



INSTITUT NATIONAL
DE L'INFORMATION
GÉOGRAPHIQUE
ET FORESTIÈRE

THE LADM STANDARD IN AND OUT OF THE INSPIRE BOX



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WHAT IS LADM?

What is LADM?

Definition

- 📍 LADM: Land Administration Domain Model
- 📍 ISO 19152 standard
- 📍 Initiated by FIG (International Federation of Surveyors)

Objectives

- 📍 Facilitate data exchange
- 📍 Facilitate the implementation of land registration systems in developing countries

What is LADM?

Principles

- 📍 A Party (physical or legal person) has RRR (Rights, Responsibilities, Restrictions) on a Spatial Unit

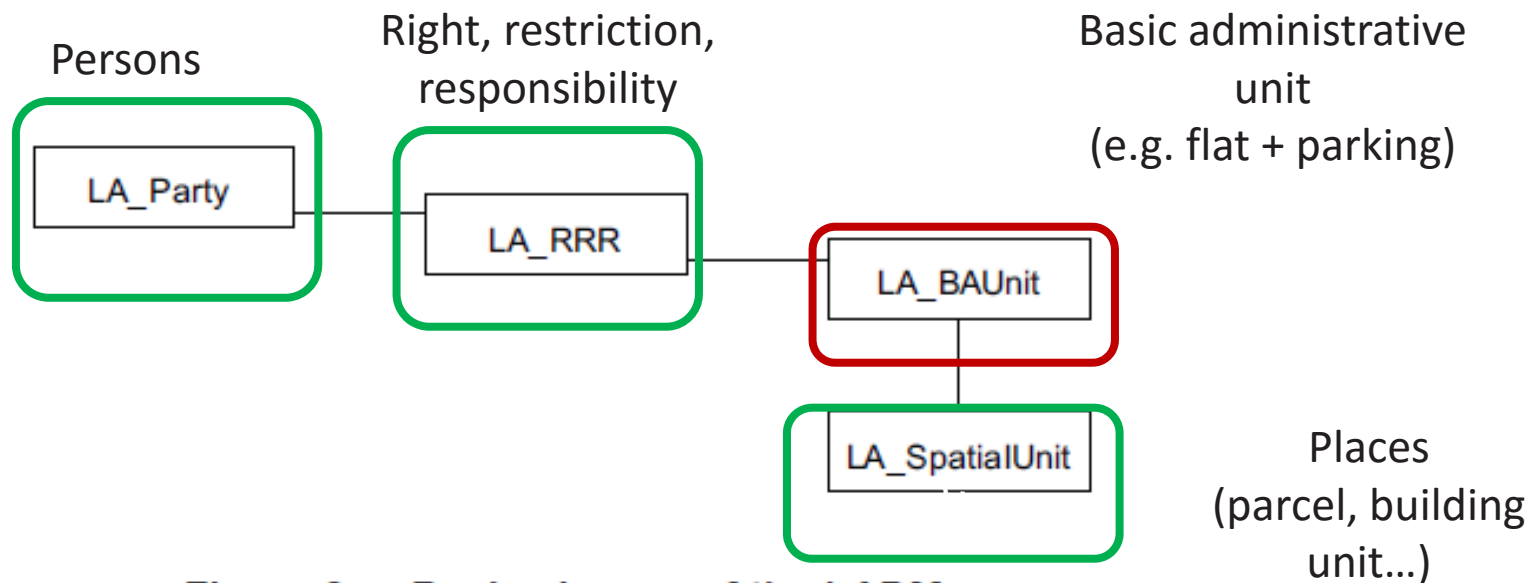


Figure 2 — Basic classes of the LADM

What is LADM?

Principles

The standard includes 5 packages

- Generic classes
 - Versioned object
 - Source (for documents)
- Party
- Administrative (RRR)
- Spatial Units
- Surveying

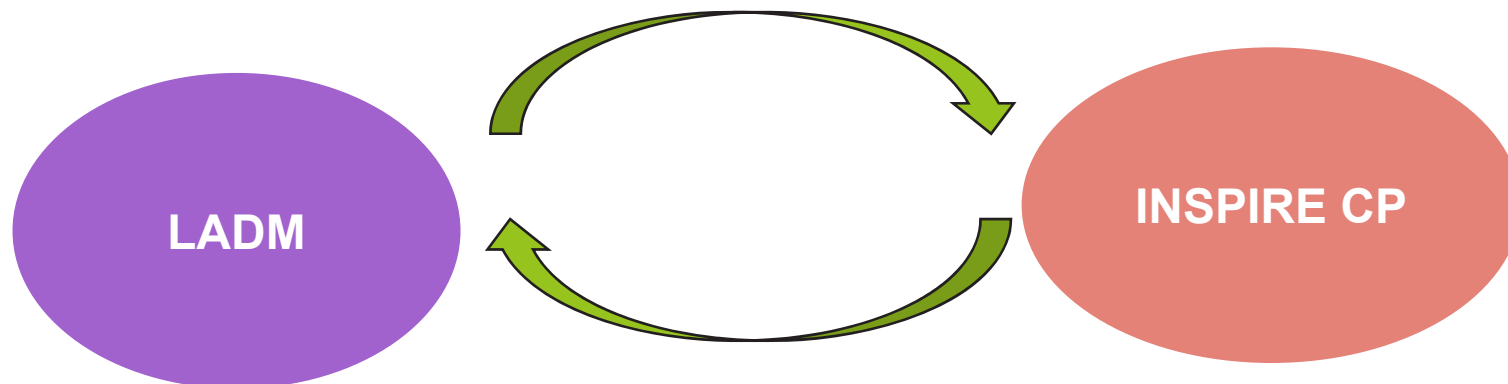


LADM INSIDE THE INSPIRE BOX

LADM and INSPIRE Cadastral Parcels

Context

- 📍 LADM has been designed mainly for Cadastre and Land Registration systems
- 📍 LADM and INSPIRE data specifications for theme CP were developed at same period (2008 - 2010)
- 📍 The 2 standards have influenced one another



LADM and INSPIRE Cadastral Parcels

Context

	LADM	INSPIRE CP
Geographic extent	Whole world	Politic Europe
Data flow	Production Delivery	Delivery
Scope	whole Land Registration system	Focus on geographic part

LADM and INSPIRE Cadastral Parcels

Principles

 **Make possible for a data producer to be compliant both with**

- INSPIRE
- LADM

 **INSPIRE is a profile of LADM**

 **INSPIRE is less demanding than LADM**

- Focus on the geographic components
- Parties and RRR out of INSPIRE scope

 **INSPIRE is more demanding than LADM**

- LADM very flexible about geometry (text, point, surface, solid)
- INSPIRE requires surface representation



LADM OUTSIDE THE INSPIRE BOX

African experiences

African experiences

Context

- 📍 Ethiopia: project of adjudication of public land (2014)
- 📍 Senegal: project of digitalisation of cadastral system (2015)
- 📍 Objective: design conceptual model of the land registration system
 - Based on LADM standard



African experiences



Main learnings

Successful experience

The standard is very good basis to design the structure of the SI

- Especially the RRR package

The standard was known by implementers

- LADM had been already used in other countries (likely)
- Made the transition from conceptual design to implementation very easy.

African experiences

Main learnings



📍 Need for adaptation to national context

📍 Easy as LADM is flexible standard

📍 Mainly done through

- Specialisation

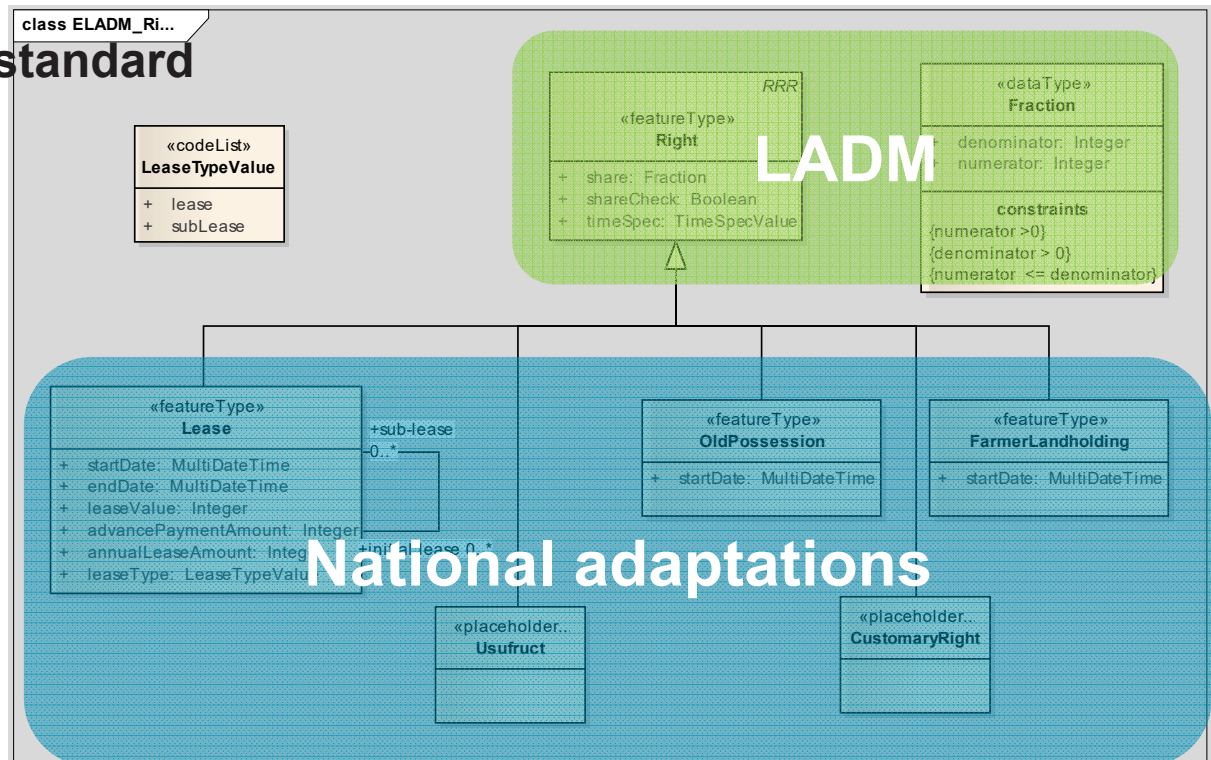
- Refinement of code lists

- Fixing some options (Surveying)

📍 But also

-Adaptation to multi-lingual context (Ethiopia)

-Add a package about valuation (Senegal)



Example: different kinds of rights

African experiences



Potential improvements for LADM

Package “Party”

- in LADM, “Party” data is expected to come from **external registers**
- but unsure it may work everywhere
 - Existence and reliability of such registers (e.g. network efficiency)
 - **Foreign owners** not (always) in national registers
- association that “a Party may represent another Party” would be useful (e.g. if minor children involved)

African experiences



Potential improvements for LADM

Role of notaries and surveyors

- in LADM, notaries and surveyors are considered :

- In feature type “Party”
- As attribute of Source (documents)

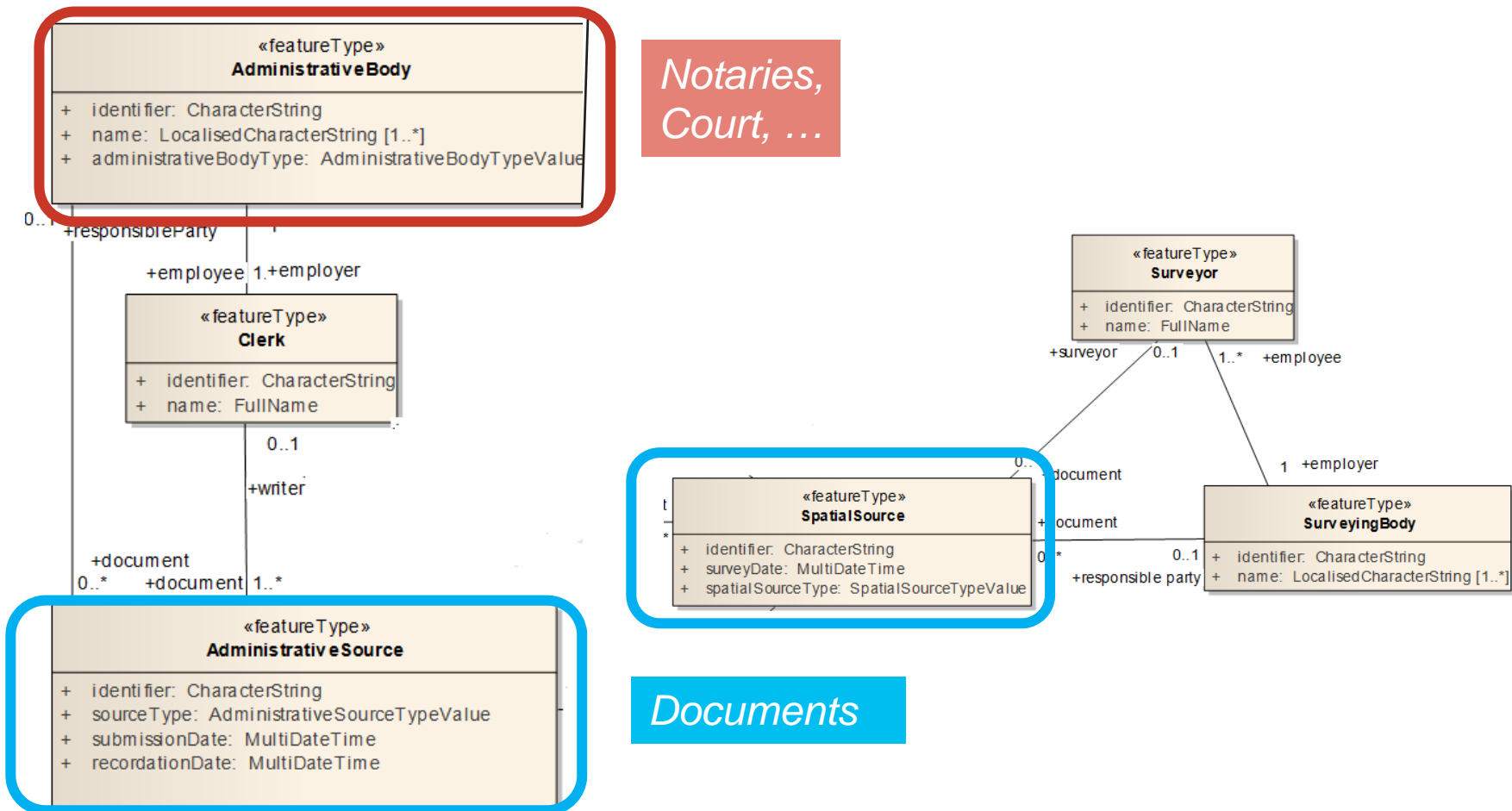
*Not very efficient for
implementation
(duplication of information)*

- alternative proposal:

- Have specific feature types for “Notaries” and “Surveyors”
- Linked to Documents (Source)
- More logical
 - No RRR on the land
 - But generally more rights in the SI (writing vs reading for “real” parties)

African experiences

Potential improvements for LADM





LADM BACK AGAIN TO THE INSPIRE BOX?

Work on core data

Core data work















Context

UN-GGIM : Europe WG on core data

- UN-GGIM: United Nations initiative on Global Geographic Information Management
- Core data: the most useful to analyse, achieve and monitor SDG (Sustainable Development Goals)
- First phase: selection of core themes
 - Including **land administration** ones: CP, AU, PS, AM, (planned) LU
- Second phase: prepare recommendations for content, identify priority information (for production of new data or improvement of existing data)
 - begun by an analysis of the INSPIRE data models

Core data work

Analysis of INSPIRE data models

	LADM	INSPIRE				
		CP	AU	PS	AM	LU
Where?	Spatial Units Surveying 	Geometry				
When?	Versionned object 	Temporal attributes				
What?	RRR 					
Who?	Party 					
Why?	Source 					

 Key information – good solution

 Key information – improvable solution

 Partial, coarse information

Core data work

Analysis of INSPIRE data models

Heterogeneous in the scope: Parties and RRR

- CP: explicitly excluded from scope
- AU: not even mentioned
- PS, LU, AM: more or less taken into account

A key issue: “What?”

- Implicit user knowledge: CP, AU
- Classification attributes: AM, PS, LU
- Some attempts to model the content of “regulation” text (e.g. AM extension about Controlled Activities)

Core data work

User requirements

 **Secure land tenure and land investment: make people aware of**

- **Rights** : CP
- **Restrictions**:
 - Private (easements): CP
 - **Public** : PS, LU, AM (restricted areas)

 **Ensure efficient and transparent governance: make people aware of**

- **Responsibilities**: AU, AM (managed areas)

Core data work

Other learnings

Current initiative of IHO about standard S121 on Maritime Units (AU)

- Using the LADM concepts to model the maritime units and the RRR attached to them

On-going discussion within the WG on core data about core **geographic** data

- Regulation texts (Source) should be in documentary database(s)
- Parties could be in a Business Register (including public bodies)
- **Geographic data might be limited to Spatial Units** (with geometry and key attributes) linked to the external Information Systems mentioned above
- RRR are consideration for future
 - LADM supplies the theory (concepts)
 - But still long way from theory to practice

Core data work

Next (potential) steps

📍 In case of significant review of INSPIRE IR, LADM concepts might help to get more harmonised and may be **simplified** data models on the Land Administration themes

📍 Making citizens aware of all public restrictions and managed areas is necessary but it is a challenge

- First step: inventory of all these regulated areas with link to the regulation texts – as already promoted by INSPIRE
- Second (potential) step: model the content of regulation text
 - From “raster” data to vector data
 - LADM concepts and cadastral experience may help
 - But still a lot to do

To be encouraged by other European initiatives?



CONCLUSIONS

Conclusions

📍 LADM was designed mainly for cadastral – land registration context

- To facilitate data exchange: adaptation [a minima] for INSPIRE CP
- To facilitate setting up cadastral system in developing countries: 2 successful experiences in Africa

📍 But LADM is about **Land Administration** in general. It might help for other INSPIRE themes such as AU, PS, AM and (planned) LU.