D4.2 - Organization of Observatories – Draft 2

Work Package 4 - Observatory Data Collection and Analysis

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Glossary of terms and abbreviations

List of Abbreviations and Acronyms	
AI	Artificial Intelligence
APIs	Application Programming Interfaces
AR	Augmented Reality
DIHs	Digital Innovation Hubs
DTDDs	Digital technologies and data-driven solutions (DTDDs)
EU	European Union
GIS	Geographic Information System
GPS	Global Positioning System
IoT	Internet of Things
LLMs	Large language models
ML	Machine Learning
MMFT	Market Monitoring & Forecasting Tool
SMEs	Small and Medium-sized Enterprises
UAV	Unmanned Aerial Vehicles
VRT	Variable Rate Technology
WP	Work Package

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Executive Summary

This document represents the second deliverable (D4.2) of Work Package 4 (WP4) within the 4Growth project. It updates the conceptualization of the 4Growth observatory ecosystem as described in D4.1, reflects on the first wave of data collection and reports planning for the second wave of data collection.

The conceptual framework of 4Growth is illustrated in Figure S1, depicting markets for digital technologies and data-driven solutions (DTDDs) as dynamic arenas shaped by supply and demand interactions that are influenced by institutional frameworks. Digital observatories serve to observe, interpret, and act upon market dynamics, guided by a defined data grid facilitating data collection and dissemination. In alignment with 4Growth goals, observatories extend beyond end-user adoption observation, engaging key value chain actors such as digital infrastructure operators and data providers.

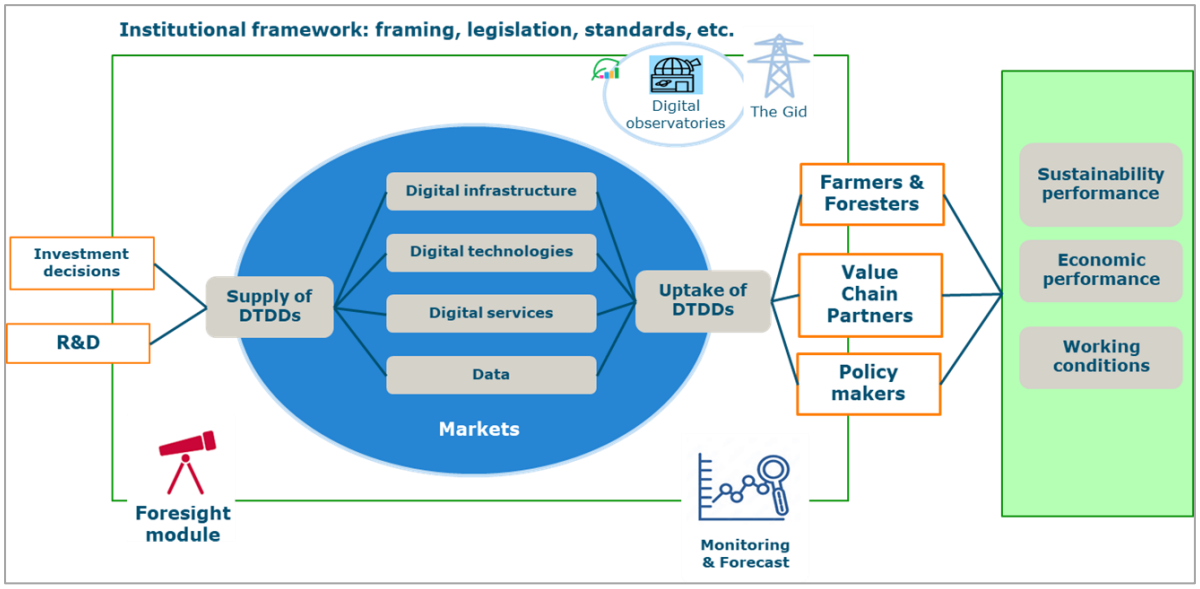

Figure S1: Conceptual framework and positioning of 4Growth observatory

The current observatory ecosystem comprises eight observatories, each dedicated to monitoring specific business ecosystem, digital innovation ecosystem, and data ecosystems. These observatories function as central hubs for planned surveys and other data collection methods to generate data and information, which is then utilized in forecast and foresight modules. Together, these interconnected components form a dynamic ecosystem essential for understanding and managing digital agriculture and forestry. Observatories play a pivotal role in gathering comprehensive data on digital technology adoption and its impact, informing strategic decisions and policy formulation in the agriculture and forestry sectors.

This document is the second deliverable of the task “Organizing 4Growth Observatory” that reports the organization and planning activities for Wave 1 (M7-10) and Wave 2 (M14) data collection.

1. Introduction

This section provides an overview of the 4Growth project, focusing on its background and objectives. The aim of this section is to highlight the project's key points for the reader to understand how the task of organizing the 4Growth observatory fits within the overall project's objectives.

1.1. Background

In the contemporary landscape of agriculture and forestry, the promise of digital technologies and data-driven solutions (DTDDs) stands as a beacon of potential transformation. Digital innovations offer the promise of enhanced sustainability, economic performance, and working conditions within these critical sectors. Although the potential and promises of DTDDs are widely acknowledged, policymakers and other stakeholders frequently lack comprehensive and timely insights into their adoption and impact in agriculture and forestry. Currently, there is no established 'observatory' capable of providing instant status updates as desired. This dearth of insight may impede the uptake and scaling of promising digital solutions.

1.2. Objectives

The project 4Growth aims to contribute to the uptake of digital solutions by (i) documenting the current state-of-play and projecting the future evolution (forecasting and foresight) of the sector; (ii) making insights available to the wider community of decision makers and value chain actors – through the 4Growth Visualisation Platform; (iii) collecting a wide range of ground truth data and identifying key factors or constraints for uptake; and (iv) producing sets of key policy recommendations and best practices to encourage/facilitate further uptake.

WP4 of 4Growth is focused on (iii) and (iv) in close collaboration with other WPs that work on (i) and (ii) (WP2).

The objectives of WP4 are to:

- organize an array of distributed observatories across technologies, subsectors, and regions
- analyze the framework conditions, technical aspects, governance models, socio-economic benefits and data sharing practices associated with the adoption of digital agriculture & forestry
- build synergies with other key European initiatives through which further data can be analysed and outcomes of the project can be sustained
- produce policy recommendations for governance actors and best practice guides for value chain actors to encourage the adoption of digital technologies.

WP4 consists of 5 tasks. Task 4.1 aims to develop and maintain a portfolio/catalogue of various agricultural and forestry stakeholders who will be contacted to gather data on the adoption and use of digital technologies. The observatories will be mobilised in three distinct "investigation waves", each lasting 9 months (1 month preparation, 6 months data collection, and 2 months data analysis). In addition to maintaining the portfolio of entities/individuals and all associated metadata, this task will set out the planning of observatory data collection activities. It will also seek to facilitate the expansion and incorporation of new stakeholders into each observatory ecosystem.

The establishment of observatories is necessary for the work in task 4.2 to begin. The observatories are necessary for the continual "ground truth" data collection to analyse innovative approaches to market monitoring in task 2.4.

The deliverable (D4.1) documented the first consolidated portfolio of stakeholders and data collection planning for Wave 1. This deliverable updates D4.1 with the activities taken for Wave 1 and the planning for Wave 2. The organization and planning activities of this task will then be further reported in M22 (D4.3), outlining the planning for Waves 3.

2. Organization of the observatories

2.1 Conceptual framework & positioning of 4Growth observatories

The conceptual framework for understanding 4Growth is visualized in Figure 1. Markets for digital technologies and data-driven solutions (DTDDs) can be seen as the dynamic playing field of the supply and demand of DTDDs by various actors, influenced and influencing the institutional framework in which the actors operate. The digital observatories serve to observe, interpret and act upon the state of play of the markets. The observatories are guided and supported by the 'grid' (Task 2.1) that defines the data and information to be collected and passed on to other modules that monitor, forecast and provide foresight.

In alignment with the goals of 4Growth, the observatories extend beyond the observation of end-user adoption. Recognizing the integral role of digital infrastructure in facilitating the flow of data and the operational efficiency of digital technologies, this approach encompasses a comprehensive engagement strategy. This strategy not only targets end-users but also embraces other key value chain actors, including data infrastructure operators and data providers. Digital infrastructure operators play a pivotal role in enabling the connectivity and interoperability essential for the effective functioning of digital solutions within agriculture and forestry sectors. By engaging with these stakeholders, the observatories aim to gain insights into the existing infrastructure landscape, identify areas for improvement, and foster collaborations to enhance data accessibility and reliability. Furthermore, collaboration with data providers enriches the observatory ecosystem by expanding the breadth and depth of available data sources. Leveraging partnerships with data providers enables access to diverse datasets, ranging from environmental sensors to market transactions, thereby enriching the analytical capabilities of the observatories. Incorporating digital infrastructure within the organizational framework of the observatories underscores the commitment to holistic data-driven insights. By fostering synergies with infrastructure operators and data providers, the aim is to fortify the foundation upon which the observatory ecosystem thrives, ensuring robust data collection, analysis, and dissemination mechanisms.

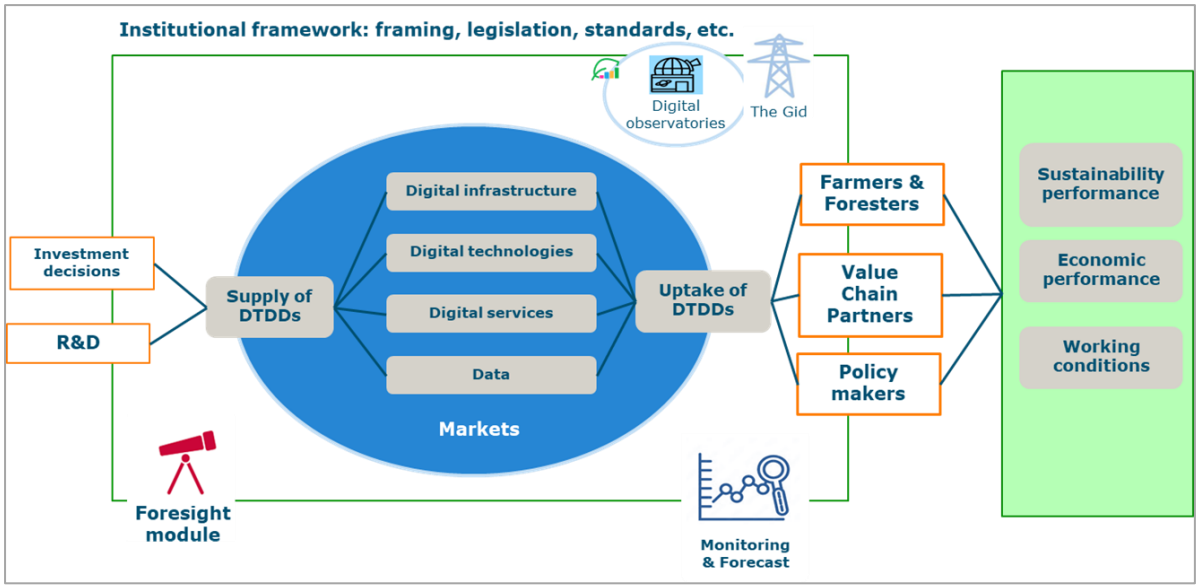

Figure 1: *Conceptual framework and positioning of 4Growth observatory*

Following this conceptual framework, the observatory ecosystem, together with the grid, plays a key role in the web of interactions between the physical environment of agriculture and forestry and the monitoring and forecasting systems. Figure 2 illustrates the interactions.

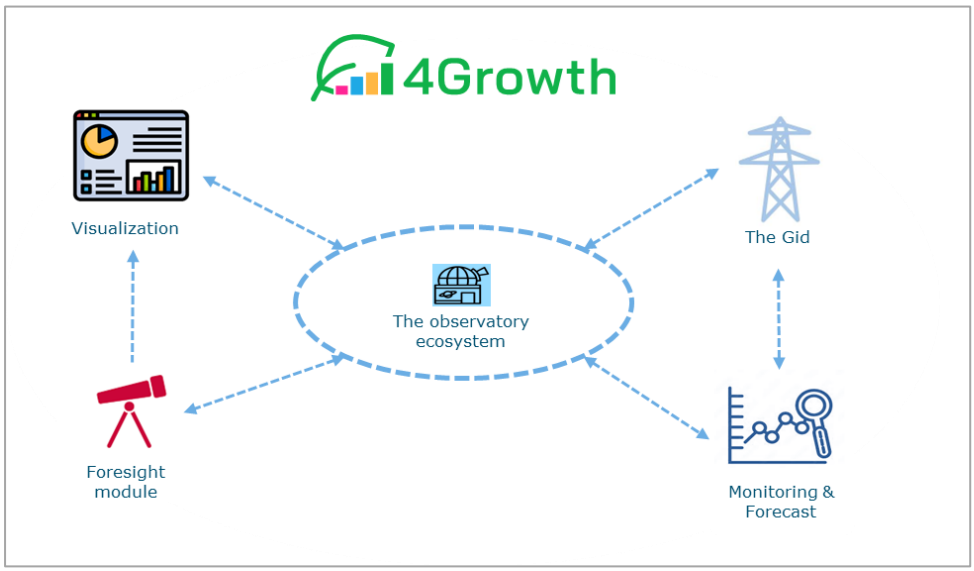

Figure 2: *Interactions between different 4Growth modules*

2.2 Functionality of observatories and the observatory ecosystem

The 4-Growth observatory ecosystem is conceptualised as a network of observatories as visualised in Figure 3, each of the observatories has its own network and resources. Currently, the observatory ecosystem consists of 8 observatories, each with its own business ecosystem, digital innovation ecosystem and data ecosystems. The observatories serve as the primary data collection hub through planned surveys and other data-gathering methods to generate data. This data is then fed into forecast modules to generate predictive models, offering insights into future market conditions. These modules, in turn, provide valuable feedback to both the observatory and the grid, enabling continuous refinement and optimisation of the entire system. Together, these interconnected components form a dynamic ecosystem that plays a crucial role in understanding and managing data markets for digital agriculture and forestry.

Observatories serve as pivotal hubs for gathering, analysing, and disseminating data on the adoption and impact of digital technologies within the agriculture and forestry sectors. They are designed to capture a comprehensive view of current states and emerging trends, thereby informing strategic decisions and policy formulations.

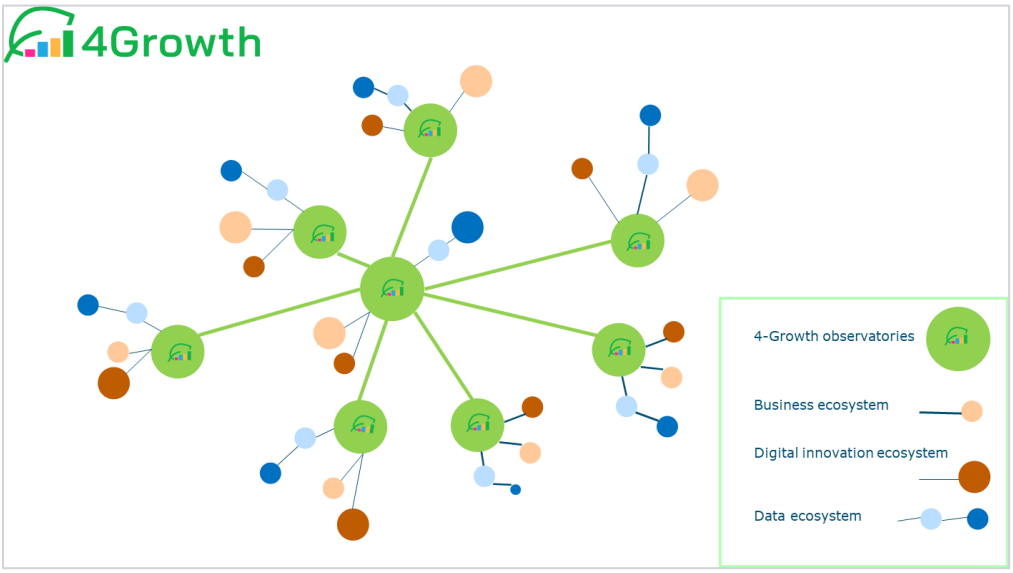

Figure 3: *The 4-Growth observatory ecosystem*

2.3 The observatory ecosystem

The premise of a 4Growth observatory is based on existing experiences in organizing data hubs, data spaces and other data sharing initiatives as illustrated in Figure 4 for the Netherlands as an example. This figure is developed to show the diversity and connectedness of different communities around digital technologies and data-driven solutions. The goal is to establish or coordinate the development of similar observatories in various EU regions (e.g., Benelux, Mediterranean, Scandinavian), leveraging the networks listed in Annex D. The 4Growth observatory ecosystem in the EU is visualized in Figure 5.

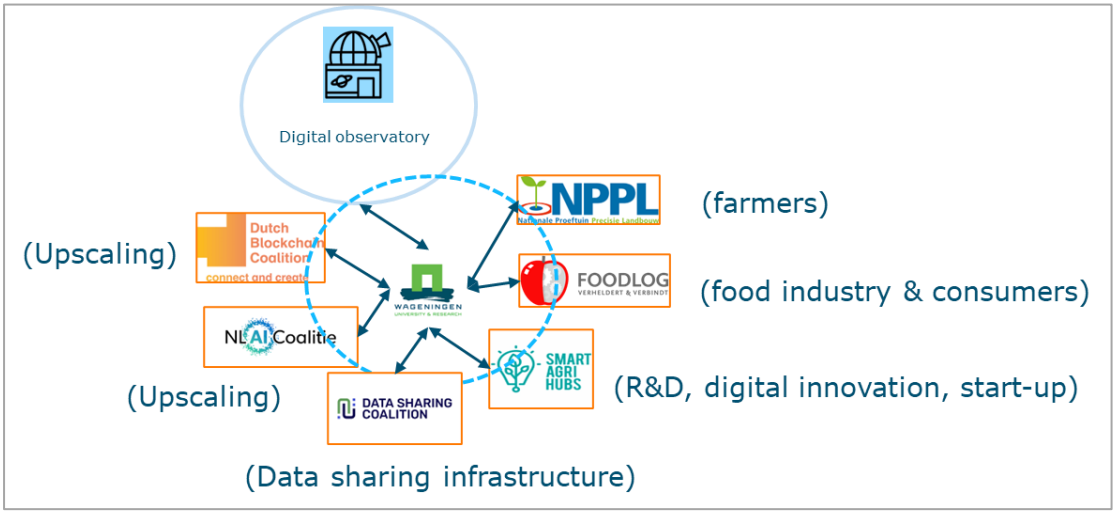

Figure 4: *Illustration of the 4Growth observatory in the Netherlands*

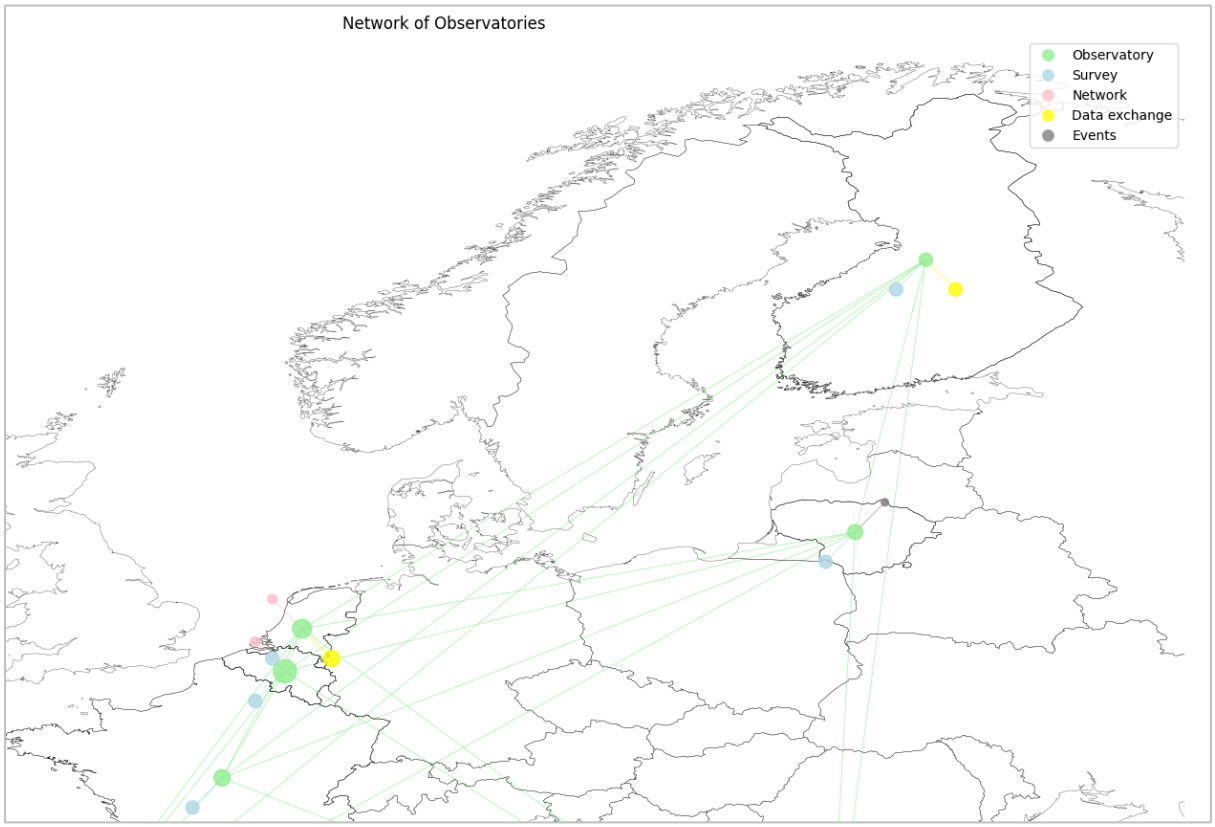

Figure 5: *Illustration of the 4Growth observatory ecosystem in the EU*

2.3.1 The business ecosystem

A business ecosystem of the observatory refers to the interconnected network of organizations, suppliers, customers, competitors, and other stakeholders within a specific industry or market segment covered by the observatory. It encompasses the relationships and interactions among these entities, as well as the broader economic, social, and technological factors shaping their environment.

In the business ecosystem, organizations collaborate, compete, and co-evolve to create value for customers, drive innovation, and sustain their competitive advantage. This ecosystem extends beyond individual farms or foresters to include policy makers, industry associations, educational institutions, and other entities that influence the dynamics of the DDTDs market. Successful business ecosystems foster trust, transparency, and collaboration among participants, enabling them to adapt to changing market conditions, exploit new opportunities, and collectively address industry challenges.

2.3.2 The digital innovation ecosystem

A digital innovation ecosystem is a dynamic network comprising individuals, organizations, and institutions collaborating to develop, adopt, and leverage digital technologies to drive innovation and create value within a particular industry or region. It encompasses a range of actors, including entrepreneurs, researchers, investors, policymakers, and users, who interact through various channels such as research collaborations, funding mechanisms, and knowledge sharing platforms. This ecosystem fosters a culture of experimentation, agility, and

collaboration, facilitating the rapid ideation, development, and deployment of digital solutions to address emerging challenges and opportunities.

Key features of a successful digital innovation ecosystem include supportive regulatory frameworks, access to funding and resources, vibrant entrepreneurial communities, and robust infrastructure for digital connectivity and skills development.

2.3.3 The data ecosystem

The data ecosystem of an observatory refers to the interconnected network of entities, processes, technologies, and regulations involved in the generation, collection, storage, analysis, and sharing of data within a specific domain or industry. It encompasses various stakeholders such as individuals, organizations, and institutions, as well as the infrastructure and mechanisms facilitating data flow and utilization.

Within this ecosystem, data is created, transformed, and utilized for various purposes, often contributing to decision-making, innovation, and value creation. Effective data ecosystems often prioritize interoperability, security, and ethical considerations to ensure the reliable and responsible use of data across the ecosystem's components.

3. Interaction with observatories

3.1 Mapping to the grid based on key attributes

The observatory ecosystem offers a wide range of possibilities for gathering data as required by the grid and other modules. In each observatory within the observatory ecosystem, stakeholders bring a diverse set of capabilities and sources of information that can be tapped into. This means that the questions in the grid should be mapped to different stakeholders, tailored to their roles and interests in the ecosystem of digital agriculture and forestry. Table 1 illustrates the current mapping between the questions, the targeted groups, and potential sources or means for gathering the answers. This is an updated mapping from D4.1 as the grid has been modified following the experiences and lessons learned during the data collection in Wave 1.

Table 1: Illustrative mapping of the grid and the observatory ecosystem.

Sample of question category	**Category**			
	General	Adoption of digital technologies and technology integration	Data storage and data flows	Environmental and Sustainability Impact
Sample of questions in grid	**Question**			
	Type of stakeholder	What type of digital technology has been used for agriculture/forestry	How is the data stored?	Digital technologies have positively contributed to sustainability and environmental practices in our organization.

Sample of answers in grid (multiple choice, yes/no, open answer)	Answer			
	Farmer/Agricultural producer	Mapping techonologies	On-premises servers or local storage	Strongly disagree/ disagree/ neutral/ agree/ strongly agree
	Farming association	Field survey technologies	Cloud based platforms	Strongly disagree/ disagree/ neutral/ agree/ strongly agree
	Forestry association	Decision support technologies	Data warehouse	Strongly disagree/ disagree/ neutral/ agree/ strongly agree
	NGO/advisory group	Data or information sharing platofrm	Hybrid storage solutions	Strongly disagree/ disagree/ neutral/ agree/ strongly agree
	Data/tech provider	Other, please specify	Secure data centers	Strongly disagree/ disagree/ neutral/ agree/ strongly agree
Methods/Sources for gathering information	Survey, interviews	Survey, websites, interviews	Survey, interviews	Survey, websites

3.2 Data collection methods

In gathering the data and information as envisaged by the 4Growth project through the observatory, various methods can be employed, each tailored to specific needs and contexts. More specifically, WP4 foresees three types of data collection:

- Targeted surveys
- Interviews & events
- Automatic data collections.

Targeted surveys stand as a structured approach, allowing researchers to gather insights from a predetermined audience, ensuring data relevance and specificity to the research objectives. Multiple-choice questions will incorporate well-known classifications of digital technologies listed in the References and Annex C. Interviews and events provide a more interactive platform, enabling direct engagement with stakeholders to delve deeper into perspectives, experiences, and nuances that may not surface through surveys alone.

Automatic data collections leverage technological advancements to passively collect information, offering a continuous stream of data without the need for active participation from respondents. Each method contributes uniquely to the data collection process, combining breadth, depth, and efficiency to paint a holistic picture of the subject matter.

3.3 Engaging stakeholders in observatories

3.3.1 Current engagement

The current engagement of the observatory ecosystem with different stakeholders is detailed in Annex B and summarized in Table 2. As indicated in §2.3, the interactions are meant to

develop the observatory ecosystem to enable multiple means of data collection. Stakeholders have been approached in Wave 1 in providing feedback on the initial version of the survey and distributing the final survey. Furthermore, several stakeholders have been approached to participate in the European event 'Synergy days' in which 4Growth takes part.

Table 2: Current engagement with stakeholders

Observatory node	Node type	Location and region coverage	Current Interactions
1	Agriculture	Netherlands (Western Europe)	Survey, network, data exchange, community events
2	Agriculture	Greece (AUA) (Eastern Europe)	Survey, interviews, educational initiatives, joint research
3	Forestry	Greece (AUTH) (Eastern Europe)	Survey, websites, events, data exchange
4	Agriculture	France (Western Europe)	Survey, interviews, events, networking
5	Agriculture	Belgium (Western Europe)	Survey, network, data exchange
6	Agriculture	Spain (Southern Europe)	Survey, interviews, data exchange
7	Agriculture	Lithuania (Eastern Europe)	Survey, websites, events, seminars, data exchange
8	Forestry	Finland (Northern Europe)	Survey, websites, data exchange, interviews

3.3.2 Envisaged engagement

To ensure the active and sustained engagement of all stakeholders in the data collection waves of the observatories, it's crucial to adopt a multifaceted approach tailored to the diverse needs and preferences of each participant. For stakeholders who may find surveys or questionnaires unsuitable, alternative methods such as interviews, focus groups, or participatory workshops could be employed to gather insights effectively. Additionally, providing flexibility in data collection methods, such as offering online platforms, mobile applications, or even traditional paper-based forms, can accommodate varying levels of digital literacy and accessibility among stakeholders. Moreover, establishing clear communication channels and fostering a collaborative environment through regular updates, training sessions, and feedback mechanisms can promote active participation and commitment. Furthermore, the provision of necessary facilities, tools, and systems, such as user-friendly data collection interfaces, access to relevant resources and expertise, and technical support for troubleshooting, is essential to facilitate seamless engagement and collaboration with stakeholders across the observatory ecosystem.

By addressing the specific needs and preferences of stakeholders and providing the requisite infrastructure and support, the observatories can ensure a motivated and active participation throughout the data collection process.

4. Planning for data collection

This deliverable is related to several other deliverables and tasks through the grid. Under Task 4.2 there will be deliverables submitted at the end of each data collection wave that will synthesize the findings of the data collection i.e., D4.8, D4.9 and D4.10 in M12, M21 and M30 respectively. This deliverable briefly describes the distribution, interviews and automated data collection. More details of the data collection can be read in D4.8

4.1 Distributing targeted surveys

The first step in preparing for the initial wave of data collection involved adapting and finalizing the grid. This was a collaborative effort between consortium partners and observatories, who pooled their expertise and sector knowledge to design a comprehensive survey. The goal was to gather a rich dataset on the current state of digital technology adoption in agriculture and forestry, as well as aspects related to data-sharing in the value chain. After the first grid was finalised, WP4 led by WR, began the process of translating the grid with the help of the observatories into the 10 languages that would be needed. Those being Dutch, English, Finnish, French, Greek, Hungarian, Lithuanian, Polish, Spanish, and Swedish. This was done with an initial translation using translation software (DeepL) by WR, and then the observatories validated the translations and suggested changes in order to reflect the unique nuances of each language. Following this the WR team migrated the grid from Excel onto the Qualtrics survey platform, and created a survey in each language. The next stage required troubleshooting of the surveys from the observatories to check that the pathing and list of questions was appropriate for each stakeholder type. This process was an immense effort for WP4 and demonstrated the collaborative spirit of the observatories in engaging with the task. This first iteration of the survey took more time than scheduled as it required problem solving, compromises and time for the new team to become accustomed to working together. Future data collection waves and grid iterations should be much quicker as a result of this initial effort.

However, due to the delay in preparing the first wave and the corresponding busy period for farmers, the first collection wave began on full speed in September 2024. This resulted in the first wave only lasting half the intended time at 3 months. This was addressed by the 4Growth project and its observatories maximising the distribution of the survey and making an adjustment, to allow for an extra month of data collection in November 2024. This allowed observatories to match survey distribution with events they attended, wherein they networked with relevant stakeholders, and allowed for an increased response rate of the survey, as opposed to only doing it online. The observatories and 4Growth partners used online social media, professional networks and in-person paper survey collection to reach as many people as possible in the first data wave. The survey did not collect as many survey responses as desired in the first wave but this is a reflection of the difficulty in respondents following through with completing the survey as opposed to the efforts of the 4Growth project.

As of the closing of the first data gathering wave, WP4 and the observatories have been quick to take lessons learned from the first wave. In order to implement them into the second iteration of the grid and in preparing for the second data collection wave. January 2025 will be spent preparing the second grid iteration which will be much shorter, in order to target specific stakeholders and increase the response rate and completeness of responses. In February WP4 will initiate the creation of the second survey and troubleshooting, with the aim to begin Wave 2 of data collection in March 2025.

4.2 Interviews & Events

For the entire project, the goal is to utilize the Assessment Grid in over 5000 cases, encompassing various actors, entities, and sectors such as agriculture, horticulture, and livestock. Regardless of the method of data collection, whether it's through interviews or surveys, the final dataset will be standardized for each observatory. Using the WR meta-data platform “Adagio,” the consortium is able to collect and aggregate questions from different formats into a standardized form, which can then be used for further data analysis purposes.

4.3 Automated data collection (through web-scraping)

One of the main challenges facing 4Growth is defining what exactly constitutes "digital technologies" in the context of the forestry sector. This ambiguity complicates the process of identifying relevant stakeholder groups. To address this issue, the project team proposes an extensive web scraping and knowledge retrieval exercise. This will involve analyzing information from firms active in the forestry sector to ascertain the extent, manner, and ways in which they disclose the use of digital technologies in their operations and services. The preliminary assessment done by VTT has identified a target sample of 100,000 firms in the EU, classified under the relevant NACE codes, as being pertinent to the forestry sector. VTT and other partners possess the necessary technology and expertise to scale up scraping and identification processes, enabling the consortium to access these companies' websites and determine the digital technologies they report using in their operations. This endeavour will enhance our understanding of digitalization's scope and penetration in the industry, complementing other metadata that VTT has collected or plans to collect.

Among the partners of WP4, VTT had previously conducted large-scale studies on similar themes for EU projects. For instance, one of the published studies[1] involved scraping data from over 200,000 firms in the EU and UK, focusing on high-tech and medium-tech industries, specifically their product announcements and innovations.

5. Conclusion and next steps

This deliverable outlines the key features of the 4Growth observatory ecosystem and the portfolio of stakeholders. Overall, the observatory ecosystem represents a dynamic and collaborative network for leveraging data-driven insights to understand, manage, and optimize digital agriculture and forestry markets, with the potential to drive innovation and sustainable growth in these sectors.

For the observatory ecosystem to deliver the data and information envisaged by 4Growth, it is important to align the activities in different WPs, especially, the definitions and classifications developed by the grid. In addition to surveys and interviews, it is important to incorporate innovative data collection methods such as web-scraping. In that regards, close collaboration with Task 2.4 and Task 4.2 is essential. The first data collection wave concluded in December 2024 and low response rates required a critical look at the grid and the length of the survey. As a result, collaboration between WP, WP4 and the observatories through online meetings

[1] Ashouri, Sajad, et al. "Indicators on firm level innovation activities from web scraped data." Data in brief 42 (2022): 108246. https://www.sciencedirect.com/science/article/pii/S2352340922004486

has facilitated the adaption of a revised grid which is shorter and more focused, in order to improve engagement in Wave 2 of the data collection.

6. References

On (distributed) 'observatories'

Digital Observatory: https://digitalobservatory.com/

On AgTech types:

Tech types and tools | AgTech (daf.qld.gov.au)

On classification of digital tools in agriculture:

- Moreno, José C., et al. "A pending task for the digitalisation of agriculture: A general framework for technologies classification in agriculture." Agricultural Systems 213 (2024): 103794.
- A white paper to classify digital tools in agriculture https://www.aspexit.com/wp-content/uploads/2023/01/WhiteBook-OCT2023.pdf

On AgTech/ICT Surveys:

ATIO from FAO: https://www.fao.org/documents/card/en/c/cc2506en

EU ICT Survey: https://ec.europa.eu/eurostat/cache/metadata/en/isoc_e_esms.htm

On Earth Observation (EO):

EARSC Industry survey 2024

EUSPA market report 2024

On Web scraping

Ashouri, Sajad, et al. "Indicators on firm level innovation activities from web scraped data." Data in brief 42 (2022): 108246. https://doi.org/10.1016/j.dib.2022.108246

ANNEX

Annex A: Templates for observatories

General features of the observatory (node)			
Name of the observatory			
Location			
Website			
Geographic focus			
Potential coverage			
Focus sector (agriculture/forestry)			
Potential coverage			
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech			

Data exchange in value chains	
Digital solution providers	
Data infrastructure	
Data ecosystem (existing data system)	
Own data system	
Official statistics/public data provider	
Access to proprietary data sources	
Open data sources	
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Annex B: Key features of existing nodes of the 4-Growth observatory

General features of the observatory (node) – 1	
Name of the observatory	Wageningen Research
Location	The Netherlands
Website	www.wur.nl
Geographic focus	NL

Potential coverage	EU/Global		
Focus sector (agriculture/forestry)	Agriculture, Horticulture, Forestry		
Potential coverage	Environmental aspects		
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Policy makers	Institutional framework	Interview
	Research institutes		Data exchange
	Farmers associations		Surveys
	Value chain partners	Requesting data/ information	Surveys
	Digital technology providers	Providing smart machinery	Website
	Data service providers	Providing tech	Website
	Investors	Investment	Surveys, interviews
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	(Aligned with grid and Task 2.1) Precision agriculture;		
Data exchange in value chains	Data spaces, Data4Food, FoodDataQuest		
Digital solution providers	Farm Management Information System (such as AgroVision)		

Data infrastructure	
Data ecosystem (existing data system)	
Own data system	WEcR data warehouse/ innovation monitor
Official statistics/public data provider	CBS
Access to proprietary data sources	Orbis
Open data sources	
Filled in by: Lan van Wassenaer *Filled in date: 19/4/2024*	

General features of the observatory (node) - 2	
Name of the observatory	Geoponiko Panepistimion Athinon (Agricultural University of Athens - AUA)
Location	Athens, Greece
Website	https://www2.aua.gr/en
Geographic focus	Greece
Potential coverage	Southeast Europe
Focus sector (agriculture/forestry)	Agriculture (with possible extensions to related fields like agrotechnology, sustainable farming practices, and precision agriculture)
Potential coverage	AUA might focus on a range of topics within the agriculture sector, including sustainable farming, digital agriculture, precision farming, and climate-smart agriculture practices.
Business ecosystem	

Key actor groups involved	Actor Group	Relation to digital agriculture/forestry	Potential Interactions
	Farmers and Agricultural Cooperatives	Primary stakeholders in digital agriculture, likely to engage through workshops, surveys, and field trials.	Engagements through educational initiatives, feedback mechanisms on technology effectiveness, and participatory design of digital solutions.
	Agri-Tech Companies	Providers of digital solutions and smart farming technology. Interactions could include technology demonstrations, joint research projects, and innovation forums.	Collaborative development of technologies, field testing of innovative solutions, and participation in agricultural tech expos and fairs.
	Policy Makers	Influence and shape the regulatory and support frameworks for digital agriculture through policy advisory, roundtable discussions, and dissemination of research findings.	Consultations with stakeholders, development of supportive policies and regulations, funding and incentives for digital transformation initiatives.
	Research Institutes and Universities	Engage in foundational and applied research, contributing to the advancement of digital agriculture and forestry technologies.	Joint studies, research dissemination events, workshops for knowledge transfer, and collaborative grant applications.
	NGOs and Environmental Organisations	Advocate for sustainable agricultural practices and the integration of digital solutions to address environmental challenges.	Partnership on projects aimed at sustainable development goals, awareness campaigns, and development of best practice guides.
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	AUA's initiatives span a wide array of smart farming technologies aimed at enhancing precision agriculture. Deployment of IoT devices for soil moisture monitoring, the use		

	of drones for crop health assessment, the application of artificial intelligence for predictive analytics on crop yields and pest management and remote sensing technologies and Geographic Information Systems (GIS).
Data exchange in value chains	AUA plays a pivotal role in projects like ROBS4CROPS, SMATAKIS, SUPPORT, QuantiFarm, CODECS, ICAERUS and DiVine, which focus on leveraging digital technologies for optimised data flow in agricultural supply chains.
Digital solution providers	In collaboration with SMEs in Greece, AUA evaluates and promotes a range of digital tools tailored for the agriculture sector. This includes comprehensive farm management software, remote sensing technologies for soil and crop health insights, and mobile applications offering agricultural advice.
Data infrastructure	Focused on building a robust infrastructure for agricultural data, AUA's efforts ensure interoperability and adherence to open standards. This involves developing centralised data platforms that aggregate information from sensors, drones, and satellites, and creating APIs and data exchange protocols to facilitate compatibility and data sharing among diverse digital tools and platforms.
Data ecosystem (existing data system)	
Own data system	Maintains a comprehensive repository of agricultural research, including studies, experiments, and findings relevant to the sector's digital transformation. Responsible for the development of project platforms.
Official statistics/public data provider	Works in collaboration with national and European statistical offices, such as ELSTAT and Eurostat, for access to agricultural data.
Access to proprietary data sources	Engages with technology providers and companies for access to specialised data, enhancing research and development efforts.
Open data sources	Utilises open data platforms extensively for agricultural research purposes, including satellite imagery, weather data, and open agricultural research databases.
Filled in by: Aikaterini Kasimati (AUA) *Filled in date: 05/04/2024*	

General features of the observatory (node) - 3	
Name of the observatory	Aristotelio Panepistimio Thessalonikis (AUTH)
Location	Greece

Website	https://fmrs.web.auth.gr/, https://www.auth.gr/en/			
Geographic focus	National/Mediterranean			
Potential coverage	Southern EU			
Focus sector (agriculture/forestry)	Forestry			
Potential coverage				
Business ecosystem				
Key actor groups involved	**Actor Group**		**Relation to digital agriculture/forestry**	**Potential Interactions**
	Policy makers	Institutional framework	Interview, Surveys	
	Research institutes		Website, Interview, Surveys	
	Forest industry	Providing data, products & services	Website, Interview, Surveys	
	Digital technology providers	Providing technology	Website, Surveys	
	Data providers		Website	
	Forestry Associations	Providing data/information	Website, Surveys	
	Mediterranean Networks	Requesting data/ information	Surveys	
Digital innovation ecosystem (aligned with the Grid)				

Farm/forest tech	GPS, UAVs, sensors, remote sensing, satellite imagery, GIS, web portals, Decision Support Systems (DSS)
Data exchange in value chains	
Digital solution providers	
Data infrastructure	
Data ecosystem (existing data system)	
Own data system	Operational Burned Area Mapping Service (NOFFi-OBAM) – Burned area viewing service (http://fmrsvm.for.auth.gr/)
Official statistics/public data provider	Eurostat: https://ec.europa.eu/eurostat European Forest Fire Information System – EFFIS: supports the services in charge of the protection of forests against fires in the EU and neighbour countries and provides the European Commission services and the European Parliament with updated and reliable information on wildfires in Europe. https://effis.jrc.ec.europa.eu/ Global Wildfire Information System – GWIS: GWIS aims at bringing together existing information sources at regional and national levels to provide a comprehensive view and evaluation of fire regimes and fire effects at global level. https://gwis.jrc.ec.europa.eu/ Earth Explorer (USGS): Online search, discovery, and ordering tool of satellite, aircraft, and other remote sensing inventories through interactive and textual-based query capabilities. https://earthexplorer.usgs.gov/ Copernicus Data Space Ecosystem: an open ecosystem that provides free instant access to a wide range of data and services from the Copernicus services https://dataspace.copernicus.eu
Access to proprietary data sources	
Open data sources	GEODATA.gov.gr (open national geospatial data & services)

General features of the observatory (node) -4	
Name of the observatory	Centre Technique Interprofessionnel des Fruits et Legumes (CTIFL)

Location	France		
Website	www.ctifl.fr		
Geographic focus	France		
Potential coverage	Europe (research networks such as Eufrin or Euvrin)		
Focus sector (agriculture/forestry)	Fruits and vegetables		
Potential coverage	Fruits and vegetables Contacts in arable crops and vineyards		
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Policy makers	Institutional framework	networking, interview, surveys
	Farmers associations	Requesting data/information	Events, networking, interview, Surveys
	Value chain partners	National network	Events, networking, interview, Surveys
	Digital technology providers	National network, in some cases European providers	Interview, survey, events
	Data service providers	National network	Interview, survey, events
	Research institutes	National network European networks: Euvrin and Eufrin	Partner, surveys

	Cooperatives	Requesting data/ information	Interview, Surveys, Data exchange
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	GPS, Precision agriculture (Variable Rate Application, precision spraying), Crop diseases and pest detection, Productive indicators, Robotics, Innovative weeding (laser, electric, thermal), UAVs, remote sensing, disease models, mapping, innovative application techniques		
Data exchange in value chains			
Digital solution providers	CTIFL is in contact with various providers (from start-ups to agroequipment manufacturers). It is involved or in contact with interprofessional commissions or associations (CIETAP, AXEMA, Robagri.)		
Data infrastructure			
Data ecosystem (existing data system)			
Own data system			
Official statistics/public data provider	National: - Agreste, Agreste, la statistique agricole (agriculture.gouv.fr) - Insee: Accueil - Insee - Institut national de la statistique et des études économiques EU: Eurostat, https://ec.europa.eu/eurostat/data/database		
Access to proprietary data sources			
Open data sources			

General features of the observatory (node) -5

Name of the observatory	Flanders Research Institute for Agriculture, Fisheries and Food Technology and Food Science – Agrifood technology		
Location	Burg. Van Gansberghelaan 115 bus 1 - 9820 Merelbeke - Belgium		
Website	http://www.ilvo.vlaanderen.be		
Geographic focus	Flanders in NW-Europe		
Potential coverage	EU – Global		
Focus sector (agriculture/forestry)	Agriculture, Food and Fisheries		
Potential coverage			
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Policy makers	Institutional framework	Interviews, Surveys, Networking
	Research Institutes	R&D	Cooperations
	Farmers associations	End users	Events, networking, interview, Surveys
	Value chain partners	Requesting /providing information	Events, networking, interview, Surveys
	Advisors	Requesting information/ tacit knowledge exchange	Events, networking, interview, Surveys
	Digital technology providers	Providing technology, implementing innovations	Events, networking, interview, Surveys

	Investors	Investment	Events, networking, interview, Surveys
	DIHs	DIH services	Using services
	Start-up community		Events, networking, interview, Surveys
	Technology organizations		Events, networking, interview, Surveys
	Universities		
	Living Labs		
	Consumers		
	Food chain actors organisations		Data exchange
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	Agri and food technology		
Data exchange in value chains			
Digital solution providers			
Data infrastructure	DjustConnect/ Common European Agricultural Data Spaces (CEADS)		
Data ecosystem (existing data system)			
Own data system	DjustConnect		

Official statistics/public data provider	www.vlaanderen.be/landbouwcijfers
Access to proprietary data sources	Yes
Open data sources	https://www.vlaanderen.be/datavindplaats

General features of the observatory (node) -6			
Name of the observatory	Instituto Navarro de Tecnologías e Infraestructuras Agroalimentarias (INTIA)		
Location	Navarra, Spain		
Website	https://www.intiasa.es/web/es		
Geographic focus	Regional		
Potential coverage	Regional, National (only public data)		
Focus sector (agriculture/ forestry)	Agriculture, Horticulture, Livestock		
Potential coverage			
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Cooperatives	Requesting data/ information	Interview, Surveys, Data exchange

	Farms associations	Requesting data/ information	Interview, Surveys, Data exchange
	Farmers	Requesting data/information	Interview/ Survey
	Digital technology providers	Providing smart technology	Data exchange, interview
	Policy makers	Institutional framework	Data exchange, interview
	Advisors	Requesting data/ information	Interview, Survey
	IRIS (regional Hub that belongs to the European Digital Innovation Hub)	Requesting data/ information	Data exchange
	Irrigation Communities	Requesting data/information	Data exchange
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	Precision agriculture: GPS, VRT (variable rate technology), precision seed drill, IoT, Remote sensing, UAVS, Sentinel satellite imagery, Sensors Precision livestock farming: GPS, IoT, virtual fences.		
Data exchange in value chains	Agricultural Farm Information System (SIEX): The SIEX will be a set of interconnected databases and administrative records, with information on agricultural farms in Spain (private data, no access). SIEX will be technically and systematically interoperable with the Agricultural Farm Registers of the Autonomous Regions, the Digital Farm Notebooks and other public registers. https://www.fega.gob.es/es/content/siex SOA: The Agroindustrial Offer Service aims to create a greater connection between irrigated areas (farmers) and agribusiness. https://www.intiasa.es/web/es/regadios/servicio-de-oferta-agroindustrial Website with current information on markets by sector, events and tools to make a personalized fertilization and irrigation plan. https://www.plataformatierra.es/ Irrigation Data: https://www.intiasa.es/web/es/regadios/recomendaciones-riego Early warning system platform: Web Advisory service on pests and diseases to farmers and technicians. https://estacionavisos.agrointegra.intiasa.es/portalIntia.html A European early-warning system for wheat rust diseases (user required).). GRRC (global rust referent center) is responsible for the development and improvements of the Wheat Rust		

	Toolbox - together with many BGRI partners and via the RustWatch project. https://web15.agro.au.dk/WheatRustToolbox/Menu/01_Home/Home.aspx Advisory network for the optimal use of fertilization using precision farming: Network that belongs to the STRATUS project (Horizon Europe project coordinated by INTIA).
Digital solution providers	Farm Management Information System
Data infrastructure	
Data ecosystem (existing data system)	
Own data system	GEXPER (Platform to manage our trials data) Irrigation Database Early warning system platform (Web Advisory service on pests and diseases to farmers and technicians). https://estacionavisos.agrointegra.intiasa.es/portalIntia.html
Official statistics/public data provider	Ministry data: https://www.mapa.gob.es/es/
Access to proprietary data sources	
Open data sources	Regional data: Agricultural price observatory (weekly updated): https://www.navarra.es/home_es/Temas/Ambito+rural/Indicadores/Observatorio.htm#header1 Coyuntura Agraria (monthly updated): detailed information on agricultural and livestock land and production, prices, machinery, weather, crop situation and foreign trade of agricultural products: https://www.navarra.es/home_es/Temas/Ambito+rural/Publicaciones/Revistas/Coyuntura_Agraria.htm Early warning system platform (Web Advisory service on pests and diseases to farmers and technicians). https://estacionavisos.agrointegra.intiasa.es/portalIntia.html

General features of the observatory (node) - 7	
Name of the observatory	AgriFood Lithuania (LITH)
Location	Lithuania

Website	www.agrifood.lt		
Geographic focus	LT, PL, HU		
Potential coverage	Agriculture and forestry		
Focus sector (agriculture/forestry)	Agriculture		
Potential coverage	AgriFood Lithuania is a Digital Innovation Hub and Cluster that brings together major research, business and public stakeholders in Lithuania for the common pursuit of digital transformations in the agriculture, food and associated sectors. AgriFood Lithuania is active in both national and EU-level.		
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Farmers associations	end users	Surveys, interviews, seminars, website
	Agri-industry leaders	technology providers	Surveys, interviews, seminars, website
	Digital technology providers	technology providers	Surveys, interviews, seminars
	Policy makers	institutional framework	Interviews
	National Clusters (same country, neighbouring areas of interest)	collaborators	Surveys, interviews, seminars, data exchange, website
	National Clusters (neighbouring countries, such as PL and HU, similar areas of interest)	collaborators	Surveys, interviews, seminars, data exchange, website
	Public institutions	enablers	Surveys, data exchange
	R&D institutions	technology developers	

	Data service providers	service providers	Surveys, website
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	AgriFood Lithuania has more experience as a facilitator of farm-tech, but also participates in projects dedicated to forestry tech, is a member of consortium of Forest 4.0 excellence centre.		
Data exchange in value chains	AgriFood Lithuania is facilitating international technology, competence and know-how transfer, and works in numerous (10+) Horizon Europe agrifood project consortiums in similar roles		
Digital solution providers	The role of hub and digital innovation center means that AgriFood Lithuania has current data on digital solution providers and actively promotes agrifood startups		
Data infrastructure	Not formalised, customised for client/project needs		
Data ecosystem (existing data system)			
Own data system	AgriFood Lithuania links stakeholders with local, international and cross-sector initiatives to provide all-round support in the research, development and deployment of AgriFood Tech innovations.		
Official statistics/public data provider	LT: https://osp.stat.gov.lt/ (national statistical office), https://www.vic.lt/statistine-informacija/ (aggregated information on agriculture, food, rural development and fisheries) PL: https://stat.gov.pl/en/ (national statistical office), HU: https://www.ksh.hu/?lang=en, https://www.ksh.hu/agriculture (national statistical office).		
Access to proprietary data sources	AgriFood Lithuania DIH is an important player in Lithuania's agrifood sector and can gain access to various datasets and specialised analysis of major research, business and public stakeholders in Lithuania. AgriFood Lithuania DIH gains access to similar data of other EU countries using its local (EDIH Lithuania) and EU- scale memberships s (ECCP, DIH.NET, SS4AF, EIT Food).		
Open data sources			

General features of the observatory (node) - 8

Name of the observatory	VTT Technical Research Centre of Finland (VTT)		
Location	Finland		
Website	https://www.vttresearch.com/en		
Geographic focus	Finland		
Potential coverage	Nordic		
Focus sector (agriculture/forestry)	Forestry		
Potential coverage			
Business ecosystem			
Key actor groups involved	**Actor Group**	**Relation to digital agriculture/forestry**	**Potential Interactions**
	Forest owners	Requesting data/ information	Interview (big forest owners), survey, web site, statistics
	Associations for forest owners and other actors in value chain.	Requesting data/ information	Survey, website
	Forest industry	Requesting data/ information, providing smart technology	Survey, website, statistics
	Digital technology providers	Providing smart technology, machinery, mobility	Survey, website, statistics
	Online service providers (e.g.. for forest owners, forest operators)	Requesting data/ information	Survey

	Forestry consultants	Requesting data/ information, providing smart technology (e.g. AFRY Smart Forestry)	Interview, survey, website
	Forestry publishers or Forestry communication networks	Requesting data/ information (e.g.,Tapio Oy)	Media archive, website
	Policy makers	Institutional framework	Interview
	Environmental agencies		Data exchange
	Research institutes and research networks		Data exchange
	National and European Networks	Requesting data/ information	Data exchange, survey
	European confederations for actors in value chain		Survey, web site
Digital innovation ecosystem (aligned with the Grid)			
Farm/forest tech	SEEDForest is the business-driven open collaboration platform that marries the whole value chain of Finnish forest and chemical industry, process technology, automation, engineering and services companies together and with IT industries. https://seedforest.fi/		
Data exchange in value chains	OmaMetsä (Association for forest owners);, online service for forest owners & forest professionals, https://omametsa.mhy.fi/ eMetsä (StoraEnso)– online service for forest owners, https://emetsa.fi/ Metsään.fi, forest.fi (Suomen Metsäkeskus))– online service for forest owners and service providers. Information about your own forest, maps, information about service providers.		

Digital solution providers	Platform provider; Forestry TEP, https://f-tep.com/, Forestry TEP is an online solution for commercial, research and public sector users to improve forest management while ensuring sustainability and carbon sequestration.
Data infrastructure	
Data ecosystem (existing data system)	
Own data system	
Official statistics/public data provider	Finland: Statistics of Finland, https://www.stat.fi/index_en.html Natural Resources Institute Finland (Luonnonvarakeskus), https://www.luke.fi/en/statistics/directory-of-statistics EU: Eurostat, https://ec.europa.eu/eurostat/data/database
Access to proprietary data sources	Statista, https://www.statista.com/ Orbis, Company data, https://login.bvdinfo.com/R0/Orbis
Open data sources	Forest Centre: Open Forest and nature information, https://www.metsakeskus.fi/en/open-forest-and-nature-information Other: European: Forest based sector technology platform, forestplatform.org Google Earth Engine Data Catalog: https://developers.google.com/earth-engine/datasets

Annex C: Digital technologies/meta-data/definitions

The classifications of digital technologies in agriculture and forestry will be aligned with the grid as defined in WP2. The following digital technologies are considered[2]:

- **Internet of Things (IoT):** This is a system of interrelated devices, computing, and digital means to transfer data independently over networks. For example, applications that record data and provide you with reports about what has been achieved.
- **Virtual reality:** An interactive computer-generated experience within a simulated environment using visuals and sound. In many cases users wear goggles in a three-dimensional, computer-generated environment.

[2] Source: Tech types and tools | AgTech (daf.qld.gov.au)

- **Augmented Reality (AR):** This technology superimposes a computer-generated image on a user's view of the real world in real time to provide a composite view.
- **Cloud Computing:** On demand computer resources, accessing real-time file sharing and collaboration via the cloud.
- **Intelligent apps:** Applications that learn from user inputs to improve the user's experience.
- **Big data:** Very large data sets that are too complex for traditional data analysis and processing, and can be used in modelling, such as weather predictive models.
- **Robotics:** Technologies using mechanical options to substitute for human actions. For example, automated robotic harvesters that seek out and pick fruit and vegetables.
- **Robots:** Robots are self-contained electronic, electric, or mechanical devices programmed to perform discreet tasks, often automatically and intelligently. For example, a palletising robot stacks cartons.
- **Autonomy:** Technology that can function without being told what to do. For example, driverless tractors, cultivators, sprayers and harvesters.
- **Artificial intelligence:** A range of technologies that allow machines to perform tasks and make decisions which normally require human intelligence. This includes robotics, machine learning (ML), speech recognition and other technologies like remote monitoring of crops.
- **Sensors:** A device that measures or detect changes in its environment to present data for decision making. This information can deliver benefits through improved crop and livestock yields; reduced wastage and livestock mortality; automation of farm operations; and maintenance or labour cost savings. Sensors may measure soil moisture/nutrition, weather data and water storage levels.
- **Blockchain:** A distributed secure database, a digital ledger that provides a way for value to be permanently recorded with the product or output. This 'value' also applies to an agricultural commodity, where the whole supply chain is transparent and interacts. Blocks store unique information on transactions in the supply chain to improve efficiencies and build confidence.
- **5G Technology:** Fifth-generation mobile technology, builds on the current 4G network, but increases connection speeds and lowers time delays.
- **Global Positioning Systems (GPS):** This is a satellite-based navigation system that utilises orbiting satellites to reference your position on earth. Used in precision agriculture for automated steering in tractors.
- **Geographical Information System (GIS):** A computer system that captures, stores, checks and displays data in relation to positions on earth's surface. It creates a visual representation of data and performs spatial analysis in order to make informed decision making. For example, to automate the application of fertilisers and seed in precision agriculture.

Annex D: List of stakeholders in the observatory ecosystem

Name	Type	Country	Relationship to 4Growth Observatory partner
AgriDataCube	Hub	The Netherlands	WR- host of the hub
SmartAgriHub	Network	The Netherlands	WR- coordinator of the hub

NPPL	Ecosystem	The Netherlands	WR- coordinator of the ecosystem
Dutch Blockchain Coalition	Association	The Netherlands	WR- strong contact with the association
Farm Accountancy Data Network (FADN)	Network	The Netherlands	WR- member of the network
Ministry of Agriculture, Nature and Food Quality	Ministry	The Netherlands	WR – has strong professional contacts
Robagri	Association	France	CTIFL - Member of the association
UMT ECOTECH	Network	France	CTIFL - has strong professional contacts
FNPF - Fédération nationale des producteurs de fruits	Association	France	CTIFL - FNPF contributes CTIFL research
Légumes de France	Association	France	CTIFL - contributes to CTIFL research
Réseau DEPHY	Network	France	CTIFL – lead of DEPHY vegetable network
Pegasus	Cooperative	Greece	AUA - Projects: ROBS4CROPS, SMATAKIS
Nileas	Cooperative	Greece	AUA - SUPPORT (Horizon) IOF2020
ELGO-DIMITRA	Research Inst.	Greece	AUA - National Projects: DiVine
SEEDForest	Network	Finland	VTT - Network is established and lead by VTT
FinnCERES	Ecosystem	Finland	VTT - The ecosystem is coordinated by VTT
Finnish Forest Industries	Association	Finland	VTT - has strong professional contacts
Finnish Forest Association	Association	Finland	VTT - has strong professional contacts
FTP	Ecosystem	Europe	VTT - has strong professional contacts
Ministry of Agriculture and Forestry of Finland	Ministry	Finland	VTT - has strong professional contacts
International Association for Mediterranean Forests (AIFM)	Association	Mediterranean	AUTH - Members of AUTH's FMRS laboratory
EARSeL	Network	Europe	AUTH - FMRS laboratory is a member
European Forest Institute (EFI) / EFI's Mediterranean Facility	Research Inst.	Mediterranean	AUTH - FMRS laboratory has collaborated with EFI in several European projects.
MedRIN	Network	Mediterranean	AUTH - Members of AUTH's FMRS laboratory

CIHEAM	Research Inst.	Mediterranean	AUTH - Members of AUTH's FMRS laboratory
INRAE	Research Inst.	France	AUTH - AUTH has liaison with units of INRAE
General Directorate of Forests and Forest Environment	Policy maker	Greece	AUTH - AUTH's FMRS laboratory is a permanent collaborator with the Greek Central Forest Service
si-Cluster	Cluster	Greece	AUTH - FMRS laboratory is a member
DjustConnect	Public/private cooperation	BE,NL, FR	ILVO - is part of the steering board/hosts platform
WALLeSmart	Project	Belgium	ILVO - Data exchange and networking partner
ODYC	SME	Belgium	ILVO - Close cooperation with the CC ILVO
Wallonia Digital Farming	Public org.	Belgium	ILVO - Close cooperation with the CC ILVO
Smart Digital Farming	Public org.	Belgium	ILVO - Close cooperation with the CC ILVO
Boerenbond	Non-profit	Belgium	ILVO - part of an ILVO project
Agoria	Non-profit	Belgium	ILVO - Close corporation in projects and advisory
Agribusiness club	Non-profit	Belgium	ILVO - Networking partner for Business project
Experimental Poultry Center	Research Inst.	Belgium	ILVO - Direct contact with farmers,
Hooibeekhoeve	Research Inst.	Belgium	ILVO - Direct contact with farmers
Cooperativa Cerealista Valdorba	Cooperative	Spain	INTIA - belongs to the INTIA advisory network
Sociedad Cooperativa Agraria Orvalaiz	Cooperative	Spain	INTIA - belongs to the INTIA advisory network
AFNA	Association	Spain	INTIA - belongs to the INTIA´s Consultive Advice
DIH IRIS	Hub	Spain	INTIA - participates as research center
Protected geographical indications	Initiative	Spain	INTIA - carries out controls/inspection for PGIs
LITMEA	Association	Lithuania	LITH – Close collaboration between clusters
National Paying Agency	Governmental agency	Lithuania	LITH - Collaboration on the ongoing European project BEATLES

Innoskart Cluster	Cluster	Hungary	LITH - Collaboration on the SUAVE Eurocluster
HPC4Poland EDIH	Hub	Poland	LITH – Close collaboration between clusters
Smart Food Cluster	Cluster	Lithuania	LITH – Close collaboration between clusters