Circular economy

December 2024

Rethink Circularity: European Circular Economy Summit 2024

iso.org

ISO, an independent and non-governmental organization

Since 1946

ISO's consensus-based standards development process **ensures** that comments from all stakeholders are taken into account.

170+
Members

There is only one member per country.

800+
Technical committees

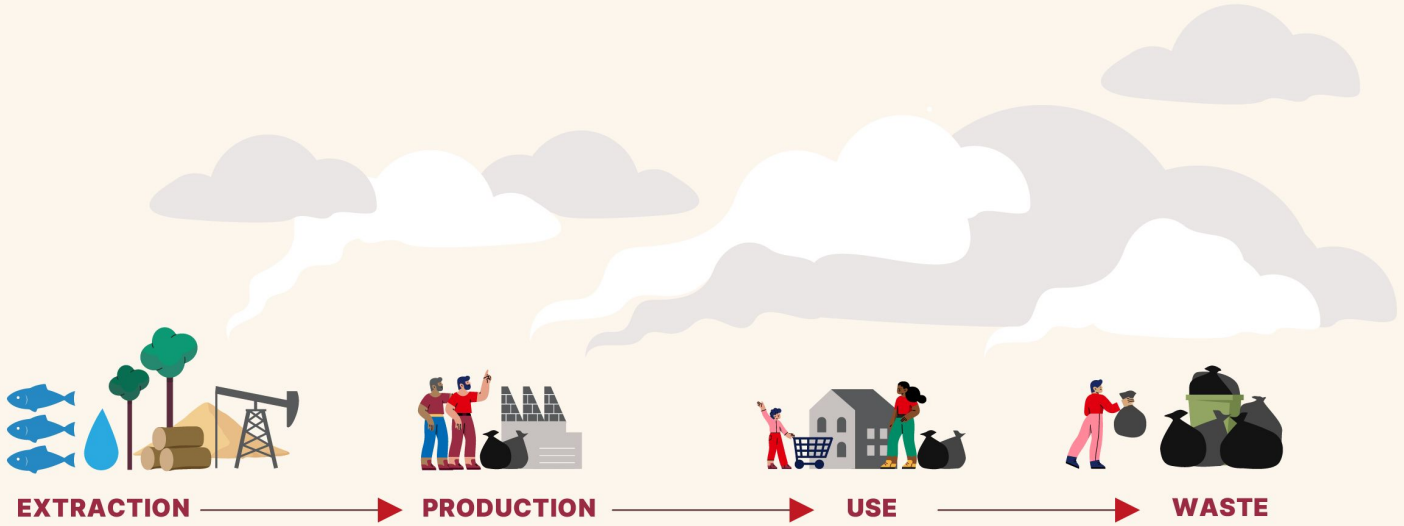
25 000+
International standards

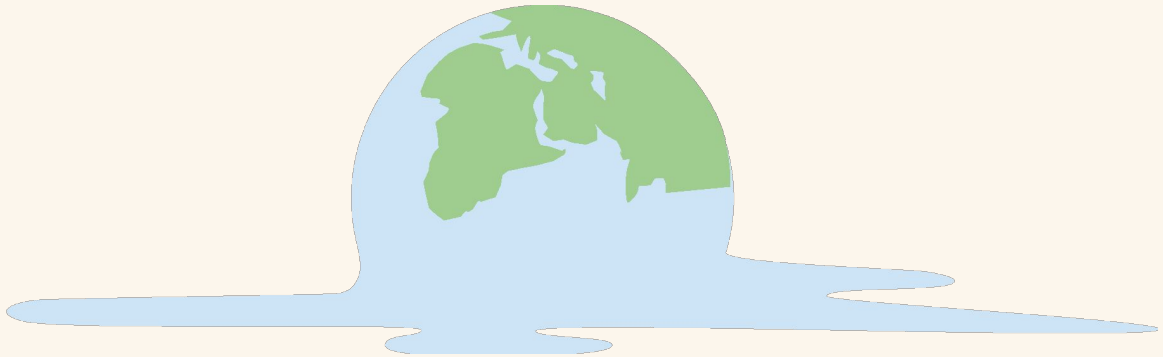
The ISO way

Inclusive
Value-driven
Independent
Can-do
Global

The global economy is linear

This linear economy leads to resource depletion, biodiversity loss, waste and harmful losses and releases, **which collectively are causing serious damage to the capacity of the planet to continue to provide for the needs of future generations.**





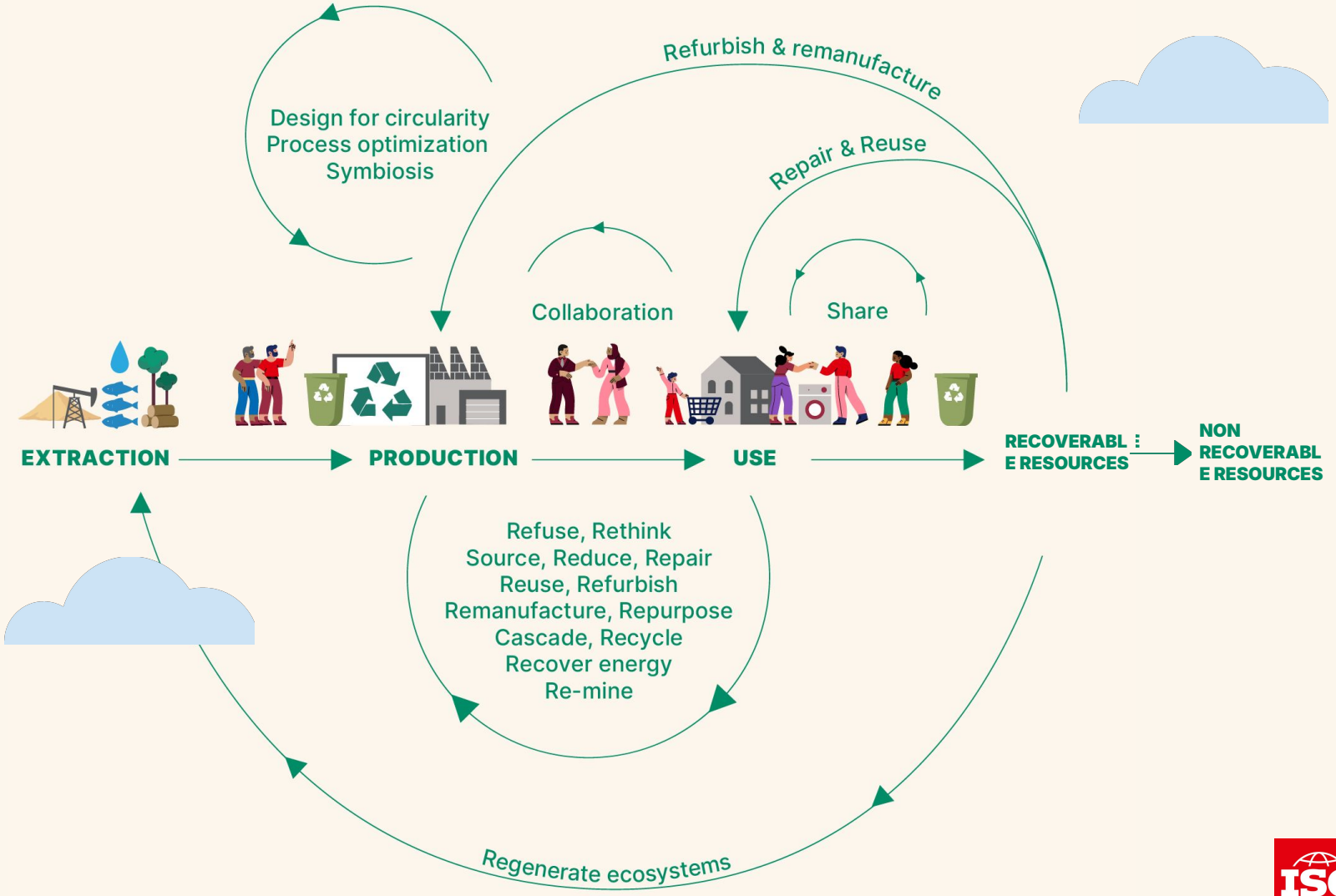
Several planetary boundaries have already been reached or exceeded:

- ☑ Climate change,
- ☑ Biosphere integrity,
- ☑ Novel entities,
- ☑ Land-system change,
- ☑ Freshwater change,
- ☑ Biogeochemical flows nitrogen and phosphorus.

Towards a circular economy

Transition towards an economy that is more circular, based on a circular use of resources, can contribute to meeting current and future human needs.

This transition calls into question our modes of production and consumption.
It can also contribute to the creation and sharing of more value within society and interested parties, while natural resources are managed to be replenished and renewed, securing the quality and resilience of ecosystems.



Circular economy by ISO

102 countries and 19 international organizations bring together experts to develop circular economy standards.

SUSTAINABLE DEVELOPMENT GOALS

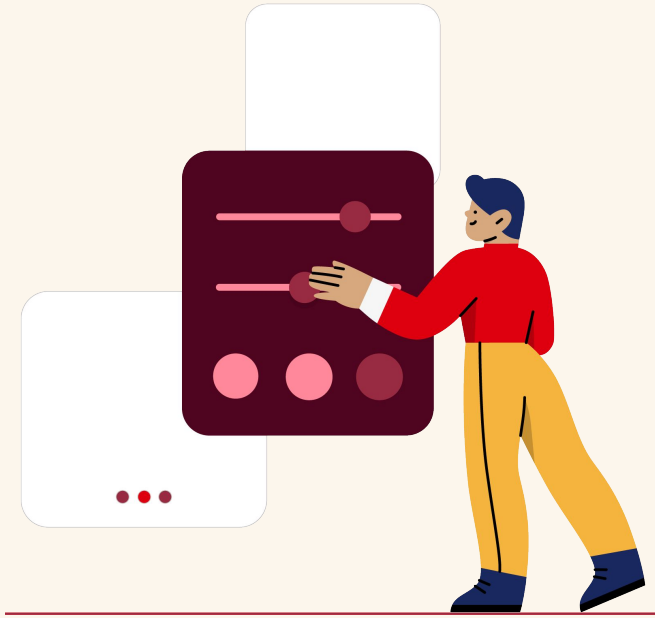
Standards contribute to achieve SDGs

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Answers for the circular economy transition

ISO 59000 family of standards

A common understanding:
Definitions, principles, actions, business models, value networks, measures, assessment, ..., all what is needed to act now!



ISO 59004

Circular economy
Vocabulary, principles and guidance for implementation

ISO 59010

Circular economy
Guidance on the transition of business models and value networks

ISO 59020

Circular economy
Measuring and assessing circularity performance

ISO 59040

Circular economy
Product Circularity Data Sheet

ISO 59014

Environmental management and circular economy
Sustainability and traceability of secondary materials recovery – Principles, requirements and guidance

Published standards

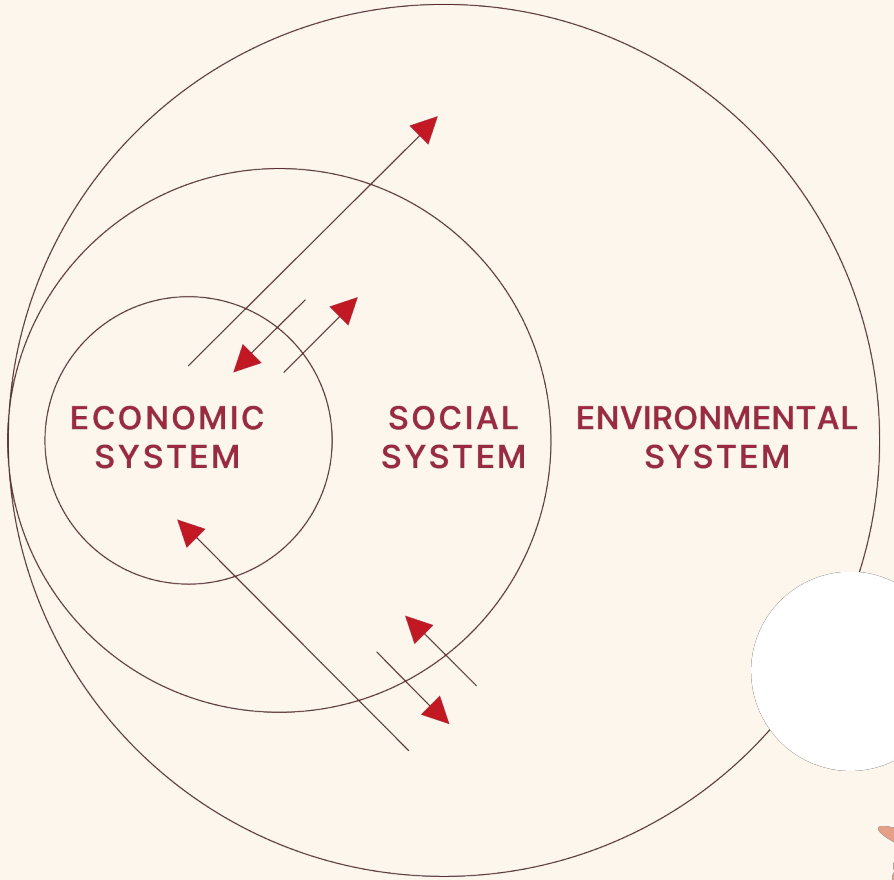
The first international definition

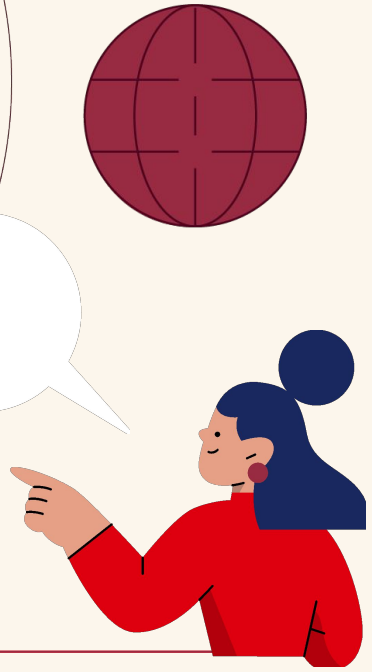
ISO 59004

Circular economy

Economic system that uses a systemic approach to maintain a circular flow of resources, by recovering, retaining or adding to their value, while contributing to sustainable development.

- ☑ Resources can be considered concerning both stocks and flows.
- ☑ The inflow of virgin resources is kept as low as possible, and the circular flow of resources is kept as closed as possible to minimize waste, losses and release from the economic system





6 principles that are interlinked and complementary

ISO 59004

Systems Thinking

Adopting a **long term approach** ...

Value creation

...to better **use resources in an efficient way**.

Value sharing

Collaborating along value chain or **value network**...

Resource stewardship

...by **closing, slowing** and **narrowing** resource flows.

Resource traceability

Be **accountable for sharing information** with interested parties...

Ecosystem resilience

...and contribute to the **regeneration** of **ecosystems** and **biodiversity.**

Actions that contribute to a circular economy

ISO 59004

Actions[1] described in ISO 59004 are applicable across the value chain. They can be combined in accordance with the 6 principles.

A guidance for resource management can help prioritizing actions to achieve a better circularity performance: **refuse, rethink, source, reduce, repair, reuse, refurbish, remanufacture, repurpose, cascade, recycle, recover energy, re-mine.**

Create added value

- Design for circularity
- Circular sourcing
- Circular procurement
- Process optimization
- Industrial, regional or urban symbiosis

Retain value

- Reduce, reuse, repurpose
- Maintenance and repair
- Performance-based approaches
- Sharing to intensify use
- Refurbishing
- Remanufacturing

Recover value

- Reverse logistics
- Cascading of material
- Recycling
- Waste management
- Material recovery
- Energy recovery

Regenerate ecosystems

- Removal of harmful substances, remediation of soil and water bodies, mitigation and adaptation to climate change impacts, protection of biodiversity

[1] Non exhaustive list

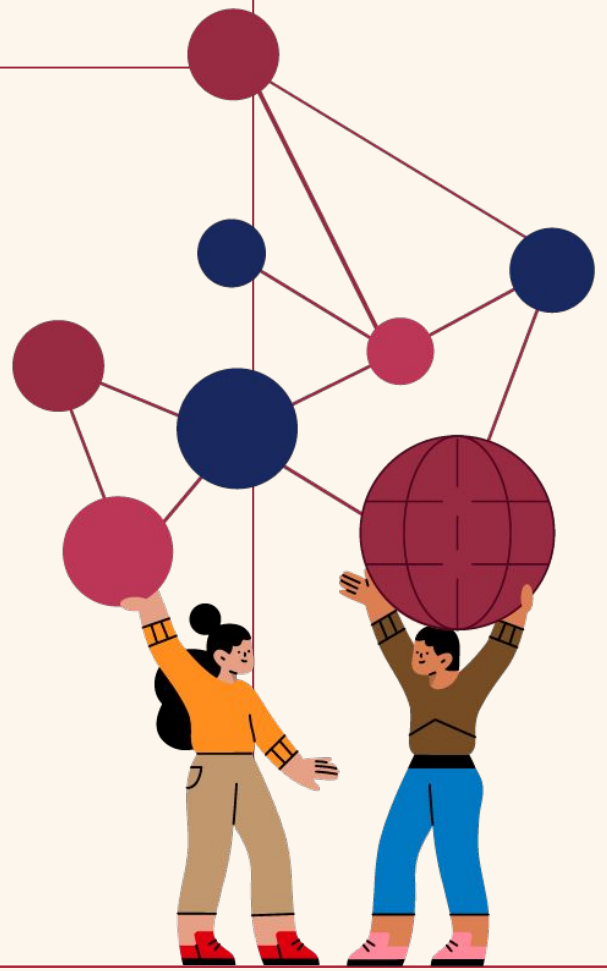
Transition of business models and value networks

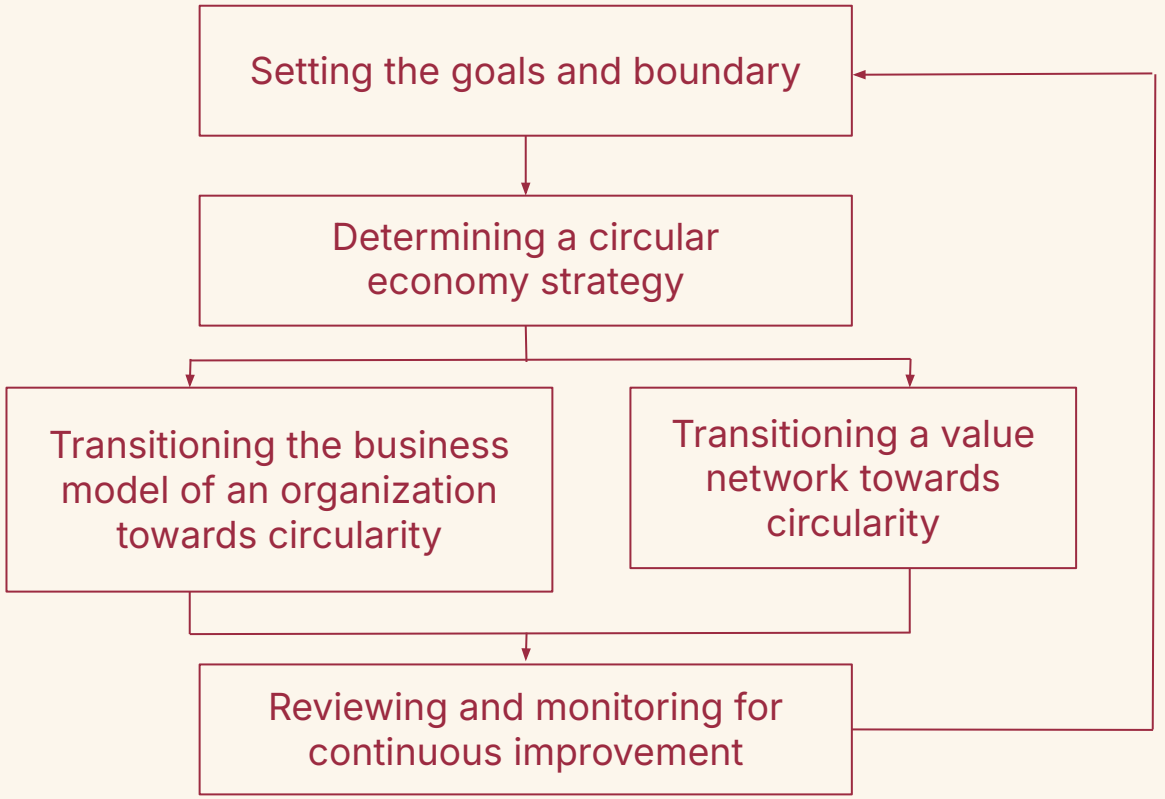
ISO 59010 in a nutshell

1. Analyze the **current business models and value networks ...**

2. ... through the **circular economy principles** and actions ...

3. ... to transition to **circular business models.**





Transition of business models and value networks

ISO 59010, **changing the tide to redress balances**

- ☑ **To translate the regulatory requirements into circularity strategies and business models** (unless already embedded in policies)
- ☑ **To question oneself and the strategies of stakeholders** (e.g. government or industry sponsored Extended Producer Responsibility schemes)
- ☑ **To set and meet measurable circularity objectives**
- ☑ **To anticipate megatrends** (e.g. digitalisation), and translate them into circularity strategies.

- **A change of mindset**: integrating consumers, manufacturers, value chains, and material conditioners
- **Better governance** based on an analysis and inclusion of an **ecosystem of stakeholders**
- **Business Models** that create and exploit the market levers **for material recovery and value retention**
- **Investments from ecodesign to downstream facilities**, that are market responsive
- **Value propositions**, either set individually or part of a wider construct, that cascade in value chains, and which **enable risk sharing** for circularity assets
- Objectives and indicators that are attainable, measurable, individually or collectively

Measuring and assessing circularity performance

ISO 59020

A framework applicable to multiple levels of an economic system, ranging from regional, interorganizational and organizational to the product level.

- **Monitor goals and actions**

  E.g. reduce, repair, reuse, remanufacture, recycle, ...

- **Measure resource flows**

  E.g. inflows, outflows, releases, losses, ...

- **Assess sustainability impacts**

  Social, environmental and economic impact and value

Core circularity indicators:

- Resource inflows
- Resource outflows
- Energy
- Water
- Economic

And examples of additional indicators.

Sustainability and traceability of secondary materials

ISO 59014,
8 principles to:

- ☑ Seek to **recover secondary materials in a responsible manner**
- ☑ Engage with **individuals involved in subsistence activities**

Respect for interested parties' interests	Value chain responsibility	Responsibility towards interested parties engaged in subsistence activities	Life cycle perspective
Safe, healthy and equitable working conditions	Protection of the environment	Resource conservation	Enabling of circular resource flow using secondary materials

Sustainability and traceability of secondary materials

ISO 59014, requirements and guidance

Operational requirements

- Classification and determination of recovery pathways
- Collection
- Sorting
- Material recovery processes
- Logistics

Organizational requirements

- Monitoring and evaluation
- Interested party engagement
- Responsibility towards the value chain
- Responsibility towards individuals engaged in subsistence activities
- Equitable working conditions
- Risks
- Resource use
- Competencies and training

Traceability requirements

- Upstream
- During the processing
- Downstream
- Depollution
- Communication
- Continual improvement

Ease circular economy data exchange

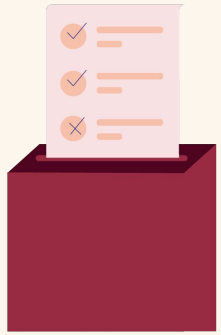
ISO 59040 in a nutshell

- Establishes a general methodology for **information exchange supporting the interoperability of circular economy related information**, based on the use of a product circularity data sheet (PCDS).
- **Specifies requirements** for completing a PCDS by an organization, when acquiring or supplying products in order to permit **the exchange of circular economy related information** about those products.

When establishing a PCDS, acquirer and supplier should consider a relationship strategy, plan and associated agreement to:

General methodology

- Identify circularity aspects for determined products and improve them
- Identify the value network
- Determine responsibilities
- Use of specification data fields
- Use of persistent identifier data fields



Specific requirements

- Establish and maintain a PCDS Template including mandatory and additional statements:
  - Company and product information,
  - Material inputs,
  - Circular production,
  - Durability and extended lifetime,
  - Circularity at end of product use period,
  - Circularity benefit.

Additional documents to help the transition

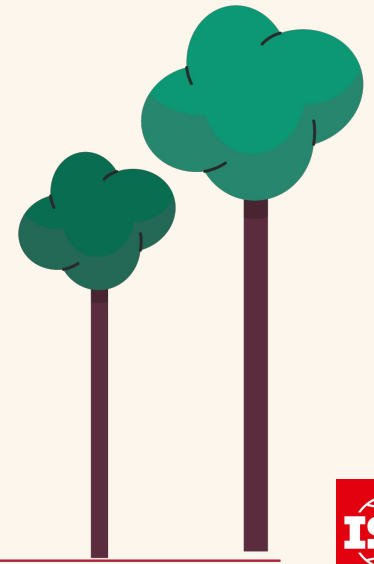
Feedback of experience

ISO TR 59031 - Circular economy - **Performance based approaches**

- This document focuses on performance-based approaches such as functional economy, service economy, product-as-a-service, ...
- It depicts cultural, organizational and industrial changes induced by this move of their business models.

ISO TR 59032 - Circular economy - **Review of business model implementation**

- This document complements ISO 59010 by providing further information on value networks.
- It reviews the characteristics and structures of some existing value networks as examples in accelerating a circular economy transition process.



ISO/TC 323 Circular economy prospective timeline

PUBLICATION

MAY 2024

ISO 59004
Vocabulary, principles and guidance for implementation

ISO 59010
Guidance on the transition of business models and value networks

ISO 59020
Measuring and assessing circularity performance

NEW WORK ITEM PROPOSITION

JULY 2024

Webinar to present a new project: **Circular economy management system standard**

PUBLICATION

1st Oct. 2024

ISO 59014
Sustainability and traceability of secondary materials recovery – Principles, requirements and guidance

NEW WORK ITEM PROPOSITION

Oct. 2024

Webinar to present a new project: **Design for Circularity – Guidelines for organizing a value network**

FDIS

End 2024

ISO 59040
Product Circularity Data Sheet

INTERNATIONAL SURVEY

Beginning 2025

Gather feedback to feed the revision

ISO/TC 323 meeting in Jamaica

Nov. 2025

Decision to be taken launch the revision?

An international survey to feed the revision

Gather feedback from the field

A survey to be manage beginning 2025

ISO 59004

Circular economy
Vocabulary, principles and guidance for implementation

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Guidance on the transition of business models and value networks

ISO 59020

Circular economy
Measuring and assessing circularity performance

- Gather examples of actions, indicators, business models currently implemented
- Improve the common understanding of standards
- Integrate requirements?
- Integrate examples?
- Better consider SMEs challenges
- Etc...

Thank you

Switch to alternative models to decouple the global economy from the consumption of limited resources...

...Let's implement Circular Economy within our organizations!

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To join ISO TC 323 Circular Economy

Contact your national standardization body

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