

State of the art
on data exchange in agriculture in
the EU27+Switzerland
preliminary results

WP2; Nov 25th 2010
Henri Holster
Gianfranco Giannerini



Programme

8.30h – 10.00h

1. Presentation State of the art
2. Q & I; Questions and Interactions
3. Panel discussion

“Ruling standardization by current or new roles for standardization bodies!?”



To expect

1. About us
2. agriXchange and the state of the art
3. Literature
4. Investigating EU27+Switzerland
 - methodology
 - first results
5. Next steps



Us



Group A **Institut de l'Élevage (FR)**
Bénédicte Fusai

Group B **Altavia (IT)**
Gianfranco Giannerini

Group C **ASG Wageningen UR (NL)**
Henri Holster/Bert Ipema

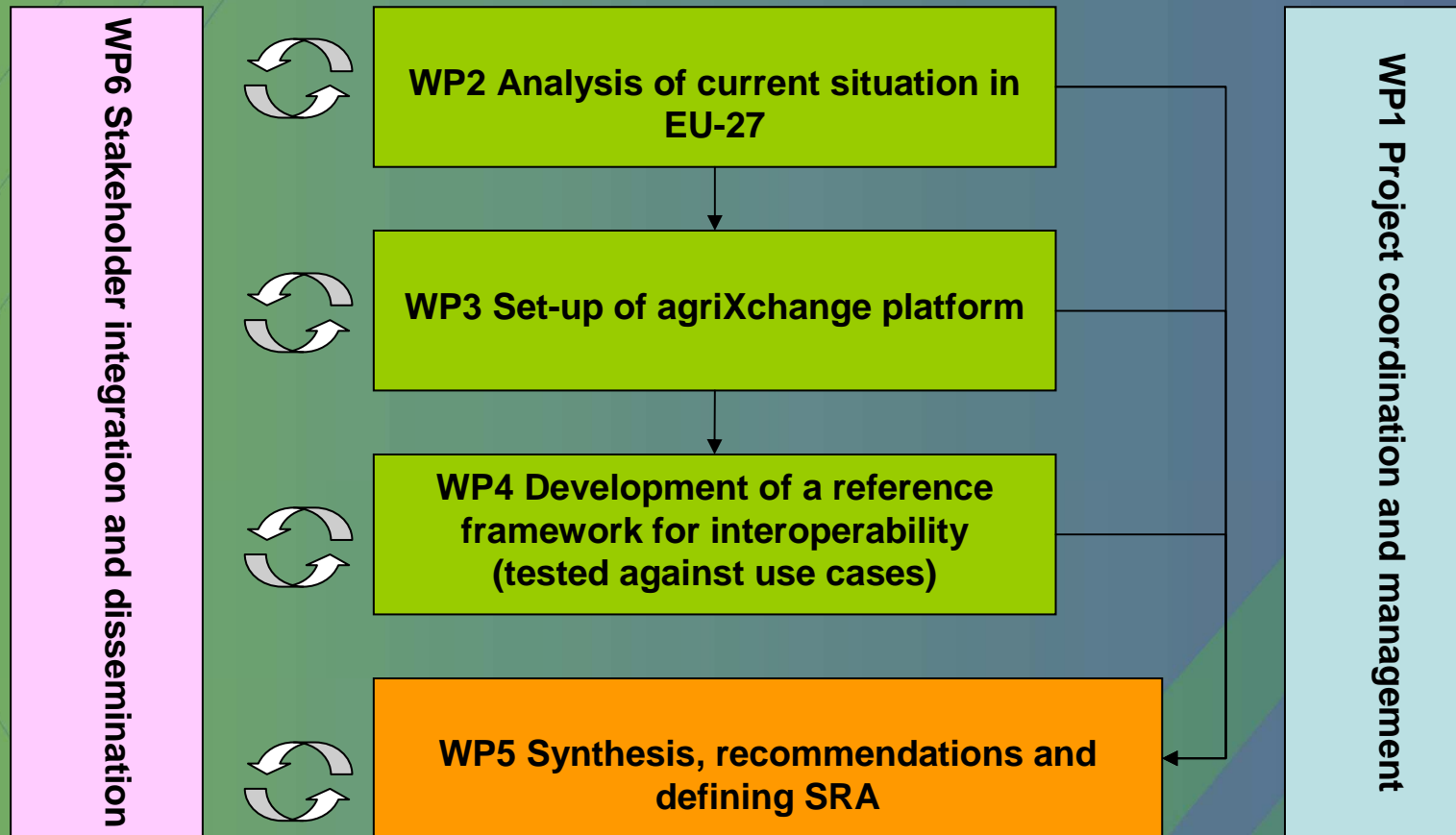
Group D **KTBL (DE)**
Daniel Martini

Group E **MTT (FIN)**
Frederick Teye

Group F **WRL WirelesInfo (CZ)**
Sarka Horakova



Work packages



WP2 State of the art

1. in depth analysis literature review
2. methodology for inquiry in EU countries
3. description of current situation in EU



Literature

Current and future problems, challenges and demands of ICT in agriculture

derived from the main issues on the European agenda, covering aspects:

- economic (market)
- environmental
- social



Template for importing sources

1. <Short source title>

<full title>

<authors>

<country of origin>

<internetsource> http://

<English version or abstract available>

WP2 coverage/classification

Business level	Coverage aspects	Agenda issues..	Agric. area
Farm	Economics	EU/European	Arable
Agri- (food) business	Environmental	National	Cattle
Agri- (food) chains	Social	EU Regional	Spatial
	<i>Common level</i>		Forestry
			<i>Common</i>

Keywords/issues in this source:

- ...
- ...

About.. (some more words to understand better)

Imported
www.agrixchange.eu



Analysis of literature to come, .. issues like

Profit	People	Planet
Production Costs	Rural vitality	Bio diversity
Logistics/ cross Border transport	Robotica	
	Farm Turism	Sustainable Forestry
	Local products/ Authenticity	
Export/ Import	Food Sustainab Feed	Pest/ disease & health control
	Animal Welfare	
Efficient production	Food Safety	Energy
Quality control/ systems	Education & innovation - open innovations	Transparency & traceability
Labeling		
Global Competition	Chain & risk management → EU Reguslations	Manure & mineral management



Literature – agenda (some points)

- 2013 reform of CAP
- Increase global food production + improve quality/food safety
- Sustainable (environmental) production

Focus of ICT-agri:

- Full traceability systems through value chain network
- Collaborative environments
- applications supporting management of rural sources
- Towards digital single EU market

Knowledge systems:

- Sharing knowledge/ collaborative environments
- Open source R&D



Literature – agenda (some points)

ICT impact by

- Internet of things
- Social Networks
- New architecture (SOA)

Requirements:

- Trust of information (and people)
- Standardisation and interoperability of data
- Availability/access to (fast) internet



Investigating EU27+Sw (1)

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.

EU
Report

Country
Reports

Level of abstraction:

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

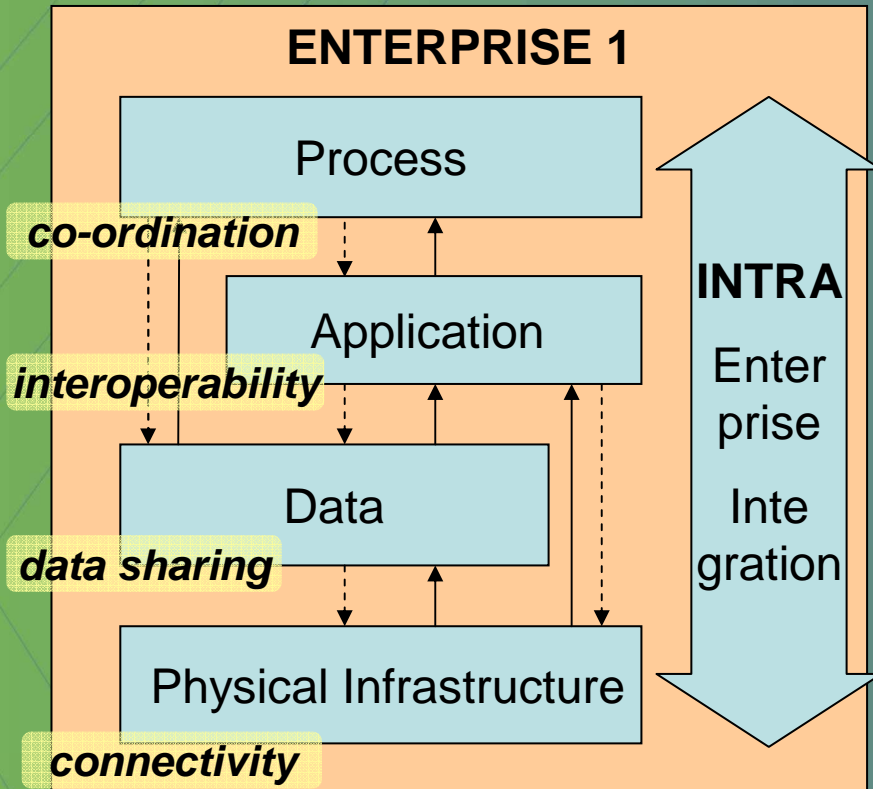


Investigating EU27+Sw (2)

- With special attention to the sectors:
 - Arable
 - Animal (cattle mostly)
(Forestry)
- Using the framework of data integration
- Done by 6 focusgroup leaders & expertteams



Template



(adapted from Giachetti 2004)

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



Data Exchange levels

Process

relevant processes

Application

kind of software, databases

Data (sharing)

*syntaxes, semantics, organization, maintenance,
availability, ownership*

Physical

*broadband infrastructure, network protocols, database
structures, information hubs/brokers*



Results - Agricultural characteristics

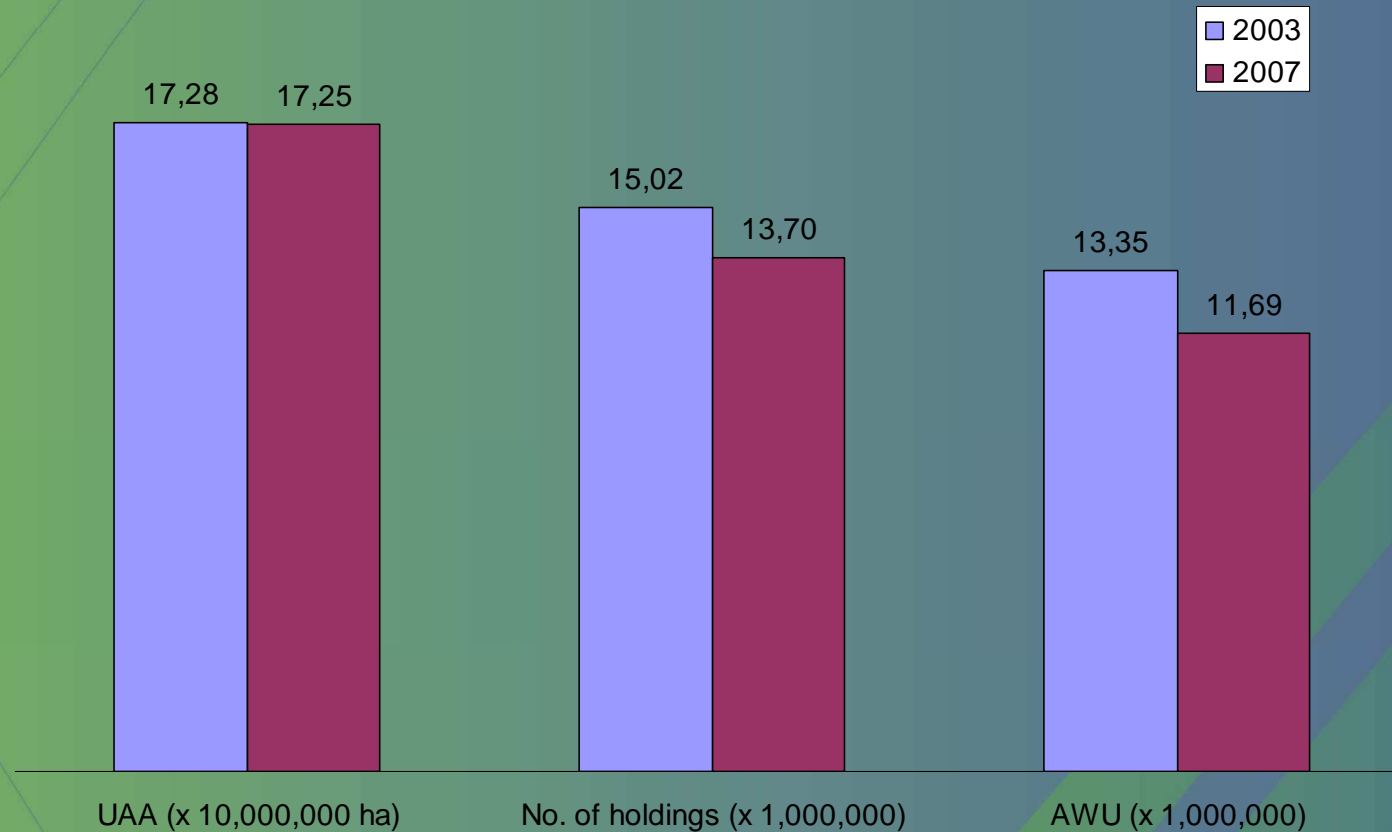
Trends

1. Decrease of number of farms
2. Decrease of labour / sometimes scarcity 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



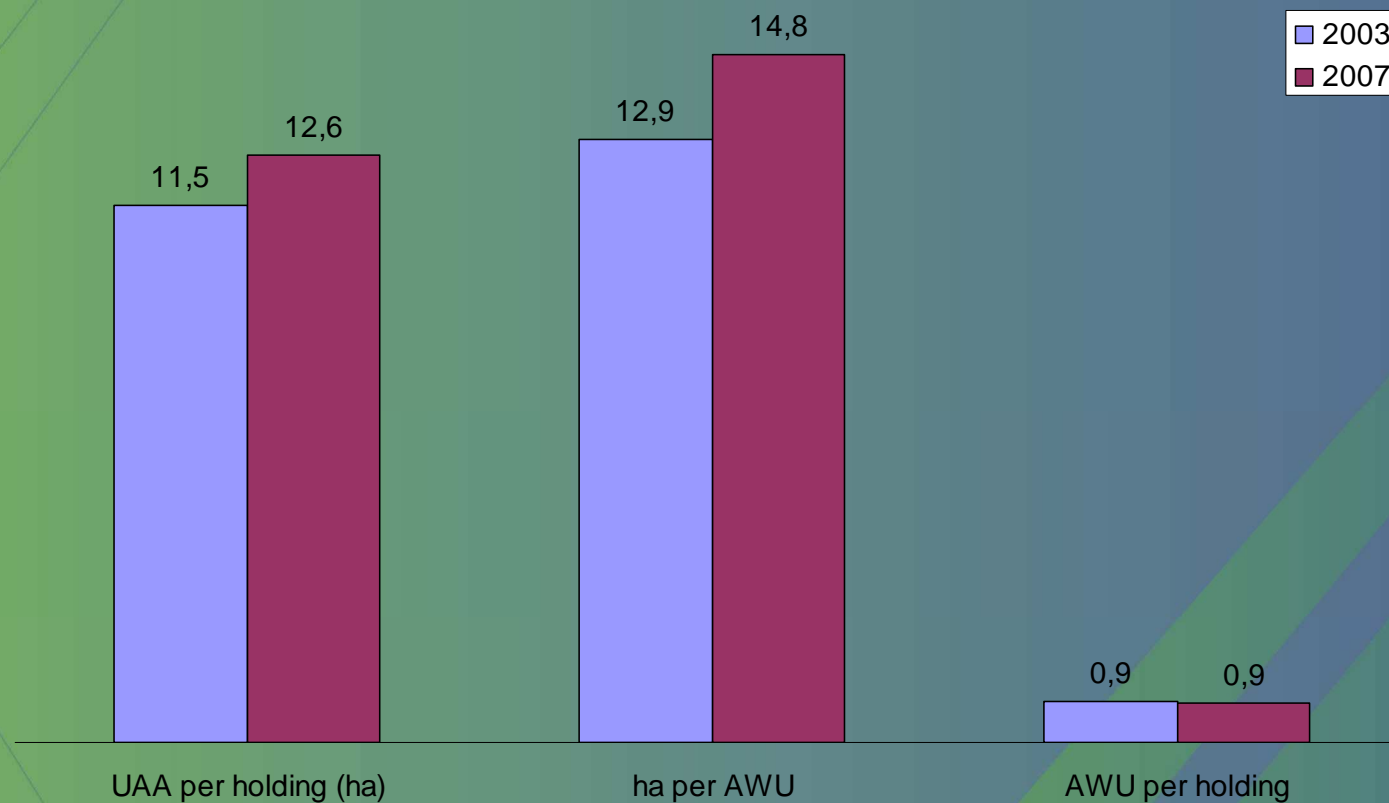
Decreasing number of holdings and labour

Trends EU-27



Upscaling and productivity

Trends EU-27



Arable - average size - Dairy



0 55 110

UAA per arable holding (ha)

0 55 110

Dairy cows per holding



Arable - big farms - Dairy



% of arable holdings > 100 ha



% of dairy holdings > 100 cows



Arable - small farms - Dairy



0 45 90
% of arable holdings < 2 ha



0 50 100
% of dairy holdings < 10 cows



Results — PC & Internet



30 60 90
% of households with internet access



20 50 80
% of households with broadband connections





0 50 100
% of farm holdings with PC





% of farm holdings with internet

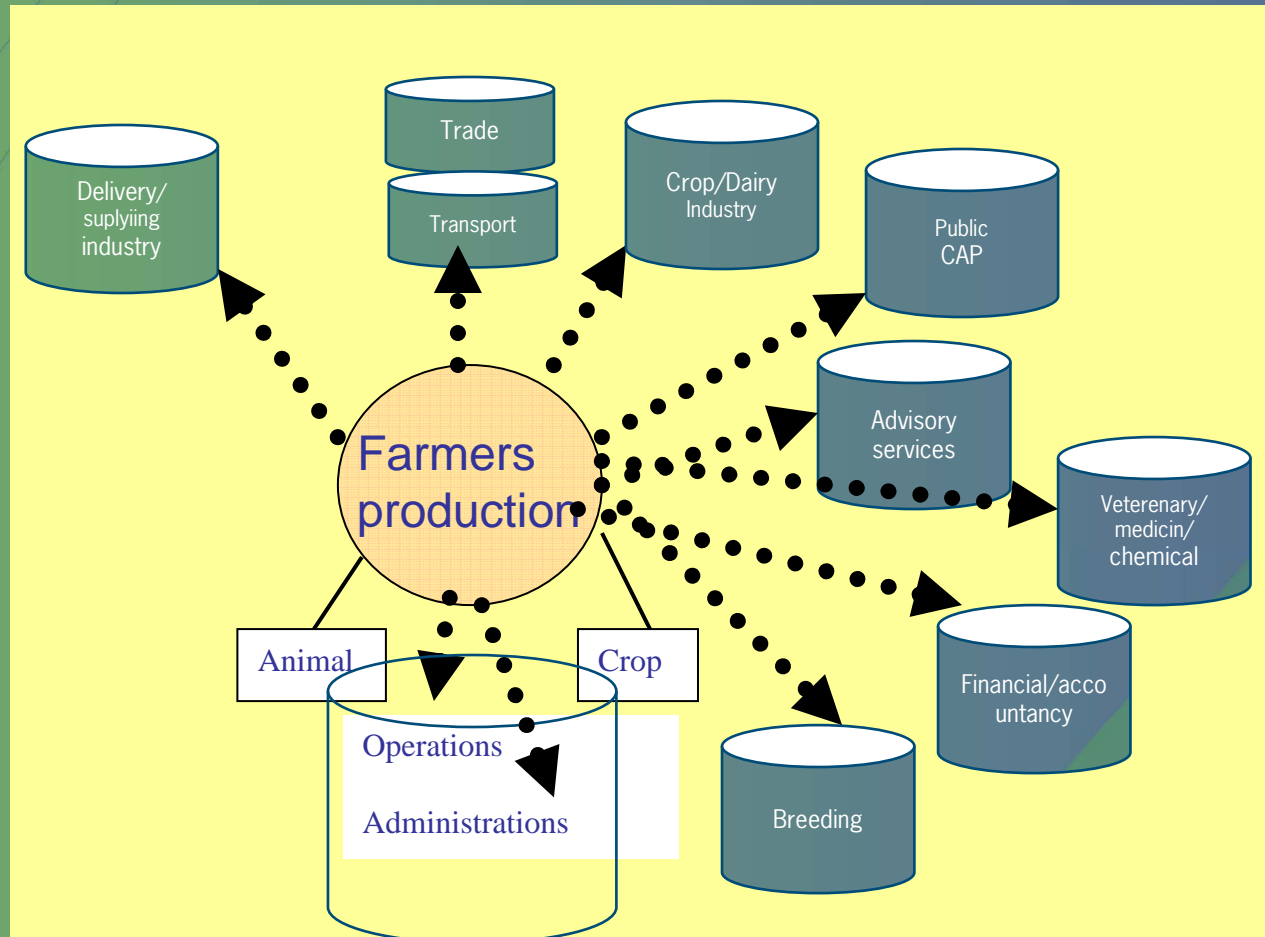


Data integration process general remarks

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



Processes, each domain its standardization (?)



Europe & regions .. remarkable area ICT issues

1. Focus on ICT highly related to basic local challenges
Irrigating/water, erosion, cross border trade, lack of market transparency.
2. Lots of / mainly small farms – no investments on ICT, no or less standardisation need
3. Fast upscaling areas. Relative new countries in agri IT
4. Countries with an standardisation past (traces of ‘old fashioned’ structures)
5. Countries with no or bad internet infrastructure



European regions division in areas, countries with

1. Mainly small farms, often poor countries. No ICT, no standardization
2. Aging, adapting ICT by farmers problematic, but less in N + W
3. Fast upcoming production areas = relative new countries in agri IT
4. Countries with an standardizations past (to deal with 'old fashioned' structures)
5. Countries with no or bad internet infrastructure
6. Private business involvement on ICT& standardization vs public
 - Business exporting the standards
7. 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 standard by CAP/Governments
 - Some shared databases and portals
 - Hardly integrated private systems
3. Rather good (Northern, CZ, UK, IR)
 - Some involvement by private
 - Some data dictionaries 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



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
- Like spaghetti

Next level

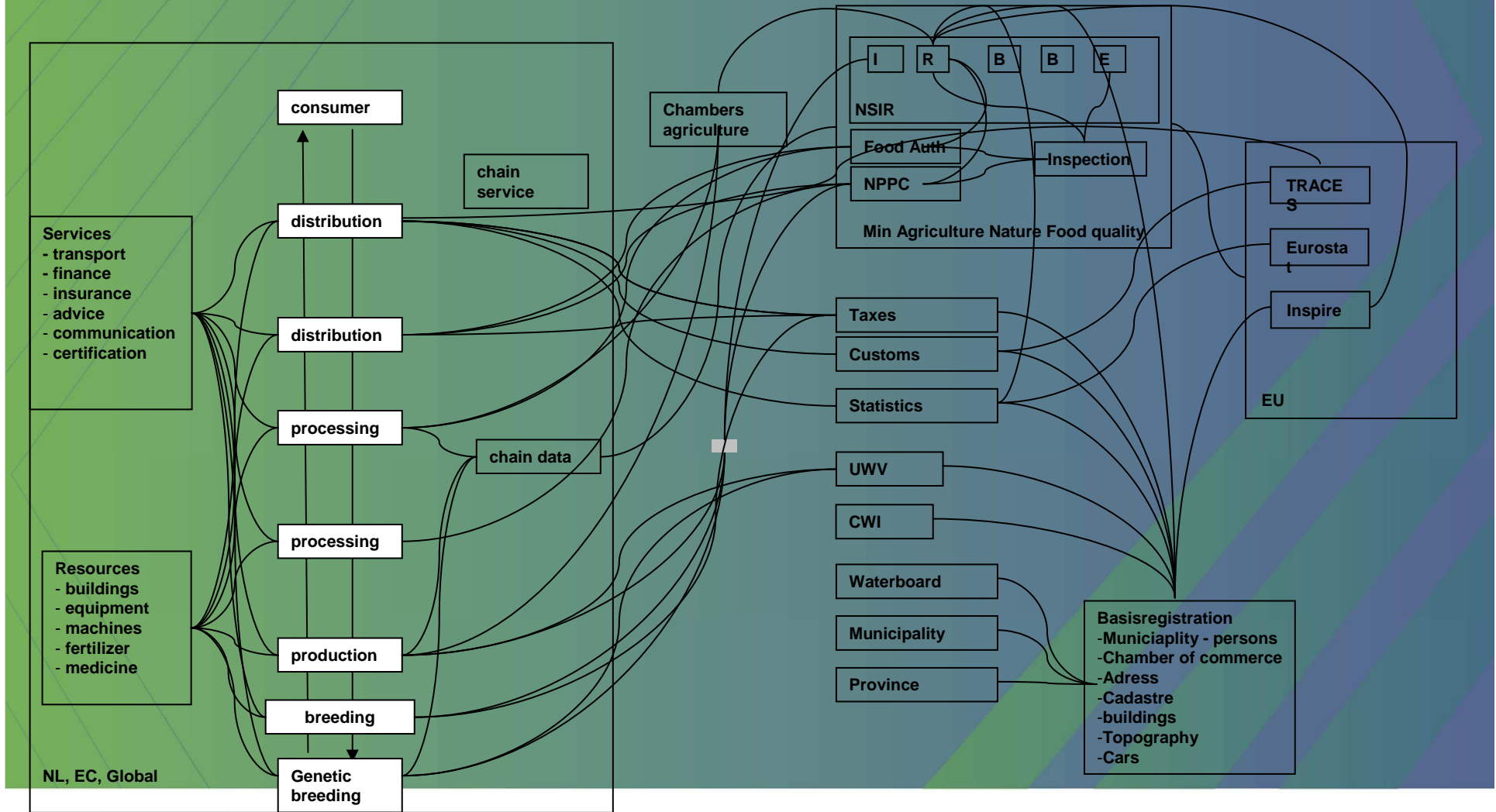
- Integrated business process models
- Private-public collaborations on shared data infrastructure.

Issues to come there

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

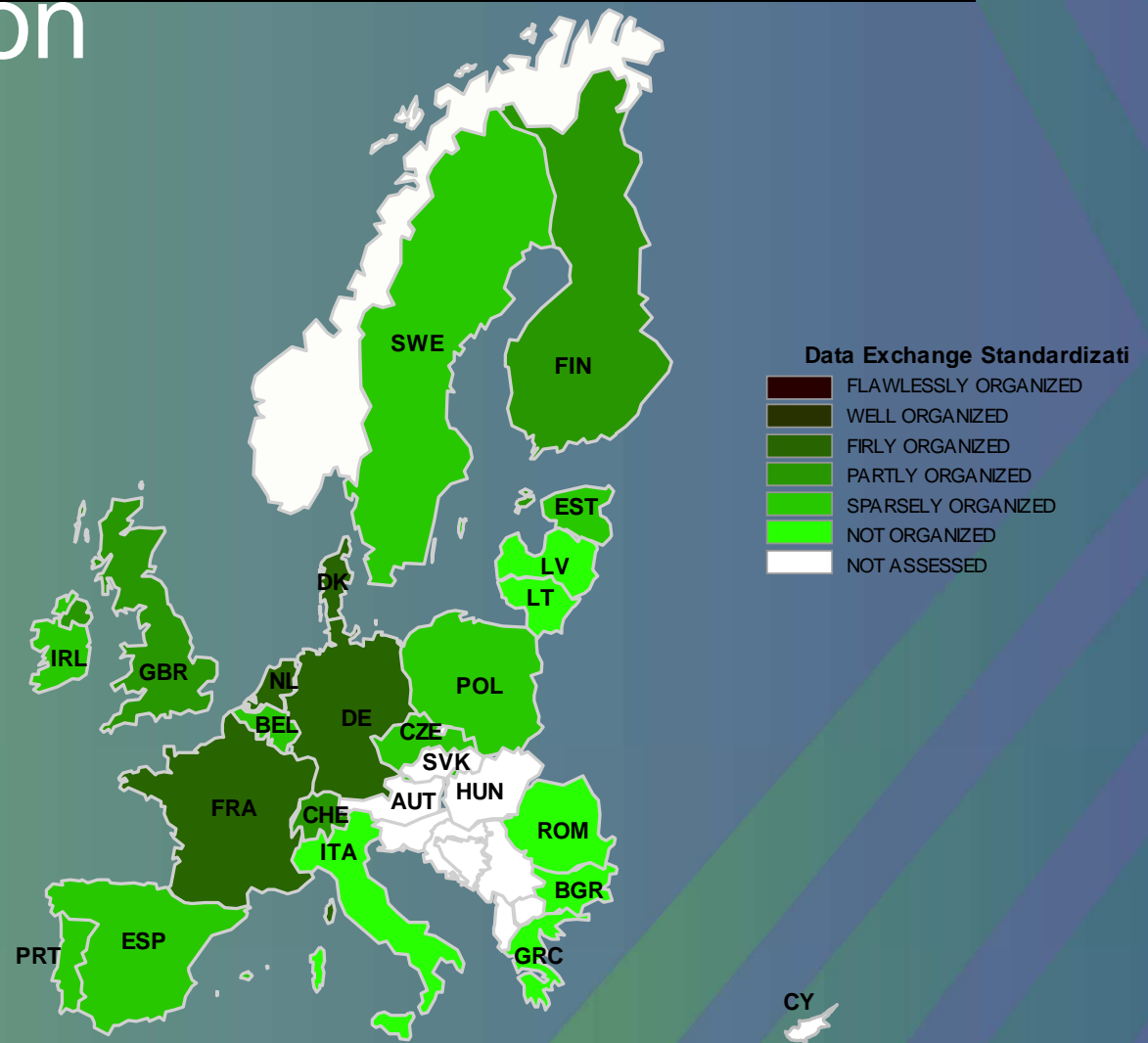


What a mess..



'Standardization level'

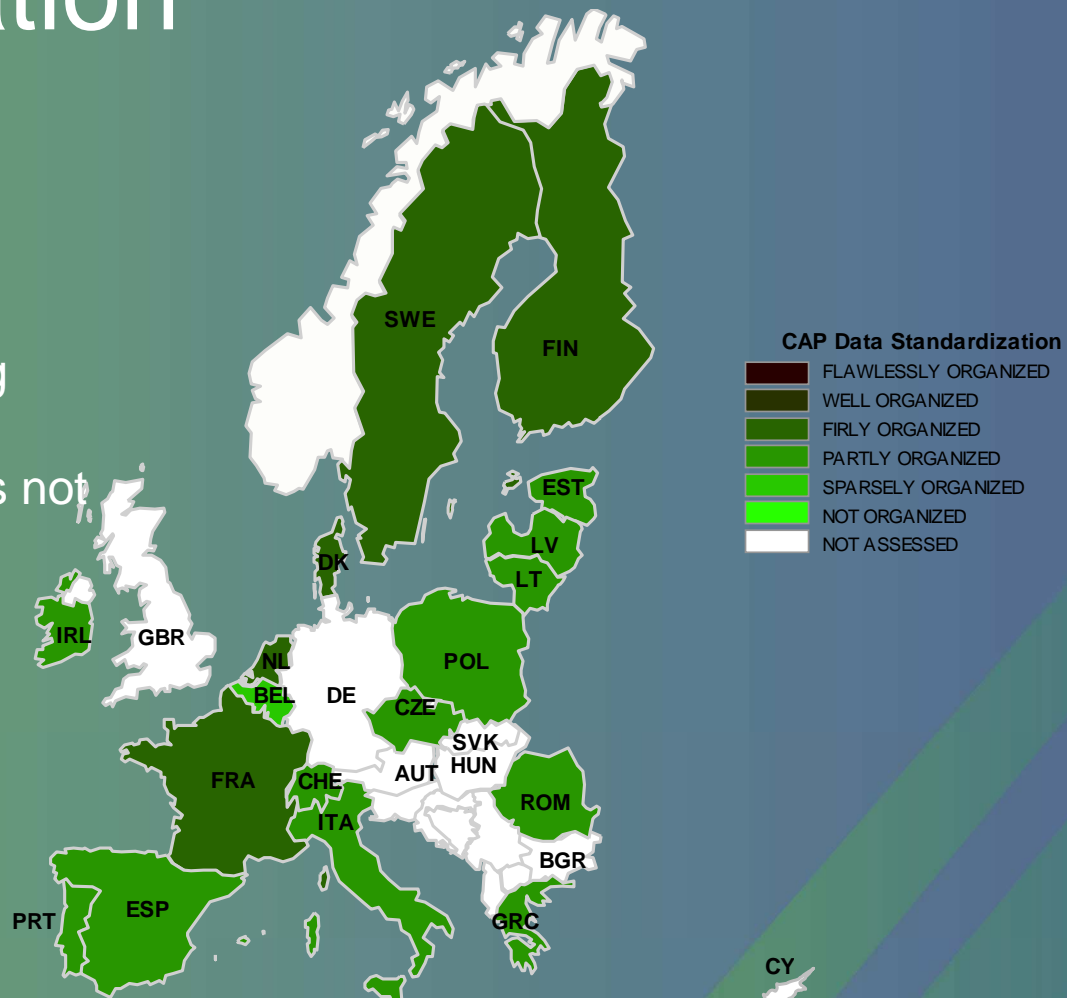
Communicating processes
Datadictionaries
Own and global standards



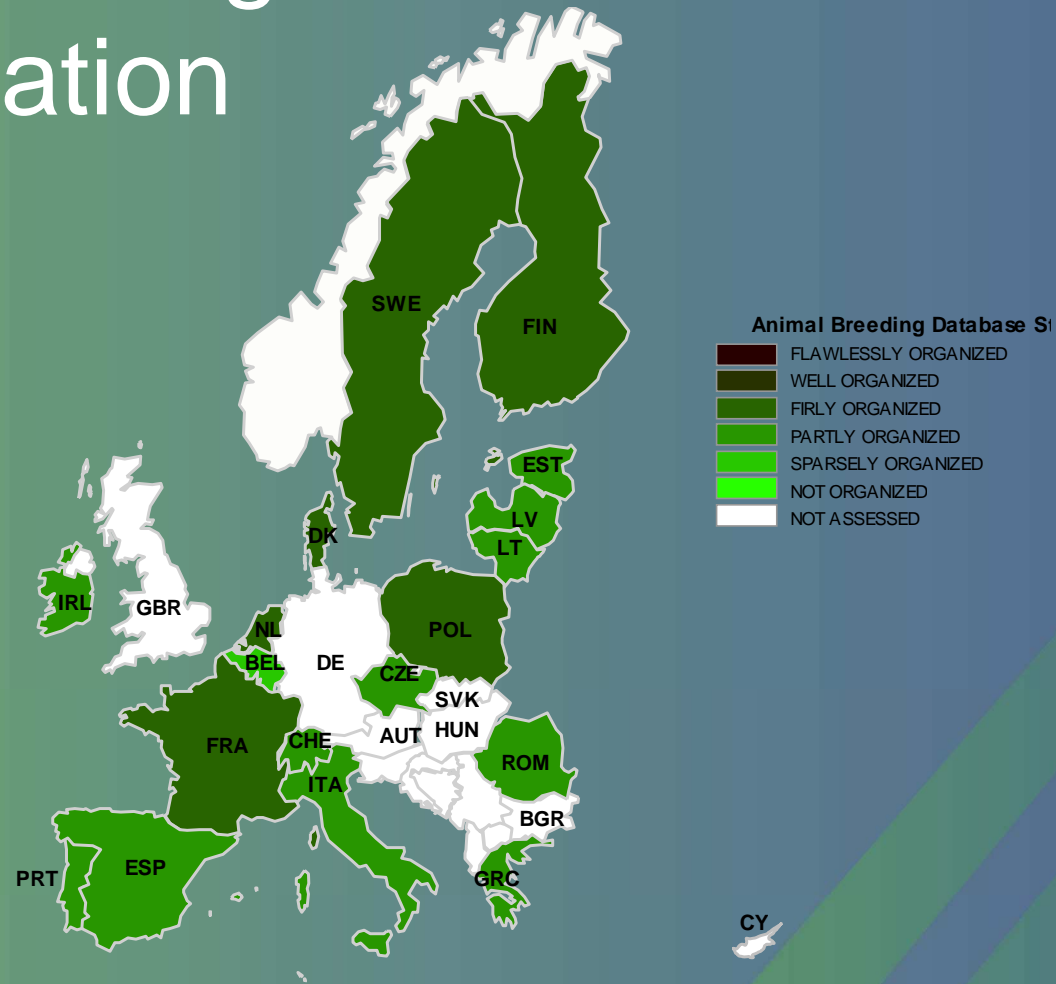
Standardization by CAP

Governments are leading

Some countries private is not following

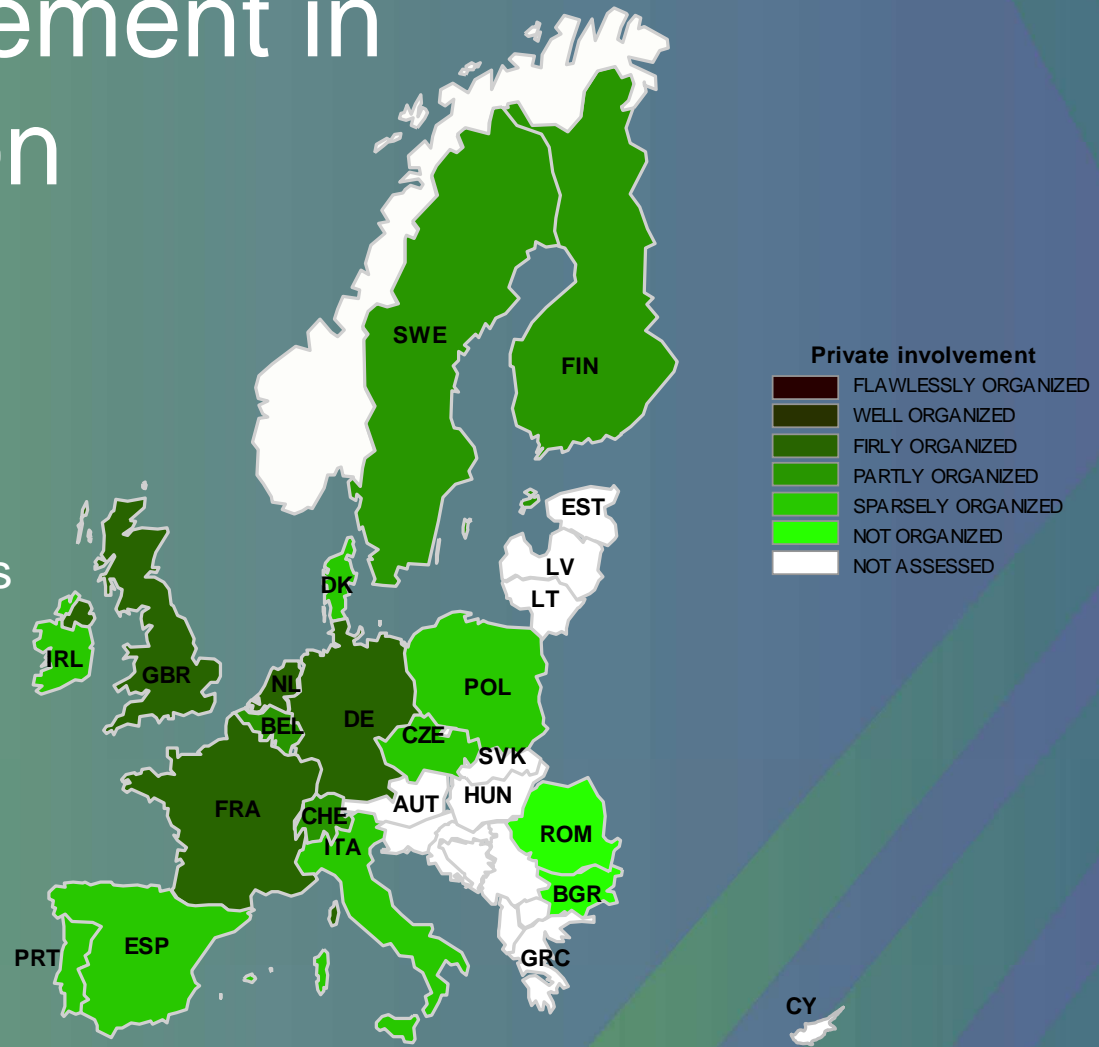


Animal breeding standardization

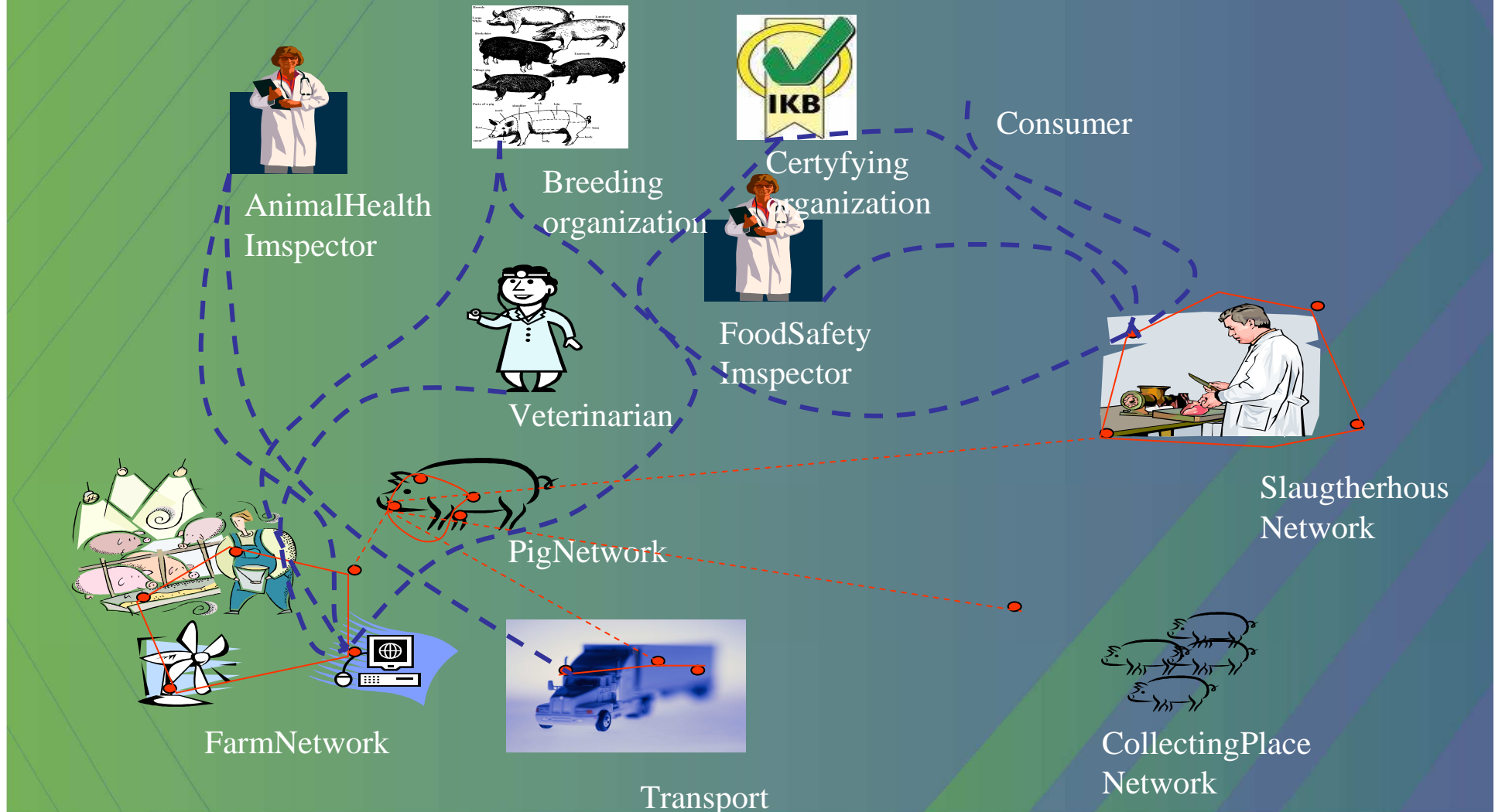


Private involvement in standardization

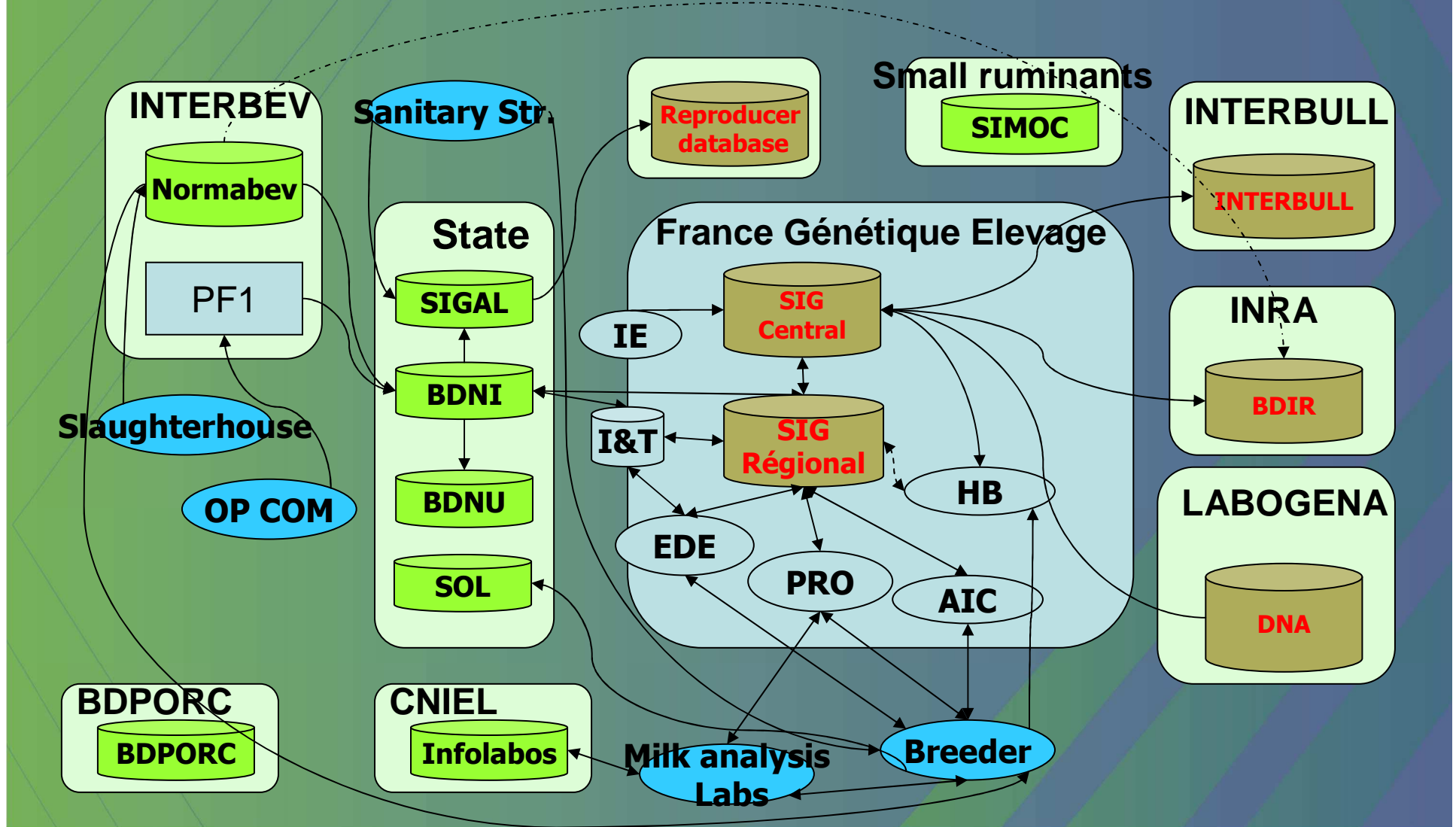
Commercial data interchange
Private service providers
Private brokers/hubs
Private standardization bodies



Dataflow NL/general..




Data exchange Animal (FR)



Integration processes/ centralized databases

Ireland

One Database, Many Partners
less duplication and cost for farmers



AI
Munster AI
1 - Dairygold
2 - Kerry
3 - SWS
4 Progressive Genetics
5 Dovea AI

Milk Recording
1 Dairygold
2 Kerry
3 SWS
4 Progressive Genetics
6 Arrabawn
7 Tipperary
8 Connacht Gold

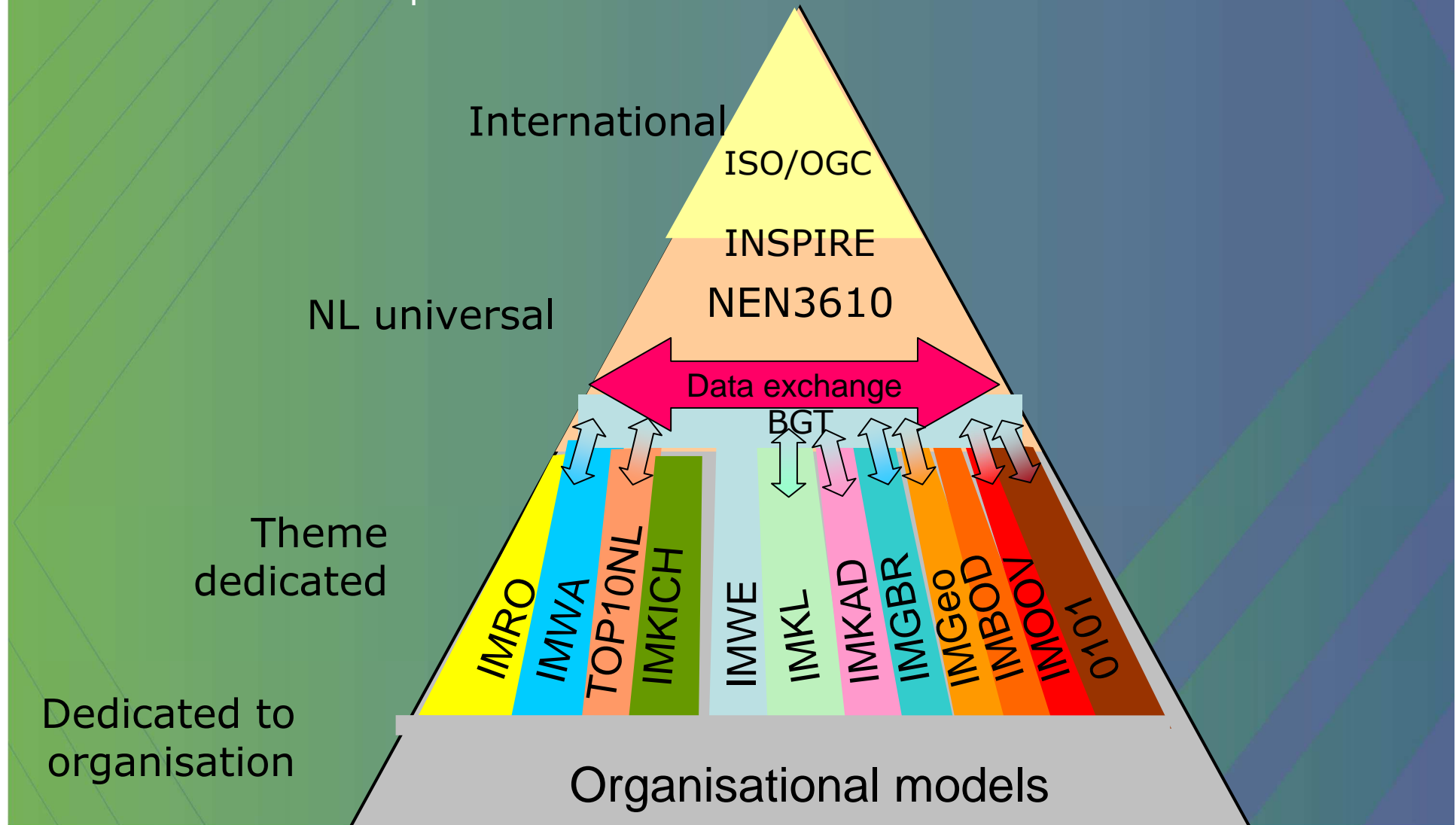
Farm Organisations
9 IFA
10 ICM5A

Herdbooks:
Holstein Friesian: 11
Belgian Blue: 12
Angus: 13
Aubrac: 14
Blonde d'Aquitaine: 15
Charolais: 16
Hereford: 17
Limousin: 18
Normande: 19
Parthenais: 20
Piedmontese: 21
Shorthorn: 22
Simmental: 23
Jersey: 24
Kerry: 25
MRI: 26
Montbéliarde: 27
Rotbunt: 28
Saler: 29
ICBF: 30



Structuring/integration GEO family

Source: Frans van Diepen



Next?

- All country reports
- Upgrading data form expertteams (starting today)
- Better analys

In the afternoon:

- Open space workshop on the agriXchange usecases

2011:

- Finalizing EU report

