NIVA – NEW IACS VISION IN ACTION

Work Package 5 – Innovation Ecosystem

D5.2 – Stakeholder Exchange Platform Report

Deliverable Lead: RVO

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Document Control Page

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Disclaimer

This document is issued within the frame and for the purpose of the NIVA project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the European Commission.

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1. Management summary

On the 13th of November 2019, NIVA hosted its first Stakeholders Forum in Copenhagen. The theme of the day was 'checks by monitoring' and the room was packed with almost a hundred representatives from Paying Agencies (PA) from 19 Member States, farmers representatives, researchers, and technical experts. After the welcome by the Danish host of the meeting the attendees got some explanation about NIVA and the role of the Innovation Network in NIVA. Innovation, interaction and cooperation are key for the success of NIVA, but also for the stakeholder forum itself.

The rest of the programme focused on the "Check by Monitoring". The perspectives of the different actors and stakeholders were laid down by presentations and interactive panel. The perspectives of the European institutions (ECA, DG AGRI and JRC), the Paying Agencies (in and outside NIVA), other European projects and most important from the farmers were shared during the day. After a fruitful day the important messages to take home were formulated:

- ✓ We are here for the farmers;
- ✓ NIVA seeks to deliver solutions that will benefit farmers;
- ✓ Connecting systems and exchanging data is the key, so cooperation between stakeholders and Paying Agencies is crucial.

2. NIVA Stakeholder forum report

On the 13th of November 2019, NIVA hosted its first Stakeholders Forum. The theme of the day was 'checks by monitoring' and the room was packed with almost a hundred representatives from Paying Agencies (PA) from 19 Member States, farmers representatives, researchers, and technical experts. Our host of the day, **Henrik Berg from the Danish Paying Agency** opened the meeting with a warm welcome to participants and explained: 'Within NIVA, our aim is to help digitalise and automatise as many processes as possible and to better share data with our farmers.' He pointed out that participation in NIVA project has been Danish Paying Agency's strategic decision from the start. **Folkwin Poelman of the Dutch Paying Agency** and leader of the NIVA subgroup in charge of organising Stakeholders Forums (Work Package 5), then took the floor to explain the programme of the day, making it clear that the intention was to have a lot of interactions between speakers and participants.

Sander Janssen, NIVA project coordinator, then took the stage to introduce participants to the project. He started with a personal anecdote: as a farmer's son, he remembers his father being always worried about getting his manure out on the field at the right time. When he told his father about NIVA, his father found it very interesting as he immediately saw how the tools developed by the project could help farmers do the right thing and therefore reduce their stress.

So what is NIVA about exactly? In June 2018, the European Commission published its proposals for the new post-2020 Common Agricultural Policy (CAP). The new policy requires a modernised administration and control system (IACS), so how can the system adapt? NIVA is on a mission to test solutions and develop e-tools through 9 Use Cases to help modernise IACS for a smooth transition to the new CAP. The project involves Paying Agencies and technical partners from 9 Member States (MS), but the aim is to develop solutions that can be used more widely. There are two key aspects of NIVA that should make this possible: first, all components developed in NIVA will be made available as a common resource for all MS; second, the solutions will be tested in pilots, first in single MS, then in multiple MS, to ensure the tools are applicable and useful beyond the context in which they are developed. Collaboration and dialogue are therefore at the heart of NIVA.

Following this introduction, we delved into the topic of the day with a presentation by **Phil Wynn Owen and Els Brems of the European Court of Auditors (ECA)** about their audit of the CAP's checks-by-monitoring system. The ECA is an EU institution responsible for independent external audits of EU policies and spending. The question they are exploring in this audit is 'Have the Commission and Member States taken steps to unlock the potential of new imaging technologies for monitoring the CAP?' As the audit is on-going, they were not able to share detailed results (the report is expected for January 2020), but talked us through some preliminary observations (see slides). Interestingly, their audit covers three of the technologies NIVA is working on in Use Cases: Earth Observation monitoring and traffic lights, agri-environmental monitoring, and geo-tagged photos. A key issue that has arisen from the ECA audits which our speakers highlighted, are the CAP's performance indicators, which they explained are not designed or suitable for monitoring with Sentinel data.

Our moderator of the day, **Tamme van der Wal of Wageningen Research**, asked further information about the indicators. Mr Owen explained that not everything is measurable or monitorable by any one technology, but that we should investigate what combination of technologies can be used to monitor the environmental and climate performance of the agriculture sector. He urged the Commission to develop relevant indicators and a smart mix of technology for monitoring, to ensure the CAP's climate and environmental performance can be significantly improved.

The next presentation was by **Jean-Luc Widlowski of the European Commission's DG AGRI** on 'The area monitoring system (AMS): moving beyond controls in the post-2020 CAP'. He explained that the AMS is a "procedure of regular and systematic observation, tracking and assessment of agricultural activities and practices on agricultural areas by Copernicus Sentinel data or other data with at least equivalent value". This new system will be mandatory from 2021. In the AMS, Member States are responsible for setting their own rules, criteria, and penalties.

He was followed by **Wim Devos of the Commission's Joint Research Centre**, who explained the background to the NIVA project: a switch to a 'performance-based' CAP with a new delivery model. He likened the checks-by-monitoring (CbM) and area monitoring system (AMS) to learning to swim: CbM are like learning to swim in a shallow swimming pool before going to swim in the sea during a storm, they are a way to help MS transition from a system purely based on compliance and on-the-spot checks, to one focused on performance and 100% monitoring. To monitor performance, the AMS uses markers which are linked to activities, thereby giving an indication of impact. In his view, the 'new IACS' enables MS to do less (simplification) but get more out of it. In this new IACS, NIVA acts at the intersection between parcels, farms, and farm practices. It needs to bring new technologies to that sphere for the new monitoring and control system to be functional. He pointed out that given de-centralisation of the CAP, it is very unlikely that we will end up with a common IACS, hence NIVA will not be able to produce tools and solutions that can be transposed directly from one MS to another, but what is key is that the NIVA solutions can be exchanged and re-used for mutual learning. He

encouraged the NIVA partners to look beyond 'cleaning up the current weaknesses of IACS' and at 'what is relevant for the future'. He wants NIVA to consider the new technologies for a paradigm shift, not merely re-engineering the current system.

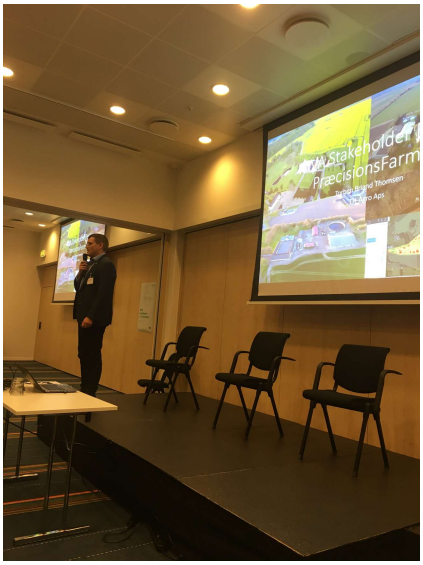
We then heard experiences with implementation of checks-by-monitoring from **a panel of three Paying Agencies**, two which are involved in the NIVA project (Italian coordinating body of Paying Agencies AGEA and Danish Paying Agency DAA), and one external one: the Flemish Paying Agency. Some of the key messages shared by **Troels Søndergaard of the DAA**, **Francesco Sofia of the AGEA** and **Katrien van den Broeck of the Flemish Paying Agency** included:

- All three had only a very small difference in outcomes (% red parcels) between controls on the spot and the area monitoring system. They all expressed a 'fear for yellow': yellow-flagged parcels require resources to determine whether they should be green or red, the less yellow the better. At AGEA, they would do their best to solve yellow parcels in the back office before asking farmers for further documentation or for a geotagged photo.
- The size and diversity of the country matters: in Italy the PA could not apply the same markers with the same parameters across the whole country due to high variety in climatic and agronomic conditions.
- This new system needs to be based around a better dialogue between the PA and the farmers. In Denmark, beneficiaries could see their parcels in an online system from early September. Inconclusive parcels would turn yellow and parcels with a high risk of incompliance would turn red. In both cases, they had a time window to act (send further documentation or rectify their activities) before a cut-off date, after which checks would be carried out. The presentation of the inconclusive parcels led to several withdrawals: This approach nudges farmers to only declare eligible parcels.
- It is important to decide where to draw the line on the level of detail required. In Flanders, inconclusive parcels would not be further investigated if the impact (cost) is considered too low (eg. if it would result in a cost of less than 50€ at beneficiary level).
- Communication with farmers was identified as key, but also as a challenge. The Danish PA said they had generally good communication with farmers, but not all read their newsletters, so as a complementary strategy, they cooperate closely with farmers organisations to communicate with farmers. In Flanders, the PA found it harder to reach older farmers because many are not so IT-savvy and some do not even have a computer.
- Making the code and algorithms behind the system open source was a subject of engaged discussion, and was identified as a potential challenge. Markers and algorithms can be developed in house or outsourced to an external contractor, in which case it is not as easy to make them open source. In Flanders they had developed the system in house, whereas Denmark had outsourced it.
- To conclude, DAA shared a key lesson from their experience: moving to AMS is an iterative learning process, it will not be perfect from day one. They therefore advised to avoid multiple pilots, but to remain agile when implementing the system, as it is only by going nation-wide that the 'odd cases' appear.

After a delicious lunch break, **Dominique Laurent of the French National Mapping Agency** presented the work of NIVA's work package 3 and invited all participants to contribute by providing feedback to two questionnaires, one for the semantic interoperability and one for technical interoperability of the project. She explained that this feedback from other Paying Agencies not included in the project consortium is very important in order to develop more pan-European solutions: by having input from more countries than the 9 taking part in NIVA, it makes it more likely that the final tools will be applicable beyond NIVA partners.

Our energetic moderator then organised a little exercise to encourage us to connect with each other: participants were encouraged to think about who they would like to connect with in the room and to throw a colourful ball of wool across the room to that person, creating in a few minutes a complex net of woolly interactions between all participants.

The afternoon continued with **Farmers Panel** to discuss what are the farmers perspectives on reduction of administrative burden and improvement of information sharing. Th panel discussion started with a presentation by **Danish farmer Torben Thomsen** who shared his experience in precision farming. Toren has been running a family farm since 1990s, with a focus on crop farming and pigs production. Farm consists of 150 fields with a dozen variety of crops being grown on 969 hectares, production, breeding and sale of pigs is based on a 500-sow herd with thousands of pigs being produced each year. In Torben's experience, adopting precision farming was challenging because there weren't so many good farming management programmes available. While smaller farms may be able to use precision farming practices without the help of farming management systems, it is not possible for bigger farms due to the amount of information and data. In Torben's opinion the biggest issue concerning different management systems is lack of connectivity. He stressed that connections between diferent systems are really needed. Also, Torben pointed out that it's important to empower farmers through monitoring and control system, for example by giving access to information (yellow flag or red flag) is very positive.



Next speaker, **Gerard Willems of Dutch farmers association ZLTO,** addressed in his presentation the process of adopting (digital) innovation by farmers. By using an example of the graph of innovation – categories of adopters are innovators, early adopters, early majority, late majority and laggards- he emphasized that there are big differences between farmers. There is a small group of innovators (e.g. farmers like Torben Thomsen) who are ready to adopt new emerging technologies without problems. At the other end of the scale there are farmers to whom it is not easy to adopt new technologies, some older farmers don't even have a computer. New CAP will be for ALL of them, so it is very important to develop system which doesn't leave some farmers behind. It is important to innovate, but it's equally important to reach all farmers which is a real challenge. For example, late majority group of farmers may see things as an obligation and must be helped to see

innovation as something that works in their favour. It has to be asked how we can communicate all farmers? Acceptance and adoption can be compared with throwing a stone into a pond – it expands, from innovators to late majority. Gerard also pointed out importance of reducing administrative burden. Farmers have reluctance to ask for help and administrative tasks shouldn't take too much of their time.

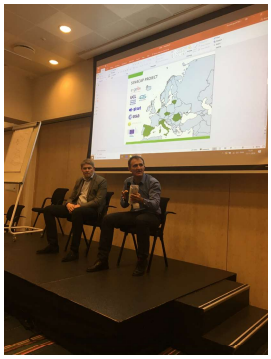
The presentations were followed by questions and discussion on several topics:

- Salvatore Carfi of AGEA expressed gratitude towards farmers because they are the center of all. He had two questions to presenters: first, how many time they spend on applications, and secondly, do they receive payments at the same year they claimed for it. Torben assumed he may spend about 100 hours per year on applications and this time is OK for him. The payments are received at the same year as claimed. According to Gerard time spent on applications may be 2-3 days per year, 1-2 days to gather necessary information and 0.5 days to fill in the forms.
- Representative of Austrian Paying Agency pointed out that in Austria the farms have grown bigger. Investments are related to the size of a farm. Questions to presenters – what are the issues for an average size farm and what they expect from Paying Agency? Gerard replied that the same applies for Netherlands, farms are growing bigger and professionalizing. Torben added that he has also sized up and definitely has become more enterpreneurial farmer. Investments made in IT pay back in better crops and also help to save environment, so there are direct and indirect benefits. If you have bigger farm and many employees, you need technology to help you. Gerard mentions that we will see that in the future farmers will be more educated. So, what NIVA is doing will be suitable for the farmer of the future. Torben confirms.
- Representative of Hungarian IT company asked presenters' opinion, if they think that CAP policies motivate for environmental friendliness? Where farmers mindsets are at, do bare minimum, or are they willing to do more to protect biodiversity and mitigate climate change? Gerard: „Many farmers do it because they have to do, pressure from society is high. Many say they'd like to be more environmental friendly, but cannot afford it". But for a majority of the group applies that they are more concerned with the cost. They want to do it, but need the money. But NIVA can help reduce the costs Torben: „As a farmers we are part of nature, we respect and preserve it".
- Representative of Danish agricultural association and COPA-COGECA committee brought up the change of monitoring system: „I'd like to bring out farmers point of view on 100% control. What it means for me? Does I benefit from it?" She stressed that it needed to focus on overall compliance not tiny details, or it will lead to more unfair penalties. The main idea should be trust.
- Representative of DG AGRI: „We have agreed that we will not control every last square metre". If things change rules have to change. While thinking about IACS in context: 5% of checks meant that penalties needed to be high to serve as an example. Now technology allows use of different system, focus is on prevention rather than punition. What's in it for farmers? New system allows to remove administrative hurdles, e.g.

remove fixed dates because there is no need for on the spot checks in July and August. Monitoring is about increased dialogue with farmers throughout the season, to get the best outcome for everyone, instead of single check and penalty. Inform in time, avoid penalties.

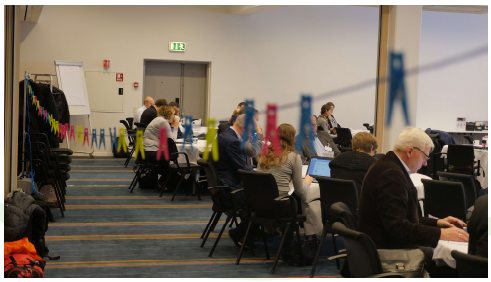
- Question to Gerard from Sander Janssen: „How do you feel about Paying Agency being advisor?“ Gerard: „Not an advisory role, but the Paying Agency should provide data“.
- Question from Emmanuel de Laroche of French Paying Agency: „Regarding delivery of data by Paying Agency – what do you need, what is of interest to farmers?“ Gerard: „Satellite images for monitoring growth of crops would be helpful.“ Torben: „Yes, we use satellite data every day“.
- Last question from moderator Tamme van der Wal to Torben: „As a conclusion of this panel, what advice you would give to us?“ Torben: „The most important is that all systems are connected. If something new comes up, connect this as well. And ask farmers opinion.“

The farmers panel was followed by presentations and discussion about **lessons learned in other CAP innovation projects (RECAP, SEN4CAP)**. Overview and lessons learned of the RECAP project was given by **Javier Rojo** of ITACyL. Overview and lessons learned from SEN4CAP project was given by **Liutauras Šimkus** of the Lithuanian Paying Agency and **Kostas Kontouris** of the Greek Paying Agency. Their general view is that these projects had some issues that with smaller parcels the results were not so good, but for other parcels better than expected. For the execution of the project open communication is key: close to the farmers.



The presentations were followed by questions and discussion:

- Sander Janssen from WUR was triggered by notes regarding the small parcels. For strip-parcels that are currently tested in the Netherlands: is that a danger for what we want to achieve? Javier: initially we expected more problems. Currently, this issue is solved for the most part.
- Tamme asked if Sen4Cap provides a dataset that the PA has to work with? The answer is yes. Javier explains that this project has triggered, but it is for NIVA and the PA’s to take this up. The PA is responsible for the quality of the markers, but the work has to start.
- A representative from a Austrian IT-supplier asked if the use of DIAS is taken into account. Javier answered that although they are not using DIAS yet, but they will use it in the future. DIAS is not mandatory, but it can be helpful. Liutaurus agrees that DIAS is something for the future.



At the start of the meeting **Tamme van der Wal** introduced the so-called whishing line. Participants of the Stakeholder forum could express their wishes on paper and place it on the whishing line. And the end of the day Tamme mentioned a couple of the whishes, which lead to some further explanation and discussions:

- Integrating LiDAR and aerial orthophotos: In some countries it would take 7 years for update LiDAR. But the innovation might be integration of Sentinel and orthophotos.
- Integration of components: This could be included in WP3: interoperability.
- Sustainable and governance of the software: This is part of WP4. Gitlab is used to publish code. During the NIVA we will decide how it's going to continue. WP5 will make an implementation plan. Point of attention that was brought forward is that "open source" does not mean that it is automatically without costs.

- Try out the Use cases when not involved in the Use Cases? It will be on Gitlab, so you can do. But there also the possibility to participate to the Open Call mechanism of NIVA. Please contact the project coordinator if you are interested.

Finally the day was **concluded by Folkwin Poelman**. Important messages to take home:

- ✓ We are here for the farmers;
- ✓ NIVA seeks to deliver solutions that will benefit farmers;
- ✓ Connecting systems and exchanging data is the key, so cooperation between stakeholders and Paying Agencies is crucial.

The next NIVA Stakeholder Forum is expected to take place in May 2020. See you there!

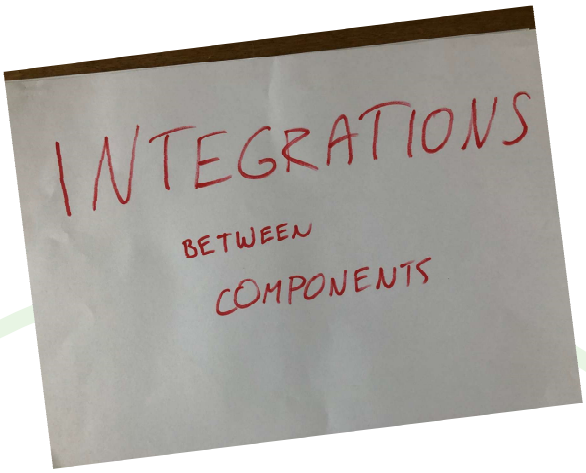
3. List of presentations

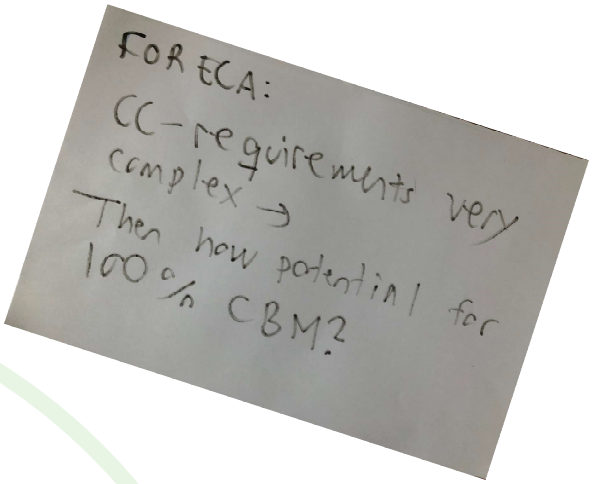
The presentations are available on the NIVA website (www.niva4cap.eu) under Downloads – in the folder "Stakeholder forum 13 November 2019 Copenhagen" and are an integral part of this deliverable.

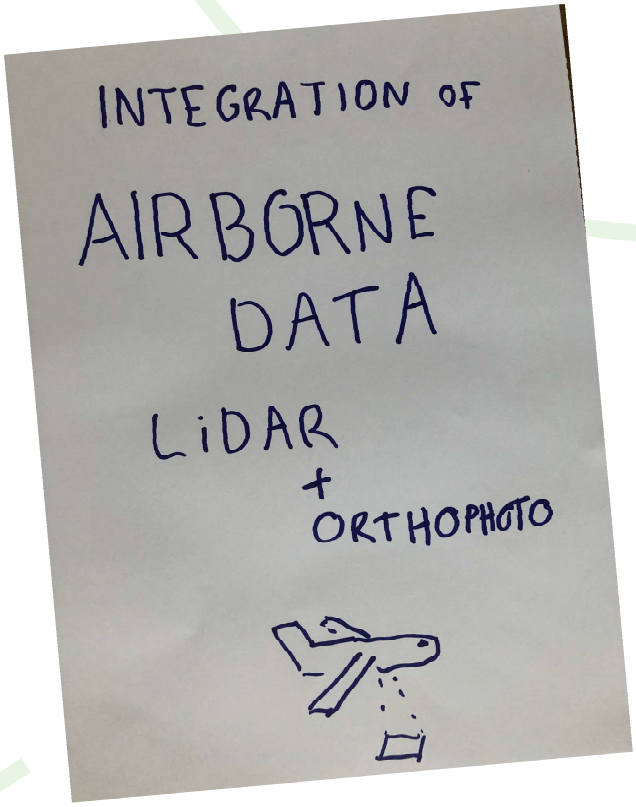
A. Innovation Ecosystem (NIVA)
B. NIVA overview (NIVA)
C. New technologies in agri-monitoring (ECA)
D. Future AMS (DG AGRI)
E. Technical challenges for IACS (JRC)
F. Checks by Monitoring (BE)
G. Checks by Monitoring (DE)
H. Checks by Monitoring (IT)
I. WP3 Harmonisation and Interoperability (NIVA)
J. Lessons learned (ES)
K. Lessons learned (LT)

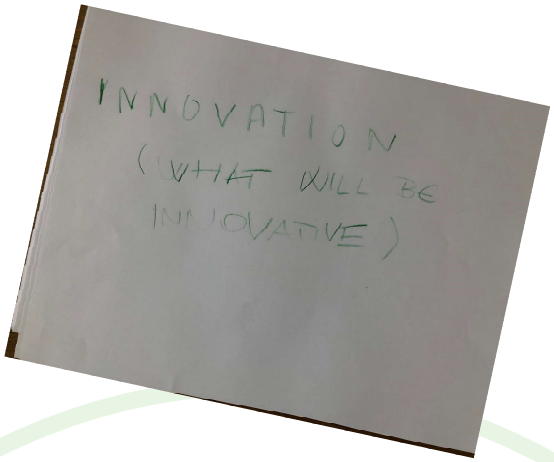
4. Proceeds of the "Whishing line"

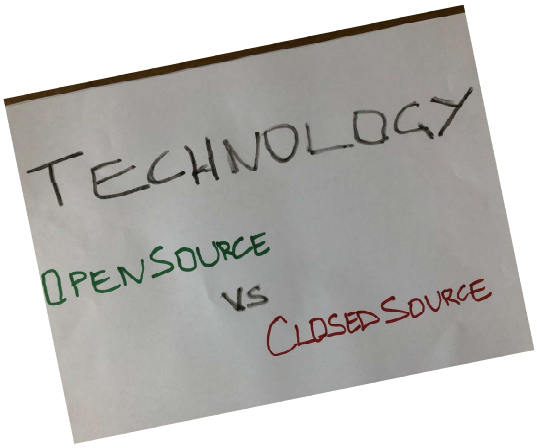
During the Stakeholder forum participants could hang their wishes on the so-called Whishing Line. As form the start of the meeting participants till the end participants made use of this possibility. These whishes will be taken into account by the NIVA team.

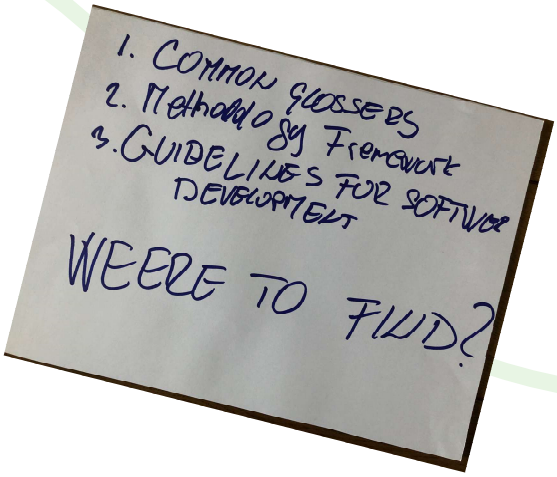


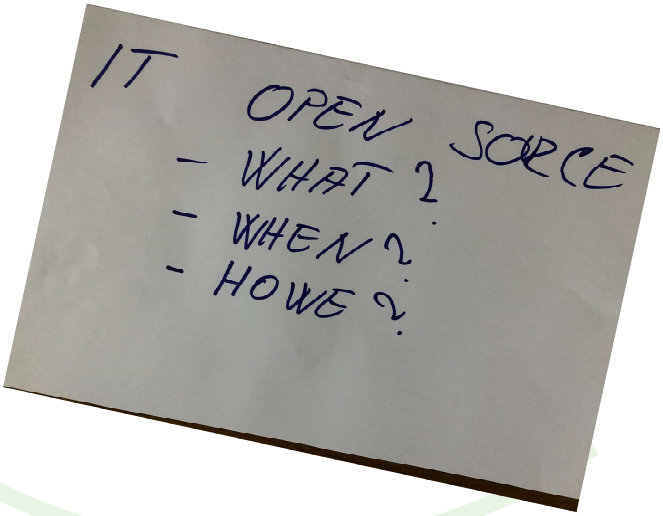


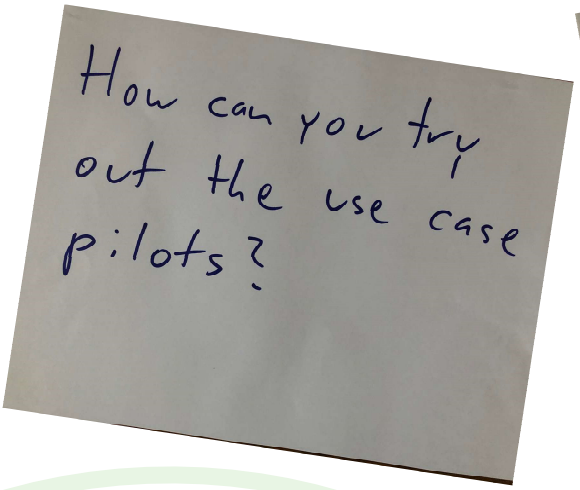


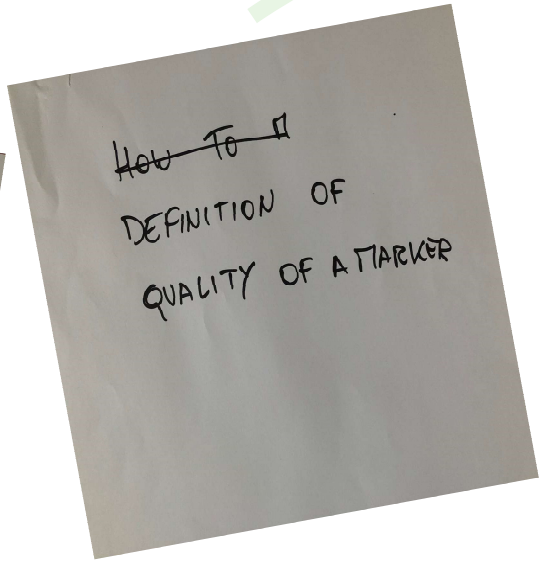


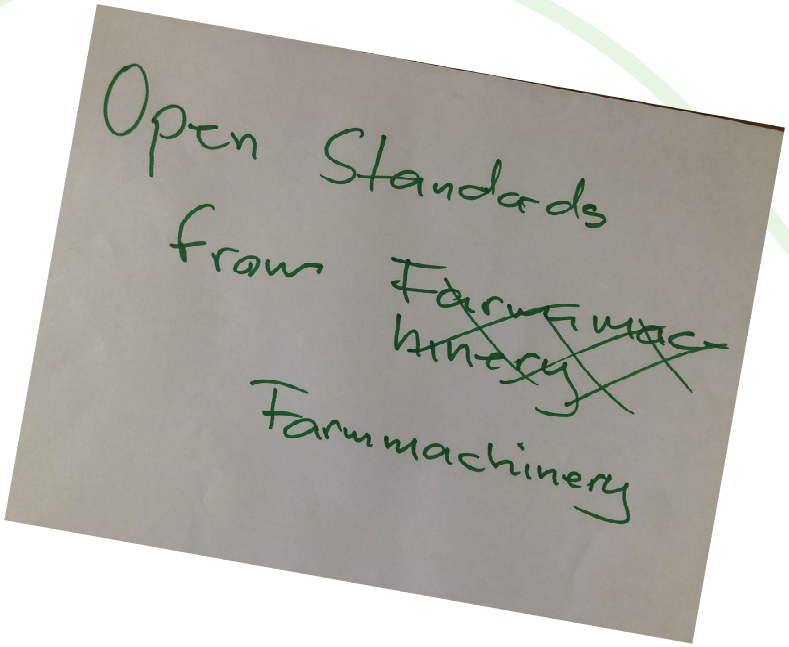












5. Selection of Tweets posted during the Stakeholder Forum

Panagiotis Michalis @Dr_PMichalis · Nov 13

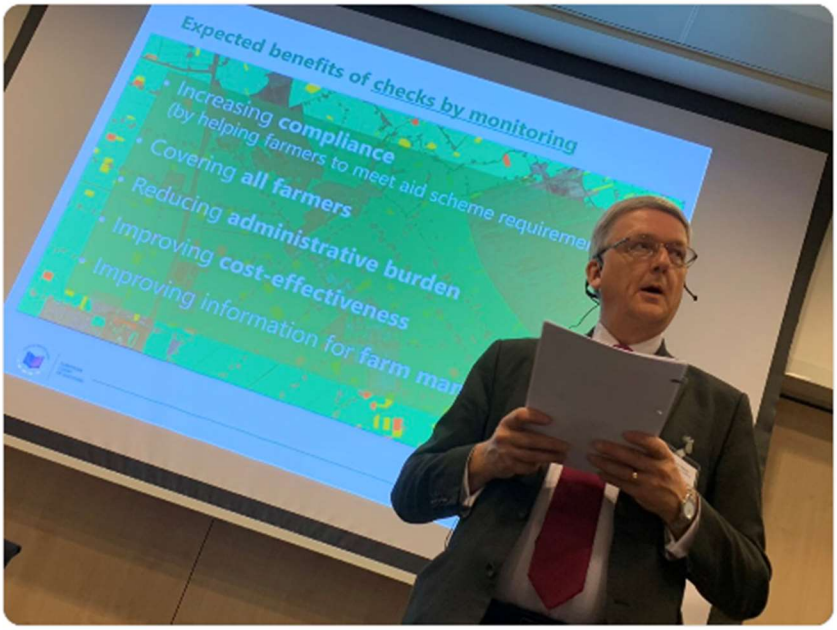
Currently at Copenhagen and @niva4cap #H2020 project meeting setting the ground for enhanced #capmonitoring with #earthobservation tools. @NEUROPUBLIC

1 7

Panagiotis Michalis and **Nikos Kalatzis** liked a Tweet you were mentioned in · Nov

Tamme van der Wal @vdwal24 · Nov 13

Court of Auditors present at @niva4cap on #capmonitoring. Advising Europe to remove obstacles to promote new technologies like satellite data and precision farming data sources. @wurcgi @RVO_Nederland



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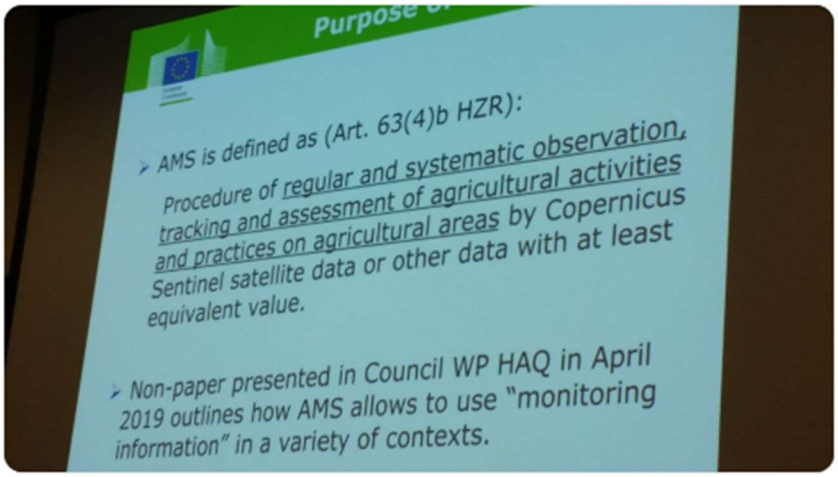
WUR EarthInformatics @wurcgi · Nov 13

New legislation on Common Agriculture Policy moves away from control and compliance (and thus penalties) towards a paradigm of assessing and following the agricultural activities. Presentation by @EUAgri at @niva4cap stakeholder forum



1 2

NEUROPUBLIC @NEUROPUBLIC · Nov 13

Interesting discussions on #CAPMonitoring in #FutureCAP are taking place at the @niva4cap project meeting w/ contributions from our experts @nikoskala @Dr_PMichalis & @dimsyk

#NIVA4CAP #H2020 #EarthObservation #EO #RemoteSensing

Panagiotis Michalis @Dr_PMichalis

Currently at Copenhagen and @niva4cap #H2020 project meeting setting the ground for enhanced #capmonitoring with #earthobservation tools. @NEUROPUBLIC

2 7

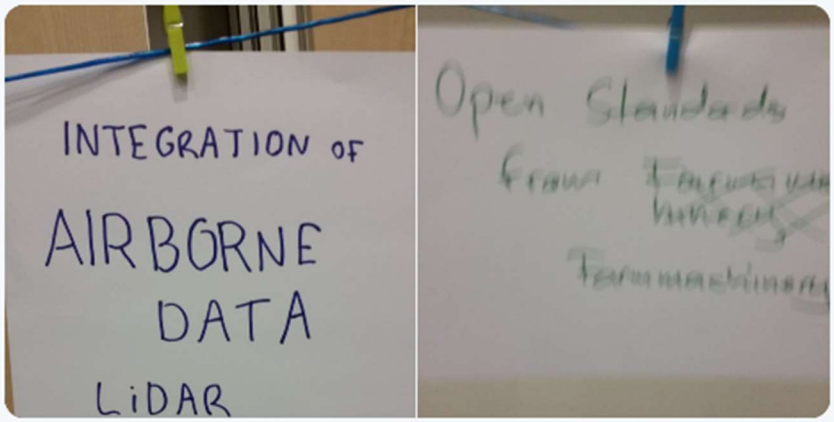
Landbrugsstyrelsen @LandogLade · Nov 13

Our head of Data & Analysis Henrik Berg welcomes the participants of #NIVA4CAP. He emphasized the importance of sharing experiences so we can develop across countries.

You

WUR EarthInformatics @wurcgi · Nov 13

#digital #innovations needed! 1. Open standards for farm machinery data and 2. integration of LIDAR with Orthophoto. Participant feedback @niva4cap stakeholder forum!



Tamme van der Wal and Folkwin Poelman

2 2

Nikos Kalatzis Retweeted Tweets you were included in · Nov 13

NIVA
NEW IACS VISION IN ACTION

Stakeholder forum
Copenhagen, 13 November 2019

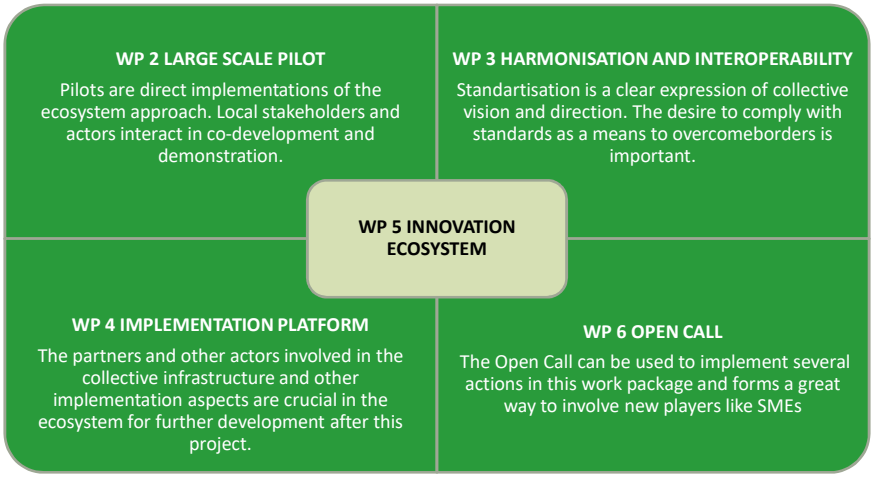
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009

Introduction to the Innovation Ecosystem

Objective

This work package will set-up and manage an Innovation Ecosystem that provides fertile soil for development and uptake of innovative techniques and methods which are developed during and after the project. This work package focuses on a highly efficient and user-friendly communication strategy to facilitate active involvement of the different (groups of) stakeholders and actors in creating impact during and after the project.

Relation between the work packages



Innovation Ecosystem

- An "**innovation ecosystem**" is the term used to describe the various players, stakeholders, and community members that are critical for **innovation**
- Stimulating the dialogue with each other
- Organise stakeholder meetings

The Stakeholder forum

- The stakeholder forum is a meeting between project participants, other paying agencies (so called: reference group) and delegates from other interested and relevant organisations, including private companies, science institutes, agricultural organisations etc.
- Every stakeholder forum will have another theme and focus

Programme of the 1st Stakeholder meeting

NIVA
NEW IACS VISION IN ACTION

The Stakeholder forum

Time/place	Subject	Lead/presenter
8.45-9.15	Registration	
9.15-9.30	Welcome by DAA	Henrik Berg (DAA)
9.30-9.35	Introduction of the NIVA Stakeholder Forum	Folkwin Poelman (RVO)
9.35-9:45	Introduction to NIVA & NIVA activities & Use Cases in NIVA (on Checks by Monitoring)	Sander Janssen (WUR)
9.45-10.10	European Court of Auditors: Its process around checks-by-Monitoring.	Phil Wynn Owen (ECA member) & Els Brems (ECA officer)
10.10-10.25	The area monitoring system: moving beyond controls in the post-2020 CAP	Jean-Luc Widlowski, DG AGRI D3
10.10-10.40	Implementation recommendations vision for the new CAP	Wim Devos (JRC)
10.40-10.50	Harmonisation and interoperability	Dominique Laurent (IGN)
10.50-11.15	Coffee break	

The Stakeholder forum

Time/place	Subject	Lead/presenter
11.15-12.30	Paying agency panel: experiences with implementation of checks-by-monitoring by different Pas	Katrien van den Broeck (BE), Troels Søndergaard (DK), Francesco Sofia (IT). Moderated by Tamme van der Wal (WUR)
12.30-13.30	Lunch break	
13.30-14:30	Farmer Panel: what are the farmers perspectives on reduction of administrative burden and improvement of information sharing.	Torben Thomsen (DK), Gerard Willems (NL) Moderated by Tamme van der Wal (WUR) with Landbrug / DAA
14.30-15.00	Lessons learned in other CAP innovation projects: Discussion on the results of other projects including RECAP, SEN4CAP.	Javier Rojo (ES), Simkus Liutaurus (LT) Discussion moderated by Tamme van der Wal (WUR)
15.00-15.30	Implications for NIVA and lessons learned: What should NIVA do and what should it not do?	Folkwin Poelman (RVO)
15.30-16.00	Next steps for NIVA stakeholder forum & Closure	Tamme van der Wal (WUR)

Follow us

Website: www.niva4cap.eu

Twitter: niva4cap

Linkedin: will follow soon

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THANK YOU!

This project has received funding from the european union's horizon 2020 research and innovation programme under grant agreement no. 842009

NIVA
NEW IACS VISION IN ACTION

Collaborative piloting of large-scale innovations in IACS towards a common vision

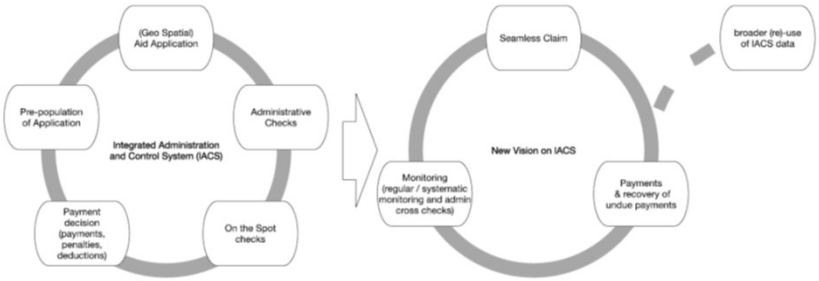
Sander Janssen (WUR)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009

NEW IACS VISION in ACTION - NIVA

- H2020 Innovation Action
- Proposal in response to Digital solutions and e-tools to modernize the CAP
- Consortium
  - lead = WUR
  - 9 paying agencies (NL-DK-SP-IT-FR-GR-EE-LT-IR)
  - technical partners, total 27 partners

Transition in NIVA



Three main challenges:

- Absorbing innovations to simplify the governance;
- Reducing socio-economic and administrative burden to farmers;
- Reducing the gap between IACS data use and potential broader uses.

While: the European Commission proposes a more flexible system, simplifying and modernizing the way the CAP works. The policy will shift the emphasis from compliance and rules towards results and performance.

NIVA objective

NIVA aims to **modernise IACS** by making efficient use of digital solutions and e-tools, by **creating reliable methodologies and harmonised data sets** for monitoring agricultural performance while reducing administrative burden for farmers, paying agencies and other stakeholders.

- Through a lean multi-actor approach, incl. a 12 month operational pilot
- Supporting the emergence of an innovation ecosystem, beyond NIVA's running time
- All Components as Open Source available with an EU-PL

Pilots at the core

Use Case Group	Use Case id	Use Case title	Lead MS (PA)	Testing PAs
Monitoring	UC1a	Earth Observation Monitoring and Traffic Lights	Greece (OPEKEPE)	DAFM, ASP, ARIB, AGEA
	UC1b	Agro-environmental monitoring	France (ASP)	RVO, DAA, FEGA (ITACYL)
	UC1c	Farmer Performance	Estonia (ARIB)	AGEA
Prefilled application	UC2	Prefilled application, GSAA/Land link	Lituania (NPA)	FEGA
Farm Registry	UC3	Farm Registry	Spain (FEGA)	CAPDER
Self-Certification	UC4a	Geotagged photos	Ireland (DAFM)	NPA, ARIB, AGEA, OPEKEPE
	UC4b	Machine data in GSAA as added value data	The Netherlands (RVO)	DAA, FEGA (ITACYL), OPEKEPE
Seamless Claim	UC5a	LPIS: Update & Change detection	Denmark (DAA)	ASP, FEGA
	UC5b	Scheme Eligibility and Payment Eligibility: Click-and-Pay.	Italy (AGEA)	

Milestones

Milestone	Title	Due Date
M1	Project start	1 (June 2019)
M2	Inception	6 (Nov 2019)
M3	Single MS pilot start	12 (May 2020)
M4	Start of multiple MS pilot	18 (Nov 2020)
M5	Demonstration review	24 (May 2021)
M6	Roadmap and demonstration review	30 (Nov 2021)
M7	Final delivery (results conference)	36 (May 2022)

First products up to M6

1. Methodological framework to piloting innovations in IACS
2. Common Glossary of terms and definitions
    1. To be converted to a semantic model for IACS (by M12)
3. Common guidelines for software development
4. First edition of Technology Watchdog
5. First Stakeholder Forum, 13 November, Copenhagen: Implementation of Checks-by-Monitoring

Interacting with NIVA as a PA

Reference Group:

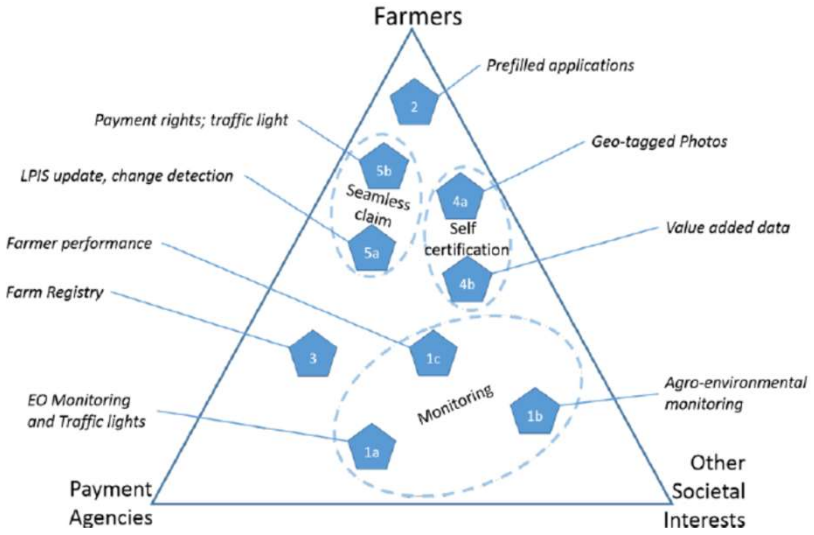
- other Paying Agencies are invited to join the Reference Group of Paying Agencies, organized as part of the Stakeholder Forum of WP5
- updated on relevant developments, lessons learned, and interactions with the broader stakeholder community

Testing and validating NIVA components:

- NIVA will publish software components for IACS as part of its developments.
- Other PA's and their technical partners are encouraged/invited to download & implement these in their developments on IACS.

NIVA activities with respect to Implementation of Checks by Monitoring

Pilots at the core



Common Components for monitoring

- Abstraction layer to use DIAS services, hence Sentinel Imagery, for GEO-mapping systems in the IACS
- OGC Application Programmers Interface (API) adaptors to access markers and data signals within land data cubes derived from L2A Sentinel time series in the context of the cascading traffic-lights approach - CAP monitoring
- machine learning building blocks to support monitoring approach (e.g. integrated Sen4CAP modules, eo-learn)

Keeping in touch with NIVA

Communication outlets:
www.niva4cap.eu

https://twitter.com/niva4cap

Future Stakeholer Forum meetings, May 2020

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THANK YOU!

This project has received funding from the european union's horizon 2020 research and innovation programme under grant agreement no. 842009

13 November 2019

New imaging technologies for monitoring the CAP

Phil Wynn Owen, Member
Els Brems, Co-Head of Task
European Court of Auditors

Coverage

1. The European Court of Auditors (ECA)
2. The Audit
3. Emerging Themes

Slide 2

1. The European Court of Auditors

Slide3

The European Court of Auditors as an EU institution

1. Independent guardian of financial interests of citizens of the Union

2. Contributes to improving EU financial management

EU's independent external auditor

3. Promotes accountability and transparency

4. Offers guidance to EU policymakers and legislators

EUROPEAN COURT OF AUDITORS

Slide4

Types of audit

Financial audit

Reliability of the EU's accounts

Compliance audit

Legality and regularity of transactions

Performance audit

Economy, effectiveness and efficiency of financial management

Digital audit and the ECA

ECA Digital Steering Committee

- drive the digital transformation of audit work
- help to plan and manage change
- find appropriate resources

2. The Audit

Slide 7

Why an audit on new technologies for monitoring the Common Agricultural Policy (CAP)?

- **Materiality** of CAP
- Recent **changes in legislation** (mid 2018):

Move from detailed checks on sample basis to monitoring all farmers: "Checks by Monitoring" (CbM)

- Potential for **change to the CAP**
- **Impact on future audit** approaches
- Relevant recommendations for **post-2020** CAP

EUROPEAN COURT OF AUDITORS

Slide 8

Expected benefits of checks by monitoring

- Increasing **compliance**
  (by helping farmers to meet aid scheme requirements)
- Covering **all farmers**
- Reducing **administrative burden**
- Improving **cost-effectiveness**
- Improving information for **farm management**

Audit scope (in relation to NIVA scope)

NIVA Use case group	Use case Title	ECA audit
Monitoring	Earth Observation monitoring and traffic lights	✓
	Agro-environmental monitoring	✓
	Farmer performance	
Prefilled application	Prefilled application, GSAA/Land link	
Farm registry	Farm registry	
Self-certification	Geo-tagged photos	✓
	Machine data in GSAA as added value data	
Seamless claim	LPIS: Update and change detection	
	Scheme eligibility and payment eligibility: click and pay	

Audit objectives

Have the Commission and Member States taken steps to unlock the potential of new imaging technologies for monitoring the CAP?

Objectives:

- assess the COM support to MSs
- assess the progress in deployment in MSs
- identify good practices and obstacles

New imaging technologies:

- Copernicus sentinel data or equivalent
- images from drones
- geo-tagged photos

Timing and approach of the audit

- Information visits to PAs (DK, BE-FL, ES and IT)
- Audit visits to relevant DGs (AGRI, GROW)
- Information visit to the European Space Agency
- Videoconferences with JRC, Research Executive Agency and other stakeholders
- Survey of 66 PAs
- Stakeholder panel with seven experts

3. Emerging Themes

Slide 13

The Commission's actions

- further changes to the **legal framework** in 2019
- **assist and encourage** MS in the new approach
- make proposals for **dealing with inconclusive parcels**
- encourage MS to use **cloud-based services**
- **research** projects ongoing

sen4cap common agricultural policy

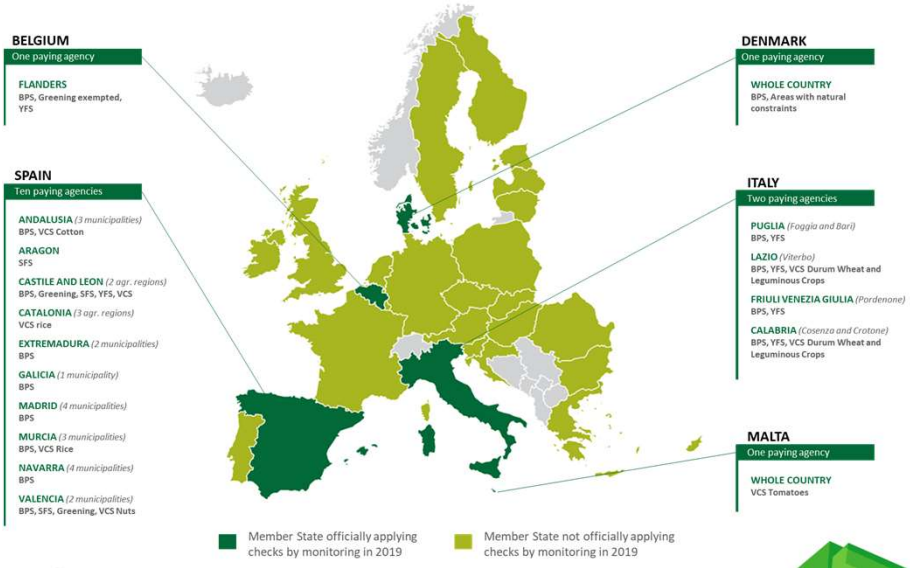
EO4AGRI

NIVA NEW IACS VISION IN ACTION

EUROPEAN COURT OF AUDITORS

Slide 14

Who implemented CbM in 2019?



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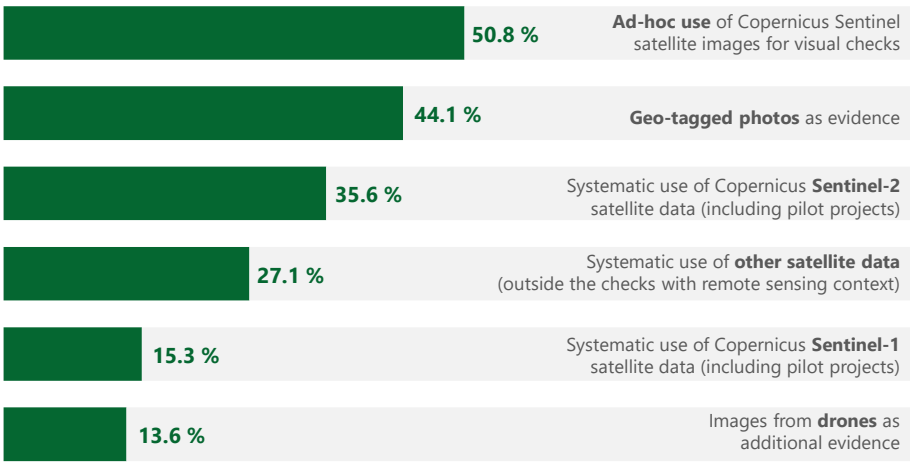
Slide 15

What technologies are paying agencies using?



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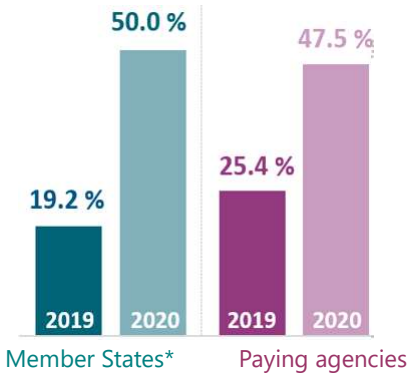
Slide 16

Who intends to use CbM in 2020?



* Percentage is based on 26 responding Member States. It was considered that a Member State applied/plans to apply checks by monitoring when at least one of its Paying Agencies applied/plans to apply

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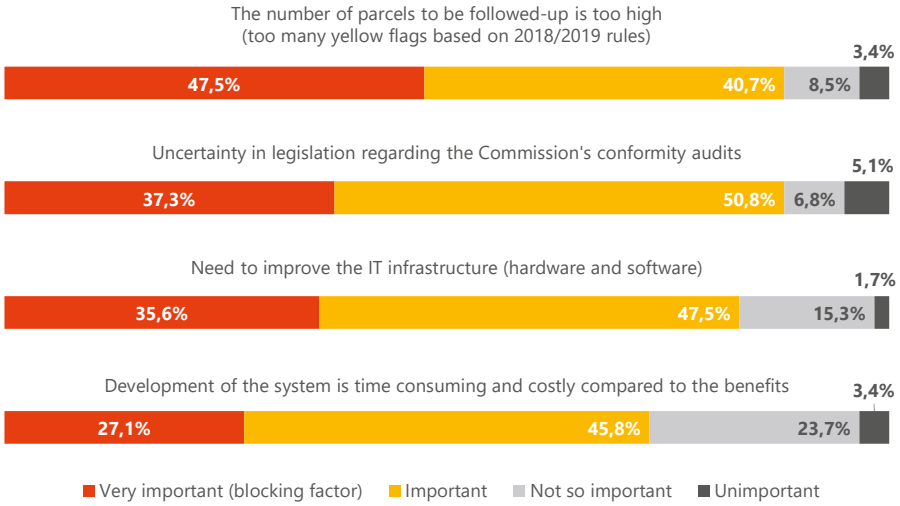
Slide 17

What are the key drawbacks of CbM ?

(as perceived by paying agencies)



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Slide 18

Monitoring environmental/climate requirements with new technologies

- Schemes:
  - Rural development area measures
  - Cross compliance
- **Not same progress** as for direct payments
- **Ad-hoc use** so far
- **Complex** aid requirements
  - Many cannot be monitored remotely
  - Field inspections still needed
- Cross compliance checks show potential for monitoring 100%

EUROPEAN COURT OF AUDITORS

Slide 19

Intended use of Copernicus Sentinel data for environmental/climate requirements from 2020

EUROPEAN COURT OF AUDITORS

Slide 20

Monitoring climate/environmental performance of the CAP

- Area Monitoring System (AMS)
  - Post 2020 / mandatory
  - Set up by Member States
  - Multiple roles
- Performance indicators
  - Output / Result / Impact
  - Pertinence & quality?
  - Only one to be based on Sentinel data

EUROPEAN COURT OF AUDITORS

Slide 21

CAP post 2020 proposals - ECA Opinion, November 2018

Key Messages

1. Insufficient **economic justification** for CAP Pillar 1
2. The proposal does not reflect a clear increase in **environmental and climate** ambition
3. Proposals would lead to **weakened accountability**

EUROPEAN COURT OF AUDITORS

Slide 22

Suggestions for improvement

- Promotion of new technologies
- Making better use of new technologies for monitoring environment and climate actions

Slide 23

Contact details

Phil Wynn Owen
Els Brems

Visit our website: eca.europa.eu
Contact us at: ECA-info@eca.europa.eu

Thank you for listening.

Slide 24

The Area Monitoring System: Moving beyond controls in the post-2020 CAP

Jean-Luc WIDLOWSKI

DG AGRI Unit D3
Implementation support and IACS

Copenhagen, 13 Nov 2019

CAP post-2020

Performance, monitoring and evaluation framework (PMEF)

Multi-annual programming approach for the whole CAP

EU OBJECTIVES — *BROAD TYPES OF INTERVENTIONS* — *INDICATORS*

MS identifies its needs in CAP strategic plan, tailors interventions & sets targets

Assurance	***Annual Performance Clearance*** **Linking expenditure to output**	Common **Output** Indicators
Monitoring	***Annual Performance Review*** **Checking progress towards targets**	Common **Result** Indicators
Policy performance	***Interim Evaluation*** **Assessing performance towards objectives**	Common **Impact** Indicators

2

IACS

since 1992

Integrated Administration & Control System

IACS covers the delivery process from aid application to payment of aid

for all area- and animal-related schemes under **EAGF**

for some area- or animal-related measures under **EAFRD**

management and control of payments to beneficiaries in application of the CAP

Protection of EU financial interests

3

IACS post-2020: what is new?

European Commission

Simplification

- ***MS are free to:***
  - *design **control and penalties system** (including control rates and level of penalties)*
  - *define rules on **calculation of payments***
  - *define (or not) rules on submission deadlines for **applications**, amendments, penalties for late applications, etc.*

Modernisation

- *full integration of **new technologies** and digital tools*
- *better policy monitoring and efficiency in controls*
- ***area monitoring system**, geo-spatial application, claimless application…*

IACS data sharing

- *for environmental-climate purposes in accordance with INSPIRE*
- *for statistical purposes*

4

Elements of IACS post-2020

Elements of integrated system: *(Art.64 of HZR)*

electronic databases and geographic information systems enabling the exchange and integration of data.

a) LPIS
b) GSA & animal-based application system (including claimless system)
c) Area monitoring system
d) System for identification of beneficiaries
e) Control and penalties system
f) Where applicable, a system for the I&R of payment entitlements
g) Where applicable, a system for I&R of animals

➡ **IACS evolves to support performance, help farmers fulfil their obligations and avoid focus on penalties**

5

Area Monitoring System (AMS)

- MS shall set up and operate an AMS (Art. 68 HZR)
- Annual AMS quality assessment (Art. 68 HZR) according to methodology that will be developed at Union level; remedial actions/action plans if deficiencies are revealed (Art. 40)
- A transitional period for the introduction of the AMS proposed by MS in the Council (→ currently 202{4})

6

Purpose of the AMS

- AMS is defined as (Art. 63(4)b HZR):

  Procedure of regular and systematic observation, tracking and assessment of agricultural activities and practices on agricultural areas by Copernicus Sentinel satellite data or other data with at least equivalent value.

- Non-paper presented in Council WP HAQ in April 2019 outlines how AMS allows to use "monitoring information" in a variety of contexts.

AMS use contexts

Bolstering the performance-based CAP model:

- primary purpose of AMS is to produce **reliable & verifiable** data on monitorable eligibility conditions defined by MS in their interventions.
- data collected through the AMS, combined & cross-checked with other IACS data, can be the basis for reporting on **output & results indicators** for the purpose of the annual performance clearance/ review of area-based interventions.
- allows to **mirror 'real-world'** situation & increase indicator reliability due to QA of AMS, LPIS & GSA

AMS use contexts II

Supporting farmers in fulfilling their eligibility and conditionality requirements:

- MS subsidiarity on creating rules for applications, controls & penalties allows to focus on **helping beneficiaries comply with obligations** & receive CAP support with minimum disruptions to activities.
- AMS can be used to **warn farmers** of possible non-compliances (i.e., ahead of important deadlines).
- Since AMS can help farmers implement environment & climate objectives (eg, water management), MS should use AMS in design of **Farm Advisory System**

9

AMS use contexts III

Carrying out systematic checks for area-based interventions and conditionality:

- AMS may be used by Paying Agencies to carry out systematic checks (Art 58. of HZR) and **make decisions on payments to beneficiaries**.
- AMS results can be used analogously to Checks by Monitoring but MS would be free to set their own rules on this (full subsidiarity on controls & penalties)
- AMS results can provide **opportunity for remedial actions** upon warning by PA, increasing compliance within claim year, better performance of interventions

10

AMS use contexts IV

Contributing to the management of agricultural resources:

- At parcel/farm level AMS may provide at regular intervals information about status of crops/parcels. AMS helps in **decisions for farm management** & may contribute to enhancing sustainability of sector
- At MS, regional or EU level the AMS can contribute to monitoring of agricultural resources (**yield/area**) especially from perspective of market outlooks.
- In general, AMS can be used by MS to provide basic **services to farmers**.

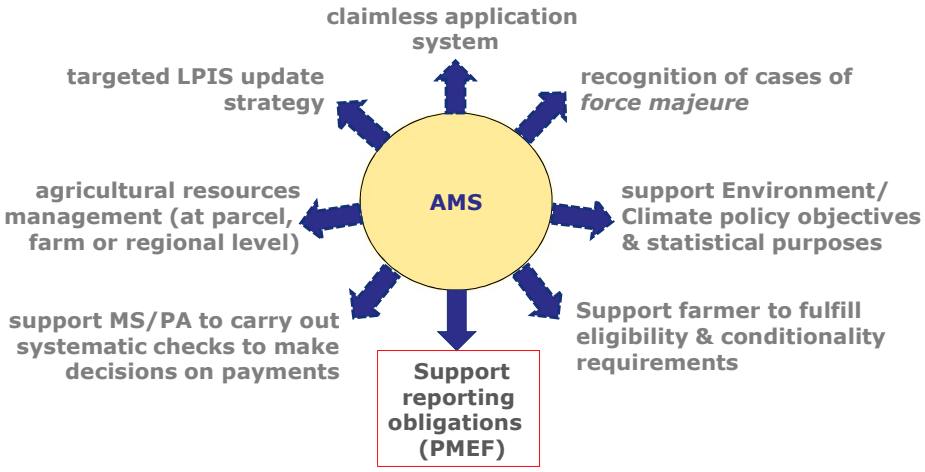
AMS use contexts V

Supporting other application areas:

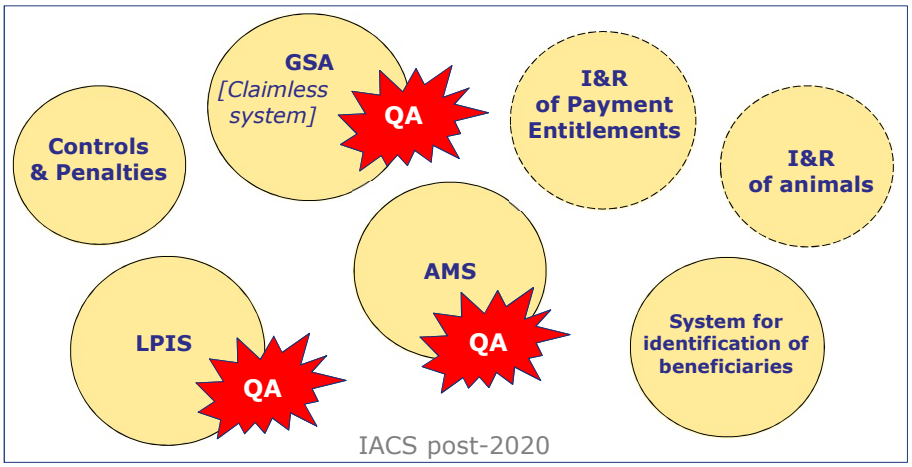
- AMS can be **adapted & modified** at national level, eg. to monitor the whole UAA or check compliance with environmental legislation (other than under II).
- AMS can provide time-stamped and geo-referenced agricultural event information, that allows to build better knowledge on farming activities and **possible corrective measures for CAP interventions**.
- AMS can play a role in a **targeted LPIS update strategy**, in the **claimless application system**, and to provide evidence in cases of force majeure.

In a nutshell

AMS allows MS to use monitoring information in various contexts:



In a nutshell



Thank you for your attention!

Questions? Comments?

The European Commission's science and knowledge service

Joint Research Centre

technical challenges for IACS

NIVA meeting - 13/11/2019 - Copenhagen

Philippe LOUDJANI, Wim DEVOS

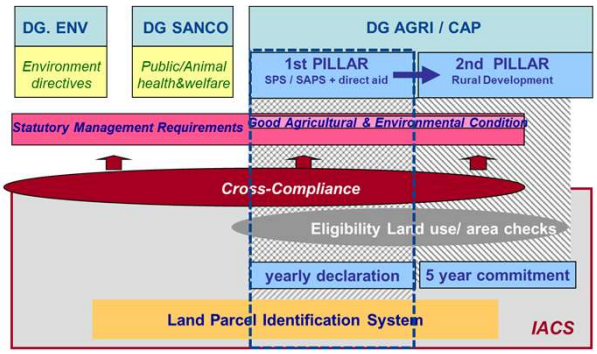
Sustainable Resources Directorate
Food Security Unit

European Commission

IACS as prescribed in 2004

= **Integrated administration** and **control system** manages direct payments via (decoupled) area based schemes to farmers upon:

1. annual **activation** of payment entitlements or **declaration** of utilized **agricultural land**
2. where **agricultural activities** occur (growing crops, raising livestock, perform minimum activity)
3. upon **agricultural area** (arable land, permanent crop, permanent grassland)
4. AND **on condition** (≡ cross-compliance) that the farmer respects
   - Statutory Management Requirements (EU Directives on health, animal welfare,…)
   - Good Agricultural and Environmental conditions (local measures on erosion, minimum maintenance,..)



The new delivery model will allow MS to define agricultural area and agricultural activity

European Commission

IACS channels payments to farmers through land

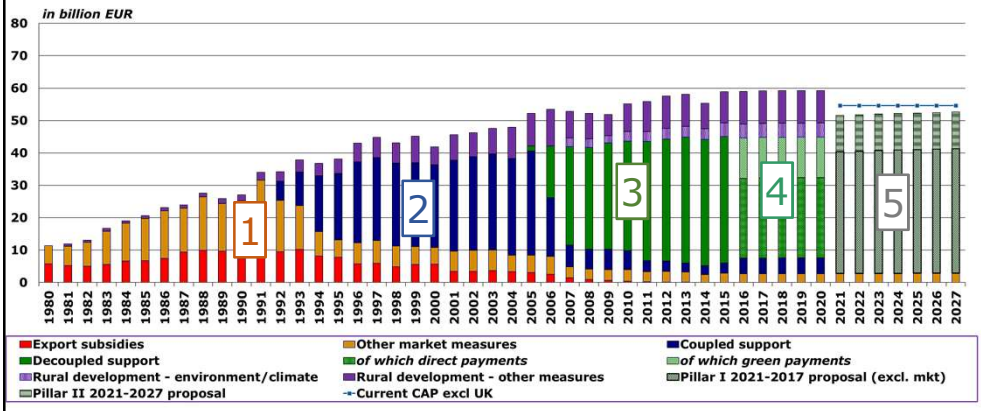
Source: CATS control data, 2015

CAP's character:
- common policy
- area based
- 1/2 of territory
- 1/3 of EU budget
- DP=255 €/ha/yr

Purpose of checks:
1. prevent fraud
2. correct issues
3. report status

European Commission

Payments, i.e. procedures & checks evolve



Source: EC-DG AGRI.

Note: Budget figures are actual until budget year 2016, programmed from 2017-2020, and based on the MFF proposal for 2021-2027.

main parameter
1. quantity — tool
2. area&crop — yields
3. area — OTSC
4. area&practice — LPIS
5. practices? — GSAA, SEN1/2

European Commission

IACS 2020+: COM/2018/393 final - 2018/0217

Article 64.1. The integrated system shall comprise the following elements:

(a)an identification system for agricultural parcels;

(b)a geo-spatial and an animal-based application system;

(c)an area monitoring system;

(d)a system for the identification of beneficiaries of the interventions and measures referred to in Article 63(2);

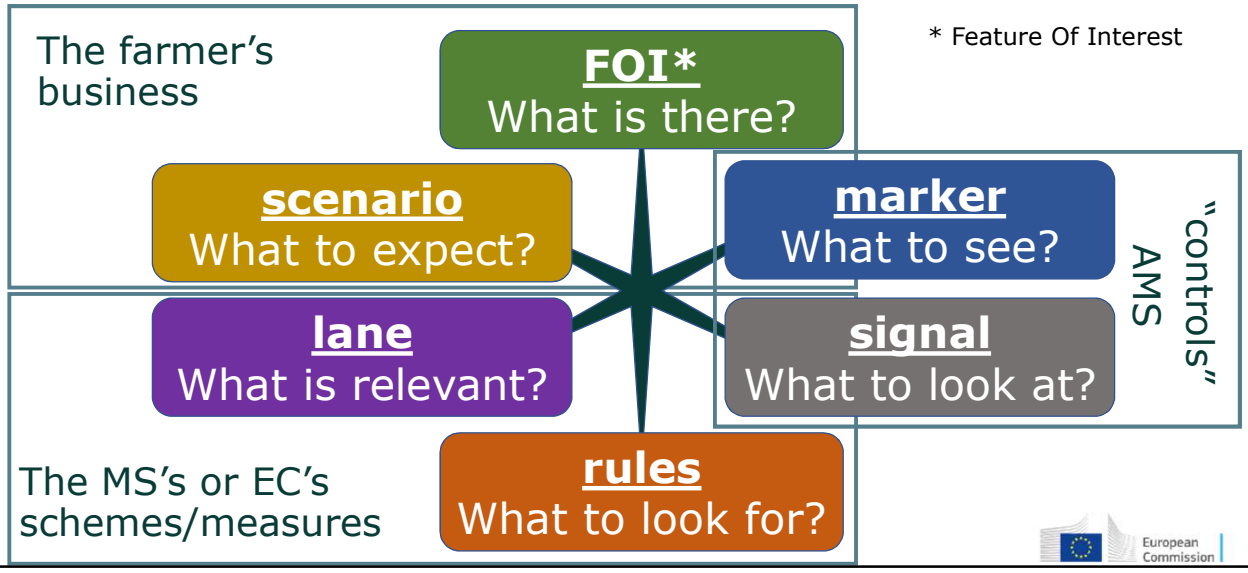
(e)a control and penalties system;

(f)where applicable, a system for the identification and registration of payment entitlements;

(g)where applicable, a system for the identification and registration of animals.

European Commission

The question: what should IACS handle?

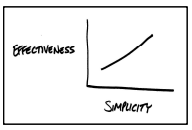


European Commission

IACS challenge: more less and a bit more more!

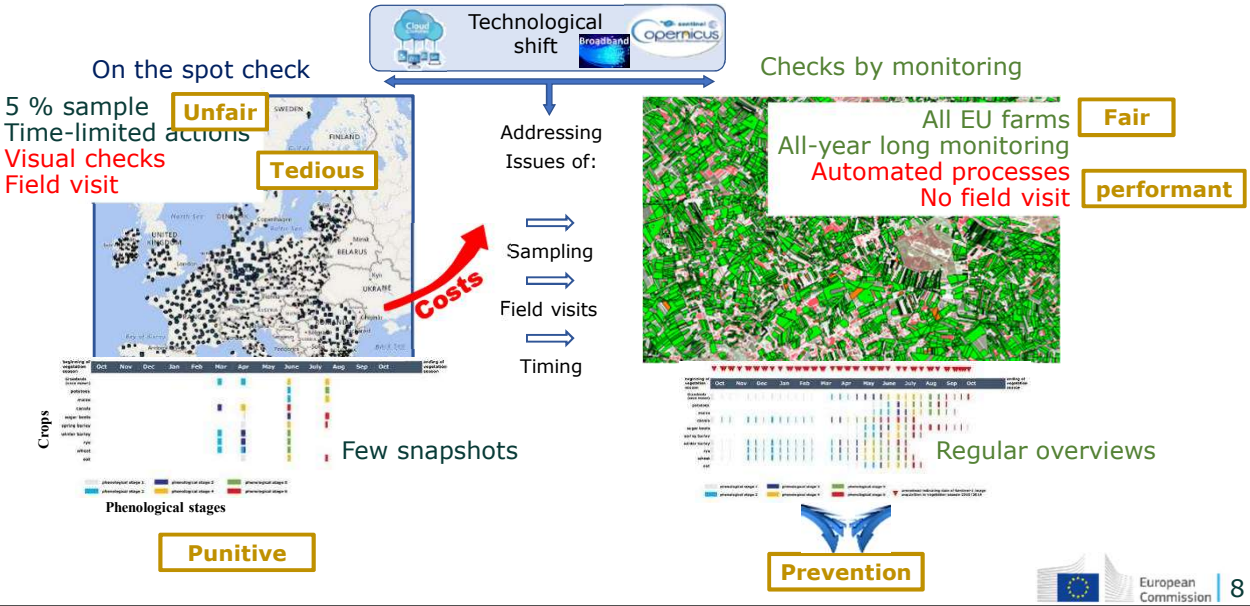
- Simplification (less burden **NOW!**)
  - Click & confirm (less farmer burden)
  - Prevention (less non-compliance, less recoveries)
  - Fair (less "unlucky" farmers)
  - Relevant (less nitty gritty, less time pressure)
  - Cost-effective (less controls)

- Performance (better CAP post-2020)
  - More flexibility (subsidiarity)
  - More local control system (fit for purpose)
  - More targeted measures (better impact)



European Commission

Why checks by monitoring? A need and an opportunity



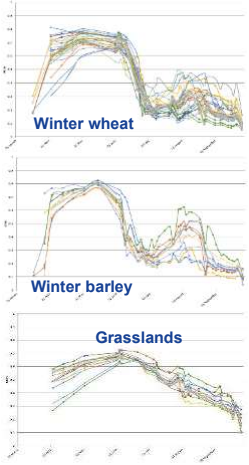
"Monitoring processes" automated

(1) Machine learning outcomes previous year(s)

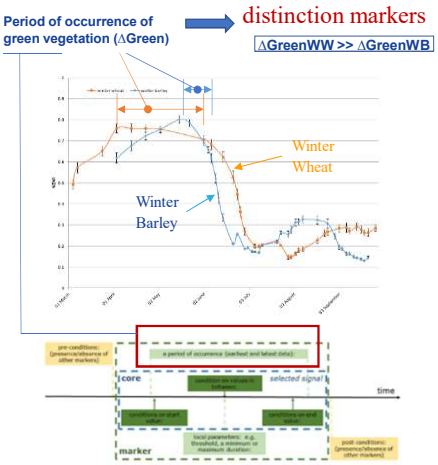
	WWH	SFL	MAI	WOR	WBA	ALF	GRA
WWH	663.8	19.0	6.6	1.2	17.8	2.4	2.8
SFL	[illegible]	686.6	27.2	0.8	2.0	3.4	0.8
MAI	2.4	36.6	253.8	0.8	1.0	3.8	0.0
WOR	0.4	0.8	0.2	50.6	0.0	0.2	0.6
WBA	37.2	2.2	0.6	0.0	53.0	1.2	0.2
ALF	10.4	17.2	8.8	0.2	[illegible]	84.0	9.6
GRA	0.2	1.2	1.6	0.2	0.2	5.4	44.8

Sentinel 1 AND 2
Share algorithms (DIAS)

(2) Extraction of temporal profiles from parcels with confirmed land cover



(3) Instantiation and parametrization of markers



NB: Focus on **markers** since **activities** more important than crops

Cbm workflow

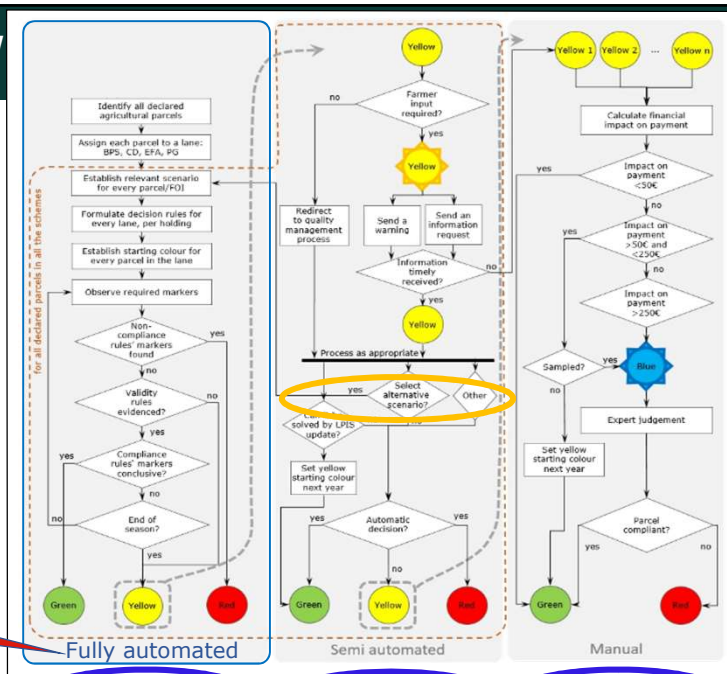
Traffic light assignment

Different **ways out**:

Compliance rules
→ Green
Non Compliance rules
→ Red

Inconclusive process
→ Yellow
"Appropriate follow-up"

Main majority of cases



real time
near the end
end of season

Monitor activities/practices (mowing, ploughing, conversion …)

Proactive automatic early warning message

Grassland still not cut 2 weeks before deadline

Reminder message sent to the farmer

Estonia (from Sentinel 1 Radar data)

PURPOSE Prevention of errors, non compliance, infringements …

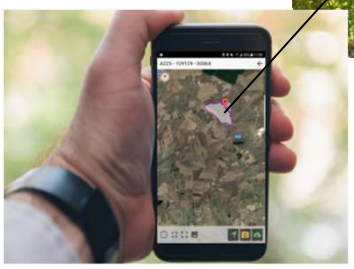
"free-from-error" system

Complementary data: Geotagged photos

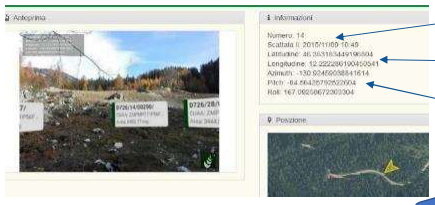
From farmers or other persons

Via mobile applet linked to IACS database

Environmentally Sensitive Permanent Grassland (ESPG)



Species richness



Date - Time

Location

Orientation

AUTHENTICATED

EGNSS4CAP

Ban of herbicides

Evidencing:
- Mowing date
- Crop mixture (catch crop)
- VCS (Durum wheat)
- Land laying fallow
- EFAs
- …

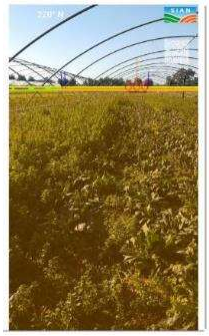
impacts

- abundance of rare species
- predominant conditions

Artificial Intelligence for geotagged

- Real-time navigation to the viewpoint
- Indication for camera heading to collect photo (augmented reality …)

ABACO: SITI Land AR



SIAN/e-Geos/AGEA

Alfalfa:
Prediction Alfalfa 99.4%

Grassland:
Prediction grassland 54.4%

Aleksandra SIMA
In-house test
with 'Tensorflow'

- Camera auto-tuning of light conditions and picture sharpness
- Automatic feature recognition and automatic photo tagging

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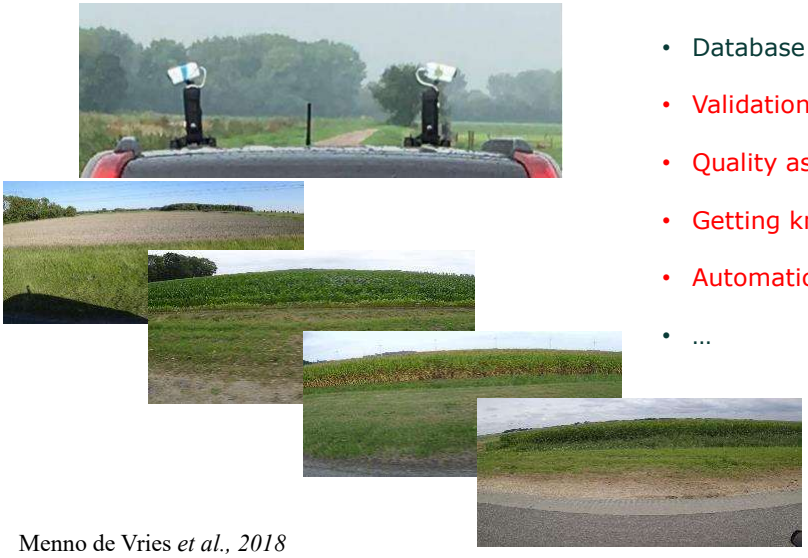
AI using street-level imagery

- Regular 'field phenology capturing' using cameras mounted on car roof



- Database to train AI algorithms
- Validation process (crop classification …)
- Quality assurance process (monitoring …)
- Getting knowledge on crop phenology
- Automatic landscape features recognition
- …

Menno de Vries *et al., 2018*

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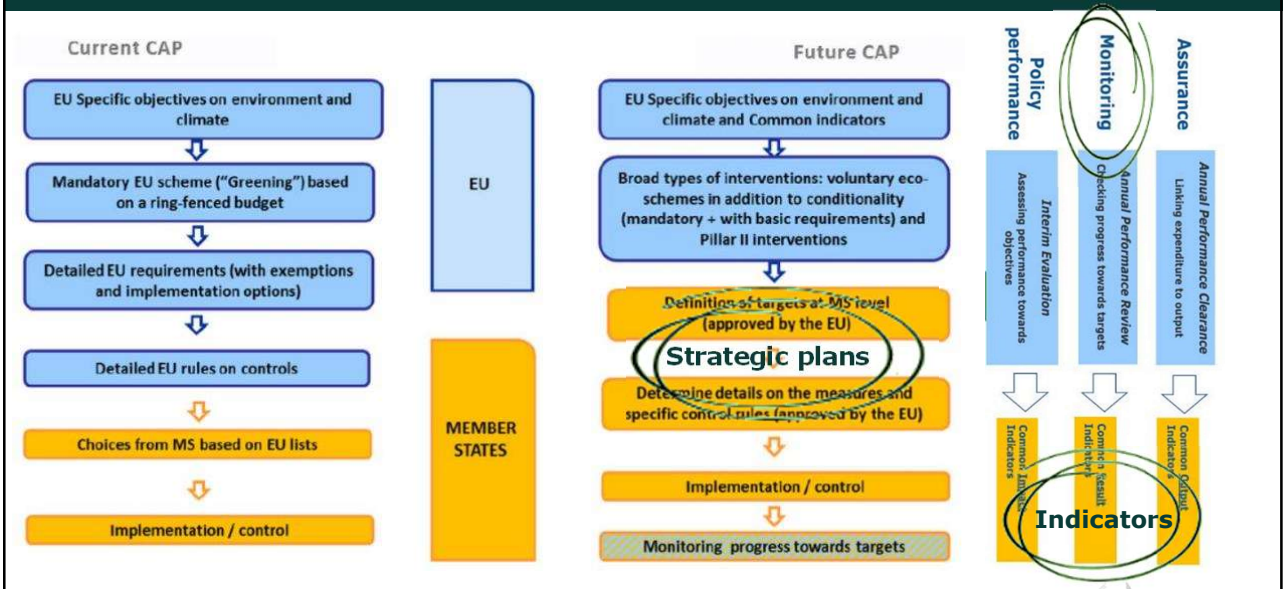
New delivery model focused on performance



"Need for shift in approach and automated technical solutions"

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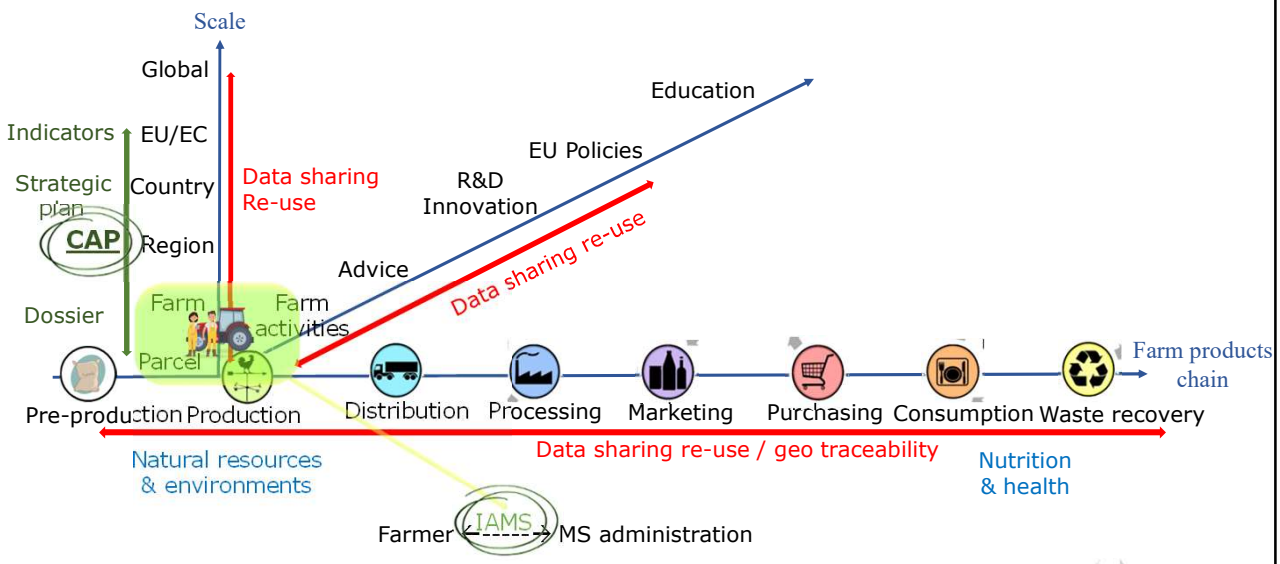
Parcel/farm: the centre of everything …



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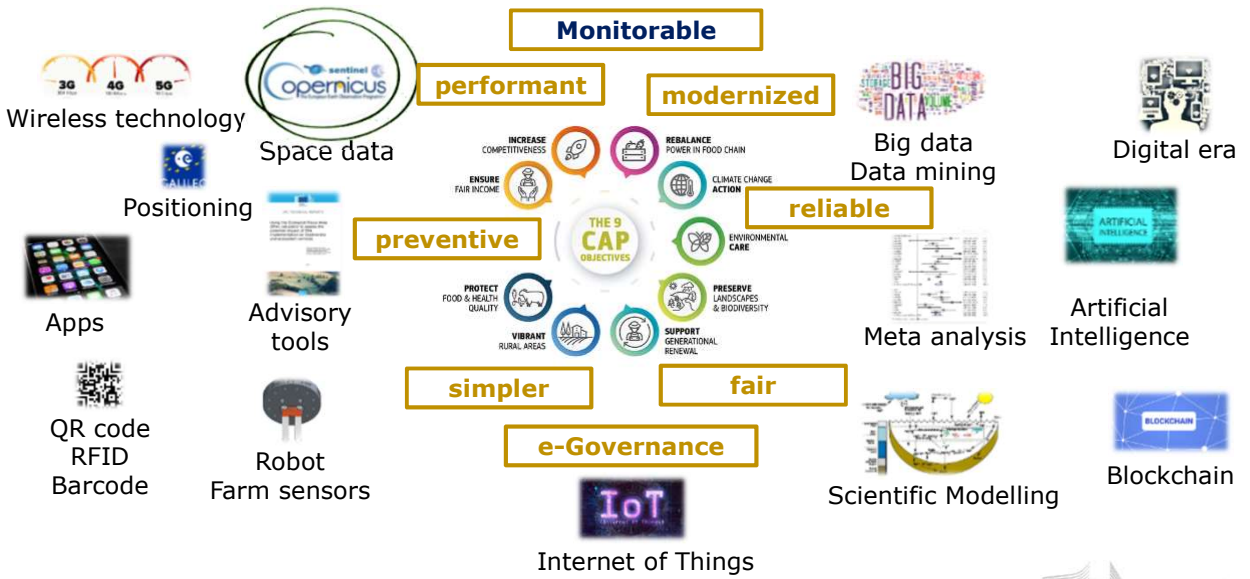
So, assemble a smart, fit-for-purpose IACS



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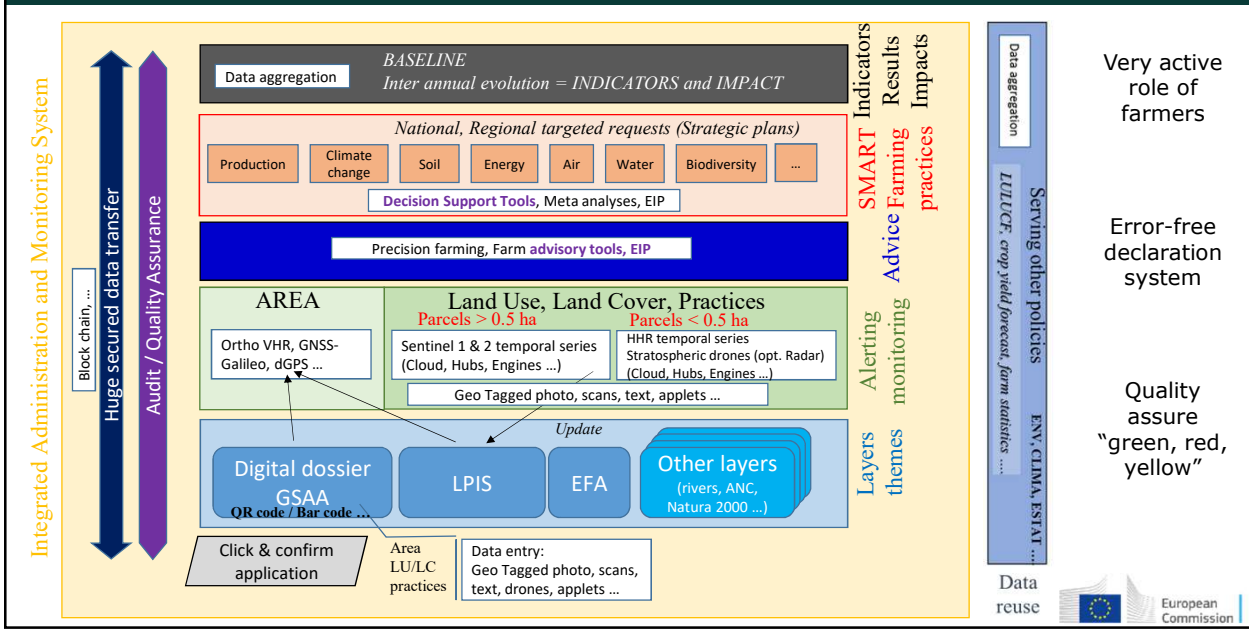
Theoretical design Tools, Technologies, Data, Indicators, Practices, Knowledge



Very active role of farmers

Error-free declaration system

Quality assure "green, red, yellow"

European Commission

But there are issues to consider e.g. water quality

EU	1. EU Specific objectives	• **Sustainable development and efficient management of natural resources (example: water quality)**
EU	2. EU Impact indicator (e.g.)	• **Reduce nutrient leakage** / Indicator: **gross nutrient balance** (GNB) on agricultural land • Current CMEF: Impact indicator I.11, context indicator C.40 • Data sources: Eurostat Scale, source of data, data format?
EU	3. Environmental objectives from EU legislation	• **Good status of all water bodies of river basin districts** in 2027 – pursuant to the **Water Framework Directive**
MS	4. Identification of needs in MS's CAP plan	• The ex-ante assessment helps to **identify the specific needs related to reducing nutrient leakage** into water bodies • The CAP plan highlights the link to the existing environmental legislation (Water Framework Directive, …) . Scale?
MS	5. Contribution of MS's CAP plan to EU objectives	• The CAP plan shows how it will **contribute to achieving good status of surface waters in RBD river X in 2027** • **Setting of result targets (e.g.)** share of UAA receiving income support and subject to conditionality; share of agricultural land under management commitments for water quality; share of farmers receiving advice related to env/climate performance Ambitious enough? • **Selection and definition of interventions (e.g.)** establishment of buffer strips along watercourses; establishment of a nutrient management plan; limitation of the use of fertilisers; training What else? How? Farmer role?
MS	6. CAP and MS's plan performance	• **Progress monitoring towards set targets** based on result indicators Built how? • **Evaluation of policy performance** based on impact indicators Reference?

Targets/indicators/levels of ambition not to unbalanced between Member States ?

European Commission

Anticipate the needs

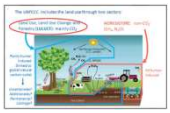
- Promote climate-resilient and low-emission practices and technologies

- Expand digital advisory systems
  Getting timely, tailored information to farmers

- Expand automation of processes
  Simplification/modernisation

- Promote easy data capture solutions
  Simplification of processes

- Ensure interoperability of data exchange
  Data multi use purpose



- Ensure data sharing/aggregation solutions
  Production of indicators

- Solutions for data access, processing and storage

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Need for knowledge transfer in the CAP community

Ongoing **COPERNICUS data uses**
Many projects today and more to come

What can be (re)used and for what?

- Area **monitoring** approach for **conditionality, eco-schemes and rural development**
- **Creation of baselines** and analysis for **strategic plans** and **reporting through indicators**
- Boosting of **advisory systems/services**
- **Management of agricultural land** at different scales (farm to regional level)
- **Farm to Fork** traceability
- **Crop yield forecasting**

Be Optimistic But Realistic

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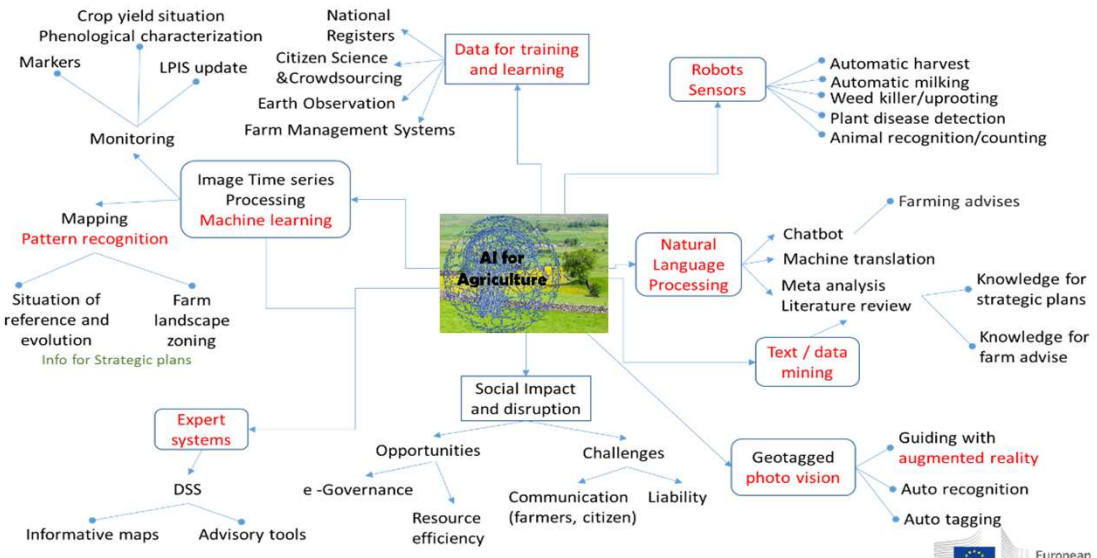
Artificial intelligence: only in its infancy



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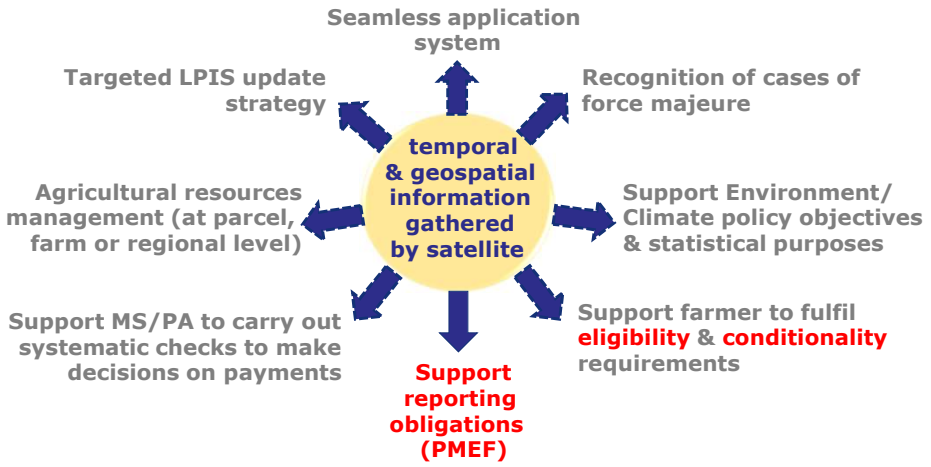
From CbM to AMS

Area Monitoring System allows MS to use monitoring information in various contexts:



Source:
DG Agri D3

Think Monitoring for everything that is land related

European Commission

To summarise

Agricultural systems become more complex → Changes are inevitably coming.

Science and technology are there to facilitate.

All stakeholders should work together and sound steering is strongly advised.

Farmers should be actively involved and benefiting from their contribution.

This needs a basis of common rules, interoperability, data harmonisation, knowledge sharing and transfer.

→ Innovation ecosystem is very relevant!

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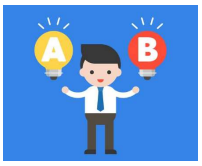
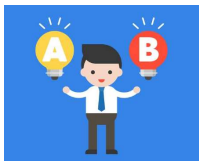
Where should NIVA impact?

Full subsidiarity



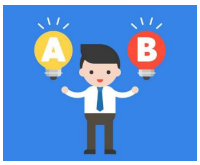
Some common guidelines

Conservative Integrated System



New preventive Integrated System

Assembling heterogeneous elements



Aggregating, scaling parcel based information

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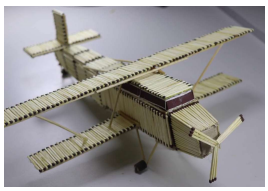
Some personal observations: broaden the horizon

Current use cases are….. well, **<u>current</u>**

- assess relevant parts for the future
- consider the new technologies for a paradigm shift, not merely re-engineering
- evaluate the data needs and expectations for the new setup



Identify the **<u>truly common</u>** elements

- EU based (e.g output reporting, AMS, LPIS)
- Technical frameworks (data interoperability, interaction tools, geotagged imagery,…)

The real prize is having simple and effective strategic plan measures!

European Commission

Thanks !

Wim DEVOS
Philippe LOUDJANI
Blanka VAJSOVA
Slavko LEMAJIC
Paolo ISOARDI
Nataša LUKETIC
Juergen BREUNIG
Romuald FRANIELCZYK
Aleksandra SIMA
Gilbert VOICAN
GTCAP *et al.*
Dominique FASBENDER
Vincenzo ANGILERI
Konstantinos ANASTASAKIS
Csaba WIRNHARDT
Par-Johan ASTRAND
Paolo PIZZIOL
Katalin TOTH
Pavel MILENOV
Augusta BANDE
Guido LEMOINE
Raphaël DANDRIMONT

please note

Any questions?

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Wim.Devos@ec.europa.eu

26-28 November 2019 - Top Hotel, Prague (CZ)
https://ec.europa.eu/jrc/en/event/conference/25th-mars-conference

European Commission

Vlaanderen
is landbouw & visserij

Parcel monitoring in Flanders 2019

Katrien Van den Broeck

DEPARTEMENT
LANDBOUW
& VISSERIJ

Outline

- Checks by monitoring: scope and process
- Results
- What have we learnt?

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Monitoring: scope?

- **All parcels located in Flanders declared by Flemish farmers with payment entitlements (21.450 farmers, 450.000 parcels)**
- **Schemes under monitoring**
  - → Basic Payment Scheme
  - → Greening - exemptions
  - → Young farmer

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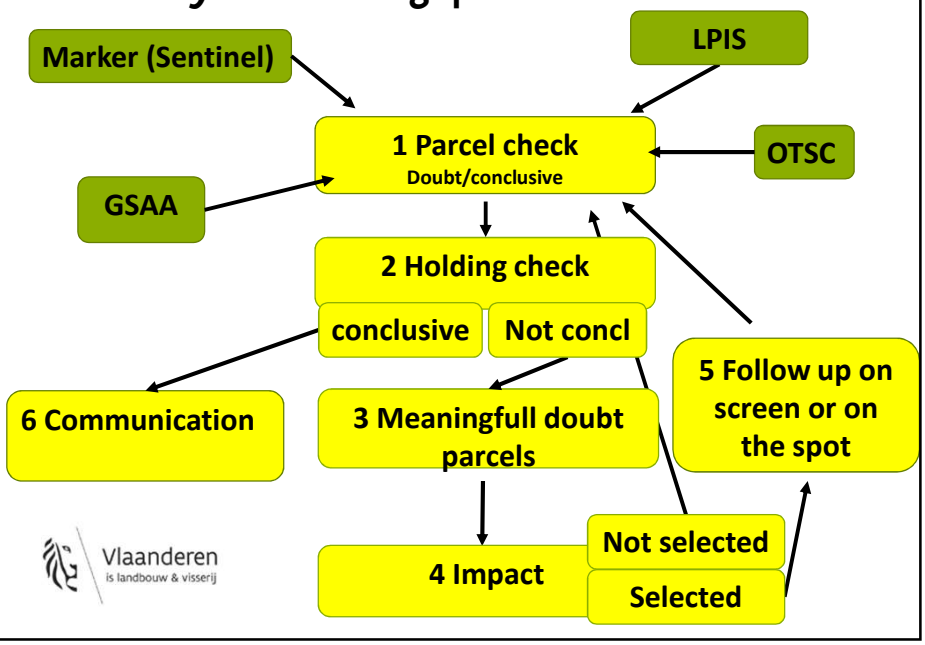
Checks by monitoring: process



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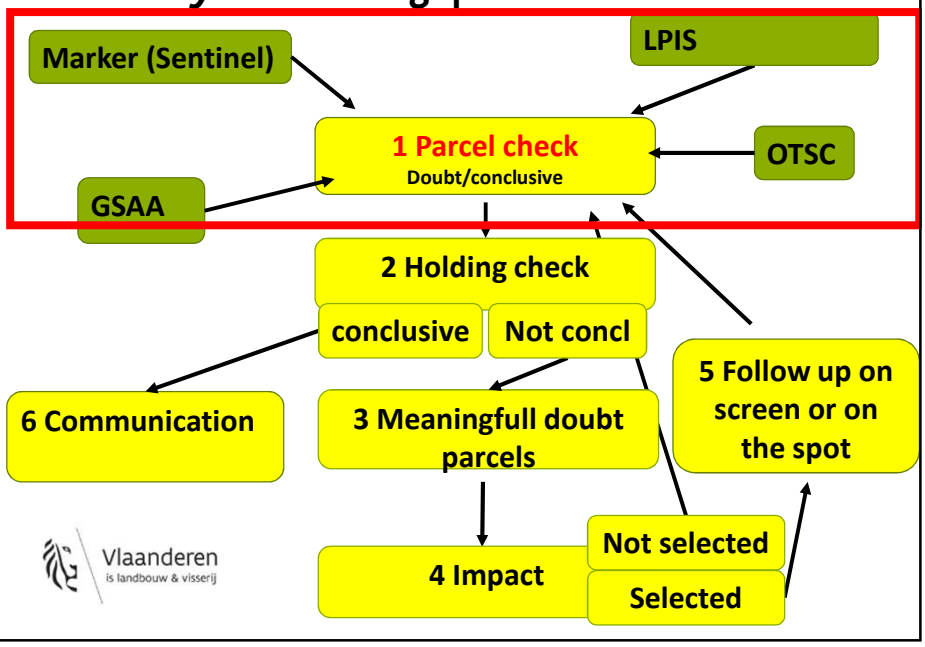
Checks by monitoring: process



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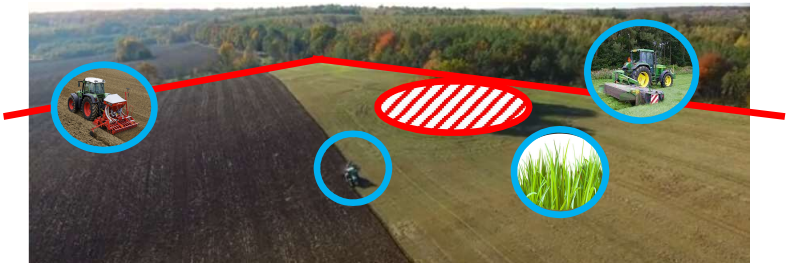
Parcel checks: Marker and LPIS are complementary



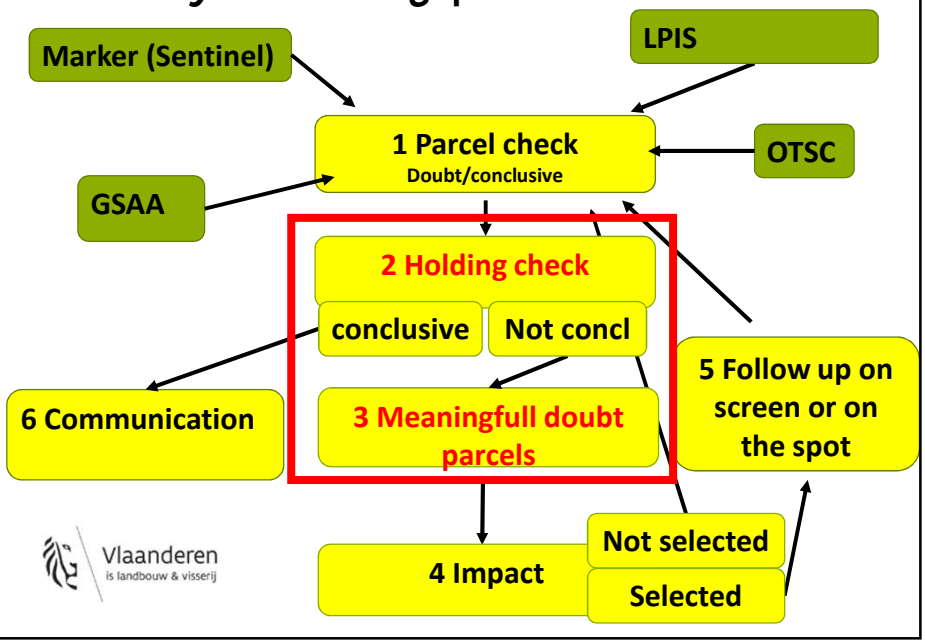
LPIS
- Borders
- Area
- Non-eligible elements
- Multi-annual elements/crops

→ Extra QA (greenhouses, fruit, christmas trees, …)

Marker 'landcover'
- Arable
- Inelegible
- Grassland
- Fallow
- Leguminous

Parcel check = eligible / arable / grassland-fallow-leguminous

Checks by monitoring: process



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Holding checks – meaningfull doubt

- **Based on parcel checks**
- **Different types**
  - → Eligbility
  - → Exemptions based on area
  - → Exemptions based on crops
- **If holding check is not conclusive, parcels being doubtfull for a specific parcel check become "meaningfull doubt" for that holding check.**
- **These "meaningfull doubt" parcels can be sent to follow up after calculation of "impact" (and are then "flashing blue" parcels)**
- **In follow up the doubtfull parcel check is being evaluated**

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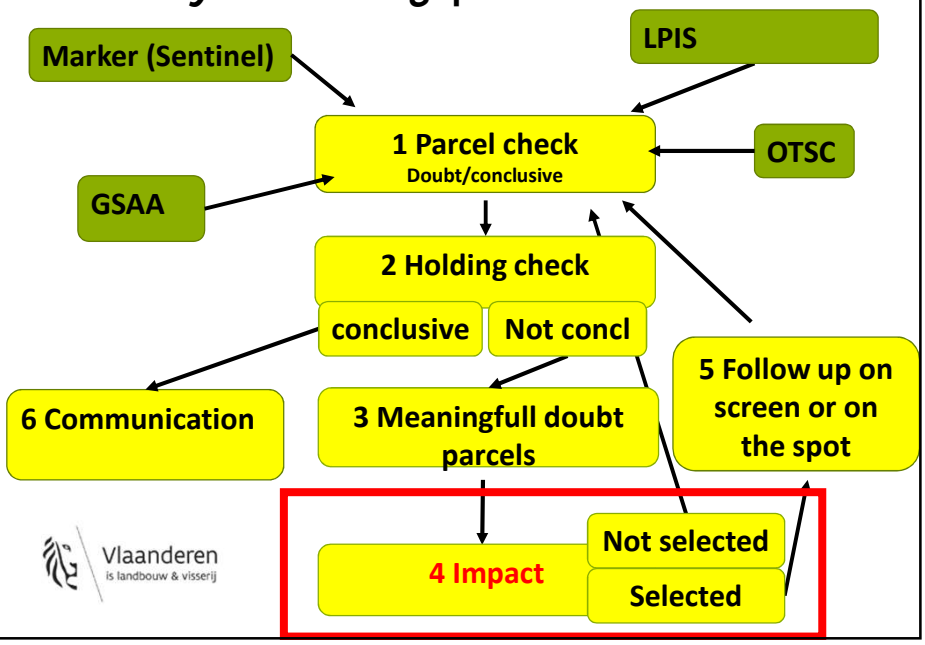
Checks by monitoring: process



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Impact (BPS)

- **Min[difference;doubt] * added values = impact**

- **Difference = diff between eligible ha and number of PE**
- **Doubt = area of eligible 'doubt'**
- **Added values =**
  - → Average value of PE (holding level)
  - → Greening (* 0,5076)
  - → Young farmer top up (+ €88,72 /eligible ha)
  - → PE from reserve (Flanders' average value for PE)

- **Impact <50€ - no follow up**
- **Impact between 50€ and 250€ - 5% to follow up (random)**
- **Impact > 250€ - 100% to follow up**

- **Not selected doubtful parcels = GSAA landcover is accepted**

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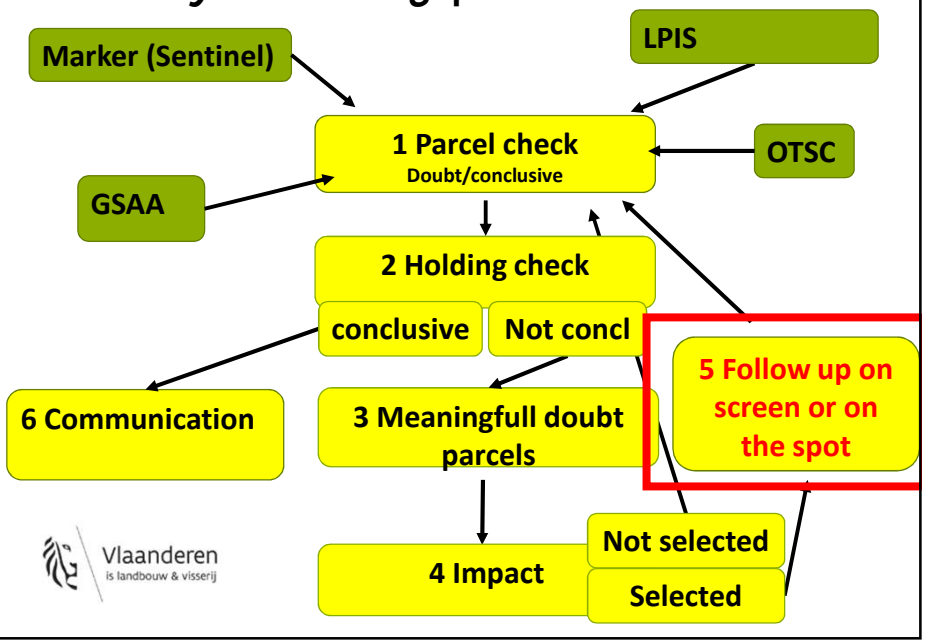
Checks by monitoring: process



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Follow up

- **2 "runs"**
  - → Calculation for early crops
  - → Calculation for all crops
- **2 types of follow up:**
  - → On screen
  - → On the spot
- **On screen:**
  - → Meaningful doubt parcels for eligible/arable from 5% (random) or 100% impact
  - → Newest orthophotos
- **On the spot**
  - → Meaningful doubt for crop (for holding checks on exemptions)
  - → Still doubtful after follow up on screen

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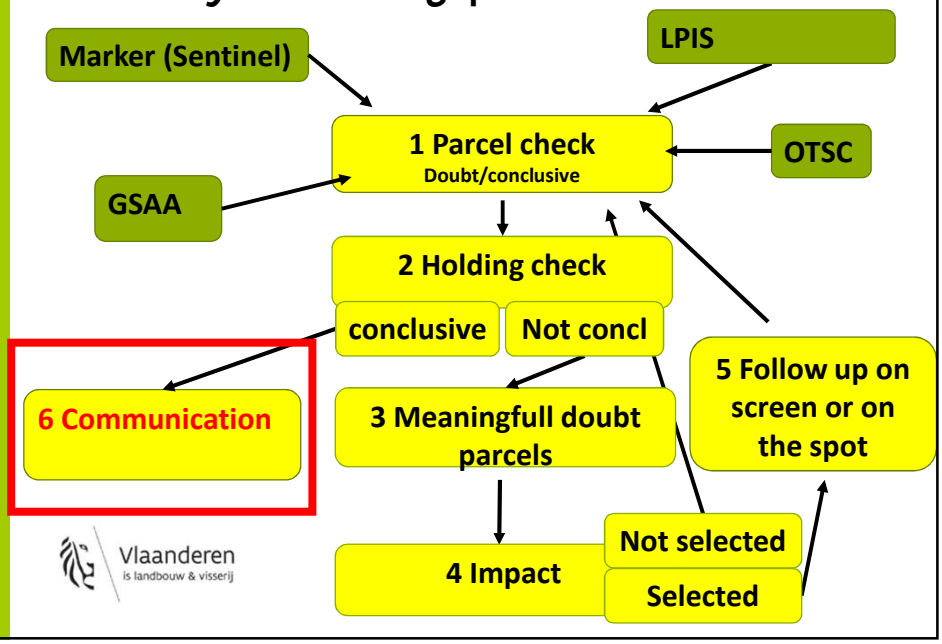
Checks by monitoring: process



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Monitoring process – Communication

- **Interaction with Focus group (farmers)**
- **Wish to know all differences GSAA vs monitoring**
  - → Holding level
  - → Crop level (after follow up on the spot)
  - → Ineligible parcels
- **2019: one communication (all checks conclusive)**

- **Farmer is allowed to change GSAA – PA makes changes for the farmer**
  - → If no classical OTSC occured earlier
- **E-mail or letter – reaction if farmer doesn't agree (by 10 October)**
  - → Consequence or not in the letter
  - → Details in GSAA online

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Outline

- Checks by monitoring: scope and process
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Chekcs & follow up – Results

Monitoring result		Number of parcels
Total parcels monitored (marker)		397.292
Parcels with GSAA = marker		383.335 (96%)
Parcels with GSAA <> marker		2.135 (0,5%)
Yellow flagged parcels – not needed for conclusive checks (eg. farmer may have more land than entitlements)		4.780 (1,2%)
Yellow flagged parcels – needed for conclusive checks	No need to follow-up (below 50 euro at beneficiary level)	998 (0,2%)
	Parcels, which from the threshold between 50 euro and 250 euro (at beneficiary level), have not been followed-up	1.748 (0,4%)
	Parcels, which from the threshold between 50 euro and 250 euro (at beneficiary level), have been followed-up	90 (0,02%)
	All to follow up (above 250 at beneficiary level)	3.881 (1%)

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Communication - Results

Results eligibility	Number of parcels
Non-eligible after monitoring ("red parcels") – declaration changed	90
Eligible after monitoring (non eligible in GSAA) – declaration changed	15
Green parcels with different crop – declaration not changed	1386
Non agricultural land – declaration not changed ("red parcels")	89
Total number of parcels through marker	397.292

Results exemptions	Number of farmers
No exemption for EFA after monitoring	6
No exemption for crop diversification after monitoring	5
Exemption for EFA after monitoring	15
Exemption for crop diversification after monitoring	19
Total number of farmers under monitoring	21450

Outline

- **Checks by monitoring: scope and process**
- **Results**
- **What have we learnt?**

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Evaluation – lessons learnt

- **Interaction with non-monitoring schemes**
  - → LPIS – area: no change possible
  - → Classical OTSC first: no change possible
  - → AEM: no change possible

  → Difficult to explain to farmer! Only changes by PA where possible and necessary
- **Learning as we go**
- **Elements for success**
  - → Use of existing 'architecture'
    - × Checks: new algorithms but existing methods
    - × Follow up on screen: QA selections based on checks
    - × Follow up on the spot: existing system for transferring to OTS application
    - × Calculations with detected crop
    - × Only new: landcover marker
  - → Excellent cooperation with our own IT department

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Evaluation – Cost

- **What is the cost of implementation?**
  - → Estimated (2019)
    - × IT: 400 man-days x 700 euro/man-day = 280.000 euro
    - × For business: another 280.000 euro (?)
  - → Thus far
    - × IT implementation (without 'calculations'): 435 MD * 700 = €304.500
    - × DIAS (basic set up) 20 MD * 700 = €14.000
    - × Business: ? (lost count)
    - × Follow up on screen: ?
    - × Follow up on the spot: ?

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Questions(?)

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DEPARTEMENT
LANDBOUW
& VISSERIJ

Ministry of Environment and Food of Denmark
The Danish Agricultural Agency

Implementing Checks by Monitoring in Denmark

Project meeting and stakeholder forum

NIVA
Copenhagen
13 November 2019
Troels Søndergård

We use Checks by Monitoring on the full territory of Denmark

We monitor the following:

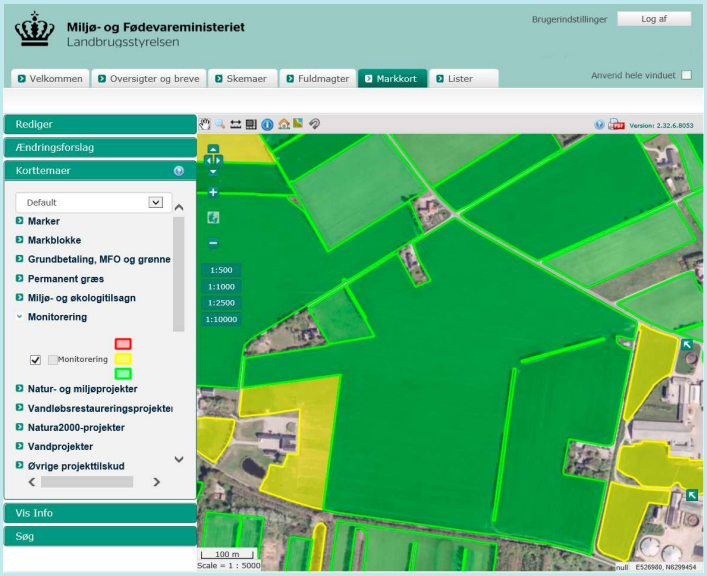
No.	Scheme/measure	Target area in hectares (estimated)
1.	Basic Payment Scheme (BPS)	2,575,000
2.	Areas with Natural Constraints (ANC)	41,500
3.	Young Farmers Scheme (YFS)	246,377
4.	Beneficiaries exempted from crops diversification and ecological focus area obligations	198,500

Model in 2019

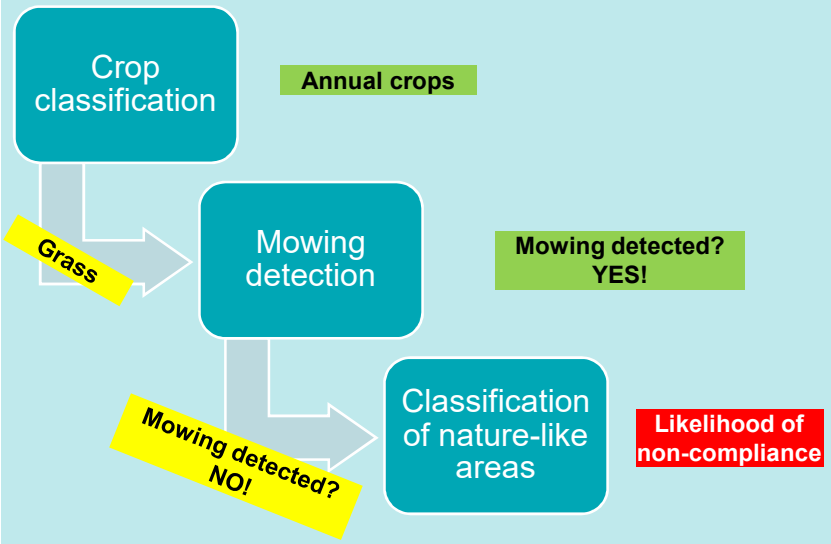
Very late and fast political decision making process meant that final decision for using checks by monitoring was made November 2018.

- **The model used in 2019 combined monitoring with classical on the spot checks.**
- **The starting point of our model is crop classification.**
- **We have used sentinel data for crop classification since 2015**
- **Traffic light displayed in geospatial aid application system already known to the beneficiaries**

1. **Beneficiaries could see their parcels from early September.**
2. **Only green and yellow parcels until September 25th**
3. **Parcels with the highest probability for non-compliance turned red.**
4. **Possibility to withdraw red parcels until October 28th**
5. **Starting October 28th - follow-up visit on all red parcels.**



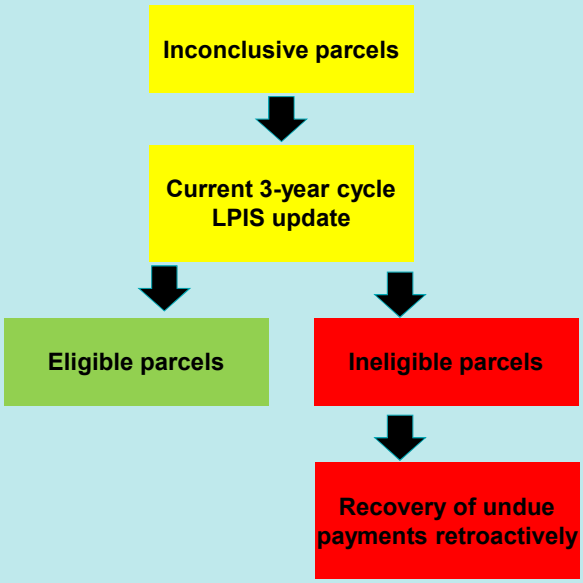
The monitoring procedure



Condition for applying this procedure in 2019 is:

Annual country-wide ortho images are available.

Follow-up activities for inconclusive (yellow) parcels



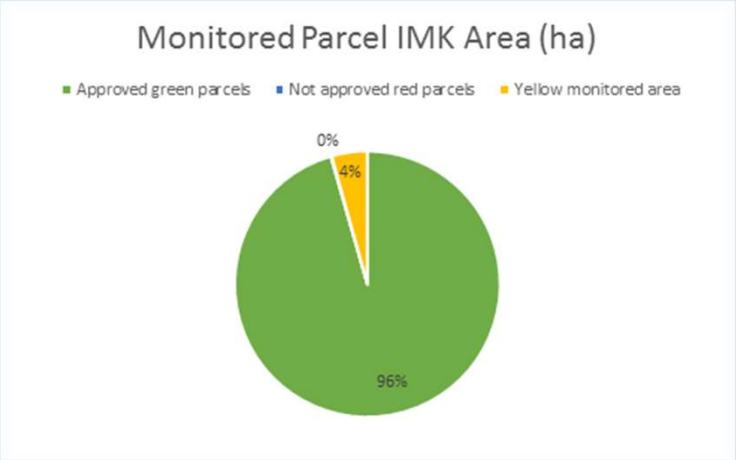
Results in 2019

494 yellow parcels were withdrawn by the beneficiaries.

By 15 October we displayed 900 red parcels (803 beneficiaries)

279 of these parcels were withdrawn by the beneficiaries.

The remaining red parcels are checked on the spot.



Lessons learnt in 2019 and looking ahead

- **Important to adjust the traffic light shown to the beneficiaries.**
- **In 2019 the yellow parcels in our external traffic light was a mixture of too many situations**
- **The main focus of the external traffic light should always be to guide the beneficiaries.**
- **Grasslands that are only grazed is our main error source. We have to improve in analysing these parcels.**
- **In 2020 we separate the physical inspection of conditions that cannot be checked using sentinel data from our classical on the spot checks.**
- **In 2020 we introduce an App for smartphones that substitute the follow-up visits for red parcels.**
- **We look to expand checks by monitoring in 2021. Most likely to include agri-environment measures for grasslands under pillar II (AECM scheme).**

Thank you

Troels Søndergård

The Danish Agricultural Agency

www.lbst.dk

Agea
Agenzia per le Erogazioni in Agricoltura

NIVA

New IACS Vision in Action: Interaction out in the open

Project meeting and stakeholder forum

Copenhagen, 13 November 2019

NIVA has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 842009

Table of Contents

NIVA

Description of AGEA

AGEA is the Coordinating Body of 11 Italian Regional Paying Agencies
AGEA is also the CAP Paying Agency accredited in conformity to the EU Regulation No 907/2014

Agea
Agenzia per le Erogazioni in Agricoltura

Coordinating Body

Within the framework of CAP, AGEA performs the function of Coordinating Body for Italy, with the main task of promoting the harmonised application of the EU legislation, also managing the financial accounting of EU resources

Paying Agency

In addition to the aforementioned functions, AGEA is an accredited Paying Agency for the regions which have not set up their own Paying Agency

AGEA, as a Coordinating Body, is also responsible for the coordination and management of the National Agricultural Information System - **SIAN**, which, among other things, manages the Farm Register, a database of national interest, part of the Integrated Management and Control System (IACS).

SIAN

AGEA monitoring 2018 in Foggia (Puglia region): main tasks and results

CAP «Monitoring» (under the article 40a of *EU R. 809/2014)* procedure implementation, based on open satellite data for the generation of markers/scenarios at agricultural parcel level and subsequent farm level actions through a «flags/traffic-light» approach.
Final decision to apply monitoring was made in July 2018.
Chosen scheme for monitoring system: BPS + SFS.

- ✓ About 635.000 parcels in 2018 GSAA for Foggia province
- ✓ High geometric complexity
- ✓ 7,007 skm, the largest Italian Province

T33TVG T33TWF

T33TWG

AGEA monitoring 2018 Foggia (Puglia region): main tasks and results

- ✓ Declared parcels divided into **14 groups** for which similar analysis rules can be applied **(Feature of Interest FOI)**
- ✓ FOI: agricultural parcels with similar crops within the same farm *block*, let separated if:
  - ➢ *With different period of phenology*
  - ➢ *With different type and density (UNAR) for permanent crops*
  - ➢ *Biological (for follow up only)*
- ✓ About 200,000 GSAA parcels are not subject to monitor: (forest, urban, etc)

For each group, different markers and scenarios have been delineated and considered

GSAA parcels detail and FOI

GROUP	AGRICULTURE PARCELS	% ON TOTAL CHECKED
Autumn-winter arable land	117.432	**26.0%**
Spring-summer arable land	30.280	**4.4%**
Vegetables and medicinal plants arable	4.051	**2.0%**
Autumn grassland (arable)	67	**0.0%**
Multiyear grassland (arable)	479	**0.1%**
Multi-season arable land	1.978	**0.4%**
Lying fallow arable land	36.672	**8.3%**
Generic arable land	10.043	**2.5%**
Permament crops (generic)	18.843	**5.2%**
Vineyards	32.269	**9.0%**
Olive trees	113.566	**26.2%**
Permanent grassland	11.959	**2.6%**
P. Grassland pro-rata (20%)	8.647	**1.3%**
P. Grassland pro-rata (50%)	70.504	**11.9%**
Other (not under payment requests)	202.310	

AGEA monitoring 2018 Foggia (Puglia region): main tasks and results

Selected and «extracted» ***markers***
time series of around 70 Sentinel 2 on 3 granules
+ Sentinel 1, mainly used for grassland mowing

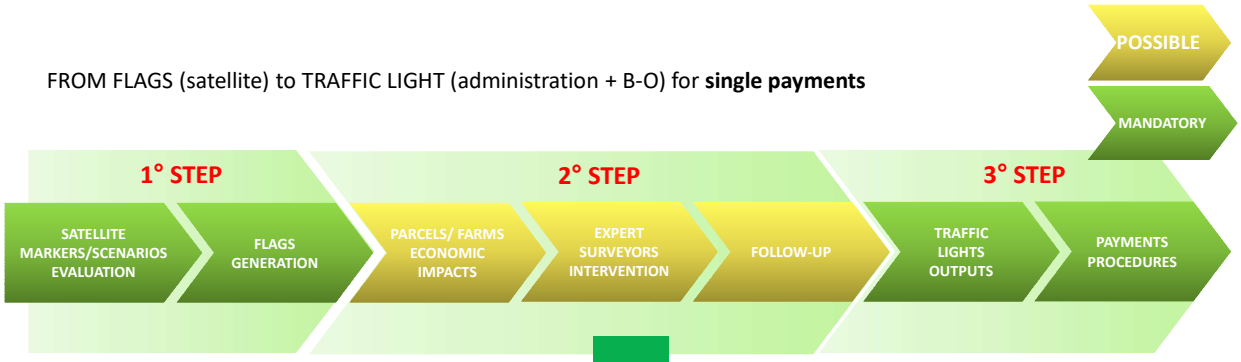
Ploughed	Ploughed terrain for seeding
Growth	Parcel with growing vegetation
Vegetation presence	Parcel with vegetation
Harvested	Parcel harvested
Mowed	Grassland mowed
Removed	Grabbing of permanent cultivation, only in some case

Example of Marker extraction through Sentinel: ploughing for wheat parcels

Follow-up and administrative procedure after satellite flag generation

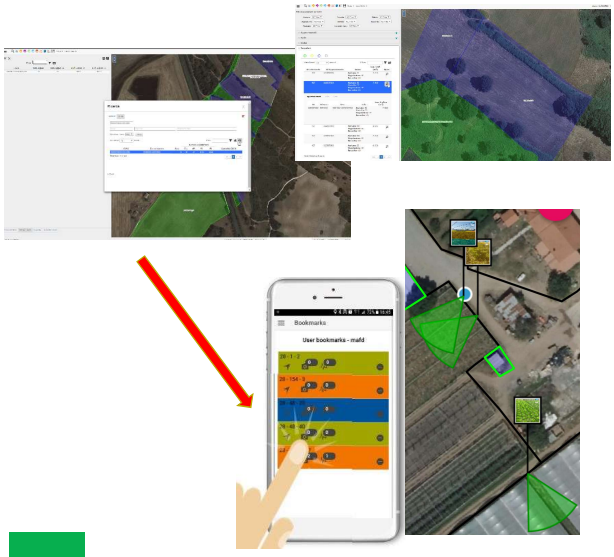
- Periodic and systematic automatic procedure from **Sentinel Copernicus often does not close** the analysis ;
- **Follow-up** activities where necessary, to finalize the subsidies admissibility (small, strange shapes, hilly-mountain parcels);
- **Back Office (B-0) analysis and /or beneficiaries information** over the monitoring performance decision through adequate communication tools (SW for rapid visual analysis, GEOTAG, documents exchanging , etc)

FROM FLAGS (satellite) to TRAFFIC LIGHT (administration + B-O) for **single payments**



The AGEA Back-Office (B-O)

- When Sentinel or other remote ancillary information do not give conclusive answers (*yellow to flashing blue flags*), B-O expert operators ask to surveyors or to beneficiaries to acquire specific geo-tagged photos (*flashing yellow*)
- B-O operators put on the system the requested photo-shoots and their suggested framing cones
- The user is guided by the APP both in reaching the parcel and in the correct taking of the photographs
- The user can add other framing cones and relative photos, if necessary
- The APP GEOTAG is connected to the AGEA server



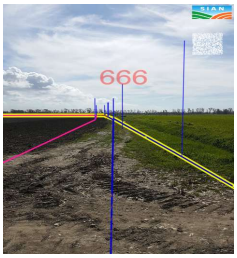
APP GEOTAG for Monitoring follow up "in situ"

App on mobile (Android, IOS):
- Take georeferenced photos with GNSS validation (date, time)
- Protected and secure sending-mode to central server
- Both AGEA surveyors and beneficiaries as users
- On-line and off- line functionality (when internet does not work on field)

Uses:
Certified RFV for not solved yellow parcels in the CAP Monitoring chain – e.g. BPS, crop diversification, coupled crops detection, EFA, P. grassland mowing evidence…and especially for small parcels, not detected by satellite

Example:
parcels to be worked are delimitated in augmented reality by a **unique colour: yellow** while the **vertices** of the selected parcel appear **blue**

The other colours (violet, brown, etc.) correspond to other LPIS codes, but not to be worked and can not be changed



Arable cod. 666 LPIS

Trees on road cod 650 LPIS

Once the "in situ proofs" by AGEA GEOTAG come back to the Back Office (or arrive in advance by farmers) the **Monitoring workflow can be concluded for the payments closing**

AGEA monitoring 2018 Foggia (Puglia region): results and comparison

Considering a total amount of 30.873 holdings, the results are as following (reported through the *flags/traffic-light* approach):

Green light: *30.767*
- 99,69%

Red light: 96
- 0,31%

Data relating to Foggia 2018 monitoring compares closely with OTSC results. The discrepancy is of only 0.11%.

Controls	Declared	Ascertained / Green Flag	Percentage
Classic controls	36.518,92	36.319,26	99,453%
New Monitoring System	423.334,40	421.485,56	99,563%

Key messages from Foggia 2018

- ✓ Arable land monitoring BPS/SFS requirements worked properly
- ✓ FOI less than 0.2 ha are however problematic for Sentinel (large number of parcels but low surface)
- ✓ Permanent crops, pasture pro-rata and non eligible areas: => systematic monitoring through LPIS refresh (based on a cycle of 3 years). Sentinel results are marked in IACS/LPIS for next updated processes (e.g. new declarations, LPIS alerts)
- ✓ Partial crop presence in the FOI or parcel may lead to inconclusive results (yellow)
- ✓ Follow-up of yellow cases required back office photo-interpretation (to greatly reduce the need of geo-tagged photos or rapid field visits)
- ✓ Dissemination/learning to farmers is needed to improve their pro-active involvement in the monitoring process with the PAs. It's crucial to receive from them digital documentation and/or geo-tagged photos in a timely fashion
- ✓ Immediate payment to farmers with "green light": > 97% (compared with 5% sample)
- ✓ Deterrent effect on "inaccurate" declarations from farmers

AGEA monitoring 2019: main features

- ✓ Two Paying agencies (AGEA + ARCEA)
- ✓ Enlargement of monitored area: 6 provinces vs 1 (about 25.000 sqKm vs 7.000 sqKm)
- ✓ More Beneficiaries involved: 120,000 vs 35,000
- ✓ More geographic distribution: North, Centre, South of the Country: Pordenone (Friuli Venezia Giulia), Viterbo (Lazio), Foggia and Bari (Puglia), Cosenza and Crotone (Calabria)
- ✓ More morphologic variability: ranging from "almost flat" to more "complex hilly zone"
- ✓ Different crop groups and parcel size distribution
- ✓ Additional payment scheme introduced: coupled support for crops (durum wheat and legumes/protein crops in 3 provinces Cosenza, Crotone and Viterbo)

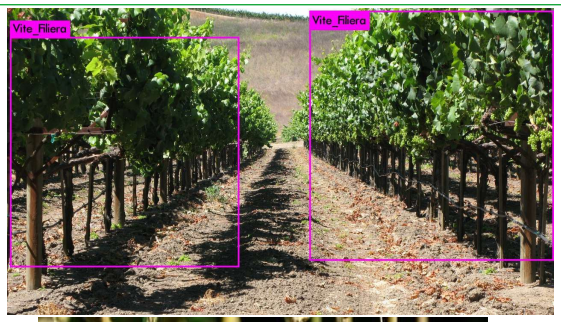
AGEA monitoring 2019: some provisional results

Results from 2019 are still *in-progress*

Total area of parcels monitored	Total number of parcels monitored	Parcels flagged red / yellow following automated processing	Red / yellow flagged parcels followed –up in the office
1.318.350 ha	1.835.946	8,52 %	7,27 %

AGEA 2020…..: expected innovation from NIVA project

- ✓ Better interaction with farmers for active participation in the process
- ✓ FOI optimisation and testing of more innovative markers compared to the existing ones
- ✓ Continuous monitoring update of the parcels within the Farm register aimed at reducing the error rate and sanctions
- ✓ Increased efficiency of the processing of the geotag photos by introducing automatic image recognition based on machine learning techniques
- ✓ Improvement of the geotag mobile app and definitive integration of GALILEO and EGNOS Released by **GSA** European Global Navigation Satellite System Agency (EGNSS4CAP)
- ✓ More in general, take advantages from already existing experiences



Thank you!

Francesco Sofia
AGEA
Coordinating body
ITALY
www.agea.gov.it

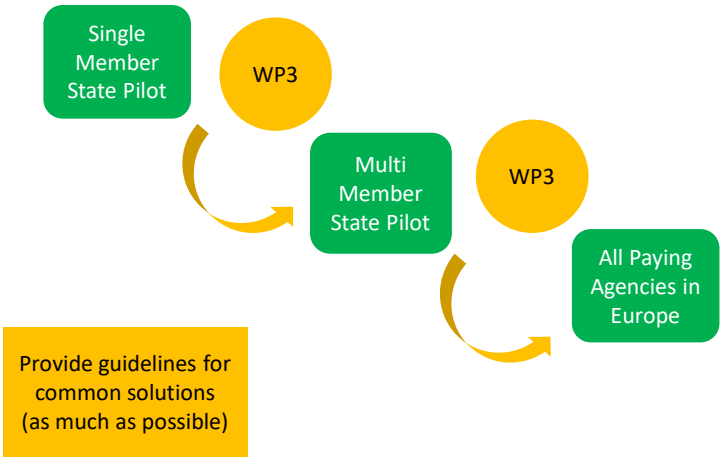
Harmonisation and interoperability

Stakeholder forum – 13 November 2019

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009

MAIN OBJECTIVE

- Contribute to **common** tools and solutions



MAIN OBJECTIVE

- To ensure that the IACS components developed by NIVA can be efficiently :
  - used by the local test sites (Multi MS Pilot)
  - effectively reused by a wider community
    - **other Member States**
    - other application domains

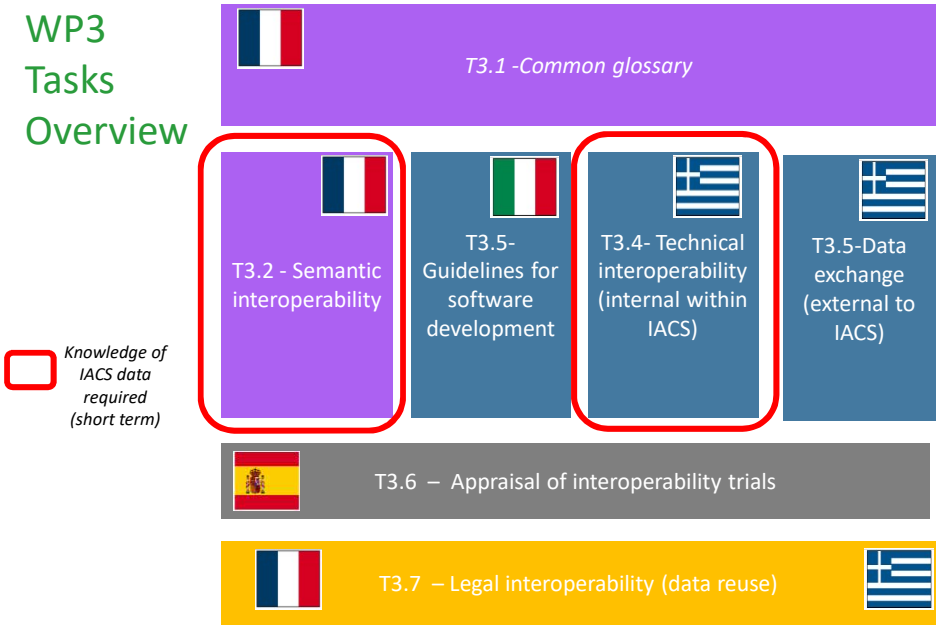
With reasonable integration effort

- To ensure the migration from national experiences **to pan-European solutions.**
- Contribute to **common** tools and solutions

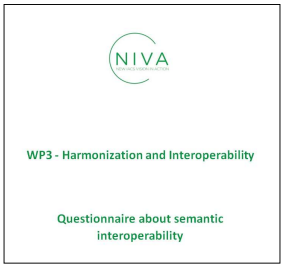
CONTEXT

- Most of NIVA tools will use IACS as input (or output) data
- IACS data is heterogeneous between Member States
- We need to know how IACS data looks like in the various Member States in order to propose the best solution(s)
  - Most frequent
  - Most relevant

WP3 Tasks Overview



ON-GOING WORK



- WP3 has launched 2 questionnaires
  - semantic interoperability
  - technical interoperability
- => Get better understanding about national IACS data
  - Among NIVA partners
  - **Among Reference Group**

WHY YOU SHOULD CONTRIBUTE?

- Members of Reference Group **are invited** to fill the 2 (current) questionnaires
- This would help us (NIVA project) to design more pan-European solutions
  - NIVA : 9 Paying Agencies
  - Europe: 27 Member States
- This would **increase the probability you may use NIVA tools without too much adaptation effort.**

HOW YOU MIGHT CONTRIBUTE?

- By filling the questionnaire
  - You may skip some questions
  - You may ask for clarifications

Any feed-back will be welcome

- By sending back the questionnaire to
  - Semantic interoperability: dominique.laurent@ign.fr
  - Technical interoperability: michael.manolarakis@opekepe.gr

WHEN YOU SHOULD CONTRIBUTE?

- First deliverable about semantic interoperability on M9 (February 2020)
- Results on technical interoperability also necessary by beginning of 2020
- Proposal:

You
(as Santa Klaus)

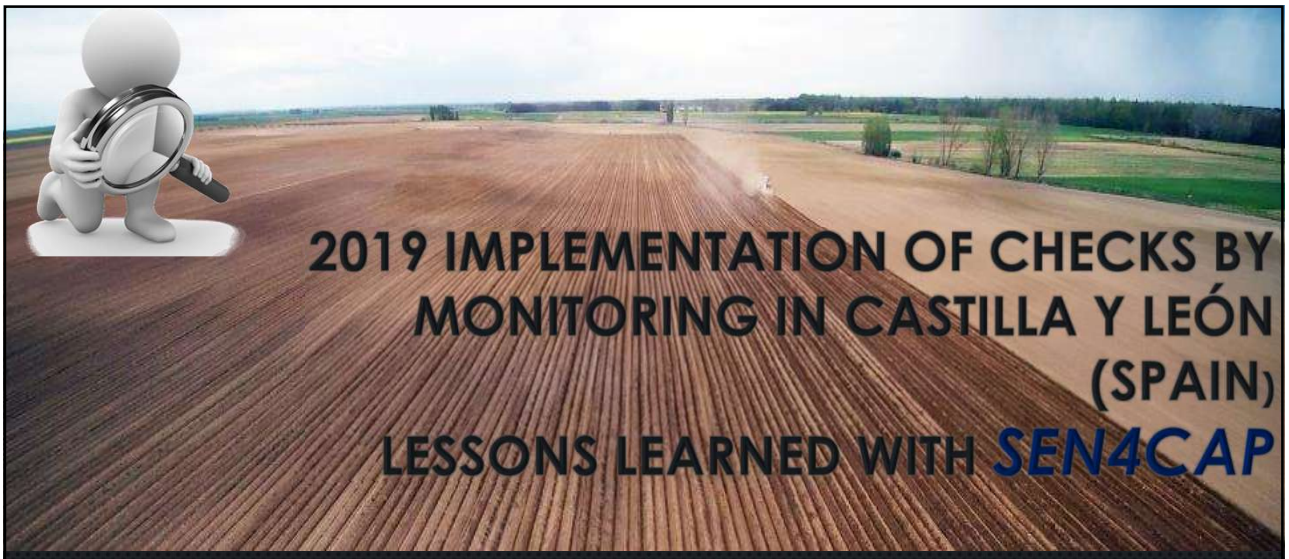
The filled questionnaires
(as gift)

Dominique and Michael
(as nice children!)

NIVA
NEW IACS VISION IN ACTION

THANK YOU!

This project has received funding from the european union's horizon 2020 research and innovation programme under grant agreement no. 842009



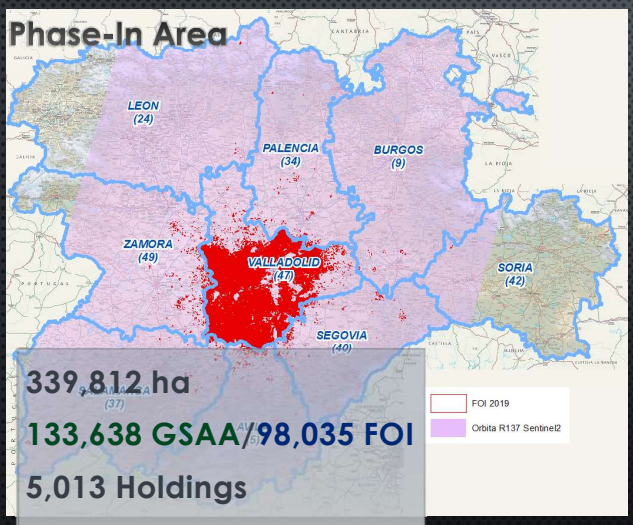
2019 IMPLEMENTATION OF CHECKS BY MONITORING IN CASTILLA Y LEÓN (SPAIN) LESSONS LEARNED WITH SEN4CAP

INSTITUTO TECNOLÓGICO AGRARIO | Junta de Castilla y León

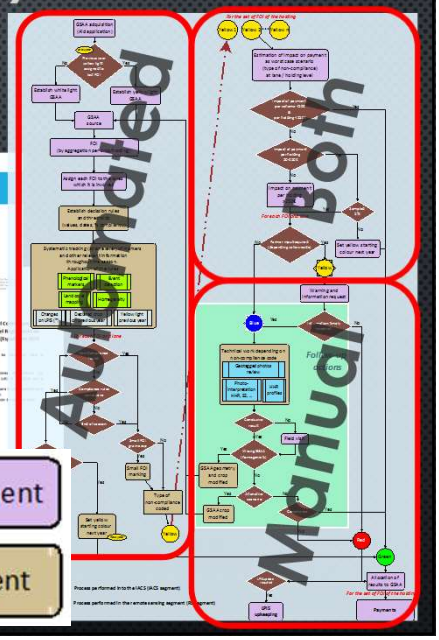
Fco. Javier Rojo rojrevfr@itacyl.es
Vicente del Blanco blamedvi@itacyl.es

NIVA Stakeholder Forum Copenhagen, 13th of Nov. 2019

2019 MONITORING PROCEDURE (*Phase-in*)



339,812 ha
133,638 GSAA/98,035 FOI
5,013 Holdings
63.766.400 €



IACS Segment

RS Segment

2019 MONITORING IMPLEMENTATION (*Phase-in*)

Why **all 1st Pillar** direct payments schemes (BPS.Greening.VCS)?

To avoid problems related with having 2 control systems (even 3)

- Extra effort.
- Missed interactions between control systems in different schemes
- Troubles in sharing of software components and following the same calendar as the old system. Monitoring requires more farmer interaction and that requires time.

2019 MONITORING IMPLEMENTATION (*Phase-in*)

All 1st Pillar 1 schemes →Need of **automated crop identification**

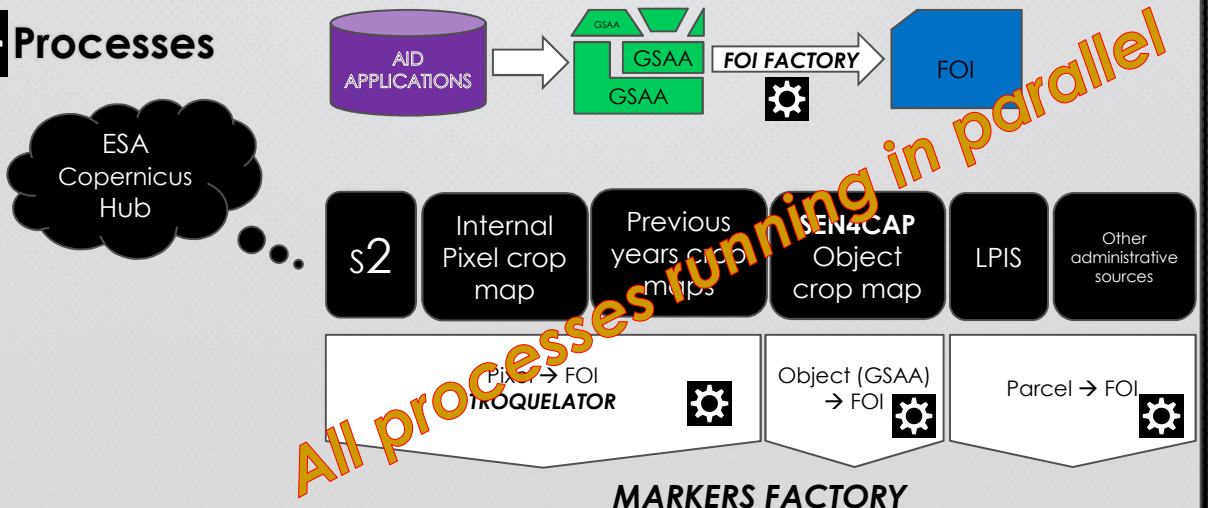
Greening and VCS requirements focused on specific crops

- Signatures/NDVI analysis not enough to achieve conclusive results
- Crop identification recycled as an evidence of agricultural practices (BPS) → optimum performance
- Pixel oriented Crop Map: very interesting markers source (crop itself, heterogeneity, non-elegible areas)
- Object oriented Crop Map: alternative and complementary approach. SEN4CAP

2019 MONITORING IMPLEMENTATION (*Phase-in*)

Tuning up the RSS system: AUTOMATED + UNATTENDED = SCALABLE

Processes

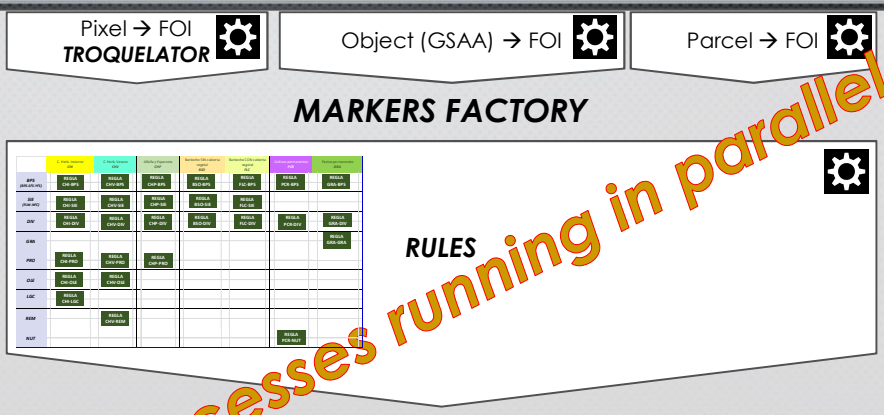


All processes running in parallel

2019 MONITORING IMPLEMENTATION (*Phase-in*)

Tuning up the RSS system: AUTOMATED + UNATTENDED = SCALABLE

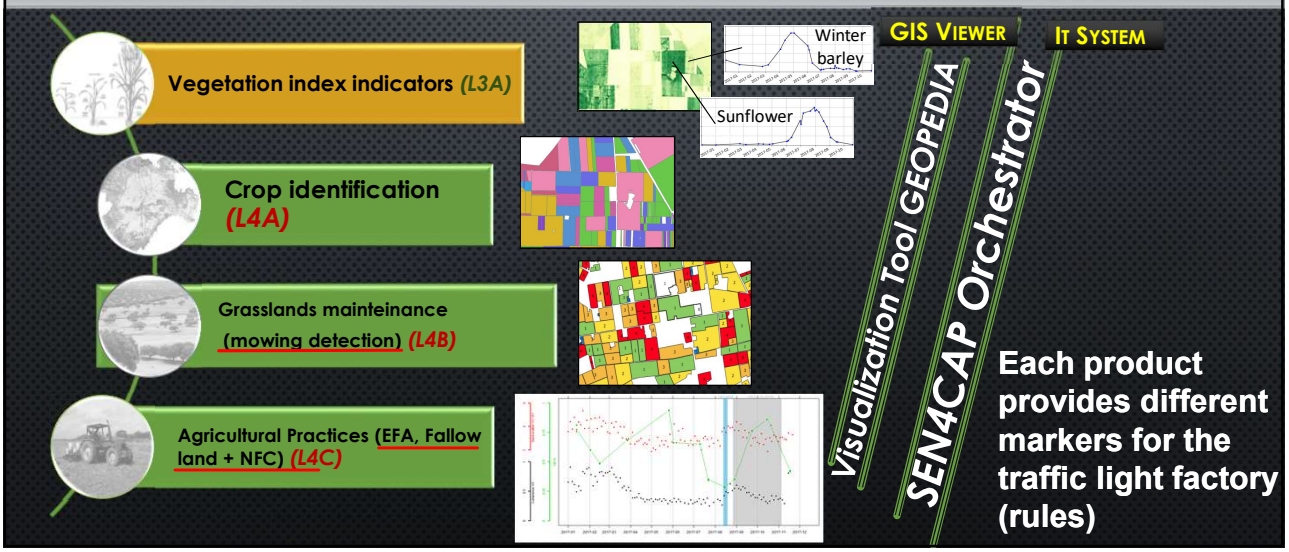
Processes



All processes running in parallel

SEN4CAP PRODUCTS EXPLOITATION

The products: algorithms and tools



SEN4CAP PRODUCTS EXPLOITATION

Crop Identification (L4A)

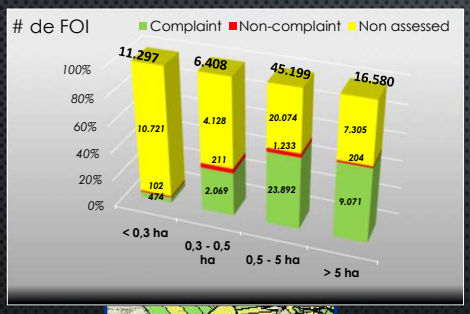
Sen4CAP poses 2 products:

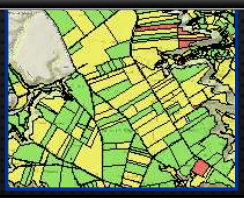
- ***Crop-id* Parcel level** (*GSAA / FOI*): crop identified by means of S1+S2 signals.
- ***Crop-id* Holding level**: uses the crop identified at parcel level to check Diversification requirements (Greening).
- Monthly deliveries in SHP format, throughout all the campaign.
- **Crop Identification→ the key for CbM in all schemes**
- Greening: Diversification, EFA
- Voluntary Couple Support (VCS)
- Agro-enviromental aids (2nd Pillar)
- Base Payments: presence of crop as an evidence of agricultural practices

SEN4CAP PRODUCTS EXPLOITATION

Outcomes

Crop Identification (L4A)





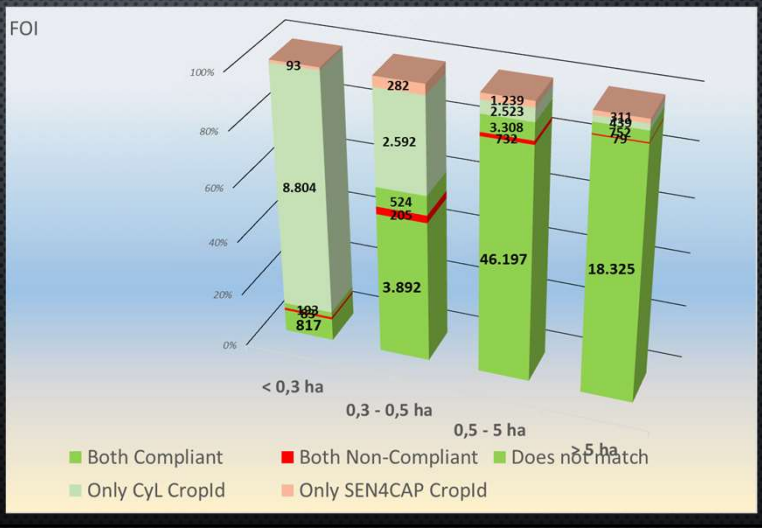
Grassland mainteinance – mowing (L4B)

Agricultural practices – EFA (L4C)

SEN4CAP PRODUCTS EXPLOITATION

Outcomes

Comparison between CyL CropId and Crop Identification (L4A)



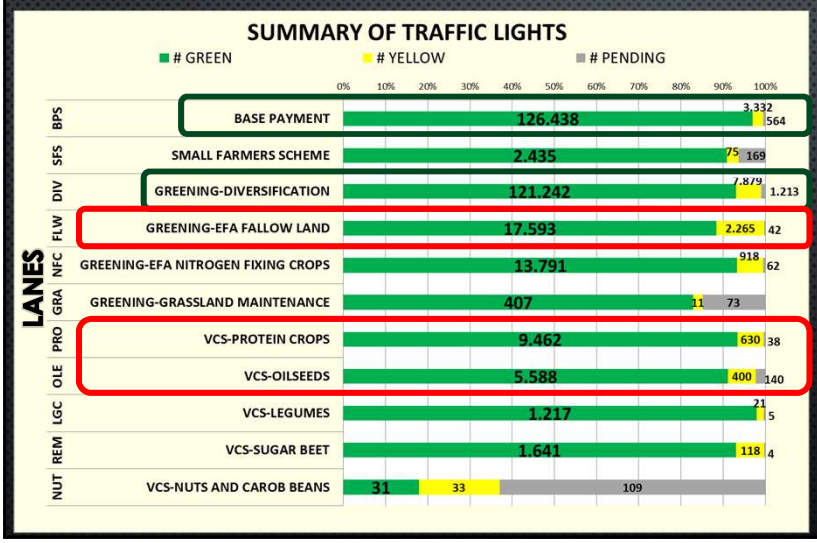
SEN4CAP PRODUCTS EXPLOITATION

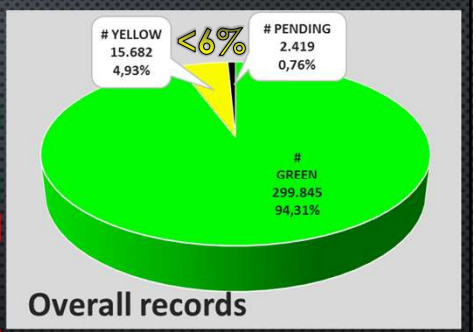
Findings

- Most interesting algorithm is the crop identification (*L4A*): it can be more easily integrated into the workflow of the *CbM*, but PA has to recode crop codes
- Rest of products have a worst fit in our *IACS*: they are more focused on northern countries requirements and local conditions, rather than in crops under Mediterranean climatic conditions (issues on grassland maintenance and Harvest because of summer senescence)
- Web system will be useful but it is still under development and has to improve
- *SEN4CAP* is a good *RS* algorithms provider and complements our own paying agency monitoring system, which is always something wider than a *RS* system.
- But it has some difficulties to fit into the *IACS*, due to the differences between it systems, requirements of the schemes,..
- *S1* signals provides additional information very nice to enhance the identification

2019 MONITORING IMPLEMENTATION (*Phase-in*)

Remote Sensing Segment results: **AFFORDABLE AMOUNT YELLOW LIGHTS**





18,101 Lanes

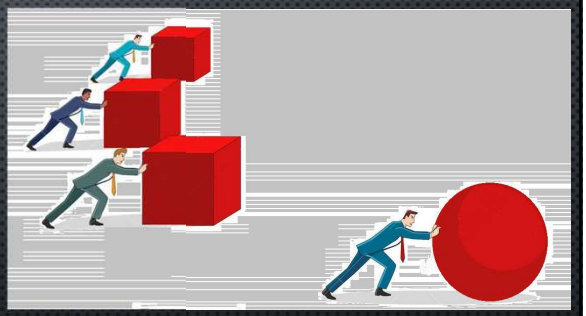
11,366 GSAA

2019 MONITORING IMPLEMENTATION (*Phase-in*)

Tuning up IACS Segment: AVOID WHAT IS NON RELEVANT = EFFICIENT

- IF POSSIBLE, DO NOT DISTURB THE FARMER:
  - 1ST AUTOMATED IMPACT ON PAYMENTS
  - 2ND EXPERT JUDGMENT
  - 3RD FARMER INTERACTION
  - 4TH FIELD VISITS

  Follow-up actions
- IMPACT ON PAYMENTS REPEATEDLY CALCULATED ON EXPERT JUDGMENT (***EJ***)
- LEAN ON S2 TO PROPOSE GSAA MODIFICATION (CASES WITH LOWER RISK OF FINANCIAL IMPACT)

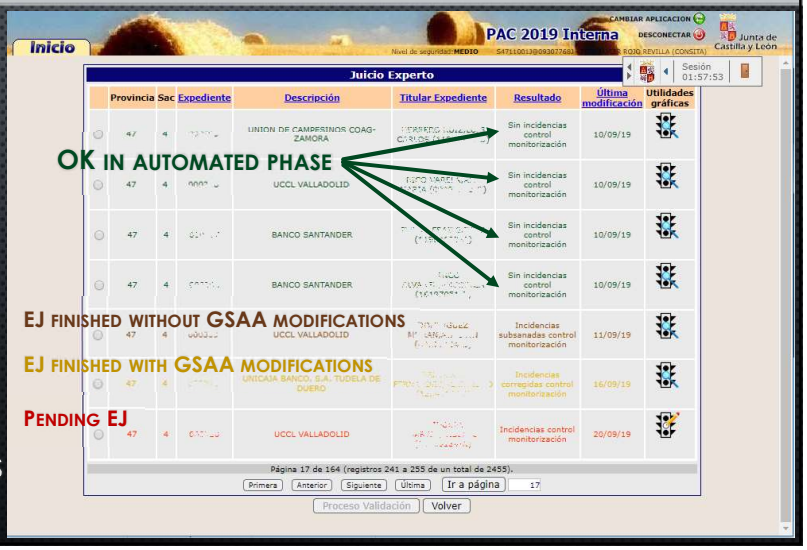


2019 MONITORING IMPLEMENTATION (*Phase-in*)

Tuning up IACS Segment: AVOID WHAT IS NON RELEVANT = EFFICIENT

POWERFUL EJ APPLICATION:

- **LOGISTICS ORGANIZATION**
- IMPACT ON PAYMENTS
- TECHNICAL TOOLS:
  - ✓ PHOTOINTERPRETATION
  - ✓ SIGNATURE ANALYSIS
  - ✓ GEOTAGGED PHOTOS REVIEW
  - ✓ NEW GSAA PROPOSAL
  - ✓ FARMER INTERACTION
  - ✓ INTEGRATE FIELD VISITS RESULTS
  - ✓ FINAL VALIDATION



THINGS TO BE DONE / IMPROVE

App tool for farmer interaction

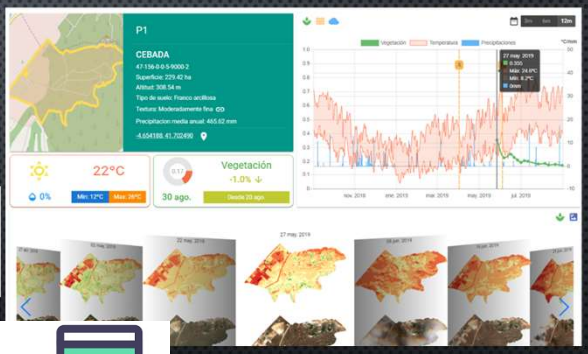
SMART FARMING UTILITIES

NOTIFICATIONS FROM CBM

GEOTAGGED PHOTOS

RELEVANT DOCUMENTATION

APPLIED MAP (FROM MACHINERY). 2021?



CONCLUSIONS

Conclusions

- "SUCCESS" WITH REDUCED FARMERS INTERACTION. DO THEY REALLY WANT TO INTERACT WITH US?
- FIRST YEAR PROCEDURE STABLISHED SUCCESSFULLY. EVEN THOUGH THERE IS NOT A DETAILED HANDBOOK TO DO IT.
- THERE IS A NEED OF NEW ALGORITHMS DEVELOPED AND TUNED LOCALLY AT *RS* LEVEL
- IMAGE PROCESSING FOR AN AVERAGE *PA* IS NOT SUCH A BIG ISSUE. COULD BE SOLVED WITH ADEQUATE LOCAL *IT* INFRASTRUCTURE.

INSTITUTO TECNOLÓGICO AGRARIO

Junta de Castilla y León

Fco. Javier Rojo rojrevfr@itacyl.es
Vicente del Blanco blamedvi@itacyl.es

NIVA Stakeholder Forum *Copenhagen, 13th of Nov. 2019*

NIVA
NEW IACS VISION IN ACTION

LESSONS LEARNED IN OTHER CAP INNOVATION PROJECTS

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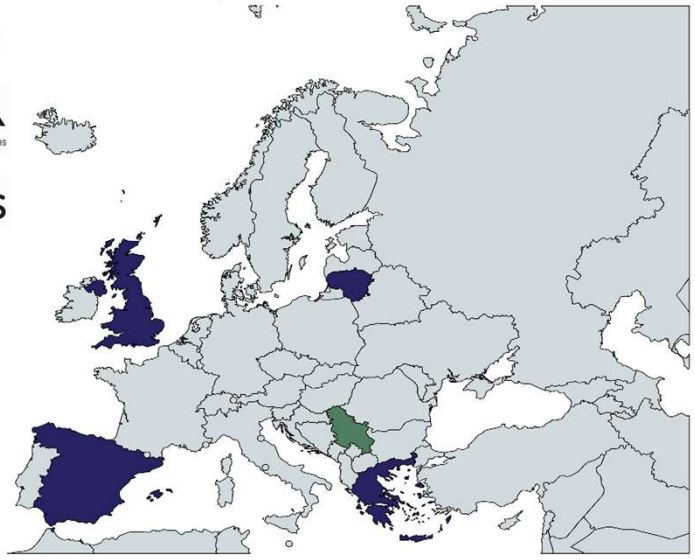
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009

RECAP PROJECT

DRAXIS ENVIRONMENTAL TECHNOLOGIES
INTIA Tecnologías Infraestructuras Agroalimentarias
CREVIS
etam s.a. consulting services
in iniciativas innovadoras
University of Reading



OBJECTIVES IN RECAP

RE.CAP
Reinforcing CAP

Platform that improves the implementation of **cross-compliance** standards by integration of open and user-generated data into added value services, co-designed and co-created by **public authorities, farmers and agricultural consultants**.

Increase efficiency and transparency of public authorities responsible for the implementation of the CAP

Improve remote sensing component for the identification of cross-compliance obligations and their potential breaches

Reduce the administrative costs for public authorities by executing cross-compliance checks more efficiently, more accurately and faster

Reduce the administration burden for farmers by providing them with personalised guidance on how to ensure compliance

LESSONS LEARNED IN RECAP

TEAM

Collection of experienced team and team members awareness of their exact roles ensures timely execution of tasks.

KNOWLEDGES

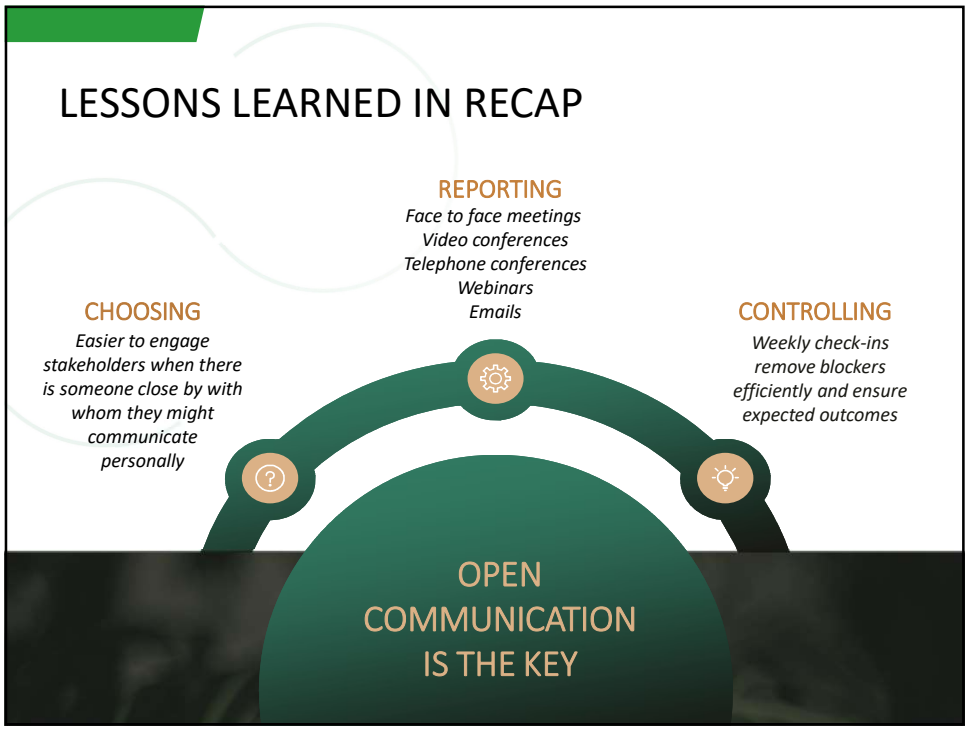
Understanding of CAP legislation, detailed needs and requirements guarantees the success because even small increases in scope require additional resources.

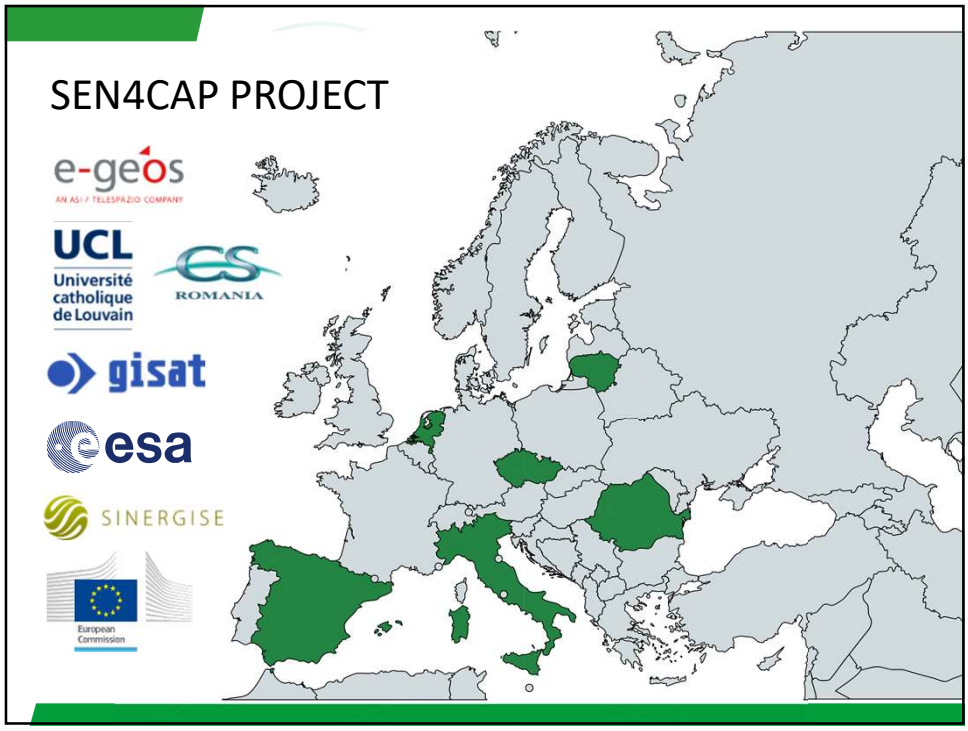
PLANNING

A clear and feasible planning of the various management stages with additional buffer in the schedule for duties where at least 2 responsible parts are involved prevents possible delays.

RESOURCES

Maintenance of issues in project management platforms (Taiga, Jira etc.) ensures traceability and a rapid fixing of bugs, performing of enhancements and cataloging of group tasks.


LESSONS LEARNED IN RECAP
REPORTING
Face to face meetings
Video conferences
Telephone conferences
Webinars
Emails
CHOOSING
Easier to engage stakeholders when there is someone close by with whom they might communicate personally
CONTROLLING
Weekly check-ins remove blockers efficiently and ensure expected outcomes
OPEN COMMUNICATION IS THE KEY


SEN4CAP PROJECT
e-geos
UCL
Université catholique de Louvain
CS ROMANIA
gisat
esa
SINERGISE
European Commission

OBJECTIVES IN SEN4CAP

Provide evidence how Sentinel derived information can support the modernization and simplification of the CAP in the post 2020 timeframe

Provide validated products, workflows and best practices for agriculture monitoring relevant for the management of the CAP

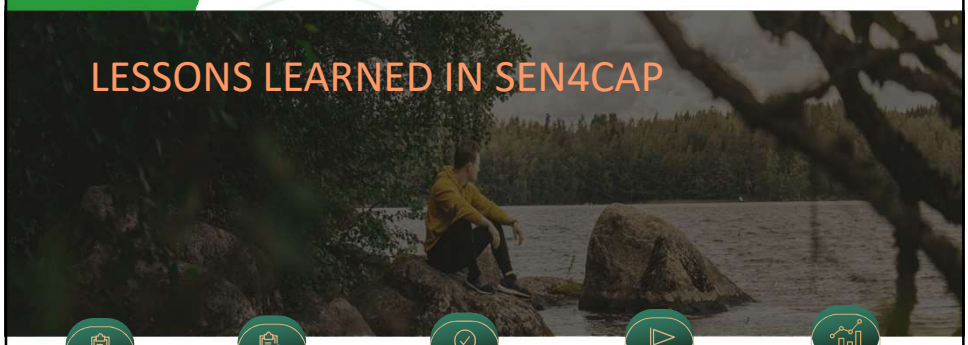
Open source deliveries for easy sharing & up-take of **algorithms** for crop type mapping, grassland mowing detection and agricultural practices (EFA)

Configurable **visualization** of data in Web interface and traceability of timeframe for the event of retrospective recovery and force majeure

sen4cap
common agricultural policy

Tool that improves the implementation of farmers' **eligibility conditions** and fulfillment of **greening requirements** (crop diversification, EFA and permanent grasslands) using Sentinels-based markers which can effectively target the focused groups and support payment decisions.

LESSONS LEARNED IN SEN4CAP



Detailed and iterative analysis of user requirements

Open & operational Sentinel time series enable monitoring approach

Active Interaction with PA for IACS implementation and hand in hand demonstrations

Cloud computing on DIAS allowing national to European up-scaling

Open source approach - direct and customizable uptake & sharing

NIVA
NEW IACS VISION IN ACTION

THANK YOU!

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