

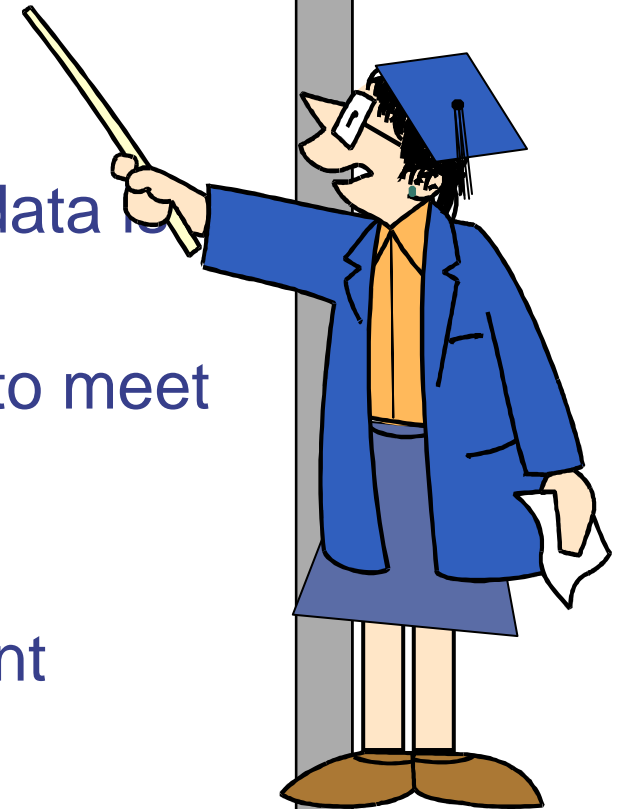
Bridging the Business / IT Gap

Alison Torres, Director
Teradata Warehouse Consulting
August 2010



Agenda

- The Data Warehouse
- How technology responds to business concerns.
- Challenges between business and IT.
- Understanding the business impact if data is unavailable and who is responsible.
- Selecting data warehouse technology to meet your needs.
- Resolving data ownership issues.
- Creating a data warehouse environment that meets expectations.



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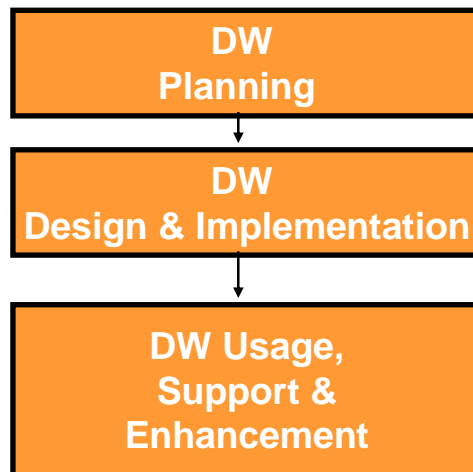
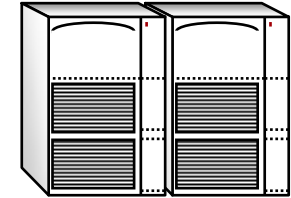
The Data Warehouse

“It is always good to understand what the bottom line is on any subject. In data warehousing, it is the *ability to provide the business with timely accessibility to data* in order to ask a variety of questions which will *allow the business to run more intelligently*; it is providing the business executive with certainty their data will be not only be accessible, but also *reliable, timely and can withstand disasters*; and it is *IT being able to address those business needs and concerns through technology.*”

- Alison Torres, Teradata

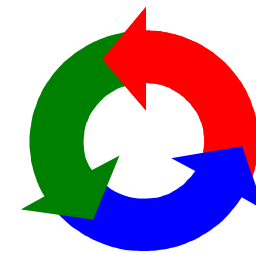
What is a Data Warehouse?

A **place** to bring together **atomic** level data from **disparate** systems, creating one version of the corporate truth, which enables timely, accurate decision making in support of **strategic and tactical** business initiatives.



A **methodology** of combining organizationally consistent data in a method that allows the enterprise to respond to market changes.

A **process** for properly assembling and managing data from various sources for the purpose of answering business questions and making decisions that were **not previously possible**.



Defining The Data Warehouse

- **Agency Enterprise Data Warehouse**
 - > What will it encompass?
 - The whole corporation
 - > What will it look like?
 - We'll need a logical data model of our business
- **Data Availability**
 - > What data is available?
 - We've never sourced that before
- **Data Verification**
 - > Expect to find data integrity issues with existing production data
- **Enabling New Applications**
 - > Now that it's all in one place, we can access new paths



What Really Matters?

Discover Business Needs

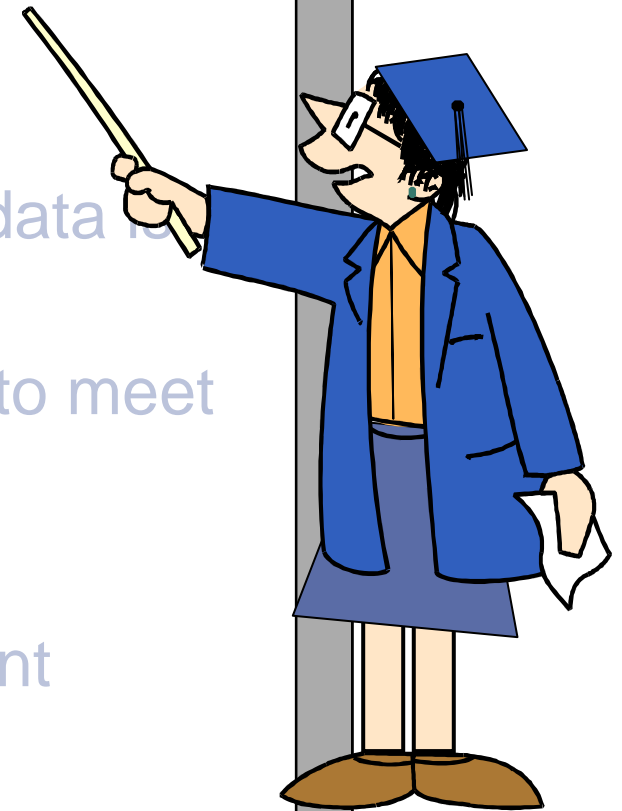
- Focus on business issues
- Prioritize issues and identify quantifiable benefits
- Create a Business Impact Report to understand the “bottom-line” impact of being able to solve business issues
- Foster cooperation across functional business lines
- Gain consensus on key business issues

The *only relevant measures* of
Data Warehousing Success
are *Business Impact* and *Value*.

"The measure of success is not whether you have a tough problem to deal with, but whether it is the same problem you had last year." - John Foster Dulles

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Business Concerns

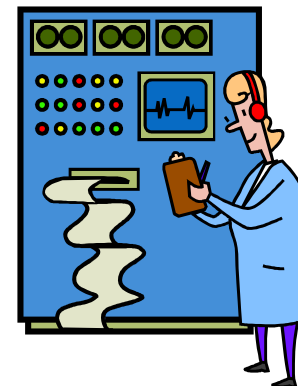
- Urgency to gain even more value from existing resources
 - > Maintain long term strategies while delivering quick results
 - > Optimize existing resources
 - Human
 - Financial
 - Technological
 - > Operational efficiency and resiliency
- Changing market dynamics
 - > Faster business decisions
 - > Shortened business cycles



IT Concerns

Support two fundamentally different models:

- **OLTP model – tell me what you need, I'll build it.**
 - > Makes sense for well understood OLTP systems like HR, Finance.
 - > There are specifications and requirements.
 - You design it, code it, turn it over.
 - Business learns to live with what they get.
 - Designers optimize the system for transactions that will be run thousands of times.
- **DSS model – users will not know needs until they see the data.**
 - > Rapid prototyping is a more appropriate model.
 - > Users have to see, learn about the data, understand their needs change.
 - > There is an evolution.
 - > Queries run once.
 - > More dynamic.



Focus and Perspective

- Business Management
 - > Drive business value
- Business Analyst
 - > Derive new answers
- IT Management
 - > Supply services and technology
- IT Technician
 - > Implementation and delivery



*Mapping of needs is multi-directional
between Business and IT*

Technology Responds to Business Needs

- Business
 - > Evolving needs
 - > Query freedom is necessary

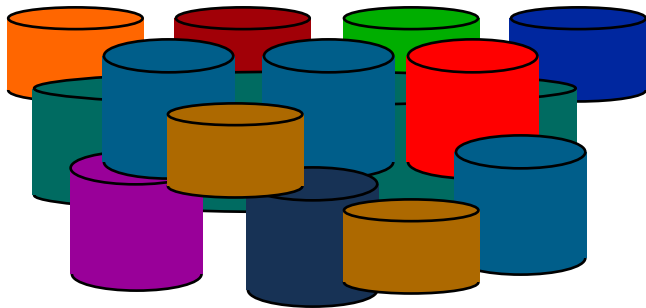
Mapping of needs is multi-directional between Business and IT Management and Staff



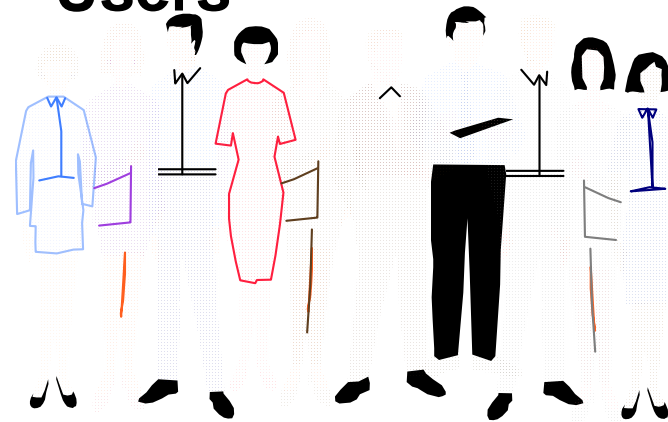
- IT
 - > Maintains architecture
 - > Maintains different types of processes

Data Warehouse Core Issues

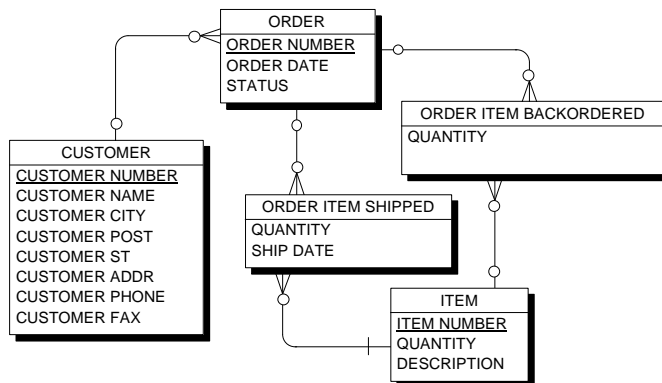
Amount of Detailed Data



Number of Concurrent Users



Complexity of Data Model



Query Complexity

- Simple Direct at the start
- Moderate Multi-table Join
- Regression analysis
- Query tool support
- Complex, 58-way table join
- 15 Pages, 37 From Clauses, 7 Unions, (Largest table >1 B rows, < 43 minutes)

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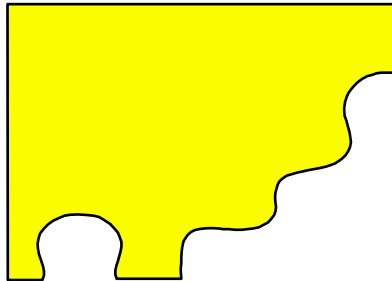


Business Challenges

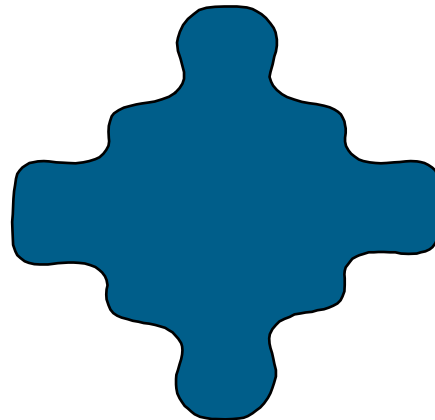
Operational Systems are usually designed to solve a specific business problem and are rarely developed to a coordinated corporate plan.

“And get it done quickly; we don’t have time to worry about corporate standards ...”

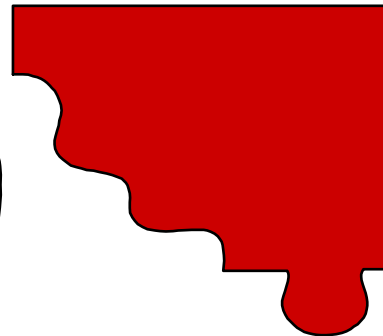
Various lines of business:



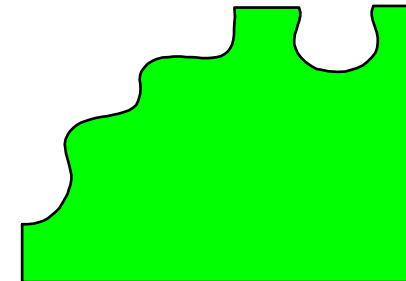
**Different keys,
same data**



**Same data as other
applications, but uses
different names
for it**



**Different data,
but uses same
names as data
in other apps with
different meaning**



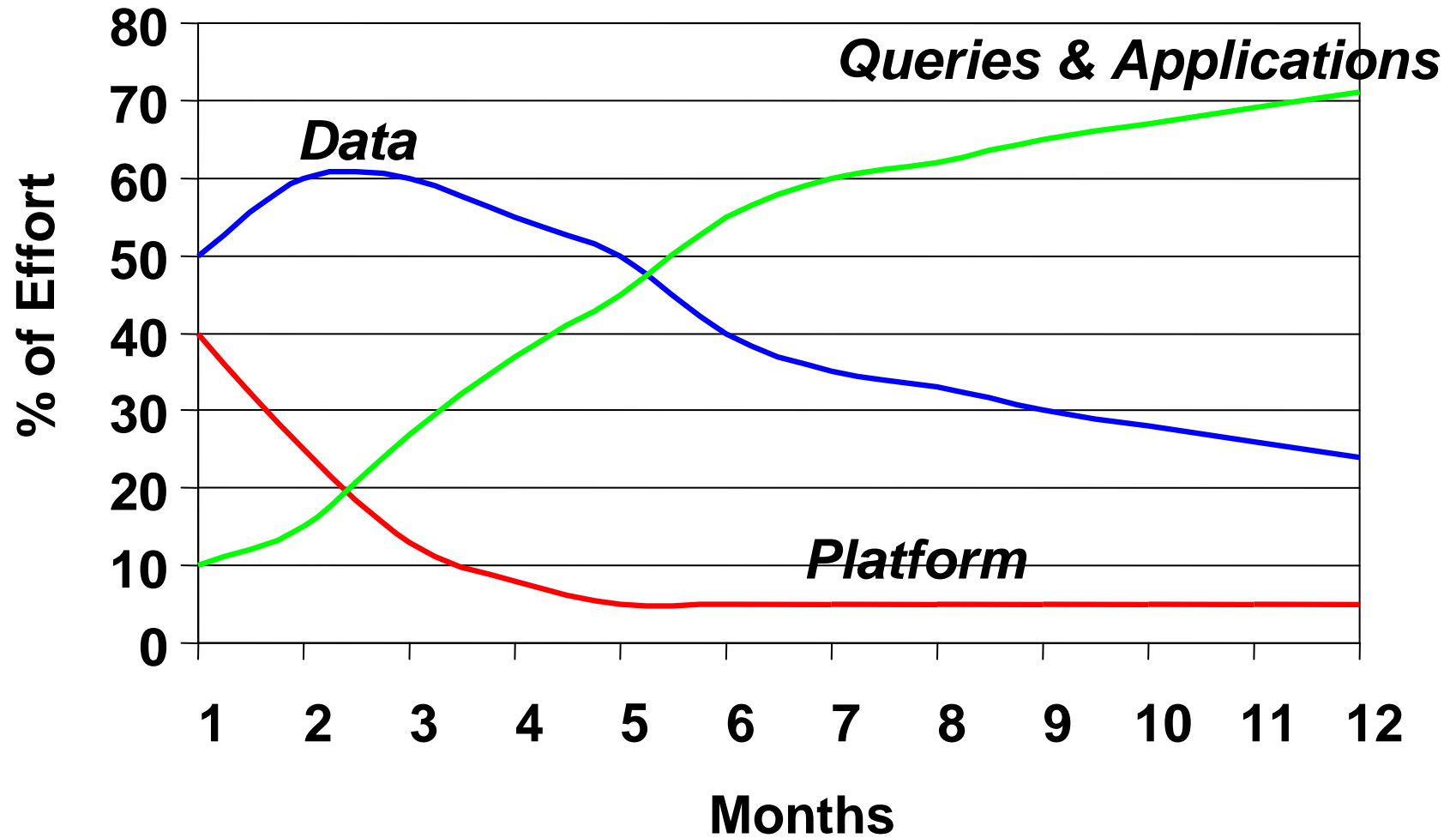
**Unique data found
only here, nowhere
else**

Business <> IT disconnect



- IT
 - > Automating before understanding
 - > IT in the driver seat (build it, they will use it)
 - > Smart people overcomplicating simple architecture
 - > Thinking at technology level
- New Idea
 - > IT – sit with business people and write queries, spend time in users shoes.
 - > IT exists to serve Business
- New focus → How do WE share info?

Focus Will Change Over Time



Executive Level Commitment

Leadership Provides:

Result:

Vision +	Skills +	Incentives +	Resources +	Action Plan =	Change
	Skills +	Incentives +	Resources +	Action Plan =	Confusion
Vision +		Incentives +	Resources +	Action Plan =	Anxiety
Vision +	Skills +		Resources +	Action Plan =	Disbelief
Vision +	Skills +	Incentives +		Action Plan =	Stagnation
Vision +	Skills +	Incentives +	Resources	=	Misdirection

Source: CSC Consulting

Business and IT Working Together

- Build/Evolve the Vision together
- Appreciate IT's challenges
- Build the business/data model together
- Champion the data warehouse together
- Create Overlapping Organizations
 - > IT provides data analysts and technology experts to the business
 - > Business provides business analysts to IT
 - > Shared accountability, responsibility and incentives
- Establish meaningful accountabilities and SLAs
 - > Data Quality
 - > Data Freshness
 - > Data accessibility (rather than system availability)
 - > On Time, On Budget for applications, projects, data sourcing



Major Data Warehouse Roles

- Executive Sponsorship
- Business Subject Matter Expert
- Knowledge Worker
- Data Owner
- Data Steward
- Information Architect
- Project Management
- Technical Architect
- Business Requirements Analyst
- Source Data Analyst
- ETL / ELT Developer
- Front-end / OLAP Developer
- Database Developer
- System Administrator
- Database Administrator
- Metadata Administrator
- Quality
- Services
- Training



Getting Started

- Approach

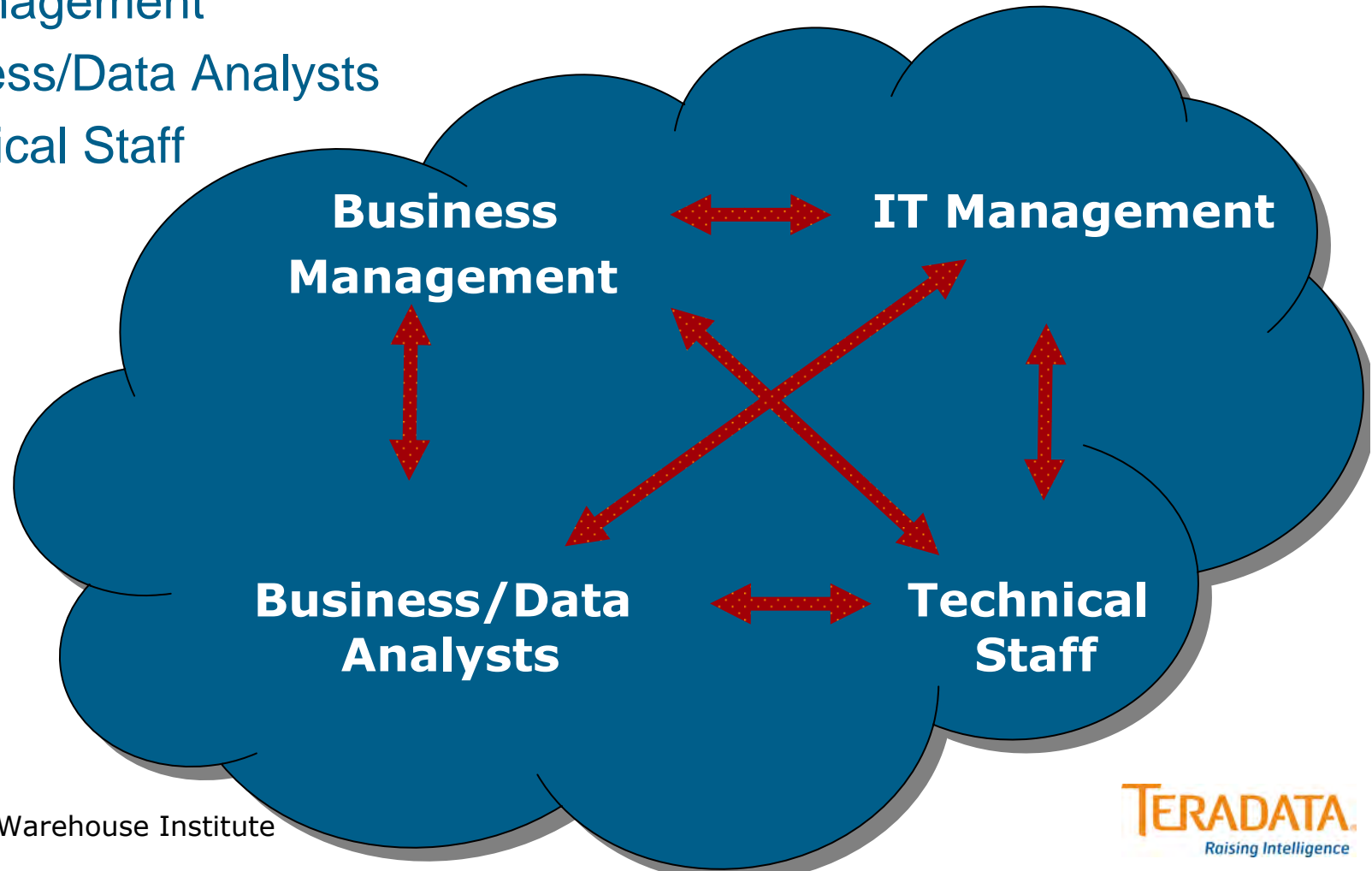
- > Assemble a Cross-Functional Team with representation across all Business Units, Corporate Departments, and IT Services
- > Hold Weekly Business Data Modeling Sessions
- > Develop Consistent Business Definitions Across All Levels of the Business
- > Map Data Requirements Generated From Business Modeling Sessions
- > Store Model in a Tool (ErWin)
- > Produce Detailed Documentation

“IT needs to understand the required business function and deliver to that expectation on a schedule that works for both business and IT. As IT continues delivering required functionality and meeting deadlines, the trust that the business has in IT grows leading to greater cooperation and mutual success.”

- Kathy Koonz, Office Depot

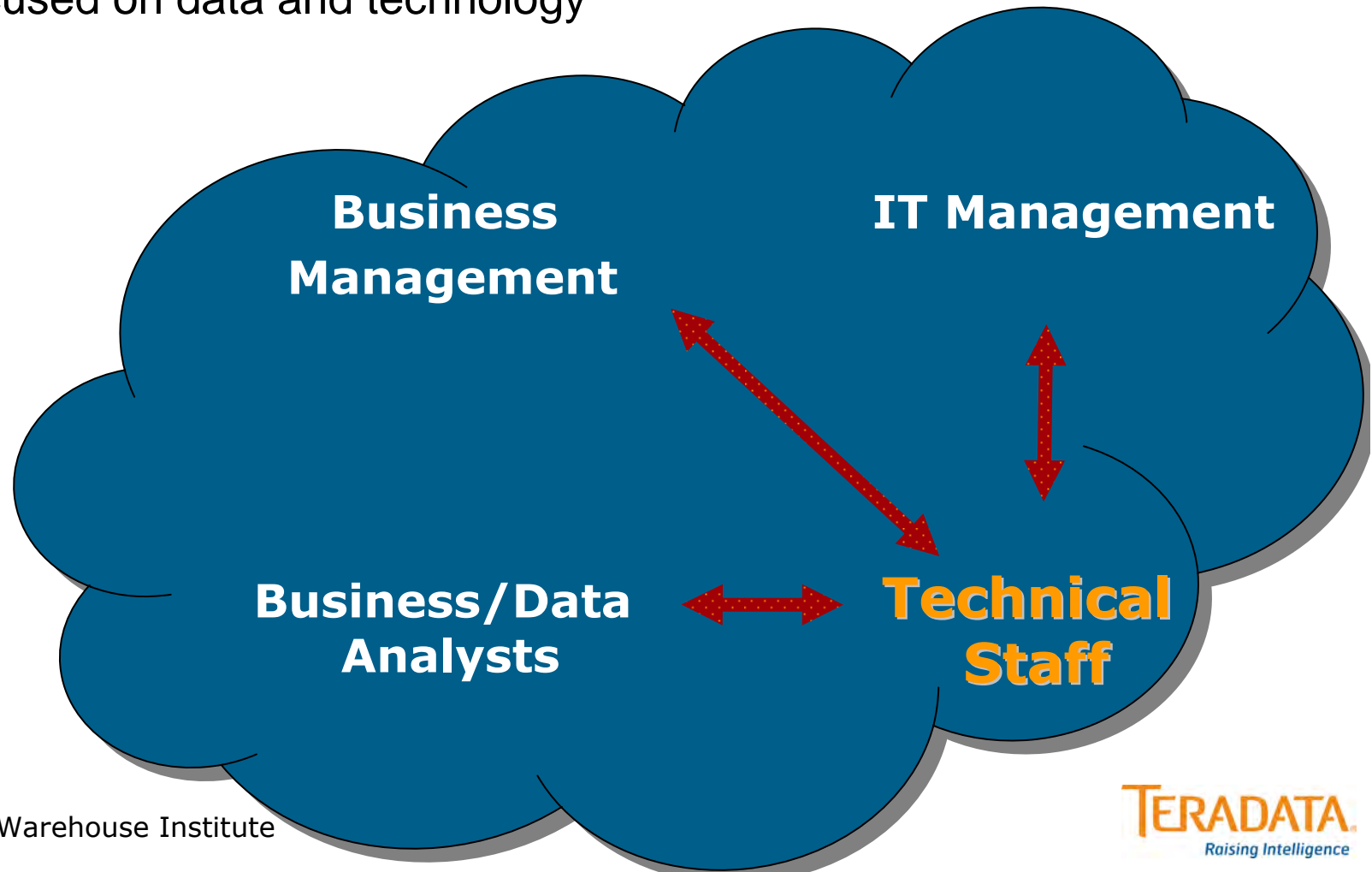
Understand 'The Gaps' – Expectations & Perceptions

- Business Management
- IT Management
- Business/Data Analysts
- Technical Staff



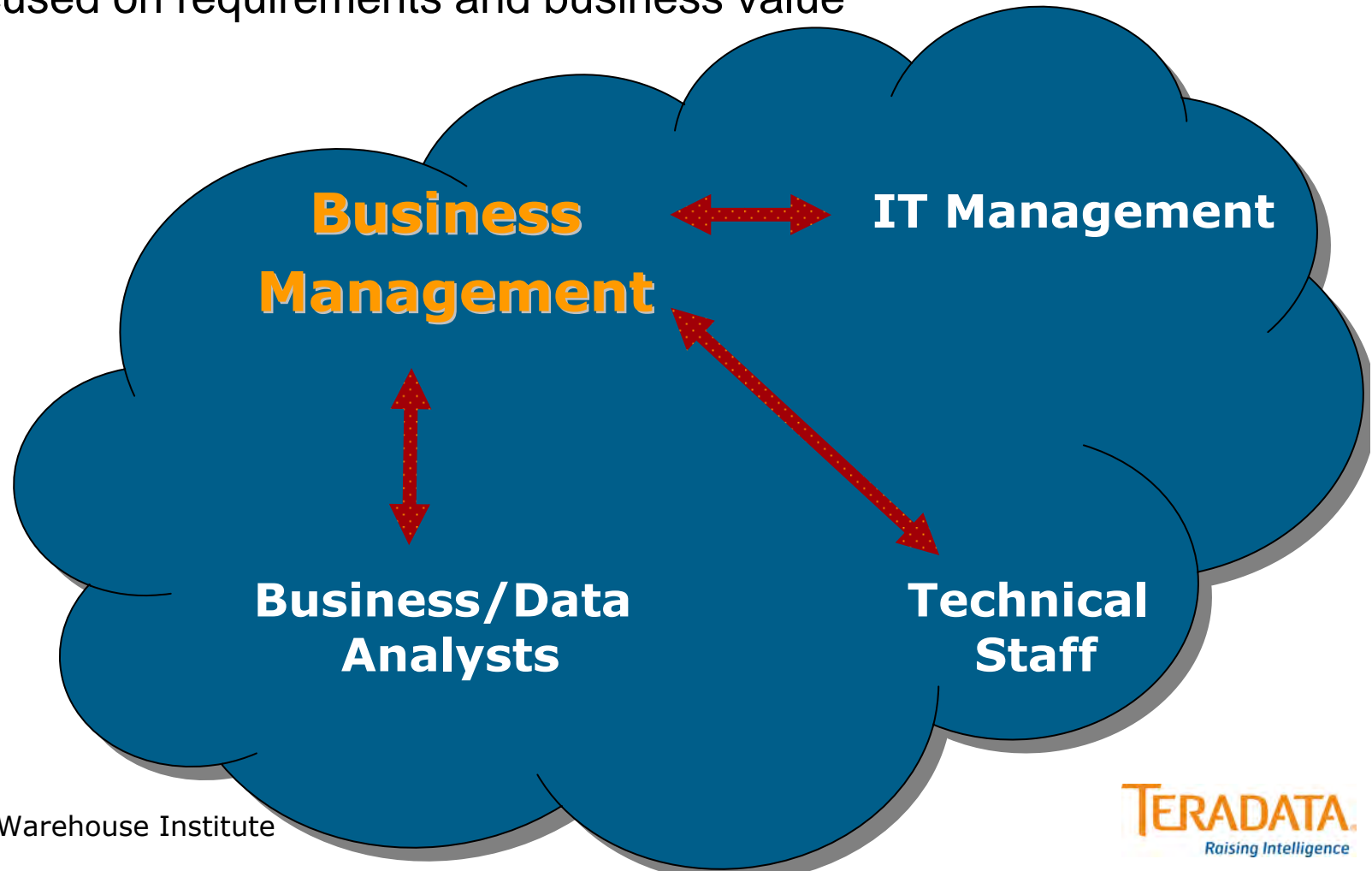
Understand Your 'Three Gaps'

- **Technical Staff:**
 - > Focused on data and technology



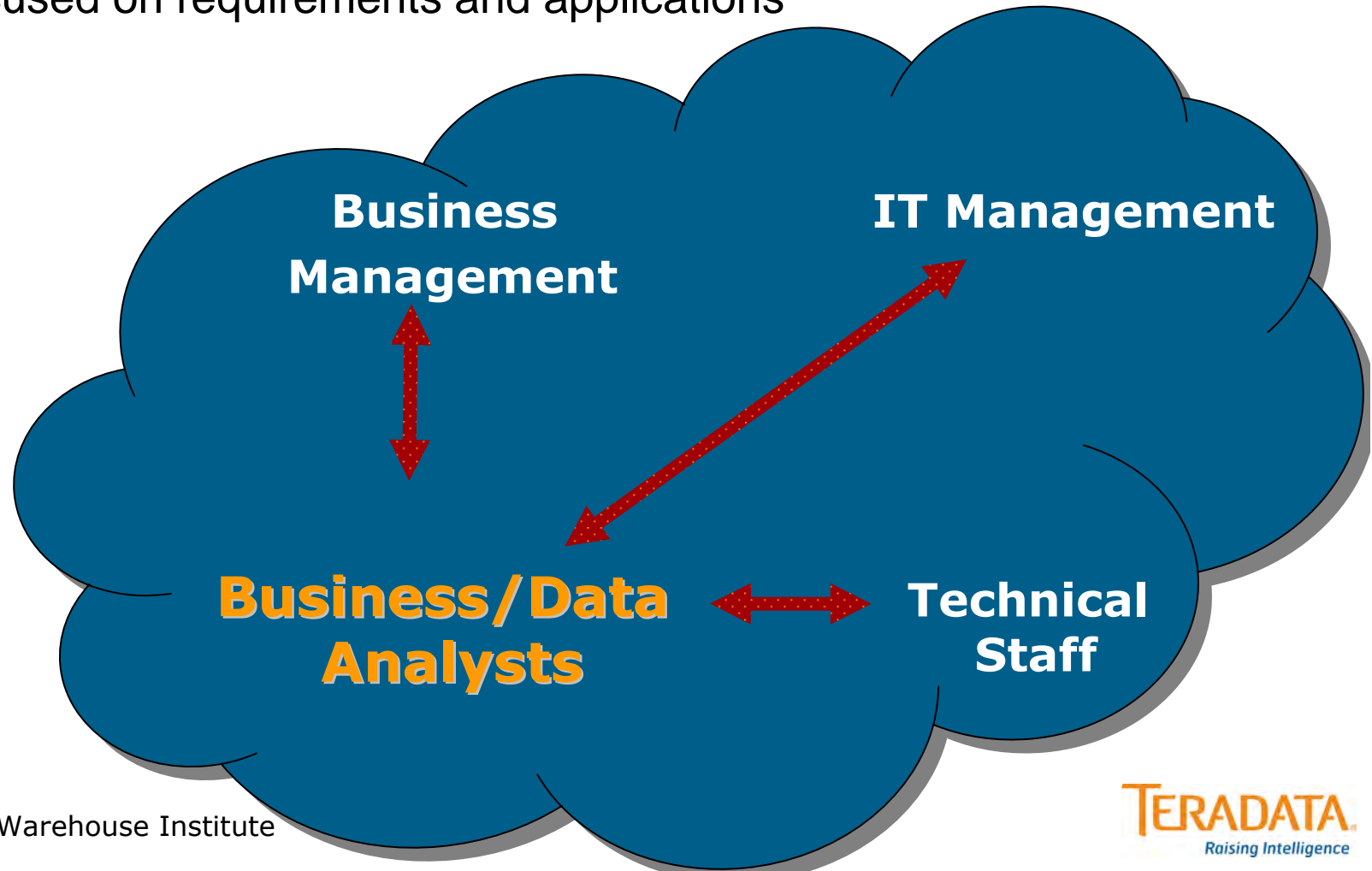
Understand Your 'Three Gaps'

- Business Management:
 - > Focused on requirements and business value



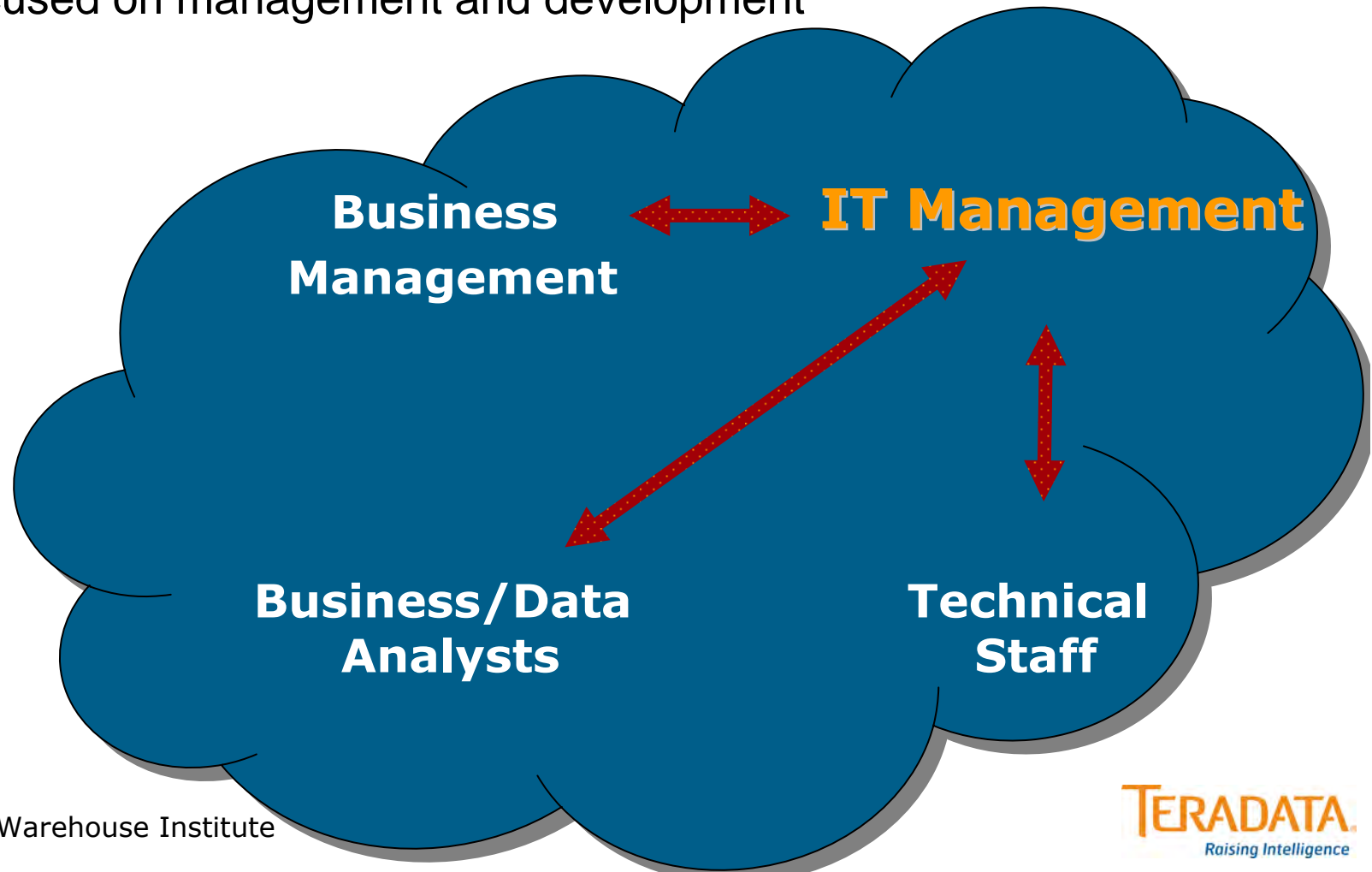
Understand Your 'Three Gaps'

- Business/Data Analysts:
 - > Focused on requirements and applications



Understand Your 'Three Gaps'

- IT Management:
 - > Focused on management and development



Celebrating Success – Examples

- **Decrease support cost**

- > By analyzing call center activity, it was noticed many calls were for product description clarification
- > Create new web based system with consistent product information
- > Expect call center activity to reduce, higher customer satisfaction
- > Financial impact: \$\$\$ / mo.

- **Reduce Fraud**

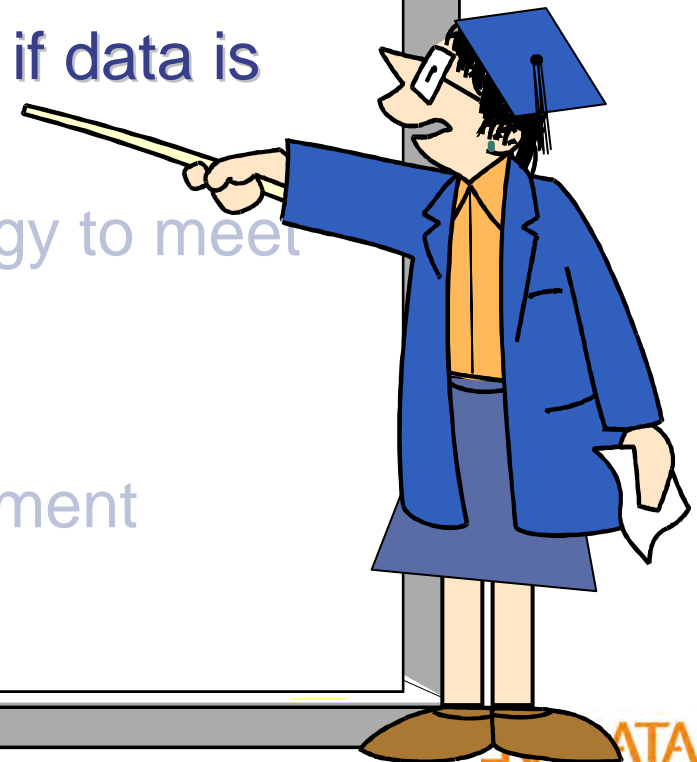
- > By matching receipts to returns, it was noticed that more items were being returned than were sold.
- > Instituted new return policies
- > Expect return fraud to drop by X% within the next quarter
- > Financial impact: \$ millions

"I have yet to find the man, however exalted his station, who did not do better work and put forth greater effort under a spirit of approval than under a spirit of criticism."

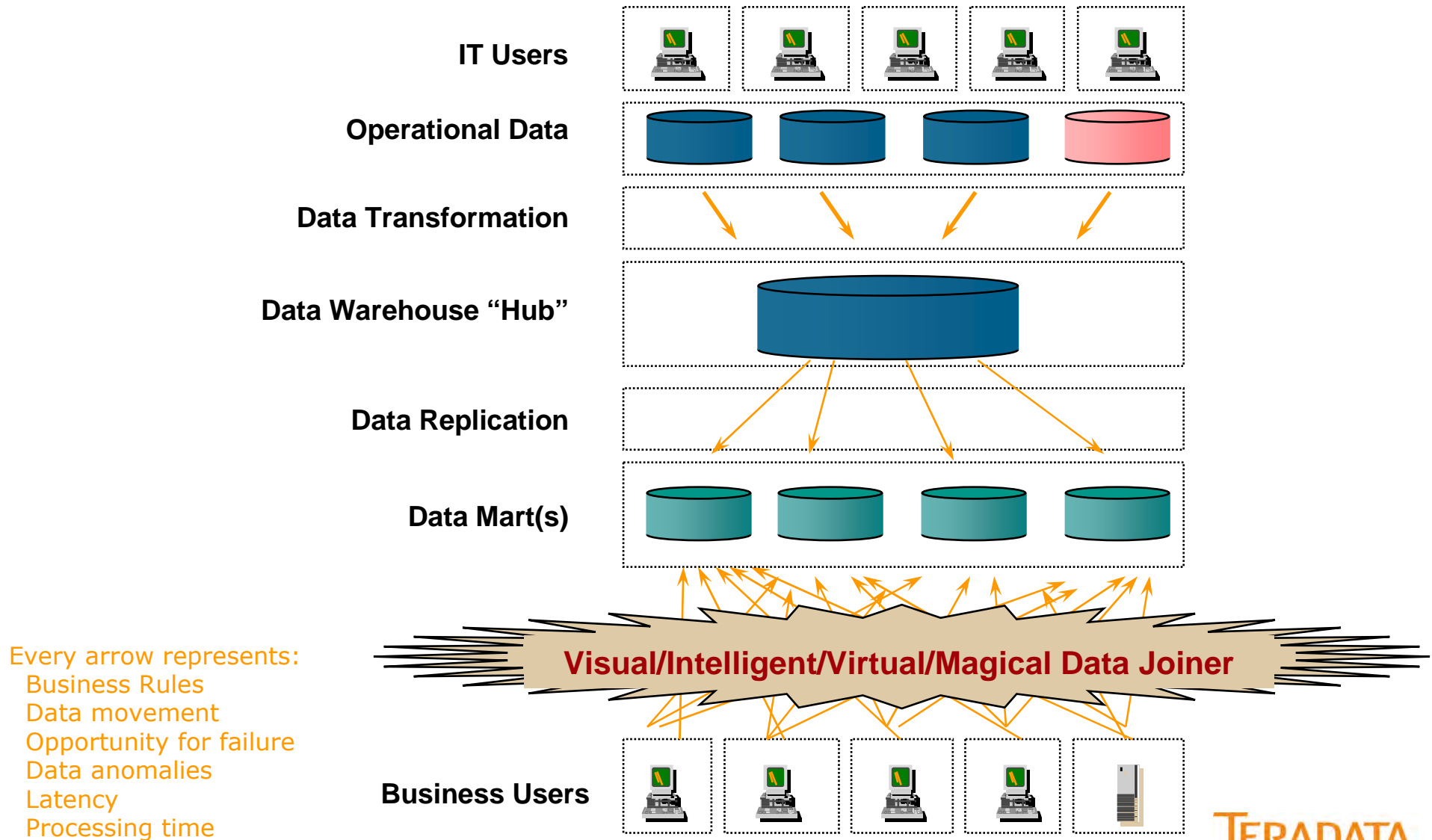
- Charles Schwab

Agenda

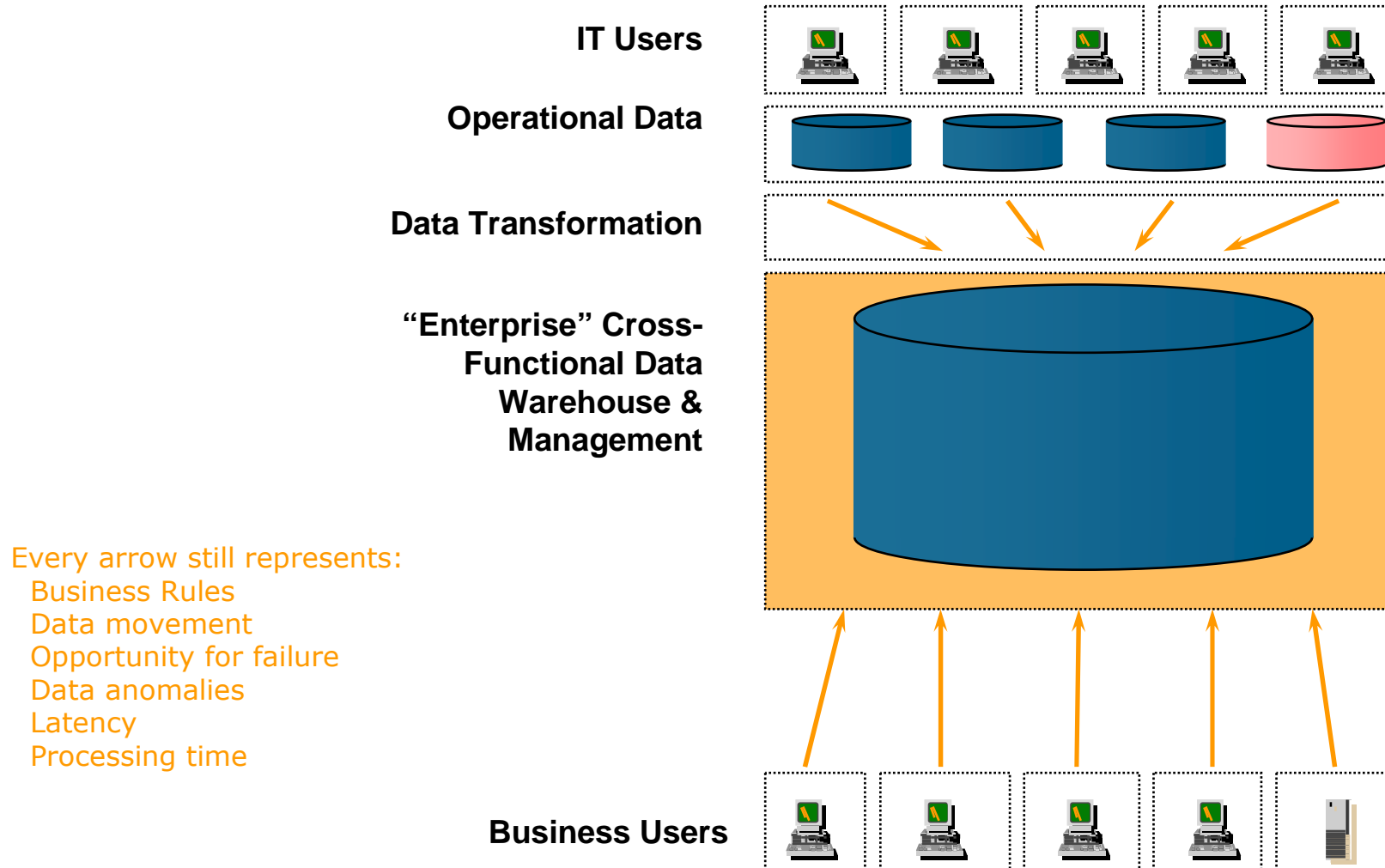
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Complexity Inhibits Flexibility



Simplicity Enables Agility



IT must Enable

- Agile DW Infrastructure and IT Organization
 - > Data Model independent of the functions
 - > Architecture independent of volumes or frequency
 - > Complexity inhibits flexibility
 - > Any question, at any time, from any process
 - > Detail, transactional, behavioral data
- Operational rigor and readiness
- Choose Technology That Becomes A Non-Issue
 - > Invest Your Time and Resources Where It Matters
- Focus and Effort Should Shift Over Time
 - > From Technology/Data
 - > To Queries and Business Applications
- Flexible IT Processes



Understanding the Business Impact

- When data is unavailable, business opportunities are lost, perhaps forever. Late information is, in most cases, as good as no information.
- Backup and Recovery Strategies are essential for:
 - > Keeping the data available
 - > Partition level backup and restore
 - > Data availability
 - > Meet Service Level Agreements
 - > Keep the business going
 - > Maintain the commitment to the business community

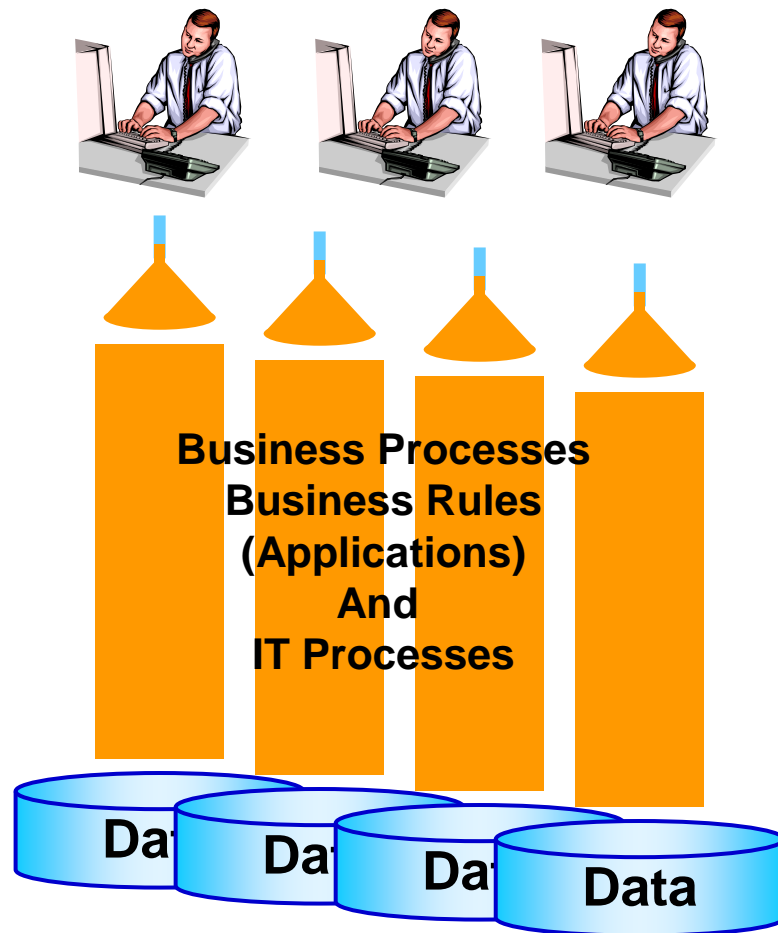
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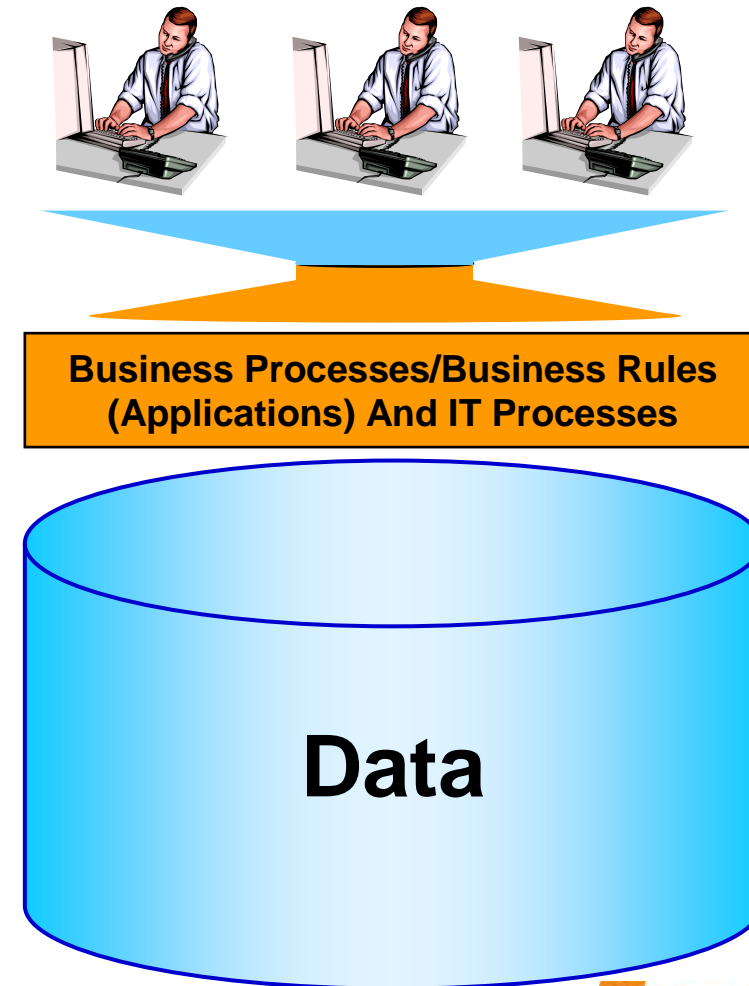


Consolidation – One Data Warehouse Environment

Operational Applications



Decision Support



Who Decides?

- IT must determine if the solution is viable
- IT must determine if a system fits into the enterprise architecture
- The Business community needs to believe the proposed solution will work
- The Business community must have input into the decision



“I definitely don’t agree with IT purchasing a system alone”

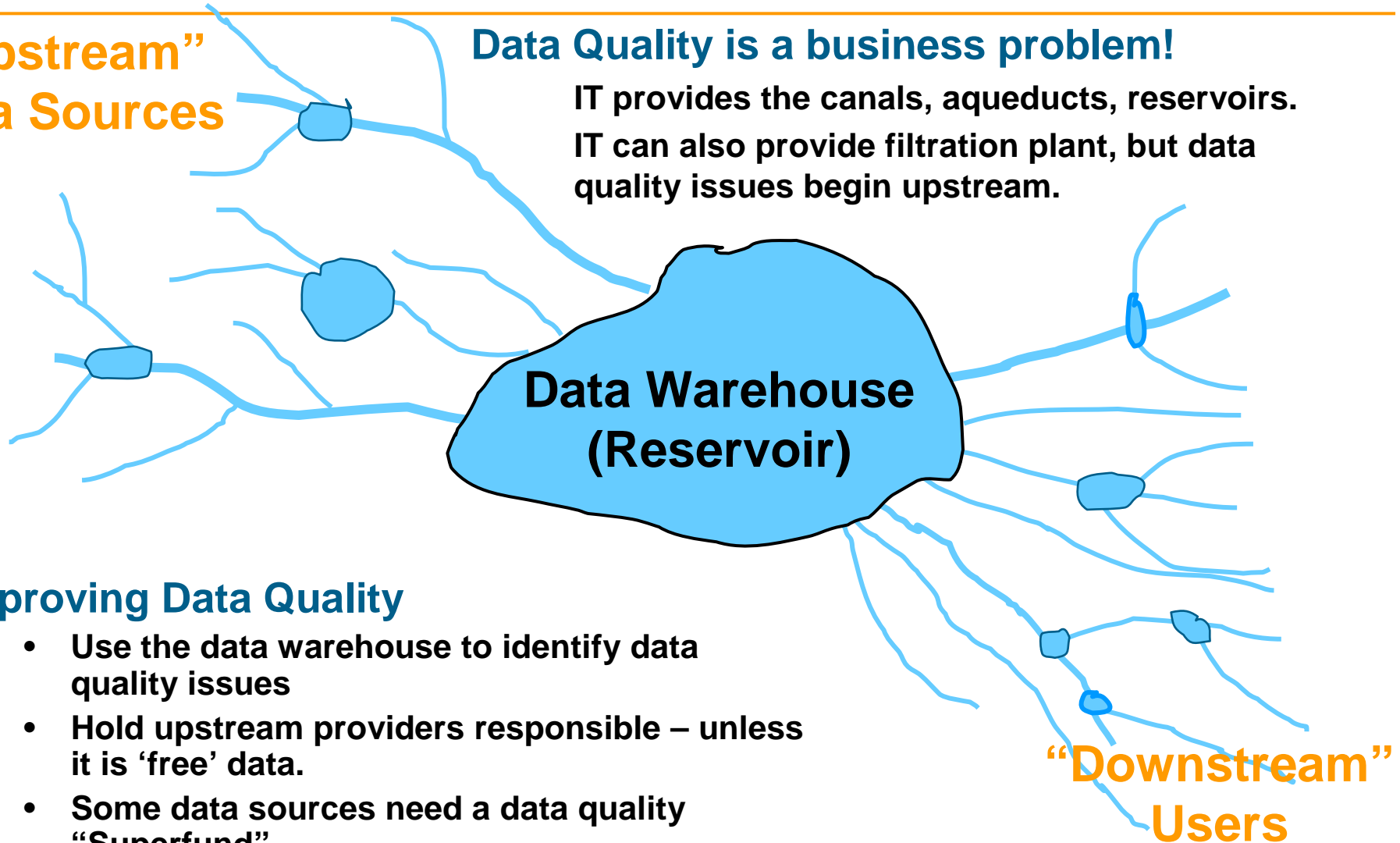
Chellam Manickam, Ukrops VP of IT

Is Your Data Trust-Worthy?

“Upstream” Data Sources

Data Quality is a business problem!

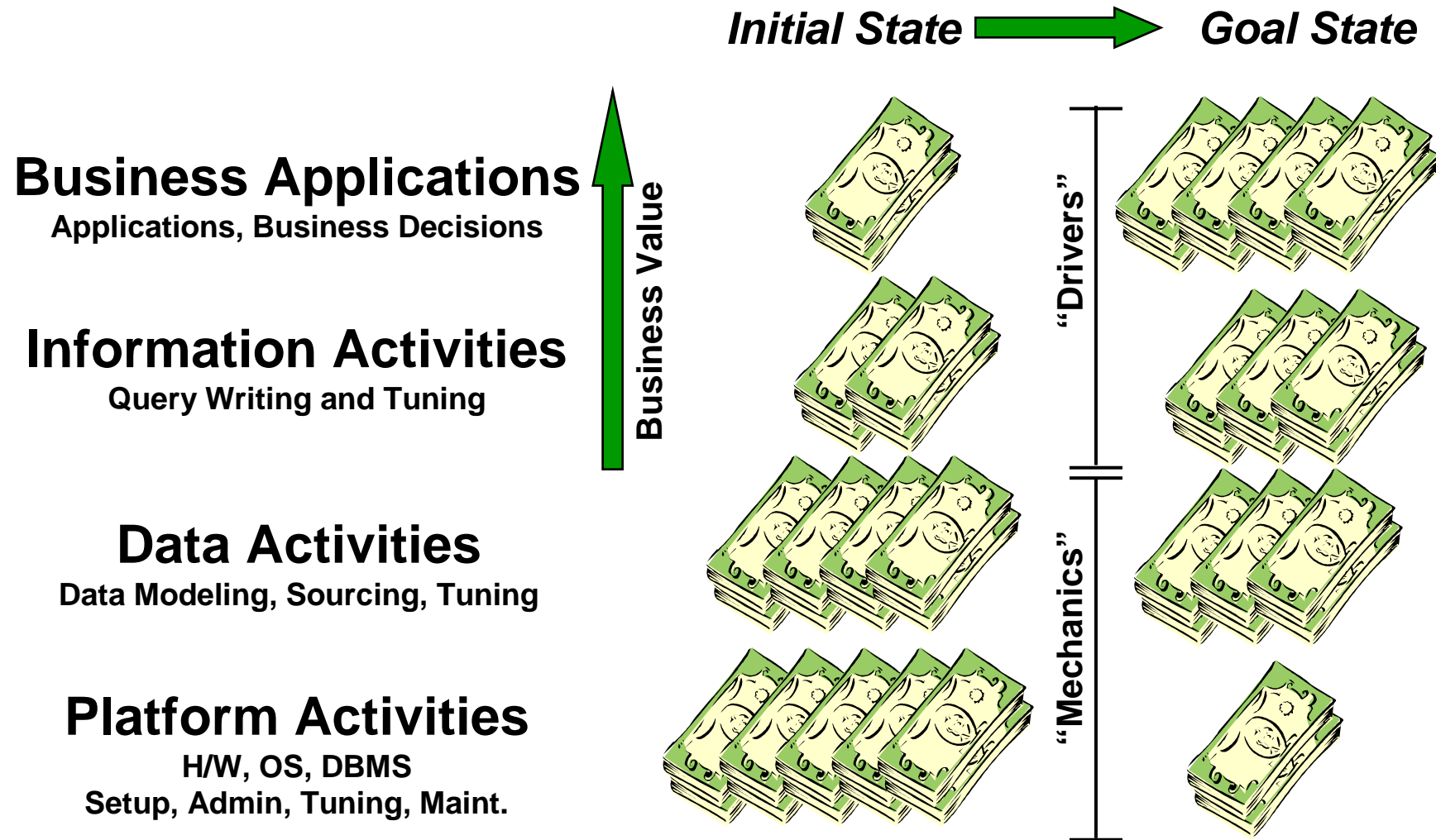
IT provides the canals, aqueducts, reservoirs.
IT can also provide filtration plant, but data
quality issues begin upstream.



Improving Data Quality

- Use the data warehouse to identify data quality issues
- Hold upstream providers responsible – unless it is ‘free’ data.
- Some data sources need a data quality “Superfund”.
- Ensure data quality **BEFORE** it arrives in the reservoir.

Where Are You Investing Your Resources?



Business Problem – The Top Line

The data warehouse is not evolving and growing

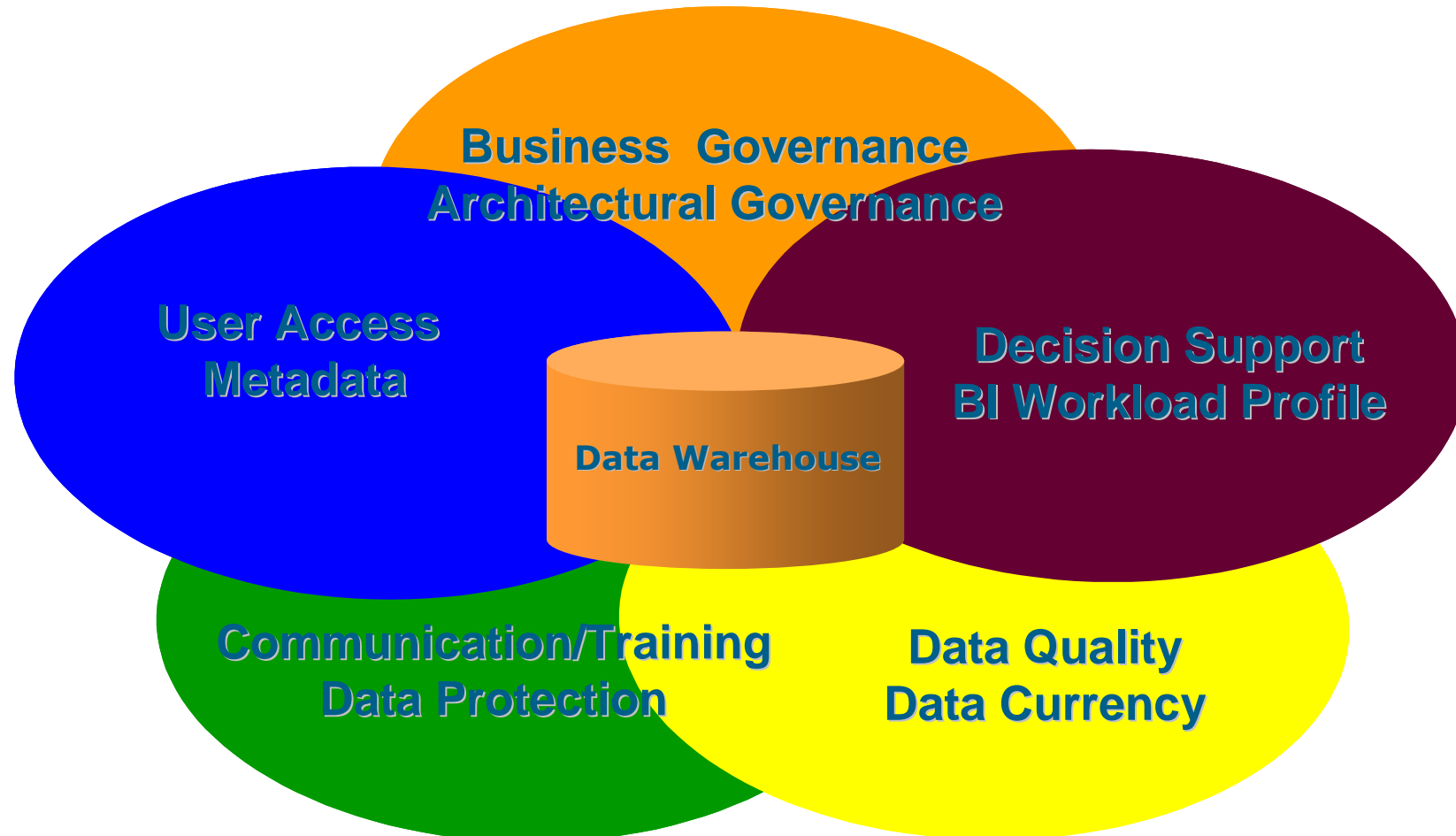
- The business intelligence environment is not supporting the business' objectives
 - > The information the business uses to make strategic & tactical decisions is not consistent or sufficient.
- The BI environment is not delivering information to drive competitive advantage
 - > The BI environment contains layers of architecture that make it difficult to provide consistent, standard BI capabilities
 - > BI sophistication and technology are continuing to diverge

Business Problem – The Bottom Line

- Business functions are buying, building & maintaining physical data marts separate from the DW
- Business departments are funding analytic platforms & moving large volumes of data from DW, creating & storing key business information outside the DW
- Architectural governance functions recommend or support BI implementations outside the DW

The business' total spending on data marts, analytics, tools & resources for BI are greater than with a centralized data warehouse

Dimensions of the Data Warehouse Environment



Data Warehouse Evaluation

- Evaluate the ability of your business information infrastructure to support your business goals. From an executive perspective, this problem stems from the inability to gain a baseline of BI competency.
- Evaluate the ability of your Data Warehouse to:
 - > Support Enterprise Goals – Is the BI infrastructure aligned with the business goals and strategies? BI capabilities should never be a hindrance to business growth
 - > Cross-departmental – Is the level of DW consistent across departments and organizations? In order to efficiently deliver enterprise analytics there must be consistent levels of BI competency across the company.
 - > Data Warehouse – Which data warehousing processes lag others in maturity? A lack of maturity regarding one critical data warehousing characteristic can dilute the value of the entire data warehouse.

Beware of the Entanglements

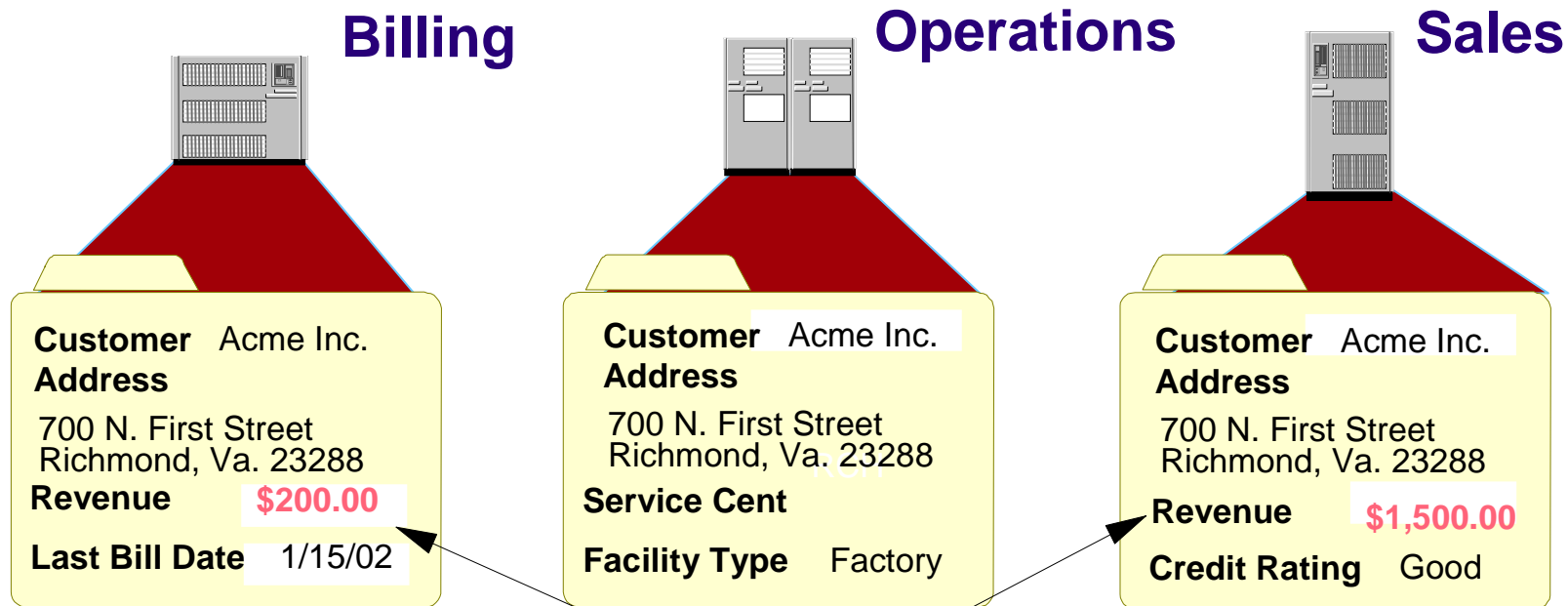
- Stubborn adherence to inadequate technology
- The IT <> Business Disconnect
 - > Business urgency to gain even more value
 - > IT In The Driver's Seat
- Confusing Precision With Relevance
- Confusing “Time to Respond” With “Response Time”
- Confusing “Real Time” with “Real Timely”
- The Paralyzing Pursuit of Perfection
- Losing The Vision

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Getting the Wrong Answer...

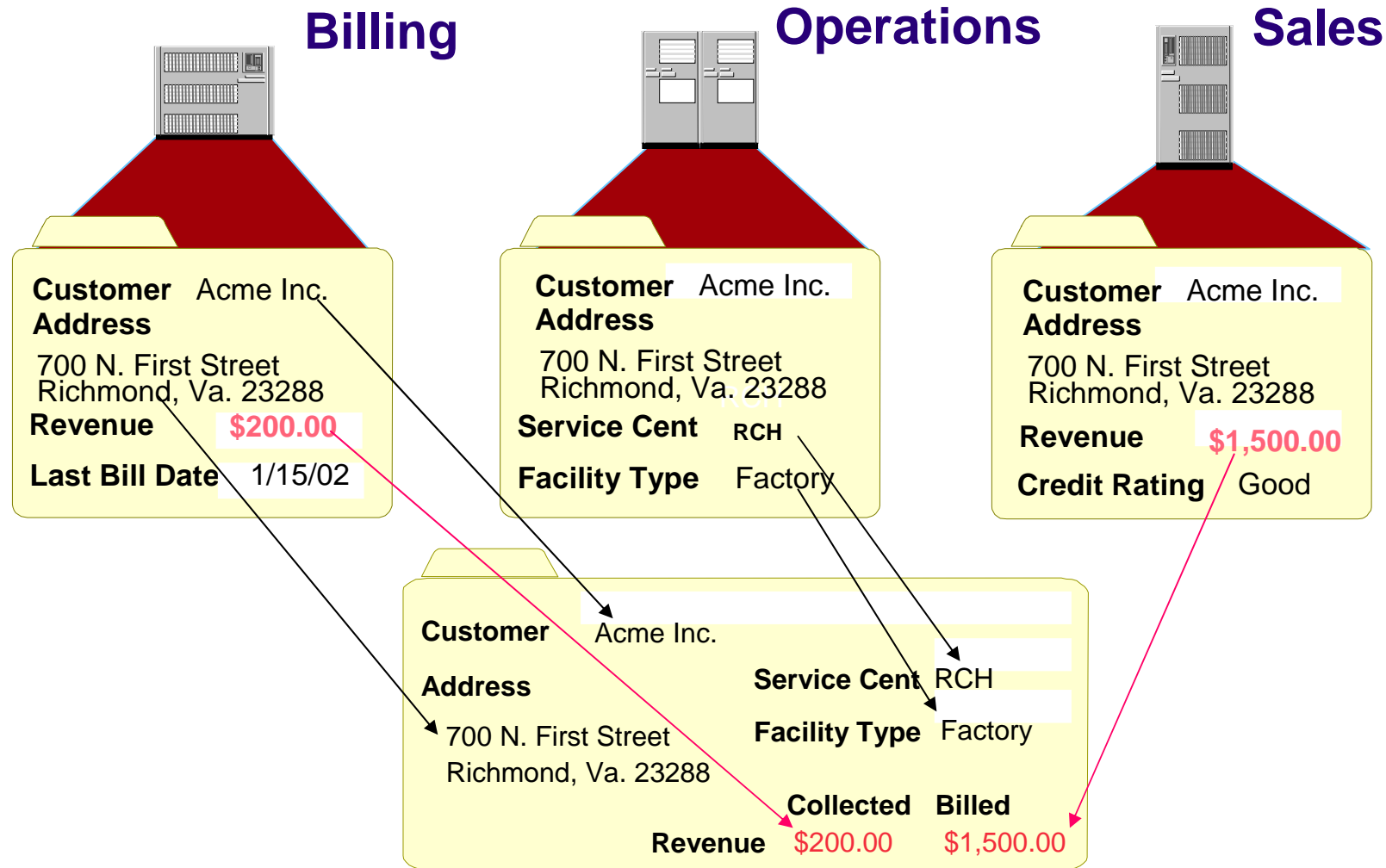


Operational facts may vary between systems

- Different **values** for the same entity... or
- Different entities with the same **name**

“IT knows a lot about data, we technically don’t own it. Engage key users and groups in the business discovery process. Make sure they understand that this is their system. They own the data and are responsible for it.”
- Konrad Spicer, Ukrops

The Reality: Data Anomalies...



The Solution: A Single Source...

Billing Operations Sales



Customer	Acme Inc.	
Address	Service Cent	RCH
700 N. First Street	Facility Type	Factory
Richmond, Va. 23288		
	Collected	Billed
Revenue	\$200.00	\$1,500.00

Warehousing is not just about Data...

- It's about the revenue you will never bill
- It's about the power to negotiate with:
 - > Customers
 - > Suppliers
 - > Competitors
 - > Regulators
- It's about your power to maximize your assets
- It's about seeing your enterprise business processes for the first time
 - > Reduce costs and inefficiencies
 - > Simplify, optimize and enable

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Create The Vision

- What is your vision for decision support and deep analytics in your enterprise?
- What are your guiding principles?
- Who are your Executive Sponsors?
- What is the value to your organization?
- What will the missed opportunities cost?



"The future belongs to those who see possibilities before they become obvious." - John Sculley

Excellence in Action...

- **Internal and External Self-Service**
 - > Front line employees have information to make decisions
 - > Significantly reduce call center and help desk needs
- **Push information to action**
 - > Customized, but relevant “Segment of One”
- **Exception based business**
 - > Forecast, current, and trending all linked
 - > Understand the business turbulence
- **On demand end-to-end segment of one just in time manufacturing**
 - > No inventory, just in process material
 - > Understand customer alert points

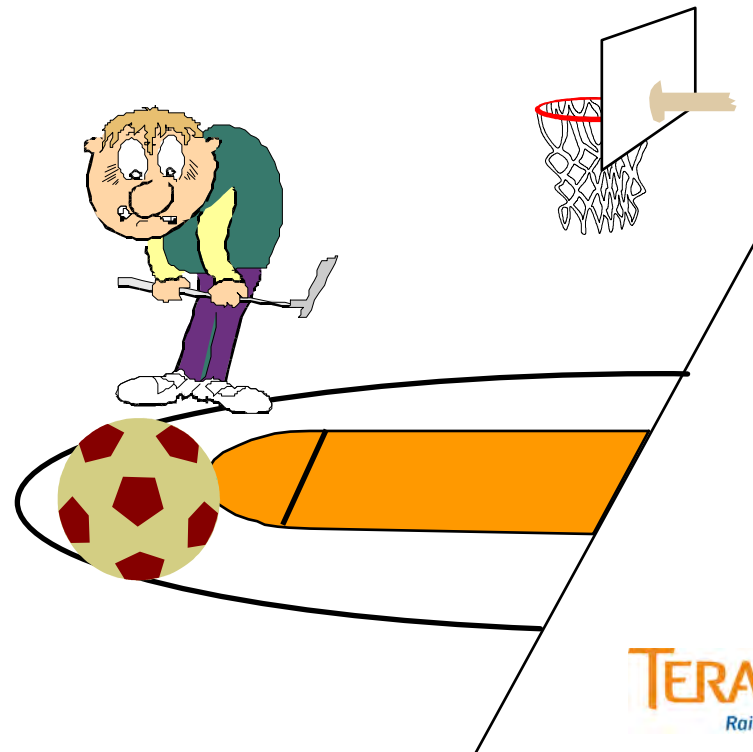
Steps to Excellence

- Enabling The Foundation
- Encouraging Executive Champion
- Embracing Evolution Through Change
- Encompassing Incorporating Operations
- Extending Total environment

The Implementation

- Scope

- > The Implementation of a new Logical Data Model
 - All Lines Of Business
 - One Set Of Business Rules
- > Incorporate the requirements at the enterprise level
- > Use the right tools
- > Involve the right people



Develop Corporate Strategies

- **Capture Business Rules**
- **Implementation of LDM**
- **Data Sourcing**
- **Development Process**
- **Communication**
- **Documentation**
- **Testing**
- **Data Quality/Audit Process**
- **Change Control And Issues Management**
- **Security**
- **Backup And Recovery**
- **Create SLA For ETL Processes**
- **Business Testing And Validation**
- **Issue Resolution**
- **Subject Area Overview Sessions – Detailed Overview Sessions Of Subject Areas In LDM**
- **Physical Design**
- **Capacity Planning Review**
- **Develop And Document Technical And Business Specifications**
- **Work With Source Systems To Define Specifications For New Or Modified Interfaces**
- **Develop And Unit Test ETL And Conversion Scripts**
- **Run Data Audit Checks And Reports**
- **Integration Test ETL Scripts**
- **Performance Tuning Activities**
- **Post-Production Implementation Activities**

Keys to Success

- Integration of LDM Team and Application Team is critical
- Detailed Requirements and Modeling cannot be done Independently
- Knowledge of capabilities of all technologies
- Business Involvement/Commitment
- Defined process and compliance is invaluable
- Educate End Users on The Project
- Secure End User agreement
- Ensure right resources and proper time allocated to:
 - > Planning
 - > Building
 - > Managing
 - > Documenting
 - > Delivering
- Proper Data Management / Data Modeling Techniques
- Good Implementation Strategy

Coordination Challenges - SPOC

- Changes within development environments
- Inter-related projects
- Meeting SLA's (Service Level Agreements)
- Finalizing the Physical Model



Benefits for “the Business”

- “One Version Of The Truth”
- Enables enterprise level queries essential to the Business
- Users can become self-sufficient
- Enables key loss prevention initiatives
- Accelerates addition of new data elements
- Reduces maintenance
- Reduces documentation
- Enables integrity of historical data
- Creates an accurate and consistent model of the way Business views the data
- Provides consistent Business Rules and data definitions across all levels of the Business
- Improved Business and IT understanding of the Logical Data Model
- Delivery of complex metrics

Remember...Track Your Results

- Keep a history of ...
 - > Answers to business questions formerly unavailable and the business significance
 - > Examples of improved data quality
 - > Examples of improved information timeliness
 - > Specific benefits from cross-functional information sharing
 - > Examples of improved information relevance and “richness”
 - > New or improved business processes
 - > Improved business results
 - > Example of improved time to delivery of BI capabilities
- Wherever possible assign estimated business value
- Periodically review with ALL stakeholders

The Totally Evolved Business...

- Understands the critical events in business
- Knows:
 - > when events occur
 - > who to notify
 - > how (and when) to respond
 - > who needs communication
 - > which processes are involved
 - > how to measure and refine actions
 - > Can't be an island, others must be incorporated into the total solution
- Is able to manage the information
- Understands where it is headed



Lessons Learned and Critical Success Factors

- Have all key Executives on board with the Enterprise Data Warehouse Initiative
 - > Make the Execs the disciples
 - > Be certain you have Exec buy-in, keep in touch
 - > Mitigate contention and conflicts
 - > Align Business Partnership and Sponsorship
 - > Resolve issues before you move ahead
 - This can be resource intensive, but consider the alternative of moving forward and then scrapping the project eight months later
 - > Keep metrics simple
 - Easy to interpret
 - Quickly measurable

Lessons Learned and Critical Success Factors

- Changing Corporate Culture is very difficult, especially when creating new concepts
 - > Be patient
 - Embracing and leveraging new systems takes time
 - Create programs around how you wish to communicate the new paradigm
 - > Technology is a important factor for an EDW
 - > You get what you plan for, have clear expectations and a roadmap
- Your success will be in direct proportion with how your organization is structured

The true value of the EDW is dependent upon the organizational structure and capabilities of the EDW team.

Data Warehousing – The “Must Remember” List

- A data warehouse is a solution to a **business** problem not a technical problem
- The warehouse needs to **constantly** overcome obstacles that are as yet undefined
- “Mores Law”: **more** users wanting **more** applications that have **more** complex and varied analysis against **more** data with **more** frequent updates in a **more** timely manner.
- The goal behind the warehouse is **consistency** and **agreement**, not just access
- The **foundation** put in place determines the speed, and duration of the business evolution

Questions?

THANK YOU!

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