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Land Information Management and its (3D) Database Foundation

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Safe Harbor Statement

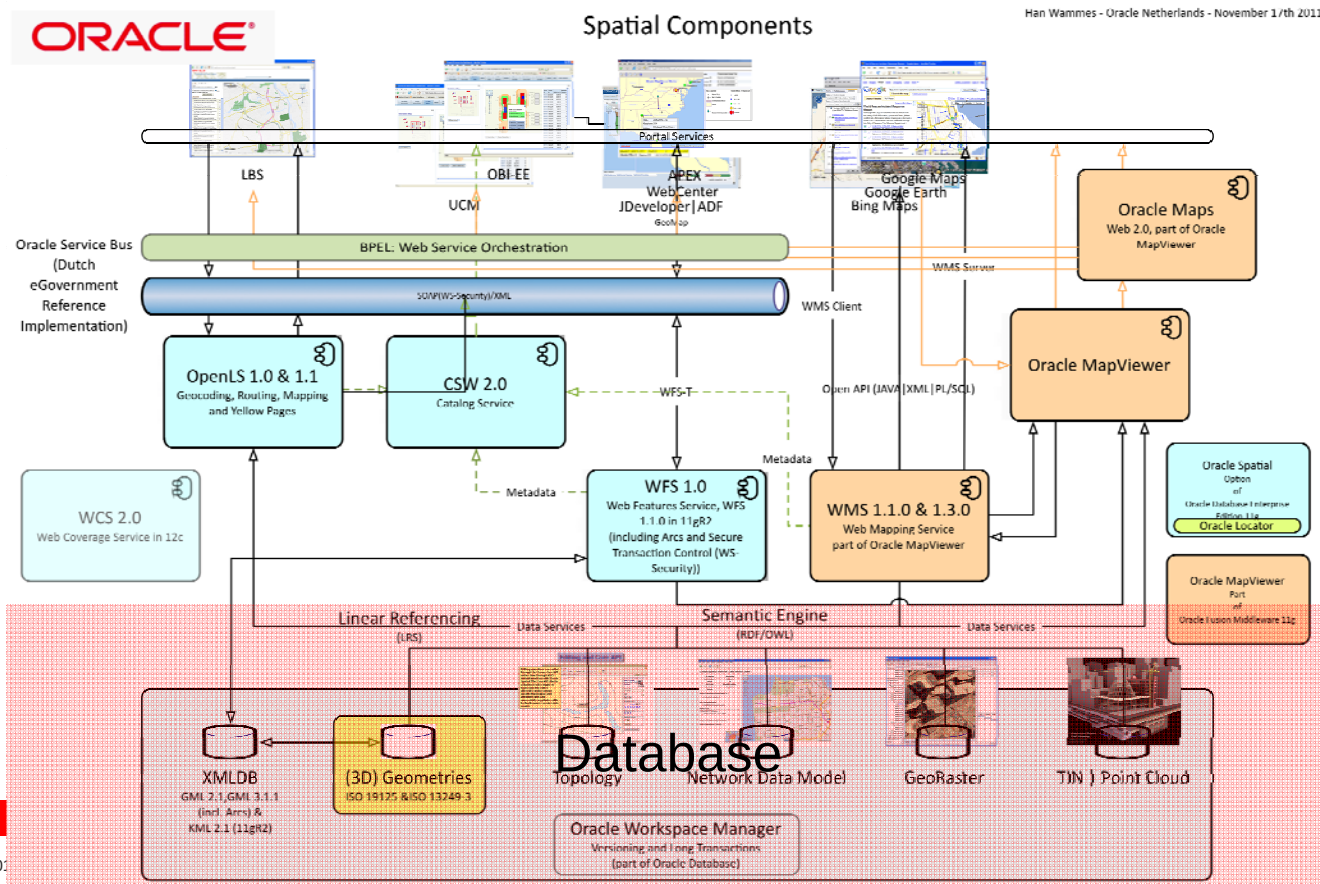
The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.



CURRENT SPATIAL CAPABILITIES

Current Spatial Capabilities





Spatial Database Capabilities

- Data Types:
 - SDO_GEOMETRY (4D)
 - SFS + ST-GEOMETRY (ISO 13249-3)
 - 3D Volumes
 - SDO_PC
 - Shares SDO_GEOMETRY (Extend)
 - SDO_TIN
 - Shares SDO_GEOMETRY (Extend, Breaklines, Stoplines and Voids)
 - SDO_GEORASTER
 - Shares SDO_GEOMETRY (Extend)
 - Including tiling and compression



Spatial Database Capabilities

- Data Models:
 - Topology Data Model
 - Shares SDO_GEOMETRY
 - Nodes, Edges and Faces
 - Network Data Model
 - Shares SDO_GEOMETRY
 - Nodes and Links



Spatial Database Capabilities

- Functional Extensions:
 - Linear Referencing
 - Spatial Analyses and Mining (Oracle Data Mining)
 - LBS:
 - Business Directory
 - Geocoding
 - Routing
 - Semantic Engine (RDF)
- Data Exchange:
 - WKB, WKT, GML, KML, ...



Spatial Database Capabilities

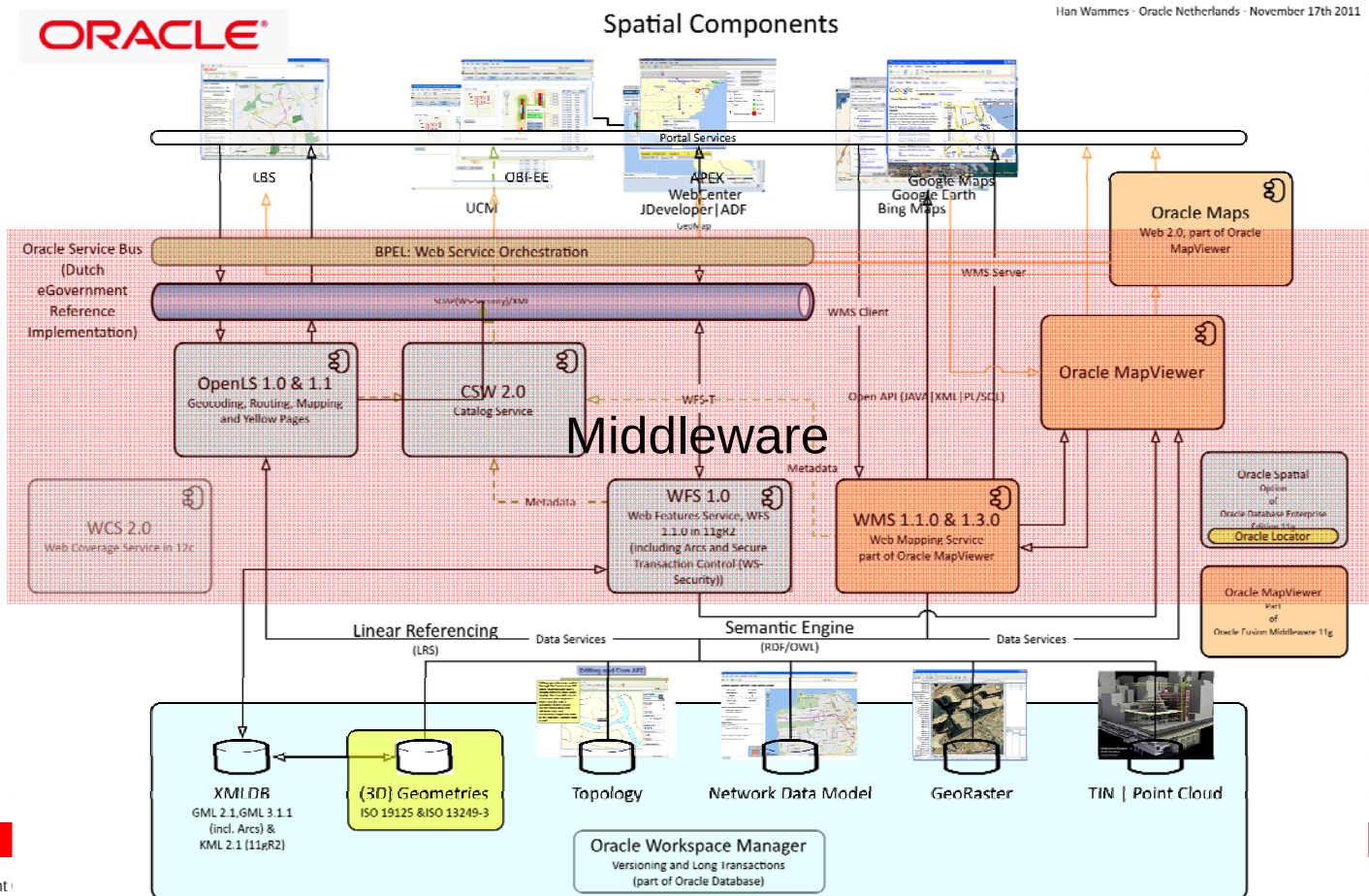
- Spatial Indexing
 - R-Tree (3D)
- Spatial Queries (3D)
- Map Projections
 - EPSG based:
 - Geographic 2D
 - Projected 2D
 - Geographic 3D, which consists of Geographic 2D plus ellipsoidal height, with longitude, latitude, and height based on the same ellipsoid and datum
 - Compound, which consists of either Geographic 2D plus gravity-related height or Projected 2D plus gravity-related height



Spatial Database Capabilities Summary

- Based on standard database technology
 - Oracle Object-Relational and XMLDB capabilities
 - SQL, Java, XML, .Net and Web Service (Data Services) interfaces
- Database as a Service (DBaaS) capabilities
- Supported by virtually every GIS/CAD vendor, including Open Source

Current Spatial Capabilities





Spatial Middleware Capabilities

- Web Services (J2EE Components)
 - WFS(-T)
 - Long Transactions (WorkSpace Manager)
 - Security (Virtual Private Database)
 - CSW
 - WMS (Part of MapViewer)
 - WCS (Planned)
 - OpenLS
 - Business Directory, Geocoding, Routing and Visualization (MapViewer)



Spatial Middleware Capabilities

- MapViewer (J2EE Component)
 - Visualization of all supported data types and data models
 - Can act as WMS client and WMS server
- All Web Services can participate in a Service Oriented Architecture (BPEL/ESB) and be modeled with BPMN tooling



Spatial Middleware Capabilities Summary

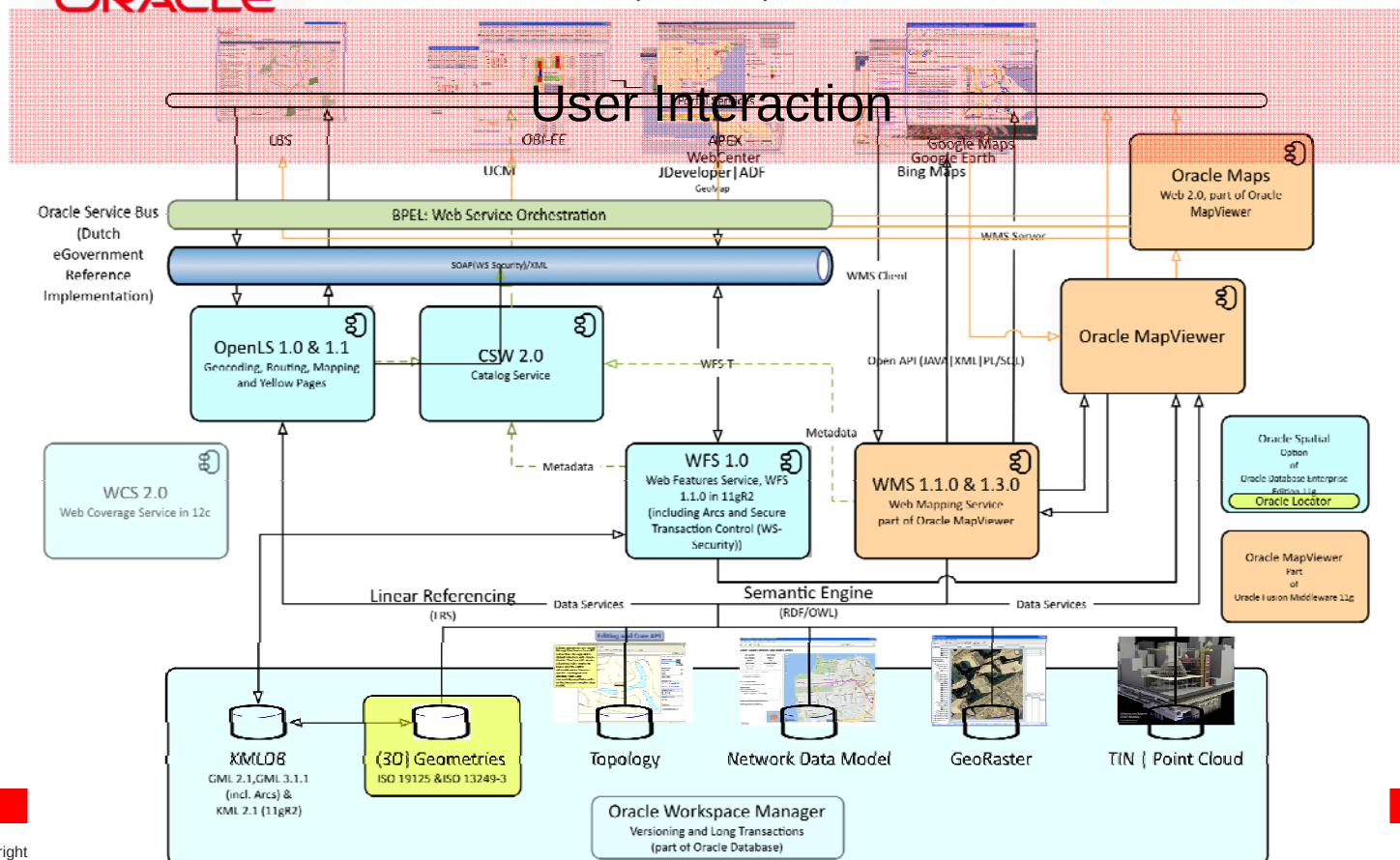
- All Spatial Web Services (SOAP/WSS enabled) and MapViewer are an integral part of the Oracle MiddleWare Infrastructure
- Middleware as a Service (MWaaS) Capabilities
- DBaaS + MWaaS = Paas

Current Spatial Capabilities

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Spatial Components

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Spatial User Interaction Capabilities

- MapViewer is currently integrated in Oracle's Business Intelligence tooling
- The Oracle development tools like Application Express (Database function) and JDeveloper (Java/BPEL IDE) fully support MapViewer
- Oracle's collaboration platform (WebCenter) supporting place, time and device independent interaction with any information, processes or applications supports MapViewer thus bringing spatial information in the context of the enduser
- Oracle Enterprise Content Management integral part of WebCenter thus also supporting MapViewer

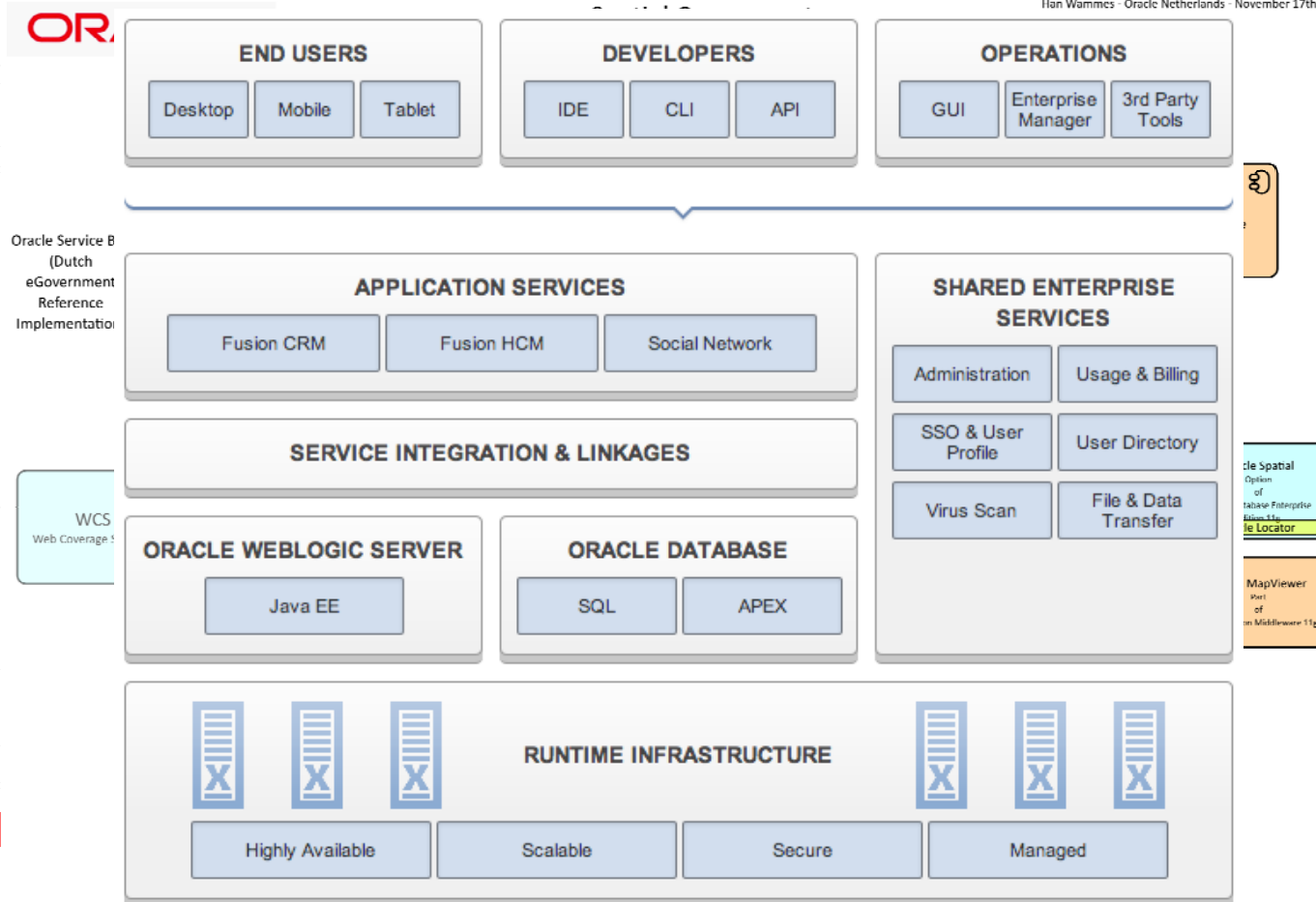


Spatial User Interaction Capabilities Summary

- Full (spatial) interaction capabilities out of the box, based on a modern service enabled, cloud ready on open standards based infrastructure
- Easy to integrate with external services or service enabled applications

Current Spatial Capabilities Summary

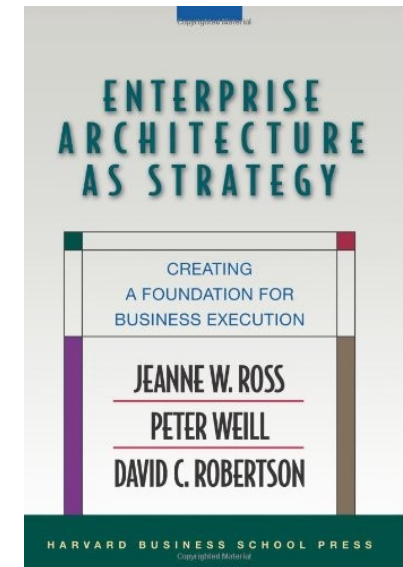
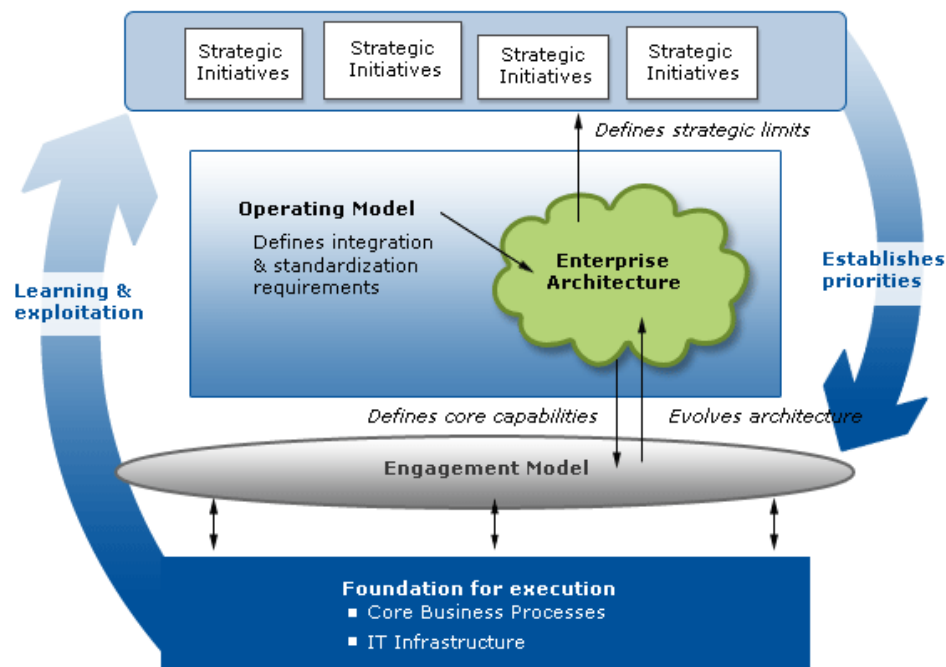
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WHAT HAS THIS TO DO WITH LAND INFORMATION MANAGEMENT?

The Oracle Platform delivers a strong 'Foundation for Execution'



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Which can run in the Cloud and interact with other on open standards based Clouds



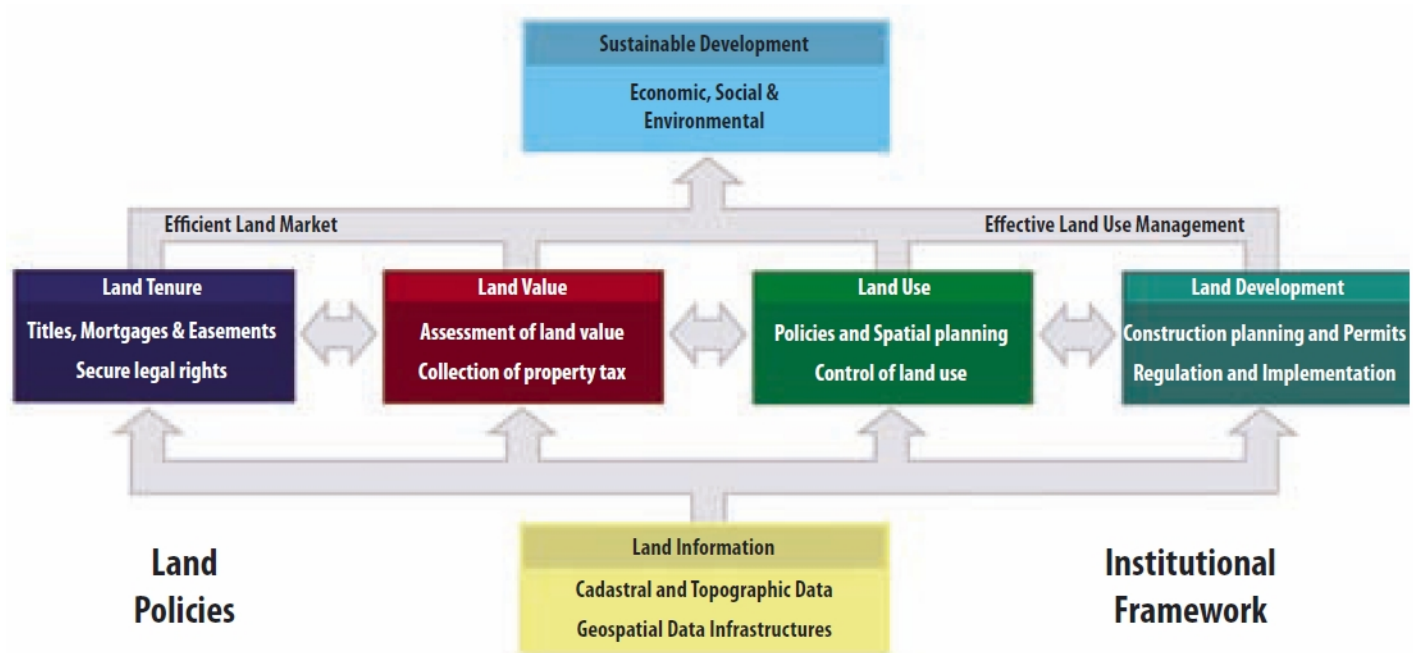


Supporting

- Spatial Process and Information models (Application Schemas),
 - Which ones do we need to support? (LADM/STDM, CityGML, BIM, ...)
 - What about SDI's, INSPIRE or local e-Government initiatives?
- Modules like:
 - Policy Automation (Rules and Legislation)
 - Case Management
 - CRM
 - Document Management and Archiving
 - Business Intelligence

LIMS Components





HELP US, HELPING YOU!!!