



# Take Control of your Information Assets

*Leverage z/OS information for critical business initiatives*



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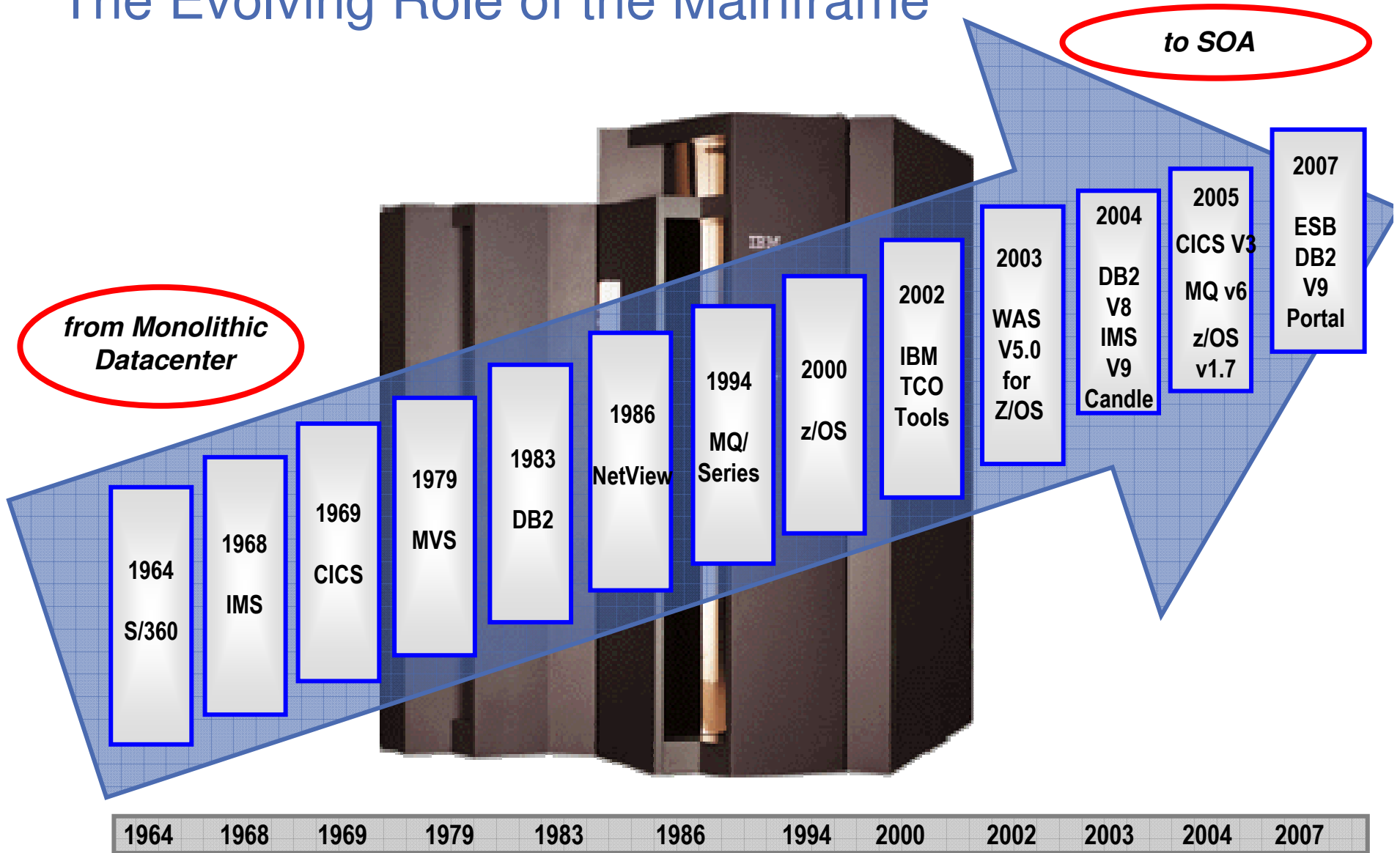
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# Agenda

- The Evolving role of the mainframe
  - Where is the mainframe today?
  - Where is it going?
- Major Industry Initiatives and their importance for z/OS
  - How are customers leveraging their z/OS Information Assets?
    - Data Quality
    - Data Governance
    - Decision support & data warehousing
    - Service Oriented Architecture
- Conclusions



# The Evolving Role of the Mainframe



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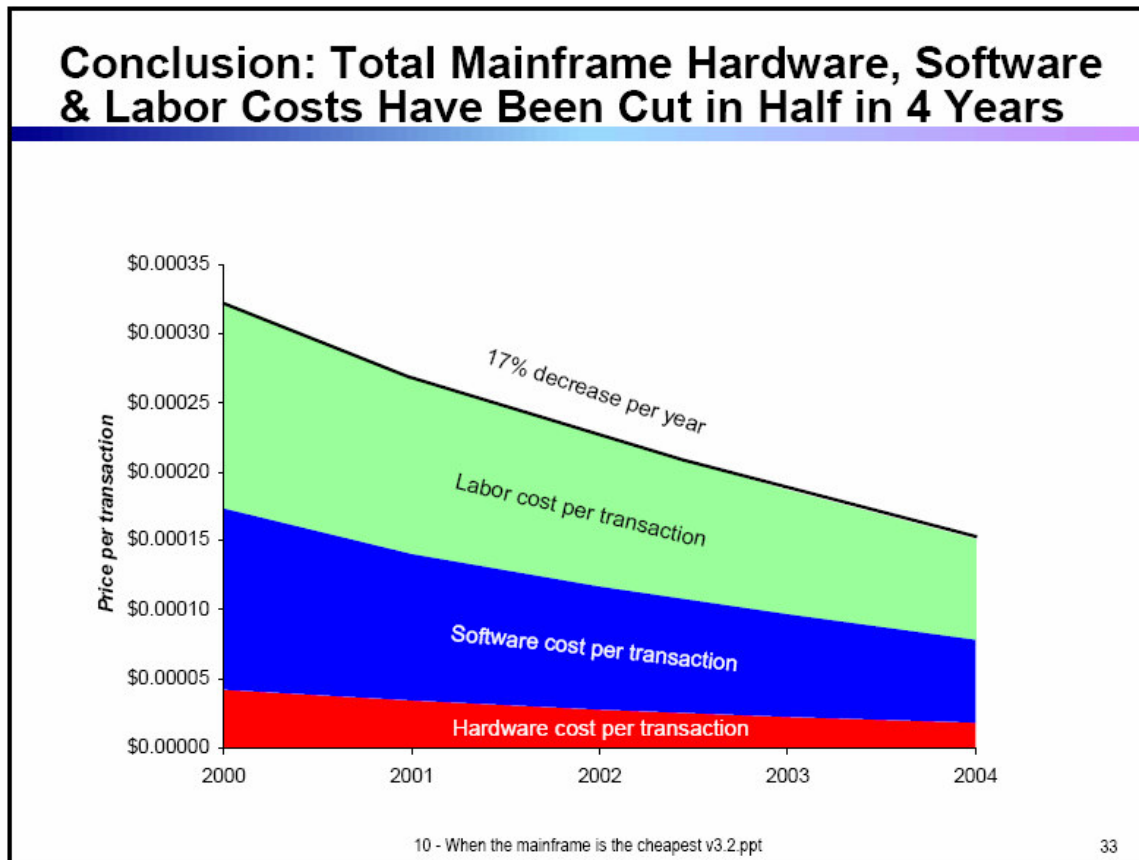
# What is driving the Mainframe Evolution

- Decreasing cost of mainframe processing
- Maximize workforce experience
- New specialty engines
- New technologies
- The world's largest data store



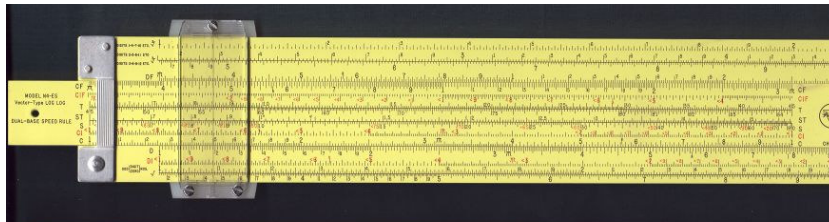
# Driving the Mainframe Evolution

- Decreasing cost of mainframe processing



# Driving the Mainframe Evolution

- Decreasing cost of mainframe processing
- Maximize workforce experience



**9(5)V99 COMP-3.**

**alloc f(finance) da('qrb.tlo50.prod.data') new using (finspec)**



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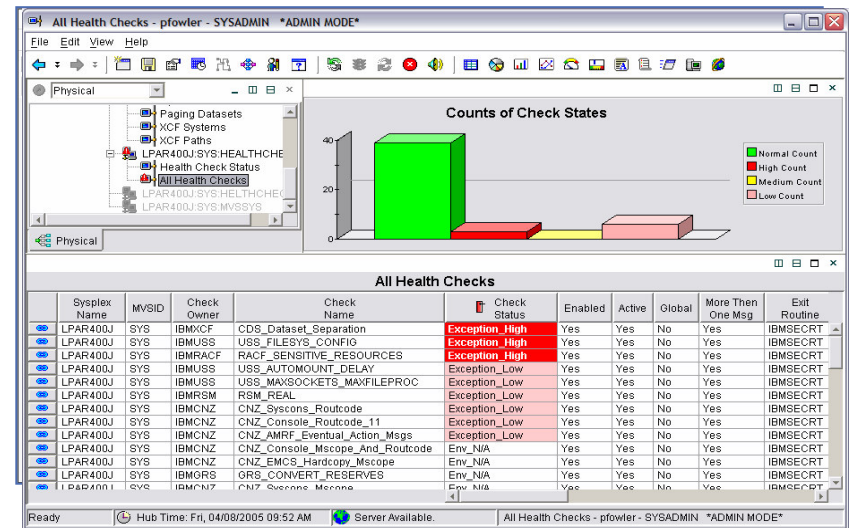
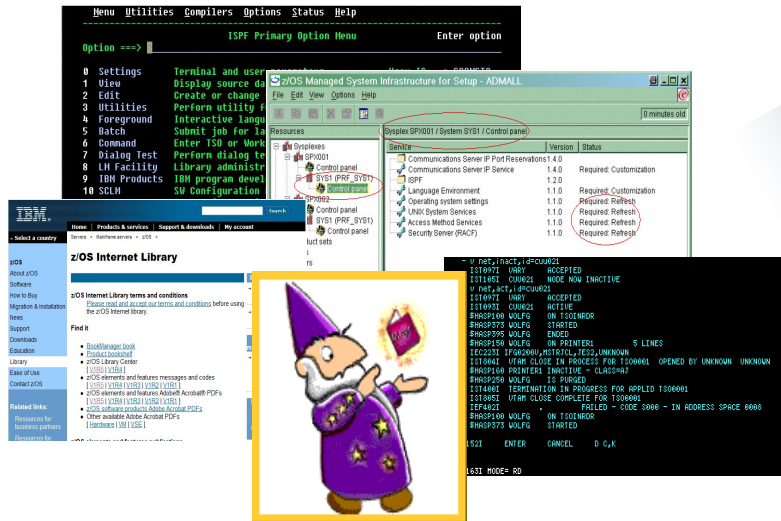
# Driving the Mainframe Evolution

- Decreasing cost of mainframe processing
- Maximize workforce experience
- **New specialty engines**
  - Linux for zOS, zIIP, zAAP



# Driving the Mainframe Evolution

- Decreasing cost of mainframe processing
- Maximize workforce experience
- New specialty engines
- New technologies



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# Driving the Mainframe Evolution

- Decreasing cost of mainframe processing
- Maximize workforce experience
- New specialty engines
- New technologies
- **The world's largest data store**
  - Today the mainframe is still home to 60 – 80% of all corporate data!



# The Information Challenge

## Business Challenges

Globalization  
M&As  
Supply Chain  
Risk & Compliance  
Customer Loyalty  
Operational Costs  
Business Velocity  
...

**INFORMATION  
IS A  
STRATEGIC  
ASSET**

## Information Challenges

Accuracy  
Timeliness  
Relevance  
Accessibility  
Version control  
Volume and Variety  
Information Silos  
...

**5X more value creation by  
60%+ of CEOs: Need to do  
organizations using  
a better job leveraging  
information effectively**

**People can spend up to 70%  
of their time looking for  
information**



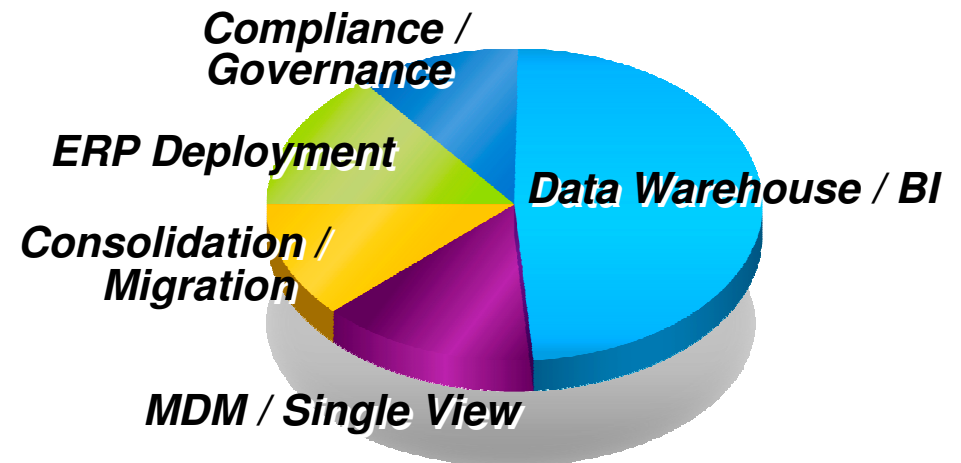
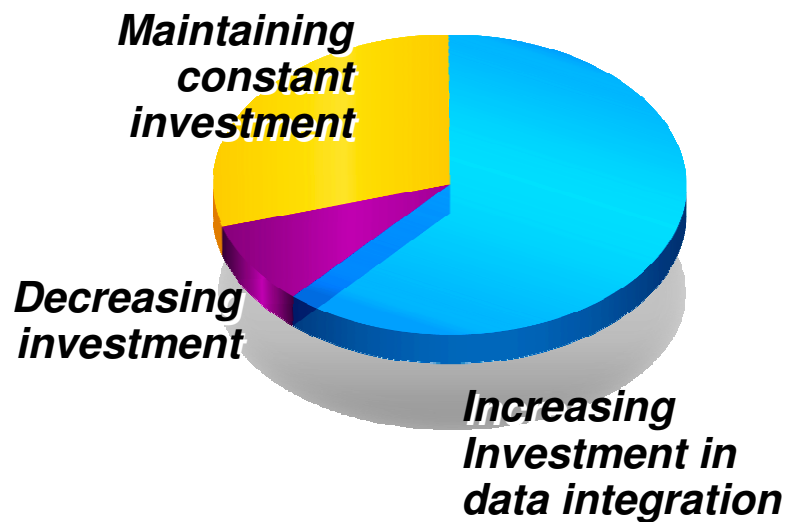
Sources: IBM Attributes & Capabilities Study, 2005; Client Interviews 2004; IBM CFO Study, 2006

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# Spending and IT Investment are Following

*Investments in data integration are increasing*

*Driven by strategic initiatives*



Source: Gartner 2006

"Gartner Study on Data Integration Identifies Key Usage Trends"

Source: IBM 2006

IBM Survey of 1,600 CIOs

**Business Intelligence applications are the #1 technology priority**  
**Business process improvement is the #1 concern**



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# Information Related Customer Business Issues



## ■ **Too much information, not knowing what's important**

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



## ■ **Multiple versions of the truth**

- Problems managing customer, product and partner interactions
- Regulatory compliance inhibited by poor transparency
- Decisions based on incomplete or inaccurate information



## ■ **Lack of trusted information**

- Incomplete, out-of-date, inaccurate, misinterpreted data
- Difficult to understand or control how information is used
- “What is the source of this information?”



## ■ **Lack of agility**

- Inability to take advantage of opportunities for innovation
- Escalating costs due to inflexible systems and changing needs



# Every Day Data Integration Challenges

- New applications on diverse platforms drive integration demands  
*How do you reuse critical "z" operational data on these platforms?*
- Mergers & acquisitions and business intelligence drive consolidation  
*How do you manage complex transformations to rationalize diversity?*
- Performance, geography and the politics of "data ownership" drive you to create more and more copies of your data.  
*Can you ensure timely, accurate and consistent synchronization?*
- Reliance on proprietary skills can result in workload backlogs.  
*Can you leverage standards on the mainframe?*
- “Data and content volumes are expected to increase by a factor of 10 during the next five years” *Gartner, November 2005*  
*How will you deal with these growing volumes?*
- Survival and Regulations depend on Accurate Information  
*Data quality degrades on average 2% every month*





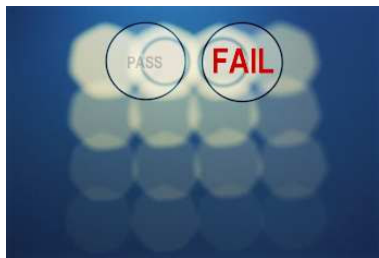
# Data Quality and Mainframe Data Assets



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# What you don't understand, CAN hurt you!

83% of data integration projects either overrun or fail



Inaccurate or incomplete data is a leading cause of failure in business-intelligence and CRM projects



25% of time is spent clarifying bad data



Scrap and rework  
Increased costs

Lack of consumer confidence

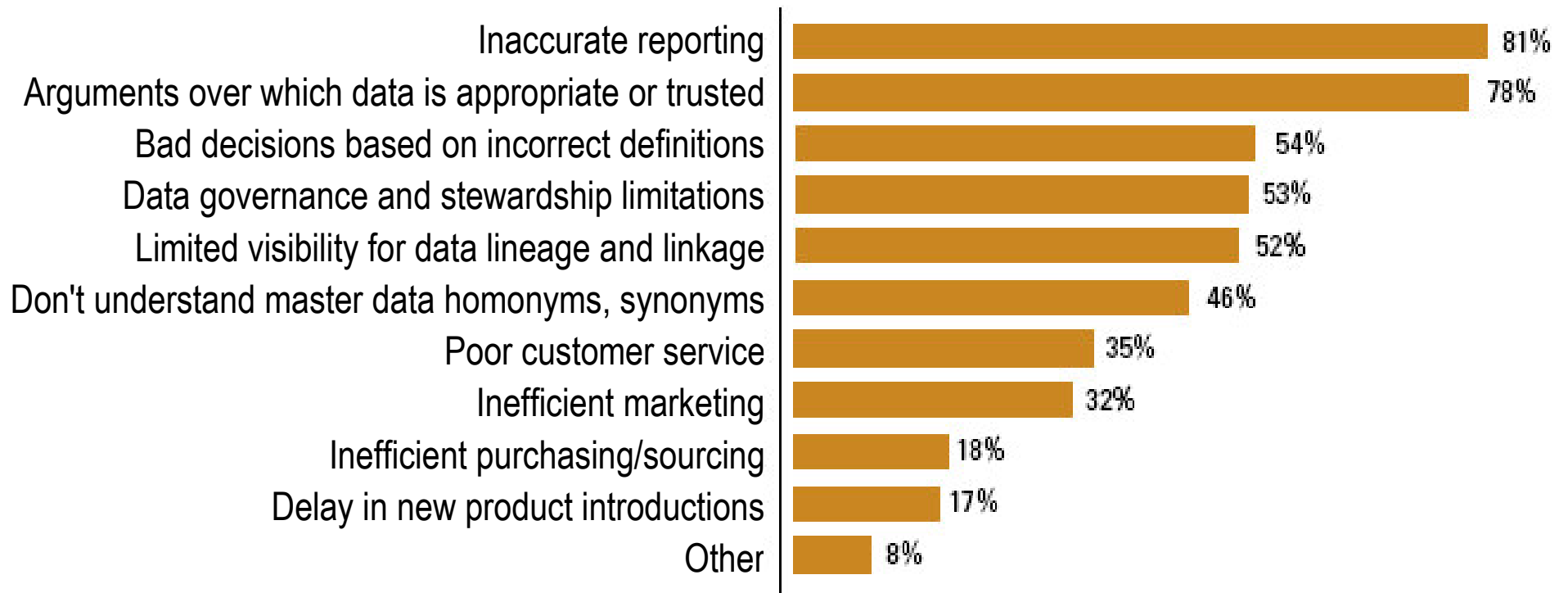
Lost opportunities

Low data quality costs companies \$611 billion annually

Undetected defects will cost 10 to 100 times as much to fix upstream



# How Organizations Suffer from Poor Data Quality



*TDWI, October 2006*



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# Data Quality is a never-ending challenge

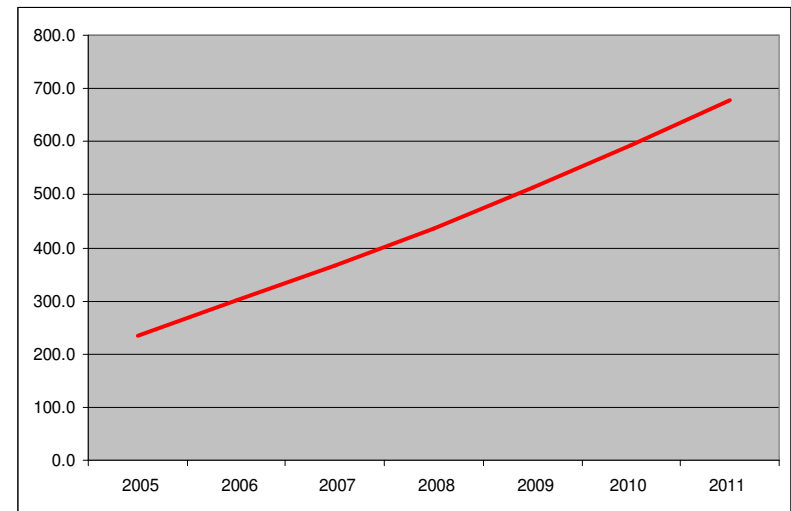
- Poor quality input data
  - No controls for preventing online entry of duplicates or invalid address information
  - Data coming from external sources is not cleansed
- Many, many duplicates
  - Created by processes
  - End users create their own
  - Each copy is an opportunity for inconsistency
- The situation only gets worse over time
  - Data quality degrades at a rate of 2% per month (Gartner study)
  - Increased volumes make it more difficult
  - Business processes introduce "bad" data:
    - Mergers & acquisitions
    - List imports
    - Application upgrades
    - Instance consolidations



# The Quality Market

- Organizations have realized the significant negative impact of poor-quality data
  - Information is key to virtually every aspect of business operations
  - Large enterprise investments are jeopardized
  - Organizations are at risk legally because of recent governance regulations.
  - Programs concerning BI and data warehousing, ERP, CRM, data migration, and data integration frequently suffer from poor data quality
  - Organizations have found that their previous investments in enterprise applications, such as ERP, CRM and other enterprise wide systems, have not fully achieved expected benefits

## Gartner Forecast Data Quality Tools Worldwide, 2006-2011



**The data quality tools market will grow to \$677 million by 2011.**

*Reflects a strong five-year compound annual growth rate of 17.6% as organizations continue to invest in technologies critical to managing data assets.*



# Data Quality and Mainframe Data

order\_amount    numeric    143☺!--24    **Good or Bad ?**

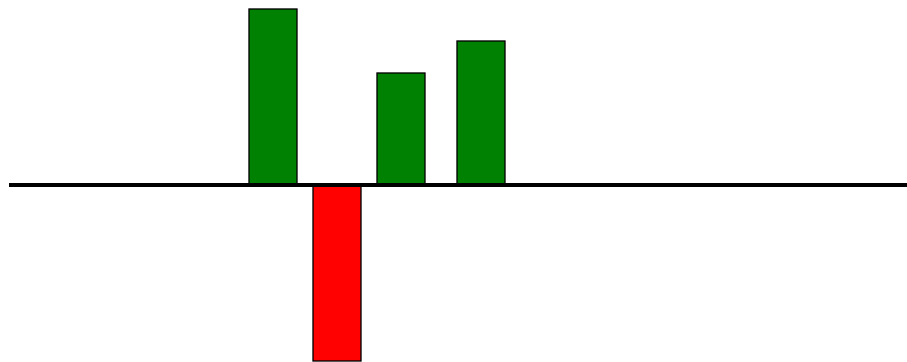
order\_amount    numeric    143.7124    **Good or Bad ?**  
14371.24

Cardinality: “Report shows **53** distinct STATE\_CODES.” **Good or Bad ?**



# Quality of Information

- Do you trust the data that you are delivering ... or receiving?



- Does everyone agree on the model? What is a “customer?”

**Kate A. Roberts**      **4 New York Plaza Floor 23, Manhattan NY, 10036**

**Katherine Roberts**      **Four NY Plaza, FL-23, New York New York, 10036**

**Mrs. K. Roberts**      **4 NY Plaza, LVL23, NYC 10036**



# Example of Data Quality at DHL



## Challenge

Multiple mergers and acquisitions is preventing DHL from providing globally consistent, 7x24 customer service, SLA, performance metrics, contracts, etc.

## Business benefits

- Merged regional silos of data into a single view of the customer
- Integrated Airborne's land operations into DHL
- Implemented Global SLAs, tracking and reporting for NA customers
- Established firm base for additional acquisitions





# Data Governance and Mainframe Data Assets



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# What is Data Governance?

*The formal orchestration of people, processes, and technology that enables organizations to leverage data as an enterprise asset.*

- Why is it needed?
  - Existing definitions of corporate data are often non-standard and conflicting
  - Confidence in data is lacking because of poor quality and inaccuracy
  - Data whose value is *truly* critical or valuable is not protected
  - Enterprises are unable to take maximum advantage of data that is under their control, but unmanageable.



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# Benefits of Data Governance

- More confident decision making
- Agreement and consistent understanding of concepts throughout all of IT and parts of the business
- Better management of privacy
- More attainable Regulatory Compliance
- Improved customer loyalty and revenue enhancement





# How is Data Governance Achieved?

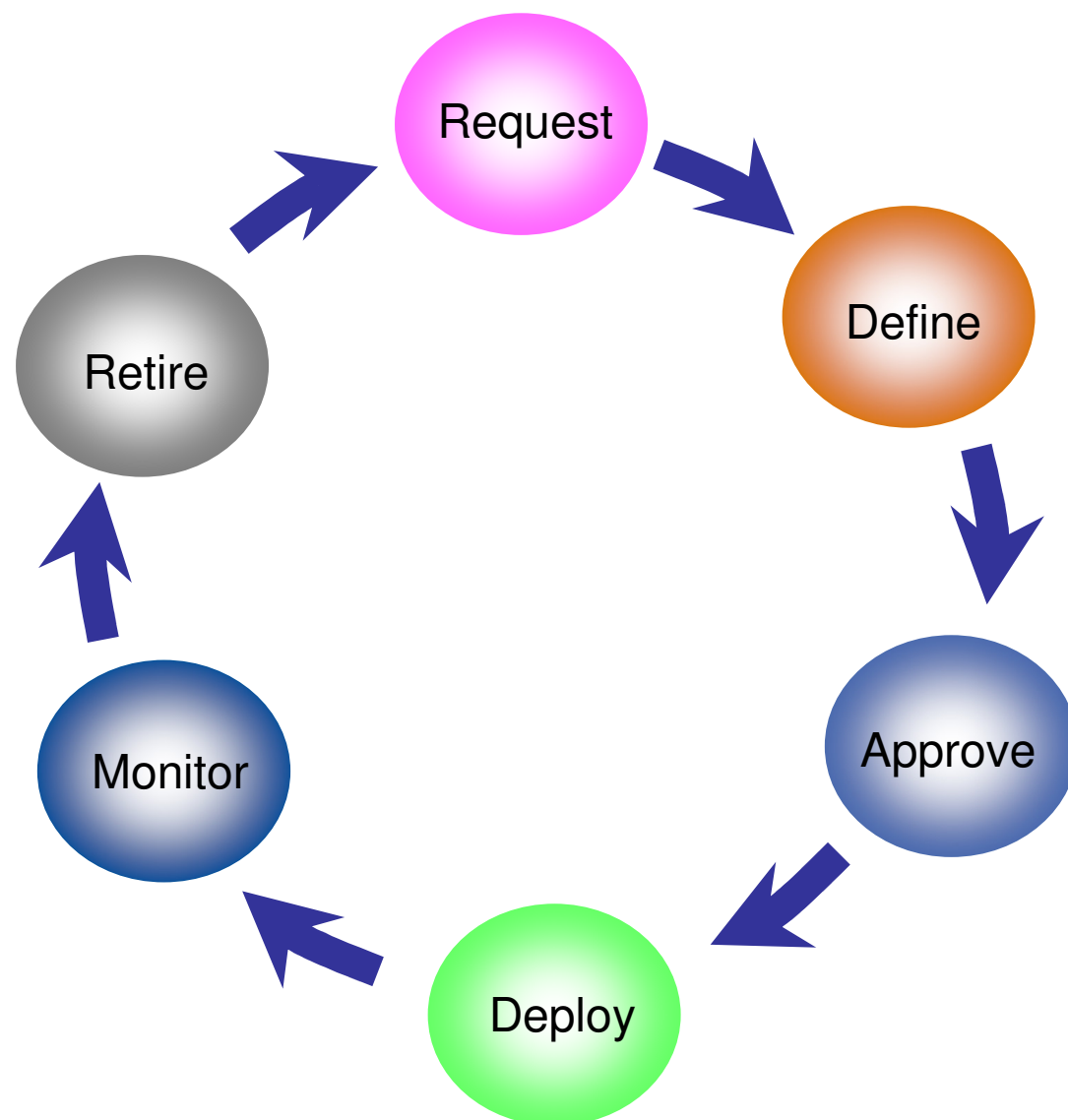
- Confirm executive sponsorship
- Perform a data governance assessment (how are we doing right now?)
- Identify data stewardship hierarchy
- Design classification and “states” for managed entities
- Define policies and procedures

*Establish a “culture” and dedicated commitment to enterprise Data Governance*



# The Data Governance Life Cycle

- Entities are managed through various “states”
- All levels (*and systems*) of the enterprise have a vested interest in the cycle and “states” of data entities



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# Data Governance: Lessons learned and summary

- Data Governance is difficult and requires:
  - Sponsorship at executive levels
  - Hierarchy of “stewardship” that identifies key “owners” where data is defined and used
  - Methodology and policies that manage the data governance life cycle
  - Acceptance and “belief” in the methodology, policies, and best practices that are implemented





# Data Warehousing and Mainframe Data Assets



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# A Single View of the Enterprise

## Drives the requirement for Data Warehousing



- Data **volumes** rise
- Amount of **historical Information** grows
- Number of **users** grows
- Questions more **numerous** and **sophisticated**
- **Schema** complexity grows
- Workload **mixture** changes
- **Development** time shrinks



# Leveraging Information to Create Business Value

*Insightful, Relevant Information When and Where it's Needed*

## 3rd Generation Information On Demand

- Optimize Each Transaction
- Call Centers, Field Ops



*Dynamic  
Warehousing*

## 2nd Generation OLAP & Data Mining

- Merchandising, Inventory, Operations



*Traditional Data  
Warehousing*

## 1st Generation Query & Reporting

- Financials, Sales



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# zOS is ready for the Dynamic Warehouse!

*“As a direct effect of the mixed workload, with continuous loading and the increase in automated workloads from the functional analytics in OLTP, the performance issue in Data Warehousing performance issue in Data Warehousing. Transactional DBMSs have an edge that challenges the DW DBMSs”*

Gartner Data Warehouse Magic Quadrant, 2006



## OLTP

### Benefits of a transactional data server foundation

Optimized for real-time access,  
High availability and reliability  
Scalable, secure and auditable

## DW DBMS

### Dedicated warehousing

Advanced data partitioning  
Workload management



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# Examples of Dynamic Warehousing in Action

*Enabling Information On Demand for Business Advantage*

Traditional warehousing		Dynamic warehousing
Insurance fraud analysis and reporting	▶	Identifying potentially fraudulent claims prior to approval and payment ----- <b><i>Transforms healthcare</i></b>
Reporting on customer issues	▶	Identifying possible related issues, churn risk and cross-sell opportunities while engaged with the customer ----- <b><i>Transforms customer service</i></b>
Historical sales analysis and reporting	▶	Understanding relevant customer info to identify cross sell opportunities & improve negotiating position at point of sale ----- <b><i>Transforms sales effectiveness</i></b>
Crime statistics and reporting	▶	Identifying related incidents and potential suspects prior to arriving at the crime scene ----- <b><i>Transforms crime fighting</i></b>







# SOA and Mainframe Data Assets



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# Service Oriented Architecture

## *Services are the Building Blocks enabling Innovation*

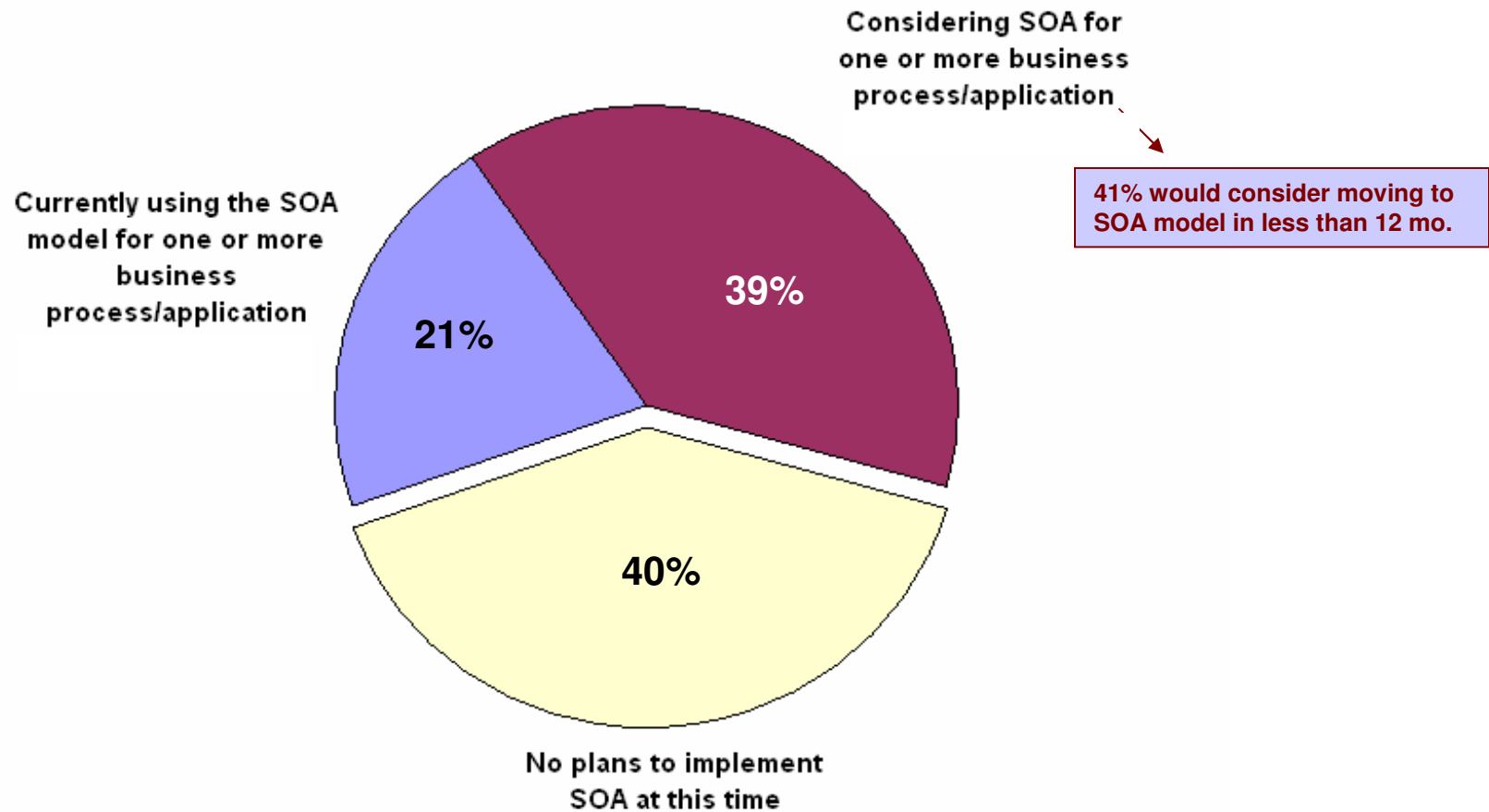
- Packaging business functions from new and existing applications in a simple and standardized way creates services that are available for use
- Services are used to help get the right information to the right people at the right time
- Services can be reused and combined to deploy composite applications to address new opportunities
- Increasing use of “Web” services based on open standards complements existing services technology



**The flexibility to treat elements of business processes and the underlying IT infrastructure as secure, standardized components (services) that can be reused and combined to address changing business priorities**



# SOA Use & Adoption



Q. Which of the following best describes your company's use of SOA today?

% of Responses. N=1077

Source: AMR Research, September 2006



# SOA & Mainframe: Made For Each Other

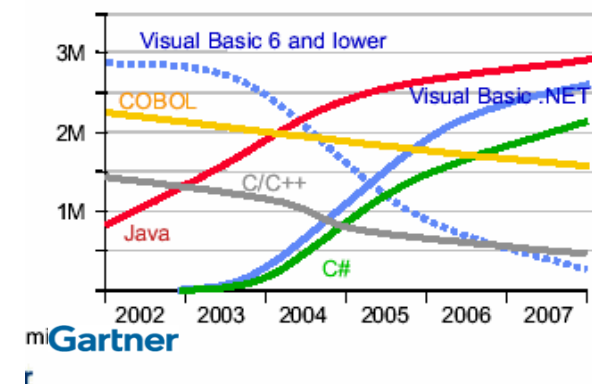
## *Leverage What You Have vs. Rewrite*

- Significant business intelligence exists in legacy
  - "200 Billion lines of COBOL code in existence"
  - "5 Billion lines of COBOL code added yearly"
  - "Between 850K and 1.3 Million COBOL developers"
  - "Majority of customer data still on mainframes"
  - "Replacement costs \$20 Trillion"
- Rewriting -- is it an option?
  - How long will it take (lose strategic benefit)?
  - Who will do it (who has the business knowledge)?
  - Is the business model still accurate?
  - How much will it cost, and what's the risk?
  - Performance?

*eWeek*  
*Bill Ulrich, TSG Inc.*  
*IDC*  
*Computerworld*  
*eWeek*

### Developers

From an estimated worldwide market size of 7 million "professional" developers



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# Information On Demand and SOA

*Two sides of the same coin...*

SOA provides business flexibility

IOD provides the trusted information needed by your services



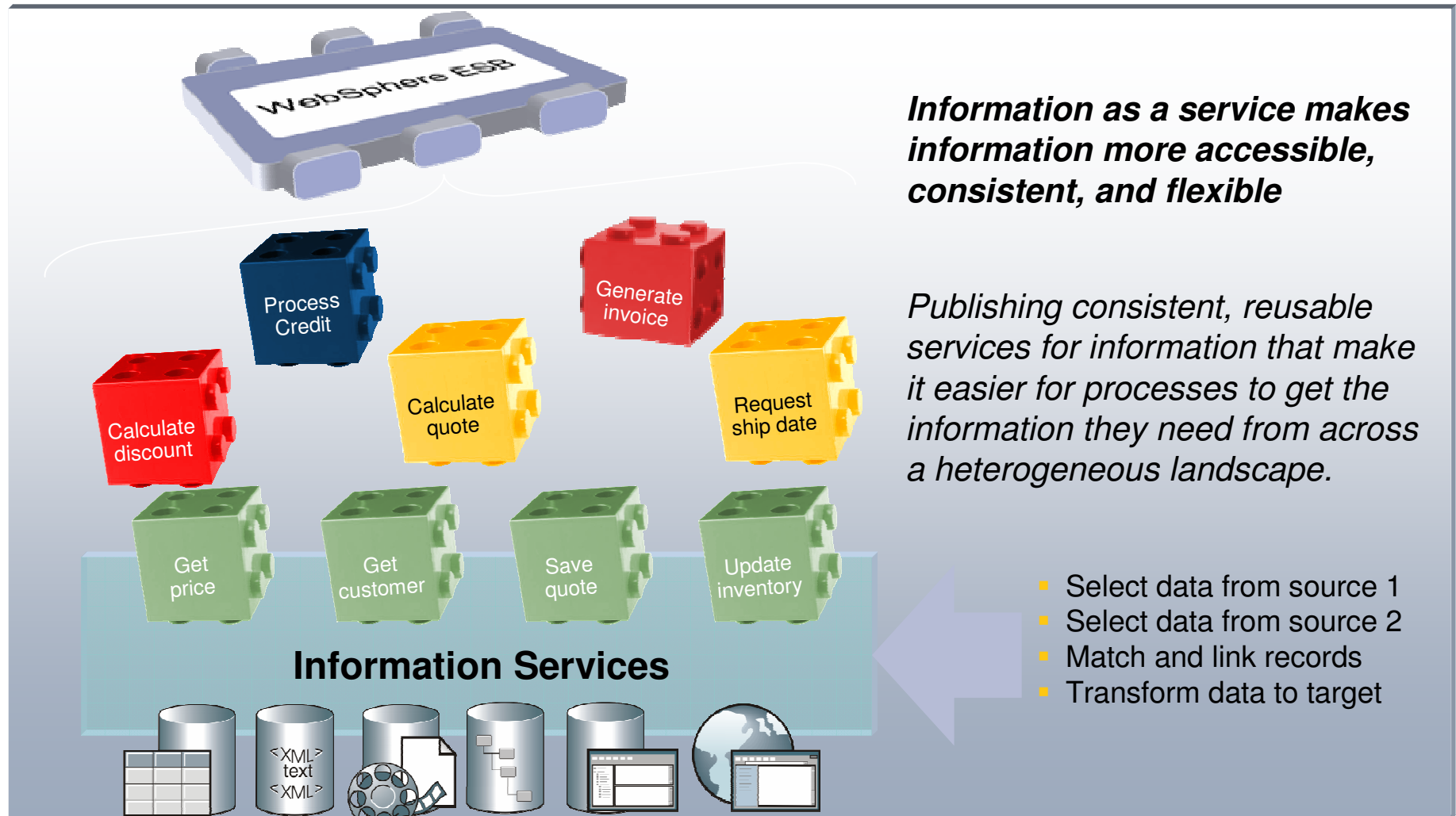
*“You will waste your investment in SOA unless you have enterprise information that SOA can exploit.”*

**– Gartner Research**



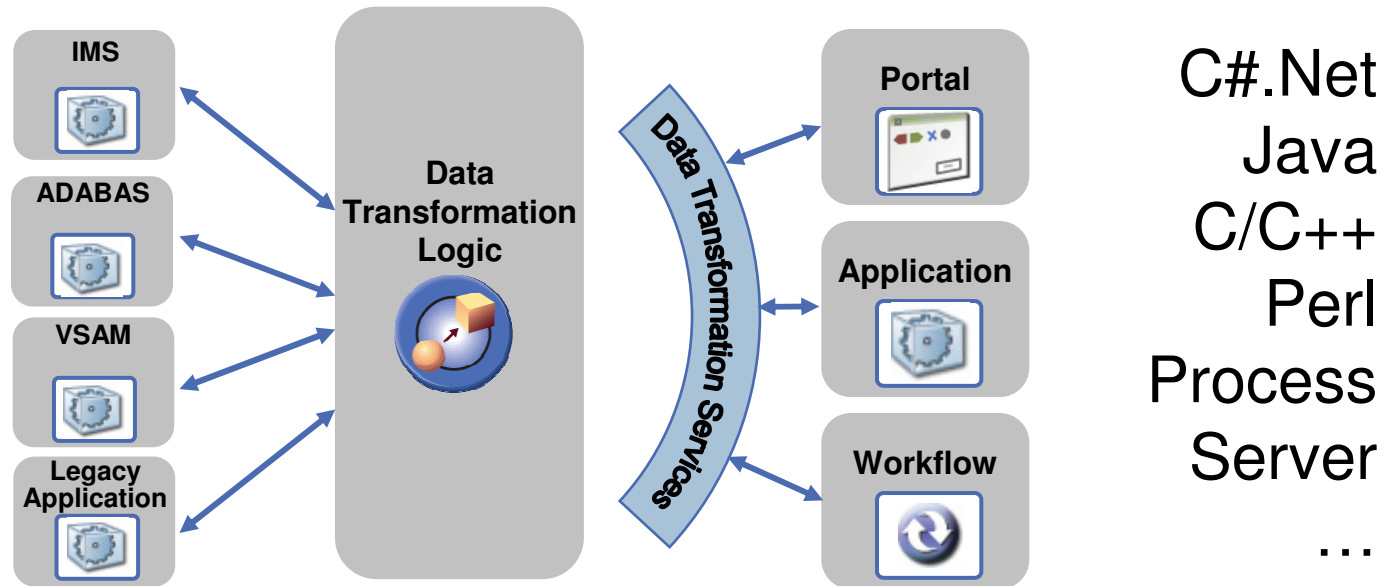
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# How Does Information Fit into an SOA?

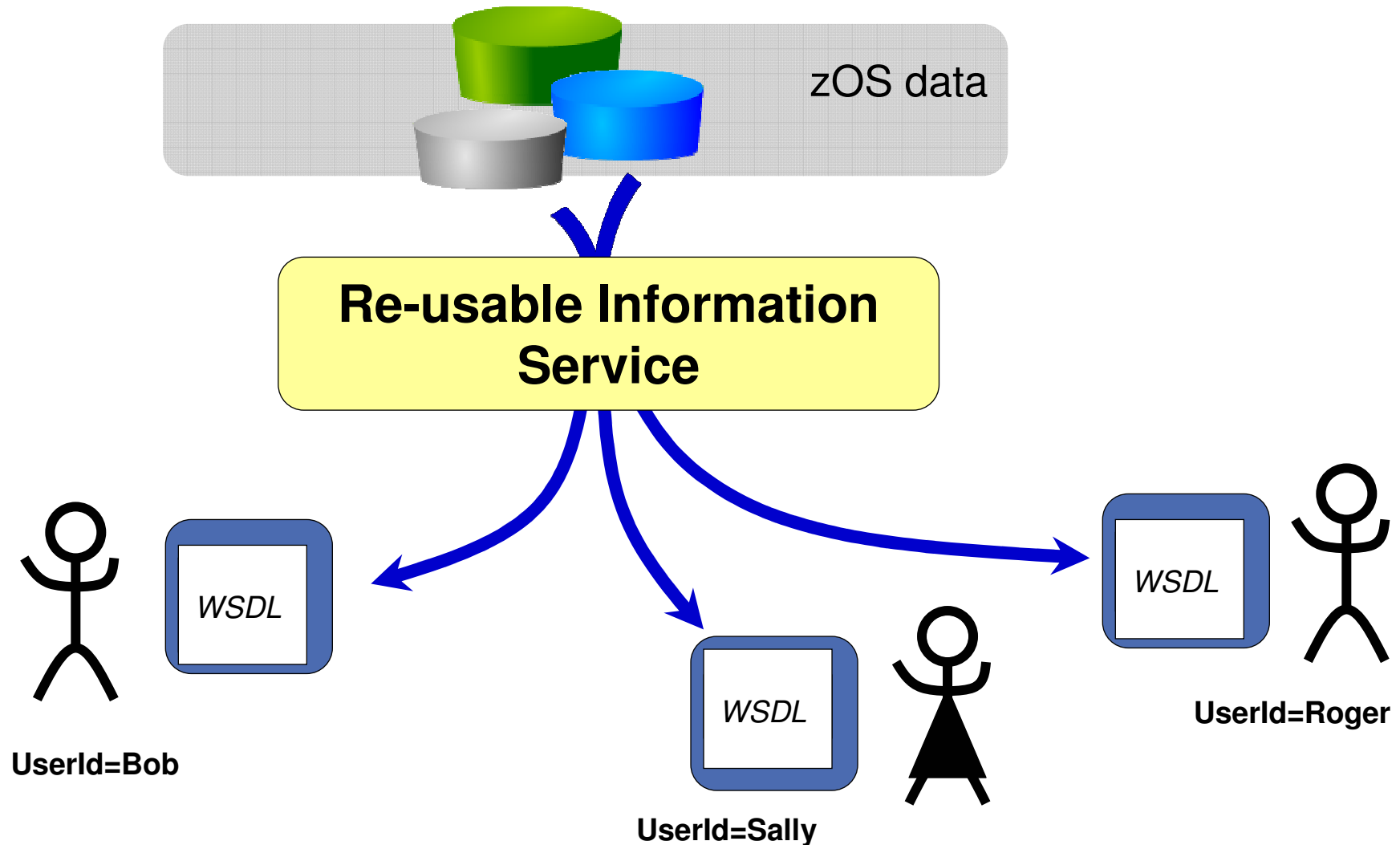


# Legacy Data Access Services: Re-use existing data and processes

## Language and Implementation Independent !



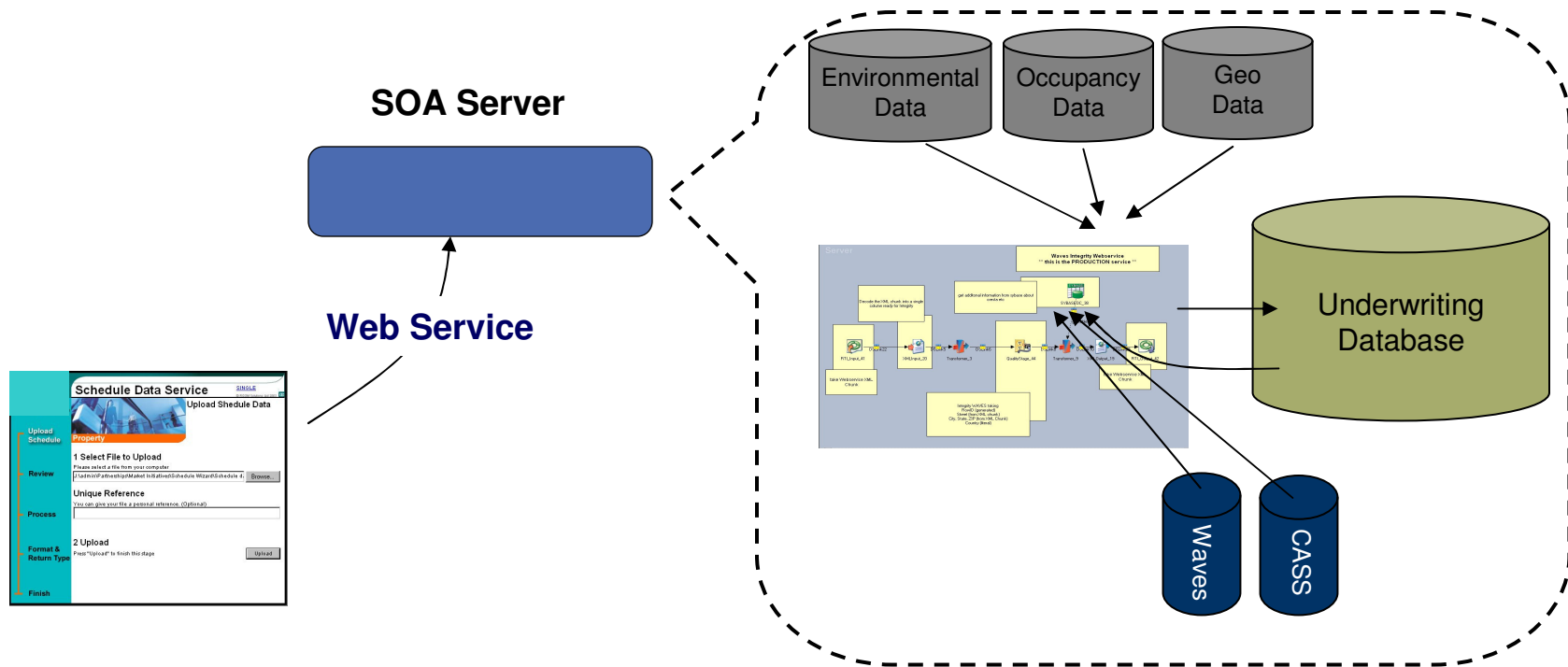
# Legacy Data Access Services: Single point of control





# Data Quality Services

- Standardization & Matching in real-time
  - Major retail jewelry store enhances customer loyalty
  - Service based rating system speeds up processing and reduces errors



# Conclusions

- The Mainframe platform evolves and is taking new roles
  - It is the central hub for data and processes making up the core of many SOA configurations
- The “world’s data store” is shaping industry advances
  - Data Quality initiatives increase the value and confidence of corporate data
  - Data Governance discipline streamlines the understanding and use of that data throughout the enterprise
  - Service Oriented Architecture enables re-use of proven legacy investments in data, processes, and people
  - Your mainframe data is “center stage” and not just an infrastructure “afterthought”



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Thank

You



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