REGIONS 4FOOD
Interreg Europe

European Union
European Regional Development Fund

Action Plan

Provincie Limburg
Province Limburg Regional Ministry,
The Netherlands

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READING GUIDE

This Action Plan is one of the two main deliverables, resulting from the INTERREG Europe project REGIONS 4FOOD, 2018 - 2023. The Province Limburg is a partner in this project.

In these introductory page of the Action Plan, Province Limburg will explain in short about the project and the purpose of the Action Plan, to different audiences; such as the European Commission, regional stakeholders and the regional Management Authority:

The Action Plan explains, in chapter I, II and III, why **two specific actions were identified as most important for digitisation of the Limburg agriculture sector**. These actions are described in more detail in chapter IV. For those who are interested in supporting realising the actions, please have a closer look at chapters I and IV.

For those who are interested to follow the interactive process that led to the Limburg SWOT analysis, the choice of the actions and new policy recommendations, read the chapters II and III.

For those who are interested in the backgrounds of the REGIONS 4FOOD project and in continuation of the cooperation with its partners, please explore the project website *www.interregeurope.eu/regions4food/* and the Annex REGIONS 4FOOD Summary to the Action Plan.

In a glance: REGIONS 4FOOD aims at promoting the digitisation of the agri-food value chain in order to maximise the growth potential of the digital economy and tackle future challenges in this sector.

The REGIONS 4FOOD partners cooperating are:

- Pays de la Loire Regional Council, France
- Seinajoki University of Applied Sciences, Finland
- ART-ER, Emilia Romagna Region, Italy
- South Transdanubian Regional Innovation Agency, Hungary
- Province Limburg, The Netherlands
- Pazardzhik Regional Administration, Bulgaria
- Andalusia Regional Ministry of Agriculture Livestock, Fisheries and Sustainable Development, Spain (lead partner)

The project is funded by the European Commission.

PART I – INTRODUCTION

General information of the Partner

PROJECT	INTERREG Europe Regions4Food PGI05289
PARTNER ORGANISATION CONCERNED	Provincie Limburg
COUNTRY	The Netherlands
NUTS2 REGION	Limburg
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REGIONS 4FOOD Project

Objectives

REGIONS 4FOOD project focuses on maximising the innovative potential of all actors of the agri-food value chain through improving regional policy instruments to promote digitisation and better facing of new challenges in relation to ICTs.

The aim of REGIONS 4FOOD project is to better exploit ICTs potential and deliver innovation to the agri-food industry and hence, smart progress and growth.

Specific objectives of REGIONS 4FOOD project are:

- To bring together regional authorities / RIS3 (Regional Smart Specialisation Strategies).
- To involve quadruple helix actors of the agri-food value chain and connect the world of research and agri-food companies.
- To guide future agri-food policies and strategies.
- To generate added-value from R&I and Smart Specialisation to the agri-food industry.
- To promote public-private governance mechanisms.

Outputs and outcomes

For each region, the issue of digital innovation in the agri-food sector has been approached in relation to the specific policy instrument addressed.

The learning process throughout the project lifetime has concluded with the preparation of regional 7 Regional Action Plans to improve these Policy Instruments which are the main output of the project.

Other outcomes to be highlighted which have arisen from the REGIONS 4FOOD learning process are:

- An increase in the professional capacity at all levels: staff, organisational, regional and beyond the project.
- A reinforcement of cooperation among quality helix actors, both at regional and interregional level.
- Contribution to the new programming period, by providing strategic recommendations.

To achieve those objectives and results, relevant regional policy organisations from seven EU countries have worked together to exchange their experiences and share practices on the above-mentioned policy issue.

The REGIONS 4FOOD partnership is a balanced combination of regions of varying development levels and also in terms of geographical coverage.

As a result of intensive work lasting over three years, partners have produced their regional Action Plans.

Overall and specific objectives of the Action Plan

The Limburg regional objective of the REGIONS 4FOOD -project and therefore overall objective of this Action Plan is:

To help accelerate
the development and uptake of Precision Farming and Digitisation
by the Agrofood sector in Limburg

By suggesting two main actions that fill in gaps in the current innovation ecosystem:

- ***Set up of an Agriculture Digital Innovation Hub (ADIH) to help the agrifood sector understand and embrace the opportunities brought about by digital technologies, to overcome sectoral and environmental challenges***
- ***Set up of a Agro Field Lab support structure, to help provide the means for business incubation of innovative ideas and create conditions for showcase of benefits of new IoT related technologies under farm conditions***

Specific objectives of the Action Plan are:

- To help create a strong regional cooperative, consisting of agriculture enterprises, agri-related industry and ICT developing companies, educational, research and innovation institutions, policy and governmental organisations, advisory and development bodies and representatives of end-users, as a base for co-creation.
- To improve networking tools, necessary for involvement in national, cross border and interregional cooperation on drafting proposals for development of agri-ICT solutions and on development of business cases around the solutions created.

- To improve easy access to knowledge and information; to increase impact and to avoid loss of time, energy and benefits, as a result of being unaware of existing tools or re-inventing the wheel.
- To help agriculture enterprises broaden their business case base, by enabling them to be in the driving seat, alone or in cooperatives, when it comes to putting added value to Farm Data, to be used on their own farms, but also to be sold as farm management intelligence.
- To encourage Educational Institutions to provide educational programmes, tools and curriculums with digitisation courses and interdisciplinary training needed to educate future farmers on aspects beside agronomy.

The prioritization of the main Actions explained:

The choice of the two actions mentioned does not mean that no other actions will be encouraged and supported. With the policy instruments available, other actions will be:

- Investment at farm level in uptake of Precision Farming technology
- Investment at farm level at incorporating Data Management Systems
- Cooperate Innovation on agri-digitisation solutions
- ICT - Training development and participation in ICT – training modules

Limburg however decided to focus on the two actions; a digital platform (ADIH) and the conditions for showcase new technologies; Agro – Field Lab, as a result of the study visits, the peer reviews and discussions with stakeholders. This reflects the outcome of the learning process: These two actions will enable all other activity, because they are missing building blocks of the innovation ecosystem..

This means that in this action plan, Limburg will not focus in first instance on two important recommendations it got out of the research activity, performed in the Province in the first phase of this R4F project:

- Migrate data from relational data bases to Big Data architectures - to create an independent platform
- Invest and support in skills and capability development; this should include additional training for farmers to help them build the skills to utilize Precision Farming technology

In the process of creating a digital platform (ADIH) and the conditions for showcase new technologies, Limburg will take these recommendations into account with high priority.

PART II – POLICY CONTEXT

The Policy Instrument

The Action Plan aims to impact:

☐ Investment for Growth and Jobs programme
X European Territorial Cooperation programme
☐ Other regional development policy instrument

Name of the policy instrument (s) addressed: **ERDF Operational Programme South of the Netherlands**

The Policy Instrument primarily addressed by Limburg in the REGIONS 4FOOD project is the European Regional Development Fund Operational Programme for the South of the Netherlands; taken into account was the current OP for 2014 – 2020, but project results were also linked to the upcoming OP for 2021 – 2027. Although Province Limburg applies several policy instruments for agriculture transition, the OP South is considered the most relevant for the particular needs and challenges to be tackled. In the sub-chapter “Policy Instruments addressed in REGIONS 4FOOD” this is explained furtherly.

Background and rationale

General description of the Partner Province Limburg

The Province Limburg is the Public Regional Authority that represents the most southern region of the Netherlands: Limburg. It's capital is the city of Maastricht; known for the "EU Treaty of Maastricht; 1992". About one thousand employees (civil servants) work for the regional administration. They contribute to a bright future for the region, by establishing and conducting frameworks and by financially supporting the core innovation eco-system. The provincial government is the body responsible for overseeing and implementing policies. The government consists of the democratically elected Provincial Council and its Provincial Executive. The King's Commissioner or "governor" is appointed by the King of the Netherlands. He chairs the Executive and Council.

General description of the region Province Limburg

Numbers

Population of the Limburg territory:
1,2 mln (600.000 of 1,2 mln in rural area)

Agricultural area (% of the total surface):
95.000 ha of 2.200 km2

Agri-Food CONTRIBUTION to the regional GDP:
10% / about 3 bln turnover

Number of companies in the Agri-Food sector (industries, SME, not primary producers):
About 100

International focus

Of the twelve Dutch provinces, Limburg is probably the most European of them all, due to its unique position both geographically and culturally. Limburg shares more borders with Belgium and Germany than with the rest of the Netherlands. Everyday life in Limburg has always involved contact with areas that are today located outside our national borders. Its geographical location and history mean that cross-border cooperation has become a fact of life. Limburg's economy is also closely knit with those of the surrounding areas in Belgium and Germany. Together with knowledge institutes and the province's business and industry community, Limburg is hard at work developing campuses that will forge strong alliances between the education, science, government and business sectors within the region and beyond. This "flagship" concept For R&D&I is called BRIGHTLANDS.

The "Brightlands" over all eco-system approach for R&D&I

Starting in 2012, based on existing and new building blocks,the Limburg region is composing a Research & Development & Innovation framework for cross-over innovation and business development, called "Brighlands". The Brightlands concept consists of four interlinked knowledge locations, called campuses. Brightlands is an open innovation community in Limburg, The Netherlands, with over 29,000 innovative entrepreneurs, researchers and students.
Brightlands works on the following areas of expertise:

- Food, health and nutrition related to "future farming" (high tech), smart logistics and biobased products (Brightlands Campus Greenport Venlo, location Venlo). Agriculture is the driving force of the Brightlands Campus Greenport Venlo.
- Smart materials and sustainable manufacturing (Brightlands Chemelot Campus, location Sittard-Geleen),
- Regenerative medicine, precision medicine & innovative diagnostics (Brightlands Maastricht Health Campus, location Maastricht),
- Data science and smart services (Brightlands Smart Services Campus, location Heerlen),

Brightlands is a as well a community as an investment approach of Limburg and its partners. Brightlands aims to achieve “knowledge crossing borders”; geographical borders, thematic borders and cultural borders between enterprises, knowledge institutions and authorities. From this, new knowledge and solutions to tackle societal challenges become available.

The Brightlands Campus Greenport Venlo highlighted

The Brightlands Campus Greenport Venlo is located in a region in which the agri-food business is one of the most productive, sustainable and profitable in the world; where food innovation is in the entrepreneurs’ DNA. Here people work on breakthroughs in the fields of sustainability, health and digitisation. At Brightlands Campus Greenport Venlo they work together on innovations in agri food that make the world a healthier and more sustainable place. Brightlands Campus Greenport Venlo offers state-of-the-art agri food research facilities in Venlo. Private and public research institutes use them to research safe and healthy nutrition, future farming and biocircular economy. Innovative companies also use the agri food research facilities of Brightlands Campus Greenport Venlo for developing food products, high tech applications and recycled biomaterial.

The campus in Venlo offers laboratories, food processing machines, a center for developing food concepts and testing food products, expertise institutes, pilot greenhouses and fields and kitchen facilities.

The Campus is in an active state of development. In addition to all the R&D facilities in and around the main buildings Villa Flora and the Innova Tower, over 70 companies and entrepreneurs have set up shops (side-offices) at the campus. Also Maastricht University broadens its different laboratory facilities in Venlo.

Overview of the regional Agri-food sector in Limburg

The region in Dutch perspective

The Netherlands is the second-largest exporter of agro-food products in the world, after the United States. Its workforce has the highest added value per FTE in Europe, contributing some 10 percent to the Dutch economy and employment.
The Dutch horticulture sector is among the most innovative and sustainable in the world. 80% of all innovations in greenhouse horticulture originate in the Netherlands. Producers in the agriculture sector invest an average of 15% of their turnover in R&D, more than in many other knowledge-intensive industries. Also, the ratio between inputs and outputs per m2 is extremely high. On the other hand, the large production volumes of the Netherlands, especially in animal products, have a significant negative impact on the Dutch environment; The main future challenge is to furtherly improve efficiency and productivity while decreasing emissions, biodiversity loss, foodmiles and food waste and while securing fair prices and farm income. To tackle these challenges, farm digitization and precision farming are important issues.

Limburg agriculture numbers

There are 3,893 agriculture companies in Limburg, covering 95.000 ha, providing 35,000 jobs (in FTE). On fresh food, flowers and vegetables, the region creates an annual €1 billion in turnover including food processing, suppliers, logistics. Of this, the turnover in fruit, vegetables, flowers and plants is €600 million. The turnover on the husbandry and diary chain is 1,6 billion. *(numbers collected at the start of REGIONS 4FOOD in 2018, minor changes possible)*

For agribusiness-development, Limburg focuses on the Northern part of the region; Greenport Venlo.
This second largest horticultural region in Europe is located in North Limburg, with 18,000 ha of production area. Limburg entrepreneurs, research and education partners are eager to address global challenges by creating new methods of food production, encouraging healthy food consumption, and developing enhanced food nutrition. Greenport Venlo was the site of Floriade 2012 World Horticultural Expo, with more than two million visitors.

Agri-activity in Greenport Venlo includes: Horticulture (mainly in glass houses), Floriculture, Arboriculture, Vegetable Crop Seed development & propagation, Dairy, Poultry (our regional sustainable brand Kipster), Pig husbandry, Mushrooms, Feed Industry, 3-D foodprinting, Vertical Farming, Short Supply Chains - with regional sustainable brands “Die Frischen” (The Fresh Guys) and “Van Eigen Bodem” ((From your own Backyard) - Fresh Food Transportation, Trade, Customs Services, E-Trucking, Climate Controlled Reever Transportation, Packaging, Biobased Materials, Grow Technology (Green Houses, Climate Control, Robotisation, Precsion Farming, LED Lightning), Landscape Management, Water Purification, Water Management, Marketing, Digital Services, High Tech Farming, Personalized Nutricion.

The main agribusiness complexes in the region are Venlo Tradeport North and the ZON Fresh Park (127 hectares) and the greenhouse horticulture clusters California (235 hectares) and Siberia (200 hectares).

The AKIS (agriculture knowledge & innovation system) Limburg

Public Knowledge institutions in Limburg are: “Maastricht University” (Economics, Health, Nutricion), three Universities for Applied Sciences; “HAS” (agro, ICT), “Fontys” (Logistics, Marketing), “Zuyd” (ICT, Gastronomy), and the main agri-school for vocational training “Cita Verde”.

Main public R&D cooperation is performed with WUR Wageningen, RWTH Aachen (Institute of Biology) and KU Leuven. There are also an number of global private agri-food related R&D companies located in the region, such as BASF Crop Science, DSM and WP Haton.

The regional government finances Brightlands, including a new part of the AKIS: an agri-development Business Team at LIOF, the Regional Development Agency for Industries and SME.

Overview of the Limburg Policy on Agriculture Digitisation

One of the topics in the Limburg Agriculture Strategy "Farmers headed for the Future" (2020; 'Koers naar de Toekomst") is on Future Farming and includes naming the importance of maximum uptake of Precision Farming technology and the importance that farmers control and add value to their data themselves, either for use on the farm or in the collective or to create intelligence that is fit to market. Limburg represents the Netherlands in the EIP – AGRI Subgroup on Innovation and has supports the latest insights of the SI: Digital technologies have the potential to revolutionise agriculture by helping farmers work more precisely, efficiently and sustainably. Data-driven insights can improve decision-making and practices and help increase environmental performance, while making the job more attractive to younger generations. Digital technologies also have the potential to offer consumers greater transparency as to how their food is produced. They offer opportunities to renew business models in value chains by connecting producers and consumers in innovative ways. Beyond farming, digital technologies are key to make rural communities more attractive, smart and sustainable, reducing problems related to remoteness and improving access to services. Research and innovation are vitally important to facilitate and accelerate digital transformation in agriculture and rural areas for the benefit of both citizens and businesses. When it comes to Farm Data Capitalisation, Farmers are increasingly adopting new technologies that are gathering data from farm operations and processing it in view of delivering useful information. However, often the digital advantage offered by such technologies remains unused, or not used to its full potential because in many cases farmers are unaware of the full extent of the data gathered and processed in the background. Only a small percent of farmers is using that data to its full potential. It is important that farmers are empowered to decide on their data, and benefit from the value of their data.

Digital technologies and data-based solutions can help farmers work more precisely, efficiently, and sustainably, improving decision-making and farming practices, and can help to increase farms' environmental performance and competitiveness, whilst also making farming jobs more attractive to younger generations. At the same time, agriculture is expected to be more performance and efficiency oriented, thus requiring greater monitoring efforts in data, ideally without increasing administrative burden.

Farm data can be further capitalised in cooperation projects with the application of big data technologies, even for technologically less advanced farms who can benefit from the data sets generated on other farms. In addition, publicly held data can provide input to precision

farming application, if made available in a tailored way. Data sharing considerations may also include possibilities to reduce administrative burden. In other words, increased systematic, and targeted business to business, business to government and government to business data sharing (B2B, B2G, G2B) in agriculture, offers the opportunity to increase the environmental and economic performance of farms.

To help Limburg farmers succeed on the objectives mentioned above and the Action Plan paragraph under Part I, the Province Limburg first encouraged its regional stakeholders to deliver input to the Limburg Regional Strategy RIS3 (Regional Research and Innovation Strategy for Smart Specialisation) and its Agriculture Strategy "Farmers headed for the Future" (2020; 'Koers naar de Toekomst"). Next, the Province Limburg urges it's stakeholders to make good use of the policy instruments available; regional, national and European; for grasping opportunities and for tackling challenges. Most of these policy instruments are being funded or co-financed by the Province Limburg (5 – 10 mln € a year for the agriculture sector). Financial means however are increasingly scarce, while challenges, such as Climate Change, Biodiversity loss, Cyber Security and Food & Energy independency, grow fast. It is a daily concern that the lessons learnt from dialogues between policy makers and stakeholders are implemented in strategies, roadmaps and tools on either side, to create maximum impact.

The Province Limburg SWOT Analysis on Agriculture Digitization

Following the REGIONS 4FOOD methodology, the SWOT was performed in multiple steps. At the start of the project, Needs and Barriers were identified and translated in preliminary Conclusions towards Actions and Strategic Recommendations.
In the next steps, a regional stake holder survey was performed, after which conclusions were refined and even furtherly refined during the REGIONS 4FOOD process of knowledge exchange; by sharing Best Practices, performing Study Visits and Action Plan Peer Reviews. Limburg has not found inconsistency between the basis findings at the start of the project and the detailed results at the end of phase 1 of the project.

SWOT

Strengths	Weaknesses
▪ Concentrated production area of 95.000 agriculture ha out of 2100 ha - with low ecological footprint per kg food product ▪ High production volumes on horticulture; 1 bln turnover annual ▪ High production volumes on husbandry and dairy; 1,6 bln turnover annual ▪ Processing industry companies nearby ▪ Agro – Machinery industry nearby ▪ International firms present on climate control, grow tech, photonics, plasma-tech, precision farming, seeds & propagation ▪ Good internet coverage ▪ Supportive regional government ▪ Maastricht University ▪ 50% National High Value Farmland, 3 National Wildlife Parks ▪ 2 agro-related Universities of Applied Sciences and Green Tech Lab ▪ Nr 1. Logistic hotspot of the Netherlands ▪ Full fresh logistics and fresh trade chain present, direct connectivity Rotterdam / Venlo / Istanbul / Baku / China ▪ Number of agro R&D labs; Feed Design, LED grow tech, BioTreat, Innoveins, Light4Food ▪ Unique smart fresh logistics capacities ▪ Unique knowledge about healthy diets ▪ Resilient economy, modern companies	▪ High rates of N3 and CO2 emissions, need for precision farming solutions ▪ Deploition of farmland, increasing droughts and decreasing biodiversity and soillife ▪ IOT / ICT skilled workers seek careers elsewhere ▪ Little experience with data-ownership and use of big data, lack of trust ▪ Valley of Death threatening innovation projects ▪ Limited financial room for high cost of investments and updates IOT ▪ AKIS (agriculture knowledge & innovation system) fragmented and incomplete ▪ Too much focus on volumes and cutting costs, not enhough focus on value-added products and fair prices
Opportunities	**Threats**
▪ Better use of relational capital / innovators, business developers, co-creators, strong group of front runners ▪ Better use of young capital with new skills ▪ Presence of new actor Brightlands Campus Greenport Venlo (BCGV); lab facility, communities ▪ Cooperation between BCGV and Brightlands Smart Services Campus ▪ Cooperation with Greenports NL ▪ Digital Innovation Agri Hub ▪ Community building ▪ Chain cooperation ▪ E- and IOT learning for farmers ▪ More efficient implementation of incubation	▪ Not enough will to invest in change ▪ Not enough will to invest in new skills, knowledge exchange, communication ▪ Unexpected competition on the international market ▪ Lack of alternatives, needed to produce in a sustainable way ▪ Tendency to avoid cooperation outside direct bordering regions ▪ Tendency to invent the wheel rather than to explore existing solutions ▪ Growing Gap between “traditional” company strategies of primary producers and digitising society – need to make way for the young farmers generation

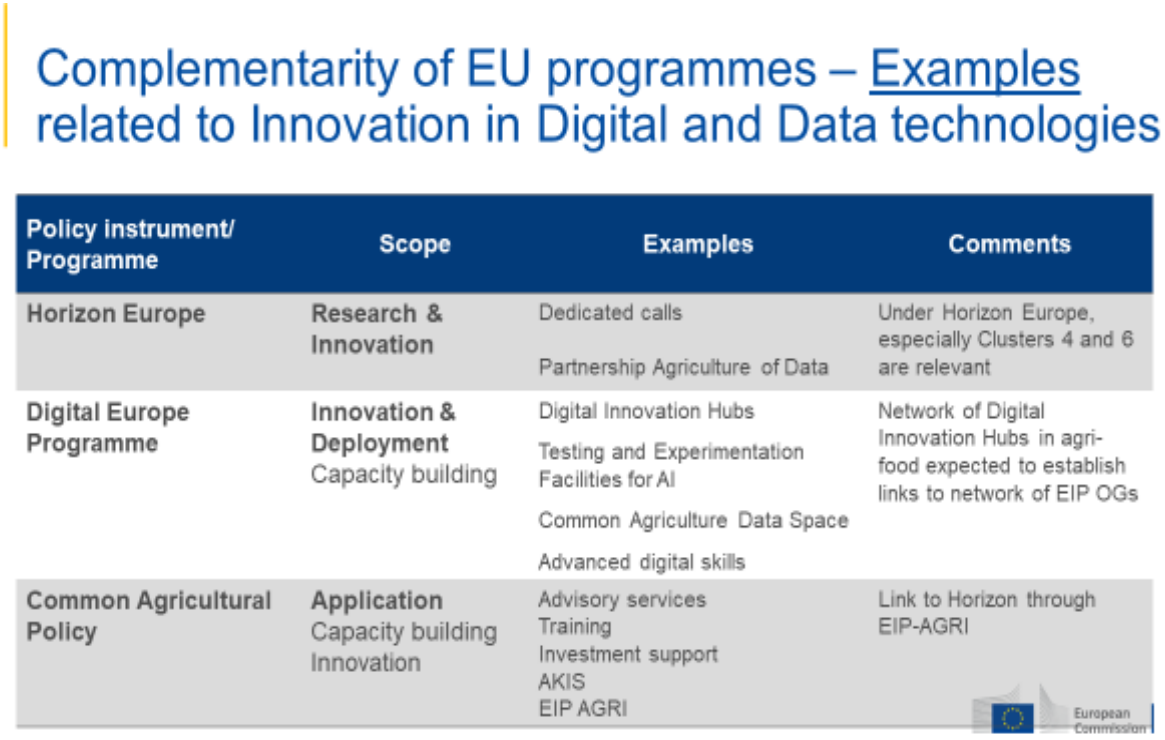
Policy Instruments addressed in REGIONS 4FOOD

Co-financincing principle, Policy Instrument profile and responsibility

The regional government Province Limburg takes the lead where supra-local issues are concerned. These encompass a wide variety of areas such as the economy, culture, planning and internationalisation. The regional government works closely with a range of partners such as businesses, educational institutions, interest groups organizations and other government bodies.
The Province Limburg is partner in a number of EU cooperatives, networks and consortia. One is the S3 initiative “Traceability & Big Data in Agriculture”.

Looking at the challenge of Digitisation, the Province Limburg applies a number of funds and measurements. Every policy instrument has a specific profile, when is comes to interventions, actions and elgible costs. Depending on the actions needed, stakeholders are advised to propose to the applicable fund:
1. Structural Funds (co-financed), such as cross-border and cross-regional INTERREG programs and the Operational Programme for investing the Structural Funds in the Southern part of the Netherlands (OP South), “Measure SME Valorisation”; are best used for strengthening the Innovation Ecosystem and infrastructures, for knowledge exchange, for development of education and for co-creation lead by industry, as the OP South instrument is focusing on SME innovation and on public innovation infrastructure.
2. Pillar 2 of the Common Agriculture Policy; the Rural Development Programme and the CAP National Strategic Plan (co-financed) are best used to support farmers and farmers cooperatives, by offering the measure for Cooperation on creating market value, the measure for Innovation Cooperation through the European Innovation Partnership Agriculture (including investments needed to develop the innovation and to encourage early adapters to take it on board)”, the measure that supports early replacement of grow systems and equipment and the measure for Knowledge Transfer towards and amongst farmers. Innovation teams (Operational Groups) co-create solutions, in which farmers are the primary developers and beneficiaries.

3. The funding from the Province's 100% own resources, linked to the "Limburg Agrifood Programme", is best used to support projects that do not fit in EU or national programmes, but are considered important and urgent, such as networking and communication facilities, and minor seed money grants, meant to explore and articulate an idea. These are executed by the public Limburg Economic Development Company LIOF;
4. Province Limburg investments in all of the Brightlands Campuses, such as the Brightlands Smart Services Campus and the Brightlands Campus Greenport Venlo, help build the innovation base..
5. Province Limburg co-finances projects supported by a number of national policy instruments, such as the "Regional Deal" and the so called Topsector programmes for Research Consortia.



Complementarity of EU programmes – Examples related to Innovation in Digital and Data technologies

Policy instrument/ Programme	Scope	Examples	Comments
Horizon Europe	Research & Innovation	Dedicated calls Partnership Agriculture of Data	Under Horizon Europe, especially Clusters 4 and 6 are relevant
Digital Europe Programme	Innovation & Deployment Capacity building	Digital Innovation Hubs Testing and Experimentation Facilities for AI Common Agriculture Data Space Advanced digital skills	Network of Digital Innovation Hubs in agri-food expected to establish links to network of EIP OGs
Common Agricultural Policy	Application Capacity building Innovation	Advisory services Training Investment support AKIS EIP AGRI	Link to Horizon through EIP-AGRI

European Commission

Example of complementary financial targeting of the Regional Roadmap

The Province Limburg is responsible for executing and co-financing both the Structural Funds and the regionally dedicated Rural Development funds. The responsibility for correctly applying EU Regulation and performing outcome and impact is shared with the National or Regional (Management) Authority.

ERDF and EAFRD funds managed by Limburg (figures current period):

ERDF: https://www.stimulus.nl/opzuid/
113 mln EU / 350 mln total public

EAFRD: https://regiebureau-pop.eu/
1/12 of 765 mln EU / 2 bln total public

All Policy Instruments identified

ERDF OP South 2014 – 2020 / 2021 – 2027

The Policy Instrument primarily addressed by Limburg in the REGIONS 4FOOD project is the European Regional Development Fund Operational Programme for the South of the Netherlands. Although Province Limburg applies several policy instruments for agriculture transition, the OP South is considered the most relevant for the particular needs and challenges to be tackled. It is meant to facilitate participation in innovation cooperatives (regional, national, international) and innovation and R&D related investments in the region. The spearhead of the OP-South is promoting innovation in the context of the five transitions (energy transition, raw materials transition, climate transition, agriculture and food transition and the health transition). The program is mainly aimed at innovative SMEs and at strengthening cooperation between the business community, knowledge institutions and governments. It is being executed by Stimulus, the formal Managing Authority are the provinces Limburg, Zeeland and North Brabant,

Other EU policy instruments applied by and co-financed by the Province Limburg for agriculture transition

- EARDF CAP National Strategic Plan 2021 – 2027; The National Strategic Plan is the successor of the Rural Development Program of the Common Agriculture Policy, the main EU instrument aiming at developing a sustainable and competitive agricultural sector and a liveable countryside. Under the new NSP both the Guarantee Fund (Pillar 1) and the Rural Development Fund (Pillar 2) are integrated. It is also one of the main (financial) instruments to support the Farm2Fork Strategy, the Green Deal approach for the Agriculture sector.

Cross cutting targets innovation, digitisation, AKIS

- INTERREG Cross Border Programmes; these are European programmes intended to stimulate cross-border cooperation. The programmes provide subsidies for collaborative projects along the European borders. The aim is to stimulate innovation and sustainability in border regions and to reduce barriers that are create by the fact that borders complicate structures and policies.
  - ✓ *Interreg Euregio Maas-Rijn*
  - ✓ *Interreg Vlaanderen-Nederland*
  - ✓ *Interreg Deutschland-Nederland*
- INTERREG North West EuropE
- INTERREG EUROPE

Other EU policy instruments identified as applicable for Agri digitalization

- HORIZON EUROPE SC6 / (TRL 6-9 / focus on turning knowledge into practice and business)
- Open Calls under HORIZON EUROPE funded projects, such as:

SmartAgriHubs MA
smartagrihubs.eu
Total cost: 22.4 M€
EC contribution: 20 M€
Coordinator: Wageningen University
Nov. 2018 – Oct. 2022 (+ prolonged)

SmartAgriHubs is accelerating the digital transformation of the European agri-food sector. It will consolidate, activate and extend the current ecosystem by building a network of digital innovation hubs that will boost the uptake of digital solutions by the farming sector. The project will achieve this by integrating technology and business support in a local one-stop-shop approach involving more than 100 project participants from all regions in Europe.

FAIRshare MA
fairshareproject.eu
Total cost: 7 M€
EC contribution: 7 M€
Coordinator: TEAGASC
Nov. 2018 – Oct. 2022

FAIRshare aims to mobilise the rural advisory community to take ownership of digital tools and make best use of analytics and communication technologies for agricultural sustainability. The project engages the independent farm advisor community, through sharing of tools, expertise and motivations across various advisory and farming contexts across the EU.

DESIRA will develop the concept of socio-cyber-physical systems to advance understanding of the impact of digitalisation in rural areas, linking analysis directly to the sustainable development goals. A virtual

DESIRA MA
bit.ly/2XdO1og
Total cost: 5 M€
EC contribution: 5 M€
Coordinator: Universita di Pisa
June 2019 – May 2023

research environment will connect agriculture, forestry and rural stakeholders and will inform the co-developing of scenarios and policies.

NIVA MA
bit.ly/2KlrCPP
Total cost: 10.5 M€
EC contribution: 10 M€
Coordinator: Wageningen University & Research
June 2019 – May 2022

NIVA delivers a suite of digital solutions, e-tools and good practices for e-governance and initiates an innovation ecosystem to support further development of Integrated Administration and Control System (IACS) for CAP monitoring. It will explore the use of IACS data for purposes and develop relevant standards for information flows. The project's results promote a transparent, simpler administrative process that contributes to a future CAP that increases environmental performance.

Outcomes of the regional mappings of REGIONS 4FOOD in Limburg

During the 2nd semester of the project in spring 2019, the partner regions of REGIONS 4FOOD implemented regional mappings for identification of barriers, needs, relational capital and good practices related to the digitalisation of the agrifood sector, as well as creation of catalogues for data and technology usage in the priority value chains in the agrifood sector of the region. The methodology is further explained in PART III of this document.

The results of the mappings formed the base for the Action Plan, as they indicated the current situation and future needs of the sector; insights on how to design efficient regional policies promoting the digitisation of the agrifood value chain; and thus, what the Action Plan should focus on. The Limburg results are summarized below.

Data-Tech Catalogues results

The value chains included in the Data-Tech Catalogue in Limburg were poultry meat, eggs, and greenhouse horticulture products Fruit & Vegetables, The catalogue assessed e.g. data utility, data usage, traceability, technology maturity, interoperability and technical surveillance. Unfortunately, the Limburg response to the survey was rather low (6) and found not be a good representation in terms of the market share. On the other hand, the surveys taken were near 100% completed and the reliability score turned out to be 4,1 out of 5. Also, by performing additional activity, such as adressing the topic in stakeholder meetings and putting extra effort in other aspects of the surveys, Limburg succeeded in obtaining information needed for the Action Plan.

The main recommendations resulting from the Data-Tech suvey were:

- ✓ Encourage fair pricing, since digitalisation on it's own will not solve the biggest challenge
- ✓ Migrate data from relational data bases to Big Data architectures like an independent platform
- ✓ Protect the producer of the data, secure ownership, apply the Code of Conduct on Farm Data
- ✓ Support Short Supply Chains; it will lead to more transparency and social coherence, which will improve data sharing
- ✓ Build trust by sharing success stories within the EU
- ✓ Stimulate "learning circles EU"
- ✓ Stimulate cross-border sharing of products/knowledge

Barriers and needs related to the digitisation of the Limburg agrifood sector

The mapping operated in five different dimensions, which are the key enablers of the digitisation process: legal, technical, organizational, economical-financial and educational. The mapping included surveys, analysis of several national documents related to the National Precision Farming Field Lab Strategy and EU documents related to CAP preparation of the chapter on Farm Digitisation, obersation of discussion on the online Community of Practice (website Germination Point / Kiempunt) and semi-structured interviews with key actors. The regional results were finalized with the regional stakeholder group of REGIONS 4FOOD.

The overall input on all topics is structured in the schedule below. It has been added to the Action Plan, because the more detailed information is important for the monitoring of the second phase of the project.

NEEDS, BARRIERS, GOOD PRACTICES AND RELATIONAL CAPITAL IDENTIFIED IN RELATION WITH THE DIGITISATION OF THE REGIONAL AGRIFOOD VALUE CHAIN		
A. NEEDS AND BARRIERS	B. RELATIONAL CAPITAL	C. GOOD PRACTICES
Five main needs and barriers identified along the process and summary diagnosis. <u>Needs:</u> 1. Co-creation: Trust to be transparent and share 2. Knowledge sharing and building 3. Education and research 4. Law, regulations (property data) 5. Fair value based chains <u>Barriers:</u> 6. Distance in between innovators and the farmer (trust IoT, time, resistance to change) 7. Return on investment 8. Shortage ICT-employee's 9. Not enough frontrunners Involving farmers	*Five most relevant actors identified throughout the process, role, relevance, commitment from a prospective perspective .* <u>Actors:</u> 1. LIOF Regional Development Company, department Agriculture Support (LIOF: Collecting needs and ideas, support business case development, screening and articulation of innovation proposals) 2. Brightlands Campus Greenport Venlo, YOOKR company (Providing accommodation and lab facilities, commitment on dashboard connecting & showing relevant steering data to improve output in agri-food sector) 3. Fontys & HAS Universities of Applied Sciences, Greentech Laboratory (Interlinking students, entrepreneurs, engineers and scientists, providing accommodation and Green Tech Lab facilities) 4. Blue Innovation / Blue Engineering company (Co-creation of new technologies and cross-over cooperation, connecting front-runners outside the region and internationally) 5. ZON Fruit & Vegetables	*Five most relevant good practices identified along the process, summary diagnosis of relevance and transferability .* <u>Good practices</u> 1. Treemania; Soil Condition measurement 2. YOOKR; Smart Data Dashboard 3. Wolky Tolky; wireless weather forecast grow-tool 4. Brite Solar; Dye Sensitized Solar Cell (DSSC) transparant solar panels 5. Microfan ARGOS; Computer controlled climate systems live stock housing 6. Fontys Green Tech Lab; students, teachers and entrepreneur co-creating solutions

	company, auctioneering / trading company (Creating system innovation on trade – data management for producer organisations and organizing training) 6. Province Limburg, financial /organizational facilitator (facilitating financial support and networking by lobbying and policy development)	

Main dimensions in which action should be undertaken to address the needs and barriers identified (legal, technical, organizational, economic/financial or educational).	*Main dimensions in which actions should be undertaken to improve the relational capital of the region focused on the implementation of digitization processes in the territory.*	*Main dimensions in which action should be undertaken to transfer the good practices identified (legal, technical, organizational, economic/financial or educational).*
1. Legal: Legislative Frameworks (Implementation Code of Conduct for Data Ownership) 2. Technical: Methods & Tools for analysis (Content definition and related data comparability & exchangeability) 3. Economic: Other (A farm – benchmarktool with 3 categories of indicators: 1. Financial (e.g. sales, costs and margins); 2. Technical (e.g. utilisation of fertilisers or animal health products); and 3. Productivity (e.g. outputs such as crop yields or progeny sold per breeding animal). 4. Legal: Robotics; lack of confidence or certainty about who uses data (Agro-industries are much better equiped and much quicker to arrange data-ownership than farmers) 5. Technical: High cost of investment IOT (develops quicker than investment budget for replacing existing tech systems, money can not keep up with technology)	1. Create investment support by making use of financial interventions in EAFRD of EARD policy instruments, nationally / regionally co-financed 2. Facilitate a DIH as a permanent building block of the regional AKIS, to support fair data-sharing cooperatives and good knowledge exchange 3. Facilitate cross cutting innovation development between IoT and agri-partners 4. Facilitate front-runners with shared risk tools and support investment in demo-sites 5. Add educational Digitisation Curriculae to all levels of colleges, universities and training centers	1. Organizational: Creation of a network (Digital Innovation Hub Community, triple Helix, an independent partnership to exchange and build knowledge) 2. Educational: Use & implementation Big Data (lack of awareness about the technology's potential 3. Economic-financial: Mobile devices (insufficient access to finance)

Five specific insights coming out from the analysis of the results in this field.	*Five specific insights coming out from the analysis of the results in this field.*	*Five specific insights coming out from the analysis of the results in this field.*
1. Many technical companies that supply agricultural machinery or automation solutions operate internationally. What is low-tech here is quickly ' high-tech ' abroad. This means that these technical companies maintain their business model (i.e. the margins are good with minimal innovations (customer requested changes)). A possible solution is, as mentioned in 1, High-Tech trial Gardens, where (latent) needs are found from the agricultural sector and insights are generated for existing engineering company as start-ups/spinn-outs. 2. A clear chain development from head to tail, from a high-tech perspective, there are relatively few companies that serve agricultural sector as in Create/process industry 3. This is the closest thing to the agricultural entrepreneur and from the pressure on the workforce, the need is clear. (Co-) funding is desirable, due to high start-up investments 4. From the customer side, We need more frontrunners and cross thinkers, which will get space for this transition 5. Many agricultural entrepreneurs have years of their business, if not from generation to generation. It has always been ' people ' work and	1. No dialogue between producers and regional agri-hightech industries (upstream / downstream) such as Microfan, Hotraco, on a regional level – > potential 2. No shared strategy on Agri – digitisation development and facilitation by AKIS 3. Plenty potential for developing and putting to market of new IoT related products & tools 4. People do not know each other, the role, position, added value 5. Future awareness is not common in all areas	1. Much knowledge is not being exchanged yet, brokers needed 2. Sharing visioning and strategy is difficult 3. Time and money 4. Building trust on level farmers is challenge 5. Access to and where to find funding is unclear

that is the activity that knows and also loves. If digitisation and automation are realized, this will no longer be the ' beloved ' company that lives within the family atmosphere and thus will be difficult to enter. There are even examples where engineering companies have set up their own ' farmer's business ' and thus can make technology within the sector. Here lies a huge threshold to overcome.		

Five recommendations for public policies to better address the main needs and barriers identified along the process.	*Five recommendations for public policies to improve the region's relational capital .*	*Five recommendations for public policies to transfer the lessons learned by the good practices identified along the process.*
1. Focus on the chain and track and trace to improve food safety 2. Access to world developments 3. Access to industry-specific knowledge and data 4. (Financial) support 5. Legislation focused on valuing, storing and ownership data 6. High-Tech Pilot Garden locations for demonstrators/pilots/seminars/excursions 7. Transparency of data 8. Standardize, choosing an IoT communication protocol, also allows to use a blockchain 9. Develop or better introduce and disseminate appropriate/new methods and models aimed at collaborating in eco-systems/multi-actor networks instead of thinking only in "chain partners" so that it contributes to the required other mindset of entrepreneurs.	1. The community and the DIH are needed and can be built 2. Supporting collaborative research 3. Supporting facilitators for teambuilding (increasing trust, communication skills, cooperation skills) 4. Organising seminars (Design thinking, international speakers) 5. Encourage cooperation with university and research centre Wageningen	1. Support in retrieving fundings 2. Making possible: sharing knowledge crossing-borders 3. Making accessible: tools developed within EU with EU-funding 4. E-learning for farmers 5. Stimulating and support for farmers to improve by use of digitisation

Key needs identified:

Legal: Legislative Frameworks (Implementation Code of Conduct for Data Ownership)

Technical: Methods & Tools for analysis (Content definition and related data comparability & exchangeability)

Organizational: Creation of a network (Digital Innovation Hub Community, triple Helix, an independent partnership to exchange and build knowledge)

Economic: Other (A farm – benchmarktool with 3 categories of indicators: 1. Financial (e.g. sales, costs and margins); 2. Technical (e.g. utilisation of fertilisers or animal health products); and 3. Productivity (e.g. outputs such as crop yields or progeny sold per breeding animal).

Key barriers identified:

Legal: Robotics; lack of confidence or certainty about who uses data (Agro-industries are much better equiped and much quicker to arrange data-ownership than farmers)

Technical: High cost of investment IOT (develops quicker than investment budget for replacing existing tech systems, money can not keep up with technology)

Educational: Use & implementation Big Data (lack of awareness about the technology's potential

Economic-financial: Mobile devices (insufficient access to finance)

Conclusions based on the needs and barriers:

- Create investment support by making use of financial interventions in EAFRD of EARD policy instruments, nationally / regionally co-financed
- Facilitate a DIH as a permanent building block of the regional AKIS, to support fair data-sharing cooperatives and good knowledge exchange
- Facilitate cross cutting innovation development between IoT and agri-partners
- Facilitate front-runners with shared risk tools and support investment in demo-sites
- Add ecucational Digitisation Curriculae to all levels of colleges, universities and training centers

Relational capital related to the digitisation of the agrifood sector

Another part of the mapping was the identification of the main actors, skills and commitments considering relational capital related to the digitisation of the agrifood sector.

The key actors and their roles identified:

- LIOF Regional Development Company, department Agriculture Support
- Brightlands Campus Greenport Venlo, and companies / inhabitants
- Fontys & HAS Universities of Applied Sciences, Greentech Laboratory
- Blue Innovation / Blue Engineering company
- ZON Fruit & Vegetables company, auctioneering / trading company
- Province Limburg, financial /organizational facilitator

Main actor skills and commitments identified:

- LIOF: Collecting needs and ideas, support business case development, screening and articulation of innovation proposals
- BCGV / Inhabitants: Providing accommodation and lab facilities, commitment on dashboard connecting & showing relevant steering data to improve output in agri-food sector
- HAS/Fontys: Interlinking students, entrepreneurs, engineers and scientists, providing accommodation and Green Tech Lab facilities
- Blue: Co-creation of new technologies and cross-over cooperation, connecting front-runners outside the region and internationally
- ZON: Creating system innovation on trade – data management for producer organisations and organizing training
- Province Limburg: facilitating financial support and networking by lobbying and policy development

Main conclusions on the relational capital

- The community and the DIH are needed an can be built
- Much knowledge is not being exchanged yet, brokers needed
- No dialogue between producers and regional agri-hightech industries (upstream / downstream) such as Microfan, Hotraco, on a regional level – > potential
- No shared strategy on Agri – digitisation development and facilitation by AKIS
- Plenty potential for developing and putting to market of new IoT related products & tools

Policy recommendations resulting from the mapping process

In the process of the mappings and the discussing the results with the stakeholder group, some general weaknesses determined, related to agri-digitisation in Limburg.
In spite of the Brighlands approach, including expectancy of close cooperation between the Smart Services Campus and Greenport Venlo Campus, so far share fewer projects or joint development strategies occuured than the Province Limburg was expecting – although the Brightlands concept is still young. There was some exchange and interaction when it came to events like hackatons or exchange of ideas on digitisation between IoT companies present at the Greenport Campus and IoT companies at SSC. But much more cooperation on Articial Intelligence and Augmented Intelligence, would be possible; such as algorithm development and raising platforms. Other potential unlocked was related to lack of cooperation between high tech agro industries in the area and primary producers that are interested in co-developing Precision Farming machinery and tools. Raising an Agri DIH and a Agro Field Lab for Future Farming would ease interaction and increase of activity.

Key recommendations for Limburg collected were:

- To create really successful business cases, it is key that farmers change their stakeholder position in agri-digitisation ; from a buyer / user position to a developer / marketeer position – so new calls for proposals should focus on “data intelligence” as a new element in the farming business model; data-ownership / IPR
- Today’s education for future farmers should include the digital angles of agronomy; new calls for proposals should be about the innovation eco-system, facilitating the community, field labs, education tools and Curriculae
- Limburg needs to invest in its innovation ecosystem and in knowledge on the topic by also developing a Community of Practice. This CoP could also interact with CoP from the partnering regions. The enabling environment for CoP’s was raised and is called “Kiempunt” (The point of Germination; as in “the birth of an innovation”)

Contribution of the Action Plan to the improvement of the targeted Policy Instrument

The current OP South can be described as follows:
The main objective of the policy instrument is to create a strong triple helix (research, enterprises and public authorities) innovation eco-system for cooperation and co-investment and to financially support projects and initiatives.
Both the innovation eco-system (R&D labs, field labs, living labs, education, staff, communication) and the SME-projects have to support the S3 strategy of the region and the sectors that were selected.
Thematic priority is TO1 - Research and innovation, particularly the objectives:
* 1B1: Emphasizing and expanding the open innovation system in the South of the Netherlands, creating cross-overinnovation between S3 priority sectors, also between national and international clusters, enhancing SME participation.
* 1B2: Strengthening the SME-potential to create added value and provide solutions for societal challenges and to strengthen the priority clusters.
The investment budget consists of EU-funding, cofinanced by Regional Authorities such as Limburg and the National Authority.
The programme supports innovation, the development of new solutions and the implementation / roll out to early adapters of the new solutions.

As indicated in the approved Regions4Food proposal, preparing and performing the Action Plan should lead to improvement of the policy instrument selected: the
ERDF Structural Fund, Operational Programme South of the Netherlands (OP South).
Province Limburg expects the work due related to Action Plan and its actions to bring Limburg closer to realising crucial support structures for Agro-Digitisation that are currently not present in the regional innovation-ecosystem.
The Province Limburg plays a strong role in drafting the national and regional new EU programmes EFRD and EAFRD, by participating in EU advisory bodies such as the European Network for Rural Development Subgroup Innovation EIP – AGRI, the Strategic Working Group SCAR AKIS, the Vanguard Initiative and several S3 Platforms. Representing the Dutch Inter Provincial Assembly, Limburg helps combining regional, national and EU insights in the programming process. Limburg participates in drafting several chapters of the Dutch National Strategic Plan for the Common Agricultural Policy 2023 -2027 and in

drafting the new RIS3 for the South of the Netherlands. The overall Dutch SWOT analyses applies to Limburg as well. Besides that, the regionally performed survey's and research have brought specific challenges to the surface, as mentioned in the previous paragraphs. These are constantly being brought to the attention of the policy instrument Programme Teams and Management Authority bodies..

The most direct contribution of the Action Plan to policy improvement is by having new projects financed by the EFRD OP South. To achieve this in the current programme 2014 – 2020 turned out not to be possible, because of the progress of the OP; by the time the main actions were selected, the OP South was already almost completed and the remaining calls for proposals targeted other topics, such as energy and labour. However, because of the co-drafting activity, there is plenty possibility to make good use of the new programmes to address the Action Plan.

The preparation of the new OP South Programme is fully in progress. By already mentioning points of improvement in the draft stage of the programme outline, Limburg has succeeded to increase the attention on the need for Precision Farming, Agrofood & Farm Field Labs and digitisation. When the new OP South is presented and next approved by the European Commission, Limburg and its partnerregions in South Netherlands; North Brabant and Zeeland, will furtherly define topics, calls and criteria for selecting and prioritising project proposals in the months and years to come.

Main point of improvement of the current OP South – that was identified in relation to the topic Agri-Digitisation:
The ERDF OP South 2014-2020 facilitates good initiatives. But it is not being used sufficiently to steer on significant change and leverage. It is important to exchange best practices EU wide, especially on those issues that on S3 level have been identified as "game changers", such as agri-digitization, so that the impact of the OP grows.
This is why with the Actions in the AP, aim to improve the ecosystem; the conditions rather than the projects.

Concrete recommendations for the upcoming EFRD OP South related to the actions selected in the Action Plan are:

- The ERDF OP South currently does not yet focus enough on ecosystem aspects of digitization.
- A Digital Innovation Hub is a necessary building block of any region's R&D&I infrastructure, as it connects entrepreneurs and technologies; agriculture producers, agritech developers and ICT experts team up to create tailored solutions for all digitizable aspects of the enterprise.
  The action will encourage the next ERDF OP South to invest more EU funding on the community aspects of innovation, the importance of data-ownership and new skills for farmers.
- Fieldlabs are necessary building blocks of any region's R&D&I infrastructure. Here TRL 1-4 research results can be transformed tot TRL 5-9 inovation projects, which can be put to the test, prepared for market introduction and valorized.
  The action will encourage the next ERDF OP South to invest more EU funding on long term shared innovation facilities, besides on onetime investment projects.

Lessons learnt from other REGIONS 4FOOD partners

Lessons learnt in general

Much was learned from participating in study visits, especially because of the possibility to invite entrepreneurs and researchers, linked to the Good Practices from the regions, to take part.
Limburg participated in the third joint meeting of R4Food in Pazardzhik (Velingrad), which included an Interregional Seminar, focusing on the learning from the Study Visits and Best Practices and the preparation of the Action Plans. Limburg participated in Study visits, organized by 4 partners (Pays de la Loire, Andalusia, Emilia Romagna, Pazardzhik) and organised a Study Visit in Limburg, in which 11 Best Practices were elaborated and visited by a number of R4F partners representatives and regional stakeholders. The study visits of South Transdanubia and Seinajöki were not attended by a Limburg delegation.

Direct results worth mentioning are:
In the Region Limburg fruitful contacts have been realised, in between region’s the number of direct contacts has increased and initial cross-regional co-creation contacts lead to

- Greentech Foodlab and Andalusia Agrotech: co-creating a combined minor
- University Hungary hosting Limburg entrepreneurs for lectures
- Bright Solar exploring new ways to apply the semi-transparent panels in Spain

Stakeholders from Limburg participating in study visits

- Annemiek Canjels, Province Limburg, Senior Adviser EU PA & Internationalisation, building bridges, Limburg partner project coördinator R4F
- John van Helden, CEO of Yookr BV, entrepreneur IoT agrifood company, faciliator R4F
- Marianne Geurts, CEO Esentika, social impact expert and change manager, entrepreneur, facilitator R4F
- Jan Theeven, CEO of Eagledrone, entrepreneur, knowledge sharing using drones in agricultural sector
- Peter Korsten, CEO of Botany, R&D&I company focusing on plant fysiology, plant health and grow tech, entrepreneur, interested in cross-border cooperation and knowledge-building
- Anne Buit, consultant at Rabobank, Business Innovation Manager, knowledge transfer and innovation broker

- Jan Jacobs, Managing Director of the Fontys University of Applied Sciences Greentech Lab, knowledge provider
- Spyros Bousios, CEO of Bright Solar company, transparent solar panels, entrepreneur
- Boy Jacobs, CEO SiTesta's , entrepreneur, digitalisation green houses, cucumbers
- Wouter Aerts, CEO of Hayberries Company, grower of 45 ha of blueberries
- Ellen Huls, Province Limburg (now Limburg Farmers Organisation LLTB, member of Copa Cogeca), Policy Adviser and contact to the regional Agri Community Portal Kiempunt

The Province Limburg Study Visit and Good Practices

When REGIONS 4FOOD partners visited Limburg during the Study Visit series, a few of the Limburg highlights related to the REGIONS4FOOD topic were presented. The partners were welcomed at the Brightlands Campus Greenport Venlo, where about one hundred companies like BASF Seed Vegetables, Botany Crop Research, and the Centre for Healthy Eating and Food Innovation join forces with agriculture entrepreneurs, biochemical companies, ICT and robotics companies and the Maastricht University. Together they design Tomorrow's Food, Future Farming Technology, Biobased materials, Smart Supply Chains and Circular Economy solutions. On the topic of digitization, the Brightlands Campus Greenport Venlo closely cooperates with the Brightlands Smart Services Campus, that houses the Dutch Central Bureau of Statistics and develops business tools on Big Data, Artificial Intelligence and Blockchain, also in the field of agriculture.
To share Best Practices, the partners visited the Innovation Centre, consisting of the two buildings "Villa Flora" and "Innova Tower", the Bright Box, the HAS University of Applied Sciences and the Greentechlab for our young students, at the Fontys University.

During the Limburg Study Visit at the Brightlands Campus Greenport Venlo and locations nearby, Limburg presented the following Good Practices:

Organisation [Good Practices in capitals]	Presenter	Website
TREEMANIA	Gino Smeulders	https://treemania.com/
WOLKY TOLKY	Luc Verkoelen	https://www.wolkytolky.com/en/
SiTesta's	Boy Jacobs	https://sitestas.nl/
YOOKR	John van Helden	https://www.yookr.org/
Fontys Hogeschool/ GreenTechLab	Jan Jacobs	https://fontys.nl/Home.htm
Connecting agri & food	Angela van de Zanden	https://www.connectingagriandfood.nl/en/
Brite Solar Technologies	Spyros Bousios	https://www.britesolar.com/
Eagle drone	Jan Theeven	http://www.eagledrone.nl/
GreenTechLab	Marcel Roossen	https://fontys.nl/greentechlab/
Agrisyst	Marc Cox	https://agrisyst.com/en/
Join Data	Jos Tholen	https://www.join-data.nl/?lang=en

Brightlands Campus Greenport Venlo "Innova Tower"

Lessons learned from other REGIONS 4FOOD partners

The interregional learning process may be the most important part of the project. The most relevant lessons learnt considering influencing the addressed policy instruments by the Action Plan, were the good practices visited that were in line with the regional barriers and needs of Limburg. These practices showed how partner-regions already succeeded in developing the regional agri-food cluster, education and know-how in agri-food sector digitalisation and projects combining data from different sources. In addition to the study visits and peer review process leading to this Action Plan, which are further examined under each action (PART IV), the process has offered additional interesting ideas, lessons and good practices.

Impressions of the Study Visits:

Pays de la Loire Study Visit:

Terrana. The network is already present.

A cooperation with many data available. Many data already present and experienced.

Usable to create a more transparency, leading to added value chain

Many members delivering data

SITIA: the robot, already market proof.

Conseil Régional des Pays de la Loire ▪Techno campus; it's more than a learning network.

They also support in sales. Quite a list of funders.

Andalusia Study Visit:

RAIF Smart Data / Geoportal: The way they promote open data impresse. Free data and alert System for Bactrocera oleae. Huge range of insects, farms, ha and crops.

Digital Innovation Hub for agrotech. Fully operational. High level knowledge sharing. The different roles of the stakeholders are clear.

University of Cordoba. Master in Digital Transformation in the agri-food sector

Presentations from the San Sebastian Cooperative and ASAJA (Agrifood Association of Young Farmers) inspiring.

Emilia Romagna Study Visit

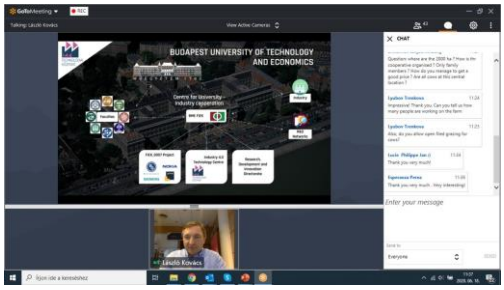
IRRINET: open dashboard. Free to use for stakeholders. Day-by-day information about need irrigation of different crops. Many stakeholders involved. Huge range of stakeholders, data combined, SMS-messages to farmers, etc. Partly funded out of EU projects.
ForumS3 with different clusters (Build, Mech, Health, Create, Innovate, Greentech and Agrifood). This is easier to focus and to connect and share knowledge. Triple helix based.
ONIT, Cesena. Warehouse Using Ultra Wide Band, which is really interesting.
AGRO.BIG.DATA.SCIENCE project:
It applies a data driven logic to 3 production value chains (kiwi, pear and spinach) made available by the companies involved in the project, complete with the sensors needed for real-time data collection. For data collection and analysis, a general purpose technology platform for Big Data will be used.

Pazardzhik Study Visit:

Most interesting was the approach of the Land Source of Income Foundation – an NGO providing integrated support (training, counselling, funding, digital platform services) to small disadvantaged farmers
Very good practice: the Training for an ICT career – national programme for high school students for extra-curriculum IT professional qualification;
E-commerce Logistic Hub and Pavilion - established on the territory of the Trakia Economic Zone in Plovdiv for supporting a B2C and B2B E-Commerce Platform for agri-food products with China and Eastern and Central European countries under the 16+1 Initiative of China and CEE countries;
Demo Center for E-commerce - established on the territory of the Agricultural university in Plovdiv for practical training of students in E-commerce for agri-food products

South Transdanubia Study Visit:

The Hungarian study vsit was performed online, with live camera's at several interesting best practice sites; information was shared on the Farkas Ltd. company on precision farming in plant growing, the Bos Frucht Agrarian Cooperative on digitisation of dairy cows and on the Industry 4.0 Technology Center on Industry 4.0 sample factory and demonstration project for food industry companies.



The Good Practices selected by Limburg as most inspirational and useful for the regional development on Agri-Digitisation were:

- Technocampus (Pays de la Loire, France)
- Digital Innovation Hub (Andalusia, Spain)
- Agrifood Clust-ER (Emilia Romagna, Italy)

PART III – METHODOLOGICAL APPROACH

Challenges/needs addressed

Data has become a key asset for the economy and our society. The need to make sense of "Big Data" is leading to innovation in technology and the development of new tools and skills.

Generating value at the different stages of the data value chain will be at the heart of future knowledge economy.

Within the agri-food value chain, Big Data is gaining ground in areas such as security and traceability, customer services, or production improvements.

Big Data has also contributed to balancing the agri-food value chain.

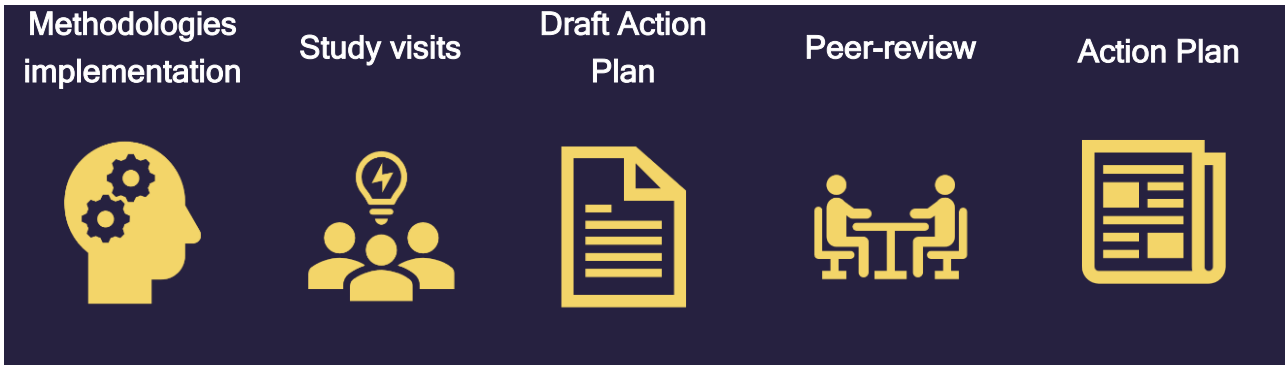
The large volume and diverse nature of data of agri-food value chains call for specific integration and management procedures to make the most of the new economic opportunities based on information, data and cognitive technologies and promote innovation-driven growth.

As a result of involving relevant regional authorities, the research sphere, ICT and agro businesses, and civil society in the exchange of experience process, partners have prepared action plans to include measures that will improve the technology transfer, close the gap between research and markets and display the greatest potential of innovation opportunities and smart specialisation areas.

The project has also contributed to addressing the major challenge to digitisation which is to connect directly producers with consumers and also agrobusinesses with tech sector companies and with knowledge sector.

Approach to the preparation of the Action Plan

REGIONS 4FOOD has a well-defined methodological approach with the following stages:



- Identification

  The Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable Development of Andalusia, as REGIONS 4FOOD Lead Partner, prepared two methodologies to be implemented by project partners with the support of their stakeholders with the aim to identify in each partner region:

  - Needs, barriers, relational capital and good practice related to the digitisation of the agri-food sector.
  - A catalogue of data and technologies in the agri-food sector.

- Exchange of experiences and practice sharing

  The results of these mapping works have been shared within the partnership in the interregional seminars organised back-to-back the steering committee meetings.

  Good practice sharing has been implemented through the study visits, where both the project partners and their stakeholders took part. Partners had previously identified those practices that were the most interesting for them in terms of their capacity to improve the policy instrument addressed.

- Preparation of draft Action Plans

  Following the template prepared by the Lead Partners, the first draft Action Plans included the lessons learnt from previous stages, the interregional activities, and learning at all levels. Stakeholder groups also met to analyse the findings of previous work and contribute to the preparation of the draft Action Plan.

- Presentation of first draft Action Plans

  The REGIONS 4FOOD partners presented their first draft regional Action Plans during the Capitalisation Seminar held in May, organized by ARTE-ER..

- Peer-review

  The overall objective of the peer reviews was that the partner owner of the good practice inspiring the actions of other partner's Action Plan draft evaluates it taking into consideration this partner's context on innovation strategies.

  The process has been carried out as follows:

  - First, each project partner determined if the peer review concerned the whole Action Plan draft or just one concrete action
  - Second, partners sent to peer the Action Plan draft with the instructions on what was to be reviewed (the whole Action Plan or just specific action(s))
  - Third, the peer identified the key agents and/or stakeholders involved in the good practice that had most inspired the action(s)
  - Four, one these agents had read the Action Plan draft, an online meeting was scheduled among both project partners. In that meeting, there was exchange of views, assessing the document and when needed, how it could be improved in order to obtain the final objective: improving the partner's policy instrument tackled by the project
  - Finally, the peers drafted a review report with suggestions in view of improving the Action Plan draft reviewed
  - These suggestions were later discussed with the stakeholders and were considered in the drafting of the final Action Plan

- Action Plans

  This methodological process concluded with the submission at the Interreg Europe Joint Secretariat of the seven Action Plans (1 per partner/region) for validation by the end of Phase I.

PART IV – ACTIONS

The Action Plan is meant

To help accelerate the development and uptake of Precision Farming and Digitalisation by the Agrofood sector in Limburg

As a result of the study visits, the peer reviews and discussions with stakeholders Limburg decided to focus on the two actions; an agriculture digital platform (ADIH) and the conditions for showcase new technologies; an Agro – Field Lab,. These two actions will enable all other activity, because they represent missing building blocks of the innovation ecosystem.

1. Agriculture Digital Innovation Hub / SMART Agri Hub – preparation

2. Future Farming Fieldlab definition & preparation

These are the actions that will be monitored in the perspective of REGIONS 4FOOD, Phase II.

The choice of these two actions does not mean that no other actions will be encouraged and supported. With the policy instruments available, other actions are:

- Investment at farm level in uptake of Precision Farming technology
- Investment at farm level at incorporating Data Management Systems
- Investment in migration of data from relational data bases to Big Data architectures - to create an independent platform -
- Cooperate Innovation on agri-digitisation solutions
- Skills and capability development on agro - ICT - Training development and participation in ICT – training modules

ACTION 1: Digital Innovation Hub SMART Agri Hub - preparatory work

Relevance to the project & background

The Province Limburg expects the work foreseen related to Action Plan and its actions to bring Limburg closer to realising crucial support structures for Agro-Digitisation that are currently not present in the regional innovation-ecosystem. One of the support structures needed is an Agriculture Digital Innovation Hub; a well organised space where agriculture enterprises participate in a community and are supported in their digitisation needs.

The Province Limburg expects an Agri Digital Innovation Hub to address the following objectives:

- To help create a strong regional cooperative, consisting of agriculture enterprises, agri-related industry and ICT developing companies, educational, research and innovation institutions, policy and governmental organisations, advisory and development bodies and representatives of end-users, as a base for co-creation.
- To improve networking tools, necessary for involvement in national, cross border and interregional cooperation on drafting proposals for development of agri-ICT solutions and on development of business cases around the solutions created.
- To improve easy access to knowledge and information; to increase impact and to avoid loss of time, energy and benefits, as a result of being unaware of existing tools or re-inventing the wheel.
- To help agriculture enterprises broaden their business case base, by enabling them to be in the driving seat, alone or in cooperatives, when it comes to putting added value to Farm Data, to be used on their own farms, but also to be sold as farm management intelligence.
- To encourage Educational Institutions to provide educational programmes, tools and curriculums with digitisation courses and interdisciplinary training needed to educate future farmers on aspects beside agronomy.

After visiting and getting in touch with Good Practices during 2019, the following case(s) have been selected as Good Practice inspiration. These practices have proven to contribute to quadruple helix cooperation; they increase linkages between innovators, ICT / IoT providers, supplying and processing industries, primary producers, retail and consumers / end users. They also lead to linkages with public and private research centers; deliver valuable input for future policies and strategies and promote public-private partnerships. All Good Practices selected had or were still supported by regional institutions and are regionally imbedded.

The Good Practice inspirational for Action 1.:

- ✓ Digital Innovation Hub (Andalusia, Spain)
- ✓ Technocampus (Pays de la Loire, France)
- ✓ Agrifood Clust-ER (Emilia Romagna, Italy)

Lessons learned: Input other partners' good practices & peer reviews:

ACTION	NAME OF GOOD PRACTICE or LESSONS LEARNT	PARTNER
Action 1 *Digital Innovation Hub SMART Agri Hub - preparatory work*	• *Digital Innovation Hub (Andalusia, Spain)* • *Technocampus (Pays de la Loire, France)* • *Agrifood Clust-ER (Emilia Romagna, Italy)*	- *Province Limburg* - *Brightlands Campus* - *Fontys* - *ILVO, Niederrhein* - *Farmers/Entrepreneurs*
Action 2 *Fieldlab Future Farming - definition & preparation*	• *Technocampus (Pays de la Loire, France)* • *Digital Innovation Hub (Andalusia, Spain)* • *Agrifood Clust-ER (Emilia Romagna, Italy)*	- *Province Limburg* - *Brightlands Campus* - *Liof* - *Fontys* - *Farmers/Entrepreneurs*
LESSONS LEARNED: • Involving farmers and entrepreneurs works best by personal contact	• Much time needed for image building. Since different interests and focus exist	• Non-profit support farmer/entrepreneur instead of taking the lead and knowing what is best for...

Since 2018, many of Europe's innovative agri-clusters joined the EU Digital Innovation Hub network by installing a regional Digital Innovation Hub. Some, including some REGIONS 4FOOD partners, have applied in 2021 to be selected by the National Authority

as a full European Digital Innovation Hub and receive a substantial grant towards excellence. And 164 agri-clusters (September 2021) have already joined the SMART Agri-Hub network. In the Netherlands, Food Valley, Agrofood Capital, Greenport West and Greenport North Holland North have taken this step. Greenport Venlo / Limburg needs a DIH also.

Nature of the action

Digital Innovation Hubs (DIH) are support organisations that aim to make businesses more competitive by speeding up the development and uptake of digital innovations.
They provide these services close to the end-users ("at working distance") and thereby cater to the needs of agricultural producers and food processors in a specific region.
Digital Innovation Hubs are not necessarily a new body. An existing body can take up the role of the Orchestrator.
Structurally, Digital Innovation Hubs maintain working relationships with a number of different actors to form a "one-stop-shop" where companies –especially SMEs, startups and mid-caps– can get access to technology-testing, financing advice, market intelligence and networking opportunities" as shown in the figure below. One or more Competence Centres inside or outside the region provide the knowledge, technology, infrastructure and facilities that underpin the technological transformation.

These can be (agricultural) research institutes at universities, experiment stations or farms, extension agencies or seed companies. The Competence Centre may also play the role of the Digital Innovation Hub orchestrator, taking a coordinating, organising and/or an agenda setting role. End-users, e.g. farmers or cooperatives are the main target and beneficiary of the Digital Innovation Hubs. Financial institutions include banks, but also governments in their role of funding R&D and innovation activities. Finally, education and training play an important role in building capabilities for the Digital Innovation Hub and users.

Services DIH

Digital Innovation Hubs as public-private partnerships for innovation, provide a mix of different services to their participants.

Technology services

Technology services such as R&D, provision of lab facilities, testing and validation are mainly the domain of the competence centers.

Innovation ecosystem support services

Innovation ecosystem support services include community building lobbying, brokerage, knowledge sharing and advocacy.

Business services

Business services include activities such as business support, and access to finance and skills development are provided by financial institutions, government agencies and education and training institutions in the Digital Innovation Hub.

Training and empowering

Talent creation and acquisition of digital skills applied to the sector:

- Development of training sessions and workshops
- Organization of discussion forums
- Specialization courses in digital skills
- Outreach meetings on trends and success stories

Co-creation

Service oriented to boost our innovation ecosystem:

- Development of thematic exhibitions
- Organization of hackathons
- Creation of consortia for technological developments
- Acceleration and entrepreneurship programme
- Innovation and business models programmes

Pilot initiatives

Initiatives that allow the implementation of platforms as living labs to test and develop innovative and sustainable solutions according to their level of technological maturity:

- Experimental environments for testing innovations
- Development of end-user oriented prototypes
- Evaluation of concepts, new products and services

Open Data

Exploiting the potential of open administration for the development of added-value products and improvement of process efficiency. In addition to the national platform of agriculture, Andalusia also has different tools that enable obtaining different types of data.

Trend Observatory

Competitive intelligence based on the identification, analysis and interpretation of information and opportunities with strategic value:

- Diagnosis of technological needs and opportunities
- Technology surveillance
- Technology market research

Aid and financing strategies

Support to promote and facilitate the connection between funds and strategies:

- Identification of national and international calls
- Sessions on funding sources
- Access to private financing strategies

Stakeholders involved

- Fontys University of Applies Sciences – Green Tech Lab: possible primary host of hub
- HAS University of Applied Sciences
- Brightlands Campus Greenport Venlo: possible primary address of hub
- Brightlands Smart Services Campus: possible virtual host of hub
- BCGV inhabitants: service/knowledge providers and service/knowledge customers to the hub
- LIOF Regional Economic Development Company for Enterprises and Industries
- Crossroads and Keyport – Municipalities Economic Development Board
- End-users, e.g. farmers or cooperatives: participate in co-creating, sharing knowledge, space, time and energy

Timeframe

ACTION 1. DIH / SMART Agri Hub - preparatory work	S1 2020	S2 2020	S1 2021	S2 2021	S1 2022	S2 2022	S1 2023
1. Scheduling topic different platforms Political setting/EDB							
2. Determine core stakeholders							
3. Explore terms of the DIH and SMART AH networks							
4. Gather information and apply for the "candidate" status							
5. Permanent updating terms by visits and peer review							
6. Calculate costs and benefits and explore feasibility							
7. Network building: entrepreneurs/farmers							

This action will start during 2020, 2021 and 2022 with the following schedule of activities:

- In 4th quarter of 2020, activity No.1: Schedule this topic on the political agenda / discuss it with the regional Economic Development Board
- In 1st quarter of 2021, formal approval of activity No. 2 and No. 3: Determine the core stakeholders and explore the terms of the DIH and SMART AH networks
- In 2nd and 3th of 2021, activity No.4: Gather the information needed to apply – and apply for the "candidate" status
- Activity No.5, under permanent updating, developing sub-activities since 2020: Visit and / or interview existing DIH / peer review
- In the 3th and 4th In 2nd quarter of 2021, activity No. 6 and No. 7: Calculate costs and benefits and explore feasibility

Indicative costs

Estimated € 300.000 (initial investment excluded annual operational costs after 2023).
Operational costs after 2023 may be covered by membership fees or paid services.
The expected costs are equivalent to the estimated budget for the period 2022-2023 and are oriented to cover, among others:
Cost of preparation and costs for installing the ADIH for an experimental period of 2 years

- Staff costs
- Organisation and participation in inquiries and meetings
- Communication actions

Indicative funding sources

Funding contribution by Region, Province Limburg and/or by DIH community members, matched with either:

- ERDF OP South 2021 – 2027 (Stimulus)
- EARDF CAP National Strategic Plan 2021 – 2027
- INTERREG Cross Border Programme
- or SMART Agri-Hubs Open Call grant

Subsidy indication

- ERDF OP South 2021 – 2027 / 50% (of which 50% National / Regional authority co-financing – 50% EU)
- EARDF CAP Recovery Fund, National Strategic Plan or Transition Programme 2021 – 2027 / 50% - 80% (of which 57% Regional authority co-financing – 43% EU)
- INTERREG Cross Border in case of cooperation with a neighbouring hub / 20 – 50% Own funding / contribution by stakeholders; such as SME, big companies, universities, research centers, foundations, start-ups, public institutions.

Output and result indicators

- 1 legal body created; legal registration or incorporated, statutes, advisory board
- 1 advice from JoinData
- 1 Working plan designed (DIH outline and roadmap)
- 1 Plan and calendar
- 1 Inventory of agri-digital service suppliers
- 1 Inventory of agri-digital solutions needed
- 1 Inventory of possible partners, cross border, cross region, international

- 1 Community / inventory of possible Hub members
- 1 Website launched / Number of parties interested in joining / Website address, traffic data
- Feasibility report

Good example of a DIH service model

ACTION 2: Fieldlab Future Farming - definition & preparation

Relevance to the project & background

Province Limburg expects the work due related to Action Plan and its actions to bring Limburg closer to realising crucial support structures for Agro-Digitisation that are currently not present in the regional innovation-ecosystem. One of the support structures to the innovation eco-system is a Fieldlab for Future Farming. A Fieldlab is a facility or set of facilities that enable innovators or innovation cooperatives to quickly develop and test prototypes of Future Farming solutions and business cases.
Fieldlabs are necessary building blocks of any region's R&D&I infrastructure. Here TRL 1-4 research results can be transformed tot TRL 5-9 inovation projects, which can be put to the test, prepared for market introduction and valorized. Where the Digital Innovation Hub helps entrepreneurs to connect ideas, skills and capacities and to get ideas started, the Field Lab is there to ease the next steps. Altogether, this enables the entrepreneurs to be first to market with a good product or service. It also helps society to have new sustainable technology available quicker.

After visiting and getting in touch with Good Practices during 2019, the following case(s) have been selected as Good Practice inspiration. These practices have proven to contribute to quadruple helix cooperation; they increase linkages between innovators, ICT / IoT providers, supplying and processing industries, primary producers, retail and consumers / endusers. They also lead to linkages with public and private research centers; deliver valuable input for future policies and strategies and promote public-private partnerships. All Good Practices selected had of were still supported by regional institutions en are regionally imbedded.

The Good Practice inspirational for Action 2.:

- ✓ Technocampus (Pays de la Loire, France)
- ✓ Digital Innovation Hub (Andalusia, Spain)
- ✓ Agrifood Clust-ER (Emilia Romagna, Italy)

Lessons learned: Input other partners' good practices & peer reviews:

ACTION	NAME OF GOOD PRACTICE or LESSONS LEARNT	PARTNER
Action 1 *Digital Innovation Hub SMART Agri Hub - preparatory work*	• *Digital Innovation Hub (Andalusia, Spain)* • *Technocampus (Pays de la Loire, France)* • *Agrifood Clust-ER (Emilia Romagna, Italy)*	- *Province Limburg* - *Brightlands Campus* - *Fontys* - *ILVO, Niederrhein* - *Farmers/Entrepreneurs*
Action 2 *Fieldlab Future Farming - definition & preparation*	• *Technocampus (Pays de la Loire, France)* • *Digital Innovation Hub (Andalusia, Spain)* • *Agrifood Clust-ER (Emilia Romagna, Italy)*	- *Province Limburg* - *Brightlands Campus* - *Liof* - *Fontys* - *Farmers/Entrepreneurs*
LESSONS LEARNED: • Involving farmers and entrepreneurs works best by personal contact	• Much time needed for image building. Since different interests and focus exist	• Non-profit support farmer/entrepreneur instead of taking the lead and knowing what is best for...

Nature of the action

Field Labs are practical environments in which companies and knowledge institutions develop, test and implement effective solutions. Field Labs meet the need for physical and digital space for experimentation and accompanying facilities. In addition, Field Labs strengthen connections with research, education and policy on a specific promising theme, such as agro-food.

There is not "one" definition of a Agriculture Field Lab; except for the common features mentioned above; a facility or set of facilities that enable innovators or innovation cooperatives to quickly develop and test prototypes of Future Farming solutions and business cases.

Field labs are often about practical, hands-on trials, that are open to everyone. Working with a group of likeminded farmers and researchers, the entrepreneurs using the Field Lab can get fast and thorough insight in to the challenges facing the business idea. A Field Lab

process may work like this: A group of farmers or growers come together around an idea. They articulate the idea, team up with experts, specialists and researchers, decide what data to record, which data are open, shared within the group or owned by the individual participants, decide about division of inputs in terms of financing, capacities and knowledge and about resuls shares. They decide which of the available testing sites, which can be on farm or in specialized laboratorities are needed for the trial.
As the trial develops, the operational group meets up, sees how things are progressing and adapts if it's necessary. At the end of the trial, the findings are analysed and decisions are made about the next steps.

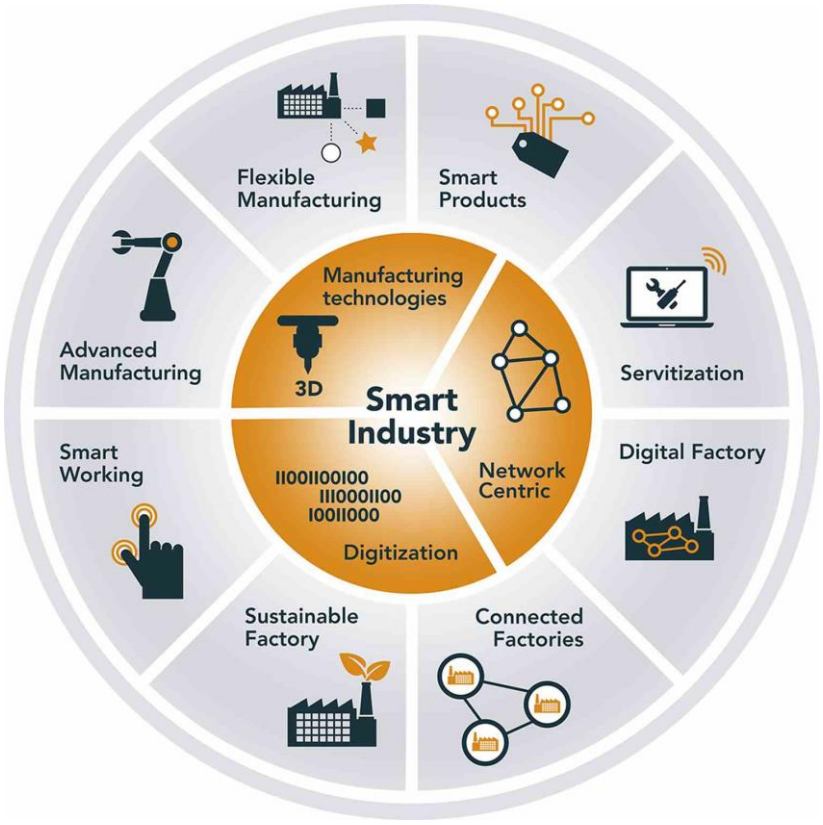
State aid rules

Since the EC modified the state-aid ruling, it is possible to create and subsidize public/ private partnership closer to market then before. Where previously such cooperations were restricted to pre-competitive research (TRL 1-4), it is now allowed to support with public subsidies cooperation in non-commercial industrial operational environments (TRL 4-7).

Smart Industry context

Since precision farming is a type of Smart Industry, inspiration for the Action is also based on the general description of a Smart Industry Fieldlab:
Smart Industry; Industry fit for the future, describes the transition of industry to a digital world in which ICT is deeply penetrating into all facets of the production process. Smart Industry is driven by smart use of ICT to interconnect machines for smart operation; within factories but also between companies and between companies and customers. It involves a combination of the use of production technology, digitisation and a network approach and it is about smart products, processes and services. To make any industry more competitive through faster and better utilisation of the opportunities ICT has to offer, three sets of actions were identified:

1. Capitalising on existing knowledge
2. Accelerating in Field Labs
3. Strengthening the base



The Smart Industry concept

Fieldlab Future Farming Limburg

At and around the Brightlands Campus Greenport Venlo, a number of public and private testing sites are available; but more are needed. Besides that, the access to and orchestration of trials, should be better facilitated. Limburg wants to explore whether the initiative proposed by several companies and stakeholders, focusing on digitising, sensoring and robotising the production of soft fruits, starting with blueberries, could become reality.

Examples of Limburg field trials that would benefit of a Agriculture Field Lab facility:

1. Growing strawberries with the right taste and quality, indoor with tailored artificial light (SON-T en LED), in the field lab several light-recepies and spectres would be tested and linked to the taste, plant ingredients and plant fysiology.
2. Raising plant resilience and generating and identifying relevant data to achieve a functional Decision Support System (DSS)

3. Robotising harvest of blueberries, development of an automated guided vehicle (AGV) platform with modular connectivity for specific grow tech applications such as weeding or fertilising, including the use of the data that come with it – and more.
4. Smart farming for blueberries: species recognition related to tailored treatment, related to water supply, fertilisation, soil response.

Stakeholders involved

- Fontys University of Applies Sciences – Green Tech Lab
- HAS University of Applied Sciences
- Brightlands Campus Greenport Venlo / laboratory facilities of Maastricht University / Bright Five
- Brightlands Smart Services Campus
- BCGV inhabitants: service/knowledge providers and service/knowledge customers to the hub
- Feed Design Lab
- Rose knowledge Center Lottum
- Botany Company Plant Research
- LIOF Regional Economic Development Company for Enterprises and Industries
- FME / the Dutch Entrepreneurial collective for high tech industry
- Crossroads and Keyport – Municipalities Economic Development Board
- End-users, e.g. farmers or cooperatives: participate in co-creating, sharing knowledge, space, time and energy

The roles of the stakeholders has not been discussed at the moment of finalizing this Action Plan. The Brightlands Campus Greenport Venlo could be the overallFacilitator.

Timeframe

ACTION 2. Fieldlab Future Farming, definition & preparation	S1 2020	S2 2020	S1 2021	S2 2021	S1 2022	S2 2022	S1 2023
1. Scheduling topic different platforms Political setting/EDB							
2. Determine core stakeholders							
3. Determine existing Fieldlabs in Province Limburg and explore terms of the Fieldlabs networks							
4. In depth research best practices							
5. Permanent updating terms by visits and peer review							
6. Calculate costs and benefits and explore feasibility							
7. Network building: entrepreneurs/farmers							

This action will start in 2021 with the estimated following schedule of activities:

- In 4th quarter of 2021, activity No.1: Schedule this topic on the political agenda / discuss it with the regional Economic Development Board
- In 2nd quarter of 2022, delivery of activity No. 2 and No. 3: Determine the core stakeholders and explore the terms of the Fieldlab
- In 3th and 4th of 2021, activity No.4: Gather the information needed to write a proposal and apply
- Activity No.5, under permanent updating, developing sub-activities since 2020: Visit and / or interview existing Fieldlab settings / peer review / relate to the National Precision Farming Field Lab project
- In the 3th and 4th In 2nd quarter of 2022, activity No. 6 and No. 7: Calculate costs and benefits and explore feasibility

The action would involve the following activities:

- ✓ Schedule the topic on the political agenda / discuss it with the regional Economic Development Board
- ✓ Perform desk research to identify similar innovations
- ✓ Determine the core stakeholders in Limburg / Greenport Venlo area
- ✓ Explore cross border interest
- ✓ Explore the features needed for the tool
- ✓ Calculate costs and benefits and explore feasability

Indicative costs

Estimated 250.000 (initial investment in the service, excluded annual operational costs and excluded lab facilities and trials)
Operational costs after 2023 may be covered by membership fees or paid services.
Often Field Labs also rely on sponsoring.
The expected costs are equivalent to the estimated budget for the period 2022-2023 and are oriented to cover, among others:
Cost of preparation and costs for installing the service for an experimental period of 2 Years.

- Staff costs
- Organisation and participation in inquiries and meetings
- Communication actions

Indicative funding sources

Funding contribution by Region, Province Limburg and/or by stakeholders mentioned, matched with either:

- ERDF OP South 2021 – 2027 (Stimulus)
- EARDF CAP National Strategic Plan 2021 – 2027
- INTERREG Cross Border Programme

Subsidy indication

- ERDF OP South 2021 – 2027 / 50% (of which 50% National / Regional authority co-financing – 50% EU)
- EARDF CAP Recovery Fund, National Strategic Plan or Transition Programme 2021 – 2027 / 50% - 80% (of which 57% Regional authority co-financing – 43% EU)
- INTERREG Cross Border in case of cooperation with a neighbouring hub / 20 – 50% Own funding / contribution by stakeholders; such as SME, big companies, universities, research centers, foundations, start-ups, public institutions.

Output and result indicators

- Elaborated description of the initiative ready
- 1 Legal body created or chosen → Legal registration document & statutes
- 1 Working plan designed → Plan and calendar
- 1 Advice from Smart Industry received
- 1 Website launched → Website address, traffic data
- Number of parties willing to put effort in the idea
- Number of ideas put forward for feasibility support
- 1 Inventory of possible partners, cross border, cross region, international
- 1 > Proposal p.y. for EFRD, EAFRD

PART V – MONITORING SYSTEM

The monitoring period of the Action Plan will be from 1st June 2021 (once validated by the Joint Secretariat) to 31st May 2023. During this period, project partners will report to the Interreg Europe Joint Secretariat on an annual basis.
There will be two monitoring mechanisms for each Action Plan:

- ✓ One is common to the seven Action Plans. It has been designed by the Lead Partner to monitor, analyse and report the implementation of actions.
- ✓ An additional self-monitoring mechanism is defined by each partner according to their needs and internal structure.

Regarding the joint monitoring mechanism, it includes result indicators. It will allow project partners to measure their results according to their policy instrument tackled to be improved and their self-defined performance indicators. Project partners will be required to report to the Lead Partner twice a year (each semester) to strengthen the monitoring mechanism and have the capacity to take corrective measures, if necessary. With the information provided, the Lead Partner will prepare a monitoring report per semester. In addition, the results will be discussed in the two project meetings foreseen in Phase 2 (one in Semester 8 and another one in Semester 10) to give project partners recommendations for improvement. Also, one additional project meeting (not foreseen in the application form) will be organised online by the end of Semester 7 to monitor, evaluate and share information about the situation at the project level.

Additionally, a self-monitoring mechanism has been defined to complement and feed the joint monitoring mechanism and ensure the correct implementation of actions as foreseen, according to our organizational needs and internal structure. The self-monitoring mechanism consists of monitoring and reporting the implementation at regional level by by the regional project coordinator of REGIONS 4FOOD, Province Limburg. Part of the planning of each Action is identifying a project team, chaired/facilitated by Province Limburg when needed. The regional stakeholder group will meet at least yearly, and the actions progress will be shortly presented in each meeting by the implementing actor or the project coordinator, to report the progress of the actions. At the end of phase two of the project, final reports of the actions

implementation will be compiled. The project coordinator will analyse the overall impact of the action plan in the region. The results will be presented to the regional stakeholder group and reported at interregional level as part of the common monitoring system.

ANNEXES

Endorsement letters (requested)

- *Province Limburg / Management Authority EFRD OP South*
- *Stimulus, executing body EFRD OP South*
- *LIOF Public Development Company for Enterprises and Industries*
- *Limburg Farmers Association LLTB / member Dutch Farmers Association LTO / member Copa Cogeca*
- *National Project Precision Farming Dutch Ministry Agriculture*
- *Brightlands Campus Greenport Venlo*
- *Fontys University of Applied Sciences*
- *HAS University of Applied Sciences*
- *Crossroads / Keyport Economic Development Board*

More information on the REGIONS 4FOOD project and partners (only in Dutch)

Projectinformatie Nederlands

SAMENVATTING

De Provincie Limburg is partner in drie INTERREG Europe projecten. Eén daarvan is “Regions4Food”.

1. Wat is Regions4Food?

Doel is de relatie tussen Digitalisering en de Agro- en Voedsel-waardeketen aanjagen. Met dit project kan Limburg zich verder ontwikkelen en bij de kopgroep van Europese Innoverende Agroregio’s blijven. Regions4food kost € 1.502.890,00 waarvan € 1.277.456,50 wordt betaald door Europa. Limburg ontvangt netto € 155.210,00 uit het projectbudget, onder meer om Limburgse bedrijven een kijkje te laten nemen bij de collega’s in het buitenland.

2. Wie doen mee?

Lead partner is het Ministerie van Landbouw, Visserij en Plattelandsontwikkeling van regio Andalusië (Spanje), partners zijn Regiobestuur Pays de La Loire (Frankrijk), Seinajöki Universiteit (Finland), Regio Emilia Ontwikkelingsmaatschappij ARTER Stock Joint Consortium (Italië), Regionale Innovatiemaatschappij Zuid Transnubië (Hongarije), Regiobestuur Pazardzik (Bulgarije) en natuurlijk de Provincie Limburg.

3. Waar gaat het over?

“Maximeren van de innovatieve potentie van alle actoren van de Agro- en Voedsel- waardeketen door inzet van ICT”. Hieronder wordt verstaan enerzijds de digitalisering van de processen; denk aan sensoring, robotisering, tracking & tracing, precisie landbouw, just in time verslogistiek, gebruik van augmented reality en meer - en anderzijds gebruik en verwaarding van Big Data voor kennisontwikkeling, marktinformatie en management.

4. Wat komt kijken bij het project?

Een stand-van-zakenbeeld geven van de staat van digitalisering van de Limburgse agro-sector, in beeld brengen van het totaal of ten minste een representatief aandeel van het totaal aan partijen in Limburg dat actief is op het gebied van digitalisering in relatie tot de agrifoodsector, het ophalen van de opvattingen van deze partijen over sterkten, zwakten, kansen en bedreigingen hierbij. De Provincie Limburg heeft vervolgens de taak om de bevindingen samen met die partijen te vertalen in aanbevelingen voor instrumentarium, in het bijzonder de inzetbaarheid van de Europese middelen voor Regionaal Beleid en in een Actieplan met uitvoeringsvoorstellen.



TOELICHTING

Waarom en hoe

- We willen digitalisering in onze food en agro-sector versnellen;
- Daarmee bedoelen we gebruik van big data, gebruik van techniek voor Precisie Landbouw ontwikkeling van eigen producten en verdienmodellen, verhogen van praktijkkennis, verbinden van ICT, industrie en landbouw, inzet op data-eigendom en aandeel in Intellectueel Eigendom;
- We doen dat door te analyseren; we brengen ons speelveld in kaart; de actoren, de uitdagingen, de problemen, de kansen;
- We doen dat door in de eigen regio een community en expertgroep te vormen, door te leren van elkaar, door met elkaar Best Practices uit te wisselen; nze innovaties, oplossingen en systemen;
- We doen dat ook door als internationale partners elkaar te bezoeken, elkaars instituten te leren kennen en door het veld in te gaan;
- En daarna schrijven we elk een Actieplan met 2-3 projectvoorstellen, geïnspireerd op wat we bij elkaar hebben gezien;
- We zetten een gedeeld pakket aan Strategische Aanbevelingen uit en
- We gaan aan de slag met uitvoering van de Actieplannen en met de aanbevelingen.

Wie doen mee

Regions4Food wordt uitgevoerd door een internationaal cluster van 7 regio's en kennispartijen.
De partners zijn:

- Regionale overheid Ministerie LNV van Andalusia, gekoppeld aan de universtiteiten van Sevilla en Cordoba en het Cartuja Science and Technology Parket (Spanje), lead partner
- Regionale overheid Provincie Limburg, gekoppeld aan Brightlands Campus Greenport Venlo, UM en Universities of Applied Science Fontys en HAS (Nederland)
- Regionale overheid Pazardzhik Regional Administration, gekoppeld aan de landbouw-universiteit van Plovdiv, (Bulgarije)
- Regionale overheid Pays de la Loire Regional Council, gekoppeld aan de universiteit en Technocampus in Nantes (Frankrijk)
- Regionale overheid South Ostrobothnia, gekoppeld aan de Seinäjoki University of Applied Sciences (Finland)
- Campus en kenniscluster ART-ER Stock Joint Consortium, gekoppeld aan de Universiteit van Bologna, het netwerk van regionale clusters "Clust-ERs", het "Institute for the Bioeconomy" en het CRPA, "Center for Animal Production", regio Emilia Romagna (Italië)
- Agro Projectontwikkelcluster South Transdanubian Regional Innovation Agency, gekoppeld aan het "Industry 4.0 Technology Center", onderdeel van de Budapest University of Technology and Economics, Center for University-Industry Cooperation (Hongarije)

Wat is het doel voor Limburg

Het project loopt van 2018 – 2023. Het combineert drie doelen:

1. Het versnellen van agro-digitalisering in de eigen regio en daar buiten..
   Agro-digitalisering helpt om efficiënter en klimaatvriendelijker te produceren. Wat verstaan we onder agro-digitalisering: Precisie-landbouw in de breedste zin van het woord. Het gaat om verfijning van de productie, maar ook om verbeteringen in de toelevering, zaadontwikkeling, verslogistiek, contact met de consument, verpakkingen, gezondere producten. Voordelen zijn minder verspilling, minder gebruik van energie en grondstoffen, minder gebruik van gewasbescherming, minder dierziekten enz.

2. Het activeren en organiseren van de spelers rond Precisie Landbouw, gebruik van Big Data, blockchain, Artificial en Augmented Intelligence en Internet of Things in de eigen thuisregio. We willen graag een actieve community zien ontstaan, waarbinnen de partijen elkaar weten te vinden rond vraag en aanbod.
   In het geval van Limburg is dit het werkingsgebied van de Brightlands Campus Greenport Venlo en de Brightlands Smart Services Campus.

3. Verbeteren van beleid.
   Met opgedane kennis uit het project doen we suggesties tot verbetering van het Europees beleidsinstrument voor regionale ontwikkeling. Doel is dat dit instrument de agro-digitalisering in de thuisregio nog beter faciliteert. In Limburg gaat het om: het OP Zuid van de Regional Innovation Strategy for Smart Specialization (RIS3), dat voor Limburg wordt uitgevoerd door STIMULUS.

Kosten en baten

Over Regions4Food heeft GS een overeenkomst gesloten met de Europese Commissie; de Provincie Limburg ontvangt voor haar inzet een bijdrage van € 155.210 in de totale kosten ad. € 182.600.
De baten op de langere termijn zoeken we in het effect van het project, de doorwerking van de regionale samenwerking, de uitvoering van het Actieplan, de blijvende contacten met de buitenlandse partners. Het totale budget voor Regions4Food is bescheiden; ca. 1,5 mln.

Resultaten 2018 – 2021

Het project betreft een gezamenlijk onderzoekstraject, waarbij praktijkkennis uit de deelnemende Europese gebieden door de partners wordt vertaald in aanbevelingen ter verbetering van het Europese instrumentarium voor versterking van de regionale economie in de context van Europese prioriteiten; in dit geval digitalisering. In meer praktische bewoordingen; dit is gebeurd:

- De thuissituatie in kaart brengen: De regio's voerden analyses uit; wie hebben we in huis en welke kennis op het thema, welke partijen spreken met elkaar, welke Sterkten, Zwakten, Kansen en Bedreigingen zien we, wat staat ons in de weg om succesvol te zijn en wat missen we.
- Regionale community: De partners richtten hun eigen regionale groep van belanghebbenden in en zorgden voor communicatie tussen de eigen deelnemers en tussen de partners.
- Identificeren en delen van Best Practices: Elke partner verzamelde zijn beste stakeholders en deelde zijn meest innovatieve projecten.
- Study Visits: De regio's gingen bij elkaar op bezoek om elkaars instituten en innovaties te bekijken.
- Strategische Aanbevelingen: De partners deelden de analyses van de verbeterpunten en vertaalden die in Strategische Aanbevelingen voor Europa en zichzelf.
- Actieplan opstellen per regio: De partners schreven een Actieplan voor hun eigen regio en lieten elkaar tegenlezen en verbeteren. In elk Actieplan werden 2 tot 3 prioritaire acties uitgelicht en uitgewerkt, met als doel om deze tot daadwerkelijke uitvoering te brengen, bij voorkeur met inzet van (ook) het beleidsinstrument dat vooraf als meest geschikt was geïdentificeerd; in Limburg het OP Zuid.
- Voor Limburg identificeerden de regionale belanghebbenden, geïnspireerd door de partners maar ook door partijen uit Vlaanderen, Nord Rhein West Falen en Noord Brabant, de volgende acties:
  - Organiseer een Digital Innovation Hub voor de agrarische sector; een plaats waar vraag en aanbod in de precisielandbouw elkaar kunnen treffen en op weg helpen en
  - Richt een Innovatie Proeftuin in; een pakket aan faciliteiten om een idee gemakkelijk en snel in de praktijk uit te kunnen proberen

Activiteiten 2021 – 2023

- High Level Political Event: Op 19 oktober 2021 in Brussel heeft Regions4Food de Strategische Aanbevelingen gedeeld met belanghebbenden en beleidsmakers.
- Actieplan vaststellen: uiterlijk November 2021 zijn de Actieplannen vastgesteld.
- Uitvoering: Vanaf 2022 werken de partners aan uitvoering van de Actieplannen, aan verbeterde samenwerking met partners binnen en buiten de eigen regio en aan toepassing van de Strategische Aanbevelingen.

Links

https://www.interregeurope.eu/regions4food/
En op ons eigen Kiempunt: https://kiempunt-limburg.nl/groepen/digitalisering-precisie-landbouw-en-big-data-groep
Zie bijvoorbeeld: https://kiempunt-limburg.nl/nieuws/internationale-samenwerking-vanuit-regions4food-komt-al-na-half-jaar-van-de-grond
Beide sites zijn ook vindbaar via: https://www.limburg.nl/onderwerpen/internationaal/europese-projecten/regions4food/

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from Province Limburg

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	Provincie Limburg – tevens co-opdrachtgever ERDF uitvoeringsorganisatie Stimulus van Management Autoriteit Provincie Noord Brabant Directie / Management
Name of the signing organisation (English) including department if relevant	Province Limburg Regional Government ; Also co-contractor Management Authority Desk for ERDF, Stimulus General Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

[1] *Information indicated in this table must correspond to the information provided in the application form.*

We hereby confirm:

- that we were informed about the preparation of the above-mentioned project,
- that the topic tackled by this project is in line with our organisation's policy and strategy,
- that we acknowledge the participation of the above-mentioned partner in the project,
- that we have actively collaborated in the design and elaboration of the action in charge/responsible,
- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Tom Schulpen*
Position of signatory	*General Director Finances and European Programmes*
Date and place	*15 December 2021, Venlo / Maastricht*
Signature and institution stamp	

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from Brightlands Campus Greenport Venlo, R&D&I

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	BCGV Brightlands Campus Greenport Venlo https://www.brightlands.com/brightlands-campus-greenport-venlo Management
Name of the signing organisation (English) including department if relevant	BCGV Brightlands Campus Greenport Venlo Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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- that we have actively collaborated in the design and elaboration of the action in charge/responsible,
- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mrs. Liesbeth Litjens*
Position of signatory	*Manager Strategy & Finance*
Date and place	*15 December 2021, Venlo*
Signature and institution stamp	Brightlands Knowledge crossing borders

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from Keyport Municipal Cooperatives

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	Keyport & Crossroads / gemeentelijke samenwerking regionale ontwikkeling Midden Limburg en gemeente Cranendonck (Noord-Brabant) https://www.keyport.nl/ Programma Management
Name of the signing organisation (English) including department if relevant	Keyport Municipal Cooperatives for Regional Development Programme Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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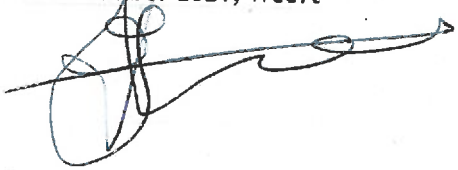
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Ton Hagelstein*
Position of signatory	*Programme Manager*
Date and place	*15 December 2021, Weert*
Signature and institution stamp	

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from entrepreneurial representative Stakeholder Group

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONAL Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	Sitestas https://sitestas.nl/ Dep. Directie Tuinbouwbedrijf C. Jacobs BV Dep. Directie
Name of the signing organisation (English) including department if relevant	Sitestas Food Concepting Dep. Management Board Greenhouse production company in Cucumbers – C. Jacobs BV Dep. Management Board
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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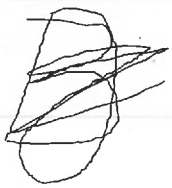
- that we have actively collaborated in the design and elaboration of the action in charge/responsible,
- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Boy Jacobs*
Position of signatory	*CEO Sitestas* *Director Tuinbouwbedrijf C. Jacobs BV*
Date and place	***Kessel, 15-12-2021***
Signature and institution stamp	 SITESTAS LIVING YOUR FOOD

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from STIMULUS, ERDF Regional Management Authority

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	STIMULUS, Regionaal Programma Management https://www.stimulus.nl/ Management
Name of the signing organisation (English) including department if relevant	STIMULUS, Regional Management Authority Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Hans Overbeek*
Position of signatory	*Head of Programme Management*
Date and place	*15 December 2021, Eindhoven*

Signature and institution stamp

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from FONTYS University of Applied Sciences

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	Fontys Hogeschool / Green Tech Lab https://fontys.nl/Fontys-Venlo.htm Management
Name of the signing organisation (English) including department if relevant	FONTYS University of Applied Sciences / Green Tech Lab Centre of Expertise Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Marcel Roosen*
Position of signatory	*General Manager Fontys Green Tech Lab CoE*
Date and place	*15 December 2021, Venlo / Maastricht*
Signature and institution stamp	On behalf of / tbc

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from LIOF

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	LIOF Limburgse Regionale Ontwikkelingsmaatschappij https://liof.nl/en Department Business Development
Name of the signing organisation (English) including department if relevant	LIOF Limburg Regional Business & Innovation Development Agency Department Team Business Development
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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- that we have actively collaborated with the stakeholder group in the exchanging experiences,
- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Bert de Wit*
Position of signatory	*Manager Business Development*
Date and place	***16 December 2021, Venlo***
Signature and institution stamp	

provincie limburg

REGIONS 4FOOD
Interreg Europe

Endorsement letter from LLTB, Farmers Organisation

Project acronym[1]	REGIONS 4FOOD
Project title	REGIONal Strategies 4 FOOD 4.0 Revolution
Name of the signing organisation (original) including department if relevant	Limburgse Land- en Tuinbouwbond LLTB https://www.lltb.nl/home Management
Name of the signing organisation (English) including department if relevant	Limburg Farmers Representing Organisation LLTB, member COPA Cogeca Management
Name of the policy instrument addressed (original)	EFRO (Europees Fonds voor Regionale Ontwikkeling) Operationeel Programma Landsdeel Zuid, Nederland
Name of the policy instrument addressed (English)	ERDF (European Regional Development Fund) Operational Programme South of the Netherlands
Name of partner concerned in the application form (English)	Regional Ministry of Province Limburg, The Netherlands

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- that we agree with the action plan statement.

In this scenario, we endorse the Action Plan presented by the Regional Ministry of Province Limburg in the Netherlands, in the context of the REGIONS 4FOOD project.

Name of signatory	*Mr. Bas Boots / Mrs. Ellen Huls*
Position of signatory	*CEO / Public Affairs Manager*
Date and place	*16 December 2021, Roermond*
Signature and institution stamp	LLTB Steegstraat 5, 6041 EA Roermond Postbus 960 6040 AZ Roermond Tel.: 0475-381777 www.lltb.nl