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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 documents 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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is Project Committee ISO/PC 251, *Asset management*.

This corrected version of ISO 55000:2014 incorporates the correction of the numbering of subclause 7.3.2.

Introduction

This International Standard provides guidance for the application of a management system for asset management, referred to as an "asset management system", in accordance with the requirements of ISO 55001.

This International Standard contains explanatory text necessary to clarify the requirements specified in ISO 55001 and provides examples to support implementation. It does not provide guidance for managing specific asset types.

This International Standard provides guidance for use by:

— those involved in the establishment, implementation, maintenance and improvement of an asset management system;

— those involved in delivering asset management activities and service providers.

General information on asset management, and information on the terminology applicable to this International Standard, is provided in ISO 55000.

Annex A provides additional information on areas related to asset management activities.

Annex B shows the relationship between key elements of an asset management system.

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Asset management — Management systems — Guidelines for the application of ISO 55001

1 Scope

This International Standard provides guidance for the application of an asset management system, in accordance with the requirements of ISO 55001.

This International Standard can be applied to all types of assets and by all types and sizes of organizations.

NOTE 1   This International Standard is intended to be used for managing physical assets in particular, but it can also be applied to other asset types.

NOTE 2   This International Standard does not provide financial, accounting or technical guidance for managing specific asset types.

NOTE 3   For the purposes of ISO 55000, ISO 55001 and this International Standard, the term "asset management system" is used to refer to a management system for asset management.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 55000:2014, *Asset management — Overview, principles and terminology*

ISO 55001:2014, *Asset management — Management systems — Requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 55000 apply.

4 Context of the organization

4.1 Understanding the organization and its context

4.1.1 Overview

4.1.1.1 The asset management system forms an integrated part of the organization's management system and has a prescribed structure. It should fit in and result from:

— the organizational objectives;

— the organizational plan.

The asset management system includes:

a)   the asset management policy (see 5.2);

b)   the asset management objectives (see 6.2);

c)   the strategic asset management plan (SAMP);

d) the asset management plan(s) (see 6.2.2), which are implemented in:

— operational planning and control;

— supporting activities;

— control activities;

— other relevant processes.

Figure B.1 shows the relationship between the key elements of an asset management system, together with the related clauses in ISO 55001.

The scope of an organization's asset management system and the outputs from its asset management activities should be used to set out the approach to enable the delivery of its organizational objectives. The requirements for the scope and context of an organization's asset management system are given in ISO 55001:2014, Clause 4.

The organizational objectives provide the overarching context and direction to the organization's activities, including its asset management activities. The organizational objectives are generally produced from the organization's strategic level planning activities and are documented in an organizational plan.

NOTE 1   The organizational plan can be referred to by other names, e.g. the corporate plan.

The principles by which the organization intends applying asset management to achieve its organizational objectives should be set out in an asset management policy. The approach to implementing these principles should be documented in a strategic asset management plan (SAMP).

NOTE 2   A strategic asset management plan can be referred to by other names, e.g. an asset management strategy.

The SAMP should document the relationship between the organizational objectives and the asset management objectives, and should define the framework required to achieve the asset management objectives.

The links between the organizational plan and the SAMP should be two-way, and should be developed through an iterative process. For example, the organizational objectives should not be developed in isolation from the organization's asset management activities. Asset capability and performance, as well as the outputs from asset management activities (e.g. the asset management plan(s)), are key inputs into establishing realistic and achievable organizational objectives.

4.1.1.2   In developing its SAMP, the organization should:

a) consider the expectations and requirements of stakeholders;

b) consider activities that could extend beyond the organization's routine planning timeframe, and which should be subject to regular review;

c) clearly document the processes to establish its asset-related decision-making criteria.

The SAMP should be a high level plan that contains the asset management objectives. It should be used to develop the asset management plan(s), which should set out the asset level activities. The asset management plan(s) can be cascaded in large organizations or in organizations with complex asset portfolios.

4.1.1.3   All parts of the asset management system should be scalable, e.g. for small organizations, the organizational plan could be a single document that includes separate sections for:

a) the organizational objectives;

b) the SAMP;

c) the asset management plan(s).

Alternatively, the organizational plan could be kept separate from the SAMP, which could include the asset management plan(s) as a sub-section, or all three plans could be kept separately. While it is necessary to distinguish between the SAMP and the asset management plan(s), it is not a requirement of ISO 55001 to create separate documents for each.

The concept of ensuring alignment and consistency between the organizational objectives, the asset management policy, the SAMP, the asset management objectives and the asset management plan(s), should reinforce within the organization that asset level activities support the delivery of the organizational objectives. It is important that this alignment is communicated to ensure that stakeholders at all levels understand why asset activities and asset management activities are implemented.

4.1.2 Understanding the organization and its context

4.1.2.1 When establishing or reviewing an asset management system, it is important to ensure that the approach is consistent and aligned with the external and internal contexts of the organization, since these can significantly influence the design and scope of the asset management system.

4.1.2.2 Evaluating the organization's external context can include, but is not limited to, the following issues:

a) the social and cultural, political, legal, regulatory, financial, technological, economic, competitive and natural environment, whether international, national, regional or local;

b) key drivers and trends having impacts on the objectives of the organization;

c) relationships with, and perceptions and values of, external stakeholders.

4.1.2.3 Evaluating the organization's internal context can include, but is not limited to, the following issues:

a) governance requirements;

b) organizational structure, roles, accountabilities and authorities;

c) policies, objectives, and the strategies that are in place to achieve them;

d) capabilities, understood in terms of resources and knowledge (e.g. capital, time, people, systems and technologies);

e) information systems, information flows and decision-making processes (both formal and informal);

f) relationships with, and perceptions and values of, internal stakeholders;

g) the organization's culture;

h) standards, guidelines and models adopted by the organization;

i) the form and extent of contractual relationships;

j) risk management plans;

k) asset management practices and other management systems, plans, process(es) and procedure(s);

l) integrity and performance of the assets and asset systems;

m) feedback from the investigation of previous asset and asset system failures, incidents, accidents and emergencies;

n) assessing the ability of the asset management system to achieve the intended outcomes of the organizational objectives;

o) feedback from previous self-assessments, internal audits, third party reviews and certification reviews.

4.2 Understanding the needs and expectations of stakeholders

4.2.1 The organization should identify and review the stakeholders that are relevant to asset management and the needs and expectations of these stakeholders.

4.2.2 Internal stakeholders can include the following:

a) employees within the organization;

b) groups within the organization, i.e. functional groups (e.g. engineering, accounting, maintenance, operations, purchasing, receiving, logistics) or other groups (e.g. safety delegates);

c) shareholders, management consortiums, owners.

4.2.3 External stakeholders can include the following:

a) customers, users, suppliers, service providers and contractors;

b) non-governmental organizations, including civil society organizations, consumer organizations and the media with an interest in issues related to asset management;

c) government organizations, government agencies, regulatory authorities, and politicians at all levels of government;

d) investors or taxpayers;

e) local communities;

f) those in society interested in social, financial, environmental or other forms of sustainability;

g) financial institutions, rating agencies, and insurers;

h) employee representatives.

4.2.4 Stakeholders' needs and expectations should be documented and communicated. This may be captured in a statement of stakeholders needs within the SAMP and should reference any mandatory requirements, as well as the expectations of different stakeholder groups. The organization should consider a means of tracking how current the information is, and the methods involved for its collection. When engaging with stakeholders to determine their needs and expectations, the organization can use the list of contexts given in 4.1.2 to frame the discussions.

One objective of asset management is to enable the organization to meet the service needs of the customers and users of its asset(s). The organization should measure the levels of service (see 6.2.1) that its assets deliver, and analyse these against the requirements and expectations of its customers and users. A level of service review process can be a useful approach to understand the expectations of customers and users.

Stakeholders are likely to make judgments about the organization's asset management and its asset management outputs and outcomes, based on their perceptions. These can vary due to differences in values, needs, assumptions, concepts and concerns, as they relate to the issues under discussion. Since the views of stakeholders can have a significant impact on the organization's asset-related decisions, it is important that their perceptions are determined, recorded, and taken into account in the organization's decision-making process.

Understanding how asset-related decisions are made is an important part of asset management. The criteria for decision making are influenced by the needs of external and internal stakeholders, by the asset management policy and by the risk attitude of the organization. The external and internal stakeholders' input to establishing decision-making criteria is important for setting priorities and resolving conflicting

requirements. Decision-making criteria should be appropriate to the importance and complexity of the decisions being made. Decision-making criteria should be used to evaluate competing options to meet asset management objectives and develop asset management plans. The criteria can be expressed in a number of ways, to support quantitative, semi-quantitative or qualitative decisions. The processes to establish the decision-making criteria that guide asset management should be clear and documented.

The level of detail needed when reporting to stakeholders will vary from one stakeholder to another, depending on the scope of the organization's activities and on the complexity of the assets being managed. The detail should only disclose proprietary information as appropriate for the stakeholders receiving the information.

Stakeholders generally need to be informed about the decisions that can affect them and might need to provide input into decisions that can have an impact on them. Failure to both communicate and consult in an appropriate way about asset management activities can in itself constitute a risk, because it could later prevent an organization from fulfilling its objectives.

It is important that the terminology used in communicating with stakeholders is consistent and aligned with other functions in the organization, and in accordance with legal requirements, where applicable. This is particularly necessary when communicating financial information.

4.3 Determining the scope of the asset management system

Based on the outcomes of reviews of its context and stakeholders (see 4.1 and 4.2), the organization should define (or review) the boundaries of the asset management system, and establish its scope.

The boundaries and applicability of the asset management system should be captured in a statement of scope (which may be included in the SAMP). It should be communicated to all relevant stakeholders, both internal and external to the organization. The detail will be influenced by the size of the organization and the scale and complexity of the asset portfolio covered by the asset management system. It should clearly show what is considered inside and outside scope.

The scope should consider:

a) the assets, asset portfolio(s), their boundaries and interdependencies;

b) which other organizations are involved in meeting the organization's asset management system requirements (including the requirements of ISO 55001), e.g. through the outsourcing of asset management activities or activities related to life cycle stages;

c) the organizational aspects, e.g. which parts or functions of the organization are involved;

d) the organization's period of responsibility (e.g. where the management of assets is contracted out for a set period of time), including its residual liabilities beyond the operation or use of the asset (e.g. where an organization remains accountable for risks beyond its use of an asset, such as a chemical plant asset owner that retains liability for ground contamination);

e) the interactions with other parts of the organization's management system (e.g. for quality or environmental management), which can require defining the boundaries, functions, and responsibilities of each part of the management system.

4.4 Asset management system

In the initial development of the asset management system, the organization should outline how it will establish, implement, maintain and improve the system. An initial review of the organization's current processes against the requirements of ISO 55001 will determine the areas that need to be developed to support the functioning of a compliant asset management system.

The asset management system should not stand alone. A factor of successful asset management is the ability to integrate asset management processes, activities and data with those of other organizational functions, e.g. quality, accounting, safety, risk and human resources. Where possible, existing business

processes should be leveraged to avoid unnecessary new work and duplication of existing work and data. These interactions with the existing processes need to be clearly communicated to all involved.

Consideration should be given to how to prioritize what to develop first, as there is usually a limit on resources available. The review can guide the organization in formulating plan(s) for implementing and prioritizing improvements to its asset management system.

An appropriate starting point is the establishment of an asset management policy, which often helps to provide focus for the organization and to identify its intentions. Following this, the organization should develop its SAMP.

It is important to be aware of, and to clarify, any variations in terminology between ISO 55000 and the terminology used in the organization's common practice.

Compliance with all the requirements of ISO 55001 should be considered as achieving only the minimum starting point for an effective asset management system and should not be seen as the final goal.

5 Leadership

5.1 Leadership and commitment

Asset management leadership can be demonstrated by top management through positively influencing the organization (and in its execution of all the requirements of ISO 55001, and specifically the requirements of ISO 55001:2014, 5.1). Top management may appoint an individual to oversee the development, implementation, operation and continual improvement of an asset management system, however, it is important that ownership and accountability for asset management remains at the top management level.

Top management commitment to asset management can be demonstrated by:

a) making reference to asset management principles in communications;

b) engagement in setting the objectives and measures of success for the people responsible for the asset management system:

— by setting priorities for these objectives;

— by allocating appropriate resources for the achievement of these objectives;

c) establishing a strong collaborative work culture that is focused on delivering the asset management objectives;

d) using asset management related decision-making criteria for capital expenditures and other decisions;

e) supporting asset management related improvement activities;

f) supporting a management-development track that encourages and rewards time spent in roles associated with asset management and operation of the asset management system;

g) monitoring the asset management system performance and ensuring corrective or preventive actions, including opportunities for continual improvement;

h) assuring that asset management is considered at the same level of importance as safety, quality, environment, etc.;

i) addressing asset related risks and incorporating them into the organization's risk management processes;

j) aligning asset management and the asset management system to other organizational functions through collaboration on achieving the organizational objectives;

k) aligning asset management and the asset management system to other organizational practices and management systems, e.g. including the organization's approach to risk management.

5.2 Policy

The asset management policy is a short statement that sets out the principles by which the organization intends to apply asset management to achieve its organizational objectives. The asset management policy should be authorized by top management and thereby demonstrate commitment to asset management.

The policy should set out the organization's commitments and expectations for decisions, activities and behaviour concerning asset management. It should be aligned to and demonstrate support for the organizational objectives. For example, an organizational objective to reduce capital investment could result in an asset management policy statement for adopting risk-based approaches to capital investment.

Examples of asset management policy principles may include commitments for:

a) guiding principles for asset management activities, e.g. service delivery objectives are to guide asset management practices and decisions;

b) adherence to applicable laws, legislation and regulations;

c) the provision of resources to deliver on asset management objectives and the structure or working of the organization to achieve the organizational objectives, e.g. asset planning and management is to be integrated with corporate and business planning, budgetary and reporting processes;

d) the decision-making criteria to be used, e.g. asset management decisions are to be based on evaluations of alternatives that take into account life cycle costs, benefits and risks of the asset;

e) reporting on asset and asset management performance;

f) long-term objectives, sustainable outcomes and stakeholder requirements;

g) continual improvement of the asset management system.

It is not necessary for the policy to be captured in a discrete document; it can be contained in other high level organizational policies or documents, e.g. it may be included in the SAMP. The important point is that it is communicable to the organization. If this can be demonstrated, a separate asset management policy document may not be required.

There should be processes in place to review and update the asset management policy, and to ensure that if the organization's external or internal context changes, the actions necessary to update the policy are also triggered.

5.3 Organizational roles, responsibilities and authorities

The responsibilities and authorities of key functions should be defined (see ISO 55001:2014, 5.3). This should include both internal and outsourced roles and responsibilities. The interfaces between organizational functions should be clearly established. This becomes more important in an outsourced environment.

It should be clear which role is responsible for which activity. This can be achieved through the development of job descriptions, or through including asset management responsibilities in existing job descriptions, or through the production of a documented organizational chart.

When assigning internal roles, consideration should be given to the following:

a) an individual's experience and competence (see 7.2);

b) support for the role through training and mentoring;