



Information Management

New Announcements for SOA & Information on Demand
Information Server

IBM Software Group

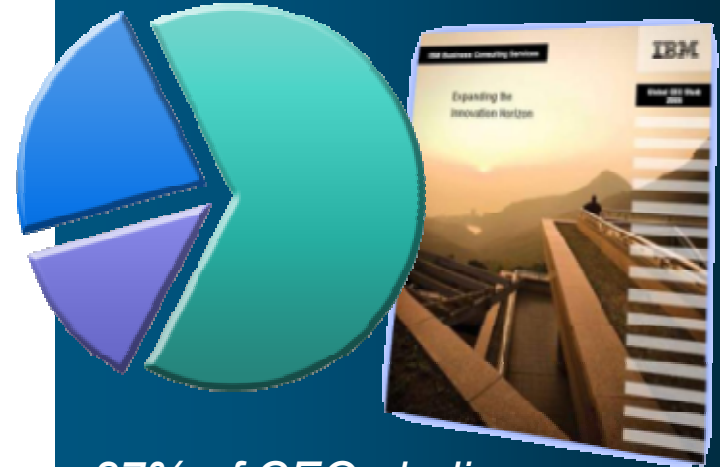
Michael Curry
Market Management
IBM IIS



ON DEMAND BUSINESS™

Corporate View of Information Architecture Is Changing

- Information is the key to Business Innovation
 - ▶ Organizations highly effective at driving information integration are 5 times more likely to drive value creation
 - ▶ Companies that wait for their application vendors to innovate are losing the opportunity to differentiate



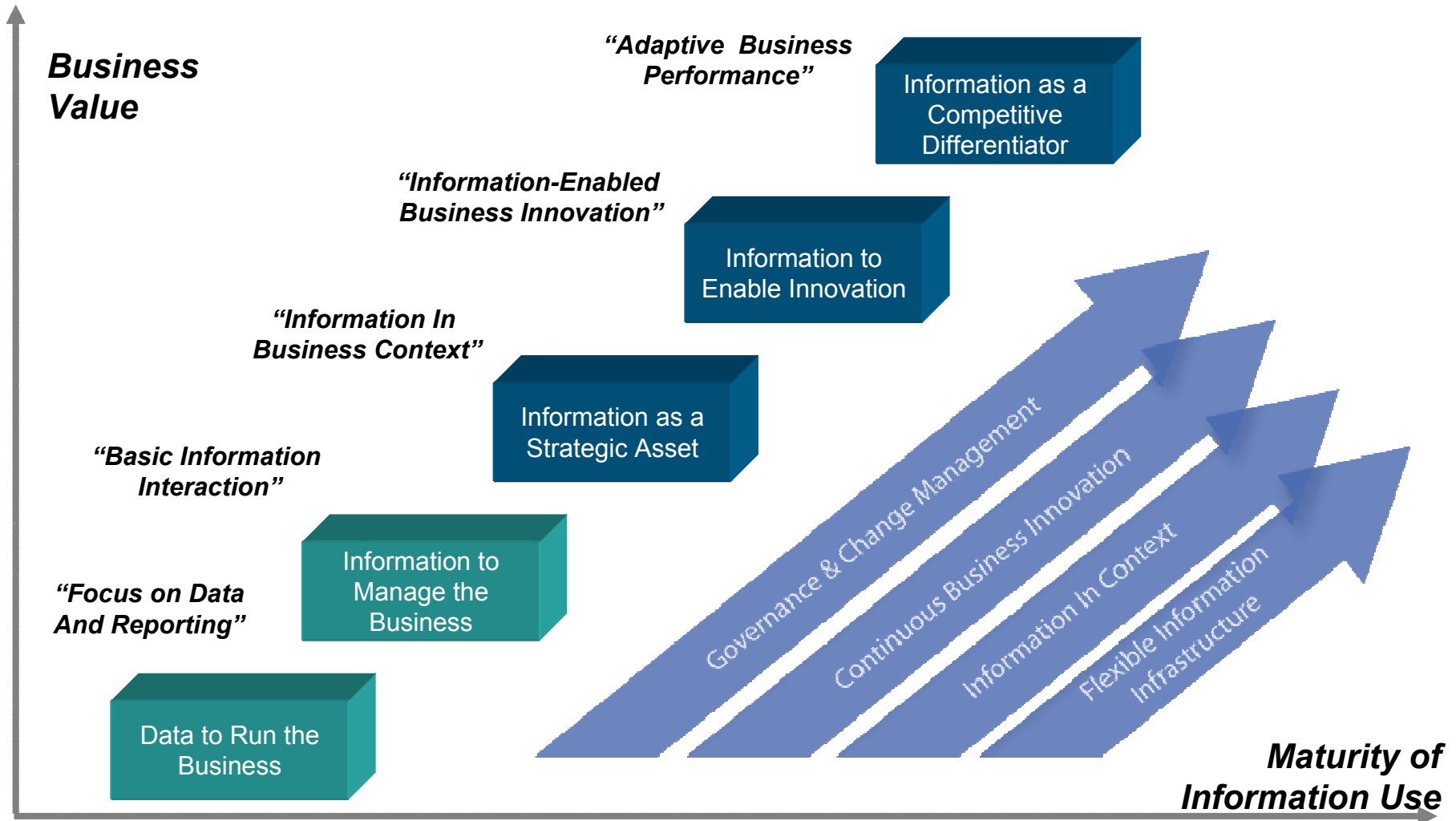
*87% of CEOs believe fundamental **change** is required in next two years to drive innovation*

Over 60% of CEOs believe their organizations need to do a better job leveraging information

Source: 2006 IBM Global CEO Survey

Changing the Game with Information

Maturity Model Provides a Roadmap for Defining New Value



Customer Business Issues



■ Multiple versions of the truth

- ▶ Inability to understand and tailor customer interactions
- ▶ Inability to collaborate effectively with supply chain
- ▶ Difficulty in complying with information-centric regulations



■ Need to do a better job leveraging information

- ▶ Not using demand signals to drive supply chain
- ▶ Not using customer analysis to tailor marketing and sales
- ▶ Not leveraging sources of unstructured information



■ Don't have trust in their information

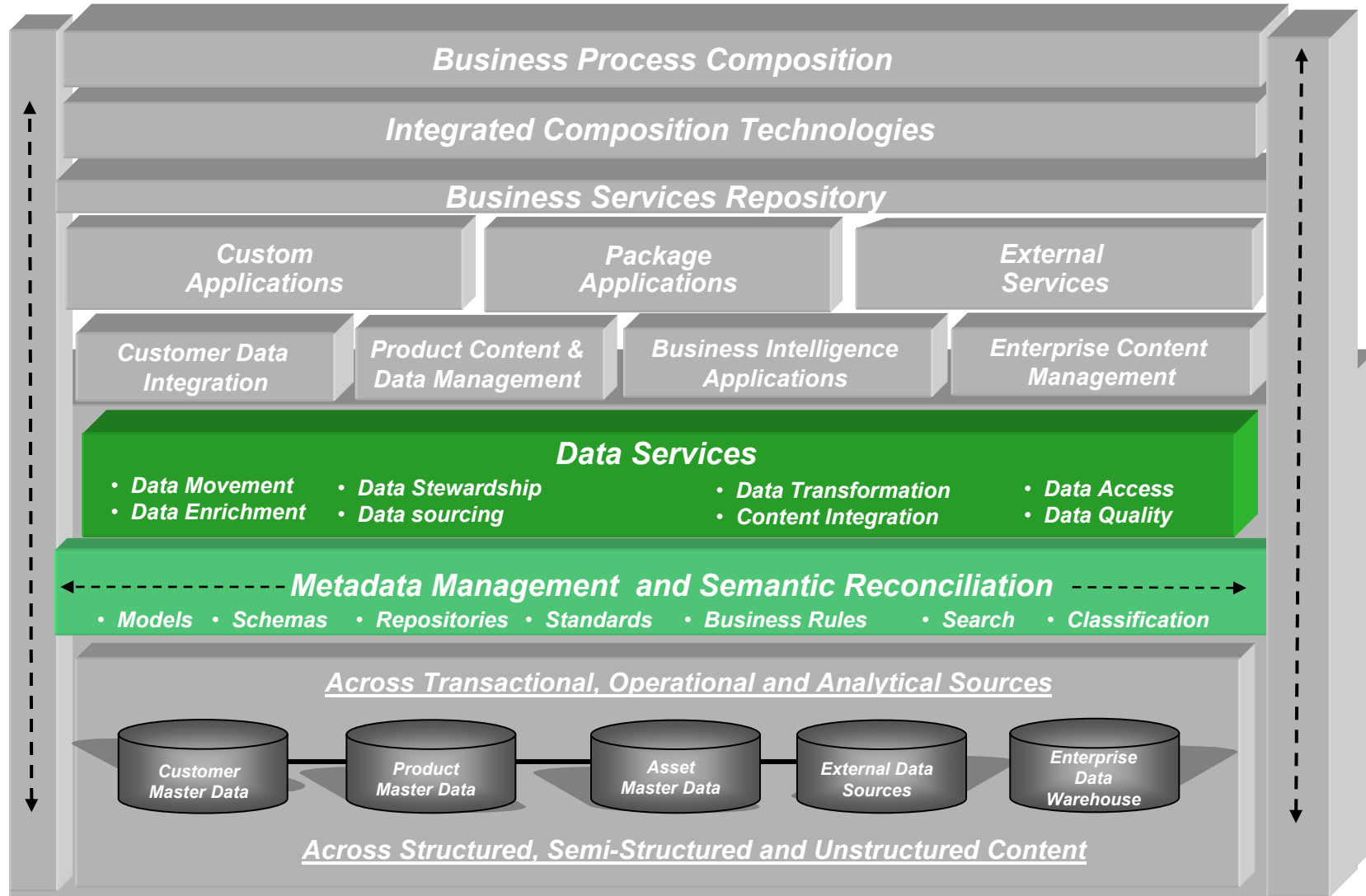
- ▶ Asking the same question in different places produces different results



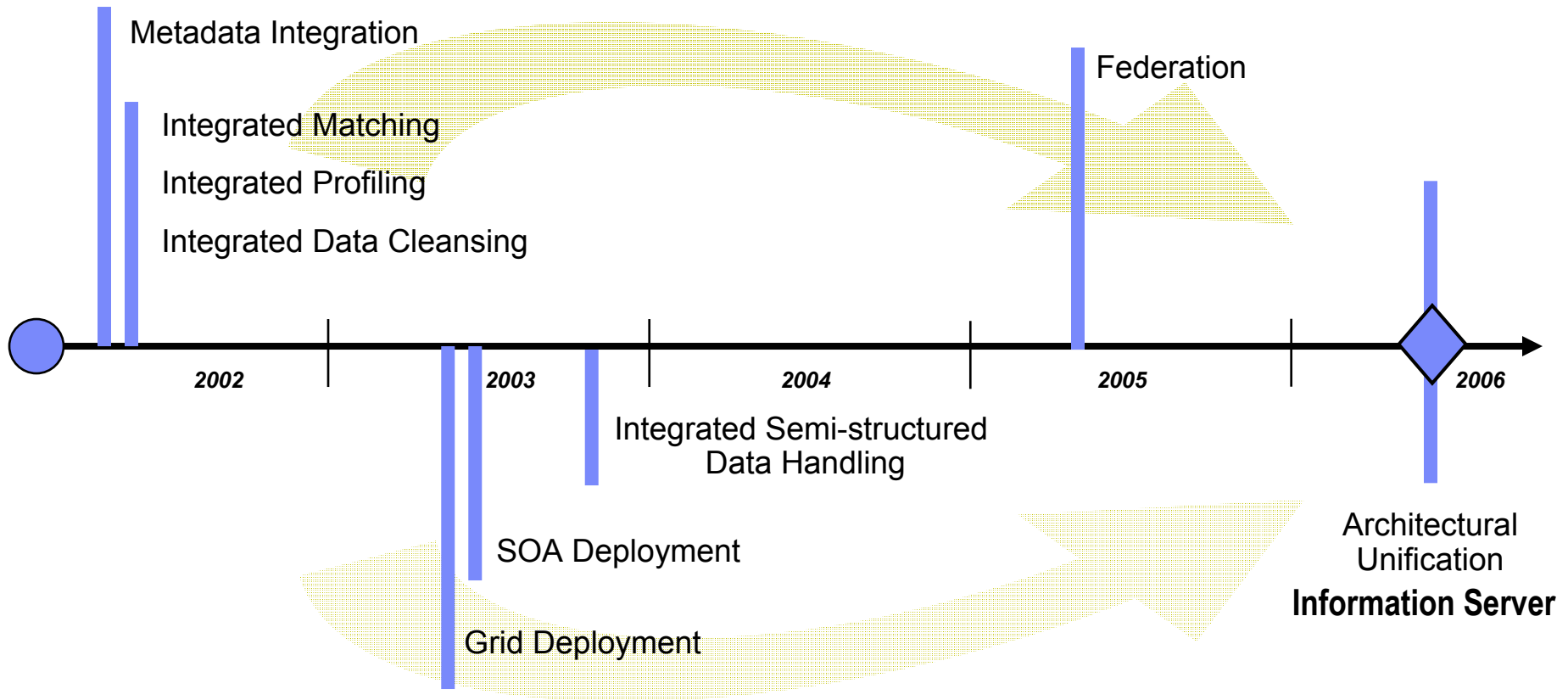
■ Don't feel like they have control over information

- ▶ No way to understand or control how information is used
- ▶ No governance of sensitive information on customers or accounts

How Gartner Defines the Requirement



The Construction of Our Platform



Introducing the Information Server

Delivering information you can trust

Information Server

Unified SOA Deployment

Understand



Discover, model, and govern information structure and content

Cleanse



Standardize, merge, and correct information

Transform



Transform and deliver information in line and in context

Federate



Virtualize access to disparate information

Unified Metadata Management

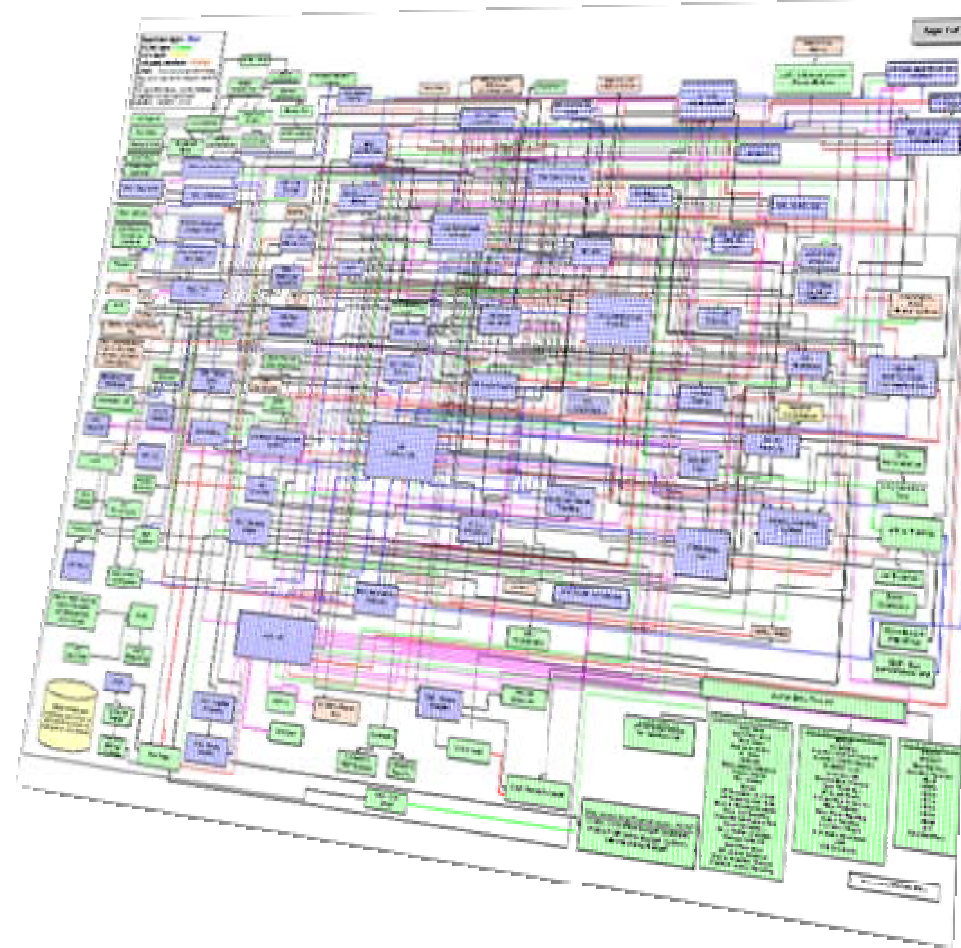
Parallel Processing

Rich Connectivity to Applications, Data, and Content



Why Is it Important to Start with Understanding?

- **Where is my information?**
- **How do I get it when I need it?**
- **What does it mean?**
- **Can I trust it?**
- **How do I get it in the form I need?**
- **How do I get it where it needs to go?**
- **How do I control it?**



Physical Metadata: Information Analyzer

- Data-centric analysis of sources
- Secure, detailed profiling of columns, across columns, and across tables
- Creation of metadata from profiling results
- Results instantly promotable across the Information Server
- ETL data flow generation capabilities



Subject Matter Experts



Data Analysts

Understand



Information Analyzer

Analyze source data structures, and monitor adherence to integration and quality rules

Frequency Distribution | Data Class | Properties | Domain & Completeness* | Format | Pattern

Required Review Not Complete | Reviewed

Data Type

Original: Inferred: VarChar New: Select...

View Summary

Inferred Summary:

Integer - 25%
 Decimal - 50%
 Char - 12.5%
 Big int - 12.5%

Inferred Frequency Distribution

| Data Value | Data Type | # | % |
|------------|-----------|-----|-------|
| efdcve | Char | 45 | 1.00 |
| vfi e | Char | 304 | 0.53 |
| eve | Char | 769 | 17.09 |
| efvefvg | Char | 444 | 9.87 |
| vfrefvev | Char | 252 | 5.60 |
| dfdfid | Char | 444 | 9.87 |
| fdf | Char | 252 | 5.60 |

Length
 Precision
 Scale
 Nullability

Physical View

Business Metadata: Business Glossary

- Web-based authoring, managing & sharing of business metadata
- Aligns the efforts of IT with the goals of the business
- Provides business context to information technology assets
- Establishes responsibility and accountability

Database = DB2

Schema = NAACCT

Table = DLYTRANS

Column = ACCT_NO

data type = char(11)



GL Account Number

The ten digit account number. Sometimes referred to as the account ID. This value is of the form L-FIIIIVVVV.



Subject Matter Experts



Business Users

Understand



Business Glossary

Create and manage business vocabulary and relationships, while linking to physical sources



Logical Metadata: Rational Data Architect

- Data modeling for data structures and federations
- Federated data discovery
- Metadata relationship discovery & mapping
- Impact analysis, and synchronization across models
- SQL & XML generation capabilities



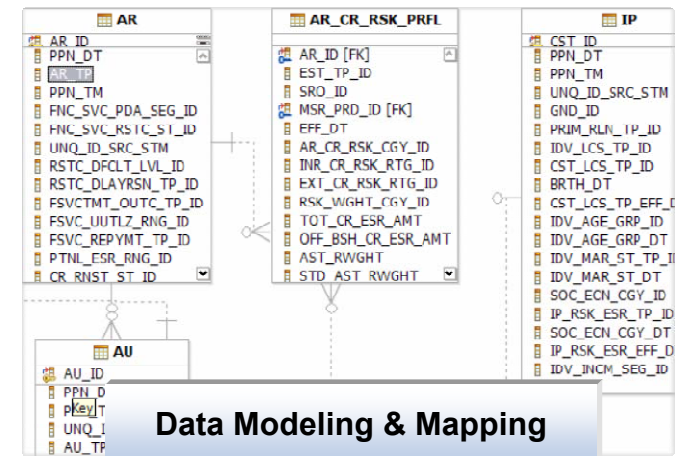
Subject Matter Experts



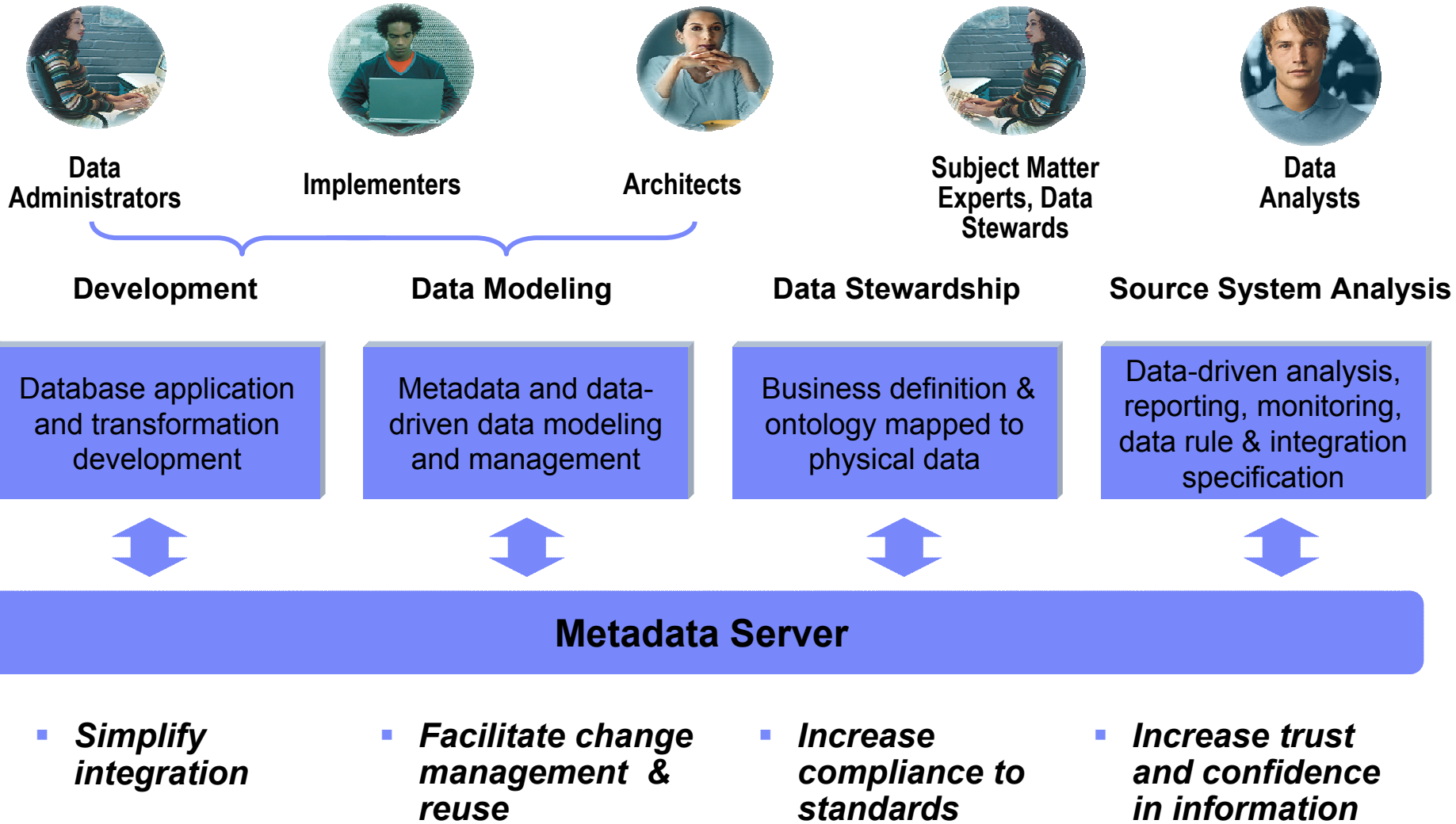
Architects

Rational Data Architect

Create and manage business vocabulary and relationships, while linking to physical sources

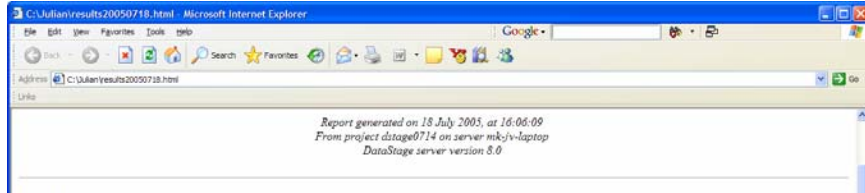


Integrated Metadata Enables Shared Understanding



Graphical Impact Analysis and Lineage Provide Trust

HTML View



Find Criteria

Name matches: *

Types to include: (All types)

Dependencies of:

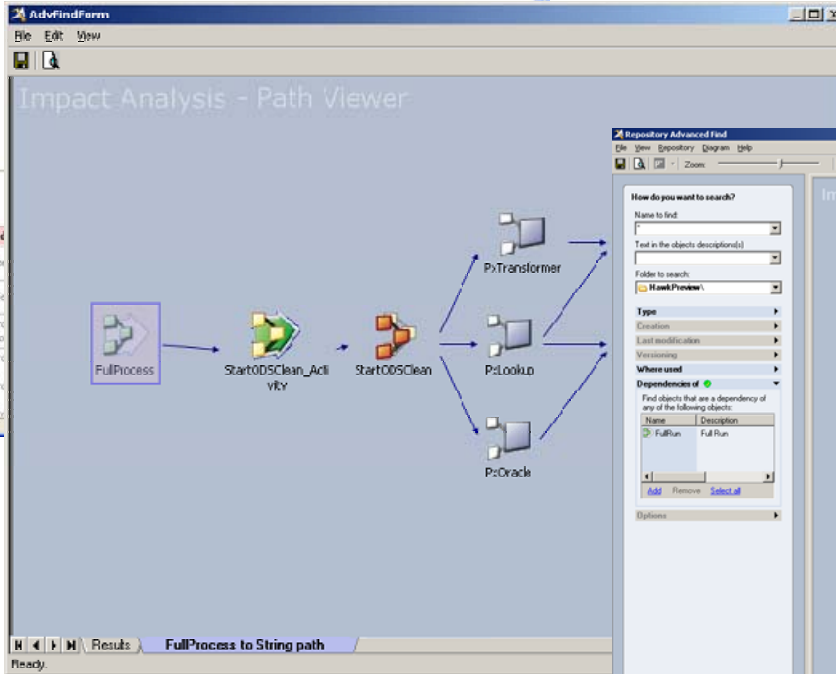
- Job Orders/process_orders

Case insensitive: Yes

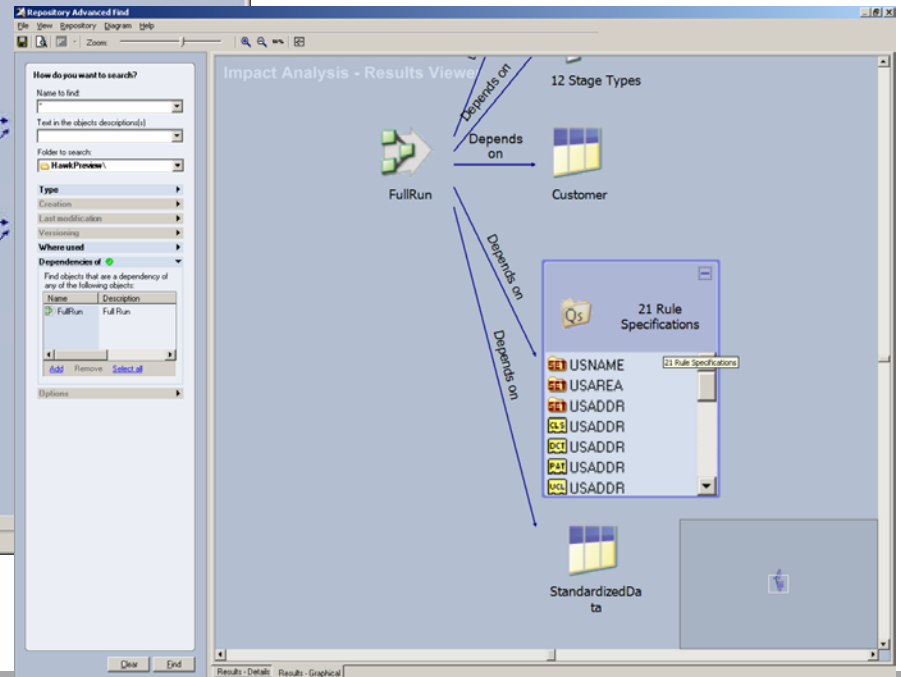
Results

| Name | Depend |
|-----------------|------------------------------|
| Transformer | process_orders -> Job -> Co |
| ODBC | process_orders -> Job -> rej |
| Sequential File | process_orders -> Job -> Or |
| | process_orders -> Job -> Pro |
| | process_orders -> Job -> Or |
| | dstage0714 EXAMPLE1 |
| | process_orders -> Job -> Or |
| | dstage0714 EXAMPLE1 |
| | process_orders -> Job -> Or |

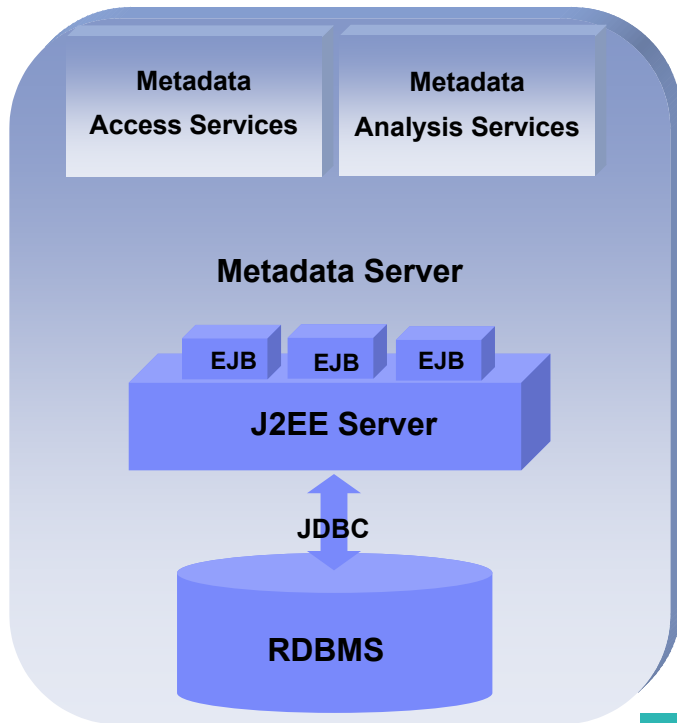
Path View



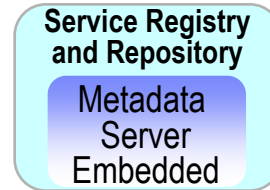
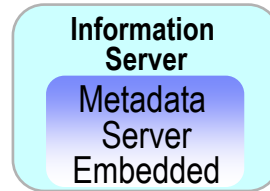
Graphical Tree View



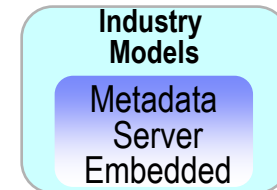
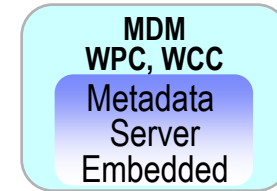
Metadata Server *Product Plan*



2H 2006



2007

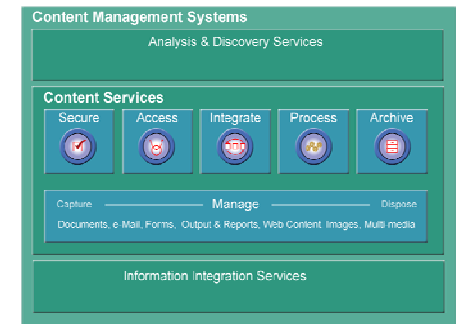
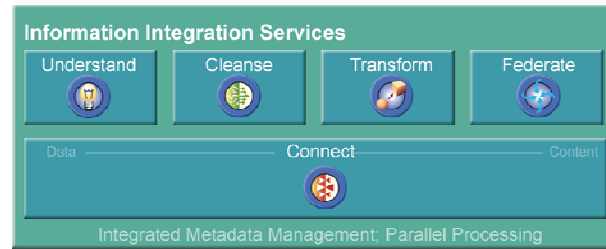


Consumers of Metadata Services Leverage Metadata to Simplify, Improve User Experience, Gain Greater Insight & Control, Exercise Governance, and Ensure Compliance

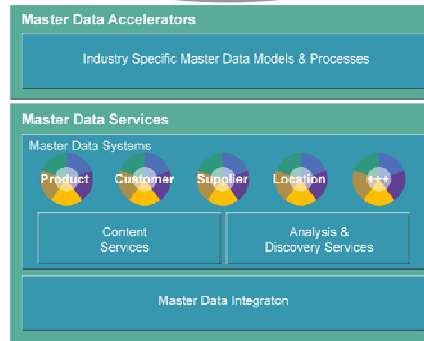
Metadata Provides Acceleration and Trust

Models provide industry specific, shared business vocabulary

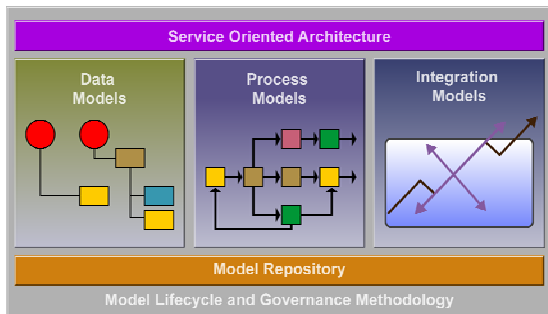
*Shared business vocabulary
Text Analytics
Lineage & impact analysis
Relationships*



*Shared business vocabulary
Text Analytics
Lineage & impact analysis
Relationships*



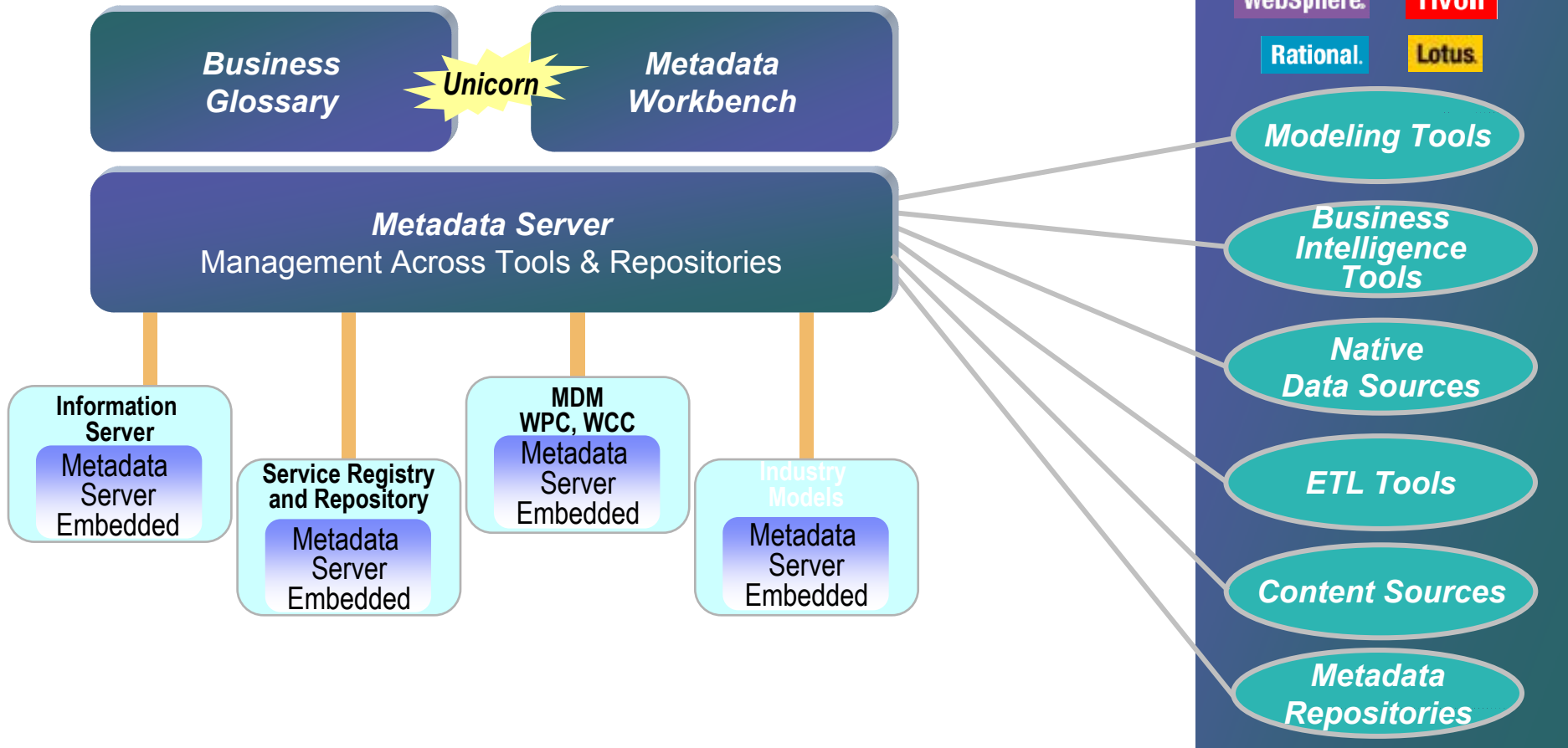
Models allow for customizations and mapping



Metadata Server

Strategy and Next Steps

- Author business concepts
- Link to technical artifacts
- Repository extension & customization
- Metadata management & analysis



Why Should I Care About Cleansing Information?

- **Lack of information standards**
 - ▶ Different formats & structures across different systems
- **Data surprises in individual fields**
 - ▶ Data misplaced in the database
- **Information buried in free-form fields**
- **Data myopia**
 - ▶ Lack of consistent identifiers inhibit a single view
- **The redundancy nightmare**
 - ▶ Redundant information within and across systems

Kate A. Roberts 416 Columbus Ave #2, Boston, Mass 02116

Catherine Roberts Four sixteen Columbus APT2, Boston, MA 02116

Mrs. K. Roberts 416 Columbus Suite #2, Suffolk County 02116

| Name | Tax ID | Telephone |
|-------------------------|--------------|--------------|
| J Smith DBA Lime Cons. | 228-02-1975 | 6173380300 |
| Williams & Co. C/O Bill | 025-37-1888 | 415-392-2000 |
| 1st Natl Provident | 34-2671434 | 3380321 |
| HP 15 State St. | 508-466-1200 | Orlando |

WING ASSY DRILL 4 HOLE USE 5J868A HEXBOLT 1/4 INCH
 WING ASSEMBY, USE 5J868-A HEX BOLT .25" - DRILL FOUR HOLES
 USE 4 5J868A BOLTS (HEX .25) - DRILL HOLES FOR EA ON WING ASSEM
 RUDER, TAP 6 WHOLES, SECURE W/KL2301 RIVETS (10 CM)

19-84-103 RS232 Cable 6' M-F Cands

CS-89641 6 ft. Cable Male-F, RS232 #87951

C&SUCH6 Male/Female 25 PIN 6 Foot Cable

| | | |
|----------|-----------------------|---------------------------------|
| 90328574 | IBM | 187 N.Pk. Str. Salem NH 01456 |
| 90328575 | I.B.M. Inc. | 187 N.Pk. St. Salem NH 01456 |
| 90238495 | Int. Bus. Machines | 187 No. Park St Salem NH 04156 |
| 90233479 | International Bus. M. | 187 Park Ave Salem NH 04156 |
| 90233489 | Inter-Nation Consults | 15 Main Street Andover MA 02341 |
| 90345672 | I.B. Manufacturing | Park Blvd. Bostno MA 04106 |

Data Cleansing: QualityStage

- Specialized data quality functions seamlessly integrated with DataStage
- Visual tools for defining complex matching and survivorship logic
- Ensures clean, standardized, de-duplicated information
- Enables a single version of the truth



Subject Matter Experts



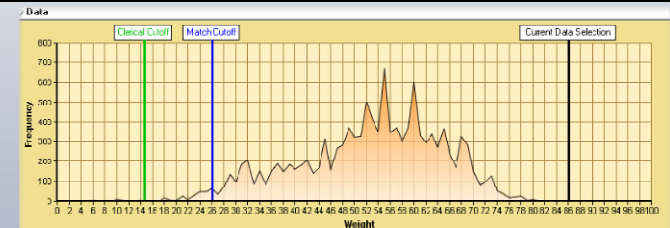
Data Analysts

Cleanse



QualityStage

Standardize and correct source data fields, and match records together across sources to create a single view



| id | RecordType | PassNumber | Weight | GenderCode | FirstName | MiddleName |
|------|------------|------------|--------|------------|-----------|------------|
| #111 | VA | 1 | 85.67 | IM | FTIR | BARBARA |
| #111 | DA | 1 | 85.67 | IM | FTIR | BARBARA |
| #111 | VA | 1 | 84.08 | IM | NICHOLAS | T |
| #111 | DA | 1 | 84.08 | IM | NICHOLAS | T |
| 3420 | VA | 1 | 81.68 | IM | CLAUD | LADWIE |
| 3420 | DA | 1 | 81.68 | IM | CLAUD | LADWIE |
| 3420 | VA | 1 | 81.68 | IM | CLAUD | LADWIE |
| 3420 | DA | 1 | 81.68 | IM | CLAUD | LADWIE |
| 4826 | VA | | 80.20 | IM | CLIFF | H |
| 4826 | DA | | 80.20 | IM | CLIFF | H |
| 7328 | | | | | | CHIN |
| 7328 | | | | | | CHIN |
| 7992 | | | | | | REILLY |
| 7992 | | | | | | REILLY |
| 8579 | | | | | | MICHELLE |
| 8579 | | | | | | MICHELLE |

Visual Match Rule Design

Data Transformation & Movement: DataStage

- Codeless visual design of data flows with hundreds of built-in transformation functions
- Optimized reuse of data integration objects
- Leverages parallel processing without requiring design changes
- Capable of supporting batch and real-time operations



Developers



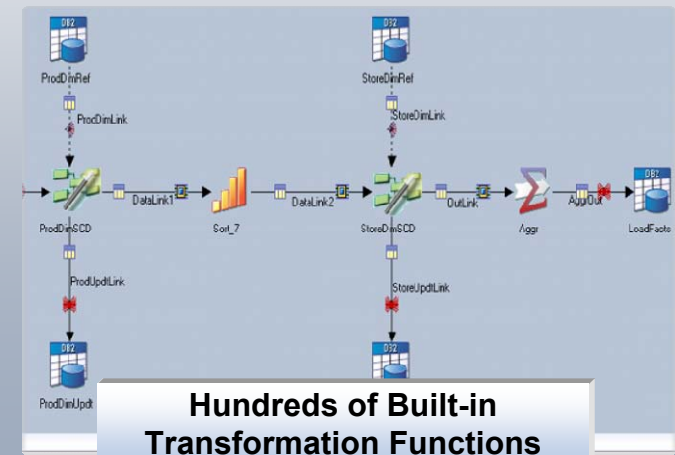
Architects

Transform



DataStage

Transform and aggregate any volume of information in batch or real time through visually designed logic



Data Federation: Federation Server

- **Access diverse & distributed information as if it were in one system**
- With single sign-on, unified views, function compensation, query and update
- **Industry leading query optimization**
- **Visual tools** for federated data discovery & data modeling

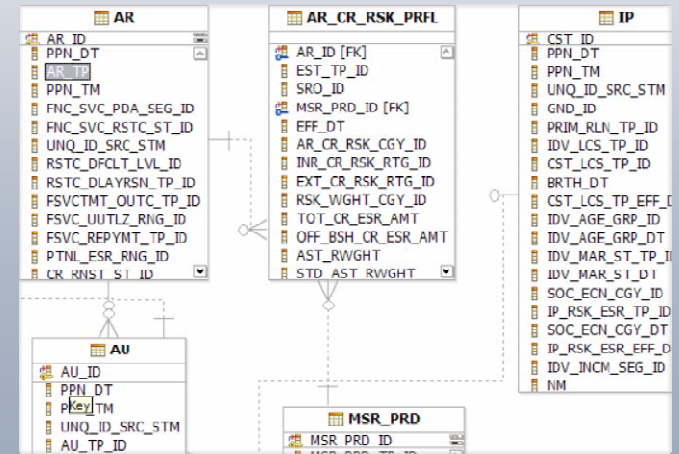
Federate



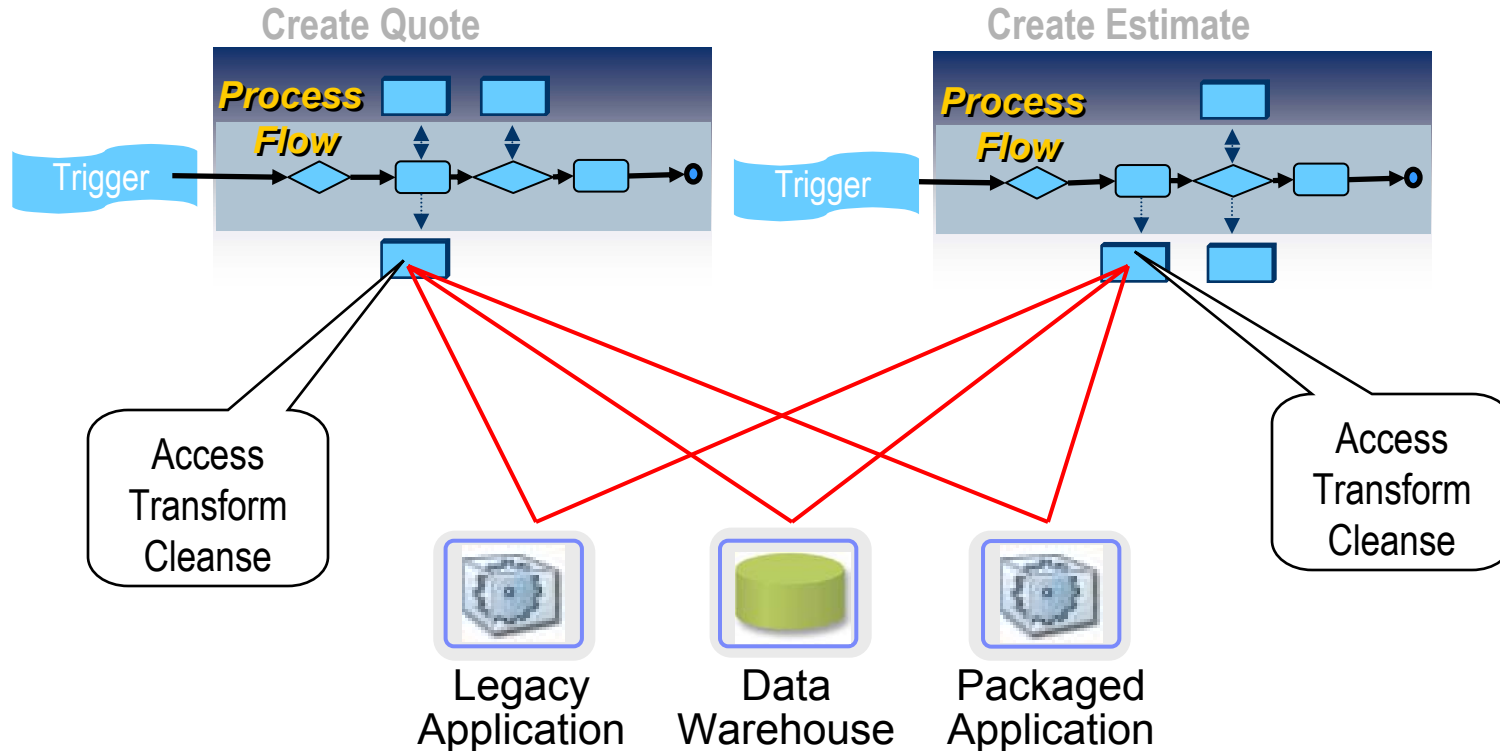
Federation Server

Access and integrate heterogeneous information across multiple sources as if they were a single source

Extend value of existing analytical applications by providing real-time access to integrated information

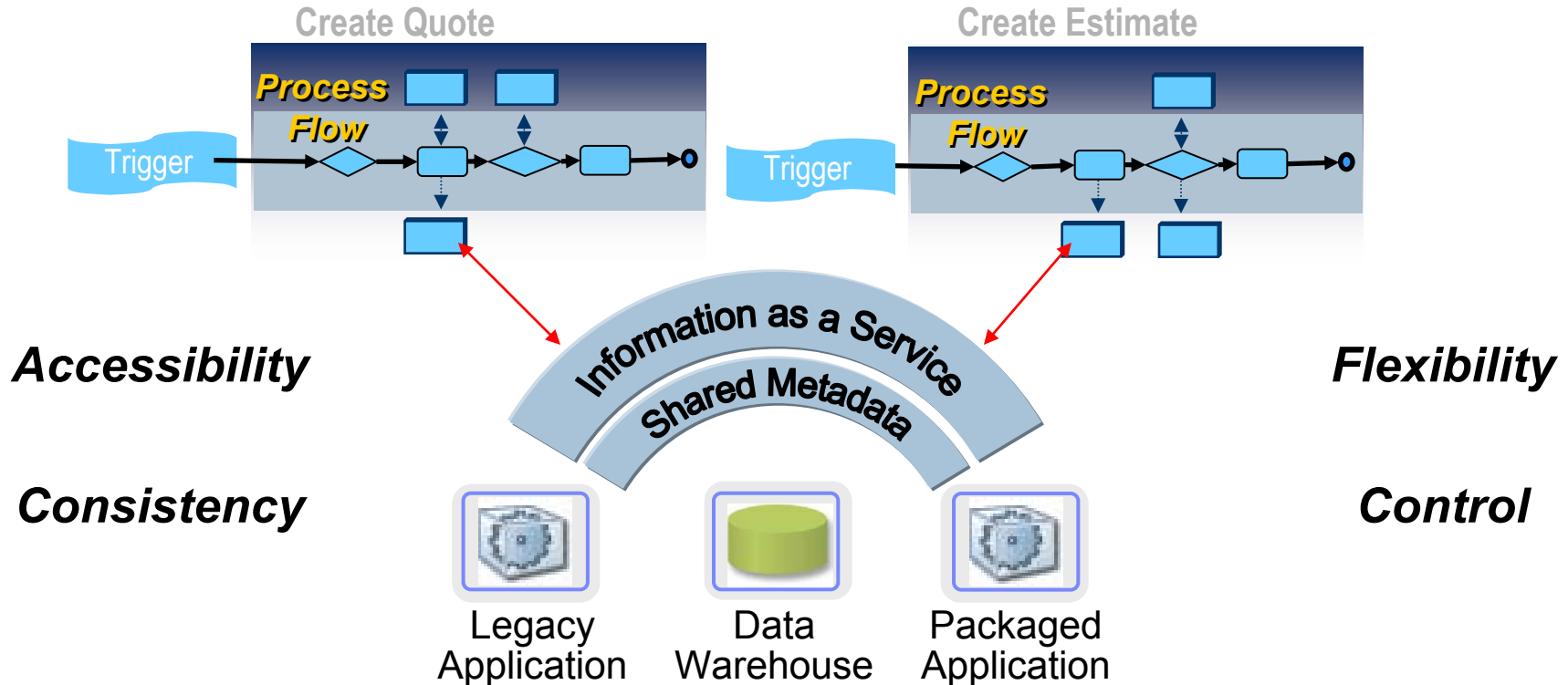


Tight Coupling of Data to Workflow Locks You In



- *Inconsistency in the “view” of the data*
- *Inconsistency in sources and how data is derived*
- *Inconsistency in rules applied to data*
- *Multiple points of maintenance*
- *No flexibility to change information sources and formats*

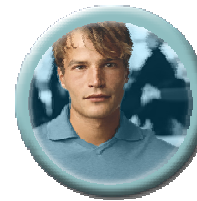
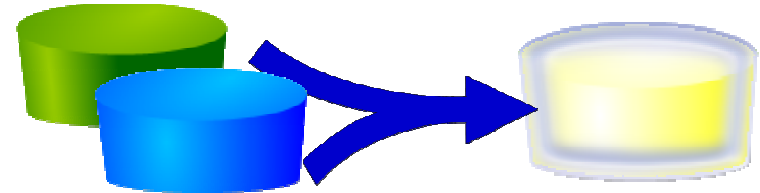
Information Virtualization Improves Flexibility



- *Consistent packaging of data*
- *Leverages understanding of metadata relationships*
- *Applies consistent rules to data*
- *Centralized control and maintenance*
- *Flexibility to change information sources and formats*

Key Considerations for Information as a Service

- Transform from a system-centric context to a business-centric context
- Allow design, maintenance, and governance to be conducted by information specialists
 - ▶ Large volume batch movement
 - ▶ Real-time event-driven response
 - ▶ Service-oriented architecture
 - ▶ Federated query



Data Analysts



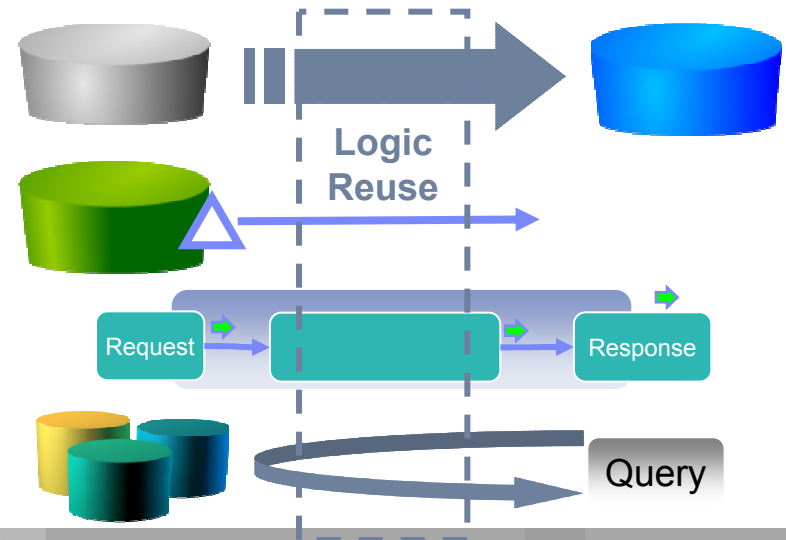
Data Architects



DBAs



Subject Matter Experts

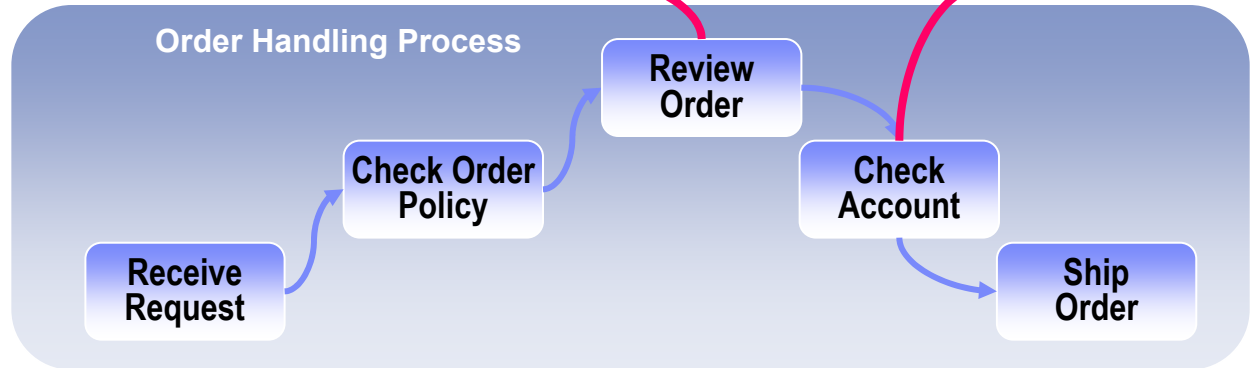
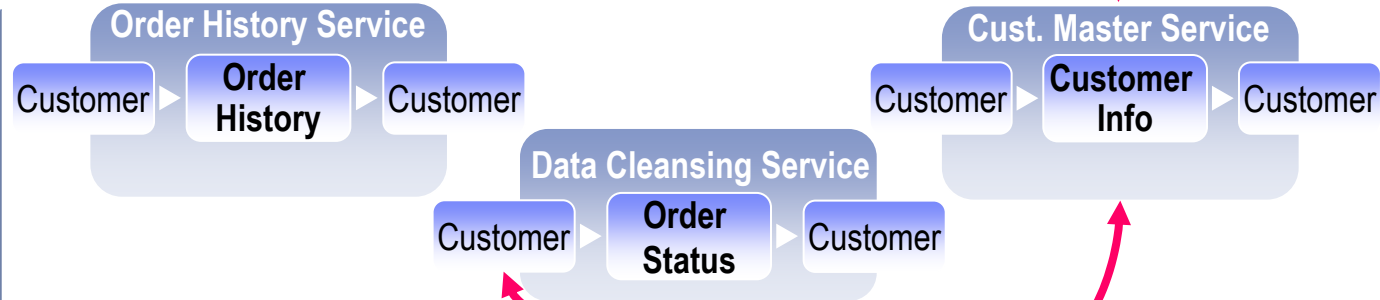
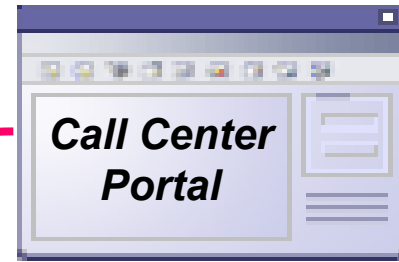


Actionable Information Services

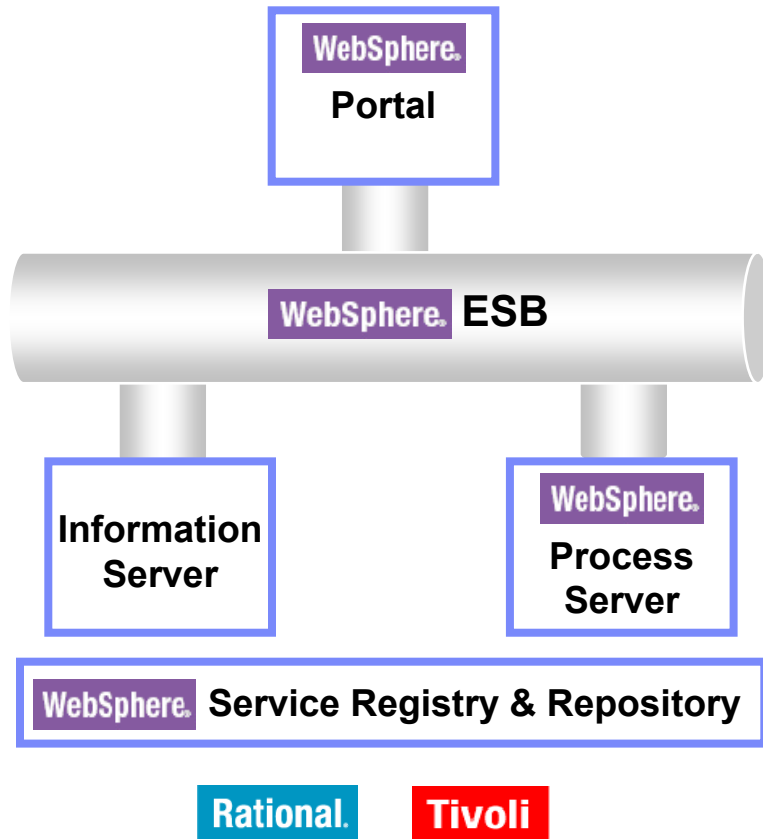
People

Information

Process



The SOA Foundation Elements



- ▶ **WebSphere Portal** allows information and process services to be brought to people
- ▶ **WebSphere Process Server** allows services to be orchestrated into new processes
- ▶ **WebSphere Information Server** allows trusted information to be delivered in line & in context to people and processes
- ▶ **WebSphere ESB** provides connectivity and communications across services
- ▶ **WebSphere Service Registry & Repository** provides service management and control

Direct Integration of Information Services into WID (2007)

Palette Objects for Information Services

Set References and Data Sources as BPEL Variables

Metadata exchange & visibility

Mapping of Service Parameters to BPEL Variables

Information Integration Service specific Tooling

Properties of RunLoadOrdersJob

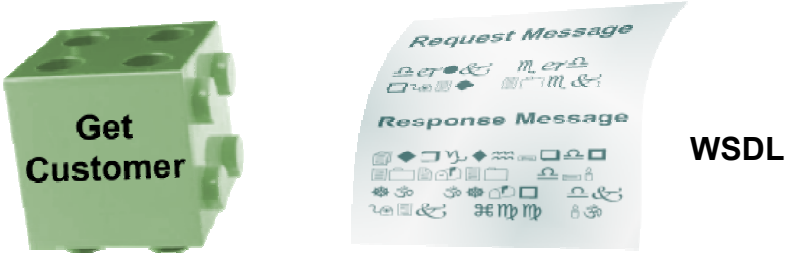
| Parameter | Value | Description |
|--------------------------|---------------------------------------|---|
| euOrdersFile | Input/EUFile | name of sequential file containing orders |
| database | Input/USDatabase | name of the database containing orders |
| schema | SetRef_USOrders/setAddress/schem... | name of the schema containing orders |
| user | Input/USDatabaseUser | user authorized to access the database |
| password | Input/USDatabasePassword | password of user authorized to access the database |
| usOrdersTable | SetRef_USOrders/setAddress/table/n... | database table containing orders |
| totalPriceLimit | Input/TotalPriceLimit | price limit for approval |
| ordersToBeProcessedTable | SetRef_OrdersToBeProcessed/setAd... | name of the table containing orders to be processed |
| ordersToBeApprovedTable | SetRef_OrdersToBeApproved/setAd... | name of the table containing orders to be approved |

How Does Metadata Make Information Services Different?

Information Services Provide A Basis For Trust In Information

Visibility Into Lineage, Relationships To Other Systems, And Business Definition

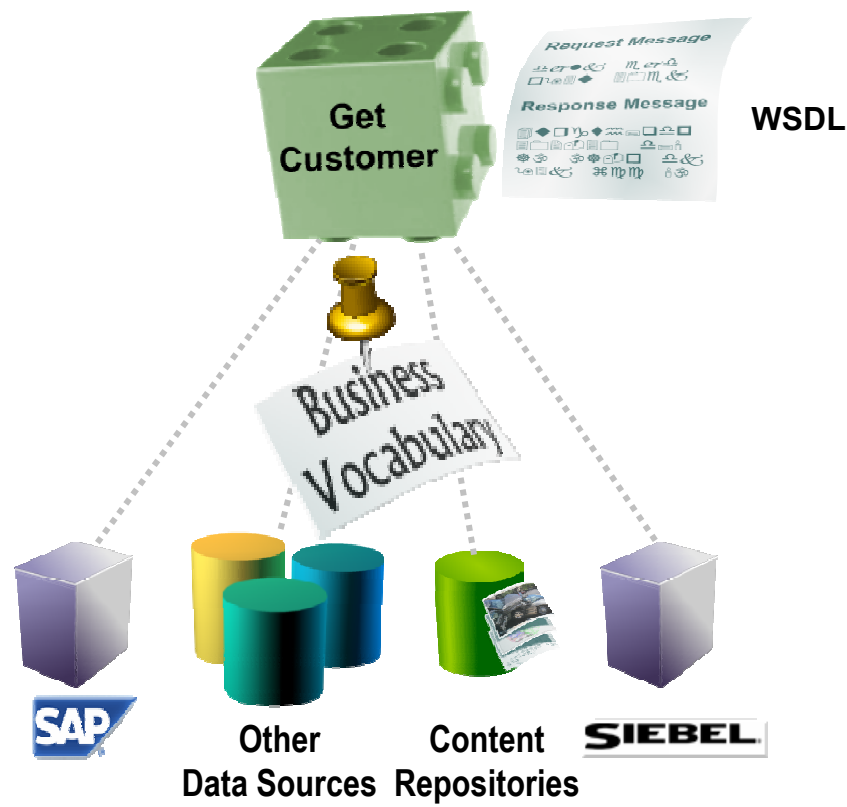
Traditional Service



- Where does the information come from?
- What happens to it along the way?
- How does this fit into how the business defines things?
- How do I know I'm using the right service?



Information Service



Service-Oriented Data Warehousing Case Study – Harley-Davidson



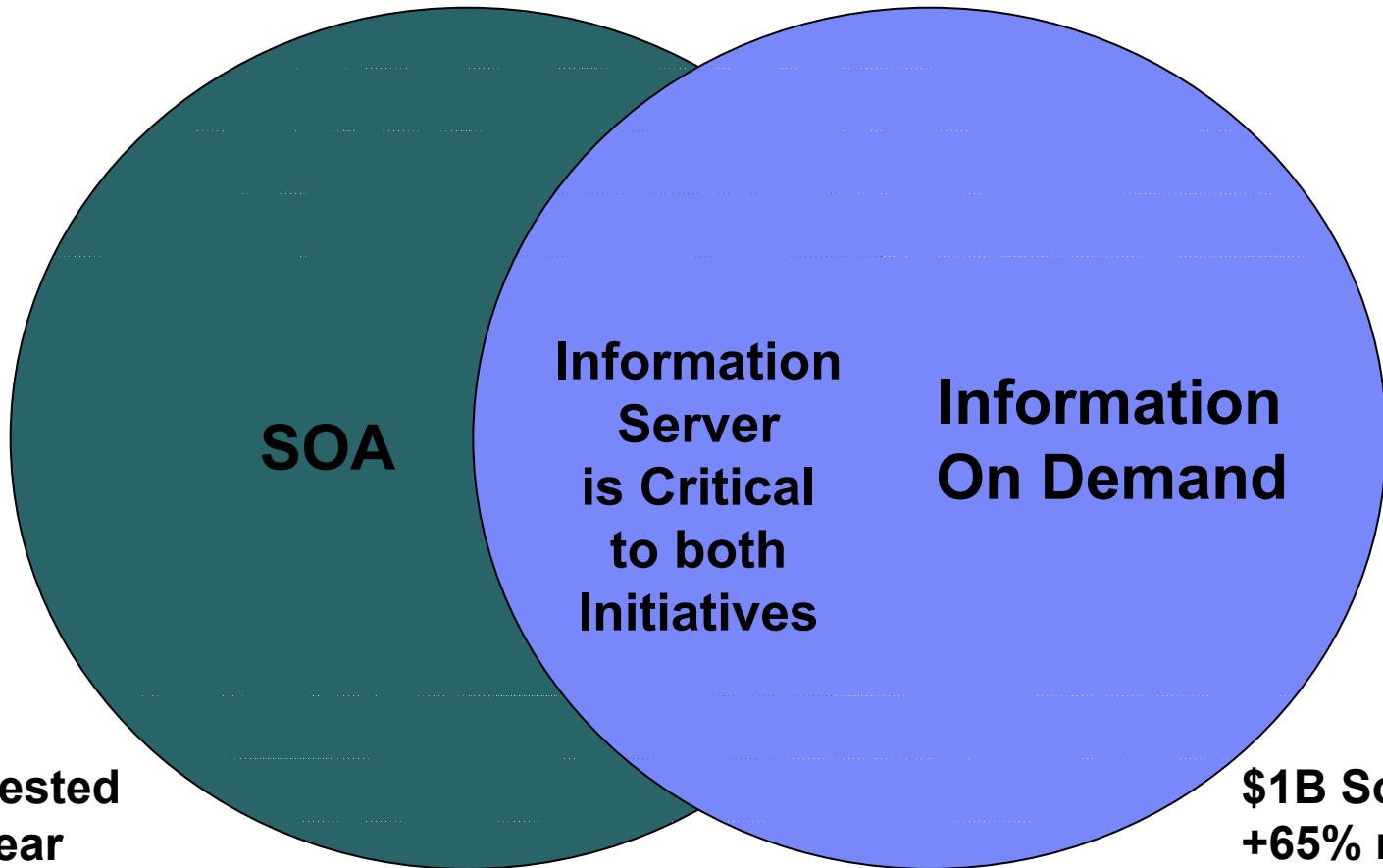
- ▶ **Challenge:** Improve flow of analytical information on inventory and local markets from corporate headquarters to dealer systems.

No reconciliation of external market and parts data with current dealer order forecasts and shipments data.

- ▶ **Solution:** WebSphere Information Server providing services around information in the enterprise data warehouse directly into dealer systems through open services.
- ▶ **Result:** Provides better access to up-to-the-minute information to dealers, reducing unnecessary reorders.

Enables closed-loop operational decision-making to improve inventory management, in-store sales, and customer satisfaction.

IBM Software Group's Largest Initiatives



\$1B invested every year

\$1B Software +65% more practitioners over 3 years



Thank
You





Information Management

Extras

IBM Software Group



ON DEMAND BUSINESS™

Master Data Management is at the Core of SOA

Industry Specific Models Required

