Transforming Oracle® E-Business Suite

Breakin' Up is Hard to Do: Complexities of Separating Data in an ERP Environment

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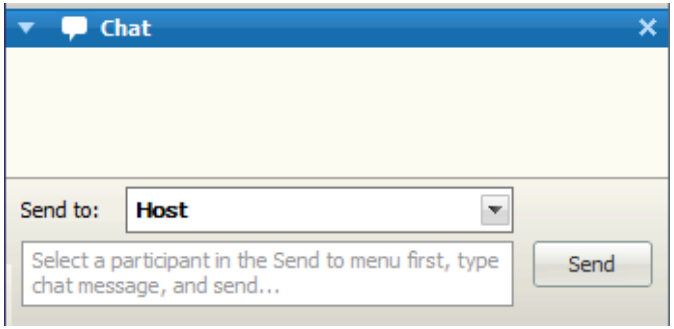
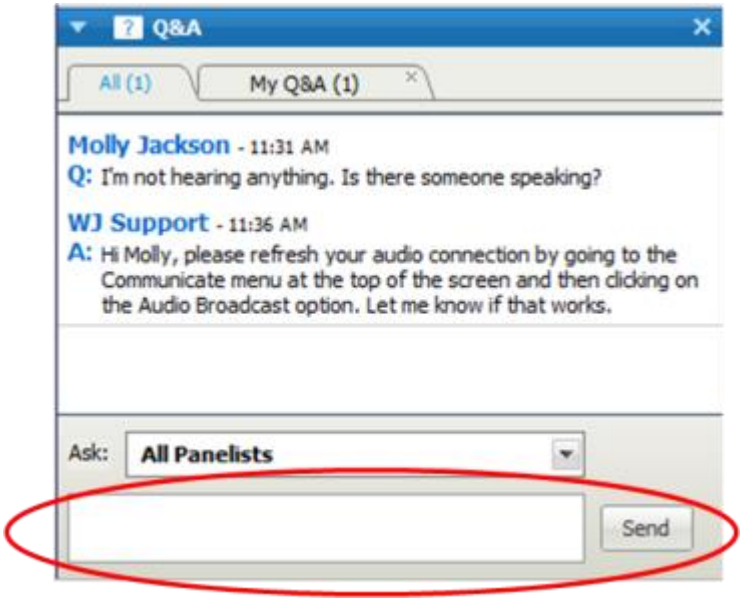
eprentise

Webinar Mechanics

- Submit text questions.
- Q&A addressed at the end of the session. Answers will be posted within two weeks on our new LinkedIn Group, EBS Answers: http://www.linkedin.com/groups/EBS-Answers-4683349/about
- Everyone will receive an email with a link to view a recorded version of today's session.
- Polling questions will be presented during the session. If you want CPE credit for this webinar, you must answer all of the polling questions.





Learning Objectives

After completion of this presentation you will be able to:

Objective 1: Discover the reasons for data separation.

Objective 2: Understand data architecture in an Enterprise Resource Planning (ERP) System.

Objective 3: Explain how to effectively separate the data.

Companies Need to Change Their Oracle® E-Business Suite *Without* Reimplementing

eprentise Can…

- Consolidate Multiple EBS Instances
- Change Underlying Structures and Configurations
  - Chart of Accounts, Other Flexfields
  - Merge or Split Ledgers or Sets of Books, Operating Units, Legal Entities, Inventory Organizations
  - Calendars, Currency, Costing Methods
  - Asset Revaluation, Inventory Valuation
- Separate Data for a Divestiture

…So Our Customers Can:

- Reduce Operating Costs and Increase Efficiencies
- Adapt to Change
- Avoid a Reimplementation
- Reduce Complexity and Control Risk
- Improve Business Continuity, Service Quality and Compliance
- Streamline Operations with Visibility to All Parts of the Business
- Establish Data Quality Standards and a Single Source of Truth

Finished But Not Done®

Agenda

- Reasons for Data Separation
- ERP Data Architecture
- Effectively Separating Data
- Importance of Metadata
- Data Separation in the Cloud
- Questions

Discover the reasons for data separation.

OBJECTIVE 1

Data Separation

- An act of segregating data to produce information that meets a business requirement.

- Simple uses – requires no, to some, knowledge of underlying ERP data model:
  - Specifying report parameters when running a report
  - Specifying a WHERE clause criteria in a query when selecting data from a database table

- Complex uses – requires extensive knowledge of underlying ERP data model:
  - In the case of a divestiture, identify which customers and suppliers will go with the buyer organization
  - When archiving data from an ERP instance, identify which data entities will be impacted
  - Separate business operations for regulatory or statutory requirements
  - Financial auditing

Why Separate Data?

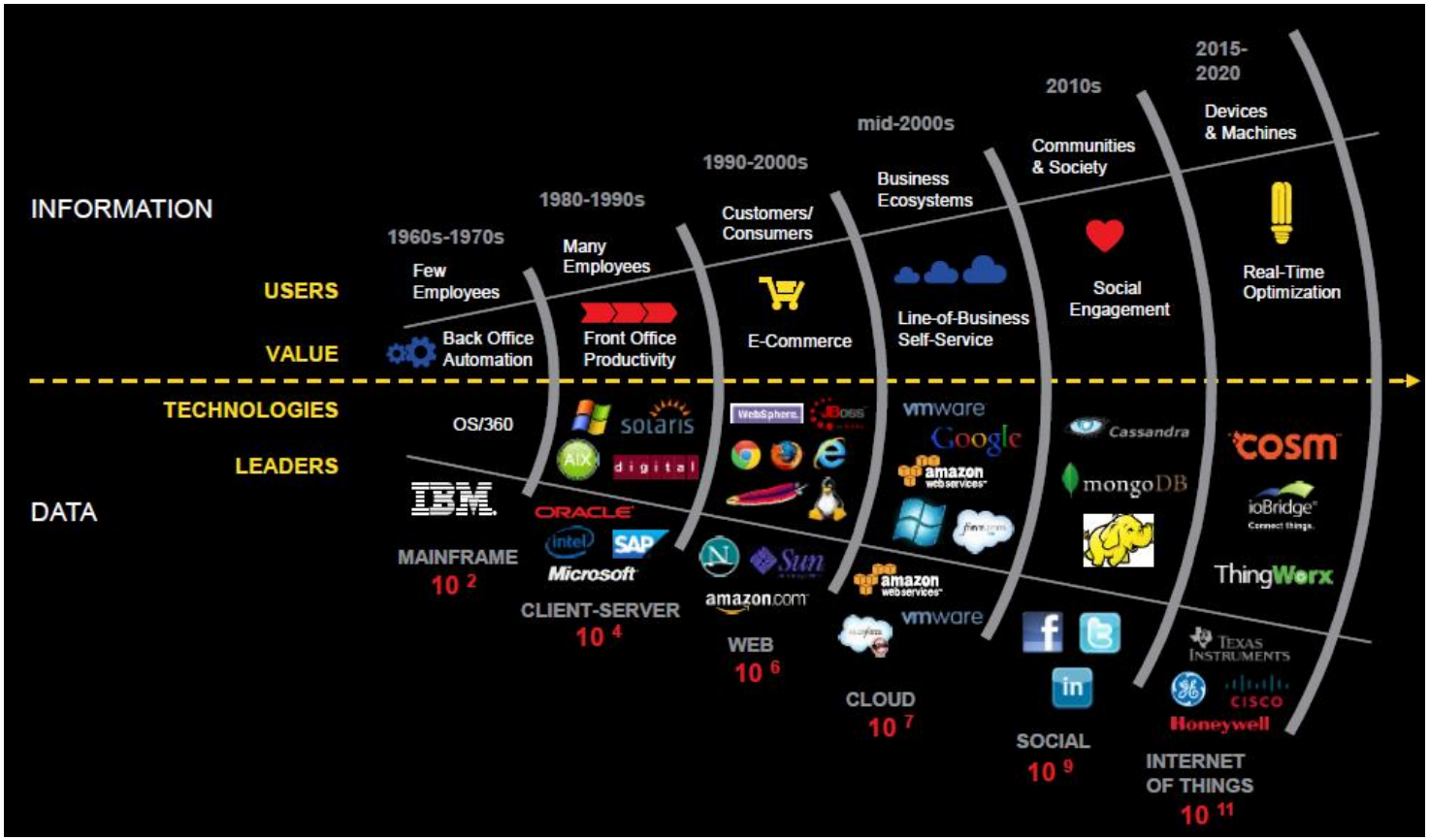
- The very first step in many data-driven operational and strategic initiatives, such as:

  - Building data marts and data warehouses
  - Implementing Business Intelligence/analytics solutions
  - Data security
  - Data monetization

Why Separate Data?

- Reporting: Specific reporting requirements from a subset of data
- Business event: Buying or selling part of an organization
- Compliance: Different legal requirements for different parts of the organization
- Governance: Different controls or security requirements within the organization
- Archive/Purge: Archive/purge historical data
- Masking: Mask HR and other sensitive data based on regulations such as PCI compliance, etc. – how to identify what to mask?

Technological Advancement Makes Data Separation more Complex



Interesting Data Fact

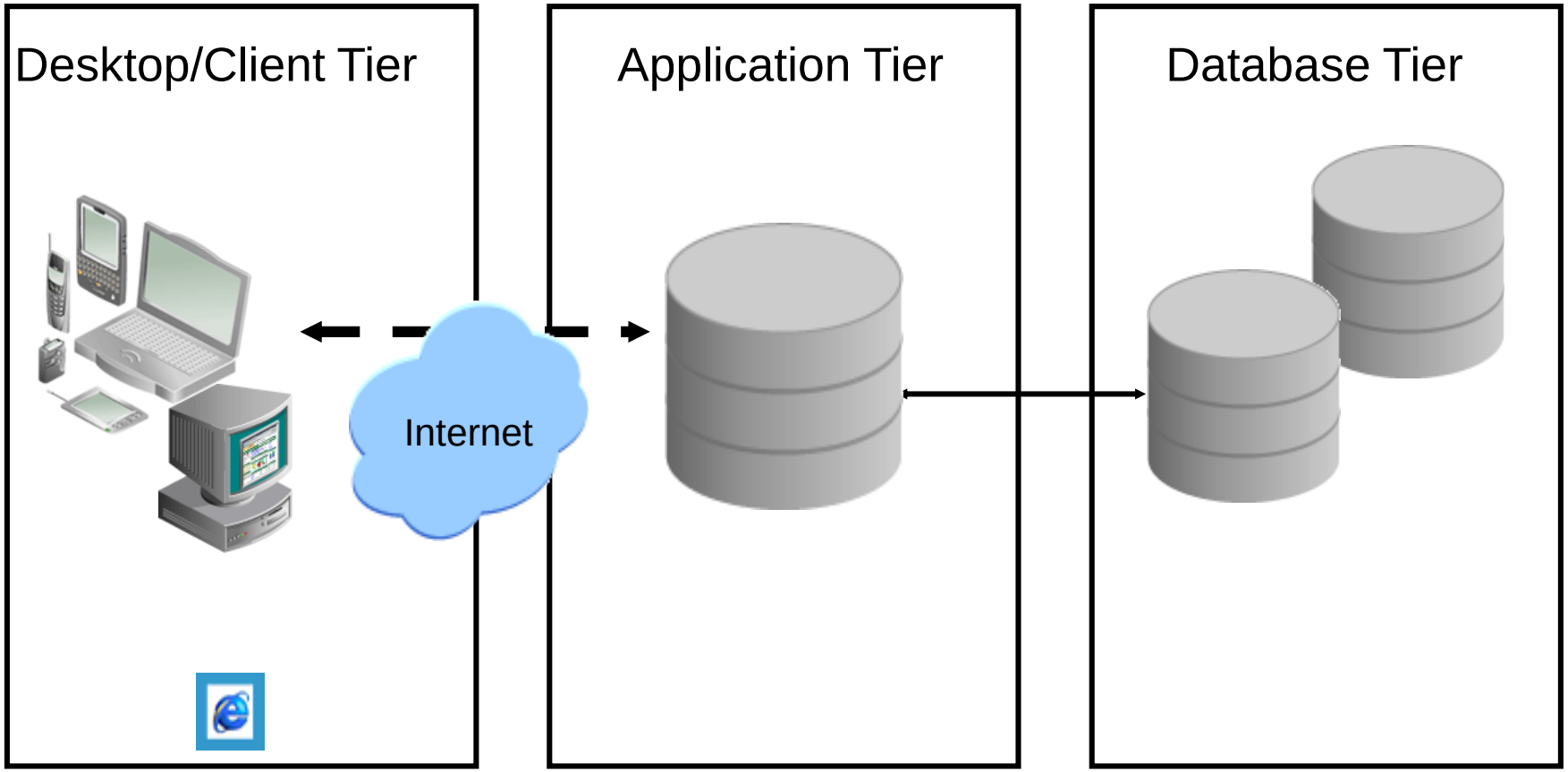
AT&T is thought to hold the world's largest volume of commercial data in one unique database – its phone records database is 312 terabytes in size, and contains almost 2 trillion rows. The database runs on Oracle.

Poll Question

Understand data architecture in an ERP system.

OBJECTIVE 2

ERP Technical Architecture

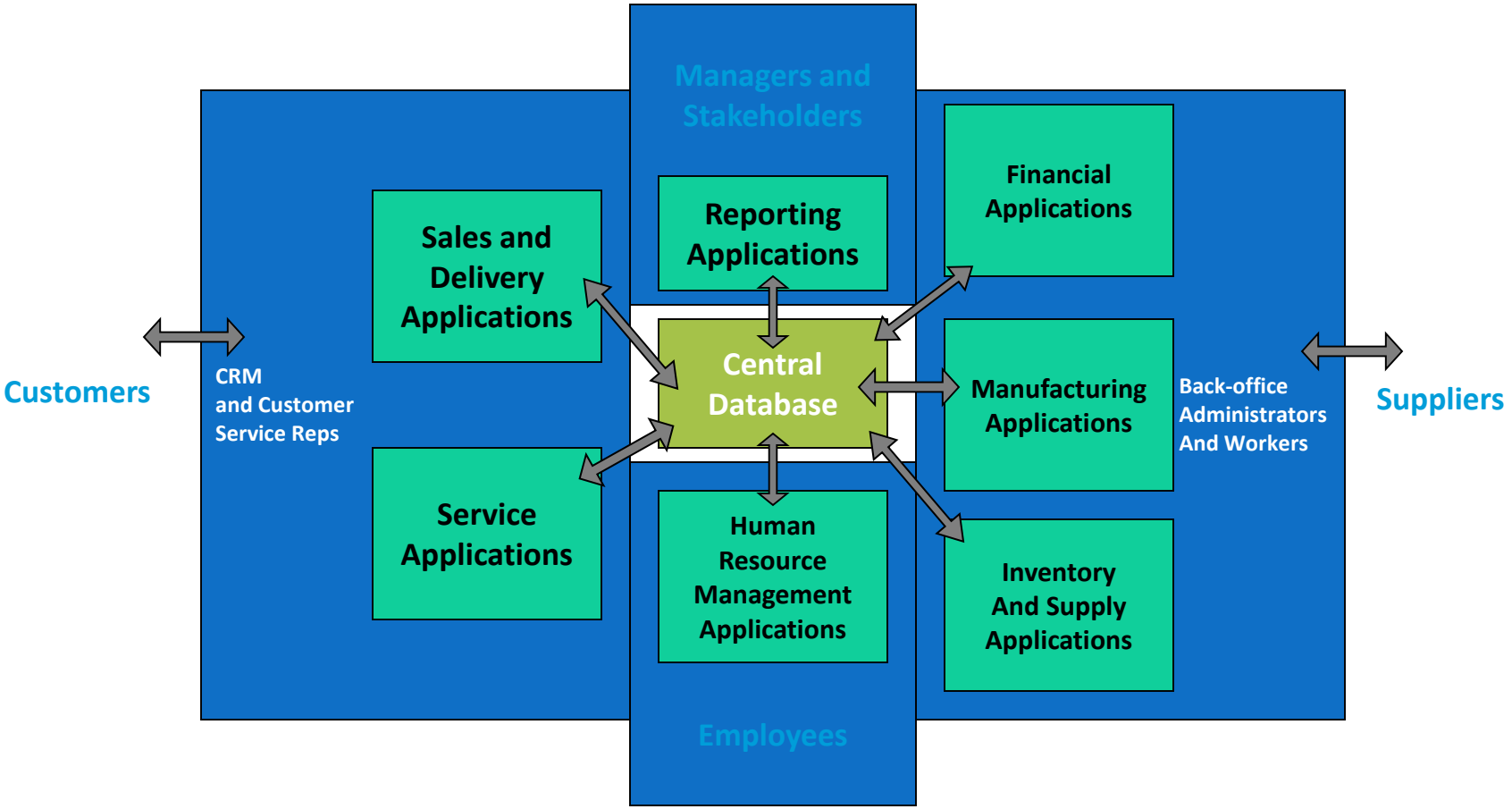


User Interface

Application Logic

Application Data & Database Logic

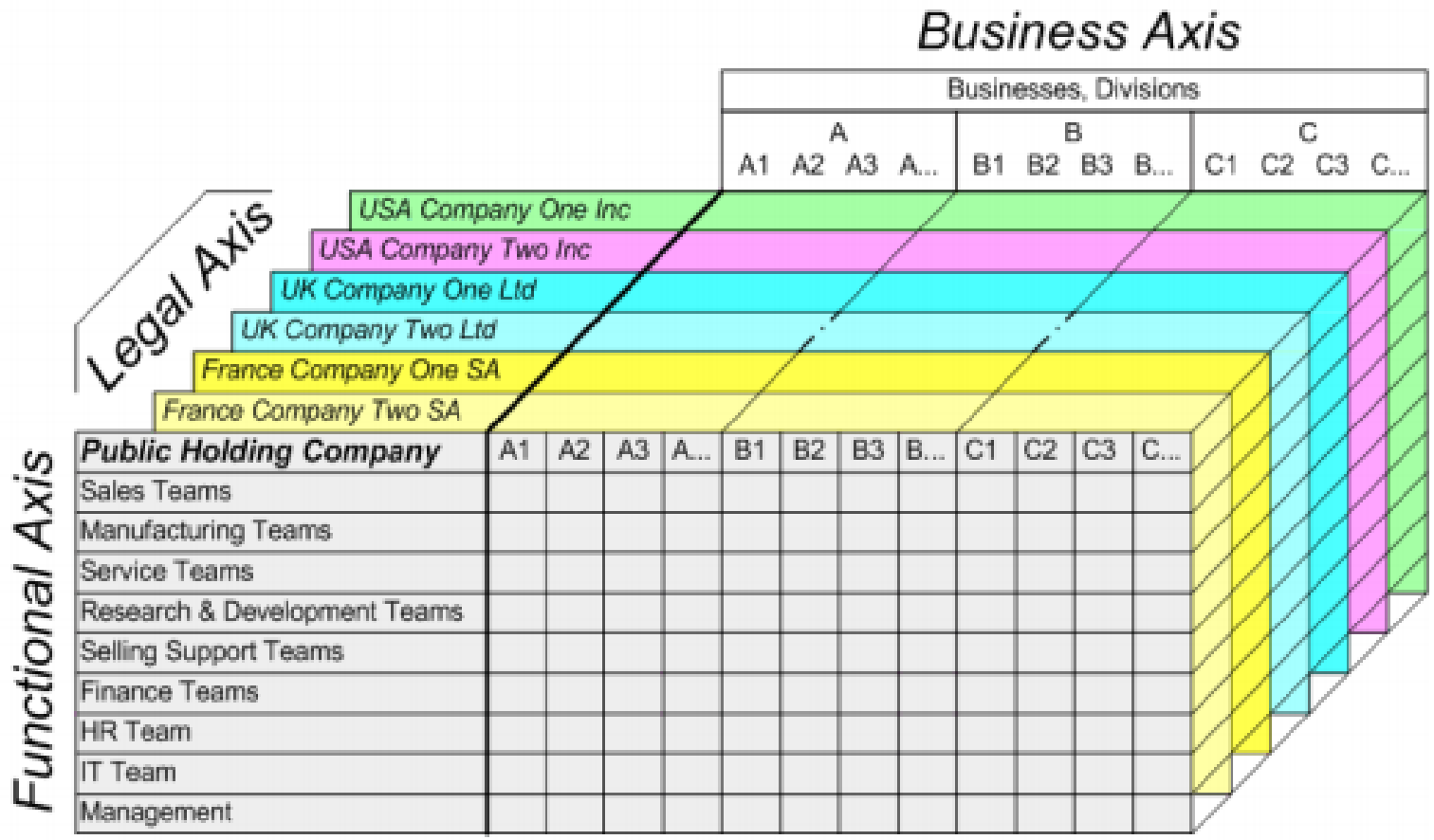
ERP Functional Structure



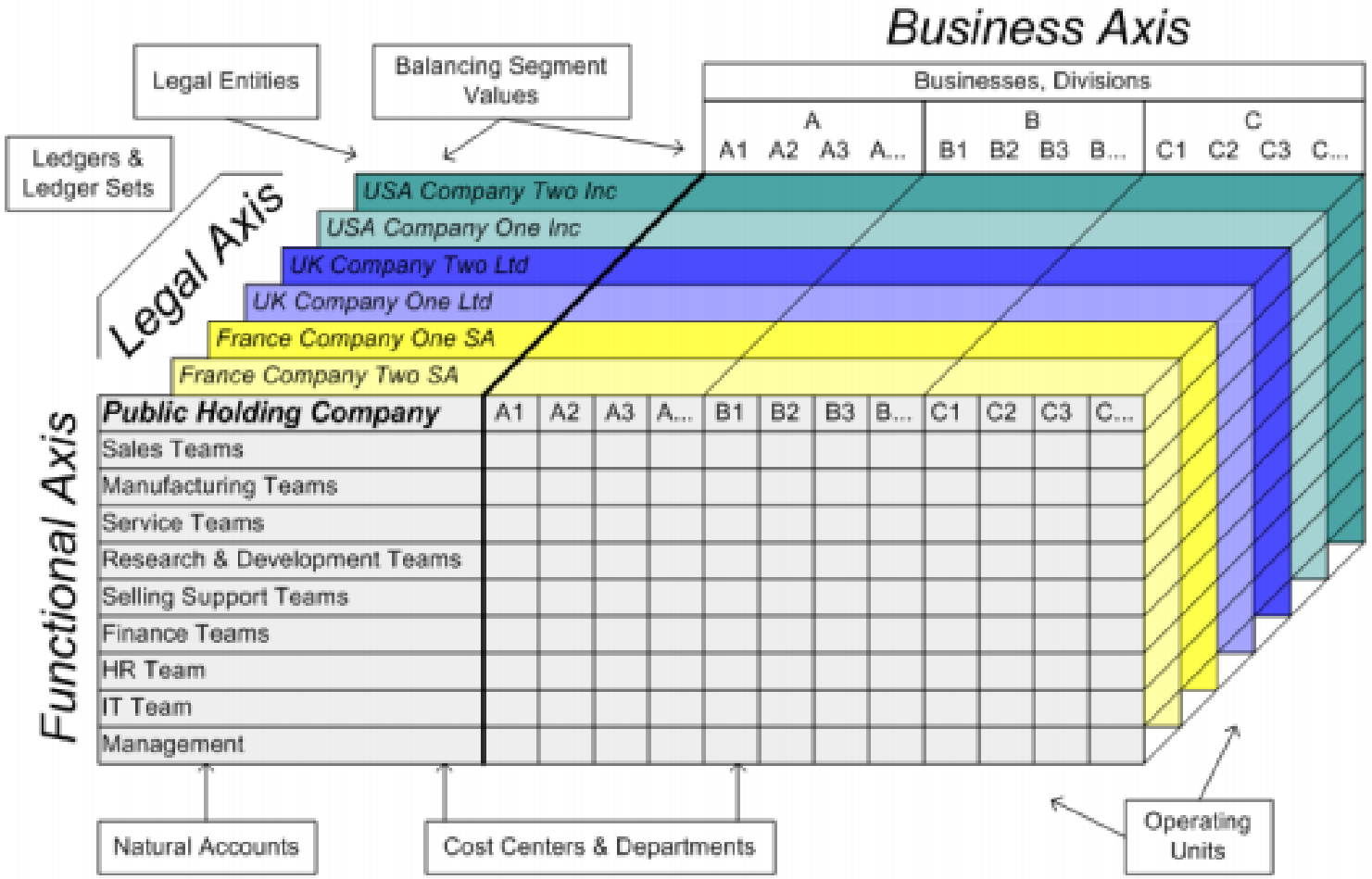
ERP Modules – 4 Main Functional Areas

- Finance and accounting
  - Investment, cost, asset, capital and debt management
  - Budgets, profitability analysis and performance reports
- Sales and delivery
  - Handles pricing, availability, orders, shipments and billing
- Inventory and supply management
  - Process planning, BOM, inventory costing, MRP, allocates resources, schedules, Purchase Orders and inventory
- Human resources
  - Workforce planning, payroll & benefits and organizational charts

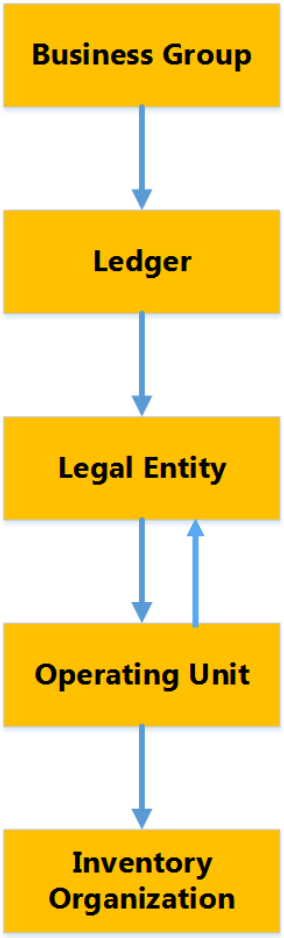
Data stored at Multiple Levels



Data stored at Multiple Levels– EBS View



Organization Components



Business Group: The consolidated enterprise, a major division, or an operations company.

Ledger: A financial entity comprised of a chart of accounts, calendar, and functional currency. Oracle General Ledger secures information by ledger.

Legal Entity: The level at which fiscal or tax reports are prepared. Maintains the legal lines of credit information of the company.

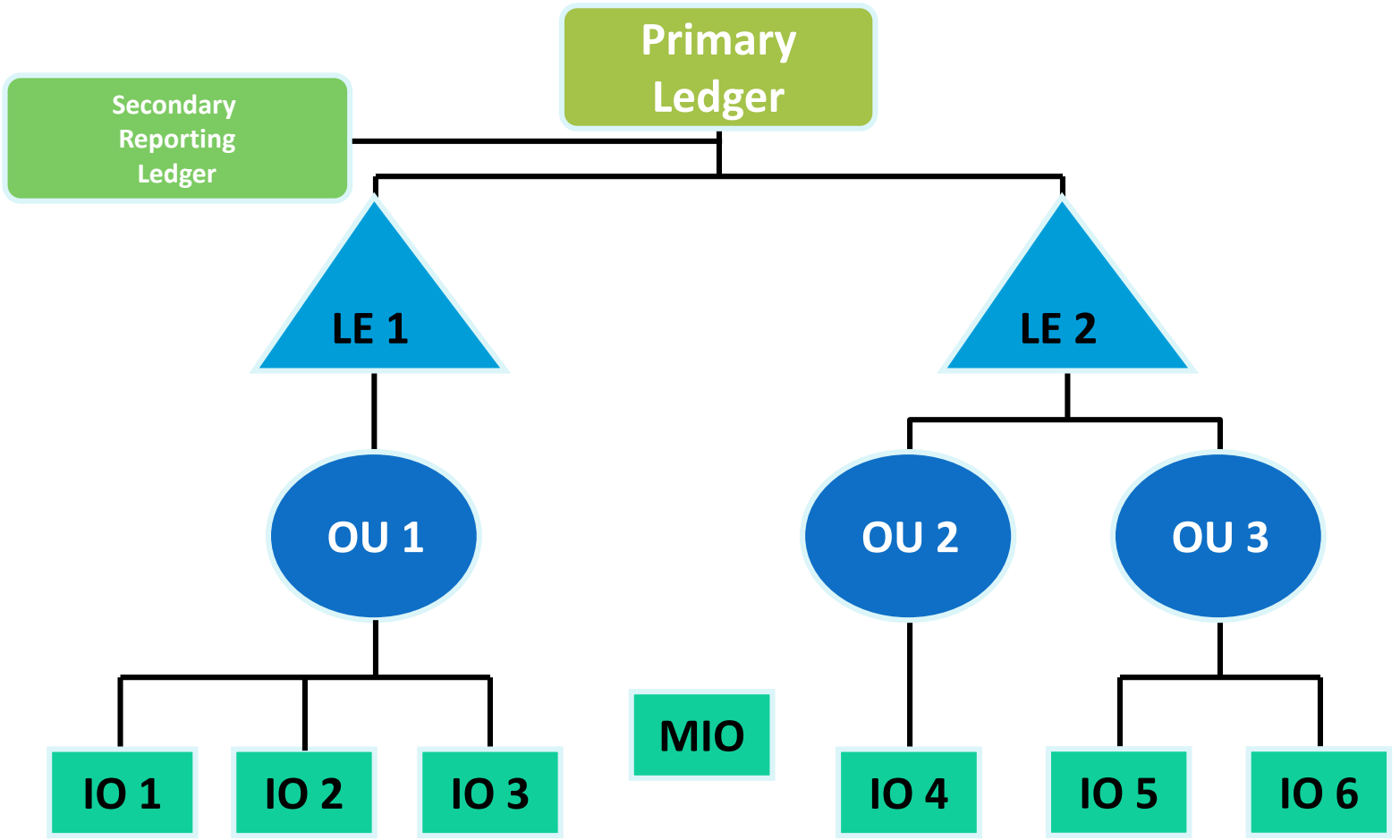
Operating Unit: Tied to a legal entity, an operating unit can only reference one ledger and one currency. Most master data such as customers, suppliers, bank and transaction data of AP, PO, AR, OM, CM are secured by operating unit. In R12, a LE can be in many OUs, and an OU may have many legal entities. An OU must have a Default Legal Context (DLC), which will be a particular legal entity. You can assign that DLC legal entity to multiple OUs.

Inventory Organization: An organization that tracks inventory transactions by item. Oracle INV, BOM, Engineering, WIP, Master Scheduling/MRP, Capacity, and Purchasing Receiving all secure data by this type of organization. At least one Master Inventory Org needs to be defined to maintain item information.

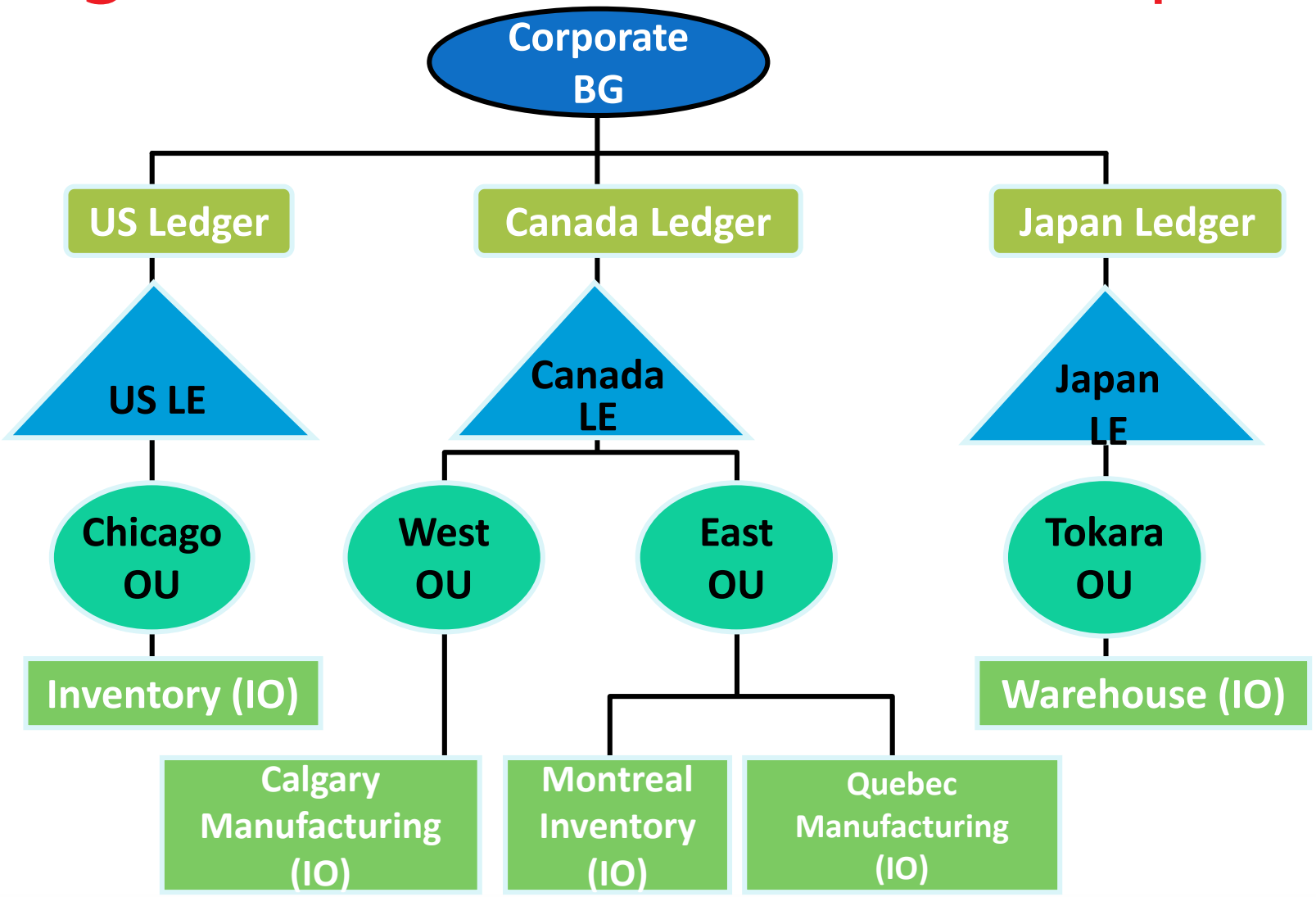
Data Segregation in ERP

- Business Group
  - Segregates HR and employee data
- Ledger
  - Segregates financial data
- Operating Unit
  - Segregates master data (customers, suppliers, bank account) and transaction data for modules such as Payables, Receivables, Purchasing, Order Management, etc.
- Inventory Organization
  - Segregates inventory related data for modules such as Inventory, Material Requirements Planning, Bills of Materials, Work in Process, etc.

Organization Structure – Example 1



Organization Structure – Example 2



Is More Flexibility = Low Complexity?

- The same data structures must hold data to support many business models
- The data structure might contain data attributes that are context sensitive
- Highly normalized data in the database
- Different user experiences requires different data types:
  - Conventional structured data
  - Unstructured data
    - Video files
    - Sound files
    - Image files
    - Other file formats (PDF, Word, EXCEL, etc.)
    - Social media
- Data or process integrations with other upstream or downstream systems

Interesting Data Fact

Walmart handles more than 1 million customer transactions every hour, which is imported into databases estimated to contain more than 2.5 petabytes of data.

Poll Question

Explain how to effectively separate the data.

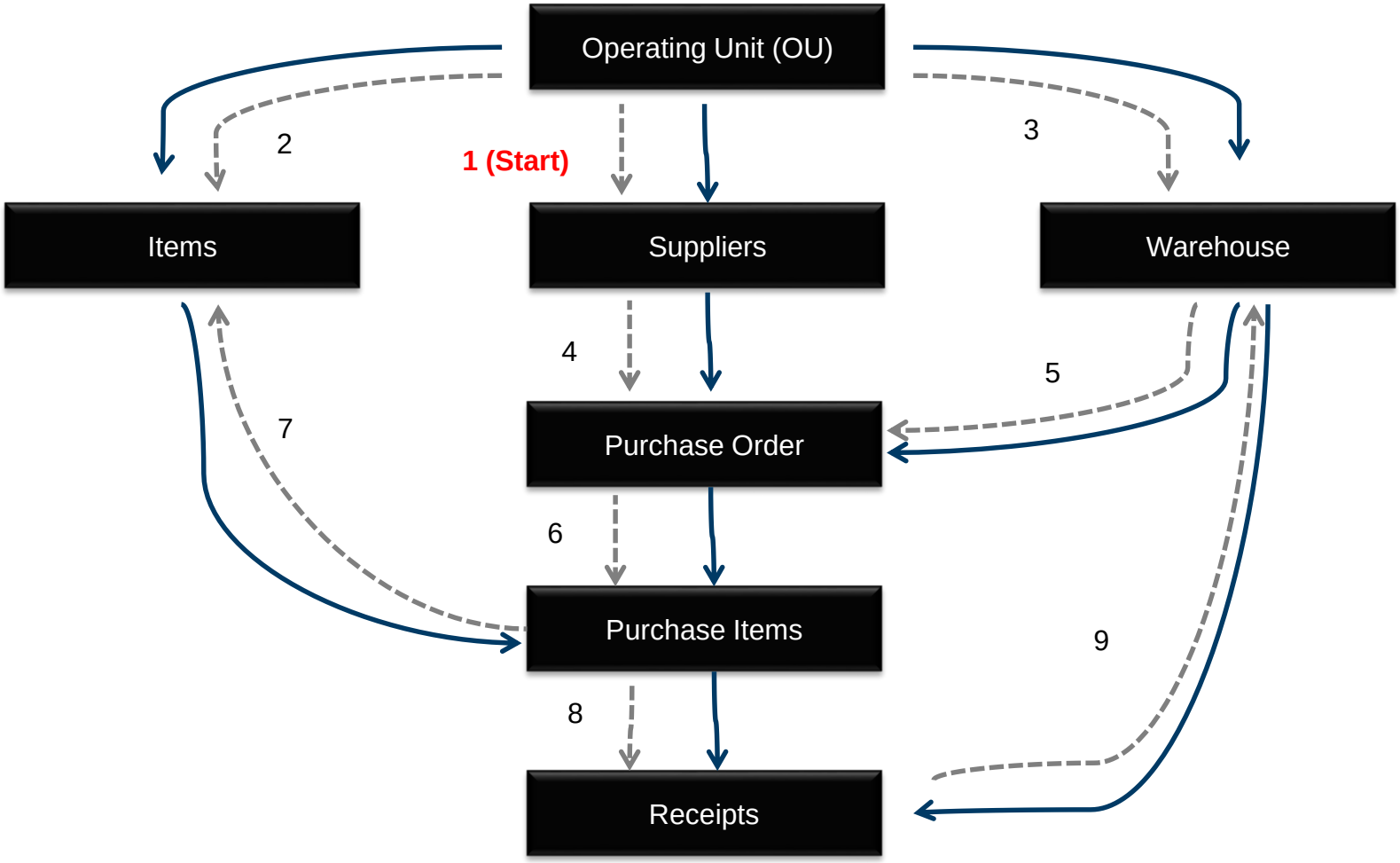
OBJECTIVE 3

Top-down Data Separation

Starts at a higher level data entity such as operating unit or inventory organization and then further drills down to a lower level that meets the business requirements:

- List of all the outbound shipments from a specific warehouse for a given month
- List of all customer invoices and related payments for a customer under a specific operating unit
- List of all the purchase orders created to ship inventory to a specific warehouse
- List of all the asset account balances for a given financial ledger as of a given period

Top-down – Separate Data Based on OU

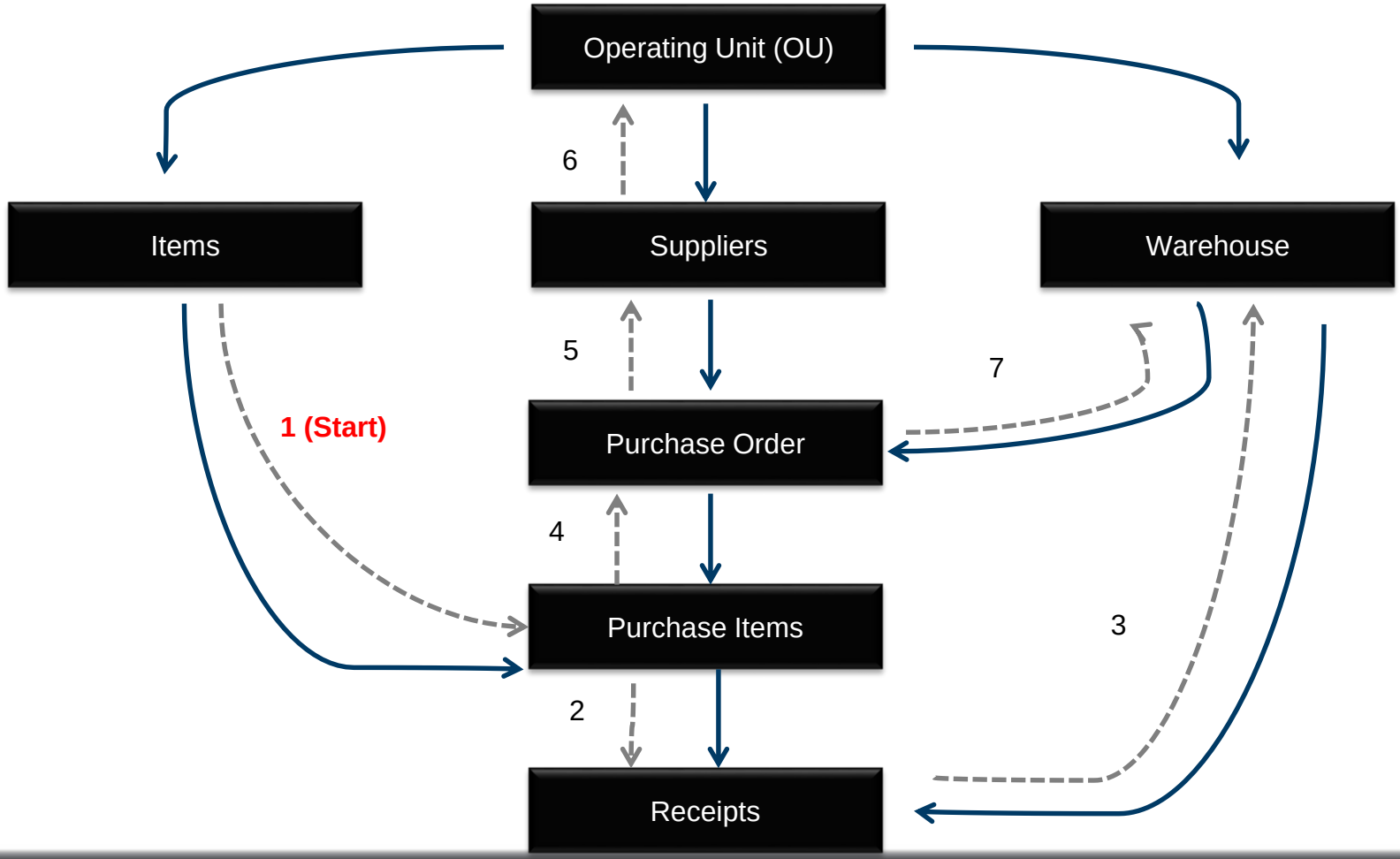


Bottom-up Data Separation

Starts at a lower level data entity/attribute, such as an item or transaction date, and then further rollup to a higher level that meets requirements:

- List of all the outbound shipments for a given item
- List of all the customers whole received a shipment for a given item
- List of all suppliers who shipped specific items to any warehouse after a specific date
- List of all customer receivables for a specific transaction date period that uses an accounting code for a specific company

Bottom-up – Separate Data Based on Item



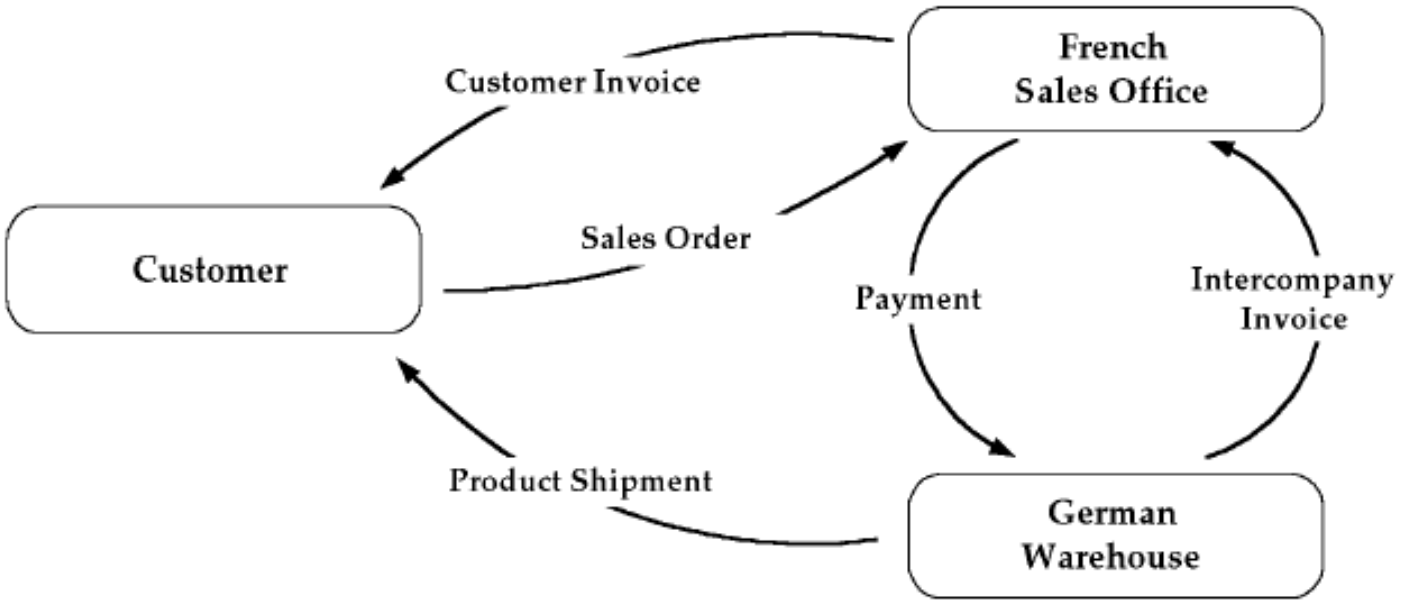
Pre-requisites for Making Good Decisions with Data Separation

- Understanding of data entities, using:
  - Published data dictionary
  - ER diagrams
  - Metadata from the database
  - Other available sources such as custom documentation, internal knowledgebase, etc.

- Techno-Functional knowledge of the data - how different business functions relate to the data
  - For example, understand purchasing and its connection with payables and financial accounting

- Understanding of the tools available in the market

Intercompany Transaction Flow Between Orgs – How To Identify What Data Belongs Where?



Metadata

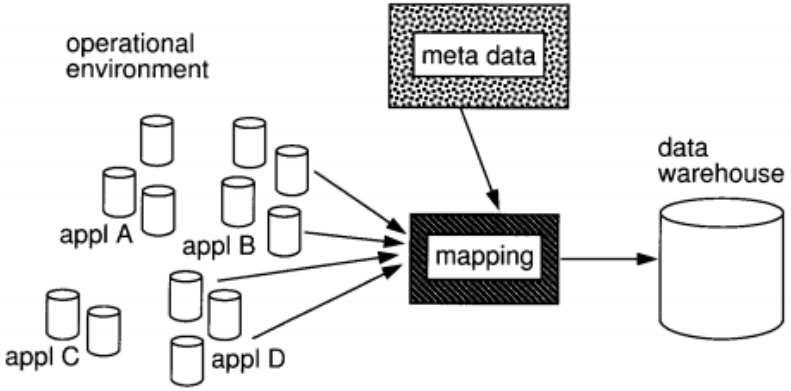
- What is metadata?
  - "Data about data"
- Most data is useless without metadata to tell us what it means.
- Because metadata is also data, we need metadata to tell us what the metadata means.
- Metadata is everywhere. The trick it to recognize it.

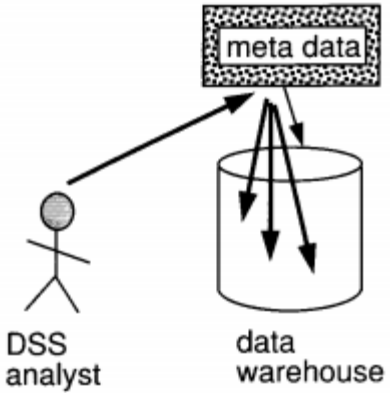
Metadata

- Some Examples
  - A “book table of contents” contains information (metadata) about “book” contents (data)
  - A “library catalog” contains information (metadata) about “publications” (data)
  - A “product datasheet” contains information (metadata) about “detailed product specifications” (data)
  - A “map” contains legend info (metadata) about the information on the map (data)
- Includes characteristics of the data, but not the actual data
  - Format (number, date, vchar, etc.)
  - Data about data (date created, modified, etc.)
  - Domain of data (phone number, calculation, etc.)
  - Structure of data (size, rounding, display, etc.)
  - Applies to all occurrences of the data everywhere in the database

Metadata in Application systems

- Data warehouses
  - What data is stored?
  - What is the frequency of refresh?
  - When was it last refreshed?





Data Mining

- "Data mining" is the process of analyzing data from different perspectives and summarizing it into useful information.
- Also known as data or knowledge discovery.
- It can be a used to derive metadata.
- It has many more uses than just deriving metadata.
- There are tools available in the market to support data mining and also to provide analytics around the mined data.
- When used effectively, it offers a competitive advantage to businesses.

Data Mining – Actionable Insights

- A video rental company can analyze the history database to recommend rentals to individual customers.
- American Express can suggest products to its cardholders based on analysis of their monthly expenditures.
- Amazon can target customers with email blasts that matches their buying patterns.
- A political party can analyze historical voter data to predict their chances of winning.

Split Transactions

- A transaction is considered a split transaction if it contains data that encompasses more than one business entity, for example:
  - A purchase order that is created to source inventory for multiple warehouses
  - An internal order that is created to ship to multiple internal warehouses
  - A customer order that is shipping from multiple warehouses
  - A Payables invoice that is using multiple balancing segments on accounting
- From a data segregation perspective, split transactions are more complex to identify and handle especially if the requirement requires a bottom-up approach

Poll Question

Identify Split Transactions

- PO lines split between three companies
- Keep lines associated with the retained company 816, purge lines associated with companies 014 and 295
- Update PO header with remaining Qty: 5 and Amount: $33,840

PO_HEADER_ID	PO_LINE_ID	ACCOUNT CCID	COMPANY	QUANTITY DELIVERED	AMOUNT BILLED	RETAIN
80214	291665	238983	014	1	6600.92	N
80214	291667	238983	014	1	6600.92	N
80214	291669	238983	014	1	6600.92	N
80214	291670	238983	014	1	6602.92	N
80214	291661	238983	014	1	6600.92	N
80214	291662	238983	014	1	43.82	N
80214	291663	238983	014	1	6600.92	N
80214	291666	238983	014	1	6600.94	N
80214	291664	238983	014	1	6600.92	N
80214	291659	60659	295	800	4408	N
80214	291660	60659	295	1	109.96	N
80214	291657	184198	816	1	1800	Y
80214	291656	184198	816	1	1800	Y
80214	291658	99575	816	1	1440	Y
80214	291668	99575	816	1	18000	Y
80214	291655	99575	816	1	10800	Y

Handling Balancing Segment Split

BEFORE (Parent)			
	Account	*DR*	*CR*
Vendor Invoice			
Expense - Company1	001-5555	600	
Expense - Company2	002-5678	400	
AP Liability	001-2222		1000
Payment			
AP Liability	001-2222	1000	
Cash	001-1111		1000

Map

MAPPING				
	Account	*DR*	*CR*	*ACTION*
Vendor Invoice				
Expense - Company1	001-5555	600		PURGE
Expense - Company2	002-5678	400		RETAIN
AP Liability - Company1	001-2222		600	"SPLIT" -
*AP Liability - Company2	002-2222		400	Transform in Place
Payment				
AP Liability - Company1	001-2222	600		"SPLIT" -
*AP Liability - Company2	002-2222	400		Transform in Place
Cash - Company1	001-1111		600	"SPLIT" -
*Cash - Company2	002-1234		400	Transform in Place
*Mapping for Company2 Accounts Needs to be Provided				

Transform

AFTER (Child)			
	Account	*DR*	*CR*
Vendor Invoice			
Expense - Company2	002-5678	400	
AP Liability - Company2	002-2222		400
Payment			
AP Liability - Company2	002-2222	400	
Cash - Company2	002-1234		400

Split Example from a Divestiture Using Balancing Segment Value Criteria

	All Transactions Count	All Transactions Count for Retain OUs	Transactions fully linked with retain companies (by BSV criteria)	Transactions partially linked with one or more retain companies (by BSV criteria) SPLIT CASES	Transactions not linked with any retain company (by BSV criteria)
AP Invoices	1,359,735	375,842	51,962	352	323,528
AP Payments	Payments: 1,367,316 Checks: 511,207	Payments: 372,665 Checks: 187,986	Payments: 42,415 Checks: 19,676	Payments: 7,292 Checks: 1,211	Payments: 322,958 Checks: 169,035
Purchasing POs	507,611	115,883	24,183	38	91,662
Purchasing Requisitions	1,027,059	171,866	44,642	4	127,220
Projects	46,630	26,220	4,695	162	21,363
AR Transactions	378,305	75,901	19,537	9	56,355
AR Cash Receipts	252,078	43,258	8,804	100	32,748
Order Management Orders	175,833	15,572	7,984	0	7,588
Inventory Transactions	7,129,247	923,417	387,422	2,080	533,915

Data Separation in the Cloud

- Cloud Solutions: SaaS, PaaS, IaaS
- Single functional domain SaaS tools have been in the market for 10+ years now and are very mature (Salesforce.com)
- PaaS and IaaS are very mature now
- Multiple functional domain SaaS tools such as ERP are fairly new to the market and are increasingly being adopted by customers and the product offering is also being constantly enhanced by the customer
- Customer can utilize APIs to extract data from Cloud ERP but have limited ability to directly access the data using external SQL/data integration tools

Interesting Data Fact

Every 2 days we create as much information as we did from the beginning of time until 2003.

Questions?

Thank You!

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- One World, One System, A Single Source of Truth -

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