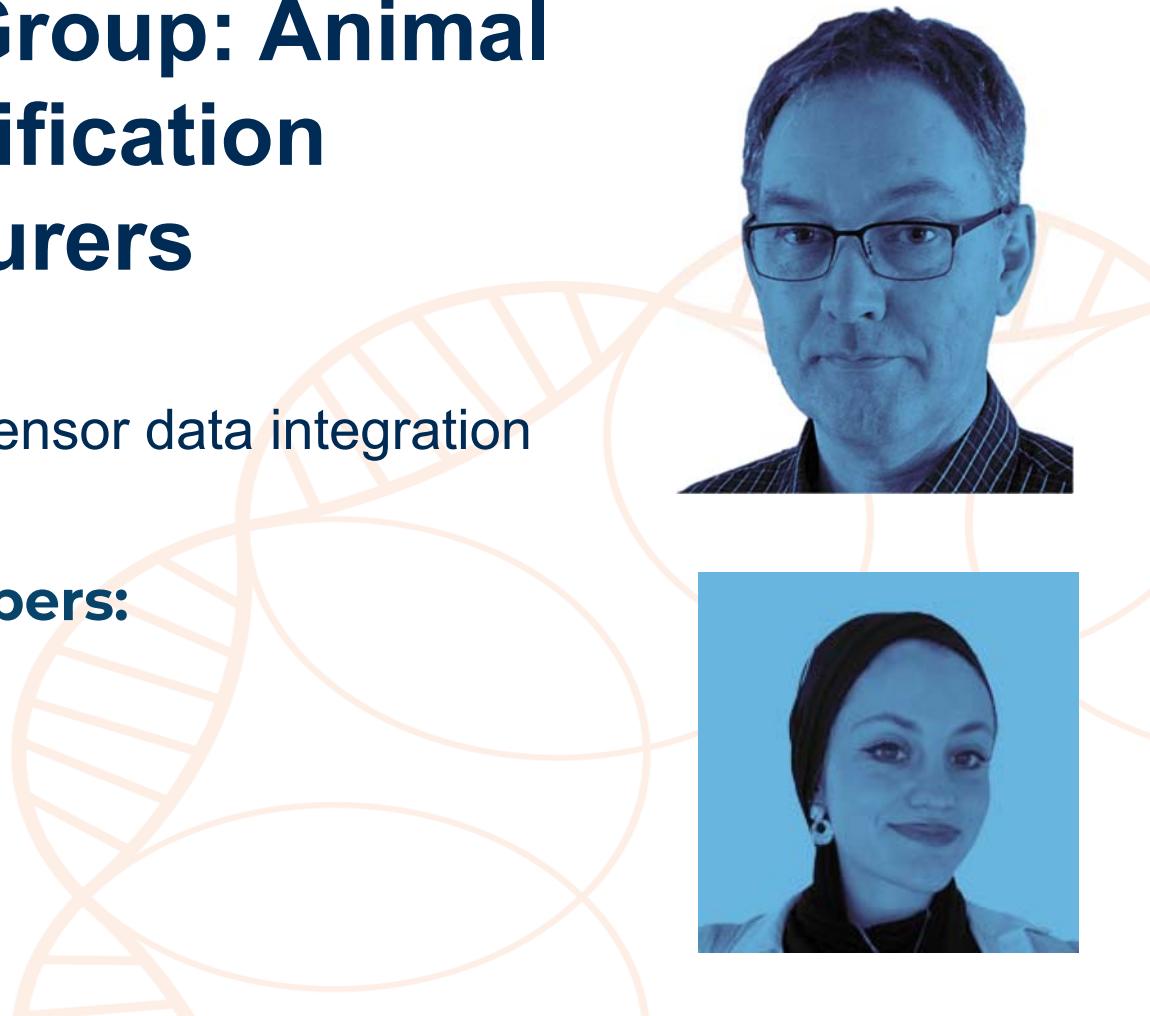# ICAR ADE Working Group: Animal Data Exchange Specification for Sensor Manufacturers

Features in ADE 1.5 that support sensor data integration

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ICAR — THE GLOBAL STANDARD FOR LIVESTOCK DATA

Traditional events that can be populated by sensors

- Milking visit event

- Heat event

- Feed intake event

- Pregnancy check event

- Weight event

- Carcass observation event (in-plant carcass sensors)

- Conformation score event (condition and frame scores etc)

ICAR THE GLOBAL STANDARD FOR LIVESTOCK DATA

https://github.com/adewg/ICAR

Resources designed for sensors and automation

- **Device resource** (devices at a location, optional association with animal)

- **Sorting command** (for use with sort gates)

- **Sorting sites** (list of sorting destinations)

- **Position event** (animal at a GPS location or at a sorting site or other point)

- **Attention event** (alert that animal should be checked for various reasons)

- **Observation Summary resource** (behaviour or state summarised over time – e.g. activity and rumination)

ICAR THE GLOBAL STANDARD FOR LIVESTOCK DATA

https://github.com/adewg/ICAR

How to get started   https://github.com/adewg/ICAR

📁 collections   ← Arrays or lists of resources

📁 docs   ← Specification and other documentation

📁 enums   ← List values included in resources (e.g. attention causes)

📁 examples   ← Example resources

📁 resources   ← The main things to GET or update

📁 types   ← Other data types included in resources

📁 url-schemes   ← OpenAPI methods to GET or update resources and collections

📁 well-known   ← Identifier schemes for various entities (e.g. animal Ids, sensor metrics)

ICAR — THE GLOBAL STANDARD FOR LIVESTOCK DATA

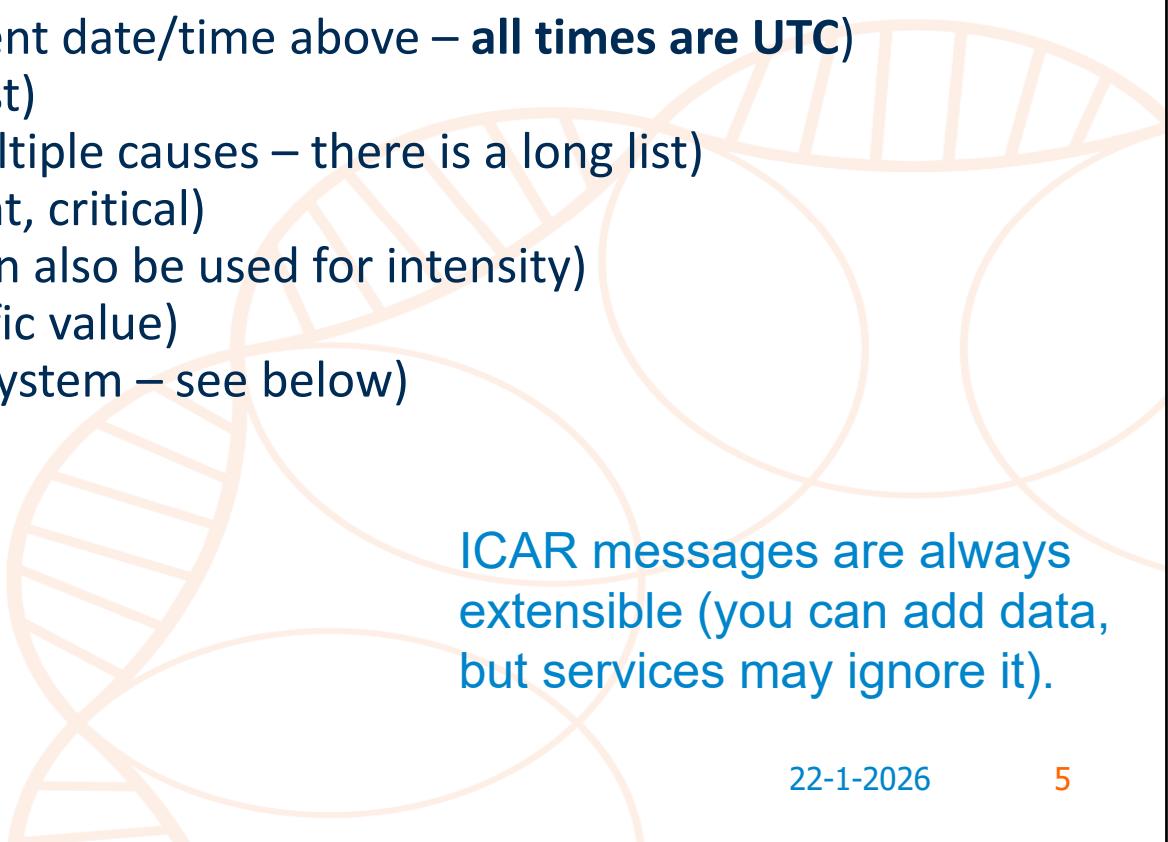# Attention Event example

All events have:

- ID, animal, event date time, responsible, remark, trait label, metadata

Attention event has:

- **Alert End Date Time** (start time is event date/time above – **all times are UTC**)
- **Category** (subject – there is a small list)
- **Causes** (array or list of potentially multiple causes – there is a long list)
- **Priority** (informational, normal, urgent, critical)
- **Severity** (light, moderate, severe – can also be used for intensity)
- **Device Attention Score** (device-specific value)
- **Device** (identity of the sensor or subsystem – see below)

Device has (all fields are optional)**:**

- **Serial number**
- **Manufacturer**
- **Model**
- **Registration code (ICAR or other)**

ICAR messages are always extensible (you can add data, but services may ignore it).

THE GLOBAL STANDARD FOR LIVESTOCK DATA

Observation Summary example

All resources have:

- **ID, metadata**

Observation Summary Resource has:

- **Animal** (ID of the animal)
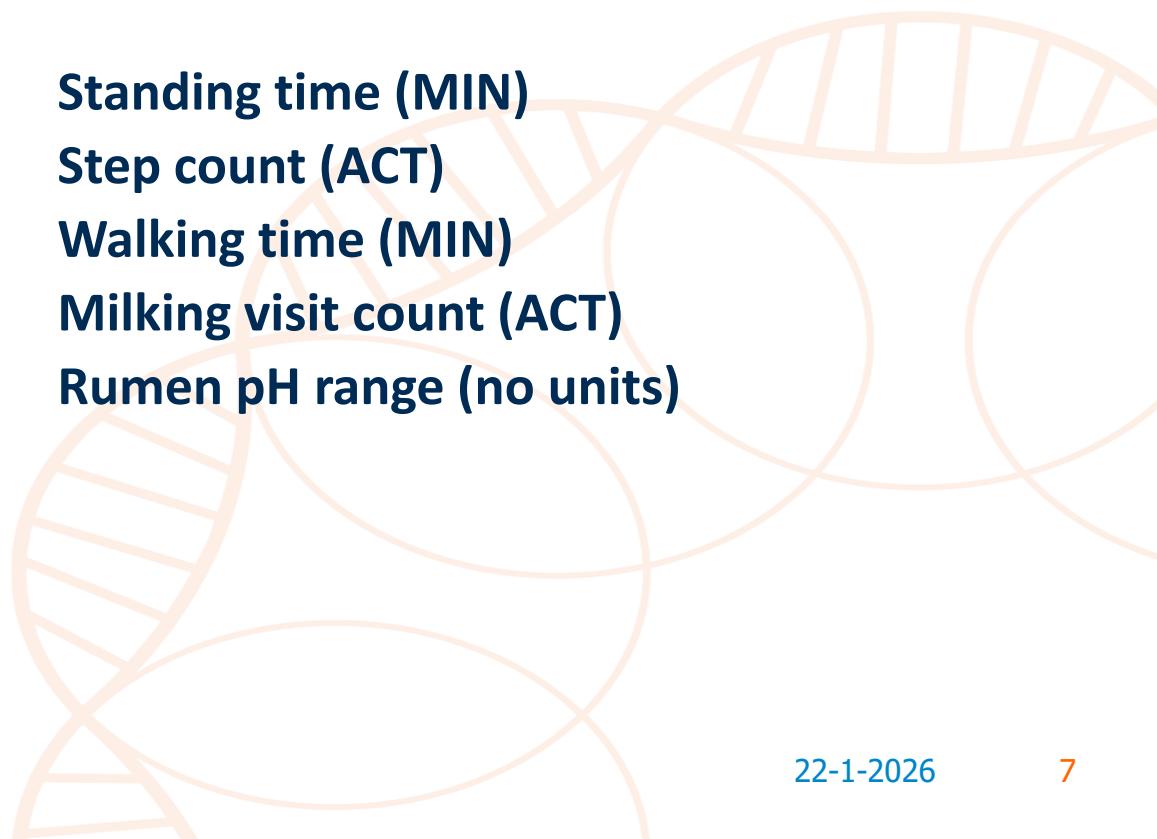- **Statistics** (Array or list of statistics for this animal)

Each Statistic has:

- **Start Date Time** (The start of the summary period – **in UTC time**)
- **Duration** (An ISO duration e.g. "PT24H" = 24 hour period or "P1W" = 1 week)
- **Is Incomplete** (flag to indicate if readings are incomplete)
- **Metric** (metric from the "org.icar.activities" list or manufacturer specific)
- **Unit** (the relevant units – in UN/CEFACT recommendation 20 form e.g. "MIN", "SEC")
- **Aggregation** (average, sum, min, max, count, etc)
- **Value** (identity of the sensor or subsystem – see below)

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Current list of animal observation metrics

This list is at https://github.com/adewg/ICAR/blob/ADE-1/well-known/icarObservationSummaryMetrics.md **and can be extended!**

- **Drinking time (MIN)**
- **Eating time (MIN)**
- **Inactive time (MIN)**
- **Lying time (MIN)**
- **Resting time (MIN)**
- **Rumination time (MIN)**

- **Standing time (MIN)**
- **Step count (ACT)**
- **Walking time (MIN)**
- **Milking visit count (ACT)**
- **Rumen pH range (no units)**

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FOR LIVESTOCK DATA

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Network. Guidelines. Certification.

Thank You

22-1-2026