

Expanding GIS to Enhance Refinery Workflows and Safety

PUG 2014

Houston, April 25, 2014

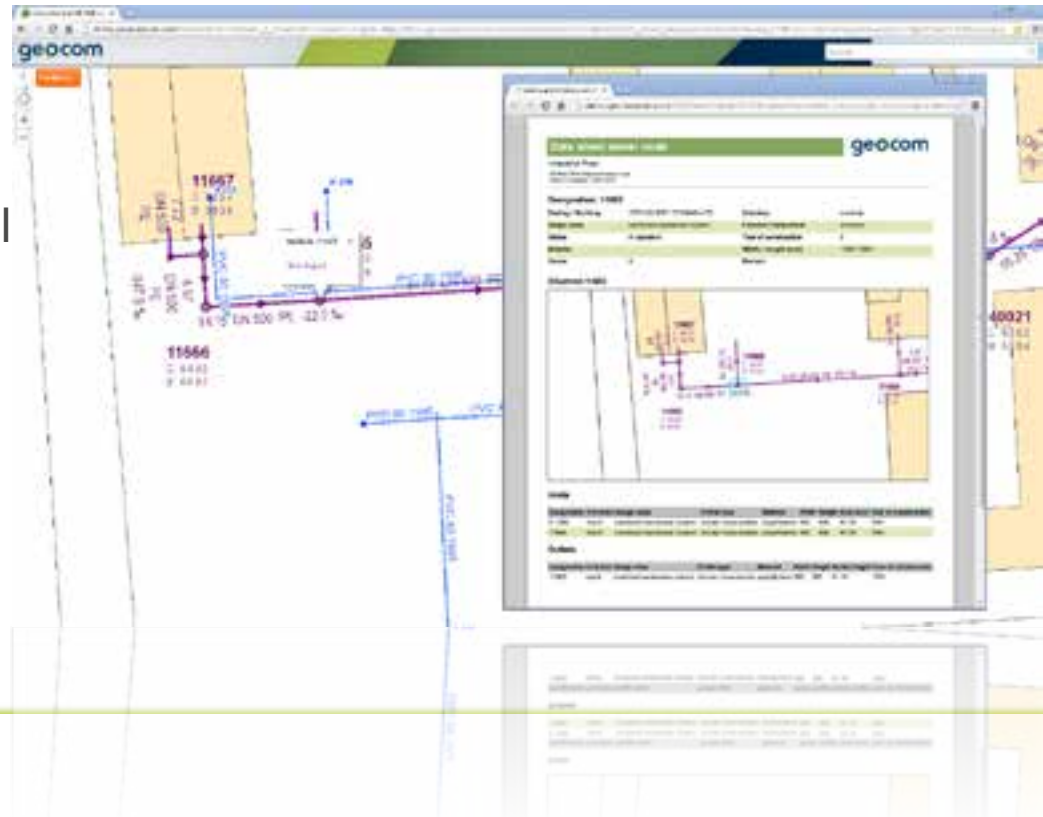
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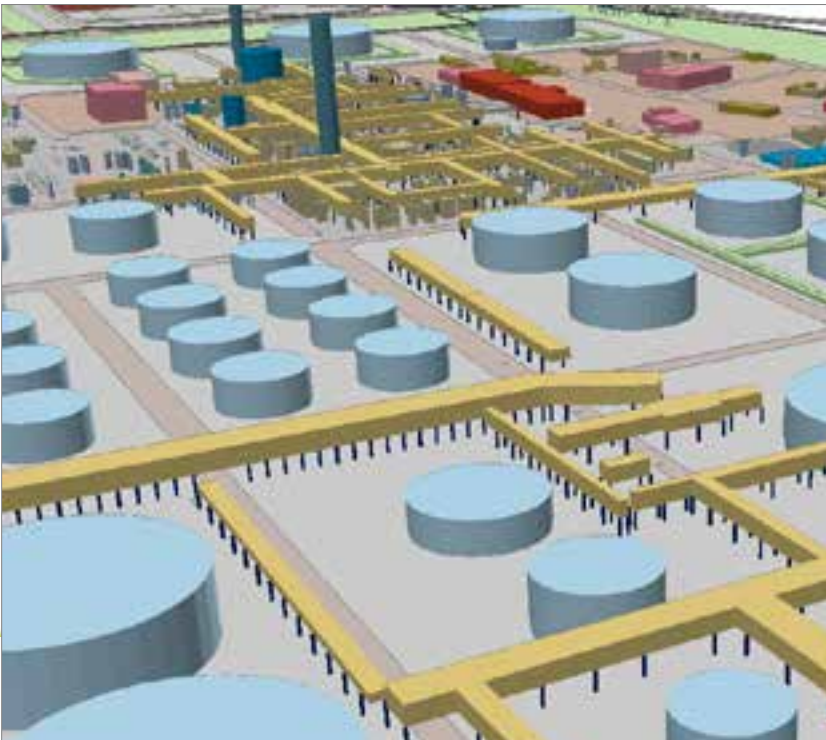
Overview

- GIS for Plant Management
- Case Studies
- Workflows/Data Model
- Conclusion



GIS for Plant Management

- We know GIS for Exploration and Distribution
- Refineries are mid-size cities (up to 15,000 Acres)
- Esri is huge in Oil & Gas, Local Government....
- but not in refineries??
- Infrastructure, parcel management, logistics, compliance

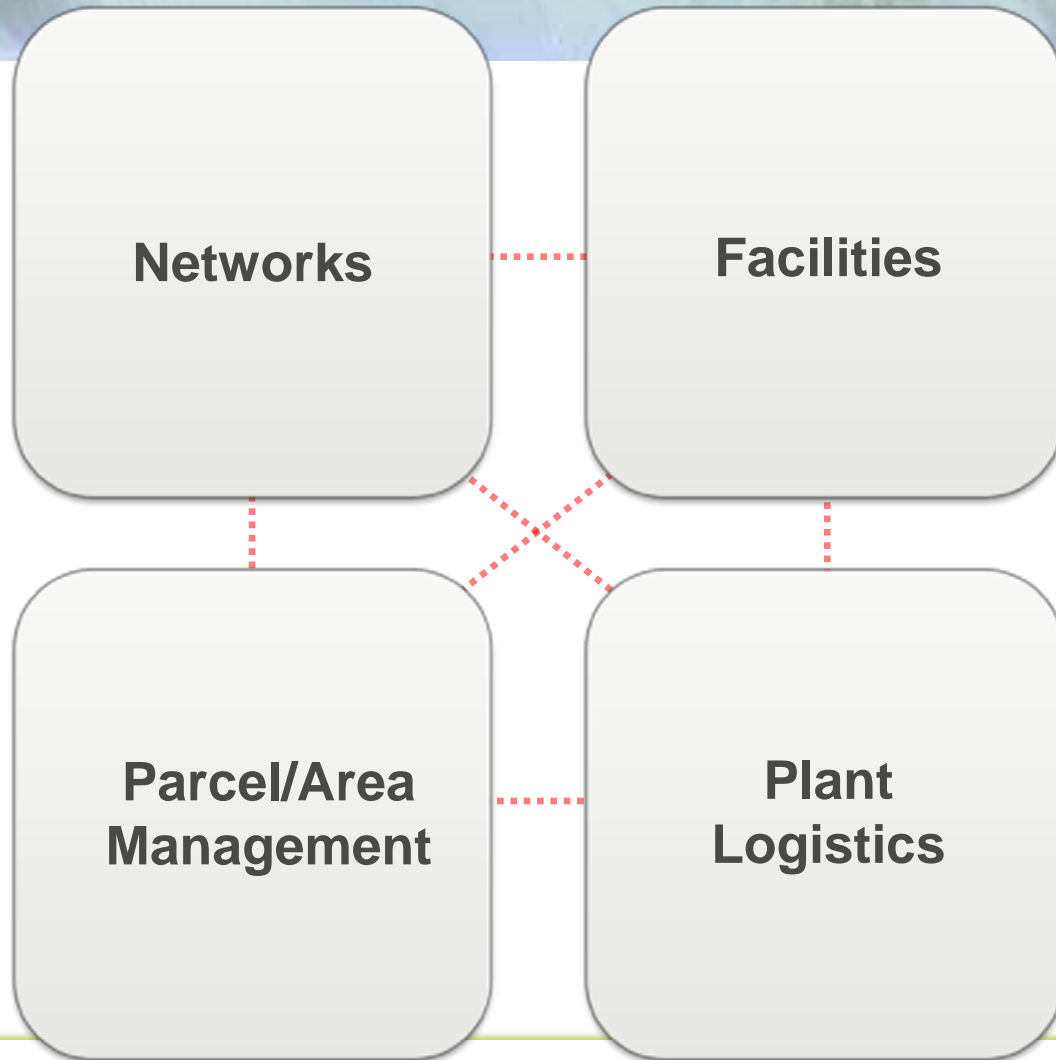


Case Studies (I) Area Management; Media Supply



- Driver: Networks
 - Crude Oil
 - Gases
 - Refined Products
 - Water/Wastewater
 - Pipe Bridges
 - Tank Farms
 - Plant Development Plan
 - On-Plant Partners
 - Construction Sites
 - Road Access
 - Gates
 - Contaminated Sites
 - Parking

Refinery Information Systems: Focal Points



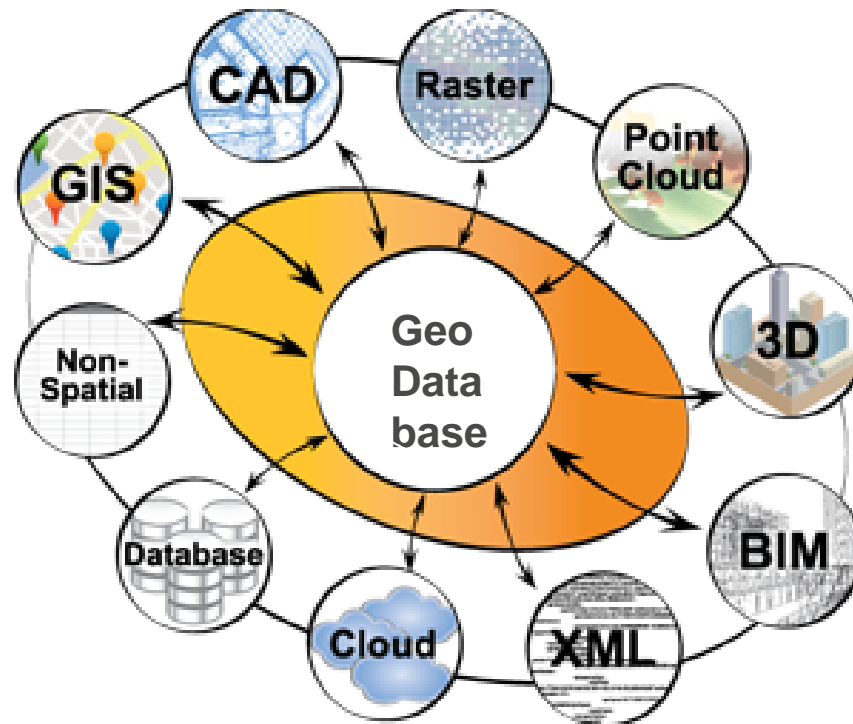
Case Studies (I) Data Capture



- CAD Files
- Air Fotos
- Point Clouds (Laserscans)
- Radar (Subsurface Structures)

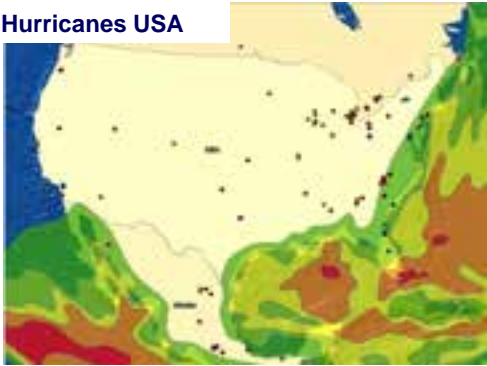
We Often Need FME.....

From Paper Maps to Binary Stored Facilities.....



Case Studies (II) Risk Assessment, Safety

Hurricanes USA



DAIMLER



- Driver: Reduce Insurance Cost;
 - Better Reinsurance Spread
 - Monitoring of Safety Measures
 - Business Continuity Planning
 - Compliance

Case Studies (II)

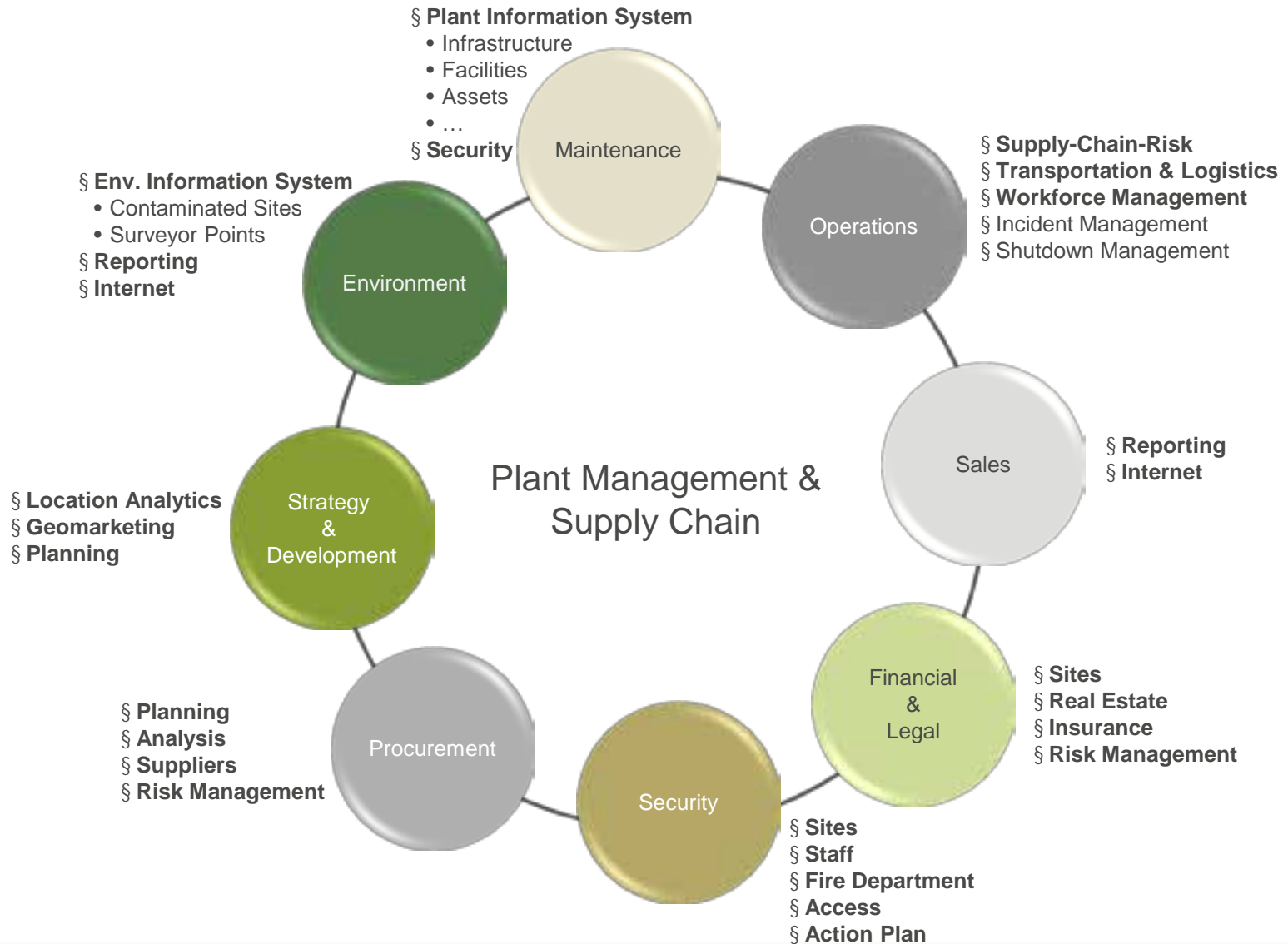
Daimler Insurance – DIOS

The screenshot displays the Daimler DIOS insurance platform interface. At the top, the Daimler logo is on the left, and the search bar contains "Mercedes-Technology Center Sindelfingen". The main area shows a map of Sindelfingen with a location pin. A "Location Information" popup is open, displaying the following data:

Location Information	
Company Name	Daimler AG (MB Cars)
Location Name	Werk Sindelfingen - WT Sindelfingen
City	Sindelfingen
Business Division	MB Cars
Total Sum Insured (PD)	€ 8,038,723,900
Total Sum Insured (BI)	€ 4,036,071,150
Total Sum Insured (PD&BI)	€ 12,074,795,050

Below the table is a "SHOW DETAILS" button. At the bottom of the popup, there are two settings: "Display Complex Areas" set to "none" and "Display Complex Protection" set to "none". The map background shows various streets and landmarks in Sindelfingen, including "Alter Friedhof" and "Thermalbad". The bottom of the screen features a navigation bar with icons for map, location, and search, along with a scale bar showing 0.6KM.

Process Orientation...



Plant Data Model & Apps

GEONIS for Industrial Plants

GEONIS Global Sites

Networks (Media)

- § Wastewater
- § Stormwater
- § Gas
- § Pipeline
- § Electric
- § Water
- § Etc...

Facilities

- § Pipe bridges
- § Technical Facilities / Installations indoor/outdoor
- § Tank Farm Management
- § Chimneys
- § Fences
- § Individual Objects

Parcel/Area Management

- Recreational Areas
- Security Management, Risk Areas, Security Zones
- Parcel Management, Real Estate
- Location and Construction Areas
- Contaminated Sites

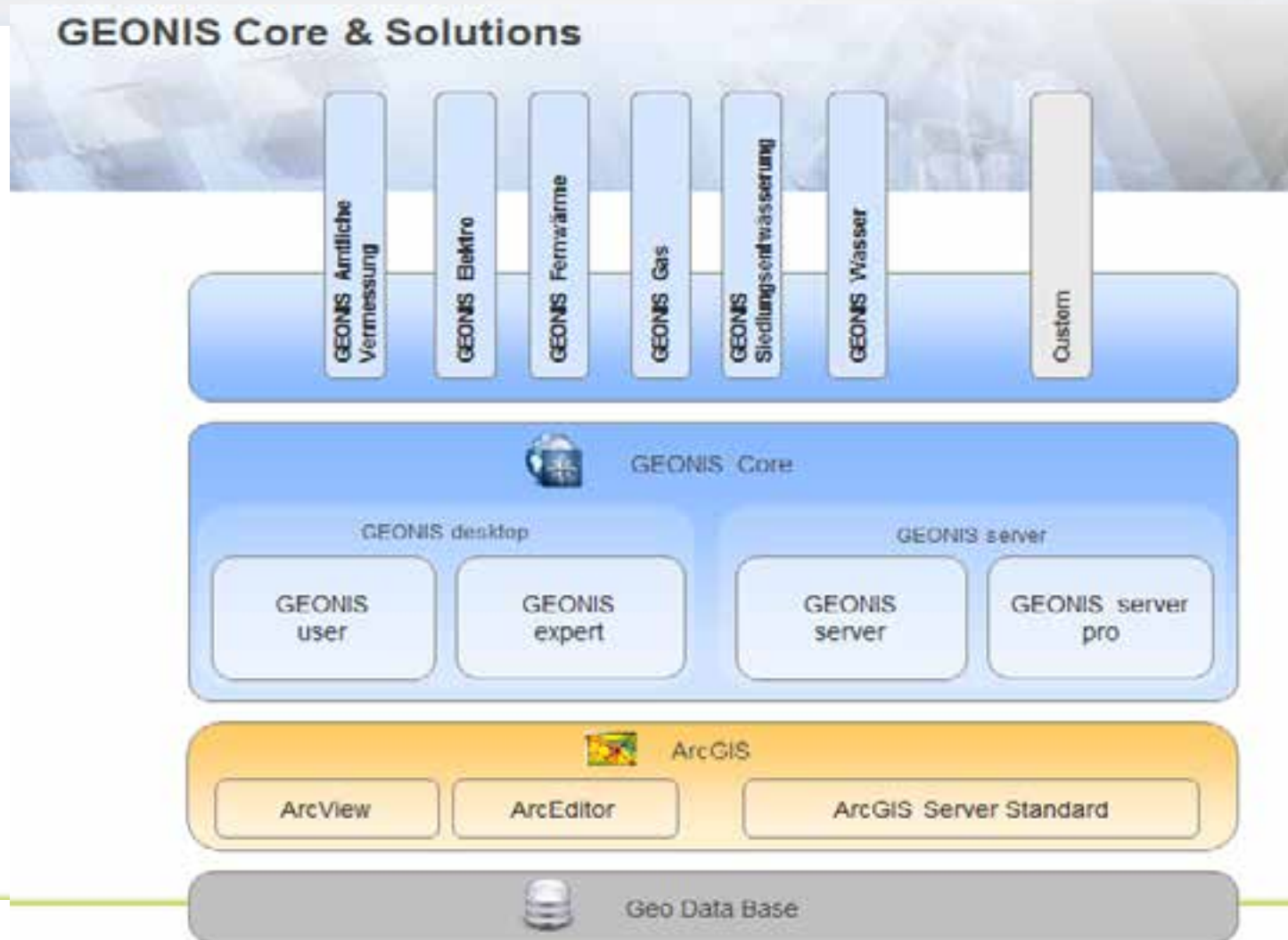
Plant Logistics

- § Plant Logistics
- § Storage Management
- § Construction Sites management
- § Roads- and Traffic Areas

Global Sites

- § Global Sites
- § Contamination per Site
- § Risk Management
- § Supplier Risk Mgmt.
- § Supply Chain Mgmt.
- § Corporate Security

Architecture



Conclusion

- Refineries are dying for GIS
- We, the PUG community, have the GIS expertise
- Reach out to them, we'll help!

