



April 2006
Oracle Spatial Users Conference

Applying the Power of Oracle in the Utility Market

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Utilities have automated real-time operations and business functions — but most have not taken extensive advantage of business process automation in operational support. **Why not?**

Strategic Issues

- Aging infrastructure
- Aging workforce
- Mergers and acquisitions
- Effective IT investment

New Concerns

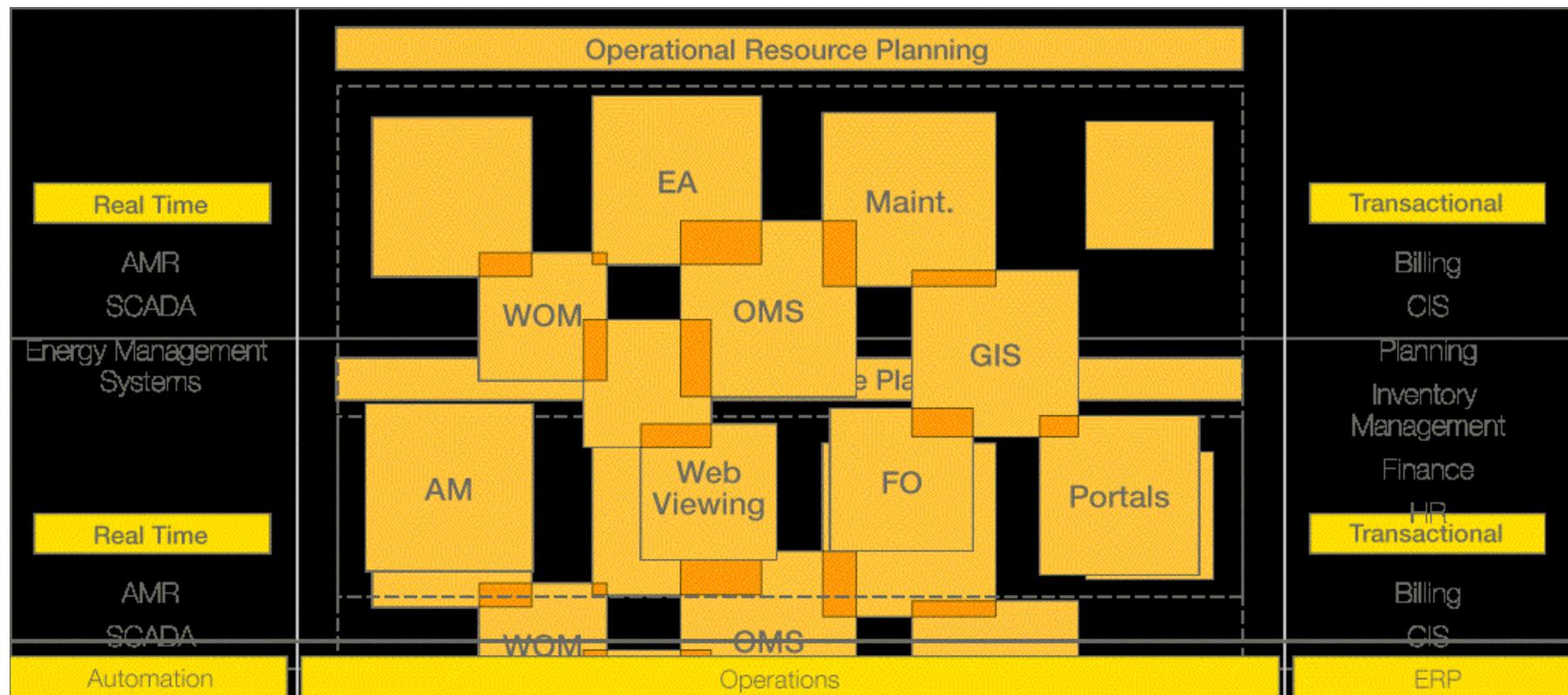
- How utilities view the future
- Culture of independence
- Implications of the Energy Policy Act of 2005



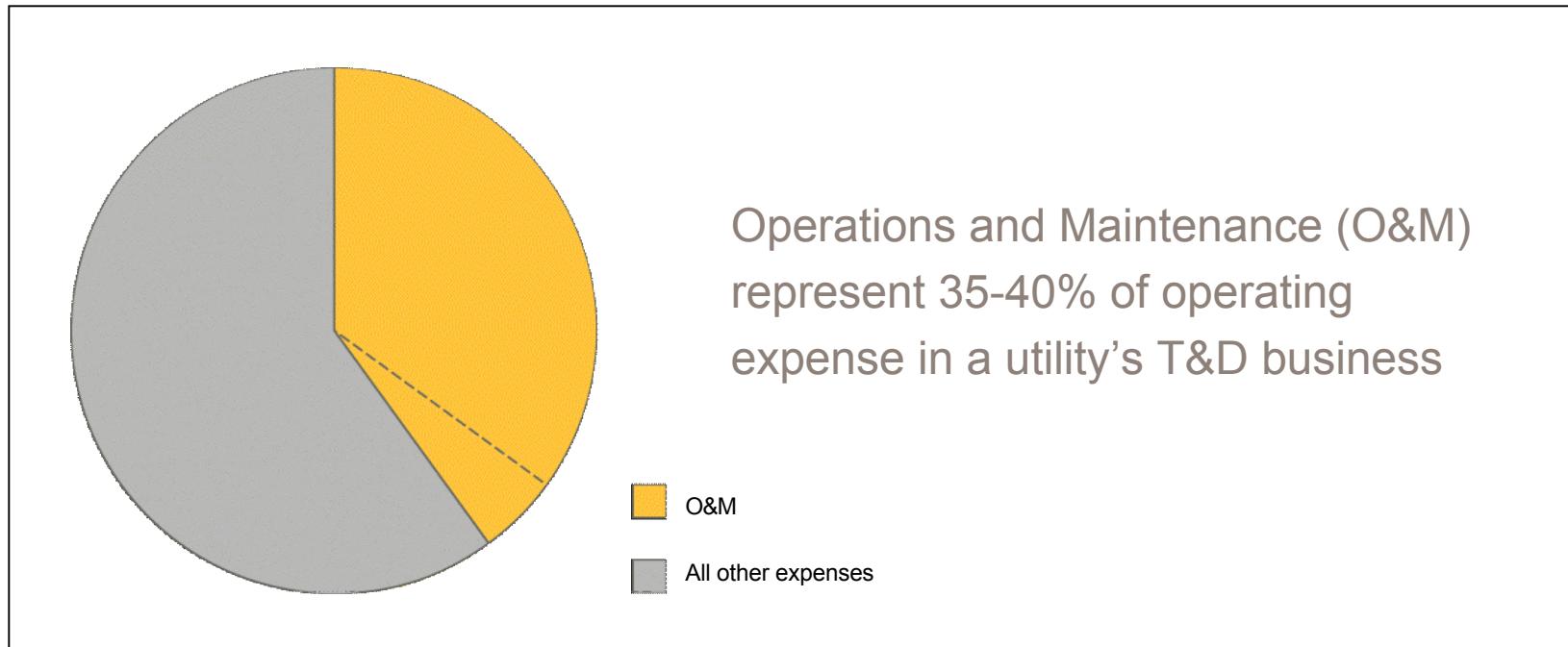
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What can utilities do to address this situation?

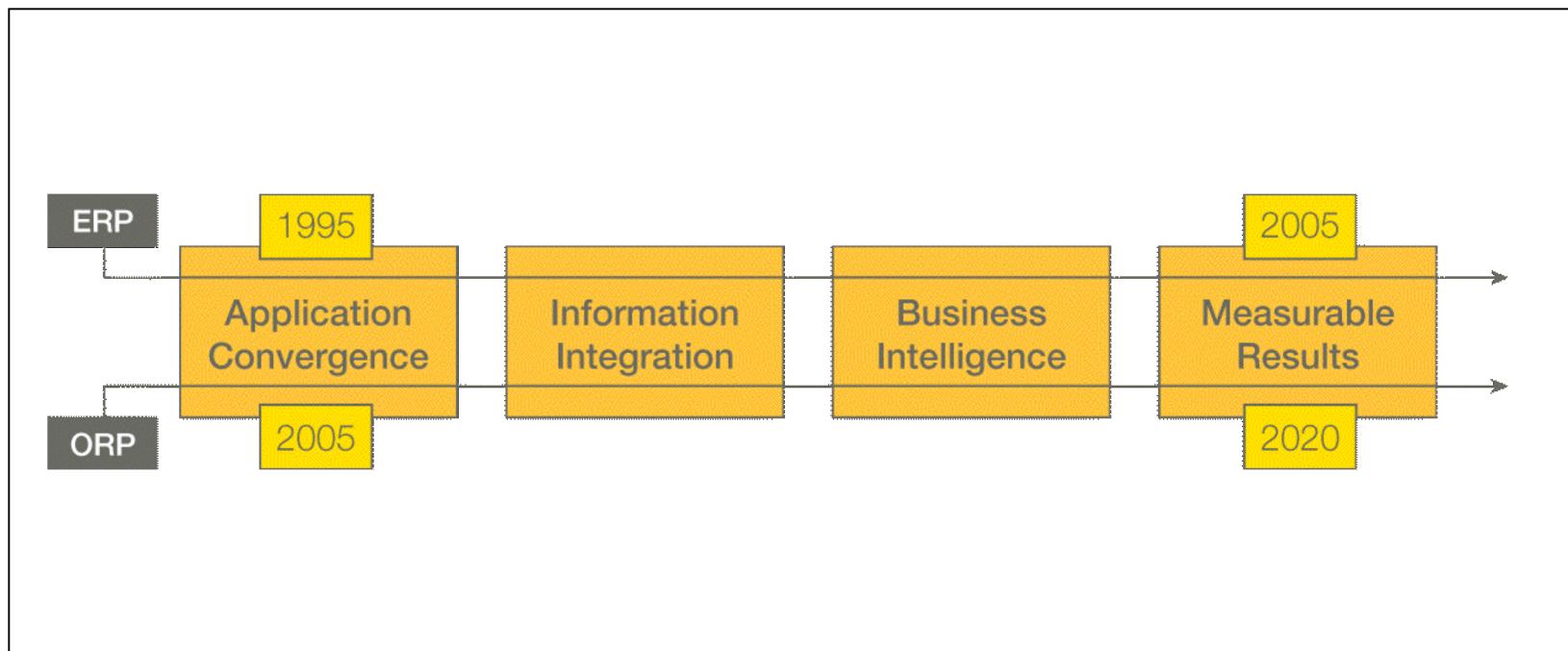
What is ORP?



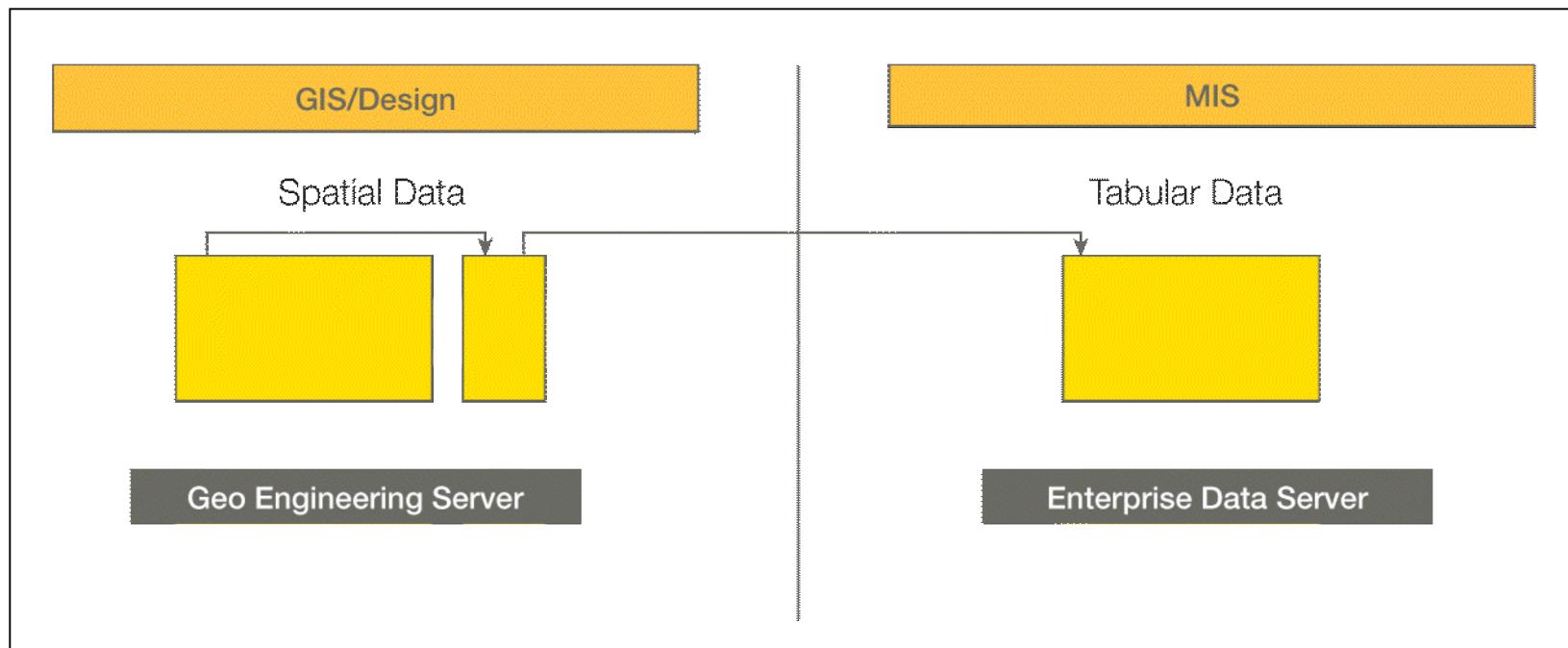
Operations and Maintenance



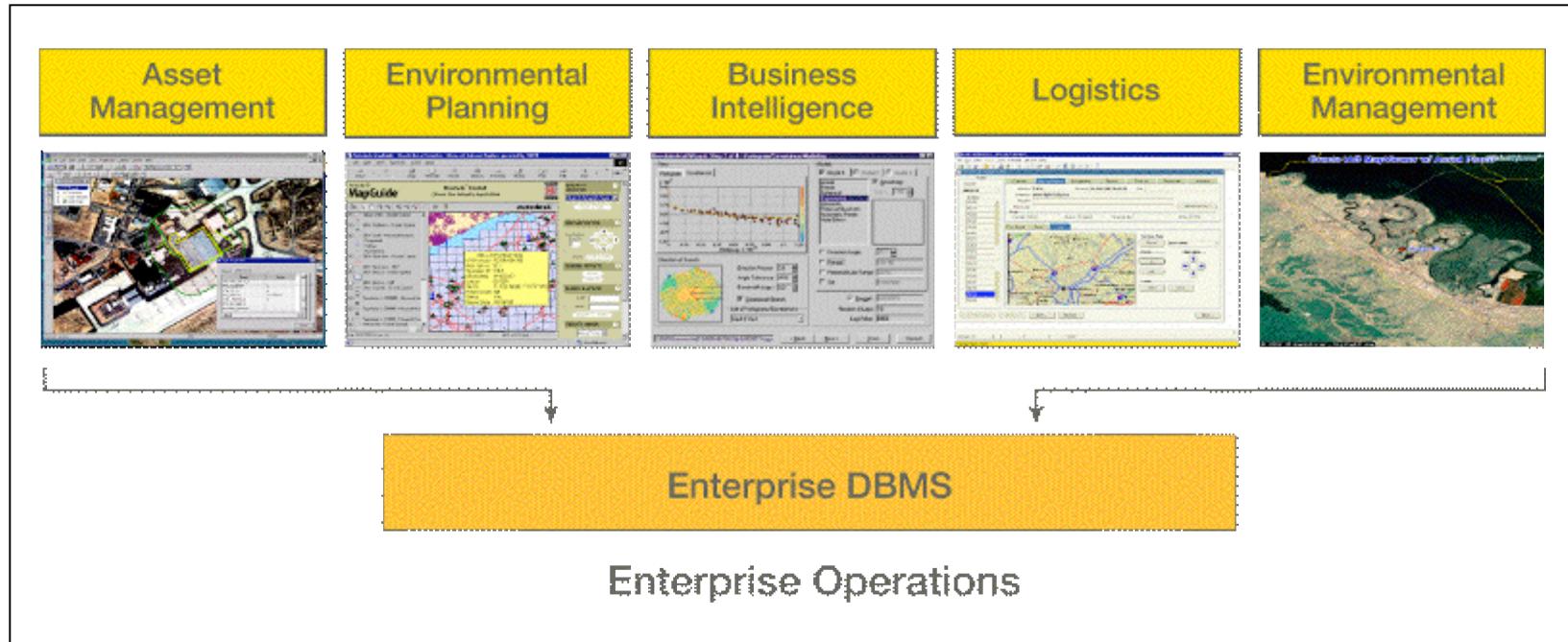
ERP/ORP Evolution



What are the technological barriers to integration?



Common Data Model and SOA





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How did Benton PUD approach automation and integration?

What are They Doing Today?

- Current system has served them well for over 10 years...
 - Still using a custom developed CAD/Mapping system
 - 366 separate map files to query/ analyze
 - Maintain 3 system models (CAD, SynerGEE, MapGuide)
- Use antiquated, manual, redundant work order processes to update maps and records
- No coordinated system in place
 - Multi-source data manually put together at considerable time/ expense

Current Challenges

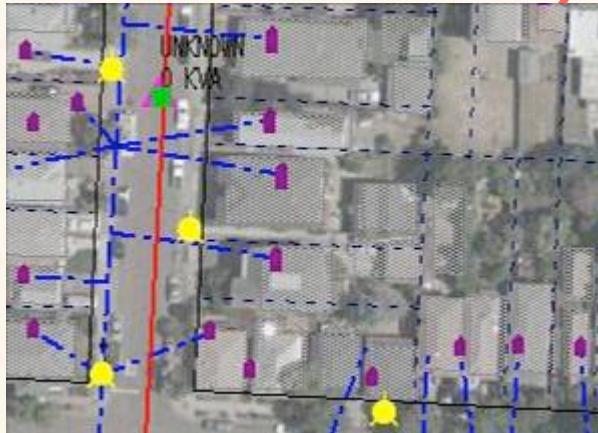
- Paper maps (used by field crews) are out-of-date today
- Lack of information where needed in the field (e.g., maps, customer information, navigation)
- Inability for multiple departments to access data and conduct spatial analysis
- Need to unify data streams to improve efficiency and accuracy

Data Sources

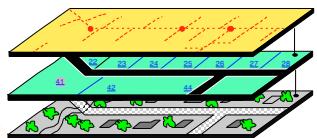
Oracle Database

Row Code	DBP Code	DBA	ADDRESS	Zip Code	CD
BR01	14001 population	DBP sign 2100	209 L 100 Street	10454	1
BR04	17001 population	Laundromat	2006 1st Avenue	10455	1
BR02	14001 population	MTD	1001 Roosevelt Ave.	10455	2
BR04	17001 population	Laundromat	1000 Roosevelt Ave.	10454	2
BR05	18001, 14000 population	South Bronx Grocer	102 Willis Ave.	10454	3
BR06	18002 population	Poultry Market	2800 3rd Ave.	10455	3
BR07	15001 population	Health Clinic	3674 3rd Avenue	10457	3
BR08	15001 Tmn	Laundromat	1011 Everett St.	10453	3
BR03	17001 population	Bakery	1160 Grand Ave.	10452	4
BR10	10001 Tmn, Fire department	Laundromat	108 W. 188 St.	10452	4
BR11	12001, 14100 population	Green Farm	1621 Jerome Avenue	10452	4
BR12	15001 Tmn	Grocery	1654 Grand Concourse	10457	4
BR13	12001 population	Restaurant	200 W. Fortnum Rd.	10455	6
BR14	11001 population	Laundromat	1013 University Ave.	10455	6
BR15	11001 population	Jimmy Pizza	2042 Jerome Ave.	10450	6
BR16	11001 population	Next Market	2317 Grand Concourse	10455	6

Automated Database



Vector Map/Aerial Image



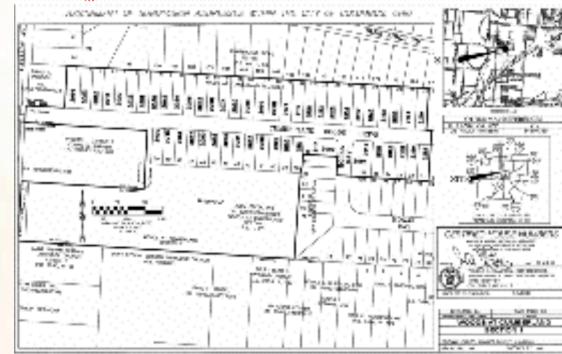
RECORD FILE NO. 5774
OWNER CONSTRUCTION RECORD
SYSTEM OF RECORDS AND DOCUMENTS - CITY OF NEW YORK
TITLE & LOCATION: *Substation Cables - Clarendon Rd.*

TYPE AND VEN. REC'D.	5774	
OWNER - NAME	Substation Cables	
ADDRESS	100-101 Clarendon Rd., Bronx, NY 10454	
PHONE		
DEPOSIT AMT.	\$2,250.00	
DATE REC'D.	07-11-85	
CD NO.	E-12	
COST STATEMENT GUARANTEED	✓	
DATE REC'D.	07-11-85	
CD NO.	348-3-07	
AGREEMENT NUMBER	Substation Cables	
DATE REC'D.	07-11-85	
CD NO.	348-3-07	
STRUCTURE DRAWING COMPLETION	DATE REC'D.	07-11-85
CD NO.	348-3-07	
RETARD DRAWING COMPLETION	DATE REC'D.	07-11-85
CD NO.	348-3-07	
FIELD WORK - PERMIT NO.	P	
FIELD WORK P.M. NO.	P	
CONTRACTOR - STAGE, VALUE, 4 BILLS		
INSPECTOR - PERMIT NUMBER		
FIELD NOTES BY		
CONSTRUCTION DATES - START	07-07-85	
COMPLETION	07-11-85	
STORY	1ST	
LEVEL	100-101	
BIMINITY INLET	100-101	
COST PER TON		
TOTAL COST		
1. BRANCHES		
2. HANDBLES		
3. LADLES		
CB	2-3	

Data Form or Report



Field Data Collection



Engineering Design/
As-Built Drawing

Preparing for the Future

- Converting paper / microfilm to digital format for efficient storage, retrieval, access
- Improving map accuracy - Global Positioning Equipment
- 2004 - Local partnership purchased fly-over photos to enhance GIS



Current situation...

Unconnected Islands of Information

- Limited purpose
- No coordinated strategy
- No focus on data standards
- Low level of information sharing

The Future

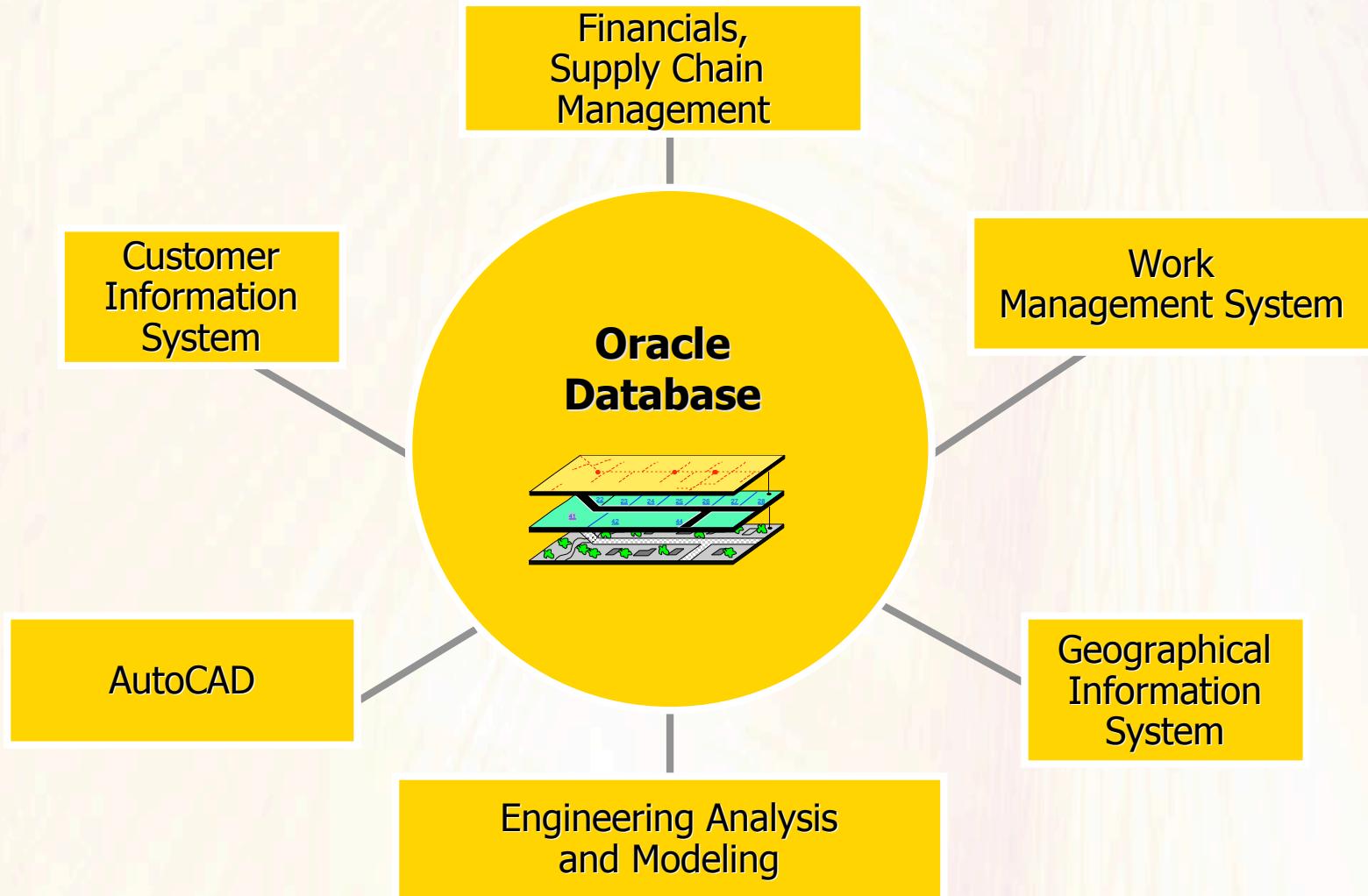
Integrated Information

- Multipurpose, accessible, accurate
- Adherence to business objectives
- Emphasis on standards, consistency
- Designed for resource sharing

Key Business Drivers

- Cost reduction and process efficiency
- Customer information is accessible, easy to use
- Streamline information flows, ensure system interoperability
- Replace costly mapping and redundant work processes
- Increase access to facility information and worker productivity; extend data to the field

Centralized Information in the Enterprise Environment



Data Interoperability

- Use of Open standards
 - Provides "exit strategy"
 - Promotes compatibility, drives down costs, supports greater reusability
 - Reduces tie to a single vendor technology
- Data sharing between entities:
 - City Level
 - County level
 - District level
 - Other firms/ suppliers

Enhanced Field Capabilities

- View, query, update data in the field
- Trace electrical/communication circuits
- Navigate to facilities, route planning, tracing – aid emergency response
- Access plant records, drawings, easements, property information



Savings/Benefits

- **Increase:**
 - Data sharing
 - Data quality
 - Accuracy of dispatch routing
 - System flexibility and scalability
- **Improve:**
 - Accuracy and timeliness of data
 - Customer relations
 - Scheduling and dispatch
 - Safety
 - Outage restoration time
- **Eliminate:**
 - Process redundancies
 - Redundant data stores
- **Reduce:**
 - Cost of Service
 - Vehicle/hardware costs
 - Reliance on out-dated paper records
 - Drive (windshield) time

Elimination of Paper?

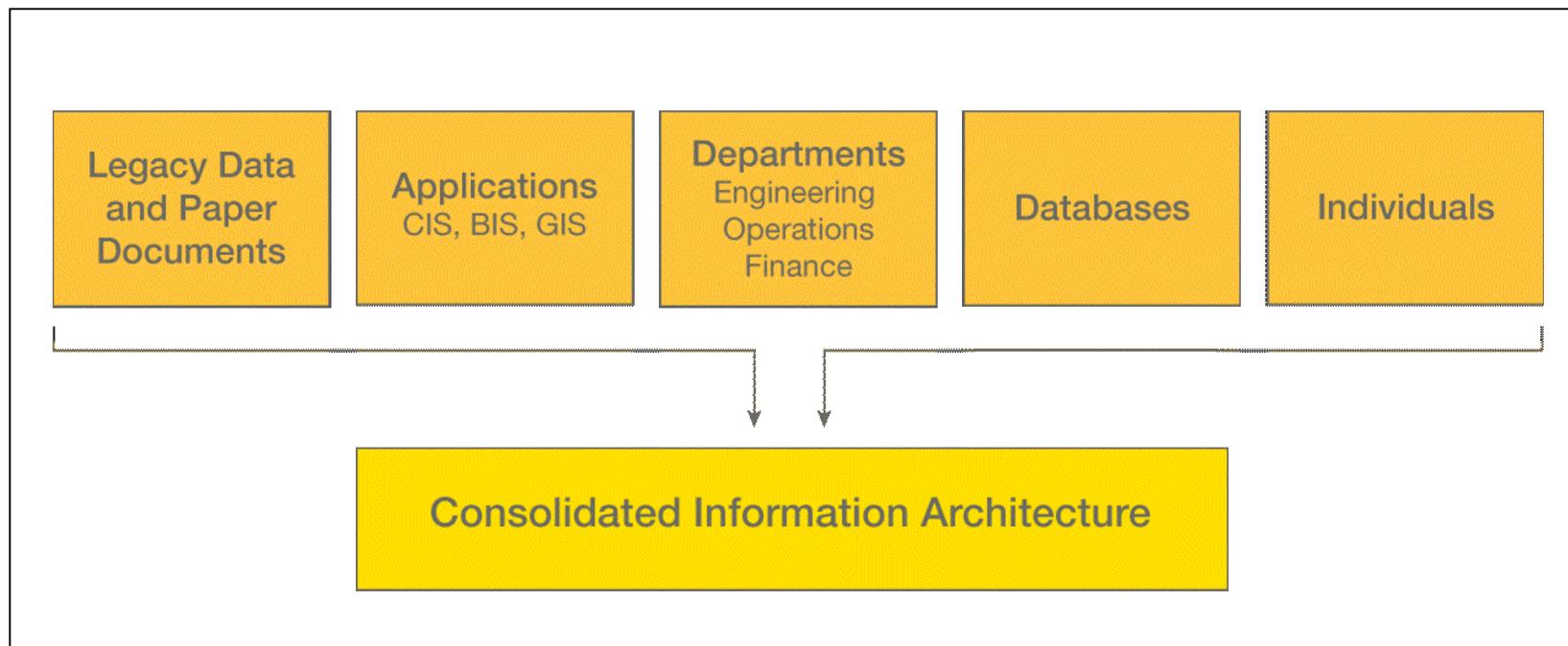
- District-wide access eliminates need for paper
 - Real-time map data available instead of relying on current as-built/print processes
- Producing paper “block” maps
 - Materials at \$3,200/year
 - 630 labor-hours at \$23,625/year
- Large wall facility maps – out of date, expensive to create/maintain
 - 120 labor-hours at \$5,000
- Reduction of capital equipment expense
 - Large format plotter at \$9,000



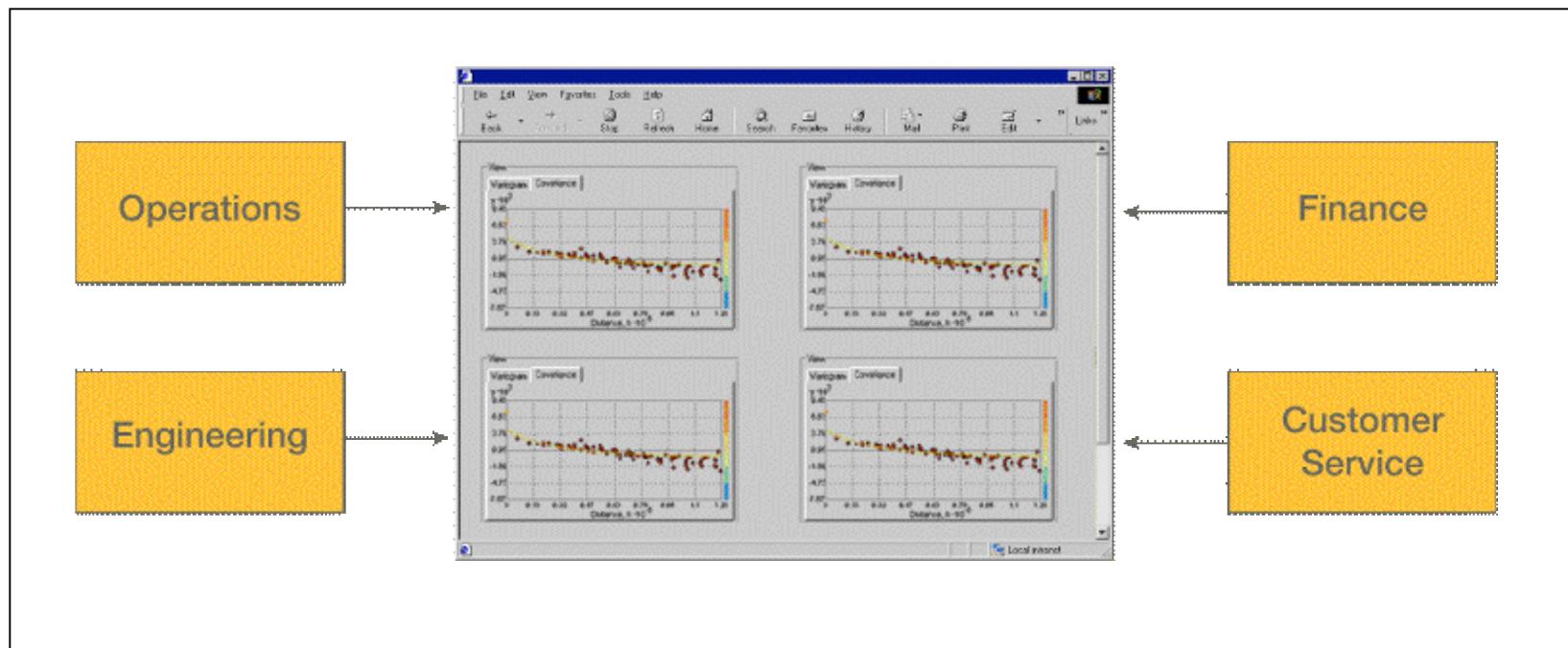
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What would a truly integrated utility look like?

Convergence



Utility Dashboard



Benefits of Monitoring KPIs

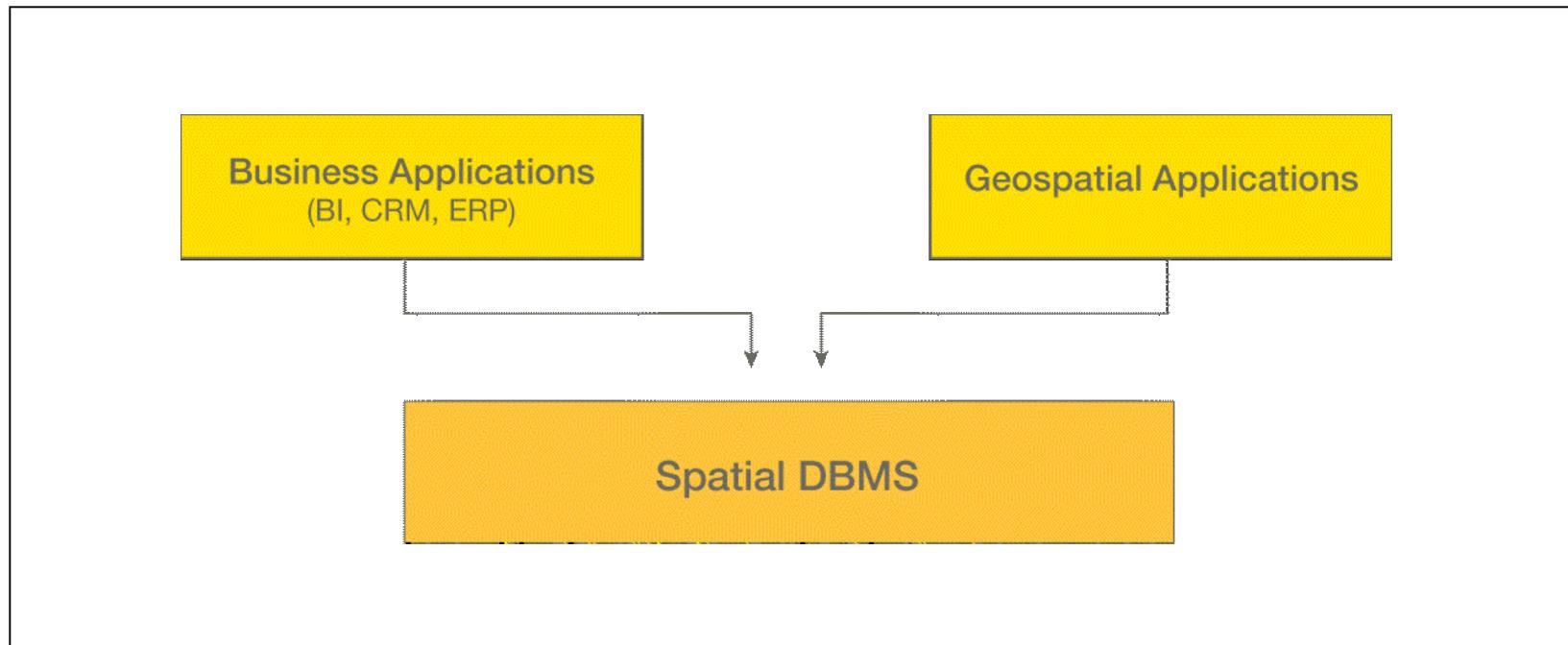
- Adjust to changes faster
- Track multiple metrics in real-time
- Operate more efficiently
- Resolve issues earlier



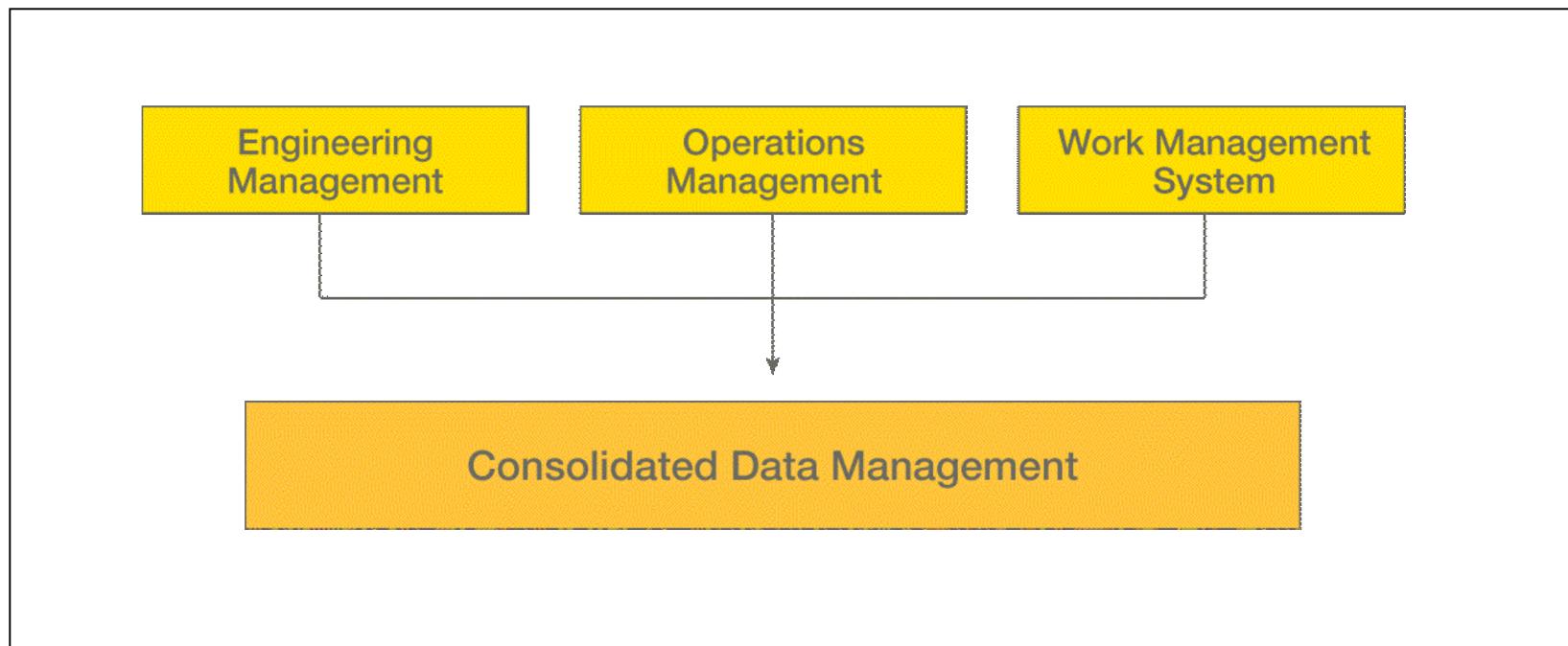
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What technologies enable this kind of enterprise integration?

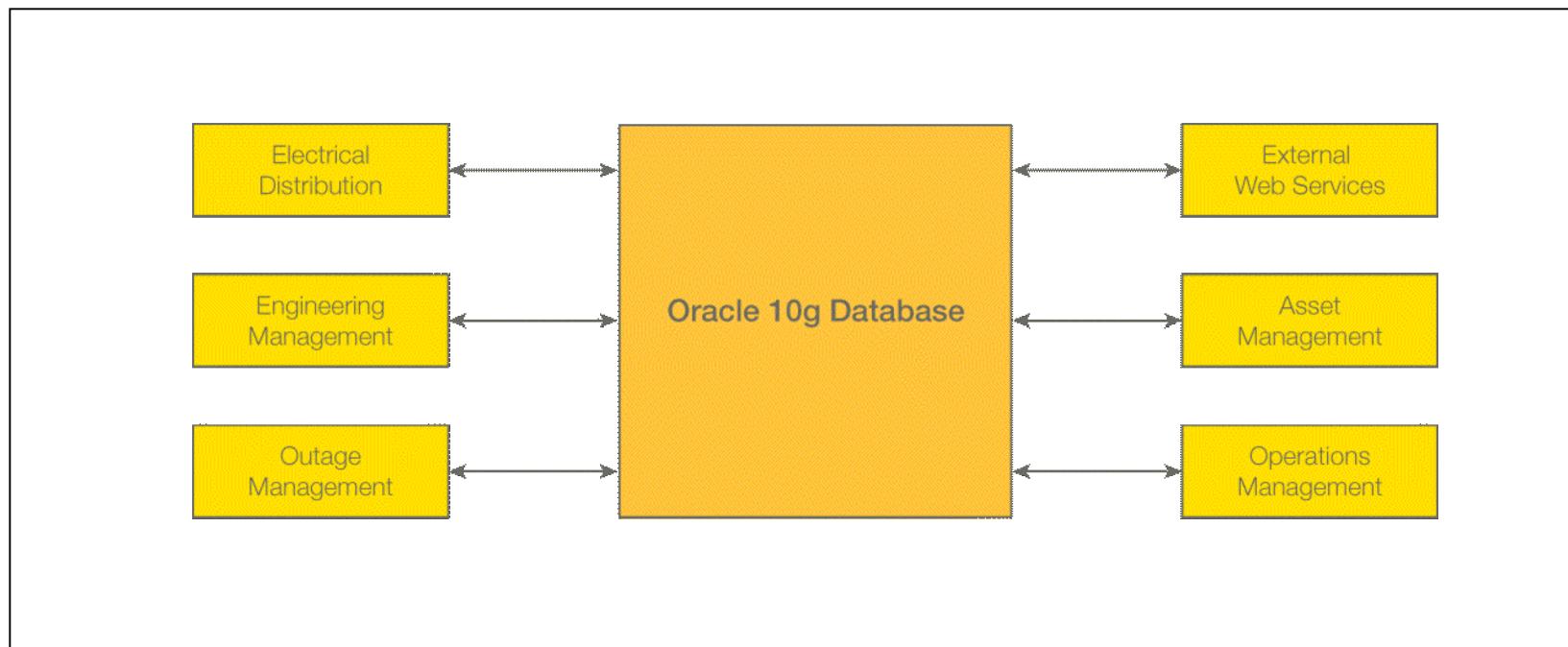
Enterprise Applications and DBMS



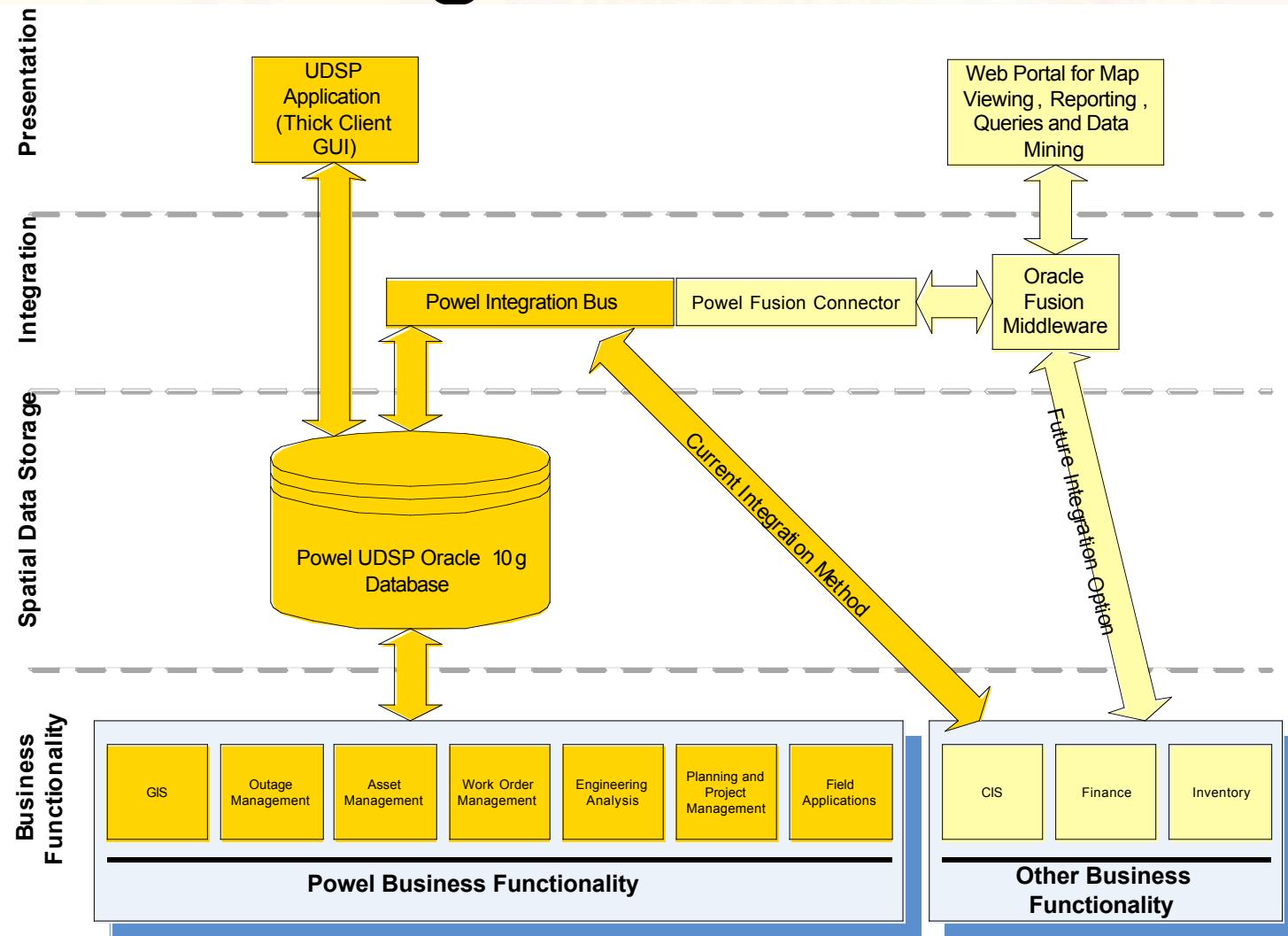
Location-Enabling Enterprise Applications



Oracle 10g Value Proposition



Powel – Oracle Fusion Integration Stack





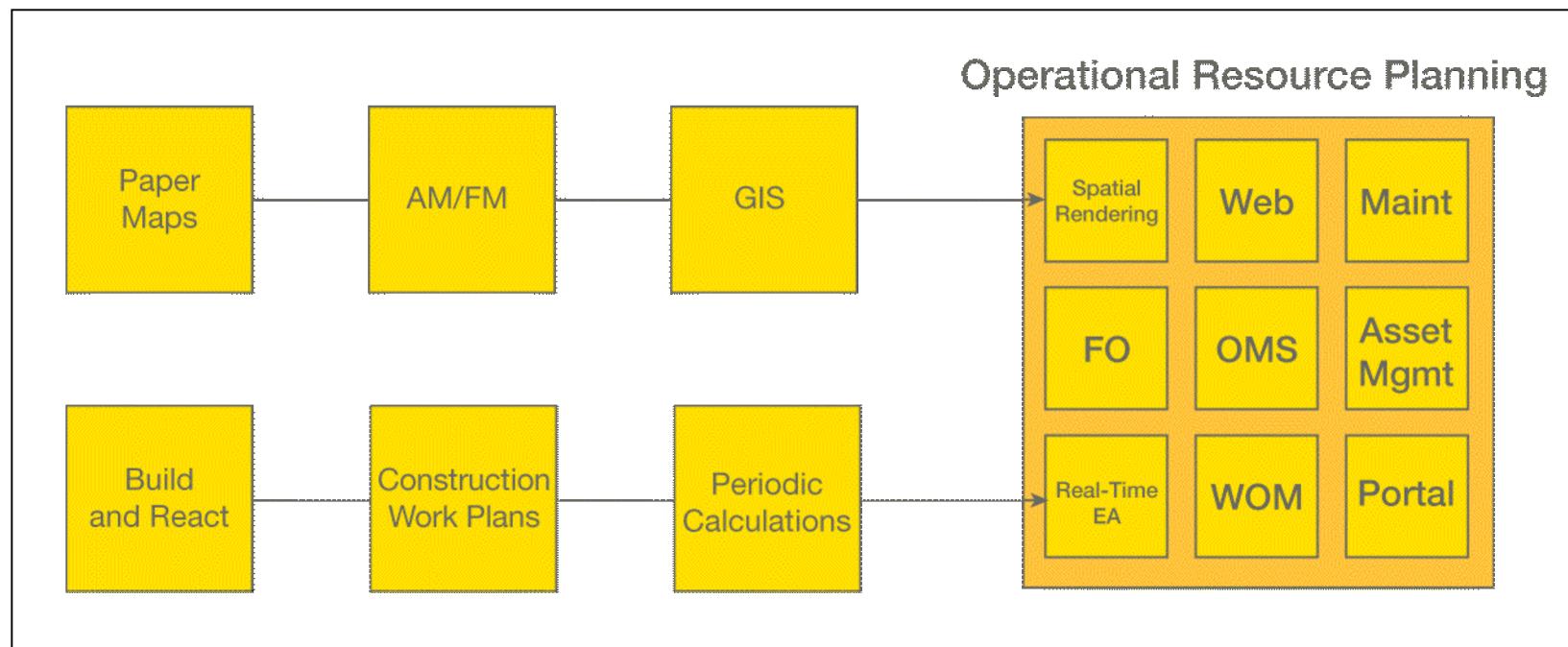
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What will utilities need to do to successfully implement ORP?

Converging to ORP

- Develop a technology plan
- Determine timing
- Decide where and how to store data
- Target key functional areas
- Pick an interface

Converging to ORP



In Summary

- All utilities do not share a similar outlook about the future
- Establishing an enterprise vision is critical to success
- New technologies are changing what the future can achieve
- Integrated ORP is one path utilities are taking