M10 – Report on services evaluation

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DOCUMENT INFORMATION

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Means of verification	Brief report on the evaluations, including final suggestions and the criteria established for evaluation of use and purpose's fitness
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1. Introduction

This milestone report presents a comprehensive evaluation made by the stakeholders of the services developed under the SEBASTIEN project. The assessment aims to determine the effectiveness, usability, and alignment of these services with their intended purposes. This summary encapsulates the evaluation criteria, findings, and final recommendations for improving service delivery and user satisfaction.

2. SEBASTIEN Stakeholders Meetings

Between February 2023 and July 2024, several stakeholder engagement events were organized to enhance their participation in the project and refine the services to better meet their needs. These events included both in-person and online meetings where the current status of the services was presented, and feedback was actively sought from attendees. Following each event, necessary modifications and improvements to the services were implemented based on the stakeholders' input. This document reports the feedback received during these engagements, which included multiple significant events and gatherings.

Online Meetings with Stakeholders

Throughout the project period, several online meetings were conducted to engage stakeholders remotely. These sessions provided an opportunity for stakeholders to share their feedback conveniently, ensuring continuous input and participation from a diverse group of individuals.

Fiera Agricola Zootecnica Italiana 2023 in Montichiari, Brescia, Italy

Held during the Fiera Agricola Zootecnica Italiana 2023, this meeting in Montichiari, Brescia, Italy, brought together approximately twenty participants, including breeders and their representatives. The current status of the services was showcased, and valuable feedback was gathered from attendees. This input was instrumental in guiding subsequent modifications and enhancements to the services.

Event at AGRIS Experimental Farm in Monastir, Cagliari, Italy

Another key engagement event took place at the AGRIS experimental farm in Monastir, Cagliari, Italy. This event focused on the Service 4 related to blue tongue disease, a critical issue for the region of Sardinia where the event was held. Dott. Antonello Carta and other personnel from AGRIS were in attendance, providing their expertise and insights. The feedback collected during this event led to targeted improvements in the service, addressing specific regional needs.

Fieragricola 2024 in Verona, Italy

On February 5th, 2024, the Fieragricola event in Verona, Italy, was held, attracting thirty participants, including breeders, representatives of breeders, and sector-leading companies. This

event was significant in gathering a broad spectrum of feedback, which was essential for fine-tuning the services to better serve the industry.

Final Meeting with Stakeholders - Online Event on July 11, 2024

The final engagement event in this period was an online session held on July 11th, 2024, involving fifteen stakeholders. During this event, the four services developed by the project were presented in detail. Stakeholders provided their final comments and opinions, which were crucial for the final adjustments and improvements to the services.

2.1. Online meetings with stakeholders

Overview

Online meetings with stakeholders were organized in February and March 2023 to present the project aims, objectives methodologies, and to collect suggestions. The online meetings always involved the champion stakeholders and three more, for a total of seven stakeholders. Through these meetings the stakeholders were constantly updated on the current services status and questioned for feedback.

Stakeholders attending the meetings:

- Consorzio Parmigiano Reggiano
- AGRIS - Agenzia per la Ricerca Scientifica
- Azienda Agricola Gioconda (CHAMPION)
- West System Srl (CHAMPION)
- Azienda Agricola Mariotti
- IZSLT - Istituto Zooprofilattico Sperimentale del Lazio e della Toscana (CHAMPION)
- FAO (CHAMPION)

Feedback

The main suggestions were:

- to include information about dairy barn orientation in the model to predict THI
    - unfortunately, the lack of such information, or of such information in digitised form, meant that this option could not be included.
- to keep the farm and pasture position memorized in the system
    - this feature has been implemented following the stakeholder's suggestion.
- to give the user the possibility of defining a stable via GPS positioning
    - this feature has been implemented following the stakeholder's suggestion.
- to investigate heat stress effect on reproductive traits
    - this could be done as follow up of the project.

2.2. Stakeholders' feedback collected during Fiera Agricola Zootecnica Italiana in Montichiari

Overview

The event took place in Montichiari, Brescia (Italy) on October 28, 2023. Approximately twenty individuals attended the event, including breeders and representatives of breeders. The current status of services was presented, and the overall feedback received was positive.

Feedback

Overall, the service focusing on pastures was appreciated and drew significant attention.
The feedback gathered included the following key observations:

- Service 3 - Pasture Service: Proposal to enhance the pasture service by incorporating information on pasture quality and real consumption. Interest in using sensors to track the specific areas of the pasture that are most frequented and consumed by the animals.
    - this could be done as follow up of the project
- Service 4 - Challenges in Disease Risk Service: Recognition that the service addressing the risk of diseases is perceived as the most challenging to develop.

2.3. Stakeholders' feedback collected during a meeting with AGRIS

Overview

The event took place on December 13, 2023, at the AGRIS experimental farm for sheep farming, located in Monastir, Cagliari. Dott. Antonello Carta and other personnel from Agris attended the event. Services were presented, with a special focus on the Service 4 on blue tongue disease, which is specifically targeted on Sardina, where the event took place. After the presentation UCSC answered the questions, provided clarifications where needed, and collected the feedback.

Feedback

- Service 1 - Productivity Loss Service**:** It would be interesting to add a suggestion for the farmer about the type of strategies that are worth implementing for mitigation (i.e. turning on fans for a specific number of hours, using water sprinklers where available), also taking into account cost evaluation. Moreover, it may be worth considering providing two types of output from services: one more synthetic for the farmers and a more detailed output for technicians. It would also be important to specify that prevision does not take into account the selection for heat adaptation.
    - In the project we tried to provide fairly detailed services and information that could be useful to stakeholders in particular. However, this is something that can be evaluated as a future development

- Service 4 - Challenges in Disease Risk Service: The service for blue tongue spread prevision may be interesting especially for supporting veterinaries in identify areas in which perform sampling for disease detection and monitoring. It would be interesting providing within the service for blue tongue a link to a webpage (i.e. istituto zooprofilattico) where disease symptomatology is described, in order to help the farmers in the diagnosis. This aspect will be addressed by the end of the project.

2.4. Stakeholders' feedback collected during Fieragricola in Verona

Overview

The event took place in Verona on February 5, 2024, and involved 30 individuals, including breeders, representatives of breeders and of sectorial leading companies. The status of services was presented, and the overall feedback received was positive. The feedback included two scores about the usefulness of the service and the quality of the graphical interface, respectively, ranging from 1-*unuseful* to 5-*very useful*.

Feedback

- Service 1 - Productivity Loss Service: participants generally appreciated this service, no further suggestions were made.
  Service Usefulness Score: Mode=5, Median=4.5
  Graphical Quality Score: Mode=4, Median=4.5
- Service 2 - THI Service**:** participants stressed the importance of the accuracy of the model. The addition of information on specific features of each farm (orientation, etc.) was suggested. However, most of the intensive dairy farms are equipped with farm THI sensors, controlling the automatic activation of the cooling system. Thus, participants suggested to use this service to strengthens the importance of the installation of THI sensor within the farm.
  Service Usefulness Score: Mode=2, Median=3.5
  Graphical Quality Score: Mode=5, Median=5
- Service 3 - Pasture Service: participants suggested to add information on the quality of the biomass in the pasture (i.e. in terms of maturity of forages). Another suggestion was to increase the customization of the area selection tool, as pastures area is generally not regular. The possibility to save selected pastures was also requested. An hourly output for pasture usage was suggested, as many pasture systems are hour-based (not day-based). The storage of information about the pasture biomass was requested to be accessible, to be aware of the biomass evolution along the years. The possibility to account for more precise nutritional requirement was suggested, for example by including information on the animal breed, which strongly affect the feed requirement and intake. Finally, a suggestion on the amount of feed integration in case pasture biomass is limited, could be added to the service.

Service Usefulness Score: Mode=5, Median=5
Graphical Quality Score: Mode=5, Median=4

- The selection tool has been improved allowing the definition of not regular pastures. Moreover, the possibility to save the pasture has been included. Concerning the other comments, they can be evaluated as a future development.

- Service 4 - Challenges in Disease Risk Service: participants generally appreciated the service, even though they suggest extending the model to other species, pathologies and national areas.
  Service Usefulness Score: Mode=5, Median=5
  Graphical Quality Score: Mode=5, Median=5

3. Final evaluation meeting

The final evaluation of the services was conducted on July 11, 2024, through a survey to the 15 stakeholders belonging to the following companies:

- Consorzio Parmigiano Reggiano
- AGRIS - Agenzia per la Ricerca Scientifica
- West System Srl (CHAMPION)
- IZSLT - Istituto Zooprofilattico Sperimentale del Lazio e della Toscana (CHAMPION)
- FAO (CHAMPION)
- ISMEA – Istituto di Servizi per il mercato agricolo alimentare
- ASSONAPA – Associazione Nazionale della Pastorizia
- ANAPRI – Associazione Nazionale Allevatori Pezzata Rossa Italiana
- AIA – Associazione Italiana Allevatori

Before the survey, the final status of the services was presented through a practical demonstration of the interface and user experience. Stakeholders were asked for an evaluation of each service for the following criteria:

- Usability: The ease of use and user interface design.
- Functionality: The extent to which the services perform their intended functions.
- Purpose Alignment: The degree to which the services meet the project's goals and objectives.

3.1. Key Findings

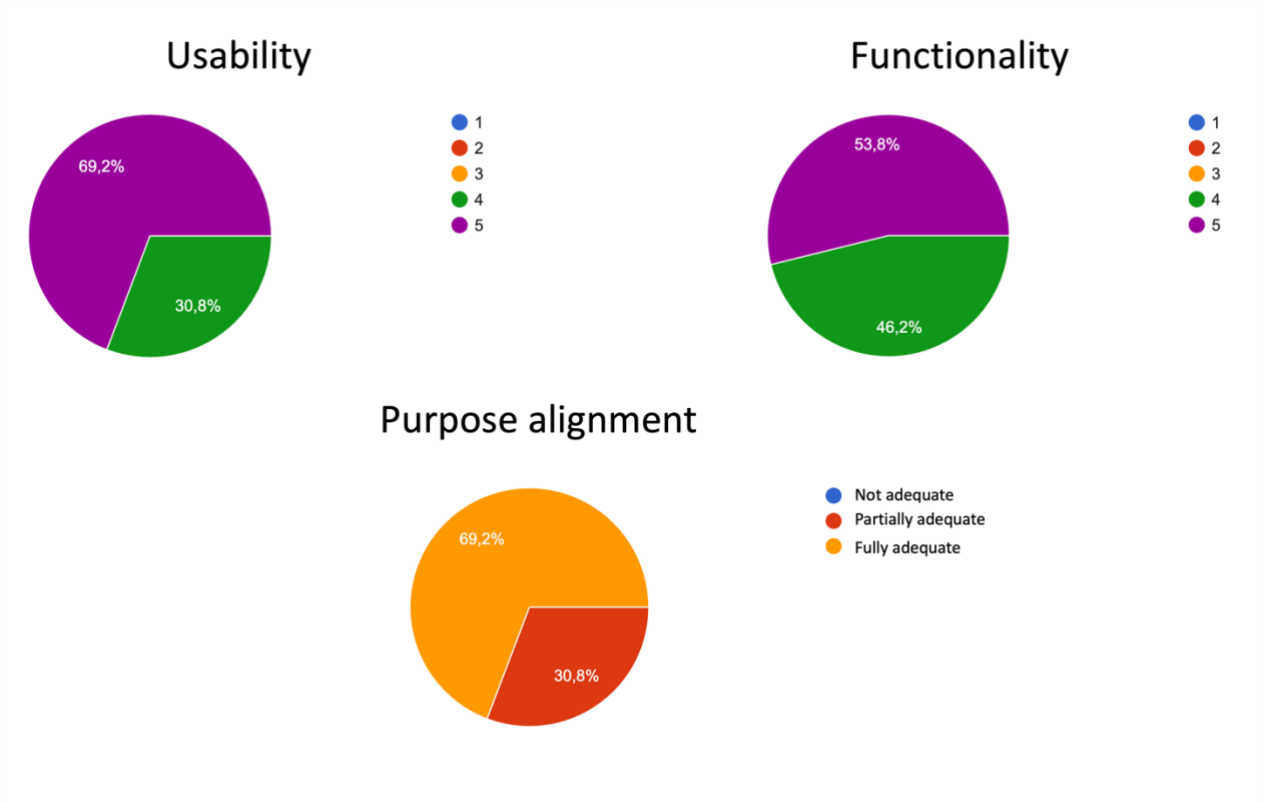
- Usability: Users reported a generally positive experience with the user interface. However, some areas were identified for improvement, particularly in the maps colour gradient in service 1 and 2.

- Functionality: The services met their functional requirements. Minor issues were observed in specific modules that require optimization to enhance performance. Areas for enhancement were suggested, particularly in customization options and support services.
- Purpose Alignment: The services were well-aligned with the project's objectives, effectively addressing the intended purposes. Continuous monitoring and updates are recommended to maintain this alignment as user needs evolve.

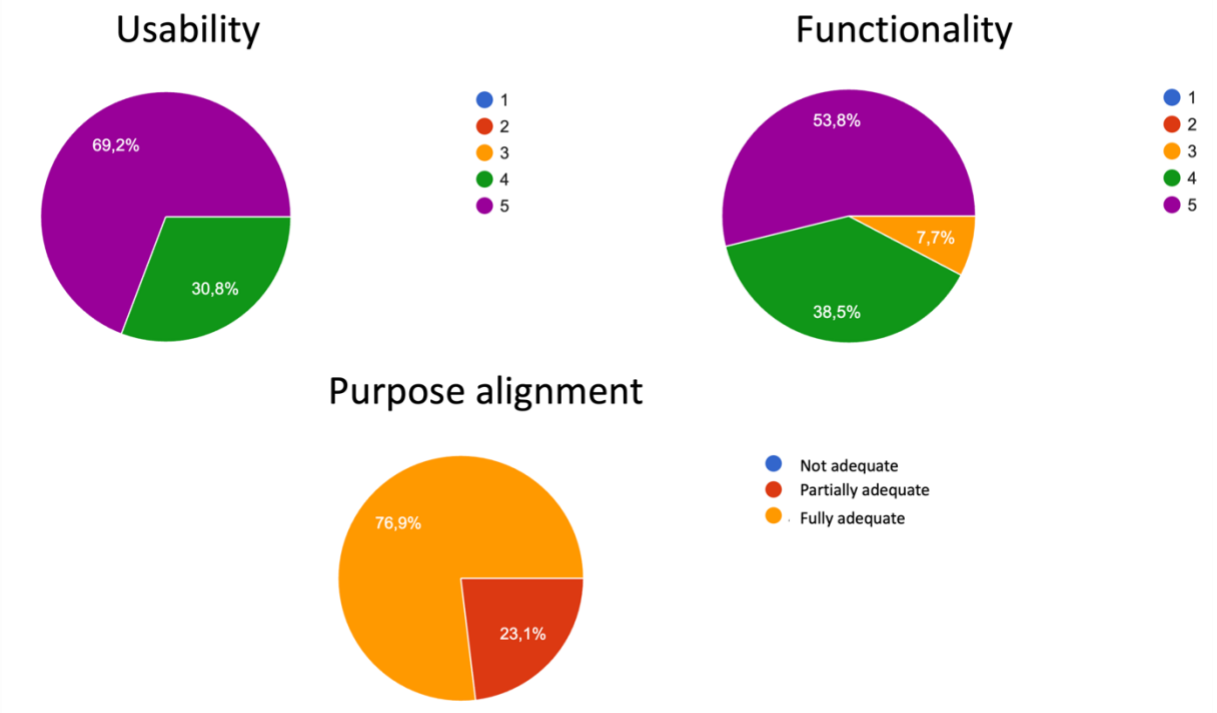
Percentages of scores assigned by stakeholders to each evaluation criterium are reported below and displayed in the charts.

	1 (low)	2	3	4	5 (high)
Service 1					
Usability	0	0	0	30,80%	69,20%
Functionality	0	0	0	46,20%	53,80%
Purpose alignment	0	0	0	30,80%	69,20%
Service 2					
Usability	0	0	0	30,80%	69,20%
Functionality	0	0	7,70%	38,50%	53,80%
Purpose alignment	0	0	0	23,10%	76,90%
Service 3					
Usability	0	0%	15,40%	15,40%	69,20%
Functionality	0	7,70%	7,70%	15,40%	69,20%
Purpose alignment	0	0	0	30,80%	69,20%
Service 4					
Usability	0	0	0	46,20%	53,80%
Functionality	0	0	7,70%	38,50%	53,80%
Purpose alignment	0	0	0	23,10%	76,90%

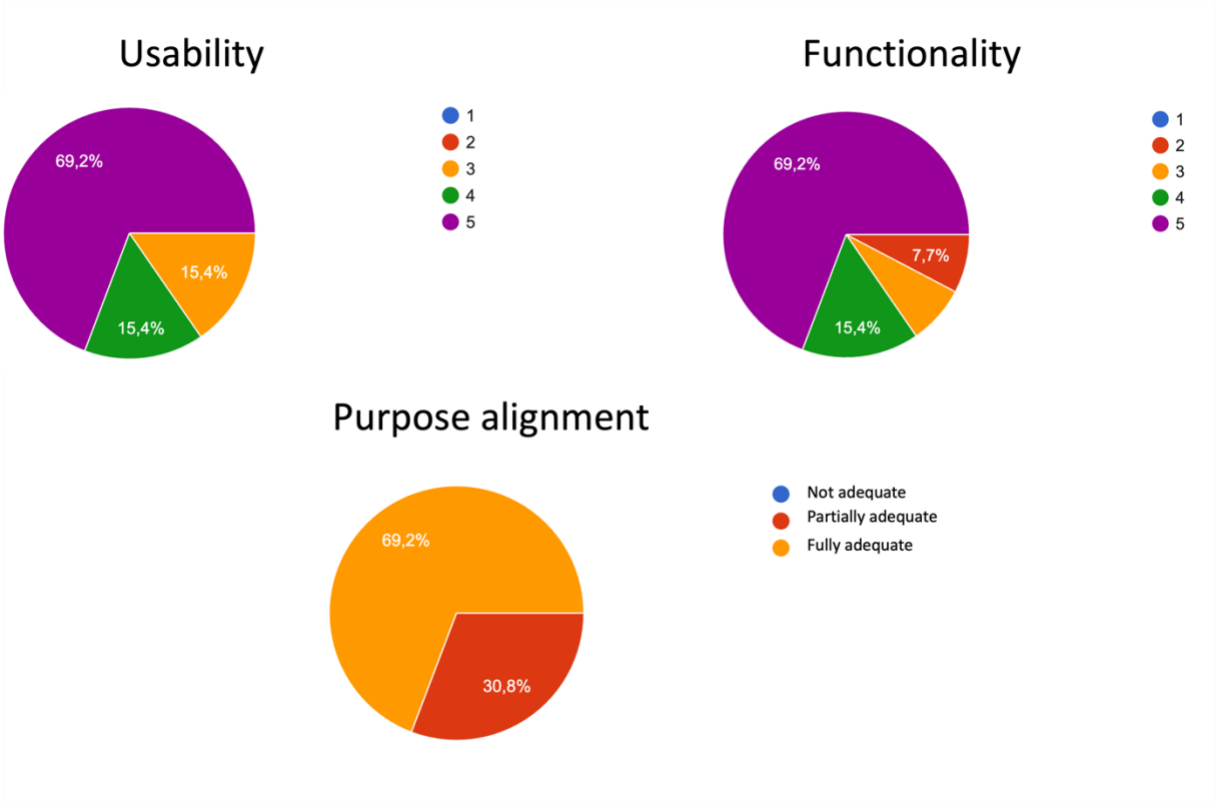
Service 1



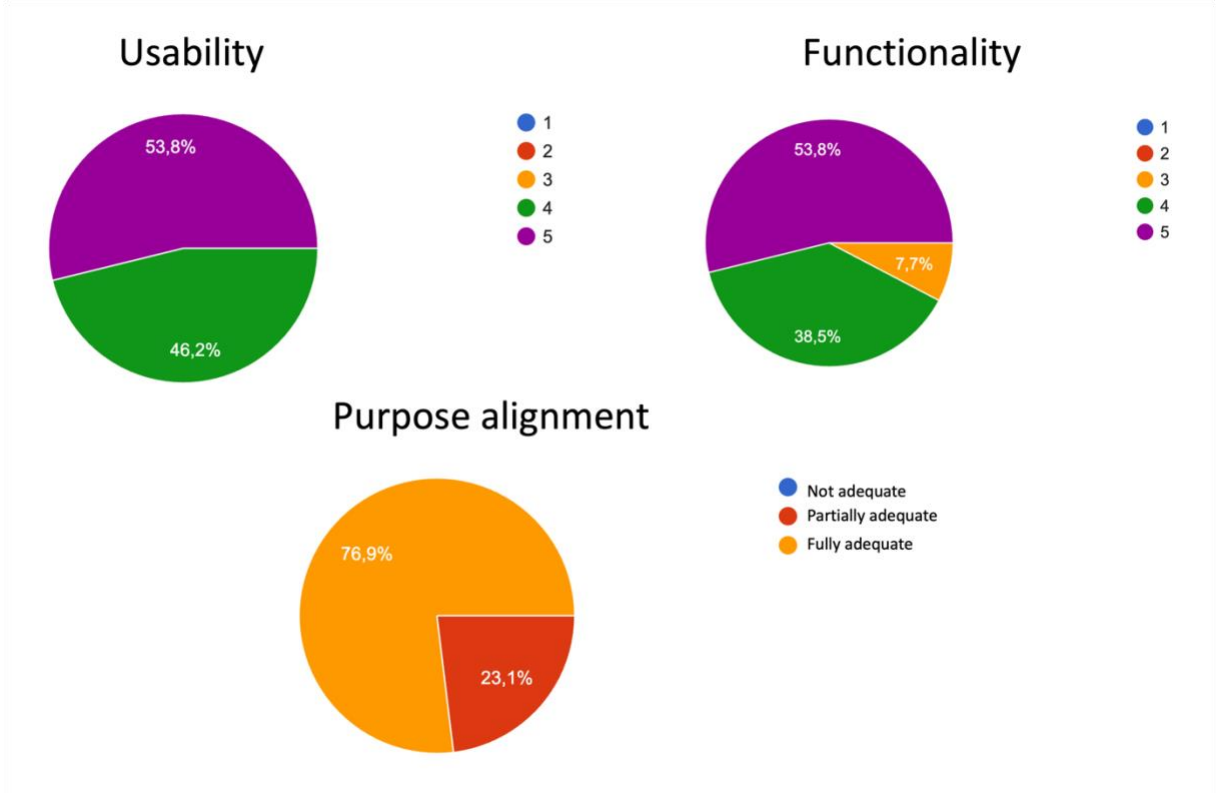
Service 2



Service 3



Service 4



3.2. Final Suggestions

- Enhance Usability: Improve colours gradients in the maps of service 1 and 2; improve the graphic interface to make the user experience more intuitive; explain in the interface that the THI prediction is not accounting for the effect of mitigation solution (cooling, fan…); use the mean value of the indicator (e.g. milk yield, milk fat and protein) as a reference value to be compared with the predicted short and long term performances; concerning the Service 3 related to the pasture, display the size (hectares) of the pasture (this functionality has been added to the service portal)
- Continuous Monitoring: Implement ongoing monitoring and evaluation mechanisms to ensure services remain aligned with user needs and project objectives. Stakeholders were interested in applying these services on sheep and goats. Stakeholders were also interested in predicting heat stress effect on fertility and reproductive traits (some fertility parameters were suggested to be used as indicators).

4. Conclusions

The services developed by the SEBASTIEN project have shown encouraging performance across most evaluation criteria. By addressing the identified areas for improvement, the project can further enhance service delivery, user satisfaction, and alignment with its goals. Continuous improvement and adaptation will be key to maintaining the high standards and relevance of the services in the future.