THE LADM STANDARD IN AND OUT OF THE INSPIRE BOX
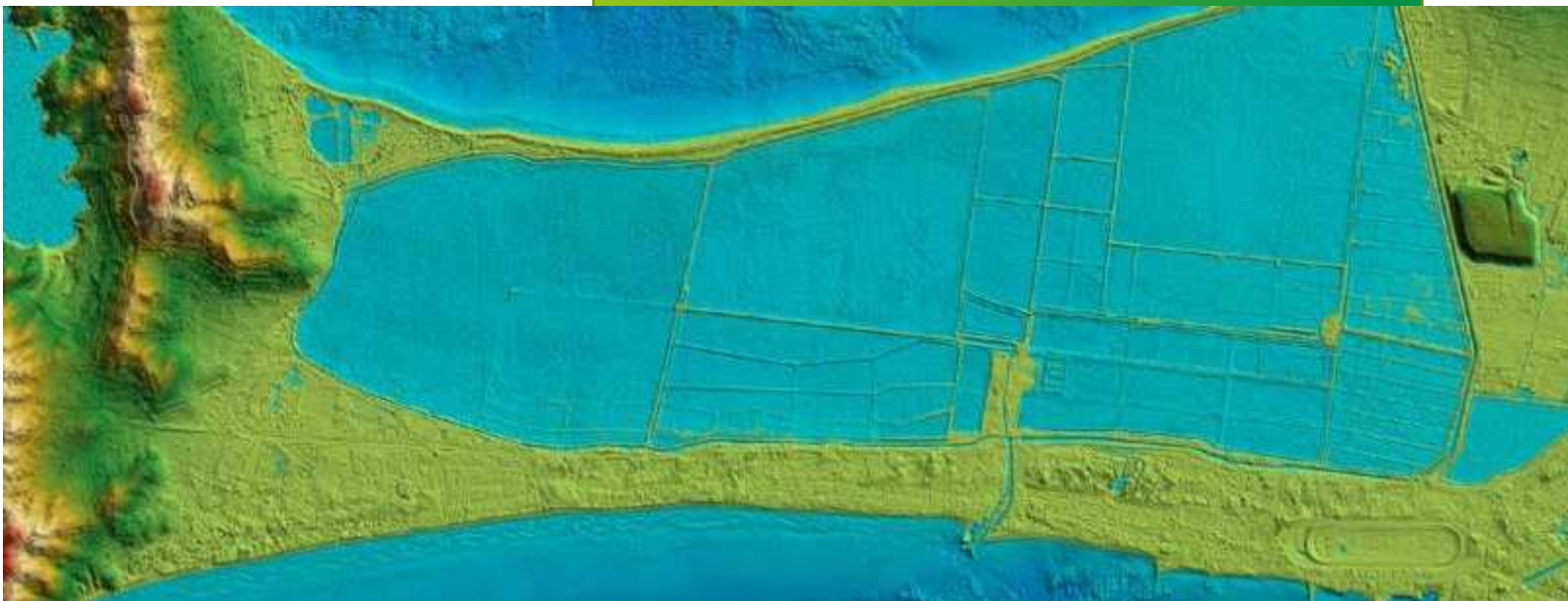
© IGN-SHOM

Dominique Laurent
September 2017 – INSPIRE Conference

IGN
INSTITUT NATIONAL DE L'INFORMATION GÉOGRAPHIQUE ET FORESTIÈRE

ISN 17.092

Modèle TN-02.018-1.6

1

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**

Persons   Right, restriction, responsibility   Basic administrative unit (e.g. flat + parking)

LA_Party

LA_RRR

LA_BAUnit

LA_SpatialUnit

Places (parcel, building unit…)
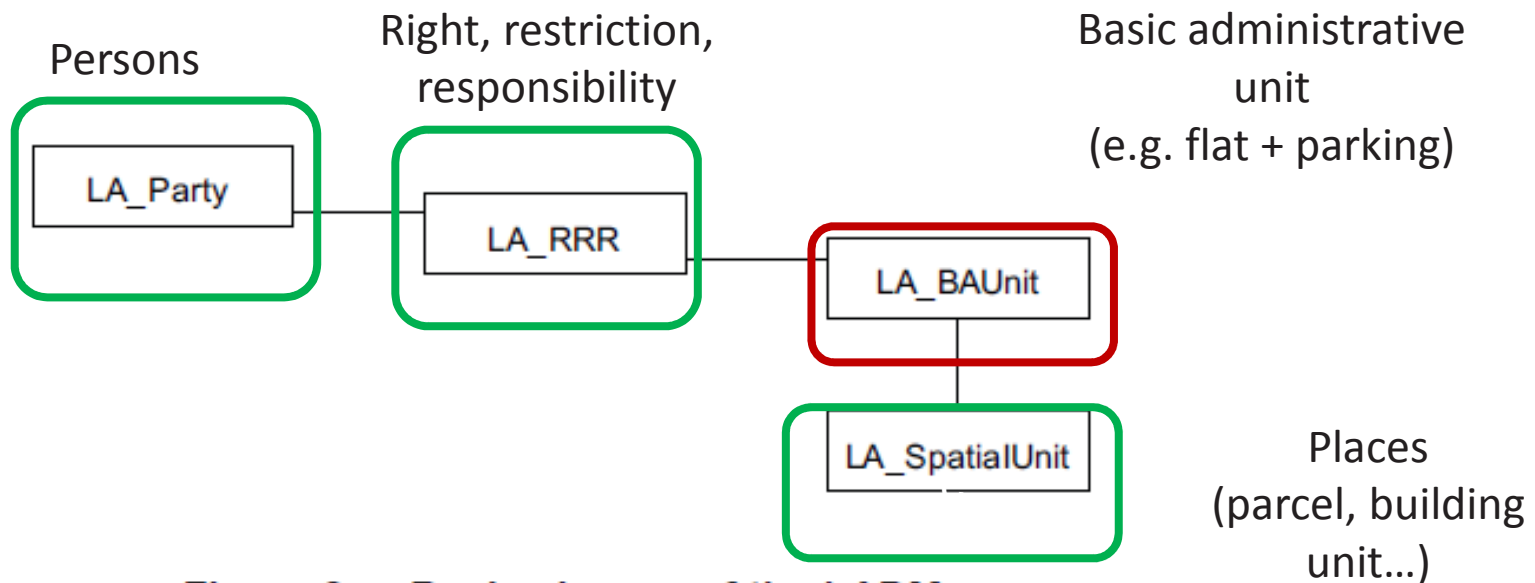
Figure 2 — Basic classes of the LADM

What is LADM?

Principles

📍 **The standard includes 5 packages**

- Generic classes

  - Versioned object

  - Source (for documents)

- Party

- Administrative (RRR)

- Spatial Units

- Surveying

2

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
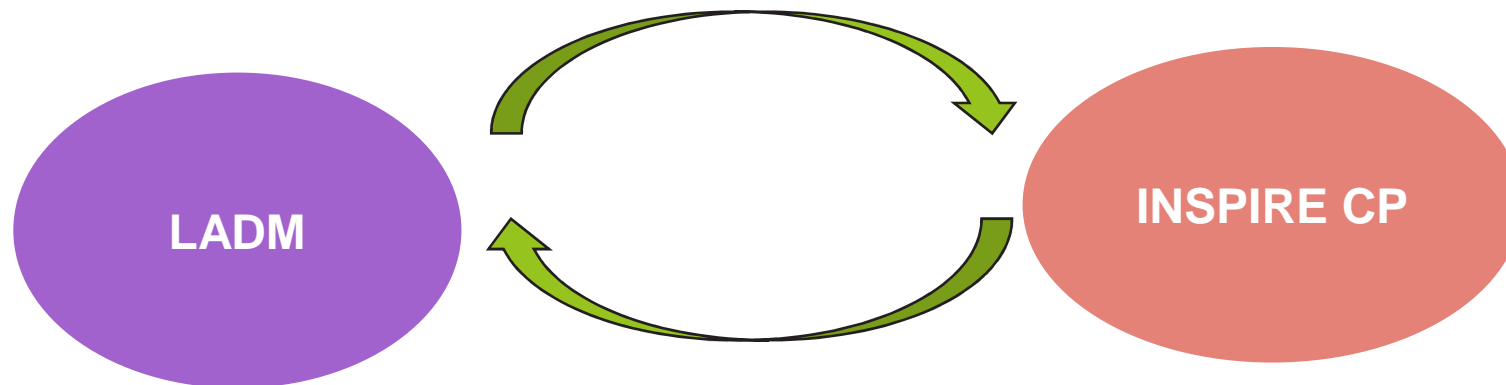
LADM and INSPIRE Cadastral Parcels

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

3

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)
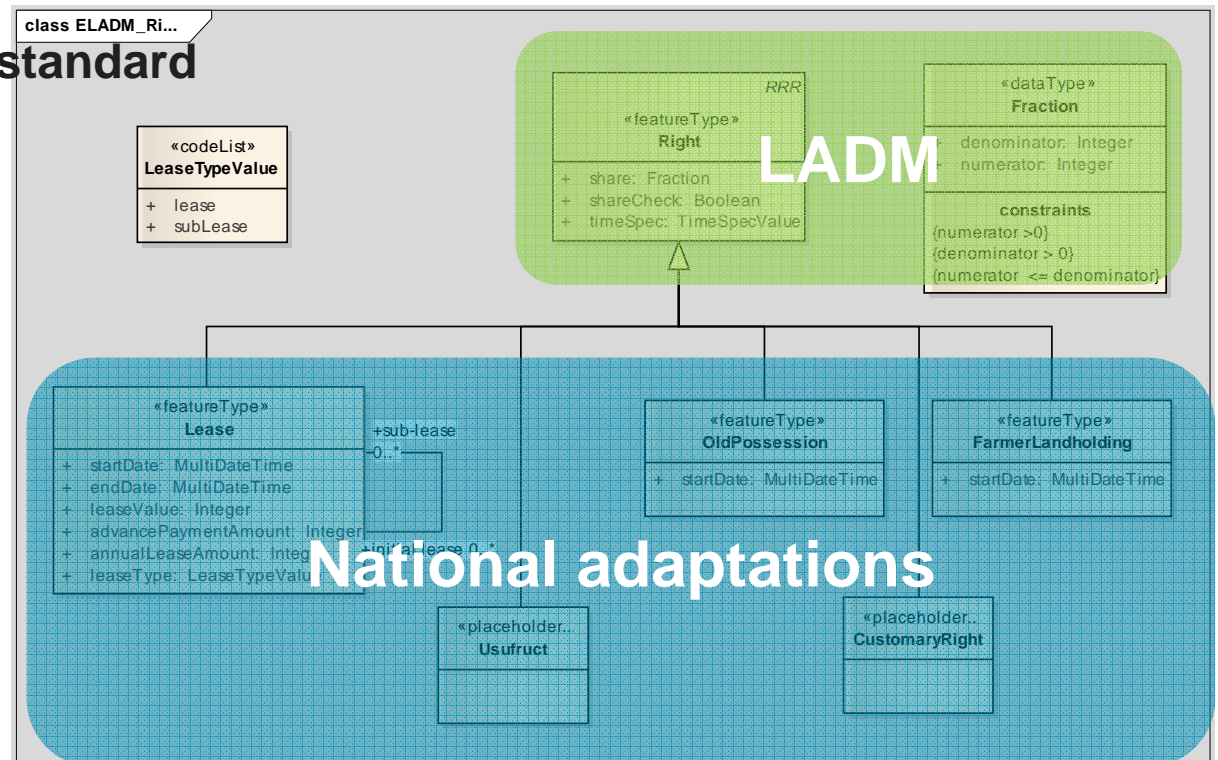
Example: different kinds of rights

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"

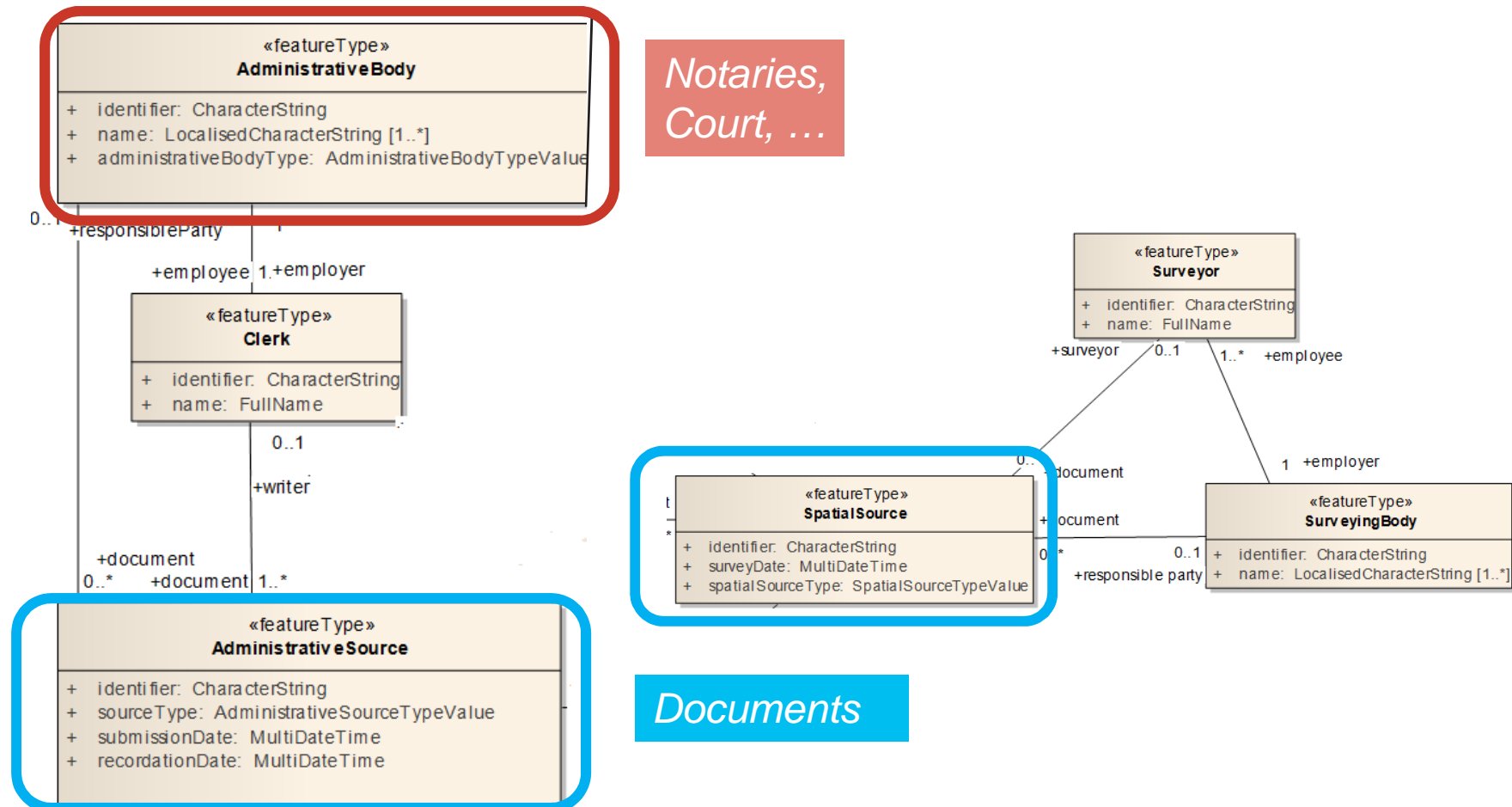   - As attribute of Source (documents)

    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

«featureType»
AdministrativeBody

+ identifier: CharacterString
+ name: LocalisedCharacterString [1..*]
+ administrativeBodyType: AdministrativeBodyTypeValue

Notaries, Court, …

«featureType»
Clerk

+ identifier: CharacterString
+ name: FullName

«featureType»
Surveyor

+ identifier: CharacterString
+ name: FullName

«featureType»
SpatialSource

+ identifier: CharacterString
+ surveyDate: MultiDateTime
+ spatialSourceType: SpatialSourceTypeValue

«featureType»
SurveyingBody

+ identifier: CharacterString
+ name: LocalisedCharacterString [1..*]

«featureType»
AdministrativeSource

+ identifier: CharacterString
+ sourceType: AdministrativeSourceTypeValue
+ submissionDate: MultiDateTime
+ recordationDate: MultiDateTime

Documents

4

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?

5

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.**