The Critical Review Process according to ISO 1404x: Experience and impressions on its effect on quality, credibility, duration and cost

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Comparison with Journal Review

- Not anonymous

Close co-operation between:

- **Commissioner**
- **Practitioner**
- **Reviewer/Review team**
- More time-consuming
- Reviewed data and results not always published
- Review report is part of the final study report

Peer Review: SETAC 1993

- (1) the peer review process enhances the scientific and technical quality of LCAs; and
- (2) the process helps to focus study goals, data collection, and provides a critical screening of study conclusions, thereby enhancing study credibility.

Interactive Peer Review in three phases

- At the beginning of the LCA to review the goals, scope, boundaries, and the data collection planned;
- After initial data collection or modelling, to review the progress and offer advice or comments; and
- At the final report stage, to review the adequacy of the study and the credibility of the conclusions.

ISO 14040 § 5.1.2.5
Critical review considerations

- Critical review is a technique to verify whether an LCA study has met the requirements of this international standard for methodology, data and reporting. Whether and how to conduct a critical review, as well as who conducts the review, shall be defined in the scope of the study.
- In general, critical reviews of an LCA are optional and **may** utilize any of the review options outlined in 7.3.
- A critical review **shall** be conducted for LCA studies used to make a comparative assertion that is disclosed to the public and **shall** employ the critical review process outlined in 7.3.3.

ISO 14040 §7.2
Need for critical review

- …In order to decrease te likelihood of misunderstandings or negative effects on external interested parties, critical reviews **shall** be conducted on LCA studies where the results are used to support comparative assertions.
- However, the fact that a critical review has been conducted should in no way imply an endorsement of any comparative assertion tat is based on an LCA study.

ISO 14040 §7.3.3
Review by interested parties

- An external independent expert is selected by the original study commissioner to act as chairperson of a review panel. Based on the goal, scope and budged available for the review, the chairperson selects other independent qualified reviewers.
- This panel **may** include other interested parties that will be affected by conclusions drawn from the LCA study, such as government agencies, non-governmental groups, or competitors.

ISO 14040 §7.3.1 and 7.3.2

7.3.1 **Internal expert review**

- A critical review may be carried out internally. In such a case, it shall be performed by an internal expert independent of the LCA study. …

7.3.2 **External expert review**

- A critical review may be carried out externally. In such a case, it shall be performed by an external expert, independent of the LCA study. …

ISO 14040, 7.1
General Description

"The critical review process shall ensure that:

- ***the methods used to carry out the LCA are consistent with this International Standard;***
- ***the methods used to carry out the LCA are scientifically and technically valid;***
- ***the data used are appropriate and reasonable in relation to the goal of the study;***
- ***the interpretations reflect the limitations identified and the goal of the study;***
- ***the study report is transparent and consistent."***

Critical review in ISO 14041-43

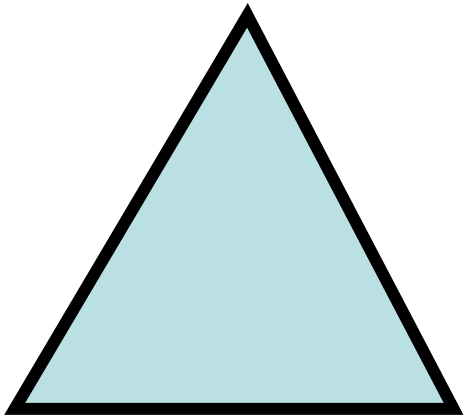
- ISO 14041: 5.3.7
- ISO 14042: 10.3
- ISO 14043: 9.2
- No new aspects
- Reaffirmation of 14040 with regard to goal and scope (type of critical review **shall** be defined) and comparative assertions that are disclosed to the public (7.3.3)
- expertise of reviewers in LCIA **shall** be considered (14042).

Possible attribution of tasks in a review panel

- compliance with standard/goal and scope; interpretation (LCA as a whole)
- data/inventory (LCI) and
- Life cycle impact assessment (LCIA)
- Management of the critical review process: duty of the chairperson

The critical review triangle

Review panel



Commissioner Practitioner

Access to data

- Confidentiality of data is one of the main reasons for critical reviews
- The review team – or at least the data specialist – has to have full access to data
- This also applies to subcontractors supplying part of the data

Critical review and duration

- Two kinds of critical review (both allowed according to ISO 14040):
- A: the accompanying or interactive review (SETAC 1993)
- B: the review a posteriori

Accompanying review

- Can influence the methodology, at least in details (best starting point: draft goal and scope)
- No delays in final phase if suggestions by reviewers are taken into account
- Review panel is (de facto) a part of the project team – although a privileged one

Review a posteriori

- Fresh look from outside (best starting point: draft final report)
- Review panel is **not** a (de facto) member of the project team
- The review process can delay the finalization of the LCA-report by several months, if major revision is needed
- Financial risk for practitioner and/or commissioner

Type of review

- Total reviews: 30 (100%)
- ISO 14040 7.3.3: 19 (63%)
- ISO 14040 7.3.2: 6 (20%)
- No fixed rules: 5 (17%)

(Figures describe W. Klöpffers‘ experience)

Number of reviewers

- ISO 14040 (7.3.3) average (n = 19): 2.8 experts per review
- Range: 2 to 4
- Larger panels reported in literature
- ISO 14040 (7.3.2) average (n = 6): 1.1 (there are a few cases where a large LCA-study is not to be published…borderline cases between 7.3.3 and 7.3.2)