Framework for evaluating animal welfare in life cycle assessments of diets

Sebastian Richter, Christian Schader, Anita Frehner, Laura Scherer

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Presentation outline

1. Why to integrate animal welfare in LCAs of foods and diets?
2. How to integrate animal welfare in LCAs?
   a. How has it been integrated so far?
   b. **What to consider when integrating it?**
3. Conclusions and outlook

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Why to consider animal welfare?

Ethical reasons	Instrumental reasons
Posession of morally relevant interests	Interconnectedness (e.g., One Health)
Duties arising from special relationships	Motivational benefits
…	…

Philosophical discussion	Recent scientific advances	Scope of impacts	Public views & preferences

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Why to consider animal welfare?

Consumers across five European countries prioritise animal welfare above environmental sustainability when buying meat and dairy products

Jeanine Ammann [a,*], Gabriele Mack [a], Nadja El Benni [b], Shan Jin [c], Paul Newell-Price [d], Sophie Tindale [e], Erik Hunter [f], Victoria Vicario-Modroño [g], Rosa Gallardo-Cobos [g], Pedro Sánchez-Zamora [g], Simona Miškolci [h], Lynn J. Frewer [e]

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How has it been considered in LCA research so far?

➤ Mostly unrelated to FU

➤ Mostly at farm-level

➤ Mostly single-species cases

Moreover:

➤ Usually *intransparent* regarding normative and technical assumptions

➤ Normative foundations of assessments usually insufficiently grounded

Contents lists available at ScienceDirect

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Review: The challenge to integrate animal welfare indicators into the Life Cycle Assessment

L. Lanzoni [a,*], L. Whatford [b], A.S. Atzori [c], M. Chincarini [a], M. Giammarco [a], I. Fusaro [a], G. Vignola [a]
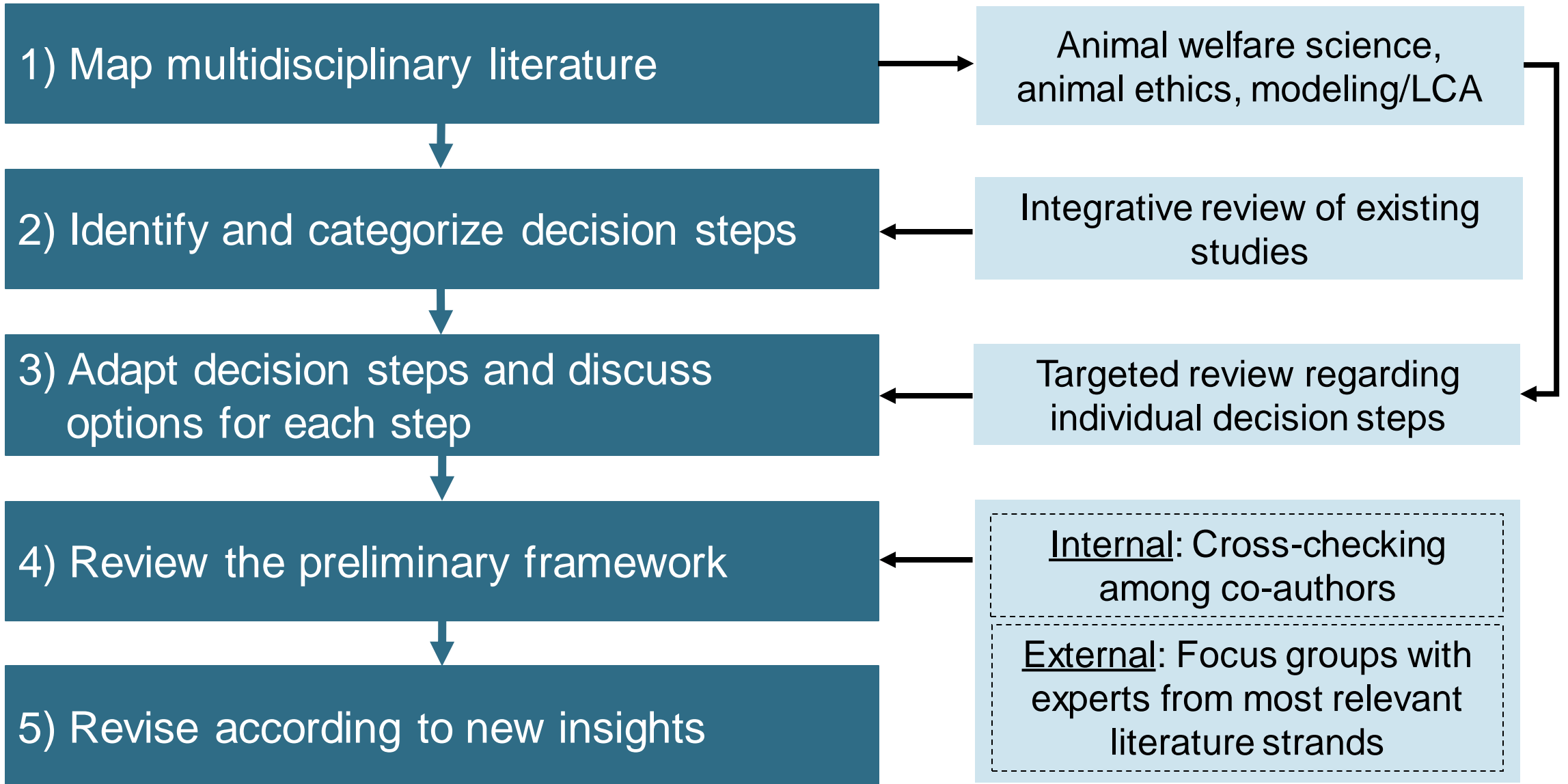
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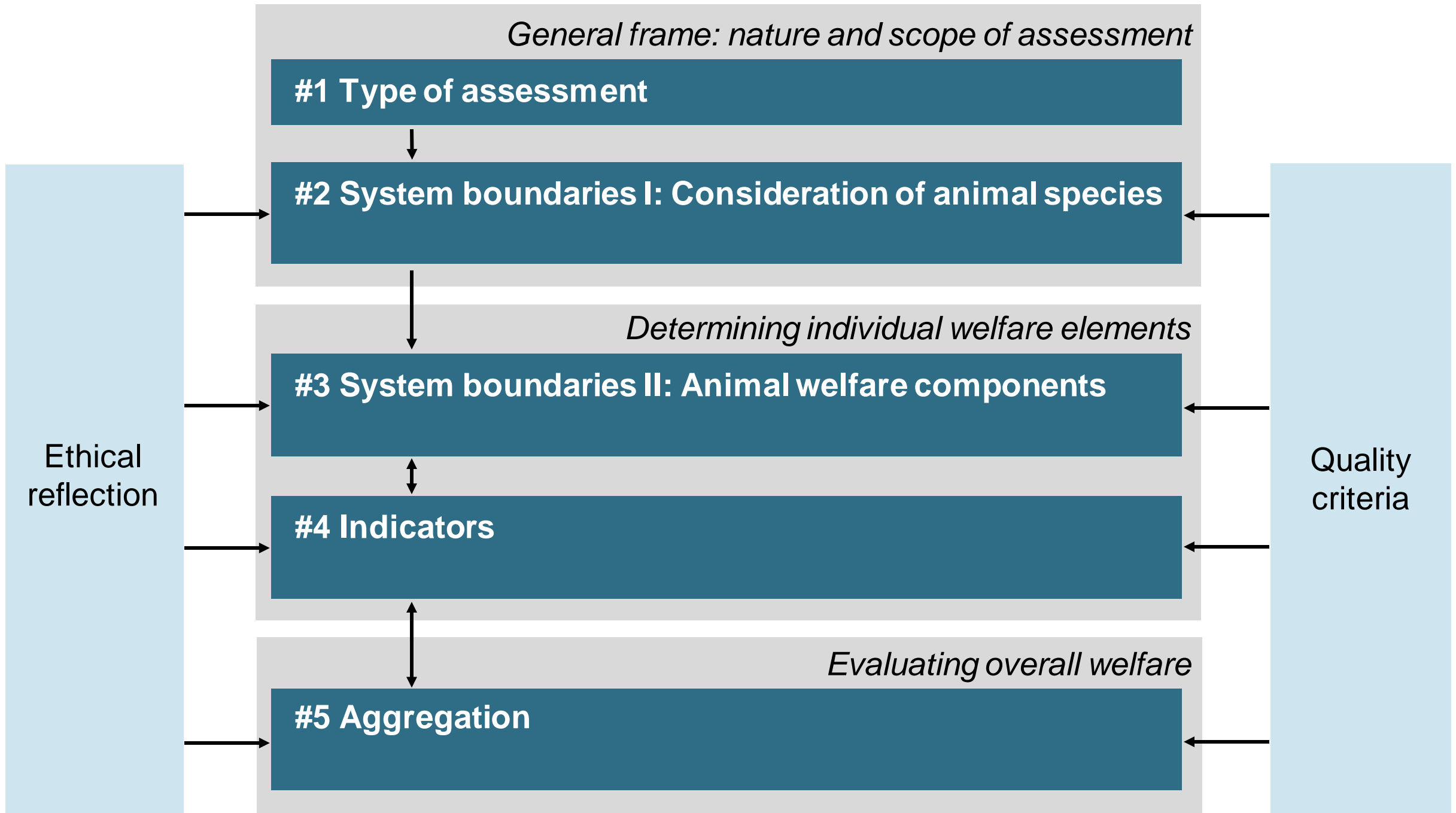[b] Veterinary Epidemiology, Economics and Public Health Group, Department of Pathobiology and Population Sciences, Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield AL97TA, UK
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Taking one step back:
What to consider when integrating it in LCAs of diets?

1) Map multidisciplinary literature	→	Animal welfare science, animal ethics, modeling/LCA
2) Identify and categorize decision steps	←	Integrative review of existing studies
3) Adapt decision steps and discuss options for each step	←	Targeted review regarding individual decision steps
4) Review the preliminary framework	←	Internal: Cross-checking among co-authors / External: Focus groups with experts from most relevant literature strands
5) Revise according to new insights		

General frame: nature and scope of assessment

#1 Type of assessment

#2 System boundaries I: Consideration of animal species

Determining individual welfare elements

#3 System boundaries II: Animal welfare components

#4 Indicators

Evaluating overall welfare

#5 Aggregation

Ethical reflection

Quality criteria

#1 Type of assessment

General frame: nature and scope of assessment

#1 Type of assessment

Ethical assessment

- Qualitative
- Ranges from pragmatic to sophisticated ethical argumentation

Risk assessment

- Quantitative
- Risk of harm and/or deprivation

Welfare assessment

- Quantitative
- Evaluation of positive and negative impacts

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Determining individual welfare elements

#3 System boundaries II: Animal welfare components

Animal welfare concept

- Objective list
- Overlapping concerns
- Subjective experience...

Coverage of life stages

- Breeding
- Life on farm/ in the wild
- Transport
- Slaughter

Salience of experiences

- Intensity
- Duration and incidence

Life duration

- Premature killing
- Biological or natural life fraction

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Level of aggregation	Weighting	Valuation of affected lives & relation to FU	Overall classification
• Intermediary • Overall	• *Intra*-individual • *Inter*-individual • Inter-species	• No relation to FU • Negative valuation • Bidirectional valuation	• Transparency, Granularity & accessibility of results • Sensitivity analyses

Evaluating overall welfare

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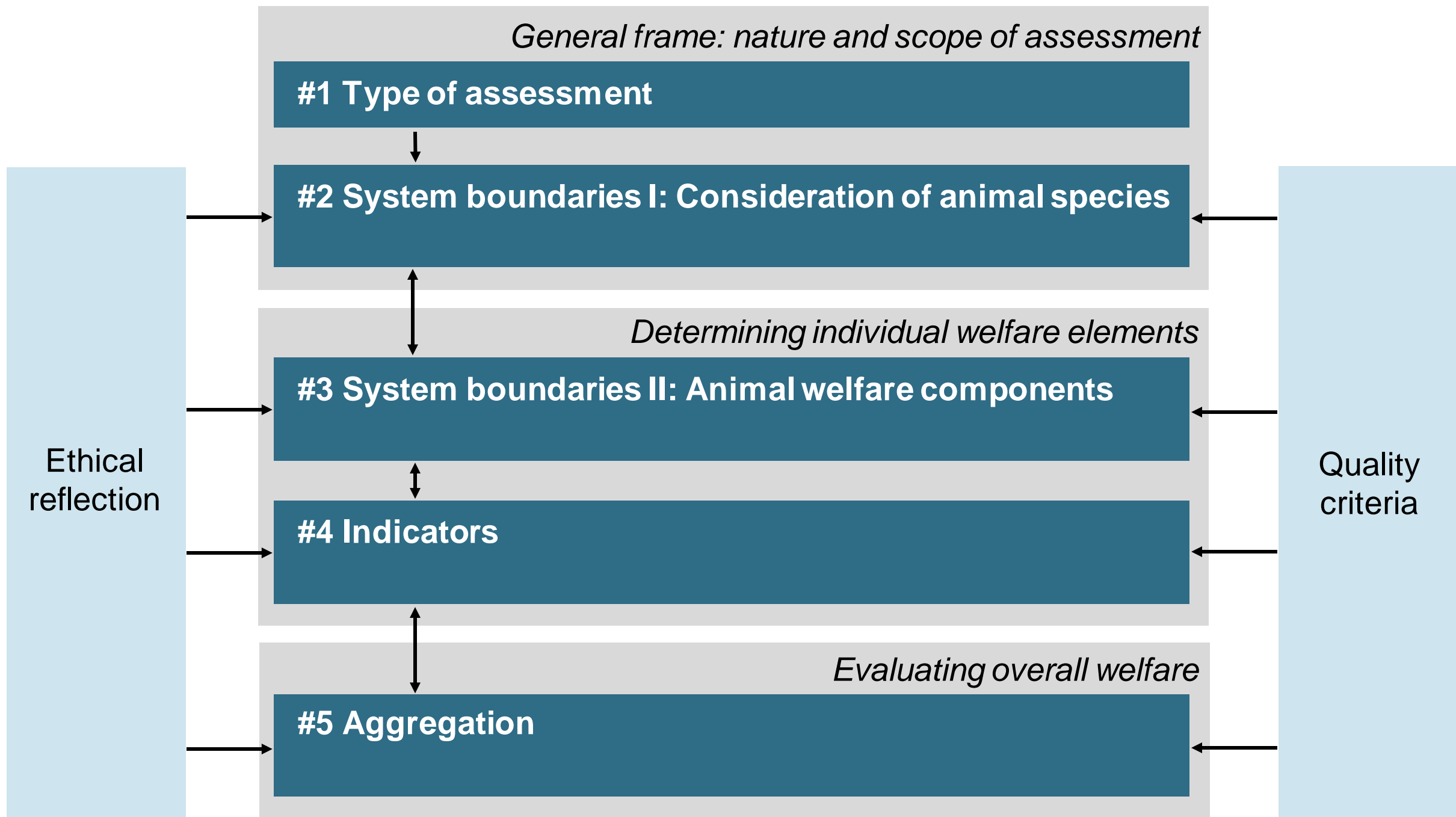
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Ethical reflection

Quality criteria

3) Conclusions and Outlook

Normative improvements

-> Reflected and transparent derivation of normative decisions

-> Use of consistent normative framework

-> …

«Technical» improvements

-> Improve indicator base

-> Robust indicator scoring and weighting

-> …

Supporting research

-> Modeling of impacts on non-domesticated animals

-> …

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References

- Ammann, J., Mack, G., El Benni, N., Jin, S., Newell-Price, P., Tindale, S., ... & Frewer, L. J. (2024). Consumers across five European countries prioritise animal welfare above environmental sustainability when buying meat and dairy products. Food Quality and Preference, 117, 105179

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- **Richter, S., Scherer, L., Hegwood, M., Bartlett, H., Bossert, L.N., Frehner, A., Schader, C.** *Conceptual framework for considering animal welfare in sustainability assessments of foods* **(under review)**

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