

# Converting Strata Building to LADM

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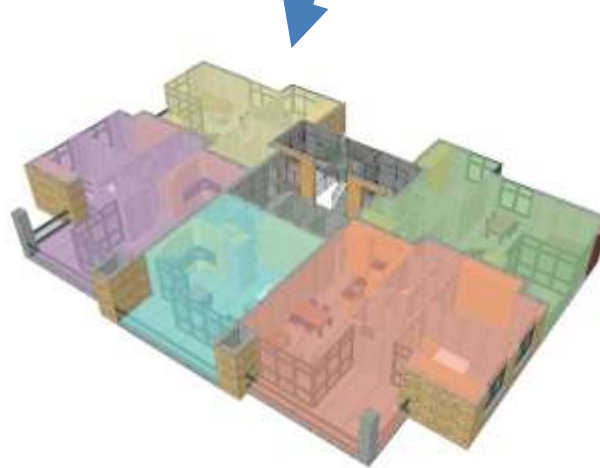
# Introduction

- All building floors were surveyed and stored as XML files.
- One building in one XML file.
- We developed a simple conversion tool – Strata XML file to LADM classes.
- It is based on context mapping (Strata dictionary and LADM dictionary) – geometry and semantic



Housing development scheme

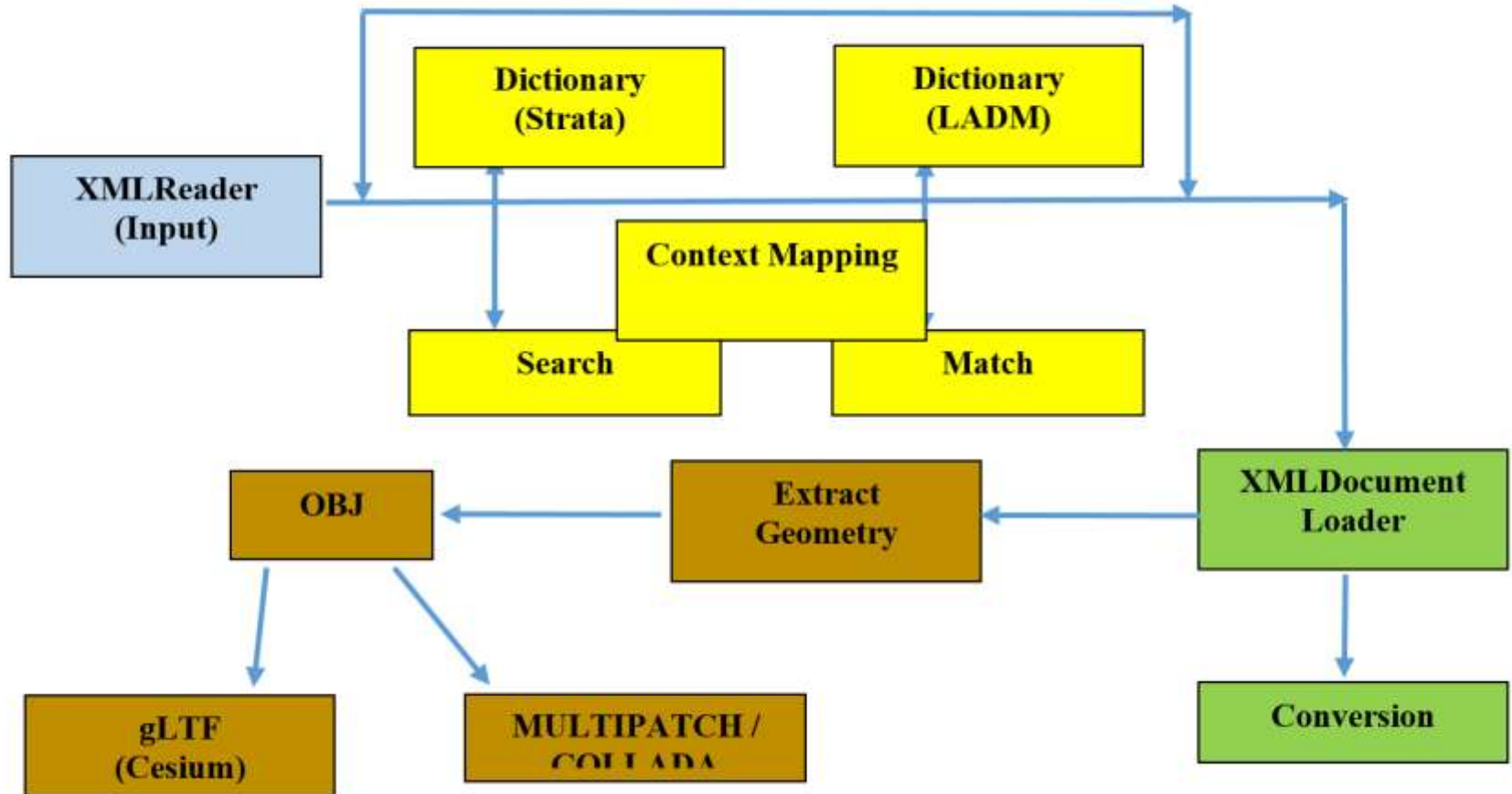
All buildings with XML syntax



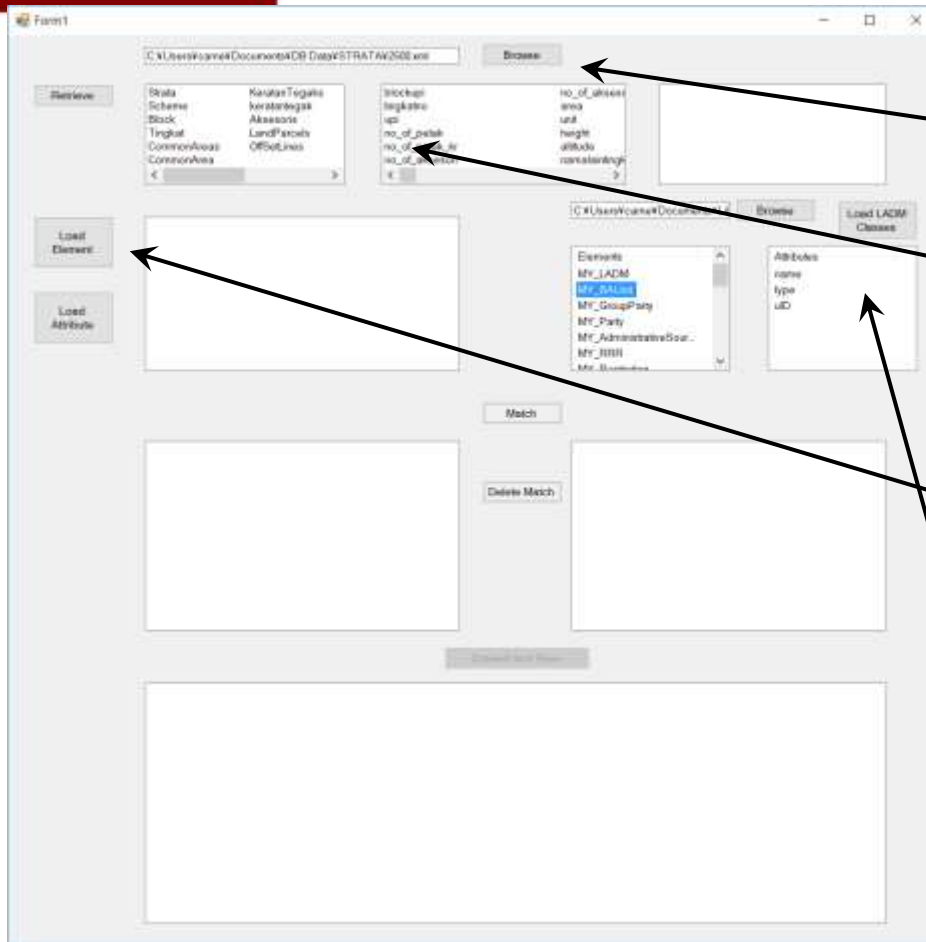
- UNIT 1**
  - All Bin Abu Bakar
  - Malaysia
  - open 1st flr
  - and so on
- UNIT 2**
  - All Bin Abu Bakar
  - Malaysia
  - open 1st flr
  - and so on
- UNIT 3**
  - All Bin Abu Bakar
  - Malaysia
  - open 1st flr
  - and so on
- UNIT 4**
  - All Bin Abu Bakar
  - Malaysia
  - open 1st flr
  - and so on
- UNIT 5**
  - All Bin Abu Bakar
  - Malaysia
  - open 1st flr
  - and so on



# Data flow

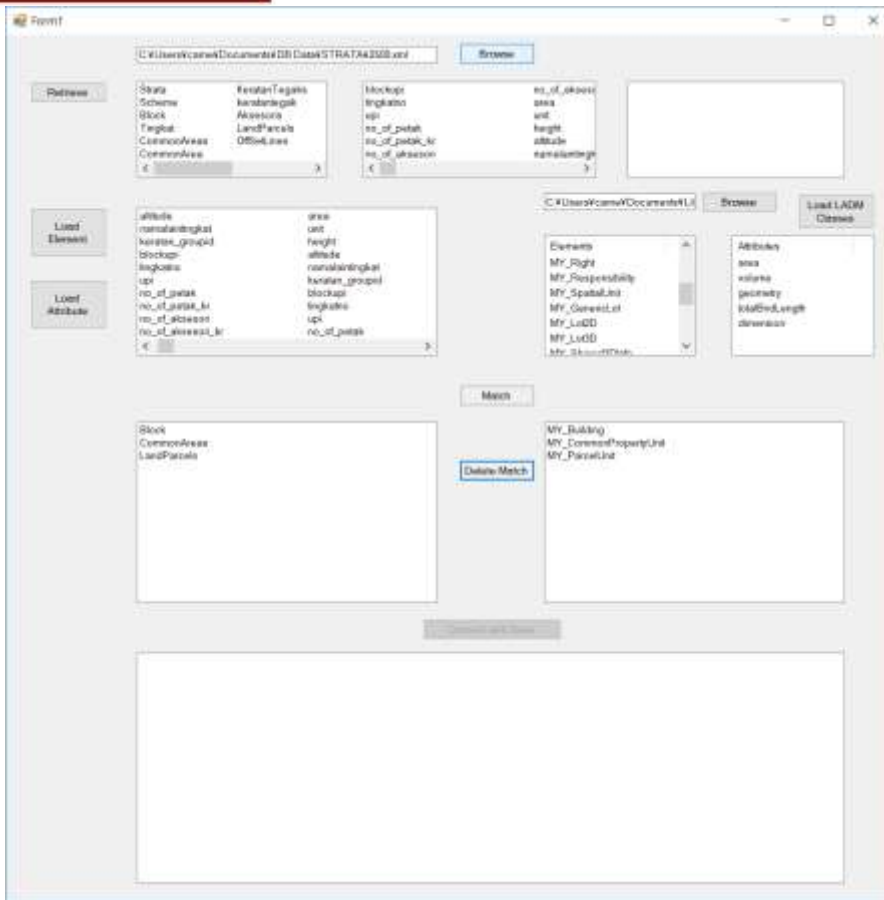


# Conversion interface



- 1) Load the XML
- 2) Retrieve elements and attributes
- 3) Load the elements / attributes for further matching
- 4) Load the core LADM classes

# Conversion interface



- 5) Match the appropriate context
- 6) Convert and save (generation of 3D geometry objects)

# The converted LADM classes in XML syntax

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <MY_LADM>
3   <MY_BAUUnit name="SERANTA WISBINA" type="A" uID="1">
4     </MY_BAUUnit>
5     <MY_GroupParty groupID="" type="">
6       <MY_Party name="ABDAS ROSLAN BIN MOHZAR" role="S" extPID="1" pID="1" type="S">
7         </MY_Party>
8       <MY_Party name="SERANTA WISBINA SDN BHD" role="D" extPID="2" pID="2" type="D">
9         </MY_Party>
10      <MY_Party name="FREELAND REALTY" role="IO" extPID="3" pID="3" type="O">
11        </MY_Party>
12    </MY_GroupParty>
13    <MY_AdministrativeSource />
14  </MY_BEE />
15
16 <MY_SpatialUnit area="7277.000" label="" referencePoint="" xID="080343000107641 (S) 2500 (B) MI (M) 0">
17   <MY_GenericLot state="" district="" mukim="" section="" lotNo="" type="" use="" status="">
18     <MY_LotID area="7277.000" totalBndLength="0" >
19       <MY_LandParcel area="7277.000" />
20       <MY_BoundaryFaceString />
21     </MY_LotID>
22
23   </MY_GenericLot>
24   <MY_SharedIDInfo>
25     <MY_CommonPropertyUnit />
26     <MY_Building type="S" totalParcelNo="62" totalFloorNo="4" height="14.9">
27       <MY_LotID area="112.143" totalBndLength="" >
28         <MY_BoundaryFaceString bearings="159.2540" distances="1.220" totalLength="">
29           <MY_Point X="33085.304" Y="-28533.193" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 1 (V) 1" />
30           <MY_Point X="33085.734" Y="-28534.335" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 1 (V) 2" />
31         </MY_BoundaryFaceString>
32         <MY_BoundaryFaceString bearings="69.2540" distances="2.438" totalLength="">
33           <MY_Point X="33085.734" Y="-28534.335" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 2 (V) 1" />
34           <MY_Point X="33088.014" Y="-28533.478" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 2 (V) 2" />
35         </MY_BoundaryFaceString>
36
37         <MY_BoundaryFaceString bearings="159.2540" distances="5.429" totalLength="">
38           <MY_Point X="33093.955" Y="-28531.249" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 3 (V) 1" />
39           <MY_Point X="33095.863" Y="-28536.332" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 3 (V) 2" />
40         </MY_BoundaryFaceString>
41
42         <MY_BoundaryFaceString bearings="249.2540" distances="10.477" totalLength="">
43           <MY_Point X="33095.863" Y="-28536.332" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 4 (V) 1" />
44           <MY_Point X="33078.564" Y="-28542.825" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 4 (V) 2" />
45         </MY_BoundaryFaceString>
46
47         <MY_BoundaryFaceString bearings="339.2540" distances="6.648" totalLength="">
48           <MY_Point X="33078.564" Y="-28542.825" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 5 (V) 1" />
49           <MY_Point X="33074.227" Y="-28536.401" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 5 (V) 2" />
50         </MY_BoundaryFaceString>
51
52         <MY_BoundaryFaceString bearings="69.2540" distances="3.698" totalLength="">
53           <MY_Point X="33074.227" Y="-28536.401" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 6 (V) 1" />
54           <MY_Point X="33085.308" Y="-28533.193" E="4.100" pID="080343000107641 (S) 2500 (B) MI (M) 0 (T) 1 (F) 9 (BF) 6 (V) 2" />
55         </MY_BoundaryFaceString>
56       </MY_Building>
57     </MY_LotID>
58     <MY_LotID area="101.946" totalBndLength="" >

```



# e.g. Strata #2500

Form1

C:\Users\cane\Documents\DB Data\STRATA#2500.xml

Retrieve

Strata	KawasanTegaks	blockupi	no_of_aksesoi
Scheme	keratanTegaks	tingkatno	area
Block	Aksesoi	upi	unit
Tingkat	LandParcels	no_of_petak	height
CommonAreas	OffsetLines	no_of_petak_kr	altitude
CommonArea		no_of_aksesoi	namaLingk

Load Element

blockupi	altitude
tingkatno	namaLingk
upi	keratan_groupid
no_of_petak	blockupi
no_of_petak_kr	tingkatno
no_of_aksesoi	upi
no_of_aksesoi_kr	no_of_petak
area	no_of_petak_kr
height	no_of_aksesoi
	no_of_aksesoi_kr

Load Attribute

C:\Users\cane\Documents\UL

Load LADM Classes


Elements	Attributes
MY_SharedDate	type
MY_CommonPrope...	totalFaceNo
MY_Building	totalFloorNo
MY_ParcelUnit	height
MY_AccessoryUnit	
MY_UtilityUnit	
MY_Custome...	

Match

Block	MY_Building
no_of_petak	totalFaceNo

Delete Match

Convert and Save



# e.g. Strata #5019

Form1

C:\Users\kamei\Documents\VB6 Data\STRATA\5019.XML

Retrieve

Strata	CommonArea	blockup	no_of_aksesori
Scheme	CommonArea	tingkat	area
Block	KeratanTegak	upi	unit
Tingkat	KeratanTegak	no_of_petak	height
Aksesori	LandParcels	no_of_petak_kr	altitude
Aksesori	ORSetLines	no_of_aksesori	namalanting

Load Element

Strata	LandParcels
Scheme	ORSetLines
Block	
Tingkat	
Aksesori	
Aksesori	

Load Attribute

CommonArea
CommonArea
KeratanTegak
KeratanTegak

C:\Users\kamei\Documents\UI

Elements

- MY\_SharedInfo
- MY\_CommonProp...
- MY\_Building
- MY\_ParcelUnit
- MY\_AccessoryUnit
- MY\_UtilityUnit
- MY\_Customers...

Attributes


type

Match

Block	MY_Building
no_of_petak	lotParcelNo
height	height
Aksesori	MY_AccessoryUnit

Delete Match

Convert and Save



# Conversion interface

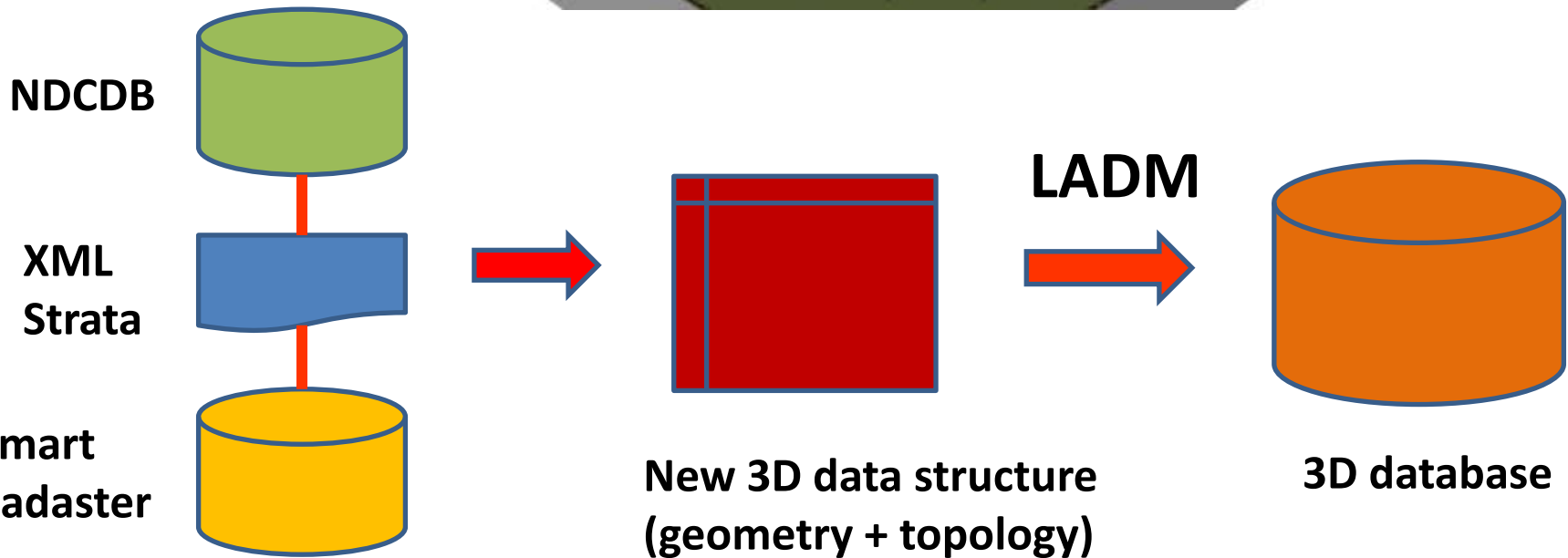
- **Pros**

- A step towards LADM compliant data
- Straight forward
- Separation of geometry and attribute data
- Topology can be included during conversion process
- Interoperability?

- **Cons**

- Context mapping process skips unmatched attributes

# The bigger picture



# Acknowledgments

- Sample data from Malaysian NMA
- Travel grant from Malaysian Land Surveyors Board (LJT)

# Thank you!

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