Standardization in the Cadastral Domain

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Extensible Models and Templates for Sustainable Land Information Management – Intent and Purpose

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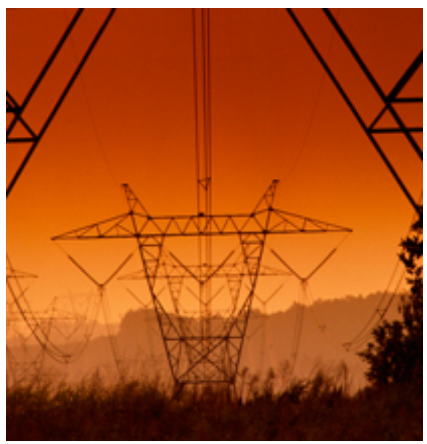



International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure
FIG COMMISSION 7
Cadastre & Land Management

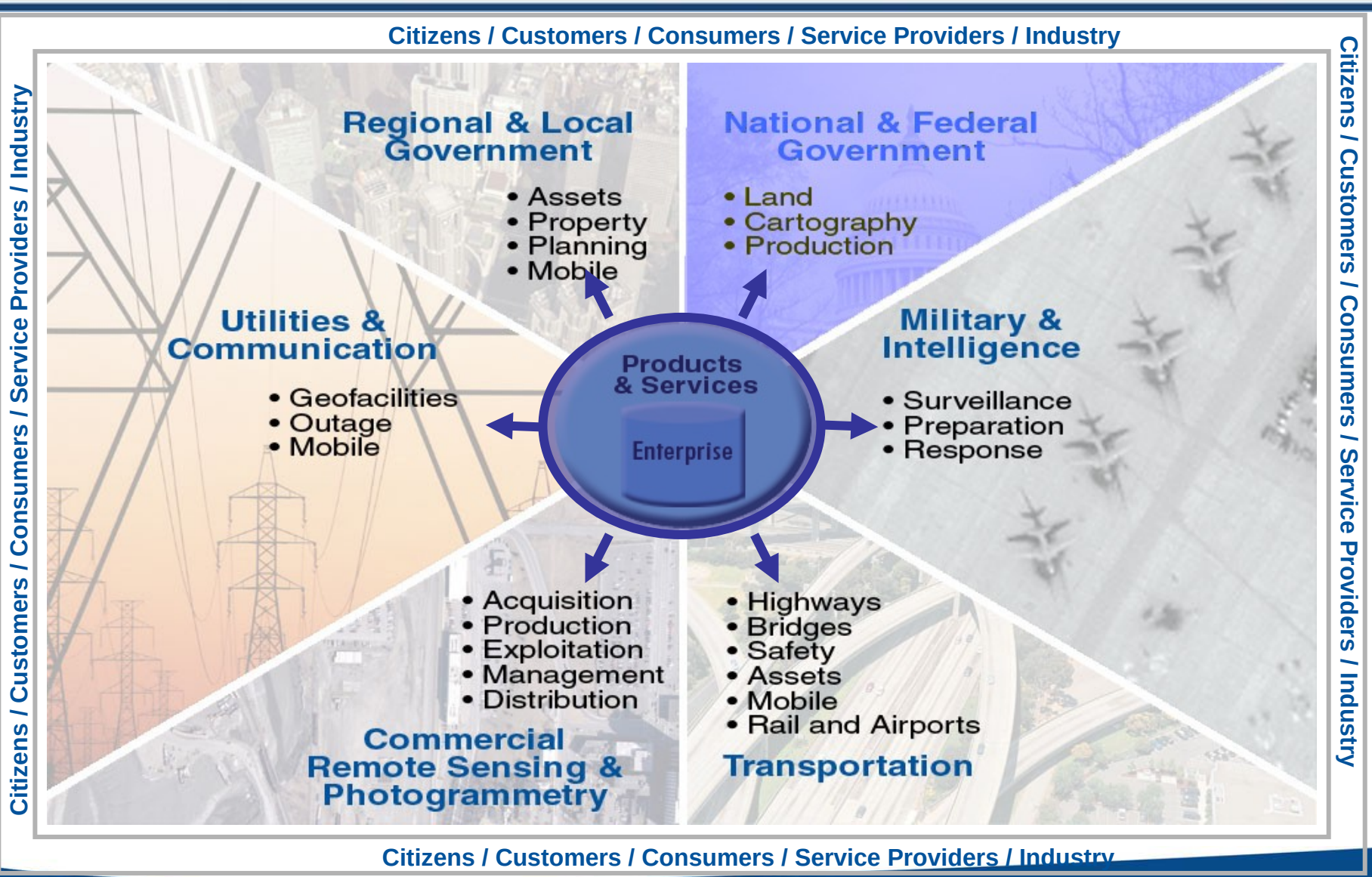
COST

INTERGRAPH

Introduction

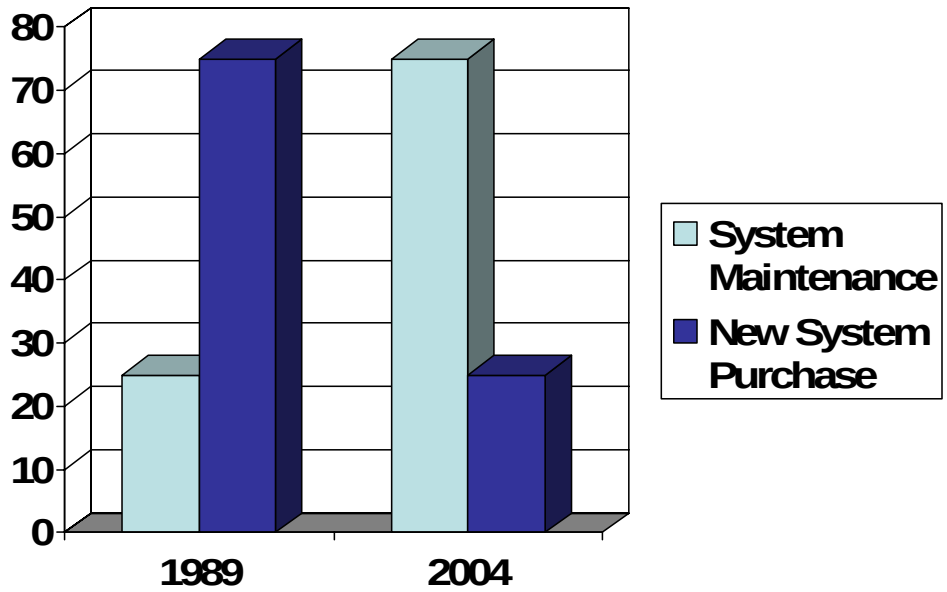
- A common understanding
- ICT Futures
- Real Property Information Exchange in the Commercial Sector
- A Comparative Model for Property Transaction Costs
- Comments on the “Standardized Core Cadastral Domain Model”
- Conclusions

Land Information ….who are the end users?

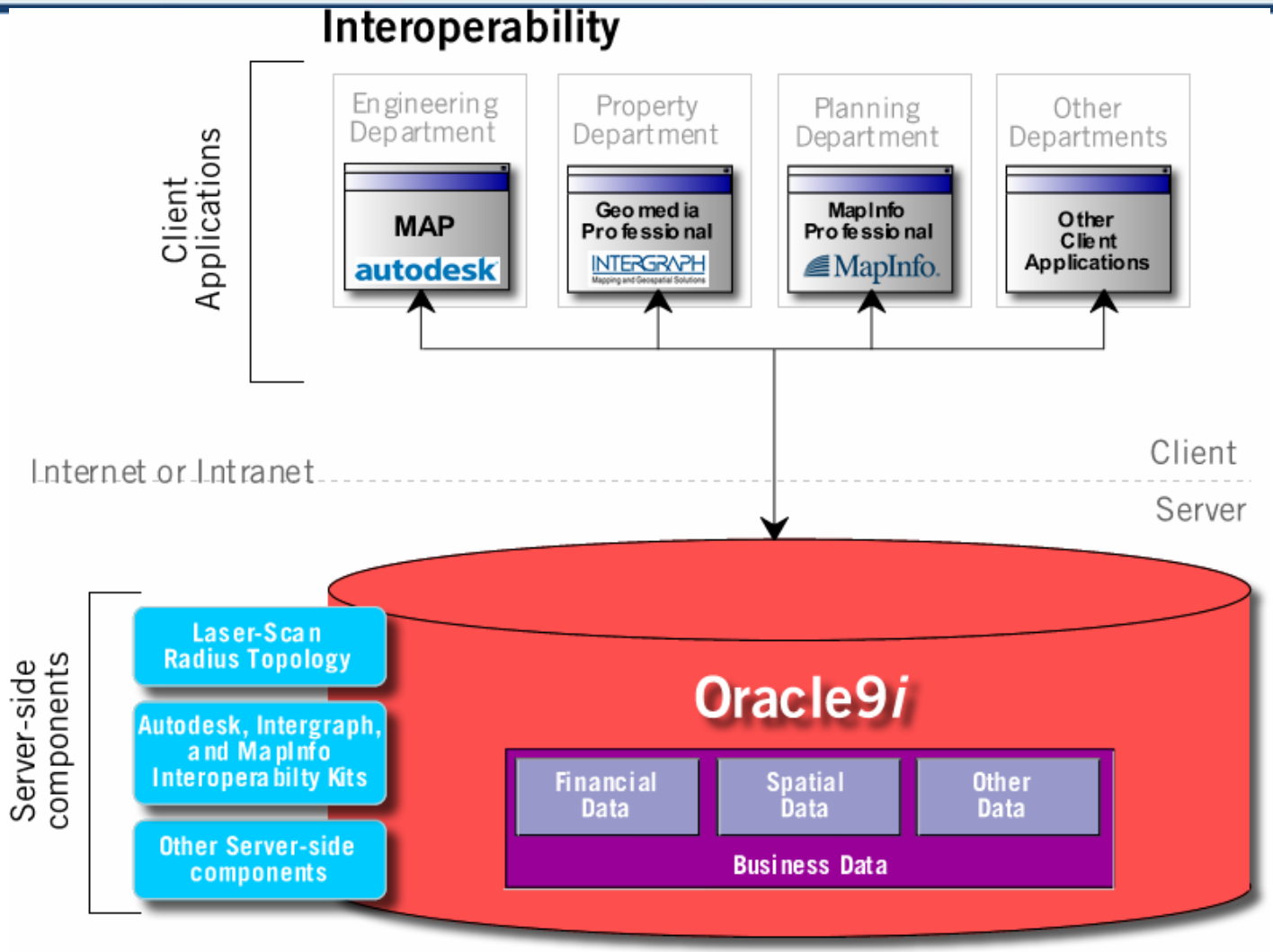


Conquering Complexity …

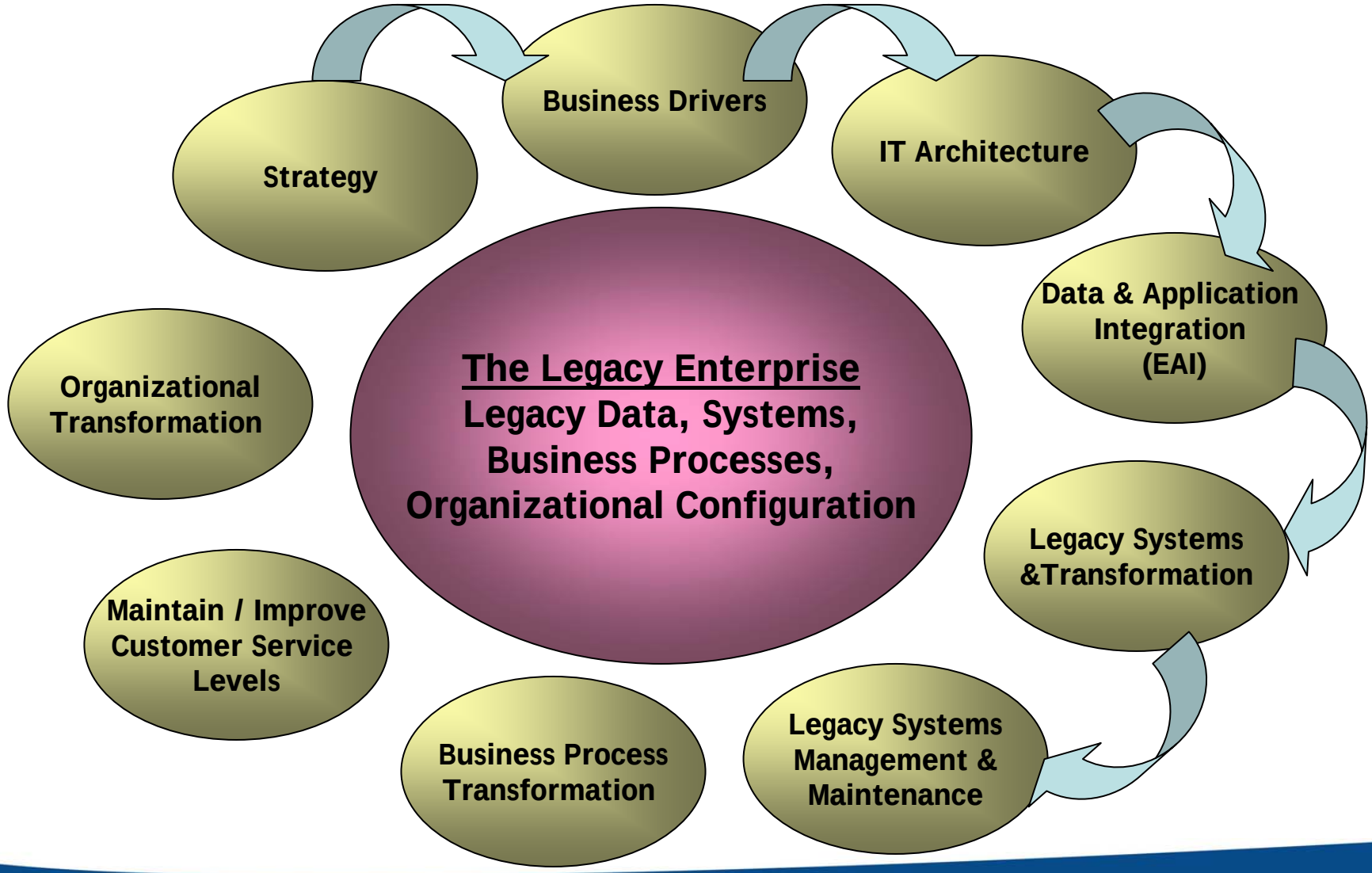
- “Today’s technology is obtrusive and overbearing. It leaves us with no moments of silence, with less time to ourselves, with a sense of diminished control over our lives … it is time for human-centred technology, a humane technology” - Norman



Interoperability

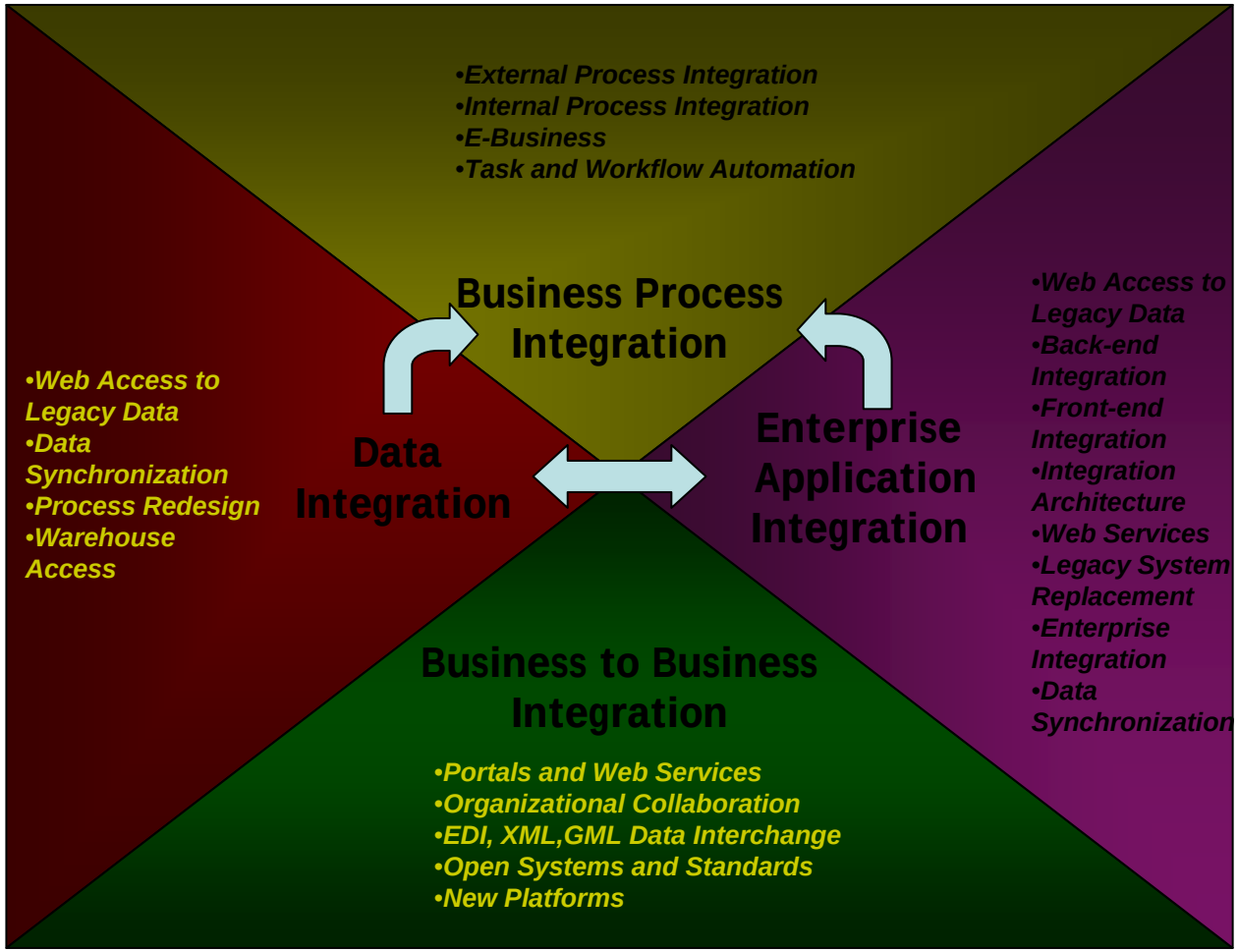


Enterprise Transformation



Non-Invasive Integration

Legacy Components are a constant …. deal with it !!



Sustainability …

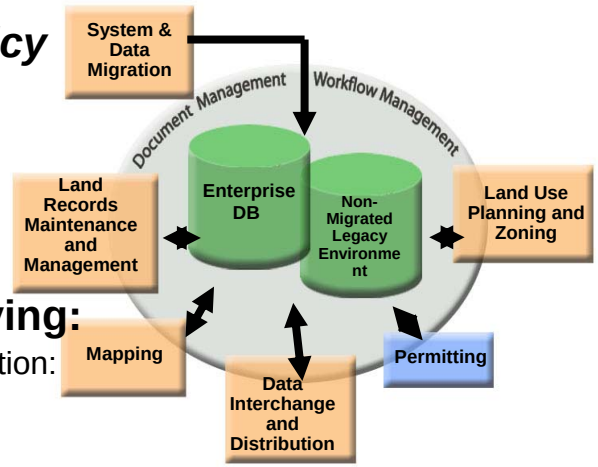
- "*Land administration reforms across the world during the past decades have focused on building or rebuilding land title registration and cadastral systems. Grants or loans that supported capacity-building concentrated on providing the necessary skills to operate the new technologies. However, strategies for long-term sustainability were rarely built into these programmes. The development of business skills and a business ethic has not always been regarded as a priority. Today the beneficiaries of many of these programmes are facing difficulties since much of the technology of the 1990s is obsolete. It needs to be replaced but how can this be achieved? Who will pay for what some call a 'technology refresh'?*" - UN ECE

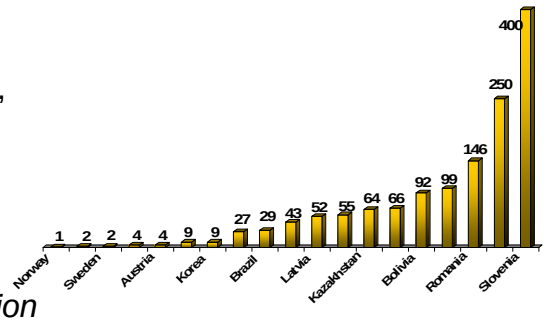
Sustainable land information management infrastructure

- Requires that infrastructure can rapidly adjust, adapt and respond to its influence factors whilst maintaining continuity in operations and service delivery.
  - Continuity in the availability of skilled human resources
  - Continuity in financial and logistical resources
  - Information and Information Management Infrastructure
- Designed such that it can be “maintained at length without interruption, weakening, or loss of efficiency, functionality or quality”, given the following:
  - There is a real possibility that the first two components above will – from an “in-house” availability point of view - change for the worse in the future, and
  - The technologies underlying the Information Management Infrastructure will change rapidly and on a continuous basis.

Trends…

- ***Sustainable Land Administration Infrastructures & Policy Frameworks***
  - *Technical & Political*
  - *Formal/Informal*
  - *Rural / Urban*
  - *Resistance against "Imported" Solutions*
- **Business Process & Organizational Reengineering driving:**
  - Inter-organizational cooperation, workflow integration & process automation:
    - State – Province - Municipality
  - Data warehousing and integration with other databases/systems.
  - Data and Application Interoperability
  - Flexible multipurpose LIM Infrastructures
  - Recognition that certain legacy aspects are here to stay (paper documents)
  - Utilization of Industry Templates and Data Models
- **Customer Service and Satisfaction**
  - Service Provision: Integrated information delivery and availability anywhere, anytime
  - "Single Agency" and One-Stop eGovernment Models
- ***Public Sector ROI***
  - *Inter-country & Regional Competition for Foreign Investment*
  - *Stovepipe Solutions and re-engineering projects : Disconnects & Coordination*





Web Services

- *Making Standards a reality*
  - Web Map Service (WMS) - implementing OGC Standards
  - Web Feature Service (WFS) - implementing OGC Standards
  - Spatial Analysis, Routing, Geocoding
- Ready to be integrated with customer applications and data
  - Desktop, web or mobile devices

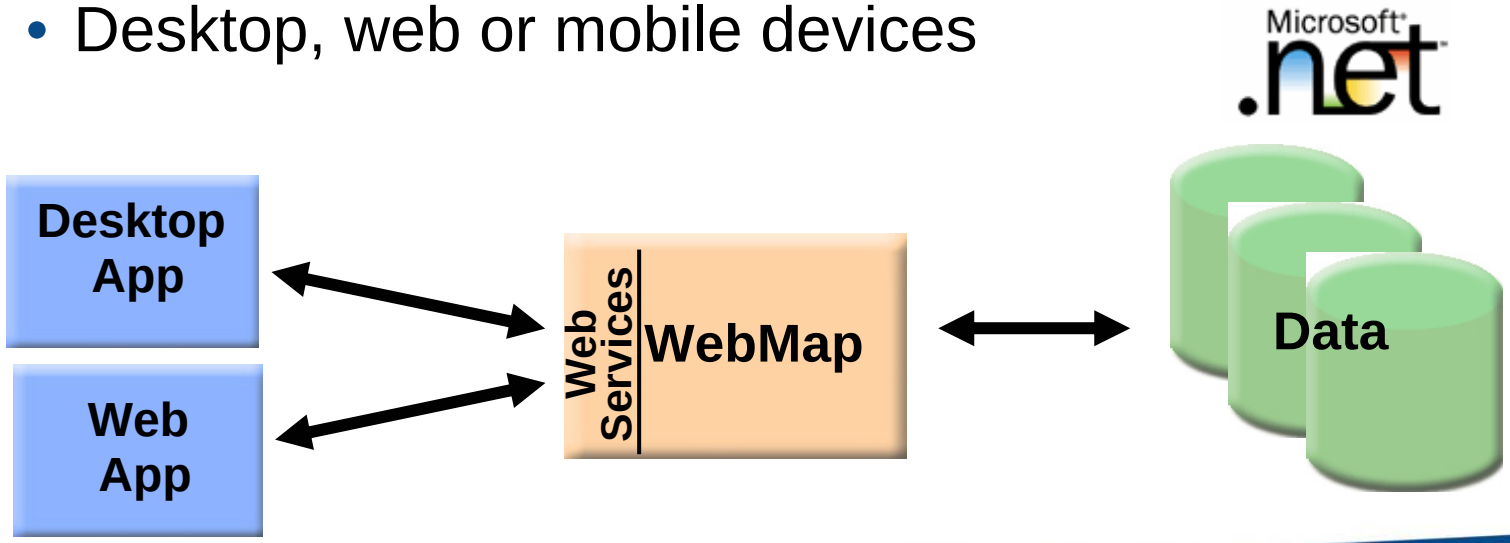


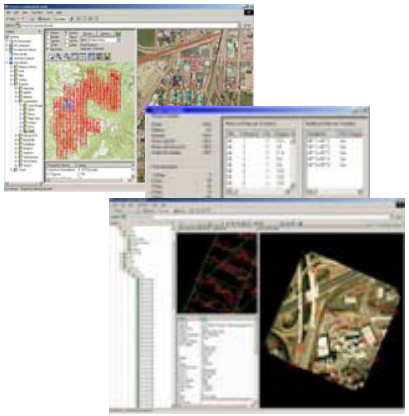
Image Management & Distribution on multiple systems

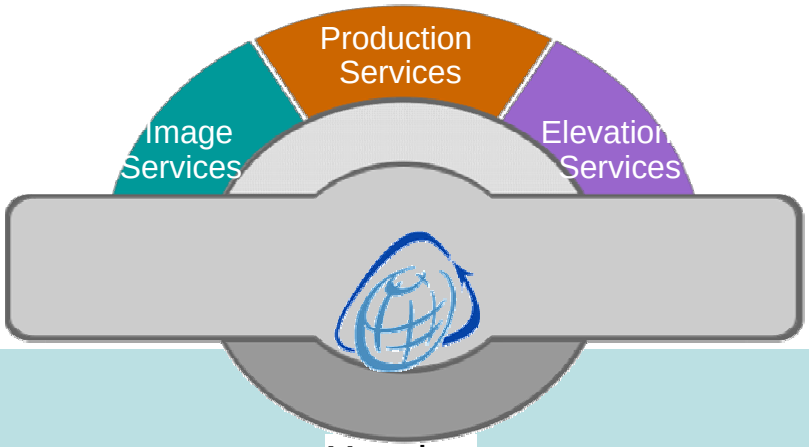
Enterprise Image Management

Geospatial Intelligence
Geospatial Data Management

Land Information Management

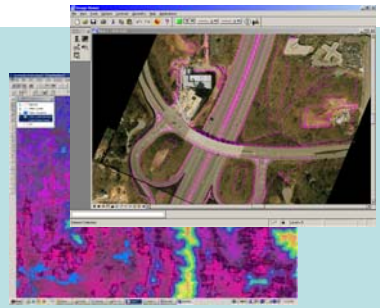
Photogrammetry Production





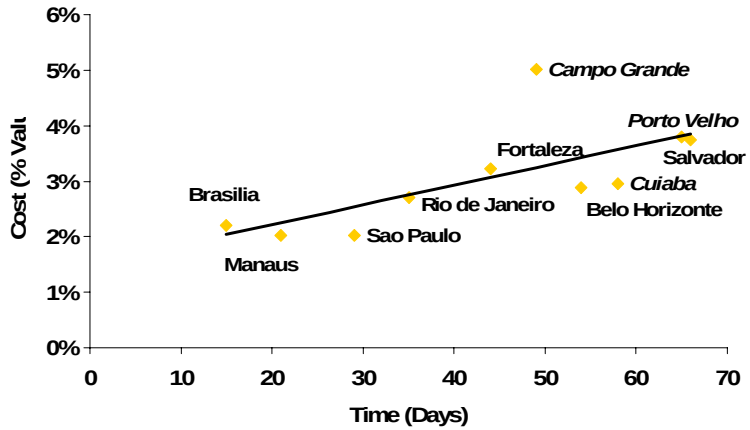
Acquisition

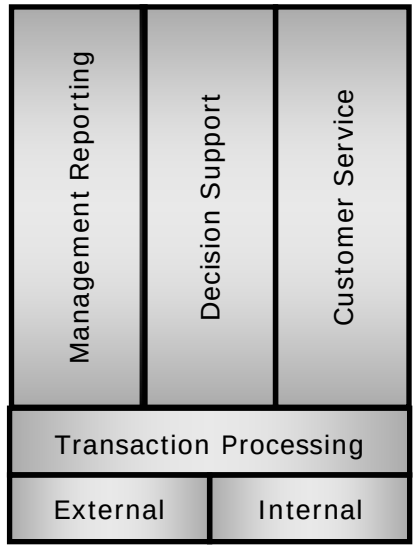
Geospatial Infrastructure Management



Innovation

- Open Interoperable Systems
- Mainstream Information Technology
- Sustainable Solutions
  - Easy-to-use: Adapted to user sophistication levels
  - Minimize Cost of Ownership
  - Expanded Benefits and ROI
- Intelligent Enterprise Access
- Focus on Distributed Enterprise Operations
  - Spatial Integration with Enterprise Applications
  - Focused & Robust Industry Solutions
- Extensible Standardization
  - Industry Templates & Data Models
- Benchmarking





Standardization in Related Domains

- Vested interests in efficient information exchange: Mortgage banks, Credit Reporting Agencies, Title Insurance Companies and Real Estate agents.
  - customer satisfaction
  - the time value of money and
  - Profitability
- They need to exchange “land information”, e.g. property location, property rights, value & title information.
- They have existing functional processes and standards – and continue to develop these.
- UN-ECE WPLA recognises the impact of electronic commerce on Land Information Agencies.
- Need to understand the commercial environment and needs for our “modeling” efforts.

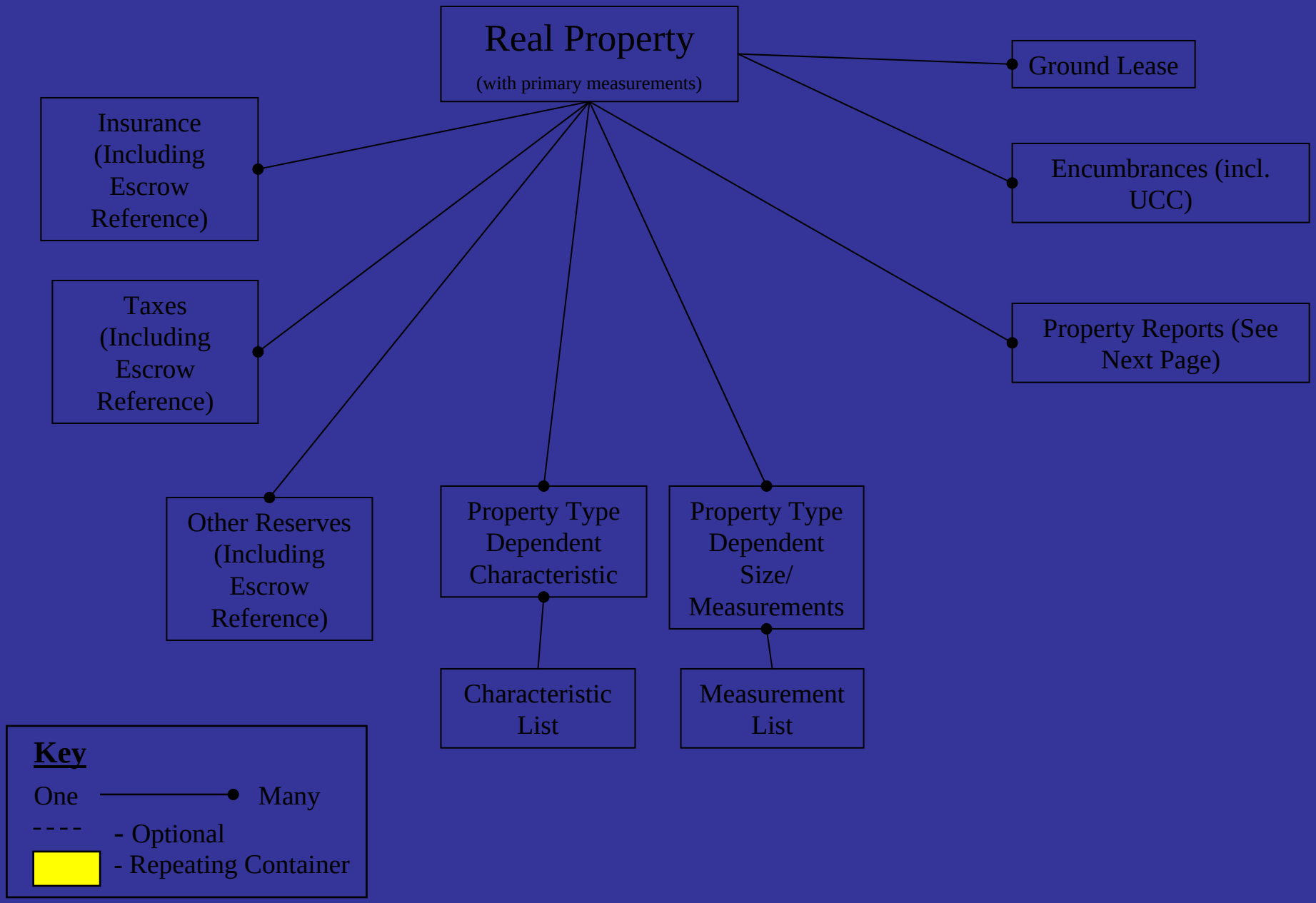
(US) MISMO Commercial Mortgage Data Standards Initiative

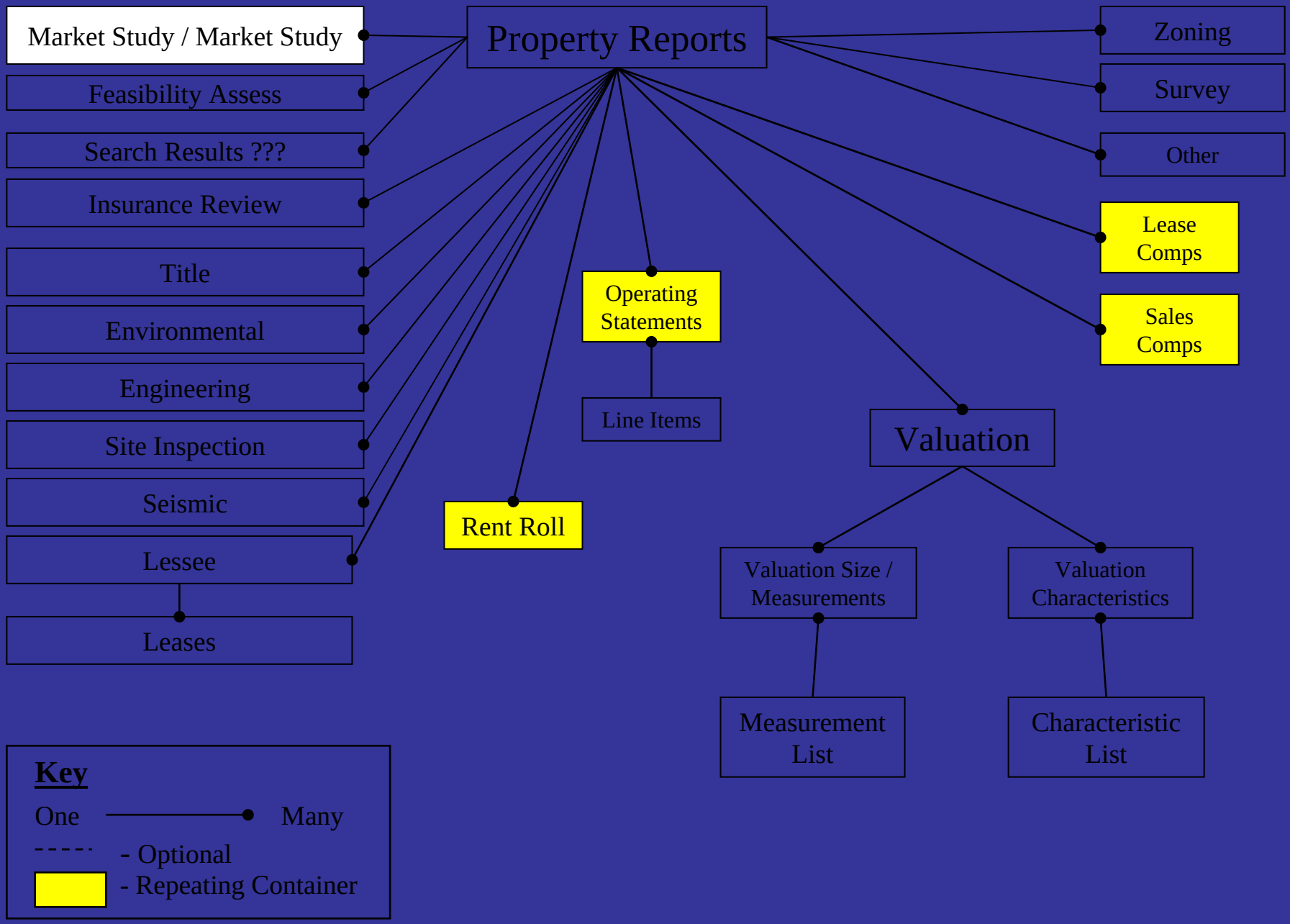
- Commercial mortgage origination data standard that provides both the content and format for borrowers and originators to transfer critical data to lenders.
- Uses XML Schema to define the structure and format for moving data between parties involved in a mortgage origination transaction.
- "The intent of the standard is only to provide guidelines for the data to be collected in the commercial mortgage origination process, and does not recommend underwriting methodology or computations."
- Importance of workflow and process management is recognized: "….Clearly, the ultimate goal is seamless movement of data from the borrower through the lender to the servicer and investors."

Property Elements

Data Field Name	Definition
Number of Collateral Properties	The number of separate properties which serve as collateral for the subject mortgage.
Property Name	The name of the property which serves as mortgage collateral, or its street address.
Attributes Description of Property	A narrative description of the physical characteristics of the collateral property including its general use and amenities, size and massing, construction methods and materials, age and other attributes.
Address 1	The street address of the property which serves as mortgage collateral
Address 2	Additional information provided to identify the property's location
City	The city in which the property that serves as mortgage collateral is located.
Property County	The county in which the property that serves as mortgage collateral is located.
Property Postal Code	The postal or Zip code for the collateral property. In the USA, expressed as 5+4 or, for other countries, an alphanumeric combination
Property Country	The country in which the property that serves as mortgage collateral is located.
Property Area	An indication of the basic nature or character of the sub-market in which the property serving as mortgagee collateral is located.
Property Type -Primary Use	A description of the primary function of the collateral property.
Property Type - Secondary Use	A description of the secondary function of the collateral property.

- Non US Property is allowed as collateral.
- No provision for "cadastral identifier" – only address !
- What may this mean for the "cadastral domain experts" ?
  - Addresses as alternative property identifiers?
  - Simplification for sustainability ?

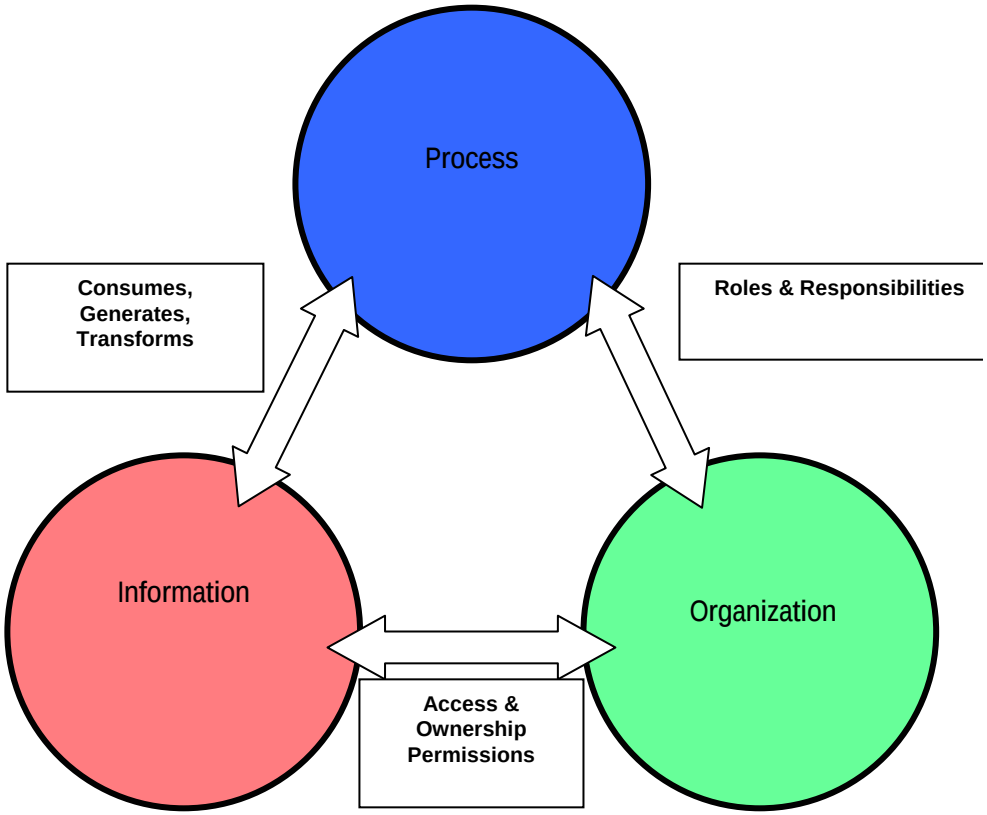

Real Property
(with primary measurements)
Ground Lease
Insurance (Including Escrow Reference)
Encumbrances (incl. UCC)
Taxes (Including Escrow Reference)
Property Reports (See Next Page)
Other Reserves (Including Escrow Reference)
Property Type Dependent Characteristic
Property Type Dependent Size/ Measurements
Characteristic List
Measurement List
Key
One
Many
- Optional
- Repeating Container

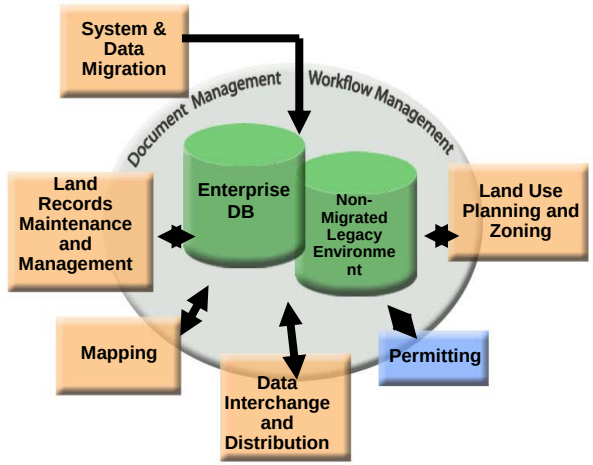

Market Study / Market Study
Feasibility Assess
Search Results ???
Insurance Review
Title
Environmental
Engineering
Site Inspection
Seismic
Lessee
Leases
Property Reports
Operating Statements
Line Items
Rent Roll
Zoning
Survey
Other
Lease Comps
Sales Comps
Valuation
Valuation Size / Measurements
Valuation Characteristics
Measurement List
Characteristic List
Key
One
Many
- Optional
- Repeating Container

Land Information & Administration Today

- Improve Performance
- Improve Information and Data
- Improve Economics
- Improve Control or Security
- Improve Efficiency
- Improve Service

Workflow Interoperability





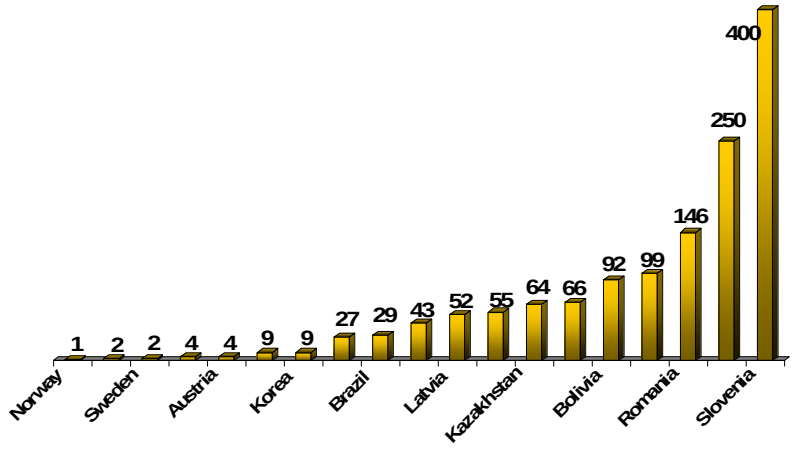
- Workflow Interoperability Standards must be assimilated into cadastral domain.

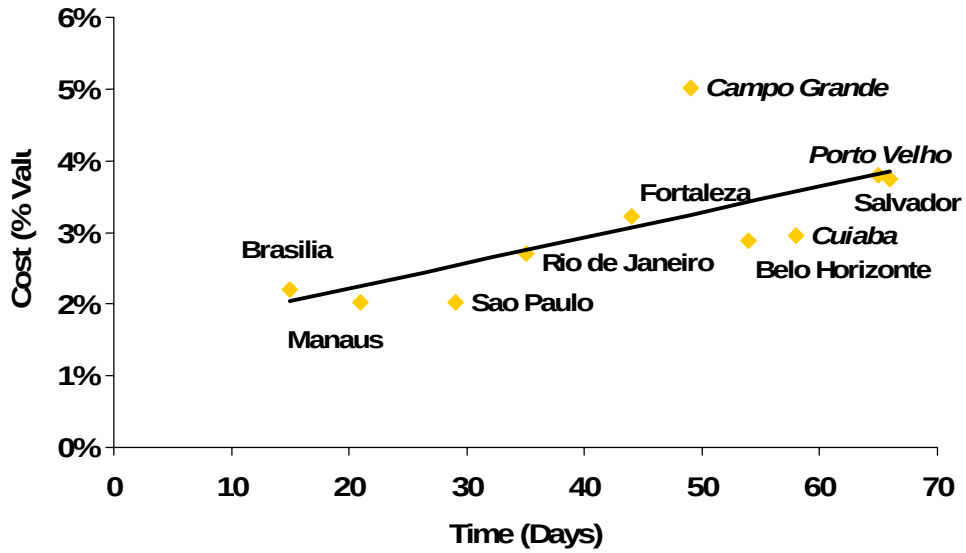
A Comparative Model for Property Transaction Costs[1]

- Main objective of Action G9 is *" …… is to improve the transparency of real property markets and to provide a stronger basis for the reduction of costs of real property transactions by preparing a set of models of real property transactions, which is correct, formalised, and complete according to stated criteria, and then assessing the economic efficiency of these transactions."*
- Previous workshops identified comparative analysis as a challenge.
- World Bank and the International Finance Corporation's Rapid Response Knowledge Service.
  - New topic in Doing Business Database: "Registering Property"

1. Methodology is developed in "Property," a forthcoming research project by Simeon Djankov, Facundo Martin, and Caralee McLiesh.

Time and Cost to Register





Standardized Core Cadastral Domain Model

- Can be misinterpreted as an “approved” or “proposed” data model – rather than a extensible content template or ontology.
  - This is especially true if the “model” or “standard” is endorsed by an international organization such as FIG.
- Important to state in clear and concise terms what the intent and purpose of the Standardized Core Cadastral Domain Model ***is not***, as it is to state what it is.
- Brno paper recognizes that data exchange as the major motivator for the development of the model. This motivation parallels the motivation for the development of the FGDC Cadastral Content Standard.

Standardized Core Cadastral Domain Model - Proposals

- Rename to *"Standardized Core Cadastral Content Standard"* or *"Standardized Core Cadastral Data Dictionary"*
- *Add wording quoted* from the FGDC Cadastral Content Standard is to next version of what will now perhaps be known as the "Standardized Core Cadastral Content Standard".

Conclusions

- **Users and related domain experts have different view of cadastral data than us (cadastral domain experts)**
  - Not the same reverence for unique parcel identifiers as cadastral domain practitioners.
  - Most people have no idea what their cadastral parcel identifier is. They do know their property addresses though.
- IT landscape will be shaped by those that succeed in **successfully simplifying a complex world**. This inference extends into the cadastral domain as well – cadastral systems must become user friendly.
- Challenge remains to **understand and represent cadastral "rules and tools"** in a sufficiently timely manner and format to those who need to know ….to achieve this task in a timely manner, both **researchers and industry** have to be willing to co-opt existing and functioning **non-proprietary** standards and conventions.