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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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 323, *Circular economy*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

0.1 Background

The global economy is “linear” as it is mainly based on extraction, production, use and disposal. This linear economy leads to resource depletion, biodiversity loss, waste and ~~harmfull~~**harmful** losses and releases, all of which collectively are causing serious damage to the capacity of ~~our~~**the** planet to continue to provide for the needs of future generations.^[23] Moreover, several planetary boundaries have already been reached or exceeded.

There is an increased understanding that a transition towards an economy that is more circular, based on a circular use of resources, can contribute to meeting ~~our~~ current and future human needs (welfare, housing, nutrition, healthcare, mobility, etc.). Transitioning towards a circular economy can also contribute to the creation and sharing of more value within society and ~~stakeholders~~**interested parties**, while natural resources are managed to be replenished and renewed and in a sustainable way, securing the quality and resilience of ecosystems.

Organizations recognize many potential reasons to engage in a circular economy, ~~(e.g. delivering more ambitious and sustainable solutions; improved relationships with stakeholders~~**interested parties**; more effective and efficient ways to fulfil voluntary commitments or legal requirements; engaging in climate change mitigation or adaptation; managing resource scarcity risks, increasing resilience in the environmental, social and economic systems,^[1] while contributing to satisfying human needs.

The ISO 59000 family of ~~documents~~**standards** (see [Figure 1](#)) is designed to harmonize the understanding of the circular economy and to support its implementation and measurement. It also considers organizations, such as government, industry and non-profit, in contributing to the achievement of the United Nations (UN) Agenda 2030 for Sustainable Development^[24].

~~The family of documents also considers organizations, such as government, industry, and non-profit organizations in contributing to the achievement of the UN Agenda 2030 for Sustainable Development.~~

ISO 59 004 – Circular Economy – Terminology, principles and guidance for implementation

ISO/FDIS 59010

ISO 59 010
Circular Economy –
Guidance on business
models and value
networks

ISO 59 020
Circular Economy –
Measuring and
assessing circularity
performance

ISO 59 040
Circular Economy –
Product Circularity
Data Sheet

ISO 59 014
Environmental
management and circular
economy – Sustainability
and traceability of secondary
materials recovery–
Principles and requirements

ISO TR 59 031 – Circular Economy – Performance based approaches

ISO TR 59 032 – Circular Economy – Review of business model implementation

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 the recovery of secondary
materials – Principles
and requirements*

ISO/TR 59031, Circular economy – Performance-based approach – Analysis of case studies

ISO/TR 59032, Circular economy – Review of existing value networks

Figure 1 – The ISO 59000 family of ~~documents~~standards****

0.2 Relationship between ISO 59004, this document and ISO 59020

ISO 59004, [ISO 59010¹](#), [this document](#) and ISO 59020² are interconnected, as shown in [Figure 2](#), and support organizations in implementing a transition towards a circular economy.

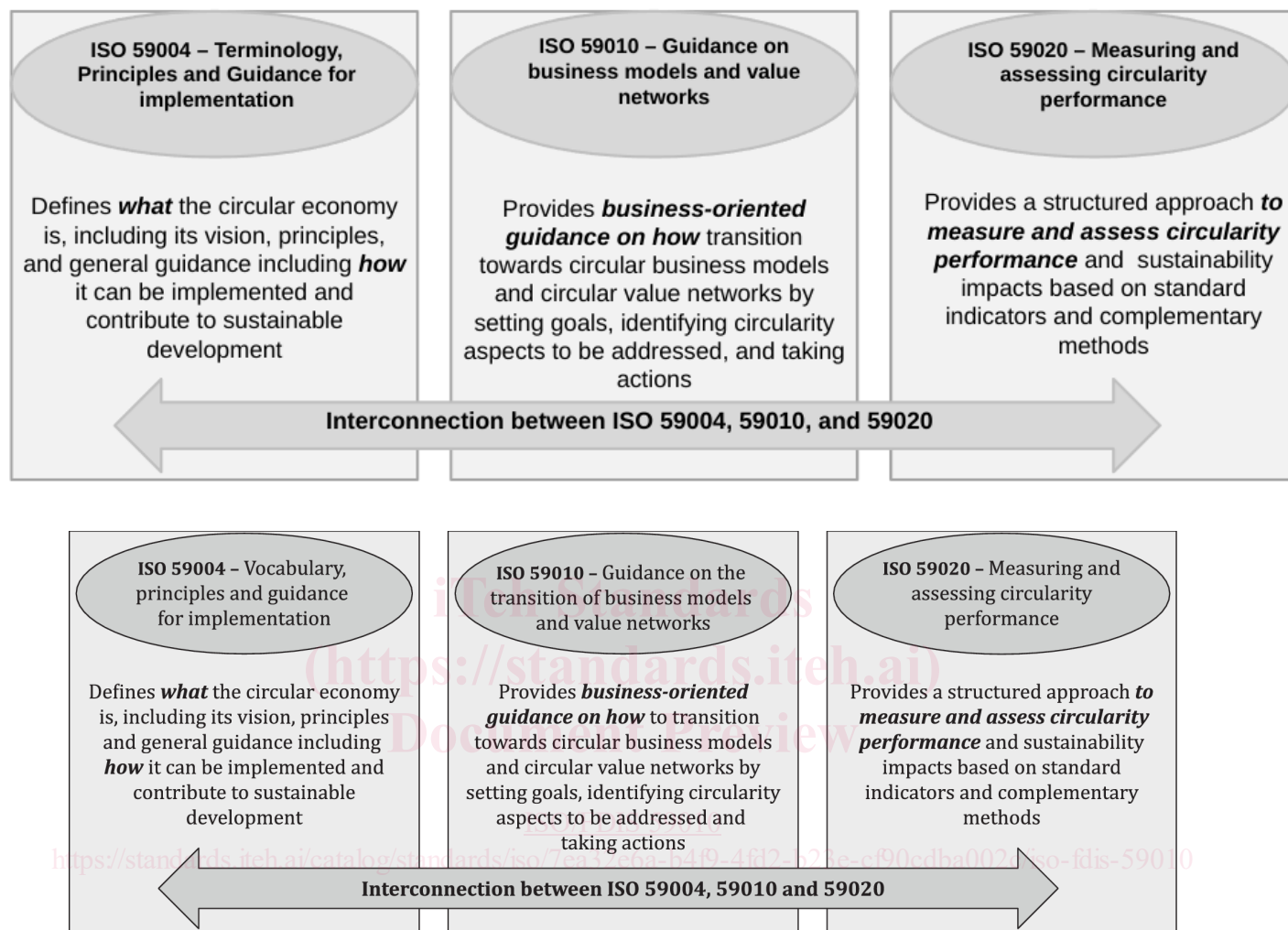


Figure 2 — Relationship between ISO 59004, this document and ISO 59020

0.3 Purpose and the outline of this document

Today's predominant linear economy-based **businessvalue creation** models are being increasingly scrutinized from social, environmental and business perspectives. As a result, diverse responses such as landfill closures, material bans and extended producer responsibility (**EPR**) policies are being implemented. Furthermore, environmental degradation during extraction, production, use, end-of-life treatment and related pollution are now commonly acknowledged as severe risks for businesses and societies, all of which depend on ecosystem services. Besides the increasing operational risks posed by the degradation of environmental ecosystems, the failure to protect them can negatively impact an organization's reputation.

In addition to these market risks, organizations anticipate continuous regulatory and reputational challenges as governments seek to address pollution and climate change. In this context, a circular economy and related **businessvalue creation** models have emerged as a promising strategy, gaining increased attention and support

¹ Under preparation.

² Under preparation.

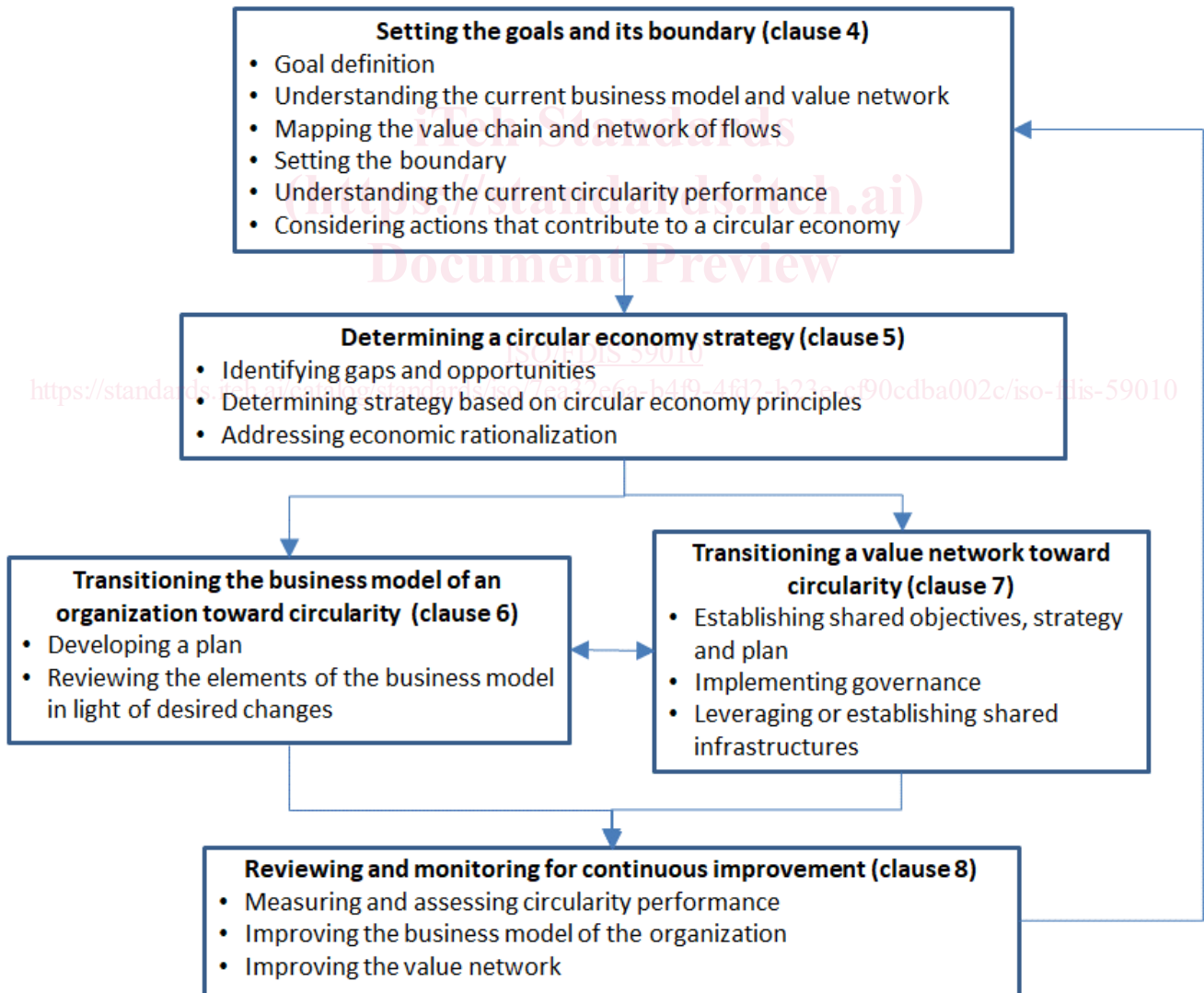
in society. Circular businessvalue creation models provide many more sustainable opportunities than existing linear models. During the development of this document, a survey was conducted to gather examples of changes in businessvalue creation models and value networks, and the results are provided in ISO/TR 59032³.

Circular businessvalue creation models continuously improve their resource management practices and contributions to a circular economy and more sustainable business pathways. Circular businessvalue creation models establish measurable indicators (see ISO 59020) which can track resource use and losses over time, and monitoringmonitor their impacts on and benefits to society and the natural environment.

In addition to its potential environmental benefits, studies show that a circular economy offers opportunities worth trillions of USUnited States dollars, including job creation, which builds resiliency in national and international economies.^[26,44] These findings have propelled momentum towards a global circular economy, and as a result, organizations have begun the transition to take advantage of these many opportunities.

However, transitioning from a linear to a circular businessvalue creation model can be challenging because it typically demands that an organization's businessvalue creation models and value networks be restructured. Accordingly, this document gives guidance for organizations wishing to transition their linear businessvalue creation models and value networks to ones of circularity.

ISO-59010This document is divided into eight clauses, of which Clauses 4clauses-4 to 88, including their subclauses and interrelationships, are shown in Figure 3Figure 3.



³ Under preparation.

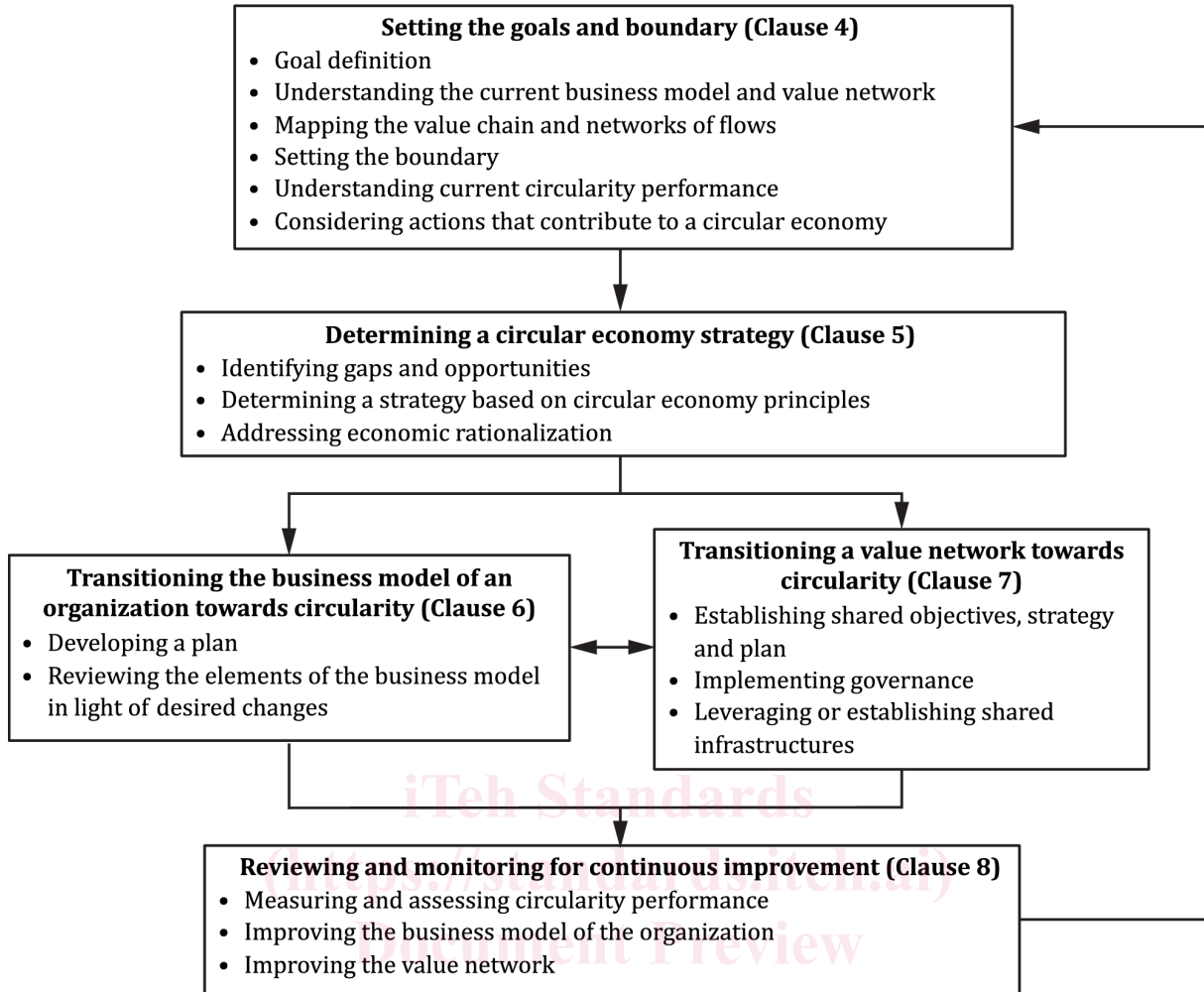


Figure 3 — Main structure of this document

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0.4 Correspondence between ISO 59004 and this document

This document seeks to provide a more business-oriented methodology than ISO 59004, by which the transition from linear to circular is implemented in an actual business strategy. Therefore, as shown in [Table 1](#), the two documents are complementary. This document focuses on business-oriented perspectives at the organizational and inter-organizational levels, while ISO 59004 is more generic and also applies at higher levels.

Table 1 — Correspondence between selected clauses in ISO 59004 and ~~ISO 59010~~this document

Clauses and subclauses of ISO 59004		Corresponding clauses and subclauses in this document	
7.2	Context and reference situation assessment	4.2	Understanding the current <u>business value creation</u> model and value network of the organization
		4.3	<u>Mapping the value chain and networks of flows</u>
		4.4	<u>Setting the boundary for addressing circularity</u>
		4.5	<u>Understanding current circularity performance</u>
6	Actions that contribute to a circular economy	4.6	Considering actions that contribute to a circular economy
7.3	Circular economy purpose, mission, vision and goals definition	4.1	Goal definition
		5.1	Identifying gaps and opportunities
		5.2	Determining a circular economy strategy based on circular economy principles
		5.3	Address - <u>Addressing</u> economic rationalization
7.4	Circular economy strategic priorities and action plan development	6.1	Developing a plan
7.5	Circular economy implementation	6.2	Reviewing the elements of the <u>business value creation</u> model in light of desired changes
7.6	Circular economy monitoring, reviewing and reporting	7	Transitioning a value network toward circularity
		8.1	Measuring and assessing circularity performance
		8.2	Improving the <u>business value creation</u> model of the organization
		8.2	Improving the value network

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

1 Scope

This document gives guidance for an organization seeking to transition its **business value creation** models and value networks from linear to circular.

This document **applies applicable** to any organization regardless of size, sector or region.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 59004⁴, *Circular economy — Terminology, Principles Vocabulary, principles and Guidance guidance for Implementation implementation*

~~ISO 59020, *Circular Economy — Measuring and assessing circularity performance*~~

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 59004 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

3.1 value creation model

business model

organization's chosen system of interconnected and interdependent decisions and activities that determines how it creates, delivers and captures *value* (3.16)

Note 1 to entry: A value creation model involves external *processes* (e.g. transportation, take-back) beyond **those of** the organization's ~~internal~~ processes (e.g. education, financing) and the *solutions* (3.14) it provides.

Note 2 to entry: The value creation model can have a focus on **at** the short, medium or long term, or some combination thereof.

~~[SOURCE: BSI-8001:2017, 2.8, modified — A new preferred term has been added, reference to 'short, medium and long term' has been removed from the definition, original Note has been deleted and Three new Notes to entry have been added.]~~

~~[SOURCE: ISO 59004:—, 3.5.1]~~

3.2 circular economy

economic system (3.3) that uses a systemic approach to maintain a circular flow of resources, by recovering, retaining or adding to their *value* (3.16), while contributing to sustainable development

⁴ Under preparation.

Note 1 to entry: *Resources* (3.12) can be considered ~~to concern~~concerning both stocks and flows.

Note 2 to entry: 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* (3.19), losses and releases from the economic system.

[SOURCE: ISO 59004:—, 3.1.1]

3.3 economic system

system by which a society organizes and allocates *resources* (3.12)

Note 1 to entry: The economic system can vary depending upon the geographic region or governmental jurisdiction.

Note 2 to entry: This can include the regulation of resources and the production, use and disposal of these resources.

[SOURCE: ISO 59004:—, 3.1.2]

3.4 extended producer responsibility EPR

environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle

Note 1 to entry: An EPR policy is characterized by:

- a) the shifting of responsibility (physically or economically; fully or partially) upstream towards the producer and away from government or municipalities;
- b) the provision of incentives to producers to take into account environmental considerations when designing their products.

Note 2 to entry: An EPR can be only financial or can be financial and operational depending on local laws.

[SOURCE: ISO 24161:2022, 3.1.1.2, modified ~~—" "local" replaced "national" in Note 2 is changed to "local"]entry.]~~

3.5 governance

principles, policies and framework by which an organization is directed and controlled

[SOURCE: ISO 21505:2017, 3.1]

3.6 interested party

stakeholder

person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: To "perceive itself to be affected" means the perception has been made known to the organization.

[SOURCE: ISO 14001:2015, 3.1.6, modified ~~—The additional preferred term "stakeholder" has been added and the EXAMPLES have been deleted.]~~

[SOURCE: ISO 59004:—, 3.4.2]

3.7

life cycle perspective

life cycle thinking

consideration of the circularity aspects relevant to a *solution* (3.14) during its life cycle which includes consideration of the relevant environmental, social and economic impacts

Note 1 to entry: The main idea in applying a life cycle perspective is to improve the circularity performance of a solution by considering its use of *resources* (3.12) and related emissions in relation to relevant environmental, social and economic impacts. This can facilitate links between the economic, social and environmental dimensions within an organization and through its entire *value chain* (3.17).

Note 2 to entry: In measuring and assessing the circularity performance of a system, a life cycle perspective should be applied.

Note 3 to entry: This perspective should include all stages of stages of technical or biological cycles over appropriate timescales that are related to that system.

[SOURCE: ISO 59004:—, 3.2.5]

3.8

materiality

information related to *circular economy* (3.2) that is essential for decision-making and can be applied to identify issues that reflect an organization's environmental and social impacts, as well as information that supports *interested party* (3.6) and strategic decision-making.

[SOURCE: ISO 14100:2022, 3.1.12, modified — “decision-making” is changed — “related to “circular economy that is ~~essential for decision making~~” added.]

3.9

materiality assessment

method to identify and prioritize the issues most important to an organization and its *interested parties* (3.6 ~~stakeholders~~), and relevant to its *circular economy* (3.2) strategy.

<https://standards.iteh.ai/catalog/standards/iso/7ea32e6a-b4f9-4fd2-b23e-cf90cdba002c/iso-fdis-59010>

3.10

post-consumer material

PCM

material generated by households or by commercial, industrial or institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose

Note 1 to entry: This includes returns of material from the distribution chain.

[SOURCE: ISO 1382:2020, 3.373]

[SOURCE: ISO 1382:2020, 3.373, modified — “post-consumer recycled content” deleted as the preferred term. “including returns of material from the distribution chain” deleted in the definition. Note 1 to entry added.]

3.11

product

physical-based object designed for or utilized with a purpose

Note 1 to entry: A product can be, ~~e.g. for example:~~

- goods of any type;
- hardware (e.g. engine mechanical part, spare parts, consumables);

- electrical or electronic hardware devices or components (e.g. computers, communication equipment and sensors);
- processed materials (e.g. lubricant, cement).

[SOURCE: ISO 59004:—, 3.2.2]

3.12

resource

asset from which a *solution* (3.14) is created or implemented

Note 1 to entry: Depending on the context, reference to ~~'resource'~~ "resource" includes "raw material", "feedstock", "material" or "component".

Note 2 to entry: For the purpose of this document, asset refers to physical resources such as natural resources, virgin resources, recoverable resources, and recovered resources.

Note 3 to entry: Resource includes ~~the~~ energy type, (e.g. the energy content or energy potential of materials).

Note 4 to entry: Resources can be considered concerning both stocks and flows.

[SOURCE: ISO 59004:—, 3.1.5]

3.13

service

activity designed or executed with a purpose

Note 1 to entry: Services have intangible elements. Provision of a service can involve, for example, ~~the following~~:

- an activity performed on a tangible *product* (3.11) supplied to a customer (e.g. automobile to be repaired; the income statement needed to prepare a tax return);
- the creation of ambience for the customer (e.g. in hotels and restaurants).

Note 2 to entry: Knowledge transfer and financial management as well as digital software tools or programs and ~~data bases~~ databases are considered as services.

[SOURCE: ISO 59004:—, 3.2.3]

3.14

solution

product (3.11) or *service* (3.13), or a combination thereof, that fulfils a need of an *interested party* (3.6)

[SOURCE: ISO 59004:—, 3.2.1]

3.15

sphere of influence

range or extent of political, contractual, economic, or other relationships through which an organization has the ability to affect the decisions or activities of other individuals or organizations

Note 1 to entry: The ability to influence does not, ~~in itself~~, imply ~~an obligation~~ a responsibility to exercise ~~that~~ influence.

[SOURCE: ISO ~~14006:2020, 59004:—, 3.1.8, modified~~ — Note 2 to entry has been deleted.]5.4]