kadaster

ISO 19152:2012
Land Administration Domain Model published by ISO

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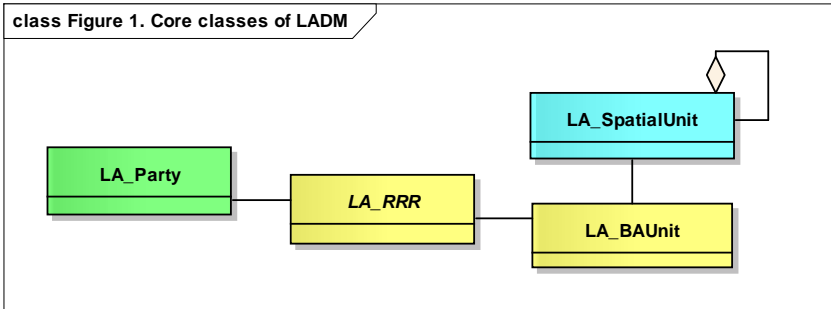
FIG Working Week, Environment for Sustainability
6 – 10 May 2013, Abuja, Nigeria.

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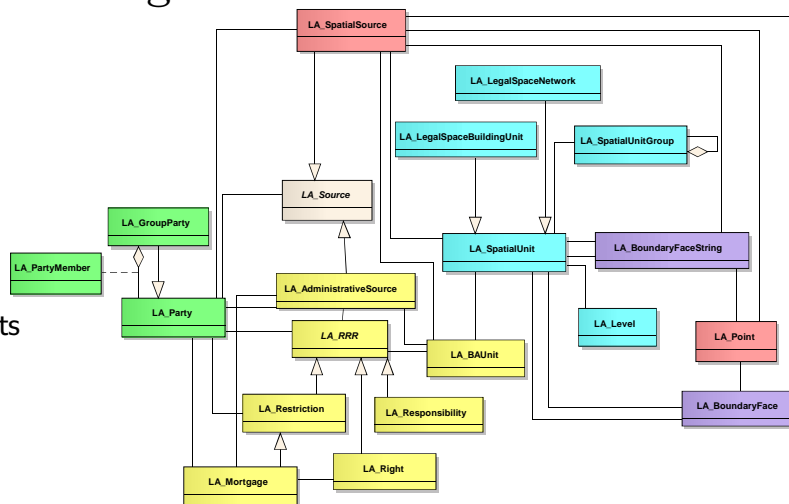
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LADM Objectives

1. Model for building Land Administration systems

2. Basis for communication (i.e. Land Administration terminology)

class Figure 1. Core classes of LADM

LADM Diagram

- Parties
  → green
- RRRs
  → yellow
- Spatial Units
  → blue
- Surveying
  → pink
- Mapping
  → violet

RRR supports
all land rights

LADM development process

1. Start of LADM (2002 – 2006)
   - from FIG Washington D.C. to Munich

2. Start of Standardization (2007)
   - preliminary talks within ISO/TC211
   - the players: FIG, ISO (TC211), CEN (TC287), EC-JRC, UN-HABITAT
   - first proposal

3. Actual standardization (2008 – 2012)
   - NP, WD, CD, DIS, FDIS, IS
   - Versions, comments, voting

Start of LADM before standardization

Version	Date	Location
Original idea	April 2002	Washington D.C., USA
0.1	September 2002	Noordwijk, The Netherlands
0.2	March 2003	Enschede, The Netherlands
0.3	September 2003	Brno, Czech Republic
0.4	December 2004	Bamberg, Germany
0.5	April 2005	Cairo, Egypt
0.6	March 2006	Moscow, Russian Federation
1.0	October 2006	Munich, Germany

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Background ISO TC211

ISO/TC 211
Geographic information/Geomatics

- Over 60 P/O-member countries (participating + observing)

- Liaisons with other organizations; e.g. OGC and FIG

- Over 40 standards, LADM = ISO 19152

- Main phases in standards development process:
  1. Proposal of new work item (NWIP), determination of scope
  2. Development of specifications in Working Drafts (WD) and Committee Draft (CD) in consensus-building processes
  3. Formal approval International Standard (IS), via Draft IS (DIS) and optionally Final Draft IS (FDIS)

ISO TC211 and CEN TC287

- CEN: European Centre for Standardization

- Close cooperation arranged via resolutions, based on overall Vienna agreement between ISO and CEN (FDIS phase obligatory)

- Goal: equal standards
  - existing ISO standards: unique acceptance procedure (UAP), fast
  - new/ongoing standards: parallel voting

- 26 February 2009: CEN TC287 accepted LADM

- Project with CEN – French translation needed

→ parallel voting in ISO TC211 and CEN TC287 on LADM

Start of Standardization (2008)

- Result of NWIP voting (May 2008)
  - 15 'yes' over 6 'no'
  - 10 participants

- Negative votes
  - vote 'no', participate 'yes'
  - influence national legislation?

	Yes	No	Participate?	Comments
Australia (SA)	X		N	
Austria (ON)	X		N	
Canada (SCC)	X		Y	
China (SAC)	X		Y	
Czech Republic (CNI)	X		N	
Denmark (DS)	X		N	
Finland (SFS)		X	N	X
Germany (DIN)		X	Y	X
Italy (UNI)	X		N	
Japan (JISC)		X	N	X
Korea, Rep. of (KATS)	X		N	
Netherlands (NEN)		X	Y	X
New Zealand (SNZ)	X		Y	
Norway (SN)		X	N	X
Russian Fed. (GOST R)	X		N	
South Africa (SABS)	X		N	
Spain (AENOR)	X		Y	X
Sweden (SIS)		X	Y	X
Thailand (TISI)	X		Y	
United Kingdom (BSI)	X		Y	X
USA (ANSI)	X		Y	
Totals (P-members only)	15	6	10	(8)

Via WD to CD

- Voting (October 2009)
  - 22 'yes' to 3 'no'
  - nearly 300 comments from 7 countries...

Member body	Approve	Disapprove	Comments
Australia (SA)	X		X
Austria (ON)	X		
Canada (SCC)	X		X
China (SAC)	X		X
Denmark (DS)	X		
Ecuador (INEN)	X		
Finland (SFS)		X	X
France (AFNOR)		X	
Germany (DIN)	X		
Hungary (NSZT)	X		
Japan (JISC)	X		X
Korea, Rep. of (KATS)	X		
Malaysia (DSM)	X		
Morocco (SNIMA)	X		
Netherlands (NEN)	X		
Norway (SN)	X		
Russian Fed. (GOST R)	X		
Saudi Arabia (SASO)	X		
South Africa (SABS)	X		
Spain (AENOR)	X		
Sweden (SIS)	X		X
Switzerland (SNV)		X	
Thailand (TISI)	X		
United Kingdom (BSI)	X		X
USA (ANSI)	X		
Summary Members (25)	22	3	(7)

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To DIS

- Text for DIS
  - submitted in January 2011, for a 5-month vote
  - approved in June 2011: 26 'yes' to 2 'no'
  - with an avalanche of nearly 400 comments!

Country	Approve	Disapprove	Comments
Austria	X		
Canada		X	X
China	X		
Czech Republic	X		
Denmark	X		X
Ecuador	X		
Finland		X	X
France	X		X
Germany	X		X
Hungary	X		
Italy	X		
Japan	X		X
Korea, Republic of	X		X
Malaysia	X		
Morocco	X		
Netherlands	X		
New Zealand	X		
Norway	X		
Poland	X		
Portugal	X		
Russian Federation	X		
Saudi Arabia	X		
Serbia	X		
South Africa	X		X
Spain	X		
Sweden	X		X
Thailand	X		
Turkey	X		
United Kingdom	X		
USA	X		X
Member TOTALS	26	2	(10)

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To FDIS

- Voting 30 aug-30 oct'12
  - Very favourable
  - No negative votes

- Some last editorial comments (formally not possible): layout, typo's, inconsistency between text and figure

- Also parallel CEN without no-votes!

Country	Approve	Disapprove	Comments
Australia	X		X
Austria	X		
Canada	X		X
Chile	X		X
China	X		
Czech Republic	X		
Denmark	X		
Ecuador	X		X
Finland	X		
France	X		
Germany	X		
Hungary	X		
Iran	X		
Italy	X		
Japan	X		
Lithuania	X		
Malaysia	X		
Morocco	X		
Netherlands	X		
New Zealand	X		
Norway	X		
Russian Federation	X		
Saudi Arabia	X		
Serbia	X		
South Africa	X		
Spain	X		
Sweden	X		
Thailand	X		
Turkey	X		
United Kingdom	X		
USA	X		
TOTALS	31	0	(4)

International standard (IS)
1 December 2012

- Editing not by project team anymore (TC211), but central ISO secretariat Genève, Switzerland

- Last editing 'dots on the i', including last FDIS comments

- Three type of comments:
  1. Subtle differences between text, figures and tables
  2. Normative wording; e.g. replace 'should' by 'shall' (ISO rules)
  3. Annex A, ATS was relatively new and main table A.1 and text were not consistent (and small part of text was forgotten; tests for LA_level and LA_RequiredRelationshipBAUnit)

- UML model maintained by TC211 HMMG was updated accordingly

Discussion on the process

- The number of comments grew along the development track...
  - CD: 295 comments (92% accepted)
  - DIS: 398 comments (86% accepted)
  - FDIS: nearly 60 editoral comments (and nearly all accepted)

- Redundancy of information in text, tables, figures and UML-model contributed to the number of comments!

- Nearly 1000 comments → quite cumbersome to manage...

- We did every attempt to resolve comments and negative votes, with the danger that we "tried to please everybody"
  → when one is pleased sometimes the other is disappointed
  → rule: generic (valid for more countries) and improve model

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At work…

Finally published 1 December 2012..

INTERNATIONAL STANDARD

ISO
19152

First edition
2012-12-01

Geographic information — Land
Administration Domain Model (LADM)

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

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Conformance testing at model level (of e.g. country profile)

1. Any system claiming to be ISO19152 conformant, has to pass the Abstract Test Suite (ATS, Annex A)

2. Conformance can be tested per
   - Package: Party, Admin, Spatial Unit, (subpackage) Survey
   - Level: 1=basic, 2=medium, 3=full

3. Three outcomes: conformant, notConformant, notEvaluated

4. Proof of conformance (executing the test)
   - Analyse inheritance between LADM and derived model or
   - Create mapping table between LADM and derived model

Conformance testing packages, levels (1/2)

package	LADM class		Dependencies
-	*VersionedObject*	1	
	LA_Source	1	Oid, (as a minimum one of the specializations must be implemented [LA_AdministrativeSource or LA_SpatialSource]), LA_AvailabilityStatusType
Spatial Unit			
	LA_SpatialUnit	1	VersionedObject, Oid,
	LA_SpatialUnitGroup	2	VersionedObject, Oid, LA_SpatialUnit
	LA_LegalSpaceBuildingUnit	3	LA_SpatialUnit
	LA_LegalSpaceUtilityNetwork	3	LA_SpatialUnit
	LA_Level	2	VersionedObject, Oid
	LA_RequiredRelationshipSpatial Unit	3	VersionededObject, LA_SpatialUnit
Surveying			
	LA_Point	2	VersionededObject, Oid, LA_SpatialSource, LA_PointType, LA_InterpolationType
	LA_SpatialSource	2	LA_Source, LA_Point, LA_Party, LA_SpatialSourceType
	LA_BoundaryFaceString	2	VersionedObject, Oid, LA_Point (if using geometry)
	LA_BoundaryFace	3	VersionedObject, Oid, LA_Point (if using geometry)

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Conformance testing packages, levels (2/2)

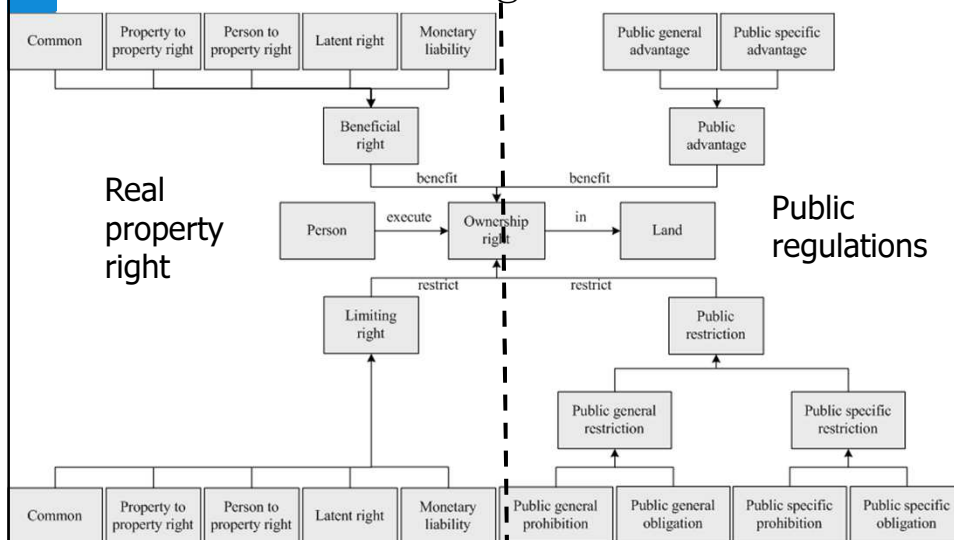| package	LADM class		Dependencies
Party			Exist only if Administrative Package is implemented
	LA_Party	1	VersionedObject, Oid, LA_PartyType
	LA_GroupParty	2	Oid, LA_Party, LA_GroupPartyType
	LA_PartyMember	2	VersionedObject, LA_Party, LA_GroupParty
Admin			Exist only if Party Package is implemented
	LA_RRR	1	VersionedObject, Oid, LA_Party, LA_BAUnit, LA_Right (as a minimum, this specialization shall be implemented), LA_AdministrativeSource
	LA_Right	1	LA_RRR, LA_RightType
	LA_Restriction	2	LA_RRR, LA_RestrictionType
	LA_Responsibility	3	LA_RRR, LA_ResponsibilityType
	LA_BAUnit	1	VersionedObject, Oid, LA_RRR, LA_BAUnitType
	LA_Mortgage	2	LA_Restriction
	LA_AdministrativeSource	1	LA_Source, LA_Party, LA_AdministrativeSourceType, LA_AvailabilityStatusType
	LA_RequiredRelationshipBAUnit	3	VersionedObject, LA_BAUnit
	LA_BoundaryFace	3	VersionedObject, Oid, LA_Point (if using geometry)

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Standard maintenance

- As the LADM standard is now being used (and read by further eyes) it is inevitable that further issue will arrive

- These can range from:
  1. detecting and correcting simple text error
  2. via omissions
  3. to further extensions of the standard

- E.g. extension of the legal model conform the proposal of Paasch or informative code lists need further structuring and formalization (see presentation in session TS4A yesterday)

- Use ISO LADM Wiki for communication http://isoladm.org

- ISO has standardized standard maintenance procedure

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Warning: temporarily non-LADM notation/naming

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LADM Voting Results by ISO/TC 211 P-Members

Voting ISO 19152	New Work Item Proposal 2 May 2008	Committee Draft 12 October 2009	Draft International Standard 27 June 2011	Final Draft International Standard 30 October 2012
Approve:	15	22	26	30
Disapprove:	6	3	2	0
Abstain:	4	4	4	3
Not Voted:	7	3	0	0

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Conclusion

- LADM standardizes both administrative (legal) and spatial aspects
- After WD, CD, DIS, FDIS: LADM now IS!
- LADM in parallel by ISO and CEN
- Many country profiles developed in Annex D: Portugal, Queensland (Australia), Indonesia, Japan, Hungary, The Netherlands, Russian Federation, and Republic of Korea
- Consensus process → acceptance by wide community
- Conformance testing
- From conceptual model to technical model (CityGML, LandXML,…)

- Land Administration cornerstone of the SII (Geoweb)

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Acknowledgements

- The 19152 project team
- Iain Greenway for submission proposal to ISO on behalf of FIG
- FIG Council 2007 – 2010, under President Stig Enemark and the FIG Council 2011 – 2014, under President CheeHai Teo and FIG's director Markku Villikka (Finland) for continuous support
- Bjørnhild Sæterøy for advice feeling to be at home in ISO/TC211
- John Herring and Serena Coetzee for support within ISO/TC211
- Rod Thompson contributed in development of 2D-3D aspects
- Clarissa Augustinus and Jaap Zevenbergen with STDM
- Many, many others contributed by developing country profiles, performing reviews, participation in discussions and so on

→ Thank you very much!!!!!

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