

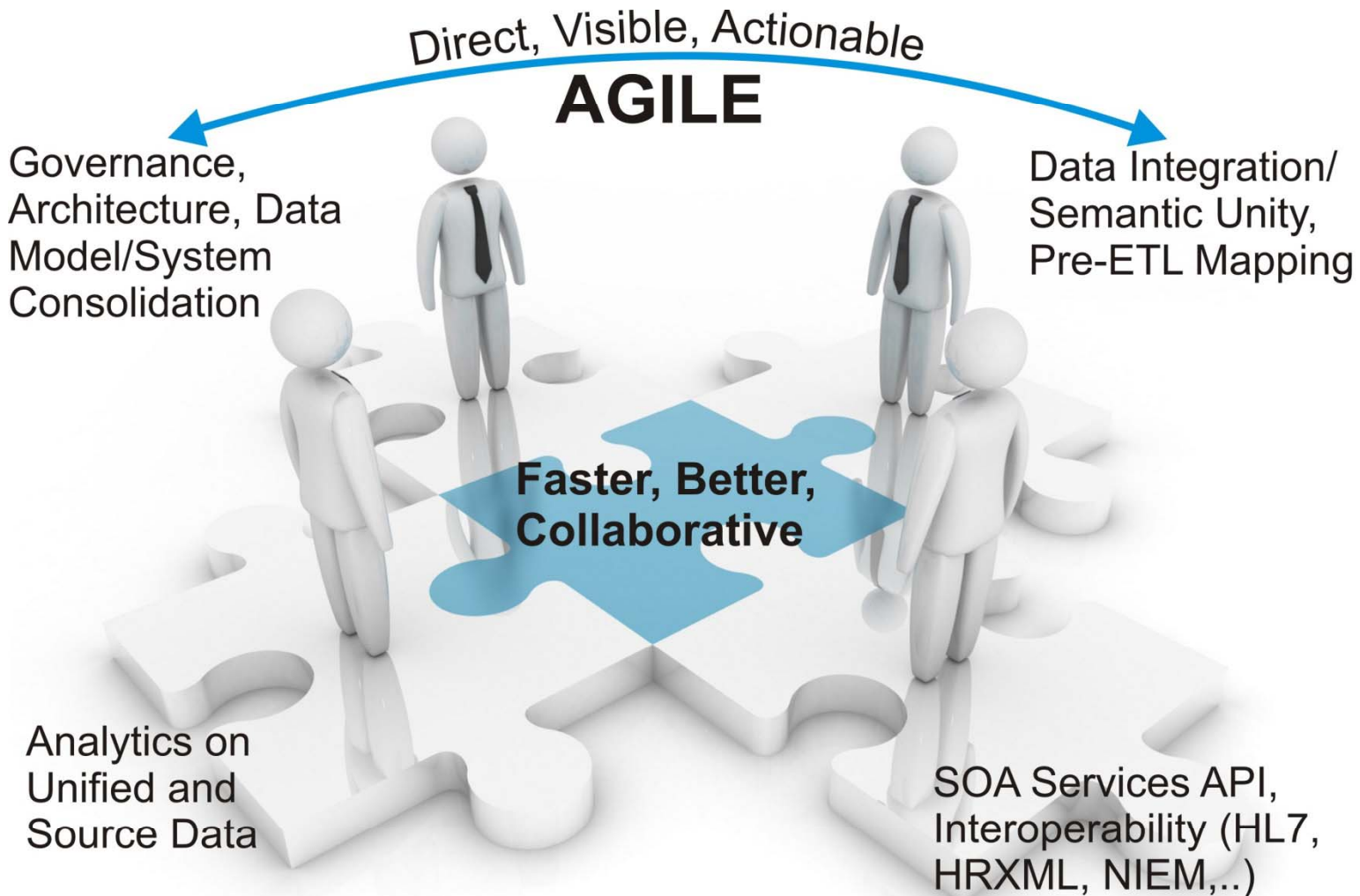
Eliminating barriers to Agile BI using NoSQL object data model semantic vocabulary

Agile Converged Governance, Business Intelligence

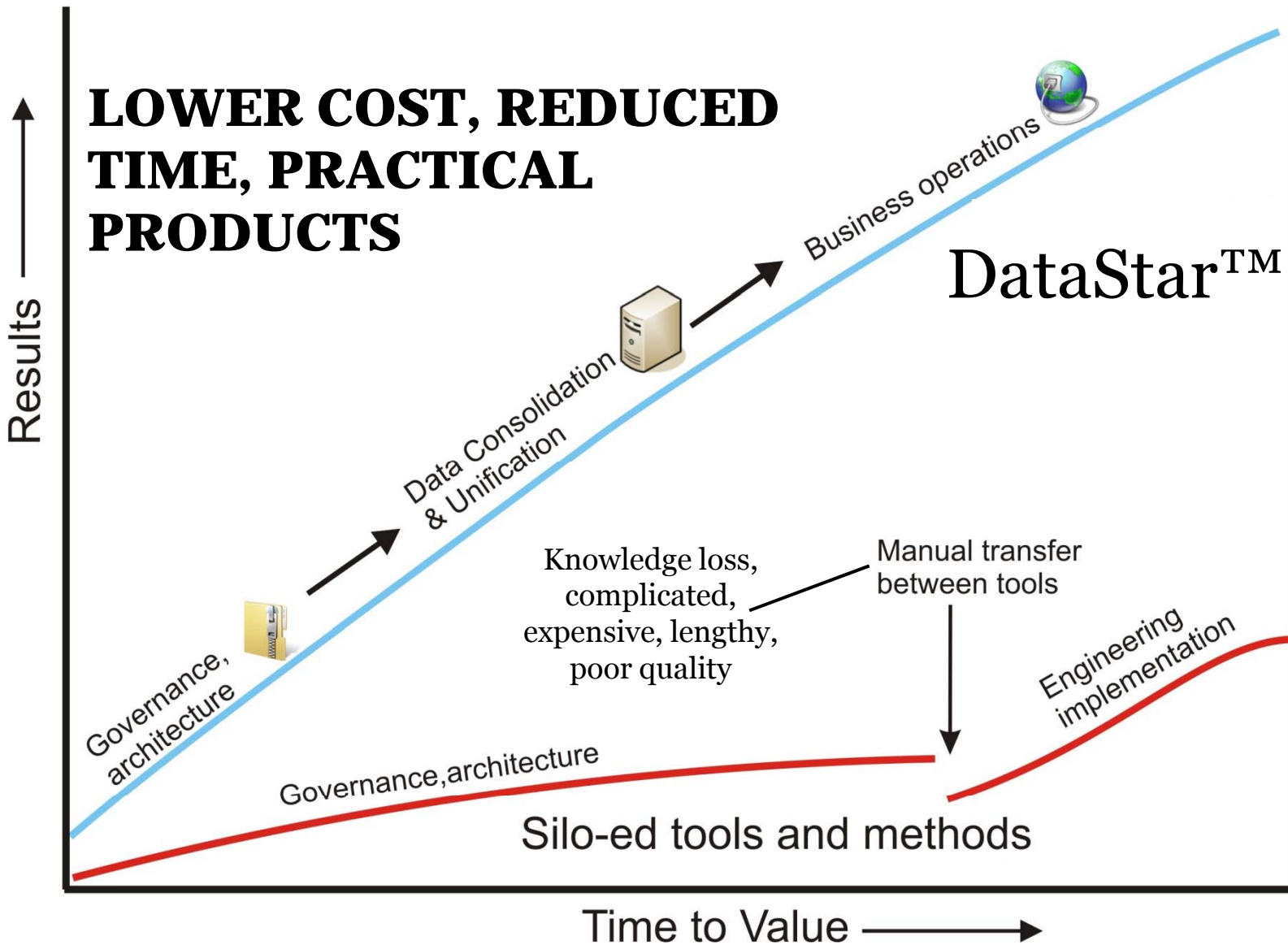
Dr. Geoffrey P Malafsky, CEO, Phasic Systems Inc

Agile Governance, BI, Data Discovery

DataStar™



BI & Governance at Business Speed



The Semantic Moat

- Semantics means data's actual meaning
 - This is NOT the same as database metadata (table and element names)
- When is a “customer” not a “customer” ?
 - When Sales, Accounting, Product Development, CEO, (SAP, IBM, Oracle,) use it in their systems
- Why can't these be consolidated into one common definition ?
 - Strong disincentives to give up control of definitions, system control, peer prestige
 - Complexity of evolving integrated business-technology-organization perspectives

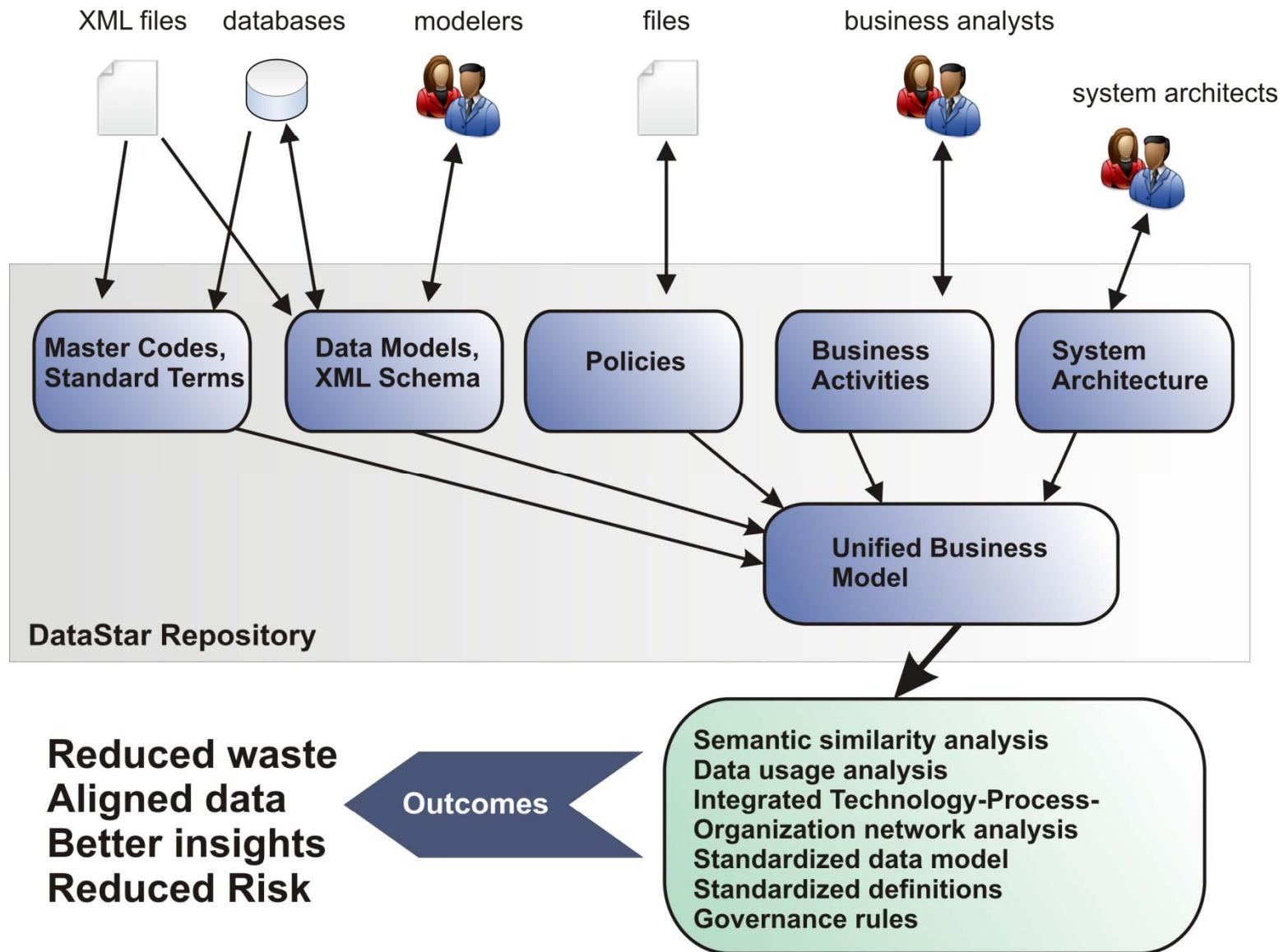
Lessons Learned

- Practical data governance/integration requires:
 - Declarative statements not abstract goals
 - Detailed architecture including current data models, code dictionaries, and usage in business processes
 - Detailed metrics on data quality and level of effort to maintain and disseminate meaningful data
- Nearly impossible to obtain from large teams:
 - Detailed, integrated, flexible data-business architecture
 - Detailed metrics
 - Declarative, practical rules

Semantic Integration

- Canonical model of commonly used concepts to re-add business context to data
- Object oriented matched to business concepts
- Semantic Vocabulary owned by business
 - Primary data classification entities
 - No limit on conceptual variations
 - Basis of being NoSQL – neither dimensional nor relational
- Scalability
 - Multi-tiered indexing
 - Byte level random access and record level semantic search

Agile Actionable Governance/Architecture



NoSQL Object
Semantic
Vocabulary Key-
Values

DataStar DISCOVERY

Actionable
Governance,
Architecture

AnalytiX MAPPING MGR

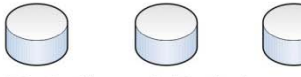
Consolidates data mappings
Versionable repository
Integrates with ETL tools
Auto-generates ETL jobs



Mainframe & Flat Files



XML Data



Relational Databases

DataStar UNIFIER

ALLDATA Data integration
NoSQL Object semantics eliminates conflicts
(easily combine all departmental variations)
Knowledge-based transforms
Big Data prototyping
Analytics on pre and post-integrated data
Linked Governance - Integration

Self-service BI /
Applications



Web Services

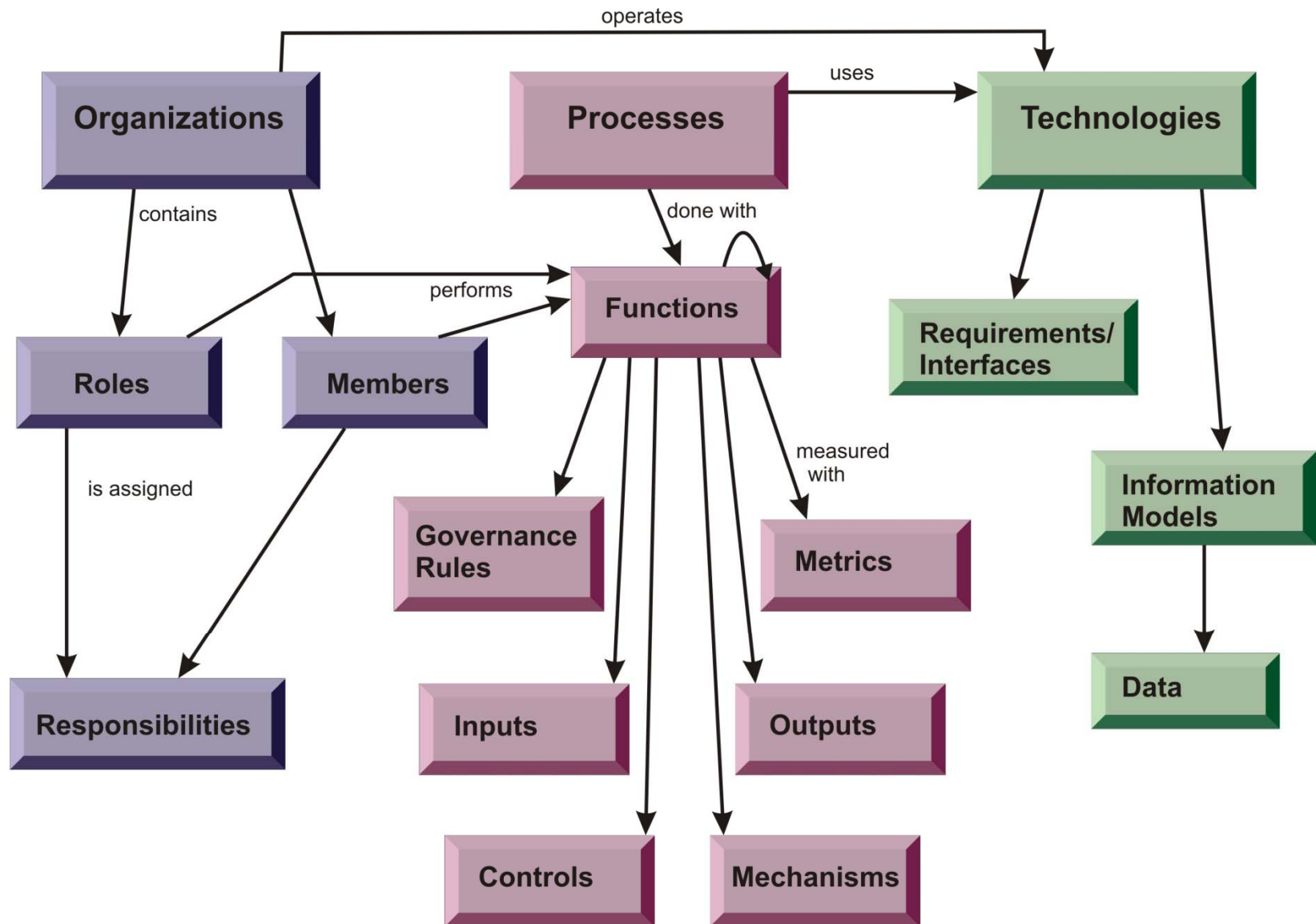


BI Warehouse
Virtual Cube

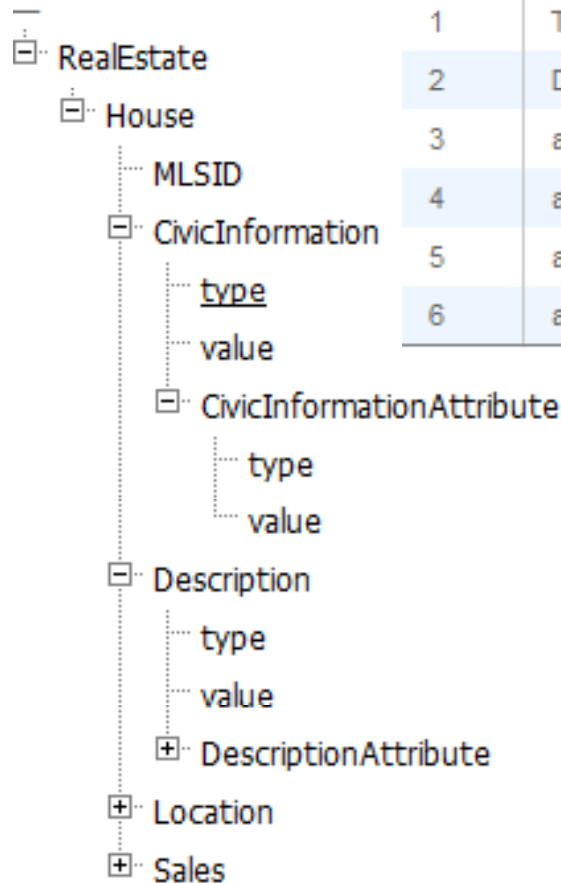


ETL Systems

KORS Canonical Model

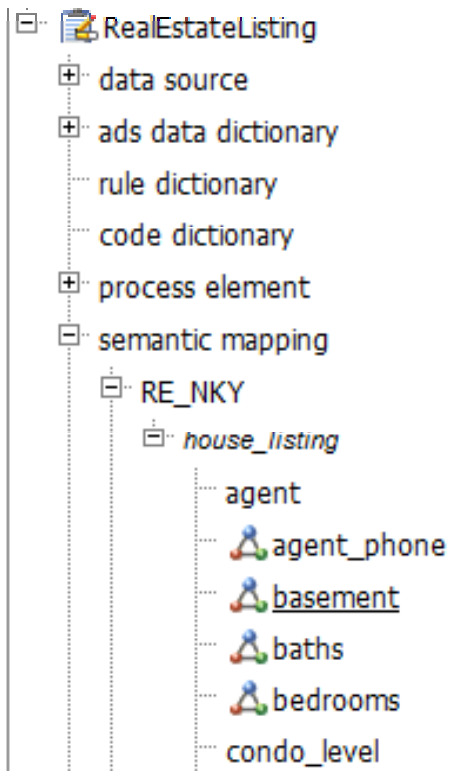


Object Data Model Semantic Vocabulary



#	Type	Value
1	Title	type
2	Definition	
3	allowedvalue	association [definition:homeowner association]
4	allowedvalue	election [definition:election information]
5	allowedvalue	school [definition:school information]
6	allowedvalue	taxes [definition:tax information]

#	Type	Value
1	Title	type
2	Definition	
3	allowedvalue	association.fee [definition:Fees]
4	allowedvalue	association.title [definition:HOA name]
5	allowedvalue	school.college [definition:local colleges]
6	allowedvalue	school.district [definition:school district]
7	allowedvalue	school.elementary [definition:elementary school]
8	allowedvalue	school.high [definition:high school]
9	allowedvalue	school.middle [definition:middle school]
10	allowedvalue	school.prek [definition:pre-K school]
11	allowedvalue	tax.property [definition:property (real estate) tax]



#	Type	
1	Title	basement
2	Semantic Map	RealEstate.house.description.value.(mainvocab:ba
3	Use element	yes
4	Duplicate Master	no
5	Key	false
6	Definition	

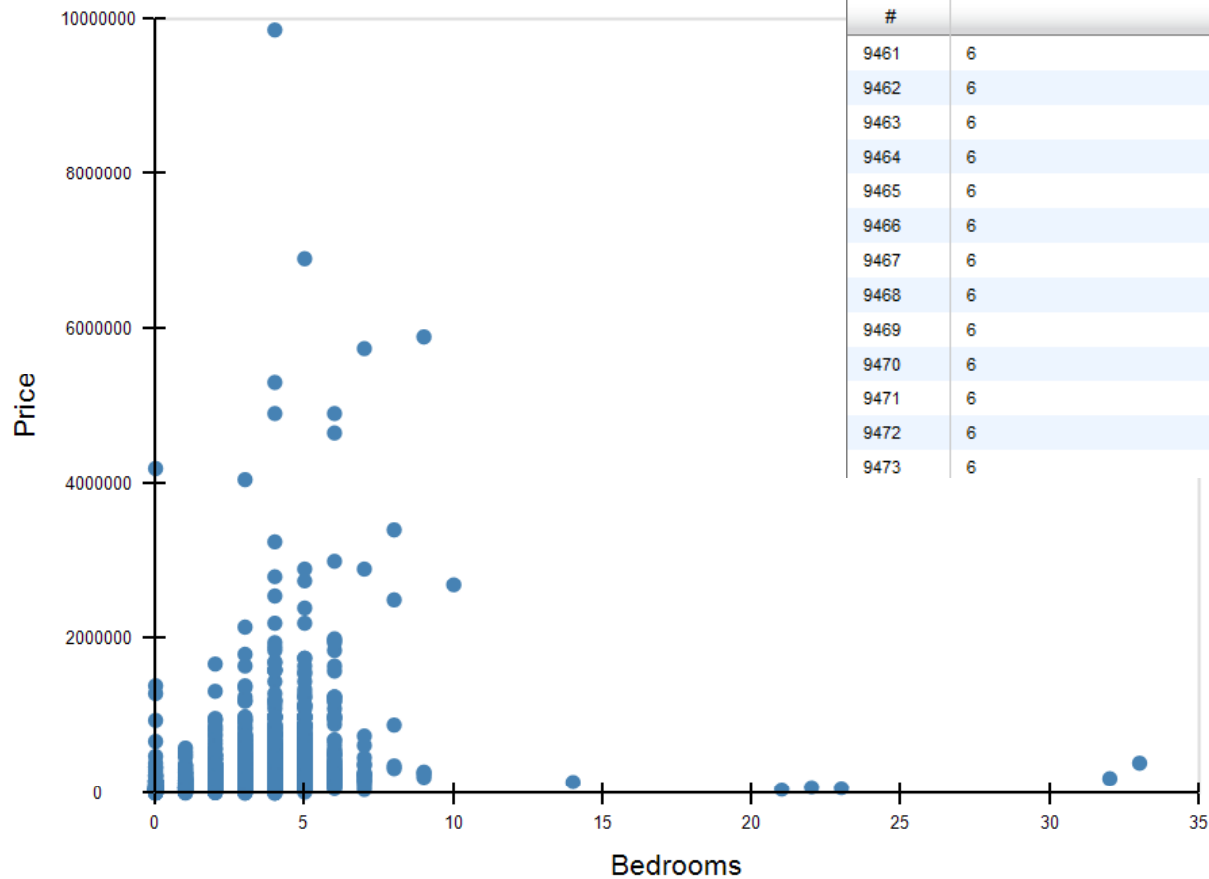
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Integration Model defining all sources, transforms, and semantic mappings to common object data model semantic vocabulary with automatic consistency checks to live data systems.

Governance Driven ETL

#	Operator	Operand1	Operand2	
1	string.equals	datasource.re_nky, dictionarytype:source data dictionary, dictionarytitle:RealEstate_NKY_RDB. [house_listing]. semiannual_taxes		tempstr0
2	string.trim	tempstr0		tempstr0
3	string.substring	tempstr0	1 ,	tempstr1
4	string.indexof	tempstr0	\$	tempint0
5	logical.ifeq	tempint0 , 0	tempstr1 , tempstr0	tempstr2
6	math.equals	tempstr2		tempreal0
7	math.multiply	tempreal0	2	tempreal0
8	string.equals	datasource.realestate windermere, dictionarytype:source data dictionary, dictionarytitle:RealEstate_Windermere_RDB. [house_listing]. [amenities]. taxes		tempstr0
9	string.trim	tempstr0		tempstr0
10	string.substring	tempstr0	1 ,	tempstr1
11	string.indexof	tempstr0	\$	tempint0
12	logical.ifeq	tempint0 , 0	tempstr1 , tempstr0	tempstr2
13	math.equals	tempstr2		tempreal1
14	logical.ifgt	tempreal0 , 0	tempreal0 , tempreal1	endtarget

BI Data Analysis



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#	X Value	
9461	6	159900
9462	6	1650000
9463	6	1100000
9464	6	999999
9465	6	2000000
9466	6	162499
9467	6	170000
9468	6	279900
9469	6	198950
9470	6	559000
9471	6	120000
9472	6	1585000
9473	6	155000

#	Operator	Operand1	Operand2	
1	search.getrecordvalues	ads.[sales].[salesattribute].type. (mainvocab:forsalelisting). (attrvocab:forsale.price)	*,numeric.[description].type. (mainvocab:bedroom)	tempreal0
2	statistical.sort	tempreal0	ascendx	endtarget1