Bentley Map in a Civil workflow

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www.bentley.com

The world of Maps...

This morning's topics

- Introduction

- Bentley & Geospatial
  - What does Bentley do with geospatial products?

- Linking Geospatial to Civil
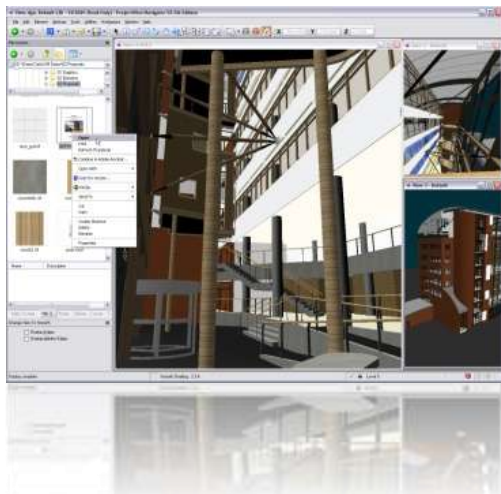 - What's in it for me?

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Bentley & Geospatial

What does Bentley do with geospatial?

Development along two lines

- The Bentley Geospatial Solution centers around two priorities:

1. Geospatially enabling the platform products (MicroStation and ProjectWise)

2. Providing a comprehensive Geospatial product portfolio

Platform 2006: Bentley – Google integration

- KML Export

- 3D-Warehouse integration

- Sketchup support

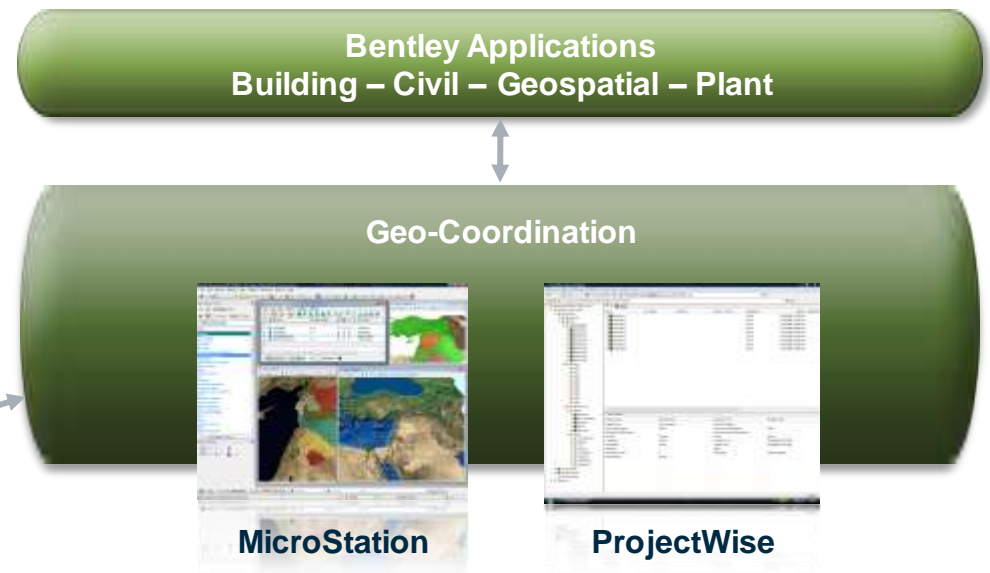- Integrating publishing with *Google Maps* (meshups)

- …

Platform 2008: Geo-Coordination

- Sustaining infrastructure projects require collaboration across disciplines that view the world differently…

- Geo-Coordination enables you to:
  - Coalesce spatial content in different formats and from different sources
  - Ignore the complexities of Geographic Coordinate Systems
  - Communicate more effectively across disciplines

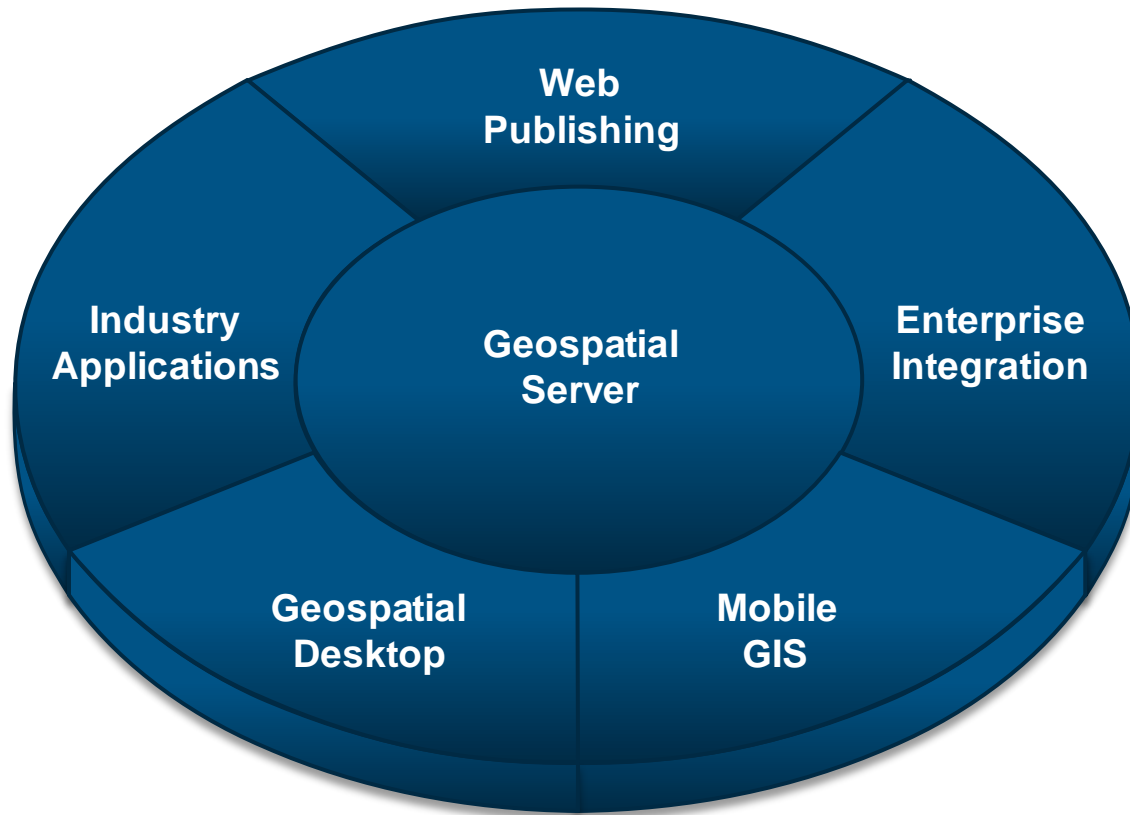- Better coordinated projects

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Bentley Geo-Coordination in a nutshell

- Assign spatial location

- Automatic re-projection for Attach, Display and Search

- Management of Projections

- Import / Export of spatial data

Bentley Applications
Building – Civil – Geospatial – Plant

Geo-Coordination

External Sources
WMS
Google Earth
GPS

MicroStation

ProjectWise

Bentley

The Bentley Geospatial Product Portfolio

Geospatial Desktop

- Design and editing platform
  - MicroStation engine, rich toolset, 3D

- Modeling environment for geospatial objects
  - Using the XFM engine (XML based Feature Modeling)
  - Geometry and Topology-based modeling supported

- Interoperability platform
  - Interface with common GIS formats, Oracle Spatial
  - Deployable in personal, two-tier and n-tier architectures

- GIS Analysis tools
  - Sophisticated, yet easy to use
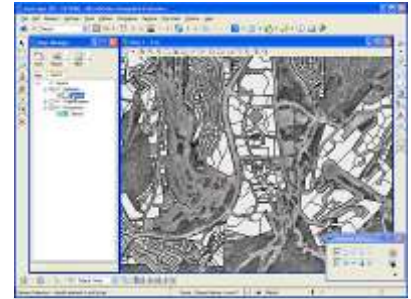
Bentley Map

Bentley PowerMap

Bentley

Industry Applications

- Leveraging the geospatial desktop
  - Sharing the object modeling environment
  - Sharing the interoperability platform
  - Sharing the GIS analysis tools

- Adding solution specific functionality, for example:
  - Topology editing
  - Tracing, logical network modeling
  - High-end analysis

- Highly adaptable to specific market, or customer needs.

Cadastre & Land Development

Communications

Electric & Gas Utilities

Water & Wastewater

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Web Publishing

- Web-optimized vector and raster publishing
  - Pre-published data or native Oracle Spatial publishing
  - 30+ industry-standard raster formats
  - Access to RDBMS content

- Flexible deployment
  - Selection of web clients (WMS, Map Viewer)
  - Administration and authoring tools
  - OGC Standards support

- Reviewing tools
  - Spatial analysis, thematic mapping
  - Advanced query and reporting tools

Geo Web Publisher

Geo Web Solutions

Bentley

Enterprise Integration

- Server-to-server connectivity approach
  - Connecting Bentley Geospatial collaboration and publishing servers to enterprise systems

- Interoperability connectors
  - To connect to proprietary GIS databases, e.g. ArcSDE data stores

- Enterprise connectors
  - To connect to non-geospatial, enterprise data stores, e.g. SAP, CRM systems

- Out-of-the-box and custom connectors
  - Custom connectors are typically developed and maintained by Bentley Professional Services.

ArcGIS Connector

SAP Integration Products

Etc…

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Mobile GIS

- Sharing the object modeling environment
  - Taking geospatial objects into the field

- Supports disconnected workflows
  - Securely accessing a central data repository
  - Redlining capabilities

- Supports specialized hardware
  - Tablet PCs

Bentley PowerMap Field

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Geospatial Server

- ProjectWise Collaborative Engineering
  - Enterprise level engineering content management
  - Server side plotting solution

- Geospatial management of all data types
  - Geospatial indexing documents/data stores
  - Geospatial indexing of geospatial objects

- Multi-user interface for Oracle Spatial/Locator
  - Long transaction support (Oracle Workspace Manager)

ProjectWise Integration Server   Geospatial Management   Oracle Connector   ProjectWise InterPlot

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The Bentley Geospatial Solution
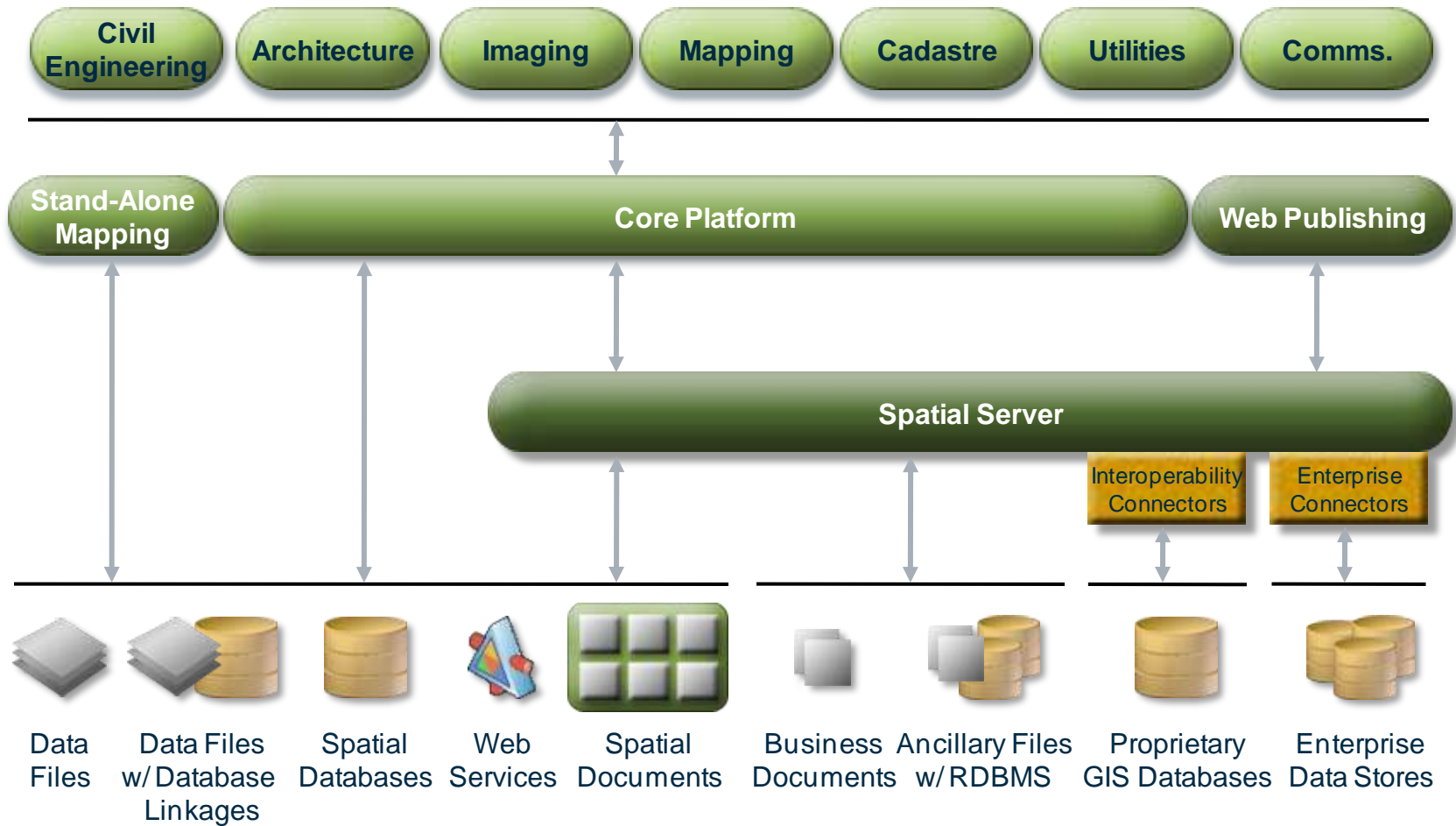
Linking Geospatial to Civil

What's in it for me?

Civil projects have a context...

Integrating geospatial content

1. Use geospatial context for project communication
   - Google Earth export
   - (let's not forget) 3D PDF

2. Use Bentley Map for:
   - Interoperability (import GIS data)
   - Spatial Analysis (e.g. thematic mapping)
   - Print preparation

3. Integrate geospatial data in CIVIL analysis
   - Location of underground infrastructure
   - Ownership situation at the project site

Bentley's Google Integration

- Bentley is keen on Google integration

- First tools early 2006

- Today's focus on:
  - MicroStation KML export
  - GWP Google integration (using WMS)

- Other integration options
  - SKP referencing and editing
  - 3D Warehouse integration

- Future developments
  - Mesh ups (3?)
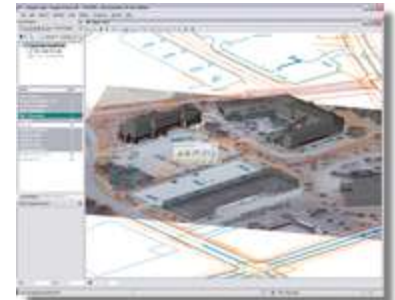
From a desktop perspective...
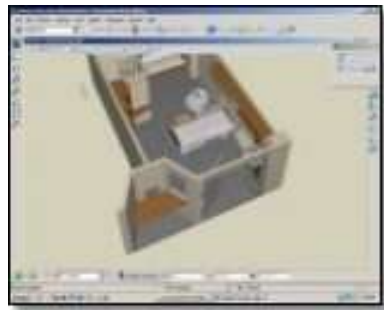
MicroStation

KML/KMZ files

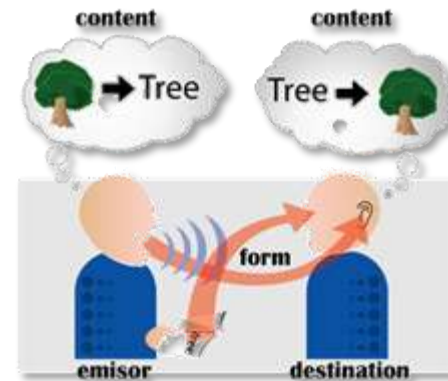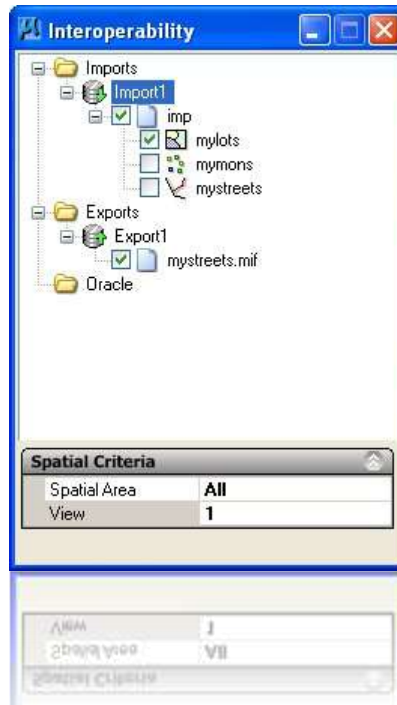**Google Earth**

Desktop
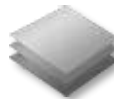
Data Files

Data Files w/ Database Linkages

Spatial Databases

Web Services

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Interoperability

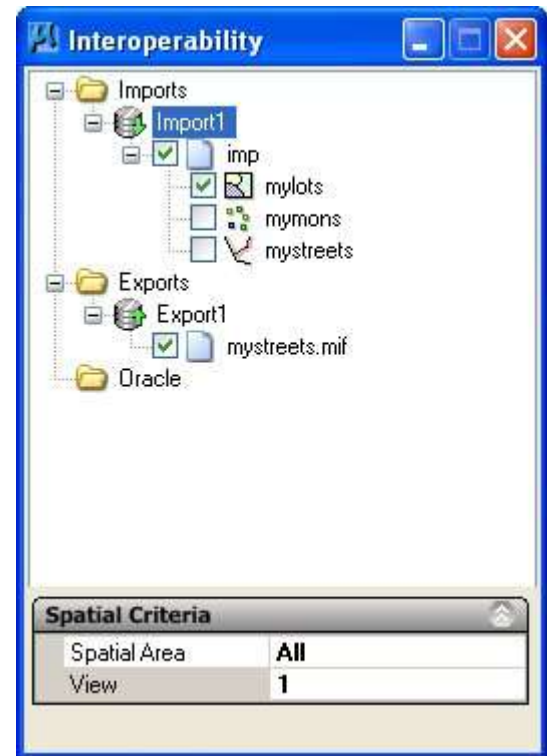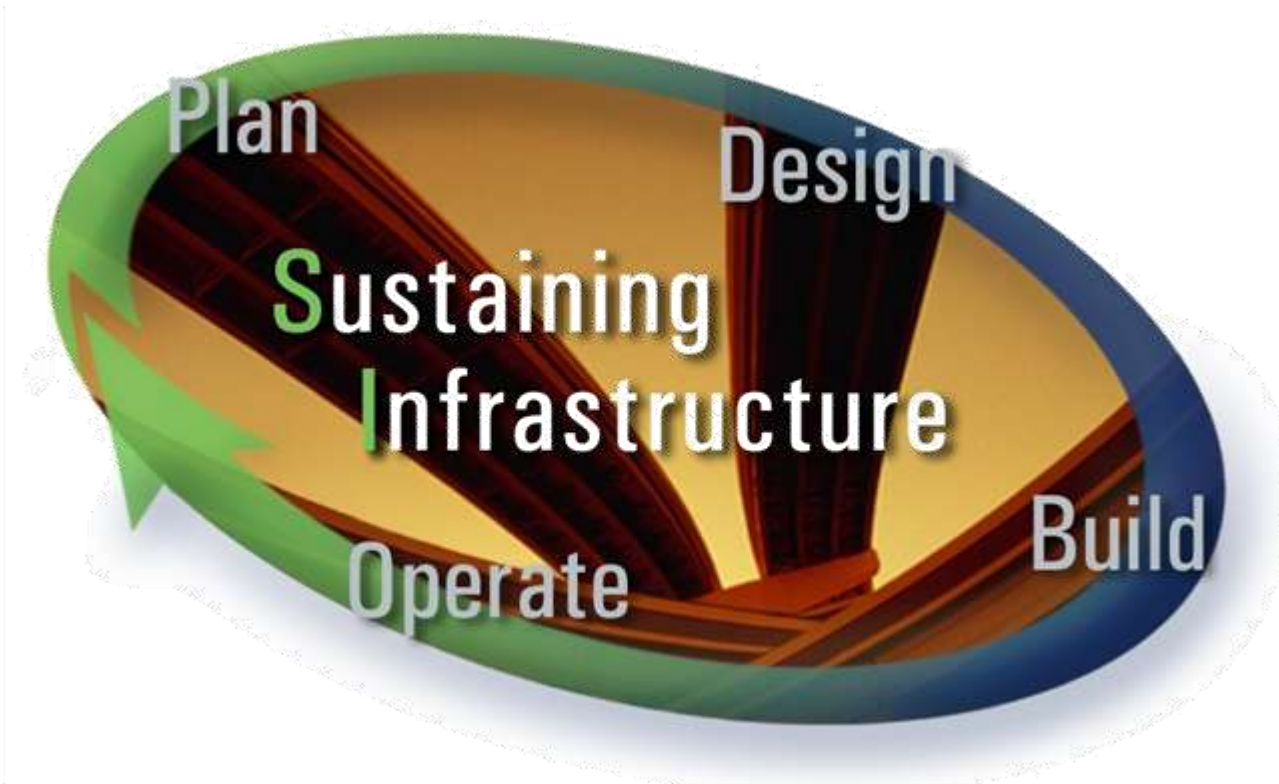| Pain	Feature	Advantage	Benefit
Different systems can't share information	Bentley Map interoperability tools	**Easy exchange of geospatial data**	• Improve information sharing

Bentley Map – MapInfo interoperability

Exchange

Bentley Map

DGN/XFM

TAB, MID/MIF

MapInfo

Collaborate

ORACLE

Spatial Locator

Bentley Geospatial Server
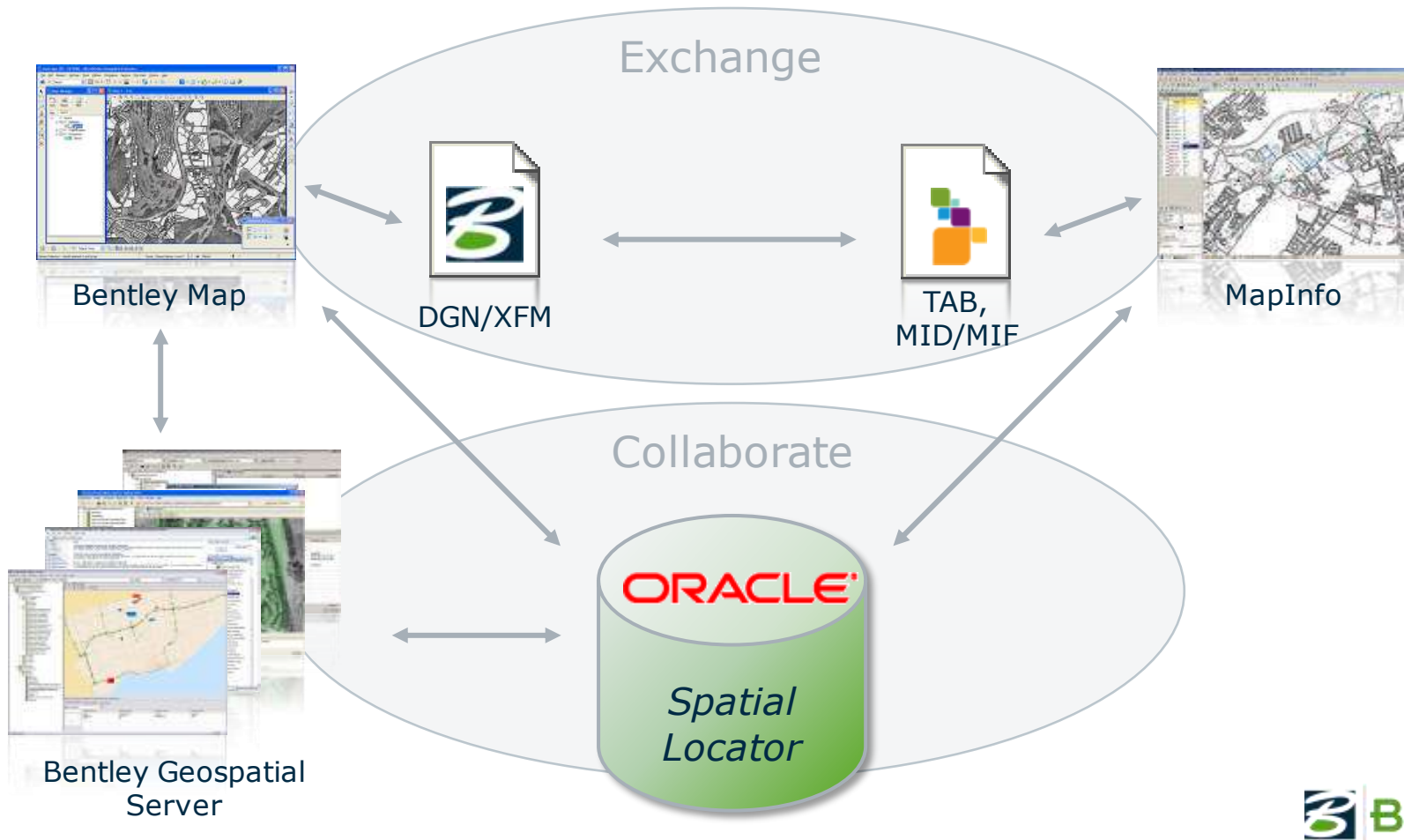
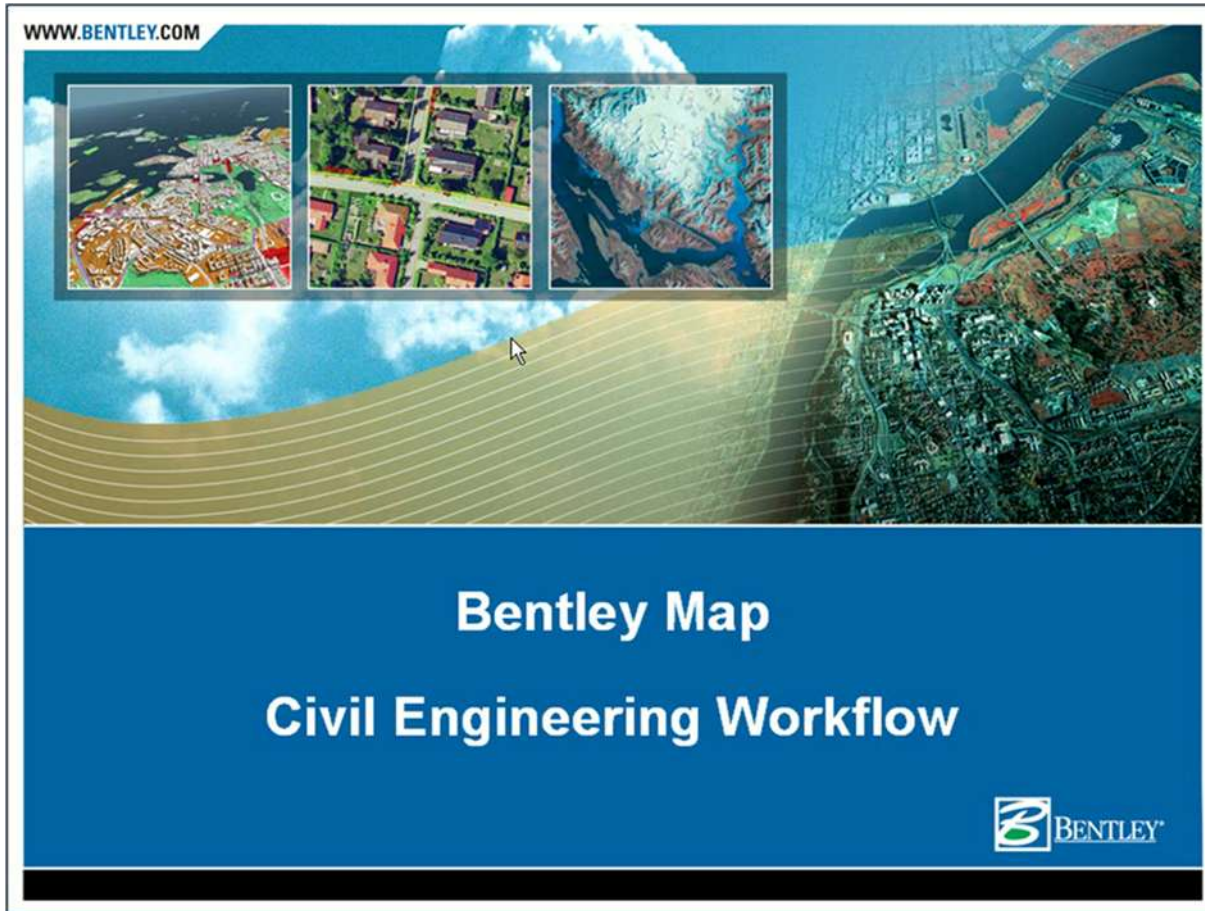# Importing GIS data – features

- Directly reference supported formats

- Import supported formats interactively
  - ESRI SHP, MapInfo MID/MIF and TAB, Oracle Spatial/Locator

- Save the import definitions as Import XML files

- Reference Import XML files

- Use Import XML files to load data

Integration on the project level

Geospatial & Civil... in action

Questions?

question afhøre (fx witnesses), afhøre (fx witnesses), betvivle (fx witnesses), diskussion (fx witnesses), drage i tvivl (fx I do not question his motives), emne (fx I do not question his motives), pinligt forhør (glds), sag (glds), spørge (vb), spørge (vb), spørgsmål (sb), spørgsmål (sb), tortur (sb), tvivl (fx there is some question about his qualifications), tvivl (fx there is some question about his qualifications), udspørge (fx there is some question about his qualifications), undersøge (fx there is some question about his qualifications)