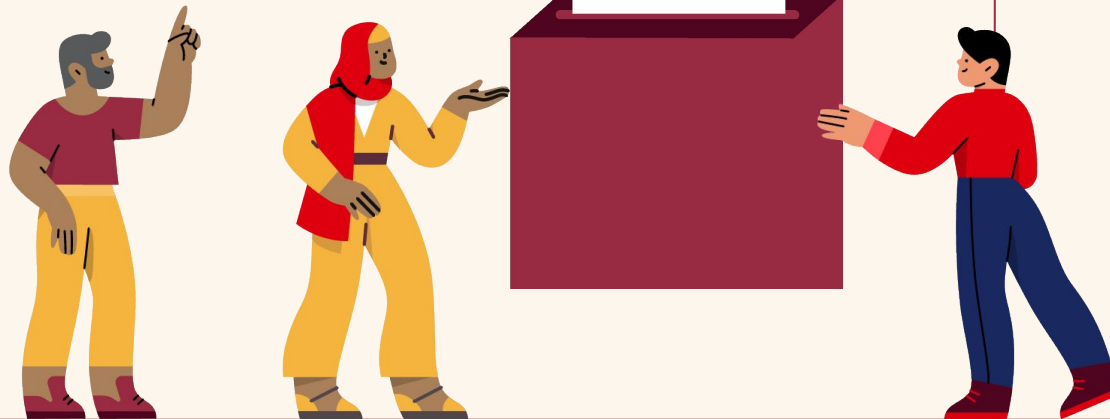# Circular economy

May 2024

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
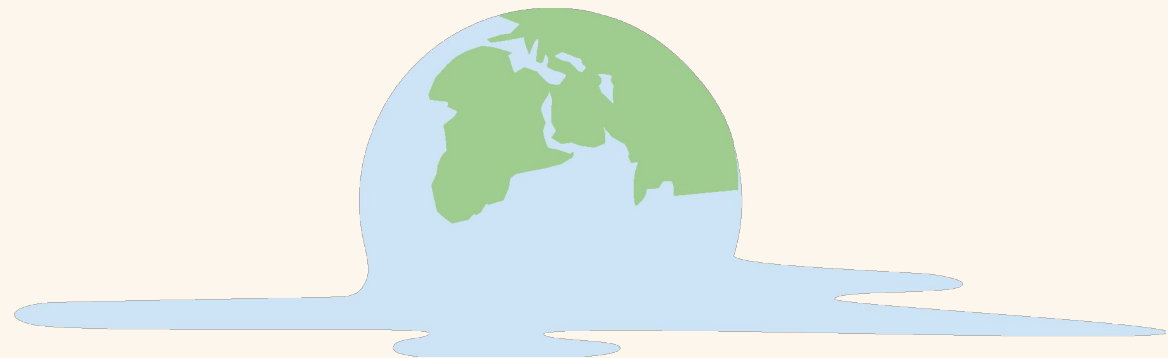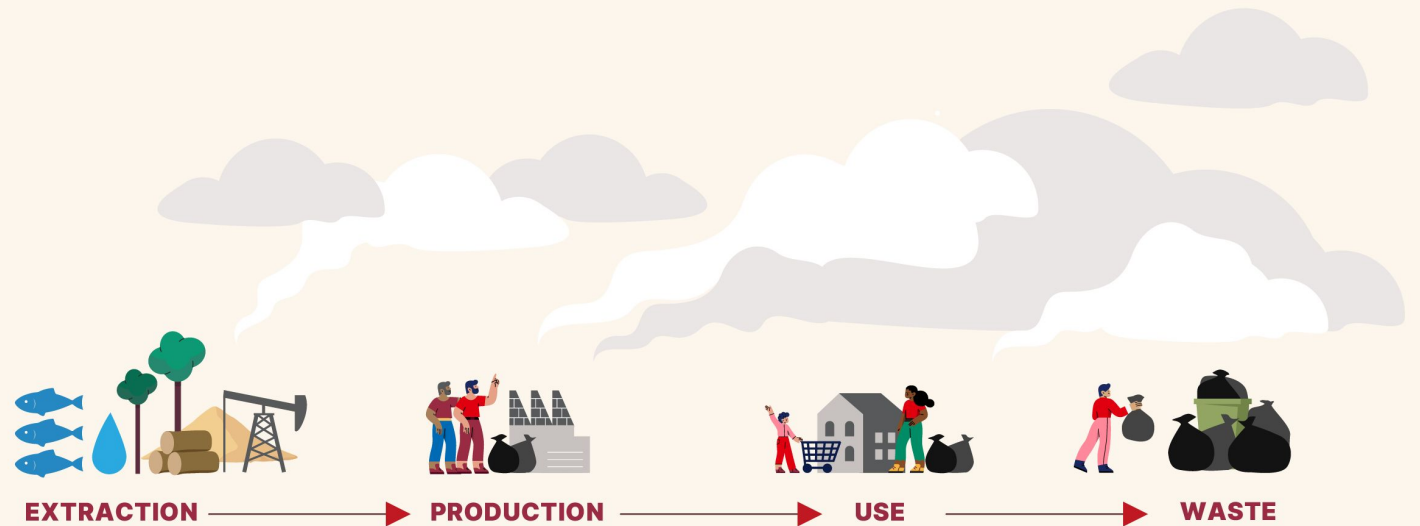**Independent**
Can-do
Global

ISO

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.

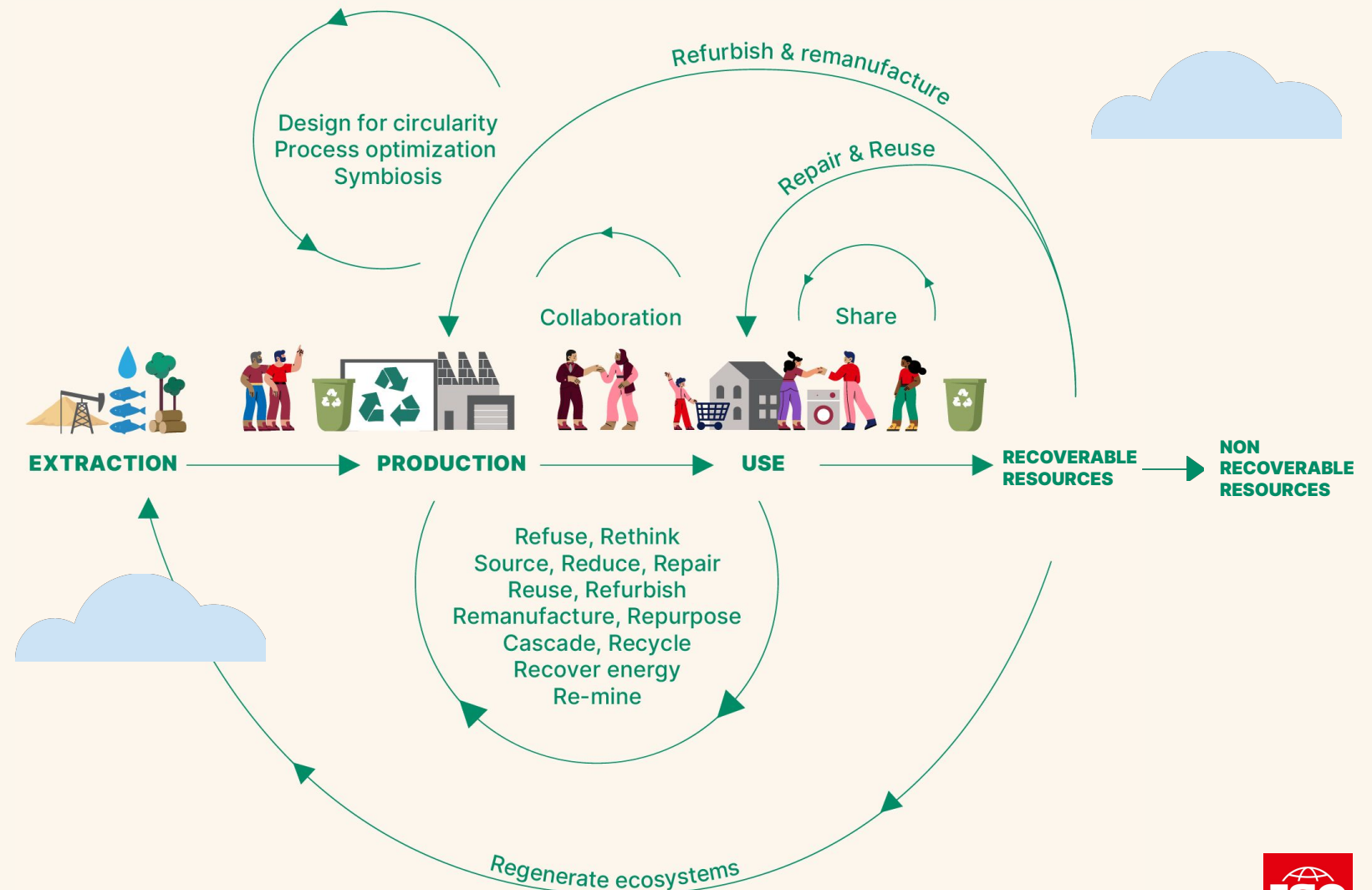EXTRACTION → PRODUCTION → USE → WASTE

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.

Refurbish & remanufacture

Design for circularity
Process optimization
Symbiosis

Repair & Reuse

Collaboration

Share

EXTRACTION → PRODUCTION → USE → **RECOVERABLE RESOURCES** → **NON RECOVERABLE RESOURCES**

Refuse, Rethink
Source, Reduce, Repair
Reuse, Refurbish
Remanufacture, Repurpose
Cascade, Recycle
Recover energy
Re-mine

Regenerate ecosystems

ISO

Circular economy by ISO

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

SUSTAINABLE DEVELOPMENT GOALS
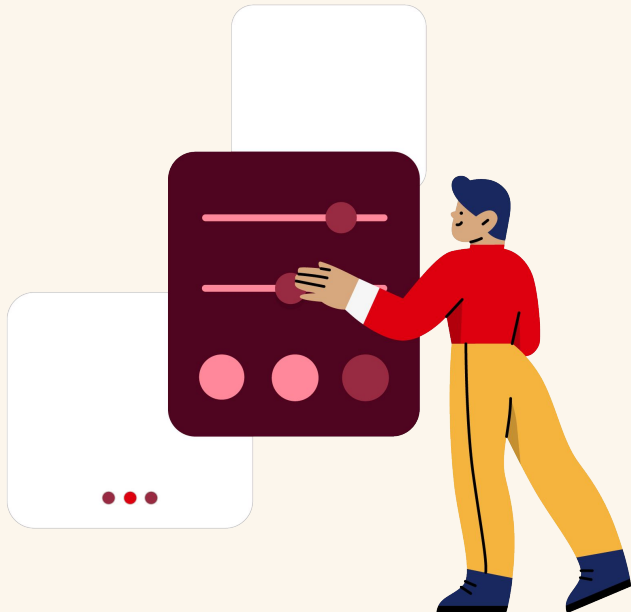
Standards contribute to achieve SDGs

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

ISO

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
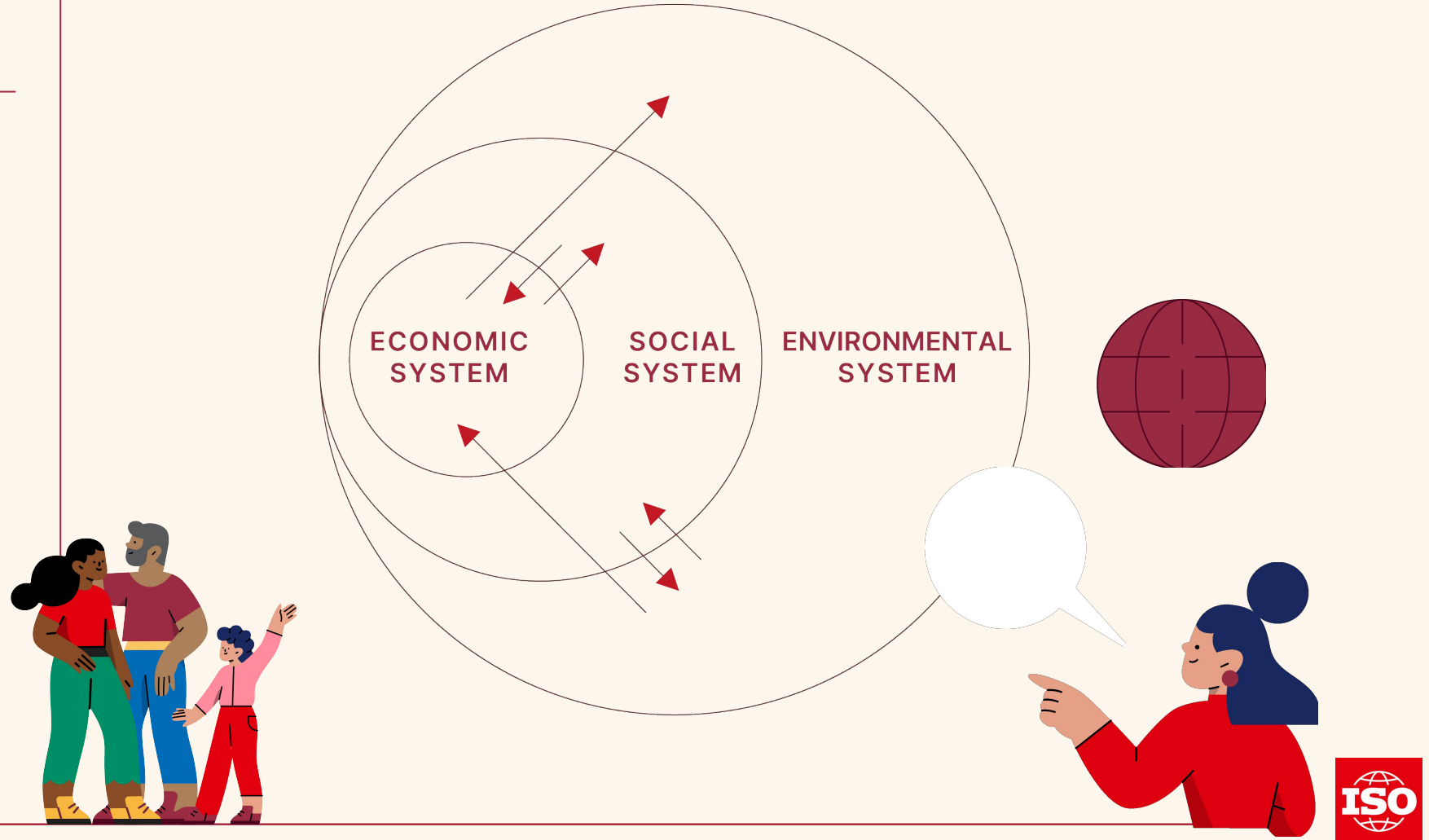
The first international definition

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

ECONOMIC SYSTEM

SOCIAL SYSTEM

ENVIRONMENTAL 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...
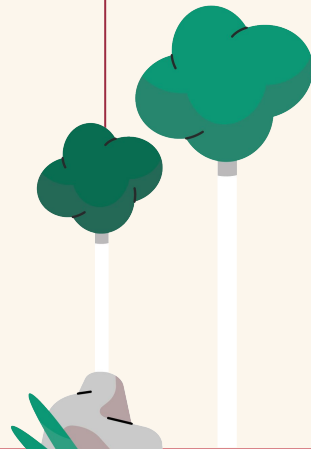
Ecosystem resilience

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

ISO

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

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

☑ Retain value

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

☑ Recover value

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

☑ Regenerate ecosystems

- Removal of harmful substances, remediation of soil and water bodies, mitigation and adaptation to climate change impacts, protection of biodiversity
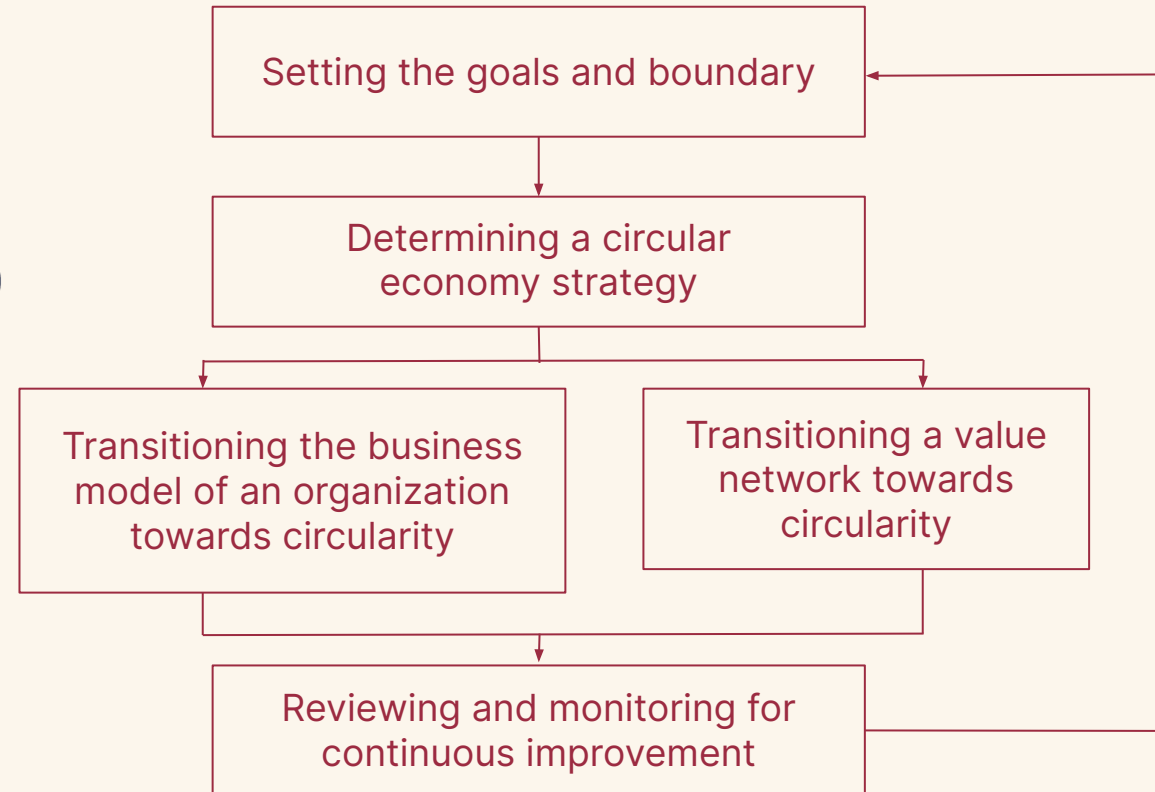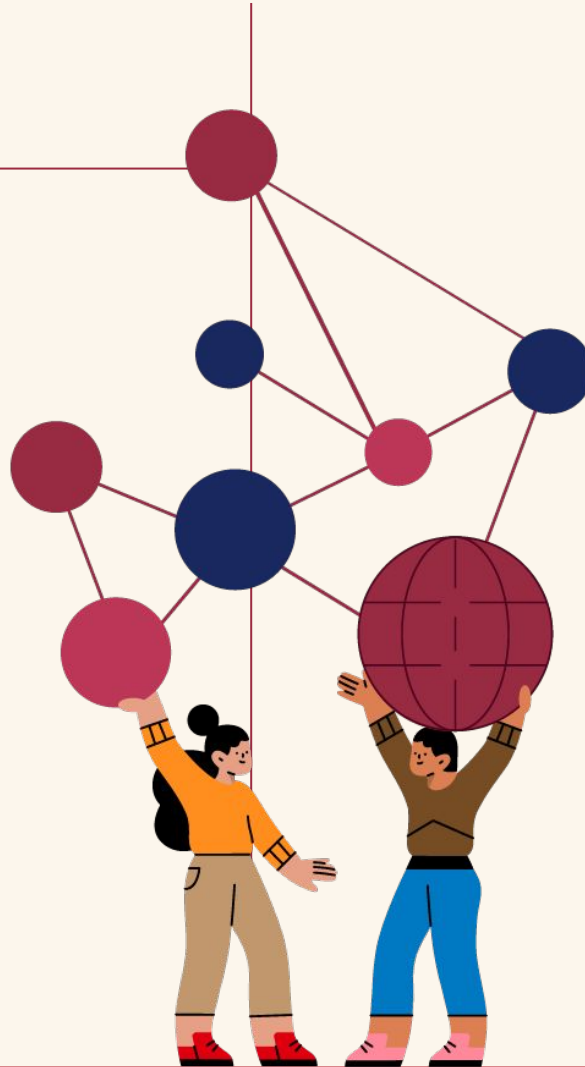
[1] Non exhaustive list

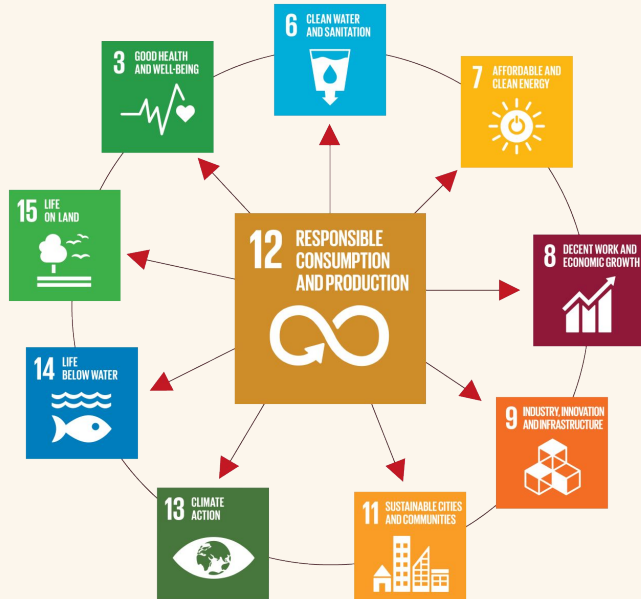# Transition of business models and value networks

ISO 59010

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

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

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

Setting the goals and boundary

Determining a circular economy strategy

Transitioning the business model of an organization towards circularity

Transitioning a value network towards circularity

Reviewing and monitoring for continuous improvement

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.

Additional documents to help the transition

ISO 59040

Product Circularity Data Sheet

▶ **Provide basic product circularity data** about products,

▶ Improve circularity data **sharing efficiency,**

▶ Encourage improved **product circularity performance**.

ISO 59014

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

▶ Provide guidance for facilitating the **sustainability and traceability** of activities for the **recovery of secondary materials,**

▶ Specifies requirements that engage with **individuals involved in subsistence activities.**
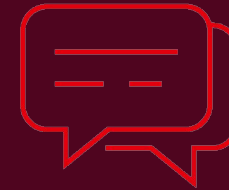
Feedback of experience

▶ ISO TR 59031 **Performance based approaches**

▶ ISO TR 59032 **Review of business model implementation**

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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