

# Enterprise Systems



Jason Chan  
Session 1

# Learning Objectives

Understand the concept of a  
business process

# Understanding Business Processes



Journey of an iPhone

... to a retail store

# I Need Some iPhones



The store manager from  
Best Buy contacts a sales  
associate at Apple.

“5000 iPhones needed at  
**MN Roseville BestBuy**  
outlet by 31 Oct...  
Cut me a good deal too  
😊”



# Can I make that deal?

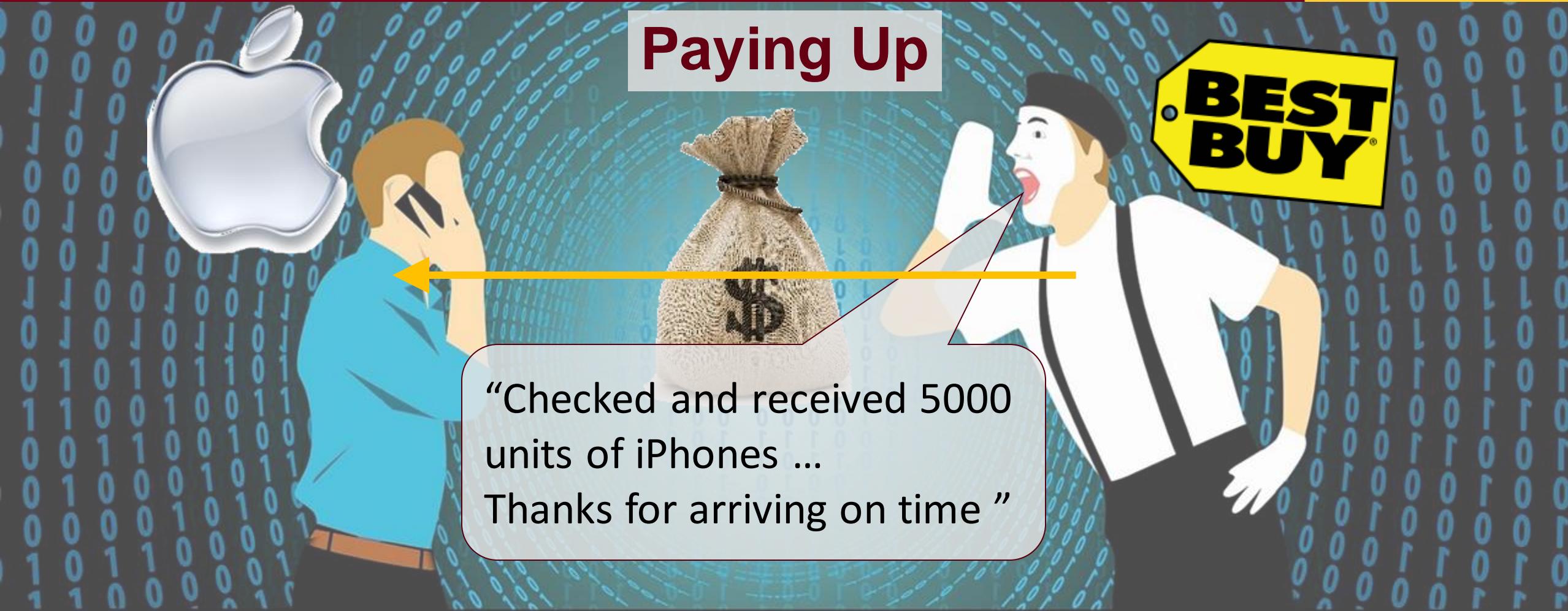
- Do I have enough iPhones?
- Can these phones be shipped there in time?
- Does BestBuy have good credit?
- Does BestBuy pay on time?
- Should I give any discounts?



# Let's Do it

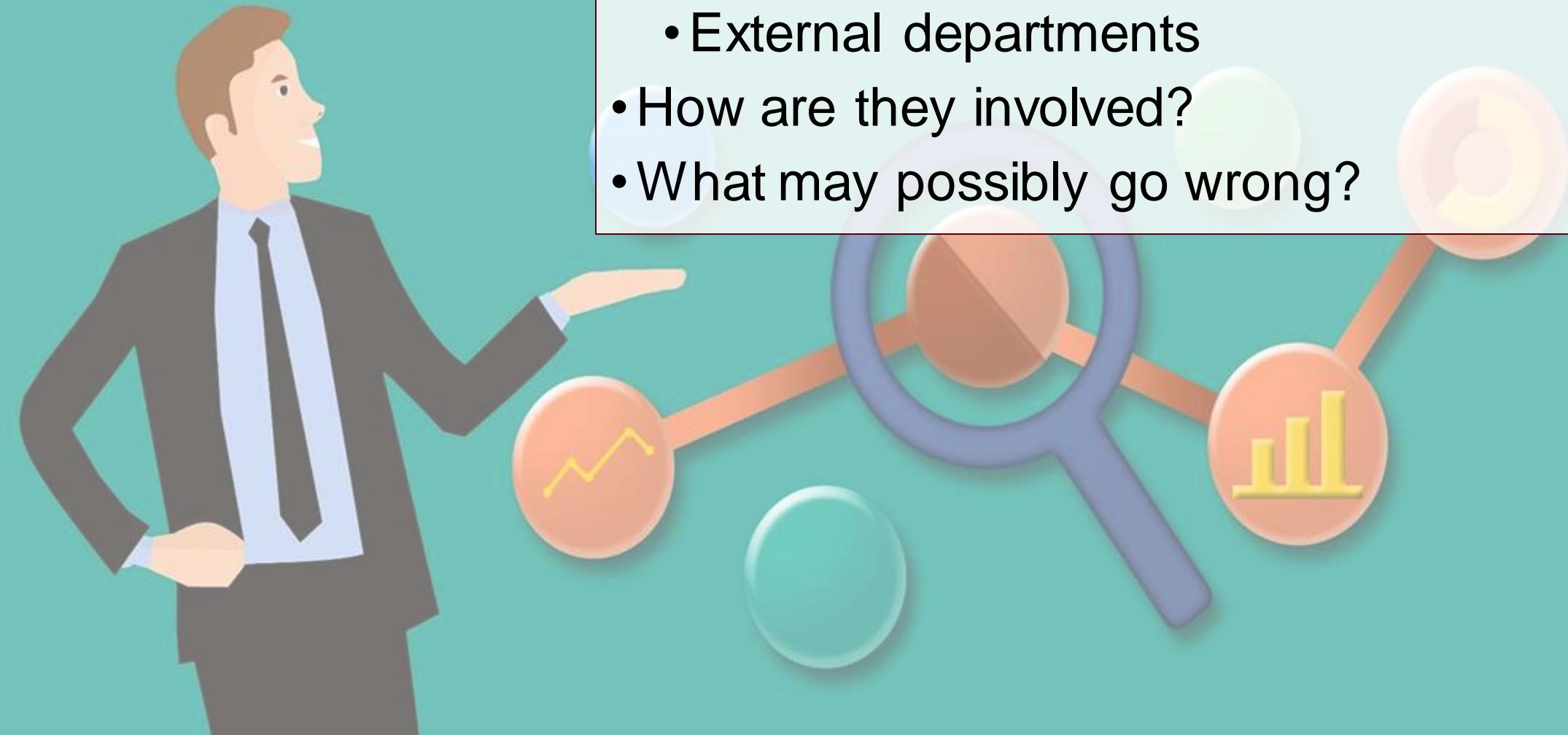


# Paying Up



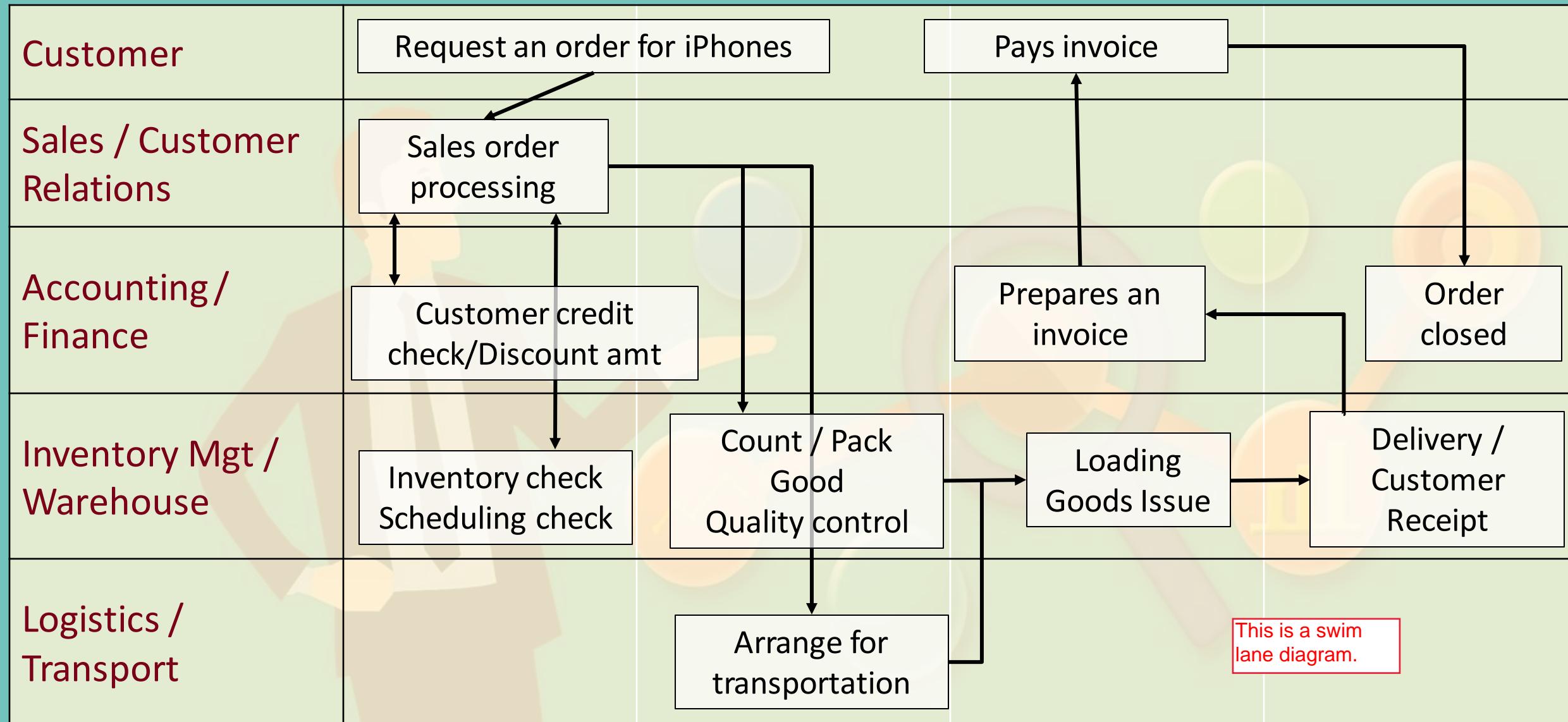
“Checked and received 5000  
units of iPhones ...  
Thanks for arriving on time ”

# Overview of Process

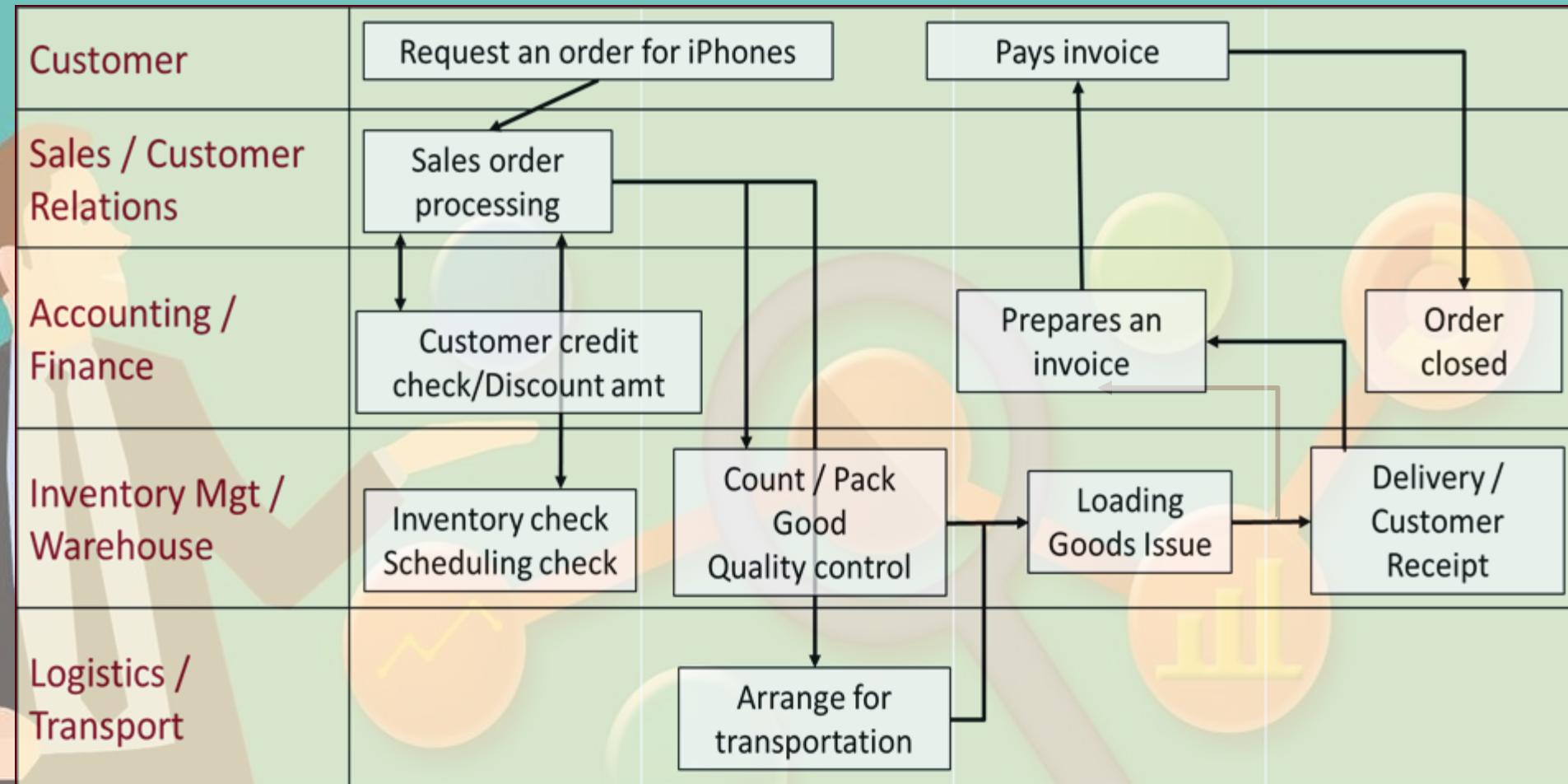


- Typical instance of an *order fulfillment* process
- What business functions are involved?
  - Internal departments
  - External departments
- How are they involved?
- What may possibly go wrong?

# Typical Steps in Order Fulfillment Process



# Typical Steps in Order Fulfillment Process



# Potential Issues

- Not enough goods:
  - Too many simultaneous orders from other companies
  - Not enough stock in warehouse (too few units produced last quarter due to worker strike)
  - Defective units due to poor QC etc.
- Limited capacity from the logistic company
  - Unable to ship due too much requests during holiday season
- Client has yet to pay their previous bill from since last June!

# Information needs to flow between business units effectively!

Enterprise resource planning (ERP) systems can help sales associates make better decisions by presenting information on stock availability and the credit-worthiness of customers.



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# Enterprise Systems



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# Learning Objectives

Explore the business functions  
within a company

# Business Functions

Sales/  
Marketing

Human  
Resource

Production

Finance/  
Accounting

Procurement

Departments that  
exist in a typical  
company

The procurement department buys and purchases raw materials so that the company is able to produce goods. Also, the procurement department buys daily supply so that the offices could run.

Why do business functions tend to generate silo effect?

# Why Do Silos Arise?



- Increasing number of organizational units
- Increasing specialization
- Different incentive schemes across departments

# The Solution

Management

Have a Process-Oriented View of the Organization!

Sales Department

Distribution Department

Finance Department

Find Customer

Deliver Product

Collect Revenue

A process-oriented view of the organization allows information to flow seamlessly across departments.



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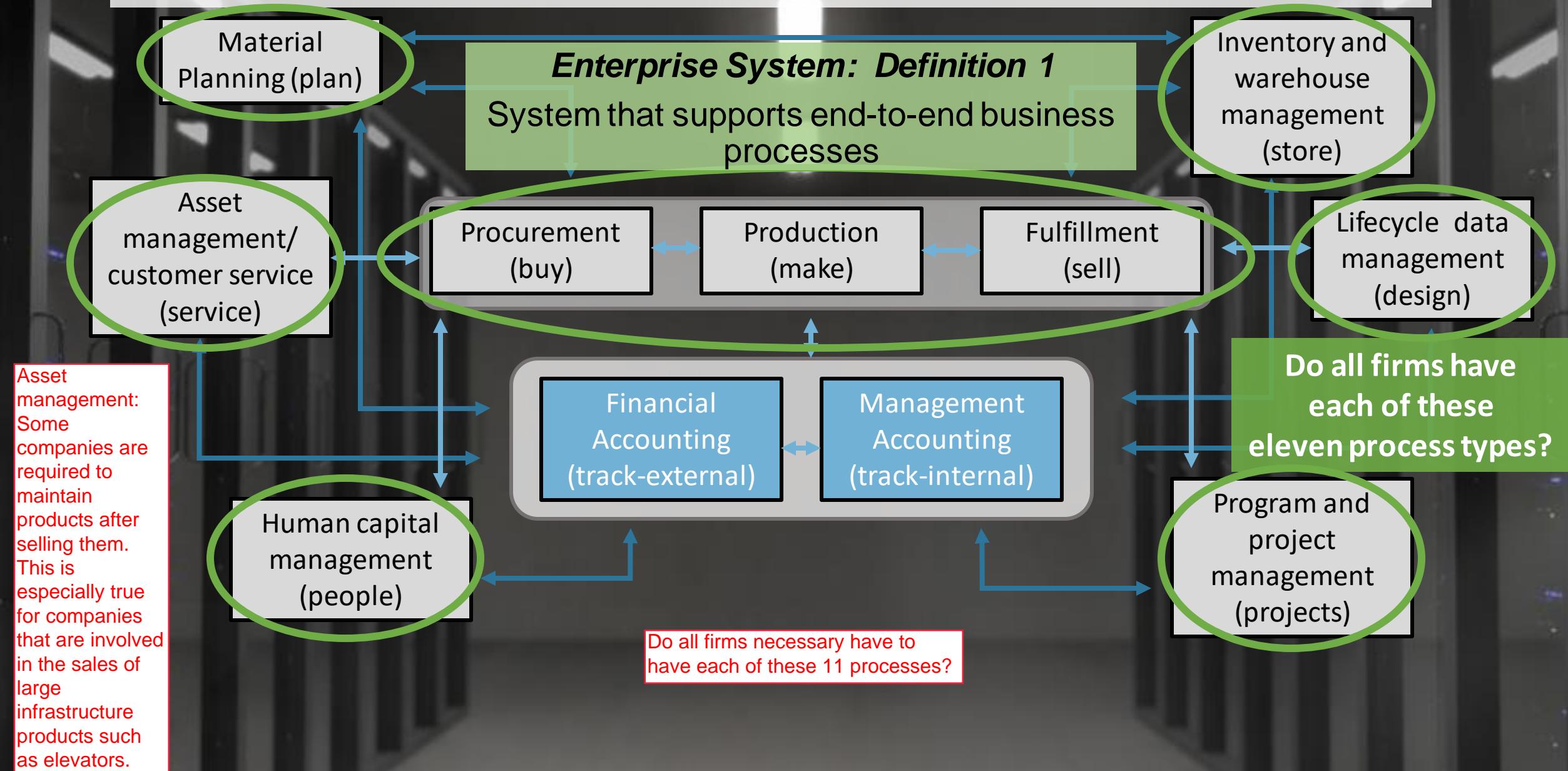
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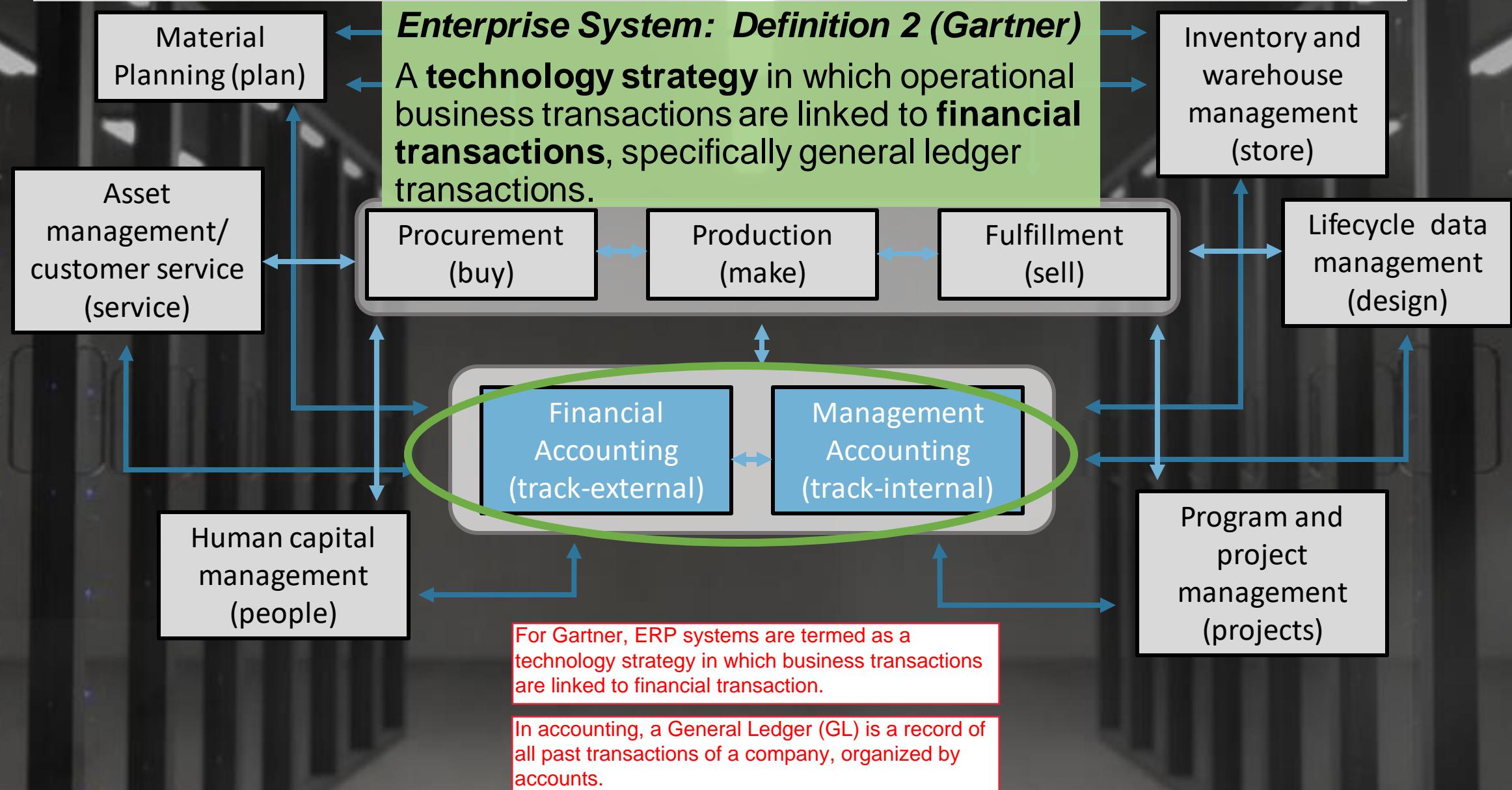


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# Enterprise Systems and Corporate Functions



# Enterprise Systems and Corporate Functions



# Enterprise System Vendors

Name the vendors you are aware of





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# Enterprise Systems



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# Learning Objectives

Discover the history and origin  
of SAP.

# A Brief History of SAP

- 1972: System Analysis and Program Development
- 1976: Systems, Applications, Products in data processing
- Systeme, Anwendungen und Produkte in der Datenverarbeitung
- 1972 SAP R/1 (No DB, Combined Application & Presentation Layer)
- 1979 SAP R/2 (DB layer, Combined Application & Presentation layer)
- 1992 SAP R/3 (DB layer, App layer, Presentation layer)
- 2004 SAP R/3 ECC 5.0
- 2005 SAP R/3 ECC 6.0
- 2006 SAP ERP 6.0 EHP 1
- 2015 SAP ERP 6.0 EHP 8

In 1979, SAP was asked to create an additional module that incorporates the manufacturing side of things. Knowing that manufacturing side of things requires a lot of recording of different parts, different units, they decided to incorporate a second layer, known as the database layer, to store every single entity separately from the SAP software itself. This is when the SAP R/2 version begin to come up, because there's two distinct layers in the program.

## Three Layers (1992):

- 1- The database layer to store the different business objects in the program
- 2- The program itself sits on the application layer
- 3- The presentation layer, which is a graphical user interface that allows users to present data

Moving on in the 2000's, the service oriented architecture began to emerge. What this era had, was that the different modules were able to call the different functions of other modules using service oriented names.

R actually stand for real time, simply because SAP was the first company, or the first program, that allow real time access of the data that is sitting directly in the disk of a computer.

# The SAP Environment

Your PCs

SAP Hosting Center  
stores the SAP  
Database & Software

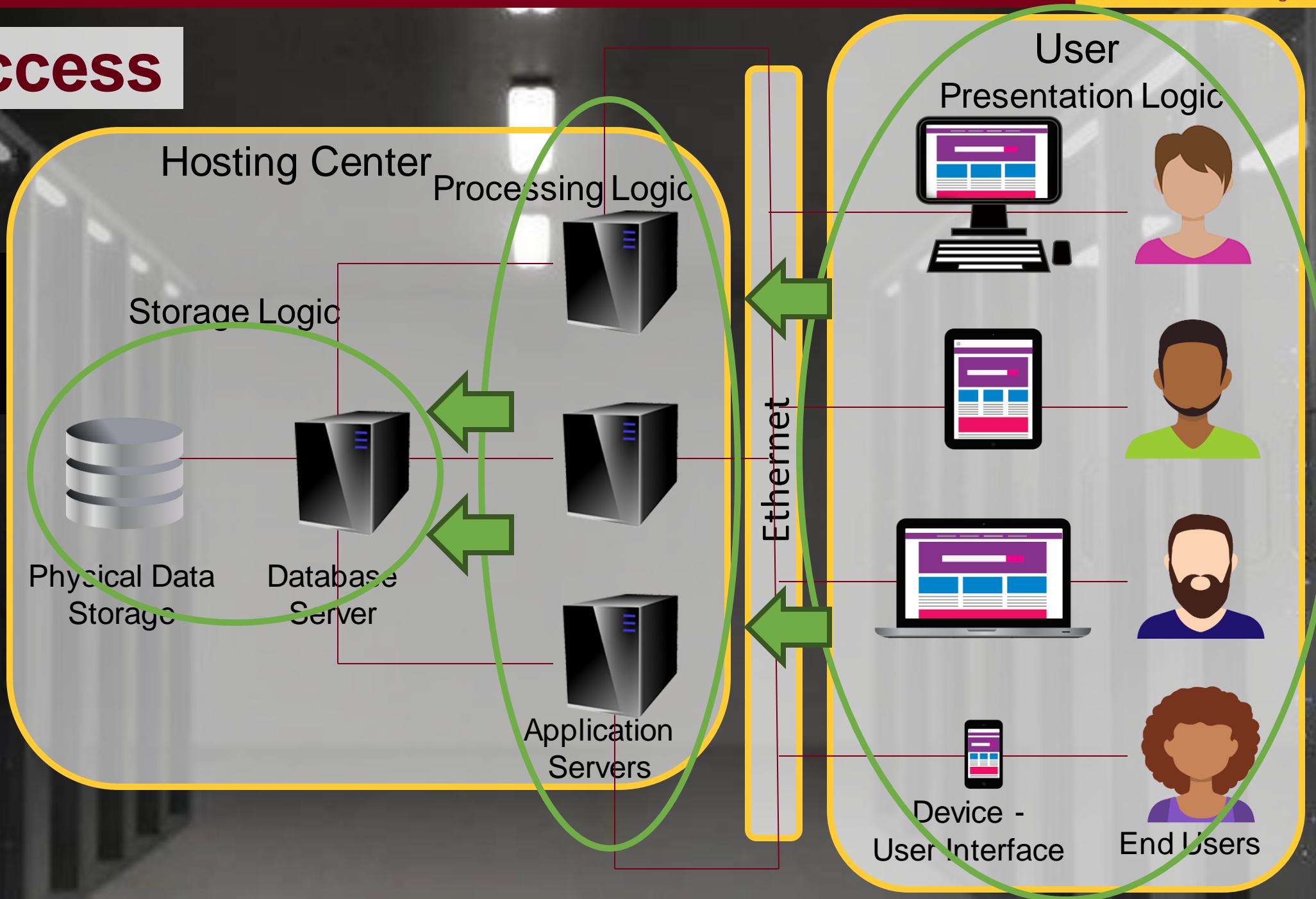
Your SAP application and data are in the servers.  
Nothing is saved on users' PC.  
Data is saved on the server, and it is saved for good.

ERP systems allow business transactions to be tied to financial transactions. Because most of the activities that businesses do are linked to some financial outcomes, there has to be an audit trail of what users do on the systems.

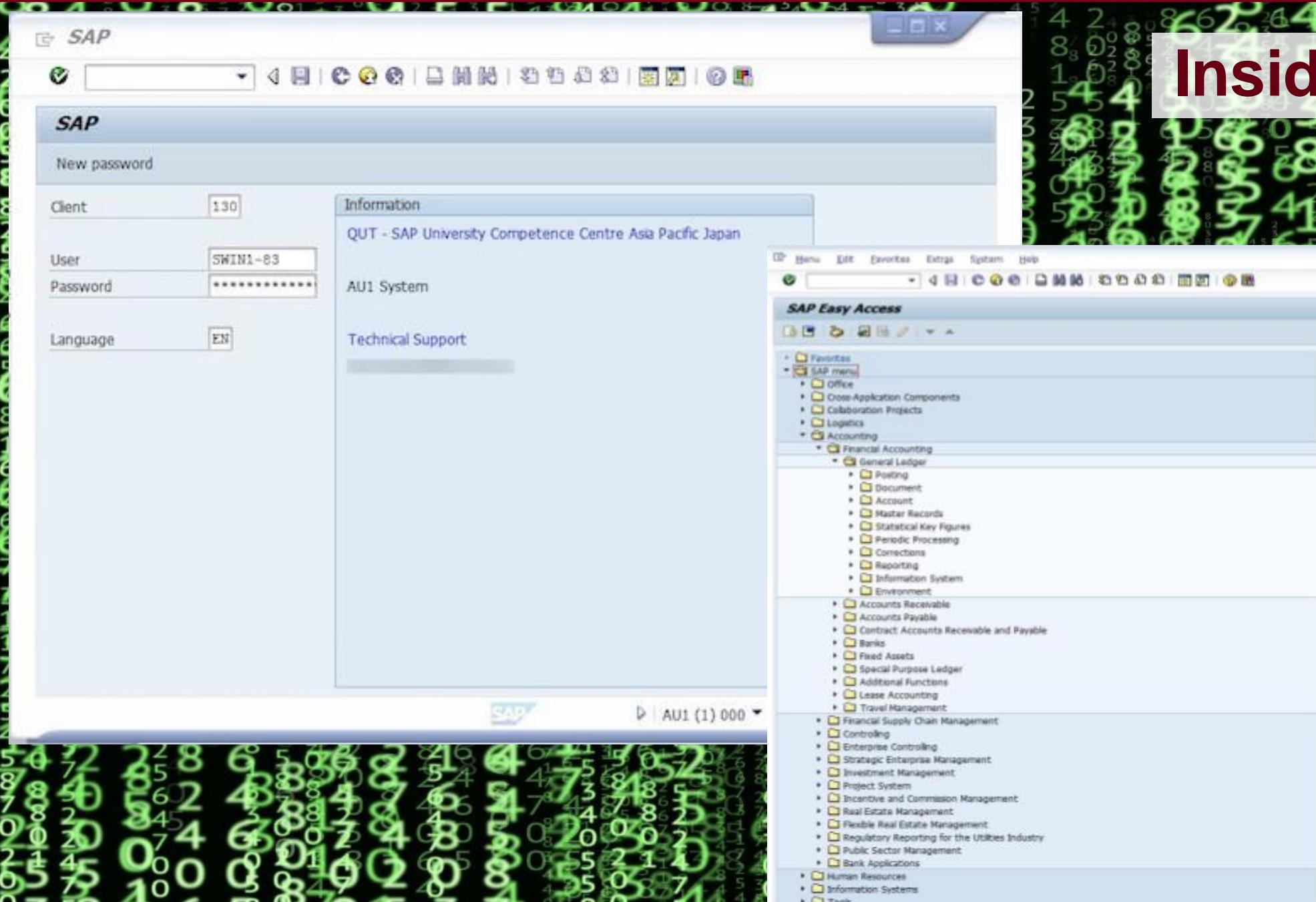
If a user could easily make changes to the steps, all the activities that they've done on SAP, they could easily commit financial fraud.

# SAP Access

SAP software  
on your device  
[The SAP GUI]



# Inside SAP



Main Menu screen shows major features of the screen which remain the same.

The Menu Bar shows the menu options applicable to the process you have selected.

The Title BAR – shows screen being used

There are also a CHECK (ENTER) icon, Function icons, Function buttons and a Command Field (where transaction codes may be entered for quick access to menu options).



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# Enterprise Systems

Session 2

# Learning Objectives

Explore companies and  
business processes.

# Companies and Business Processes

- Company serve some commercial purpose or social objective
  - Create and deliver products
  - Provide manufacturer with parts and materials
  - Provide services
- Company use business processes to complete the work to achieve goals

Three main types of companies:

1- A company exists to create and to deliver products. An example of that would be, the Apple company. They design and they manufacture electronic products such as; laptops, phones, and tablets.

2- A company that exists to provide manufacturers with parts and raw materials. An example of that would be, Foxconn. Foxconn, works very closely with Apple, and they supply them with the chassis of phones to make iPhones. At the same time, there are companies that manufacture the glass panel for your phones and also there are also companies that manufacture the processors to be used within the phone.

3- A company that provides purely services only and related to the phone industries, we have telco [inaudible] companies that are in charge of providing mobile cellular service so that as you turn on your phone, you're able to use it to make a call or to send a text. Examples of that include: AT&T, Verizon, and also T-Mobile in the US.

# Companies and Business Processes

- Business process is set of tasks or activities to produce desired outcomes
- Triggered by some event
  - Receiving a customer order
  - Recognizing the need to increase inventory
- Steps in process are completed by different functional areas

Ordering/Buying parts  
from Manufacturer

## Business Process Examples



Counting and keeping track of inventory

## Business Process Examples



Manufacturing products

## Business Process Examples



# Business Process Examples

## Human Resource and Payroll



# Business Process Examples

## Accounting entry and tax reporting





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# Procurement (Buy)

Goal/Outcome: acquire needed materials externally from vendor

- Starts when warehouse recognize the need to buy materials
- Documents this need in a document; send to the purchasing department
- Purchasing department identifies a suitable vendor, creates a Purchasing Order; sends it to vendor
- Vendor ships the material to the warehouse
- An invoice is sent to the company, and accounting department receives it
- Accounting sends payment to vendor

# Production (Make)

Goal/Outcome: Acquire needed material internally

- Warehouse request the production of a good when inventory is low
- Production department approves of the production
- Authorizes the warehouse to issue raw materials needed to complete production
- Product is created
- Finished goods is received by warehouse
- Inventory levels will be updated in company records



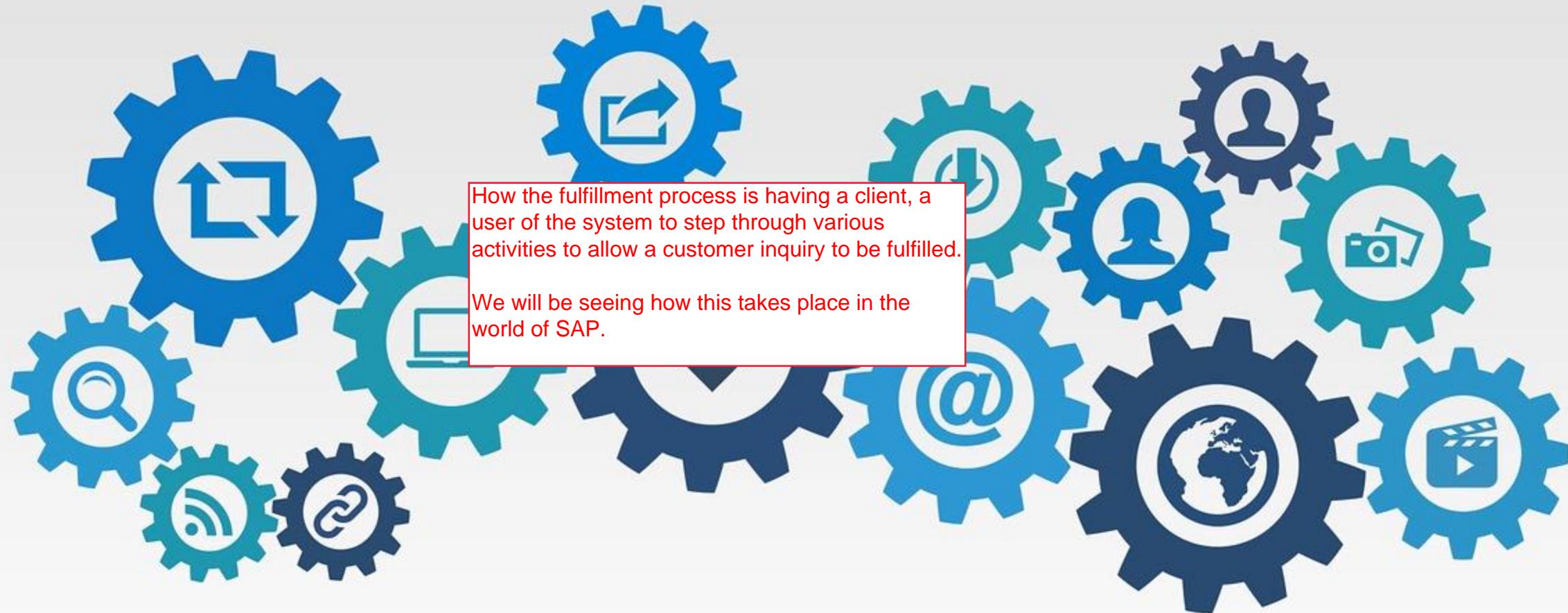
# Enterprise Systems

Session 2

# Learning Objectives

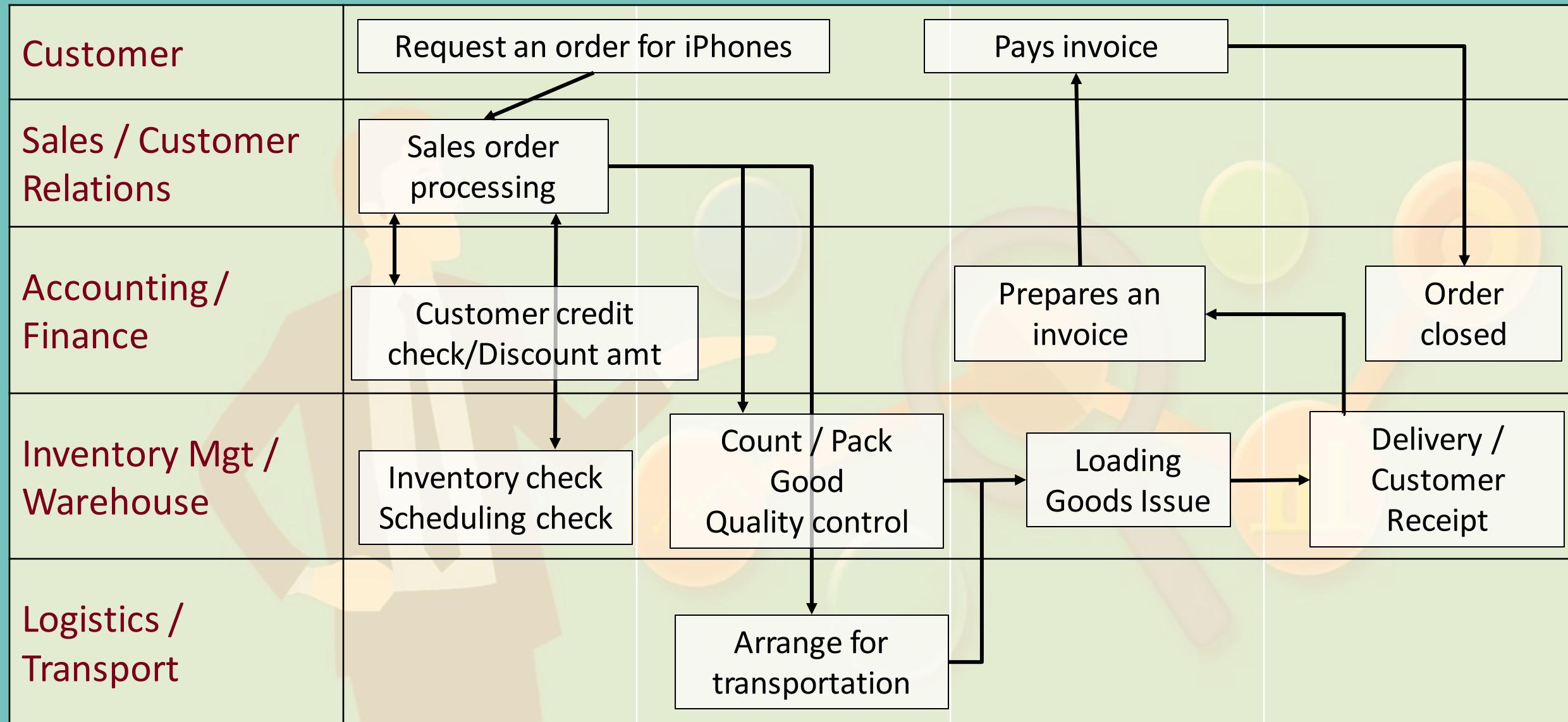
Explore the business fulfillment process.

# The Fulfillment Process

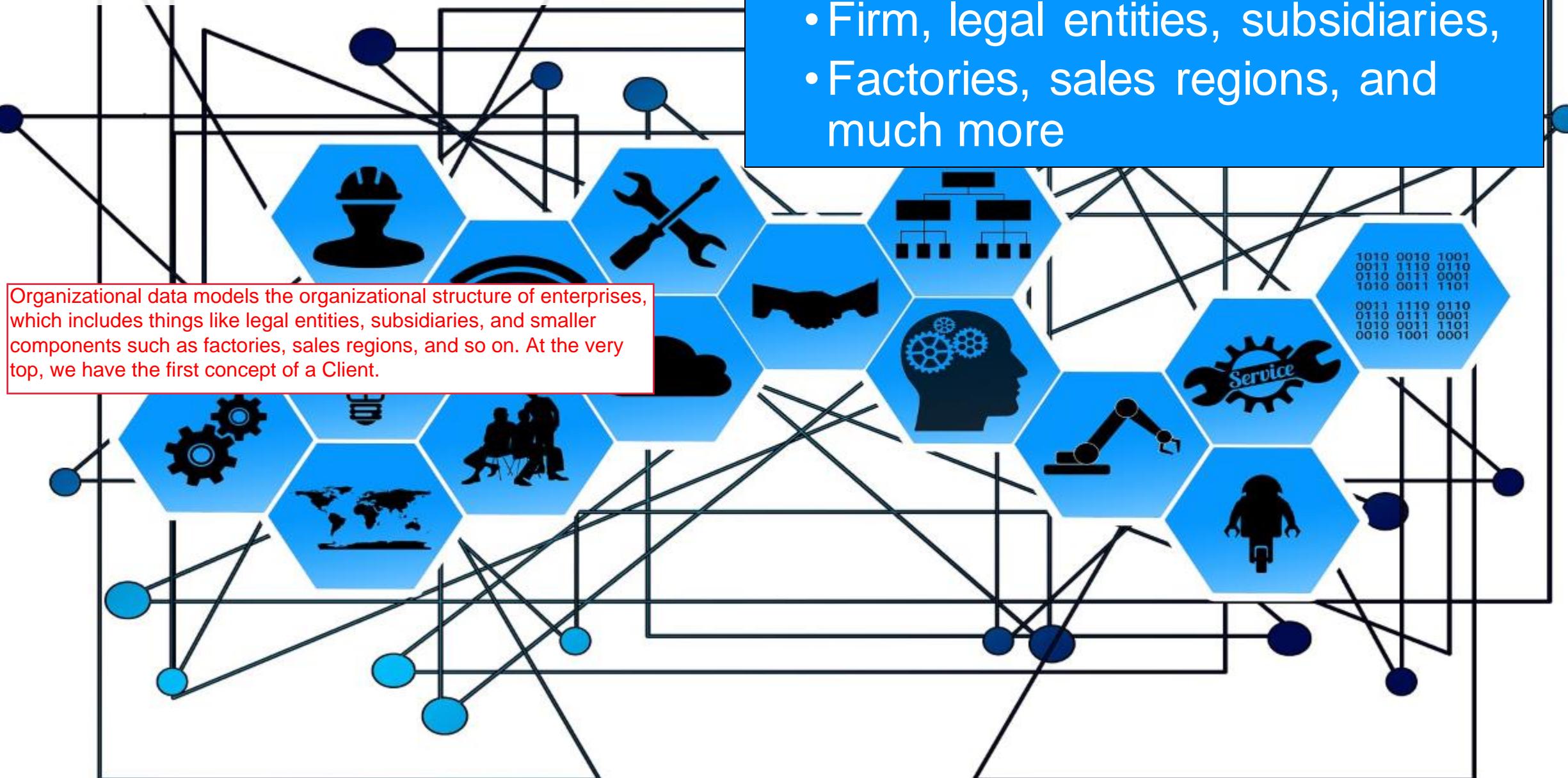


# Inquiry to Cash Process

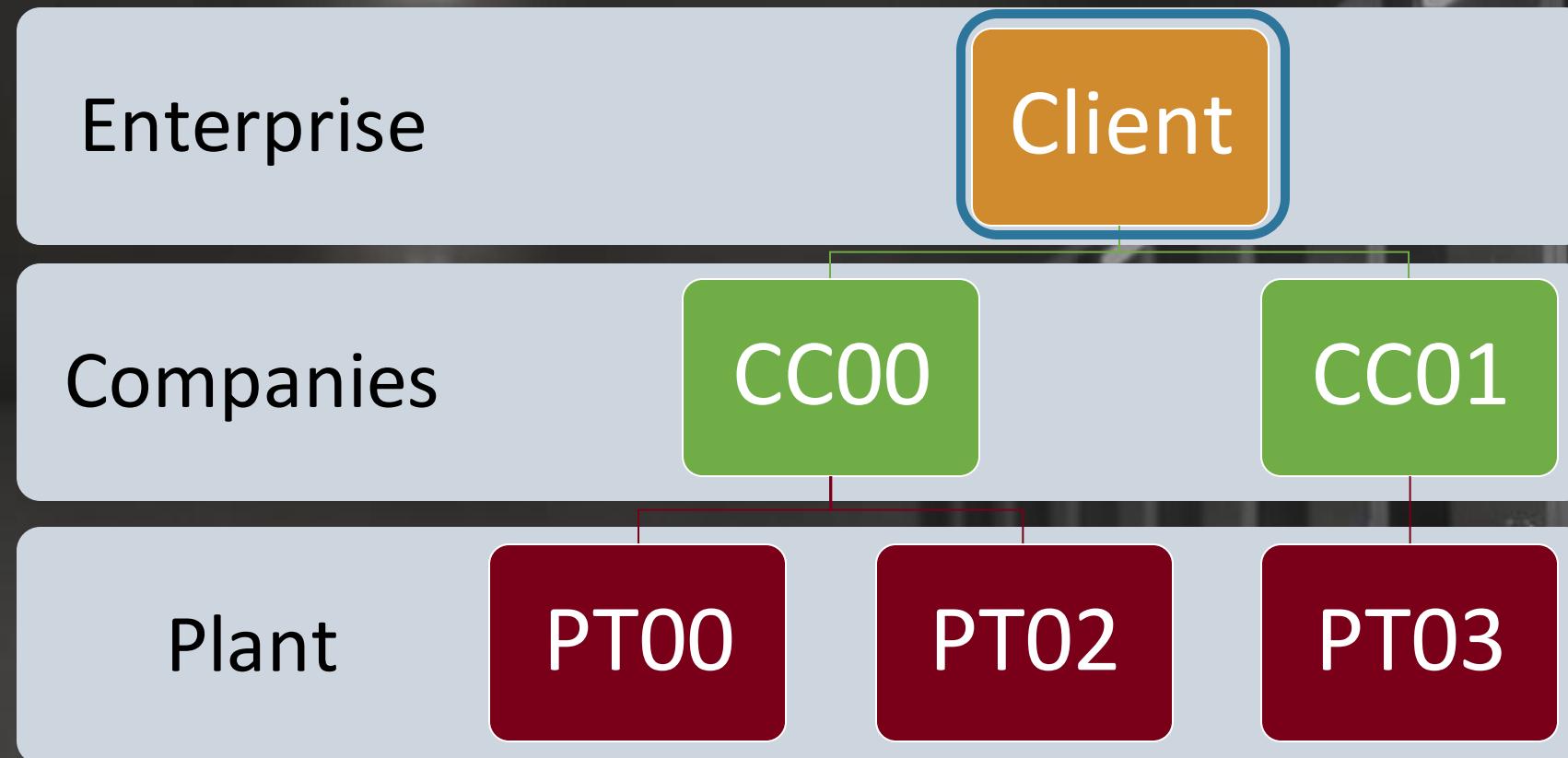
*Remember this?*



# Organizational Data



# Client in SAP



- The **SAP client** is the highest organizational level within SAP
- **Client** represents an enterprise consisting of legal entities or subsidiaries

# Client in SAP

Enterprise

Client

Companies

CC00

CC01

Plant

PT00

PT02

PT03

- ***Company*** represents a legal entity
- A **Company** in SAP has a full-set of books (General Ledger GL) and a home currency

# Case in Point: J&J



“Our goal was to integrate into a network that would employ consistent quality standards and systems ... This is a multi-year effort to integrate and leverage over 120 manufacturing sites, over 500 external manufacturers, 450 distribution centers and over 60 ERP systems that support about **275 operating companies**...”

Sandra Peterson  
J&J Group Worldwide Chairman

**How many companies might J&J have in SAP  
(1, 10, 100, >100)?**

# Client in SAP

Enterprise How many *plants* in this *enterprise*?

Client

Companies

CC00

CC01

Plant

PT00

PT02

PT03

- **Plant** represents a facility which creates, stores, or maintains materials
- A **plant** in SAP can be a factory, distribution center, or service center

# Quick Question

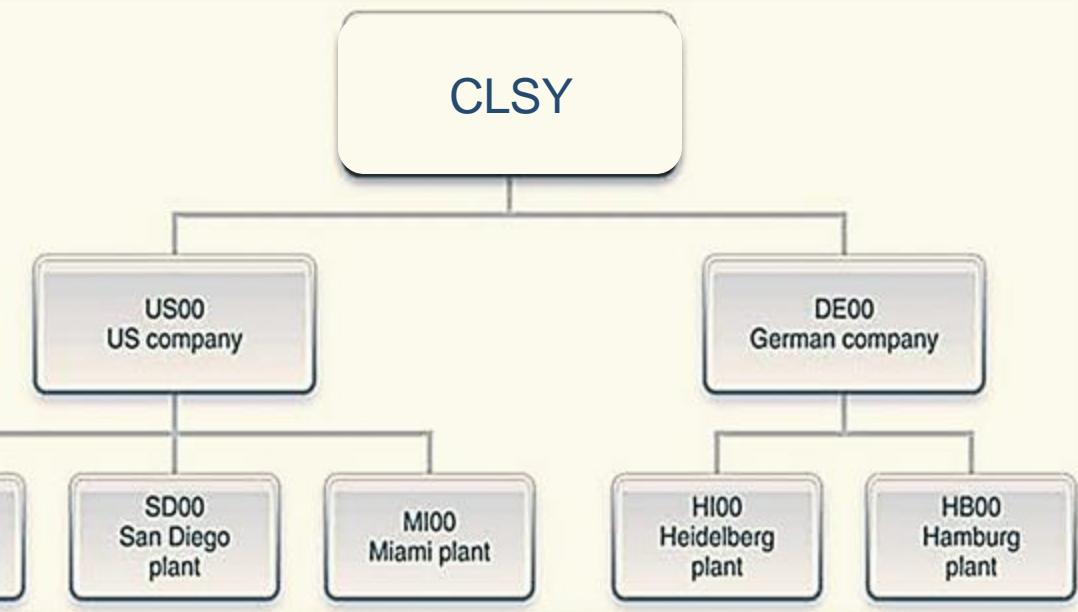


Material staging is a process where we have to count and ready different number of goods so that they will be out ready for shipping. Goods or finished products are placed in a storage location so that they can be shipped out next.

How many legal entities in this enterprise?

How many US plants does it have?

If a customer orders from Texas Austin, which plant handles that? (assume that Dallas is a manufacturing plant, while the other two are distribution plants)



# Storage Locations

Client

CLSY

What is the purpose of storage locations in SAP?

Company Code

US00  
US Company

DE00  
German Company

Plant

DL00  
Dallas plant

SD00  
San Diego Plant

MI00  
Miami

HI00  
Heidelberg plant

HB00  
Hamburg plant

Storage Location

RM00

SF00

FG00

M100

FG00

TG00

M100

FG00

TG00

M100

RM00

SF00

FG00

M100

FG00

TG00

M100



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# Enterprise Systems

Session 2

# Learning Objectives

Explore organizational data.

# Sales Organizations

Why is there a need to have different regions in which the sales organization operates? Do SAP allows a company to have one single sales organization? Why is it beneficial sometimes to have two or even more than two?

There are regional differences in the way how businesses operates and how there are regional customs as well. For instance, in the US, there could be very different sales tax related to the East Coast and the West Coast. At the same time, customers could have different preferences in terms of shipping. So, by splitting these sales organizations into the East and West, the company would be able to better serve its customers by detailing what are the specific conditions in which certain sales have to be executed.

## Enterprise

Client

### Company code

US00  
US  
Company

DE00  
German  
Company

### Sales organization

UE00  
Eastern  
US

UW00  
Western  
US

DN00  
Northern  
Germany

DS00  
Southern  
Germany

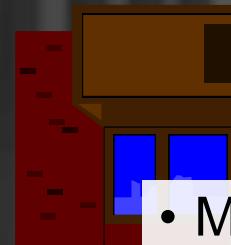
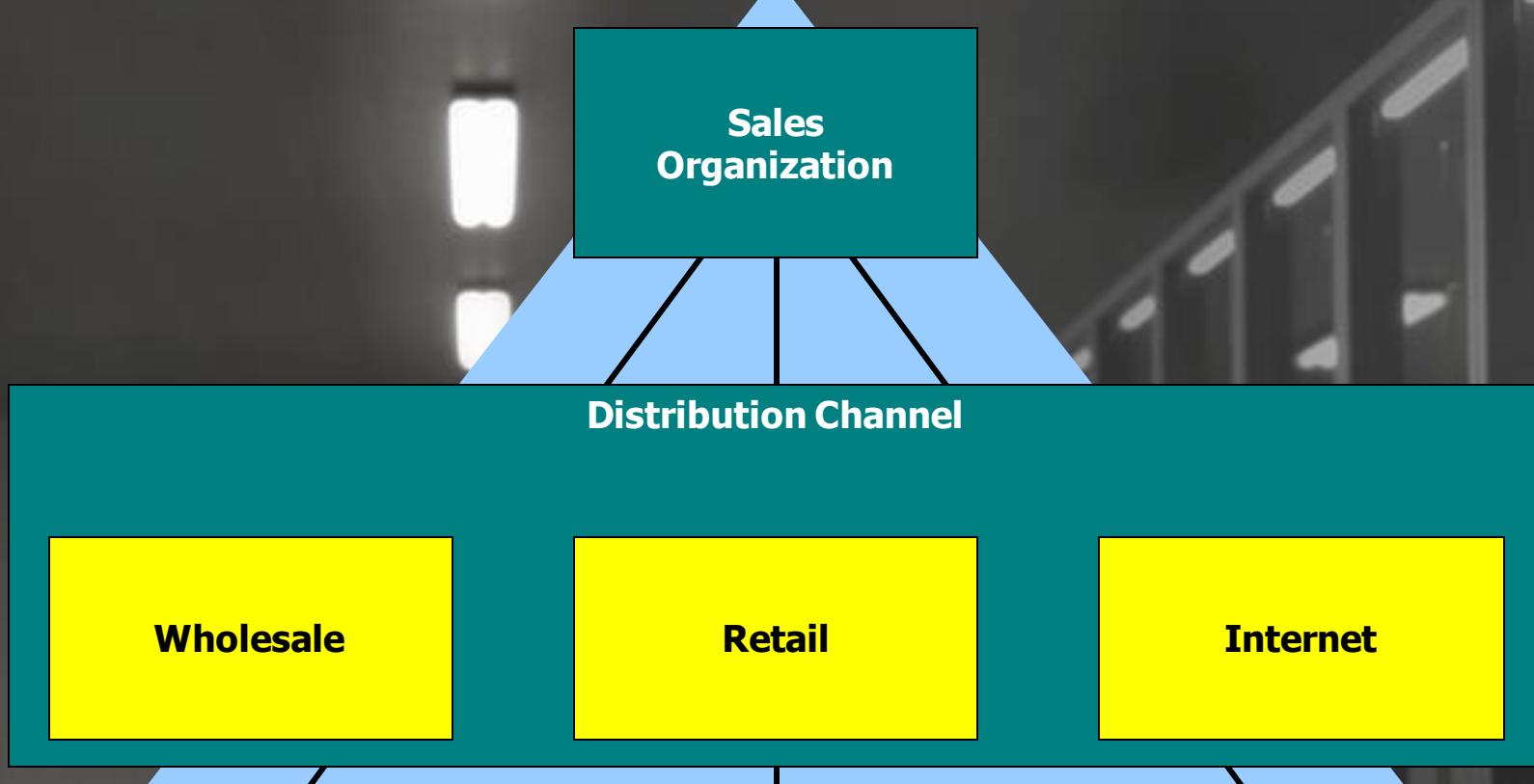
- Represents the **top organizational level** to which you summarize sales data
- Responsible for **negotiating sales conditions** and **distributing goods and services**
- Assigned to only one company code, company can have multiple sales orgs
- Why would a company have more than one sales organization?

# Distribution Channels

Three main distribution ways that we see in SAP:

- 1- Wholesale
- 2- Retail
- 3-Internet.

Give an example of a whole sale distribution channel for the iPhone.



- Method by which company delivers its goods/services to the customer
- Allows for different conditions such as minimum order quantities and pricing
- Can serve to more than one sales organization

# Divisions

## Distribution Channel

- Used to present **product lines** sold by the company
- Can be assigned to more than one distribution channel

## Divisions

Product  
Line 1

Product  
Line 2

Product  
Line 3

# Sales Area

Client

CLSY

Company Code

US00  
CLSY US

DE00  
CLSY DE

Sales Organization

UE00  
Eastern US

UW00  
Western US

A combination of Sales Organization, Distribution Channel and Division

Distribution Channel

WH  
Wholesale

WH  
Wholesale

IN  
Internet sales

Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division

A sale for Tables made by the US Eastern Sales Organization through the Wholesale Distribution channel

The sales area is a unique combination of the sales organization, distribution channel, and division. The highlighted above in yellow on the left side shows a unique sales area, which represents a sales for tables made by the US Eastern's sales organization through the wholesale distribution channel.

# Another Sales Area

Client

CLSY

Company Code

US00  
CLSY US

DE00  
CLSY DE

Sales Organization

UE00  
Eastern US

UW00  
Western US

A combination of **Sales Organization**, **Distribution Channel** and **Division**

Distribution Channel

WH  
Wholesale

WH  
Wholesale

IN  
Internet sales

Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division

A sale for **Bed**  
made by the  
**US Western**  
Sales Organization  
through the **Internet**  
Distribution Channel

# Inter-Relationships

- Multiple sales orgs can use the same DC
- Multiple channels can sell material from a division

Client

CLSY

Company Code

US00  
CLSY US

DE00  
CLSY DE

Sales Organization

UE00  
Eastern US

UW00  
Western US

Distribution Channel

WH  
Wholesale

WH  
Wholesale

IN  
Internet  
sales

Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division

TB Table  
Division

BD Bed  
Division



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# Enterprise Systems

Session 2

# Learning Objectives

## Explore master data.

The first major data type that SAP has is organization data.

Organization data is in charge of recording the structure of enterprises.

The second major data type that we get to see in SAP is master data.

Master data is used to represent entities that are used in various business process. For instance, the fulfillment process involves the buying of materials from vendors and the selling of these materials to customers. As a result, we will need to have customer master data to record customer attributes, material master data to record attributes of material, and also vendor master data to record attributes of the vendor.

The third major data type that SAP has is transactional data.

Transactional data is being created when users are actually using the system. Transactional data tends to take components from organization data, master data, and situational data in formulating the records.

# Master Data



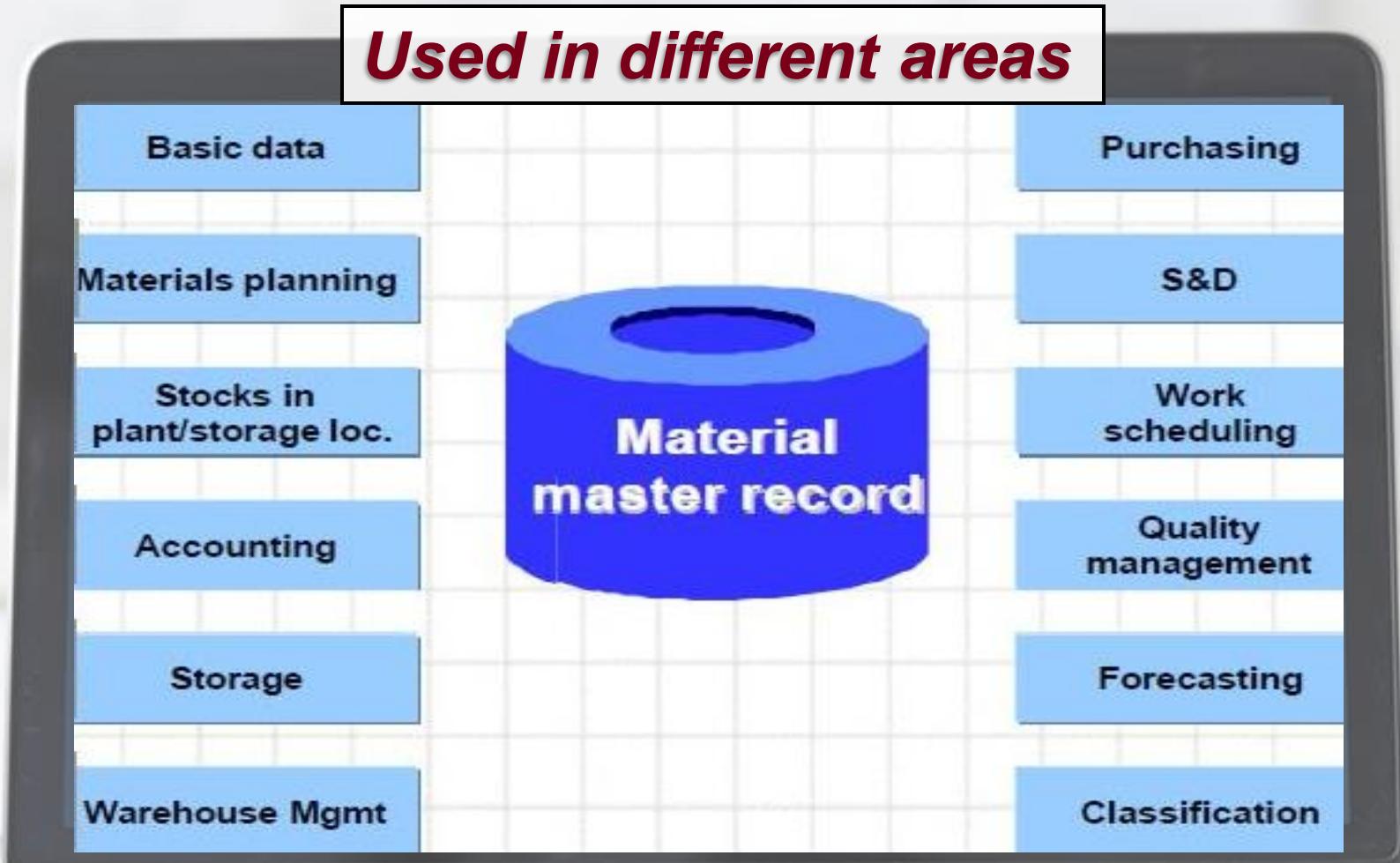
- Master data are used to represent entities that are used in various processes
- Fields of such data rarely changes
- Depending on the process it's being used in, different views can be called out
- E.g. Customers, materials, vendors

# Material Master

Assuming that we are looking at the material master for a table, we would have this different views that is recorded. At the very top left corner, we see that as a view known as the basic data and within the basic data view, we would get to see things such as the dimensions of the table, including things like the length, the breadth, and also the height of the table. We'll also get to see attributes such as the weight and also the color of the table.

For users who are performing tasks related to logistics and material staging, they will need to know information that is related to where the table is stored and the number of tables available in each plant.

**Used in different areas**



# Can Differ Across Plant

Basic Data View

Maple Coffee Table

Base unit: UNIT  
Gross wt: 15.25 lb.

Non-plant specific

Plant specific

## Milwaukee Plant

Maple Coffee Table

Lead Time: 2 days  
Std. Cost: 216.80

Materials Requirement Planning (MRP) Views

## St. Louis Plant

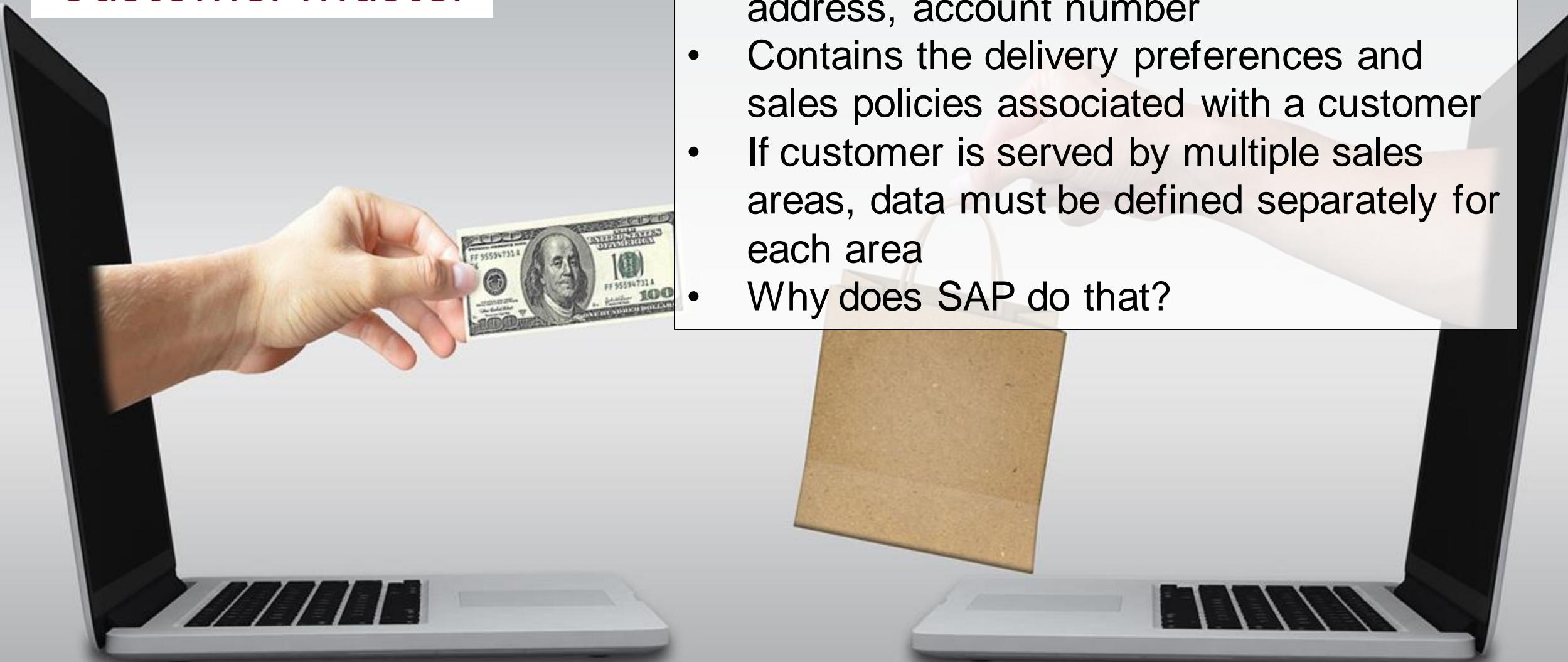
Maple Coffee Table

Lead Time: 3 days  
Std. Cost: 223.20

It's also note-worthy to know that the information for the same material can actually differ across different plants. Take for instance this material master for maple coffee table. It is the same table but if we were to look deeper into its values in different plants, we would see very differently times and standard costs. In the Milwaukee Plant, the lead time to construct and build this table is two days and it has a standard costs are \$216. Whereas, the same table in the Saint Louis Plant would take a slightly longer time of three days to build and has a slightly longer standard costs. Now, you might be wondering why is it that SAP will allow different values in different plants. Well, a good reason for that is because dealing with different vendors, the plants might need different times to finish building its table. At the same time, different plants and different factories might have different efficiencies in building the same product. That's the reason why we see different lead times for different plants. At the same time, because they're sourcing these raw materials from different vendors located in different locations, the standard costs are expected to differ in different locations, and that's the reason why we get to see different values in different plants for the same table.

# Customer Master

- General data of the customer: name, address, account number
- Contains the delivery preferences and sales policies associated with a customer
- If customer is served by multiple sales areas, data must be defined separately for each area
- Why does SAP do that?



# Customer Master

The customer can be defined in three different ways. The customer in the US side are known to purchase through the US Eastern Sales Organization and also through the US Western Sales Organization when buying tables. The customer over here buy solely through the wholesale channel, but because they are buying through different sales organization, two separate records of the customer master would have to be created.

In the Germany side of things, the customer is known to purchase through only the northern part of the sales organization using the Internet channel for tables. As a result, in total, we have three different definitions of the customer. The reason why we would need to have different definitions of the customer is to better serve the customer because the customer might have different preferences depending on the different sales organization, the channel in which they buy from, and also the product that it wishes to buy.

Client

Company Code

Sales Area

(CLSY)  
General Data

(US00)  
Accounting data

(DE00)  
Accounting data

(UE00 + WH + TB) (UW00 + WH + TB)  
Sales Area data      Sales Area data

(DN00 + IN + TB)  
Sales Area data

Multiple definitions of a customer

# Customer-Material Info Record

Customer-Material Data is very specific to the purchases that a customer makes for a particular material. The values that we see within the customer-material info record would overwrite the values that we see from the material master and from the customer master. At the same time, it contains special attributes that are not found elsewhere within the SAP system. For instance, the customer material number that is used to match the product between the supplier and customer is only found strictly within the customer-material info record. If we were to take a look at the table below, we will find that for the same product, maple coffee table, we have a natural finish is known as MCT-1000 under CLSY's identification number. Whereas, for TFS, one of the customers of CLSY, they've decided to call this G1000NA. So, having this attribute is very helpful in facilitating conversations and facilitating the sales transactions between these two parties.

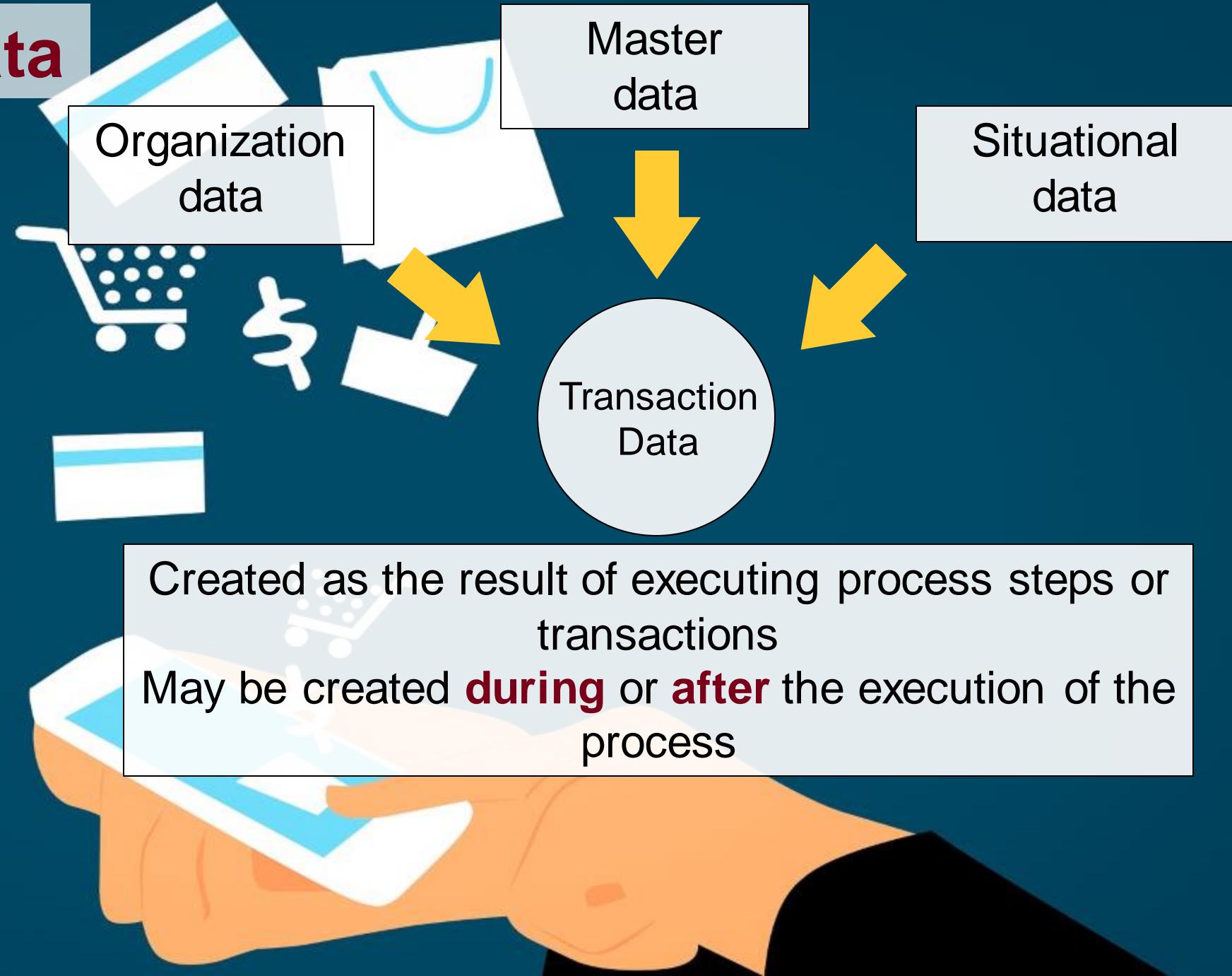
Situational data or who entered the transaction and when is this information recorded in the system.

- Relates a customer to a material: denote a specific purchase
- Preference for each combination can be set can **over-ride** the preference set in the Customer/Material master
- **Customer-material number** for matching product bet. supplier and customer

Material	CLSY Material Number	TFS Material Number
Maple Coffee Table (natural)	MCT-1000	G1000NA
Maple Coffee Table (cherry)	MCT-2000	G1000CH
Maple Coffee Table (stained)	MCT-3000	G1000ST

# Transaction Data

Transactional data is being created when users are actually using the system. Transactional data tends to take components from organization data, master data, and situational data in formulating the records. So an example of a transactional data is a purchase order and a purchase order is being created when a sales representative is recording information on what the customer ordered. In this particular instance, the customer master will be taken to formulate the transaction data. At the same time, the material master also hosts an attributes related to the product that is being ordered.



# Transaction Data

## Example: Purchase order

Customer Master

Material Master

Sold-to party 2540-00

Item	Material	Quantity
1	Maple Coff. Table	30
2	Oak Bedframe	20

When a purchase order is created, data is copied from:

- Customer Master
- Material Master
- Who entered the transaction (situational data)
- When was it entered (situational data)

# Transaction Data



Classy Furniture Makers Incorporated  
5215 N. O'Conner Blvd.  
Dallas, Texas, 75039  
Phone: +1.972.555.2000 Fax: +1.972.555.2001

**PURCHASE ORDER**  
Purchase Order Number: 4546

THE PURCHASE ORDER NUMBER MUST APPEAR ON ALL RELATED CORRESPONDENCE,  
SHIPPING PAPERS, AND INVOICES

**TO:**  
The Furniture Store  
2100 Summit Boulevard  
Atlanta, GA, 30319

**SHIP TO:**  
San Diego Distribution Center  
150 Spear Street  
San Diego, 94105  
+1.415.555.7700

Purchase Order #	P.O. Date	Delivery Date	Shipped VIA	F.O.B. Point	Payment Terms
4546	July 11, 2009	July 27, 2009	Ground	Destination	Net 30

Quantity	Material #	Material Description	Unit Type	Unit Price	Item Total
100	MCT-1000	Mable Coffee Table	Each	89.99	3,750.00
100	OBF-1000	Oak Bedframe	Each	249.99	3,750.00
50	LDC-1000	Leather Dining Chair	Each	79.99	1,250.00

SUBTOTAL	\$8,750.00
SALES TAX	Exempt
SHIPPING AND HANDLING	Included
OTHER	N/A
ORDER TOTAL	\$8,750.00

Authorized by: \_\_\_\_\_ Date: \_\_\_\_\_  
Purchasing Manager

Header

Line items



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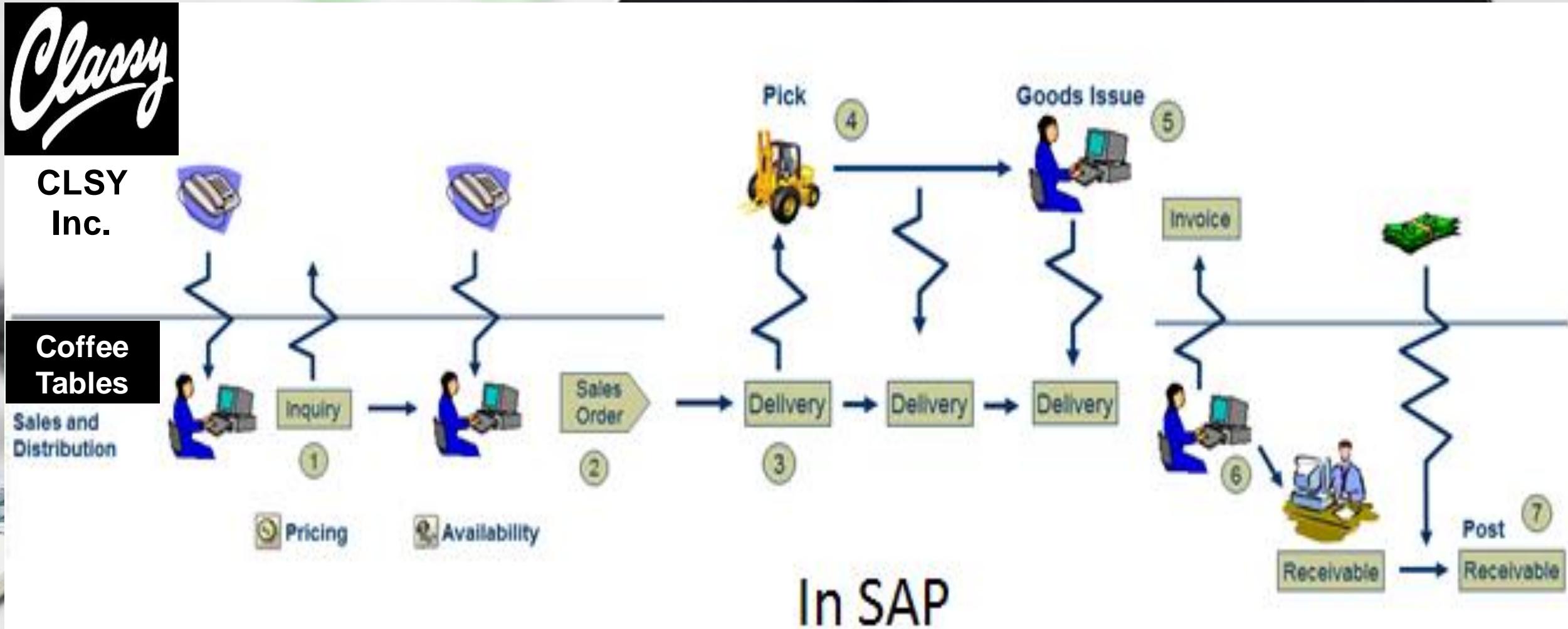
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# Learning Objectives

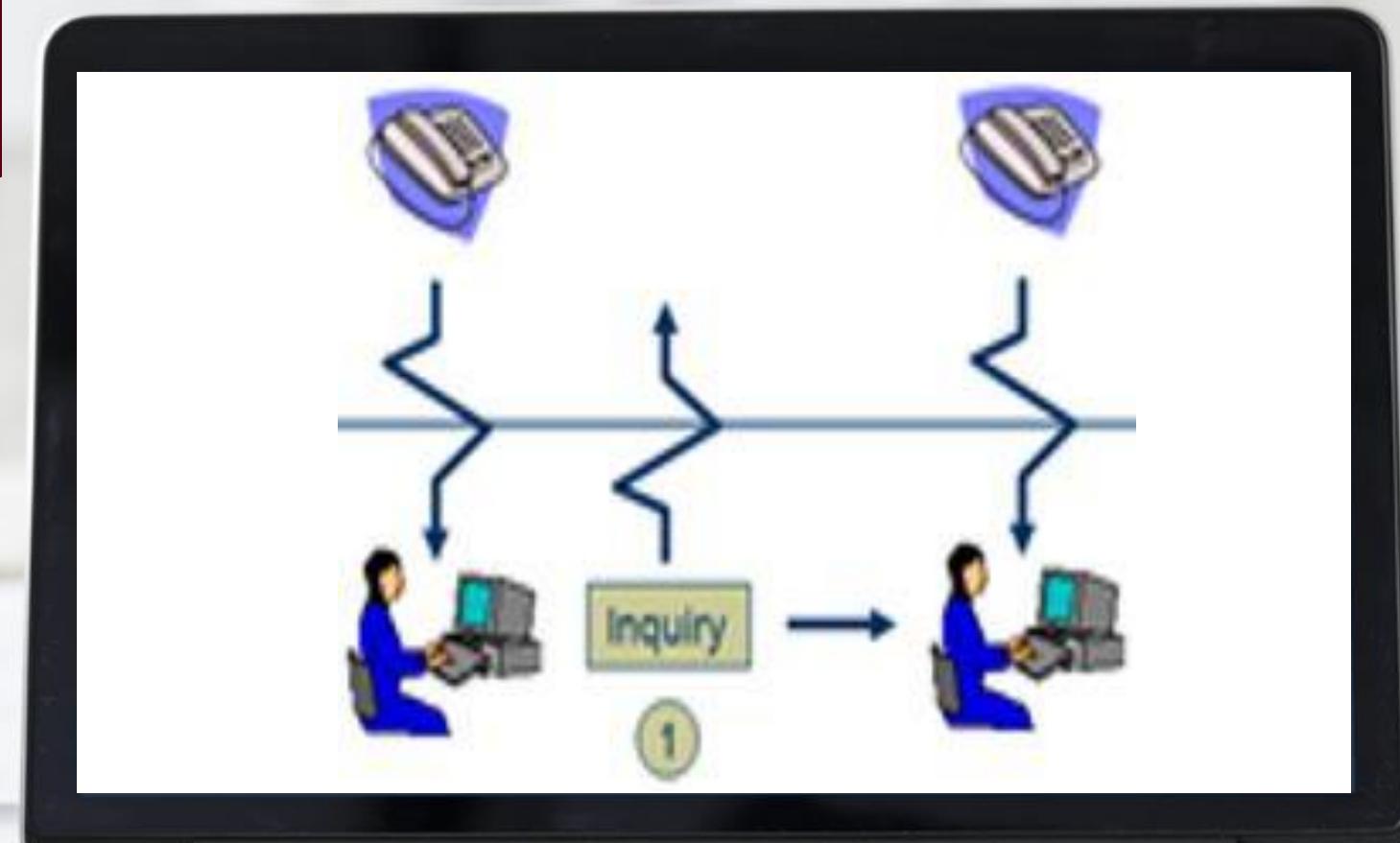
Examine an example  
fulfillment process.

# The Overall Process

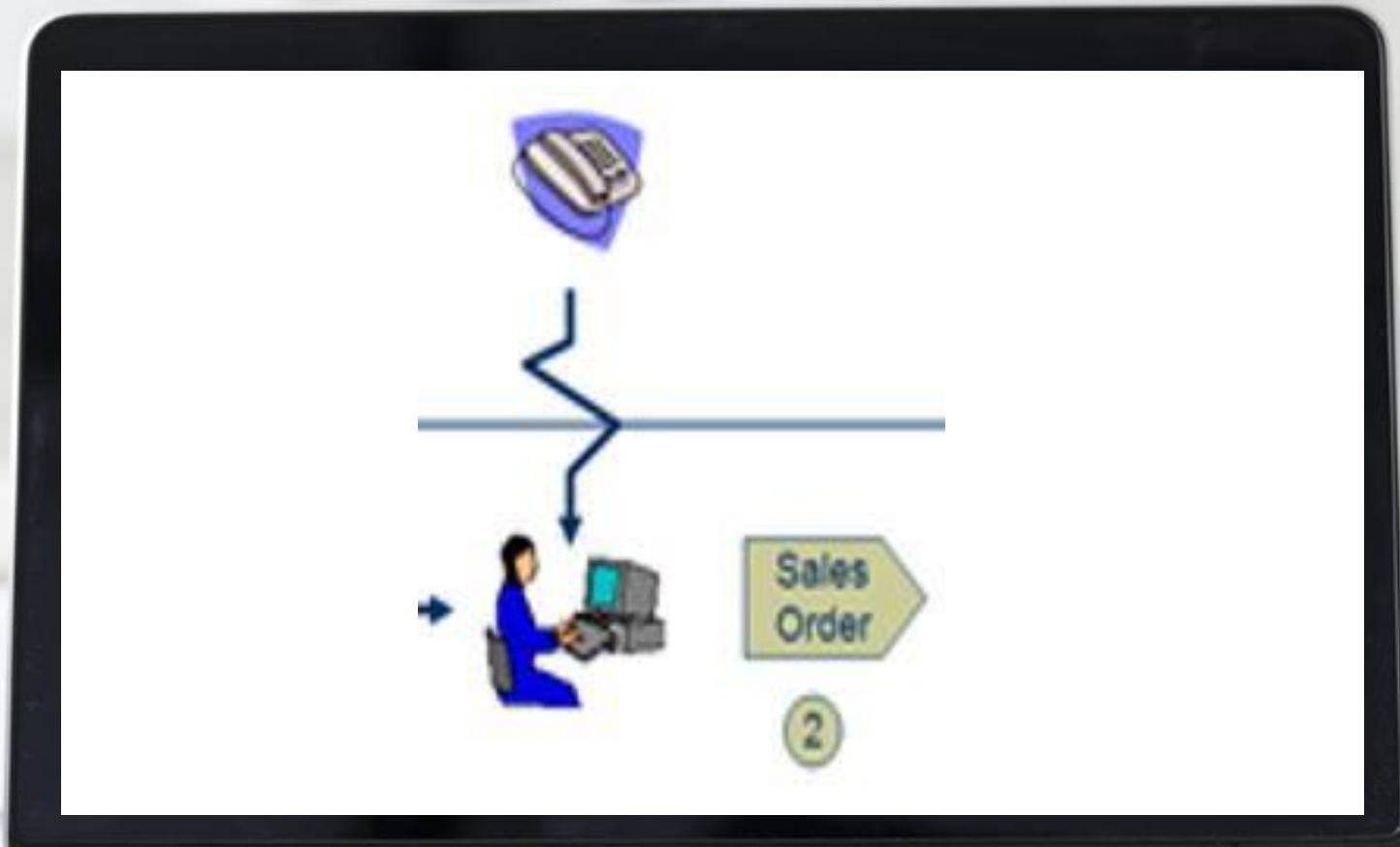
**Inquiry to Cash**



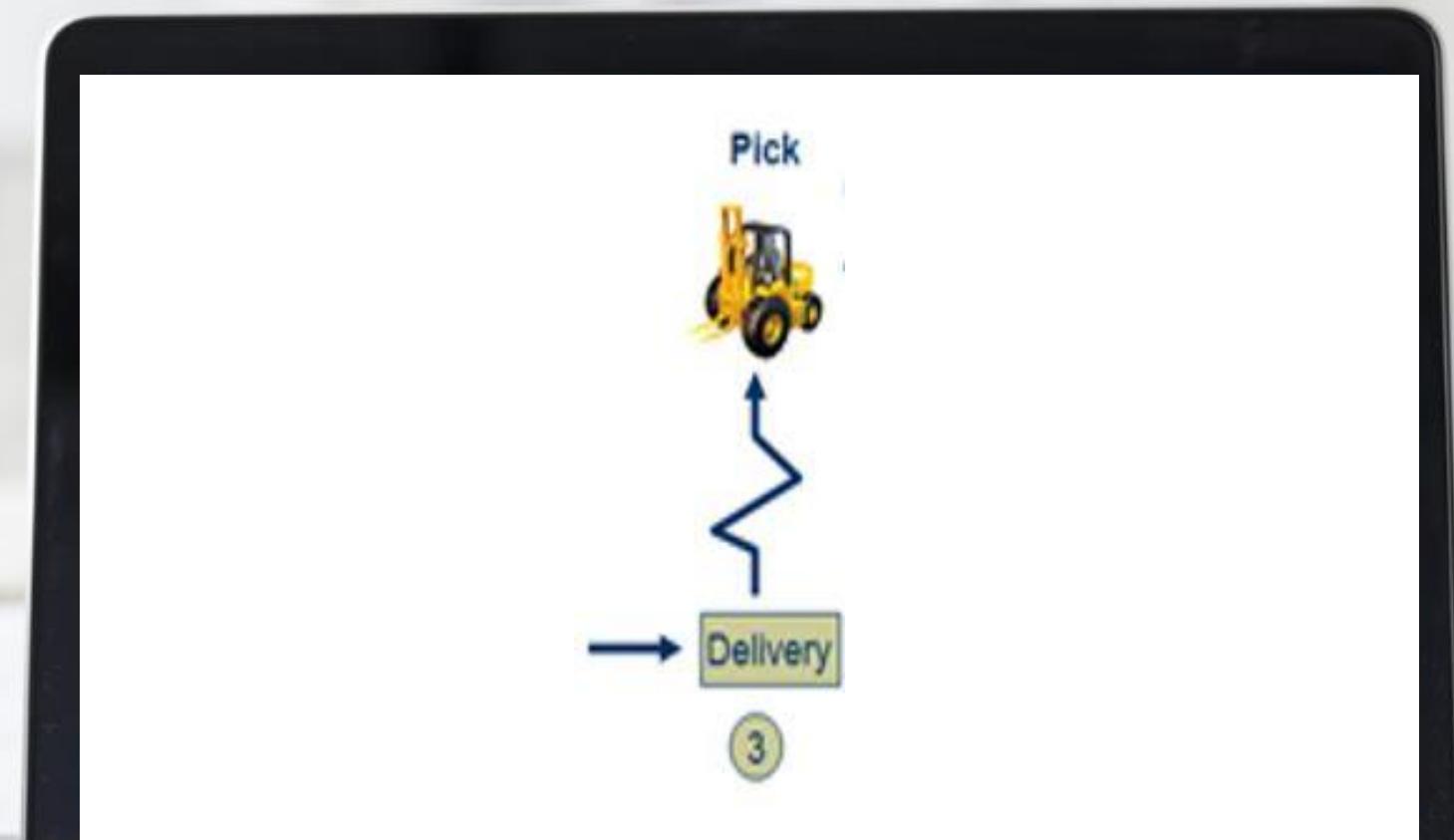
1. A new customer (The Furniture Store) calls in to inquire about coffee tables



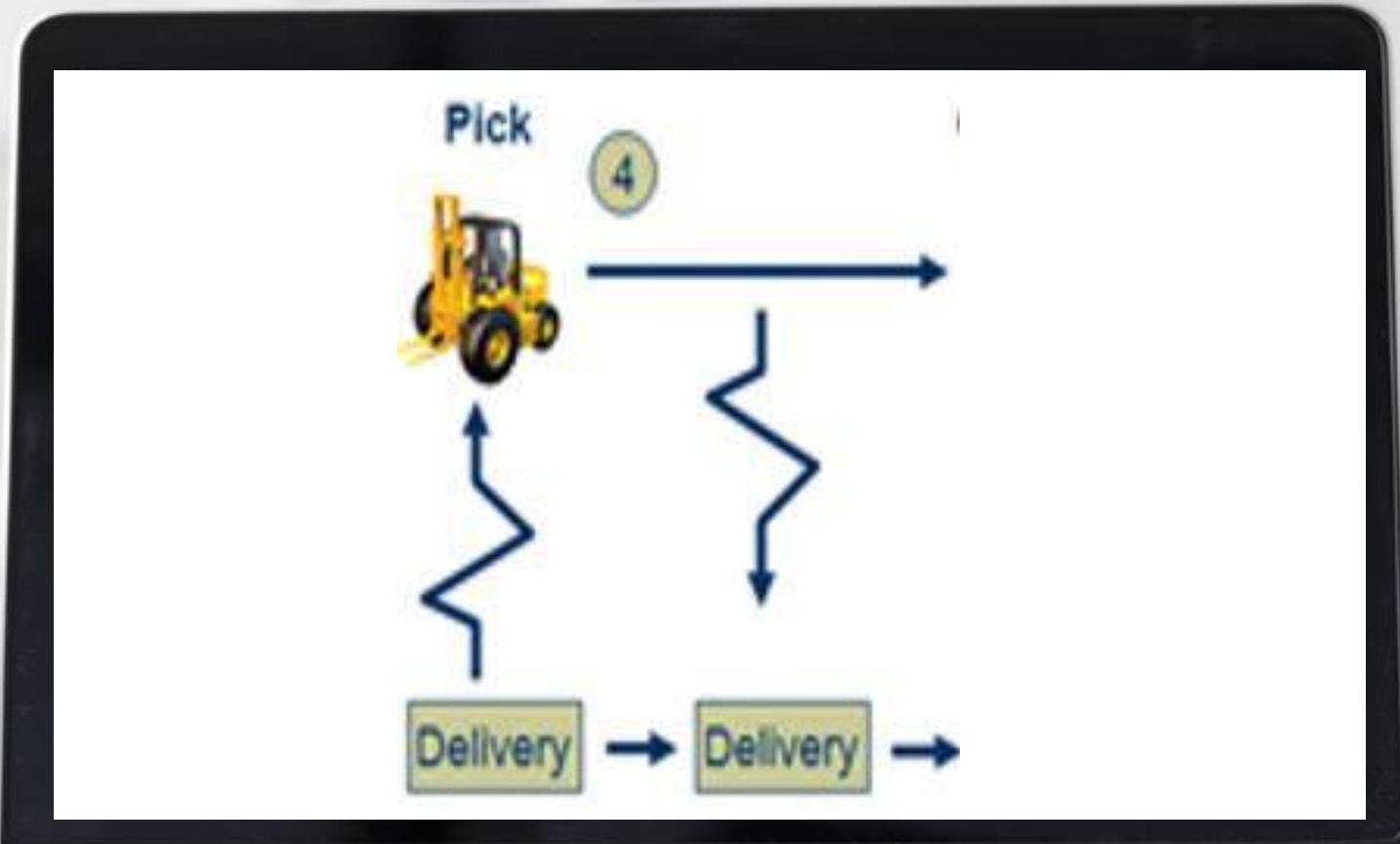
## 2. Create the customer and the inquiry in the system



3. Customer makes another call to ask for a quotation,  
CLSY creates a quotation



4. Customer agrees to terms in the quotation,  
CLSY creates sales order



# Quotation to Sale Order

Quotation  
1

Quotation  
2

## Possible Relationships

Sales  
order

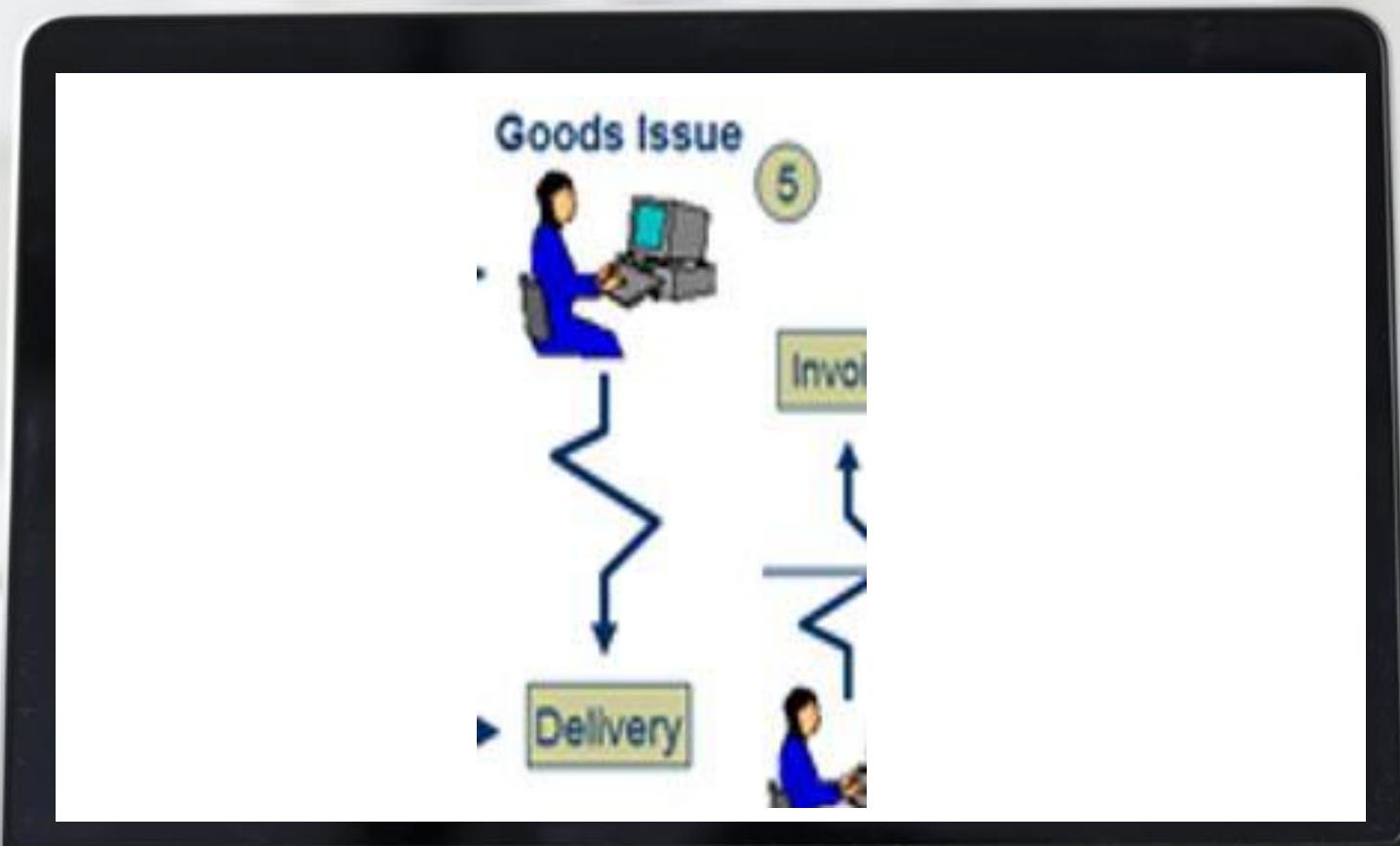
Quotation

Sales  
order 1

Sales  
order 2

Can you think of instances for using each of these?

5. Sales order gets routed to the distribution center, a delivery document is created



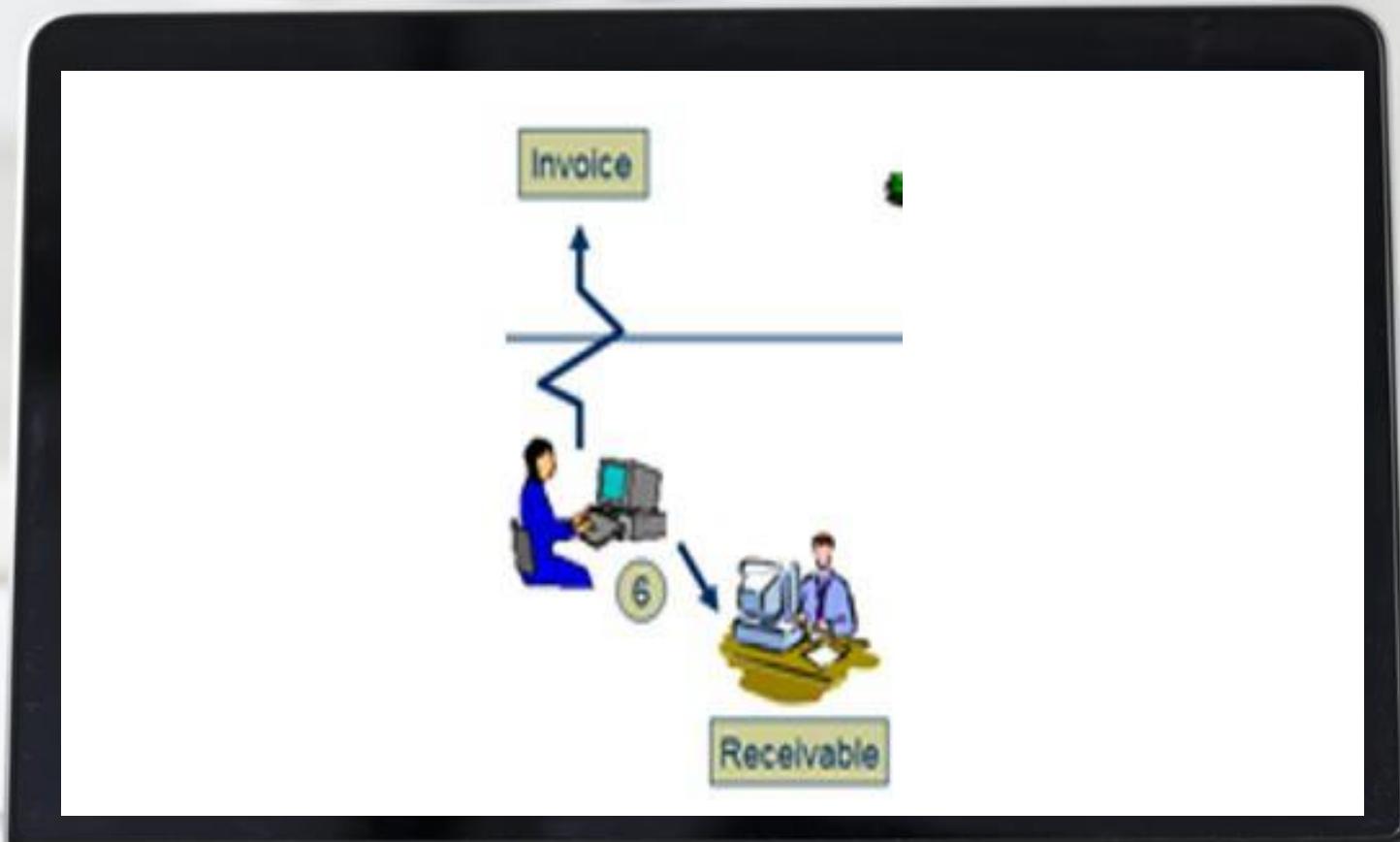
# Sales Order to Delivery Document

## Possible Relationships

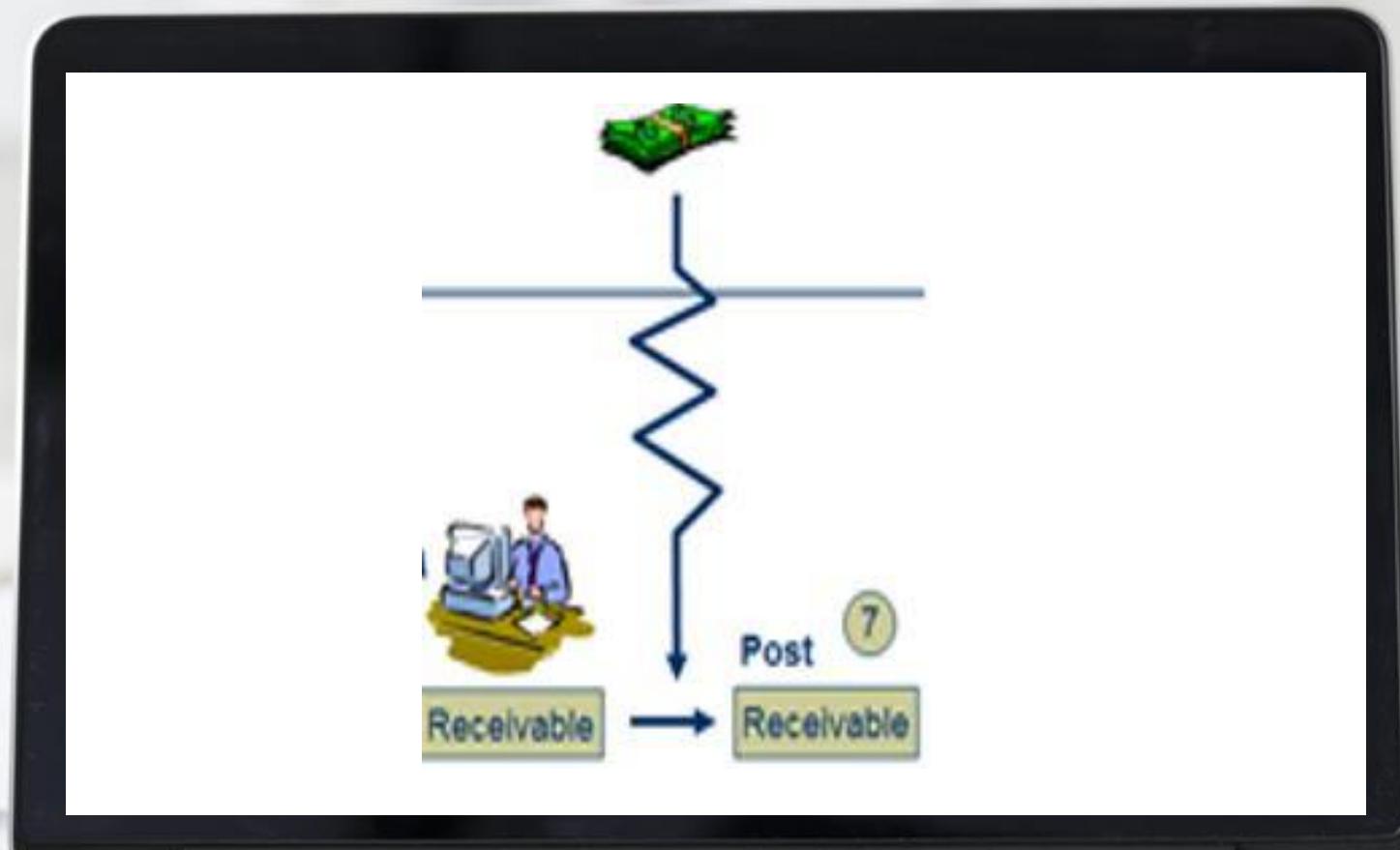


Can you think of instances for using each of these?

6. Delivery document is being updated after the picking has been performed



7. After the delivery truck has moved the goods out of the distribution plant, a good issue step is performed

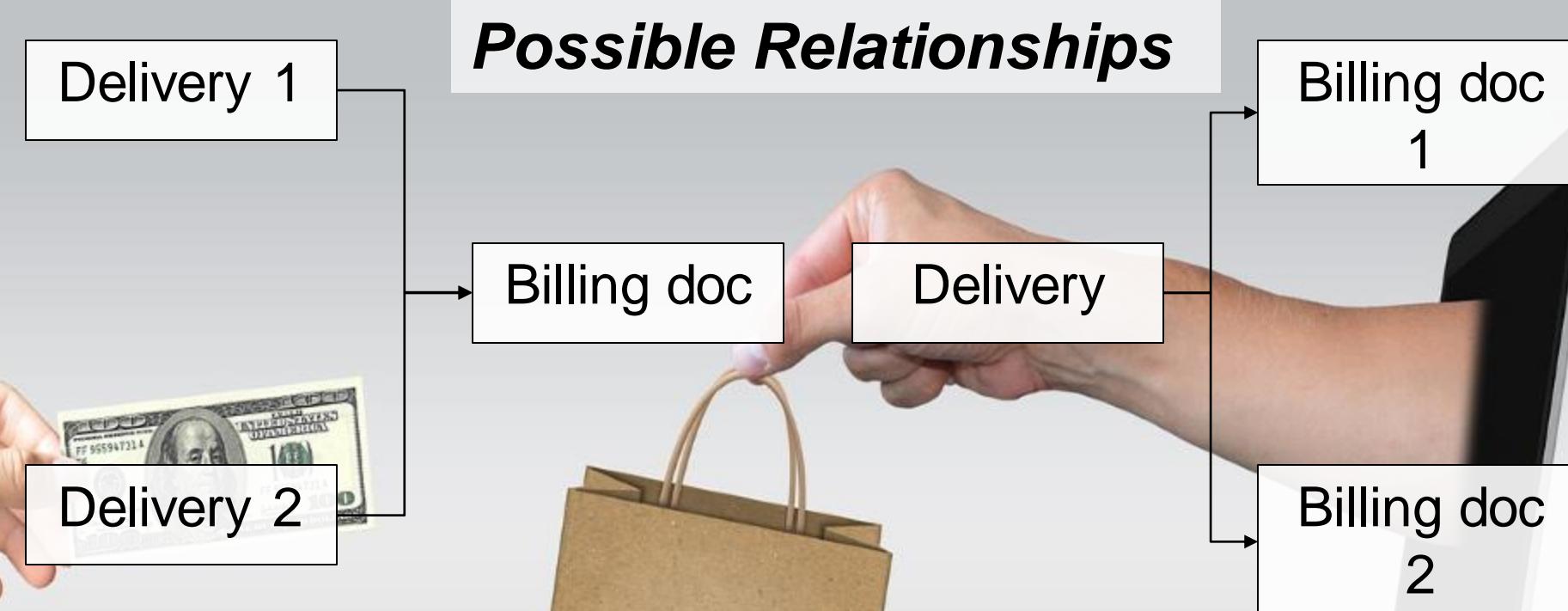


8. A billing document is created to invoice the customer, accounts receivable is updated internally

Customer Invoice



# Delivery to Billing Doc



Can you think of instances for using each of these?

9. Customer pays the amount and a receipt of payment is posted to close the entire process

Customer Pays





CARLSON SCHOOL  
OF MANAGEMENT

UNIVERSITY OF MINNESOTA

# CLASH OF THE TITANS 2016

An Independent Comparison of SAP,  
Oracle, Microsoft Dynamics and Infor



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## Introduction

Panorama Consulting Solutions, an independent and vendor-neutral enterprise resource planning (ERP) consulting firm, developed its annual ***Clash of the Titans*** analysis to compare the “titans” of the enterprise software industry: SAP, Oracle, Microsoft Dynamics and Infor. The analysis is based on all solutions offered by the four vendors and is not segmented by industry. The report provides a quick read on the high-level characteristics of each vendor and insight into respondents’ experiences with the chosen software. Panorama is in no way affiliated with SAP, Oracle, Microsoft Dynamics, Infor or any other software vendor or reseller.

***Clash of the Titans 2016*** includes analysis of responses collected via the Panorama Consulting website from June 2014 to October 2015. The dataset includes 519 respondents who have selected or implemented SAP, Oracle, Microsoft Dynamics or Infor ERP solutions.

Panorama Consulting developed ***Clash of the Titans 2016*** by analyzing quantitative and qualitative data regarding SAP, Oracle, Microsoft Dynamics and Infor ERP implementations. The report includes findings on a variety of factors such as vendor market share, implementation durations and payback periods summarized by vendor. Also included in this report are metrics regarding selection trends and business benefits realization.

As should come as no surprise, the battle for dominance in the Tier I market continues as SAP, Oracle, Microsoft Dynamics and Infor each seek to grow their global user base. Each of these four vendors are quick to adapt to the ever-changing needs of their clients, anticipating and capitalizing on economic trends and developing offerings for verticals outside of their original target markets.

## **Oracle**

Oracle was originally known for its database systems rather than its ERP systems. The organization expanded its share in the ERP market through organic growth and a number of high-profile acquisitions including JD Edwards, PeopleSoft, Siebel CRM and the like. Given this particular growth model, Oracle has become a configurable and flexible option and offers a best-of-breed option for its customers.

Oracle has grown primarily through acquisition of best-of-breed point solutions and has made considerable progress merging the JD Edwards Enterprise One functionality into Oracle EBS. Oracle EBS is comprised of over ten product lines, each of them with several modules that are licensed separately.

Oracle's other key ERP offerings include JD Edwards and PeopleSoft. JD Edwards supports the manufacturing industry especially well. It is an integrated applications suite of comprehensive ERP software that supports a wide variety of business processes with one common database. JD Edwards EnterpriseOne has an open platform, which provides for a broad support for different operating systems, databases, and middleware from Oracle and other vendors.

PeopleSoft targets large organizations, especially in the public sector and financial services sector. PeopleSoft has eight different application solutions such as financials, supply chain, HR, CRM and so on, among which HR and CRM solutions are the most desirable. Before being acquired by Oracle, the PeopleSoft suite was based on a client-server approach with a dedicated client. The current PeopleSoft version is based on a web-centric design, which allows all of an organization's business functions to be accessed and run on a web browser.

Oracle offers its solutions with different deployment models, including both on-premise and on-demand. Examples include E-Business Suite On-Demand, PeopleSoft Enterprise On-Demand and JD Edwards EnterpriseOne On-Demand, all of which are hosted applications but are not true SaaS applications. There is a move to provide "virtualization," which is Microsoft terminology for the cloud environment.

Oracle's best-of-breed approach sometimes allows for more flexibility to accommodate changing business needs, but this strength can become a weakness when it becomes harder to enforce standardized processes across a larger organization.

Based on qualitative and quantitative input from our clients as well as our own implementation experience, some of Oracle's functional strengths include:

- Strong finance and accounting functionality
- Advanced pricing module supports complex pricing scenarios
- E-portal provides for easy interaction with customers and suppliers
- Well-built IT architecture
- Strong product configurator
- Good functionality for production operations

## SAP

SAP began as an ERP software provider and today is the leading player in the ERP market. SAP developed close relationships with a variety of alliance partners, which fueled its growth through the 1990s and 2000s. There are an abundance of third-party developers who supply numerous add-on programs that work in conjunction with SAP products. SAP also offers ERP solutions appropriate for all sizes of organizations.

Based on SAP's technology platform NetWeaver, SAP Business Suite is a set of integrated business applications that provides industry-specific functionality and scalability. Although very powerful, SAP can be more difficult to change as a business evolves. This is both a strength and a weakness: on the one hand, it is tightly integrated and helps enforce standardized business processes across an enterprise, but it can also be more difficult to modify the software to adjust to evolving core processes and requirements.

SAP's core offerings include SAP Business All-in-One and SAP Business One. SAP Business All-in-One is a comprehensive, integrated enterprise software that offers industry-oriented solutions. All-in-One focuses on small- to mid-sized organizations with up to 2,500 employees. SAP Business All-in-One is template-based, and a configurable derivative of SAP Business Suite. It offers more than 700 industry-specific solutions by deploying their "best practices."

SAP Business One is a single, integrated application designed for small organizations with less than 100 employees. It mainly supports retail, wholesale, services and manufacturing. With third-party add-ons, SAP Business One is able to support a variety of industries and functions.

In order to meet the needs of small or mid-size businesses, SAP offers SAP ByDesign. Available in United States, Germany, France, the United Kingdom, India, and China, SAP ByDesign supports organizations with 100 - 500 employees. As a SaaS-type on-demand system, SAP ByDesign has low upfront costs and may require fewer IT resources than traditional ERP software.

Based on qualitative and quantitative input from our clients as well as our own implementation experience, some of SAP's functional strengths include:

- Strong product development functionality
- Ease in supporting Make-To-Order processing
- Integrated retail module
- Clear visibility to goods-in-transit orders
- Good quality control and quality assurance functionality
- Good compliance with SOX and tax regulations
- Strong cash management functionality

## ***Microsoft Dynamics***

Already established as the premier supplier of operating systems and business software, Microsoft Corporation entered the arena of ERP software through acquisition. In 2000, Microsoft acquired Great Plains, one of the first accounting packages in the USA that was designed and written to be multi-user and to run under Windows as 32 bit software. This was soon followed by the 2002 acquisition of Navision, a Danish software organization who offered an accounting and ERP solution offered for Microsoft's Windows 2000 Professional operating system. Navision had merged with Damgaard Software in 2000. Damgaard's product was Axtapa, a highly respected accounting system and ERP solution originally brought to the United States from Europe by IBM in 1996. Written completely in Java, Axapta was designed to be a complete ERP solution which included advanced distribution, process and discrete manufacturing, built-in CRM capabilities, and within an integrated development environment. The products maintained their own identities under Microsoft and were originally marketed as Microsoft Business Solutions, until being changed to Microsoft Dynamics ERP in 2006.

Microsoft Dynamics GP, the former Great Plains product, is designed for small to mid-sized business desiring a simple, out-of-the-box software solution. Microsoft Dynamics NAV, the former Navision product, is designed for small- to mid-sized businesses that need broader functionality and the ability to customize their software solution. The former Axtapa product, now marketed as Microsoft Dynamics AX, is the flagship of the Microsoft Dynamics offerings, and is geared toward larger, enterprise-wide implementations. Other products within the Microsoft Dynamics product line include SL (formerly Solomon), which is designed for project-oriented businesses, and CRM.

Microsoft Dynamics has historically relied upon its large network (10,000+) of partners to develop extended and industry-specific functionality beyond the core products. However, the recent AX 2013 release incorporates into the core offering industry-specific functionality for manufacturing, public sector, service industries and distribution. Additionally, this release incorporates significantly improved "cloud" capabilities.

Based on qualitative and quantitative input from our clients as well as our own implementation experience, Microsoft Dynamics' functional strengths include:

- Ease of customization
- High flexibility
- Ease of integration
- Familiarity of user interface
- Strong inter- and multi-organization support
- Strong multicurrency and localization capabilities
- Data dimension-enabled tracking of physical moves and financial transactions
- Strong MRP and trade capabilities

## *Infor*

Infor builds beautiful business applications with last mile functionality and scientific insights for select industries delivered as a cloud service. With 13,000 employees and customers in more than 200 countries and territories, Infor automates critical processes for industries that include healthcare, manufacturing, fashion, wholesale distribution, hospitality, retail and public sector. Infor builds its applications with a modern, standards-based architecture that embraces open source technology and provides customers with unmatched flexibility, scale and power.

Infor differentiates itself by building last-mile functionality for each of its targeted industries directly into vertical, and even micro-vertical, applications. Working directly with customers and industry thought leaders, Infor identifies the critical needs of specific industries and pre-packages functionality into its applications. The result is that companies can reduce or even eliminate the need for costly customizations that prolong implementations and complicate future upgrades.

Infor has made a major investment in being able to deliver these industry-driven solutions in the cloud. Partnering with Amazon Web Services, Infor provides secure, flexible and cost-effective cloud hosting options that can increase business agility and dramatically simplify IT landscapes. Whether customers want to deploy on-premise, in the cloud or a combination of both, Infor has the infrastructure and resources to support whatever choice is best for their businesses.

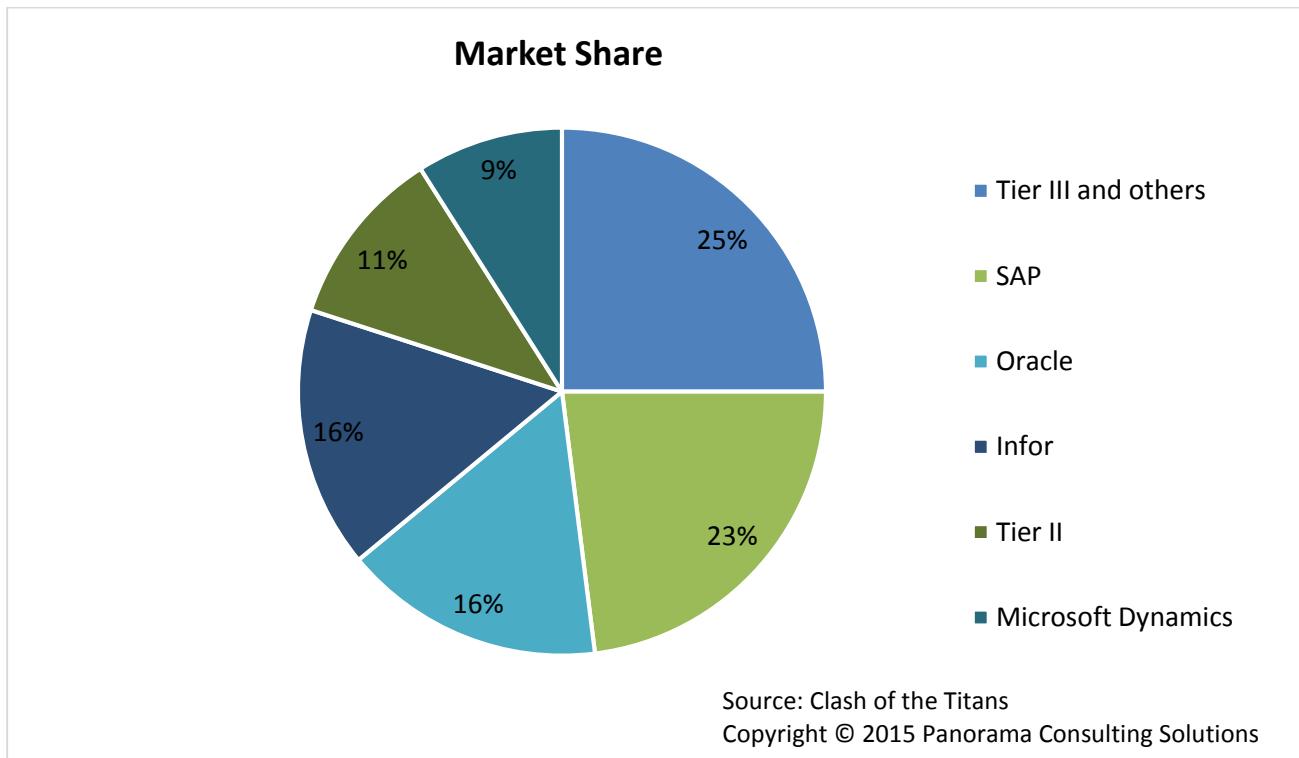
Other major areas of investment include user experience and data science. Infor has pioneered a revolution in enterprise usability through its in-house creative lab, Hook & Loop, which has grown into one of the largest creative agencies in Manhattan since its inception in 2012. Staffed with “left-brain creatives,” the team at Hook & Loop draws from unique and

eclectic backgrounds, like fashion design, digital animation, and storytelling, to re-imagine the experience of using enterprise software, helping customers move from forms-based, data intensive interfaces to beautiful, intuitive, touch-and-gesture-based experiences.

Recognizing that companies have enormous amounts of data but lack the knowledge and resources to make that data work for them, Infor also recently formed Infor Dynamic Science Labs to help embed science and machine learning directly into Infor applications. Based outside M.I.T. in Cambridge, MA, Infor has employed some of the best and most innovative data scientists to help customers uncover opportunities and recommend next steps that drive improvements in all areas of business, from recruiting and staffing to asset management and pricing.

## Market Share

**Clash of the Titans 2016** provides market share statistics based on the frequency each vendor was selected by organizations represented in our annual survey. The graph below shows the overall market share distribution for the time period from June 2014 to October 2015.



The data show that SAP holds 26-percent of total market share, Oracle holds 16-percent, Infor holds 16-percent and Microsoft Dynamics holds 9-percent. Tier II solutions represent 12-percent of the market, while Tier III and others represent 26-percent of the total market.

## Listing and Selection Comparisons

Short-listing is the process of culling the long list of potential ERP vendors to between two and four potential solutions. Among the key data points in this report are the rates that SAP, Oracle, Microsoft Dynamics and Infor are short-listed and the rates that each vendor is selected after short-listing.

The data reveal that SAP is the most commonly short-listed ERP system of the four in our study (short-listed by 45-percent of respondents). SAP is followed by Oracle at 31-percent, Microsoft Dynamics at 18-percent and Infor at 8-percent

<b>Rates of Being Short Listed</b>	
<b>Vendor</b>	<b>Frequency</b>
SAP	45%
Oracle	31%
Microsoft Dynamics	18%
Infor	8%

After being short-listed, the popularity of the four vendors slightly shifts. SAP has the highest rate of selection after short-listing (21-percent) with Infor following closely at 19-percent, Oracle at 14-percent and Microsoft Dynamics at 9-percent. During the last few years, SAP has continued to hold the top position for selection after short-listing.

<b>Selection Rates When Short-Listed</b>	
<b>Vendor</b>	<b>Frequency</b>
SAP	21%
Infor	19%
Oracle	14%
Microsoft Dynamics	9%

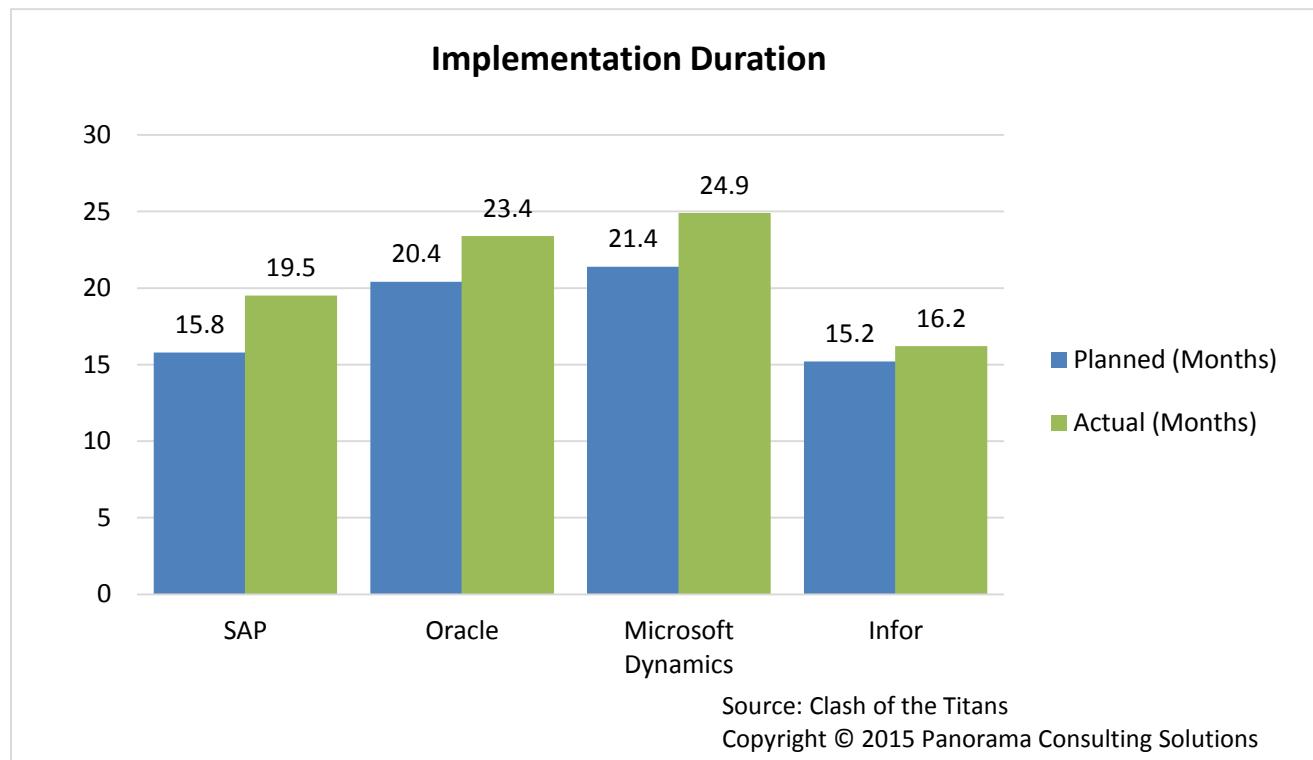
The fact that SAP is short-listed at such a high rate suggests that its name recognition and widespread use persuade organizations to consider SAP solutions. While both the short-listing and selection rates are strong for SAP, there is no evidence that every organization makes the right decision by choosing SAP. Many organizations simply do not have the proper methodologies or skillsets in place to effectively assess ERP systems. Rather than considering these findings to be indicative of the suitability of the product offerings, it is useful to view them as broader data regarding trends in the sales cycle experienced by the four vendors.

## Implementation Duration

Implementation duration can be directly correlated to project scope, resource availability, the type of software purchased and the fit and functionality of that software. Further affecting duration are the number of solutions that SAP, Oracle, Microsoft Dynamics and Infor each provide for different verticals, industries and needs as well as the levels of customization each organization chooses.

Compared to our previous report, each of the four vendors increased in implementation duration. Microsoft Dynamics implementations, which averaged 12.5 months in 2013, increased to 24.9 months this year. Oracle implementations, which averaged 22.5 months in 2013, saw a slight increase to 23.4 months, as did SAP from 18.5 months to 19.5 months. A small increase in implementation duration may be attributed to changes in project scope and resource availability. More significant increases may be attributed to unclear requirements or excessive customization.

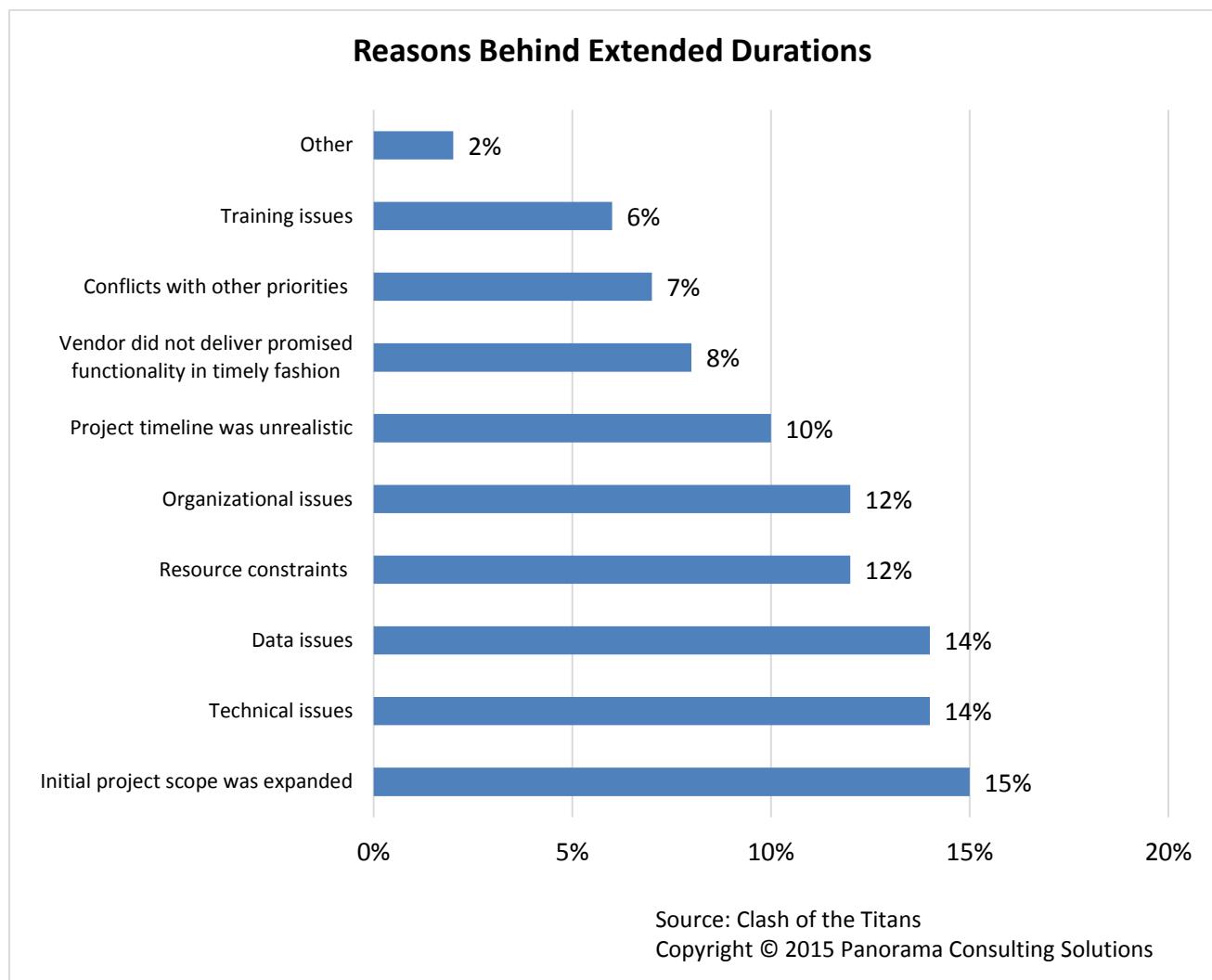
This year, Infor has the shortest overall implementation time (16.2 months), followed by SAP at 19.5 months, Oracle at 23.4 months and Microsoft Dynamics at 24.9 months.



*Please note that implementation duration periods begin at the time of purchase of the software and end upon full functionality. Several variables affect implementation duration, including scope, size and complexity of the organization implementing the software as well as the specific solution and deployment model chosen.*

## **Extended Durations**

The most common reason for extended durations is the extension of initial project scope (15 percent). Respondents also indicated that technical issues and data issues contributed to project delays. These are common issues suffered by organizations that rush into implementation without taking the time to properly plan and set realistic expectations.

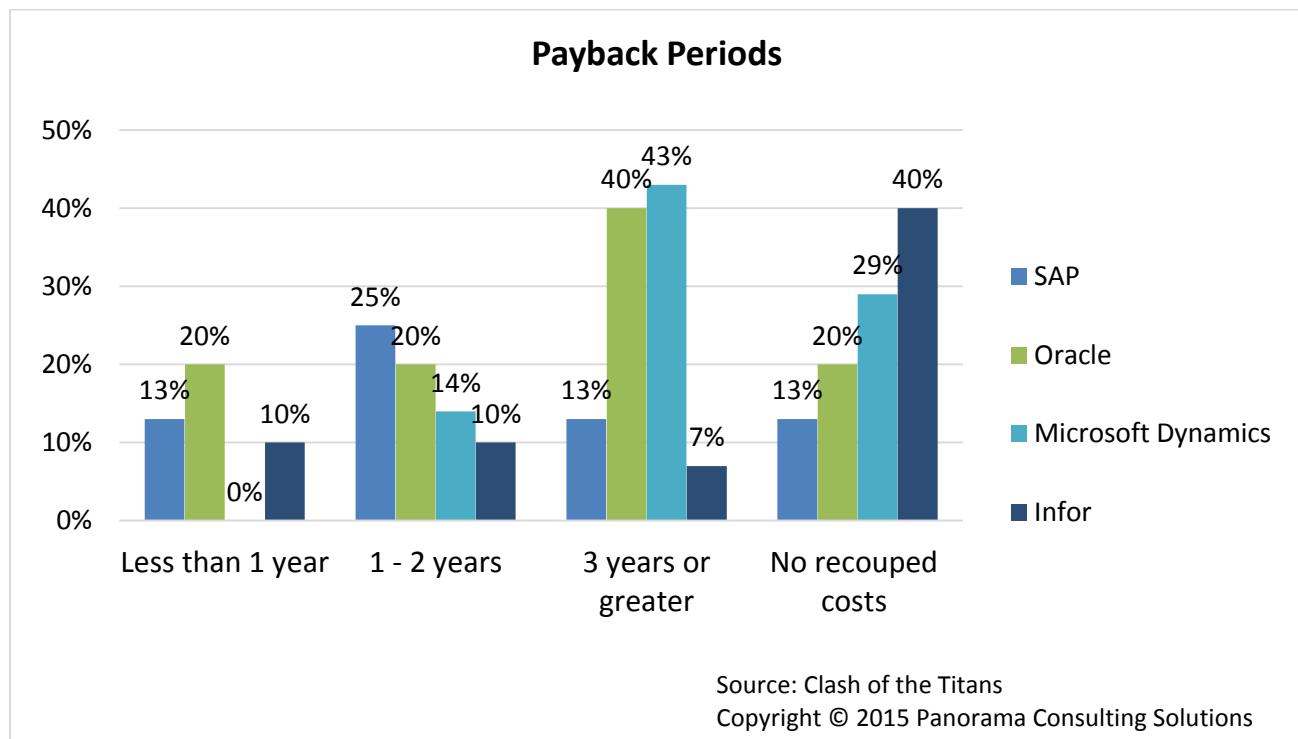


While the top reason for extended durations continues to be the extension of project scope, this percentage has decreased during the past few years. This may indicate that more organizations are investing time in project planning which ensures that the scope of all project components, including organizational change management, are considered upfront.

## Payback Periods

Payback is defined as the point in time when the organization recoups its initial investment on the project. This metric can only be determined if key performance indicators (KPIs) and baseline measurements are put into place prior to implementation.

Panorama's research shows that payback typically happens after three years. It takes time for people to learn a new system and use all of its functionality so it may take just as long to realize benefits.



*Please note that numbers do not always add up to 100-percent because not every respondent answered every question.*

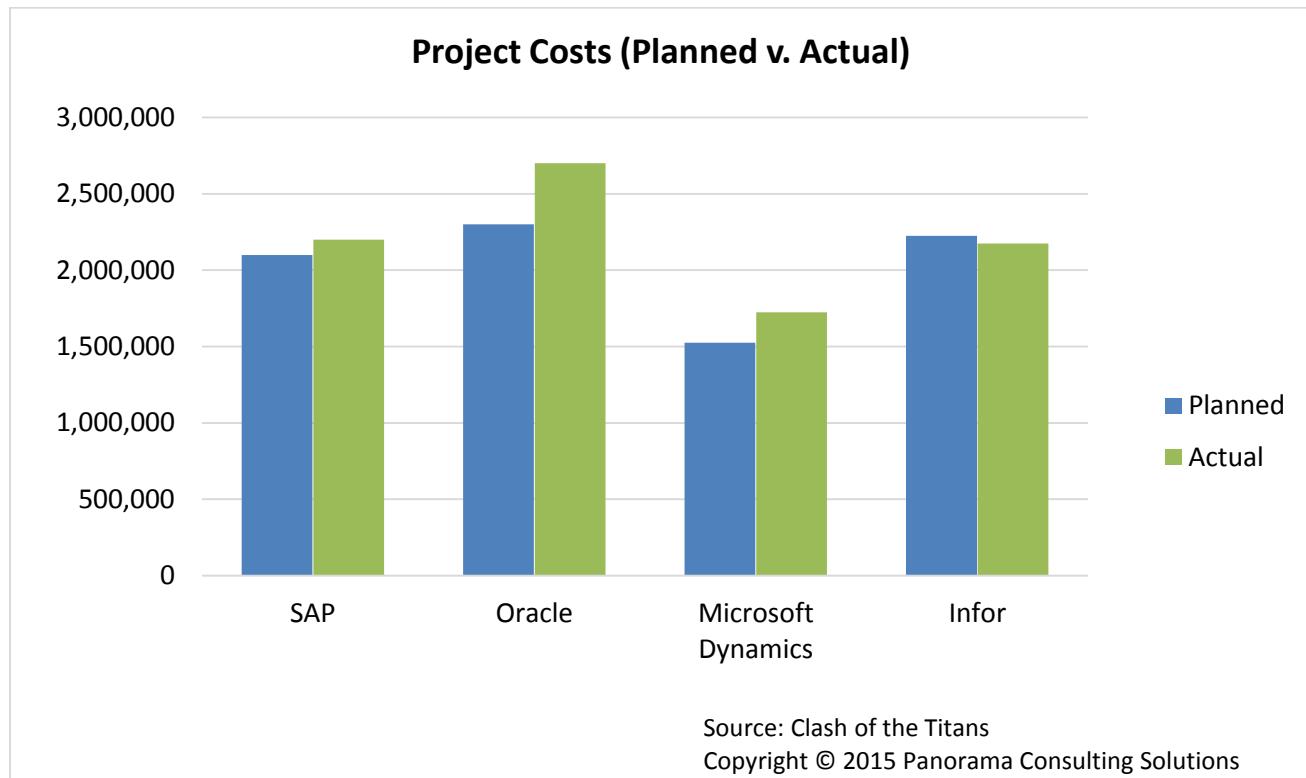
The vendor with the most respondents receiving payback in less than a year is Oracle (20-percent), followed by SAP (13-percent). However, compared to SAP, Oracle has a higher percentage of implementations that take three years or more to provide payback. A large percentage (40-percent) of organizations implementing Infor reported no recouped costs, and a large percentage (43-percent) of organizations implementing Microsoft Dynamics reported three years or more until recouped costs.

Significant customization may contribute to long payback periods, while using out-of-the-box functionality and best practices with minimal customization can result in shorter payback periods.

## Project Costs

Organizations that plan for all components of a successful implementation will reduce their risk of budget and timeline overruns or increased resource and staffing needs.

SAP, Oracle and Microsoft Dynamics projects all show an increase between planned and actual total cost of ownership, while Infor implementations show a decrease.

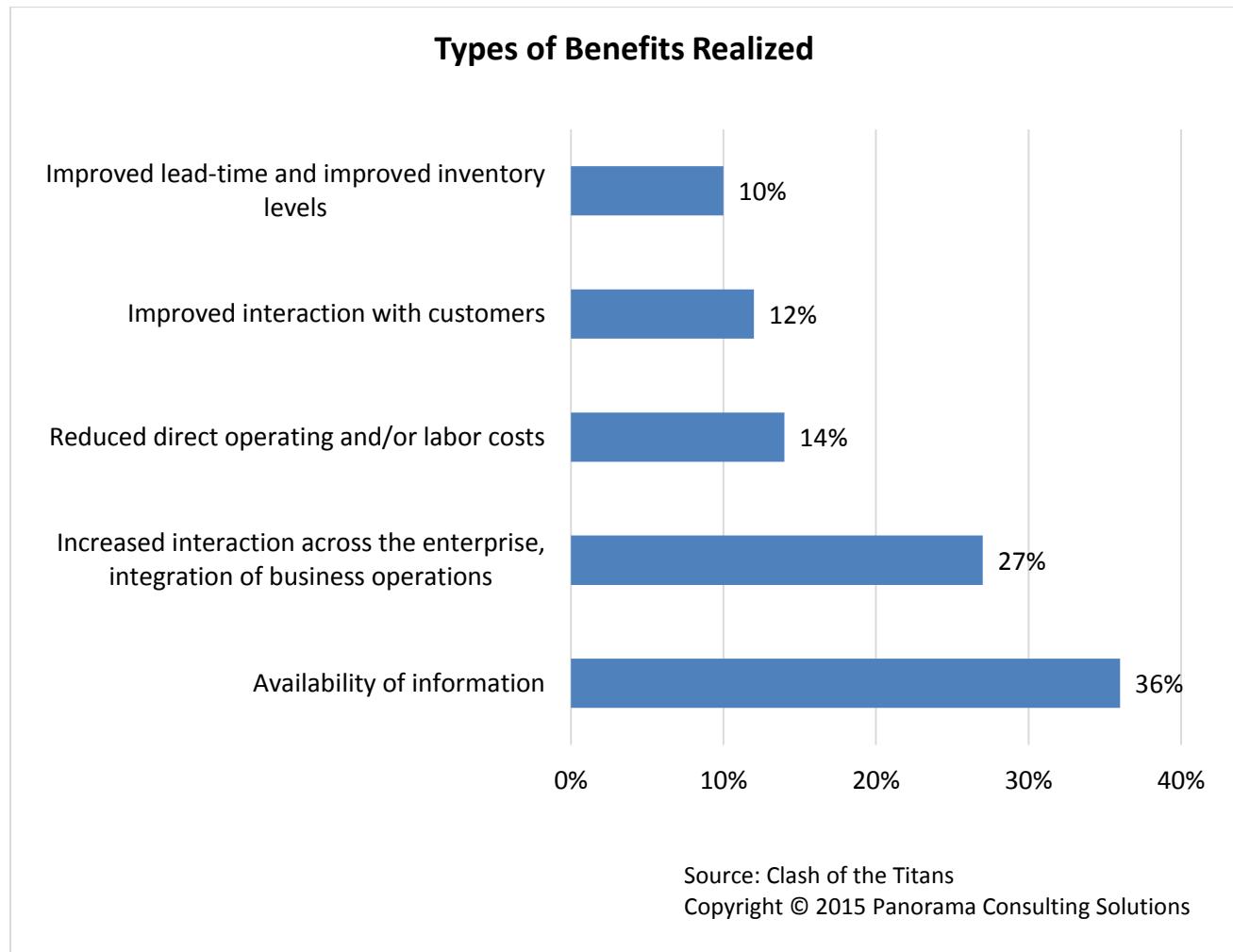


SAP has the smallest delta between planned and actual total cost of ownership, with respondents reporting only a 5-percent increase. Oracle customers reported the largest delta (17-percent), and Microsoft Dynamics's customers reported a 13-percent delta between planned and actual costs. Oracle implementations may be more likely to go over budget due to the software's complexity and extended functionality. Organizations tend to struggle with outlining module and customization costs in the planning process.

In terms of actual total cost of ownership, Oracle is the most expensive (\$2.7 million), followed by SAP (\$2.2 million), Infor (\$2.1 million) and Microsoft Dynamics (\$1.7 million). Since 2013, the cost to implement Oracle has increased from \$2.25 million, while the cost to implement SAP has decreased from \$2.55 million, and the cost to implement Microsoft Dynamics has decreased from \$1.8 million.

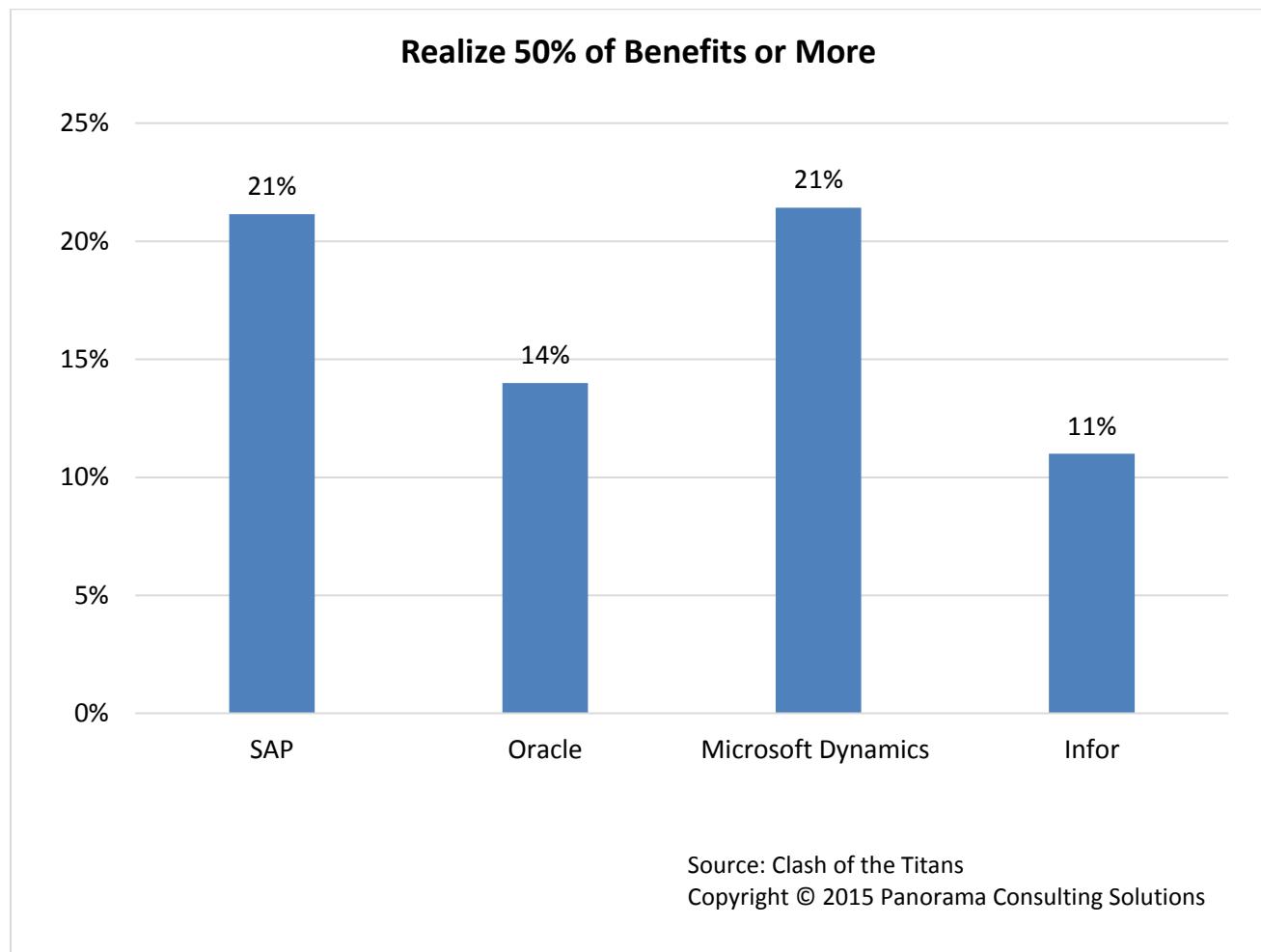
## Benefits Realization

Benefits realization statistics reflect the measurable benefits achieved versus the measurable benefits projected in each respondent's business case. The following graph depicts the specific benefits that organizations received from their ERP implementations.



Since 2013, there has been a 14-percent increase in organizations realizing the benefit of “increased interaction across the enterprise.” However, there has been a 6-percent decrease in organizations realizing the benefit of “availability of information.” Organizations that outline the types of benefits they expect can more accurately measure these benefits following implementation.

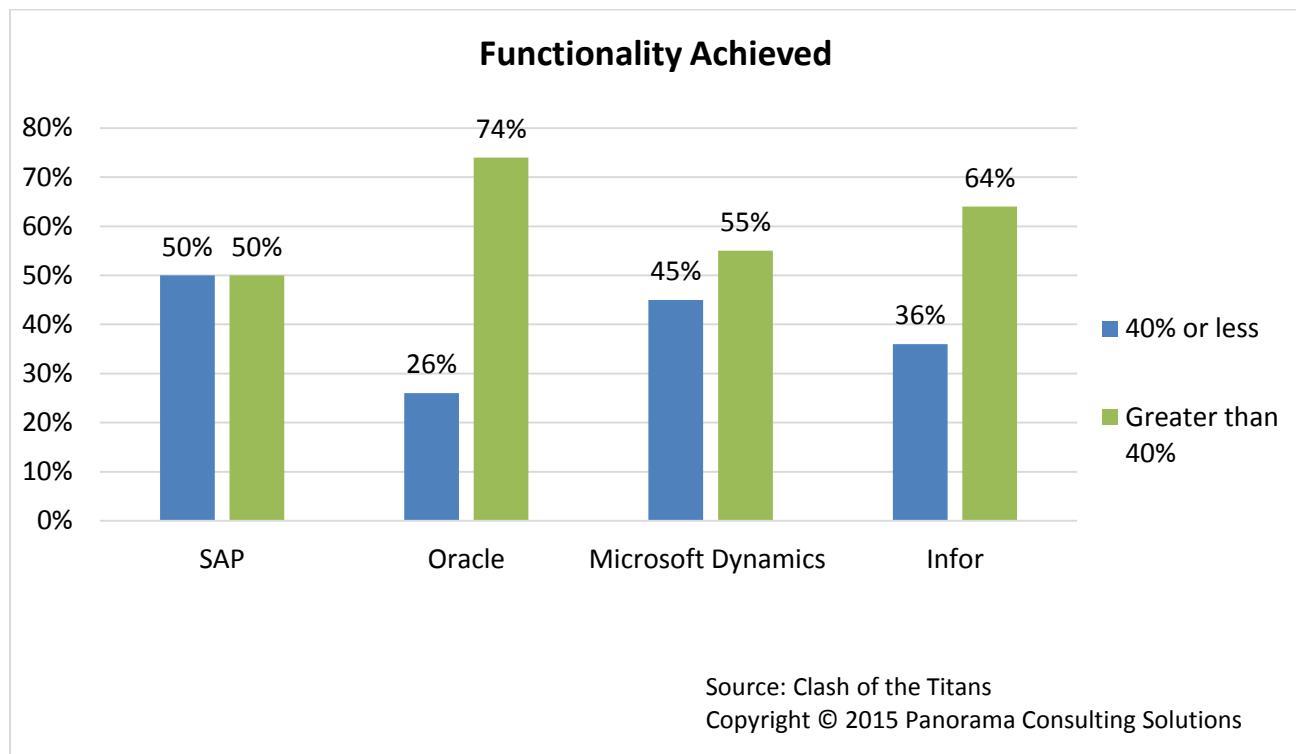
As seen in the graph below, only 21-percent of SAP implementations, 21-percent of Microsoft Dynamics implementations, 14-percent of Oracle implementations and 11-percent of Infor implementations achieve 50-percent or more of expected business benefits.



These findings highlight the importance of developing a business case and benefits realization plan in order to accurately measure what benefits are being realized and at what rate. These documents are critical for accurately measuring success or failure as they outline expected return on investment and help organizations determine next steps.

## Functionality

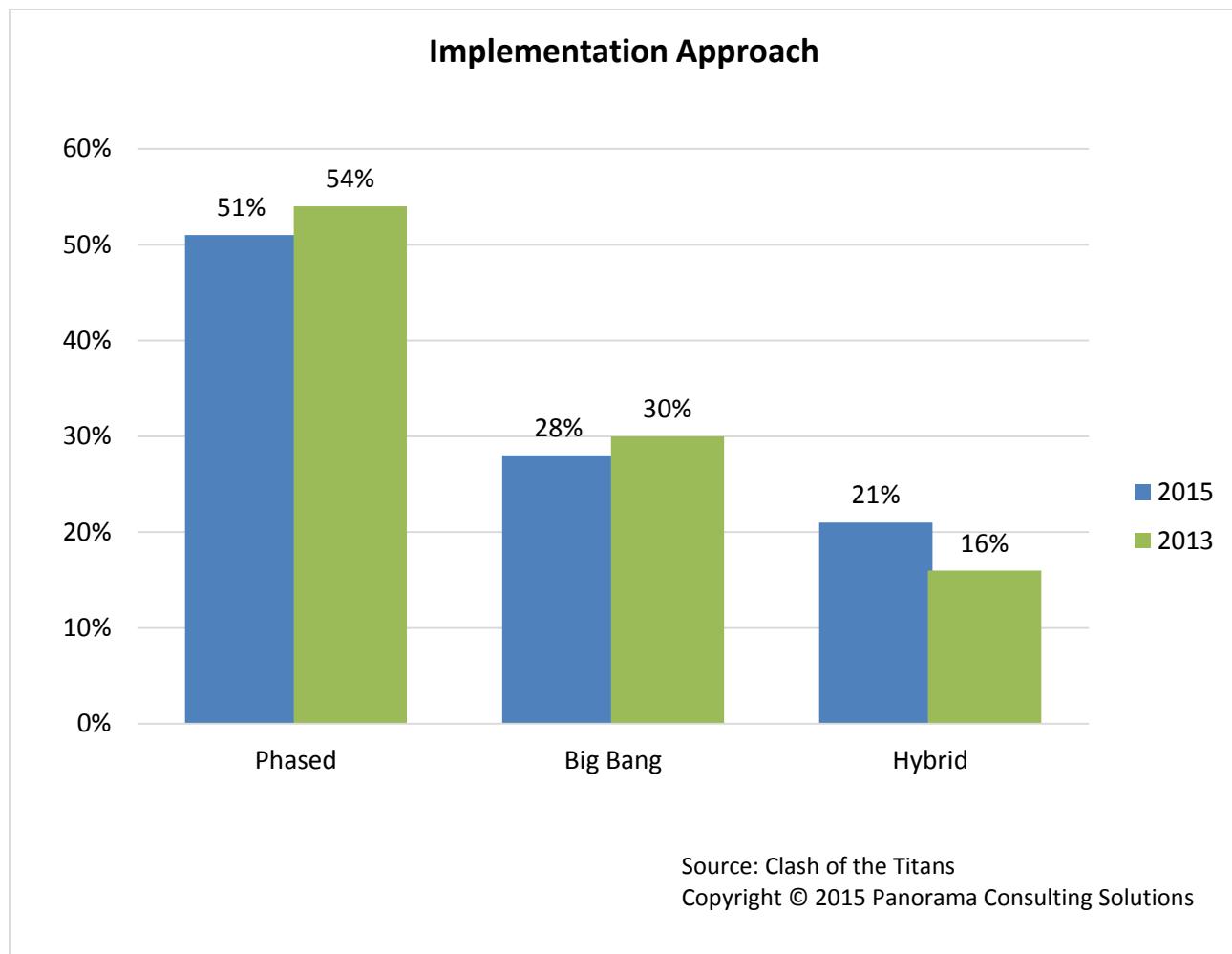
It is rare for organizations to achieve 100-percent functionality of their ERP software, especially without consistent and customized training. The graph below shows the level of software functionality achieved by organizations implementing SAP, Oracle, Microsoft Dynamics or Infor.



Of the four titans, Oracle and Infor have the highest percentage of respondents indicating that they achieved functionality of greater than 40-percent of the modules implemented. SAP has the lowest percentage of respondents indicating that they achieved this level of functionality. When organizations achieve a low level of functionality, this could be a result of the time it takes for end-customers to adapt to new software.

## Implementation Approach

To minimize operational risk and decrease change resistance among their employees, many organizations choose to implement their ERP software in phases. Other organizations choose a “big bang” approach and implement the whole system at once, regardless of module, location or department, and some use a hybrid approach, which combines these two extremes.

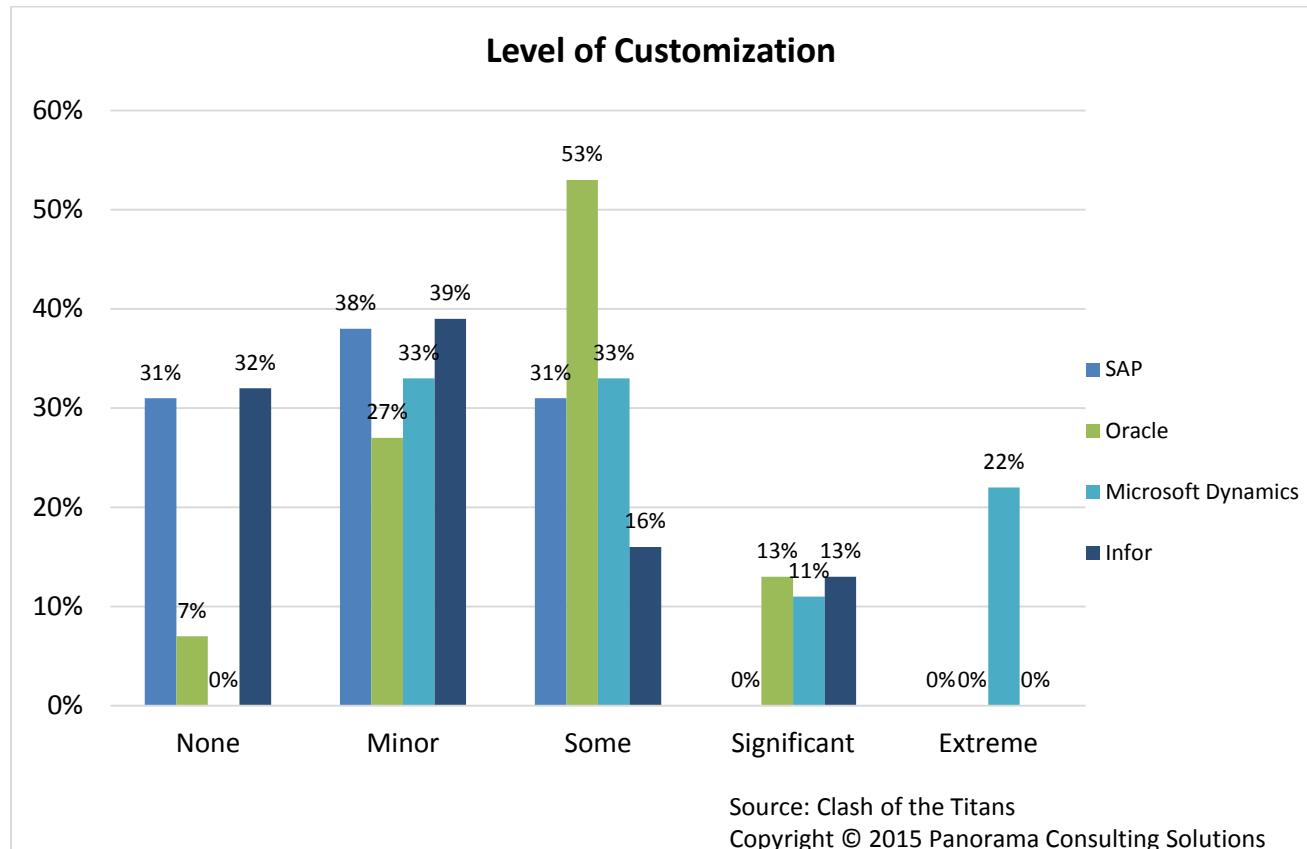


As seen in the graph above, most organizations use either a phased approach (51-percent) or a “big bang” approach (28-percent). The hybrid approach, which combines these two extremes, increased by 5-percent since 2013. There is no one-size-fits-all for implementations. The approach used should be based on each organization’s preferred risk tolerance.

## Customization

The majority of respondents indicated that their chosen ERP system underwent at least some customization. While most organizations will customize some aspect of their ERP systems, it is ideal to leverage as much out-of-the-box functionality as possible. SAP customers seem to leverage more of the out-of-the-box functionality while Microsoft Dynamics customers tend to choose more customization.

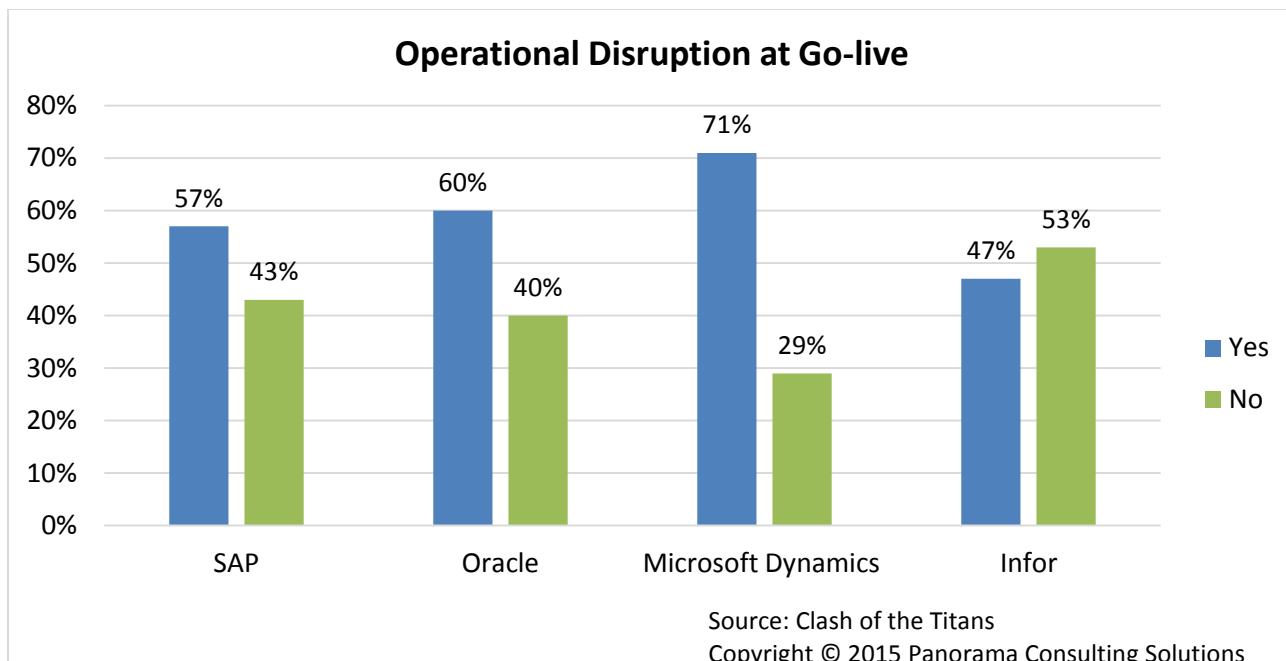
As seen in the graph below, organizations implementing Microsoft Dynamics reported the highest levels of customization with 33-percent reporting significant or extreme customization. Organizations implementing Infor reported the lowest levels of customization with 71-percent of respondents reporting minor or no customization.



High levels of customization may indicate that organizations are failing to perform proper due diligence when evaluating systems against their business requirements. This can lead to the selection of a system that is not the best fit for the organization. Organizations should document detailed business requirements, including current state processes, in order to evaluate each system against their business needs.

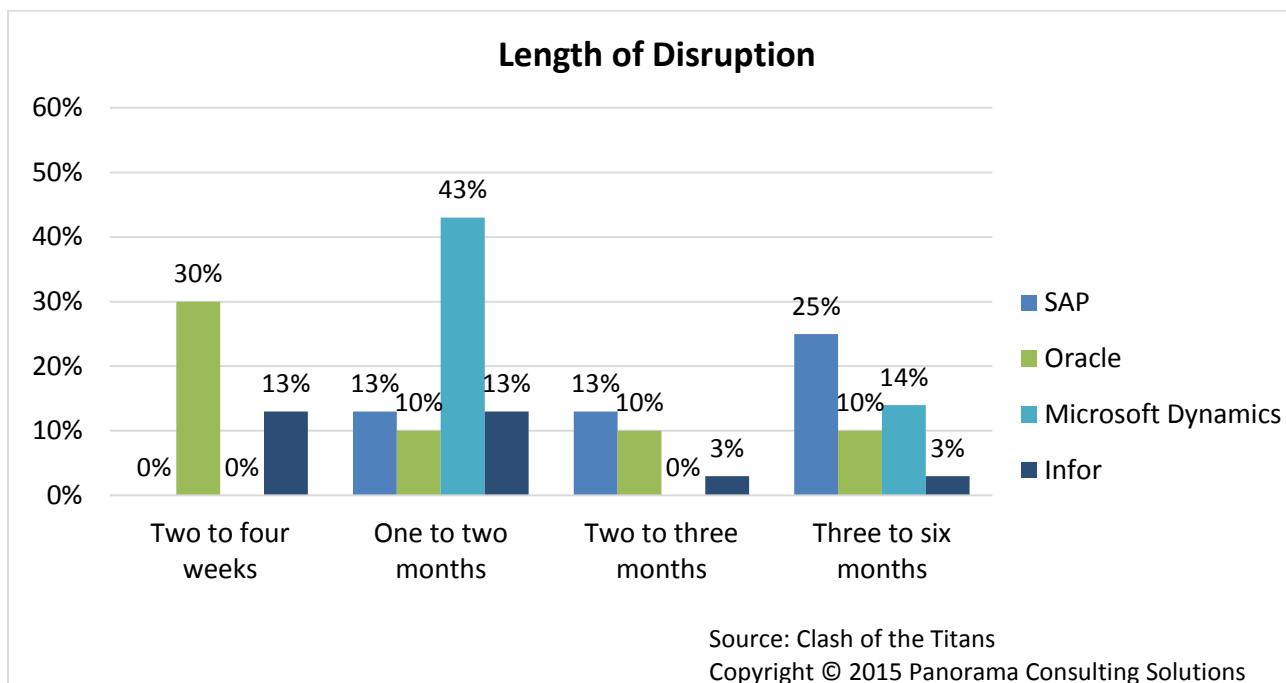
## Operational Disruption

For our purposes, operational disruption is defined as any material disruption to business processes once an ERP system goes live, such as inability to ship product or close the books. Unfortunately, operational disruption is quite common among organizations implementing ERP software today, especially those that do not engage in pre-implementation planning or take the time to define current and future state business processes.



Panorama's research shows that organizations implementing Microsoft Dynamics have the highest occurrence of operational disruption at go-live (71-percent). This is followed by Oracle at 60-percent, SAP at 57-percent and Infor at 47-percent.

As seen in the graph below, a significant number of Microsoft Dynamics operational disruptions lasted one to two months (43-percent), while a significant number of Oracle implementations lasted only two to four weeks (30-percent).

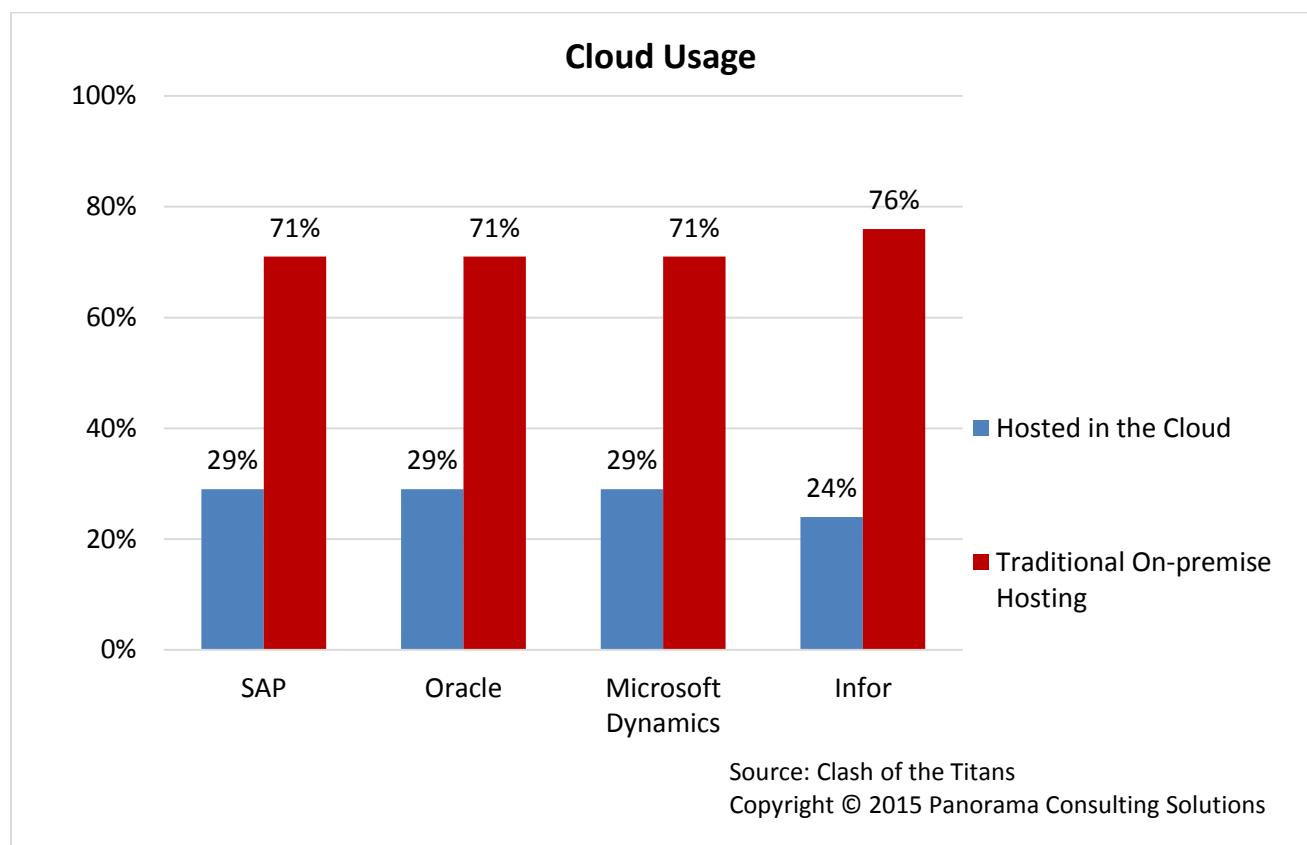


Most operational disruptions are due to process and organizational issues within the implementing organization and not the software itself. To mitigate the risk of operational disruption (and decrease the length of the disruption), organizations must plan for adequate training and organizational change management to properly communicate changes to end-users, regardless of which ERP software they choose to implement.

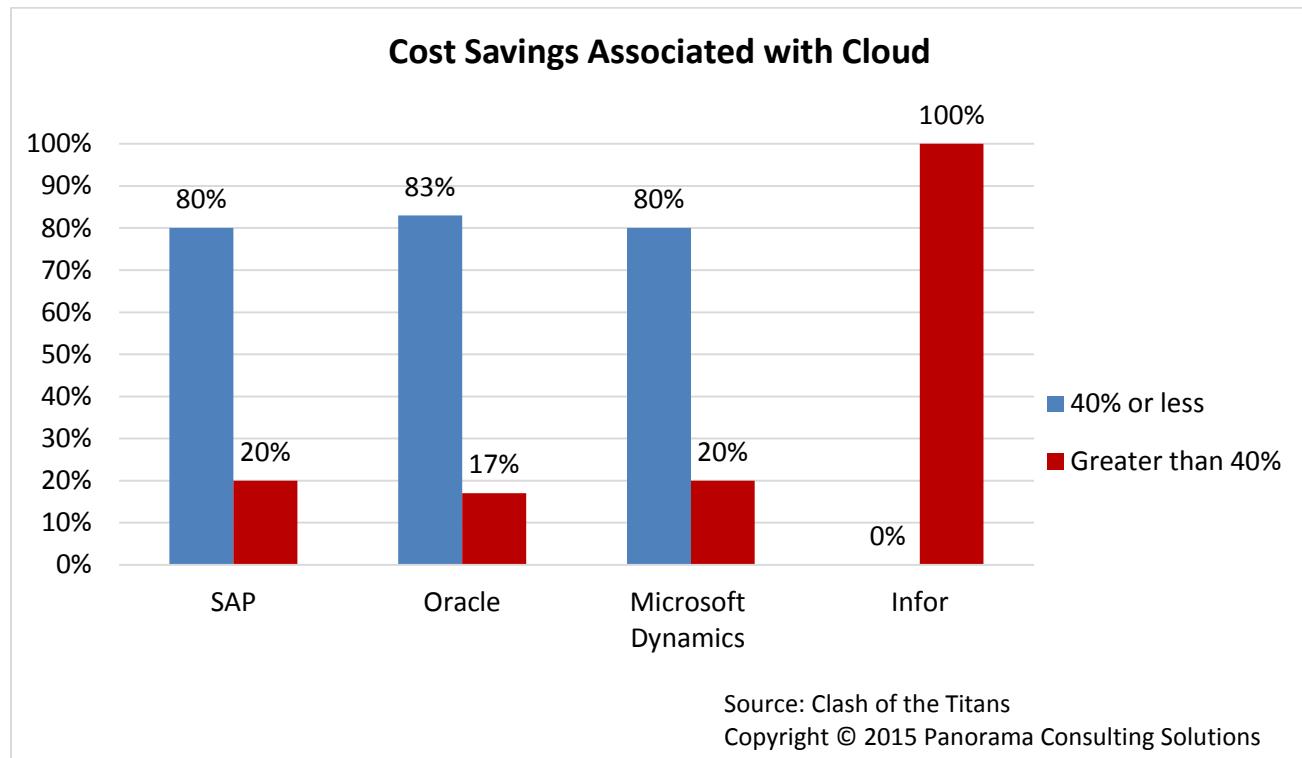
## Cloud Usage

Although cloud ERP software is becoming increasingly popular in the enterprise software market, Panorama's research shows that a relatively low percentage of SAP, Oracle, Microsoft Dynamics and Infor customers implement their software in the cloud. Concerns about data security often limits the cloud adoption rate.

In 2013, SAP had the lowest percentage of customers indicating cloud usage (18-percent). This year, 29-percent of SAP customers report cloud usage. While still small, the percentage of organizations moving to the cloud appears to be increasing, which may be due to the fact that organizations' perceptions of the cloud is changing as they no longer view it as a riskier option than on-premise deployments.



Among SAP, Oracle and Microsoft Dynamics customers, few organizations realize greater than 40-percent cost savings from cloud usage. However, 100-percent of Infor customers realize this level of cost savings.



These findings are in line with data from Panorama's *2015 ERP Report* where SaaS and cloud adoption showed an increase over the previous year. The report revealed similarly low cost savings associated with SaaS and cloud adoption.

## Summary

Summary Data				
Vendor	SAP	Oracle	Microsoft Dynamics	Infor
Market Share	23%	16%	9%	16%
Short-list Rates	45%	31%	18%	8%
Selection Rates After Short-listing	21%	14%	9%	19%
Implementation Duration (months)	19.5	23.4	24.9	16.2
Total Cost of Ownership	\$2.2 million	\$2.7 million	\$1.7 million	\$2.1 million
Payback Period (months)	9	21	22	24
% Realizing 50% or More Benefits	21%	14%	21%	11%
Disruption at Go-live	57%	60%	71%	47%

## **SAP**

Below are some of the highlights of SAP's suite of solutions as they relate to Oracle, Infor and Microsoft Dynamics:

- Largest share of the market
- Highest short-listing rate
- Highest selection rate when short-listed
- Largest delta between planned and actual implementation duration

## **Oracle**

Below are some of the highlights of Oracle's suite of solutions as they relate to SAP, Infor and Microsoft Dynamics:

- Largest delta between projected and actual project cost
- Highest project cost
- Shortest length of operational disruption

## **Microsoft Dynamics**

Below are some of the highlights of Microsoft Dynamics' suite of solutions as they relate to SAP, Oracle and Infor:

- Smallest share of the market
- Lowest selection rate when short-listed
- Longest implementation duration
- Lowest project cost

## **Infor**

Below are some of the highlights of Infor's suite of solutions as they relate to SAP, Oracle, Microsoft Dynamics and Infor:

- Lowest short-listing rate
- Most predictable actual implementation duration
- Most predictable actual project costs
- Greatest functionality realized
- Lowest occurrence of operational disruption

## Conclusion

Organizations implementing SAP, Oracle, Microsoft Dynamics or Infor systems continue to face extended durations, unexpected project costs, operational disruptions and relatively low amounts of quantifiable benefits realization. These issues are not necessarily related to the software or vendor, but instead, are more influenced by the implementing organization itself. Organizations that fail to adequately prepare for an ERP implementation, in terms of people and processes, will always struggle to achieve a return on investment from on their ERP software – no matter how sophisticated the system.

While we present our ***Clash of the Titans*** reports to provide a deep-dive into implementation experiences specific to these four vendors, organizations should not assume that these are the only vendors worth investigating. Instead, organizations in the market for new enterprise software should engage the services of an independent ERP consulting firm to help them define their specific business requirements, ensure the vendors are able to speak to these requirements, and weigh the pros and cons of vendors and systems against their organizational goals.

## About Panorama Consulting Solutions

Panorama Consulting Solutions specializes in enterprise consulting, infrastructure consulting and enterprise resource planning (ERP) consulting for mid- to large-sized, private and public sector organizations across the globe. One-hundred percent independent of affiliation, Panorama helps firms evaluate and select ERP software, implements the software and facilitates all related organizational changes to ensure that each of its clients realize the full benefits of their ERP implementation. We also offer our clients IT strategy, business process reengineering, ERP staffing, sales assessments, energy fueling assessments, emergency/disaster fund management, independent verification and validation, project management oversight and expert witness testimony.

More information can be found on its website, [Panorama-Consulting.com](http://Panorama-Consulting.com) and Twitter feed, [Twitter.com/PanoramaERP](https://Twitter.com/PanoramaERP).



# Enterprise Systems

Session 3

# Learning Objectives

Explore the decision process  
behind the selection of ERP  
software.

# Various ES Vendors



**EPICOR**



# What Can We learn about the Top 3 Vendors

A good way to get information on these top three vendors is through this business report, titled, Clash of The Titans, An Independent Comparison of SAP, Oracle, Microsoft Dynamics, and Infor.

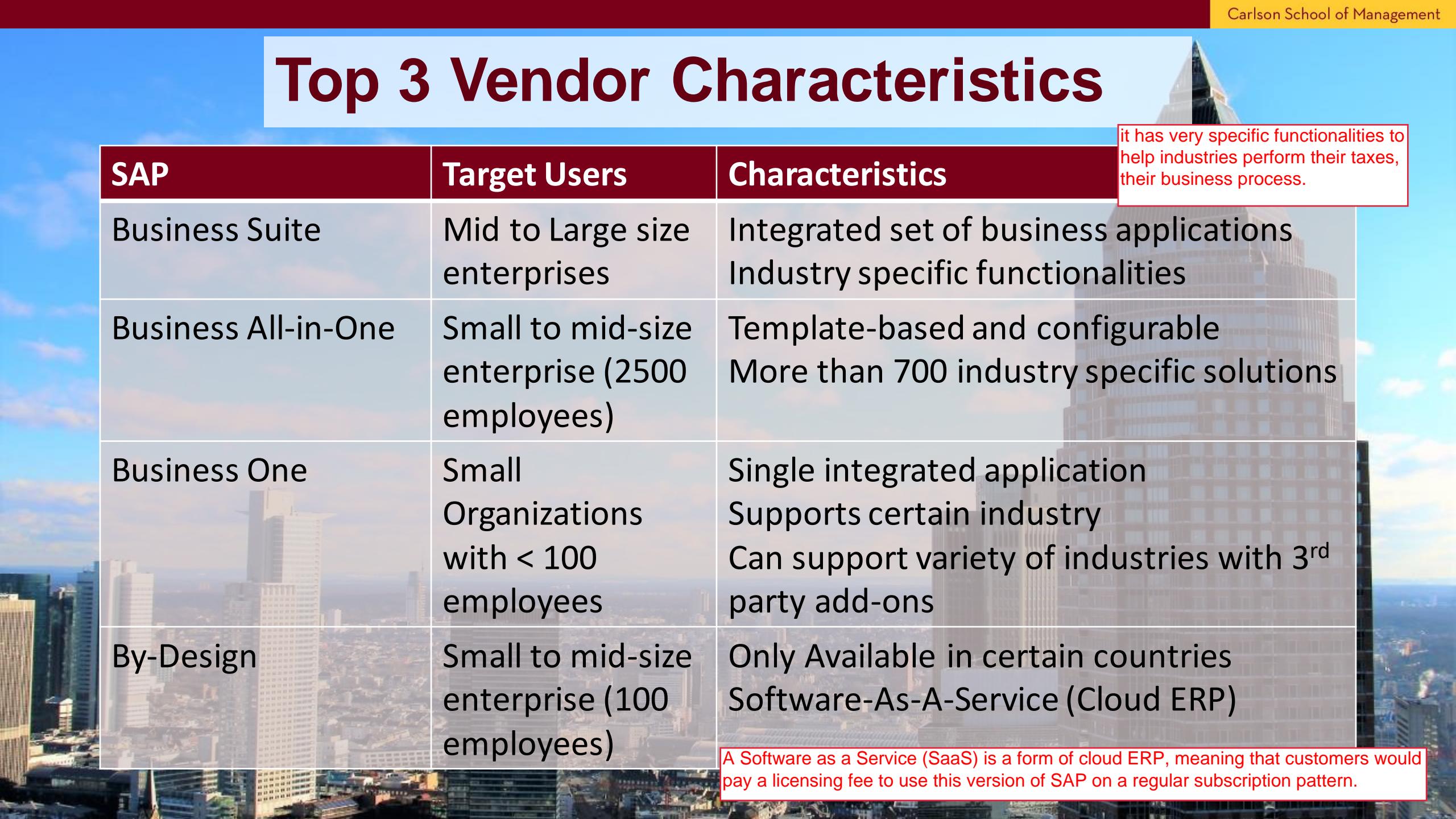
This is a business report that is provided for free by Panorama Consulting Solutions, and is updated on a regular, yearly basis.

- Top three ERP Vendors by market share:
  - SAP
  - Oracle
  - MS Dynamics



- What are some overarching observations & comparisons of the Big Three?
  - Refer to “Clash of the Titans: An Independent Comparison of SAP, Oracle, Microsoft Dynamics, and Infor”
  - A resource provided by Panorama Consulting Solutions

# Top 3 Vendor Characteristics



SAP	Target Users	Characteristics	
Business Suite	Mid to Large size enterprises	Integrated set of business applications Industry specific functionalities	it has very specific functionalities to help industries perform their taxes, their business process.
Business All-in-One	Small to mid-size enterprise (2500 employees)	Template-based and configurable More than 700 industry specific solutions	
Business One	Small Organizations with < 100 employees	Single integrated application Supports certain industry Can support variety of industries with 3 <sup>rd</sup> party add-ons	
By-Design	Small to mid-size enterprise (100 employees)	Only Available in certain countries Software-As-A-Service (Cloud ERP)	

A Software as a Service (SaaS) is a form of cloud ERP, meaning that customers would pay a licensing fee to use this version of SAP on a regular subscription pattern.

# Top 3 Vendor Characteristics

MS Dynamics	Target Users	Characteristics
GP	Small to mid-size enterprise	Simple, out of box software solution
NAV	Small to mid-size enterprise	Broader functionality Ability to customize software
AX	Large enterprise	Flagship of Dynamics offering
SL	Small to mid sized enterprise	Project-oriented businesses CRM functionality

SL is catered for project-oriented businesses right, businesses that does projects by projects. A specialty of the Solomon offering is that it is very good at CRM functions, CRM refers to Customer Relationship Management.

# Top 3 Vendor Characteristics

Oracle	Target Users	Characteristics
JD Edwards	Small to mid-size enterprise	Supports manufacturing industry esp well Broad support for different OS, databases, middleware from Oracle
Peoplesoft	Mid to large size enterprise	Companies in public sector and financial services
Siebel CRM		Customer relationship management software

Oracle is the leader in this area of databases.

JD Edwards is an ERP system that has good features related to manufacturing. PeopleSoft has good features related to managing people, human management software. Siebel has good features related to customer relationship management.

JD Edwards merged with PeoplesSoft in 2003

Oracle acquired JD Edwards, PeoplesSoft, and Siebel in 2005.

Siebel completes this entire packet of the Oracle ERP ecosystem, because they are very good with customer relationship management features.



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# Choosing an ES

***Why are they important?***



- Market share/Selection rates/Shortlist rates
- Implementation duration/Disruption
- Total Cost of Ownership
- Payback periods/Project Costs
- Benefits realization

Why is it that we will want to select a vendor that has a sizable market share or shortlist rate?

## Why is it that we will want to select a vendor that has a sizable market share or shortlist rate?

- ERP systems are very costly systems to purchase and to implement (\$Millions)
- ERP system are typically used for 10-20 years

Therefore, it is important to ensure that the vendor that you're working with will stay in business for the next 10-20 years.

A good indicator of whether a vendor is going to stay in business for a long time is the market share and also the shortlist rate.

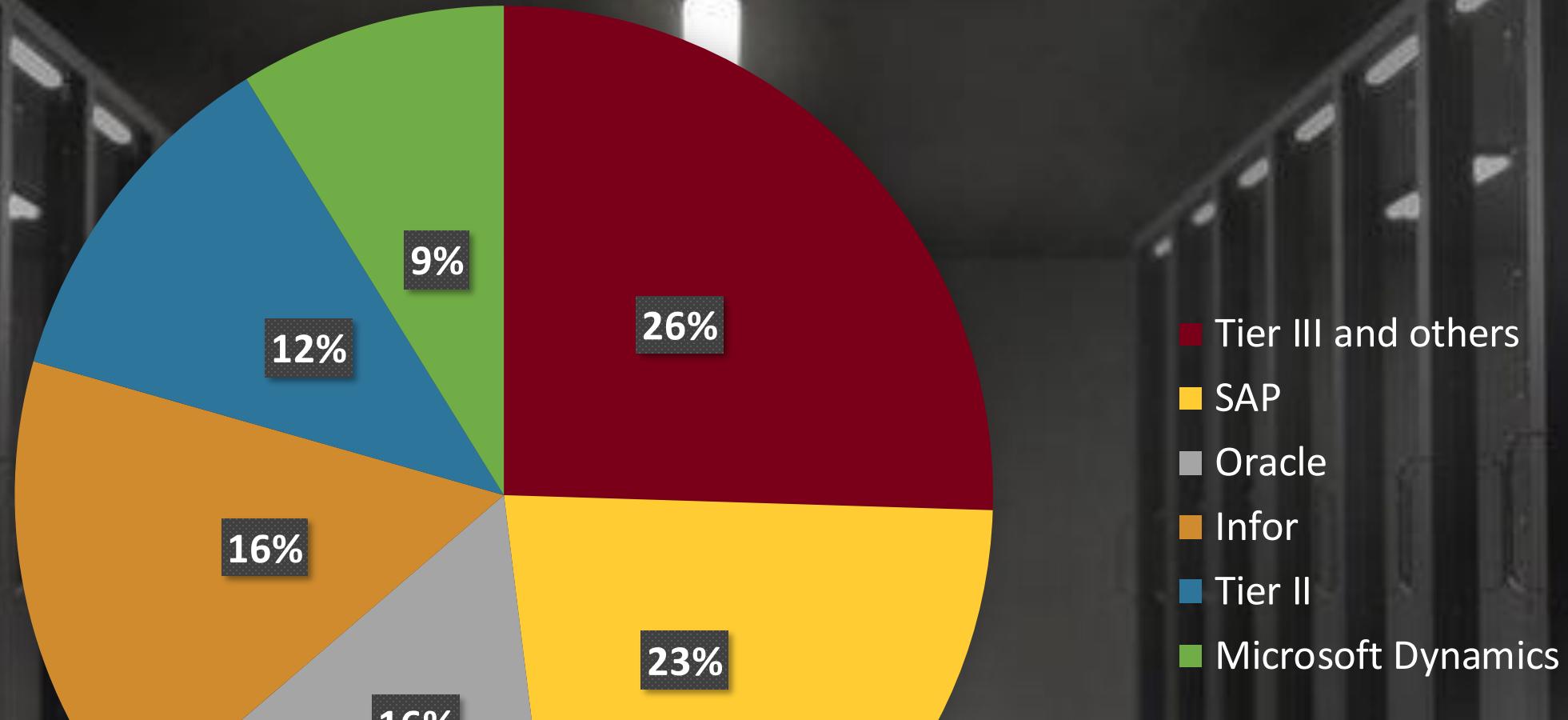
ERP systems are inter-used across different organizations, if the downstream or upstream partners of your firm does not use the same ERP software as you do, you might run into problems of documents or information that could not be opened or accessed across different firms. That's why it's important to consider the market share of a ERP vendor.

ERP systems with larger market share are better at attracting consultants who are efficient in troubleshooting such systems.

Source: Clash of the Titans

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# Market Share



## Rates of Being Short Listed

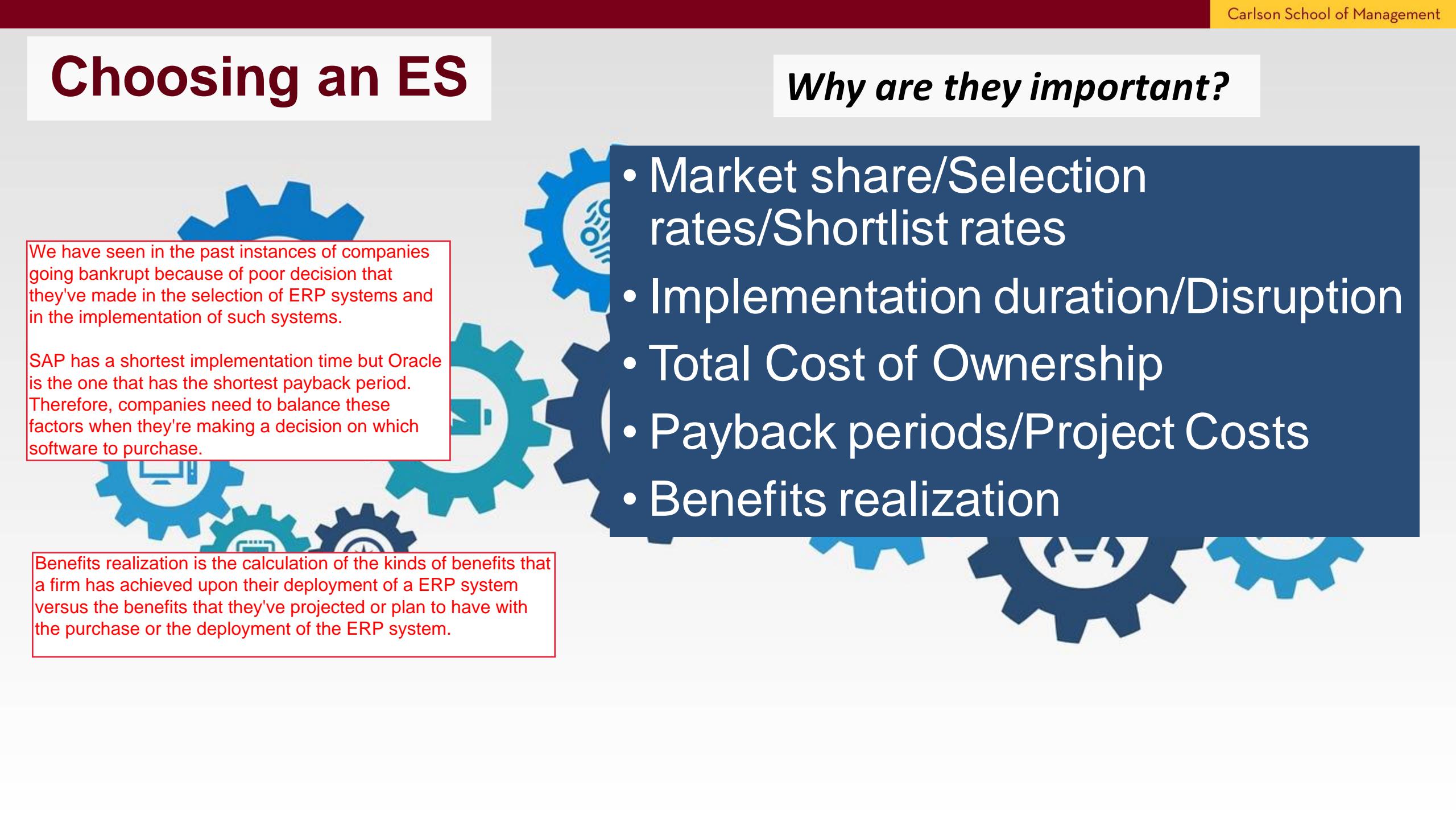
Vendor	Frequency
SAP	45%
Oracle	31%
Microsoft Dynamics	18%
Infor	8%

## Selection Rates When Short-Listed

Vendor	Frequency
SAP	21%
Infor	19%
Oracle	14%
Microsoft Dynamics	9%

# Choosing an ES

## *Why are they important?*



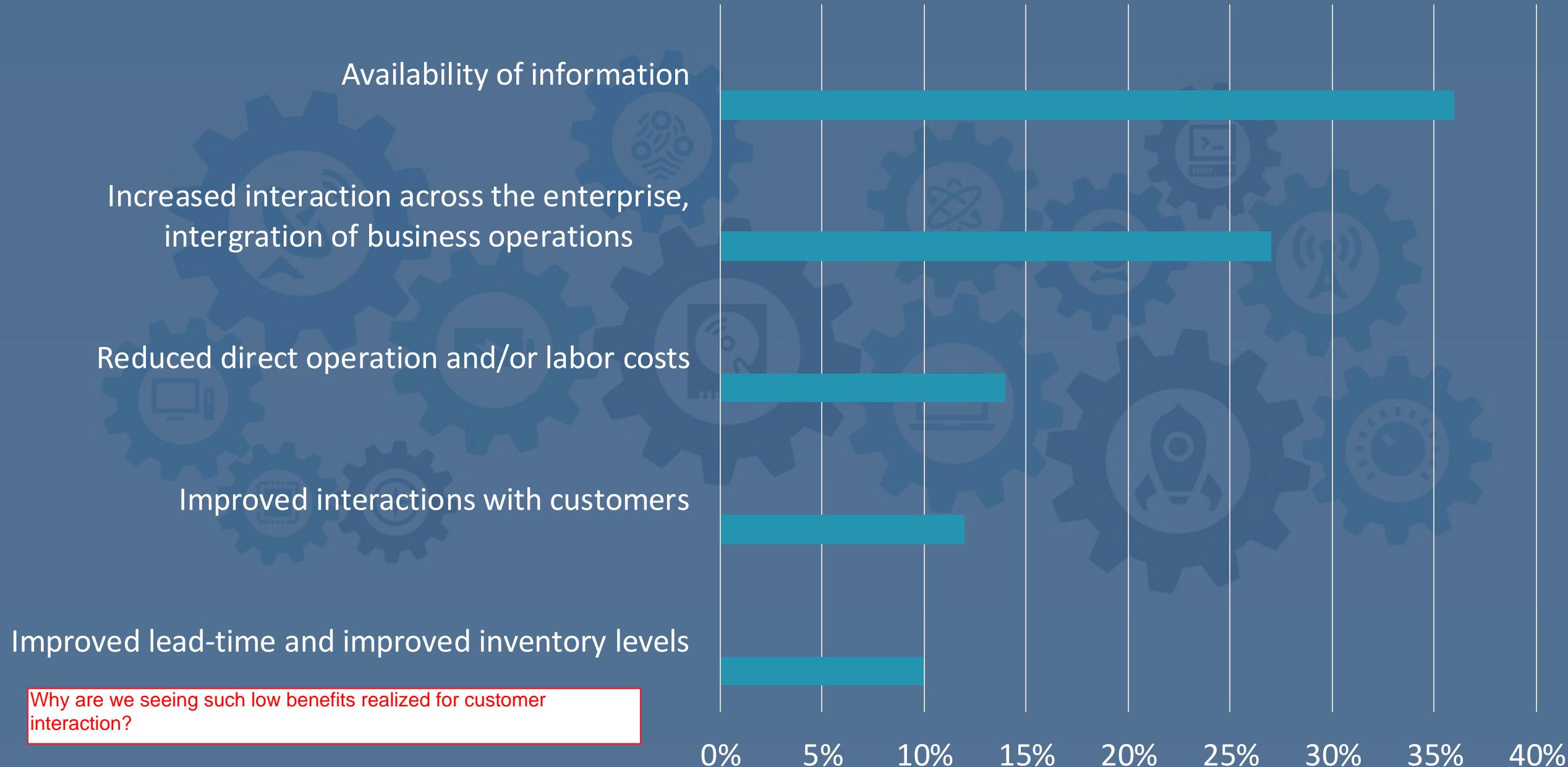
We have seen in the past instances of companies going bankrupt because of poor decision that they've made in the selection of ERP systems and in the implementation of such systems.

SAP has a shortest implementation time but Oracle is the one that has the shortest payback period. Therefore, companies need to balance these factors when they're making a decision on which software to purchase.

Benefits realization is the calculation of the kinds of benefits that a firm has achieved upon their deployment of a ERP system versus the benefits that they've projected or plan to have with the purchase or the deployment of the ERP system.

- Market share/Selection rates/Shortlist rates
- Implementation duration/Disruption
- Total Cost of Ownership
- Payback periods/Project Costs
- Benefits realization

## Types of Benefits Realized



# Low Benefits Realization?

There could be two main reasons why we are seeing a low score in terms of benefits realization over here.

1- There could be measurement issues. For instance, the amount of customer interaction might've not increased with the use of ERP systems, but companies might be having better quality levels of interaction with the customers because of the fact that now they get to know more about their customers better. Through the large amount of information that is being stored and facilitated by the system. So, there's a need to consider what is the information that is being provided in this business report. Another point we should be noting is that, who is providing this feedback? It is well known in the literature of ERP implementation that employees that are deeply involved with the implementation of ERP systems undergo this feeling of change resistance, and as a result, they might be providing bias feedback to its subsystems.

## 2- Time factors

We might be seeing that some of these benefits are not realized in the short run, but over time, the system might produce the anticipated benefits.

We might be seeing an increase amount of labor costs upon the release of an ERP system. That is expected because companies will be spending a lot of money hiring people and getting people to spend their time in the implementation of a ERP system. But such costs are expected to decline over time once implementation has finish.

- Benefits achieved versus benefits projected
- Are we measuring things correctly?
  - Objective vs. subjective measures
  - Who's providing the feedback
- Time factors
  - Company needs time to adjust itself and its processes to new technology
  - May have higher labor costs in short run, but reduced labor costs in long run



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# Enterprise Systems

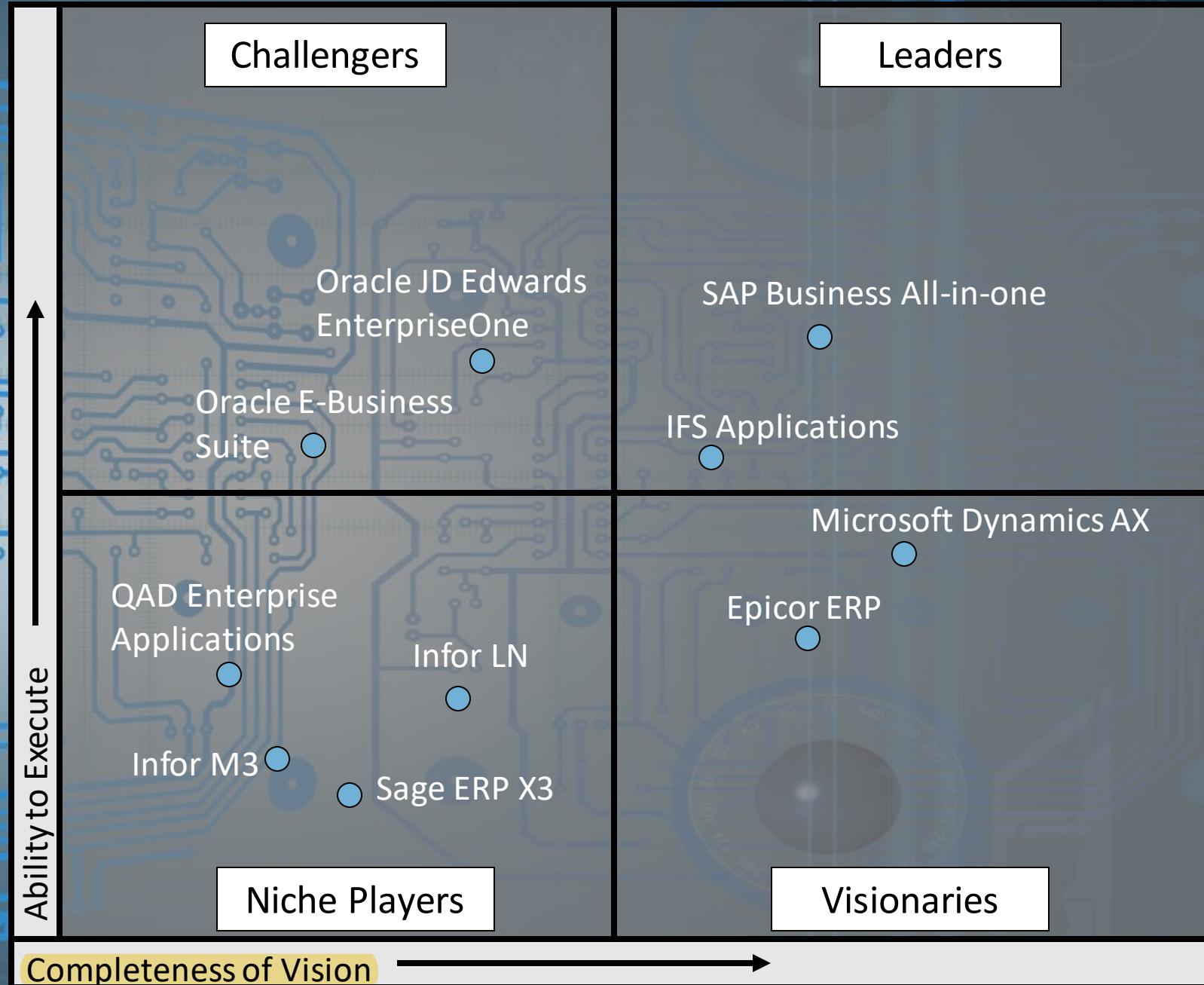
Session 3

# Learning Objectives

Learn the Magic Quadrant  
tool.

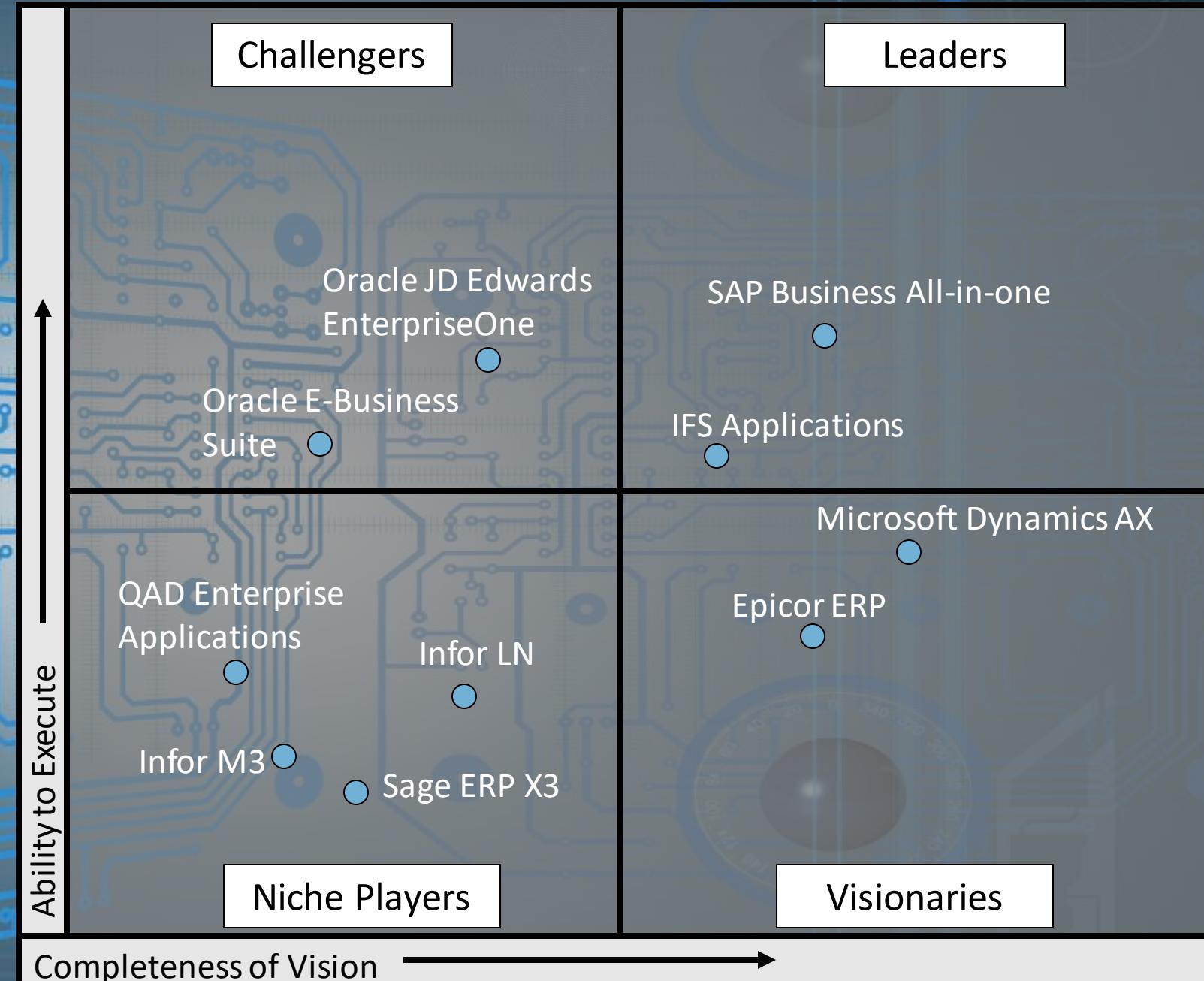
# The Magic Quadrant

- What is it?
- What does it do?
- Why is it important?
- Who should care about it?
- When do we consult it?



# The Magic Quadrant

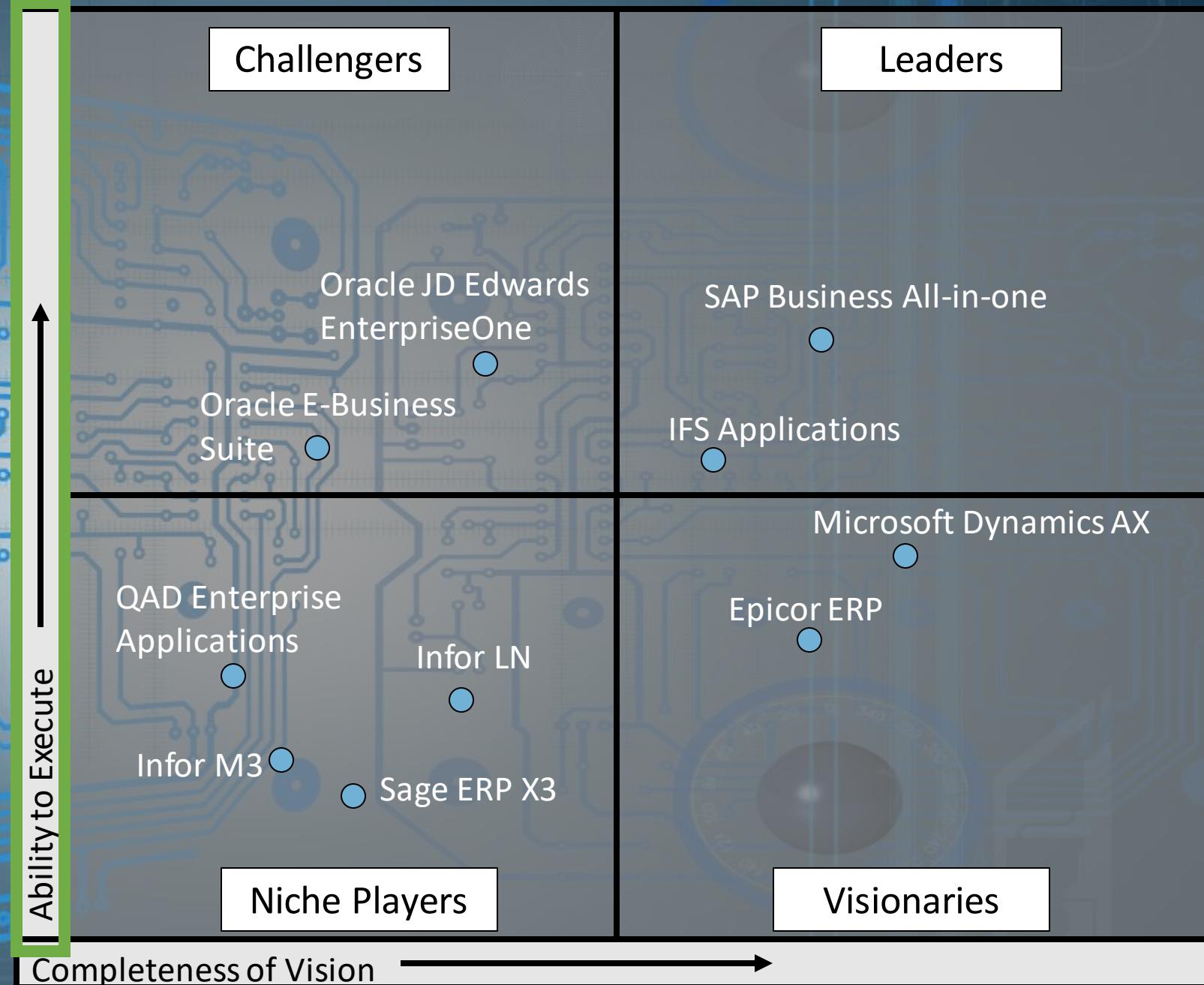
- A two-dimensional analysis of MIS related products and services
- Published by Gartner
- Widely followed by MIS practitioners to create a 'short-list' of options



# The Magic Quadrant

## Ability to execute

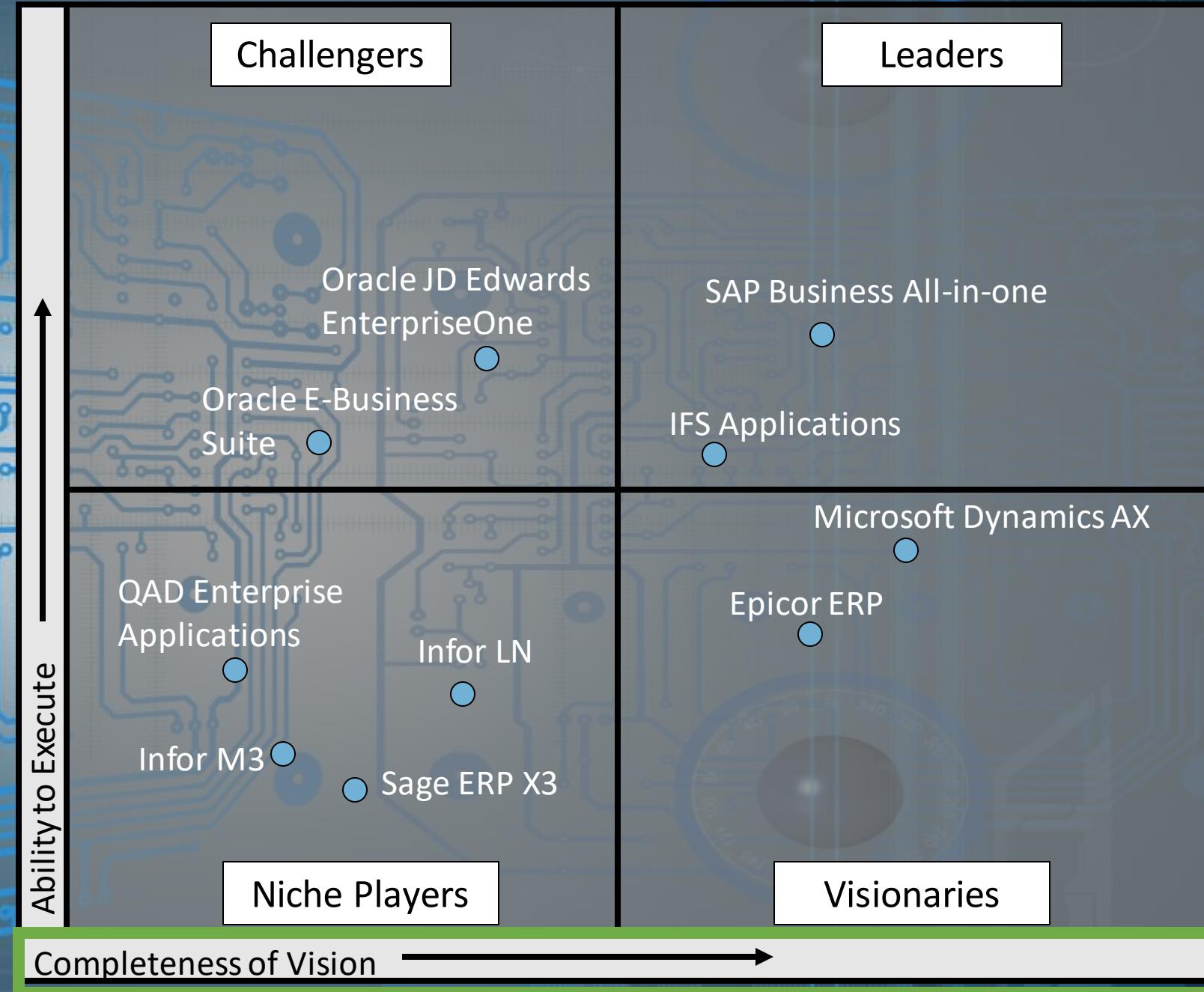
- Product or service
- Overall viability
- Sales Execution/Pricing
- Customer experience



# The Magic Quadrant

## Completeness of vision

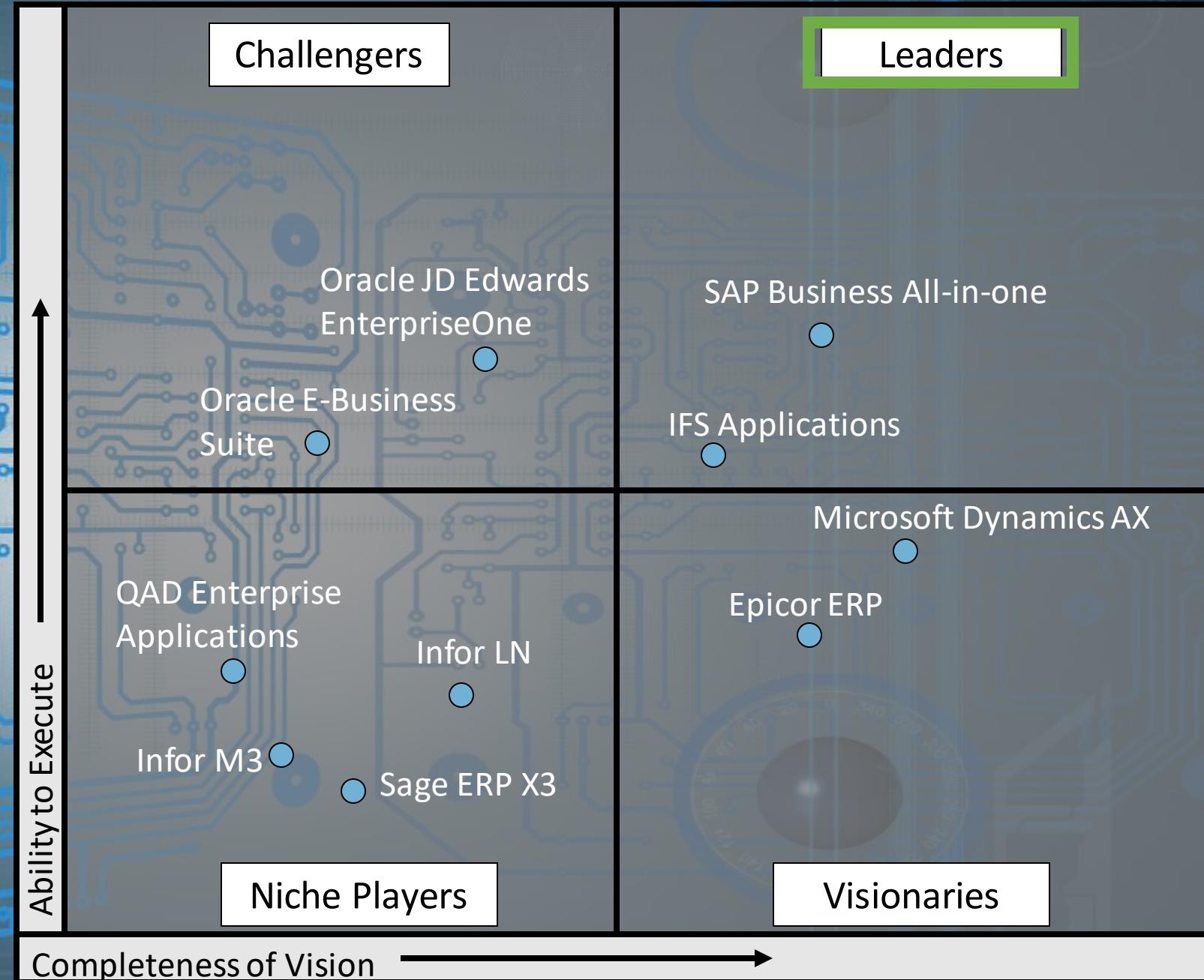
- Market understanding
- Market strategy
- Sales strategy
- Offering strategy
- Vertical/industry strategy
- Geographic strategy



# The Magic Quadrant

## Leaders

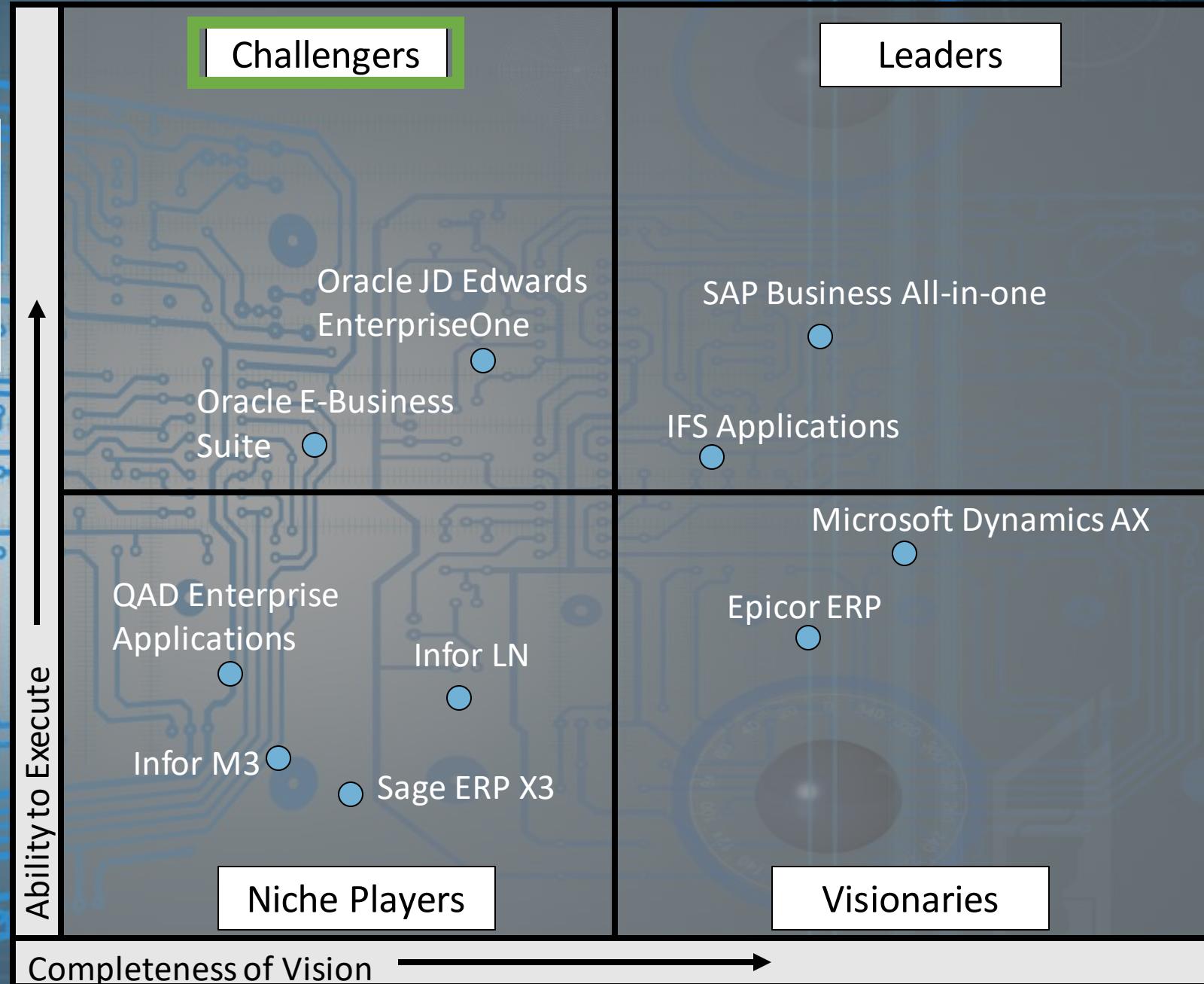
- Track record of **customer success** and demonstrate momentum in **growing market presence**



# The Magic Quadrant

## Challengers

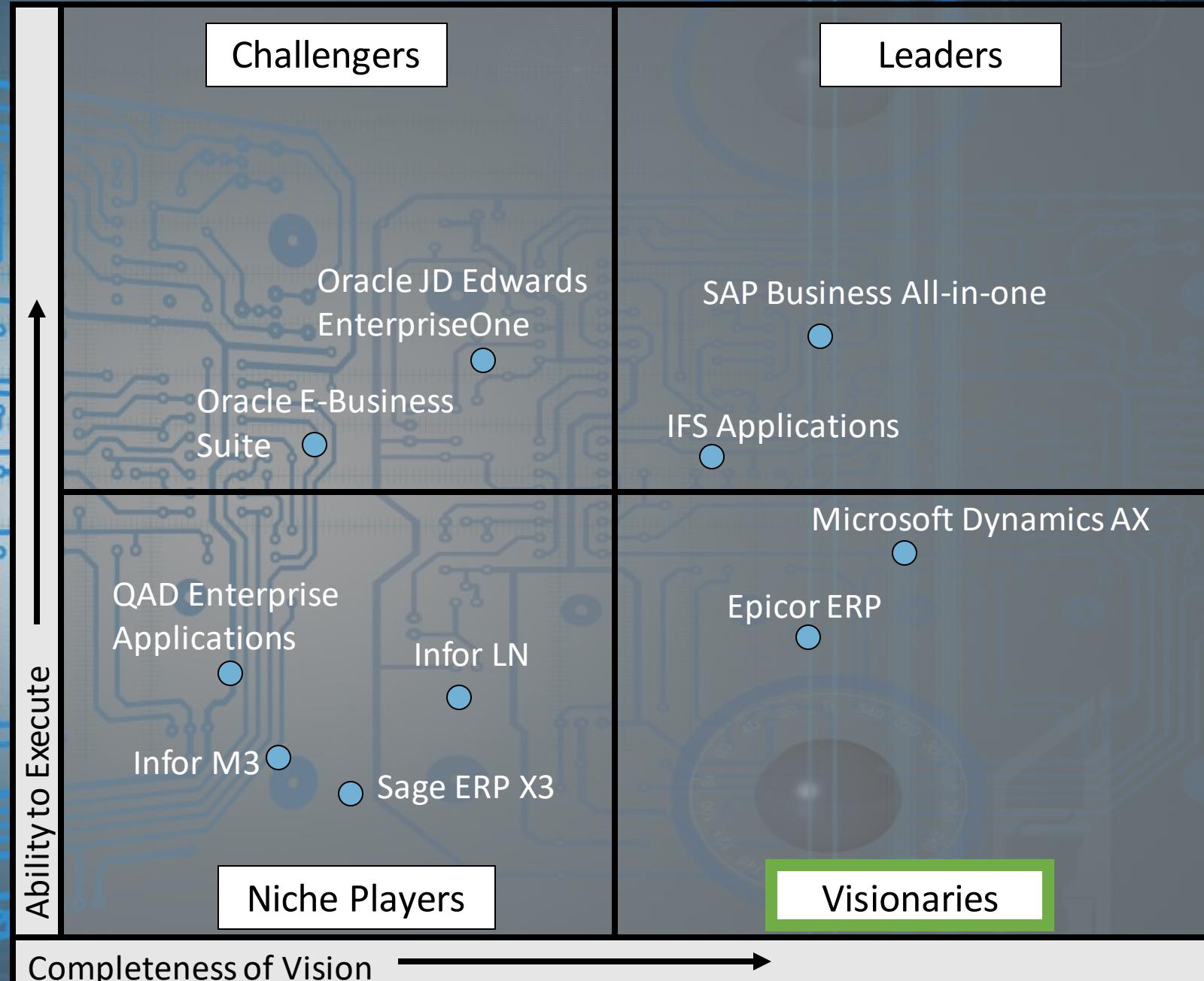
- solid support for companies that **don't undergo dramatic changes**



# The Magic Quadrant

## Visionaries

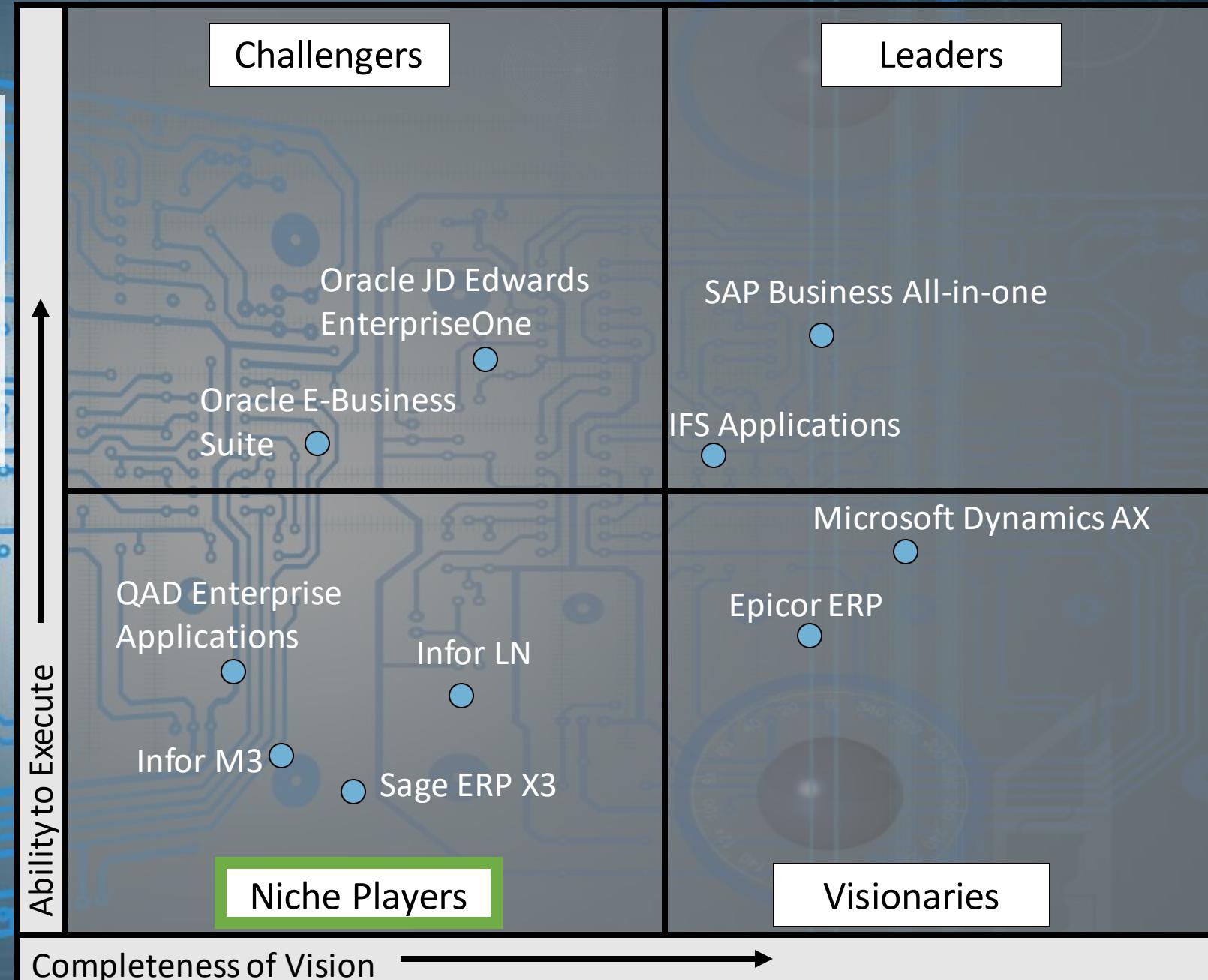
- Good for companies with **new recent innovations, mixed results** in vendor practices



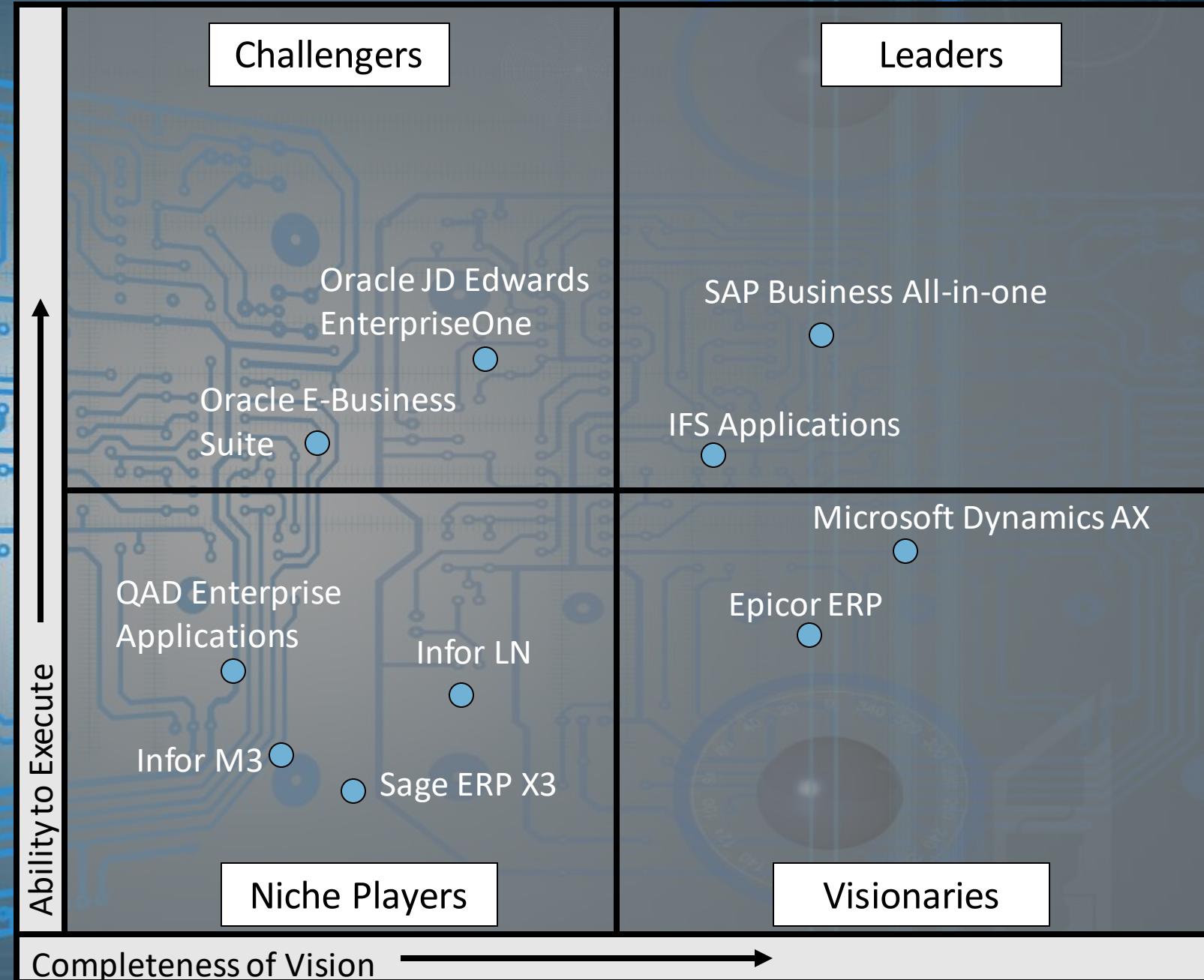
# The Magic Quadrant

## Niche Players

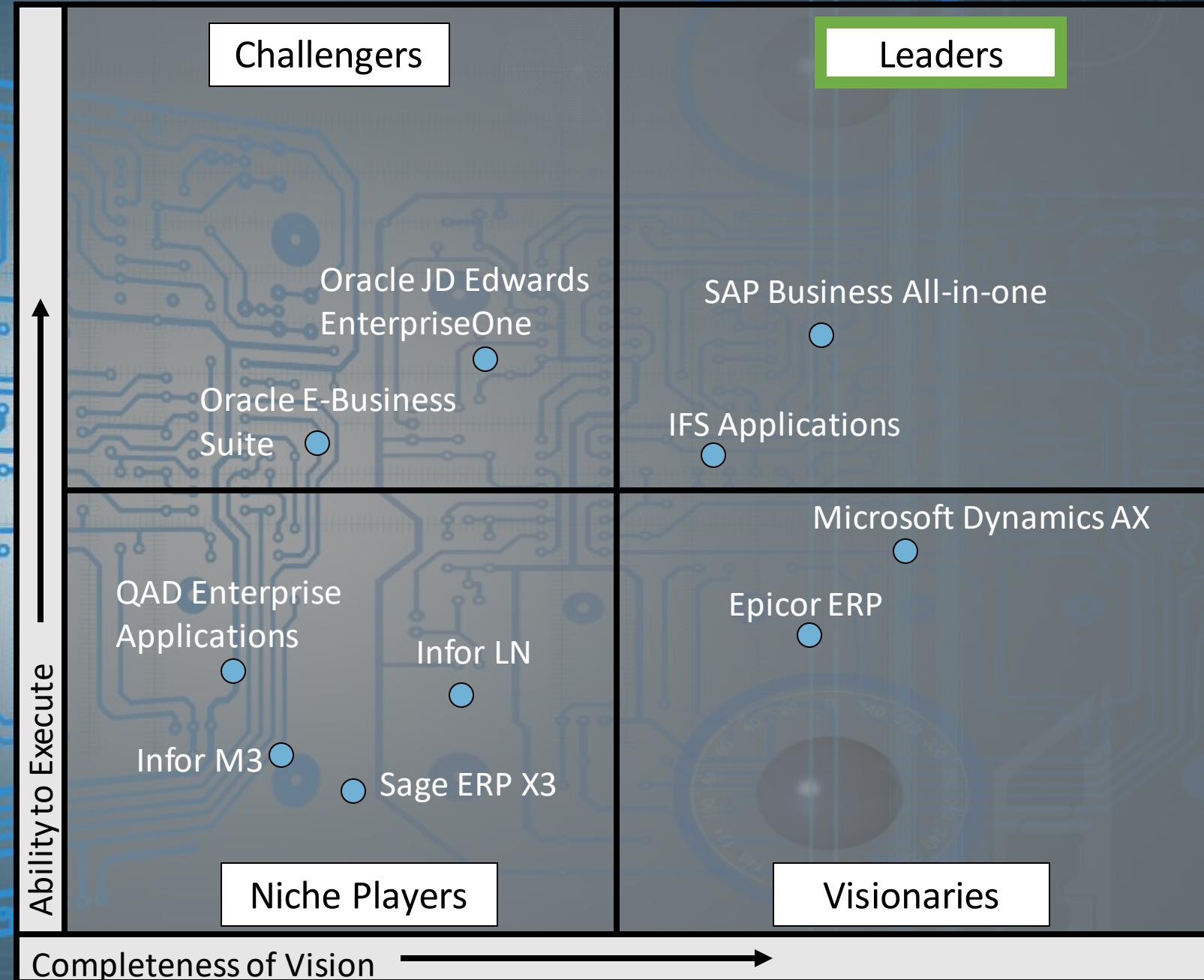
- Applicable to companies that deploy to a few countries, with **limited complexity**, few vertical markets



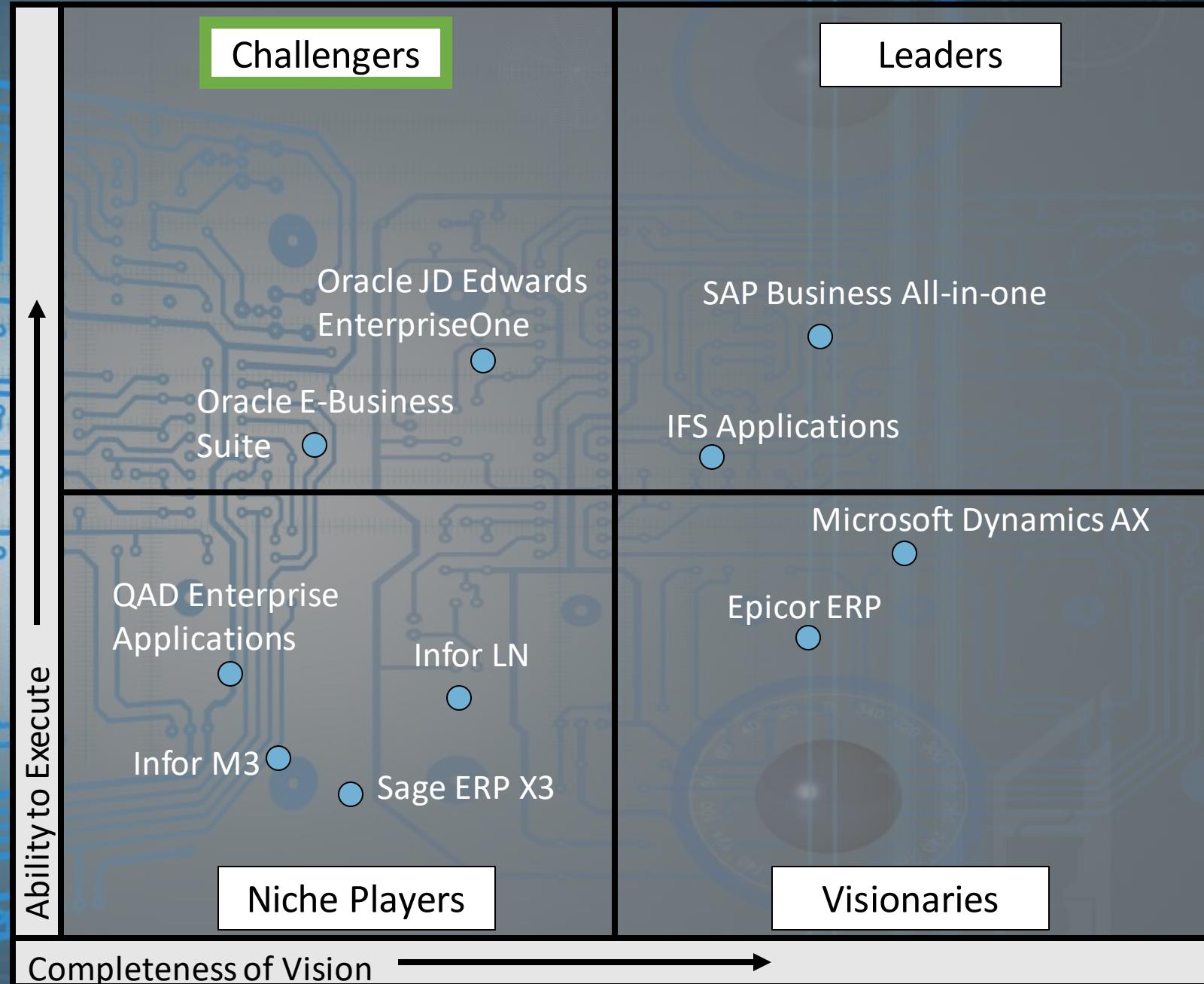
# The Magic Quadrant



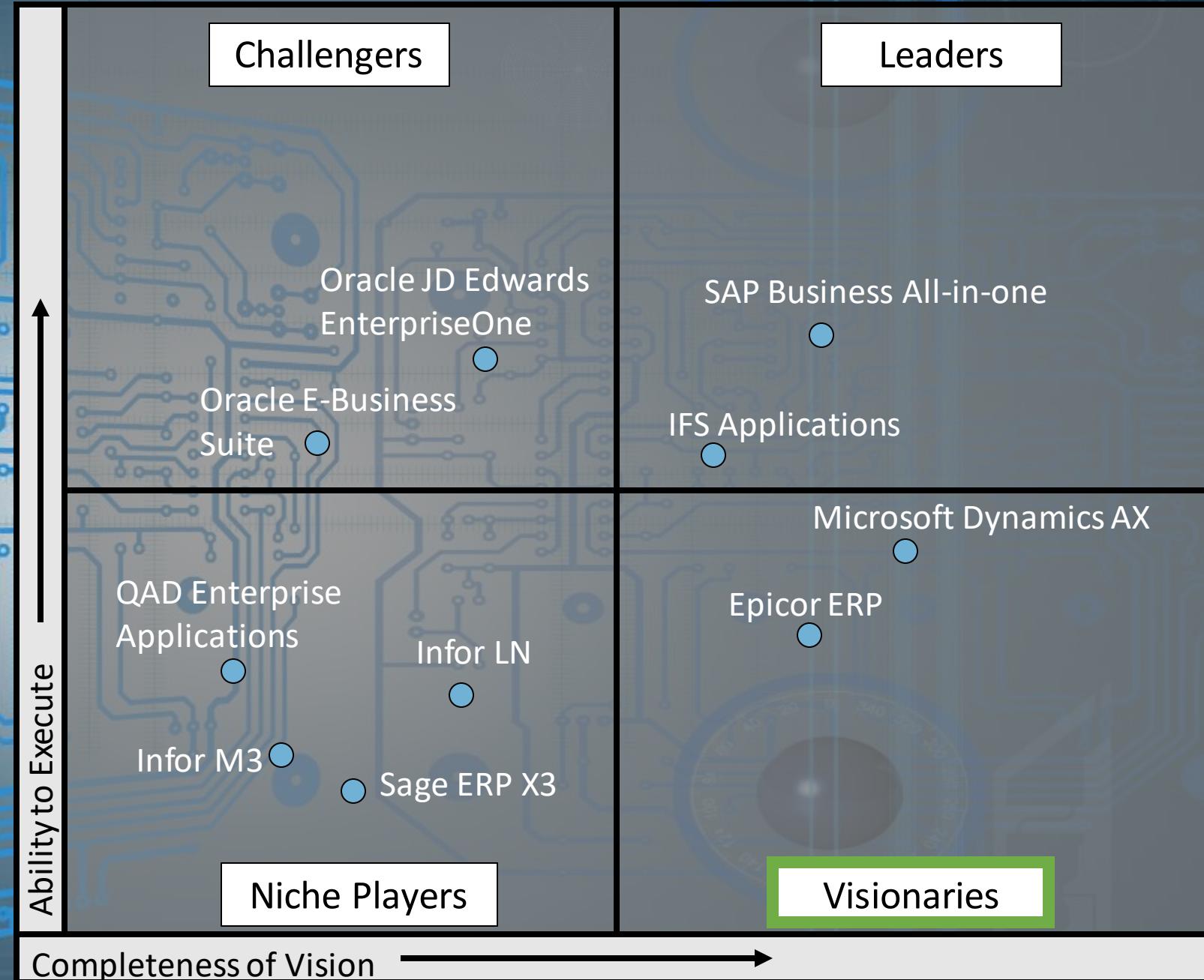
# The Magic Quadrant



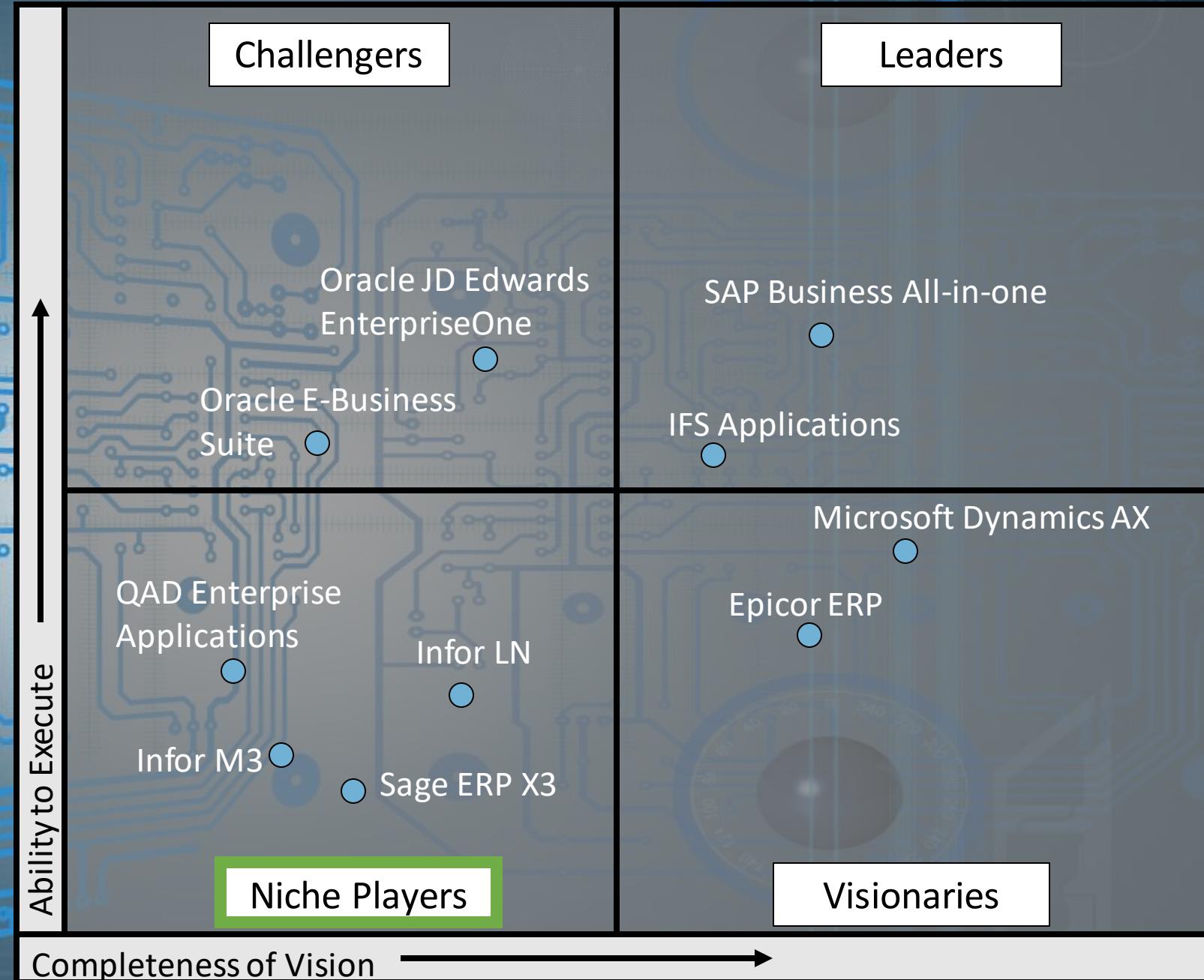
# The Magic Quadrant



# The Magic Quadrant



# The Magic Quadrant





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# Enterprise Systems

Session 4



# Learning Objectives

Explore managerial  
considerations needed during  
ERP implementation.

# What Really Went Wrong With Target Canada

Target, a US retailer, tried to expand its operations into Canada in the early 2000's.

They decided to buy and use a ERP system.

To increase savings, Target decided to implement the ERP systems with a very aggressive timeline of two years.

Competitors in the retail business in Canada took 4-5 years to implement their ERP system.

On the first day of opening and for a few weeks, lots of stores did not have the right stocks in place and customers walked into stores and found them empty.

## Data Entry Problems

- Data was entered in a wrong way. Instead of using centimeters which was used in Canada, the staff that came from the US side were actually entering this units in terms of inches, which is the common units used in the US. Also, the order in which the dimensions of the product were entered into the system was wrong. So, for instance, they have to enter things in this order of length by width by height, but they did not actually put it in this order. As a result, when the delivery truck comes, they found that the cases that they had previously prepared couldn't quite fit into the delivery truck. As a result, that delayed the logistics of delivering the goods to the stores.

- Wrong Sales Figures: US sales figures were entered. As a result, they over-ordered, and lots of the stock are just simply sitting in the warehouse.

- Auto-Replenishment Feature was turned off by the store managers. Why? Store managers were evaluated by how well their stores are being stocked up. Every time the auto-replenishment feature was sort of making a warning, store managers were irritated. They turned off this feature. As a result, many stores had low counts of stock and customers could not find what they need.

## WHAT REALLY WENT WRONG WITH TARGET CANADA

The untold tale of the retailer's difficult birth, tough life and brutal death

JOE CASTALDO FOR CANADIAN BUSINESS | JANUARY 22, 2016

One of the most important decisions concerned technology—the systems that allow the company to order products from vendors, process goods through warehouses and get them onto store shelves promptly. In the U.S., Target used custom technology that had been fine-tuned over the years to meet its exacting needs, and the corporation had developed a deep well of knowledge around how these systems functioned. Target had a choice: Was it better to extend that existing technology to Canada or buy a new, off-the-shelf system?

Finding an answer was tricky. By using Target's existing technology, the company in Canada could draw on the large amount of expertise in the U.S. that had shortcomings as well. The technology was not set up to handle a foreign country and

Strange things started happening in 2012, when Target began for the pending launch. Items with long lead times coming from the U.S. were stalled—products weren't fitting into shipping containers and their tariff codes were missing or incomplete. Merchandise that made it to the distribution centre couldn't be processed for shipping to a store. Other items were damaged during shipping, ending up properly onto store shelves. What appeared to be isolated fires quickly became a major shipping inferno threatening to destroy the company's supply chain.

It didn't take long for Target to figure out the underlying cause of the breakdown: The data entry system, built within the company's supply chain software, which governs the flow of inventory, was riddled with flaws. At the very start, an untold number of mistakes were made, and the company spent months trying to recover from them. In order to stock products, the company had to enter information about each item into SAP. There could be dozens of fields for a single product. For a single product, such as a blender, there might be fields for the manufacturer, the model, the UPC, the dimensions, the weight, how many can fit into a case for shipping and so on. Typically, this information is retrieved from vendors before Target employees put it into SAP. The data has to function properly and ensure products move as

gate the problem discovered an astounding number of errors. Some items were in inches, not centimetres or entered in the wrong order: length by width by height instead of, say, length by height by width. Sometimes the item descriptions were vague. Important information was missing or had typos. "You name it, it was wrong," says a former employee.

company should have seen coming. The rush to launch meant pressure to enter information for roughly 75,000 different items into a rigid implementation schedule. Getting the details from young merchandising assistants. In the industry, information is unreliable, but merchandising assistants were often not challenged to verify the accuracy of the product information. (Accenture was also working against the countdown to opening.) "There was no way to verify the accuracy," says a former employee. "You had these people who were pressured to do this insane amount of data entry, and they had to be right." Worse, the company hadn't built a safety net into the system that could notify users about data entry errors. The data information in the system was accurate about 30% of the time, between 98% and 99%. (Accenture, which Target hired as a consultant, made a statement: "Accenture completed a successful SAP implementation project in Canada. The project was reviewed independently and such a review concluded that there is no Accenture connection with the issues you refer to.")

Change management reflects the systematic approach to dealing with change, both from the perspective of an organization and at the individual level.

Within the context of Enterprise Systems (ES), change management usually involves activities of communication. Training of its users, so, that they are well-equipped to use the new system and this whole process change within the company.



## Change Management





## Definitions

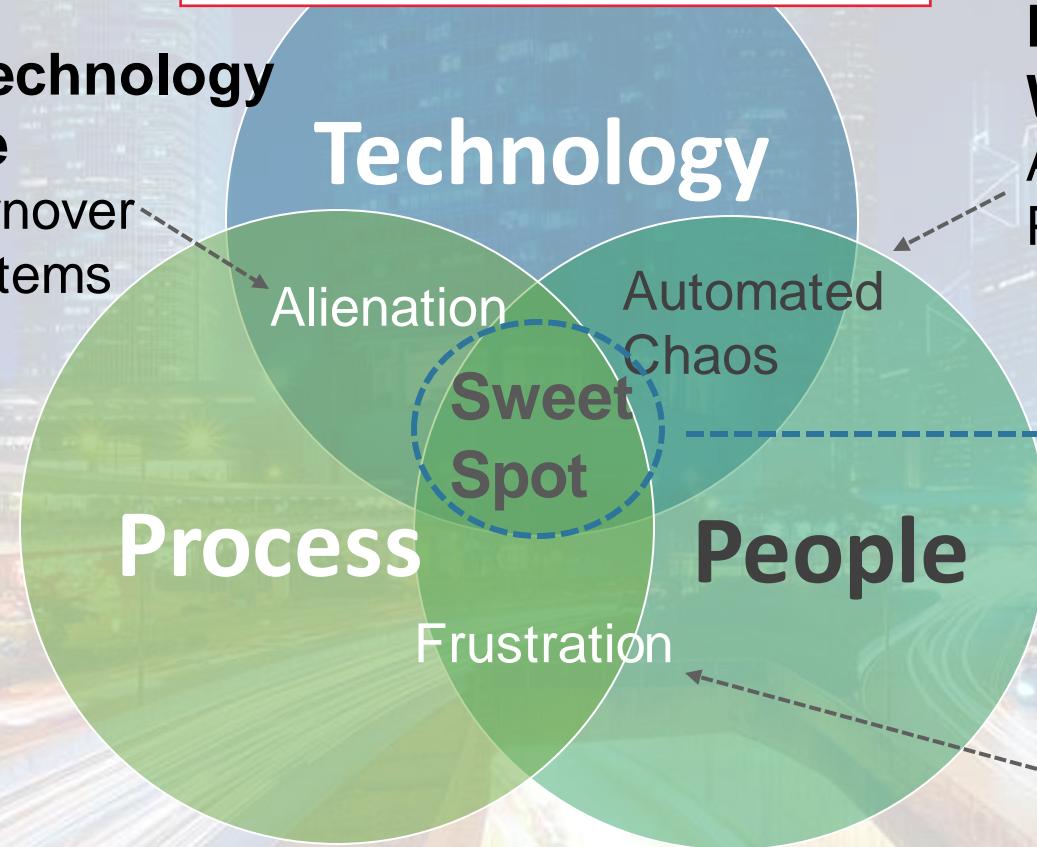
- In simple words: “the people side of technology project”
- In general business terms: “**systematic approach** to dealing with change, both from the perspective of an organization and on the individual level”
- For the context of ES: “business transformation through activities of **communication, training, and process change**”

# What's Involved?

People, Process and Technology (PPT) Framework

## Process and Technology Without People

Alienation and turnover  
Underutilized systems



The right spot that companies should be looking at, is right in the middle of this diagram, where technology, people and process are all well-aligned, so that when the introduction of the ERP system is made, all these three element could move and sync, to allow the best results to be seen in a company.

Source: Hardcastle, Phelan, and Martin (Gartner)

## People and Technology Without Process

Automated chaos and confusion  
Poor customer service

## The Art and Science of Change Management

## People and Process Without Technology

Frustration and inefficiency  
High cost of operation

**Successful Business  
Transformation Needs  
More Than Technology**



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# Enterprise Systems

Session 4



# Learning Objectives

Explore options to defend  
against pitfalls.

# Pitfalls in CM

## 1st Order

Assign a person for buying the ERP system. That person is usually the ERP manager or the CEO.

## 2nd Order

Training

## 3rd Order

Structure refers to the reporting structure that accompany the use of the ERP system and also the incentive and punishment system that accompany the use of the ERP system.

Culture has to change so that the company sees ERP implementation as a strategic move that could enable the company to get competitive advantage. ERP system should not be viewed as an IT project.

## 4th Order

ERP implementation can impact relationships with partners.

## Underestimating magnitude of change

- First/Second-order magnitude instead of third/fourth-order magnitude
- **Structure and culture** elements



# Pitfalls in CM

Poor leadership and lack of change commitment

- Started project w/o commitment
- Commitment **weakens** and vanishes during project



# Pitfalls in CM

'Nice to have' but not a crucial success factor

- CM steps **not embedded** in project plan
- Temptation to **cut time/money** during rough periods



# Defending Against Pitfalls

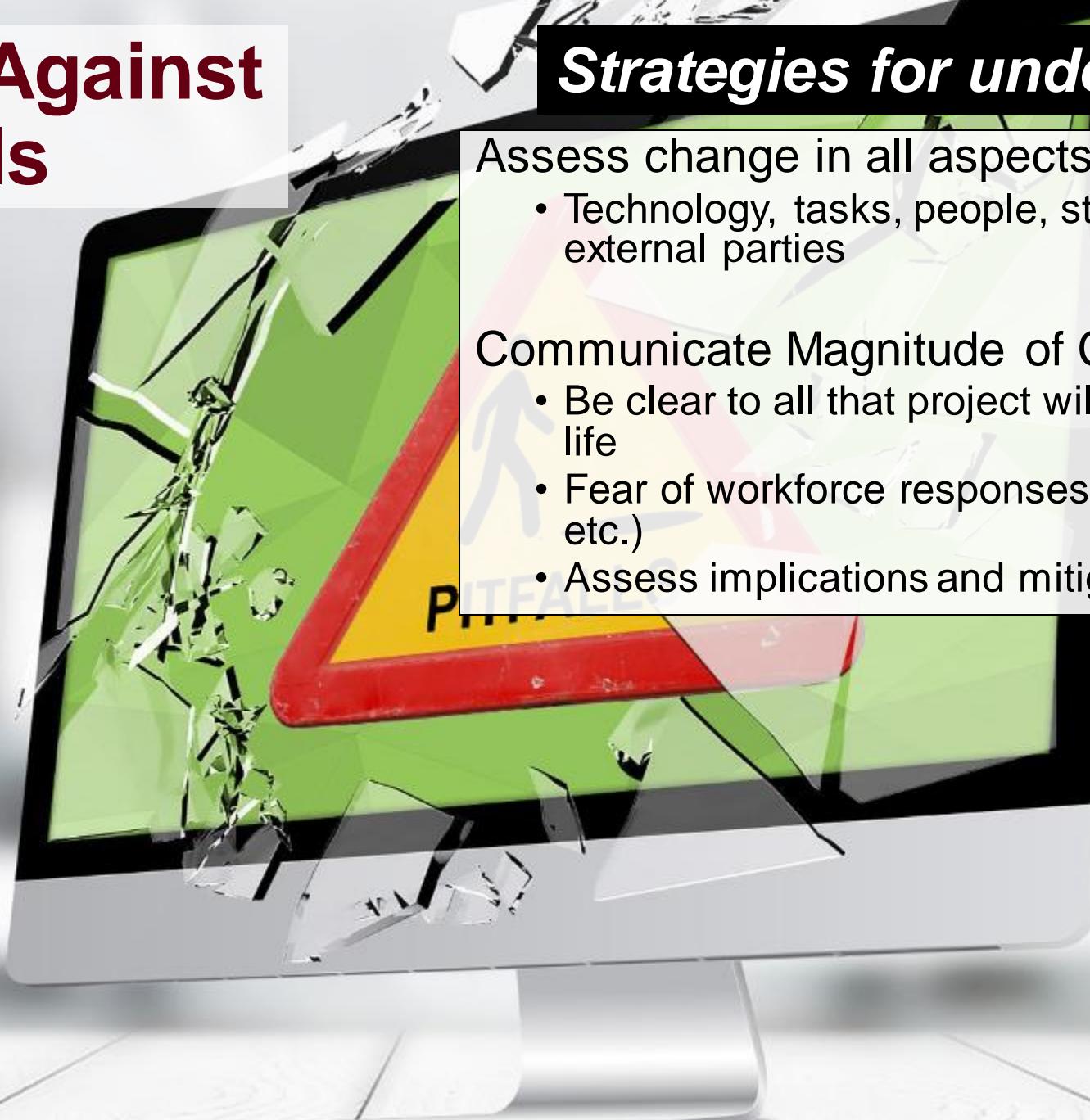
## *Strategies for underestimating*

Assess change in all aspects

- Technology, tasks, people, structure, culture and external parties

Communicate Magnitude of Change

- Be clear to all that project will change everyday work life
- Fear of workforce responses (job loss, reallocation etc.)
- Assess implications and mitigating actions



# Defending Against Pitfalls

## Strategies for leadership/commitment

Get commitment from executive leaders early

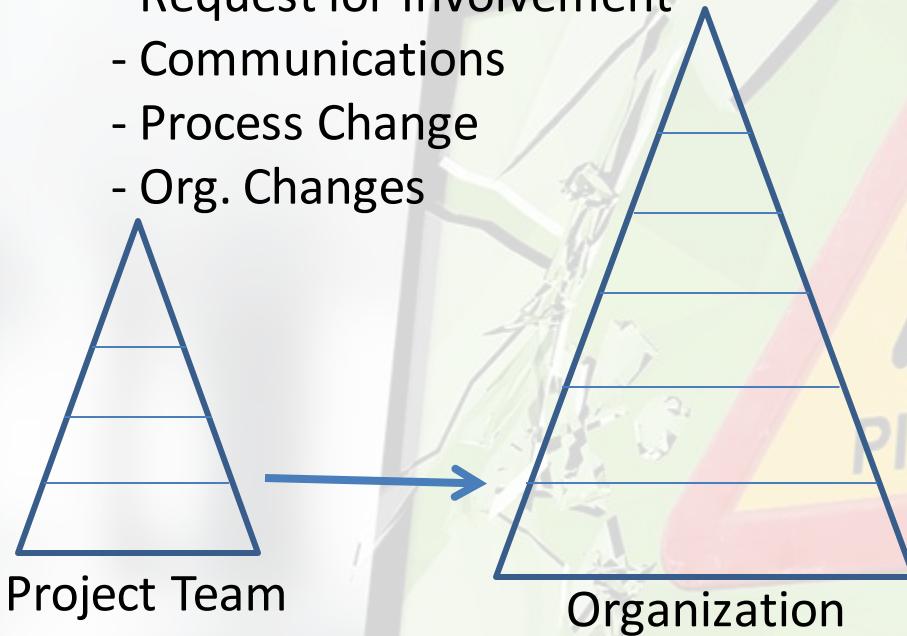
- Evident to all so people can see ‘change in action’
- Don’t start if absent; don’t proceed if disappeared, pause if weak
- Lead change, prepare to make tough decisions



# Management Support for ERP Implementation

## Legacy Approach

- Request for Involvement
- Communications
- Process Change
- Org. Changes



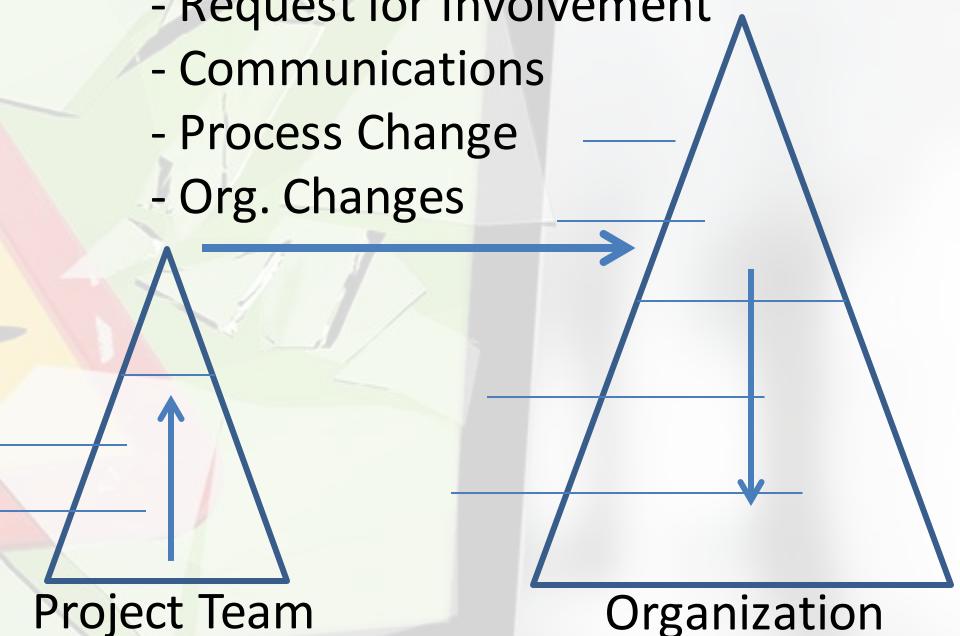
Project Team

Organization

- *IT Driven*
- *Tactical Focus*
- *Project Goals, not Business Goals*
- *Push change*
- *Communication once and done*
- *Training at End of Project*

## Modern Approach

- Request for Involvement
- Communications
- Process Change
- Org. Changes



Project Team

Organization

- *Business/IT Partnership*
- *Strategic Focus*
- *Senior Leadership Engagement*
- *Clear Business Goals and Objectives*
- *Communication early and often*
- *Training at Beginning of Project*

# Defending Against Pitfalls

## *Strategies for leadership/commitment*

Define clear expectations and roles

- Include key managers and critical project personnel
- Must be done internally, external coaches can help
- Needs to be sustained after “go-live”



# Enterprise Systems Upgrade Program



Enterprise Systems Upgrade Program

*"A foundation for future innovation..."*

ESUP & Friends Appreciation  
Halftime Event

October 16, 2013

University of Minnesota  
Enterprise Systems Upgrade Program (ESUP)



THURSDAY, OCTOBER 31, 2013

President Kaler recognizes ESUP progress

the work you are engaged in right now," Kaler said. "I have your back!" the President re-stated, expressing his support for everyone's effort and commitment to making ESUP a success.

"As I said at the kick-off a year ago, I don't know of anything more important to the long-term viability and success of the University of Minnesota than

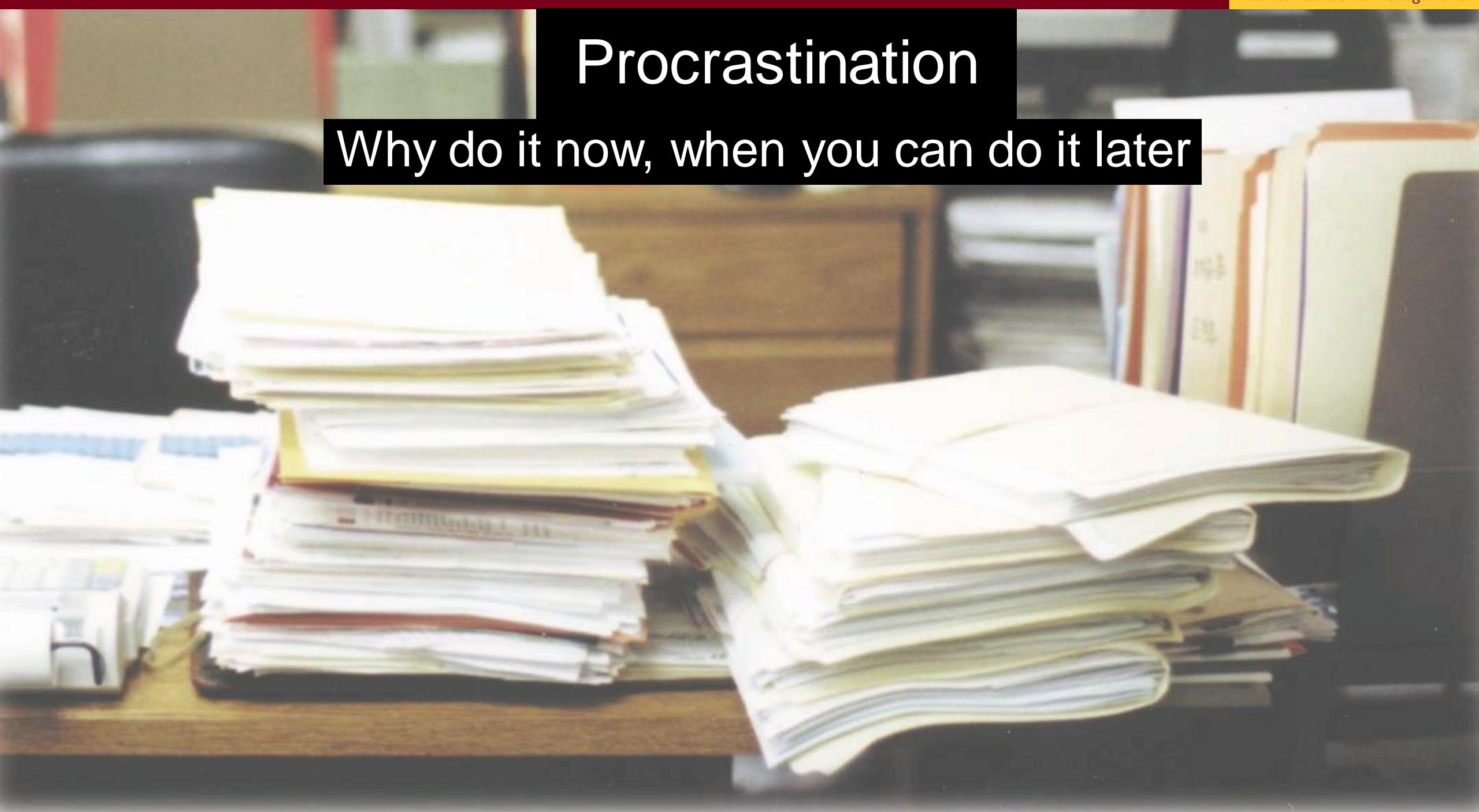
# Change Leadership

## Traits

- Excellent communicator: provide information and receive feedback
- Degree of authority, respect from staff
- Able to translate objectives to operational goal statements
- Unabashed enthusiasm for project
- Positive “can-do” attitude
- Demonstrate empathy to staff concerns
- Understand user support needs and ability to craft support plan

# Procrastination

Why do it now, when you can do it later



# Defending Against Pitfalls

## *Strategies for Embedding Change*

Start early, continue as long as needed

- Constant communication of project benefits

Integrate change activities into ERP project plan

- Clear visibility of milestones and measurements

Budget resource specifically for change activities

- Change manager staffed by senior leader
- Acquire people with CM skills on board early



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Session 4



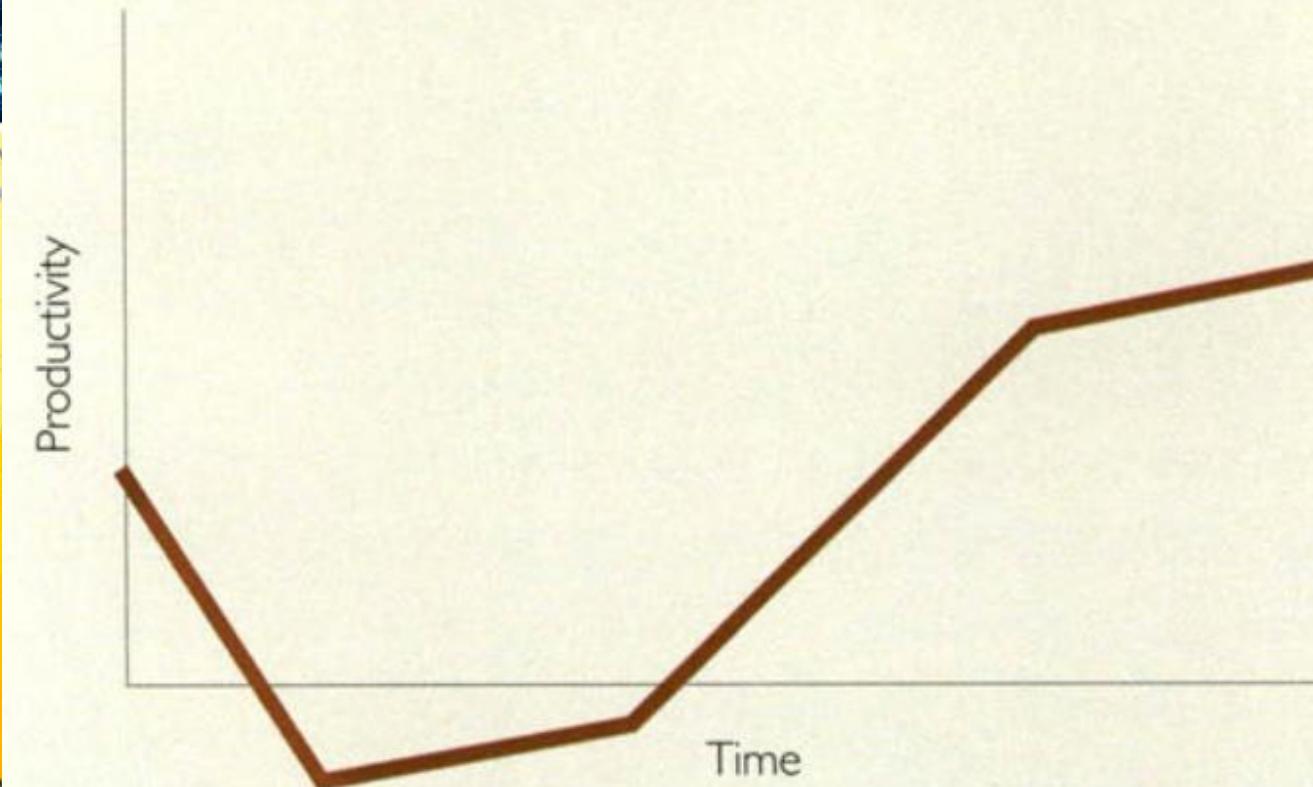
# Learning Objectives

Explore best practices for ERP software implementation.

# Understanding Change

*Impact on Productivity*

**Exhibit I: The ERP Productivity Curve**



CM can reduce the recovery period from 18 months to 6 months

# Keys to Success

- Strong multi-layered Governance
- Clear Tangible Business Case
- Rigorous Scope Management
- Experience, Trained core Team
- Complete Program Plan and Monitoring
- Thoughtfully Designed Security and Controls
- Early User Exposure to UI
- Comprehensive Change Management
- Cascading Leadership Communication
- Agile or “Feature-Driven” Methodology
- Rigorous Performance Testing/Tuning
- Strong Transition to Operations

# Keys to Success

Leads to....

Is the ERP implementation  
Successful?

- On Time
- On Budget
- On Scope
- On Quality
- On Benefit





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