



Animal Data Exchange Workshop

ADE implementation at
iDDEN

June 2, 2022

Streamlining data exchange between dairy herds,
milk recording organizations, farm service
providers, dairy equipment manufacturers and
on-farm software organizations.



Acknowledgement to my
iDDEN colleges and my
team at SEGES who have
made this possible

Perspective from a user



**Johannes Frandsen, SEGES,
PPM:**

Business responsible for Dairy Management System in Denmark for dairy farmers, advisors, veterinarians and other relevant stakeholders. Including:

- Central cattle database including the mandatory movement data to ministry
- Exchange of cattle related data with stakeholders across the dairy business
- Make the farmer happier and richer

Manager for NCDX Aps

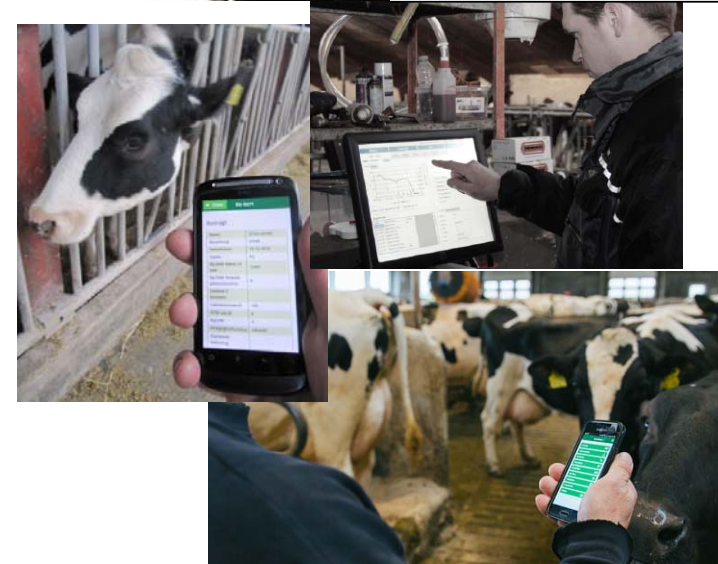
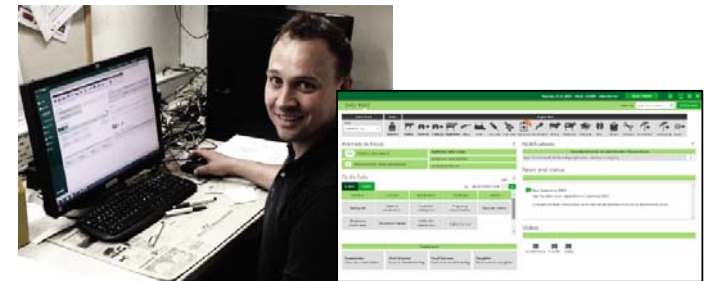
NCDX Aps representative in iDDEN

Member of the ICAR ADE WG

The Danish perspective

- We have seen the need for exchange of data for years
- We have been searching for the most cost-efficient way to make this happen
 - National
 - Nordic
 - And now international level
- We do get a lot of request from providers of on-farm systems to exchange data

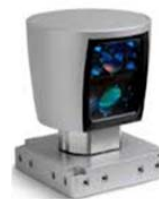
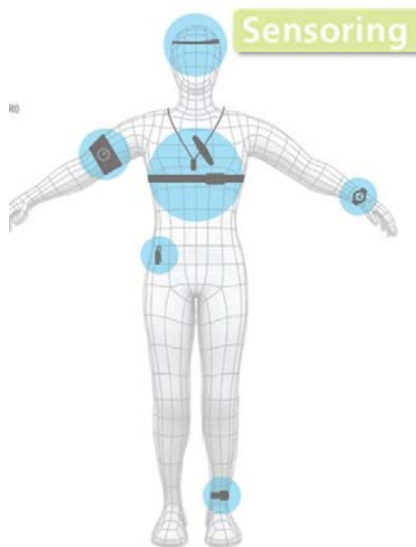
The management in dairy production is based on several integrations



Dairy cattle



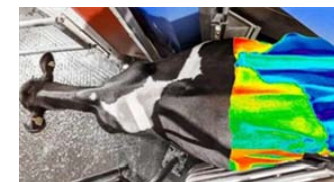
- Farms get bigger each year
- More need to replace (expensive) labor by technical equipment
- Equipment / sensors initially developed for use in humans are adapted to animals



(a)



(b)



iDDEN

Motivation for iDDEN



- Farmers want the data to provide value and to help them:
 - make informed decisions
- Often data is available but not accessible / usable due to:
 - Different definitions
 - Different protocols to store the data
 - Interfaces that can not communicate with each other
 - Different location of the data
 - On-farm
 - Central server based
 - Cloud based

Farmer owned service organisations



- Dairy farmers own many of their service organisations
 - Milk recording
 - Herdbook keeping
 - AI
 - Centrally operating data repositories
 - Genetic and genomic evaluation centres
 - ...
- Farmers have asked these organizations to help them make better use of the data that exists and potential data
- About 3-4 years ago a core group of people from these organisations started discussions about a joint effort

Current owners/shareholders (DDO)



- Shareholders

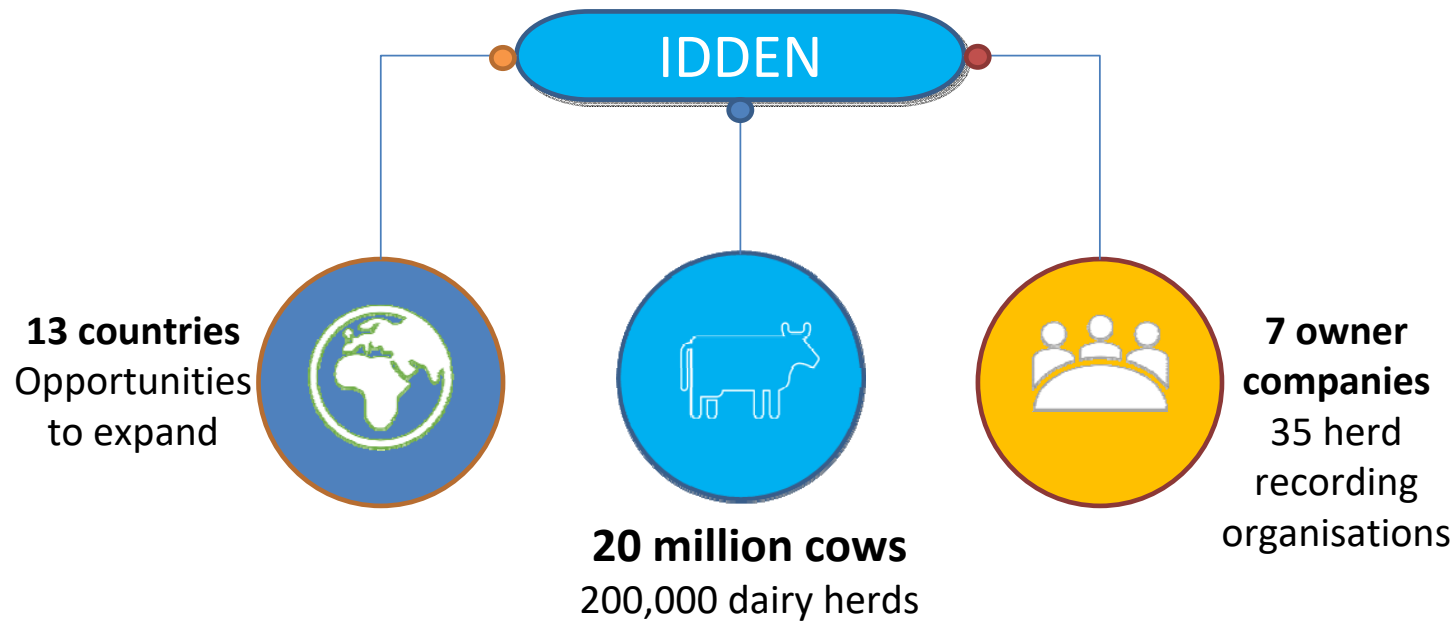
- CRV
- DataGene
- Lactanet
- NDHIA
- NCDX ApS
- RDV
- vit

Designated Area Responsibilities

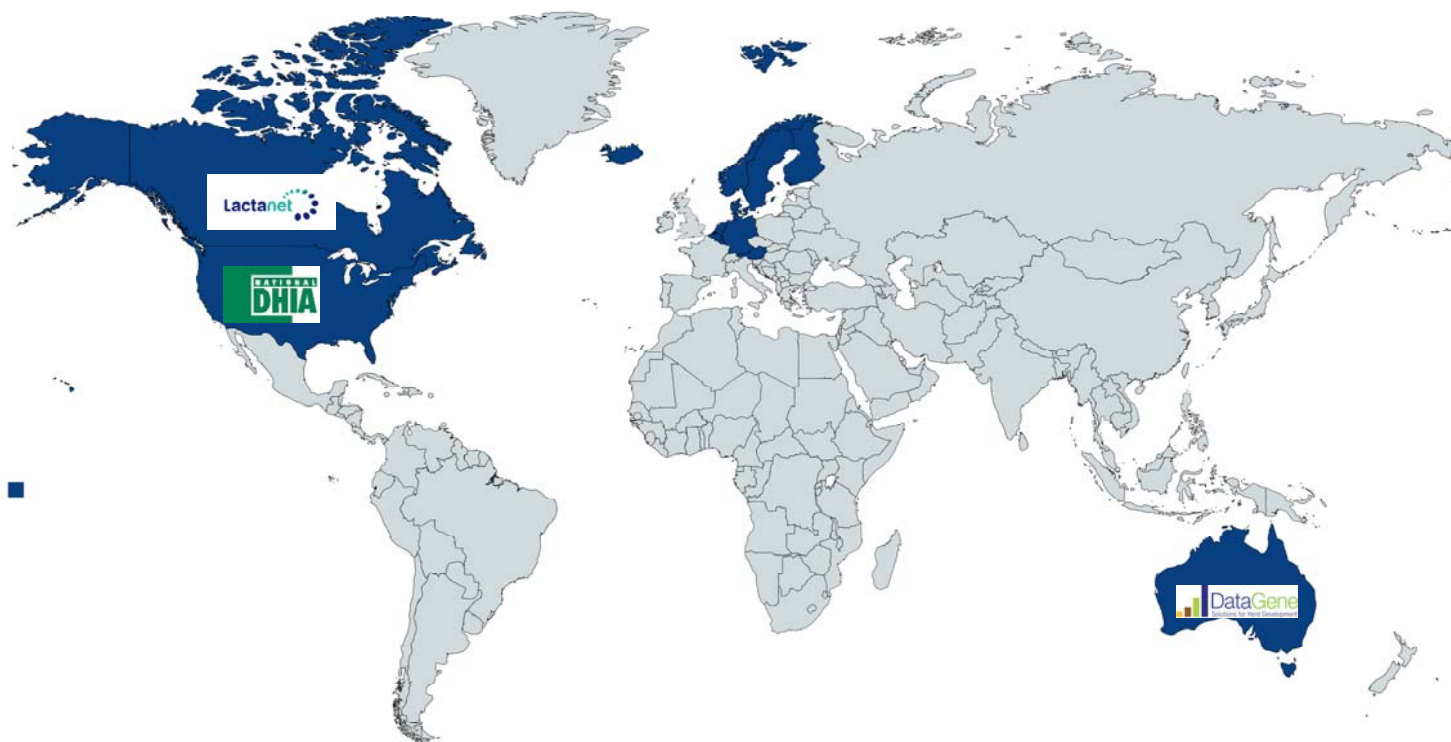
- The Netherlands & Belgium
- Australia
- Canada
- USA
- Den, Ice, Fin, Nor, Swe
- Austria, Germany
- Germany, Luxemburg

- iDDEN was created by the partners as a GmbH (limited liability company) under German law on May 6, 2020,
- Founding Managing Director → Reinhard Reents

Worldwide Potential



Current shareholders



Created with mapchart.net

Scope of iDDEN



- Data definitions are based on the ICAR ADE standards as much as possible
 - Prepared to establish new data transfer protocols as required
- Restrict to the technical part of data exchange
 - Partners that want to use iDDEN need to agree (between them) which data they want to exchange and under which conditions
- No data storage within iDDEN
 - Only temporarily to repair technical interruptions
 - Log files to help the customer to monitor the data exchange
- iDDEN shareholders want to make sure that they can enhance, modify and update the data exchange hub as needed
 - Need to 'own' the hub

Technical implementation



- Did an analysis of options to provide a solution that enabled iDDEN to reach the desired goals
 - ‘Develop or buy’
 - Evaluation of three existing systems
 - Costs and time to market for an own development
- Decided to purchase the data exchange system that was established by one of the shareholders, i.e. NCDX
 - Built with up-to-date technical features
 - Was developed under the clear goal to work multi national
 - Technical provider was prepared to expand, house and operate to hub in a professional technical environment
 - NCDX a system which today is used by **more the 1500 farmers** using it daily

→ Mtech as technical provider for iDDEN
- Project agreement
 - To implement the ICAR ADE Guidelines and standards
 - Connect to cloud based repositories

Data Exchange on line – the goal



iDDEN Today

Data exchange partners

Milking Equipment



Sensor data, activity data



Animal data
Kg Milk
Fat & Protein
SCC
Flowdata
Sensor data
Kg feedstuff

Animal data
Activity
Ruminating
Movement
Standing/laying time
Health data

Lab

- Milk
- Feed stuff
- Genomic selection



Milk analysis
Feed analysis
Genomic analysis

Feeding registration, feed stuffs



Feed rations
Kg loaded per feedstuff
Kg unloaded peer group
NIR

iDDEN Data – which data are regulated through an agreement



iDDEN
The transparent dairy data exchange network

Herd Data/ Farm User Data

Insemination

Calving

Pregnancy

OEM Data

Milking speed

Daily milk
volume

Other
device data

DATA processed,
generated by OEM

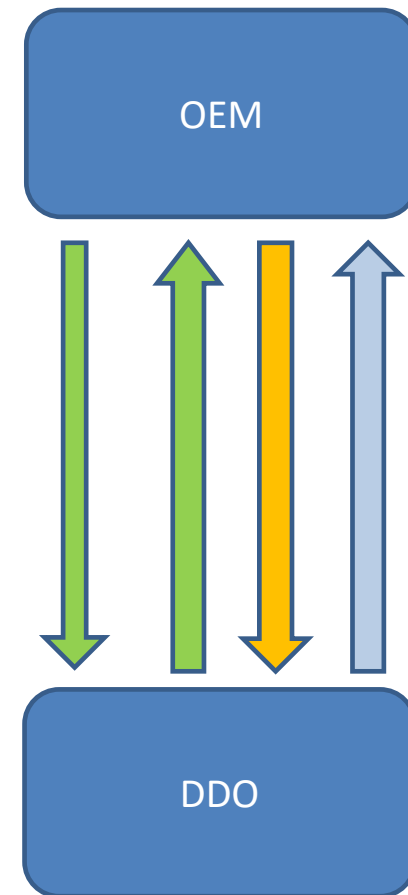
DDO Data

Projected
lactations

Cell count,
Milk Urea

Breeding
values

DATA processed,
generated by DDO



Experiences from using NCDX system



Advances

- MRO (milk recording organization) / DDO (Dairy Data organization)
 - Data for milk recording
 - Data for breeding evaluation
 - Data for decision support
 - Only one integration (there will be some minor extra work pr OEM)
- OEM (management system in connection to on farm equipment)
 - Only one integration (there will be some minor extra work pr MRO/DDO)
 - Maybe even better market position
 - Data back up
- Farmers
 - Data only have to be recorded once
 - Better data - Les bugs in data
 - Better decision support on more data from management systems
 - Easier daily routines – les trouble

SEGES usage of NCDX data exchange



How we use it in the SEGES management software

- Cow card with detailed information on every single animal
- Supportive lists, such as “drying off”, “pregnancy check” and “New calvers check”.
- Reports on performance
 - Health
 - Reproduction
 - Milk production
 - Feeding

The module provide all necessary information for optimizing the daily task toward health and reproduction.

The screenshot displays the iDDEN software interface for a user named John Farmer on Tuesday, 13.12.2016, managing herd 123456. The interface is divided into several sections:
1. **DAILY TASKS**: A top navigation bar with a search for cow information and a 'Find animals' button.
2. **Registration**: A horizontal bar with icons for various tasks including Calving, Incoming, Outgoing, Slaughtering, Killing, Death, Treat, plan, Treat, other, Veterinarian, Insemination, Mating, Pregnancy, Drying off, Hoof, Weight, Castration, Secondment, Home going, and Export.
3. **Animals in focus**: A section with filters for 'TODAY'S TREATMENTS' (0/0) and 'OBSERVATIONS FROM SMARTKOEN' (0), and a list of categories: REPRODUCTION COWS, REPRODUCTION HEIFERS, and HOOF FOLLOW-UP.
4. **To do lists**: A calendar view for the week of 12-16 DECEMBER 2016. Tasks are listed by day: Monday (Drying off, Pregnancy check cows), Tuesday (Cows to veterinarian, Move from heifers), Wednesday (Cows for calving box, Heifers for calving box), Thursday (Pregnancy check heifers, Calves for sale), and Friday (Move to heifers).
5. **Notifications**: A message stating 'Your registrations do not match the one of the counterpart' and 'Buyer has not made the incoming registration - check your outgoing' with a count of 1.
6. **News and status**: A section titled 'New features in DMS' with information about veterinary registrations and welfare evaluations.
7. **Video**: A section with icons for 'Key performance', 'To do lists', and 'Feeding'.
8. **Ongoing tasks**: A bottom section with tasks for 'Inseminator' (Check for insemination), 'Hoof trimmer' (Cows for hoof trimming, Heifers for hoof trimming), and 'Slaughter' (Mark cows for slaughter).

Key Performance Indicators



Daily update on milk production, reproduction, health and feeding. Giving an important overview.

Key Performance Indicators

Topic	Status	Key figure (unit)	Achieved	Alarm limit	Reporting period
Milk	✓	ECM delivered (kg/day)	11,713	Min 10,942	Latest measurement
	✓	Milk yield per lactating cows (kg ECM/day)	37.1	Min 35.1	Latest measurement
	●	Milk quality (numbers of deductions)	1		Last 7 days
Reproduction	✓	Inseminations of cows (numbers)	14	Min 4	Last 7 days
	●	Inseminations of heifers (numbers)	1	Min 2	Last 7 days
	✓	Not pregnancy examined cows (numbers)	0	Max 0	Last day
Health	✓	Disease treatment, cows (numbers)	5	Max 5	Last 7 days
	✓	Dead animals (numbers)	0	Max 0	Last 7 days
Feeding	✓	Energy efficiency (%)	103	Min 93	Last feed control

Manage your
production like
you manage
other business

Status for iDDEN to day



- Update to the current ADE standards are done
- ADE standard is a working standard – which means the different users give input to improvements
- Good experiences with dialog with the ADE Technical group
- More of the shareholders have started the integration to the iDDEN Hub
- Several Customers have shown their interest – and some of them have started their integration
- SEGES and one bigger player are starting test in production is in June 2022

Summary



- iDDEN is a data exchange system based on actual technical standards:
 - *On farm data*
 - *Cloud based data repositories*
- A sound technical solution is complex and requires a professional service partner
 - *iDDEN is supported by Mtech (Finland), an experienced agricultural software service provider*
- Uses up to date authentication systems to allow secure data exchange mechanisms
- Owned & governed by a consortium of farmer-controlled member organisations from different countries
- Farmers retain control of their data – they must authorize access
- Interest of many OEMs because iDDEN can solve their problem with numerous costly national interfaces
- Interest from other MROs/DDOs and Farm Service Partners, e.g.
- **The ADE standards have proved to be useable in real life**



THANK YOU

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