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# Standard Practice for Asset Taxonomy<sup>1</sup>

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## 1. Scope

1.1 This practice covers a useful hierarchical arrangement of the breadth of asset types.

1.2 This taxonomy is based on the innate characteristics of the asset, not on the asset's use, cost, owner, or other factors.

1.3 Biological life forms are excluded.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

E2135 Terminology for Property and Asset Management  
E2279 Practice for Establishing the Guiding Principles of Property Asset Management

2.2 *ISO Standards:*<sup>3</sup>

ISO 55000 Asset management — Overview, principles and terminology

ISO 55001 Asset management — Management systems — Requirements

## 3. Terminology

3.1 *Definitions*—For definitions relating to property and asset management, refer to Terminology E2135.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee E53 on Asset Management and is the direct responsibility of Subcommittee E53.05 on Asset Leadership.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, https://www.iso.org.

3.1.1 *air, n*—physical, natural resource asset that is the mixture of invisible odorless tasteless gases (such as nitrogen and oxygen) that surrounds the earth.

3.1.2 *asset, n*—item, thing, or entity that has potential or actual value to an organization. (ISO 55000)

3.1.3 *asset taxonomy, n*—the practice and science of classification of assets, including the principles that underlie such classification.

3.1.4 *classification, n*—the third level of the asset taxonomy, it includes major subdivisions of the *domain* level.

3.1.5 *conceptual assets, n*—non-physical assets pertaining to concepts or to the forming of concepts, including management control systems, perceptions, and knowledge.

3.1.6 *constructed assets, n*—physical assets that exist as a result of actions of humankind.

3.1.7 *data, n*—virtual assets consisting of factual information (such as measurements or statistics) used as a basis for reasoning, discussion, or calculation.

3.1.8 *domain, n*—the second level of the asset taxonomy, it includes major subdivisions of the *form* level.

3.1.9 *durable assets, n*—constructed assets that are able to exist for a long time without significant deterioration in quality or value.

3.1.10 *family, n*—the fifth level of the asset taxonomy, it includes subdivisions of the *order* level, and may be further subdivided into types.

3.1.11 *form, n*—the highest level of the asset taxonomy, it includes physical assets and non-physical assets.

3.1.12 *infrastructure assets, n*—durable assets that are the fundamental facilities and systems serving a country, city, or other area.

3.1.13 *knowledge, n*—conceptual assets that are the fact or condition of knowing something with familiarity gained through experience or association.

3.1.14 *land, n*—physical, natural resource asset that is any part of the earth's surface not covered by a body of water.

3.1.15 *management and control systems, n*—conceptual assets that are tools to aid management for steering an organization.

3.1.16 *moveable assets, n*—durable assets that can be moved from one location to another.

3.1.17 *natural resource assets, n*—physical assets that exist without actions of humankind.

3.1.18 *networks, n*—virtual assets consisting of a system of computers and peripherals that are able to communicate with each other.

3.1.19 *nondurable assets, n*—constructed assets that are able to exist for only a short time before deteriorating.

3.1.20 *non-physical assets, n*—assets not having material existence.

3.1.21 *order, n*—the fourth level of the asset taxonomy, it includes subdivisions of the *classification* level.

3.1.22 *perceptions, n*—conceptual assets that are observations or mental images.

3.1.23 *physical assets, n*—assets having material existence.

3.1.24 *short-lived assets, n*—nondurable assets that are designed for more than a single use, but that are not durable.

3.1.25 *single-use assets, n*—nondurable assets that are designed for a single use after which they are recycled or disposed as solid waste.

3.1.26 *software, n*—virtual assets consisting of programs for a computer.

3.1.27 *space, n*—physical, natural resource asset that is the region beyond the earth's atmosphere.

3.1.28 *virtual assets, n*—non-physical assets on or simulated on a computer or computer network, including software, data, and networks.

3.1.29 *water, n*—physical, natural resource asset that is the liquid that descends from the clouds as rain, forms streams, lakes, and seas, and is a major constituent of all living matter.

#### 4. Significance and Use

4.1 The intent of these principles is to provide a useful hierarchical arrangement of the breadth of asset types.

4.2 This hierarchy is independent of the legal ownership of the assets under consideration.

4.3 Cost or financial treatment of assets is not relevant to this hierarchy.

4.3.1 Positive and negative value contributions of assets are relevant to mission success.

4.4 Value contribution to the mission success of the organization of the assets is relevant.

4.5 Asset hierarchies or models based on other asset attributes may be useful as well.

4.6 Understanding the breadth of assets allows organizations to give full consideration of the contribution of assets to the mission success of the organization.

4.6.1 As an example, when a trucking company considers its assets, the trucks, trailers, and related equipment are an obvious starting point. Real property used to stage, store, load,

unload, maintain, and perform other mission-related tasks follows. Administrative space (real property) and equipment (personal property) supporting the organizational mission are included, regardless of ownership. Management control systems, networks, software, knowledge, and perceptions are non-physical assets contributing value in support of mission objectives. As with all assets discussed in this example, ownership of the assets is an important consideration, but a consideration that is not relevant to understanding all the assets that contribute to mission success. In that light, the public roads and bridges carrying the trucks to their destinations and back are clearly assets essential to mission success. Air and water are essential to operation of the trucking equipment, and to the staff supporting the mission, and therefore are assets of the organization.

4.7 It is likely that many or most organizations have assets from every classification at every level of this hierarchy.

#### 5. Asset Taxonomy Structure

5.1 The asset taxonomy is structured into a nested five-level hierarchy: form, domain, classification, order, and family. (See Fig. 1.)

5.2 In other contexts, these terms may be used in other ways.

#### 6. Asset Taxonomy Practice

6.1 The form level consists of physical assets and non-physical assets.

6.2 The physical asset form consists of the domains natural resource assets and constructed assets.

6.3 The non-physical asset form consists of the domains virtual assets and conceptual assets.

6.4 The form physical asset, domain natural resources consists of the classifications land, air, water, and space.

6.5 The form physical assets, domain constructed assets consists of the classifications durable assets and nondurable assets.

6.6 The form non-physical assets, domain virtual assets consists of the classifications networks, data, and software.

6.7 The form non-physical assets, domain conceptual assets consists of the classifications management control systems, perceptions, and knowledge.

6.8 The form physical assets, domain constructed assets, classifications durable assets consists of the orders infrastructure and moveable assets, which may be subdivided into asset types.

6.9 The form physical assets, domain constructed assets, classifications nondurable assets consists of the orders single-use assets and short-lived assets, which may be subdivided into asset types.