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Geographic information — Land Administration Domain Model (LADM) —

Part 4: Valuation information

Information géographique — Modèle du domaine de l'administration des terres (LADM) —

Partie 4: Informations d'évaluation

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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 211, *Geographic information/Geomatics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This edition of ISO 19152-4, together with all other parts of the ISO 19152 series, cancels and replaces the first edition (ISO 19152:2012), which has been technically revised. This document is a new part to the ISO 19152 series.

A list of all parts in the ISO 19152 series can be found on the ISO website.

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.

Introduction

Property valuation is the process of estimating the value of a property at a particular moment in time. It is performed by public and private sector actors for several land administration (LA) processes, such as property taxation, compensation on expropriation, land readjustment, land consolidation, public value capture, insurance assessment, real estate financing and property transactions.

Appropriate systems are required for fair and timely valuation of tenure rights in order to promote broader social, economic, environmental and sustainable development objectives. One of the key components of an effective valuation system is access to information on the nature and extent of property units, together with the location and physical characteristics; uniform and accurate valuation of property units requires correct, complete and up-to-date property data. Therefore, property valuation systems require the establishment of links between multiple public registries that keep and maintain information about property units, such as cadastre, land registry, planning and permitting registries, and building and dwelling registries.

The fundamental elements underpinning immovable property valuation are public registries, which accommodate regular data maintenance and updating of property characteristics, ownership details, and transaction information. It is important for valuation processes to ensure that property units and rights have been unambiguously identified. This is supported by the land administration systems, including cadastre and land registry. ISO 19152:2012 provided a descriptive conceptual model with a reference for land administration systems. However, it focused on legal, geometric, and administrative aspects of land administration. The “semantics of value” component of LA was considered to be out of the scope. On the other hand, ISO 19152:2012 provided a solid and flexible base for representing property valuation information.

This document defines property valuation system-related information in the context of LA and as an extension of the Land Administration Domain Model (LADM; see ISO 19152-1 and ISO 19152-2:—[1]). This document is a conceptual model and not a data product specification (in the sense of ISO 19131).

The first goal of this document is to enable involved parties, both within one country and between different countries, to communicate based on the shared vocabulary implied by the model. This document is not intended to replace existing property valuation systems but rather to provide formal language for describing them so that their similarities and differences can be better understood.

The second goal is to provide an extensible basis for the development and refinement of efficient and effective property valuation systems based on a model-driven architecture (MDA). This document is designed to represent all stages of administrative property valuation, namely identification of properties, assessment of properties through single or mass appraisal procedures, recording transaction prices, generation and representation of sales statistics, and dealing with appeals. This document can provide public bodies with a common basis for the development of local or national information models, or both, and databases, enabling the integration of valuation databases with land administration databases. It can also act as a guide for the private sector. This document is designed especially for representing and refining administrative valuations (e.g. immovable property taxation, compensation on expropriation, land readjustment, land consolidation, and public value capture). However, it can be also used for other purposes.

This document is relevant for creating standardized information services in a local, national or regional context, where valuation domain semantics have to be shared between organizations or countries in order to enable necessary translations. Four considerations during the design of the model were:

— that it will cover the common aspects shared by objects created by the value component of land administration all over the world;[48]

— that it will be based on the conceptual framework of "Cadastre 2014" of the International Federation of Surveyors (FIG);[36]

— that it will be as simple as possible in order to be useful in practice;

— that the geospatial aspects will follow the ISO/TC 211 conceptual model and that the valuation aspects will follow international property valuation standards, e.g. International Valuation Standards of

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International Standards Council and Technical Standards of the International Association of Assessing Officers (IAAO).

Conformance in relation to this document is specified in Clause 4, and a conformance test is specified in Annex A. Clause 5 provides the notation. Clause 6 gives a global overview of classes used in this document. Clause 7 introduces the classes, attributes, and associations in detail. Annex B presents an extension of the model (i.e. profiles) for representing 2D and 3D spatial analysis conducted for property valuation processes. A set of informative examples using instance-level diagrams is available in Annex C. Annex D gives an overview about the relationships between this document and international property valuation standards and guidelines. Annex E details an approach for the valuation of unregistered land. Annex F presents code lists as a basis to describe flexible enumeration. A set of country profiles is presented in Annex G. Annex H presents an overview of how the International Property Measurement Standards (IPMS) can be used within the context of this document.

Geographic information — Land Administration Domain Model (LADM) —

Part 4: Valuation information

1 Scope

This document:

a) builds on the models established in ISO 19152-1 and ISO 19152-2:—[2] to cover the valuation aspect of the Land Administration Domain Model (LADM);

b) provides an abstract conceptual model covering:

   1) values (assessed values, valuation procedures, mass valuation);

   2) transaction prices;

   3) sales statistics;

   4) valuation units (parcel, building, condominium unit, valuation unit group).

c) provides terminology for the valuation component of land administration/georegulation, based on various national and international systems, that is as simple as possible in order to be useful in practice. The terminology allows a shared description of different formal or informal practices and procedures in various jurisdictions;

d) specifies a content model independent of encoding that can be employed as a basis for local, national and regional profiles for valuation processes; and

e) enables the combining of valuation information from different sources in a coherent manner.

This document does not interfere with national property valuation-related regulations with potential legal implications.

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 4217, *Codes for the representation of currencies*

ISO 19103, *Geographic information — Conceptual schema language*

ISO 19105, *Geographic information — Conformance and testing*

ISO 19152-1, *Geographic information — Land Administration Domain Model (LADM) — Part 1: Generic conceptual model*

2) Under preparation. Stage at the time of publication: ISO/FDIS 19152-2:2025.

ISO 19152-2:—[3], *Geographic information — Land Administration Domain Model (LADM) — Part 2: Land registration*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19152-1, ISO 19152-2 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/

3.1.1
appraisal
<LADM> process of estimating the value of property

Note 1 to entry: ISO 19152-1 describes BAUnit as a synonym of a basic property unit, i.e. property.

3.1.2
accessory part
privately owned building part, generally attached to one or more condominium unit

EXAMPLE A garage in the basement and a shop on the ground floor are examples of an accessory part.

Note 1 to entry: Adapted from OGC LandInfra 2016, 7.11.

3.1.3
assessed value
<LADM> monetary worth of property

Note 1 to entry: The assessed value of a property is generally used for tax purposes. On the other hand, the value of a property can be assessed for other purposes such as compensation on expropriation, land readjustment, land consolidation, public value capture, insurance assessment, etc.

Note 2 to entry: The assessed value of a property can be equal to market value.

3.1.4
building
construction works that have the provision of shelter for its occupants or contents as one of its main purposes, usually partially or totally enclosed and designed to stand permanently in one place

Note 1 to entry: Buildings are constructions above and/or underground that are intended or used for the shelter of humans, animals, things, the production of economic goods, or the delivery of services, and that refer to any structure permanently constructed or erected on the site.

Note 2 to entry: Buildings can be used for dwelling (e.g. detached and semi-detached), industrial, retail or other purposes. A condominium building contains condominium units established according to condominium schemes. A whole building or a part of a building can be subject to a valuation. A building can be considered a complementary part of the parcel(s) and can be valued separately from the parcels on which they are located. A building can represent a condominium building, which consists of:

a) condominium units (e.g. apartments, shops);

b) accessory parts assigned for exclusive use (e.g. garages, storage areas);

c) joint facilities covering parcel, structural components (e.g. foundations, roofs), accession areas (e.g. entrance halls, spaces), and other remaining areas of buildings (e.g. staircases, heating rooms).

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[SOURCE: ISO 6707-1:2020, 3.1.13, modified — Note 1 to entry has been replaced; a new Note 2 to entry has been added.]

3.1.5
condominium unit
one or more privately used building parts together with commonly used joint facilitates in a building

Note 1 to entry: This includes compounds of one or more condominium building elements.

Note 2 to entry: A condominium is concurrent ownership of real property that has been divided into private and common portions, in which the privately used part is made up of clearly demarcated parts of a building.

Note 3 to entry: Adapted from OGC LandInfra 2016, 4.8.6.

3.1.6
cost approach
<LADM> valuation of property based on estimates of costs

Note 1 to entry: This approach estimates the value of property by:

a) estimating the cost of construction based on replacement or reproduction cost new, or trended historical cost (often adjusted by a local multiplier);

b) subtracting depreciation; and

c) adding the estimated land value.

3.1.7
income approach
<LADM> valuation of property on the basis of its income stream

Note 1 to entry: This is a valuation approach that involves any valuation method whereby the capital value is found by capitalizing or discounting the estimated future income to be derived from the property, whether this income is rent or whether it is income generated by the business that is carried out on the property.

3.1.8
market value
highest price that a ready, willing and able buyer will pay and the lowest price a seller will accept
[SOURCE: ISO/IEC TR 27016:2014, 3.14]

3.1.9
mass appraisal
<LADM> process of valuing a group of properties as of a given date, using standard methods, employing common data, and allowing for statistical testing

Note 1 to entry: Adapted from Standard on Mass Appraisal of Real Property, IAAO.[27]

3.1.10
sales comparison approach
market approach
comparable sale approach
<LADM> valuation of property based on estimates of the worth of similar properties

Note 1 to entry: The sales comparison approach uses sales prices as evidence of the value of similar properties. The price at which a particular property sells is the price determined by the interaction of supply and demand at the time of sale. If supply or demand factors shift, prices generally rise or fall.

Note 2 to entry: In this approach, sales data of similar properties is employed to estimate the value of a property.

3.1.11
sales statistic
<LADM> statistical analysis produced through transaction prices for properties meeting required reporting criteria

Note 1 to entry: Contracts, declarations and mortgage documents can be used in order to produce sales statistics.

Note 2 to entry: Sale statistics are generally produced for a specific period and at a specific administrative/ geographic level.

3.1.12
transaction price
<LADM> amount of consideration for transferring right(s) on property, excluding amounts collected on behalf of third parties

Note 1 to entry: The sale price or rental price of a property can be considered as a transaction price. In the case of a sale/purchase, the type of transaction can be an exchange, family transfer, forced sale, inheritance, open market sale, voluntary transfer, etc.

3.1.13
valuation
<LADM> process to estimate the value of any administrative unit (BAUnit)

Note 1 to entry: This results in a valuation unit.

Note 2 to entry: The value of a property produced through an administrative valuation process pertains to an amount that a local or central government has designated for a specific property and specific purpose(s). The legal, geometric, physical and environmental characteristics of the immovable property, together with the economic indicators, are taken into consideration during this process.

3.1.14
value
<LADM> value of a property or a property unit estimated under certain assumptions at a particular moment of time

EXAMPLE Possible value types can include annual rental value, assessed value, book value, cadastral value, capital value, commercial value, fair value, market value, tax value, use value, etc.

Note 1 to entry: A property or a property unit can have more than one value.

Note 2 to entry: The value of a property or a property unit, in some cases, can be equal to the assessed value or market value.

3.1.15
valuation approach
<LADM> approach used to determine the value of a property

Note 1 to entry: Each valuation approach includes different methods that can be used to apply the principles of the approach to specific properties or situations. The basic approaches are cost, input and sales comparison.

3.1.16
valuation source
<LADM> sources used or produced in the valuation process

EXAMPLE Possible valuation source types can include transaction declaration documents, valuation reports, etc.

3.1.17
valuation unit
<LADM> smallest unit that is subject to the property valuation process

Note 1 to entry: The object of the valuation can be:

a) only a land parcel,

b) only a building,

c) land parcel(s) with/without building(s) together as land property,

d) condominium unit consisting of building part(s) (e.g. condominium main part, condominium accessory part, joint access facility), and

e) a share in land parcel(s).

Note 2 to entry: For any BAUnit, there can be multiple valuation units, for example, a BAUnit can have different valuation units for sale or lease.

Note 3 to entry: Valuation unit types can vary by jurisdiction. Moreover, the basic registration unit of cadastral systems (e.g. a cadastral parcel) can differ from the basic units of valuation systems.

3.1.18
valuation unit group
<LADM> group of valuation units that share similar characteristics to support mass or individual appraisal approaches and sales statistics

Note 1 to entry: Valuation units can be grouped according to zones (e.g. administrative divisions, market zones) that have similar environmental and economic characteristics. Valuation units can also be grouped considering the functions (e.g. commercial, residential and agricultural).

3.2 Abbreviated terms

BAUnit	basic administrative unit
FIG	International Federation of Surveyors
GIS	geographic information system
GLTN	Global Land Tenure Network
IAAO	International Association of Assessing Officers
INSPIRE	infrastructure for spatial information in Europe
IVSC	International Valuation Standards Council
LA	land administration
LADM	Land Administration Domain Model
MDA	model driven architecture
OGC	Open Geospatial Consortium
RICS	Royal Institution of Chartered Surveyors
RRR	right, restriction, responsibility
STDM	Social Tenure Domain Model
TEGoVA	The European Group of Valuers' Associations
UML	unified modelling language

4 Conformance

4.1 Conformance requirements and testing

Conformance to this document consists of alignment with the requirements established in Clause 6 and Clause 7. The abstract test suite given in Annex A specifies the methodology which shall be used for testing conformance to these requirements. The conformance class, requirement classes, requirements, and abstract test suites are constructed according to ISO 19105.

4.2 Conformance class

4.2.1 General

In this document, one conformance class is defined. The related tests are provided in the abstract test suite in Annex A. Requirements are explicitly marked, and a requirement identifier is assigned. The name and contact information of the maintenance agency for this document can be found at https://www.iso.org/maintenance_agencies.

The contents of the conformance class, as specified in this document, are presented in Table 1.

Table 1 — Content conformance class

Conformance class	https://standards.isotc211.org/19152/-4/1/conf/valuation
Standardization target type	Valuation information registration and dissemination system.
Dependency	https://standards.isotc211.org/19152/-1/1/ (Generic conceptual model)
Dependency	https://standards.isotc211.org/19152/-2/1/ (Land registration)
Dependency	https://standards.isotc211.org/19103/-/1/ (Conceptual schema language)
Dependency	https://standards.isotc211.org/19105/-/2/ (Conformance and testing)
Dependency	https://standards.isotc211.org/19107/-/2/ (Spatial schema)
Dependency	https://standards.isotc211.org/19109/-/2/ (Rules for application schema)
Requirement class	https://standards.isotc211.org/19152/-4/1/req/valuation (see 6.1)
Test	All tests in Clause A.2.

4.2.2 Dependencies

The dependency to ISO 19152-1 and ISO 19152-2 means that an effective land administration system for valuation information compatible with this document shall be modelled using or extending the core LADM concepts (i.e. ISO 19152-1 and ISO 19152-2), namely party, RRR, BAUnit, spatial unit and versioned object, which are all based on source documents.

This dependency also implicitly implies the modelling of the effective land administration system for valuation information in accordance with ISO standards, including ISO 19103, ISO 19107, ISO 19109 and ISO 4217.

5 Notation

The conceptual schema specified in this document is described using the Unified Modelling Language (UML), following the guidance of ISO 19103.

Several model elements used in this schema are defined in other ISO geographic information International Standards. By convention, within some ISO/TC 211 documents, names of UML classes, with the exception of basic data type classes, include a two-letter prefix that identifies the document and the UML package in which the class is defined. This provides a global unique name for the class. UML classes defined in this document have the two-letter prefix of VM. Table 2 lists the prefixes used for some of the other parts of the ISO 19152 series.

Table 2 — Sources of internally defined UML classes

Prefix	Document	Part
LA	19152-1	Generic conceptual model
LA	19152-2[a]	Land registration
VM	19152-4	Valuation information
SP	19152-5b	Spatial plan information

[a] Under preparation. Stage at the time of publication: ISO/FDIS 19152-2:2025.

[b] Under preparation. Stage at the time of publication: ISO/FDIS 19152-5:2025.

6 Overview of LADM valuation information

6.1 General requirements of the conceptual LADM valuation information

The generic model specified in this document as a product is a conceptual schema. This is a high-level model that is created through extending ISO 19152-1 and ISO 19152-2.

Table 3 lists the requirements defined in this document.

Table 3 — List of requirements

Requirement class	https://standards.isotc211.org/19152/-4/1/req/valuation
Standardization target type	Valuation information registration and dissemination system
Dependency	https://standards.isotc211.org/19152/-1/1/ (Generic conceptual model)
Dependency	https://standards.isotc211.org/19152/-2/1/ (Land registration)
Dependency	https://standards.isotc211.org/19103/-/1/ (Conceptual schema language)
Dependency	https://standards.isotc211.org/19105/-/2/ (Conformance and testing)
Dependency	https://standards.isotc211.org/19107/-/2/ (Spatial schema)
Dependency	https://standards.isotc211.org/19109/-/2/ (Rules for application schema)
Requirement 1	https://standards.isotc211.org/19152/-4/1/req/valuation/informationmanagement
Requirement 2	https://standards.isotc211.org/19152/-4/1/req/valuation/linkedpublicregistries
Requirement 3	https://standards.isotc211.org/19152/-4/1/req/valuation/valuationunitregistration
Requirement 4	https://standards.isotc211.org/19152/-4/1/req/valuation/valuationprocedure
Requirement 5	https://standards.isotc211.org/19152/-4/1/req/valuation/transactionpricesandstatistics
Requirement 6	https://standards.isotc211.org/19152/-4/1/req/valuation/valuationsourcedocument
Requirement 7	https://standards.isotc211.org/19152/-4/1/req/valuation/valuedissemination

6.2 LADM valuation information

This document is organized into a set of packages. The relationship between ISO 19152-1 and ISO 19152-2 represents the core LADM content; see Figure 1.

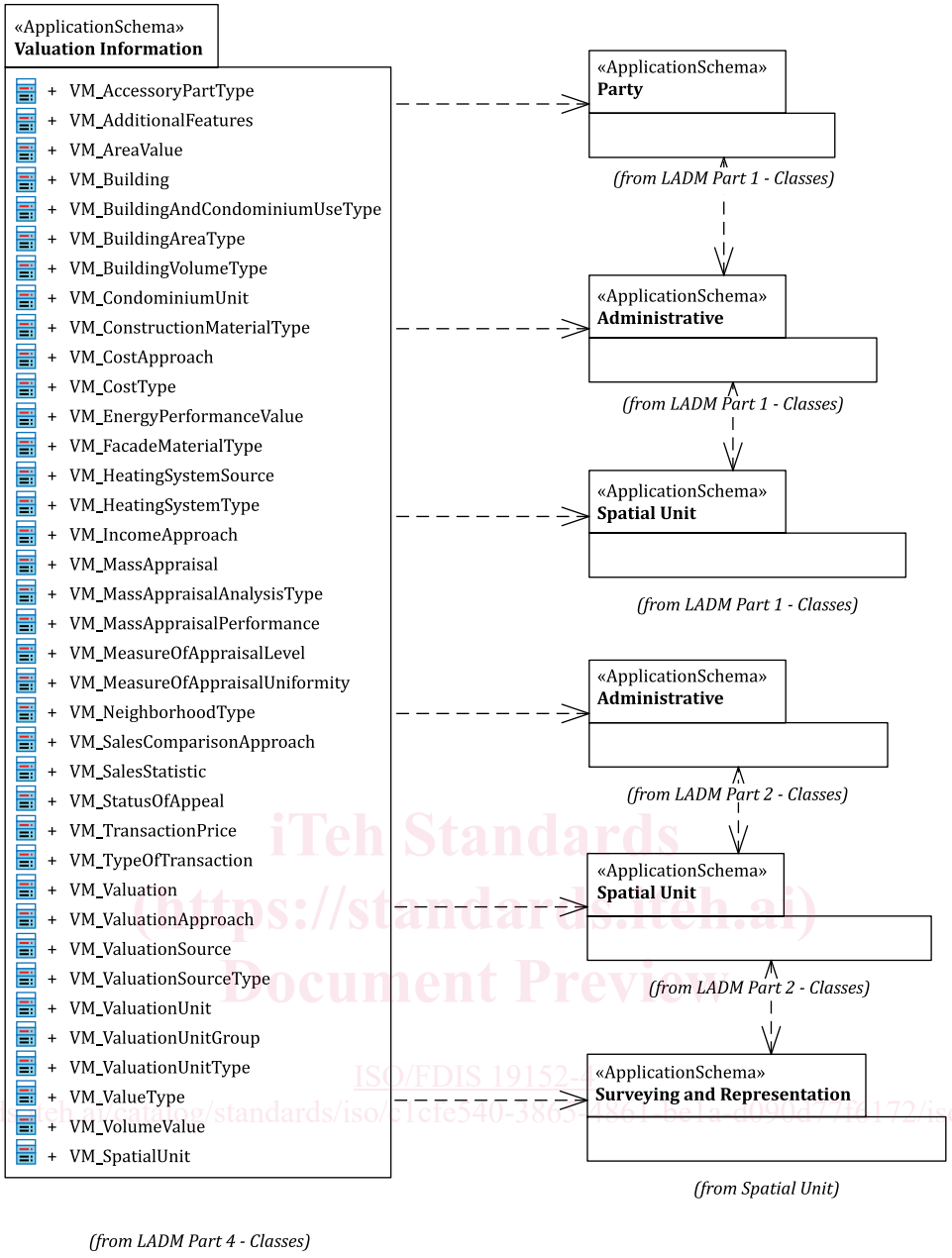

Figure 1 — Relationships between the LADM valuation information package (in this document) and packages of the core LADM (ISO 19152-1 and ISO 19152-2)

The complete model may be implemented through a distributed set of (geo-related) information systems (e.g. valuation information management system, sale price register and sale statistics), each supporting data maintenance activities and the provision of elements of the model. The model may also be implemented by one or more maintenance organizations operating at local, regional or national levels. This underlines the relevance of the model: different organizations have their own responsibilities in data maintenance and supply but can communicate on the basis of standardized administrative and technical update processes.

6.3 Conceptual overview

This document defines the high-level structure for the LADM valuation information. Figure 2 shows ten basic classes of the LADM valuation information package.