Application as a driver for LPIS upgrade

Brussels, April 22, 2014

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Important notes

1. Even though the title of the presentation is „Application as a driver for LPIS update“ it is necessary to address the broader context (spatial aspects of IACS).
2. The presentation outlines the basis of the forthcoming technical guidelines of the JRC on LPIS.
3. Technical guidelines are being prepared with an utmost care of the legal basis. However, they do not have legal values. In case of eventual discrepancies the legal documents prevail.
4. The work is still ongoing – some parts may not be sufficiently detailed.
5. The UML diagrams of the presentation are for illustrative purposes. They are not final and are not meant for detailed technical discussions.

Objectives of this presentation

Share some initial thoughts on the spatial data needed for supporting the implementation of the new CAP :

- what is the subject – our universe of discourse ?
- principles for conceptual model development (traceable, locatable, controllable and verifiable)
- what spatial data are needed (high level use-cases) where spatial data reside in the model?
- (geospatial) application as central point of different components of IACS

Introduction: our approach

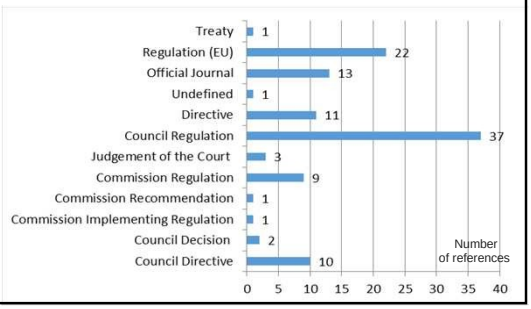
Profound changes in the legal basis

- new regulations, delegated and implementing acts
- ≈1/3 of the text is new

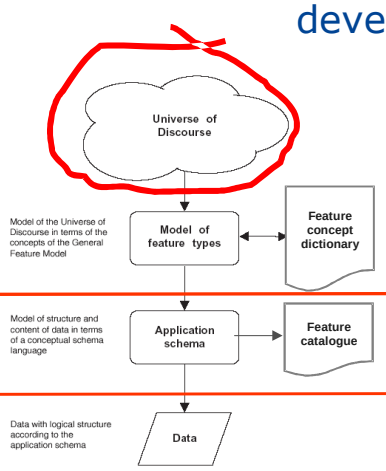
Need for new technical guidance that

- addresses the new requirements
- is able to put together all information included in the legal bases and scattered in other references

Develop a conceptual model (application schema) and document it in UML



Conceptual model (application schema) development



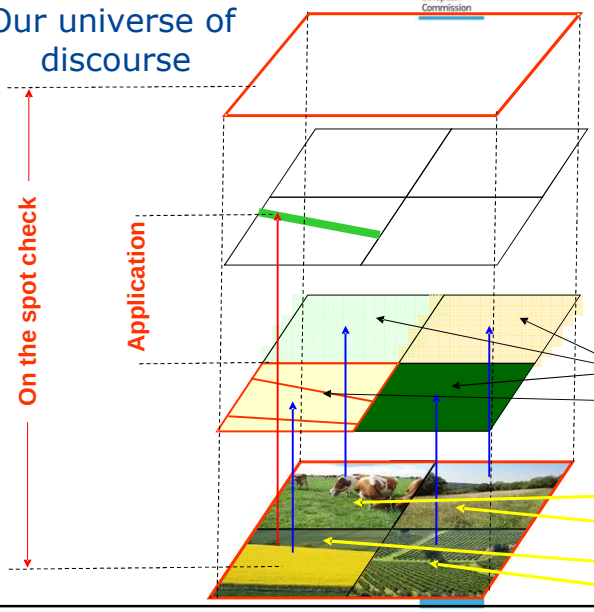
ISO 19109

Legal acts

Technical guidelines & Best Practices (Wikicap)

Member states

Our universe of discourse



Reference parcel

Ecological focus area

Land fallow, terraces, LF, buffer strips, agroforestry, forest edges, rotation, coppice without min. fertilizers/plant protection afforested areas, catch crops, nitrogen fixing crops

Agricultural parcel

single crop

single crop group

Agricultural area

permanent pasture

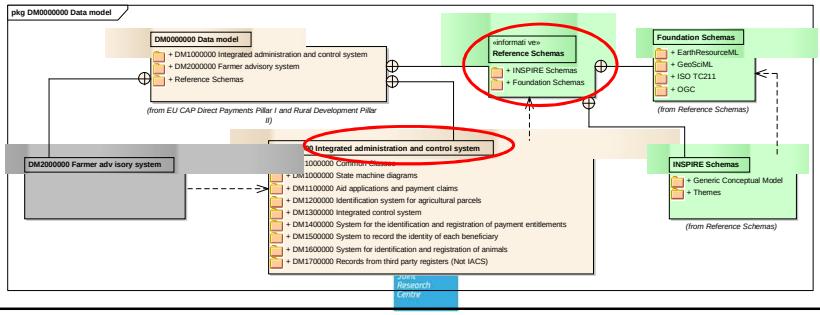
permanent grassland

arable land

permanent crop

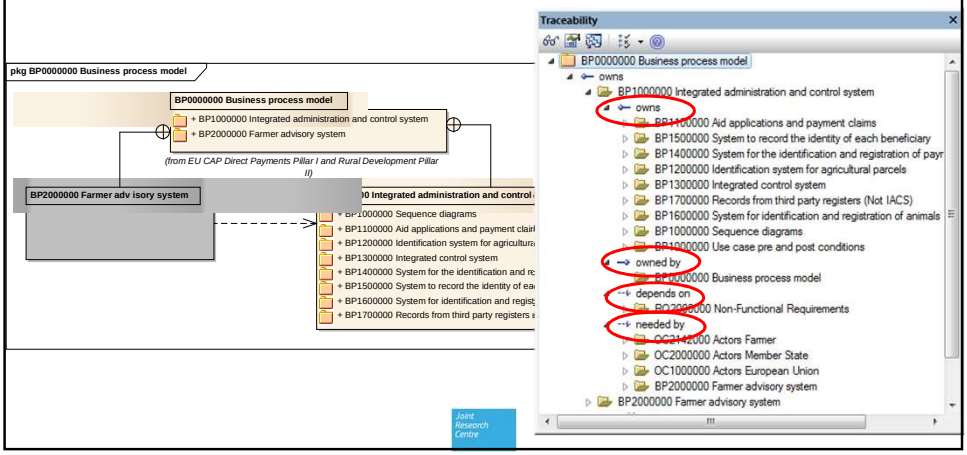
Principles for conceptual data model development

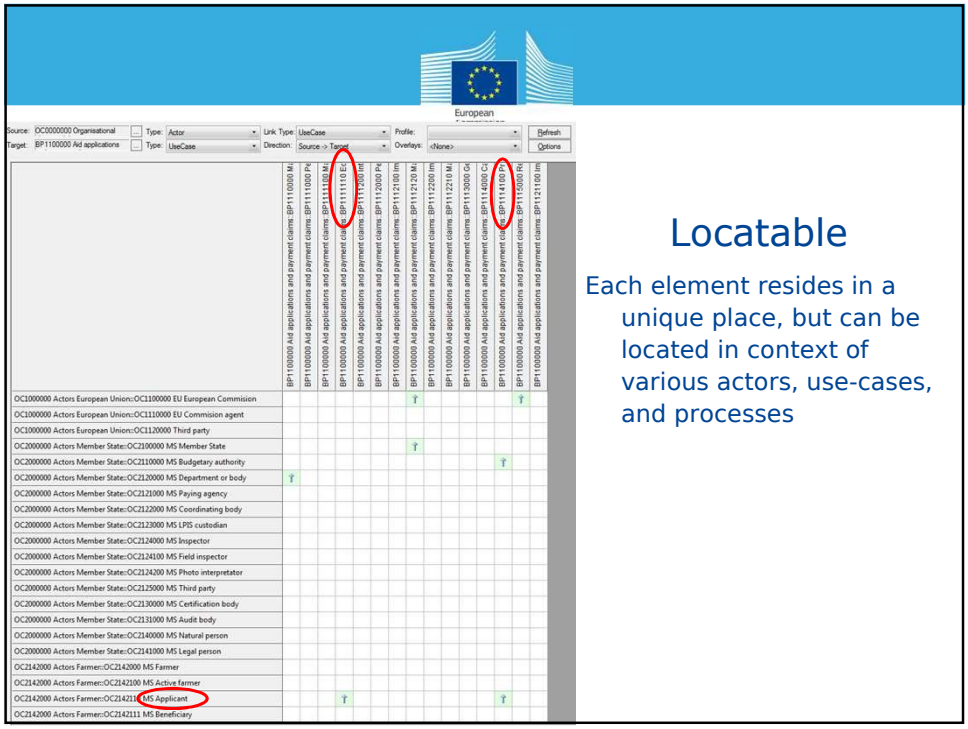
- Model driven development mainly according to ISO/TC211 and INSPIRE (data identification for exchange)
- Use of conceptual schema langue (UML)
- Reuse of existing : other components of IACS, old LCM, standards, classifications applied at international level, INSPIRE)
- The described data and processes must be traceable, locatable, controllable, verifiable (the UML tool must have control systems)



Traceable

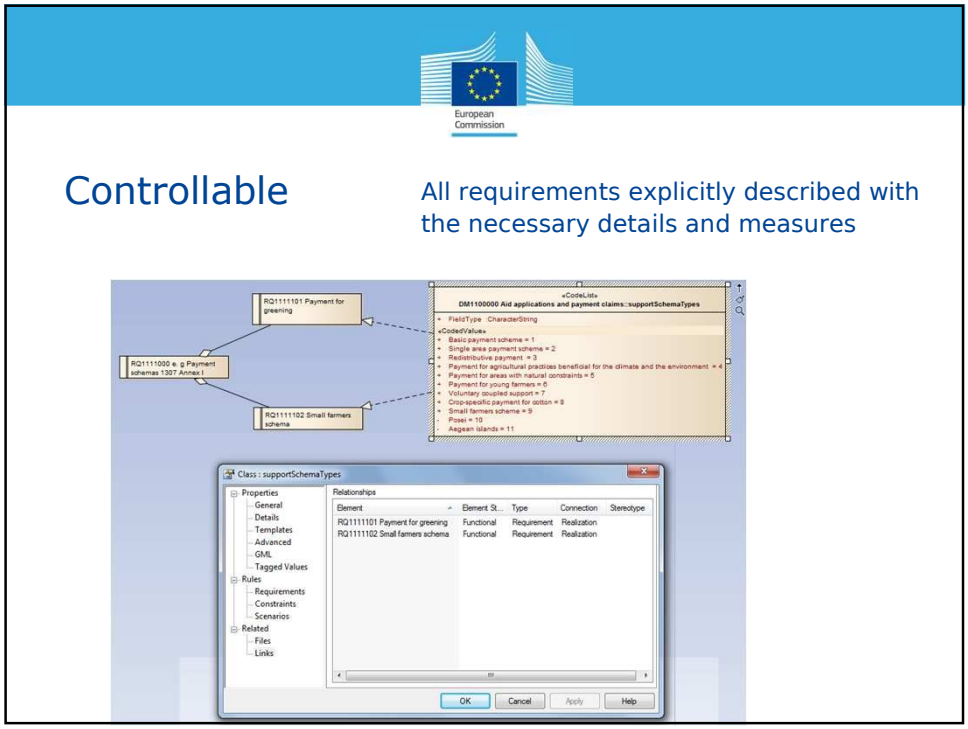
The data model has to reveal all logical connections





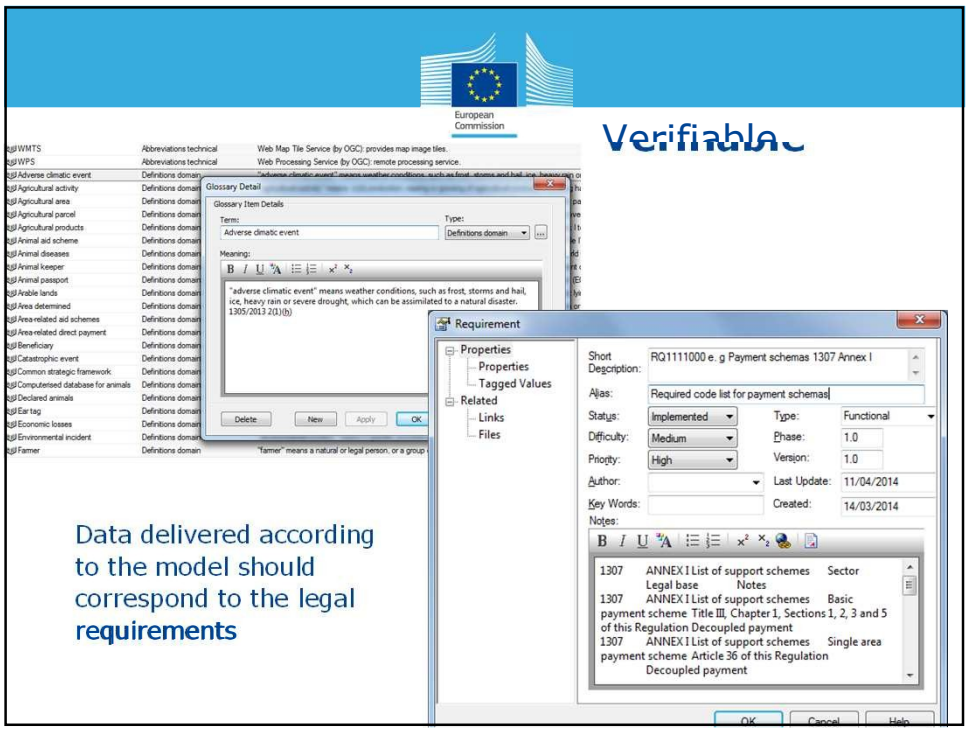
Locatable

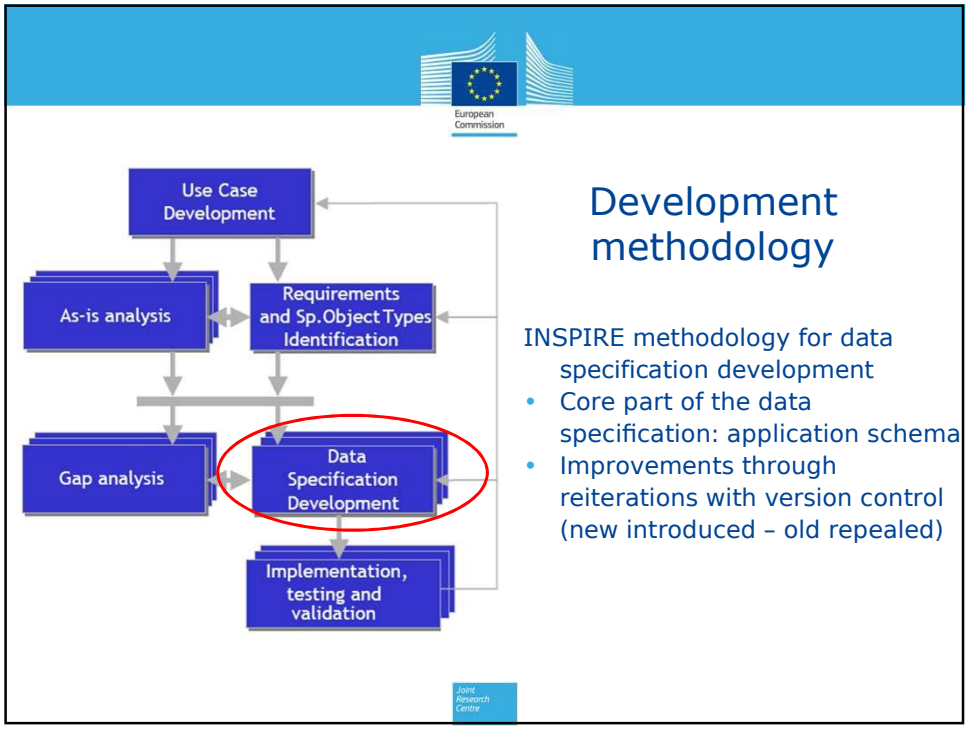
Each element resides in a unique place, but can be located in context of various actors, use-cases, and processes



Controllable

All requirements explicitly described with the necessary details and measures

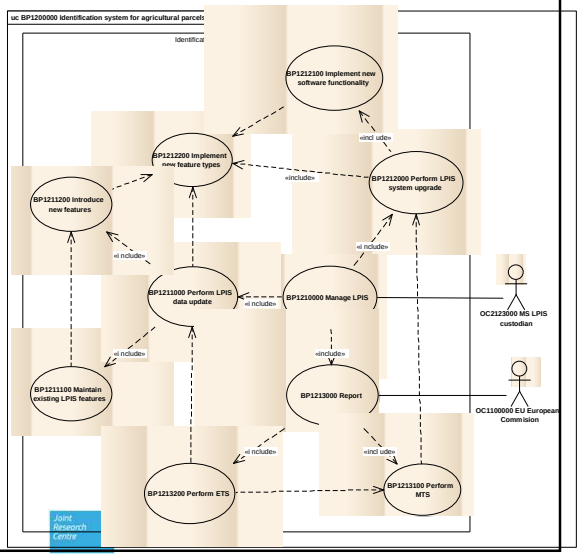

Verifiable
Data delivered according to the model should correspond to the legal requirements
Requirement
Properties
Tagged Values
Related
Links
Files
Short Description:
RQ1111000 e. g Payment schemas 1307 Annex I
Alias:
Required code list for payment schemas
Status:
Implemented
Type:
Functional
Difficulty:
Medium
Phase:
1.0
Priority:
High
Version:
1.0
Author:
Last Update:
11/04/2014
Key Words:
Created:
14/03/2014
Notes:
1307 ANNEX I List of support schemes Sector
Legal base Notes
1307 ANNEX I List of support schemes Basic payment scheme Title III, Chapter 1, Sections 1, 2, 3 and 5 of this Regulation Decoupled payment
1307 ANNEX I List of support schemes Single area payment scheme Article 36 of this Regulation Decoupled payment
OK
Cancel
Help


Use Case Development
As-is analysis
Requirements and Sp.Object Types Identification
Gap analysis
Data Specification Development
Implementation, testing and validation
Development methodology
INSPIRE methodology for data specification development
Core part of the data specification: application schema
Improvements through reiterations with version control (new introduced – old repealed)

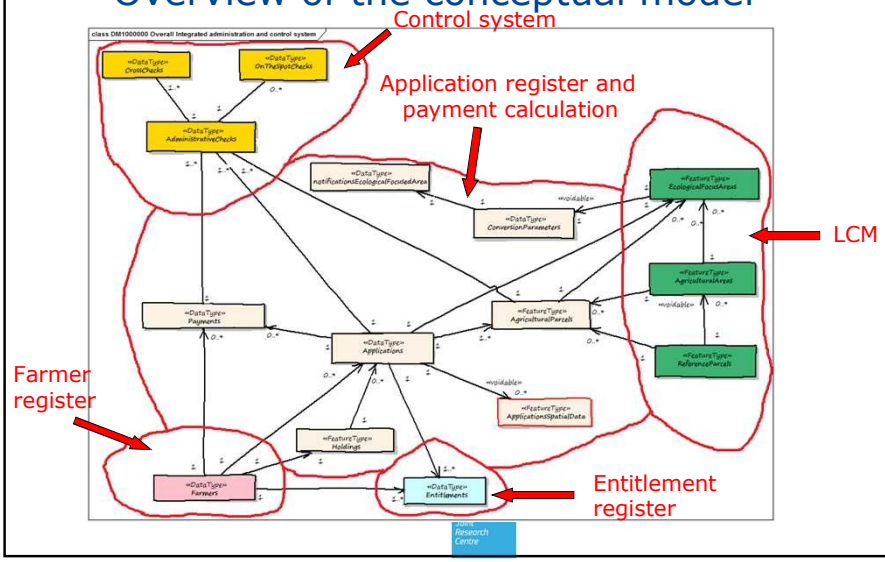
Our high level use cases

1. Generation of pre-established form
2. Aid application
3. Administrative and cross checks
4. On the spot checks (including direct payments and cross compliance)
5. Payment calculation (including penalties)
6. IACS upgrade
7. LPIS upkeep

Every use case is described in text and presented in UML diagram



Overview of the conceptual model

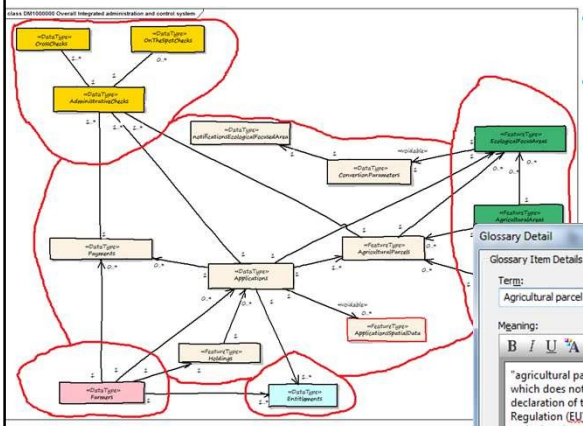


Place of spatial data in IACS

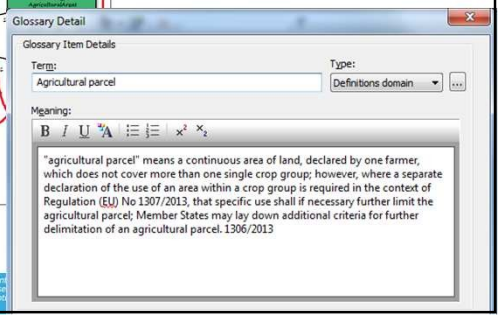
- So far:
  LPIS and applications, but the LCM has not picked the relation between the two;
  OTSC not included
- From now
  LPIS, (geospatial) application, data needed for green payments, OTSC – are integrated

- The new model will include all the spatial objects (features) that are necessary for calculating and controlling the payments (quantification of agricultural land and EFA elements)

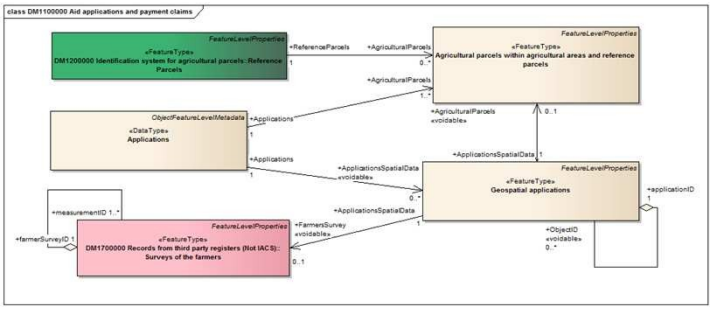
Spatial data in the application schema



- Spatial data reside in 3 packages out of the 5
- **Application is the central element of the model**: a harvester of information from/for every package

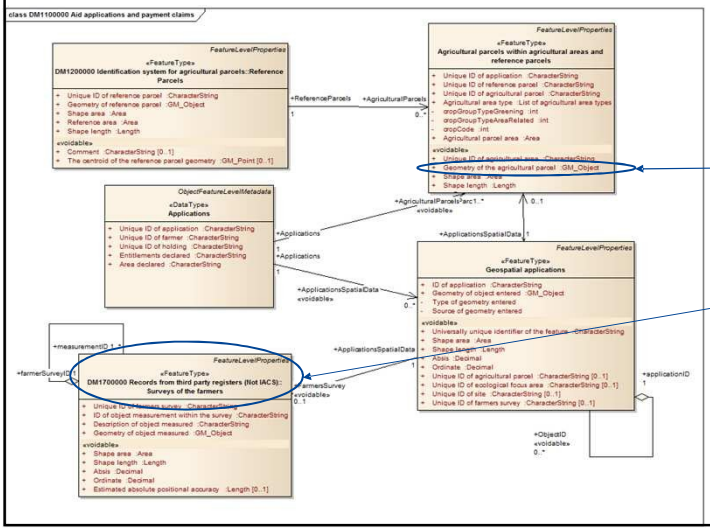


Pre-condition for geospatial application



- Geospatial application : a subtype of application where data are represented as instances of feature types i.e. have own geometries in the national coordinate reference system, according to the specified schema (which is the difference from the former farmer's sketch)
- The subject of such spatial application may be agricultural area, EFA, or other sites

Two ways of presenting geometries



1. From the system (from LPIS is based on agricultural parcels or from prvious declarations)
2. External data (farmers' measurement, SDI)

NB: LPIS (not based on agricultural parcels) plays an auxiliary role

Geospatial application – farmers` view

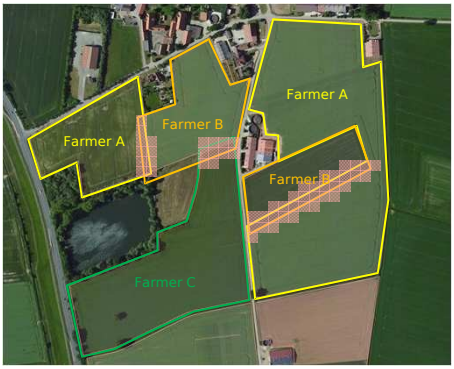
- The farmers should be able to
  - Confirm existing measurements (authority's delineation of agricultural parcels on orthoimagery, imported elements from SDI)
  - Perform measurements themselves (GPS coordinates)
  - Delineate agricultural parcel on the orthoimagery
- Support needed from the authorities (examples)
  - Upload possibility for GPS measurements
  - Tools for defining/correcting delineation/spatial position that reinforces at the same time the geometries required in the local schema

LPIS Implementation options and impacts

- Criteria for assessing geospatial application tools:
  what information is provided to the farmers on the pre-established form and what data should be captured by themselves
- LPIS is based on agricultural parcels
  Farmers are less bothered by the measurements –parcel delineation in the orthoimage is relatively easy
- LPIS designs reflecting physical boundaries
  may give sufficient support
  but partial field measurements might be necessary
- Non-visible physical boundaries
  geospatial application is possible through field measurement.

Area overlaps as risk in geospatial application

- In case of agricultural parcels farmers are constrained to stay within the parcel – less accidental over-declaration appears
- Physical/topographic blocks: overlaps between farmer declarations are possible
- Cadastral parcels (when boundaries are not visible between the parcels): overlaps between farmer declarations are possible



Cross checks between the applications should be set up depending on the design of the LPIS

Conclusions

- Geospatial applications may decrease the risk of over-declaration when:
  - the design of LPIS is based on agricultural parcel
  - the agricultural parcels are stable in time (or the responsible authority has the capacities for continuous updates)
  - farmers are able to deliver accurate measurement (performed by themselves or such services are available at moderated cost)
- Geospatial data reside not only in the LCM, but in other components of IACS. For facilitating cross checks and achieving overall consistency in the system they should be treated in a unique Conceptual Model.

LPIS upgrade is necessary and should be driven by geospatial applications

Nota Bene: The details of the LCM (containing the EFA „layer") will be explained in a separate presentation


European Commission
Thank you!
Joint Research Centre