

# Implementation and maintenance of an ICAR data exchange standard

Presented by the ICAR Animal Data  
Exchange Working Group



# Background

- Historically milk recording data was collected on the farm by milk recording organizations on a monthly basis
- Collected data has resulted in significant advances in herd management and genetic progress
- New advances in on farm technology have led to explosion in on farm generated data
  - New data
  - Opportunity for more research and product development
  - How do we collect this data in a cost effective manner?



# Working group mission

- The objective is to establish direct, permanent, reliable, easy to implement and to maintain cost effective exchanges of large amount of data both ways; between equipment and external information systems and from equipment to external information.
- A data exchange in real time of large amount of data would allow:
  - Animal breeding on new traits
  - Improve animal monitoring by the aggregation of data from different sources: equipment, analysis laboratories...
  - Improve farm equipment calibration in order to get accurate measurements



# Stakeholders

- Dairy Producers
- Providers of on farm technology (parlor, feeding systems, heat detection, etc.)
  - Initial priority should focus on those providing parlor based systems)
- Milk recording organizations
- Breed registries
- Etc.....



# Components needed

- Data exchange standards
  - Define a starting point
  - Recognize these are evolving standards
- Requires a test platform
  - Data center for hosting
  - Software development company
- Certification process
- Maintenance
  - Input body to future data exchange standards, addressing specific IT issues, subject matter, etc.
- A website to communicate with participants
- Supporting resources
  - Funding

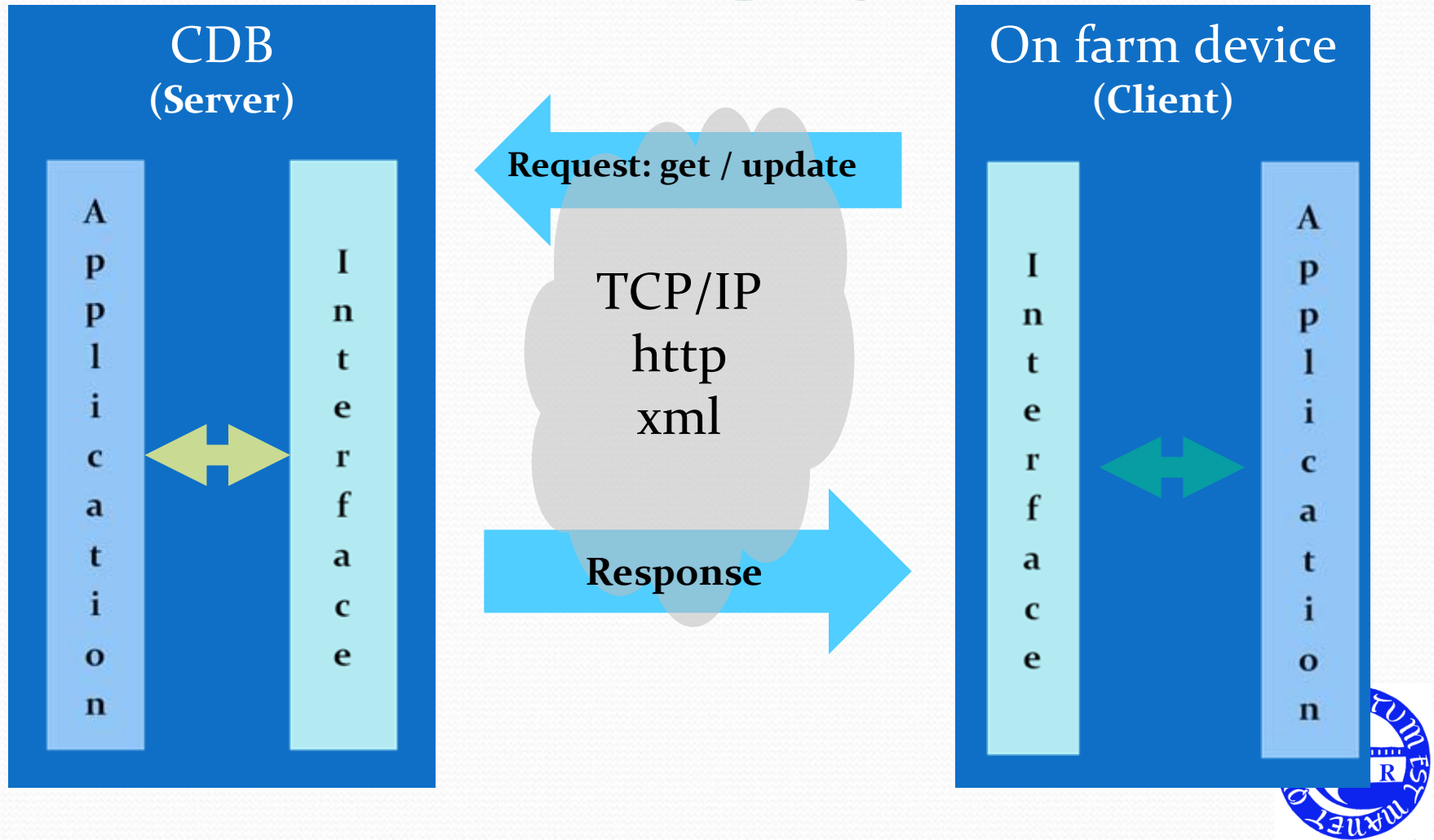


# Specifications and Implementation Guideline Version 1.8

- The outlined objective may be achieved by a framework consisting of:
  - An architecture to support data exchange
  - Standards for messages and data
  - Tools to facilitate its implementation
  - A reactive maintenance process
- The architecture is based on a service oriented approach where the equipment is the client of the external information system which is a service provider. This architecture may be implemented by using different information technologies which are specified by this document.



# Uniform exchange procedure



# Specifications and Implementation Guideline Version 1.8

- The standards encompass:
  - Business requirements to use the service
  - Business requirements to deliver the service
  - Business requirements for exchanged data
  - Semantic definition of exchange data as well as their cod set
  - Syntax specifications for the exchanged data according W3C, UNCEFACT and ISO
  - Interface specifications according W3C, UNCEFACT and ISO
- The tools to facilitate the implementation encompass:
  - A web site to download :
    - Files of xml data types (XSD files)
    - Files of web service specifications (WSDL files)
  - A test platform



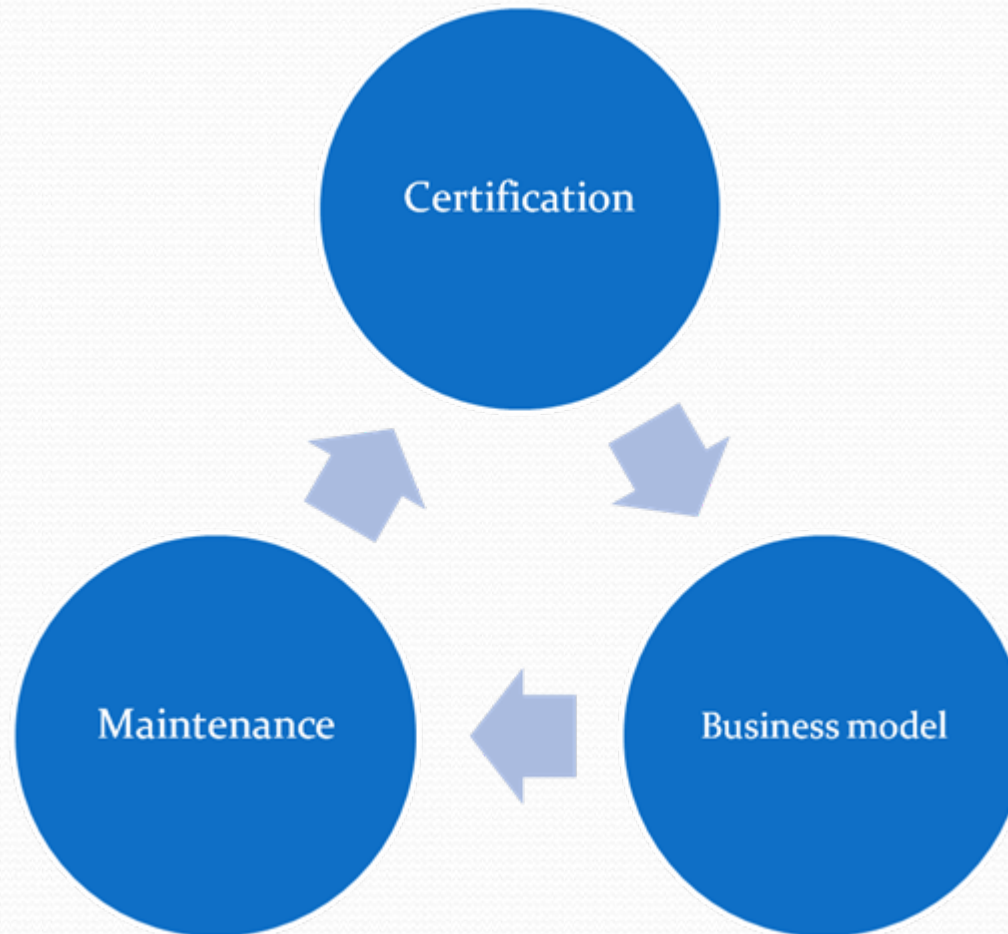


# Business content

Domain	Messages	Data flow direction	
		From farm	To farm
Milking	Milking result	Yes	
	Milking lab result		Yes
Animal data	Herd list		Yes
	Animal		Yes
	Arrival	Yes	Yes
	Departure	Yes	Yes
Reproduction	Heat	Yes	Yes
	Insemination	Yes	Yes
	Natural service	Yes	Yes
	Pregnancy check	Yes	Yes
	Parturition	Yes	Yes
	Abortion	Yes	Yes



# Overall view



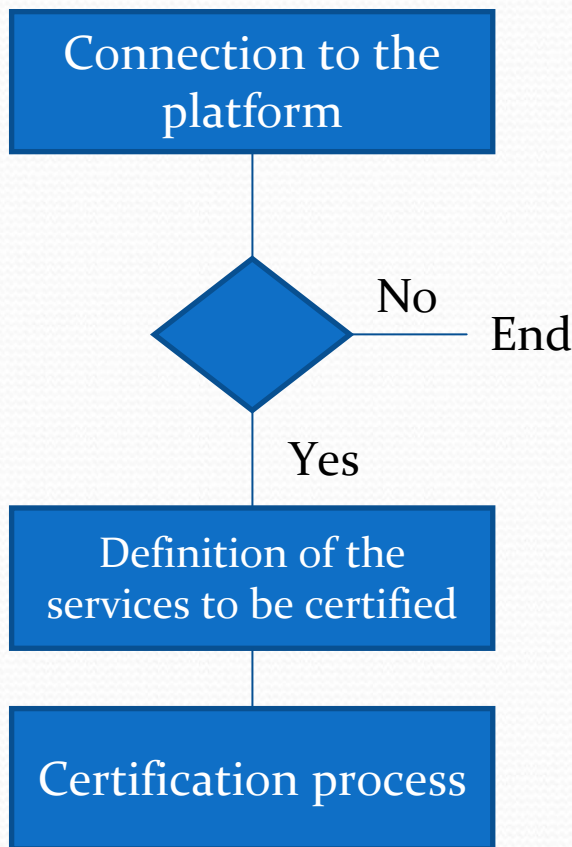
# Certification

- Only interfaces and connections; not for other purpose.
- Certification body
- Two levels of certification
- Complementary to national certification process.

Level	Description
1	Able to send and / or receive the messages corresponding to the defined set of services
2	Able to send and / or receive the messages corresponding to all the services



# Certification process



Objectives: information + promotion  
Open to any body.  
The name of the applicant is kept.

Agreement on the terms of certification and on the fees

The applicant defines the services to be certified, one or several



# Tasks of the certification body

## Basic Tasks:

- Develop, run and maintain the test platform based on ICAR specifications
- Publish certification requirements and a application platform
- Maintain the certification work flow
  - Organize the certification process together with attendee
  - Check the documents and supervise the test
  - Provide the certification
  - Publish the certification

## Extended Tasks

- Maintain the ICAR specifications in cooperation with ADE group
- Maintain the ICAR ADE website



# Business model

- Transparent principles + transparent implementation
- Goal : resources to support the ongoing development of a standard which allows to develop manufacturers and MRO business. Not used for other purposes.
- Based on certification:
  - Fee to get the initial certificate.
  - Annual fee to renew the certificate.
- Fee:
  - The fee should depend on the number of services certified, including a fixed fee for certification of all services.
- Fees used to cover the certification cost + maintenance process cost.



# Public website

- Publish functional and technical documents
- Share information on data standards
- Forum for communications between technical oversight committee and industry stakeholders
- Information included on the website would be:
  - Latest versions of XSD/wsdl/XML scheme's
  - Versions in progress
  - Information about the test platform
  - Oversight committee reports
  - Organizations who committed to use of the data exchange standards



# Thank You

For specifications, contact one of the ADE working group members.

