



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?**

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Strategic Issues

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

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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?

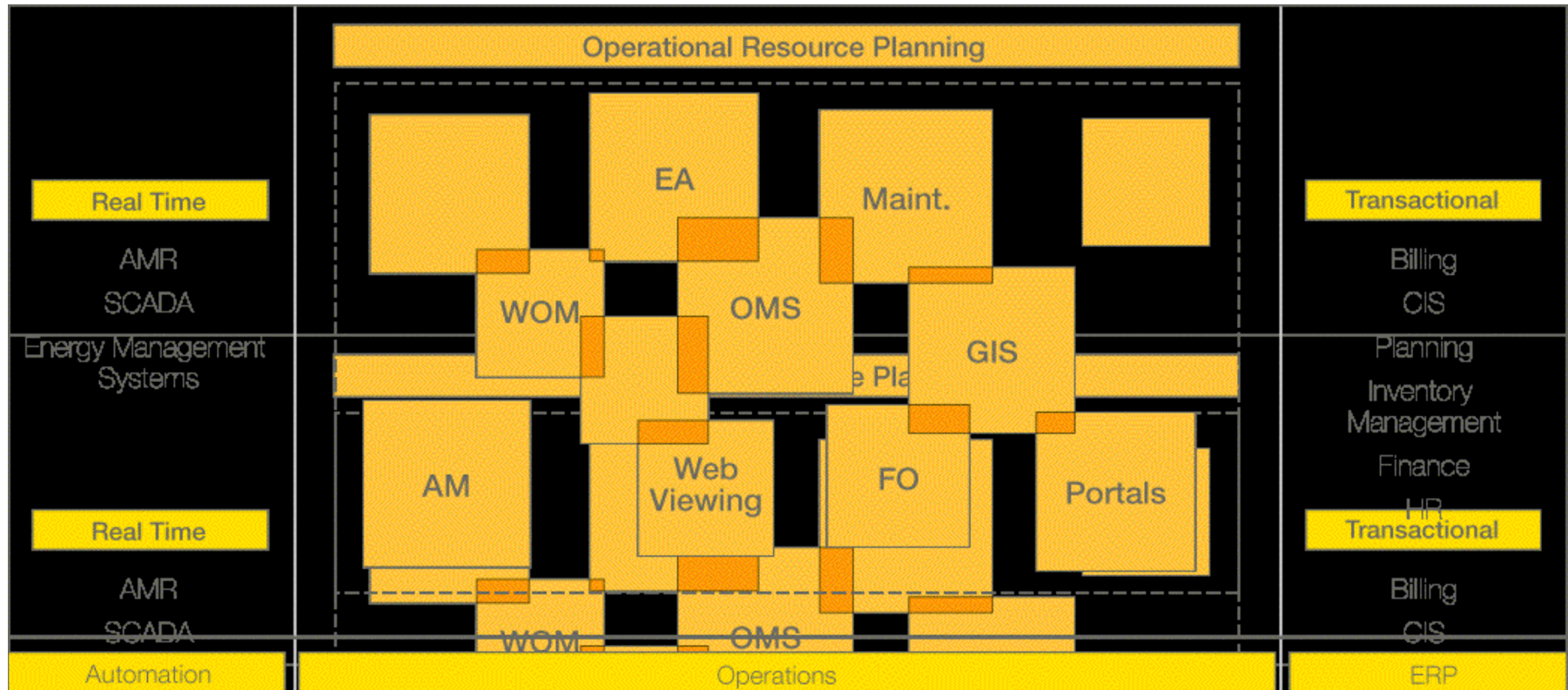
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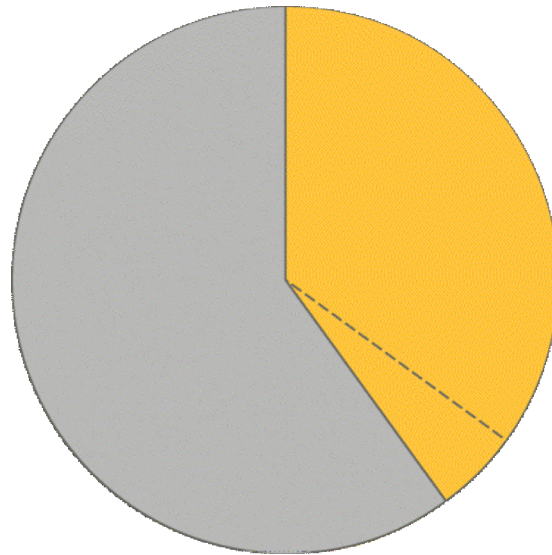
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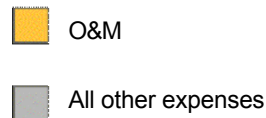
What is ORP?



Operations and Maintenance



Operations and Maintenance (O&M) represent 35-40% of operating expense in a utility's T&D business



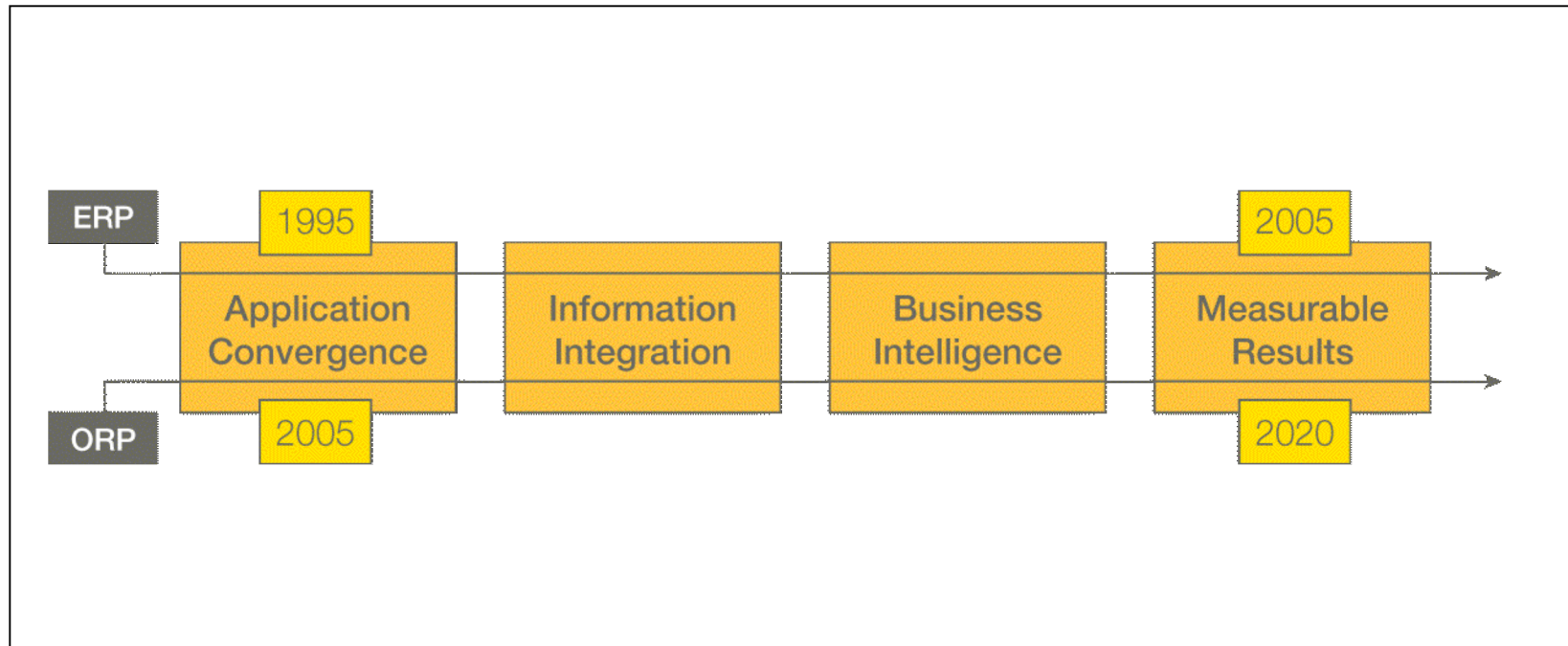
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ERP/ORP Evolution



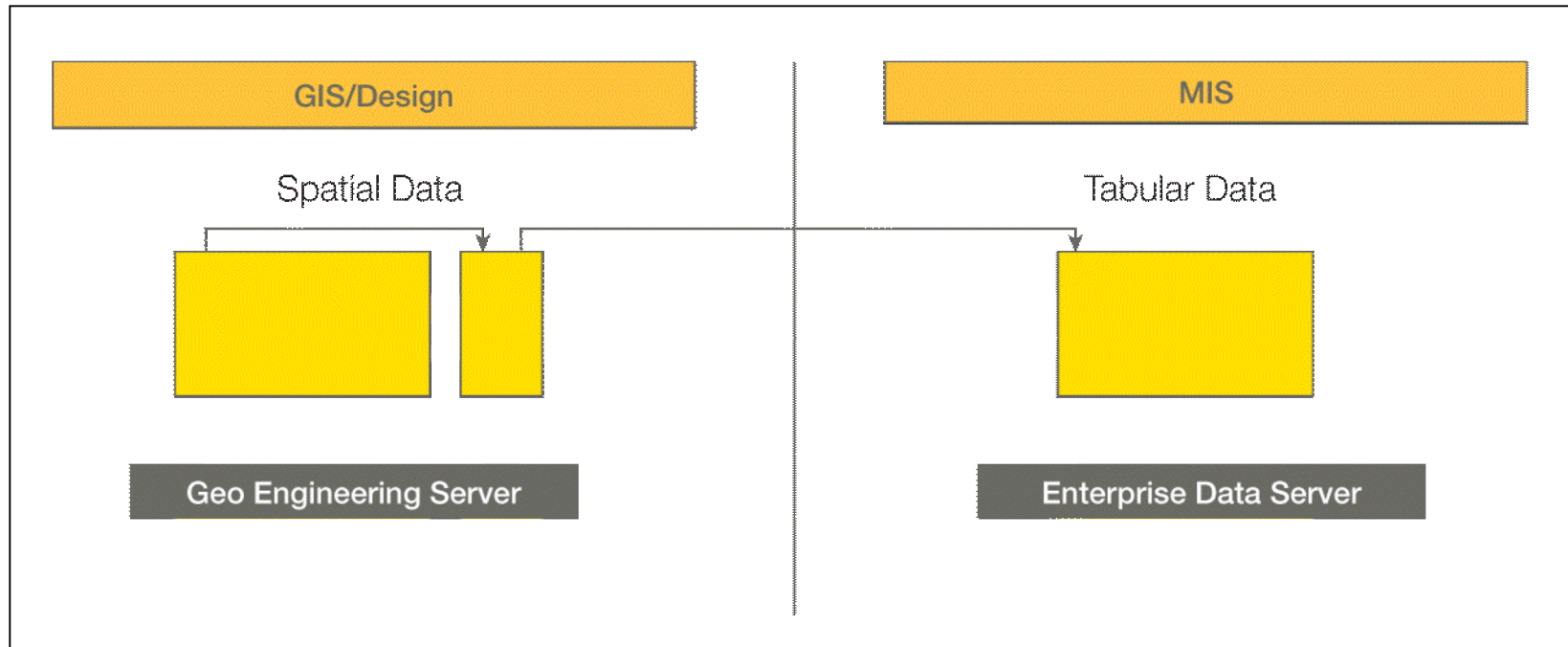
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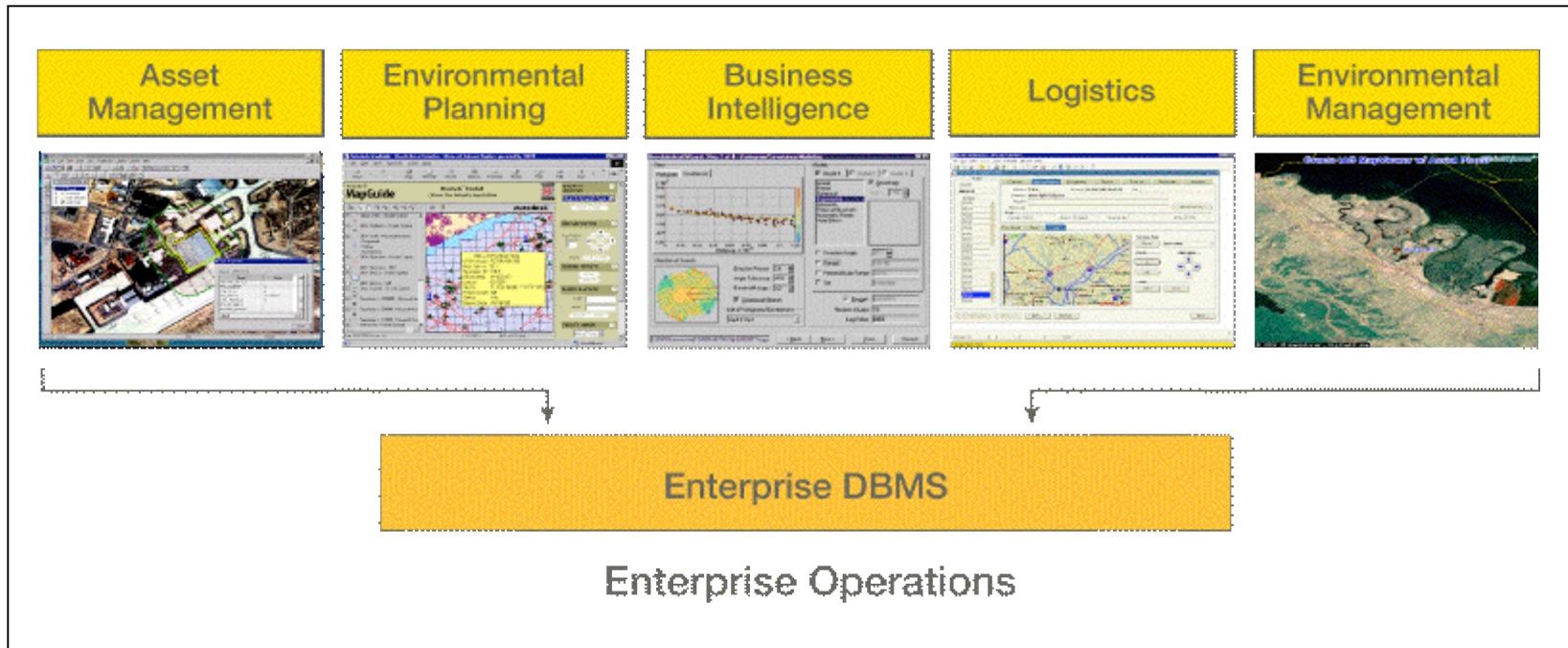
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What are the technological barriers to integration?



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

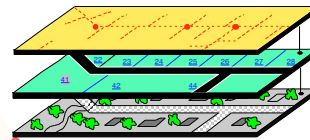
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U001	14001 population	DOT sign shop	209 E 130 Street	10454	1
U002	14001 population	Loudermilk	2800 2nd Avenue	10455	1
U003	14001 population	NYTD	1001 Prospect Ave	10455	2
ER04	14001 population	Loudermilk	850 Hartsport Ave	10474	2
ER05	14001, 14000 population	South Bronx Groce	182 Willis Ave.	10454	3
ER06	14001 population	Poultry Market	3502 3rd Ave	10455	3
ER07	14001 population	Health Clinic	3674 3rd Avenue	10457	3
ER08	14001 Thm	Loudermilk	1011 Freeman St	10453	3
ER09	14001 population	Bakery	1160 Grand Ave	10452	4
ER10	14001 Thm, Fire complaint	Loudermilk	108 W 188 St	10452	4
ER11	12000, 14100 population	Green Farm	1521 Jeron Avenue	10452	4
ER12	15100 Thm	Grocery	1454 Grand Concourse	10457	4
ER13	12000 population	Restaurant	200 W. Fortham Rd.	10453	5
U014	11001 population	Loudermilk	1613 University Ave.	10455	5
U015	11001 population	Amos Plaza	2862 Jerome Ave.	10455	5
U016	11101 population	Next Market	2371 Grand Concourse	10455	5

Automated Database



Vector Map/Aerial Image

Oracle Database



Field Data Collection

RECORD FILE NO. SERVICE

OWNER CONSTRUCTION RECORD

DIVISION OF HIGHWAYS AND BRIDGES - CITY OF CHICAGO

TITLE & LOCATION: Suburban Center Chicago's new Suburban Rd

TYPE AND NEW BRIDGE: STPM

DATE: 10/1/1998 DRAWN BY: CHS CHECKED BY: CHS

ADDRESS: 1011 E. 1st St. Chicago, Ill. 60604

INSPECTION REPORT: 8-27-98 DATE: 8-27-98 CIB NO.: 8-187

COST STATEMENT SUMMARY: CHS DATE: 8-27-98 P.C. NO.: 701 P-01

ADJUSTMENT: CHS DATE: 8-27-98 NO.: 701 P-01

CONTRACT DRAWING: COMPLETION DATE: 7-27-98 NO.: 701 P-01

REBAR DRAWING: COMPLETION DATE: 7-27-98 NO.: 701 P-01

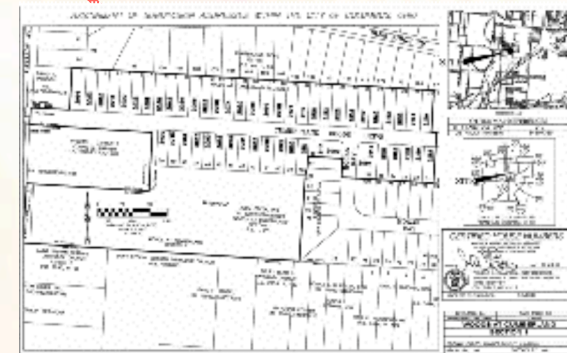
FIELD BOOK: CHS NO.: 701 P-01 FIELD BOOK P.C. NO.: 701 P-01

CONTRACTOR: CHS NO.: 701 P-01 FIELD NOTES BY: CHS

CONSTRUCTION DATES: START 8-27-98 COMPLETION 8-27-98

ITEM	QTY	UNIT	QUANTITY BUILT	COST PER TON	TOTAL COST
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2. 10" x 12" REBAR	1.00	TON	1.00	100.00	100.00
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99. 10" x 12" REBAR	1.00	TON	1.00	100.00	100.00
100. 10" x 12" REBAR	1.00	TON	1.00	100.00	100.00

Data Form or Report



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

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The Future

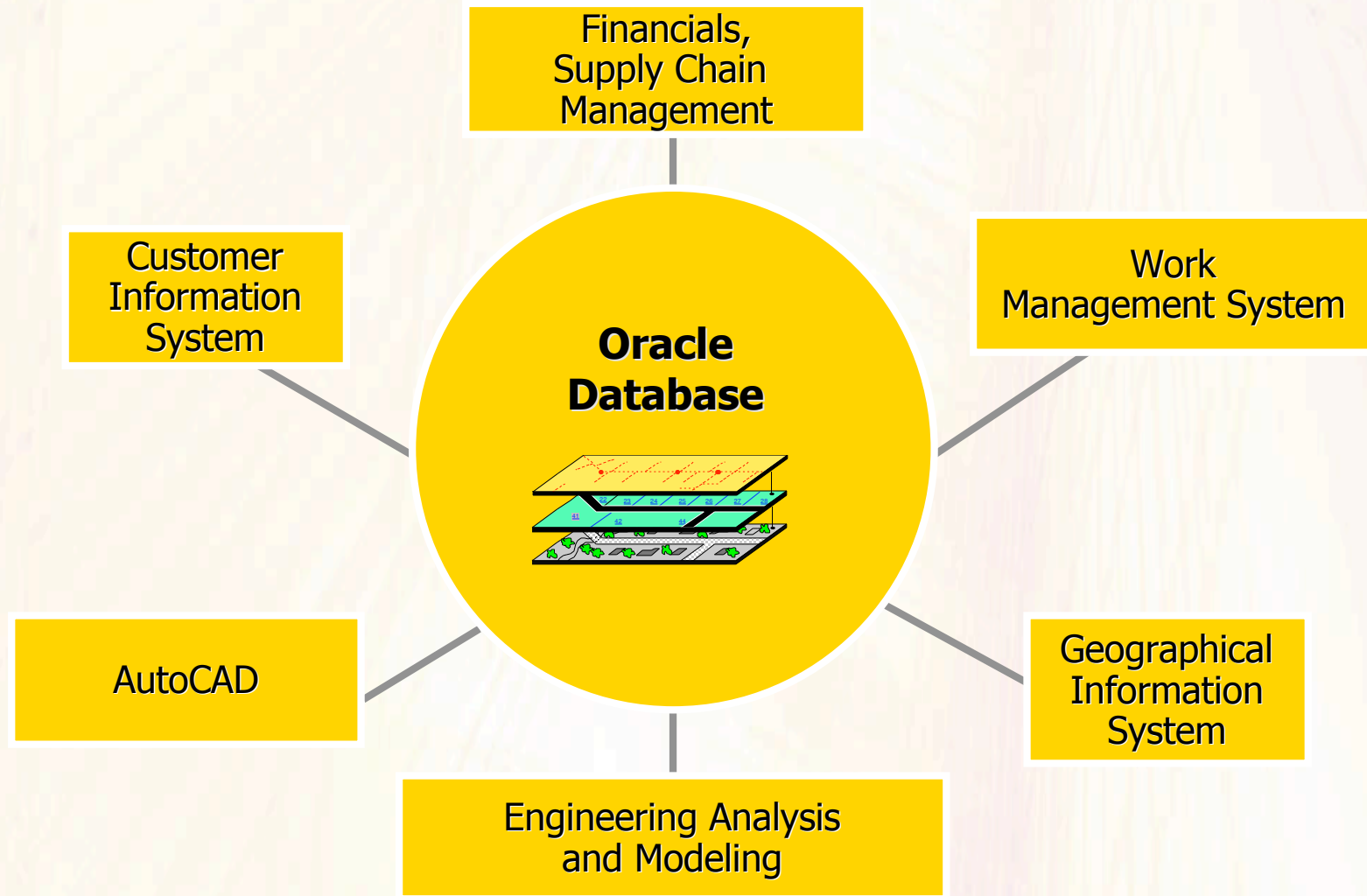
Integrated Information

- 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?

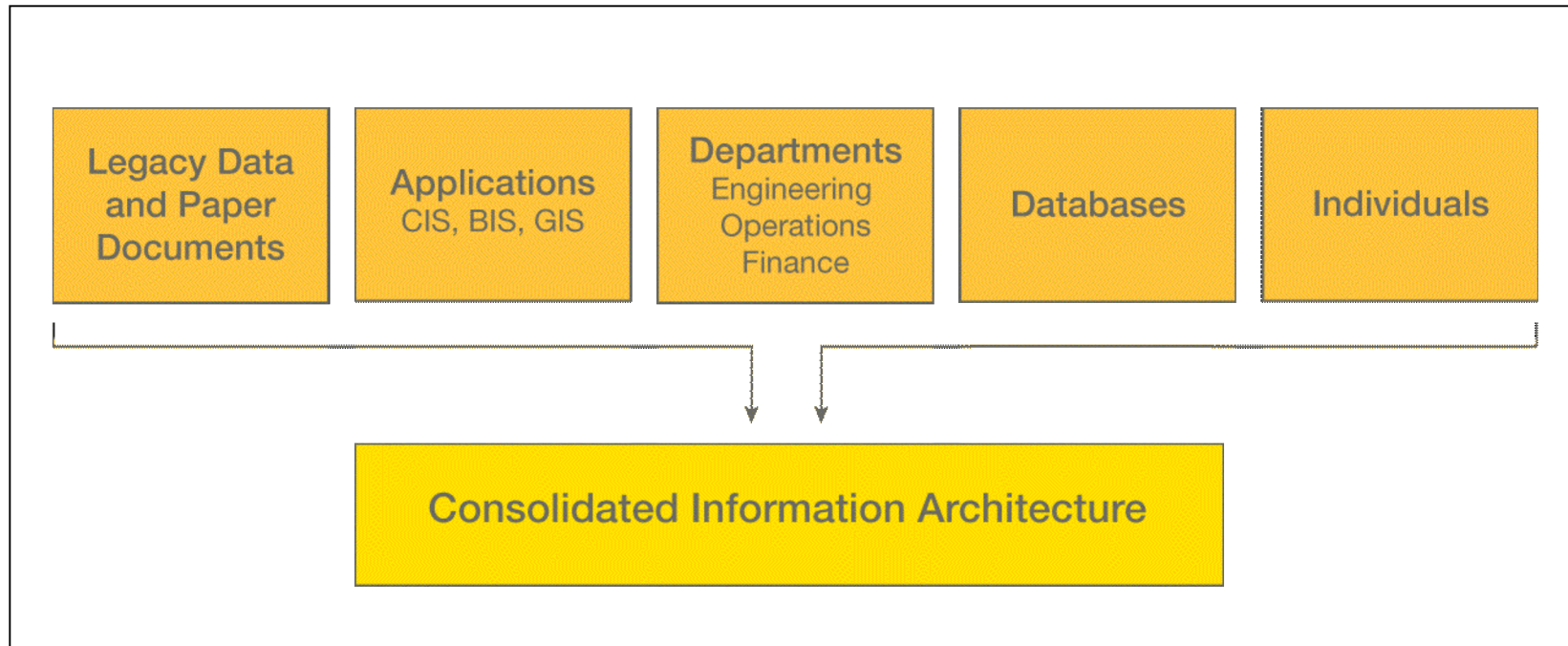
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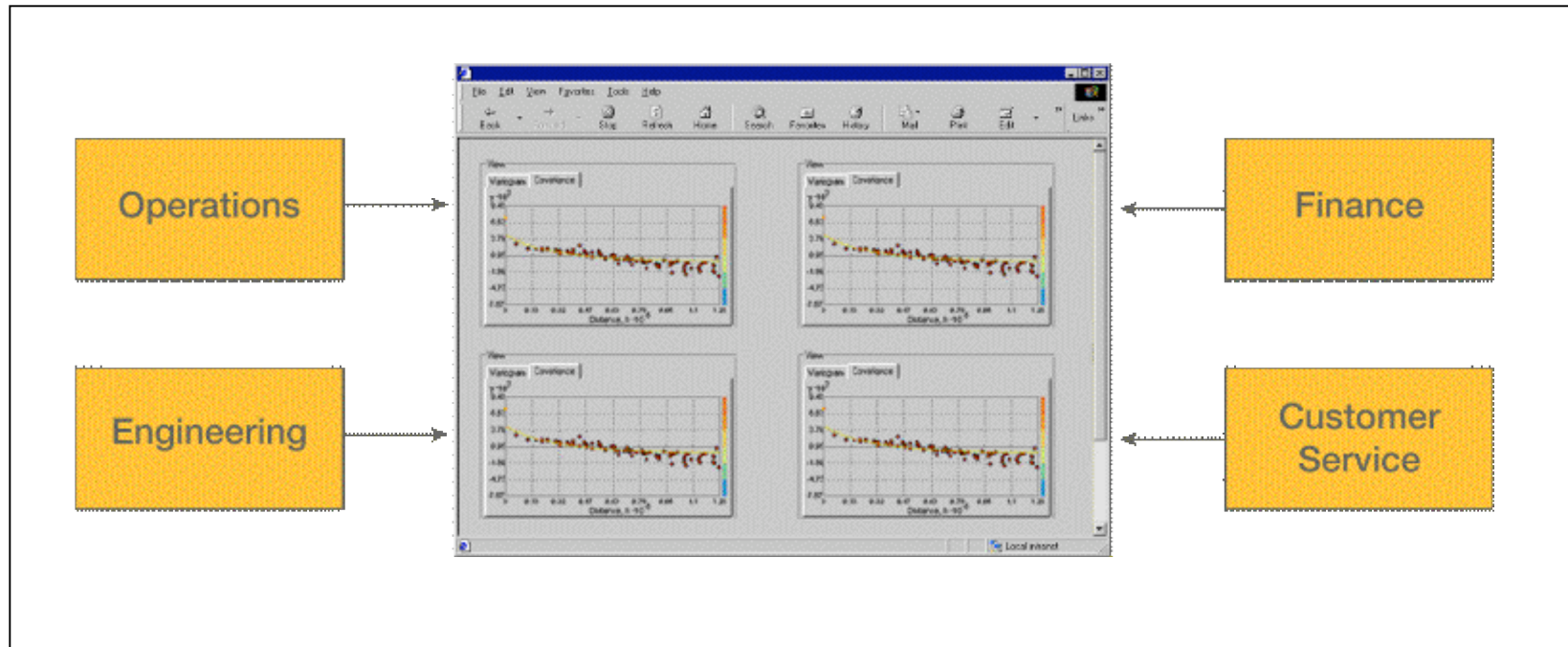
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Convergence



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?

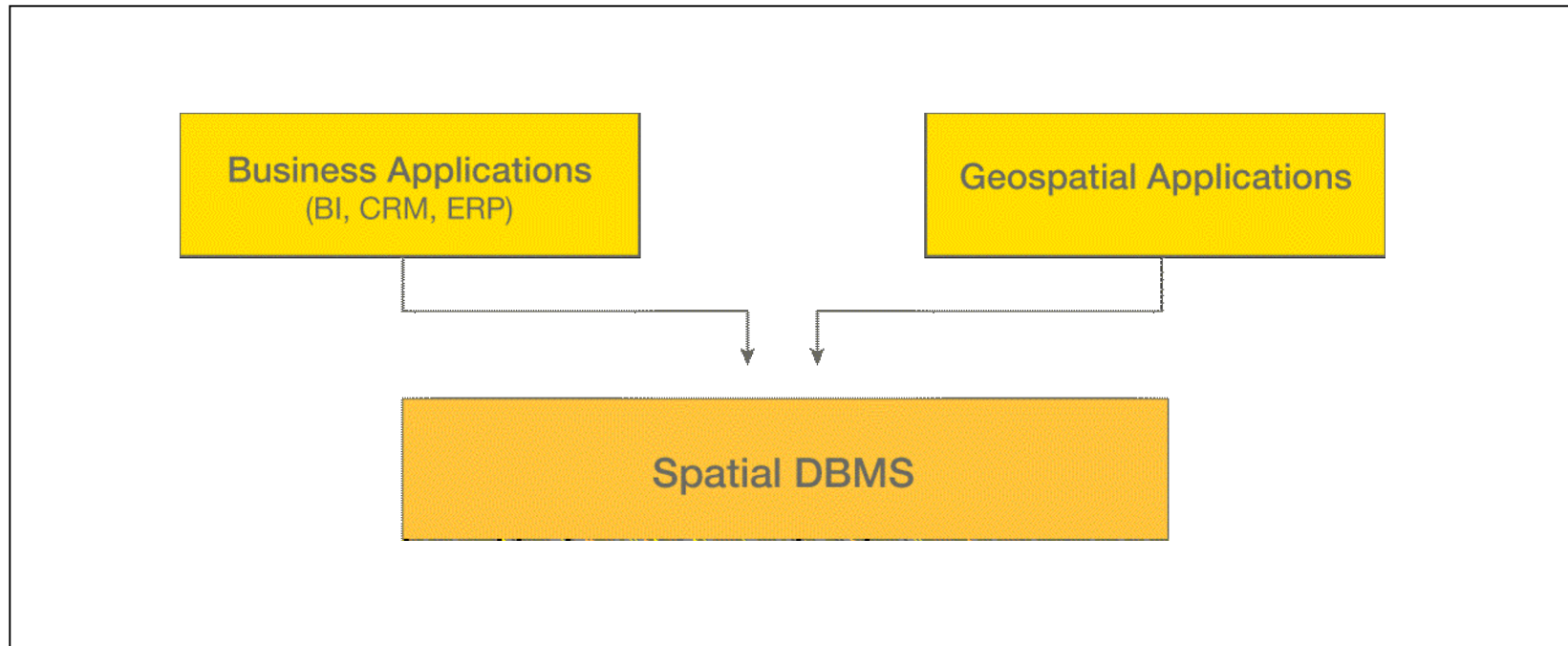
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Enterprise Applications and DBMS



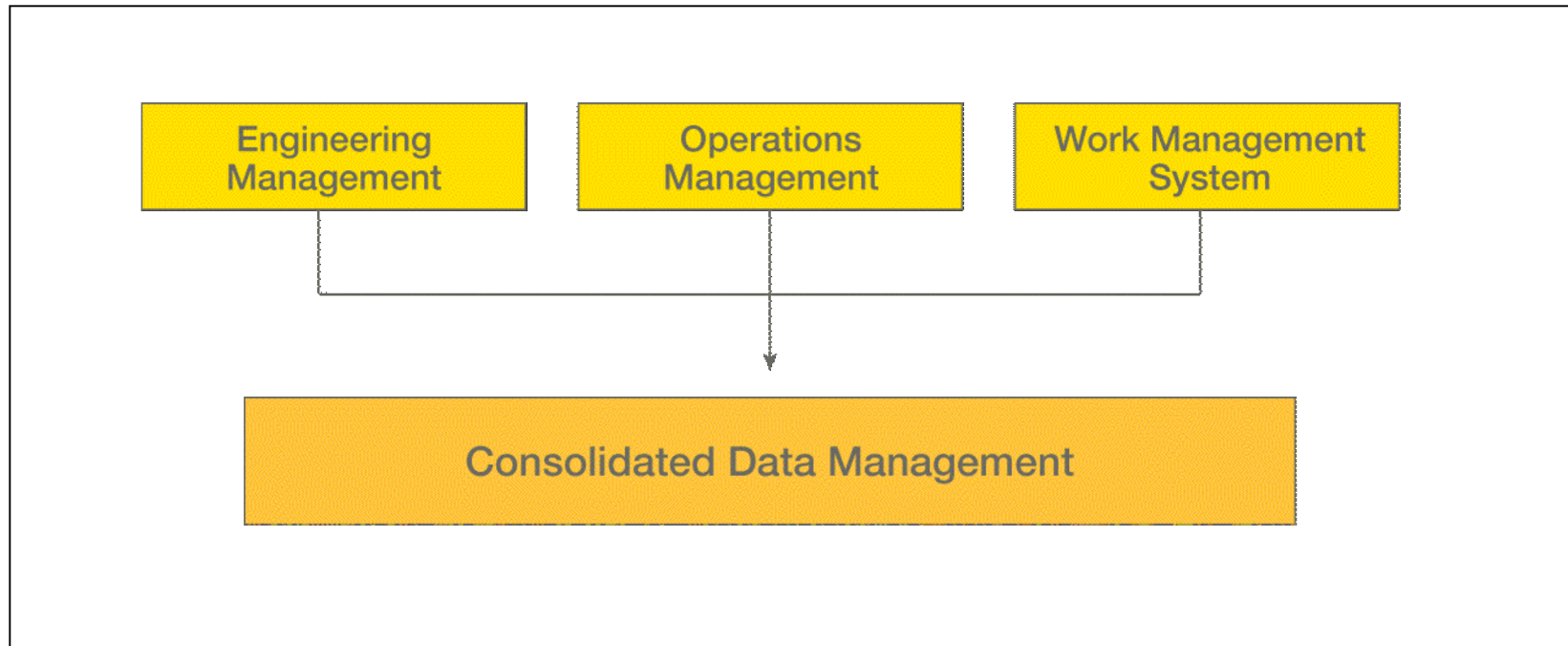
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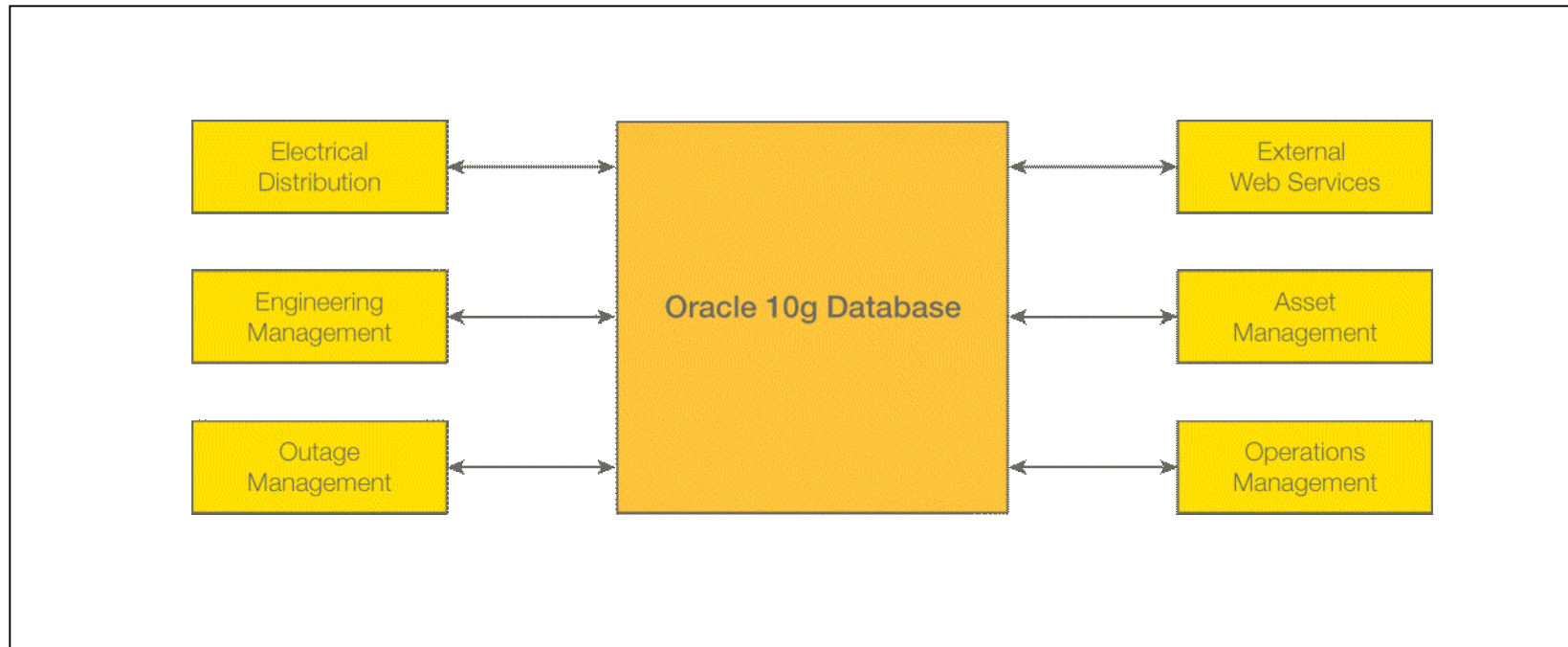
Location-Enabling Enterprise Applications



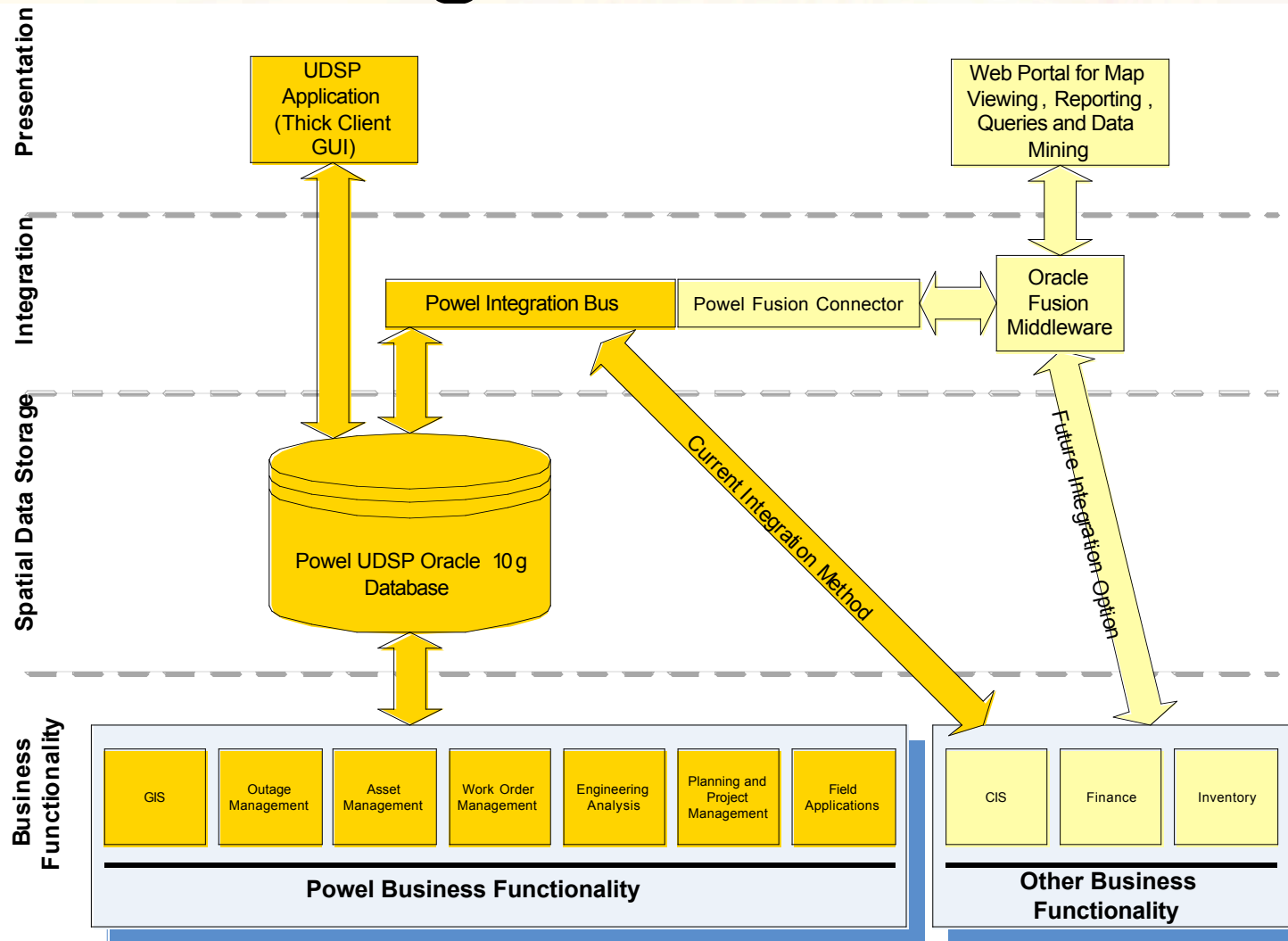


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Oracle 10g Value Proposition



Powel – Oracle Fusion Integration Stack





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What will utilities need to do to successfully implement ORP?

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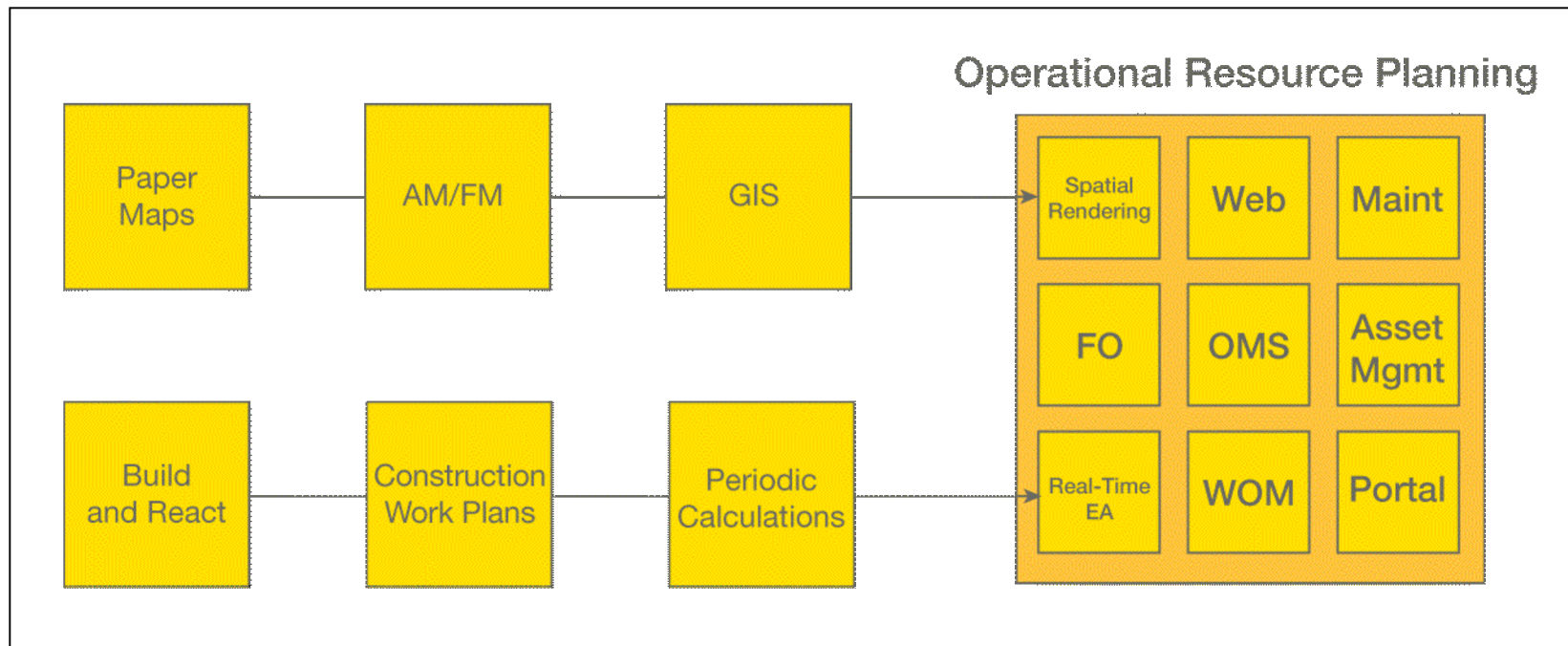
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Converging to ORP

- 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