

*DIH4AI: collaborative schemes supporting  
the digital transformation and cutting-edge experimentation*

9th November 2021



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## **AI Centres of Excellence and DIHs: collaboration mechanisms and future opportunities**

Analysis of the results of a survey launched  
in the context of the H2020 VISION project

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# Collaboration models among AI Centres of Excellence and DIHs



DIHs can have a **fundamental role** to support the **technological transfer of research outputs** to the Industry, acting as mediators between the two realities. Nevertheless, it is unclear to what extent Digital Innovation Hubs collaborate with AI Centres of Excellence to facilitate knowledge and technology transfer



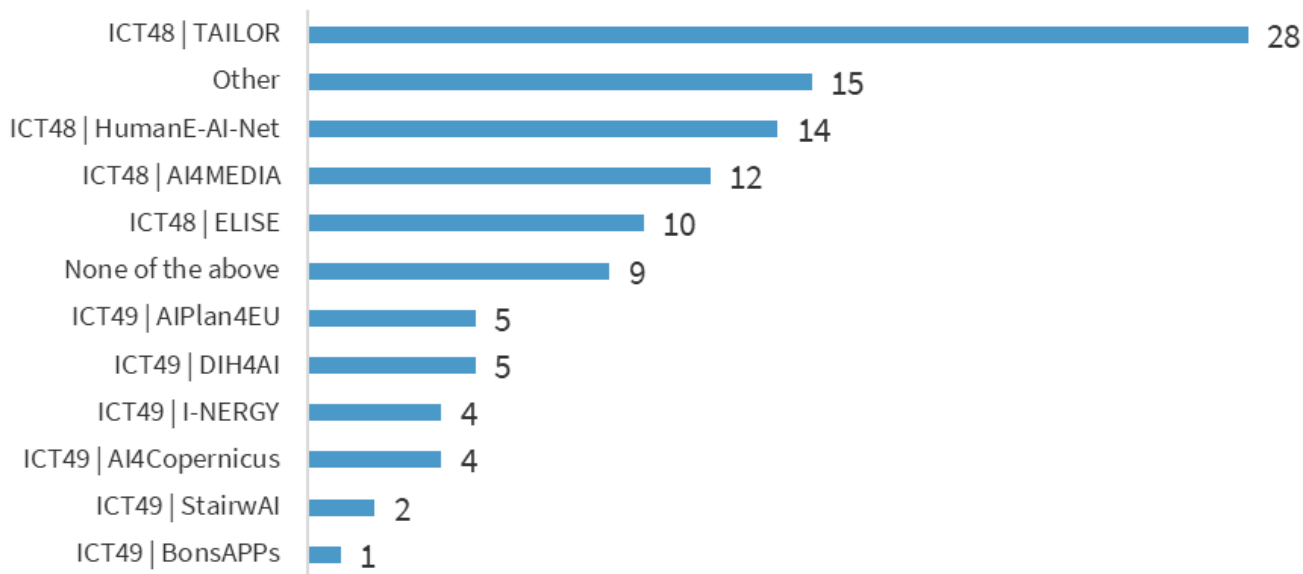
Within the Horizon 2020 VISION Project, a CSA aimed to reinforce, interconnect and mobilise Europe's AI community, one of the main tasks is to reinforce the collaboration between research (CoEs) and DIHs. A survey has been launched **in order to understand the state-of-the-art of collaboration between AI Centres of Excellence and DIHs.**



This will be useful to identify gaps to be addressed with ad hoc activities to improve collaboration between AI Centres of Excellence and DIHs, ultimately reinforcing the link between Industry, Academia and Public Administrations as well as inform the VISION Research Roadmap

# Targets respondents

- **74 Respondents** (AI centre of Excellence)
- **Most respondents belong to the ICT 48 TAILOR project**; other projects include AI4EU, CLAIRE, ELLIS, AI REGIO, ETAPAS.
- **Almost half of the respondents already participated in other EU-funded projects related to AI** (e.g. AI DIH Network)



# Preliminary definitions

## What is an AI Centre of Excellence?

Moving from the European Commission definition, we consider AI Centre of Excellence a **research centre with a strong expertise in AI** or an **organisation active in AI research and innovation**, which has a **dedicated R&D department or research team with expertise in AI**.

## What is a Digital Innovation Hub ?

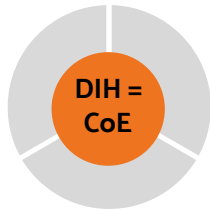
DIHs are one-stop-shops that help companies become more competitive with regard to their business/production processes, products/services using digital technologies, by **providing access to technical expertise and experimentation**, so that companies can **“test before invest”**. They also provide innovation services, i.e. **financing advice, training and skills development** needed for a successful digital transformation.

## What is a Reference Testing and Experimentation Facility?

A Reference Testing and Experimentation Facility (TEF) is a **technology infrastructure** that has specific expertise and experience of **testing mature technology in a given sector**, under real or close to real conditions (e.g. smart hospital, clean rooms, smart city, experimental farm, corridor for connected and automated driving, etc.)

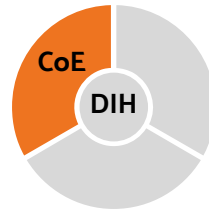
# Relationship between the AI CoE and a DIH

There are three potential scenarios describing the relation between an AI Centre of Excellence and a DIH:



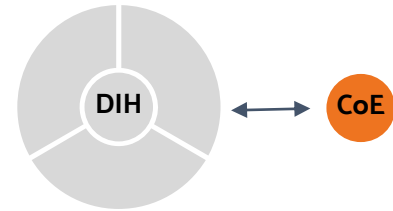
**The organisation is a DIH or leads one**

In this case, the AI Centre of Excellence would legally represent the DIH itself or, if part of a consortium, it would lead the DIH as its **main partner**



**The organisation is a member of a DIH**

In this case, the AI Centre of Excellence is part of a **consortium of partners** which make up the DIH and has not have big decision-making powers



**The organisation is not legally related to any DIH**

In this case, the AI Centre of Excellence does **not have legal links** with a DIH, but it may collaborate with it

# The survey respondent characteristics

74 responses were obtained; out of these 5 did not represent AI Centres of Excellence and were thus not considered for this analysis, leading to 69 valid responses. Here below the main respondent characteristics:



## TYPE OF ORGANISATION

Most respondents (81%) are either **Research Organisations** or Higher Education establishments, i.e. **Universities** or Technical schools

## AI TECHNIQUES AND APPROACHES

Most respondents (88%) work with **Machine Learning approaches** and 55% also use statistical and knowledge based approaches



## AI REFERENCE TEF

- 20% of respondents have an AI Reference TEF in house
- Only 2 have collaborated with a third party TEF

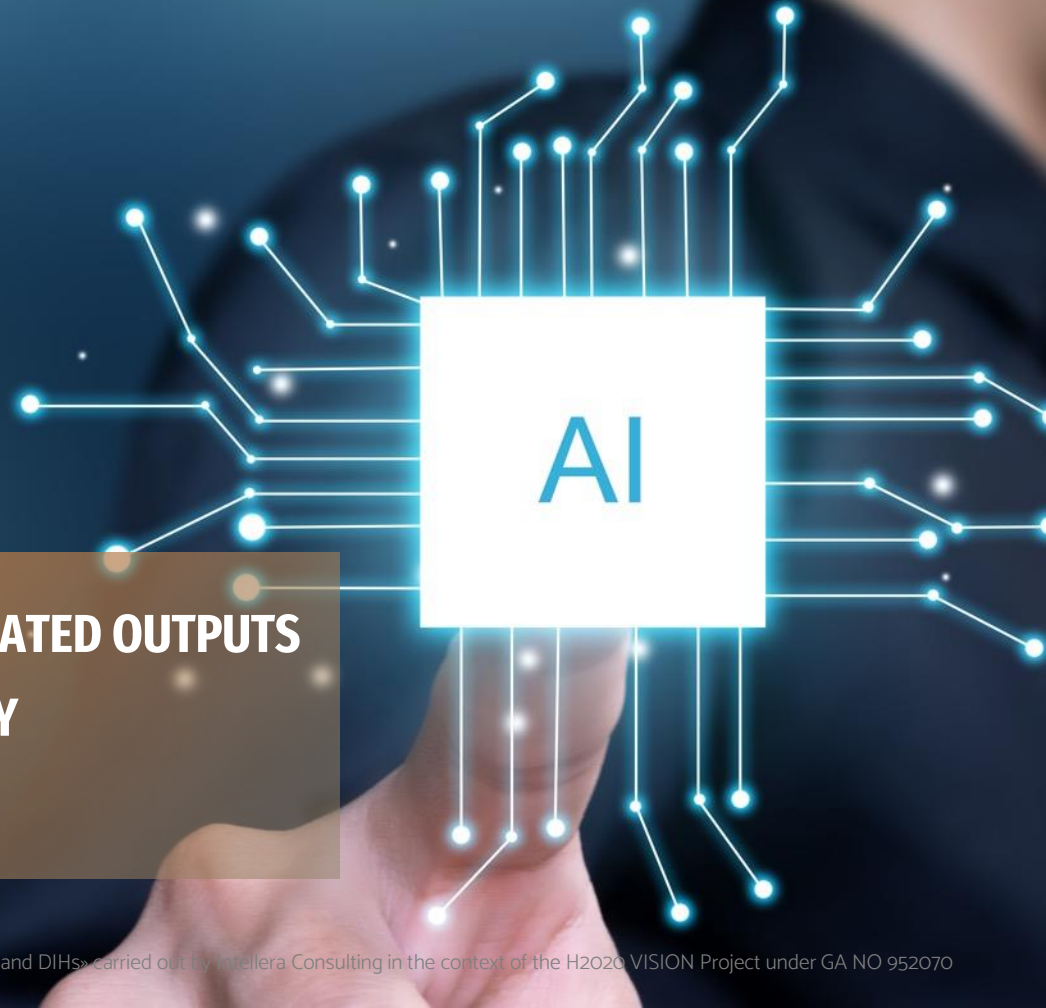
## DIHs

- 39% are AI CoEs and DIHs or represent one
- Among those, 16 passed the national pre-selection procedure to become EDIHs



Organisations can collaborate with DIHs or with other organisations connected to the DIH (e.g. start-ups, SMEs, large enterprises) in several ways, i.e. by:

- 1. EXCHANGING RESEARCH AND RELATED OUTPUTS**
- 2. FOSTERING PERSONNEL MOBILITY**
- 3. SHARING FACILITIES**



# 1. EXCHANGING RESEARCH AND RELATED OUTPUTS

More specifically when looking at this category of collaboration, activities can involve:

- **Shared R&D projects** with a DIH
- **Joint development of AI-related patents** with any organisation part of/connected to a DIH
- **License or sale** of AI-related **patents** to organisations connected to a DIH
- **Co-creation of scientific AI-related papers** with organisations part of/ connected to a DIH
- **Showcasing AI-related research outputs** at events organised by the DIH
- **Increasing the TRL** of AI-related research outputs with a DIH





# 1. EXCHANGING RESEARCH AND RELATED OUTPUTS

## Evidence from the survey

### Shared R&D Projects



- Almost 50% of respondents implemented R&D projects with a DIH or with its ecosystem

### Increasing the TRL of research outputs



- 42% of respondents collaborated with DIHs and/or their ecosystem to increase the TRL of research outputs

### Co-creation of scientific papers



- 39% of respondents co-authored scientific AI-related papers & 38% showcased research outputs at events organised by DIHs

### Joint development or license/sale of patents



- Only 3% of respondents jointly developed patents while only 4% of respondents licensed/sold them

## 2. FOSTERING PERSONNEL MOBILITY

More specifically when looking at this category of collaboration, activities can involve:

- **Researchers collaborating with enterprises** - clients of a DIH
  - on a temporary, multi annual basis or permanent level
- **Offering personnel** to a DIH for providing its services (e.g. for training purposes)



## 2. FOSTERING PERSONNEL MOBILITY

### Evidence from the survey

#### Researchers collaborating with enterprises

30% of respondents had researchers from their organisation collaborating with enterprises - clients of a DIH - in the AI field:

- permanently, i.e. researchers were hired
- for temporary activities, i.e. secondment



#### Offering personnel to a DIH for providing its services

Only 17% of respondents, through their organisation, offered personnel to DIHs to provide its services, e.g. Technology and knowledge transfer, AI Training and Consultancy, Digital assessments



### 3. SHARING FACILITIES AND USING SERVICES OFFERED BY DIHs

More specifically when looking at this category of collaboration, activities can involve:

- **Spin-offs / Start-ups growth** using the service offered by a DIH
- **Sharing facilities (hardware, software, labs. Testbeds, TEFs)** to a DIH or to organisations connected to a DIH



### 3. SHARING FACILITIES AND USING SERVICES OFFERED BY DIHs

#### Evidence from the survey

##### **Sharing facilities with a DIH**

Sharing facilities with a DIH or with its ecosystem was common among respondents, with 37% making its facilities available to a DIH, to an organisation connected to a DIH or both



##### **Spin-offs/Start-ups growth**

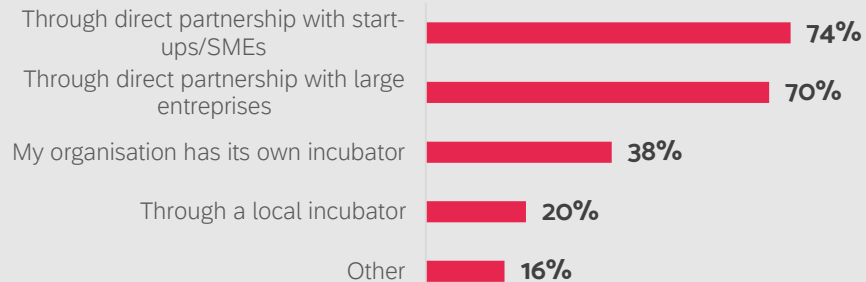
Only 18% of respondents knew that spin-offs/startups from their organisation used the services offered by a DIH in order to grow



# REACHING THE PRIVATE AND PUBLIC SECTOR

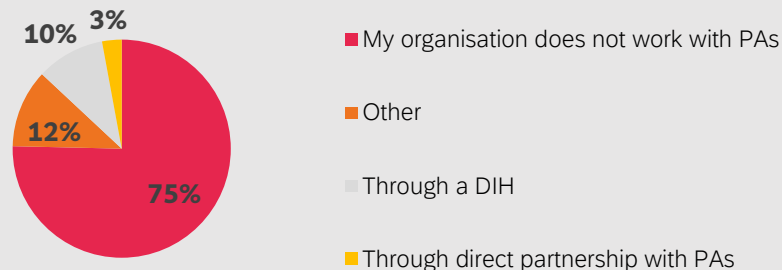
## OTHER WAYS TO REACH THE MARKET

The majority of respondents does not reach the market through DIHs but through direct partnerships with startups/SMEs and large enterprises



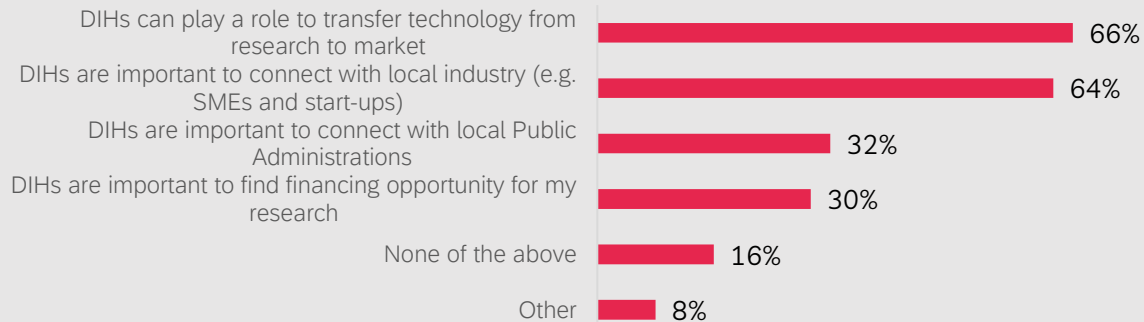
## REACHING PUBLIC ADMINISTRATIONS

75% of respondents belong to an organisation which does not work with PAs but 32% states that DIHs are important to connect with local PAs

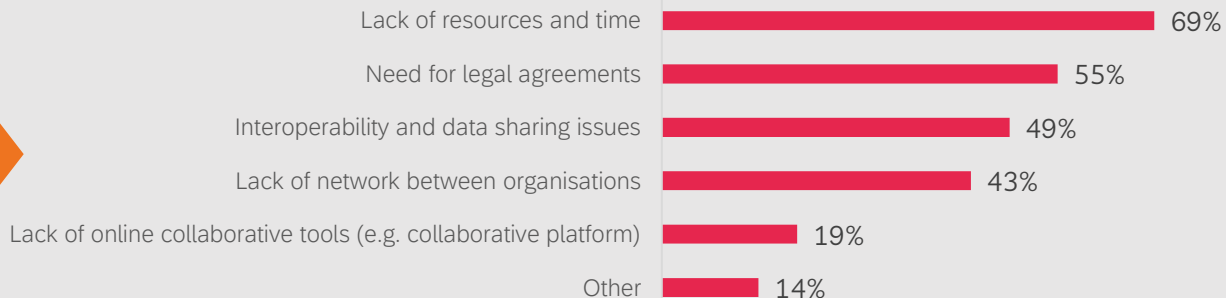


# COLLABORATION WITH DIHs: POTENTIAL AND OBSTACLES

**ACCORDING TO THEIR EXPERIENCE, RESPONDENTS AFFIRM THAT:**



**MAIN OBSTACLES TO COLLABORATION**



# Rethinking the AI Ecosystem for Innovation

What emerged from the VISION survey in terms of collaboration between AI CoEs and DIHs:

## MOST COMMON COLLABORATION ACTIVITIES:

- shared R&D projects in the AI field (50% of respondents),
- activities to increase the TRL of AI-related research outputs ( 42% of respondents).



## LEAST COMMON COLLABORATION ACTIVITIES:

- joint development or license/sale of patents (only 3% and 4% of respondents)
- offering personnel to provide the services offered by DIHs (only 17% of respondents).



Other relevant considerations and recommendations to improve the AI Ecosystem for Innovation:



Campaigns to improve the knowledge and **awareness of what a DIH is and what it concretely does** are needed since most respondents were not aware of existing collaboration activities with DIHs



The **importance of DIHs** must be amplified since AI CoEs have **other ways of reaching the market** rather than through DIHs, i.e. they do it mostly through direct partnership with SMEs, startups or large enterprises.



There are **potential opportunities for DIHs working with the Public Sector**; 32% of respondents think that DIHs are important to connect with local PAs but most of them currently do not use DIHs/directly work with PAs



# THANK YOU!

***Make Europe a research powerhouse in human-centred, trustworthy AI!***

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952070.

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