

Pilot Action on Interregional Innovation Projects

HIGH TECH FARMING PARTNERSHIP

1st Technical Meeting

26.02.2018, 14:30-17:30

Tuscany Region Brussels office, Rond Point Schuman 14

DRAFT MINUTES

Participants: The list of participant is in the [Annex 1](#).

Participants via videoconference:

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1. Welcome and introduction

After an introductory round table, Mr Enrico Mayrhofer (Head of Tuscany Brussels Office) welcomed the participants and briefly explain the relevance of S3 partnerships for the Regional Government of Tuscany and the strong commitment of the Region in High Tech Farming as well as some other S3 partnerships under Industrial Modernization (Industry 4.0, Digitalization and safety for Tourism) and Energy (Geothermal Power).

After the welcome, Ms Linda Sproge and Mr Robert Szucs (DG REGIO) presented (see [Annex 2](#)) the overall objectives of the pilot action, the timeframe and the support mechanism offered by the Commission.

European Commission is particularly stressing the following points:

- The pilot partnership has to focus on co-investing and attracting public/private investments around “bankable” interregional projects, which have to be scaled up and reach the commercializing stage. It is important to focus only on the most promising business cases, which means that some ideas must be put aside if not sufficiently mature.
- The issue of finding the right funding tools is not really the priority for the first stage. As soon as the pilot business cases are defined, the means for supporting and funding them will be defined and the Commission is there to help and explore all the possible tools and synergies between EU instruments (for ex. Cohesion policy).
- The Commission is there to provide thematic expertise from a dedicated internal team and from additional experts. The kind of expertise must be clearly indicated by the partnership based on gaps and bottlenecks that arise from the pilot cases.

For the above reasons this first meeting is particularly aiming at:

- Deepen the focus of the business cases
- Define bottlenecks to remove
- Define a precise action plan
- Identify specific services needed

2. State of play of the partnership

Mr Fabio Boscaleri gave an overview of the history and state of play of the partnership (**Annex 3**), describing the overall approach, the main steps and the achievements. Then he focused on the main points described in the Expression of Interest, with particular attention to the three business cases identified by the partnership:

1. Technology adoption in small and family farms (mainly promoted by Tuscany)
2. Agriculture warnings for weeds and diseases (mainly promoted by Flanders)
3. Integration of sensors to monitor and improve the conditions of livestock (mainly promoted by North Brabant)

The following discussion involved all the participants and was aimed at better describing the business cases and defining some agreements for further activities.

A general description of the three cases is reported below.

- Technology adoption in small and family farms

Tuscany Region described what is under development in the Region, with particular attention to the development of a platform for generating precision farming services for farmers. The case is based on the experience of *Oenosmart* project (Precision farming platform for wine producers). Besides this, an agreement for sharing data collected by the regional paying agency (ARTEA) has been recently signed between the Agency and a private ICT company specialised in agriculture (ABACO Group). The basic idea is defining an ICT architecture which allows a better use and organization of available and collected data for the generation of new services to farmers that can lead to a faster adoption of Precision Farming technologies in the region. Main obstacles are the definition of rules for the sharing of data and the knowledge gap between technology providers and end-users. Tuscany believes that a interregional platform could reduce the risks and increase the impact of the service to the benefit of a broader spectrum of tech providers. This approach can be shared with the Region of Ostergotland, where a project managed by the VRETA Cluster is seeking to produce new services based on a mix of Artificial Intelligence in the interpretation of satellite imagery and block-chain technologies (**Annex 4**), which could be particularly relevant for cereal producers. This approach can also fit with the needs raised by Extremadura, where there is a gap for the adoption of new existing technologies for irrigation and fertilization due to the difficulties in understanding the benefits from the farmers. Benchmarking platform considering broader areas can allow a better understanding of actual benefits.

- Agriculture warnings for weeds and diseases

The region of Flanders is testing the use of satellite and drones via remote sensing which are helping to detect toxic weeds. In particular, the project aims to provide/capture images, elaborate and use them for specific actions (as spraying) which is very challenging and expensive at the moment. The most relevant aspect for the interregional business case is the development of Multispectral cameras and the interpretation of data. In 2016, the Belgian agricultural sector recorded an all-time high year for the potato industry with 4,4 million tons of harvest, an increase of 11% according 2015. With a total workforce of 4115 people in the potato processing industry alone, the sector represented a revenue of 1,55 billion euro. Other important olericulture nightshade crops were reported in 2014: 170 million euro of revenue for 241 kiloton for tomatoes and 40 million euro for 41 kiloton of peppers. Undoubtedly, olericulture in Belgium is a growing business and it has an important economic value from the consumption as well as the employment point of view. Unfortunately, other members of the nightshade family are toxic for humans and animals, and contaminate commercially important crops such as beans, peas and spinach. Especially the Thorn apple (*D. stramonium*) and the Black nightshade (*S. nigrum*) are widespread weeds which appear in vegetable and potato fields in Europe.

ILVO, the Institute of Agriculture and Fishery in Flanders is collaborating with universities, the hyperspectral sensor developer IMEC, local drone pilots and geo-ICT companies with hyperspectral image processing expertise to explore opportunities with this new generation of multispectral/hyperspectral remote sensing. Due to the multitude of challenges described above, the progression of applicable models is slow as research conditions should be as stable and uniform as possible which is not favorable under Belgian weather conditions. Flanders is bound to research those crops which are economically important for the region but that is not representative for the total potential of remote sensing technology throughout Europe. Next to the challenges outdoors, the development of proper models to process and classify the hyperspectral data is pushing artificial intelligence technology to the limit. Joined research programs are needed in order to maximize AI in the processing and interpretation of images in order to come to reliable classification (distinction) models which are ready to go to market.

- Integration of sensors to monitor and improve the conditions of livestock

This case was particularly indicated by the Region of North Brabant. Unfortunately the representative of the Region (Mr Simon Maas) got sick and could not attend to the meeting but he shared the following information:

Integration of sensors to monitor and improve the conditions of livestock in our opinion is (to be) combined with the ambition of a zero emission livestock. Since to have zero emissions you'll need to improve climate inside farms, this will ultimately lead to better living conditions for livestock.

Annex 5 is a short memo from a professor in smart farming from Noord Brabant (she wrote this as an extra to the survey of the S3P Smart Sensors 4 AgriFood). The memo presents quite clearly some 'development points' needed to gather more (detailed) information on the conditions for livestock.

Together with Kamplan we worked on a total circular farm concept. "Manure processing begins with separating the manure in a solid substance (25%) and a liquid substance (75%). For this separation one can use a manure decanter or a screw press filter. Most of the phosphates end up in the solid substance and is relatively easy to remove. Nitrogen is largely present in the liquid substance and can't be removed mechanically. The liquid substance must be treated in a biological process. This biological process takes care of the transformation of nitrogen to eventually a harmless nitrogen gas. The liquid substance that has been treated in the biological process will have an after treatment and can eventually be spread over private land or, if abduction is permitted, can be abducted in the sewer." Important is that the processed liquid substance has become odourless and – as often the case in the Netherlands – when used to flush to slurry pit it doesn't fill the sty with ammonia and other distressing odours. With other companies we are working on manure processing as well.

Even though the above mentioned system(s) work(s) it isn't complete yet, but more over it needs to be validated by testing and monitoring amongst others the air quality in the sty.

Sensors are needed to adequately measure air and water quality and use and the overall climate (temperature, humidity, etc.) and at the same time techniques to improve air and water quality without increasing for instance particulate matter emissions.

Of course we need governments as well to accept these test sites (as living labs) since in most cases they can only test within legal boundaries if making double investments (both the conventional and the experimental techniques).

Within AgriFood Capital we have brought some technology providers (like Kamplan), knowledge institutions (like HAS University and Wageningen University), farmers and governments together in a consortium to start experimenting a little further on this. With the help of the S3P, its partners, JRC, etc. We can run better tests. Especially from the project and JRC, we hope to have research capacity (in conjunction with HAS and Wageningen) to validate these systems so we can launch them all over Europe.

The idea of a zero emission process for livestock is of great relevance for other Regions such as Ostergotland and North Holland.

3. Main outcomes and decisions

a. Connection with Relevant EU funded Projects

Experts from the European Commission suggested the partnership to create connections with some relevant European initiatives and projects.

A first source of information can be the [final report](#) of the EIP AGRI Focus Group on Precision Farming.

Furthermore there are relevant EU projects which can be connected to the Partnership. two examples are "[4D4F](#)" project and IoF2030.

b. Designation of an expert to support the partnership coordination

Participants agreed to continue the support from Ms Els van de Velde (IDEA Consult) as coordinator of the partnership paid by DG REGIO Technical assistance. DG REGIO will perform all the necessary to activate the contract as soon as possible.

c. Better definition of the business cases

In order to start collecting and connecting the business cases proposed by partners, a questionnaire (survey) was proposed by Tuscany Region ([Annex 6](#)) in 2017. Partners and European Commission Services are invited to comment and suggest improvement to the document, **possibly by 16 March 2018**, so that it can better serve the scope of the pilot.

After **16 March**, partners will receive the final consolidated version of the questionnaire and will be invited to submit it to relevant stakeholders in order to better describe the business cases and to indicate exactly which are the main bottlenecks and challenges.

d. Action plan

Tuscany Region proposed the following plan for the next 5 months:

By March:

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- Each partner has to provide a detailed description of the most promising pilot business cases in its Region. The cases must have a strong potential for interregional connections and a good level of maturity.
 - The idea is to keep open the door to possible additional ideas from partners which have not yet expressed a clear input. A very final window to indicate cases and also finalize the mapping and provide additional info through the questionnaire (to be revised according to previous point c) is open until end of March.

April/May:

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- Each Partner Region will be requested to perform additional interviews to relevant stakeholders or organise local meetings to better collect information and describe the case.

By July:

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- Identification of additional tailored support from EC based on the proposed and identified business cases. The Commission will provide support for a spectrum of possible needs, for instance: business plan design; financial modelling; intellectual property rights; standardisation; market research; etc.

e. Partnership governance

A more adapted governance model must also be defined. The idea is to have more commitment by those Regions which are at the lead of the selected business cases. A possible governance model will be proposed by the end of March. It will be discussed during the next meeting.

f. EVENTS where the participation of S3 HTF Partners and stakeholders is highly recommended

- 16-17 May: B2B Matchmaking meetings in Tuscany (**Annex 7, 8 and 9**). The participation of businesses and actors involved in the selected pilots is highly recommended.
- 18 May – S3 HTF partnership meeting in Tuscany. The meeting is organised specifically for the participation of delegates from the S3 HTF Regions to advance with the partnership works.
- 11-13 June: [ERIAFF Conference 2018](#) in Seinajoki, with a session devoted to the Partnership and possible relevant field trips (**Annex 10**). The event will offer opportunities to present and further discuss about business cases and relevant interregional connections.

Partners did not select a date for the second technical meeting. Tuscany Region will inform the partners about the next meeting. A technical meeting will be organised on 18 May in Tuscany.

Brussels, 8 march 2018

Annexes

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| 1. List of participants | 7. Draft Programme of 16 May event of Photonics and Agrifood | 10. Presentation of ERIAFF Conference 2018 |
| 2. DG REGIO Presentation | 8. Draft Programme of the Watify B2B event on HTF | |
| 3. Background presentation | 9. Concept note of the Watify B2B event on HTF | |
| 4. Vreta Kluster proposal | | |
| 5. Memo from North Brabant | | |
| 6. Questionnaire (for further development) | | |