



***New trends in data capture
and exchange
solutions between farms
and external partners***
French situation



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Béatrice BALVAY – René ROGNANT – David SAUNIER

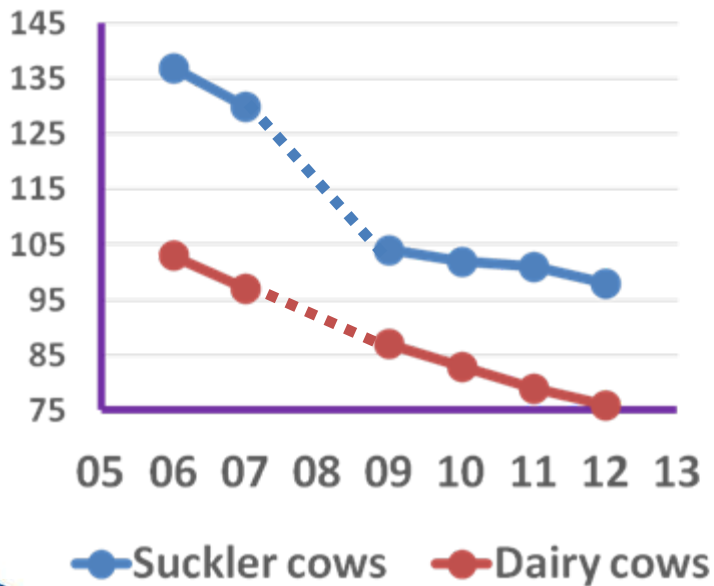
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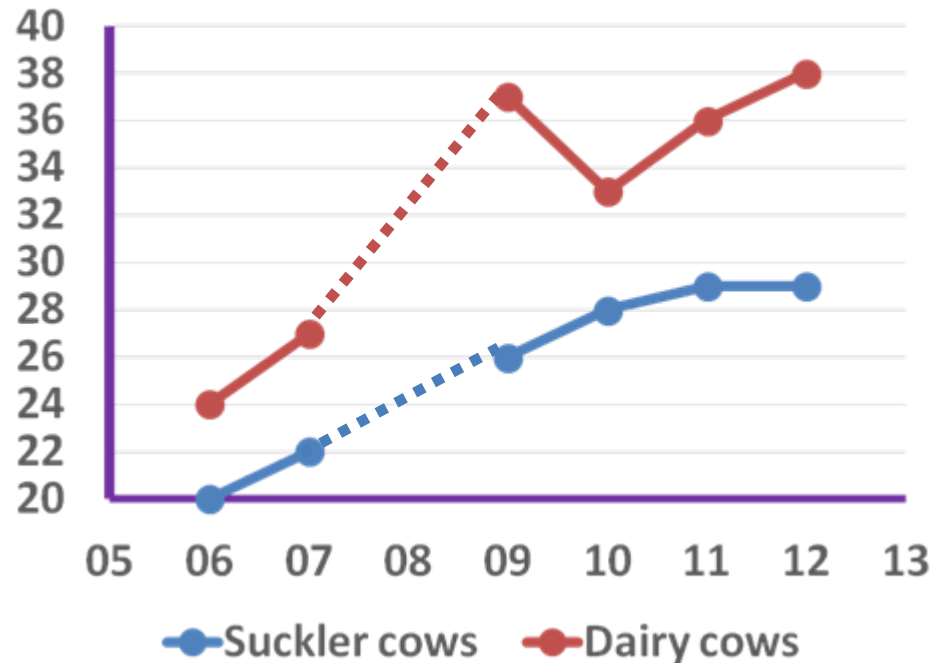


Breeders fewer but more technical

France: Nb herds > 5 cows (x 1000)



France: Herds over 50 cows (%)



Source : Institut de l'Élevage from *Identification National Database* + SSP



Use of new technologies

Automatisation

- AMS, milk meters...
- And tomorrow weighing for beef cattle

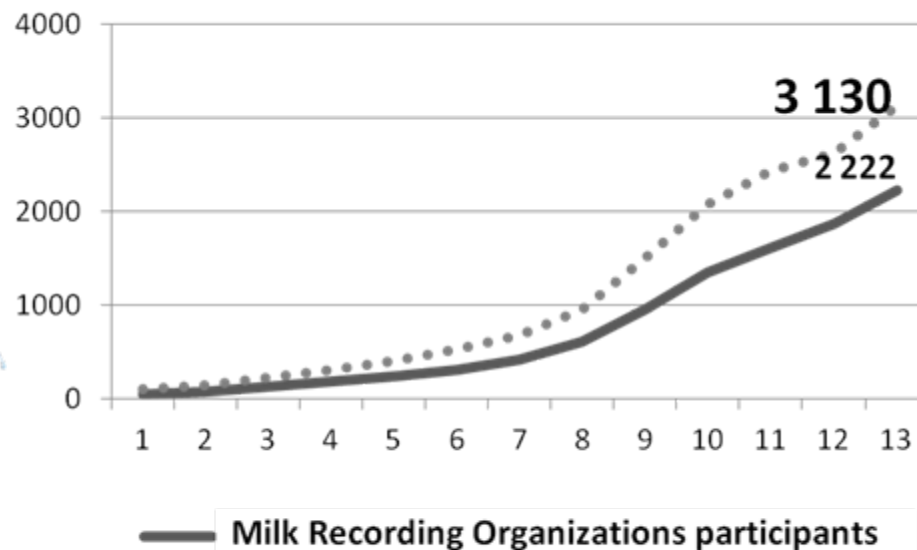


Sensors

- Animals / products
- Buildings
- Material



Dairy premises with at least one AMS



Source : Institut de l'Elevage, national database of farm electronic milkmeters audit.



Main breeders' partners

- ▶ **Public authorities:** Identification and Traceability data
- ▶ **Professional bodies:** Genetic and zootechnical data
- ▶ **E-services suppliers and Internet portals**

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Internet portals for breeders

- ▶ Provided by regional associations of professional bodies to consolidate different technical data
- ▶ Data notification tools compliant with regulatory obligations and managing also technical data
- ▶ Valorization of all data collected on the farm regardless who collected



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ORI-Automate

Maximize automation

Professional organization system

Automat computing system

Genetic Information System

National Software

Coherence warranty

Breeder's herd management software



Consolidation of private and collective data

Technicians' on field equipment



Optimized data exchange adapted to equipment evolution



No double records

Data exchange challenges for Genetic information system



EDEL Service

Facilitating exchanges between collective database and breeder's software

- ▶ A project managed **collectively** by genetic interprofession
- ▶ Open to cattle, goat and sheep (*shortly*) breeder's
- ▶ 2 main components:
 - **National standard message** for each species, elaborated in relation with software editors.

Based on XML messages now evolving to Web Services

- **National software** ensuring exchanges to and from database.

EDEL users:

(06/05/2014)



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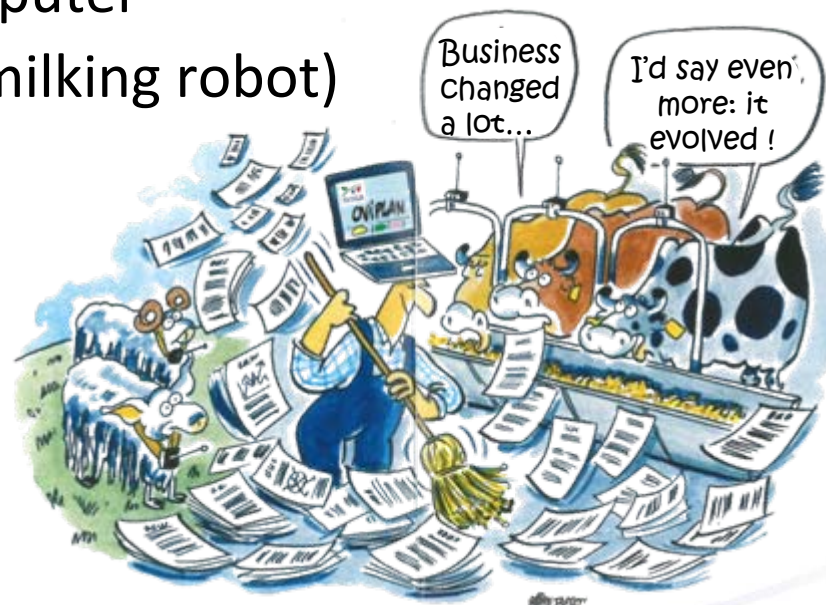
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RESWEL: Livestock Web Services Network

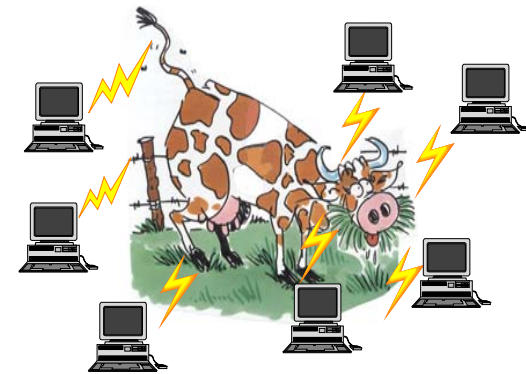
- ▶ **Web Service (WS)** = Normalized technique to make 2 computers cooperate
- ▶ **Exemples of computers involved in livestock WS :**
 - Breeder's desk management computer
 - Automat coupled computer (eg: milking robot)
 - Smartphone or mobile tablet (*technician's or breeder's*)
 - Enterprise server (eg: MRO)



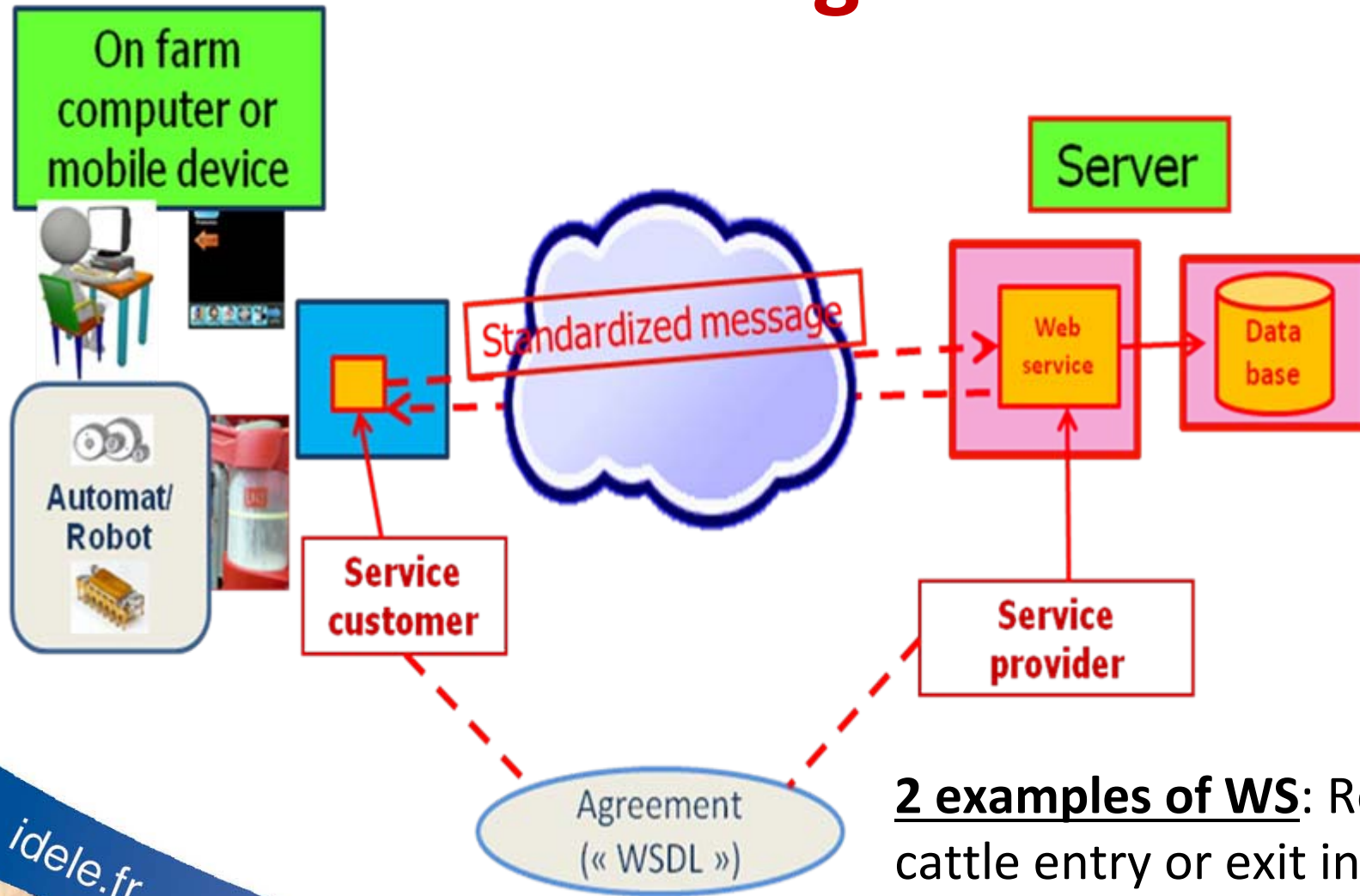
RESWEL: Livestock Web Services Network

- ▶ A frame elaborated *for WS implemented in all platforms constituting French livestock computers*
- ▶ **Network components:**
 - **National development quality plan** including SOAP format, Java language and common file naming's rules,
 - **Invocation mode, via WSDL** (Web Service Data Language) in standard format.
 - **Directory service** supported on the unique unique URL, any IT center the Web service to access is hosted in.

(Context of a network of several data centers cooperating together)



RESWEL global framework



2 examples of WS: Record of cattle entry or exit in central DB
Milk weight transmission from AMS to MRO DB

ORI-Automate: an interface in link with machines

- ▶ A strong demand for convergence of data exchange between herd management systems and MRO databases
- ▶ An import-export interface developed in relation with automats manufacturers
 - **From DB side:** XML standard format for import-export with MRO DBs
 - **From herd management side:** Interface accepts each existing format developed by manufacturers,
 - **Exchange in real time:** synchronization tools or gateway (FTP or WS) developed by all MRO platforms.

ORI-Automate

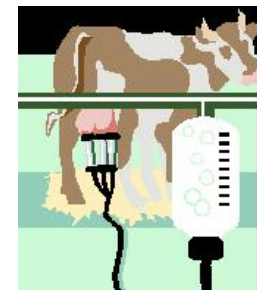
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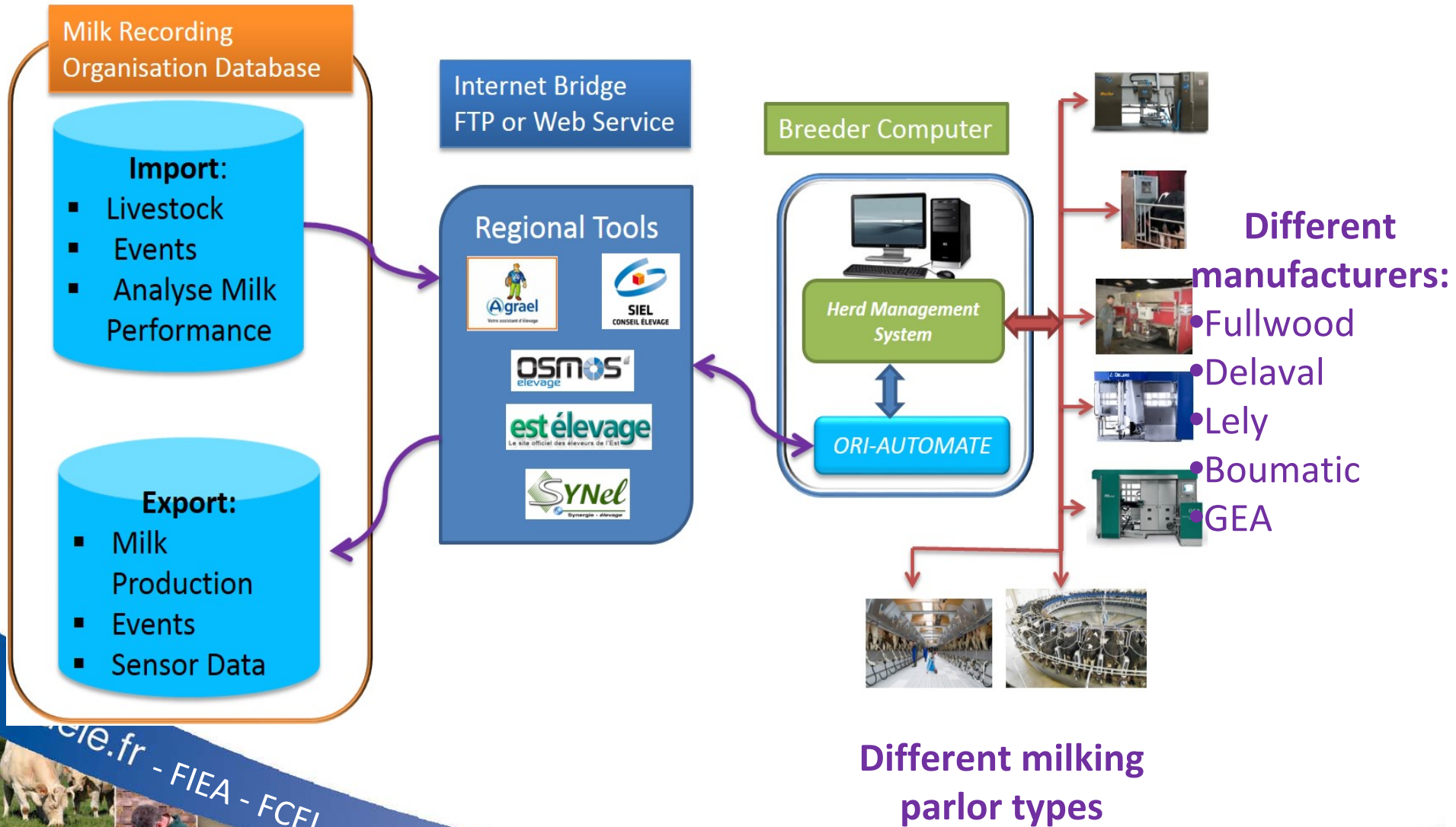


Machines initialized once: 600

Machines regularly updated : 150



ORI-Automate organization



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Conclusion : Standardization and contracting

► Automation and data management at the center of breeders' concerns

- Contractual components in projects define precisely rights and duties of each stakeholders about recorded data

► International flows of animals and material

- Data exchanges need to exceed single French context, and must be analyzed at international level.
 - Purpose of the ICAR working group "**Animal Data Exchange**" involved in exchange with AMS and milkometers whom work is supported by French organizations who also participate to it



Thank you for your attention !

With my 2 coauthors, we stay at your disposal.

- ▶ Béatrice BALVAY: beatrice.balvay@idele.fr
- ▶ René ROGNANT: rrognant@fiea.fr
- ▶ David SAUNIER: david.saunier@france-conseil-elevage.fr

