
**Environmental management — Life
cycle assessment — Requirements
and guidelines for organizational life
cycle assessment**

*Management environnemental — Analyse du cycle de la vie
— Exigences et lignes directrices pour l'analyse du cycle de vie
organisationnelle*

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: [Foreword — Supplementary information](#).

The committee responsible for this document is ISO/TC 207, *Environmental management*, Subcommittee SC 5, *Life cycle assessment*.

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Introduction

In order to analyse the environmental performance of products, it has become standard to use a life cycle perspective to capture all impacts from resource extraction to the disposal of the product. The benefits and the potential of the life cycle approach are not limited to an application on products. While the Life Cycle Assessment (LCA) methodology was originally developed for products, its application at the organizational level is becoming more and more relevant. However, an Organizational LCA (OLCA) appears to be even more complex. There is more than one product life cycle to follow, as most organizations are engaged in many product life cycles to different degrees and a large part of environmental impact can reside outside the organization's gate, upstream and downstream of the value chain.

The present Technical Specification (TS) is dedicated to the application of LCA to organizations. It, therefore, extends the application of ISO 14040 and ISO 14044 to all the activities of the organization that means the reporting unit of the system allows coverage of different products and unit processes of any organization within the same LCA study.

The choice of goal and scope by the organization during its LCA study is key to assisting this organization in making the relevant choices according to the present TS, including the products and unit processes that are studied, the related system boundary, and the time frame which is covered.

This TS is applicable to an organization for a given time period.

This TS is applicable to all types of organizations. If properly justified, application of this TS to segments or selected companies of an organization is possible.

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Environmental management — Life cycle assessment — Requirements and guidelines for organizational life cycle assessment

1 Scope

This Technical Specification (TS) provides additional requirements and guidelines for an effective application of ISO 14040 and ISO 14044 to organizations.

This Technical Specification details

- the application of Life Cycle Assessment (LCA) principles and methodology to organizations,
- the benefits that LCA can bring to organizations by using LCA methodology at organizational level,
- the system boundary,
- specific considerations when dealing with LCI, LCIA, and interpretation, and
- the limitations regarding reporting, environmental declarations, and comparative assertions.

This Technical Specification applies to any organization that has interest in applying LCA. It is not intended for the interpretation of ISO 14001 and specifically covers the goals of ISO 14040 and ISO 14044.

2 Normative references

[ISO/TS 14072:2014](https://standards.iteh.ai/catalog/standards/sist/3f34cc6c-f15a-4417-a52b-1e1071011405/iso-ts-14072-2014)

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The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14040:2006, *Environmental management — Life cycle assessment — Principles and framework*

ISO 14044:2006, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO/TS 14071, *Environmental management — Life cycle assessment — Critical review processes and reviewer competencies: Additional requirements and guidelines to ISO 14044:2006*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

organization

person or group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to sole trader, company, corporation, firm, enterprise, authority, partnership, charity, or institution, or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO/IEC Directives, Part 1]

3.2

reporting unit

quantified performance expression of the organization under study to be used as a reference

Note 1 to entry: In the case of an OLCA, the reporting unit replaces the functional unit.

3.3

unit process

smallest element considered in the life cycle inventory analysis for which input and output data are quantified

[SOURCE: ISO 14044:2006, 3.34]

3.4

performance tracking of an organization

comparison of the performance of the same organization's products and unit processes over time, based on the same time period, system boundary, and reporting unit

3.5

environmental performance

measurable results of an organization's management of its environmental aspects

[SOURCE: ISO 14001:2004, 3.10]

3.6

facility

single installation, set of installations or production processes (stationary or mobile), which can be defined within a single geographical boundary, organizational unit, or production process

[SOURCE: ISO 14064-1:2006, 2.21]

3.7

competence

ability to apply knowledge and skills to achieve intended results

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[SOURCE: ISO 14066:2011, 3.1.4]

3.8

Organizational Life Cycle Assessment

OLCA

compilation and evaluation of the inputs, outputs, and potential environmental impacts of the activities associated with the organization as a whole or portion thereof adopting a life cycle perspective

Note 1 to entry: The results of an OLCA are sometimes referred to as an organization's environmental footprint.

3.9

consolidation methodology

approach to be selected by the organization in setting organizational boundaries, for assessing the inputs, outputs, and potential environmental impacts of the activities associated with the organization

Note 1 to entry: Three distinct approaches are used: the operational control, or financial control, or the equity share approaches.

3.10

operational control

full authority to introduce and implement operating policies at the operation level

Note 1 to entry: Financial or insurance companies may apply this TS by dealing with their funding activities as if it was an operational control (ISO/TR 14069:2013, Annex E provides an example of guidance in the case of GHG).

3.11**financial control**

ability to direct the financial and operating policies of the operation with a view to gain economic benefits from its activities

3.12**equity share**

extent of the rights an organization has to the risks and rewards from an operation based on its equity interest

Note 1 to entry: Equity share is, therefore, the same as the ownership percentage.

4 General

The principles of ISO 14040 generally apply for the OLCA as well. They can be adapted to the organizational context.

This TS provides an explicit adaptation of the requirements of ISO 14040 and ISO 14044 to organizational context, where applicable (Annex A.3). An OLCA shall follow the requirements of Annex A.

This TS shall not be used for LCA studies intended to be used for comparative assertions between different organizations intended to be disclosed to the public (e.g. ranking among organizations).

This TS explains how to calculate the potential environmental impacts of the organization based on ISO 14040 and ISO 14044. The environmental aspects of an organization are generally addressed in ISO 14001. This TS can support the identification and quantification of relevant environmental aspects including those beyond the organizational boundaries.

5 Organizational Life Cycle Assessment

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5.1 General

This TS provides requirements and guidelines for the type of information that is recommended to be used by organizations for assessing environmental impacts considering the life cycle perspective (see ISO 14040:2006, 4.1.2.), including their upstream and downstream supply chain.

The benefits that life cycle assessment can bring to organizations are the following:

- identify, evaluate, and interpret the significance of the environmental aspects related to the management systems as defined in ISO 14001;
- strategic tool for comprehensive environmental assessment, which can lead to management decisions;
- tool for decision making, in order to prioritize the actions aiming at reducing environmental impacts considering products and unit processes of the organizations;
- assist the performance tracking of an organization, and trace the “multi-criteria” environmental improvements of the organizations (see Annex C);
- reporting of the environmental impacts of an organization over a given period of time;
- identify burden shifting (e.g. through outsourcing, upstream and downstream, or between impacts);
- improve transparency, knowledge, control, and management of its supply chain.

Performance tracking of an organization between two periods of time can lead to the reporting of improvements.

NOTE Performance tracking is based on the same reporting unit. A given tolerance will be considered to state that two reporting units are “the same”. This tolerance will be determined by the practitioner according to the goal and scope of his LCA study. This tolerance will be quantified and transparently reported in the LCA report.

5.2 Goal and scope definition

5.2.1 General

This chapter provides requirements and guidelines on how to

- model upstream and downstream supply chains and processes, and how to collect the appropriate data,
- determine the reporting unit for an organization in replacement of the functional unit which is used for product systems (see Annex A.3), and
- define the goal of an LCA.

In defining the goal of the LCA, the following items shall be unambiguously stated (see Annex A.3):

- the intended application (e.g. performance tracking);
- the reasons for carrying out the study;
- the intended audience;
- a statement that the results are not intended to be used in comparative assertions intended to be disclosed to the public.

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5.2.2 System boundary <https://standards.iteh.ai/catalog/standards/sist/3f34cc6c-f15a-4417-a52b-1d1e77e9b720/iso-ts-14072-2014>

According to its goal and scope, an organization can develop *its OLCA based on defined system boundaries* (Figure 1).

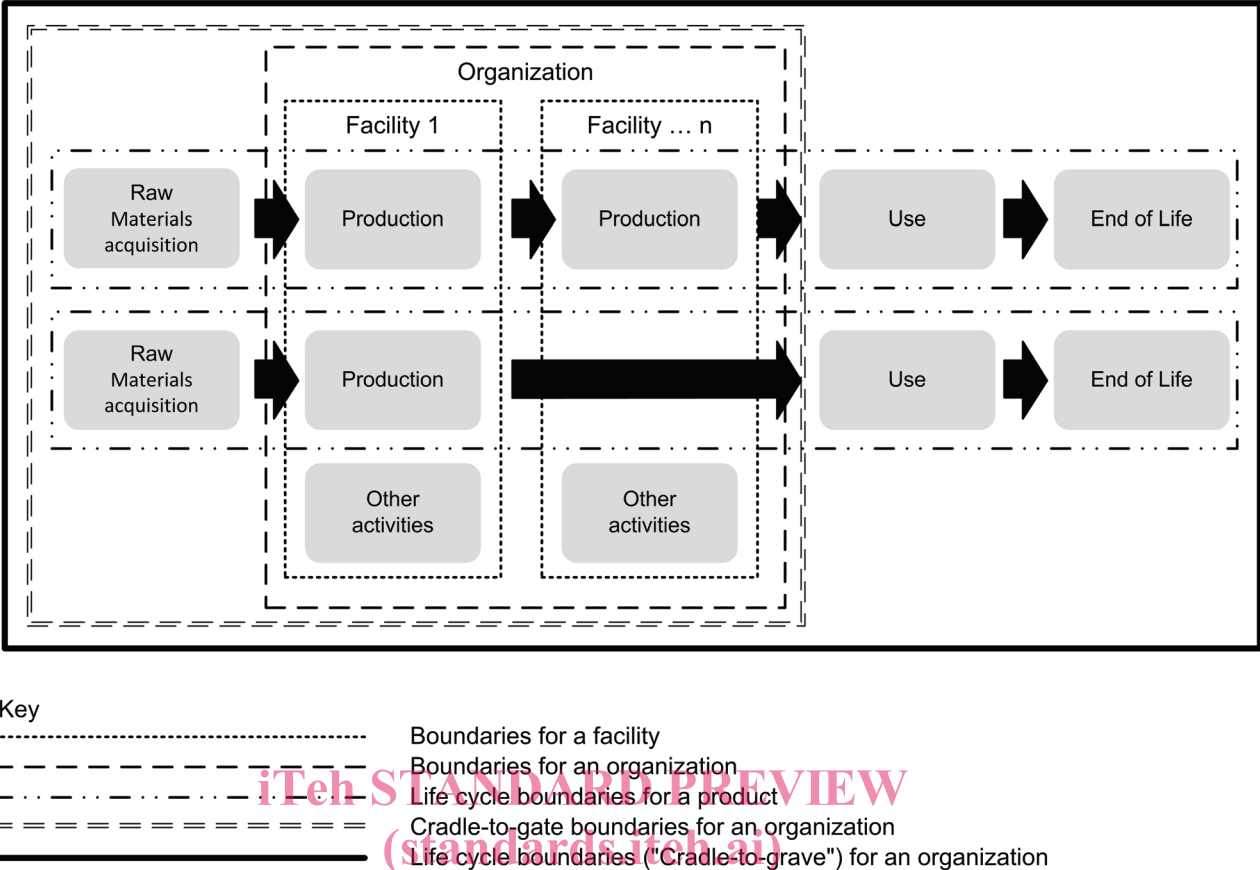


Figure 1 — Examples of different boundaries for inventory of organization

The organization shall consider the complete life cycle to cover all inputs and outputs related to the organization’s activities and disclose and justify any exclusion.

A complete ‘cradle-to-grave’ assessment of an organization, as shown in Figure 1, includes the use and end-of-life treatment of sold products by the reporting organization in the reference period. This includes use stage emissions of sold products over their expected lifetime and the waste disposal and treatment of products sold by the reporting organization (in the reference period) at the end of their lives. Use stage flows should be included if products directly consume energy or generate emissions during use like e.g. automobiles, aircraft, power plants, buildings, etc. or indirectly consume energy or cause emissions during use like e.g. apparel (requires washing and drying), food (requires cooking and refrigeration), or soaps and detergents (require heated water).

Calculating input and outputs for the use stage typically requires product design specifications and assumptions about how consumers use products (e.g. use profiles, assumed product lifetimes, etc.).

If the organization has no influence on the use stage and the end-of-life stage of its products, e.g. through product design or recycling campaigns, which can occur e.g. for raw materials and intermediate products, it can select the “cradle-to-gate” boundary where the use and end-of-life stages are excluded.

According to ISO 14044:2006, 4.2.3.3, system boundary shall be documented and justified in relation with the goal and scope of the study. For organizations, system boundaries shall reflect the consolidation approach.

The system boundary is defined considering a process-based approach and the additional operations of the organization (see Figure 1).

The organization can include one or more facilities/sites whose inputs and outputs typically result in environmental impacts. The organization shall consolidate its facilities/sites by one of the following consolidation approaches:

- a) operational control: the organization assesses impacts of processes and physical units from facilities over which it has operational control;
- b) financial control: the organization assesses impacts of processes and physical units from facilities over which it has financial control;
- c) equity share: the organization assesses impacts of processes and physical units from respective facilities according to its share of equity interest.

When a facility is controlled by several organizations, these should adopt the same consolidation methodology.

The part of the organizations, which are accounted as assets and depreciated in the OLCA, shall be identified. The calculation methodology of LCI of these parts shall be clear and documented.

- If the organization wholly owns and operates all its operations, its organizational boundaries are the same whichever consolidation methodology is used. In this case, the organization simply quantifies and reports all emissions from each of its wholly owned operations (ISO/TR 14069).
- For organizations with jointly owned operations, however, the organizational boundaries differ depending on the consolidation methodology used, control or equity share (ISO/TR 14069).

When assessing one organization, double counting shall be avoided.

In all cases, the organization shall document which consolidation methodology it applies. The organization shall explain any change to the selected consolidation methodology.

5.3 Specific considerations when dealing with LCI, LCIA, and interpretation

Some specific issues can occur when doing OLCA.

For an OLCA, it is usually not suitable nor recommended to aggregate the OLCAs of its supply chain, because organizations usually neither purchase the whole product spectrum nor the total production volume of a particular supplier. Therefore, inputs and outputs of suppliers shall be allocated to the basket of products purchased from suppliers. This shall be done by using the allocation procedures described in ISO 14044 or, if consistent with the goal and scope of the study, by using data representative for the products purchased.

In dealing with aspects of LCI and LCIA for the OLCA, the significant environmental impacts shall be defined, based on knowledge of products, resources required, and emissions. In order to develop the impact assessment, after the inventory calculation procedure as outlined in [Annex D](#), the availability of data and the needs for the inventory shall be evaluated. In the interpretation phase, proper consideration and explanation of these issues shall be stated.

[Figure 2](#) shows, as an example, an upstream supply chain composed of tier I, tier II, and tier III suppliers. Each tier produces a number of products for the following tier until the products are delivered to the reporting organization. As long as all products from tier I, II, and III are all completely involved in the reporting organization's product portfolio (grey shade), no allocation problems arise.

However, if some products are not delivered to the reporting organization (black shade) but are part of the supplier's products portfolio, they should not be accounted for. Hence, an allocation of the supplier's products portfolio should be performed in order to adjust to the products purchased by the organization.