



Technical
Specification

**ISO/IEC TS
19770-13**

**Information technology — IT asset
management —**

Part 13:
**Guidance on the incorporation of
sustainability aspects in an IT asset
management system**

Technologies de l'information — Gestion de biens de logiciel —

*Partie 13: Recommandations pour l'intégration d'aspects de
durabilité dans un système de gestion de biens de logiciel*

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 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 or www.iec.ch/members_experts/refdocs).

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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. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by the Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

A list of all parts in the ISO/IEC 19770 series can be found on the ISO and IEC websites.

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 and www.iec.ch/national-committees.

Introduction

The document is intended to address sustainability aspects related to the use of IT assets and their management, defined as “IT asset management” (ITAM) in ISO/IEC 19770-1, and provide an overview of relevant developments regarding green IT in a broad approach. In understanding and developing an alignment of interest in tackling IT-related sustainability challenges, organizations can contribute toward positive environmental and social outcomes, improve their ITAM, address externalities from IT assets, mitigate related risk, realize opportunity, and drive value from a transition to green IT. This document is also designed to support organizations in the incorporation of fundamental sustainability principles, practices, and terminology, hereinafter summarized as “sustainability aspects” into their “IT asset management system” (ITAMS), to help achieve these mutually beneficial outcomes. Some elements of this document can also support an organization to align with the specifications of ISO 14001, ISO 26000, ISO 50001, other ISO standards and international initiatives and conventions related to sustainability as appropriate.

This document provides guidance on how key sustainability aspects can be integrated at the organizational level into an existing ITAMS including recommendations related to the decarbonization of IT and, of similar importance, the fair and equitable treatment of ITAM personnel and the definition and implementation of sustainable ITAM policies. The use of green IT does not require the implementation of the principles described in this document, nor does the implementation of the principles lead directly to the exclusive use of green IT. Nevertheless, the transition to green IT is simplified by the adoption of these principles.

At this stage the term “sustainable ITAM” is not yet defined, enabling organizations to develop their own adoption approach. Although this document does not specify any requirements, the principles defined for driving sustainable ITAM can be considered as complementary to and can be implemented alongside other sustainability initiatives, requirements and an environmental, social and governance (ESG) framework adopted by an organization. Components of an ESG framework should already exist within the organization, at least in part, for example, as a basis to drive decarbonization of its portfolio and reduce emissions within its operational processes and value chain, in particular to enable the organization to prepare an emissions inventory, which also includes the calculation of their corporate carbon footprint (CCF) in accordance with the Green House Gas (GHG) Protocol Corporate Standard. In addition, application of the principles and guidance provided in this document can support an organization in adapting or enhancing these components, so that integration of sustainability is more effective and efficient as well as holistic and consistent.

Implementation of sustainable ITAM principles shall require interfacing with multiple organizational departments and internal and external roles, for example, those responsible for:

- enabling ESG strategic objectives through digital technology and services;
- managing and promoting ESG in general;
- setting and monitoring ESG progress against strategic objectives;
- measuring, analyzing and mapping of ESG performance and ESG related key performance indicators (KPIs);
- understanding and monitoring risk and threats related to ESG;
- engagement with and reporting to stakeholders on ESG issues;
- training on ESG and ESG capacity building.

The principles and guidance provided in this document can be used by personnel within an organization and those supporting and advising an organization on the application of sustainability principles for ITAM to manage the engagement with various stakeholders.

This document is designed so that an organization can apply the principles and guidance for sustainable ITAM to the extent applicable, regardless of its size, geographical presence, or core business. Organizations at different stages of an ITAMS or ESG integration can apply all or parts of the principles and guidance for sustainable ITAM, depending on existing ITAMS or ESG components, or both, and the degree of operational capability and capacity.

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The document is also designed to demonstrate alignment with related principles, guidance, and practices, so that the organization's stakeholders can assess progress in the implementation of sustainability principles for ITAM as well as changes to indicators used to measure the achievement of IT related ESG goals. In any case, continual improvement is a core aspect of an ITAMS. Thus, progression towards greater sustainability in ITAM also requires ongoing improvement of operational performance and progress related to sustainable outcomes. The main outcomes of the implementation of the principles and guidelines may include the following:

- sustainable ITAM statement or policy;
- strategic implementation plan for Sustainable ITAM;
- development of strategic goals on material ITAM related sustainability issues;
- development and implementation of metrics and KPIs for Sustainable ITAM;
- development and implementation of control and monitoring processes for KPIs;
- systematic review of existing ITAMS processes and resources;
- ITAM stakeholder engagement plan;
- scenario analysis, risk impact assessment and mitigation plan;
- benchmarking, peer review and gap analysis;
- external assurance.

NOTE 1 The structure and, in various parts, the contents of this document have been adopted from ISO 32210 as good practice for the development and implementation of a sustainability strategy in an organization with necessary adjustments required to address the application of this practice to ITAM.

NOTE 2 Certain areas and concepts presented in this document are still in a developmental stage, very dynamic and ever evolving. This applies in particular to the normalization and operationalization of IT-related sustainability requirements, related standards and legal frameworks.

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Information technology — IT asset management —

Part 13:

Guidance on the incorporation of sustainability aspects in an IT asset management system

1 Scope

The document gives guidance to organizations on the incorporation of sustainability aspects for IT asset management (ITAM).

This document is applicable to any organization, regardless of size, type and nature, and applies to the sustainability aspects that an organization has implemented or will implement in its IT asset management system (ITAMS) in accordance with the scope definition of ISO/IEC 19770-1.

This document also addresses what is material from the perspective of the organization and of its stakeholders.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 accountability

obligation to another for the fulfilment of a *responsibility* (3.63)

Note 1 to entry: The obligation includes the duty to inform and to explain the manner in which the responsibility was fulfilled.

Note 2 to entry: The non-fulfilment of a responsibility has consequences that can be enforced on the accountable party.

[SOURCE: ISO 37000:2021, 3.2.2]

3.2 asset

item, thing or entity that has potential or actual value to an *organization* (3.53)

Note 1 to entry: Assets can be physical or non-physical.

Note 2 to entry: A grouping of assets referred to as an *asset system* (3.7) can also be considered as an asset.

[SOURCE: ISO 55000:2024, 3.1.1]

3.3

asset life

period from *asset* (3.2) ideation to asset end of life

Note 1 to entry: “Useful life” is the period over which an asset is capable of fulfilling a purpose to an entity.

Note 2 to entry: Asset life can differ from the period the organization holds *responsibility* (3.63) for the asset.

Note 3 to entry: End-of-life is when the asset can no longer cause any residual obligations.

[SOURCE: ISO 55000:2024, 3.1.2]

3.4

asset management

coordinated activity of an *organization* (3.53) to realize value from *assets* (3.2)

Note 1 to entry: Realization of value normally involves a balancing of costs, *risks* (3.64), opportunities and *performance* (3.56) benefits.

Note 2 to entry: Activity can also refer to the application of the elements of an *asset management system* (3.5).

Note 3 to entry: The term “activity” has a broad meaning and can include, for example, the approach, planning and plans, and their implementation.

Note 4 to entry: Realization of value of an asset can calculated based either on:

- classical models and performance measures with a strong business focus such as:
 - the return on investment (ROI) on the asset as the ratio between the net profit derived from using the asset and the capital that was employed to produce that profit; and
 - the total cost of ownership (TCO) of the asset as the cost over its entire *life cycle* (3.46) from acquiring, deploying, operating, maintaining, and retiring or replacing the asset; or
- new models that recognize the value and use of an *impact* (3.34) to social and environmental capital such as:
 - the Cambridge value mapping tool (CVMT) for sustainable business modelling to identify ‘value uncaptured’ in the form of failed value exchanges, i.e. value missed, destroyed, surplus, and absence; and
 - the natural capital protocol (NCP) decision-making framework developed by the Capitals Coalition and World Business Council for Sustainable Development (WBCSD) that effectively allows for the accounting of environmental and social impact within business value assessments and investment decisions and appraisals.
 - the Global Reporting Initiative (GRI) has been supporting *sustainability* (3.75) reporting by organizations since 1997, in cooperation with the United Nations. GRI published its Sustainability Reporting Standard, which includes a reporting framework with associated guidelines and criteria.

[SOURCE: ISO 55000:2024, 3.2.1, modified — Note 4 to entry has been added.]

3.5

asset management system

management system (3.47) for *asset management* (3.4)

[SOURCE: ISO 55000:2024, 3.3.5]

3.6

asset portfolio

assets (3.2) that are within the scope of the *asset management system* (3.5)

Note 1 to entry: A portfolio is typically established and assigned for managerial control purposes.

Note 2 to entry: An asset portfolio covers all asset classes including the financial costs involved. The portfolio should reflect fixed costs or CAPEX (capital expenditure) along with variable costs or OPEX (operational expenditure) spread over the lifetime of the asset class.

[SOURCE: ISO 55000:2024, 3.1.7, modified — Note 2 to entry has been added.]

3.7

asset system

set of *assets* (3.2) that interact or are interrelated

[SOURCE: ISO 55000:2024, 3.1.6]

3.8

asset type

grouping of *assets* (3.2) having common characteristics that distinguish those assets as a group or class

[SOURCE: ISO 55000:2024, 3.1.5]

3.9

baseline

agreed reference value or set of values which can be derived from past experience, often used for comparing with ongoing *performance* (3.56) *data* (3.18), values or outcomes

[SOURCE: ISO 37500:2014, 3.1, modified — “and/or” before “outcomes” has been replaced by “or”.]

3.10

benchmarking

activity of measurement and analysis that an *organization* (3.53) can use to search for and compare practices inside and outside the organization, with the aim of improving its *performance* (3.56)

Note 1 to entry: Benchmarking can be applied to *policies* (3.57), strategies and objectives, *processes* (3.59) and their operation, products, services and an organization’s structures.

Note 2 to entry: Benchmarking can be used to compare attributes or performance between organizations.

[SOURCE: ISO 30400:2022, 3.1.18]

3.11

carbon footprint of product

CFP

sum of *GHG emissions* (3.30) and *GHG removals* (3.31) in a product system, expressed as CO₂ equivalents and based on a *life cycle* (3.46) assessment using the single *impact* (3.34) category of climate change

Note 1 to entry: A CFP can be disaggregated into a set of figures identifying specific GHG emissions and removals. A CFP can also be disaggregated into the stages of the life cycle.

[SOURCE: ISO 14067:2018, 3.1.1.1, modified — Note 2 to entry has been removed.]

3.12

circular economy

economy that is restorative and regenerative by design and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles

Note 1 to entry: Main *objectives* (3.50) of circular economy with regard to ITAM are:

- enabling full-fledged *IT asset life* (3.3) cycle by redesigning *IT assets* (3.36) to reduce *material requirements* (3.61) for the manufacturing *process* (3.59), to foster adoption of biodegradable and recycled materials, and to improve options for repair, refurbish, reuse, recover, recycle, and remanufacture using harvested materials from IT assets for a safer and sustainable future;
- integration of *ESG* (3.25) factors in the supplier and service provider selection process as terms towards achieving sustainable sourcing; and
- creation of localization rules and criteria that enable local sourcing of IT assets, thereby reducing the *impact* (3.34) towards scope 1, scope 2 and scope 3 *GHG emissions* (3.30).

Note 2 to entry: Ecodesign is an approach to designing products and services while considering environmental impact in every phase of the development and the life of the product. Thus, ecodesign goes hand in hand with circular economy by trying to avoid designing products that get discarded after only one use and have no further benefit after their end of life. The EU has implemented the ecodesign directive for sustainable products 2009/125/EC (ESPR) that sets mandatory ecological *requirements* (3.61) for energy-using and energy-related products that are sold in the member states. Currently, the eco-design directive covers more than 40 product groups that are responsible for approximately 40 % of all EU GHG emissions.

[SOURCE: ISO 20400:2017, 3.1, modified — Notes 1 and 2 to entry have been added.]

3.13

climate change adaptation

process (3.59) of adjustment to actual or expected climate and its effects

Note 1 to entry: In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities.

Note 2 to entry: In some natural systems, human intervention can facilitate adjustment to expected climate and its effects.

[SOURCE: ISO 14090:2019, 3.1, modified —The preferred term “adaptation to climate change” has been removed; the admitted term “climate change adaptation” has been changed to the preferred term.]

3.14

continual improvement

recurring activity to enhance *performance* (3.56)

[SOURCE: ISO 37301:2021, 3.12]

3.15

corporate carbon footprint

CCF

balance of all *GHG emissions* (3.30) generated according to the Kyoto Protocol in an organization over a specific period of time

3.16

corporate sustainability

CS

approach aiming to create long-term *stakeholder* (3.71) value through the implementation of a business strategy that focuses on the ethical, social, environmental, cultural and economic dimensions of doing business

3.17

critical asset

asset (3.2) having potential to significantly impact on the achievement of the *organization's* (3.53) *objectives* (3.50)

Note 1 to entry: Assets can be safety-critical, environment-critical, or *performance-critical* (3.56) and can relate to legal, regulatory or statutory *requirements* (3.61).

Note 2 to entry: Critical assets can refer to those assets necessary to provide services to critical customers.

Note 3 to entry: *Asset systems* (3.7) can be distinguished as being critical in a similar manner to individual assets.

[SOURCE: ISO 55000:2024, 3.1.8]

3.18

data

facts about an object

Note 1 to entry: In the context of *IT asset management systems* (3.40), data may be a captured, measured, or recorded representation of information, before it is analyzed, interpreted, or processed. Data may relate to objects such as facts, events, things, *processes* (3.59), or ideas, including concepts that within a certain context have a particular meaning related to *IT assets* (3.36).

Note 2 to entry: Processing of data generates information as an outcome with which meaningful decisions and actions can be taken.

Note 3 to entry: Data includes information generated that qualifies for further analytics, scientific and research purposes, including AI capabilities.

[SOURCE: ISO 9000:2015, 3.8.1, modified — Notes 1 to 3 have been added.]

3.19

digital asset

IT asset (3.36) expressed electronically in a digital format

Note 1 to entry: Digital assets include *software assets* (3.69), and *digital information content assets* (3.20).

[SOURCE: ISO/IEC 19770-1:2017, 3.17]

3.20

digital information content asset

digital asset (3.19) with information content

EXAMPLE Documents, audio, video, graphics, databases, free-standing dictionaries; often licensed

Note 1 to entry: *ITAM* (3.38) can include management of these *assets* (3.2) as whole entities, e.g. for license compliance, but excludes management of the content.

[SOURCE: ISO / IEC 19770-1:2017, 3.18]

3.21

documented information

information required to be controlled and maintained by an *organization* (3.53) and the medium on which it is contained

Note 1 to entry: Documented information can be in any format and media and from any source.

Note 2 to entry: Documented information can refer to:

- the *management system* (3.47), including related *processes* (3.59);
- information created in order for the organization to operate (documentation);
- evidence of results achieved [e.g. records, *KPIs* (3.43), *KRIs* (3.44) and *OKRs* (3.51)];
- sources of information that can be both internal and external;
- security of information that is reliably sourced, can be validated, verified for its accuracy.

[SOURCE: ISO 55000:2024, 3.3.12, modified — Note 2 to entry has been modified]

3.22

energy proportionality

EP
relationship between power consumed by *IT hardware* (3.33) and the rate at which useful work is done (its utilization)

Note 1 to entry: Utilization measures how much of a computer's resources are used, usually given as a percentage. A fully utilized computer running at its maximum capacity has a high percentage, while an idle computer with no utilization has a lower percentage. Due to this, the more a computer is utilized, the more efficient it becomes at converting electricity to practical computing operations. One way to improve hardware efficiency is to run the workload on as few servers as possible, with the servers running at the highest utilization rate, maximizing energy efficiency.

Note 2 to entry: EP was developed by Google and is now an accepted measure of energy efficiency of an *IT asset* (3.36).

3.23

environmental full-cost accounting

EFCA

method of cost accounting that traces direct costs and allocates indirect costs by collecting and presenting information about the possible environmental costs and benefits or advantages

Note 1 to entry: Full-cost accounting embodies several key concepts that distinguish it from standard accounting techniques, including but not limited to:

- hidden costs and externalities;
- overhead and indirect costs;
- past and future outlays;
- costs according to the *life cycle* (3.46) of an *asset* (3.2).

3.24

environmental management system

EMS

part of the *management system* (3.47) used to manage environmental aspects, fulfill compliance obligations, and address *risks* (3.64) and opportunities

[SOURCE: ISO 14001:2015, 3.1.2, modified — The abbreviated term "EMS" has been added.]

3.25

environmental, social and governance

ESG

holistic framework and set of criteria defined by the United Nations Development Program (UNDP) used to evaluate and measure an *organization's* (3.53) *performance* (3.56) in relation to environmental, social, and governance issues and its sustainable and ethical behaviour

Note 1 to entry: The UNDP launched its sustainable development agenda in 2015, reflecting the growing understanding by Member States that a development model that is sustainable for this and future generations offers the best path forward for reducing poverty and improving the lives of people everywhere.

Note 2 to entry: The criteria ensure that an organization is being socially responsible and held accountable, which is in the best interest of shareholders and potential investors.

Note 3 to entry: The *objective* (3.50) of this ESG framework is towards enabling and implementing the 17 sustainable development goals as per UNDP. The environmental component of the framework considers the *impact* (3.34) and contribution that an organization can have on the natural world, including but not limited to:

- waste and pollution management;
- resource management;
- *GHG emissions* (3.30);
- energy efficiency;
- deforestation;
- protection of biodiversity.

The social component of the framework assesses how an organization treats and protects its employees, suppliers, customers, and the public by considering topics such as:

- diversity, equity, and inclusion;
- working conditions;
- *data* (3.18) protection;
- privacy;

- customer satisfaction;
- local communities.

The governance component of the framework examines how an organization is led and managed by its policy-making – amongst other aspects – through:

- tax strategy;
- executive remuneration;
- donations and political lobbying;
- anti-corruption and anti-bribery;
- board diversity and structure.

3.26

FinOps

financial operations

set of practices aimed at bringing together finance, operations and engineering teams within an *organization* (3.53) to manage and control spend on cloud services in a way that aligns with the *objectives* (3.50) and priorities of the organization

Note 1 to entry: *ITAM* (3.38) and FinOps are two distinct but interconnected concepts within the realm of IT management. The connection between ITAM and FinOps lies in their shared objective of effectively managing IT resources and controlling costs. Integrating these disciplines can lead to a more holistic and efficient approach to IT financial management, especially in the context of cloud services.

Note 2 to entry: Key components of FinOps include:

- **Visibility:** FinOps emphasizes the importance of having visibility into cloud costs. This involves tracking and understanding how resources are being utilized and what *impact* (3.34) they have on the overall budget.
- **Accountability:** FinOps encourages accountability by allocating costs to specific teams, projects, or departments. This helps in fostering a sense of ownership and *responsibility* (3.63) among different *stakeholders* (3.71).
- **Optimization:** Identifying opportunities to optimize costs is a crucial aspect of FinOps. This may involve rightsizing resources, utilizing reserved instances, or leveraging spot instances to take advantage of cost savings.
- **Governance:** FinOps involves implementing governance *policies* (3.57) to ensure that cloud resources are used efficiently and in compliance with organizational guidelines. This may include setting budget limits, implementing tagging strategies, and establishing approval *processes* (3.59).
- **Collaboration:** FinOps promotes collaboration between finance, operations, and engineering teams. This collaboration helps in aligning financial goals with operational and business objectives.
- **Continual improvement** (3.14): The cloud environment is dynamic, and FinOps is an iterative process that involves continual improvement. Regularly reviewing and optimizing cloud usage based on changing business needs is a key element of FinOps.

Note 3 to entry: Following the definition of the FinOps Foundation (<https://www.finops.org/>) FinOps is performed by working iteratively on the framework capabilities through three phases: inform, optimize and operate.

- **Inform:** During the Inform phase, FinOps activities focus on locating *data* (3.18) sources related to cloud costs, usage, and efficiency. Utilizing this information for allocation, analysis, and reporting enables teams to enhance their capabilities in budgeting, forecasting trends, establishing *KPIs* (3.43) for *benchmarking* (3.10), and creating *metrics* (3.49) that unveil the business value of an organization's cloud expenditure.
- **Optimize:** In the Optimize phase, FinOps activities center around identifying opportunities to enhance cloud efficiency using the data and capabilities developed in the Inform phase.
- **Operate:** In the Operate phase, FinOps activities involve executing organizational changes to operationalize FinOps, utilizing the data and capabilities developed in the Inform and Optimize phases. This encompasses establishing cloud governance policies, monitoring compliance, and empowering individuals through the creation of training programs, team guidelines, and automation policies that align with *organizational objectives* (3.54).