TECH CARE

Integrating innovative TECHnologies along the value Chain to improve small ruminant welfARE management

Abinsula web platform

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abinsula

Final event – Abinsula, Bruxelles

17th-18th June 2025

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Abinsula Web Platform

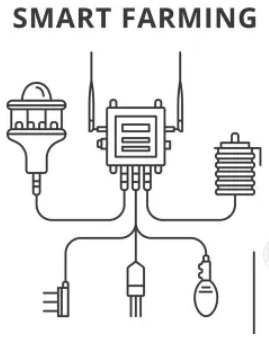
IoT system for remote real-time monitoring

🎯 Objectives of the platform

- Provide a comprehensive tool for real-time farm monitoring.
- Integrate and cross-reference data from heterogeneous sources (environmental, production, individual)
- Generate alerts related to animal welfare, and environmental conditions

⚠️ Main issues encountered

- Lack of shared standards in the agribusiness sector: Unification of data from different sensors and devices, often not natively interoperable
- Proprietary ecosystems developed by large companies (e.g., DeLaval, BouMatic), disinclined to openness
- Vendor lock-in limiting freedom of choice and flexibility for the farmer



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AGRIS Experimental areas

Bonassai pilot

- All the experiment were conducted in the area of Bonassai (Sassari, Italy)
- The area in purple is the grazing reference area where the outdoor weather station was placed. The actual grazing area is almost the entire area of the farm.

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Implemented equipment and sensors details

- **Each device has its own measurements, data collection strategy and acquisition frequency.**

Milk Flow meters	2 x Milk Tank scale	Weather station Indoor	Weather station Outdoor	WOW	Scale & 3-Way gate	Milk Analysis
						
Individual Milk production Individual Milking order and duration	Group Milk production	Temperature Humidity CO2 concentration	Temperature Humidity Rainfall Solar radiation Wind intensity Wind direction	Dynamic individual weight	Individual weight BCS Dag Score	Somatic cells count
1 / session	1 / 5 min	1 / hour	1 / hour	1 / week	1 / session	1 / session
Proprietary software – NO API	Proprietary software – NO API	OPEN API	OPEN API	Manual data collection	Manual data collection	Manual data collection

Measure | Data acquisition frequency | Data collection strategy

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IoT system for remote real-time monitoring

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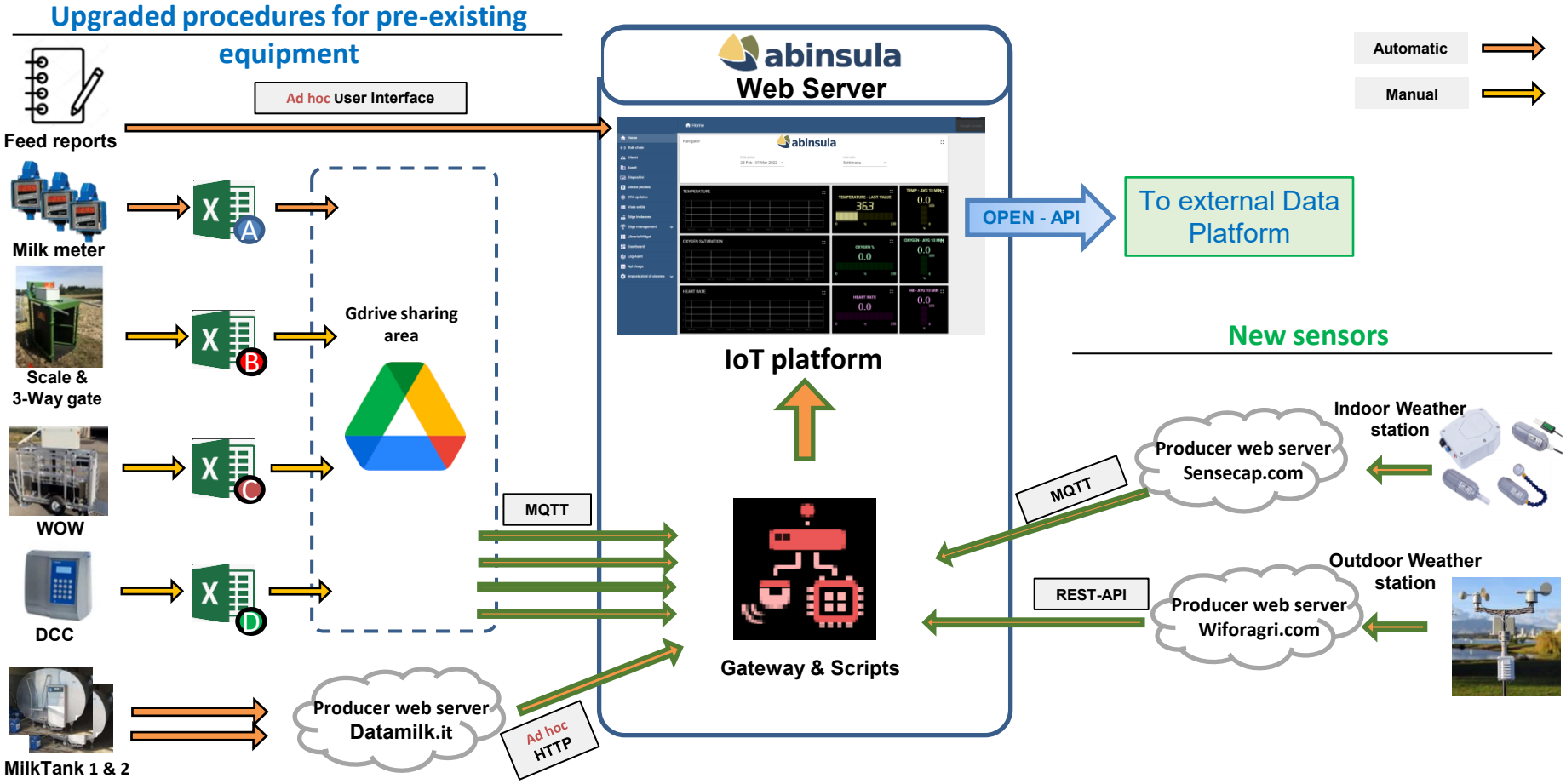
AGRIS Pilot – Ad-hoc Data flow integrated



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Example of Data integration

Milking Report:

- Individual milking activity
- Automatic Milk tank reading

Environmental condition - **stable** :

- Air temperature
- Air humidity
- CO2 concentration

Environmental condition - **grazing area**:

- Air temperature
- Air humidity
- Rainflow
- Wind direction and intensity

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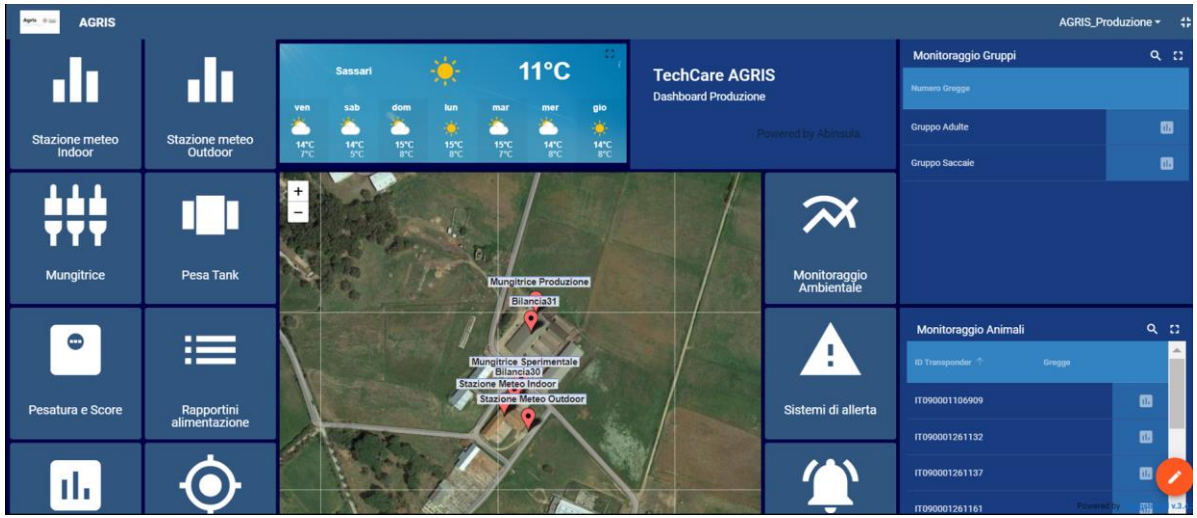
Animal management by flock type

Dashboard for production herd



Dashboard for experimental herd

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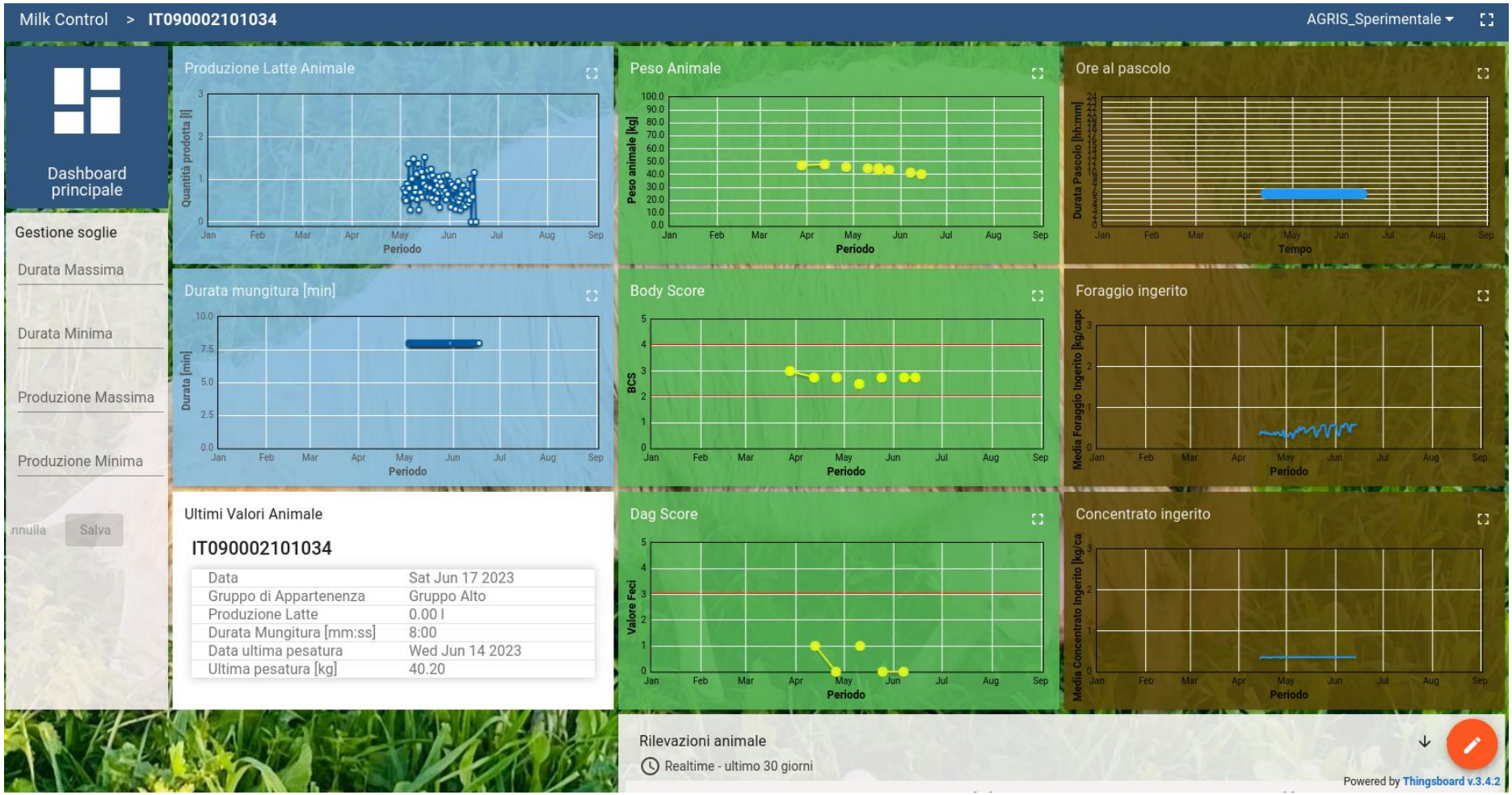
Dashboard: single animal screen



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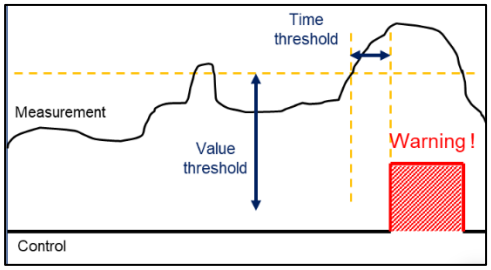
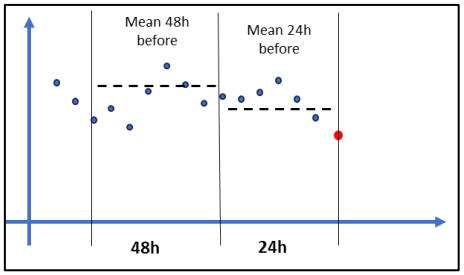
Early Warning System implemented

Based on different strategies:

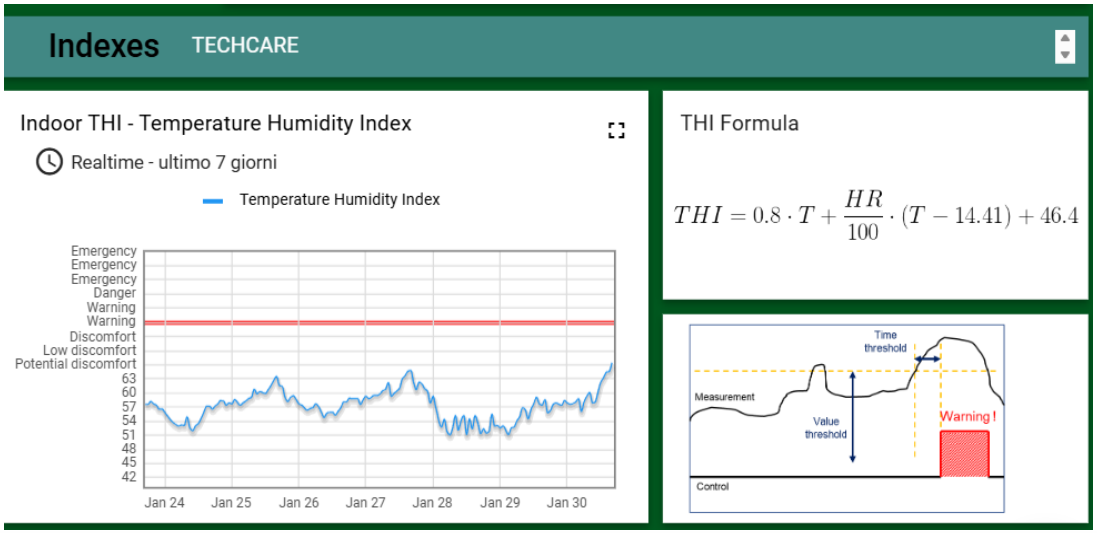


Based on fixed thresholds in time and value



Based on mean in the previous period and thresholds express in %

An example:



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Example of EWS

Examples of alert systems:

- High stable temperature
- High pasture temperature
- Drop in milk production per individual animal
- Excessive weight drop per individual animal

MODE of alerting:

- Highlighting within the Web platform
- Alert email

Allarmi

Originator	Livello di gravità	Data Allarme	Type
IT090002623859	Critico	2022-08-23 07:03:48	Calo Produttivo
IT090002623859	Maggiore	2022-08-23 07:03:48	Calo Produttivo
IT090002234017	Maggiore	2023-03-21 15:19:57	Calo Produttivo
IT090002234017	Maggiore	2023-03-21 15:19:57	Calo Produttivo
IT090002234017	Maggiore	2023-03-21 15:19:57	Calo Produttivo
IT090002233891	Maggiore	2023-02-24 13:38:28	Calo Produttivo

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Warning system enabled at Agris Pilot

Device integrated	Variables	Alert	Timing	Suggestion to farmer (examples)
Indoor weather station	Temperature	Too hot in the stable	Real Time	Ventilate the stable
Outdoor weather station	Temperature	Too hot in grazing area	Real Time	Get animal back into the stable
	Rain	Too much rain in grazing area	Real Time	Get animal back into the stable
	THI	High value of Heat stress Index	Real Time	Recover your animals
	WCI	High value of Cold stress Index	Real Time	Recover your animals
Prod & Exper Milkmeter	Individual Milk Yield	High reduction in milk production of an	Real Time	Do more analysis on animal ID..
Scale	Static weight	High reduction in weight of animal ID..	After farmer load data	Ensure food for the animal ID …

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More details

Go to Web Platform

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