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# Asset management — Guidance on the alignment of financial and non-financial functions in asset management

*Gestion d'actifs — Recommandations relatives à l'alignement des fonctions financières et non financières dans la gestion d'actifs*

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# Foreword

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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 251, *Asset management*.

This second edition cancels and replaces the first edition (ISO/TS 55010:2019), which has been technically revised.

The main changes are as follows:

— the text has been updated to be aligned with ISO 55001:2024;

— the retitling and revision of Annex E;

— the addition of new Annexes H, I and J.

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.

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# Introduction

The ISO 55000, ISO 55001 and ISO 55002 asset management standards raise awareness of the importance of improving alignment between an organization's financial and non-financial functions, and this document provides guidance on how to achieve this. Alignment of these functions enabling the realization of value derived from the implementation of asset management is detailed in ISO 55000, ISO 55001 and ISO 55002, particularly ISO 55002:2018, Annex F.

The guidance in this document is consistent with the requirements of ISO 55001 for an asset management system but does not add new requirements to ISO 55001 or provide interpretations of the requirements of ISO 55001.

For an example of an organization aligning its asset management functions, see Annex F.

As used in this document, financial functions refer to processes and activities such as managerial costing and accounting, budgeting, financing and valuation related to the assets. Non-financial functions are the complementary processes and activities, for providing a product or service from the assets.

The asset management function may include both financial and non-financial functions.

The definition of "asset" in ISO 55000 is broader than that of the United States (US) Generally Accepted Accounting Principles (GAAP) or the International Financial Reporting Standards (IFRS). The term "asset" as primarily used in this document is defined in ISO 55000. See Annex H.

In many organizations, the financial and non-financial functions of asset management are inadequately aligned. Often the financial accounting functions are predominantly focused on retrospective reporting of accounting/regulatory financial activities. However, there is a growing awareness in organizations of the need to focus on providing a managerial costing approach to support decision-making for the future. At the same time, the non-financial functions are recognizing the need to improve their understanding of the financial implications of their activities. These are examples of moves towards better alignment of the financial and non-financial functions with the aim of better decision-making and value realization.

Lack of alignment between financial and non-financial functions can be attributed to silos in an organization, including reporting structures, functional/operational business processes and related technical data. Reference [23] advises that "… silos [department/functional specialization] are necessary to allow for the required level of specialization, but if these silos [department/functional specialization] do not communicate, inefficiencies and errors in asset management result" and that "when asset management implementation fails, it is often because asset management staff and senior management are not in alignment".

Alignment should prudently work both "vertically" and "horizontally". Vertical alignment "top-down and bottom-up information flow" means that financial and non-financial asset-related directives by top management are informed by accurate upward information flows, effectively implemented within the appropriate levels of the organization. Horizontal alignment means that financial and non-financial information that flows between departments (conducting functions such as operations, engineering, plant maintenance, financial accounting, financial management and risk management) uses the same terminology and refers to the assets identified in the same way. See the asset mapping table in Annex H.

The aim of this document is to encourage organizations to support alignment between these asset management functions and to provide guidance on how such alignment can be achieved. It also promotes the benefits that can be achieved for an organization and its stakeholders by having alignment of these asset management functions better understood, implemented and improved. This enables an organization's functional areas to share information and collaborate to achieve the organization's objectives.

This document can assist users in applying the concepts of ISO 55000 and fulfilling the requirements of ISO 55001. It provides additional advice and guidance over and above the explanations outlined in ISO 55002 on the benefits to be realized for an organization through alignment.

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It is intended for use by personnel, at all levels in an organization, who are involved in asset management, including:

— top management and decision-makers, to derive the benefits that are achievable by better alignment between financial and non-financial functions;

— those in asset-related multidisciplinary functions who provide information to support decision- making or rely on the outcomes of those decisions;

— a wide range of personnel, including those who have responsibility for the technical planning, design, construction, operation, maintenance and performance of the assets, and those with financial responsibilities such as accounting, financial planning, budgeting and financial reporting.

Knowledge and understanding of terminology and common language used by financial and non-financial functions can facilitate discussion, communication and exchange of information between these functions. Clauses 4 to 9 and the related annexes provide a range of information on financial and non-financial functions in asset management, including information on asset management accounting principles.

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# Asset management — Guidance on the alignment of financial and non-financial functions in asset management

## 1 Scope

This document gives guidance on the alignment between financial and non-financial asset management functions, to improve internal controls as part of an organization's management system.

This document is applicable to all types of assets and by all types and sizes of organizations.

## 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 55000, *Asset management — Overview, principles and vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 55000 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**
**financial accounting**
process of recording, summarizing and reporting the transactions resulting from an organization's operations over a period of time

Note 1 to entry: These transactions are summarized in the preparation of financial statements (including the balance sheet, income statement and cash-flow statement) that communicate the organization's operating performance over a specified period.

**3.2**
**management accounting**
accounting to assist management in the formulation and implementation of an organization's strategy

Note 1 to entry: Management accounting usually requires partnering across different *functions* (3.20) in an organization for management decision-making, devising planning and performance management systems, and providing expertise in financial reporting and control.

**3.3**
**managerial costing**
costing used internally by an organization to ensure that information for decisions reflects the characteristics of the organization's resources and operations

Note 1 to entry: For further information on managerial costing, see Reference [15].

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**3.4**
**financial function**
work, or portions of work, that pertain to financial management

EXAMPLE Financial reporting, budgeting, financing, *valuation* (3.12), financial planning and analysis, *management accounting* (3.2), tax accounting.

Note 1 to entry: In organizations, there is sometimes no separation between financial and *non-financial functions* (3.5); some functions can be blended. Those distinctions should be addressed in internal strategic asset management plans or policy.

**3.5**
**non-financial function**
work, or portions of work, that combine with an organization's *financial functions* (3.4) in delivering its services or products

Note 1 to entry: Asset planning, acquisition, marketing, operations, maintenance.

**3.6**
**internal control**
process used by an organization's managers to help it achieve its objectives

Note 1 to entry: Internal controls help an organization to run its operations efficiently and effectively while safeguarding assets, report reliable financial and non-financial information about its operations, and comply with applicable laws, regulations and standards.

Note 2 to entry: Internal controls apply to all activities, irrespective of whether they are financial or non-financial.

Note 3 to entry: In order to achieve a high level of assurance of the organization's internal controls, segregation of duties is required (e.g. avoiding having the same individual responsible for decision-making as well as asset custody and record keeping; having procedures to prevent and identify waste, fraud abuse and mismanagement, including due diligence omissions, procrastination, dereliction of duty and toleration of incompetence).

Note 4 to entry: Internal controls support sound decision-making, considering risks to the achievement of objectives and reducing them to acceptable levels through cost-effective controls.

Note 5 to entry: This definition of internal controls is derived from Reference [11], which also provides further useful information on this topic.

**3.7**
**asset register**
record of asset data considered worthy of separate identification and accountability

Note 1 to entry: Financial or accounting asset registers are databases or systems used to describe and manage the organization's financial accounts and *management accounting* (3.2).

Note 2 to entry: Non-financial asset registers (technical or operational) are databases or computerized systems in which relevant technical or operational data and information of an asset are kept.

**3.8**
**capital expenditure**
**CapEx**
expenditure on acquisitions of, or improvements to, assets

Note 1 to entry: Based upon accounting standards and organizational policy, CapEx usually relates to relatively large (material) expenditure, which has benefits that are expected to last for more than 12 months.

**3.9**
**operational expenditure**
**OpEx**
recurrent or specific non-capital expenditures required to provide a service or product

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**3.10**
**total expenditure**
**TotEx**
sum of *capital expenditure* (3.8) and *operational expenditure* (3.9) over a period of time

**3.11**
**alignment**
deliberate arrangement, relationship and mutual understanding of common concerns within a particular activity or among activities

**3.12**
**valuation**
process of determining the current value of an asset

Note 1 to entry: Valuation methods are numerous. Values are expressed in monetary terms.

Note 2 to entry: Valuations may be made to a single asset, a group of assets or an entire enterprise.

**3.13**
**book value**
monetary expression at which an asset or group of assets are carried on a balance sheet

Note 1 to entry: Book value is also known as "carrying amount" or "carrying value".

**3.14**
**residual value**
estimated financial amount that an organization would expect to obtain from disposal of an asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its *useful life* (3.15)

**3.15**
**useful life**
period over which an asset or class of assets are expected to be available for use by an organization

Note 1 to entry: Useful life is determined by factors such as the economic, technological, physical and functional performance of the assets or asset system, which demands an understanding between *financial functions* (3.4) and *non-financial functions* (3.5) depending on the context (e.g. market, cost recovery, maintenance planning, long-term planning).

Note 2 to entry: The applicable period is dependent on the nature of the asset or asset system and can be elapsed time, operating hours, number of cycles, number of units of production, etc.

**3.16**
**depreciation**
systematic allocation of the depreciable amount of an asset over its *useful life* (3.15)

Note 1 to entry: While "depreciation" can be used for both tangible and intangible assets, "amortization" is normally used for intangible assets only.

**3.17**
**fair value**
price that would be received to sell an asset, or paid to transfer a *liability* (3.18), in an orderly transaction between market participants at the measurement date

**3.18**
**liability**
present obligation of the organization arising from past events, the settlement of which is expected to result in an outflow of resources from the organization

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**3.19**
**six capitals**
classification of the different kinds of value in an organization that can be transformed in its operations, namely financial, manufactured, intellectual, human, social and relationship, and natural

Note 1 to entry: Within the framework of integrated reporting, an organization is encouraged to provide a fuller picture of how it creates value through a combination of related quantitative and qualitative information.

**3.20**
**function**
purpose of each area or division of an organization that performs a specific activity, provides specialized information or implements procedures

**3.21**
**domain**
broad area of management responsibility in an organization

EXAMPLE Assets, human resources, customers, procurement, regulators.

Note 1 to entry: A domain can include one or more *functions* (3.20).

**3.22**
**life cycle cost**
**LCC**
total cost incurred during the life cycle

Note 1 to entry: See also *life cycle costing* (3.25).

[SOURCE: IEC 60050-192:2015, 192-01-10]

**3.23**
**compliance**
mandatory requirement, performance or design, imposed upon by or agreed with an external organization

Note 1 to entry: Compliance is a required action, behaviour or condition.

Note 2 to entry: A compliance requirement is enforceable. Failure to achieve compliance can result in penalties and require correction, compensation or restitution.

Note 3 to entry: The term "conformance" is often erroneously used as a synonym for the term "compliance".

EXAMPLE Organizations must comply with financial reporting requirements but should conform to the non-financial reporting plan.

**3.24**
**best value**
expected outcome of an acquisition that, in the organization's estimation, provides the greatest overall benefit in response to a requirement

**3.25**
**life cycle costing**
process of economic analysis to assess the cost of an item over its life cycle or a portion thereof

[SOURCE: IEC 60050-192:2015, 192-01-11]

## 4 Why alignment between financial and non-financial functions is important

### 4.1 General

Alignment between financial and non-financial functions is important in the implementation of a successful asset management system. Lack of organizational alignment can be due to barriers within the organization (e.g. language/terminology differences, information/data standard quality differences, poor coordination

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between the organization's financial and non-financial functions in asset management). Top management often struggles with many asset management related questions due to a lack of alignment. Some examples of questions include the following:

— How can top management be sure that they get the best value for their stakeholders from the assets?

— How do the assets contribute to the delivery of the organization's objectives? Which assets are critical for it?

— What are the risks and opportunities to the organization's objectives arising from its assets?

— What level of investment should be made in the assets over both the short and longer term (TotEx) to deliver the organization's objectives and how does top management prioritize this investment?

— What is the cost of delivering products or services to meet customer satisfaction and how can the organization use this as an input for pricing or service delivery?

— How does top management determine the cost impacts of changes in the six capitals, and the resilience of the organizational assets to these changes?

— How can top management know the life cycle cost (LCC) of assets?

— Is top management making decisions that provide short-term cost savings but, due to lack of adequate asset management involvement, lead to higher long-term costs?

— How can top management get the necessary funding commitment to ensure the long-term financial sustainability of assets and continue meeting the objectives of the organization?

— How can the organization obtain enough information on the asset base for integrated reporting purposes, enable correct and timely decisions, and understand the nature and use of seemingly conflicting information from different sources?

— Are the stakeholders confident about the asset verification/valuation/existence/necessity/impairment tests?

— Does the organization have the financial information to make evidence-based asset management decisions?

— What assets are not delivering the value expected and what assets are costing more than anticipated?

— What liabilities, and hence cost, are the assets exposing the organization to?

— Do the organization's financial statements really reflect the state of the asset portfolio including leased assets?

— For the outsourced services, how are the associated costs tracked and managed through an appropriate internal control?

— How can top management obtain/maintain competitive advantage through the use of assets?

As illustrated in the above questions, all parts of the organization should work together, to share and utilize information to provide the transparency, insight and necessary answers, and to support asset management reporting and decision-making. This document provides a general solution to these questions in the form of better alignment of functions across the organization, enabling the realization of the benefits detailed in 4.2. It does not seek to explicitly answer these questions individually but instead guides users to adopt the concepts contained within this document to find their own answers to these and other pertinent questions.

Asset management deals with the challenge of maximizing value derived from the assets. A significant explanation of the value proposition can be found in ISO 55002:2018, Annex A.

The concept of value in asset management is broader than the more constrained specific definition of value in accounting terms, where the various accounting standards deal with value as part of the valuation of assets process. The value in asset management can be expressed in both monetary and non-monetary terms

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and an aligned understanding of financial and non-financial value is needed to determine decision-making criteria.

Financial planning, decision-making and reporting are crucial to asset management and, conversely, asset management has major impacts on financial aspects. Accordingly, close coordination of financial and accounting functions with the non-financial asset management functions is essential to meeting organizational objectives.

## 4.2 Benefits of alignment

Alignment and coordination between financial and non-financial functions related to assets and asset management can lead to resolution of many of the issues listed in 4.1, as follows:

a) Improved expression of asset criticality and risk in financial terms, which helps to implement more robust risk controls.

b) Integrated and efficient asset investment planning and prioritization for short- and longer-term timescales.

c) Improved understanding of longer-term funding needs relating to assets that supports informed decision-making for financing and budgeting, leading to long-term predictable and sustainable funding mechanisms.

d) Improved options analysis and decision-making on investment projects based on more complete information from both financial and non-financial functions.

e) Improved decision-making and communication on pricing for the organization's products and services based on sound practices such as managerial costing, and a better understanding of value to customers and stakeholders.

f) More accurate, complete, transparent, and timely registration and reporting of all changes to asset management information affecting the financial functions, including functions of accounting and finance, auditing, regulating, tax and insurance. This includes for accounting purposes when a self-constructed asset is determined to be substantially complete and ready for use, at which time the cost of the capital project is taken from a construction in the progress account and capitalized for depreciation or amortization purposes.

g) Improved methodology and procedures to enable financial and non-financial staff to efficiently share knowledge and information whereby both financial and non-financial staff use commonly agreed terminology, which can lead to collective understanding.

h) Maintained or improved competitive advantage.

i) Improved internal controls as part of the wider management system of the organization.

j) More efficient measurement of operational performance and the organization's overall performance.

k) More efficient procedures for capital and operational budgeting processes.

l) Better alignment of long-term financial planning and asset life cycle planning.

m) Collaboration across departments to optimize resources and reduce duplication.

n) Improved depreciation methodology.

o) Improved teamwork, collaboration, clarity, transparency, and availability of information and up- skilling for financial and non-financial staff.

p) Better understanding of what services can be provided, based on available funding, enabling meaningful trade-off analyses when reviewing service and funding gaps.

q) More reliable knowledge of cost inputs for pricing, considering all LCCs originating from financial and non-financial functions (see Annex G).

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Improved alignment between financial and non-financial functions helps to improve the quality of information used to support an organization's decision-making and value maximization. Such improved alignment also encourages both financial and non-financial practitioners to speak the same language.

# 5 Enablers for alignment

## 5.1 General

Business processes, leadership and governance are key enablers for the alignment of financial and non-financial asset management activities. Data, information, knowledge, capabilities and other elements required to support alignment among different levels of the organization are addressed.

## 5.2 Processes, leadership and governance

### 5.2.1 Processes

Defined processes can be significant enablers for the alignment of financial and non-financial asset management functions. Processes should be properly supported by documented information and opportunities identified to link tasks across different levels, functions and processes. For example, the process used by an asset manager to bring a new asset online (non-financial) should contain a task to capture total installed cost and send/link this to the accounting function where it can be used as the cost basis of the asset (financial). This example of a co-developed process enables timely and accurate data and information for asset cost, installation date and expected useful life to be captured in both the financial and non-financial asset registers. The processes developed within an organization should use common terminology across the financial and non-financial functions and focus on the end-to-end need rather than being governed solely by function.

### 5.2.2 Leadership

To achieve alignment between the financial and non-financial asset management functions within the organization, top management should demonstrate leadership and commitment by:

a) promoting and encouraging collaboration and clarity, transparency and availability of information for financial and non-financial staff;

b) ensuring alignment between the objectives of the various financial and non-financial functions in conformity with the defined overall organizational objectives;

c) ensuring training for appropriate people (from top management to frontline operations) involved at intersecting processes, between financial and non-financial asset management disciplines, to promote communication and common understanding of the terminology being applied;

d) ensuring the availability of adequate resources capable of promoting and implementing cross-functional collaborative teams with a focus on continual improvement;

e) ensuring both financial and non-financial functions have adequate awareness and influence in decision-making processes;

f) ensuring consistency of the various policies in their intent, language and communication; ensuring implementation and maintenance of inter-departmental shared granularity to identify how an asset is recorded;

g) ensuring alignment in risk management of the various financial and non-financial functions in conformity with the overall risk management framework.

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### 5.2.3 Governance

Governance should provide a framework to align financial and non-financial asset management functions. This is demonstrated by a governance process and policies designed to establish alignment relationships between stakeholders that can address any conflicting interests regarding how assets are managed.

Figure 1 suggests key elements of a framework that can be adopted to achieve alignment.

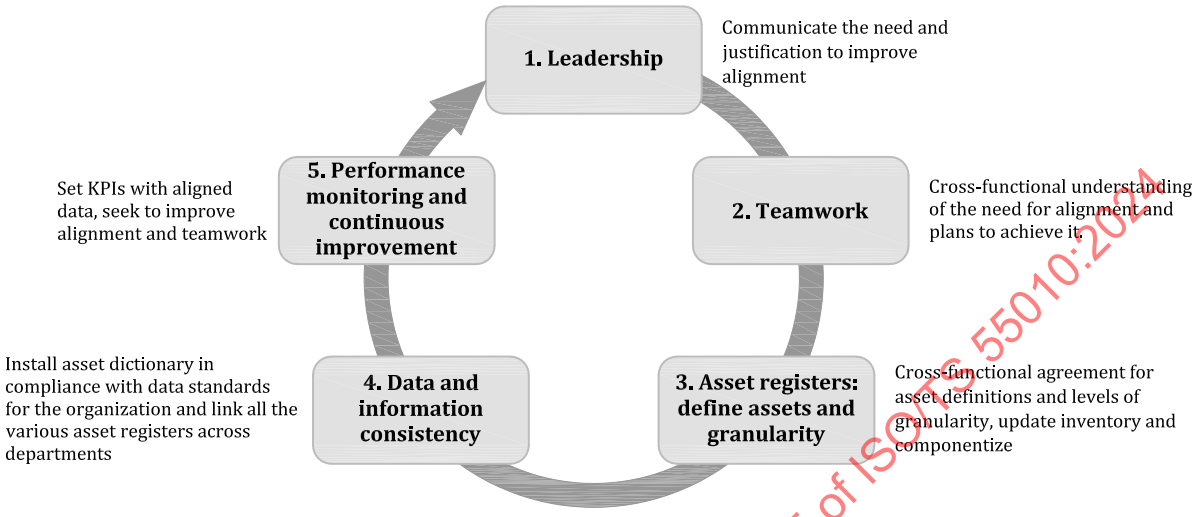


**Figure 1 — Key elements of a framework to achieve alignment**

The governance framework should address the alignment of financial and non-financial functions in relation to risk management (particularly financial risk) within the context of the common overall risk management framework. ISO 55002:2018, Annex E, provides further detail on risk management. Another useful reference on risk management is the COSO framework[11].

## 5.3 Policy, strategy, data and information

### 5.3.1 Asset management policy support

Top management, through the asset management policy, should acknowledge and endorse the role of alignment between the financial and non-financial functions. Top management should provide commitment to the provision of the information, knowledge and capabilities required to achieve, maintain and continually improve alignment. Such information should be available for use within the organization's non-financial decision-making functions, e.g. replacement, renewal, maintenance, training, inspection. This ensures that decisions are informed and balance the financial needs as well as the organization's wider performance requirements.

### 5.3.2 Strategic asset management plan support

Department/division managers, through the strategic asset management plan (SAMP), should specifically address the high-level requirements to capture, store and share the information, knowledge and capabilities required to support alignment between financial and non-financial asset management activities. ISO 55002:2018, Annex C, provides significant guidance on the format and content of a SAMP.

### 5.3.3 Data and information

Accurate, reliable, and current data and the resulting information are key elements of asset management. When data are processed, interpreted, organized, structured or presented to make them meaningful or useful, they are called "information". Data and information management is of utmost importance to facilitate and ensure the collection, currency, accuracy, availability, integrity and completeness of data and

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information. Data management should cover data generated within the organization as well as data coming from outsourced or contracted functions.

Data and information should be useful and worthwhile to collect, record, report and analyse. Expected benefits should justify the expected cost. As Reference [13] states: "If financial [and non-financial] information is to be useful, it must be relevant and faithfully represent what it purports to represent. The usefulness of financial information is enhanced if it is comparable, verifiable, timely, and understandable."

After determining its reporting, planning and analysis requirements, an organization should determine the data needed to facilitate the reporting and planning functions and the best source of such data. Both financial and non-financial areas are likely sources of the required data. Emerging and evolving business and technology innovations for data and information will continue to provide emerging means to support alignment.

The organization should ensure that both financial and non-financial functional areas strive to collaborate on data collection and management, and also should ensure data access for the right users.

### 5.4 Non-financial functions in asset management

There are a range of non-financial functions involved across the whole life cycle of assets, from creation through to disposal, that have financial implications. For example, the operational phase of the asset life cycle represents a significant proportion of LCC, particularly for long-life infrastructure assets. The financial and non-financial functional areas should collaborate to find ways to perform the necessary operational and maintenance activities at an optimized cost and acceptable risk. It is important that staff with knowledge of these activities are involved at the decision-making stage of acquiring the assets, so that accurate life cycle costing can be assessed and considered.

Financial and non-financial teams should ensure alignment in non-financial asset life cycle activities such as:

— planned shutdowns;

— the balance between preventive and corrective maintenance;

— when to intervene with an asset replacement, upgrade or disposal;

— the possible outsourcing of activities;

— ensuring adequate funding is available to maintain data used for decision-making.

More information on how to achieve alignment between the financial and non-financial functions required across the various life cycle activities is provided in Annex E.

### 5.5 Terminology for financial and non-financial alignment

Physical-asset-holding organizations should embrace the development of common terminology within their organization. This is to ensure that all stakeholders have a clear understanding and agreement in relation to the meaning of various terms commonly employed in differing professional sectors such as finance, operations, information and communications technology (ICT), etc. This process also provides a means of addressing the requirements of ISO 55001:2024. Various terms designate accounting treatment (e.g. a "repair" means the cost may be expensed in the period the repair was made, while a "betterment" or "improvement" should be treated as a CapEx).

## 6 How to achieve system alignment

### 6.1 General

Organizations often deal with several different asset information management systems, designed for specific purposes by different functions, very often because of piecemeal and ad hoc development and investment. Organizations benefit from asset information management systems that are designed and developed with a common purpose; however, this is often not the case. To address this common alignment issue, data within

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the different systems should comply with the data standards of the organization, to avoid duplication, misuse and misunderstanding.

Staff in the different functions should have basic knowledge as to where data in the systems is used and why the data can contain critical information for other functions. This means that staff should be trained regularly in common terminology and understanding.

## 6.2 Information systems

Organizations use their information systems to register, manage, analyse and report on asset data and activities. These systems may comprise computer hardware, computer software, databases and data warehouses, telecommunications to connect hardware to form a network, and people to operate the systems (human resources and procedures). Financial and non-financial data from within these various information systems is often needed to facilitate alignment of the financial and non-financial asset management processes, particularly when seeking to determine value derived from assets and to facilitate long-term financial planning for asset management.

With relation to tangible assets, different departments typically desire different levels of asset information, according to their specific needs. In the general case, the financial accounting department can satisfy their direct needs by grouping assets and identifying the components of assets with different useful lives for accounting depreciation. Other financial functional areas involved in management accounting can require different levels of detail for forward financial planning on asset replacements, etc. On the other hand, plant maintenance and operations need to register assets in close relation with their functions. For example, plant maintenance should further break down assets that are independent functional units (e.g. each machine) into components with different maintenance schedules. Therefore, while departments normally have different granularity needs, to achieve aligned financial/non-financial information, it is desirable that all departments generating or utilizing asset-related information:

a) reach agreement on the common levels of asset detail, with which different departments can drill down to or roll up to their required asset componentization, to distinguish the specific needs for each department or user;

b) implement the common levels of asset detail into the organization's asset management system, with conformity to them being mandatory regardless of any changes of staff in charge of asset-related functions in each department;

c) implement procedures for maintaining the linkage between financial and non-financial information systems to the desired levels of asset detail.

Technologically advanced organizations can integrate their asset data sets from within each of these different information systems through the deployment of analytics and decision support software solutions. The benefits of alignment in this manner are that it does not require duplication of data across information systems, and it enables a wide variety of analytical capabilities through the incorporation of different asset information at various stages of the asset life cycle.

## 6.3 Data management

Data management is a subset of information management. It comprises all disciplines related to managing data that are used by the organization in both financial and non-financial functions. To deliver the information requirements of ISO 55001, financial and non-financial functions should collaborate in evaluating the information needed to deliver asset management objectives and ensure that appropriate asset management information is available.

Each data user (or user group) within an organization needs to understand the data and be confident that these data are fit for purpose to meet the organizational objectives. Properly maintained metadata and fundamental classifications of assets are useful in supporting these alignment requirements. It is of vital importance that organizations:

a) clearly define, develop and communicate their processes for the capture and creation of data, for managing and dissemination of data, and for data maintenance and updates;

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b) ensure these processes are understood and deployed by the end users;

c) establish and enforce performance measures that monitor and record how current, complete and accurate the data are;

d) make arrangements to maintain current, complete and accurate data when implementing changes to existing systems and tools, or when introducing new ones.

NOTE ISO 55013 provides guidance on data for asset management.

The registration of data should ensure that each data element has the same meaning for all data users. The data registration, based on asset transactions, should trigger the necessary transactions in the relevant database(s). For example, registration of an investment in a physical asset should appear in both the non-financial asset register and have a counterpart in the financial accounting database. See Annex I for examples of the alignment of asset registers.

# 7 How to achieve asset-register-related alignment

## 7.1 General

Traditionally, an organization's different departments carry data and information on assets to suit their own purpose. That data and information is generally recorded in departmental asset registers, with each department doing so independently. Therefore, an asset's financial and non-financial data and information may be recorded in different registers that should be linked, so the organization can have a comprehensive view of all the relevant information necessary for decision-making. For that reason, a key to the alignment of an organization's financial and non-financial functions lies in managing and aligning the different asset registers.

Asset registers are the tools that organizations use to assemble and manage pertinent information (e.g. physical, operational, financial) about their assets/asset systems (tangible and intangible). Organizations can utilize several different asset registers to support the breadth of their operations. Asset registers are essential for good asset management and can range from simple (e.g. spreadsheet ledgers) to more complex software applications/databases [e.g. an enterprise resource planning (ERP) system, computerized maintenance management system (CMMS), geographic information system (GIS), financial/accounting information system (FIS), associated visualization tools].

## 7.2 Financial asset registers

Financial asset registers are used for managing the organization's financial functions. They are used for financial reporting purposes, as well as for other activities, including accounting, taxation, insurance, valuation and legal requirements. Other financial registers are typically developed for managerial costing and are purely for the organization to use internally to ensure that information used for decision-making reflects the characteristics of the organization's resources and operations. Financial asset registers should be continuously maintained throughout all phases of the asset life cycle (i.e. new assets added, assets divested) to reflect the accurate book value of assets. For example, asset disposals noted in the non-financial asset register should be properly reflected in the corresponding financial asset register records.

## 7.3 Non-financial asset registers

The non-financial asset registers are the organization's definitive key source of information for all the assets it manages (tangible and intangible). Operational level asset information systems including maintenance management, telemetry/supervisory control and data acquisition, and modelling systems link to the non-financial asset registers. More complex non-financial asset registers use asset hierarchical modelling to define asset components, their physical locations and their role in specific processes. Non-financial asset registers should be continuously maintained throughout all phases of the asset life cycle (i.e. new assets added, assets improved, assets moved, assets divested) to reflect a complete and current asset inventory.

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### 7.4 Asset register alignment

Facilitating alignment between financial and non-financial asset management processes requires a common aspect/tag to be contained within each register. Without such commonality, full alignment is difficult to achieve. It requires an understanding of, and alignment between, the financial and non-financial asset registers. Alignment enables the sharing of asset life cycle operational and financial data by and between the different information systems used to manage and analyse asset performance and delivery of value. Asset register alignment is critical to the successful development of asset management plans for the various asset classes (see ISO 55001:2024).

In any organization, a hierarchical structure can have been implemented in one or more asset registers (or not have been implemented at all). If hierarchies have been implemented in more than one type of asset register, they do not need to be the same. Each department can establish any hierarchy that best suits its own functions.

Organizations with no hierarchy implemented should determine the level of detail, i.e. granularity, with which they share inter-departmental information on assets. This result from a trade-off between finer granularity, providing more precise information on the assets but also a higher number of individual assets to keep track of, or coarser granularity, with lower precision and lower asset management overhead costs.

Organizations that use a hierarchical structure in one or more of their asset registers, typically in a non-financial asset register as mentioned in 7.3, should determine which level of that hierarchy should be the "asset" level, i.e. the shared granularity with which all asset registers are to comply. Items higher in that hierarchy should be "asset systems", and items below it should be "components", "sub-components", etc. See Annex I for examples of the alignment of asset registers.

To collaborate, there should be an organization-wide consensus on shared granularity, i.e. the asset breakdown detail at which financial and non-financial data are shared. That consensus should be formalized in a dictionary of standard descriptions of the assets in the shared granularity and complied with across all departmental asset register platforms. Assets at that level of granularity should share the same identification code to ensure integrity, so that data in the different departmental asset registers can be reported together for completeness. Organizations that have implemented asset registers with one or more hierarchies should agree on which level of those hierarchies should be the one with shared granularity and apply the agreed unique code and description.

When seeking to align the various asset registers (and the associated processes they support), the organization should coordinate the activities of appropriate staff and stakeholders from across the various functional areas responsible for the operational and financial asset management activities. Asset register alignment is achieved when the following criteria are met (this also applies to different non-financial functions within asset management):

a) a common understanding of the specific asset data capture, reporting and analysis requirements across each functional area is achieved;

b) data and information that is shared across the different functional areas is identified and defined;

c) a single key source for each of the specific data elements is identified and agreed upon;

d) data quality standards, business processes, responsibilities and timelines for maintaining the asset register data have been defined and agreed upon by the different stakeholders;

e) there is a mechanism in place for data improvement, enabling asset register users to provide feedback and act on data quality, completeness and accuracy.

## 8 Financial planning and reporting for asset management

### 8.1 General

Financial planning for asset management is an integral part of the overarching asset management system. Asset management planning aims to achieve both financial and non-financial objectives while balancing

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performance, cost, and risk over the total life cycle of the asset systems. It starts with the objectives (including financial objectives) the organization wants to achieve for its stakeholders and incorporates the desired performance, risks and costs over the total life of the asset systems. It concerns not only the operational phase of the asset systems, but also the design, acquisition or construction, operation, maintenance, renewal and decommissioning phases.

From a financial perspective, it concerns both capital investments (CapEx) and annual recurrent costs (OpEx). The sum of the two over various periods is referred to as "TotEx". In some jurisdictions, the concept of TotEx (now or in future) is of increasing significance in investment planning (it is not used in accounting reports). It balances short-term spend against longer-term spend. This has led to innovative solutions that reduce lifetime costs and encourages sustainability.

Long-term planning includes capacity planning, asset life cycle planning, capital investment planning and long-term financial planning.

Short-term planning includes budgets and operational planning.

## 8.2 Capital investment planning

Capital investment planning identifies the capital investment requirements of the organization over a specified period, (e.g. typically a 5 to 10 year forward-planning horizon or longer, depending on the organization's circumstances).

Capital investments typically cover distinct types of CapEx, or combination of these:

a) the creation and purchase of new assets, upgrade or expansion of existing assets (typically to address a growth in demand), technological advances or changes to the required level of service;

b) the renewal or rehabilitation of existing assets, usually to prevent failure of these existing assets and return them to their original life and service potential;

c) the investment in assets that are held as an investment in their own right, either to provide a financial return or for a future opportunity value.

Management accounting processes carried out by financial and non-financial staff and management working together should provide essential information, preferably in a capital appropriation request form, for decision-makers on proposed capital investment for assets, by assessing material situational awareness issues such as:

— future demand and trends;

— potential technology changes and innovations;

— utilization and function change;

— obsolescence;

— costs of ongoing operations;

— age and condition of existing assets;

— risk rating;

— costing and funding options;

— the impact of environmental, social and corporate governance (ESG) and Sustainable Development Goal (SDG) items if included in the organizational objectives and requirements (e.g. resilience requirements due to external pressures such as the supply chain, climate change, and other external hazards, shocks and stresses).

Using capital investment planning tools, staff can determine the impact on future budgeting, including capital costs, potential changes in operating and maintenance costs, and decommissioning and disposal

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costs. Future operational costs arising from new capital investments should always be considered as part of the total LCCs of the assets. These costs should be reflected in long-term financial plans.

There is always a degree of trade-off between OpEx and CapEx

The financial and non-financial staff should assess what savings can be made in the maintenance budget if capital investments are brought forward to allow an earlier renewal of assets. Conversely, increasing maintenance activity can allow the deferral of capital investment for the renewal of assets. The optimal time for capital investment intervention is the point at which the overall LCCs of the assets can be minimized. Due consideration of the weighted average cost of capital (WACC) by top management/treasury/finance staff should be undertaken to address the appropriate levels of debt/equity funding.

The evaluation and prioritization of capital projects is inevitably necessary in organizations because the size and volume of projects typically exceeds the available resources. Proactive capital investment planning involving alignment is key to prioritizing and ensuring that the required financing is in place at the right time for implementing the prioritized projects.

The capital investment plans should be developed with full cooperation between financial and non-financial functional areas of the organization. The output of this capital investment process is a major input into long-term financial planning (see 8.3) and budgeting (see 8.4). An organization should view its financial and non-financial planning processes as interrelated and iterative.

For more detail on the capital investment planning process and its objectives, see Annex A.

## 8.3 Long-term financial planning

Long-term financial planning is integrated with asset management planning and capital investment planning. It includes all annual operation and maintenance costs over the planning time frame. It is the process of aligning financial capacity with long-term service or product delivery objectives. The challenge is often one of agreeing to a time frame for such planning, recognizing that the asset management perspective is typically focused on the asset system life cycle. This can be much longer than the typical financial planning and operational planning cycle. Accordingly, financial and non-financial staff, as well as top management, should agree on a long enough time frame to give useful forward planning information that aligns the financial and non-financial perspectives. The organization should have an appropriate long-term financial planning process that achieves the following:

a) it stimulates long-term strategic thinking and perspective for stakeholders and decision-makers;

b) it can be used as a tool to prevent or predict future financial shocks and demonstrate financial sustainability;

c) it demonstrates to internal and external stakeholders that the organization has a financial strategy in place to meet their demands, now and in the future.

The long-term financial planning process should involve the financial and non-financial staff working together to combine the important elements of strategy development, asset management planning and financial forecasting. For more detail on the long-term financial planning process, see Annex B.

## 8.4 Budgeting

The budgeting process is more efficient when informed by a long-term financial plan that has been developed collaboratively with financial and non-financial staff input. Asset management should be a key driver as part of the corporate objectives for budget development and spending decisions. Financial criteria should form part of the decision-making criteria about how to achieve corporate asset management objectives.

Asset management is implemented from a mid- and long-term perspective and budgeting should also be approached in the same way. When financial and non-financial areas understand the asset conditions and objectives required, they can collaboratively prepare the asset management plan and associated costs using zero-based budgeting or activity-based budgeting and agree on the budget necessary for the next year. Whichever method is used, it is paramount that the financial and non-financial staff collaborate to reach an agreed budget.

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Inadequate budget provisions can lead to higher LCCs, inequitable charging and financial shocks in future years. The annual budget should recognize the consumption of asset service potential (depreciation or amortization) and appropriately fund it. It is also important that the budget correctly categorizes expenditure for CapEx versus OpEx and provides for any donated assets received in the prior period, as these can have impacts on additional operations and maintenance costs, depreciation, etc. When aligning financial and non-financial functions, it is important to set criteria such as a capitalization threshold for categorizing OpEx and CapEx.

Given there is often a limited budget for expenses, there can be discussions on whether to increase CapEx for asset replacements which may reduce OpEx. Alternatively, to save on CapEx, it can be decided to keep existing assets running, even if due to age and condition they can require increased OpEx. The decision to go one way or the other can also have an impact on the profit and loss statement through depreciation as well as on taxes. Again, good collaboration between financial and non-financial staff is paramount to determine the appropriate proportions between CapEx and OpEx.

## 8.5 Financial reporting in asset management

Accounting standards are used by the financial function for the organization's financial reporting. These standards contain specific requirements regarding the definition of an asset, when to record an asset, and how to report financial information about an asset. Financial reporting functions typically address past events. However, many organizations are increasingly looking to their financial accounting/asset management functions to provide managers with aligned financial and non-financial information to better inform asset management decision-making for planning ahead.

It is necessary for non-financial functions to have a basic understanding of financial and accounting principles for asset management to foster discussion and communication between different functional areas within an organization. It leads to better understanding of the terminology and language commonly applied by financial and non-financial staff relating to asset management.

With respect to how an organization should fulfil its accounting functions in terms of asset management, it is necessary that both the financial and non-financial staff collaborate on financial reporting. This collaboration is important as the non-financial functions can provide useful asset information to the financial functions to improve the accuracy and completeness of the financial reports. For example, information on actual asset condition, status, use, impairment and remaining useful life can be useful inputs to incorporate into the financial assessment of the organization's assets.

Organizations should also seek collaboration between the financial and non-financial functions when reporting to stakeholders through management accounting. Management accounting includes items such as:

a) sustainability ratios (such as renewal spent/renewal required in the asset management plan) that demonstrate whether assets are being appropriately renewed or maintained to ensure service level capability;

b) funding requirements for renewal and replacement of assets and the degree to which these are being funded over the long term;

c) if applicable, the financial impact of ESG- and SDG-related expenditures;

d) other key performance indicators as determined by the organization to demonstrate that it is meeting its asset management objectives.

Annexes C, D, F and J contain more detailed information about accounting, financial reporting and other financial functions.

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# 9 Performance management

## 9.1 General

To manage performance, it is necessary to make financial and non-financial evaluations to enable better decision-making by the organization. These evaluations need sufficient and reliable information. This activity is a requirement of ISO 55001:2024.

Performance management is an essential element in asset management to achieve the organizational objectives. It concerns the following:

a) Measurements: What are the objectives and targets? What is to be measured? When and how?

b) Evaluation: Are the plans executed as intended? Are the intended objectives achieved?

c) Improvements/adjustments of plans to achieve the objectives.

A balance must be sought when addressing performance, cost and risk. Therefore, these three elements should be measured in relation to each other.

Sound financial management includes both financial accounting (historical) and management accounting (predictive). Performance management is essential to provide aligned financial and non-financial asset-related information for both purposes. Therefore, it should be monitored regularly for the value it adds to managerial decisions, and not only for auditing purposes.

## 9.2 Performance measurement

Performance evaluation should be carried out in many layers against specific, measurable, achievable, relevant and time-based (SMART) objectives aligned to each layer.

It should start with a self-evaluation by every employee or team. The organization's managers should create a culture that enables and encourages such activities.

A subsequent layer of evaluation can be from regular performance reporting (e.g. with the support of a balanced scorecard). The balanced scorecard should report on financial and non-financial measurements to test the balance between performance, costs and risks. This should be carried out at a regular frequency. The benefits of regular performance reporting come from preparing the report itself, as well as from the discussion about it within the team or at other managerial levels. Based on these discussions, improvement actions can be initiated.

Other layers of evaluation can be sought through internal and external performance audits.

Performance measurement involves both financial and non-financial measures. A significant part of financial performance measurement can involve auditing.

Financial audits should typically address a wide range of issues primarily pertaining to the accounting standards, but also pertaining to asset management practices. The auditor, in forming an opinion as to the accuracy and completeness of the financial reports, should analyse and assess information that is drawn from both financial and non-financial functional areas. Typically, advice is required from a wide cross-section of the organization's functional areas, including top management, on issues such as whether:

a) the level of corporate governance exercised by the organization over assets is appropriate, particularly in areas of acquisition, existence, proper use and disposals;

b) the valuation and depreciation or amortization methodologies are in accordance with the relevant accounting standards;

c) the depreciation or amortization methodology is logical and provides a reasonable measure of the level of remaining service potential and the pattern of consumption of the service potential;

d) all critical assumptions are supported with sufficient and appropriate evidence;

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e) the asset register is current, accurate and complete to an appropriate level required for its users and stakeholders can have the required level of confidence in its data integrity, quality and currency;

f) the accessibility of information is adequate;

g) valuations have been kept up to date as needed;

h) the organization is monitoring the health and condition of its assets and their remaining useful life and clearly understands the relationship between the asset condition and its current value.

To manage performance, it is necessary to make appropriate evaluations to enable better decision-making by the organization. These evaluations need sufficient and reliable data that addresses both financial and non-financial measures. This activity is a requirement of ISO 55001:2024.

## 9.3 Performance reporting

The quality of reporting is highly influenced by the quality of the underlying data. When determining its information requirements, the organization should consider:

a) the information should enable decision-making and its quality relative to the cost and complexity of collecting, processing, managing and sustaining the information;

b) the participation, knowledge and skills mix of the relevant financial and non-financial management and staff of stakeholders to provide the types of information required to support decision-making as well as to ensure the completeness, accuracy and integrity of the necessary information;

c) the need for both lead and lag indicators to be considered and reported on.

Performance reporting addresses internal policies, procedures and processes, including risks, costs, value generated, asset health, life cycle performance, etc. The purpose of such reports is to recognize actual costs, to validate prior decisions, to recognize changes in value and to assess possible future value enhancements. Reporting should be designed and coordinated to effectively and efficiently report on changes in values, systems and processes, addressing the needs of both financial and non-financial functions.

Quantifiable key performance indicators should have a direct relationship to the organization's long- and short-term objectives as stated in the SAMP. They should include both leading and lagging indicators. Every area of the organization can have specific indicators that should be monitored. In defining these indicators, various perspectives can be considered, including financial, customers/stakeholders, the organization's capabilities and internal processes. There is a need for the financial and non-financial functional areas to work together in defining dynamic indicators linked to the organization's context.

Once alignment in shared asset granularity has been achieved, there is a possibility that the performance indicators in different locations can be found to refer to different levels of granularity. Performance management should ensure that the indicators in different locations produce coherent information.

For example, the finance department can set up financial indicators for individual assets, such as valuation or depreciation. At the same time, the maintenance department can set up OpEx indicators for individual assets and productivity indicators for entire production lines (asset systems). In such cases, the individual indicators should be combined, communicated and accessed in a way that provides coherent and relevant information for decision-making.

It is important for good performance management to regularly monitor and assess the performance indicators and underlying data. Knowledge gained from this monitoring and assessment provides confidence in performance and support continual improvement.

Ultimately, whatever approach an organization determines to take in asset management, it should balance and include the organizational objectives, and internal control elements of identifying objectives, effectiveness and efficiency of the operational approach, reliable reporting (both financial and non-financial) and the applicable compliance requirements.

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# Annex A
(informative)

# Guidance on capital investment planning

The objective of capital investment plans should be to utilize information from the asset management and service or demand planning processes to:

a) ensure the timely renewal and replacement of assets where they deteriorate over time and use;

b) ensure due consideration of the need for new assets to meet future demand, climate change, resiliency, market changes/uncertainty and customer needs;

c) provide a level of certainty for stakeholders regarding the location and timing of capital investments;

d) identify the most appropriate means of financing capital improvements;

e) provide an opportunity for key stakeholder input into the budget and financing process;

f) mitigate the risk of unanticipated, poorly planned or unnecessary CapEx;

g) reduce financial shocks by anticipating possible sharp increases in various costs, such as tax rates, or vendor fees and debt levels to cover CapEx;

h) ensure that patterns of growth and development are consistent with the SAMP;

i) balance desired capital improvements with the stakeholders' risk appetite, financial resources and capabilities;

j) provide cash flow planning and optimization;

k) comply with the organization's ESG and SDG strategic plans.

Various agencies have produced frameworks for carrying out the prioritization of capital programs, all of which follow similar general steps.

An example of such a framework is given in Reference [16].

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# Annex B
(informative)

# Guidance on long-term financial planning

## B.1 General

Long-term financial planning should use forecasts to provide insight into future financial capacity so that strategies can be developed to achieve long-term sustainability, taking account of the organization's objectives and financial challenges.

Financial forecasting requires a process of projecting revenues and expenditures over a long-term period, using assumptions about economic conditions, future spending scenarios and other salient variables. Appropriate planning horizon should be used that suits the organization context and needs, considering remaining useful life of assets.

Successful long-term financial planning is based on organizations having a robust and current SAMP and asset management plans for the assets involved in providing their core products or services. Organizations rely on these asset management plans to inform on OpEx and CapEx required over asset life cycles. The long-term financial planning process should be directly linked and aligned to the asset management plans, which provide expenditure projections that should be fed into the financial planning process, considering the regular financial cycle of the organization. There would typically be multiple iterations of the long-term financial and asset management plans to arrive at a final position where all stakeholders are generally satisfied that the specified level of service can be afforded. It should be noted that there can be a need for an adjustment by varying service levels to meet financial constraints. The final position is then funded over the planning period of the long-term financial plan.

The long-term financial planning process should note whether monetary amounts are expressed in current (i.e. today's prices) or adjusted (adjusted each year by the expected inflation rate) values. Organizations should annually review long-term financial planning activities and update the plan as needed to provide direction to the budget process, although not every element of the long-term plan should be revised.

NOTE Reference [19] provides a practice note on how to develop a long-term financial plan, including templates and spreadsheets, which is freely available.

A typical flow chart for the long-term financial planning process is given in Table B.1.

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**Table B.1 — Guidance on long-term financial planning**

<table>
<tr><th colspan="12">Long-term financial planning</th></tr>
<tr><th>Stage</th><th colspan="11">Activity</th></tr>
<tr><td rowspan="3">1. Asset management planning</td><td colspan="11">1.1 Identify services to be provided and the level of service required from service plans.</td></tr>
<tr><td colspan="11">1.2 Prepare asset management plans for all asset classes/categories, considering service plans and the associated agreed levels of service.</td></tr>
<tr><td colspan="11">1.3 Develop the projected expenditures required to provide services over an appropriate planning period for:<br>— operations;<br>— maintenance;<br>— capital renewals;<br>— capital upgrade/expansion and new assets;<br>— asset disposals (income less costs of disposal).<br>NOTE Projected expenditures from the asset management plan are generally expressed in current monetary values.</td></tr>
<tr><td rowspan="5">2. Prepare expenditure projections</td><td colspan="11">2.1 Identify the expenditure categories required for the long-term financial plan. This should ensure that information is capable of being presented in the same financial statements format as the entity presents its annual budget and end-of-year financial statements, e.g. expense categories, such as employee costs, contractual services and materials, and asset categories, such as buildings, infrastructure, and plant and equipment.</td></tr>
<tr><td colspan="11">2.2 Develop representative proportions of projected expenditure categories from the asset management plan in the categories of the long-term financial plan, e.g. for maintenance (figures are examples only):<br>— employee costs 45 %;<br>— contractual services 25 %;<br>— materials 30 %.</td></tr>
<tr><td colspan="11">2.3 Break up the projected expenditures from the asset management plan into the expenditure categories of the long-term financial plan for a 10-year planning period, e.g. for maintenance [figures are examples only].</td></tr>
<tr><td colspan="11"><table>
<tr><th>Year</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th></tr>
<tr><td>Employee costs</td><td>45</td><td>46</td><td>46</td><td>47</td><td>54</td><td>59</td><td>56</td><td>56</td><td>55</td><td>59</td></tr>
<tr><td>Contractual services</td><td>25</td><td>26</td><td>26</td><td>26</td><td>30</td><td>33</td><td>31</td><td>31</td><td>30</td><td>33</td></tr>
<tr><td>Materials</td><td>30</td><td>31</td><td>31</td><td>32</td><td>36</td><td>39</td><td>37</td><td>38</td><td>36</td><td>39</td></tr>
</table></td></tr>
<tr><td colspan="11">NOTE These projected expenditures are usually in current monetary values.</td></tr>
<tr><td rowspan="2">3. Financial planning</td><td colspan="11">3.1 Prepare the long-term financial plan using projected expenditures from the asset management plan as well as projected expenditures associated with non-asset-related services and responsibilities (e.g. governance) and associated income and borrowing proposals.<br>Develop key financial indicators and appropriate financial performance targets.</td></tr>
<tr><td colspan="11">3.2 Review the financial affordability of services and the long-term financial sustainability of the entity.<br>Review the key financial indicator trend results against the targets over the planning period.<br>Review the ability to raise funds to achieve projected expenditures and revise proposals as necessary.<br>Review services, service levels and projected expenditures, and revise proposals as necessary.</td></tr>
<tr><td colspan="12">NOTE Source: Modified from Reference [16]. Reproduced with the permission of the authors.</td></tr>
</table>

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## B.2 Long-term financial planning process steps

### B.2.1 General

A long-term financial planning process should consider the SAMP and include the following steps:

a) a mobilization phase (see B.2.2);

b) analysis phase (see B.2.3);

c) a decision phase (see B.2.4);

d) an execution phase (see B.2.5).

### B.2.2 Mobilization phase

The mobilization phase prepares the organization for long-term planning by creating consensus on what the purpose and results of the planning process should be, the time frame for the plan and the parties involved in preparing the plan. The mobilization phase includes the following actions:

a) Resource allocation: This step includes determining the composition of the project team, identifying the project sponsor, and formulating a strategy for involving other important stakeholders. This step also involves the creation of a high-level project plan to serve as a roadmap for the process.

b) Preliminary gap analysis: This step helps raise awareness of special issues among planning participants, such as the board or non-financial executive staff. A scan of the financial environment is common at this point.

c) Identification of service policies and priorities: Service policies and priorities have important implications on how resources are spent and how revenues are raised. A strategic plan or a priority setting session with stakeholders can be useful in identifying service policies and priorities.

d) Validation and promulgation of financial policies: Financial policies set baseline standards for financial stewardship and maintaining structural balance, so a planning process should corroborate whether policies are in place (as well as the organization's compliance with those policies) and also identify new policies that can be needed.

### B.2.3 Analysis phase

Definition of purpose and scope of planning: The purpose and scope of the planning effort should become clear as a result of the previous activities, but the process should include a forum for developing and recognizing their explicit purpose and scope, as well as for detailing them in documented information.

The analysis phase is designed to produce information that supports planning and strategy development. The analysis phase includes the projections and financial analysis commonly associated with long-term financial planning. The analysis phase involves information gathering, trend projection and analysis as follows.

a) Information gathering: This is where the organization's context can be analysed to gain a better understanding of the forces that affect financial stability. Improved understanding of contextual factors can lead to better forecasting and strategizing.

b) Trend projection: After the organization's context has been analysed, the planners can project various elements of long-term revenue, expenditure, and debt trends.

c) Analysis: The forecasts can then be used to identify potential challenges to financial stability (e.g. imbalances). These can be financial deficits (e.g. expenditures outpacing revenues), environmental challenges (e.g. unfavourable trends in the environment) or policy weaknesses (e.g. weaknesses in the financial policy structure). Scenario analysis can be used to present optimistic, base and pessimistic cases. Risk analysis is usually undertaken as part of this phase.

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### B.2.4 Decision phase

After the analysis phase is completed, the organization should decide how to use the information provided. Key to the decision phase is a highly participative process that involves stakeholders, staff and customers. The decision phase also includes a culminating event where the stakeholders can assess the planning process to evaluate whether the purposes for the plan described in the mobilization phase were fulfilled and where a sense of closure and accomplishment can be generated. Finally, the decision phase should address the processes for executing the plan to ensure tangible results are realized.

### B.2.5 Execution phase

After the plan is officially adopted, initiatives should be put into action (e.g. funding required in achieving goals). The execution phase is where the initiatives become operational through the budget, financial performance measures and action plans. Regular monitoring and reporting of performance indicators should be part of this phase.

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# Annex C
(informative)

# External financial reporting standards and principles

## C.1 Examples of financial reporting

Some examples of external financial reporting are:

a) annual reports to investors, stakeholders and/or government oversight bodies;

b) tax reporting to relevant levels of government and tax authorities;

c) statutory accounts to national bodies;

d) group reporting to parent companies;

e) statistical reporting to national bodies;

f) specific reporting to regulatory bodies at the sector level;

g) insurable values.

Many countries have their own local specifications and requirements regarding financial reporting. At the global level, there are some accounting standards generally accepted and commonly used for reporting within large international companies or for public sector organizations. Some examples of financial reporting standards and principles are:

— IFRS;

— US GAAP;

— International Public Sector Accounting Standards (IPSAS).

## C.2 External financial reporting principles for assets

### C.2.1 General

Most accounting standards include the accounting principles or values described in C.2.2 to C.2.5, which are then translated into specific guidance about how to register an asset within the organization's own accounting provisions.

A (financial) fixed asset register kept in accordance with these parameters provides reliable data and information to support making decisions regarding an organization's asset management. A comprehensive asset register can also allow the organization to fulfil the needs and expectations of its stakeholders and/or shareholders by presenting a fair view of its asset base in its financial reporting.

### C.2.2 Fair presentation

Fair presentation requires the faithful representation of the effects of the transactions, other events and conditions in accordance with the definitions and recognition criteria for assets set out in the accounting standards. Events or transactions through the capital asset life cycle can include, but are not limited to:

— initial asset recognition when in use or ready for use;

— asset retirement obligation;

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— value adjustments;

— changes in useful life;

— betterments or improvements;

— not in service;

— abandonment;

— held for sale or disposal.

### C.2.3 Accrual basis for accounting

Accrual basis for accounting requires that transactions be recorded based upon events, eg. delivery, construction in progress (CIP) [sometimes referred to as work in progress (WIP)], assets reaching completion and substantially ready for intended use, rather than at the time that cash or cash equivalents change hands. The accrual accounting and the matching principle requires an organization to recognize the relationship between its OpEx and CapEx (related to physical assets) and the delivery of the required value to the organization during the period of incurrence, again, regardless of when cash payments are made.

### C.2.4 IFRS valuation rules

IFRS valuation rules provide options on the methods for how assets are registered in financial reporting, for example:

— "fair value" refers to the method in which the actual value of the asset is recorded and not the historical cost of the asset (being the cost at moment of acquisition); the use of fair value is recommended for organizations managing assets, particularly long-lived assets, as it can provide more meaningful information on which to base decisions about asset replacement, depreciation, etc.;

— use of capitalization threshold: some accounting standards allow the organization to capitalize only the cost of assets above a certain threshold; this threshold is then part of the valuation rule of the organization and should be applied consistently.

### C.2.5 Appropriate implementation of auditing principles

Appropriate implementation of auditing principles implies that the organization adheres to the principles of the following assertions regarding the registration of its transactions: completeness, existence, accuracy, valuation, obligations and rights, and presentation (CEAVOP), for example:

— "completeness" of the fixed asset register (FAR) means that asset units or groups of assets purchased or built are effectively registered in the FAR, i.e. technical or operational decisions to buy or purchase (or dispose of) an asset have been communicated to the financial function, enabling them to register the new assets in the FAR at the required componentization level (or write-off in the case of disposal);

NOTE The term "fixed assets" generally refers to property, plant and equipment.

— "existence" of the FAR means that the asset units or groups in the financial FAR are actually present in the organization, i.e. they "exist" in the organization;

— "accuracy" means that the transactions (purchase, sales, depreciation) are accurately calculated and registered in the FAR;

— "valuation" means that investments, maintenance and disposals are properly valued according to the applicable accounting standards and valuation guidance; this can require another basis of valuation (e.g. replacement cost also in FAR when accounting standards require the use of market value for reporting purposes);

— "obligations and rights" means that the ownership or the control of the assets are properly disclosed;

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— “presentation” means that the financial information and explanations are correctly described and presented according to the applicable accounting standards.

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# Annex D
(informative)

# Financial accounting functions for financial reporting

## D.1 General

Clauses D.2 to D.8 expand briefly on how an organization should fulfil its accounting functions in terms of asset management to the extent required for conforming to the accounting standards of each country's financial reporting needs. The information in this annex is intended to raise awareness among both financial and non-financial staff of some of the basic accounting provisions for asset management awareness; however, it is important to foster better communication between staff to assist them in performing their duties. The following main topics are addressed:

— financial asset register (see Clause D.2);

— valuation/revaluation (see Clause D.3);

— fair valuation techniques (see Clause D.4);

— depreciation (see Clause D.5);

— impairment (see Clause D.6);

— useful life/remaining useful life (see Clause D.7);

— residual value (see Clause D.8).

Non-financial information should be considered by the organization on the above topics, to fulfil its accounting function in a proper manner. As well as the financial reporting functions, which typically address past events, many organizations are increasingly looking to their financial accounting functions to provide managers with essential financial information as part of the asset management functions, to better inform decision-making for planning ahead. In this document, the financial functions refer to life cycle processes and activities such as managerial costing and accounting, budgeting, financing, valuation, taxation and accounting for financial reporting relating to the assets. Non-financial functions can be deemed to be everything else pertaining to managing the life cycle of the assets.

## D.2 Financial asset register

A financial asset register (referred to as the "fixed asset register" or "fixed asset database" in some organizations) should contain the data required to register certain transactions during the life cycle of the assets, such as cost of acquisition, depreciation, valuations, etc. Depending on the applicable accounting standard, those data can be expressed in historical currency, or they can be adjusted either for inflation, market valuations or replacement cost.

Such data may include the following:

a) Acquisition date: The date the asset was purchased or put into service if self-constructed.

b) Acquisition cost: The (historical) cost for which the asset was purchased.

c) Useful life: The period over which an asset is expected to be available for use by an organization, or the number of production or similar units expected to be obtained from the asset by the organization. This period should be identical to the period during which the organization distributes the acquisition cost.

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d) Depreciation percentage, calculated as per the depreciation methodology. Alternatively, this can be taken to be read as the "percentage of each unit of time" (month, year, etc.) or "production unit of useful life".

e) Accumulated depreciation: The accumulated amount of depreciation since the acquisition date.

f) Accumulated impairment: The accumulated amount of impairment since the acquisition date;

g) Book value: The difference between the acquisition cost and the sum of the accumulated depreciation, diminutions and other accounting charges as recorded.

h) Fair value: An estimated exit price of the asset as part of an ongoing operation, normally determined through an appraisal. Fair value is defined as is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

For complex assets, such as infrastructure, accounting standards require a recognition of the component parts of some property, plant and equipment that have useful lives different from that of the main asset. Accounting considerations for identifying components are primarily related to the materiality of the impact on the recorded depreciation expense.

See 6.1 for more on the relationship between the financial asset register and other asset registers.

## D.3 Valuation/revaluation

Asset values are used by many parts of the organization for a variety of differing purposes, including for financial reporting, insurance purposes, taxation and asset management. These asset values should be held in the asset registers and, accordingly, there is a need for financial and non-financial functional areas to work together for the common benefit of an aligned set of asset registers.

Valuation is the process of estimating the value of anything, including an organization's assets and liabilities. In the financial community, value is defined identically by both major international accounting standards: the IFRS and US GAAP.

IFRS 13[20] defines "fair value" as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). Where a market price doesn't exist, IFRS 13 applies the current replacement cost.

The "book value" is the amount at which physical assets are registered in the financial asset register. At the time of acquisition, the cost is registered as "acquisition cost" or "cost of origin". This cost is subsequently depreciated either by time or production, and the cost of acquisition net of depreciation is usually called "book value". While normally book value would vary between its highest level at the date of acquisition, and gradually decrease to zero or residual value at the end of accounting useful life, there can be instances during the asset's lifetime in which book value must be revalued, upwards or downwards. At those times, a valuation should reflect the impact of a new situation in the organization's financial statements. Examples of such new situations are:

a) an old production line can be used after some modifications for producing a new product;

b) the sale of an asset;

c) the longer useful life of an asset (e.g. when a substantial part has been replaced as new);

d) the increased service or production capacity of an asset;

e) introduction of fair value accounting;

f) economic environment and market conditions have worsened, and impairment (additional depreciation) is called for;

g) functional changes have occurred to the assets, and they are no longer able to perform at the expected level;

h) technological advances in the marketplace have occurred and the asset(s) are no longer economically viable.

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While various accounting standards can allow values to be recorded in different ways, such as at historical cost, it is widely recognized that for meaningful asset management decision-making, fair value/current replacement cost should be used. Unless decisions on issues such as replacing of assets, investing in renewals, depreciation or disposal are based on current market values or their equivalent, it is unlikely that the current costs in current monetary terms are understood. Financial and non-financial functional areas should understand the requirements, put in place the necessary processes and work together to generate the necessary information required for decision-making on the above issues as well as on associated matters, such as pricing of services.

Physical assets can last a long time but usually not forever, except for land. Asset management planning helps to determine when it is appropriate that such assets be renovated or replaced and requires a knowledge of what these costs.

Accounting records require the timeline and method of depreciation. This is used in part to determine an estimate of annual consumption (depreciation) of the asset each year. It is important to note however, that the accounting record of the value of an asset utilized in determining depreciation recorded in financial statements, should be based on current replacement cost or actual fair value.

IFRS accounting standards provide a choice between maintaining asset values on an historic cost basis or periodically revaluing them. Where they are revalued, this occurs in accordance with fair value principles (see Clause D.4). US GAAP similarly provides this choice except that it does not permit reversal of write downs for impairments or abandonments.

Irrespective of whether IFRS or US GAAP is applicable, it is important to recognize that entities in different countries can be required to comply with other local requirements applicable either generally or to specific classes of entities and these requirements can over-ride applicable accounting standards. For example, where IFRS is utilized, some classes of organization can be specifically required to regularly revalue assets. In the US where US GAAP is applicable, US GAAP-compliant publicly traded companies are required to include the value at fair value (i.e. revalued) in notes supporting their financial statements.

In circumstances where an organization is not required or has opted to not revalue long-lived physical assets, but the value of these assets is significant relative to its scale (e.g. relative to average annual income), a record of the current fair value of such assets can be maintained for internal decision-making purposes. This assists in the preparation of reliable asset management plans and help in determining cost-effective and long-run affordable service levels from such assets.

When measuring fair value, an organization should use the assumptions that market participants would use when pricing the asset or the liability under current market conditions, including assumptions about expectations and risk. However, not all assets operate in an active trading market. Examples include long-life infrastructure type assets. IFRS 13[20] requires that “valuation techniques used to measure fair value shall maximize the use of relevant observable inputs and minimize the use of unobservable inputs”.

Unobservable inputs should be used to measure fair value to the extent that relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. However, the fair value measurement objective remains the same, i.e. an exit price at the measurement date from the perspective of a market participant that holds the asset or owes the liability.

## D.4 Fair valuation techniques

An organization should use valuation techniques that are appropriate in the circumstances and for which sufficient data are available to measure fair value, maximizing the use of relevant observable inputs and minimizing the use of unobservable inputs. Using appropriate accounting standards and qualified experts is necessary. Collaboration between financial and non- financial functions is essential to gather the necessary data.

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The objective of using a valuation technique is to estimate the fair value of the asset including the cost to replace its service capacity. The following three valuation techniques are widely used:

a) Market approach: This approach provides an indication of value by comparing the asset with identical or comparable (that is similar) assets for which price information is available. When reliable, verifiable and relevant market information is available, this approach is the preferred valuation approach.

b) Cost approach: This approach provides an indication of value using the economic principle that a buyer pays no more for an asset than the cost to obtain an asset of equal utility, whether by purchase or by construction, unless undue time, inconvenience, risk or other factors are involved. This approach provides an indication of value by calculating the replacement or reproduction cost of an asset and making deductions for physical deterioration and all other relevant forms of obsolescence. This approach also includes identification, appraisals and analysis of similar assets in similar marketplace of which recent sales drive the valuation process.

c) Income approach: This approach provides an indication of value by converting future cash flow to a single current value. Under this approach, the value of an asset is determined by reference to the value of income, cash flow or cost savings generated by the asset.

Where assets (e.g. infrastructure) do not have a market value or a future revenue stream, the cost approach is the most appropriate valuation technique. The valuation process requires that all three techniques be considered and only those that are not applicable be discarded. Finally, there should be a conclusion of value, after giving appropriate weight to the valuations obtained from each applicable technique.

## D.5 Depreciation

In general, depreciation refers to the loss in value of an asset during the economic useful life of an asset while allocating a yearly cost of the use of the asset to each year. The depreciation charge for each period is recognized in a profit and loss statement. The remaining value of the asset at the end of its economic useful life must be equal to zero or to the remaining asset value (for residual value, see Clause D.8) as estimated by the organization from time to time.

IFRS and US GAAP (or other GAAPs) require that the depreciation method used reflect the pattern in which the asset's future economic benefits are expected to be consumed by the organization. The organization should select the method that most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset and based on what is allowed from local jurisdictions. That method should be applied consistently from period to period unless there is a change in the expected pattern of consumption of those future economic benefits. Close collaboration between financial and non-financial staff should be encouraged to arrive at an agreed pattern of consumption and the depreciation method. Large organizations generally establish asset classes, which are not always consistent with the established classification for income tax classification purposes.

Historical accounting procedures include several depreciation methods, depending on the accounting standards to be used or depending on the type of reporting. The following list gives some examples of depreciation methods:

a) Linear depreciation method or straight-line depreciation or amortization (for intangible assets): If time-based, yearly depreciation is equal to the acquisition cost less any residual value, divided by the useful life of an asset. Again, this applies when assuming the asset is not revalued. This method results in a constant charge over the useful life if the asset's residual value does not change, the useful life does not change, or the asset is not revalued.

b) Diminishing balance method: This method results in a decreasing charge over the useful life.

c) Units of production method: This method results in a charge based on the expected use or output.

d) Residual value depreciation: This method can be used for assets with a very long useful life because:

   1) assets are valued at a specific value (market value, replacement value, historical purchase value);

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2) depreciation (which can be linear or not) to a certain residual value can be determined as a percentage of acquisition cost; once an asset is disposed, its remaining balance should be taken as that asset's final depreciation.

In cases where the chosen depreciation method results in book values in material excess of fair value, the organization should register an impairment in order to bring the book value of the asset to the estimated fair value (see Clauses D.3 and D.4).

## D.6 Impairment

Impairment is the decline in the future economic benefits or service potential due to extrinsic or intrinsic conditions on an asset over and above the consumption reported through depreciation. An asset is said to be impaired when its book value exceeds the recoverable amount.

Impairment is an accounting treatment that should be applied at the moment an event occurs that has an immediate negative impact on the book value of all the assets that belong to one and the same cash generating unit. A change in the expected demand for a product resulting in a shorter useful life of the asset is an example of an event giving cause for the registration of an impairment.

EXAMPLE A shopping centre is strategically located next to a large, specialized factory that employs thousands of employees. The factory work moves to a new facility a long distance away, with the consequence that the shopping centre's customer traffic diminishes by 75 % and most of its tenants vacate. This causes the shopping centre to receive a diminishing cash flow, revenues and profits, and consequently to lose significant market value.

This event is registered in terms of accounting by decreasing the current net book value of the asset to the current fair value. It should be noted that some accounting standards, such as IFRS, allow reversal of impairment losses recorded in prior years. It is important to understand how the asset condition and its current value are related and what are these effects on the value.

It is recommended that decisions on impairment for infrastructure assets should be made with a long-term view. Infrastructure assets have long lives compared with industrial plant and equipment, and their value should not be evaluated by a certain event occurring in a short time period. Also, impairment for infrastructure assets can cause the organization to reduce any charged tolls or fees, as well as to influence its creditworthiness and make financing more difficult, which in turn can cause further deterioration of the infrastructure.

As can be seen from the above example, determining whether an asset is impaired should involve the non-financial staff who manage the asset on a day-to-day basis.

It should also be noted that if there is an indication that an asset is impaired, it can instead mean that the remaining useful life, depreciation method and/or residual value should be reviewed and adjusted, and no impairment loss recognized.

Accordingly, judgement should be used to determine whether it is more appropriate to record an impairment loss or make other adjustments, with decisions being documented, including advice from relevant non-financial staff.

Sometimes during impairment reviews it can be found that an asset no longer exists. If this occurs, it is not an impairment but a deferred recognition of a disposal, and an investigation should take place to identify and correct the process failure.

## D.7 Useful life/remaining useful life

Useful life for an asset is generally the lesser of the period over which an asset can meet requirements based on technical, performance or economic factors. An asset's useful life determined by an organization can be limited by economic, functional or technological considerations, rather than by physical condition considerations only. For that reason, an asset at the end of its useful life can be in a condition where it still has a residual value. That asset can be productive for another organization, which would determine its useful life for its life cycle in the new organization.

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For many long-term infrastructure and equipment assets, the useful life is determined by factors such as obsolescence, lack of maintenance support, decrease in reliability/availability, degradation in performance capability, operational availability and economic replacement feasibility. This determination requires cooperation between the financial and non-financial (operations/maintenance) groups to enable the right decision to be made as to whether it makes more sense to maintain the asset or to replace the asset.

For accounting purposes, the useful life of an asset is often defined for a particular established asset class and is used to establish the period over which the asset is depreciated or amortized. For accounting purposes, the useful life can be generally correct. However, for the operational function that uses the asset and should project when a particular asset should be replaced, the user's estimate of useful life is probably more reliable because of additional pertinent considerations. This again highlights the need for the financial and non-financial functions to work together to improve estimation of actual useful life.

The determination of an asset's useful life requires considering various aspects such as the following:

a) Physical: Analysis of failure rates, production capacity, wear and tear in the asset's operating environment.

b) Technological: Foreseeable changes that can make the asset or the production strategy obsolete.

c) Functional: The expected evolution of market demand for the product or service that the asset participates in.

d) Economic: Anticipation of the period in which the asset can be economically exploited.

Depending on the size and nature of the organization, the amount of analysis and weight given to each of these estimations can be made:

— informally, based on the judgement of appropriately qualified and experienced personnel, or professionally, using available formal methodologies;

— based on recommendations from operational and technical staff in the non-financial areas, as this information is used to determine a residual value at disposition.

The remaining useful life can be estimated from the condition of an asset when reliable condition deterioration profiles are available. Remaining useful life can increase when an asset's total useful life is extended by rehabilitation work. When reliable condition deterioration profiles are not available, the organization can use local knowledge and experience of the operation and service performance of similar assets. Hence, the need to engage both financial and non-financial functional staff to arrive at a consensus on remaining useful life. It is worthwhile for an organization to establish guidance and thresholds around where this alignment and cooperation should be.

## D.8 Residual value

Residual value is the anticipated value of an asset at the expiration of its useful life. This value can be equivalent to open market value, scrap or salvage value, or a value that reflects the ability of the asset to contribute to the ongoing operation of a business with increased maintenance and operating costs. Assets with a residual life can, for example, be sold to other organizations. Such a sale reflects the residual value of the asset to the first organization.

Residual value only exists where an amount is expected to be received from disposal of the asset at the end of its life is greater than the estimated costs of disposal if the asset is already at the age and in the condition expected at the end of its useful life. Some residual values can be reviewed each year, considering associated uncertainties.

In some cases, residual value can be a negative number because the asset requires significant disposal cost, such as the demolition of a chemical plant. Again, the assessment of residual value requires advice from both financial and non-financial functional areas.

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# Annex E
(informative)

# Asset life cycle activities

## E.1 General

Asset management includes work on a range of activities over the life cycle of the assets. As an example of these asset life cycle activities, this annex focuses particularly on the various life cycle phases typically applicable for an asset or a group of assets:

— concept phase or defining requirements (see Clause E.2);

— planning and design (see Clause E.3);

— asset creation (construction/acquisition) (see Clause E.4);

— operation and maintenance (see Clause E.5);

— asset monitoring (see Clause E.6);

— rehabilitation and refurbishment (see Clause E.7);

— disposal (see Clause E.8).

Figure E.1 depicts a framework to describe the various phases over the life cycle of an asset or a group of assets. There are many possible depictions of such a framework and each organization can have their own variation. For the purpose of this annex, this framework is used to present the way in which the financial and non-financial functions should align as the asset life cycle activities are performed. The objective is for the financial and non-financial functional areas to collaborate on ways of carrying out asset life cycle activities most cost effectively.

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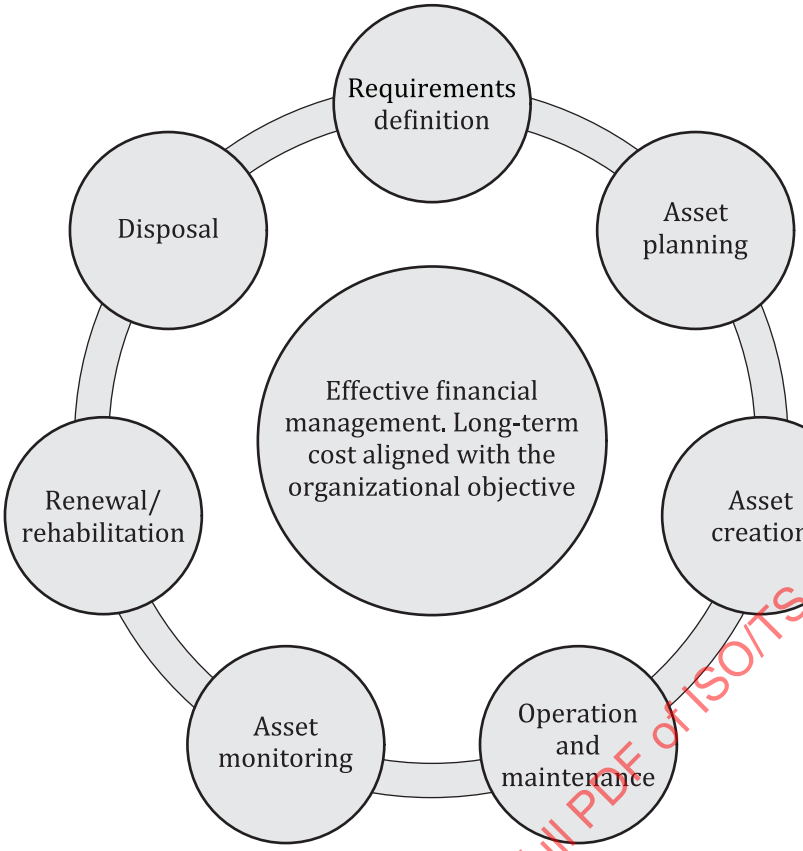


NOTE Source: Based on Figure 1.2.2.1 in Reference [18].

**Figure E.1 — Asset life cycle activities**

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## E.2 Concept phase (defining the requirements)

The decision to create a new asset is typically triggered by some change in the need for the service or level of service provided by the assets. At this early stage of the life cycle of the assets, non-financial functions in asset management usually involve an analysis of:

a) the organization's strategic or business goals;

b) alignment of investment decisions with organizational objectives;

c) the stakeholders' level of service requirements both now and in the future;

d) legislative and regulatory requirements.

Affordability for the customer is often a key constraint that requires the balance of levels of service and LCCs to be understood. Procedures for engagement with customers to test their willingness to pay are well documented in the literature and should involve both financial and non- financial management and staff.

At the conception stage, it is often a requirement for a business case to be prepared that highlights how competing options can be compared and tested against the organization's asset management drives. LCC calculations are desirably performed to inform asset creation decisions. Ideally, LCC should be factored together with non-financial aspects of the decision-making process (e.g. cost/benefit analyses, multi-criteria analyses). There is a need for the financial and non-financial functional areas to collaborate in preparing these business cases.

During the concept phase, generally the following steps, all of which are treated as operational expenses:

— clearly define the level of service required;

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— determine technology needed and its existence;

— conduct conceptual formulation of alternatives;

— evaluate alternatives;

— select final alternative before moving to detailed design.

Capital budget allocation is often a competitive exercise between the various departments of the organization. Obtaining necessary capital funds to meet organizational objectives depends on the knowledge, facts and determination brought forward by the person or persons who raise the request.

## E.3 Planning and design

Where there is a need for a new service involving new assets having been approved at the concept stage, the following phase involves confirming the service required to meet customer needs and ensuring that the most effective solution is found to meet that need.

Staff and management involved in operation and maintenance of the assets should be involved at the planning and design stage to ensure that future operation and maintenance costs are optimized through appropriate design. It is important to note that decisions made at the design stage lock-in future costs for operation and maintenance and, hence, the LCC of the proposed asset or a group of assets in its context.

Determining LCC is an important part of this phase and should involve financial staff in developing plans for how the cost of the ongoing services are to be funded, both in current budgets and in long-term financial plans. Funding options range from user fees and charges, rates or levies, subsidies or grants, developer contributions, reserve funds or borrowings. Other options can include public/private partnerships, or contributions from environmental sources or polluters.

The planning of end of life should be considered at inception including recognition of "asset retirement obligations", as required by financial accounting standards. The potential re-use of an asset or its components at their end of life should be included in this consideration.

Organizational policy should be in place to require standard processes, forms and reports that are designed to meet and implement internal control objectives and requirements.

Accounting treatment of expenditures should be determined at inception with a cost breakdown structure and should be enforced as procurement spending and labour is incurred.

## E.4 Asset creation (construction/acquisition)

The asset creation phase involves procuring the assets (construction/acquisition) and putting them into service. It typically involves significant CapEx for which financial staff should be involved. This leads to several procurement questions such as the following:

— Is the service/product to be delivered in-house or by outsourcing?

— Are the assets to be constructed by internal staff or contracted out?

— Should the assets required be owned or leased?

— What form of procurement contract would be most suitable?

— Is there scope for trying other arrangements, such as a private/public partnership or alliancing, to transfer risk (including partial mitigation of the risk of the third party's subsequent default)?

Determining the best procurement option depend on the work in progress required from the procurement process and can start with a simple contract based on labour and commodity rates to complete a task. As proposed works become more complex, a unit rates or lump sum type contract can be more appropriate. On higher risk projects, it is becoming increasingly common for organizations to explore other arrangements,

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such as private public partnerships or alliancing, as a means of shifting some of that risk to third parties; this can obviously come at a cost premium.

Choosing an option should involve both financial and non-financial staff and management to determine what is most appropriate and then document the process and set up accounts to monitor the financial recording of transactions involved. At this stage, it is also important to populate data into both the financial and non-financial asset registers at appropriate levels of detail with componentization that reflect how the assets is managed once operational. As work proceeds on the procurement process, associated costs must be capitalized into the organization's financial management systems to allow future control in terms of recording valuation and depreciation of the newly acquired assets. Similarly, budgeting for operation and maintenance costs that take effect once the assets are commissioned is important.

## E.5 Operations and maintenance

### E.5.1 General

Operations and maintenance costs often represent a significant portion of an asset's LCCs. Operations and maintenance directly and indirectly influence costs, level of service, risk, performance, reputation, etc.

### E.5.2 Operation

The organization's operational functions should run the assets to produce the product and/or deliver the service at the required level of service and acceptable level of risk. It is fundamental that they operate the assets in a way that minimizes the LCC. In doing so, they should:

a) identify and demonstrate compliance with legal and technical specification requirements;

b) monitor the achievement of performance objectives;

c) staff the operation with the appropriate technical skills;

d) work collaboratively with the maintenance functions.

The financial and non-financial functional areas should collaborate to monitor the appropriate balance between the cost of maintaining the assets and investing capital for asset renewal. The aim is to minimize LCC in alignment with agreed level of service and the organizational objectives.

### E.5.3 Maintenance

Maintenance is concerned with carrying out activities aimed at keeping the assets in service and meeting their functional and performance objectives. Failure to carry out appropriate maintenance and calibrations activities can:

a) result in rejection of product internal quality assurance or externally by customers;

b) reduce performance;

c) lower reliability;

d) shorten useful life;

e) lead to downtime and lead to loss of production;

f) damage reputation;

g) increase overall LCCs;

h) result in safety, environmental or other undesirable issues.

All of these can affect the financial performance of the organization.

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A maintenance plan should meet the organization's objectives, purpose and policy, and align with the organization's SAMP. The maintenance plan should be developed by experts or manufacturer's instruction. Maintenance staff are responsible for implementing the technical activities established in this plan. The organization's top management then has the responsibility to fund the plan and the financial staff should oversee expenditure of the appropriate amount at the appropriate timing, within the long-term financial plan determined by the organization.

The organization should determine the applicable financial regulations and technical standards or legislation to understand which activities are categorized into OpEx rather than CapEx. Maintenance costs are usually OpEx. Capital expenditures are for new items, asset renewal or betterment, or improvements that enhance functionality and performance or extend the useful life of the asset.

Maintenance expenditure is usually incurred throughout the year considering seasonal fluctuations and should be determined in annual budgets.

Depending on the type and operating context of an asset, an appropriate approach to managing assets should include activities such as:

— preventive maintenance;

— predictive maintenance, including condition monitoring;

— corrective maintenance.

Preventive maintenance can imply somewhat larger maintenance costs, but it is designed to increase reliability and availability without necessarily extending the useful life of the asset, while reducing total LCCs. Preventive maintenance aims to slow asset deterioration or failure risk whereas corrective maintenance restores serviceability by correcting failures. The maintenance plan should be seeking to optimize the balance between the costs of these maintenance activities. It is generally more effective for the operational and maintenance functions to use a common application for maintenance planning that is communicated transparently to the financial functions.

## E.6 Asset monitoring

The organization can use condition and performance monitoring for assets to demonstrate they are delivering the agreed levels of service, to predict failures and, where necessary, propose intervention before a functional failure occurs. The information can be used to help the organization mitigate risk of failures or determine the cost for recovering from a failure event. Asset monitoring techniques should only be employed where they can be suitably justified. As an example, where the cost of the asset monitoring technique is less than cost of the asset failure, asset monitoring can be appropriate. In certain cases, an alternative is to allow assets to run to failure and then replace them.

Methods of monitoring asset condition and performance vary according to the asset class. Once the ways in which an asset can fail are defined, then monitoring methods can be chosen to predict failures, the appropriate preventive measures and with the corrective actions likely to be needed. Data to reflect the asset condition and allow for comparative analysis and consequence of failure analysis in decision-making and financial planning. Condition and performance assessments, and trends in how the condition of the assets change over time, are normally used to support operational planning, maintenance scheduling, improving reliability, predicting rehabilitation and refurbishment timing, and deciding on rehabilitation and refurbishment actions.

This can allow the organization to optimally use the assets and inform decision-makers about the appropriate balance between CapEx and OpEx over the asset life cycle. For example, through condition monitoring, the organization can be advised on the most appropriate timing for intervention options, such as an asset refurbishment or replacement, or rehabilitation, or in addressing deferred maintenance.

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## E.7 Rehabilitation and refurbishment

It is important for the financial and non-financial functions to collaborate when planning for asset refurbishment or replacement to agree on the most appropriate time in the asset life cycle to conduct these activities.

For most assets, their economic value decreases over time, while the cost of owning the asset (e.g. operation and maintenance) often increases over time (for other assets, their economic value can increase over time, such as land, livestock, extractable minerals and forestry). Hence, the optimum point for refurbishment and replacement should be mutually agreed to balance financial and non-financial requirements and constraints. For example, the non-financial functions can be driven by the asset condition, functionality, capacity and performance, whereas the financial functions can be driven by budget constraints in a particular year. Hence, it is important for the functions to collaborate and agree a refurbishment/renewal strategy after understanding each other's needs and constraints.

For an organization, prioritizing asset renewals against building or acquiring new assets can also be a challenge, as ongoing investment in the existing assets to maintain their service delivery capability is often critical to the sustainability of the service the asset supports.

The use of predictive modelling techniques to address risk and forecast renewals requirements are commonly applied to help to provide a more informed support to the decision-making process.

Determining the optimal timing for asset renewals expenditure is a key input to the capital investment strategy for the organization and its long-term financial plan.

## E.8 Disposal

The disposal phase is typically the last stage of an asset's life cycle, it should be anticipated and typically commences at the time when the asset no longer fulfils the organization's needs. For example, an equipment asset reaches the end of its useful life, which can be manifested in low or unstable reliability (including increased risks to safety), a high running cost or low product/service quality being delivered, or obsolescence. A change or disruptions in the organization's context can also trigger the disposal stage (e.g. changes in the financial situation or in public perception, a lower demand for products/services).

Depending on the nature of the asset, there are different approaches to disposal, such as abandon in place, potential re-use of the asset or its components, and scrapping or selling if the asset has residual value. It is of importance to include the projected disposal costs in the whole LCC analysis as some assets are likely to incur large asset retirement obligation costs for dismantlement, scrapping and site remediation. For example, an unused pipeline that has been abandoned in place and accordingly has ongoing residual liabilities, such as a risk of collapse, or the owner of the land demands removal, that must be recognized and managed by the organization.

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# Annex F
(informative)

# Implementation example — Aligning asset management functions

## F.1 General

The example in this annex describes a path of a fictitious company. The company, at the direction of top management, is transforming its asset management practices by adopting ISO 55000, establishing an organizational governance framework and rewriting its SAMP. This starts with improving the alignment of its financial and non-financial functions, in accordance with ISO 55000, ISO 55001 and this document. This example applies to material tangible assets on the company's financial balance sheet as well as to intangible assets, such as asset systems, products and contracts not identified on the company's balance sheet.

Top management, based upon ISO 55000, ISO 55001 and this document, realized a more holistic approach to value retention and value creation should be taken as value is derived from assets. Top management also realized the holistic approach to asset retention and creation can only happen optimally with continual alignment of financial and non-financial functions in the company with the understanding of risk opportunities and unplanned negative risk occurrences.

Top management also realized that desired outcomes are achieved based upon multiple factors, including top management direction, maturity of the function[8][9][10], due diligence situational awareness, the commitment of managers, technical and leadership, competence, willingness to change, committed resources and a sense of urgency. Different situations require different approaches and priorities, but they all start with the adoption of the internal control framework, management system standards, and internal horizontal and vertical financial and non-financial alignment.

## F.2 Problem statement

The organization in this example produces multiple industrial products and provides maintenance services worldwide. Governments are major customers. Some products manufactured are commercial off the shelf, while others are specifically designed for specific customers and their specific needs. These products come with software and hardware maintenance obligations and services. Significant capital is needed for facilities, engineering, programs, manufacturing and information technology. The company has multiple divisions that produce different product lines. The company has very good products, growth potential and market share. Top management, from experience and bad audit reports, realizes its asset management functions are not what they should be. Instead, it needs better decision-making, and financial and non-financial alignment with people, processes and systems.

The company over the years addressed other business systems and made significant improvements in accounting, procurement, quality, safety and environmental management, and developed a successful process to improve these business systems that included appropriate external assessments and certification.

The various internal departments and functions compete for capital spending and value autonomy over the alignment. Centres of excellence are valued by individuals more than total company excellence. Management does not feel comfortable they are acquiring items that are necessary or prudent.

Top management realizes the current asset management processes do not serve the company well and put the company at risk.

The Chief Executive Officer and Chief Financial Officer are the primary individuals that are held responsible for their company's internal controls. They don't feel comfortable with the current state of the company's asset management function.

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They first ask themselves a few questions, which they can be required to answer during the annual external audit or if a major internal control failure is exposed:

— Does the asset management function (based upon industry standards, e.g. ISO 55000) provide reasonable assurance of having effective internal controls?

  — Does the system provide assurance of effective and efficient operations, including safeguarding assets?

  — Does the system produce assurance of reliable financial and non-financial reporting, i.e. is it current, accurate, complete, relevant, timely, comparable and usable for decision-making[13]?

  — Does the system ensure compliance with laws, regulations, standards contracts and internal policy?

— From a compliance and business management perspective:

  — Is the company's asset management program well designed?[21]

  — Is the program being applied earnestly and in good faith? In essence, is the asset management program adequately resourced and empowered to function effectively?

  — Does the company's asset management compliance program work in practice?

These top management officials felt uncomfortable answering these questions and recognized that they needed to improve asset management to where they had and can provide assurance to shareholders and others the necessary assurance of an excellent asset management business system.

## F.3 Alignment initiative

### F.3.1 General

Based on the problem statement above, top management is aware that for capital budgeting to be effective and efficient, and to comply with laws and regulations, it must meet the organization's internal control procedures. Top management appointed, with the Board of Directors' approval, a Chief Asset Management Executive to operate and improve operations and processes of the company's asset management function over the asset life cycle, starting with improving accountability and alignment between the financial and non-financial elements of the business. Top management also requested the establishment of the Risk and Capital Committee to create a plan and related processes as a path to improve operations and accountability and force continuous alignment between the financial and non-financial functions in the organization.

Top management is particularly interested in the ISO 55000 definition of an asset and the realization of risk has a downside and an upside and how that is managed have a great impact on overall company value. They also realized some of their most valuable tangible and intangible assets are not recognized on their accounting balance sheet and are not accountable to an assigned individual. The company president said: "If all are responsible and accountable for assets and associated processes, then no one is responsible and accountable".

### F.3.2 Risk and Capital Committee

The objectives of this high-level team (including internal and initially external experts) include the improved alignment between asset-related financial and non-financial functions. Members include management and staff from programmes, engineering, manufacturing, finance, maintenance and information technology (IT) functions. The Executive and Committee are instructed to submit to top management a proposed revision to their SAMP, then a detailed draft capital budgeting and acquisition plan, processes and procedures. Progress in achieving top management's objectives is required to be provided in regularly scheduled progress reports and presentations to management.

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## F.4 Alignment plan

### F.4.1 General

The Risk and Capital Committee includes assigned decision-makers and experts from each functional segment of the organization and as needed external consultant experts. These assigned internal members speak for and commit to their functional segment. Attendance is mandatory.

Alignment starts within the team with “level setting”, which means getting everyone on the same page or bringing the committee up to speed regarding the top management objectives. Top management defines a value framework in which all areas of the company are able to understand the strategic objectives. It also defines how measures can be used to manage them, and provides value measures to the wider business to enable value-based decision-making. This includes assigned readings, and discussing and understanding ISO 55000, ISO 55001 and this document, as well applicable requirements in the internal control framework[22], and internal and external assessments and audit reports. They then move on to an additional search of the literature and existing electronic tools, and benchmarking of world-class asset management systems. Next they move on to showing and discussing the policy and processes of existing tools and start process-mapping their current processes with the help of a Lean Six Sigma Black Belt. Each member of the committee participates in the mapping process. The process includes discussions of the requirements in the areas of operations, reporting and compliance. Identifications of gaps, weaknesses, deficiencies and misunderstandings are resolved during these discussions. Good observations and ideas not relevant to the task at hand are recorded in a “parking lot” for further consideration and later use.

The Alignment Team develops and implements the steps described in F.4.2 to F.4.4.

### F.4.2 Identify top-level objectives

Identify and secure understanding and the intent of the objectives.

### F.4.3 Committee scope

Establish, identify, clarify and verify the Committee’s scope, structure, roles, needed resources, functions and responsibilities while recognizing the alignment of financial and non-financial functions is built into processes.

### F.4.4 Revised SAMP

The team write, vet and obtain top management’s approval for its revised SAMP. Modifications of another department’s functions or processes should be reviewed, improved and approved by the responsible department’s management as vertical and horizontal alignment is necessary.

During the process improvement development using Six Sigma, the objective should be to improve the efficiency and effectiveness of the process, which should streamline and standardize the overall process. A focus should be to eliminate waste, improve user satisfaction, obtain optimal value from assets and make the process fairer in the allocation of resources: CapEx and OpEx. Some work will be added in, but probably more work will be taken out.

Part of the committee’s work should identify organizational and operational thresholds using materiality concepts and more effective and efficient internal controls. There should be a reasoned determination that the new process benefits justify its costs. Process changes should be adequately tested to ensure change and intended improvements are practical. Identified deficiencies and opportunities should be addressed, corrected and improved.

## F.5 Continual improvement

The Alignment Team schedules meetings at least monthly or as needed to discuss committee work, make decisions (including acquisition and accounting and management decisions), provide advice and assess meeting objectives, including revisiting the alignment procedure and internal controls, and explore and

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discuss ways to introduce new technologies to reduce errors, and improve alignment tasks and the integrity of the asset management processes.

Ultimately top management and internal and external auditors should be able to confidently answer the questions in Clause F.2 in the affirmative, based upon facts and rather than feelings or wishes, as top management is firmly aligned with the committee's work.

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# Annex G
(informative)

# Cost input to pricing for product or service

Determining the price or charge to be levied for a product or service is a complex exercise requiring input from a variety of functional areas, typically including marketing, finance, customer services, operations, etc. In some cases, prices are overseen by a regulatory framework. As part of the process of determining cost inputs to the pricing exercise, the financial and non-financial functions of asset management should collaborate for an organization to establish a clear understanding of:

a) the use of forecasting models and/or scenario modelling in developing business cases;

b) future cost models for input into pricing setting/submissions in a regulated pricing environment;

c) future cost projections to understand the ability of the organization to deliver products or services in a competitive market (including via different supply chain pathways or threads);

d) future cost projections for setting rates and charges for a product or service in a public works type scenario.

The non-financial inputs derived from, for example, technical needs analysis, performance assessment, demand analysis, future needs requirements (internal and customer), maintenance planning, renewal planning and new works/growth plans all have associated expenditures that should be considered for cost recovery through pricing or rates and charges.

To build up the financial elements of the operational and capital plans and cost-benefit analyses, financial systems should allow the organization to extract costs of their current and future activities (such as through unit rates or activity-based costing models).

The organization can then develop its financial plans and budgets by addressing these costs. This provides information for the organization itself and its stakeholders to understand and defend its revenue needs and price settings.

In a regulated or policy-driven pricing environment, the combined financial (costs and prices) and non-financial (service performance) information and risks are combined to engage customers, rate payers or other stakeholders in an engagement strategy (usually required by the regulator) and to inform the regulator or policy body decision-maker. Determining the price for a product or service in such a market should typically involve a high level of transparency linking financial and non-financial data that demonstrates how best value outcomes can be provided for customers.

EXAMPLE A utility organization that provides clean water can be required by a regulatory body to provide evidence of the wholesomeness of the water (e.g. its measures to prevent bacteriological contamination) as well as information on its internal costings and controls that determine just and reasonable rates and charges for consumers.

NOTE A useful example of such combined regulatory requirements is provided by Reference [12].

In a public service pricing environment, the difference between price and cost (net income) plays an important role in the organization's sustainability and therefore should be part of the engagement strategy with stakeholders and customers.

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# Annex H
(informative)

# Asset mapping table — Aligning asset management and financial reporting approaches

## H.1 General

It is important to note the different definitions of the term “asset” associated with current asset management and financial accounting best practices, and to outline how organizations should be aware of, and how to handle those differences using a proposed mapping table approach.

This mapping table should assist in providing documented evidence to support conformity to ISO 55001:2024, 7.6.

The definition of the term “asset” in ISO 55000 is broader than in the main financial standards. This difference is evident in the concept of asset under each of the standards. The asset management standard ISO 55000 includes a definition of “asset” related to its relative value to the organization and is not always in its accounting records. In contrast, the financial standards include identification of asset units including acquisition cost and existing book value. For this reason, assets can be different things in an asset management register and the financial register.

In Clause H.2 to H.3, the definitions of “asset” according to the asset management standards and financial standards are compared to demonstrate the differences.

## H.2 Current definitions

### H.2.1 Asset management standard

ISO 55000:2024, 3.1.1, defines “asset” as an “item, thing or entity that has potential or actual value to an organization”, including:

— “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 can also be considered as an asset.”

ISO 55000:2024, 3.3.28, defines “value” as “results from satisfying needs and expectations”, including:

— “Note to entry: Value represents the result of considering positive and negative impacts, as well as financial and non-financial impacts, on stakeholders over a time horizon that includes all such impacts.”

Asset management enables an organization to realize value from assets in the achievement of its organizational objectives. What constitutes value depends on these objectives, the nature and purpose of the organization and the needs and expectations of its stakeholders.

### H.2.2 Financial standards

IFRS defines an “asset” as a “present economic resource controlled by the entity as a result of past events”. An economic resource is a right that has the potential to produce economic benefits.[33]

US GAAP defines an “asset” as a “present right of an entity to an economic benefit”.[14]

An asset has the following two essential characteristics:

a) It is a present right.

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b) The right is to an economic benefit.

In financial accounting terms, assets can be grouped into two major types: tangible assets and intangible assets.

Tangible assets contain various subclasses, including current assets (e.g. cash, inventory, accounts receivable) and fixed assets (e.g. land, buildings, and equipment; fixed assets can be referred to as property, plant and equipment [PP&E], and have a projected useful life of a year or more.).

Intangible assets are mostly non-physical resources and rights to economic benefits. Intangible assets include goodwill, copyrights, trademarks, patents, computer programs, and financial assets, including financial investments, bonds, stocks, and contractual rights.

Even if the definitions under IFRS and US GAAP are not expressed in identical terms, their meaning is the same. Therefore, there should be no difference in the recognition of assets in organizations complying with either financial standard.

Organizations worldwide produce their financial statements abiding by these or equivalent definitions on what are their assets. Likewise, financial auditors regularly verify that assets are stated consistently in their balance sheets, under the universal formula “assets = liabilities + equity”.

## H.3 Mapping table

Since the asset management standards state that assets should provide value to the organization, and allow each organization to determine what constitutes value, each organization can therefore determine what are its assets per the asset management standards, and which of these to be included in its asset management system. Under this requirement, an asset management system can include some or all its assets as defined by the financial standards (financial accounting assets) and can include other items that are not defined as assets by the financial standards.

The difference between the financial and asset management recognition of an asset arises because the financial standards consider only the economic benefits of assets, while asset management may recognize all other relevant types of benefits such as benefits to society, the environment, safety, reputation, security, etc.

There is no problem in measuring value differently between asset management and finance functions because the purposes for which the assets are valued are different. The financial value of assets is produced for inclusion in the balance sheet, which represents the financial worth of an organization per accounting standards. While asset management values of assets can be used to inform for asset investment and asset management decision-making.

A current trend toward integrated reporting, which are not always required by the organization, has identified six categories in which organizations can create financial and non-financial value, and is widely known as “the six capitals”. The relationship between an organization’s objectives and the six capitals can be used to identify the organization’s assets. However, it should be noted that there are several multi-capital reporting frameworks. The two most widely used are the six capitals from the IFRS Foundation[25], and the four capitals model from the Capitals Coalition[26]. Both have active participation from the major accounting bodies worldwide.

Table H.1 provides an example of a mapping table showing the documented outcomes of an assessment using ISO 55001:2024. It provides examples of items that either are or are not financial accounting assets, and either are or can be asset management system assets. The example does not pretend to be exhaustive or authoritative. It is meant to show how an organization can set up a mapping table based on its own understanding of value, the subsequent identification of its asset management system assets, and which of these should be included in its asset management system.

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**Table H.1 — Mapping table**

| Item | | Financial accounting asset? | Asset management system asset? |
|---|---|---|---|
| Physical | Plant, property, and equipment | Yes | Yes |
| | Spare parts (kept and managed in inventory) | Can be | Can be |
| | Supplies (kept and managed in inventory) | Can be | Can be |
| | Finished goods inventory | Yes | Can be |
| Non-physical | Cash | Yes | Can be |
| | Financial assets | Yes | Can be |
| | Bonds | Yes | Can be |
| | Accounts receivable | Yes | Can be |
| | Intellectual property rights | Yes | Can be |
| | Goodwill | Yes | Can be |
| | Copyrights | Yes | Can be |
| | Trademarks | Yes | Can be |
| | Patents | Yes | Can be |
| | Computer programs | Yes | Can be |
| | Leases | Yes | Can be |
| | Brands | Yes | Can be |
| | Use rights | Yes | Can be |
| | Licenses | Yes | Can be |
| | Agreements | Yes | Can be |
| | Tradeable data and information | Yes | Can be |
| | Tradeable knowledge | Yes | Can be |
| | Non-tradeable data and information | No | Can be |
| | Non-tradeable knowledge | No | Can be |
| | Reputation | No | Can be |
| | Certifications | Can be | Can be |

## H.4 Conclusion

Differences in recognizing assets between the asset management and financial standards exist now and are unlikely to fully align in the near future. The advent of broader value reporting approaches can drive greater alignment between asset management thinking and the more traditional financial reporting approaches, so users should monitor these developments closely. This can help an organization to align its financial thinking and asset management thinking.

Given that the current versions of the asset management and financial standards include different definitions of asset, it is important to have organizational awareness and understanding of the different focus on the definition of "asset" for different purposes as described above. Where the assets are common, there should be alignment and consistency in how they are identified and recorded in the two systems.

To ensure that there is no confusion between financial accounting assets and financial assets, there should be a clear understanding of the differing use/application of the assets and their value recognition in the two functions.

To help organizations deal with these differences, they can develop and document a mapping table such as the example provided in Table H.1. This mapping table is meant to identify, within an organization's asset management system:

a) assets that provide economic benefits, which should be included in both the balance sheet and the asset management system;

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b) assets that provide more than just economic benefits, which may be included only in the asset management system.

This action helps organizations to conform to the requirements of ISO 55001.

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