

Presented at the FIG Working Week 2023,
28 May - 1 June 2023 in Orlando Florida, USA

Overview of Developments of Edition II of the Land Administration Domain Model

FIG Working Week 2023, Orlando FL, USA, 27 May 2023

(also presented at the ISO/TC 211 56th meeting, Jeonju, South Korea, 19 May 2023)

Christiaan Lemmen, Peter van Oosterom, Abdullah Kara, Eftychia Kalogianni,
Abdullah Alattas, Agung Indrajit (Chris Body, Douglas O'Brien)



LADM revision

- UN GGIM EGM on Land Administration and Management 2017 → Proposal to revise LADM ISO 19152:2012 with broader scope
- Five years after becoming an international standard, systematic review of LADM was started in 2018.
- In the 48th Plenary Meeting Week of ISO/TC 211 (2019), it was decided to design LADM Edition II as a multi-part standard.
- FIG LADM Workshops in Delft 2017, Zagreb 2018, Kuala Lumpur 2019, Online 2021, Dubrovnik 2022, Gavle (11-13 October 2023)

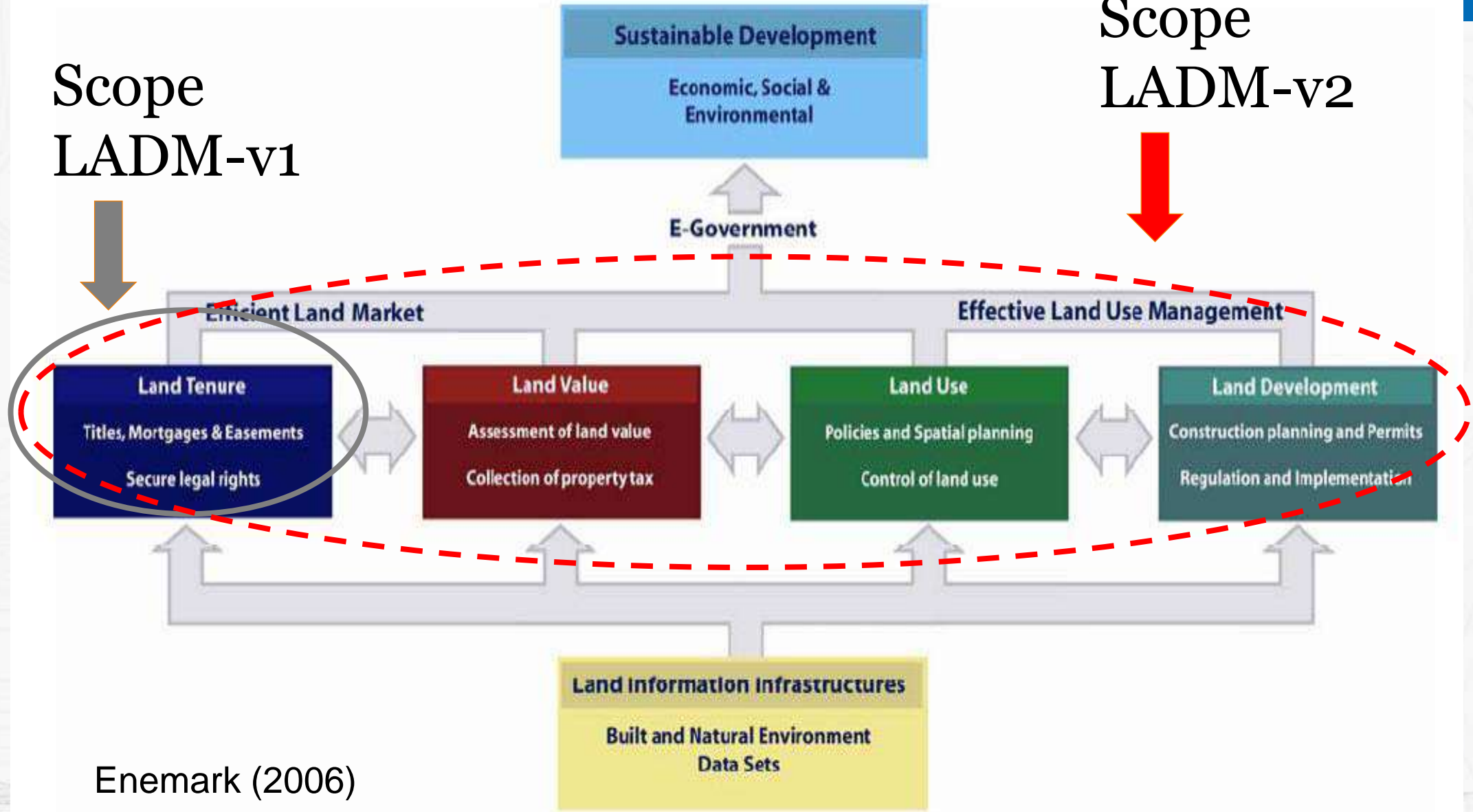
LADM v2 will become multi-part

- Part 1 – Generic Conceptual Model
 - Part 2 – Land Registration
 - Part 3 – Marine Georegulation
 - Part 4 – Valuation Information
 - Part 5 – Spatial Plan Information
 - Part 6 – Implementation Aspects
- } **Scope current version
LADM 2012**

Scope
LADM-v1

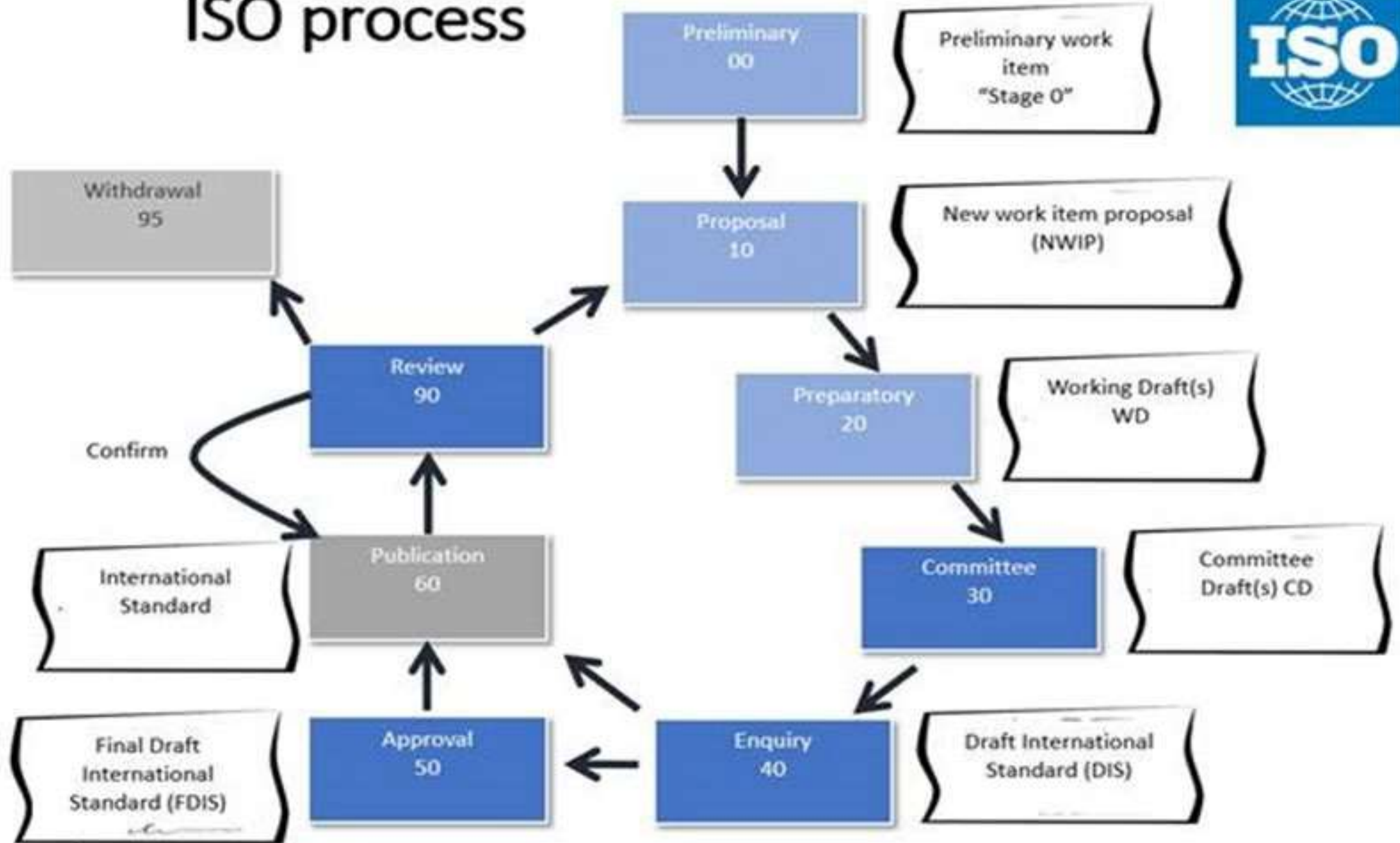


Scope
LADM-v2



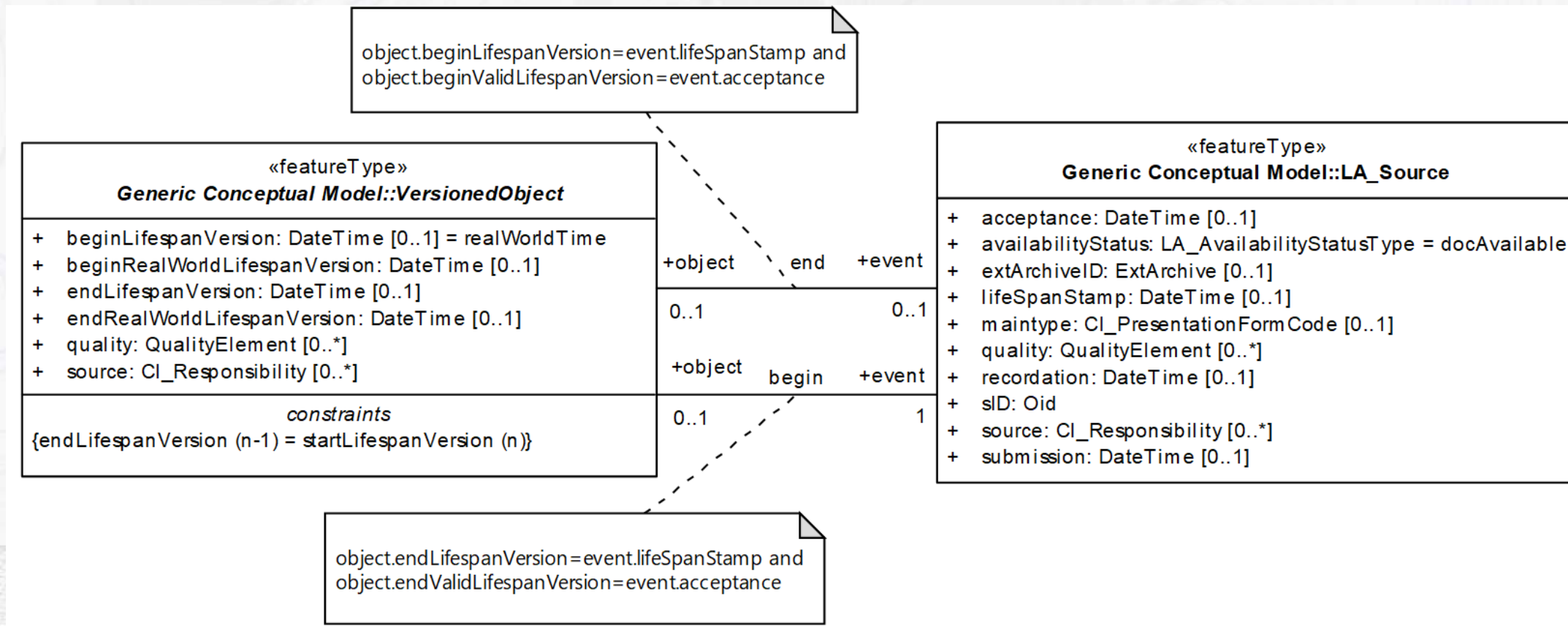
Enemark (2006)

ISO process



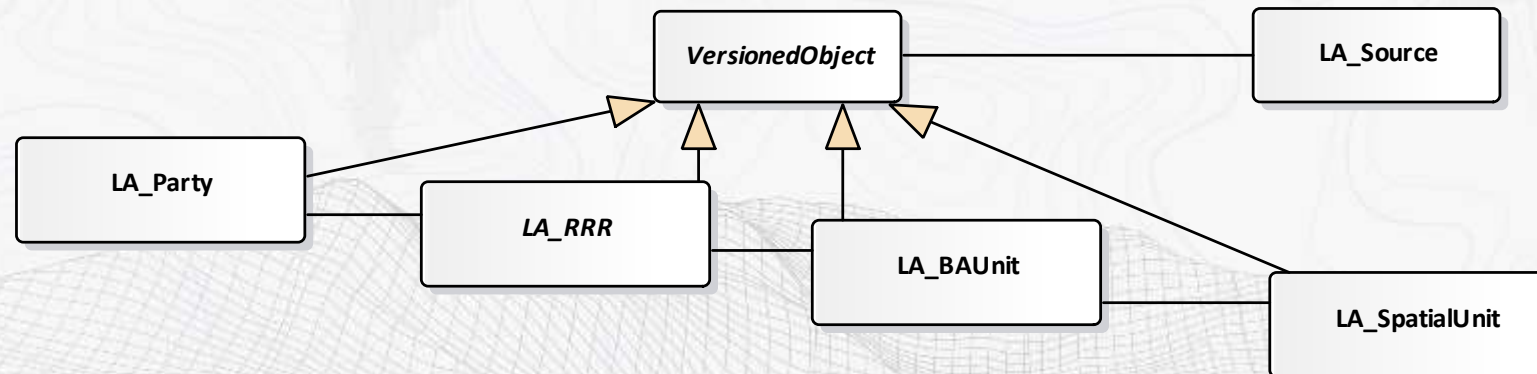
ISO 19152 LADM – Part 1: Generic Conceptual Model

- A high-level umbrella standard, backward compatible, overview for each part
- Introduces bi-temporal model, VersionedObject linked to LA_Source



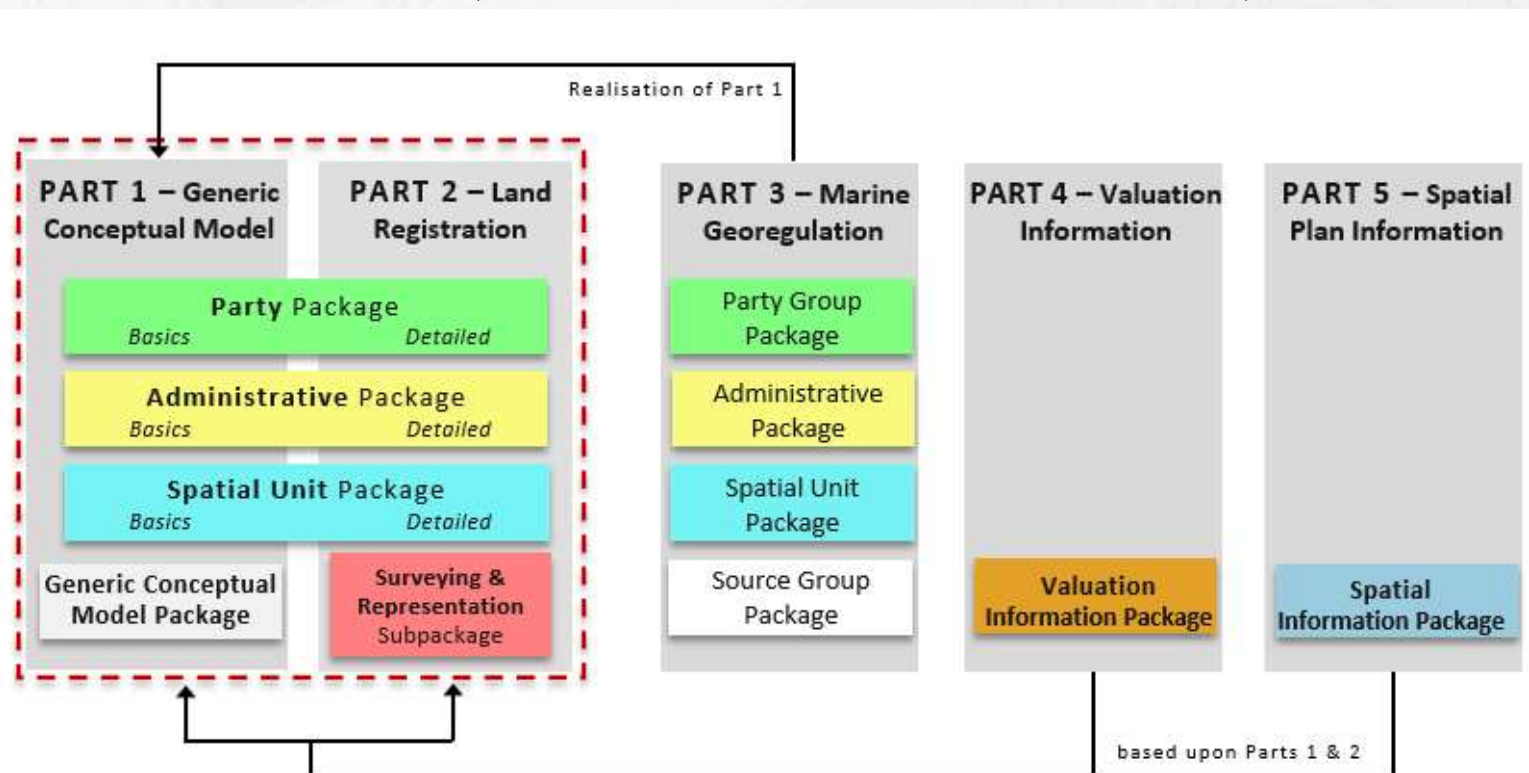
ISO 19152 LADM – Part 1: Generic Conceptual Model

- defining a reference LADM covering of basic information-related components of land administration.
- An abstract, conceptual model with four packages:
 - **parties**: people and organizations
 - **basic administrative units**, rights, responsibilities, and restrictions: ownership rights
 - **spatial units**: parcels, spatial unit groups and levels.
 - **special classes** (generic conceptual model): source and versioned object



ISO 19152 LADM – Part 1 and the other Parts

- All the concepts and definitions given in Part 1 – Generic Conceptual Model is used by the other Parts of LADM Edition II.
- **Editor team:** Chris Body (Standards Australia) Douglas O’Brien (Standards Canada), Jean-François Beaupré (Standards Canada), Knut Jetlund (HMMG) Christiaan Lemmen (FIG), Peter van Oosterom (FIG), Abdullah Kara (FIG).



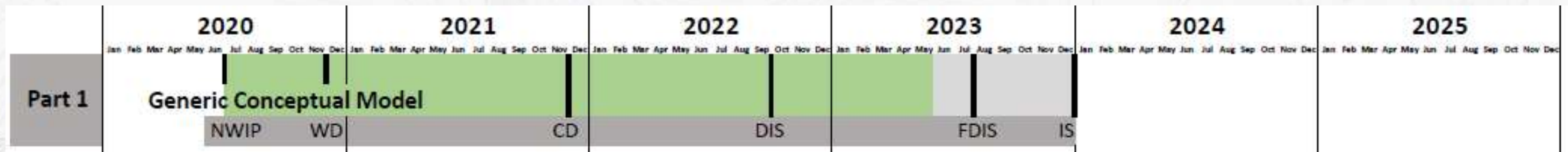
Packages of All LADM Parts

ISO 19152 LADM – Part 1: Generic Conceptual Model

- The Project manager Chris Body
- Countries contributing: Australia, Canada, China, Finland, Republic of Korea, New Zealand, Norway, Sweden, UK, US and FIG
- Draft International Standard (DIS) Ballot / Result of voting received on 2023-03-13 (N5879)
- Approval: 24 / Disapproval 1 / Abstention 16

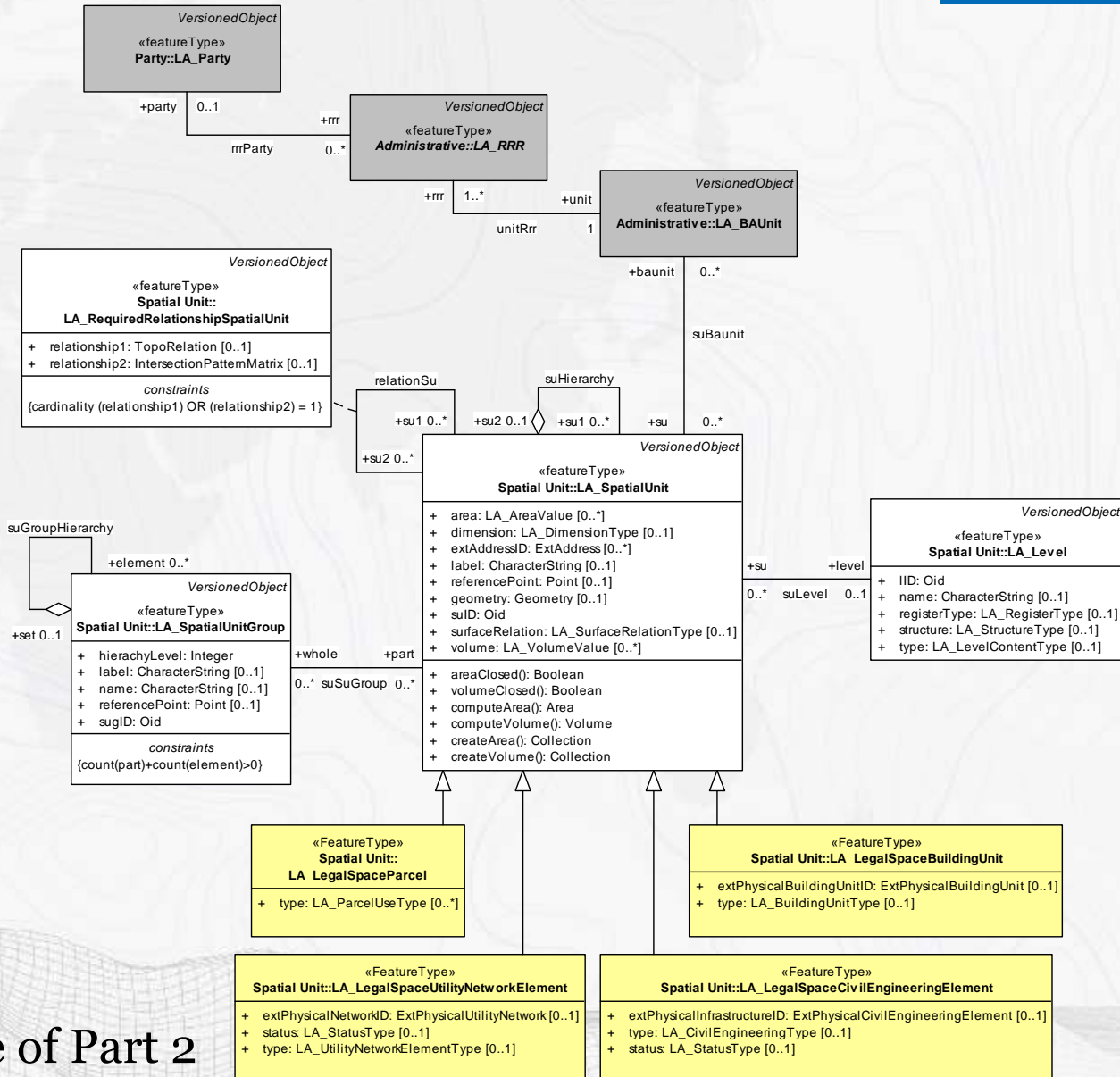
ISO 19152 LADM – Part 1: Generic Conceptual Model

- 105 comments received.
- 16 General / 52 Editorial / 25 Technical / 3 Editorial-Technical / 9 not indicated
- Accepted: 90 / Accepted in principles: 5 / Not accepted: 10
- The comments will be discussed with the project team on the 25th, 26th May 2023 and with TMG on 6th of June 2023.



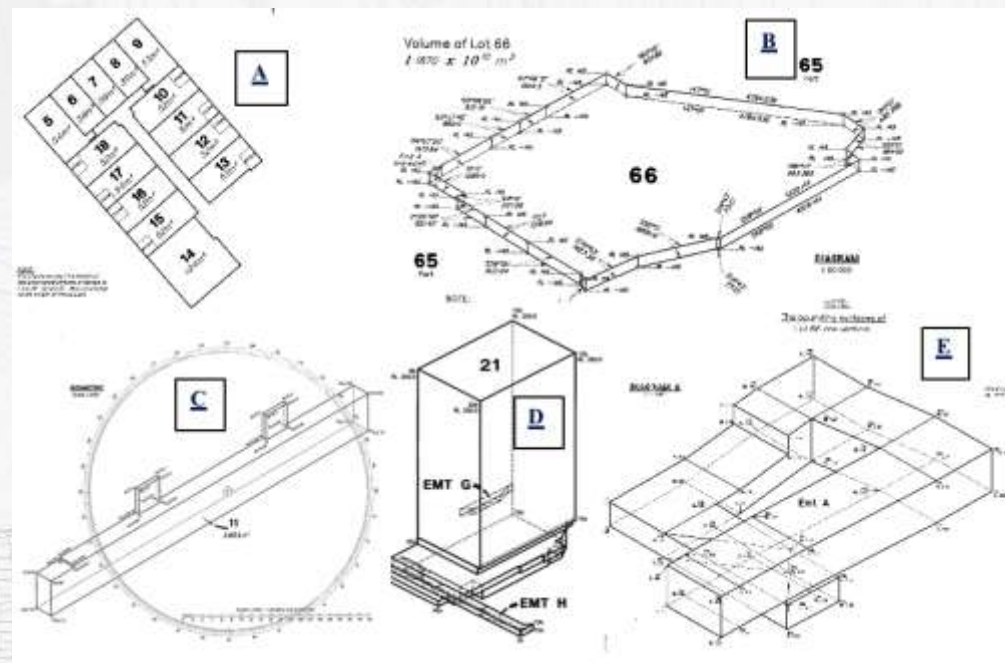
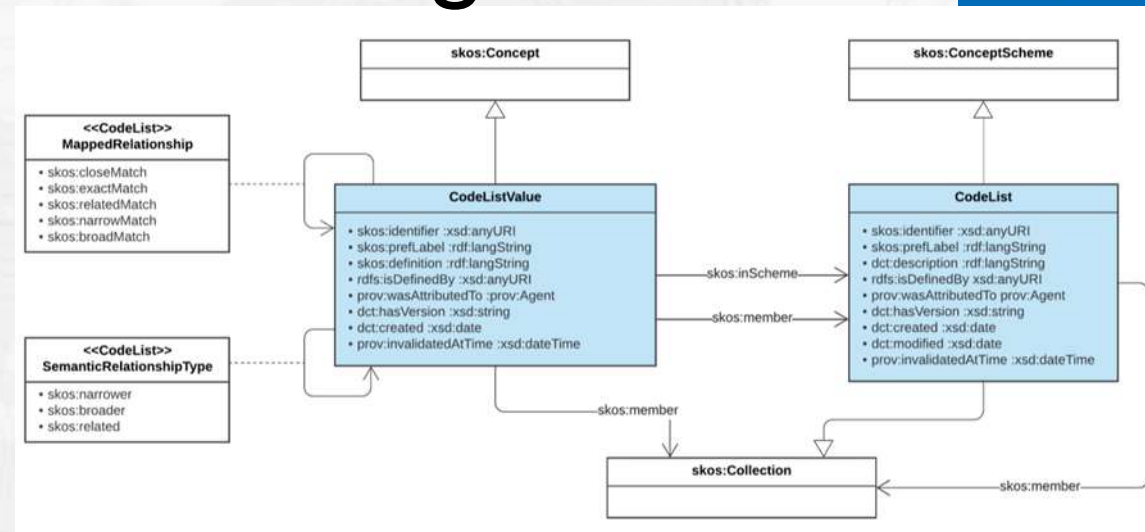
ISO 19152 LADM – Part 2: Land Registration

- Part 2 extends the concepts from Part 1 with some refinements from LADM Edition I
- New subclasses for LA_SpatialUnit
- Refined survey model (derived from OGC's LandInfra/InfraGML standard)



ISO 19152 LADM – Part 2: Land Registration

- semantically enriched and versioned code list (metamodel for refined code list using the definitions of SKOS)
- integration of the LADM and OGC's IndoorGML (Alattas et al., 2018)
- a set of possible representations of spatial units in 2D, 3D or mixed dimension (Kalogianni et al., 2021)
- legal spaces in buildings
- refined legal profiles

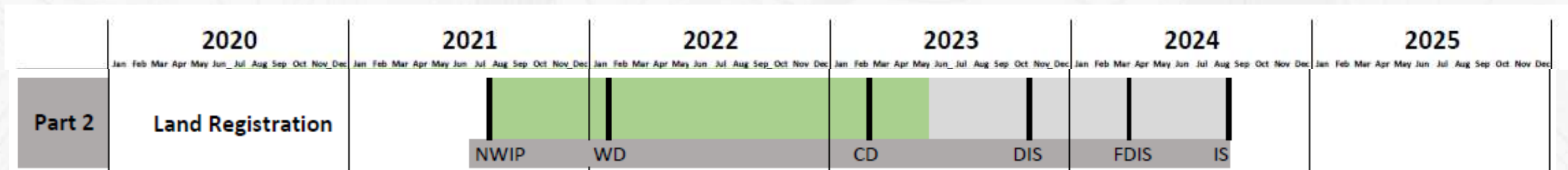


ISO 19152 LADM – Part 2: Land Registration

- The Project manager Christiaan Lemmen
- Countries contributing: Canada, China, Finland, France, Germany, New Zealand, Sweden and US
- Committee Draft (CD) Ballot / Result of voting received on 2023-04-12 (N5868 / N5889)
- Result is positive.

ISO 19152 LADM – Part 2: Land Registration

- 89 comments received.
- 8 General / 30 Editorial / 35 Technical / 16 not indicated
- Accepted: XX / Accepted in principles: X / Not accepted: X
- The comments will be discussed with the project team on the 20th and 21st June 2023.



ISO 19152 LADM – Part 3: Marine Georegulation

- Part 3 provides the concepts and structure for standardisation for georegulation in the marine space.
 - It addresses the information structure related to management of legal spaces such as the international maritime limits and boundaries, marine living and non-living resources management areas, marine conservation area and their related rights and obligations.
 - It references and uses the work by IHO S-100 Universal Hydrographic Model and S-121 Marine Limits and Boundaries and United Nations Convention on the Law of the Sea.
 - It provides a model for representing rights, restrictions and responsibilities within the context of the marine space.
 - Based on realization of LADM core classes.

ISO 19152 LADM – Part 3: Marine Georegulation

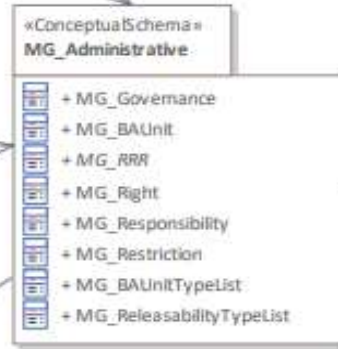


Packages

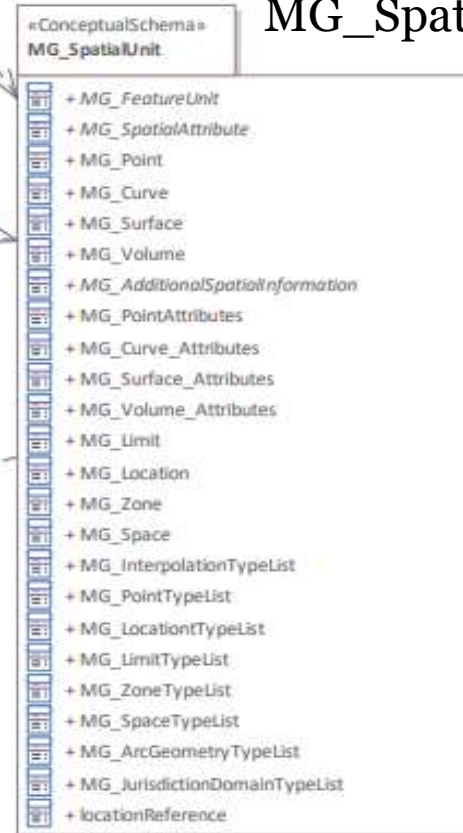
MG_PartyGroup



MG_Administrative



MG_SpatialUnit



MG_SourceGroup

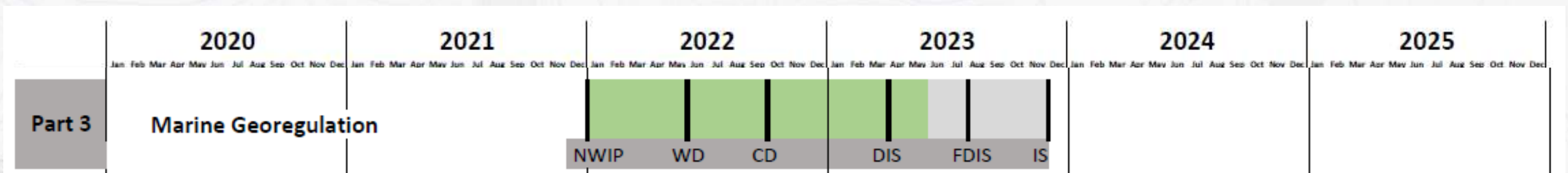


ISO 19152 LADM – Part 3: Marine Georegulation

- The Project manager Chris Body
- Countries contributing: Australia, Canada, China, France, Germany, Republic of Korea and US
- Draft International Standard (DIS) Ballot / Result of voting received on 2023-04-17 (N5891)
- Result is positive.

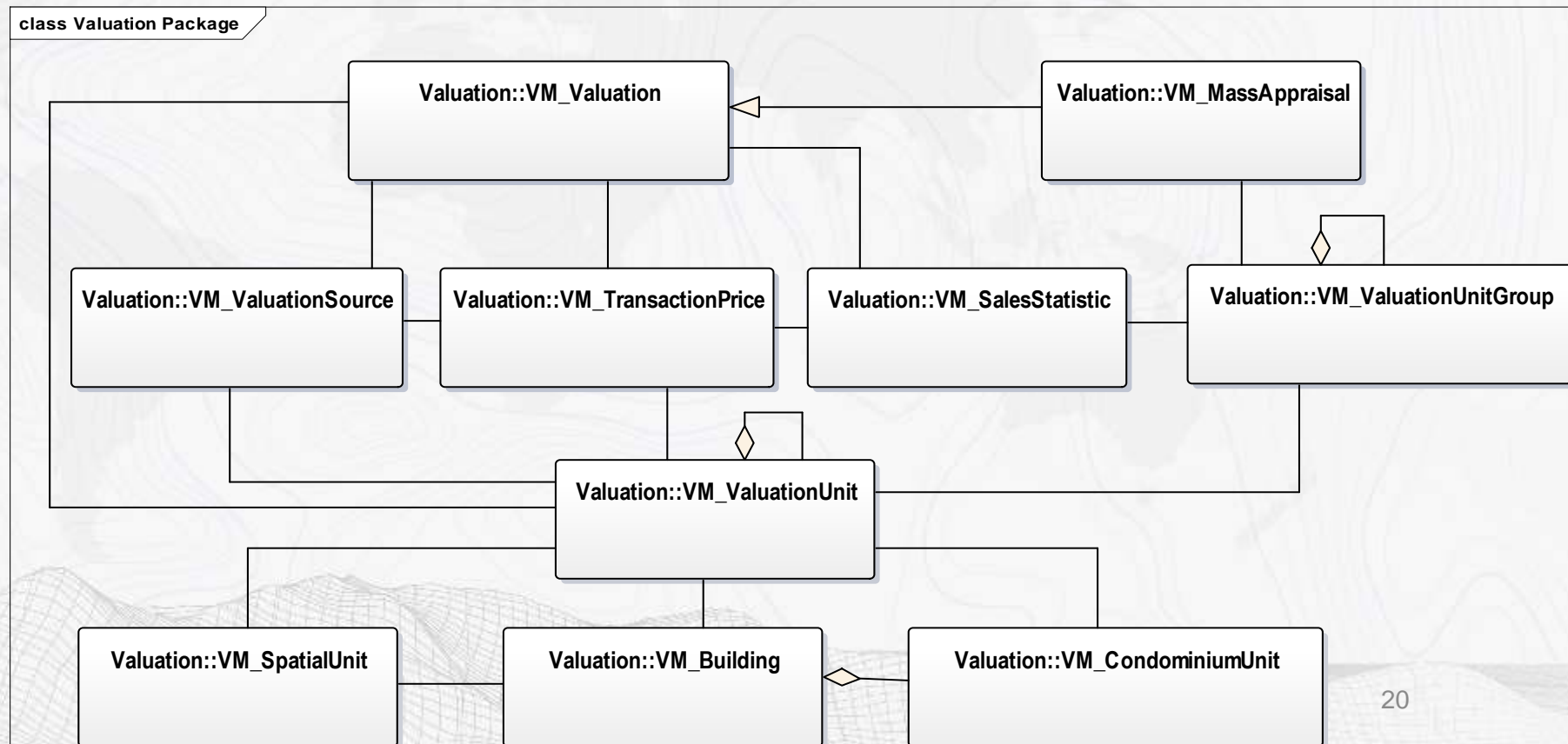
ISO 19152 LADM – Part 3: Marine Georegulation

- 120 comments received.
- 6 General / 101 Editorial / 13 Technical /
- Accepted: 91 / Accepted in principles: 29 / Not accepted: X
- The comments will be discussed with the project team on the 20th and 21st June 2023.



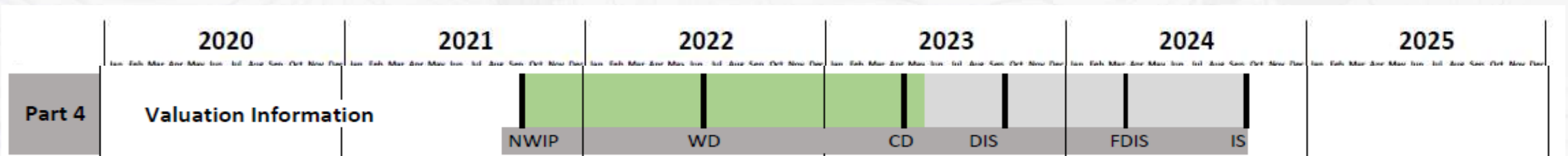
ISO 19152 LADM – Part 4: Valuation Information

- Representing all stages of administrative property valuations (input and output data in valuation processes).
- Basic components of property valuation systems: transaction prices, sales statistics, valuation units,...



ISO 19152 LADM – Part 4: Valuation Information

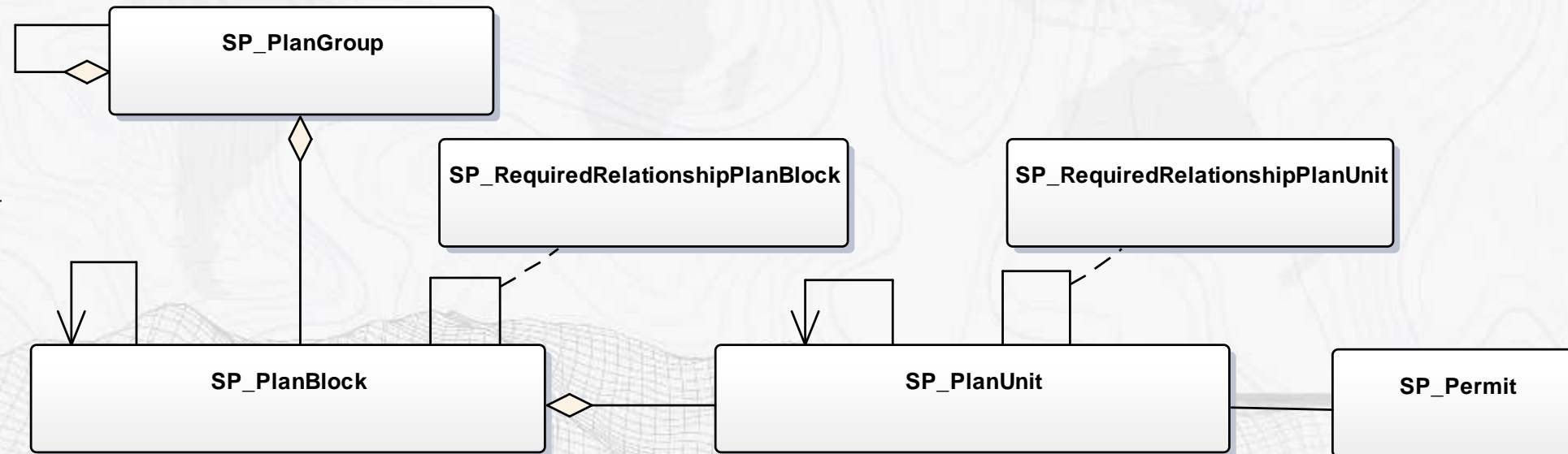
- The Project manager Christiaan Lemmen
- Countries contributing: Australia, Canada, China, Finland, France, Germany, Turkey, and US
- Committee Draft (CD) Ballot / Result of voting received on 2023-05-17 (N5880 / N5901)
- 52 comments received
- 4 General / 21 Editorial / 26 Technical / 1 Not indicated



ISO 19152 LADM – Part 5: Spatial Plan Information

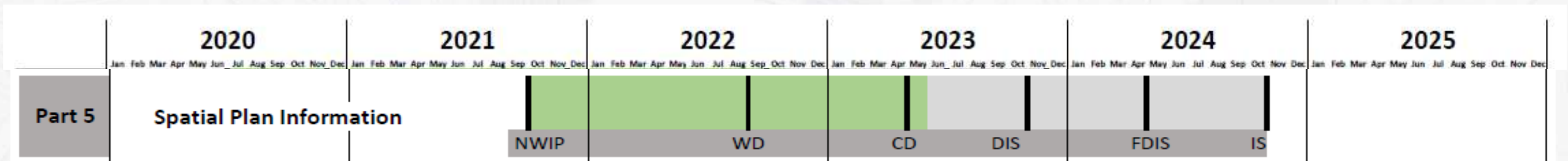
- Defines LADM integrated model covering basic information related components of spatial plan information on land/water, and elements below/on/above the surface of the earth with 2D/3D/4D (3D + time) geometric representation
- Four basic classes:

- plan unit
- plan group,
- plan block and
- permit



ISO 19152 LADM – Part 5: Spatial Plan Information

- The Project manager Christiaan Lemmen
- Countries contributing: Australia, Canada, China, Finland, France, Germany, New Zealand, Poland, South Africa, and US
- The CD of LADM part 5 Spatial Plan Information has been distributed, with commenting / voting
- Start date 2023-04-18 and End date 2023-06-13.



ISO 19152 LADM – Part 6: Implementation Aspects

- No WD was submitted yet there have been some preparation.
- ISO/TC 211 will reach out to the Open Geospatial Consortium (OGC) and other interest parties for their assistance to implement LADM Edition II.
- Part 6 will be discussed with OGC on the 8th of June 2023.
- Proposal next to the OGC Land Administration DWG (Domain Working Group, discussing the domain) set-up an OGC SWG (Software Working Group, developing implementation standards)

ISO 19152 LADM – Part 6: Implementation Aspects

- OGC SWG Land Administration standard components:
 1. Methodology for developing a country profile
 2. Technical model / encodings
 3. Management and maintenance of semantically rich code list values (SKOS)
 4. Procedures / workflows
- OGC SWG LA standard(s) will become ISO LADM part 6
- ISO TC211 standards become CEN TC287 standards by parallel voting (Vienna agreement)

Status of LADM

Published
ISO 19152:2012

A standard is reviewed every 5 years
 Stage: **90.92** (To be revised) ✓



Under development
ISO/DIS 19152-1

Under development
ISO/CD 19152-2

Under development
ISO/DIS 19152-3

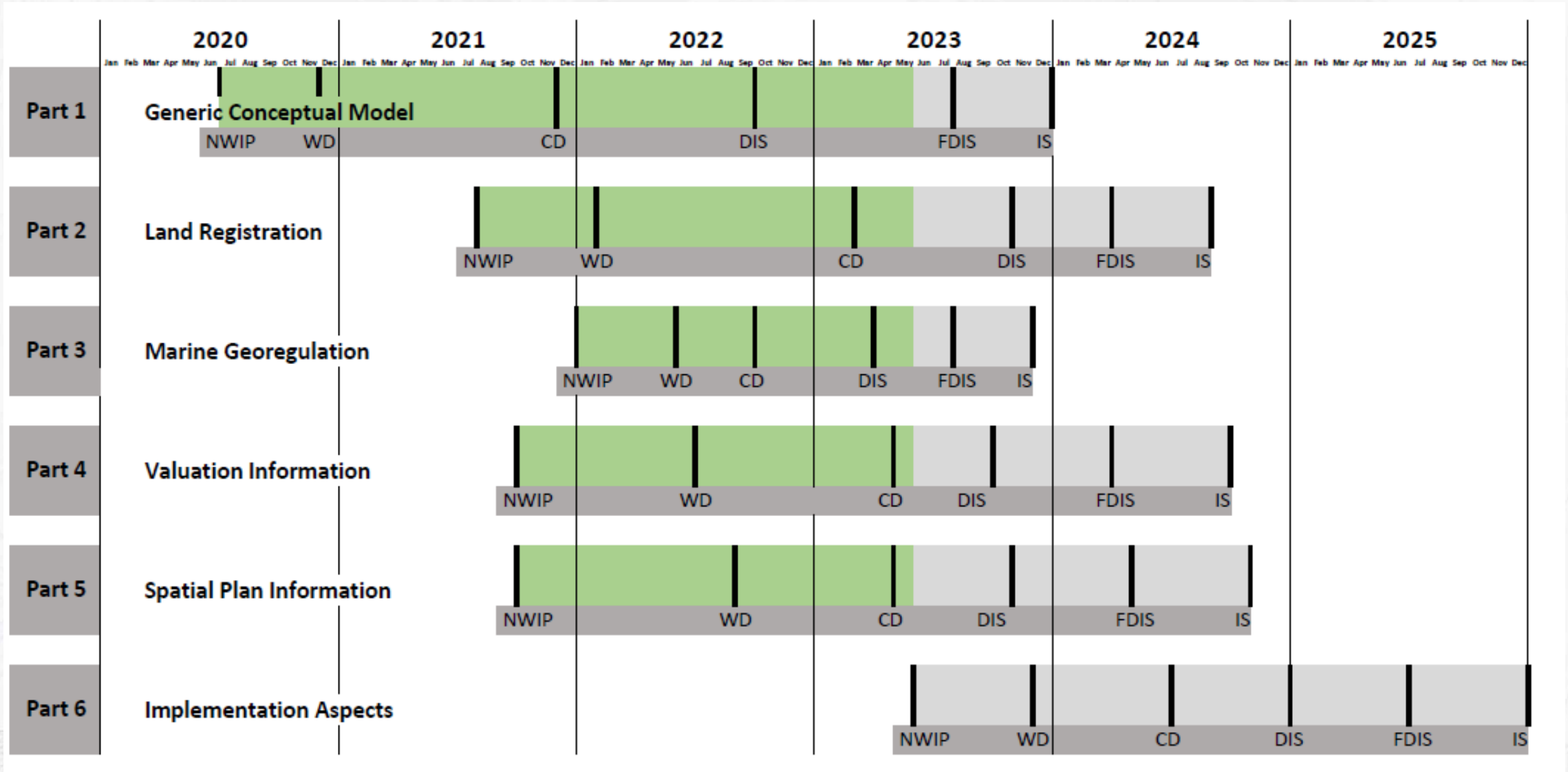
Under development
ISO/CD 19152-4

Under development
ISO/CD 19152-5

Source: ISO/TC 211

LADM Edition II – Current Status of All Parts of LADM

(May 2023)



11th International Workshop

on Land Administration Domain Model and 3D Land Administration

The FIG logo consists of the letters 'FIG' in a white, bold, sans-serif font, centered within a red rectangular background.

University of Gävle
in corporation with Lantmäteriet

11-13 October 2023
Gävle, Sweden

The Workshop addresses developments in the following areas:

- 3D Land Administration System operational experiences (analysis, LADM based, learn from each other, discover gaps)
- 3D LAS cost effective workflow for new / updated 3D parcels = 4D (part of whole spatial development lifecycle: from planning / design / permit in 3D, to registration / use in 3D)
- 3D LAS web-based dissemination (usability, man-machine interfaces, including mobile/AR)
- Remote sensing/LiDAR and artificial intelligence (AI) for efficient 3D cadastral boundary extraction
- Legal aspects for 3D LAS, best legal practices in various legislation systems



- Focus on large cities, including developing countries
- 3D in the revision of ISO 19152, the Land Administration Domain Model
- Proposals for (and evaluations of) LA (remote) sensing information models (CD 19152-2) and data processing workflows (CD 19152-6), in the context of the revision of LADM

Working sessions

- Urban development / plan information LADM part 5 (Chair: Karel Janecka, Czech Republic, Peter van Oosterom, The Netherlands)
- 3D legal building models/BIM (Chair: Vučić Nikola, Croatia, Abdullah Alattas, Saudi-Arabia)
- Legal aspects of 3D LA (Chair: Jenny Paulsson, Jesper M. Paasch, Sweden)
- Valuation Information / LADM part 4 (Chair: Jaap Zevenbergen, The Netherlands, Abdullah Kara, Turkey)



More information

Deadlines:

11 June 2023	Extended abstract (500-1000 words)
15 July 2023	Reviewing
19 September 2023	Final version of full paper
11-13 October 2023	Workshop

Website: <http://www.gdmc.nl/3dcadastres/workshop2023/>

Conference fee: 2300 SEK (approx. 195 Euro)

Co-chairs: Jesper Paasch (local) / Peter van Oosterom (programme)



LANTMÄTERIET



OGC meeting, DWG Land Administration on 6 June 2023, 8:00am-9:30am (CDT), Huntsville AL, USA / online

1. Opening Christiaan Lemmen
2. Progress LADM Edition II, Peter van Oosterom
3. Developments in the Social Tenure Domain Model (STDM), Eva-Maria Unger & John Gitau
4. Standardisation of Cadastral Processes, Josip Križanović, University of Zagreb
5. **OGC LADM Standards Working Group**, Scott Simmons, OGC
6. Discussion

Thank you!

Any questions?

