Animal Data Exchange Working Group Update

Co-Chairs: Robert Fourdraine and Bert van ’t Land
Status of Dairy Industry Technology

- Parlor systems
  - Milk weights, milking times, milk components

- Animal monitoring systems
  - Activity, Rumination, Health

- Milk diagnostics laboratories
  - Components, pathogens, pregnancy, diseases

- Genomic testing laboratories
Data Transfer Needs

• Modernize existing methods for data transfer
  • Volume of data (bigger farms)
  • Frequency of data transfer (monthly to weekly to daily)
  • Increase number of data items

• New data transfer methods
  • New data sources (new technologies)

• Increased user base needing data

• Developments in other groups
  (Health, sensors,..)
ADE Committee

• Robert Fourdraine, USA CRI (Co-Chair)
• Bert van ’t Land, NL CRV (Co-Chair)
• Johannes Frandsen, DK Seges
• Beate Maassen-Francke, GER GEA
• Michael Lynch, IRL ICBF
• Harm-Jan van der Beek, NL Uniform-Agri
• Tony Francis, AUS Datagene
• Robert Moore, CAN Valacta
• Damien Pachoud, CH Datamars
• David Bleloch, UK Shearwell Data
• Andrew Cooke, NZ Rezare Systems
• Sarah Goerlich, CH Qualitas Ag
• Sven Schierenbeck, GER VIT
• Juliette Leclaire, FRA Institut de l'Elevage
Sub Groups:

• Semantics/Ontology
  • Responsible for maintaining and enhancing a worldwide data dictionary

• Technical Implementation
  • Standardize data exchange in XML and/or JSON API’s

• Outreach
  • Tasked with promoting the standards and make people aware and stimulate new implementation.
Semantics/Ontology

• Extensive resource developed over the past 5 years

• Some manufacturers started using this as a resource, but not on a large scale

• Reasons for not implementing (surveys and discussions):
  • lack of familiarity
  • incompleteness (missing domains)
  • not implementable for Json/REST interfaces

• New desired Services:
  • Activity
  • Rumination
  • Feed/concentrate
  • ....
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<th>Messages</th>
<th>From farm</th>
<th>To farm</th>
<th>Version</th>
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<tr>
<td>Reproduction</td>
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<td>Natural service</td>
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<td>Pregnancy check</td>
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<td>Test day milking results</td>
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<td>Animal Health</td>
<td>Health Event (diagnosis)</td>
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Technical Implementation

• WSDL 1.8 & XML available, 1.9 in progress

• Assessment on different technical implementations, mainly in REST API’s (JSON)
  • NDX (Scandinavia)
  • ICBF (Ireland)
  • JoinData (Netherlands)
  • 365FarmNet (Germany)
  • Datalinker (NewZealand)
Outreach

• Recognizes that there are three distinct interest groups
  • Process systems (GEA, DeLaval, Lely, .....)
  • Milk Recording Organizations
  • Herd Management Systems (Valley Ag Software, Uniform Agri, ....)

• Differing interests and concerns about ADE

• Survey of interests groups to determine what the specific concerns are and what can be done to alleviate those.
Main concern: Collaboration process

• Innovation & Standardization are often in conflict
  • Agenda ICAR WG not insync with the different projects all over the world
  • We need collaboration instead of long waiting periods

• Possible solution: Open source development, sharing the work
  • Efficient handling of expansion proposals/ new branches
    ▪ Users must be able to add concept definitions themselves unofficially until they are merged to the officially validated version and tightened up to the standards
    ▪ contain definitions for sensor data as well as definitions for more static data (transaction messages).
    ▪ have good import and export possibilities (XML,YAML, SENML,...)
Next steps

• Proposal for toolbox/governance process (github?) to support further development of DataDictionary by independent project teams on new branches (open source development)

• Branches can be adopted in ‘official version’ ADE standards after review and agreement ADE WG (jan 1\textsuperscript{st} and july 1\textsuperscript{st})

• Besides XML also YAML definitions available

• Assess feedback from outreach efforts, possible consideration for developing coalition of MRO’s that will proceed with implementation
Questions?