VALLEY:** VEGEPOLYS VALLEY is the plant competitiveness cluster that supports and brings together players from the entire plant value chain, from genetics to uses.

The **Regional managing authority** and the **regional agency** are supporting partner and associated partner respectively.

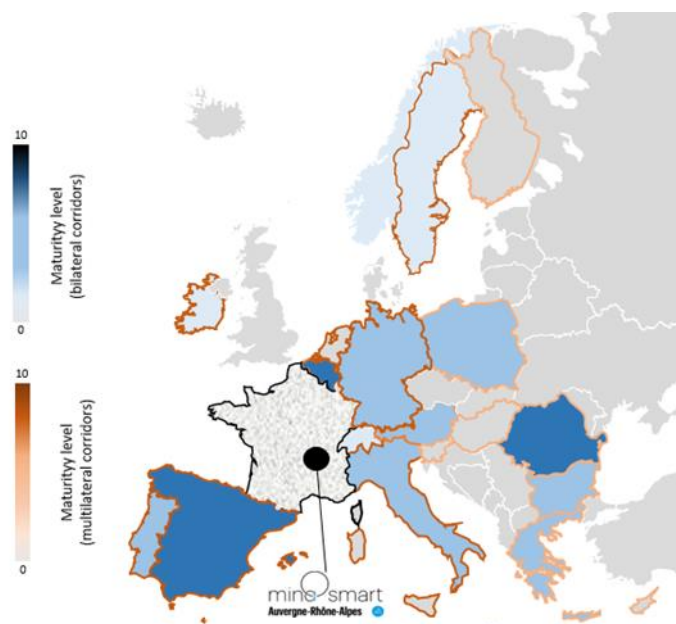


Figure 5. Network of collaboration of Minasmart

Additional stakeholders in the AURA-Region include the Digital Campus (Campus Région du Numérique<sup>8</sup>), and Auvergne-Rhône-Alpes Enterprises<sup>9</sup>, the latter launched by the regional Economic Development Agency<sup>10</sup>. The Digital Campus supports stakeholders in their digitalization and innovation journey as well as with an ecosystem mobilizing training, meant to foster transformation and innovation skills to deploy service offerings closer to companies. The main objective of the Agency is to support industrial companies and industry services providers of the region. As a one-stop shop, it is positioned to support the economic development of companies, their innovation process, their international development (export and access to European funding), their human resources needs and the attractiveness of the region by seeking to attract new investors to the AURA region.

These complementary entities constitute the essence of the AURA-ecosystem by joining business experts of each sector, digital experts, and competence centers to drive and accelerate the digital transformation. For example, Minasmart is actively networking with other hubs, in sharing best practices and specialist knowledge, in co-constructing services, in bringing companies into contact with other companies of their value chain, including partners of the Four Motors for Europe, collaboration with Silicon Europe Alliance, and several EDIHs (

Figure 5 and Table 4). Moreover, Minasmart has explored and successfully joined DIH initiatives, as **Change2twin network**, **DIH4CPS network** and the European project funded **BOWI network** as “selected mature digital innovation hub”.

Table 4. Minasmart collaboration ecosystem

(E)DIHs name	Country and Region	Service pillars	Description (techno and applications)	Category*	Maturity**
<b>EBE</b>	Belgium, Flanders	A; B	Developing joint smart vocational training on energy, environmental and constructions sectors. Organization of study visits.	Structural	Maturing
<b>DIH4CAT</b>	Spain, Catalonia	B; D	Joint event, Signposting, open innovation Minalogic challenges, webinars, Venturing in Deep Tech, participation of Catalan companies to smartbiz.	Structural	Growth
<b>DIH4S</b>	Romania, South west	B; D	Signposting, brokerage event, smart event and smart proposal in manufacturing and health.	Structural	Growth
<b>UDD</b>	Italy	B	Smart info, smartbiz, signposting, best practices in AI.	Structural	Consolidating

<sup>8</sup> <https://campusnumerique.auvergnerhonealpes.fr/>

<sup>9</sup> <https://auvergnerhonealpes-entreprises.fr/>

<sup>10</sup> <https://en.auvergnerhonealpes-ee.fr/>

<b>(E)DIHs name</b>	<b>Country and Region</b>	<b>Service pillars</b>	<b>Description (techno and applications)</b>	<b>Category*</b>	<b>Maturity**</b>
<b>RIC</b>	Bulgaria	B	Smart info, smartbiz, signposting, best practices in AI, Robotics, ICT, Cybersecurity and Smart City.	Structural	Consolidating
<b>AICS EDIH</b>	Germany	B; D	Smart info, smartbiz, signposting, smart proposal.	Structural	Growth
<b>Polytronics</b>	France	B	Smart info, smartbiz, signposting, smart proposal.	Structural	Growth
<b>Digiagrifood</b>	Portugal	B	Smart info, smartbiz, signposting, smart proposal for agri-food	Structural	Growth
<b>CLAIRE</b>	Multi-region	B	Smart info, smartbiz, signposting, smart proposal for Artificial intelligence	Structural	Growth
<b>SEA</b>	Multi-region	B; D	Smart open innovation, best practices, smart biz, smart proposal and smart info.	Synchronized	Consolidating
<b>Digital Health EDIHs</b>	Multi-region	B	Smart open innovation, best practices, smart biz, smart proposal and smart info for Health.	Managed	Growth
<b>French EDIH corridor</b>	National	B	Share experience and best practices.	Managed	Consolidating
<b>EPoSS</b>	Multi-region	B	Share experience and best practices.	Responsive	Initiation

A: skills and training; B: innovation ecosystem and networking; C: *test before investing*; D: support in the search for funding

\*Categories: casual (ad-hoc, opportunistic, informal); Responsive (re-active, part of Eu project, preparation to respond); Structural (formalised structures, anticipatory capacity, pro-active, limited corridor activities); Managed (institutionalised, aligned strategies, active scouting, Eu-value value chain, proactive); Synchronized (structural participation regional stakeholders, joined funding, synchronized RDI, joined strategies and actions.

\*\*Maturity: initiation (casual-responsive); growth (responsive-structural); maturing (structural-managed); consolidating (managed and synchronized).



## 2.3. Slovenian - Diagnosis of the DIH-Support Ecosystem

### Introduction to the Slovenian DIH and innovation ecosystem

The Slovenian ecosystem is constituted by three DIHs according to the Digital Innovation Hubs Catalogue<sup>11</sup>, e.g. DIGI-SI, SRC-EDIH, and 4PDIH<sup>12</sup>. According to the RII, the country has an overall *Moderate Innovator* score between its two regions, e.g. Zahodna Slovenija and Vzhodna Slovenija. In further detail, there is a strong discrepancy between both regions when considering R&D expenditure in the public sector (Figure 6.a). Conversely, regarding R&D expenditure in the business sector (Figure 6.b) it is observed that differences between regions are less marked, with both performing at a *Top strong performers* and *Bottom high performers*, respectively. Moreover, innovation expenditures per person employed (Figure 6.c) are similar in both regions, performing at a *Middle moderate performers* level (5<sup>th</sup> from a 12-level scale). This overview shows that the country has favorable conditions and a need for the implementation of structures, e.g. DIHs, that support and foster the digitalization of industrial activities.

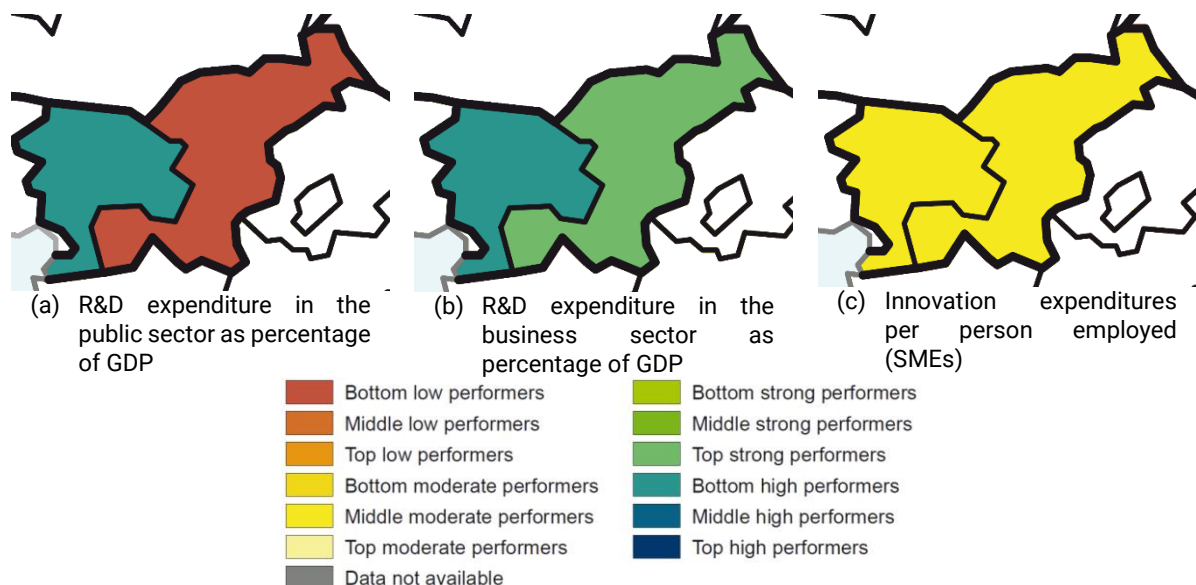


Figure 6. Description of R&D expenditures and innovation expenditures in the regions of Slovenia according to RII

Relevant national and European strategies and programmes supporting, either directly or indirectly, the establishment and operation of a DIH-ecosystem are described in Table 5.

Table 5. DIH-support initiatives in Slovenia

Initiative	Scope	Mission, contribution, or services offered
<b>S3/S4 Strategies</b>	National	The Slovenian Smart Specialisation Strategy sets out national strategic development priorities and niches that are supported on the ground by a comprehensive, focused, and tailored set of policies. By implementing S4, Slovenia has rolled out an entirely new model of development and innovation. This model focuses on fostering cooperation between key stakeholders and has drastically improved the integration with the European and global development and innovation networks, thematic platforms, and consortia. S4 remains one of the bases underpinning the implementation of Cohesion Policy in Slovenia in the period 2021-2027.
<b>AI national strategy - NpUI</b>	National	The NpUI entails a programme of strategic objectives and concrete measures to foster Slovenia's research and innovation capacity and international competitiveness in the field of AI from 2020 to 2025.
<b>Smart Factories of the Future</b>	National	The initiative aims at supporting the development of new products and technologies by connecting stakeholders from science and industry, resulting in the exploitation of common and unprecedented opportunities for the development of new products and technologies.

<sup>11</sup> <https://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>

<sup>12</sup> At the time of writing this report, 4PDIH was under evaluation to become an EDIH

Initiative	Scope	Mission, contribution, or services offered
		Expected long-term results include greater economic competitiveness of Slovenian industry in the international arena.
<b>Digital Europe Programme</b>	European Commission	The Digital Europe Programme (DIGITAL) focuses on bringing digital technology to businesses, citizens, and public administrations. Its support and objective directly overlap with the Slovenian-DIHs targeted operations.
<b>Smart Cities and Communities</b>	National	The Smart Cities and Communities partnership aims to coordinate the development resources of strategic stakeholders, e.g. companies and research organizations, to develop new products, which will be successful on the global market.
<b>Intelligent Cities Challenge</b>	European Commission	The Intelligent Cities Challenge (ICC) is a European Commission initiative that supports 136 cities in using cutting-edge technologies to lead an intelligent, green, and socially responsible recovery. The ICC cities and their local ecosystems will be engines for the recovery of their local economy, create new jobs, and strengthen citizen participation and wellbeing.
<b>Digital Maturity of Schools</b>	National	The initiative aims at identifying and addressing digital shortcoming in schools and homes in Slovenia, including the need to use information and communication technologies and digital tools in teaching.
<b>EDIHs</b>	European Commission	The initiative from the EC aims at establishing a network of European Digital Innovation Hubs (EDIHs) across Europe. Individual EDIHs will be located in different European regions focusing on specific areas and functioning as one-stop shops that help companies to respond to digital challenges and become improve their competitiveness.
<b>Green Agenda/Widening</b>	European Commission	The European Green Deal, published by the EC in 2019, represents a new and ambitious approach to put environment and sustainability at the heart of European policy.

Table 5 shows that besides the relevant number of national initiatives that support DIH-operations, the Slovenian DIH-network, organizations, and other acting bodies rely heavily on the EC-support and initiatives. Thus, the Slovenian DIH-ecosystem is thriving and competitive, albeit vulnerable and mostly dependent on financial and access support from higher levels within the European hierarchy.

## Stakeholders contributing to the Slovenian DIH-Ecosystem

The analysis and ecosystem diagnose has been performed by DigiFed-partner 4PDIH has performed an in-depth analysis of its local ecosystem and stakeholders, which by extension, provides a reference to analyse and understand the support structures and initiatives in other DIH-ecosystems within Slovenia.

Table 6. 4PDIH stakeholders and ecosystem

Partner type	Partner name	Partner domain and contribution to the ecosystem
<b>Knowledge provider/creator</b>	University of Ljubljana	Higher education, research, and technology provider. DIH ecosystem building and curation
<b>Innovative environment support</b>	TECOS	Thematic platform "SME integration to Industry 4.0"
	Incubator Sežana	Networking, funding, tech support
	Primorska Technology park	Networking, funding, tech support
	Styrian Technology park	Networking, funding, tech support
	Pomurje Technology park	Networking, funding, tech support
	SASA Incubator	Networking, funding, tech support
	ROG Centre	Open-source technology, hacker community
	Institute 404	Open-source technology, hacker community
<b>Communities support</b>	Association of Towns and Municipalities of Slovenia	Networking and support to 212 municipalities of Slovenia
	Lex Localis	Law institute specialising in administration related law field

Partner type	Partner name	Partner domain and contribution to the ecosystem
<b>Business enterprises</b>	Telekom Slovenije d.d.	National telco operator
	Envirodual d.o.o.	Circular economy integrator, software
	Sfera IT d.o.o.	Software and IoT development
	Iskraemeco d.d.	IoT, large infrastructure development



Figure 7. Contribution to DIH-services of each of the 4PDIH-consortium.

Partners and stakeholders of the 4PDIH-ecosystem come from West and East Slovenia, thus achieving adequate geographical coverage for the introduction of successful digital transformation at the national and local levels. In addition, well-established partners at a national and European level, with many years of experience, ensure that national needs in the field of digital transformation will be efficiently and effectively addressed in accordance with the national guidelines for the digitalization of society while also complying with the European strategic guidelines. The consortium partnership consists of four types of organizations covering key areas of the operation of DIHs with basic specialized sectoral orientations and linking activities between the local/national economy and local/national needs: (1) Supportive environment (SIO); (2) knowledge institutions; (3) companies; (4) public sector (support to municipalities).

The consortium operation is sustained by four basic pillars, e.g. economy, education, state and public administration, and the community. These pillars provide suitable conditions for stakeholders in each pillar to identify partners that may provide support and assistance and may also effectively address national needs in the following ways: 1) Bring local knowledge and experience from local SIOs; 2) Upgrade existing activities by merging into

a consortium; 3) Transfer knowledge to users effectively; 4) Build partnerships that focus and contribute to the four pillars of the consortium. Thus, the composition and overall concept of the consortium shows the potential to address the challenges of DIHs and the interest of the ecosystem in contributing to the development of sound structures to foster digitalization of the local industry. Services considered by the DIH, and contribution of each stakeholder can be observed in Figure 7.

## Impact of the services developed in the local ecosystem by 4PDIH

The 4PDIH has performed a comprehensive analysis on the impact its services generate in its local ecosystem. This analysis serves as a reference to understand the effects of these services on such ecosystem, how well received they may be, and whether the conditions are suitable for exploring more sophisticated adaptations of the services, possibly involving cross-border DIH-collaboration.

### Impact 1: Increased innovation activity

**Test before investing:** 4PDIH exploits existing environments for innovation, prototyping, and experimentation (FabLab Network Slovenia, SIO, Industry 4.0 test environments) and expands to new ones (local partners, other EDIHs). 4PDIH explores new use cases in AI and data processing technologies with new and existing capacities, together with the future EDIH-network to help local partners to take advantage of the European innovation ecosystem, better understand needs and opportunities, and to stimulate local economies, thus benefiting the SMEs and midcaps.

#### *Impact 2: Increased digital competences in targeted verticals*

**Skills and training:** A wide range of workshops and training (interactive workshops, thematic bootcamps, courses, support to the implementation of activities under the "DEP Advanced Digital Skills" pillar) will be delivered. The trainings' contents will be tailored to each target group's needs and iteratively upgraded according to identified emerging needs and opportunities. Impact 2 will be achieved through training and educational activities and targets several target groups: SMEs and Mid-caps, public administration and municipalities, knowledge institutions.

#### *Impact 3: Increased funding for innovative solutions*

**Access to funding and investor search support:** 4PDIH supports investment seekers and advises them on how to access appropriate funding mechanisms according to their capacity and needs. The target group in this regard are SMEs with digital solutions in previous stages to market entry (TRL 5-8) with the aim of raising the level of the solutions by 1-2 levels. 4PDIH addresses the partiality, incompleteness, and deficiencies in the existing support ecosystem and develops incentives to systematically address the digital-solutions development process to mitigate the effects of unavailable financial opportunities. Thus, 4PDIH provides comprehensive support to find investment through available sources and to offer direct co-financing, especially when external sources will not cover the desired outcomes.

#### *Impact 4: Increased collaboration and innovation ecosystem expansion*

**Innovation ecosystem and networking:** The 4PDIH-consortium has a proven track-record of engagement and coverage of innovation ecosystems acting as broker of knowledge, innovation, and transfer of good practices. 4PDIH existing partnerships sets up the basis to extend collaboration and innovation activities to other networks and initiatives, (E)DIHs, international and macro-region (Western Balkans) entities. Special interest is given to networking that supports increase in public sector digitalisation with sharing use-cases, collaboration with private sector, and joint service enhancements.

## Summary of the Slovenian DIH-ecosystem, support network and lessons learnt

Experiences and lessons learnt from the national DIH-ecosystem and 4PDIH-consortium, particularly under the EDIH-application process, show that the main focus in the region regarding DIH-operations should consider:

- Digitalization and digital transformation for industry as whole
- Systematically address four *verticals* that encompass technological, business, educational, end-user stakeholders. These fields should not be necessarily completely approached. Instead, specific activities exclusive to each domain should be anchored to set up the condition for synergies and long-term exploitation opportunities. These verticals are:
- Business sector to foster **market innovation**
- Public sector with municipalities that need the **process automatization** and other **tools for effective public service**
- Educational, knowledge sector through formal (curriculum) **enhancement of digital competences**
- **Local communities and end-users' organizations**, which often constitute the key stakeholder whom the digitalization benefits the most
- Collaboration between silos and sharing of positive externalities and risks
- Consistent communication and dissemination of DIH-services to target groups and stakeholders from the four DIH-sectorial verticals
- User-, service-, and community-based exploration to refine and monitor the effectiveness of services in the corresponding target groups and stakeholders
- Exploitation of Widening/Green Agenda as well as regional structures to improve access and synergies with neighboring regions, e.g. Western Balkans, and across Europe

Thus, the diagnosis of the Slovenian DIH-support ecosystem also shows the existence of a comprehensive set of national initiatives that, although are not directly meant to support DIH-operation, certainly help and have been utilized as tools to establish DIHs and foster the digitalization of the Slovenian industry, especially SMEs. In addition, European initiatives that are meant to establish and solidify local structures to foster digitalization have been successfully exploited and utilized by strategic stakeholders in the local ecosystem to develop sophisticated tools and services (A summary of these initiatives, stakeholders, and impacts can be observed in Figure 8).

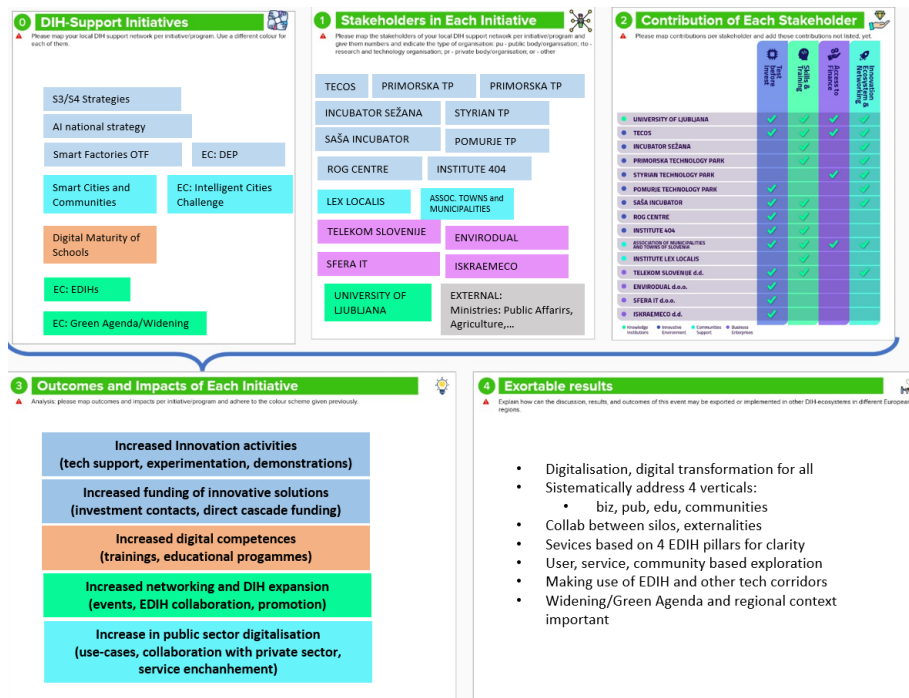


Figure 8. Canvas of the analysis of the Slovenian DIH-support ecosystem

A general overview of the innovation environment according to the RII also shows that the region has massive potential to benefit from the establishment of structures to support digitalization that provide focalized and targeted services. Finally, it is proposed that the Slovenian DIH-ecosystem may benefit from the development of a sound, long-term, and comprehensive national strategy for supporting DIH- and similar structures-operation as well as target measures to facilitate the SMEs-access to them.

## 2.4. Northeast of England – Ecosystem Diagnosis by DigiCat

### Introduction to the ecosystem

The Northeast of England DIH-ecosystem is constituted by three DIHs according to the EC-DIH catalogue, e.g. CP Lab Newcastle, Sunderland Software City, and the Centre for Process Innovation.

When analysing the RII performance of the region it can be observed that in terms *R&D expenditure in the public* (Figure 9.a) and *business sectors* (Figure 9.b), the region consistently achieves a *Top moderate performance*, which corresponds to level 6 of 12 levels. Conversely, in terms of *Innovation expenditures per person employed* (Figure 9.c) the region achieves the second highest score in the index, e.g. *Middle high performers*. These results can be interpreted as a recognition of the importance of innovation in several fields and an effort, particularly coming from the private sector, to foster technology transfer into the development of new services.

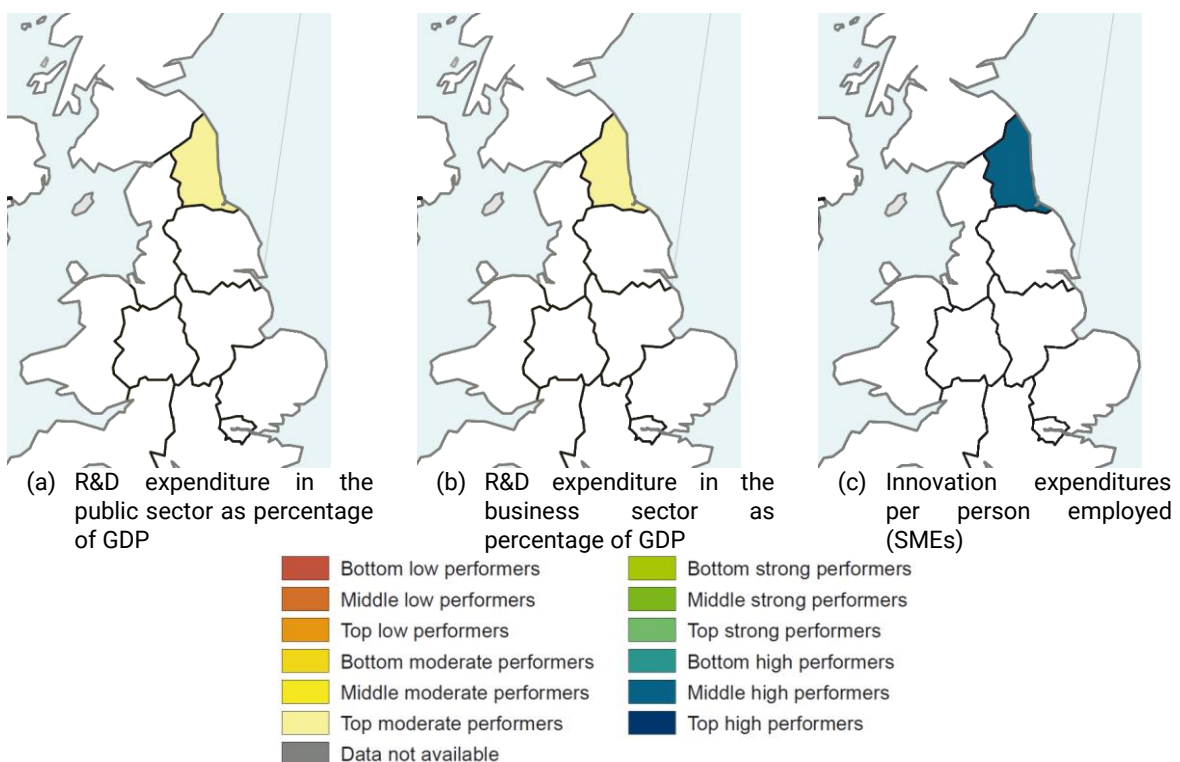


Figure 9. R&D and innovation expenditures in the region of Northeast of England according to the RII

The ecosystem analysis and diagnosis was performed by DigiFed-partner Digital Catapult (DigiCat) and constitutes a *snapshot* of the activities and programmes that are in place in the Northeast of England. It is worth noting that, although Digital Catapult is registered as a DIH in the London region, it operates across the UK country. Thus, the analysis performed by DigiCat refers to this corresponding region, where the DIH also operates. As such, conclusions derived from this analysis should consider these limitations.

The different programmes and organisations in the region typically reference either national innovation and industrial strategies in their work or are closely linked with different local authorities. There are various ways in which this may occur:

- Organisations that are **linked to local authorities** through shared **funding opportunities or commissioned work** from the local or regional authorities themselves.
- Organisations that **respond** to the remit of the **innovation strategy of the UK** in that they are targeted on the adoption of key technologies in various sectors **to support and foster** efficient usage of increased R&D spends towards **improving productivity and enhancing competitiveness** of national industry.
- Organisations that are involved in the development of knowledge and technology transfer, e.g. university based, that also respond to the remit of the Innovation strategy.

For the purpose of this diagnosis, the following organizations and strategic stakeholders from a technological and digitalization perspective have been mapped and described:

1. **High Value Manufacturing Catapult:** Part of the Catapult network, corresponds to a private company limited by guarantee and its 7 members are 7 national centres: (a) Advanced Forming Research Centre – at the University of Strathclyde; (b) Advanced Manufacturing Research Centre – University of Sheffield; (c) Centre for Process Innovation – Redcar, Sedgefield and Darlington; (d) Manufacturing Technology Centre – near Coventry, (e) National Composites Centre – at Bristol and Bath Science Park; (f) Nuclear Advanced Manufacturing Research Centre – University of Sheffield; (g) Warwick Manufacturing Group – University of Warwick.
2. **Offshore Renewable Energy Catapult:** Part of the Catapult network, UK’s leading technology innovation and research centre for offshore renewable energy, playing a key role in delivering the UK’s net zero targets by accelerating the creation and growth of UK companies in the offshore renewable energy sector. Using their unique facilities and research and engineering capabilities to bring together industry and academia and drive innovation in renewable energy.
3. **Keele University Smart Innovation Hub:** Constituted by a highly skilled and experienced staff, expert academics, and local business leaders via fully funded business support programmes and grew onsite with lettable, modern, private, shared spaces and co-working workspaces.
4. **Leicester Innovation Hub:** Identified itself as a “front door” to launching great ideas. As an organization, it also provides a dedicated incubation and innovation space, making it easier for companies to utilise innovation support, expertise, and facilities.
5. **Rolls Royce / Sheffield University Technology Centre in Advanced Electrical Machines and Drives:** Rolls Royce partnership with University of Sheffield - Department of Electronic and Electrical Engineering.
6. **PROTO:** The first digital production facility of its kind in Europe. It has been created specifically for animators, film makers, and games developers, offering 3D scanning, motion capture and sound recording a single location. The facility is owned and managed by Gateshead Council, and it is part of the Digital Catapult NETV network. The organization is also home to the Northeast Tees Valley Immersive Lab (one of only four in the UK) involvement through the NELEP and supported by ERDF funding.
7. **National Innovation Centre for Data (NICD):** Research Centre within Newcastle University focused on developing data analytics skills and providing data analytics support to various organisations across multiple sectors.
8. **International Advanced Manufacturing Park:** Corresponds to a business park following the model and heavily influenced by the Advanced Manufacturing Park in Rotherham.
9. **The Biosphere Laboratory:** The Biosphere is at the centre of a £1.1bn life science eco-system and the Northeast is home to more than 200 life science companies employing more than 7,000 people.
10. **Sunderland Software City:** Independent Non-profit. Sits under the umbrella of the Northeast Business Innovation Centre, home for Digital Catapult Northeast and Tees Valley.

The below diagram (Figure 10) shows each organisation numbered and categorised, based on: (pu) – referencing public governmental organizations, (pr) – for private organizations, (rto) – for technology transference organizations, (np) for non-profit organizations.

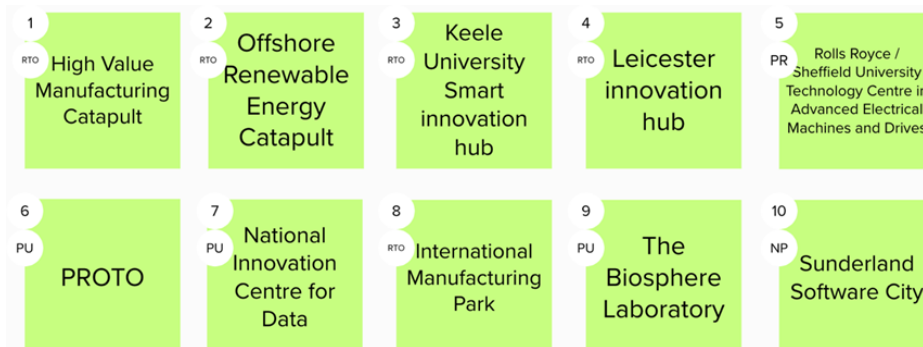


Figure 10. Strategic and key stakeholders in the Northeast of England DIH- and digitalization-ecosystem. (pu) – reference public governmental organizations, (pr) –private organizations, (rto) –technology transference organizations, and (np) non-profit organizations

## Stakeholder Engagement

The diagnosis and research strategy performed by DigiCat was focused stakeholder engagement activities for this mapping exercise, instead of a single local liaison event. In the following (Figure 11), the descriptions of the contributions each stakeholder to the regional DIH-ecosystem can be observed, including their outcomes and impact.

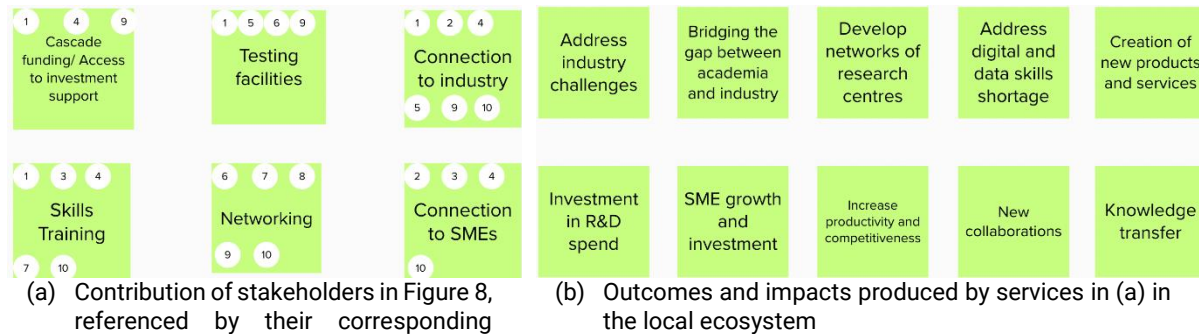


Figure 11. Contribution of stakeholders to the development of local services, and resulting Outcomes and Impacts

## Outcomes and Analysis

Key highlights identified through the focused stakeholder engagement include:

- Strong focus on industry:** From sector-focus RTOs, industry challenge driven innovation programmes, to industry-led innovation centres. A range of organisations are set up to drive industrial growth through the use of advanced digital technologies.
- Linking academia and industry:** Many organisations were set up in partnership with academic institutions, to facilitate knowledge transfer as well as commercialising research.
- Providing skills development and business support:** Key content delivered by most of the organisations include upskilling companies (both SMEs and industry), supporting business development activities, and providing a convening place for networking.
- Correlation with RII:** These results and highlights strongly correlate to the analysis and results monitored by the RII and the identified performance for the region. In this sense, it is observed that conditions are suitable for coordinated supported action to foster digitalization of the local industry.

## Highlight and summary

Some of the lessons learned and exportable results from different organisations in the region include:

- Balancing between regional priorities and national agenda.** This learning can be applied to DIHs that are potentially receiving funding from different public sources or have policy responsibilities to specific initiatives. A mixture of regionally focused programmes was observed, for example acceleration programmes focused on start-ups and SMEs from a specific region, and participation in national forums and networks to ensure knowledge sharing and skills transfer.
- Establishing **clear and achievable funding models** to ensure sustainability of innovation hubs and organisation beyond public funding. An exportable lesson here is to develop capabilities and products that can be leveraged to develop commercial partnerships and industry match funding, to widen the organisation's impact and achieve sustainability.
- Designing and implementing clear ecosystem building strategies.** Existing networks and communities can be fragmented especially in digital technology innovation. In developing and delivering innovation programmes, it is critical to engage with a wide range of communities including academia, industry, innovators, and policy organisations, and have a clear strategy to build mission-driven ecosystems for specific sectors or use cases.



4. **Testbed and facilities need to be supported by adequate innovation funding to generate new use cases and value.** Often R&D funding is concentrated in building facilities or testbeds, but the exploitation of these R&D facilities is key to push the needle forward on adoption. A clear roadmap to exploiting these facilities or testbeds should be set out at the beginning of new programmes and initiatives.

## 2.5. Central Hungary – DIH-Ecosystem diagnosis by BME

### Introduction to the Central Hungary DIH-Ecosystem

The Central-Hungary region (Figure 12) is constituted by eight DIHs according to the DIH Catalogue, namely Dig-I-Hub Kecskemét and Innoskart Digital Innovation Hub in the outer regions of Central-Hungary, and Demola-Budapest, BME-EET, EIT Digital Budapest Node, Industry 4.0 National Technology Platform, AddedValue, and Innomine Digital Innovation Hub in the Budapest metropolitan area.



Figure 12. Map of Hungary depicting its 8 regions. The focus of this diagnosis is Central Hungary, in red, which also encompasses the metropolitan region of Budapest

When analyzing the regional innovation performance, a clear discrepancy can be observed between the metropolitan area of Budapest and the overall region according to the RII. Specifically, while the metropolitan area is *Middle strong performer* in *R&D expenditure in the public sector*, the outer areas of the region *Middle low performers*, e.g. the second lowest scoring category. Similarly, while the metropolitan area is a *Middle high performer* for *R&D expenditure in the business sector*, the second highest performing category, the outer areas are only *Top moderate performers*. In the case of *Innovation expenditures per person employed*, again the Budapest metropolitan area is *Bottom high performer*, the third highest score category, while the rest of the region produces a *Top low performance*, the third lowest score.

These discrepancies are also observed with regard to the number DIHs themselves, i.e. two DIHs in the outer areas of the region and six DIHs within the metropolitan area of Budapest. Such features tend to be present in highly centralized states with very strong administrative regions/capitals, and a neglect of other areas of the country/region, which typically translate in lower sophistication of the support mechanisms in such areas.

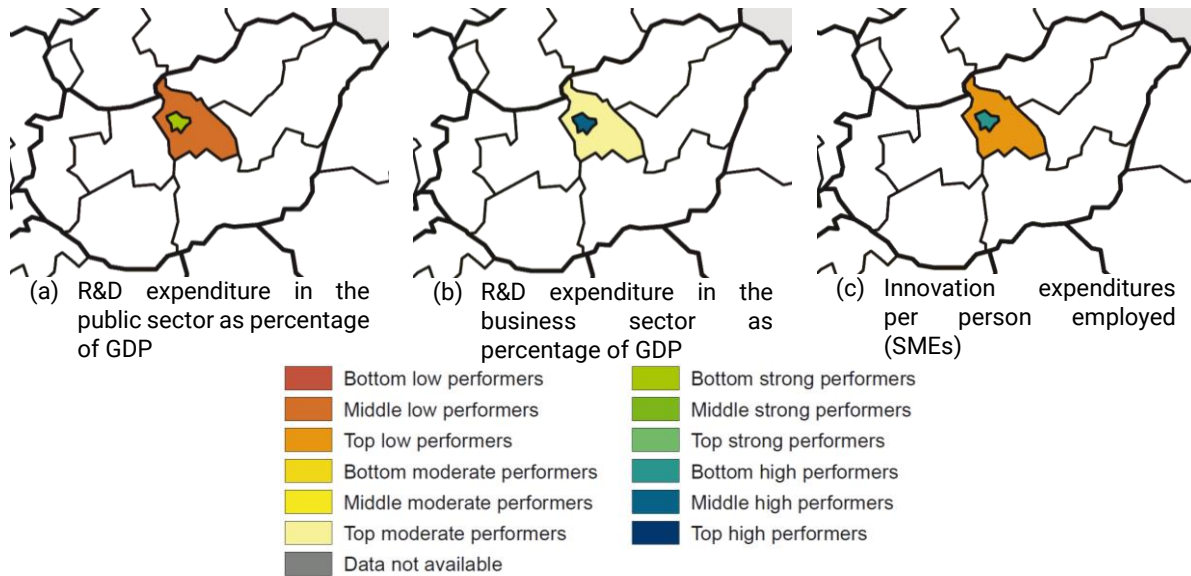


Figure 13. R&D and innovation expenditures in the region Central-Hungary according to the RII

## Initiatives and strategic stakeholders

In Hungary, the DIH-support initiatives are primarily supported by NKFIH (National Research, Development, and Innovation Office) through three major programmes:

- **EDIH Initiative:** Supports the creation of European Digital Innovation Hubs at it is set up at a European level in coordination with local government agencies
- **TIP Programme:** Supports the creation of Regional Innovation Platforms
- **EGYETEMI ÖKO:** Supports the creation of innovation platforms at higher education institutions to foster the establishment of technology transfer routes and institutional level IP management

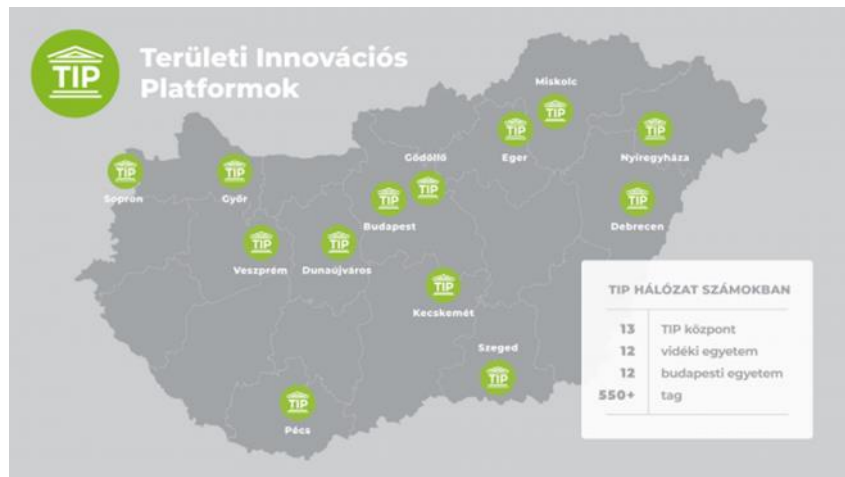


Figure 14. Summary of the results and geographical coverage of the TIP programme

Due to its nature and features, the implementation of the EDIH programme is coordinated in Hungary by DJP (Digital Success Programme) with the following targets:

1. Supporting the digital transformation of companies and the public sector in AI, high performance computing (HPC), cybersecurity, digital technologies, and digital competencies.
2. Encouraging cooperation between the private and public sectors.
3. Establishing themselves as a reference stakeholder and achieving a mediating role between firms, customers, experts, and the state regarding the development and implementation of new digital technologies.

- Foster and promote improvement of economic conditions in local companies through digitalization as a non-profit objective.

The original plan of Hungary was to establish one EDIH in each of the eight regions of the country. Moreover, while each EDIH should have one main field of expertise they should also consider impacting a larger area than the region in which they are established, e.g. provide service at a national and European level. Figure 15 depicts the envisioned cooperative structure of the three programmes.

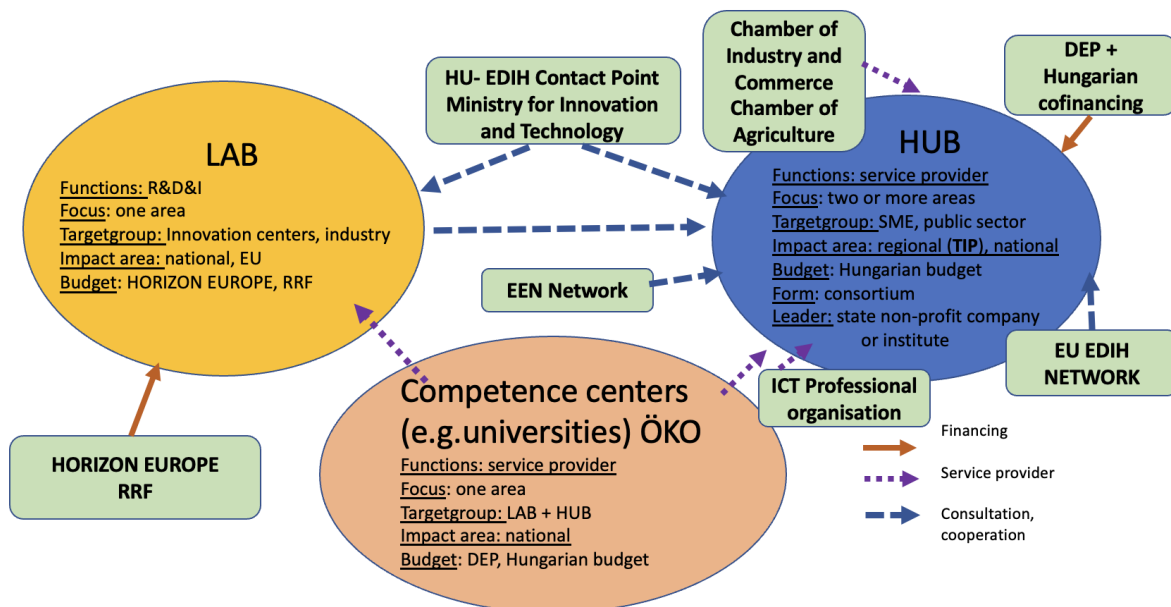


Figure 15. Cooperation structure between the three main initiatives to support DIHs in the Central Hungary region

**LABs** are R&D&I entities with a **specified single focus area**, and **direct connections to innovation centres and industry**. On the level of Competence Centres, e.g. universities, the orchestrated operation of Labs is implemented. Their operation is partly financed by Horizon Europe, RRF<sup>13</sup>, and Hungarian national sources. The establishment of such competence centres is supported by the ÖKO programme. Competence centres also play a crucial role to link LABs and HUBs by providing services to both and transfer services or products in both directions. From the government perspective, the EDIH contact point is the Ministry of Innovation and Technology, which also coordinates the smooth operation of the three main programmes (LABs, HUBs and ÖKOs).

**HUBs** are primarily **service providers for the public sector and SMEs**. Their **impact areas are regional**, in the case of Hungary the eight main regions, and limited to national level. HUBs are operated as consortia lead by state non-profit companies of institutions. The funding source of HUB operation is secured by the allocated national budget. The Chamber of Industry and Commerce and Chamber of Agriculture are service providers of HUBs and establishing a strong link towards national industry players. HUBs are also members of the EU EDIH-network<sup>14</sup>, linking them into the EU-wide ecosystem innovation hubs.

The overall **involvement of SMEs in the implementation of the EDIH programme** is relatively **low compared to the TIP programme**, which involves more than 500 SMEs so far. The involvement of existing DIHs in the EDIH initiative is somewhat better. Many of the existing DIHs in Hungary were invited as consortium members in the newly established consortiums applied for the EDIH grants. DIHs operating within universities (e.g. BME-EET-DIH) will most likely provide services for EDIHs as members of the ÖKO platforms.

<sup>13</sup> Recovery and resilience funds under the Recovery and resilience plan for Hungary.

<sup>14</sup> It is worth noting that this connection will depend on and will be normed by the Digital Transformation Accelerator: <https://digital-strategy.ec.europa.eu/en/funding/digital-transformation-accelerator-network-edih-cnect2021op0004>

This shows that the state recognizes the strategic potential of the concept in fostering digitalization of its industrial sectors<sup>15</sup>. Moreover, that the state plans to capitalize on the services provided by DIHs and has a strategy for their consolidation and long-term operation.

### Impacts of initiatives and programmes in Central Hungary

Regarding the proposed **EDIHs**, the EU-budget will enable the creation of three to six EDIHs in Hungary, with funding reaching 22.251Mio€ for a period of seven years. Although Hungary initially decided on producing three major national-level EDIHs, the EC suggested more EDIHs<sup>16</sup>. Negotiations are still taking place and currently, Hungary considers five EDIHs to be implemented focusing on the following areas: (1) Artificial Intelligence, mobility, robotics; (2) High Performance Computing; (3) Data analysis; (4) Cybersecurity and competence; (5) AI and data in Agriculture. The Decision Committee managed by the Ministry of Innovation and Technology must still approve the proposed new scope of EDIHs. After this decision, the nominated Hungarian EDIHs will apply in autumn for the Commission tender.

With regard to the **TIPs**, 13 TIP centres, e.g. Regional Innovation Platforms, are currently operating in Hungary including 12 universities outside of the capital and 12 universities in the capital Budapest. To date, TIPs have more than 550 members, all of them SMEs.

Regarding ÖKO, a successful example of a competence center established as a result of the programme is BME Bridge<sup>17</sup>, which is part of the Higher Education and Industry Cooperation Center at Budapest University of Technology and Economics. The main goal of Bridge is the creation and management of technology transfer routes within the University labs, research groups and departments, IP management and exploitation of R&D&I results. To date, **Bridge has managed 24 patent applications**, including 7 international ones, **involving 7 facilities and 40 researchers of BME**. These results highlight the importance of a comprehensive and focalized strategy to mobilize knowledge creators and produce concrete market-exploitable results.

The diagnosis and analysis show a clear motivation of governmental and private institutions to foster and support digitalization. In this regard, a comprehensive strategy has been put forward to maximize the benefits and impact of the proposed structures in the region of Central Hungary. Moreover, this strategy also considers synergies and interaction with European-level programmes and funding tools. Hence, it can be said that the Central Hungary region shows a well-defined institutional strategy to benefit from the structures it aims to build. In this regard, it remains to be learned the impact that these structures have had so far in fostering digitalization of SMEs, means, tools, and techniques to monitor these impacts, and mechanisms to control and guide the performance of structures yet to be established, e.g. EDIHs, including the collaboration strategy within and outside the region and Hungary altogether.

<sup>15</sup> It is worth noting that at the time of writing this report, a change in government is taking place, which might affect the long-term operation of these initiatives.

<sup>16</sup> At the time of writing this report, no results have been provided regarding the winners of the call in Hungary.

<sup>17</sup> <https://bridge.bme.hu/>

## 2.6. Basque Country - DIH-local support network and ecosystem diagnosis

### Introduction to the Basque Country region DIH-ecosystem

The DIH-ecosystem in the Basque Country is constituted by four DIHs according to the DIH Catalogue, i.e. SmartCityTech, DIH on Healthcare – Basque Country (SALUD 4.0), Innovalia ZDM Digital Innovation Hub, and Basque Digital Innovation Hub (BDIH). From the analysis performed by the RII, it can be observed that the industrial ecosystem of the region is committed to contributing to the digitalization of the industrial base of the Basque Country, performing at the highest categories of the index in R&D expenditures in the business sector (Figure 16.b) and innovation expenditures by SMEs per person employed (Figure 16.c). At the same time, although the public sector does not contribute in the same volumes as the private sector, R&D expenditures (Figure 16.a) are at the top of the middle of the scoring range.

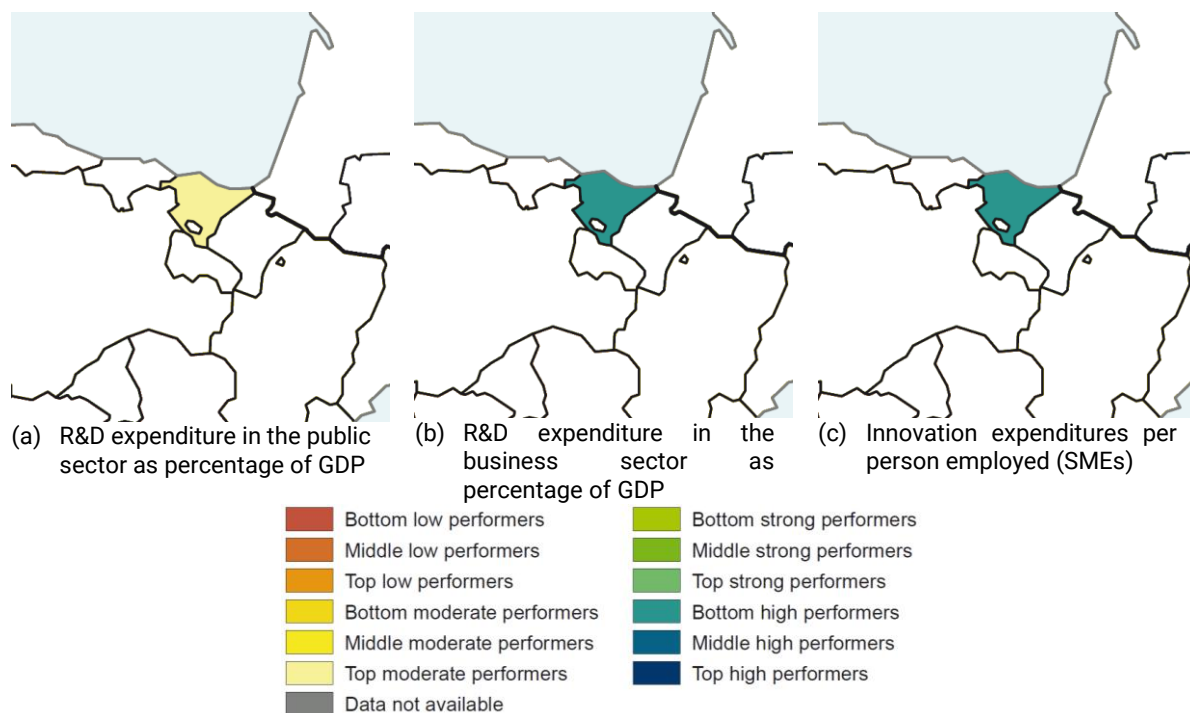


Figure 16. R&D and innovation expenditures in the Basque Country region according to the RII

This quick overview shows that the region is very well-suited to benefit from the construction of permanent structures to foster digitalization, especially because of the involvement of the private sector. Thus, it is reasonable to think that SMEs and industry in general will actively participate and engage with DIHs so long programmes and opportunities are available to facilitate access to their services.

### Support programmes and ecosystem diagnosis<sup>18</sup>

The diagnosis and analysis of the support structures towards DIHs in the Basque Country will consider as a reference case the Basque Digital Innovation Hub (BDIH). Thus, the ecosystem, services, and support programmes put forward by BDIH, as well as their impact, are analyzed to draw conclusions regarding the effectiveness of the support initiatives towards in DIHs.

It can be observed that the BDIH ecosystem (Figure 17) is quite comprehensive and is sustained by a large and diverse set of stakeholders that focus on specific expertise associated with the services that the Hub provides for SMEs. For example, test before investing services are sustained by a comprehensive network of strategic stakeholders including major players in the field. Similarly, services related to skills and training and innovation ecosystem & networking make active use of existing structures, such that these services are not only strongly

<sup>18</sup> The diagnosis is performed by DigiFed-Partner IKERLAN

embedded in the local ecosystem but also may exploit operating networks and experience of successful stakeholders.

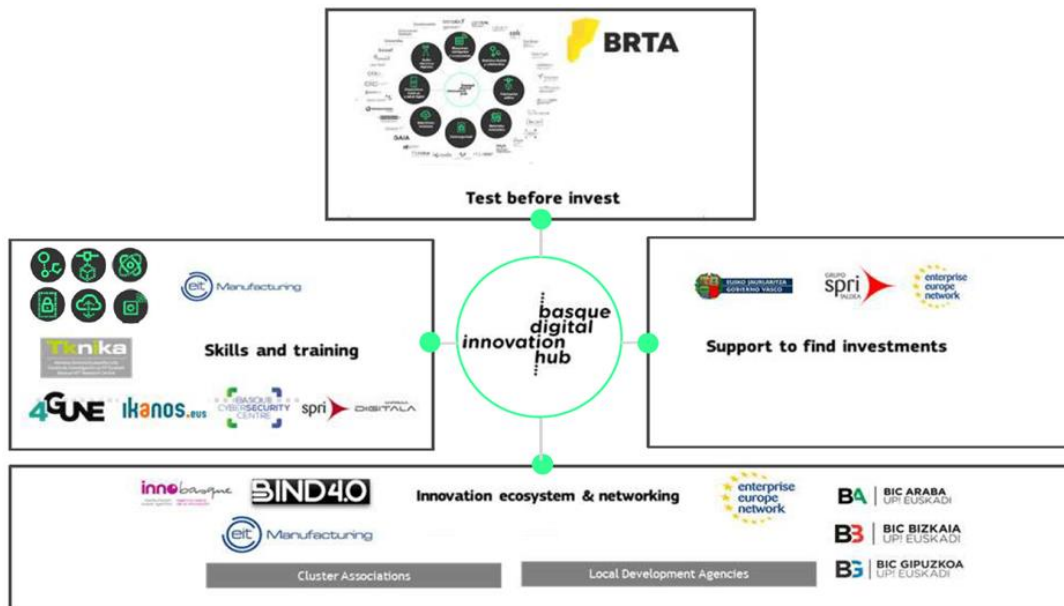



Figure 17. BDIH ecosystem

Different support programmes and initiatives have been put forward by the BDIH and can be utilized through its demand activation process. To access the target groups of these initiatives a large communication effort has been carried out, through a wide variety of audio-visual material demonstrating the successful impacts and beneficial results of SMEs that engaging with BDIH. These efforts are essential to rationalize and explain the services provided by BDIH and thus, facilitate and introduce access to SMEs to such services (Figure 18).

<p><b>BRONYMEC</b> Fabricación Aditiva Study of the viability of surface modifications in parts manufactured using MJF technology</p> <p>Bronymec is a company born in 1996 dedicated to the distribution and machining of polymers and composites. It targets a wide range of sectors such as rail, energy, machine tools, food and pharmaceuticals. Through this project, the company has decided to go beyond machining, opening up to applications for additive manufacturing.</p> <p><a href="#">See sheet</a></p>	<p><b>ANDER CRISTOBAL ETXEBERRIA</b></p>	<p><b>SOMABE</b> Robótica Flexible Y Colaborativa Bin picking technology to create new business units</p> <p>Soratuze Makina Berezirik. SOMABE, was established in 2004 as an engineering company dedicated to the design and manufacture of special machinery. SOMABE is located in Soratuze and has a team of 15 people dedicated to making special machines. They are specialized in sealing control and component assembly applications.</p> <p><a href="#">See sheet</a></p>	<p><b>AITOR EGUREN</b></p>
<p><b>DEGUSA</b> Fabricación Aditiva Additive manufacturing of a refractory plate prototype for slide valve</p> <p>Degusa was created in 1966 as a company dedicated to the engineering, design and manufacture of refractory linings and materials along with combustion and control equipment. Since 1978, Degusa has a factory in Armutzo for the assembly of slide valve systems and their commercialisation. With new developments in the industry set to replace the traditional methods, the company decided to investigate the most reliable additive manufacturing methods for refractory raw materials.</p> <p><a href="#">See sheet</a></p>	<p><b>NEREA ALJUARTE</b></p>	<p><b>INSULOCK</b> Dispositivos Médicos Y Salud Digital Insulock, intelligent device for insulin pens</p> <p>Insulock was born in 2014 to improve diabetics patients' life quality and expectancy, by using technologies easily accessible and reachable. By means of a smart device, attached to the insulin pen, provides information on injections: timing, quantity, temperature and injection time, among others.</p> <p><a href="#">See sheet</a></p>	<p><b>JOSÉ LUIS LÓPEZ SÁNCHEZ-PASCUALA</b></p>
<p><b>GRAPHENEA</b> Dispositivos Médicos Y Salud Digital Detection of SARS-CoV-2 viruses with graphene field effect transistors</p> <p>Graphenea is a company born in 2010 with the purpose of producing graphene for researchers. There are 35 workers in the company dedicated to the production and research of graphene. Though lately they had decided to enter into product development so as to create biosensors of this material in order to detect virus such as the SARS-CoV-2, of great use in the midst of the Covid-19 pandemic.</p> <p><a href="#">See sheet</a></p>	<p><b>AMAIA ZURUTUZA</b></p>	<p><b>DRAXTON</b> Materiales Avanzados New materials for improving nodular iron foundry plant performance</p> <p>Draxton Alxondra is a nodular iron foundry which manufactures security parts for automotive sector. Their main product is the disc brake fork. Currently, Draxton is the main European disc brake provider with an annual manufacturing of more than 30 million of disc brakes, a 45% of the European market.</p> <p><a href="#">See sheet</a></p>	<p><b>MARTA RATÓN</b></p>
<p><b>NIPPON GASES</b> Materiales Avanzados Preliminary demonstration for data analysis, processing and visualisation for welding processes</p> <p>Nippon Gases is a company whose main activity is the supply of industrial, medicinal and food gases. In Spain, we have several production plants, especially in Basque Country, where are very numerous.</p> <p><a href="#">See sheet</a></p>	<p><b>PABLO ACHA LOROÑO</b></p>	<p><b>RKL Integral</b> Ciberseguridad Critical infrastructures software robustness verification</p> <p>RKL Integral is an integral security consulting firm born in 2017. Currently, they are a 12 people team offering professional and independent consultancy and engineering services, with a high innovative character in integral security field.</p> <p><a href="#">See sheet</a></p>	<p><b>JOSÉ MARI SANZ YARRITU</b></p>

Figure 18. Use Cases from BDIH<sup>19</sup>

Basque Industry 4.0	Hazitek	Bind4.0
Gauzatu industria	<b>BDIH KONEXIO</b>	Industria Digitala
Industrial Cybersecurity	Ekintzaile	Renove Maquinaria 4.0 Program



This material, together with an active promotion campaign in social networks, have helped these initiatives reach several companies. DEEP DIVE sessions, i.e. in-depth analysis sessions into the node's technology and assets at a high technical level, have been carried out and led by senior staff from each of the members of the node.

These efforts also synergize with the several funding initiatives put forward and supported by the Basque Government. KONEXIO is the main funding initiative supported by the BDIH. Other initiatives may also complement KONEXIO complement and improve support to SMEs in their digitalization process (Figure 19).

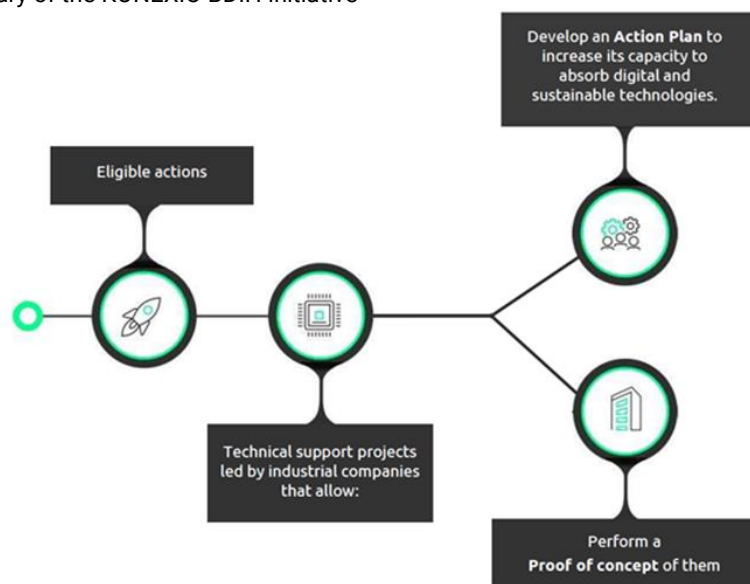
The BDIH KONEXIO support programme is annually updated. In 2021 the programme was focused on facilitating access to testing infrastructure and experimentation opportunities in new technologies for SMEs and companies in manufacturing. For this, a total funding of 1Mio€ was

Figure 19. Basque funding initiative programmes

considered by the local government. Figure 20 depicts the summary of the support initiative in addition to the description of actions and activities undertaken by SMEs that participate in it.



(a) Summary of the KONEXIO BDIH initiative



(b) Workflow process under the KONEXIO BDIH initiative in 2021

Figure 20. Summary of the KONEXIO support initiative for SMEs in manufacturing under BDIH in 2021

<sup>19</sup> <https://bdih.spri.eus/en/assets/use-cases/>



As shown in Figure 19, additional funding initiatives to support the Basque Industry, both from R&D perspectives, include:

- **Basque Industry 4.0:** This initiative subsidizes up to €300,000 for industrial research and experimental development projects that address the transfer of technology from R&D agents to industrial companies in the field of Advanced Manufacturing.
- **HAZITEK:** This funding initiative has provided 95Mio€, in 2022, for promoting Research and development projects for Basque SMEs, bigger companies, and associations.
- **BIND4.0:** The initiative aims to connect and prepare disruptive startups and leading companies in the same industrial sector to collaborate to create innovative solutions, accelerate digital transformation, and increase business competitiveness. By now, five successful editions with more than 130 startups accelerated, 65 corporate venture clients, and over 200 projects developed.
- **Gauzatu Industria:** This programme supports the promotion of industrial SMEs with a technological and/or innovative base, with the aim of increasing their impact on the technological development and innovation that takes place in the Basque Country. This way, the initiative aims to increase the competitiveness of the economic fabric, promoting productivity and job creation in Basque companies. For this initiative, 28Mio€ are ready for the creation and development of Technology-Based and/or Innovative SMEs.
- **Industria Digitala:** This programme is intended to promote industrial and service companies for industry in the Basque Country, providing them with the resources and personalized advice necessary to increase their competitiveness through the implementation of digital and sustainable technologies that allow them to develop competitive advantages to improve their positioning in the market.
- **Industrial Cybersecurity:** The initiative provides cybersecurity grants aimed at strengthening industrial and service companies against cyberattacks and theft of sensitive information with the help of specialized providers. For these reasons, and to guarantee cybersecurity and the competitiveness of the industrial sector in the Basque Country, the Industrial Cybersecurity Programme offers non-refundable grants of up to €18,000 per year per company.
- **Ekintzaile:** This program offers a comprehensive and flexible support tailored to startup's needs, so that the viability of innovative solutions and ideas can be validated. The programme considers also support to start up projects of innovative companies and grow successfully in the market, facilitating access to initial financing and especially to that of long term that the project requires for its consolidation. The BICs (Business Innovation Center) will supervise the project, acting as facilitators in the process of creating new innovative or technology-based startup, which should preferably be of an Industrial nature or related services. In this way, the BICs are the gateway to the Basque entrepreneurial ecosystem and stimulate interaction with the business fabric of each territory.
- **Renove Maquinaria 4.0:** This programme seeks to promote investments in new machinery and advanced equipment, both hardware and software, with the aim of modernizing industrial environments so that they can face or address Industry 4.0 projects within the scope of advanced manufacturing. To this end, this program adopts the modality of non-refundable subsidies and has a fund of 5Mio€ for Industrial SMEs and services linked to industrial production, which require the acquisition of new machinery or software that allows to improve productivity and tackle projects framed in Industry 4.0.

## Outcomes, exportability, and highlights



Figure 21. 2021 BDIH - KONEXIO Programme Results

During 2020, up to 48 project proposals has been granted under KONEXIO, whereas 82 new projects were successfully applied for 2021. During 2021, above 50% of projects were located by the Additive Manufacturing Hub<sup>20</sup> and the Advanced Materials Hub<sup>21</sup>. The complete distribution of projects in 2021 is depicted in Figure 21.

In terms of engagement and results of the promotion campaigns carried out by BDIH, the demand activation process carried out through the audiovisual material has been well-valued by all SMEs. This can be a valuable exportation for other DIHs across Europe. Also, the funding initiatives supporting SMEs, apart from the KONEXIO programme, have shown to be valuable tools to foster digitalization of SMEs and industries in different domains, also facilitating the construction of an attractive and accessible digital ecosystem for companies.

In terms of networking and creating ecosystems beyond the local environment, BDIH has collaboration agreements with the following DIH across Europe: DIH Flanders MAKE (BE), Digital Innovation Hub Lombardia (IT), ARTES 4.0 (Advanced Robotics and enabling digital Technologies & Systems 4.0), Toscana (IT), DIHNAMIC Nouvelle-Aquitane (FR), Advanced Manufacturing Research Centre Of Wales (UK), VTT Smart Manufacturing Tampere (FI), TOSCANA X.0 (IT), Euroregional European Digital Innovation Hubs (DIHNAMIC, IRIS, BDIH in Aquitania, Navarra, and Euskadi). The impact and attractiveness of these collaborations for the customers BDIH is yet to be specified.

<sup>20</sup> Subsection of BDIH focused on additive manufacturing and 3D printing fields.

<sup>21</sup> Subsection of BDIH focused on the field of advanced materials.

### 3. DIH in the external ecosystem of DigiFed

Throughout the implementation of the DigiFed-project, several connections and collaborations have been built with DIHs outside of the DigiFed-consortium. In this section, the local ecosystem of these DIHs is presented and discussed. This analysis provides additional perspectives and examples of different DIH-ecosystems and their corresponding support initiatives, as well as their derived challenges.

#### 3.1. Diagnosis of the East Bavarian DIH-ecosystem and support initiatives

##### Introduction to the DIH-ecosystem

The overall ecosystem of eastern Bavaria is spatially dispersed across the two districts of Upper Palatinate and Lower Bavaria. Both districts share a border to the Czech Republic and have district overarching infrastructures in terms of networks and stakeholders. From the analysis performed by the RII, it can be observed that the industrial ecosystem of the region is committed to contributing to the digitalization of the industrial base of the East Bavaria, performing at the highest categories of the index in R&D expenditures in the business sector (Figure 16.b) and innovation expenditures by SMEs per person employed (Figure 16.c). At the same time, although the public sector does not contribute in the same volumes as the private sector, R&D expenditures (Figure 16.a) are at the top of the middle of the scoring range.

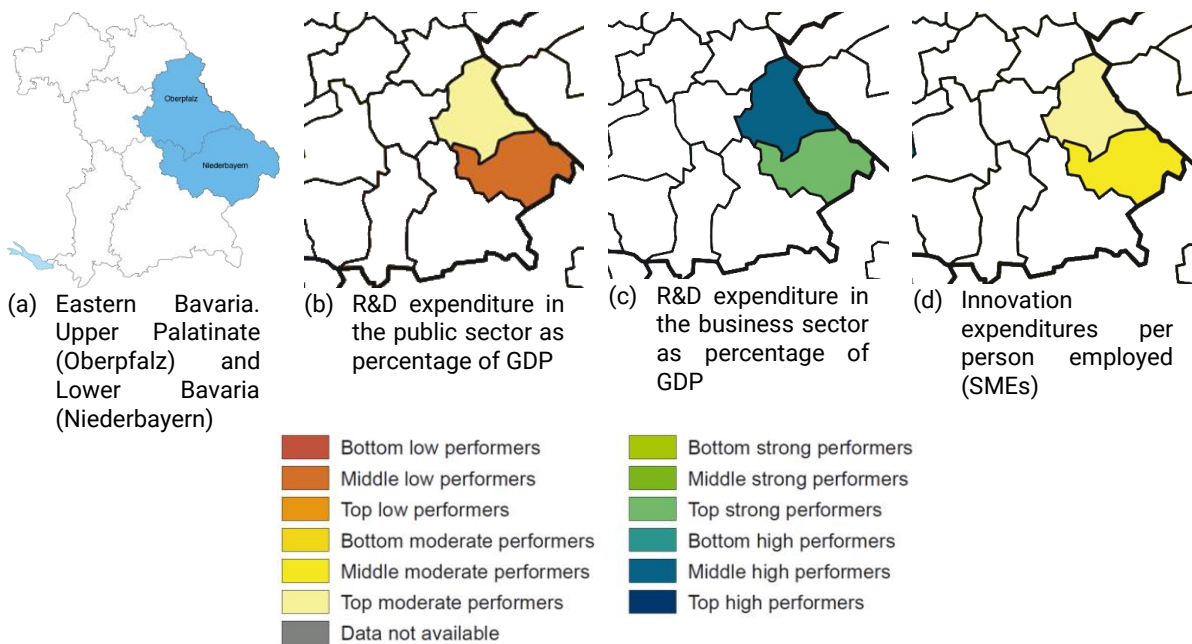


Figure 22. R&D and innovation expenditures in the East Bavaria region according to the RII.

##### Description of stakeholders and implications

Representing the industry, both the Chamber of Commerce as well as the Chamber of Crafts each have their defined radiuses spread across both districts. Additionally, both chambers are part of the German- and international-wide networks of chambers, which allows communication and exchange of ideas and know-how without borders.

The Chamber of Crafts in particular works intensively together with academia on enabling research and knowledge to benefit the local ecosystem of crafts businesses. The strong community, whose importance is historically founded within the region, can thereby use science laboratories, or finds areas to collaborate with locally situated research and education institutions.

In Lower Bavaria, the University of Passau is located directly at the Bavarian-Austrian Border, the Landshut University of Applied Sciences borders the region of Upper Bavaria, and the Deggendorf Institute of Technology is

rather centrally located within the district. The latter hosts over 13 research and technology campuses which are spread across Lower Bavaria as well as Upper Palatinate, thereby allowing close communication with the region and its actors.

Furthermore, Upper Palatinate hosts the University of Regensburg including several research institutes as well as the Ostbayerische Technische Hochschule, which is divided into two locations, one being Regensburg, the other being Amberg-Weiden, close to the Czech border.

Another important stakeholder in the Eastern Bavarian ecosystem are business incubators and overall networking institutions. While Upper Palatinate has its “Digitale Gründeroffensive Oberpfalz” which is spread across 4 different business incubators, Lower Bavaria inhabits the “Gründerzentrum Digitalisierung Niederbayern”, which also runs 4 different business incubators across the district.

As the border to the Czech Republic is very close and strategically important for the region, not only historically but also industrially and commercially, several cross-border institutions exist, that support the cooperation of academia, industry, and politics between the regions. The EUREGIO Bayerischer Wald–Böhmerwald–Unterer Inn e.V. can be named as the most active and biggest network support in this regard. They act as intermediators, enabling a Czech-German network of partners and cooperation.

Very important for the region is the large dispersion of all named actors across the two districts and within the region’s landscape. To this day, the project region of Eastern Bavaria is characterized by peripheral and rural areas and is one of the regions with greatest distance to existing DIHs. The economic situation in Eastern Bavaria is dominated by a small and medium-size corporate culture with a strong role of traditional craft business, e.g. the HWK Lower Bavaria & Upper Palatinate is the third largest chamber of handicrafts in Germany. The manufacturing industry, automotive supplier industry, production, and automation technology companies as well as the building trade and construction industry are dominant industries<sup>22</sup>. Agriculture and forestry are also relevant sectors in terms of land use. In addition, a culture of innovation is well-established, and hidden champions have emerged in various of the above branches and economic sectors, e.g. Thomas Krenn AG -server systems, Micro Epsilon -sensor technology, IB Optics -precision optics. small and medium-size corporate culture with a strong role of traditional craft business, e.g. Research Gate, Mymuesli, wuidi, Scarabot, easy2parts, Technagon, among others.

## Conclusions and summary

Summarizing the rural and dispersed setting of the region, including the dispersion of the ecosystem and its actors, results in a lack of overarching institutional setting or networks that enables a good communication and distribution of activities across the border region. Interested parties can participate in a variety of networking and academic events, but the sheer number of activities is not well coordinated across space. An (E)DIH, as it does not yet exist within the region, would be the perfect possibility for bundling and coordinating all existing activities to be as beneficial as possible to the local and over-regional community.

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<sup>22</sup> Further information on the Eastern Bavaria region can be found in: [coris-online.de](https://coris-online.de)

## 3.2. Diagnosis of the Thessaly region DIH-ecosystem and support initiatives

### Introduction to the Thessaly DIH-ecosystem

The Greek DIH-ecosystem is constituted by 10 fully operational DIHs and five DIHs in preparation, in addition to 15 EDIH-applications. In the case of the Thessaly region, only one DIH is operational, i.e. Institute of Entrepreneurship Development (IED)<sup>23</sup>, and four EDIH applications can be found.

When reviewing some of the metrics and analysis provided by the RII, it is observed that efforts have been undertaken to push innovation (Figure 23.c) and R&D development by the public sector (Figure 23.a). The latter is however not mirror in the private sector (Figure 23.b), which leads to the conclusion that the priority of the region is technology transfer rather than technological development. These features may also reveal niches of action for DIHs, as well as priorities for services that may be more attractive for SMEs.

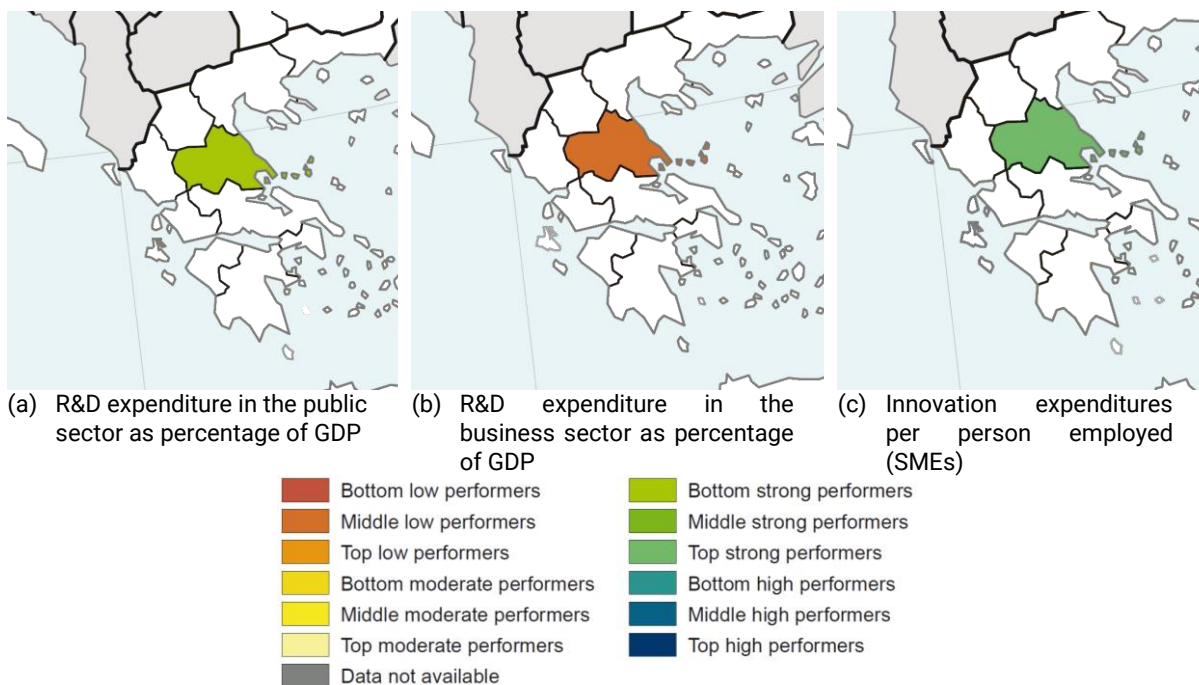


Figure 23. R&D and innovation expenditures in the Thessaly region according to the RII

### Description of the Thessaly ecosystem and DIH-support network

DIHs across Greece have not emerged as a result of any specific public initiative. Furthermore, the region of Thessaly, as other regions in Greece, does not enjoy structured support or initiatives from the government to foster the operation and consolidation of existing DIHs. Nevertheless, collaboration between existing DIHs, including other structures, has emerged organically.

The main supporters of all relevant actions related to foster digitalization and innovation, both at a national and regional level, are the Ministry of Development and Investment and the Ministry of Digital Governance. The first Innovation District is currently being constructed in Athens, which will host large enterprises, academic institutions, startups, and startup incubators/accelerators, facilitating a thriving ecosystem. The aim is to enhance innovation and entrepreneurship at national, European, and international levels. Within the region of Thessaly, the existing hub, i.e. Health Hub<sup>24</sup>, has the support of the **regional Administration**, which also participates in the partnership of the hub. Although collaboration among actors at regional level exists, current synergies and collaborations are not as numerous and consolidated, particularly considering that the region is mostly rural and home to a significant

<sup>23</sup> <https://ied.eu/>

<sup>24</sup> <https://ied.eu/about/health-hub/>

number of factories, which creates niche opportunities to explore new pathways to digitalization of non-digitally matured companies.

In this regard however, it must be noticed that a significant number of the regional stakeholders does not want to invest time and money in digitalization or updating their business processes. It has been identified that their view is that *“the company operates fruitfully under the current conditions”*. This implies that a shift in mindset is required, including not only the benefits of innovation and digitalization, but also the dangers of not innovating and losing competitiveness. Moreover, although support mechanisms exist at a regional level and can be considered averagely matured, SMEs are not familiar with the concept of DIHs, and certainly do not have wider knowledge on the services and opportunities provided by the single regional DIH. In this regard, although an overall shift has been observed in direct relation to the large promotion of the EDIH-call, the lack of necessary information for SMEs and innovators regarding the benefits of engaging with DIHs remain an obstacle for successful service delivery. Hence, targeted efforts should be developed to address this issue, such that the impact of DIHs and increase in digitalization of SMEs in the region may improve.

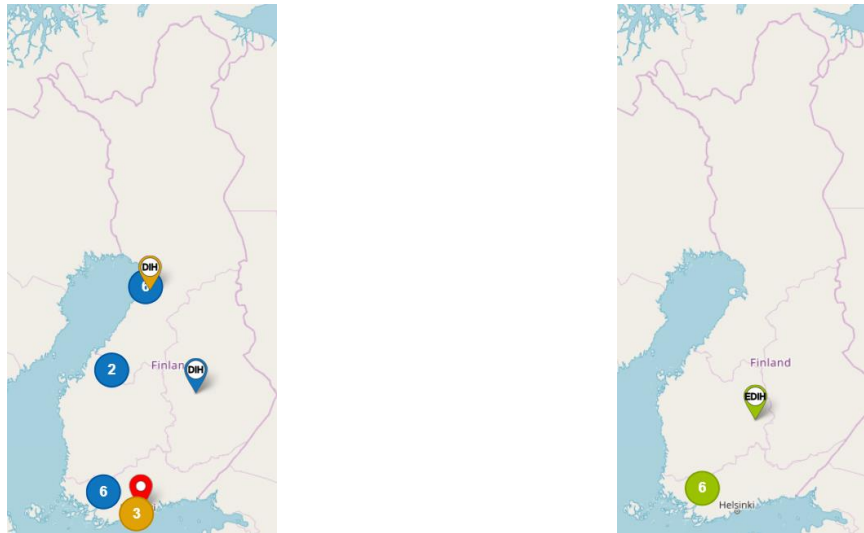
The single DIH in Thessaly has been established under the private actions and initiative of its parent institution, namely iED, and thus carries its name. The DIH has identified some of the problems to achieve engagement with the base of SMEs, especially those not highly digitalized, and aims at rationalizing the importance of DIHs through the depiction of success cases of collaboration between SMEs and DIHs in other regions. For this, the DIH has built a robust ecosystem at a regional, national, and European level, in a completely independent manner, without assistance from public actors and authorities. Additional drivers of these ecosystem building activities and strategy have been the understanding of the value of establishing such links to a wider ecosystem and the potential benefits that these links may bring to SMEs and clients.

Regarding the ecosystem of iED, the DIH leads the Competence Centre “Pytheia”, which also focuses on the health field. The DIH itself considers a consortium of 26 legal entities, which also provides a reference of strategic stakeholders interested or actively collaborating to develop and implement DIH-services in the region: three public bodies, eight university departments and laboratories, six RTOs, three healthcare providers, and six business support organizations.

### 3.3. Diagnosis of the Finnish-DIH ecosystem and support initiatives

#### Introduction to the Finnish DIH-ecosystem

The Finnish-DIH ecosystem is constituted by 15 DIHs, including four DIHs in preparation, and seven EDIH-applications (Figure 24), according to the Smart Specialization Strategy DIH-Catalogue.



(a) DIH and candidate DIHs in Finland

(b) EDIH applicants in Finland

Figure 24. Distribution of Finnish DIHs and EDIH applicants across Finland

DIHs in Finland can be considered as multi-actor ecosystems, that support companies, particularly SMEs, in their digital transformation by providing a broad variety of services, effectively operating as a one-stop shop for specific technological fields. These DIHs have been established in different Finnish regions with a very strong service and industrial tradition in specific domains, such as transport, manufacturing, care, energy, process industry, and digital platforms. Thus, these local strengths are actively utilized and further fostered by the corresponding DIH operation, e.g. manufacturing industry in Tampere, marine sector in Western Finland, or renewability of electronics industry in Oulu region. Although most of the currently operational DIHs have been awarded H2020 funding, no major change in their operation has been observed. Thus, pointing to an already successful management and service provision of the DIHs to their local ecosystem.

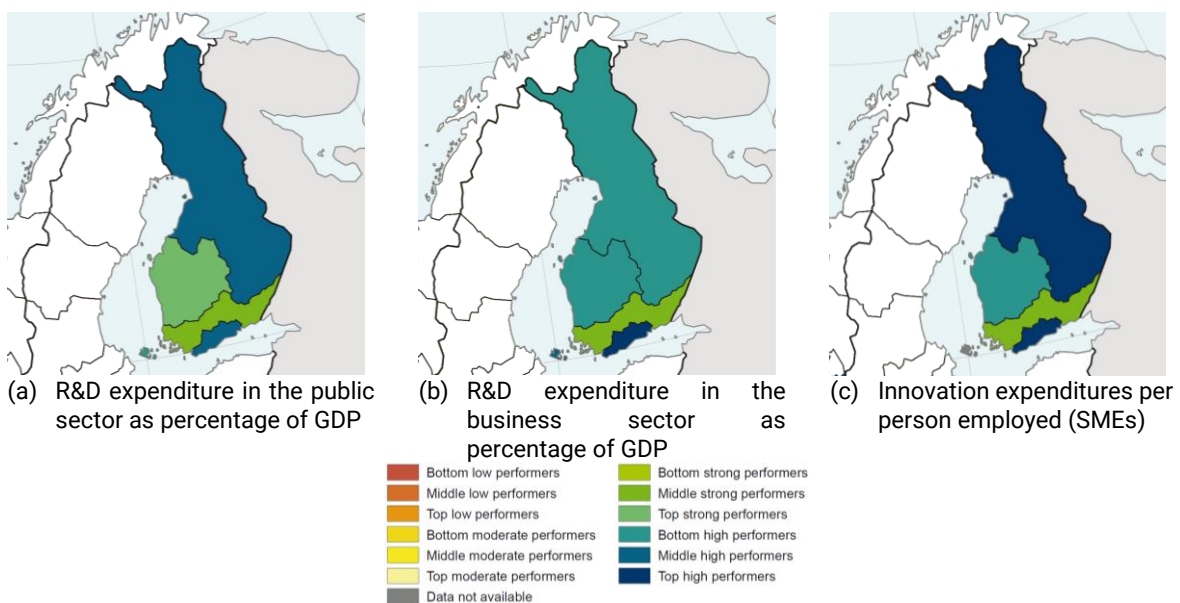


Figure 25. R&D and innovation expenditures in the Finnish region according to the RII.

From the perspective of DIHs, these results are very relevant, since they show that SMEs are actively involved in knowledge creation and their transfer into the market. Regarding bringing these innovations into larger markets, cross-border collaboration with foreign innovative SMEs may also be promoted by specific DIH-services or structures. Comparing all figures under Figure 25 leads to the conclusion that very suitable conditions exist for fostering the development and consolidation of structures that support the transition to digitalization, e.g. DIHs, in the Finnish ecosystem, since from a public and private perspective, a strong involvement and value is given to R&D and transfer of technology into innovation. It is worth noting also, that these figures may also be affected to specific fields of application, where collaboration may only be possible between highly innovative SMEs.

## Overview of strategic stakeholders in the Finnish DIH-ecosystem

Although DIHs in Finland have not emerged as a result of a specific national or regional policy or initiative (there has not been one yet), they have been notably successful in establishing themselves, achieving operational sustainability, and thriving. These structures have emerged organically from the efforts of regional stakeholders in different parts of the country. A possible reason for this is that Finnish SMEs and universities/RTOs have a long tradition of collaborating to develop innovations and products/services based on scientific output produced at the latter. Moreover, this semi-regional collaboration between industry and academy has been successful at achieving fruitful knowledge transfer, creation of innovations, and provision of valuable DIH-services to SMEs. This baseline provides a solid foundation for considering a more sophisticated and interconnected national DIH-ecosystem. In addition, other structures that also emerged to foster technology transfer and acceleration have transitioned into DIHs to answer specific needs of their regional environment, e.g. the Finnish Center for Artificial Intelligence, which also has produced its own EDIH bid with the Finnish AI Region application<sup>25</sup>.

From a policy perspective, the main stakeholder of the Finnish DIH-ecosystem is the Ministry of Economic Affairs and Employment of Finland. Although the Ministry has not put forward a comprehensive strategy or initiative to support the development of DIHs, it has been involved in discussions and has provided overall perspectives on how the DIH in Finland should operate. The institution endorses the vision that Finnish-DIHs should base themselves on their local expertise and exploit it, while at the same time providing service to the whole nation. In other words, Finnish-DIHs should be considered as structures that operate at a national level, which are located in the regions that have the strongest expertise on any given area, e.g. the Finnish-DIHs focused on advanced manufacturing should be physically established in the Finnish region where the expertise on this topic is the strongest and provide service to the whole country. This concept should, according to the Ministry, effectively connect regional expertise with a national pool of interested stakeholders.

Additional stakeholders include institutes of applied research and RTOs, e.g. Tamlink, VTT, Satakunta University of Applied Sciences, Tampere University, the City of Helsinki (coordinator of FAIR), University of Turku, etc., among many others. Finally, Business Finland is also considered a strategic stakeholder in the Finnish DIH-ecosystem. This stakeholder provides support from a financial perspective for the development of suitable structures and programmes to improve financing of SMEs, facilitating their access to European markets, and in general further support their increase in productivity through the digitalization of their services.

## DIH-Ecosystem diagnosis and requirements

The Finnish-DIH ecosystem has been notably successful in establishing itself and succeed in providing services to SMEs and fostering their digitalization, regardless of the fact that no formal initiatives to support DIHs has been put forward by policy makers and/or governmental institutions. This has enabled the identification of several areas where support from such institutions may drastically improve the impacts and results of the Finnish-DIH activities.

Trust building with SMEs and local ecosystems remain a challenge for Finnish-DIHs. Moreover, achieving long-term collaboration with the SME and start-up ecosystems has also been identified as a challenge, particularly in the area of enhanced skills development and fostering participation in the different services and programmes developed by DIHs. In this context, the engagement with traditionally non-digital value chains and the bridging of existing gap in digitalization of such value chains has also been identified as a challenge for Finnish-DIHs. These challenges align

<sup>25</sup> <https://www.hel.fi/uutiset/en/kaupunginkanslia/artificial-intelligence-and-cutting-edge-technology-to-boost-smes?pd=v>



with the observations documented in several studies from the JRC<sup>262728</sup> as well as the ecosystem building activities organized by DigiFed.

There is a clear need for a structured approach to support collaboration and coordination at a regional and national level between Finnish-DIHs. This emerges from a need for effective exchange, learning, and sharing of experiences. Moreover, a need for coordinated and structured support for the exploration and understanding of complementarities between DIH-services to increase the effectiveness and impact of delivered services to SMEs has also been identified.

The lack of familiarity with the DIH concept within the scientific-, innovation-, and entrepreneurial-ecosystem has also been identified as relevant challenge and deterrent to further success and impact of DIHs-services and activities. This challenge could also be addressed through the development and implementation of structured support policies with targeted resources for the delivery and rationalizing of the opportunities and benefits that emerge from engaging with DIHs. This challenge has also been identified repeatedly during the DigiFed DIH-ecosystem activities.

An additional area of improvement is the connection and interaction with the EU-DIH ecosystem. In this context, policy-level initiatives as well as institutions could act as gateways and facilitate the access to new markets and customers in the European ecosystem. This is especially critical for SMEs that may have developed disruptive technologies but do not have the size or network to bring such innovations into new markets, and for companies that rely heavily on subcontracting and providing services to larger industries, which is the norm for Finnish SMEs.

When engaging with the wider EU-market, the Finnish-DIH ecosystem may offer research and knowledge in different areas, with a strong focus on expertise and application, derived from the strong connection between research and industry. Competencies on products and services are also a strong component of the Finnish-SME landscape, especially in fields such as artificial intelligence, data science and analysis, circular economy, etc. In this context, structured support and policy-level initiatives may dramatically increase the reach, success, and impact of the operations of Finnish-DIHs.

Finally, the commitment for long-term funding is essential for the development of long-term structures that will enable the provision and permanent support for SMEs to initiate and eventually galvanize their path to digitalization of their business processes. Nevertheless, only limited interest has been observed in the fostering of current operations or services towards an active DIH-target ecosystem.

## Recommendations

From the analysis and diagnose of the Finnish-DIH ecosystem as well as the overall support towards DIHs at a policy level, the main recommendation regards the development and implementation of a national strategy to coordinate and support in a structured and coherent manner the work, operation, and results of Finnish-DIHs. This strategy should meet the following requirements, which transpire from the previously mentioned challenges:

- The coordination of the DIH-ecosystem should not only be efficient and transparent, but also adaptable and permanently evolving, to maximize the impact of the entire DIH-ecosystem in Finland and Europe.
- The coordinating entity should be a neutral and impartial stakeholder selected through an open and transparent process, such that no direct competition between DIHs emerges, e.g. Business Finland.
- The strategy, and thus the coordinator of the ecosystem, should connect regional, national, European, and global needs, facilitating fruitful collaboration and complementarities between Finnish-DIHs within the nation, and also access of Finnish-SMEs in each of the regions to wider European and global markets.
- Potentiate the long-term targets of DIHs on their specific areas of expertise, such that Finnish competitiveness in the corresponding areas of application/technology is increased and Finnish SMEs may position the country and ecosystem as a global leader in these fields.
- As there are conflicting expectations for the DIHs in terms of local vs. global ambition level and scope, a certain flexibility in DIH development should be retained. For example, some DIHs could be more SME and skills-development focused while others could be more world-class-science orientated.
- From an overall perspective, the strategy should foster a clear and well-defined identity for Finnish-DIHs, potentiating the Finnish-perspective on the development and delivery of innovations and technological solutions to local digital challenges, as well as their scalation toward achieving an EU-wide impact.

<sup>26</sup> Putting Digital Innovation Hubs into Regional Context

<sup>27</sup> Digital Innovation Hubs in Smart Specialisation Strategies

<sup>28</sup> Place-Based Innovation Ecosystems

Similarly, this strategy should facilitate the provision of DIH-services to non-digitally savvy SMEs allowing them to retain the core aspects of their local/regional identity as “companies that provide services to a local set of customers”.

- The selection of DIHs by the coordinating entity should be based on clear, transparent, and quantifiable criteria, aimed at maximizing the impact of such DIHs. Moreover, the performance of DIHs should be measured and monitored. In this context, a suitable set of generalizable KPIs should be presented to properly capture and measure the performance of the individual DIHs and compare it to one another, as well as a set of domain/context specific KPIs which enable the capture of the specific regional and technological challenges addressed by the DIHs. Furthermore, KPIs that unveil the ability, results, and impact of the collaboration efforts of DIHs should also be proposed.
- DIHs should actively incorporate local actors, such as universities of applied sciences or vocational schools, such that their service provision is properly in tune with their local ecosystem. Strategies to achieve such involvement are yet to be defined.
- The Finnish-DIH network and overall ecosystem should be adaptable, flexible, and in permanent evolution to respond to the rapidly changing of customers in their respective fields. Such type of operation and collaboration should also be fostered by the coordinating entity of the DIH-network.
- In addition to a coordinating entity, overall long-term institutional support is essential for the sustainability of the DIHs and overall network. This support should go beyond financial contributions from national and regional/local authorities and agencies, but also include incentives for effective cooperation, information sharing, and development of complementary service offerings.

## 4. Lessons learnt and recommendations

**Public funding on Innovation is a key driver for industrial growth and competitiveness.** In this sense, it is relevant to notice that at regional and national levels some countries and regions are still cutting spending expenses on R&I<sup>29</sup>, which may translate in ineffective instruments to foster digitalization of SMEs. Moreover, some regions lack effective implementation mechanisms, and others with developed **National research and innovation systems tend to rely on EU structural funds to supplement domestic ones.**

The situation regarding policies that support innovation, and more particularly experimentation, still differs across Europe. **The transfer of research results to the market and closer collaboration between industry and research organizations still need to be promoted and support by transfer programmes** (e.g. Easytech) using for example a combination of financial incentives and supportive regulatory frameworks. This challenge also includes the implementation of effective measure to evaluate and monitor innovation projects. **The success story of the Easytech programme in Auvergne-Rhône-Alpes** shows the relevance of supporting companies in their digital transformation and the territorial and thematic extension that Easytech benefits from, make us believe in an extension in a European framework to develop a similar programme with several regions in Europe, particularly through the future EDIH (European Digital Innovation Hub) of which Minalogic and the CEA are main stakeholders.

In general, the situation regarding policies that support innovation, and more particularly DIHs are encouraging, although still need to be confirmed. Results will be also linked to the establishment of EDIHs, which foresees their complementary funding, from the European Commission and the Regional authorities, as stated by the EC *"The establishment of the network will be supported from the Digital Europe Programme"*.

To guarantee regional cooperation, it remains **crucial to better align National policies and implementation tools** with shared European priorities, applying the principle of trans-regional funding synergies, finding a satisfactory balance between competitive private and public funding. Different initiatives are being promoted by the European Commission, triggering potential cooperation on common or complementary thematic. First the Smart Specialization, based on the process in which Regional and National administrations identify activities to concentrate investments for knowledge-intensive growth. Then the EDIH, which aims to **develop specialization in applications and sectors** corresponding to existing regional strengths, needs to be fulfilled by pan-European collaboration.

DIHs can play several roles during the cycle of Smart Specialization Strategy (S3) processes; they can function as **co-designers or advisors of smart specialization, as a reference point providing information on both market and digitalization topics, facilitating or orchestrating multi-stakeholder collaboration**, taking the lead role for development of priority areas, developing roadmaps, while they can also act as an implementation tool for policy objectives in providing digitalization services.

Additional results of the diagnosis of the different ecosystem include:

- The **landscape of the DIHs** and their corresponding regions is remarkably **diverse**. This also includes the way in which DIHs are constituted in each region, e.g. public initiative, private initiative, private initiative with public support, etc. Nevertheless, several if not most of the DIHs are financed directly by public money or EU-funds in some capacity. This makes most DIHs vulnerable and mostly dependent on financial and access support from higher levels within the European hierarchy.
- There is a **clear need for further detailed information on how different ecosystems operate** regarding potential support to DIHs, the performance and impact that DIHs have achieved in their environment and success cases that may serve as inspiration. Only a few DIHs provided easy access to this information. This also extends to information about the financial requirements for the operation of their services.
- **Research and technology policies should capitalize** on existing well-established and long-term **collaboration** between science organizations and business enterprises at the least, and ideally also political decision-makers with commitment for increasing the competitiveness and efficiency of local companies through the digitalization of their business processes.
- It was observed that many initiatives do not directly contribute to DIH establishment, but rather aim at achieving and promoting a thriving ecosystem that is focused on technology advancement and innovation. The **existing of such initiatives facilitates the operation of DIHs and increase their potential impact**. Thus, their existence highly increases the chances of success of DIHs.

<sup>29</sup> Source: ERA progress report 2018: [https://ec.europa.eu/info/publications/era-progress-report-2018\\_en](https://ec.europa.eu/info/publications/era-progress-report-2018_en)

- **Rationalizing the benefits collaborating between companies and (E)DIHs remains one of the biggest challenges.** Companies tend to not understand the value of becoming a leading player or role-model. Moreover, companies have troubles assessing how they can increase and improve their productivity and connectedness by engaging with (E)DIHs. Hence, there is limited understanding about the benefits of collaboration. This issue makes increase the difficultness in gaining the support of local policy-makers and bridge the gaps between different European regions, thus creating value from a DIH-support system. This issue was transversal to all ecosystems, both in top innovation regions as well in lower innovation regions.
- DIHs can only facilitate but not completely modify the innovation ecosystem and local collaboration structures. The latter requires a long-term strategic view on innovation and digitalization, way beyond the scope of DIHs. In this regard, it was observed that even in thriving DIH-ecosystems, the lack of policy and institutional support creates a cap into the ability of DIHs to increase their impact and connect with larger ecosystems across Europe. Conversely, the existence of a very diverse set of stakeholders in the ecosystem, including a reduced number of high-profile R&D organizations is very positive and beneficial for the DIH-operation.
- **Designing and implementing clear ecosystem building strategies** is critical to engage with wide range of communities including academia, industry, innovators, and policy organizations. Moreover, designing a clear strategy to build mission-driven ecosystems for specific sectors or use cases is essential to give a clear focus and expected output from collaborations, rather than just be a *handshaking exercise*.
- It is essential that DIHs **achieve a proper balancing between regional priorities and national agenda.** DIHs that are potentially receiving funding from different public sources or have policy responsibilities to specific initiatives might be well-suited to answer a widespread set of challenges. Nevertheless, as organizations, DIHs might become overstretched and there is a risk that DIHs become EU-project dependent entities, rather than service-providing entities.
- Establishing **clear and achievable funding models to ensure sustainability** of innovation hubs and organization beyond public funding. In this regard, it was not clear whether all hubs have set up business models to increase their chances for financial sustainability without public funding support.
- Testbed and facilities need to be supported by adequate innovation funding to generate new use cases and value. This will facilitate the access to such infrastructure to SMEs.
- Relevant discrepancy can be observed between the highly populated regions and other non-well-connected ecosystems. For example, highly populated regions tend to have a very structured support initiatives by the state and internal ecosystem. Conversely, sparsely populated region tends to have to fight to produce and create innovators because of fragmented support initiatives and ecosystems. Moreover, typically these regions also need to fight the urge from innovators to flee to more competitive and commercially attractive ecosystem. The rural and dispersed setting of the region, including the dispersion of the ecosystem and its actors, results in a lack of overarching institutional setting or networks that enables a good communication and distribution of activities across the border region. Thus, there is an excellent opportunity to create DIH-like support structures in these regions.
- It was also observed that in some ecosystems a significant number of the regional stakeholders do not want to invest time and money in digitalization or updating their business processes. It has been identified that their view is that *"the company operates fruitfully under the current conditions"*. This implies that a **shift in mindset** is required, including not only the benefits of innovation and digitalization, but also the dangers of not innovating and loosing competitiveness.
- DIHs should actively **incorporate local actors**, such as universities of applied sciences or vocational schools, such that their service provision is properly in tune with their local ecosystem. Overall long-term institutional support is essential for the sustainability of the DIHs and overall network. In general, the lack of institutional support creates a cap on the ability of certain DIHs to grow and increase their impact. However, political support is by no means enough or necessary for their thrive. The key aspect is the ecosystem and non-policy related stakeholders, e.g. RTOs, universities, Unis, SMEs, etc. what drives the success of DIHs.

## 5. Annex

### 5.1. Local Liaison Event – Baden Württemberg 19/05/2022

#### **Overall outcomes of the workshop session**

*Participants were separated into four workgroups, including operative DIHs, non-DIHs, and EDIHS applicants, to exchange experiences regarding the support mechanisms toward DIHs in their ecosystems. Results of the workgroup discussion can be observed in*

**1 Initiatives to support DIH in your local and national ecosystem**

**⚠** Any national or regional programme that supports the goals of Digital Innovation Hubs; that is providing se consolidate their path to digitalization. If no initiatives can be identified in your region/country, then specify benefit from initiatives at a policy level and which should be the priorities to be addressed.

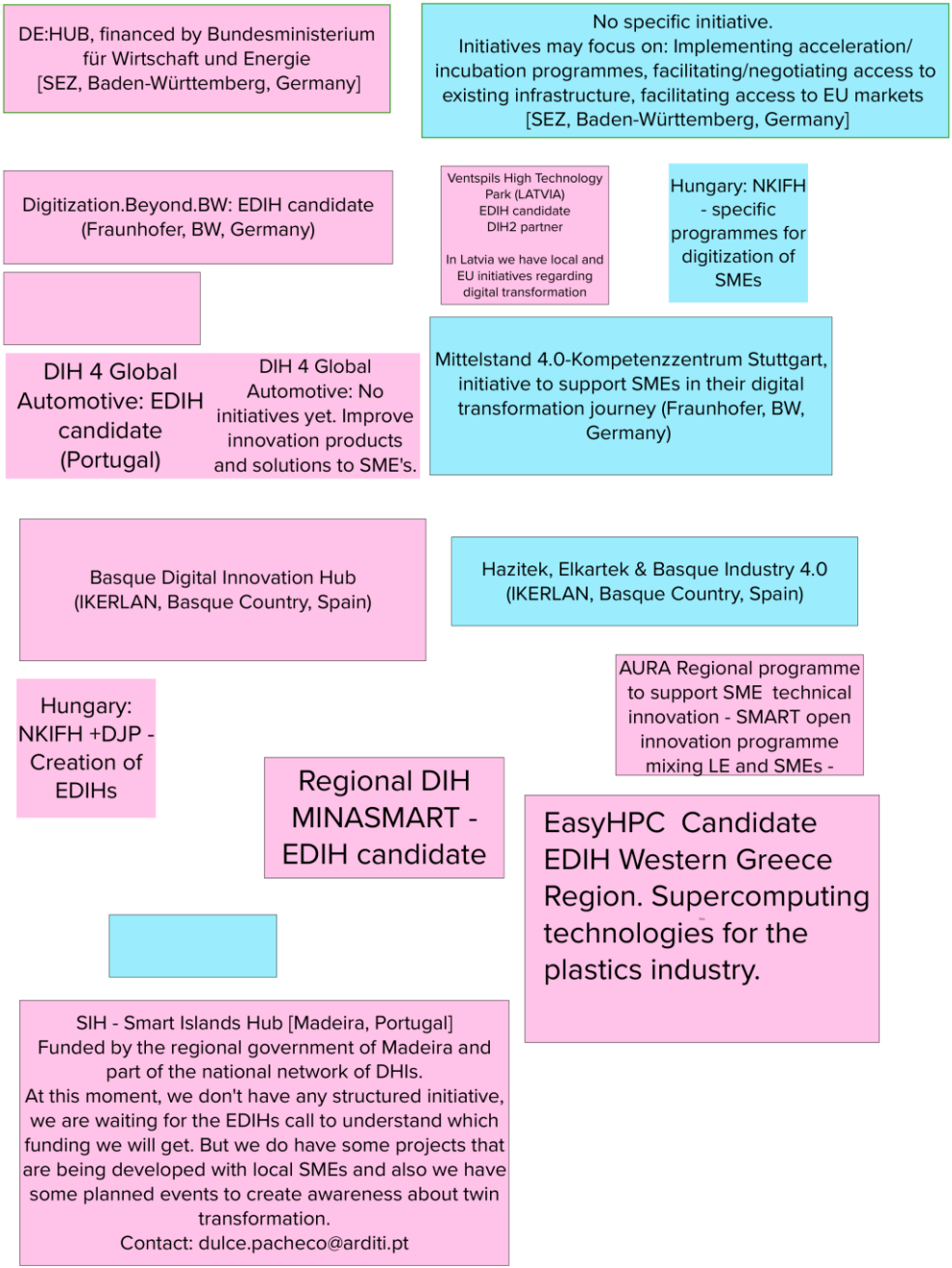


Figure 26,

Figure 29,

Figure 32, and Figure 35. In addition, a Collaboration Board was set up for participants to explore potential collaborations (Figure 38). For example, the **Global Cloud DIH Málaga, Spain** and the **MedHub1070 km** are both regional collaborative initiatives between specialize nodes in AI, Cybersecurity, Agriculture, Smart Cities, finance, and cloud technologies. Next to technological support, the Global Cloud DIH also offers “test-before-investing” opportunities through its Cloud Soft Lab and includes investment advice and training, to support regional companies in becoming scalable projects. MedHub 1070 km is an innovation platform and the largest alliance of

innovation ecosystems in Spain, including the participation of specialized digitalization centers in seven Mediterranean provinces: Majorca, Castellon, Valencia, Alicante, Murcia, Malaga & Ceuta. The brand 1070km Hub refers to the distance in kilometers which separate both Corridor ends and its activities span from the development and consolidation of business projects, especially those relating to artificial intelligence, the Internet of Things, cybersecurity, cloud computing and clean energies.

Both, Cloud and MedHub receive support from the European Institute of Digital Transformation in Málaga and are financed by the regional and national funds together with the EU allocation.

The **DIH Hhub4Industry** in **Kraków, Poland**, financed by Polish Ministry of Development, Work & Technology is supported by the LifeScience Cluster Kraków and is primarily addressed to companies based in Southern Poland. It has a broad range of services necessary for evolving into factories of the future in such areas as 5G technology, IIoT, smart robotisation, AR, VR, BIM and many other technological areas.

Other participants, e.g. Ilfov County / Bucharest stated that there is no initiative they are aware of in their region. Participation in DIH networks is mainly done by EU-funded projects and local political support for regional DIH support systems is still lacking. EDIH applicants stated that they plan to build-up a wider DIH support system involving European collaborations.

Regarding outcomes and results as well as lessons' learnt and exportable results of the collected initiatives participants emphasized the different mentalities across regions, which hinder to convince policy-makers as well as SMEs. However there is desire for regional and European Hubs to be coordinated on European level, which is believed to be helpful for promoting technology transfer to specific domains across Europe.

SMEs need to be made aware of opportunities DIHs can offer, however on regional level it needs to be ensured that money received is spent correctly on part of European governments. The event was seen as a good example to study DIHs more systematically and to understand the peculiarities of participating DIHs; while some seem to focus on specific industry applications, some focus on "everything". It is essential to understand what has been done and can still be done in other regions that still want to build up a network of DIHs; each region can enhance each other.

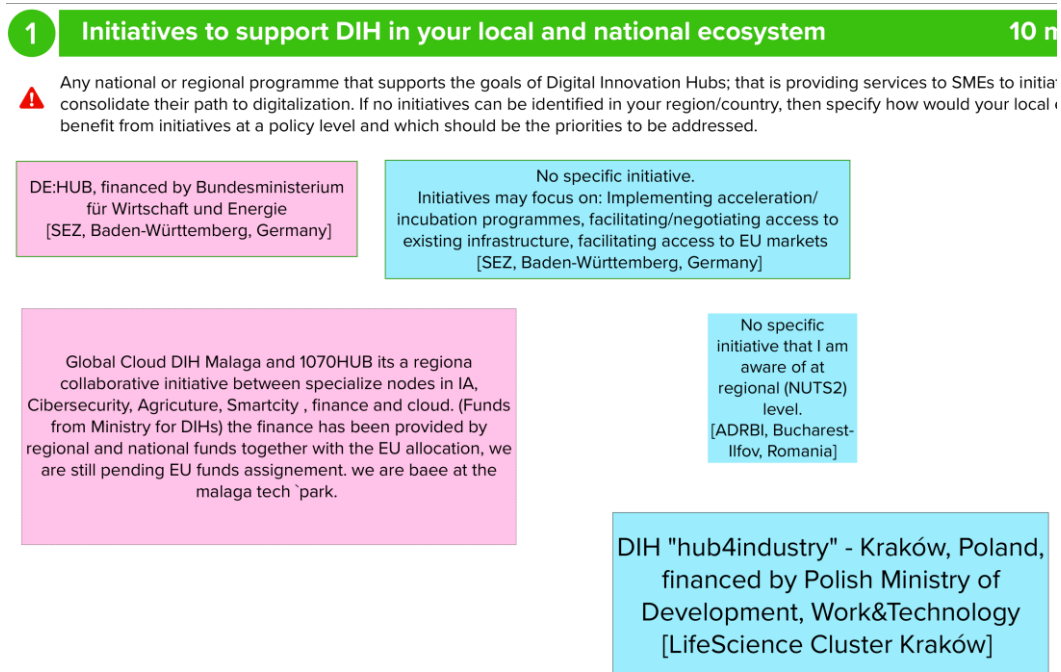


Figure 26. Results Workgroup 1 Local Liaison Event BW (1)

## 2 Outcomes and results of each initiative

⚠️ Concrete outcomes and results produced by the initiatives identified in Section 1, e.g. a test by acceleration programme was developed, a new DIH was established, etc. If no initiatives were identified, the concrete outcomes of the activities that your organization/structure undertakes, particularly

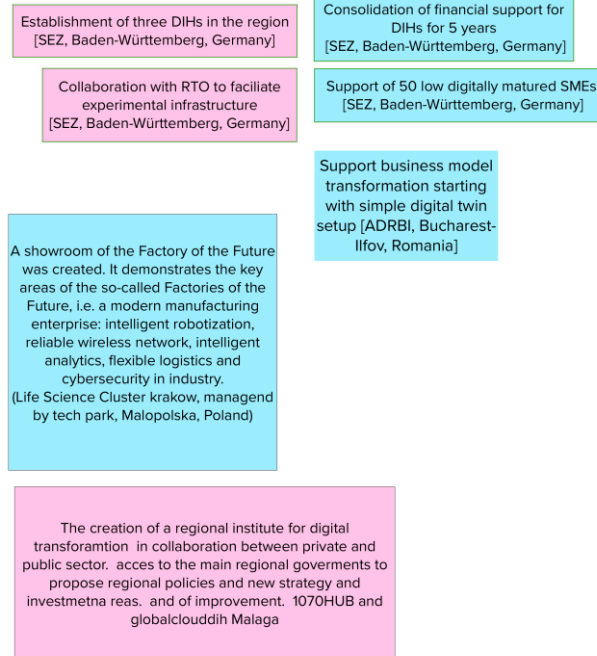


Figure 27. Results Workgroup 1 Local Liaison Event BW (2)

## 3 Lessons learnt and exportable results

⚠️ Explain the main challenges emerged from the implementation of the initiatives in Section 2 produced by those initiatives (Section 2). How can these experiences be exported and implemented?

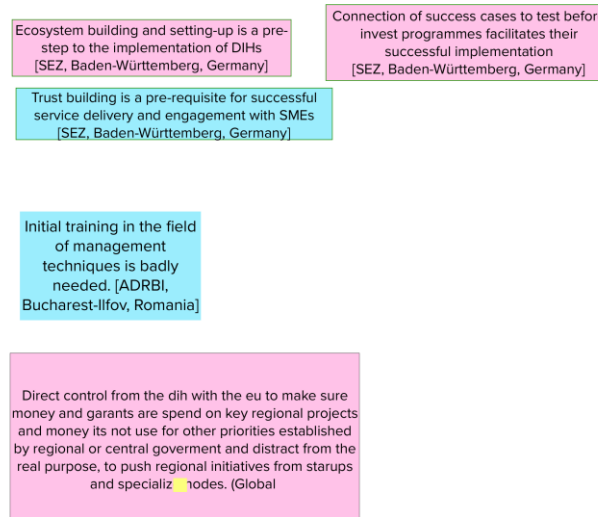


Figure 28. Results Workgroup 1 Local Liaison Event BW (3)



# 1 Initiatives to support DIH in your local and national ecosystem

**⚠** Any national or regional programme that supports the goals of Digital Innovation Hubs; that is providing se consolidate their path to digitalization. If no initiatives can be identified in your region/country, then specify benefit from initiatives at a policy level and which should be the priorities to be addressed.

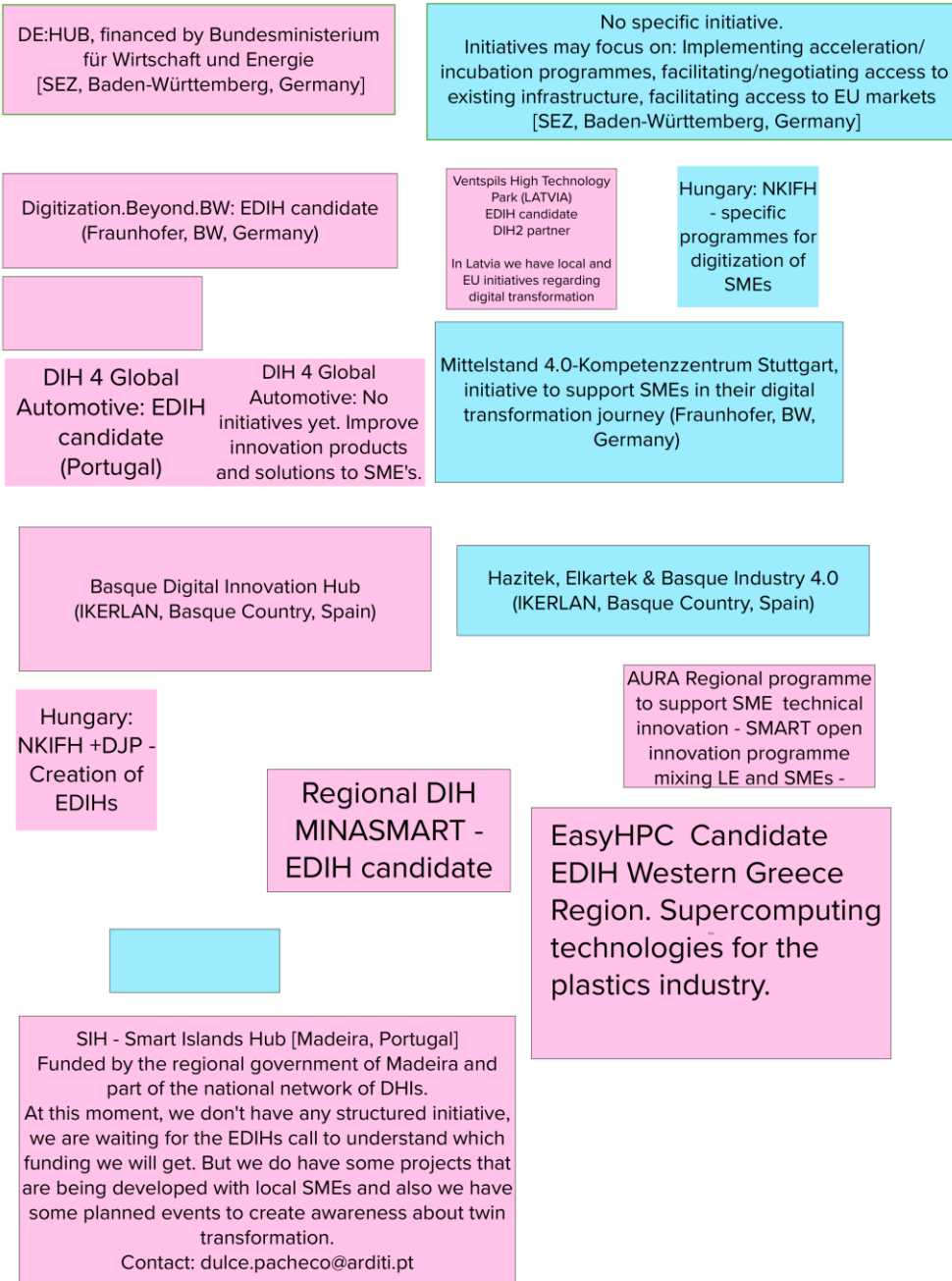


Figure 29. Results Workgroup 2 Local Liaison Event BW (1)

## 2 Outcomes and results of each initiative

**A** Concrete outcomes and results produced by the initiatives identified in Section 1, e.g. a test before invest facility was accelerated, a programme was developed, a new DIH was established, etc. If no initiatives were identified in Section 1, the concrete outcomes of the activities that your organization/structure undertakes, particularly their effects on SMEs

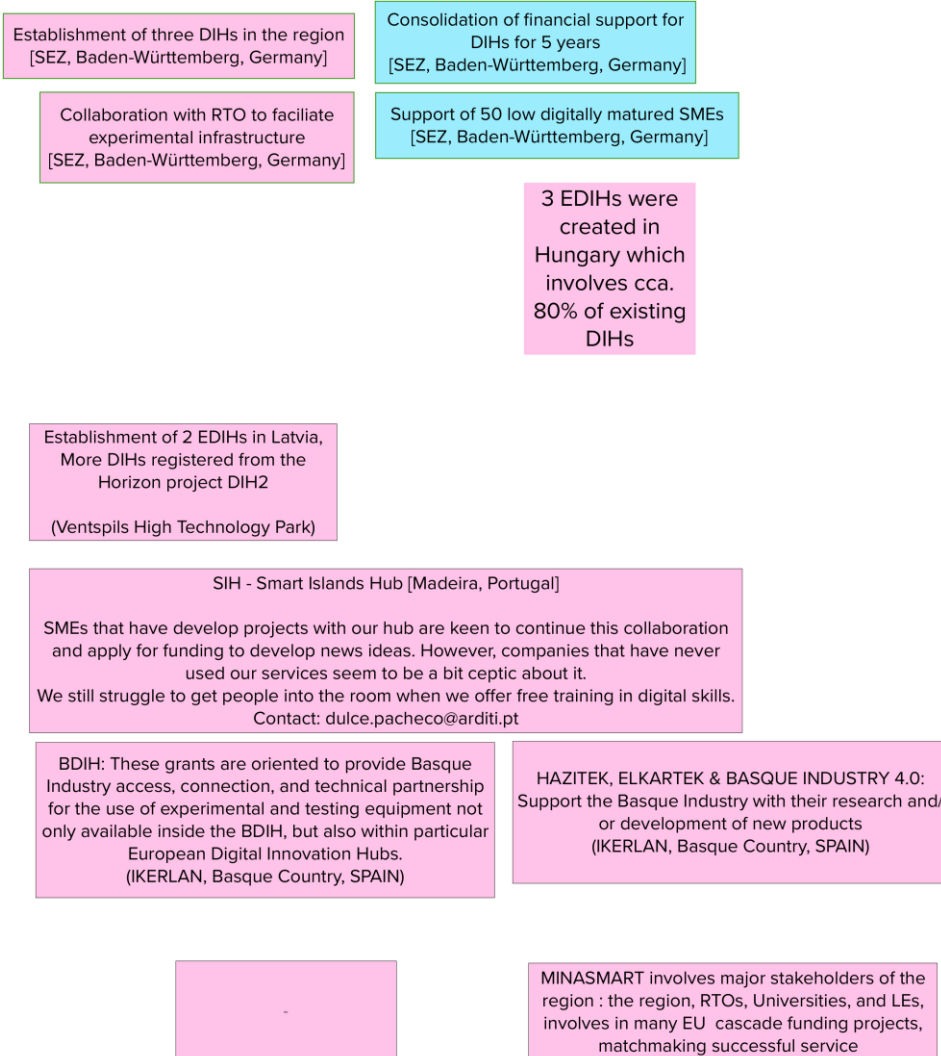


Figure 30. Results Workgroup 2 Local Liaison Event BW (2)

**3 Lessons learnt and exportable results 20 mins.**

**▲** Explain the main challenges emerged from the implementation of the initiatives in Section 2 and the lessons learnt from the outcomes produced by those initiatives (Section 3). How can these experiences be exported and implemented into other ecosystems?

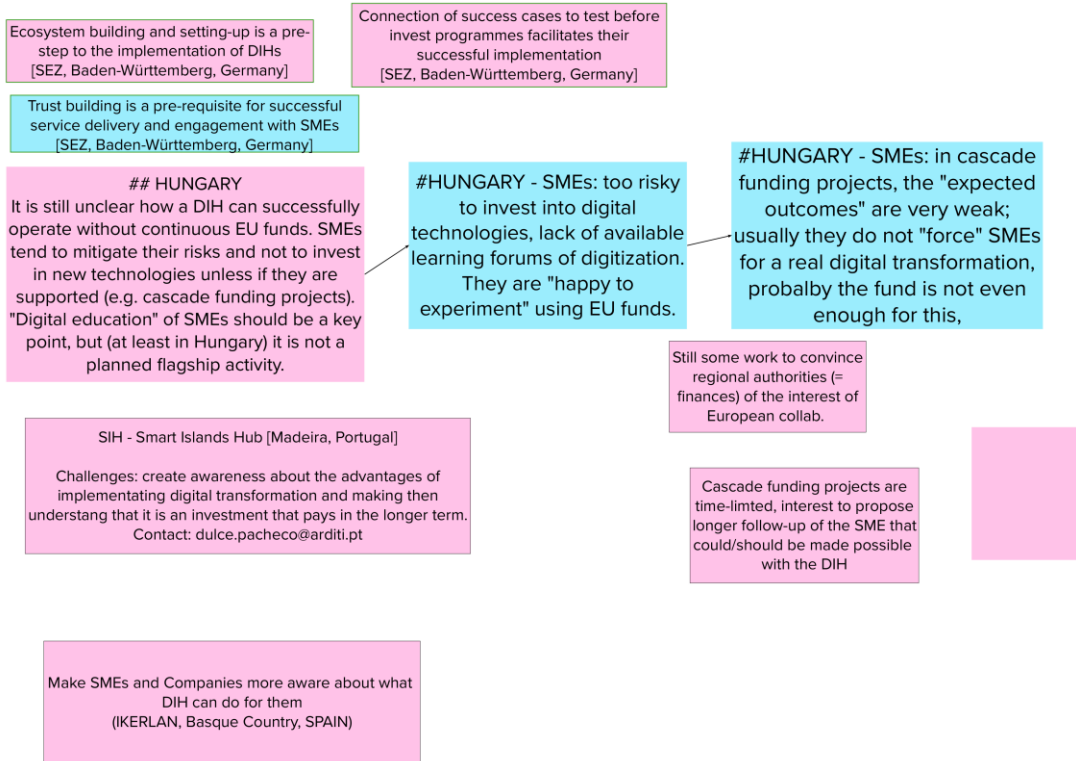


Figure 31. Results Workgroup 2 Local Liaison Event BW (3)

**1 Initiatives to support DIH in your local and national ecosystem**

**⚠** Any national or regional programme that supports the goals of Digital Innovation Hubs; that is providing services to SMEs consolidate their path to digitalization. If no initiatives can be identified in your region/country, then specify how would you benefit from initiatives at a policy level and which should be the priorities to be addressed.

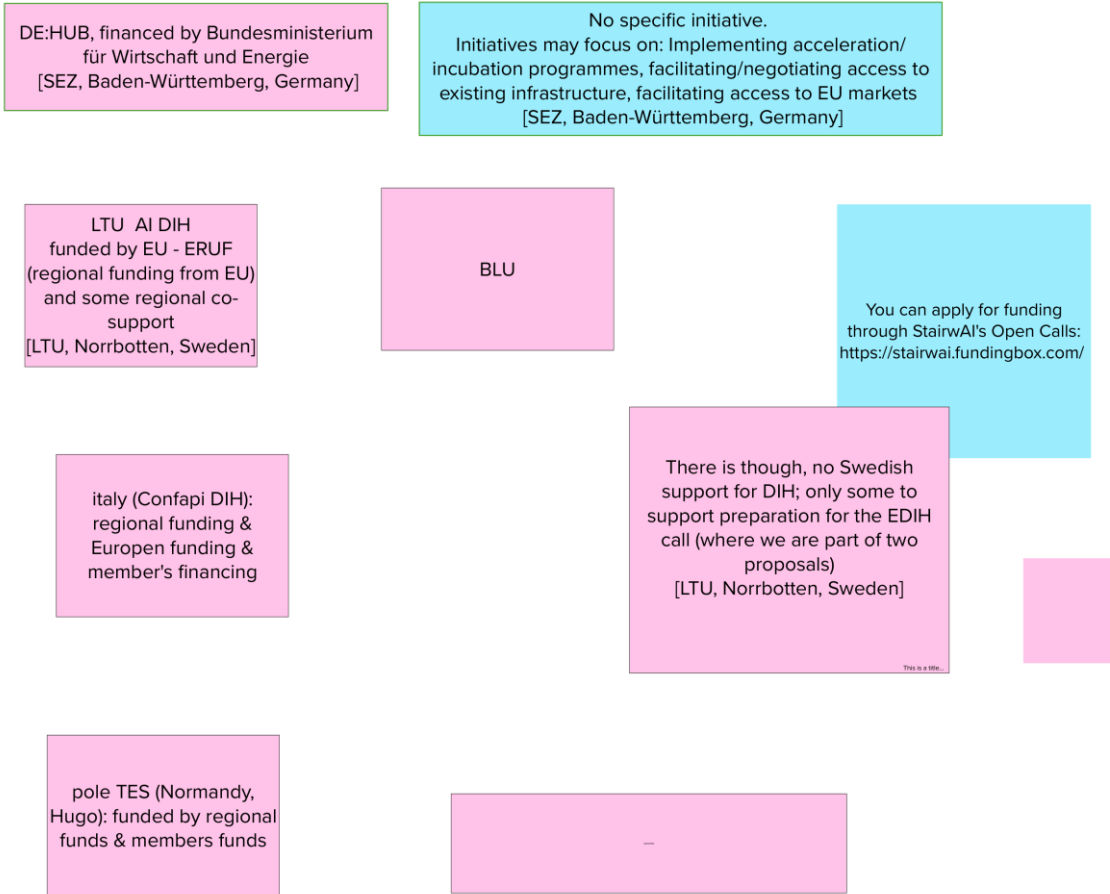



Figure 32. Results Workgroup 3 Local Liaison Event BW (1)

## 2 Outcomes and results of each initiative

 Concrete outcomes and results produced by the initiatives identified in Section 1, e.g. a test before accelerator programme was developed, a new DIH was established, etc. If no initiatives were identified the concrete outcomes of the activities that your organization/structure undertakes, particularly the

Establishment of three DIHs in the region  
[SEZ, Baden-Württemberg, Germany]

Consolidation of financial support for  
DIHs for 5 years  
[SEZ, Baden-Württemberg, Germany]

Collaboration with RTO to facilitate  
experimental infrastructure  
[SEZ, Baden-Württemberg, Germany]

Support of 50 low digitally matured SMEs  
[SEZ, Baden-Württemberg, Germany]

Assessments for digitalisation opportunities,  
workshops, guidelines for digitalisation, skillslabs,  
webinars, masterclasses, networking events,  
access to solution providers.  
[SIH-North, The Netherlands]

Isabelle (IT):  
events organisation  
training (design training, train or connect  
with relevant trainers/experts)

test before invest for machine learning on  
GPU cluster and there were 12 successful  
SME  
we are hosting webinars on machine  
learning and data science  
training courses and online courses  
(Norbotten)  
<https://aidih.se/>

Pole TES:  
project facilitation, matchmaking  
events on different digitalisation issues  
no technical services, rather

Figure 33. Results Workgroup 3 Local Liaison Event BW (2)

### 3 Lessons learnt and exportable results

⚠ Explain the main challenges emerged from the implementation of the initiatives in Section 1 and the lessons learnt produced by those initiatives (Section 2). How can these experiences be exported and implemented into other ecos:

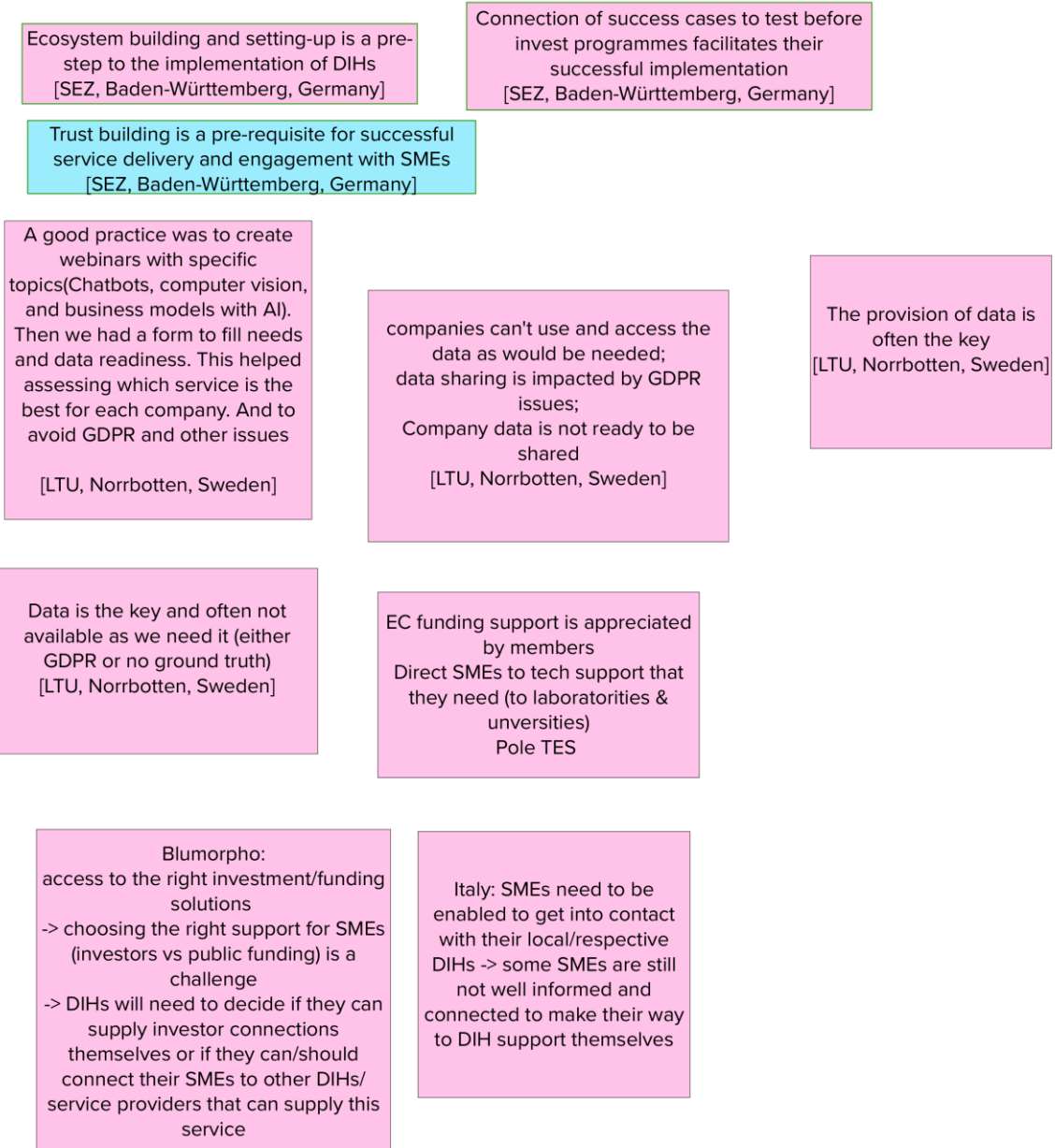


Figure 34. Results Workgroup 3 Local Liaison Event BW (3)

**1 Initiatives to support DIH in your local and national ecosystem 10 mins.**



**⚠** Any national or regional programme that supports the goals of Digital Innovation Hubs; that is providing services to SMEs to initiate and/or consolidate their path to digitalization. If no initiatives can be identified in your region/country, then specify how would your local ecosystem benefit from initiatives at a policy level and which should be the priorities to be addressed.

<p>DE:HUB, financed by Bundesministerium für Wirtschaft und Energie [SEZ, Baden-Württemberg, Germany]</p>	<p>No specific initiative. Initiatives may focus on: Implementing acceleration/incubation programmes, facilitating/negotiating access to existing infrastructure, facilitating access to EU markets [SEZ, Baden-Württemberg, Germany]</p>	<p>10 Digital Hubs BW supported by BW ministry SEZ, BW., Germany)</p>	<p>Allianz I4.0 BW, SEZ, BW., Germany)</p>	<p>Initiative Wirtschaft 4.0 SEZ, BW., Germany)</p>
<p>We are supported and financed by Region Grand Est (France) for the setting up and management of a regional network of competencies to accelerate digital transition (innovation, training, funding, networking). We coordinate the project EDIH submitted to the EC in February 2022- we receive support from ERDF</p>	<p>In Grand Est the other DIH initiative has been integrated in the EDIH proposal</p>	<p>In Grand Est we are interested by other programs as the I3 that could be linked to EDIH</p>		
<p>Horizon Europe cascade funding programs are of critical importance to connect our DIH with European network, skills and engage local ecosystem innomine DIH, Central Hungary (HU1, HU11, HU12), Southern Transdanubia (HU23), Hungary</p>	<p>in GRAND EST we have the support of the french general directorate for enterprises DGE</p>	<p>Support with addressing local / regional political bodies to roll-out our services in rural areas, where about 80% of the industry in Baden-Württemberg is located. [innoWert Walldorf, Digital Hub Kurpfalz@BW &amp; HubWerk01 (Digital Hub Bruchsal, BW, Germany)]</p>	<p>We are not financed by any national or regional programme, but we are in Enterprise Europe Network, financed by EISMEA. We coordinate the project EDIH called CETMA-DIHSME. [CETMA, Apulia, Italy]</p>	
<p>EDIH LIVINGTRAC, Greece, <a href="https://scan.di.uoa.gr/livingtrac/">https://scan.di.uoa.gr/livingtrac/</a> we have been selected at National level, expecting the EU evaluation results. We would like to consider the onboarding procedure of partnering organizations and entities, depending on the EU evaluation results. We are concerned on the issues of cascade funding and avoiding double funding of related activities (the handling of such cases).</p>	<p>Local relationships with chamber of commerce, municipalities, key industry stakeholders supports our efforts to engage local SMEs and support them in their digital transformation journeys. These are key tactics to create a trusted relationship with local SMEs. innomine DIH, Central Hungary (HU1, HU11, HU12), Southern Transdanubia (HU23), Hungary</p>	<p>we are the executive arm of by the Ministry of Digital Governance. We implement projects on its behalf targeting Digital Transformation of Public Sector in Greece. Besides we are also supported by it with regards to the own contribution need for the Digital Europe, Horizonta 2020 Programmes etc (GRNET,</p>		
<p>There is lack of capital at SME level in Hungary to support the digital transition and very few national programs -&gt; it would be important to deliver the message to national policy makers about the importance of SME digitization programs from EU fund (MFF, RRF) innomine DIH, Central Hungary (HU1, HU11, HU12), Southern Transdanubia (HU23), Hungary</p>				

Figure 35. Results Workgroup 4 Local Liaison Event BW (1)

**2 Outcomes and results of each initiative 20 mins.**

**A** Concrete outcomes and results produced by the initiatives identified in Section 1, e.g. a test before invest facility was implemented, a new acceleratin programme was developed, a new DIH was established, etc. If no initiatives were identified in Section 1 then specify what have been the concrete outcomes of the activities that your organization/structure undertakes, particularly their effects on SMEs



Figure 36. Results Workgroup 4 Local Liaison Event BW (2)



**3 Lessons learnt and exportable results 20 mins.**

⚠ Explain the main challenges emerged from the implementation of the initiatives in Section 1 and the lessons learnt from the outcomes produced by those initiatives (Section 2). How can these experiences be exported and implemented into other ecosystems?

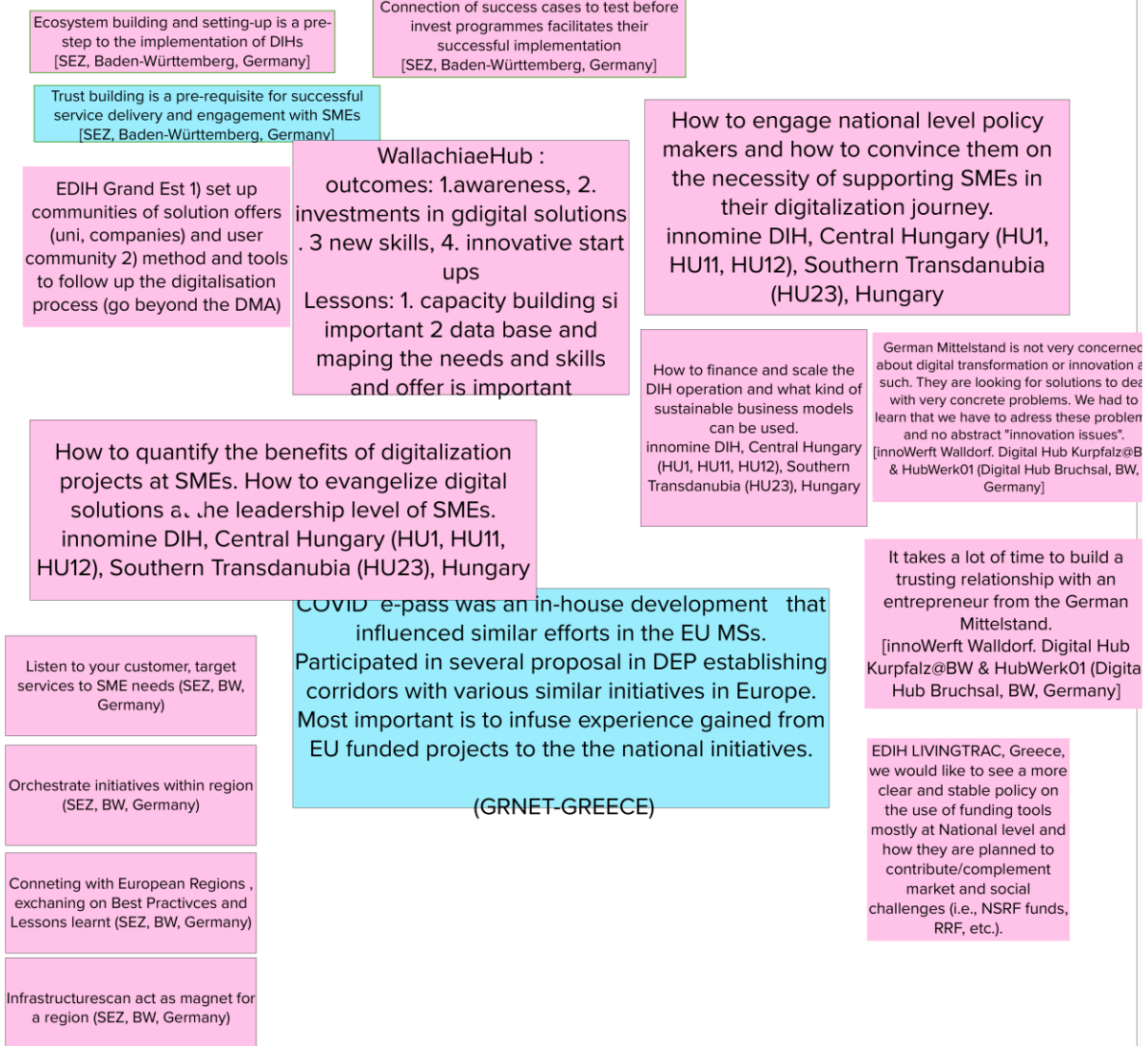


Figure 37. Results Workgroup 4 Local Liaison Event BW (3)

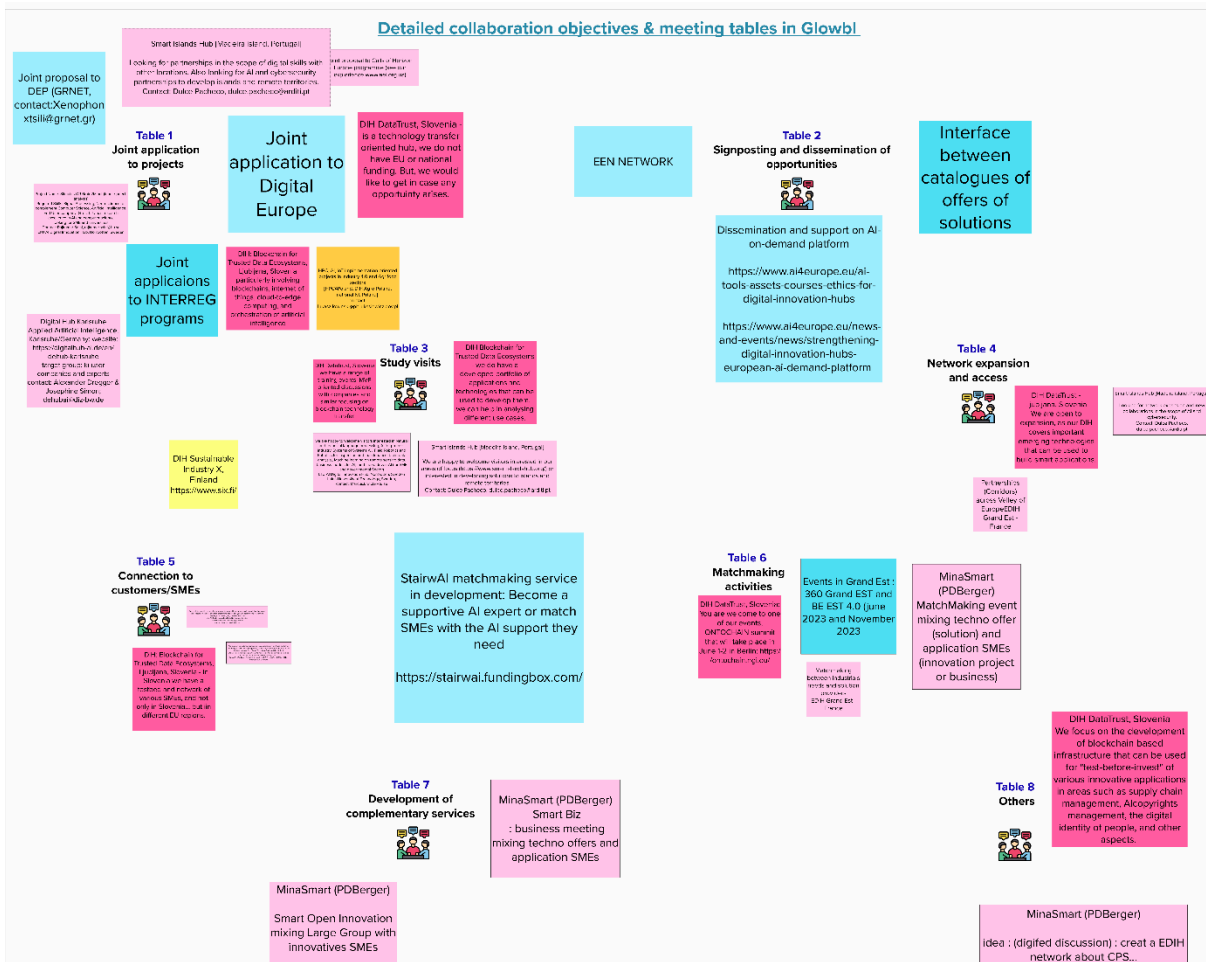


Figure 38. Collaboration Board Local Liaison Event BW

## 5.2. Local Liaison Event – AURA-Region

In synergy with Smart Anything Everywhere initiative, in the framework of the European funded project DIGIFED, co-organized by MINALOGIC and the CEA, the DIH and EDIH candidate MINASMART showcase its excellence and shared his best practices during the Ecosystem building event Auvergne-Rhône-Alpes on October 27th, 2021.

9:00	<b>Opening of the event</b> <i>Y. Neuder, Auvergne-Rhône-Alpes, Vice-President for Higher Education, Research, Innovation, Digital and European Funds</i>	
9:20	<b>The role of the European Digital Innovation Hubs in the Digital Decade</b> <i>AM Sassen, EC DG Connect</i>	
9:40	<b>The future of the EU DIH ecosystem</b> <i>M. Butter, DIHNET</i>	
10:00	<b>Minasmart unique value proposition</b> <i>👤 PD Berger, Director MinaSmart- eDIH Europe Candidate</i>	
10:15	<b>Coffee Break</b>	
DIH SERVICES, PANEL DISCUSSIONS	10:20	<b>A new European trans-regional open innovation pathway, the Generic experimentation</b> <i>👤 Isabelle Chartier (CEA, IRT Nano Elec), 👤 Bastien Hualpa (Minalogic), Florian Chenier (CHARVET), Marcello Coppola (ST Microelectronics)</i>
	10:45	<b>The Digital challenge innovation pathway highlighting attractive markets.</b> <i>Ana Gheorghie (Digital Catapult), 👤 Vincent Bouillet (GE HYDRO), Charles Garnier (CATIE), Ana Maria Jimenez Banzo &amp; Cosmin Koch (ACCIONA)</i>
	11:10	<b>Innovation and Networks</b> <i>Silicon Europe Alliance: 👤 Pierre-Damien Berger (Minalogic), Dieter Therseen (DSP Valley), Ola Svedin (Mobile Heights, Sweden)</i>
	11:35	<b>DIH sustainability model and digital experimentation</b> <i>Dieter Therseen (DSP Valley), 👤 Jérôme Gavillet (CEA), Patrick Chan (e-Whiz), Marie Sapone (Lim group), Yohann Bohard (BLUMORPHO)</i>
	12:00	<b>Market place</b> <i>Rudolf Frycek, AMIRES</i>
	12:15	<b>Digital transformation for traditional SMEs</b> <i>👤 Pierre-Damien Berger (Minalogic), 👤 François Régis Nepote (Techtera cluster)</i>
	12:40	<b>Conclusion</b> <i>M. Reimann, Steinbeis 2i</i>

Figure 39. DIH ecosystem building event agenda

At this stage, the situation regarding policies that support innovation, and more particularly Digital Innovation Hubs are encouraging, although still need to be confirmed. The results will be pretty linked to the establishment of European Digital Innovation Hubs (EDIHs) who foresees their complementary funding, from the European Commission and the Regional authorities, as stated by the EC “The establishment of the network will be supported from the Digital Europe Programme

The success story of the Easytech programme in Auvergne-Rhône-Alpes (<https://www.minalogic.com/services/monter-projet-innovant/le-programme-easytech/>) shows the relevance of supporting companies in their digital transformation and the territorial and thematic extension that Easytech benefits from, make us believe in an extension in a European framework to develop a similar program with several regions in Europe, particularly through the future EDIH (European Digital Innovation Hub) of which Minalogic and the CEA are main stakeholders.

It is crucial to highlight that DIHs can play several roles during the cycle of Smart Specialisation Strategy (S3) processes; they can function as co-designers or advisors of smart specialisation, as a reference point providing information on both market and digitalisation matters, facilitating or orchestrating multi-stakeholder collaboration, taking the lead role for development of priority areas, developing roadmaps, while they can also act as an implementation tool for policy objectives in providing digitalisation services.