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# Response: Commentary: System Expansion and Substitution in LCA: A Lost Opportunity of ISO 14044 Amendment 2

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## A Commentary on

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## Commentary: System Expansion and Substitution in LCA: A Lost Opportunity of ISO 14044 Amendment 2

by Heijungs, R., Allacker, K., Benetto, E., Brandão, M., Guinée, J., Schaubroeck, S., Schaubroeck, T., and Zamagni, A. (2021). *Front. Sustain.* 2:692055. doi: 10.3389/frsus.2021.692055

Finkbeiner (2021) comments on our critique (Heijungs et al., 2021) of the amendment to ISO 14044. We summarize hereafter his comment:

- According to him, the ISO amendment does not rule out system expansion (in the sense of expanding the functional unit) in favor of substitution (in the sense of subtracting the avoided impacts of coproducts); instead, it is a clarification that both approaches are allowed.
- The texts by ISO are comparable to legislative documents, which require knowledge of the rules in order to decipher them.

We thank Finkbeiner for this clarification, and we are happy to read that both procedures (system expansion and substitution) are allowed, according to his interpretation.

Yet, the amendment text is not in line with his interpretation, as pointed out by us and by Schaubroeck et al. (2021). Even if the amendment text is not normative and just informative, consistency and correctness is needed throughout the complete ISO text. Moreover, we are worried by the implication that well-trained scientists interpreted in a different way a text that was intended to provide clarity. We consider ourselves as target audience of these standards, and these are apparently not as “crystal-clear” as Finkbeiner appears to think. Hence, it seems that the amendment has failed in its mission “that it should be clarified, that the “subtraction approach” can also be used as system expansion,” as Finkbeiner phrases the amendment’s “actual intention.” A lost opportunity, after all. Let’s hope that future ISO amendments are more consistent, and also understandable to the people who are not familiar with the ISO rules.

## AUTHOR CONTRIBUTIONS

RH drafted and edited the text. KA, EB, MB, JG, SS, TS, and AZ suggested additions and improvements. All authors contributed to the article and approved the submitted version.

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