



FIG Joint Land
Administration
Conference



UNIVERSIDADE FEDERAL
DE SANTA CATARINA



IMPLEMENTING LADM USING THE PARCEL FABRIC AS A WELL ARCHITECTED SYSTEM

Autores:

Amir Bar-Maor

| Esri

| abarmaor@esri.com

Brent Jones

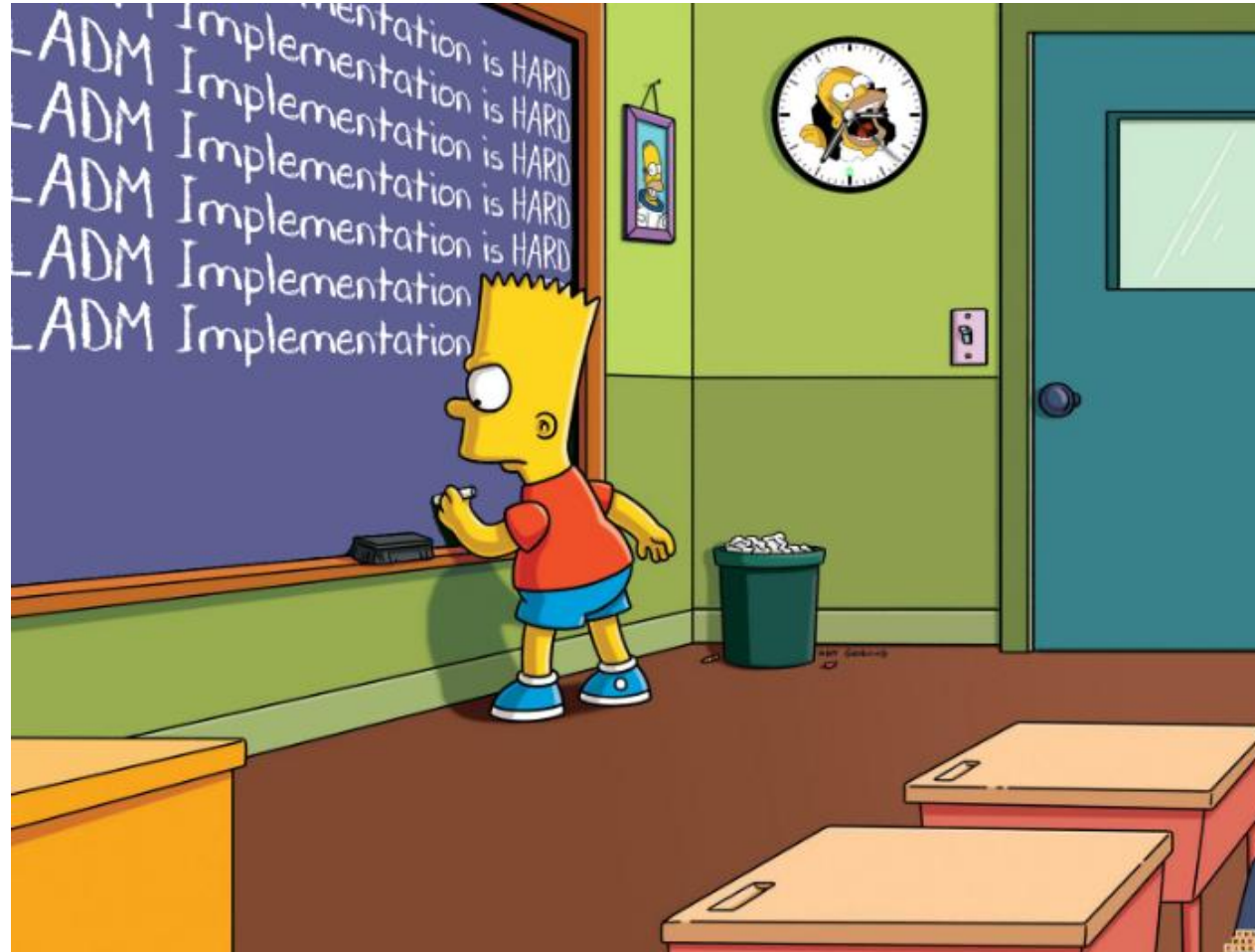
| Esri

| bjones@esri.com

IMPLEMENTING LADM

- LADM is a conceptual information model
- LADM is a descriptive standard not a prescriptive standard
- Uses complex UML diagrams
- Requires the designer to:
 - Know the cadastral workflows & business requirements
 - Understand LADM
 - Know UML
 - Know system design
- LADM is hard to implement:
 - Most country profiles are from the Academia
 - Are also conceptual (another UML representation)

LADM Implementation is HARD

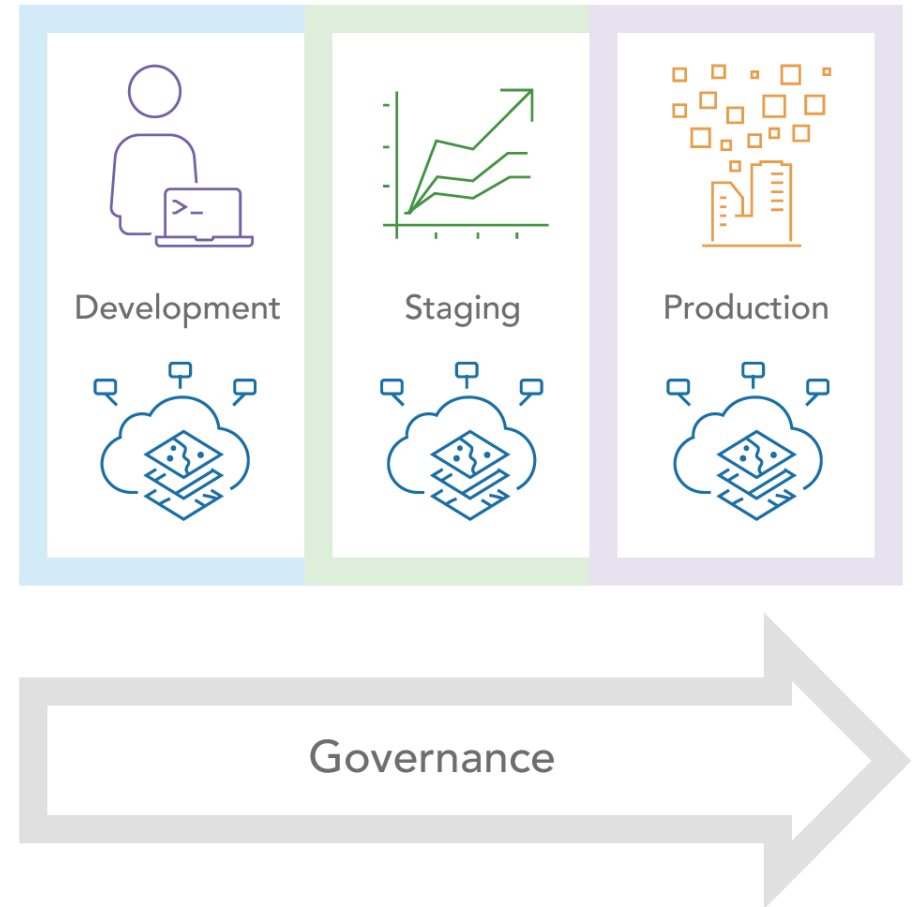


A 'WELL-ARCHITECTED SYSTEM'

- Promote business-first approach around 6 pillars
 - Automation
 - Integration
 - Observability
 - Performance and Scalability
 - Reliability
 - Security
- Most country profiles are from the Academia
 - Are also conceptual (another UML representation)
 - Often too normalized

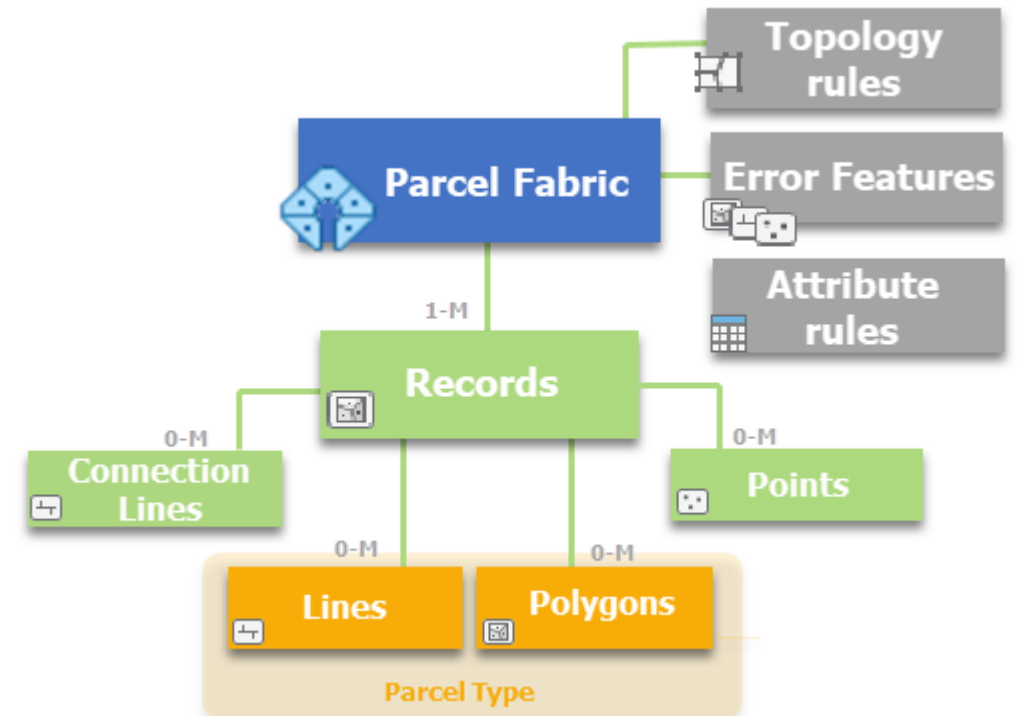
ENVIRONMENT ISOLATION

- Reduce downtime using environment isolation:
 - Development
 - Staging (QA)
 - Production
- Keep up with current release
- Automated and manual testing:
 - Functional
 - Performance
 - ...



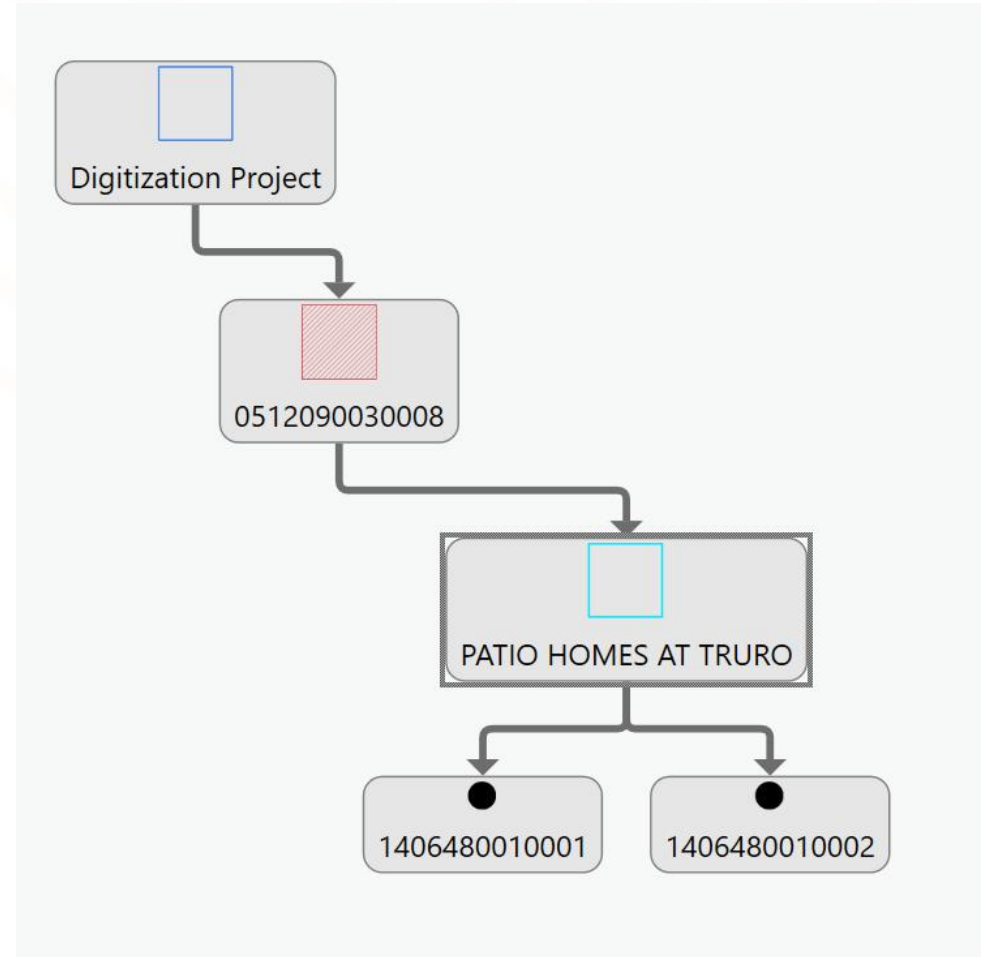
LADM AND THE PARCEL FABRIC

- The Parcel Fabric was implemented using LADM
- It is a physical implementation
- Conformant (level 1-3) with LADM
- Currently used by 500+ organizations globally
- Excludes the 3R's and Parties
- Configurable
- Uses web services
- Works against SQLite, PostgreSQL, MS SQL Server, Oracle



Extending Beyond LADM

- The Parcel Fabric goes beyond LADM.
- Quality:
 - Geodatabase topology
 - Attribute rules
 - LSA (DynAdjust)
- Parcel Lineage
- Editor Tracking
- Spatial reference
- Online and Offline
- ...



IMPLEMENTING THE PARCEL FABRIC

- Extendable and flexible
 - Migrate now – fix later
 - Simple
 - Great defaults
 - Tasks
 - Plenty of resources
-
- ‘Configuration first’ approach
 - POC (aka Pilot Project)
 - Vision

The screenshot shows a 'Tasks' window titled 'Merge parcels'. It features a 'Steps' tab with a list of four steps: 1. Create a parcel record, 2. Locate the parent parcels, 3. Select parent parcels, and 4. Merge parent parcels. Steps 1-3 are marked with green checkmarks, while step 4 is bolded. Below the steps, there is a link to learn more about merging parcels. The window also has a 'New Feature' section with a 'Change the selection.' button. A 'Layer' dropdown is set to 'Tax'. Under 'Features to merge', two parcel IDs are listed: 59281500230 and 59281500231, each with a red 'X' icon. At the bottom, there are checkboxes for 'Keep original features' and 'Use Template', both of which are checked. A 'Finish' button is located at the bottom right, and a progress bar at the bottom left indicates 'Progress (4/4)'.

Tasks Merge parcels

Steps Messages

1. Create a parcel record
2. Locate the parent parcels
3. Select parent parcels
- 4. Merge parent parcels**

Click [here](#) to learn more about merging parcels in a record driven workflow.

Existing Feature New Feature

Change the selection.

Layer
Tax

Features to merge

59281500230	X
59281500231	X

☒ Keep original features

☒ Use Template

Finish

Progress (4/4)

INFORMATION MODEL MAINTENANCE AND DOCUMENTATION

- Information models evolve
- Feature-level metadata
- Schema reporting tools
- Change management

Name	Dataset Type	Feature Dataset	Dataset ID
LADM	FeatureDataset		
RRR	RelationshipClass	LADM	57
ParcelFabric_AdjustmentVectors	FeatureClass	LADM	15
ParcelFabric	ParcelFabric	LADM	4
ParcelFabric_Source	FeatureClass	LADM	10
AdministrativeUnit_Lines	FeatureClass	LADM	36
ParcelFabric_Connections	FeatureClass	LADM	12
ParcelFabric_AdjustmentPoints	FeatureClass	LADM	13
ParcelFabric_Topology	Topology	LADM	26
ParcelFabric_AdjustmentLines	FeatureClass	LADM	14
SpatialUnit	FeatureClass	LADM	31
ParcelFabric_Points	FeatureClass	LADM	11
SourceHasSpatialUnitLines	RelationshipClass	LADM	34
SourceHasAdministrativeUnitLines	RelationshipClass	LADM	38
AdministrativeUnit	FeatureClass	LADM	35
SourceHasAdministrativeUnit	RelationshipClass	LADM	37
SourceHasSpatialUnit	RelationshipClass	LADM	33
SourceHasConnections	RelationshipClass	LADM	25
Party	FeatureClass	LADM	56
SpatialUnit_Lines	FeatureClass	LADM	32

CONCLUSIONS

- The **6 pillars** of a 'well architected system' should be taken into account when implementing LADM.
- The Parcel Fabric physical implementation is a testimony to the **success** of LADM
- When implementing a system use **environment isolation**
- Sustainable systems: '**configure** first' approach, low code/no code
- LADM and the parcel fabric will continue to evolve



AGRADECIMENTOS

Espaço do autor. (Arial, 20, cor preta)



execução



patrocinadores



MINISTÉRIO DA
GESTÃO E DA INOVAÇÃO
EM SERVIÇOS PÚBLICOS

