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Application guidelines – Technical and financial processes for implementing asset management systems

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Application guidelines – Technical and financial processes for implementing asset management systems

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ELECTROTECHNICAL
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APPLICATION GUIDELINES – TECHNICAL AND FINANCIAL PROCESSES FOR IMPLEMENTING ASSET MANAGEMENT SYSTEMS

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62775, which is a Technical Specification, has been prepared by IEC technical committee 56: Dependability.

The text of this Technical Specification is based on the following documents:

Enquiry draft	Report on voting
56/1644/DTS	56/1675/RVC

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Asset management is a multi-disciplinary business activity comprising financial, technical and risk components. Effective control and governance of assets by organizations is essential to realizing value from their use through the management of risk. The value derived through the use of assets is determined by the organization.

The organization's decision-making processes are effective when they address technical and financial risks together and when those processes achieve a ‘desired balance of cost, risk and performance’- as required by the ISO 5500x asset management suite. Thus, the processes developed within the asset management system (AMS) need to integrate financial and accounting procedures with technical and management activities, using risk based decision making.

The ISO 5500x asset management suite of standards defines the principles of asset management and documents the requirements for an AMS that implements those principles. However, ISO 55001 explicitly excludes information necessary to implement the technical and financial processes in support of the management of assets.

The IEC dependability suite of standards provide guidance on technical processes and techniques that achieve desired availability, reliability, maintainability and supportability of assets, products and systems. Systems engineering standards describe the life cycle of systems and define the processes needed for the engineering management of a system while the International Financial Reporting Standards (IFRS) provides a suite of globally accepted international financial reporting standards and a suite of supporting accounting standards in the form of the International Accounting Standards (IAS).

This Technical Specification demonstrates the relationship between the ISO AMS standards, the ISO/IEC/IEEE systems engineering standards, the IEC dependability standards and the IFRS and IAS financial standards.

APPLICATION GUIDELINES – TECHNICAL AND FINANCIAL PROCESSES FOR IMPLEMENTING ASSET MANAGEMENT SYSTEMS

1 Scope

IEC 62775, which is a Technical Specification, shows how the IEC dependability suite of standards, systems engineering and the IFRS and IAS standards can support the requirements of asset management, as described by the ISO 5500x suite of standards.

This Technical Specification therefore provides

- a brief introduction to asset management and the requirements for an AMS,
- a description of the benefits from the use of an established and common set of AMS processes and procedures, tools and techniques to manage assets, and
- a description of the relationships between the AMS and the tools and techniques, processes and procedures of
  - ISO/IEC/IEEE 15288:2015, Systems and software engineering – System lifecycle processes,
  - IEC dependability standards in particular IEC 60300-3-15, and
  - relevant IFRS and supporting IAS standards.

This Technical Specification is intended for

- asset managers who wish to identify and implement technical and financial processes within an AMS, using dependability techniques and IFRS and IAS standards respectively, and
- systems and dependability engineers who need to apply their technical processes and techniques within an AMS.

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 55001:2014, *Asset management – Management systems – Requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
accrual accounting
accounting which depicts the effects of transactions and other events and circumstances on a reporting entity's economic resources and claims in the periods in which those effects occur, even if the resulting cash receipts and payments occur in a different period

Note 1 to entry: In order to meet their objectives, financial statements are prepared on the accrual basis of accounting.

[SOURCE: IFRS – IASB Conceptual Framework for Financial Reporting 2010]

3.2
asset
item, thing or entity that has potential or actual value to an organization

Note 1 to entry: Value can be tangible or intangible, financial or non-financial, and includes consideration of risks and liabilities. It can be positive or negative at different stages of the asset life.

Note 2 to entry: Physical assets usually refer to equipment, inventory and properties owned by the organization. Physical assets are the opposite of intangible assets, which are non-physical assets such as leases, brands, digital assets, use rights, licences, intellectual property rights, reputation or agreements.

Note 3 to entry: A grouping of assets referred to as an asset system could also be considered as an asset.

[SOURCE: ISO 55000:2014, 3.2.1]

3.3
asset management
coordinated activity of an organization to realize value from assets

Note 1 to entry: Realization of value will normally involve a balancing of costs, risks, opportunities and performance benefits.

Note 2 to entry: Activity can also refer to the application of the elements of the asset management system.

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

[SOURCE: ISO 55000:2014, 3.3.1]

3.4
asset management objective
overarching objective that sets the context and direction for an organization’s asset management activities

Note 1 to entry: Asset management objectives are established through the strategic level planning activities of the organization.

[SOURCE: ISO 55000:2014, 3.1.14, modified — the preferred term "organizational objective" has been replaced by "asset management objective" and in the definition "asset management" has been added]

3.5
asset management system
AMS
management system for asset management whose function is to establish the asset management policy and asset management objectives

Note 1 to entry: The asset management system is a subset of asset management.

[SOURCE: ISO 55000:2014, 3.4.3]

3.6
fair value
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 (as might appear on the organizational balance sheet)

[SOURCE: IFRS 13:2013 Fair Value Measurement, modified — “(as might appear on the organizational balance sheet)” has been added]

3.7
management system
set of interrelated or interacting elements of an organization to establish policies and objectives and processes to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The system elements include the organization's structure, roles and responsibilities, planning, operation, etc.

Note 3 to entry: The scope of a management system may include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

[SOURCE: ISO 55000:2014, 3.4.2].

3.8
dependability
ability to perform as and when required

Note 1 to entry: Dependability includes availability, reliability, recoverability, maintainability, and maintenance support performance, and, in some cases, other characteristics such as durability, safety and security.

Note 2 to entry: Dependability is used as a collective term for the time-related quality characteristics of an item.

[SOURCE: IEC 60050-192:2015, 192-01-22]

3.9
process
set of interrelated or interacting activities which transforms inputs into outputs

[SOURCE: ISO 55000:2014, 3.1.19]

3.10
risk
effect of uncertainty on objectives

Note 1 to entry: An effect is a deviation from the expected — positive and/or negative.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and process).

Note 3 to entry: Risk is often characterized by reference to potential "events" (as defined in ISO Guide 73:2009, 3.5.1.3) and "consequences" (as defined in ISO Guide 73:2009, 3.6.1.3), or a combination of these.

Note 4 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated "likelihood" (ISO Guide 73:2009, 3.6.1.1) of occurrence.

Note 5 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.

[SOURCE: ISO 55000:2014, 3.1.21]

3.11
stakeholder
person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity

Note 1 to entry: A "stakeholder" can also be referred to as an "interested party".

[SOURCE: ISO 55000:2014, 3.1.22]

3.12
strategic asset management plan
SAMP
documented information that specifies how organizational objectives are to be converted into asset management objectives, the approach for developing asset management plans and the role of the AMS in supporting achievement of the asset management objectives

Note 1 to entry: A strategic asset management plan is derived from the organizational plan.

Note 2 to entry: A strategic asset management plan may be contained in, or may be a subsidiary plan of, the organizational plan.

[SOURCE: ISO 55000:2014, 3.3.2]

4 Management systems environment

4.1 Overview

There are many standards, which can be implemented to successfully manage organizational functions. These range from high-level management system standards to detailed technical and financial standards for the implementation of particular tasks.

The ISO 5500x suite of management system standards requires the integration of technical and financial decision making and reporting, however they explicitly exclude specific technical or financial process information, other than what might be generally referenced in a bibliography. Similarly, IEC dependability standards rarely include reference to the needs of management systems outside the dependability management function, nor include reference to relevant financial standards and related requirements.

Additionally, the IFRS suites of standards make no reference to the needs of management systems nor do they include reference to relevant technical processes and requirements.

The role of each independent set of standards are summarized in the following list:

- ISO 5500x asset management suite specifies the requirements for the establishment, implementation, maintenance and improvement of an AMS;
- ISO/IEC/IEEE 15288 provides a tool that can be used to manage technical and financial processes;
- IEC dependability standards describe technical processes and activities, and how to tailor them for use within the AMS;
- IFRS suite of financial standards describe the financial processes that can be used within the AMS.

NOTE 1 For purposes of clarity and use within this Technical Specification, a “system” (see ISO/IEC/IEEE 15288) is considered to be equivalent to an “asset” (see ISO 55000), “asset system” (see ISO 55000) and an “item” (see IEC 60050-192) – that is, the terms are equivalent.

NOTE 2 For describing processes this Technical Specification uses the hierarchical terms of processes, activities, tasks and notes as described in ISO/IEC TR 24774.

4.2 Benefits to asset management from integrating financial and technical processes

The benefits that result from the integration of technical and financial standards are likely to be significant. Specifically these may include

- greater understanding of both technical and financial systems and the relationship between them,
- improved asset management delivery through integration with dependability management,
- reduction in complex and critical system failures and their consequences, and