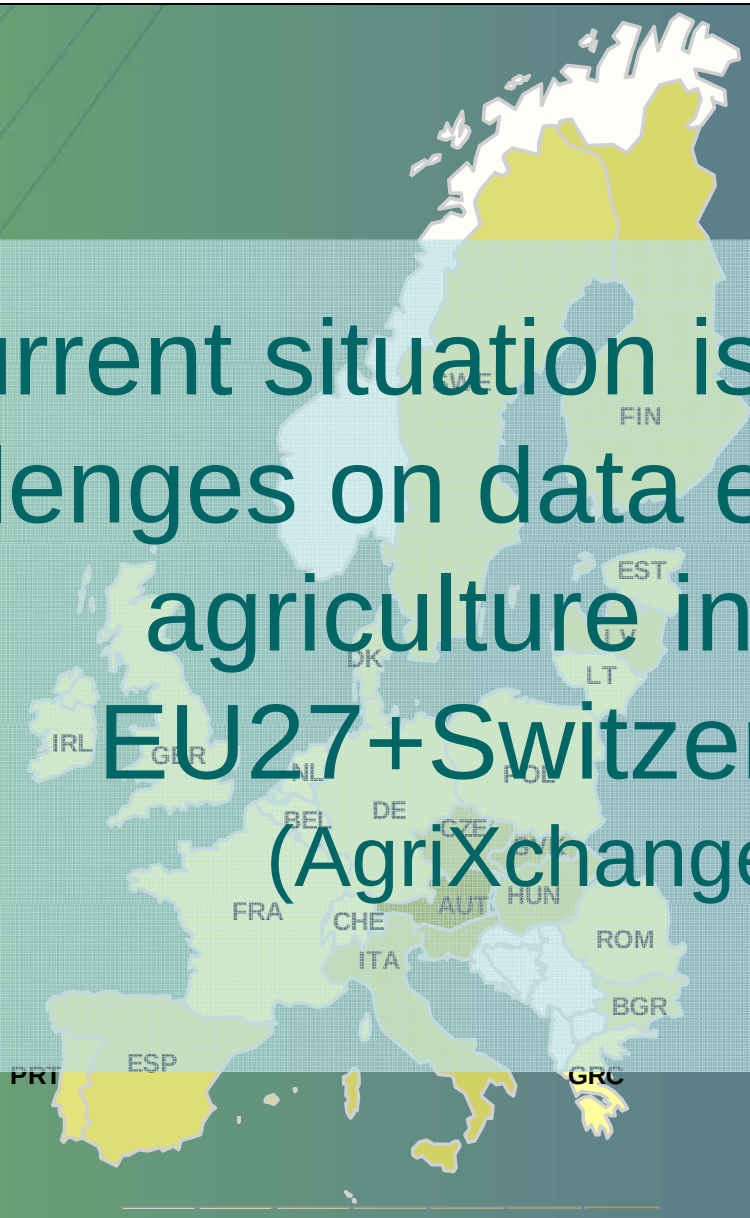
Current situation issues and challenges on data exchange in agriculture in the EU27+Switzerland (AgriXchange)



Bénédicte FUSAI,
Institut de l'Elevage

SEVENTH FRAMEWORK PROGRAMME

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network for data exchange in agriculture

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Coordination and support action to set up a network for developing a system for common data exchange in the agricultural sector

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Problem statement

- Information sharing : an important issue
- Lack of standardization of installed base of information systems → hampers efficient exchange of information
- Lack of organization in exchange of information
- → so how to improve data exchange?

Main objectives and deliverables

- establish a platform on data exchange in agriculture in the EU, consisting of
  - technical infrastructure
  - community of practice
- develop a reference framework for interoperability of data exchange in agriculture
- identify the main challenges for harmonizing data exchange in agriculture in the EU => Strategic Research Agenda

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Work package 2 State of the art

1. in depth analysis literature review
2. methodology for inquiry in EU countries
3. description of current situation in EU
4. ICAR survey about data exchange in cattle

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Content of the survey

- The aim : to have a view on the existing situation for electronic data exchange among the ICAR member's organizations
- 44 questions about data exchange between :
  - Automate and cattle farmers' IT system,
  - cattle farmers' IT system and breeding organizations
  - Milk recording agencies and on cattle farm automatic devices
  - Cattle breeding organizations from different countries
  - Cattle registration office and cattle farmers IT system
  - Cattle identification databases and other data bases
  - Cattle identification offices from different countries

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ICAR

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Results

- 24 ICAR member's organizations
- Data exchange
  - Communication : mainly by software
  - Syntax :
    - mainly XML and proprietary syntax.
    - ADIS/ADED ISO 11 787 : the main syntax for the exchange between milk recording agencies and on cattle farm automatic devices
  - Data dictionary : in general it exists
  - Infrastructure network : the main used is Internet technology.

Investigating EU27+Sw (1)

EU Report

Aim:

overview of state of the art of current data exchange in general and per EU region, with a focus on farmers in connection with internal and external processes. External processes like business/chain and national and EU legislations. Making clear the main gaps/problems as well.

Country Reports

Level of abstraction:

mostly qualitative describing data integration levels on processes, data and physical infrastructure.

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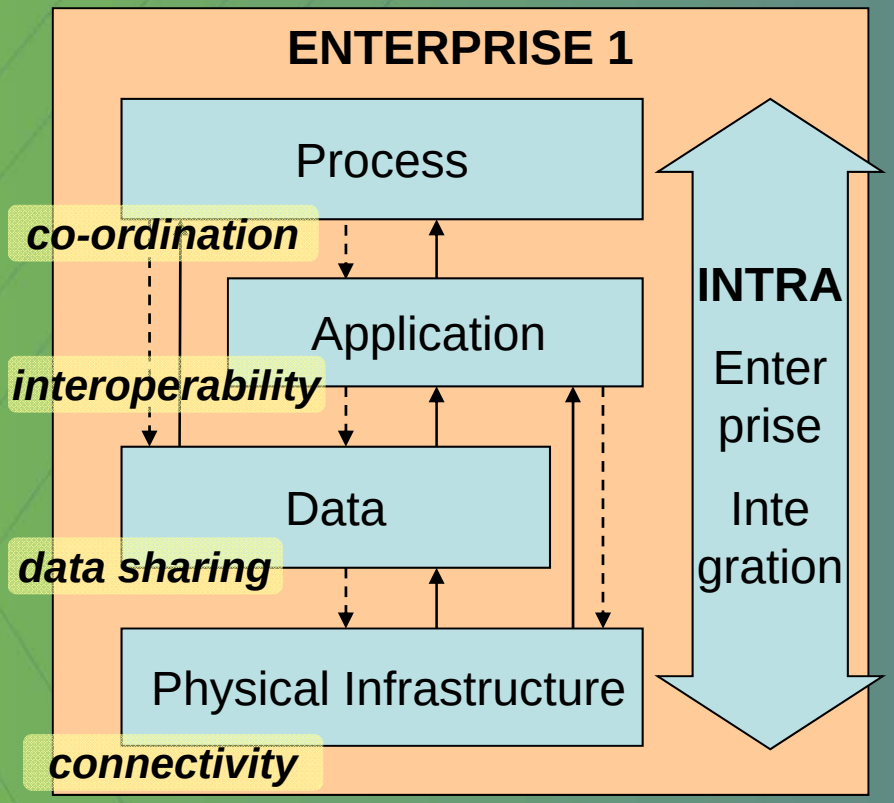
Investigating EU27+Sw (2)

- With special attention to the sectors:
  - Arable
  - Animal (cattle mostly)

  (Forestry ….)
- Using the framework of data integration
- Done by 6 focusgroup leaders& expertteams

Template



- Agricultural characteristics
- Automation level
- **Data integration levels**

(adapted from Giachetti 2004)

Results - Agricultural characteristics

Trends

1. Decrease of number of farms
2. Decrease of labour / sometimes scarity due to moving of people (Romania)
3. Fast growing size of farms
4. Decrease of dairy cows but steady production of milk
5. Increasing yield in crop production per ha
6. Automation will rapidly continue but mainly on/by
   - big farms
   - young farmers

Data integration process general remarks

1. CAP/(national) governments are boosting dataintegration in countries - portals, shared databases
2. Public systems are relatively open compared to private systems (except in well standardised countries)
3. Many systems and databases rather closed

European regions
division in areas, countries with

1. Mainly small farms, often poor countries. No ICT, no standardization
2. Focus on ICT highly related to basic local challenges
   Irrigating/water, erosion, cross border trade, lack of market transparency.
3. Aging, adapting ICT by farmers problematic, but less in N + W
4. Fast upcoming production areas = relative new countries in agri IT
5. Countries with an standardizations past (to deal with 'old fashioned' structures)
6. Countries with no or bad internet infrastructure
7. Private business involvement on ICT& standardization vs public
   - Business exporting the standards
8. Centralized or hub-based data integrated models

Data exchange standardisation level

1. None or hardly (BGR, Rom)
   - no private action, public just starting (LPIS, I&R)
2. Poor (most Southern, Eastern, Baltic States)
   - Push of standardiby CAP/Governments
   - Some shared databases and portals
   - Hardly integrated private systems
3. Rather good (Northern, CZ, UK, IR)
   - Some involvement by private
   - Some datadictionaries developed and used
4. Fairly good (FR, DE, NL, DK, ..)
   - Private standardization bodies
   - Own and global standards
   - Infrastructure based on hubstructures (communicating and transporting systems)
   - Towards open /shared community and integrated models

Clear, no development

Mess

More Mess

Mega Mess

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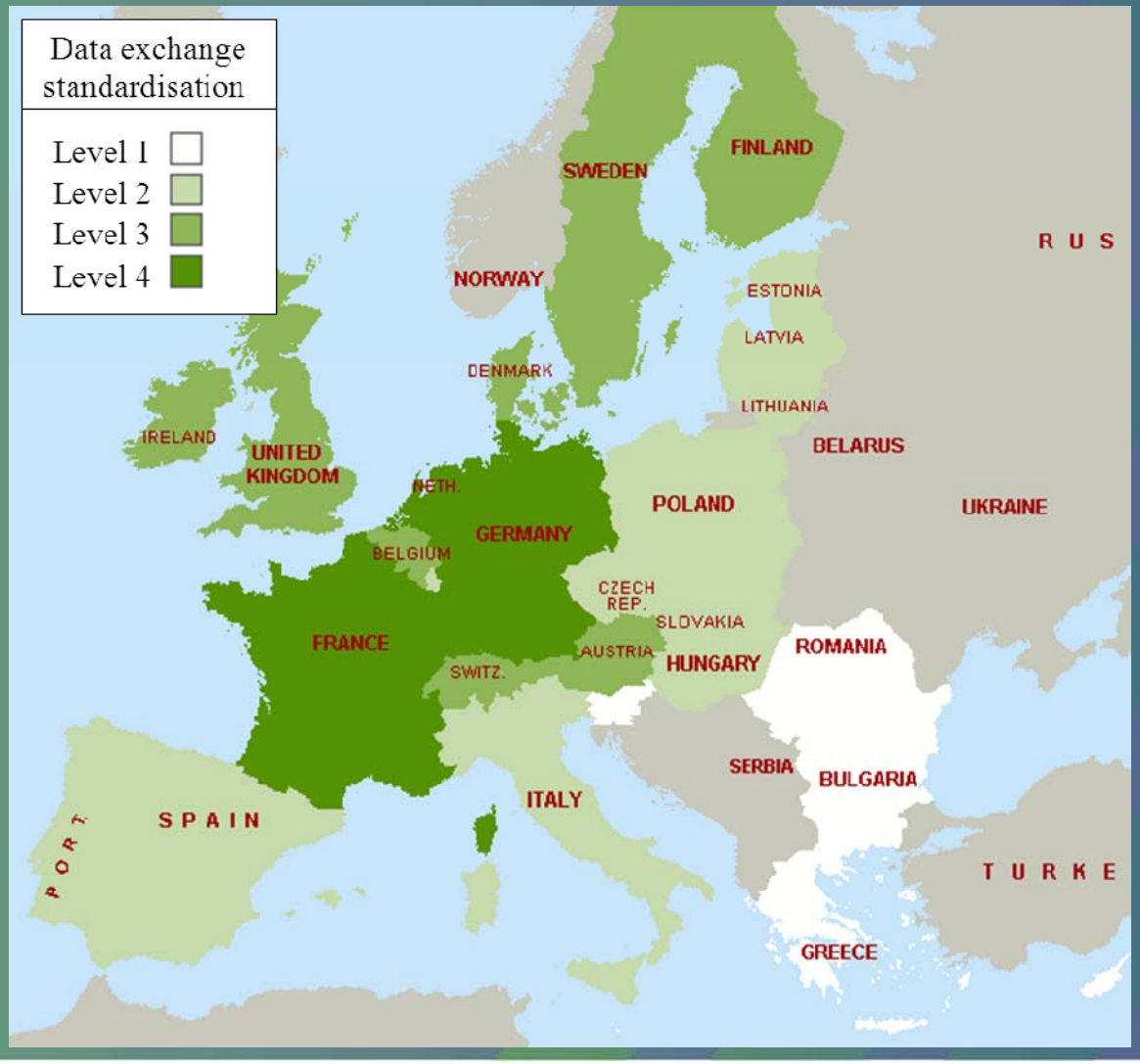
‘Standardization level’

Communicating processes
Datadictionaries
Own and global standards



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Data exchange standardisation level

Fairly good (FR, DE, NL, DK, ..) is the mega mess

- Each nation its own ..
  - » Solutions, providers, standards
  - » Hardly cross border data integration

Next level

- Integrated business process models
- Private-public collaborations on shared datainfrastructure.

Issues to come there

- Data protection (privacy, e-authentication, authorisation)
- Availability of internet
- How to become an open EU information society?

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Conclusions and outlook

- Aging population of farmers
  lack of adaption and investments on new technology
- Broadband availability in rural areas.
  In quantitative and in qualitative way.
- Mobile internet infrastructure in most countries not capable
- Potential for quick developing countries.
  to adapt new data exchange infrastructural models and skip the old complex and inefficient structures.
- Differences across the EU on the level of data integration and standardization. 4 levels

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Discussion

- Work as basis for further project work (no pure scientific work)
- Identification of key factors and indicators not precisely or quantitatively elaborated.
- Opportunities/discussions
  - Collaborative approach and common framework
  - Mobile network challenges.
  - Standardisation should be done at the business service layers and not on processes
  - Focus on demonstrating how processes can work, but keep them flexible
  - Open network, with flexible relationships between network partners, which implies less hierarchical or linear chain structures

Recommendations

1. Quantify the benefits arising from overcoming the barriers through future research.

2. Demonstration of the effect of adapting new technologies

3. Organizing data integration through open networks

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Thank you for your attention

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