

25 Years of ERP – What Have We Learned?

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Presented for: ASCM Greater New Jersey

March 17, 2022

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Supply Chain Education Specialist

- 35 years supply chain experience as practitioner, consultant & educator at BASF. Taught APICS classes since 1995 including over 200 outside North America.
- Master Instructor for CPIM and CSCP. Served as a content expert on the team that created CSCP.
- Taught private APICS classes for GE, AT&T, INTEL, Tiffany & Company, Gulfstream Airplanes, etc.. .

INTRODUCTION TO ERP

ERP Defined

Framework for organizing, defining and standardizing the business processes necessary to effectively plan and control an organization so the organization can use its internal knowledge to seek external advantage.



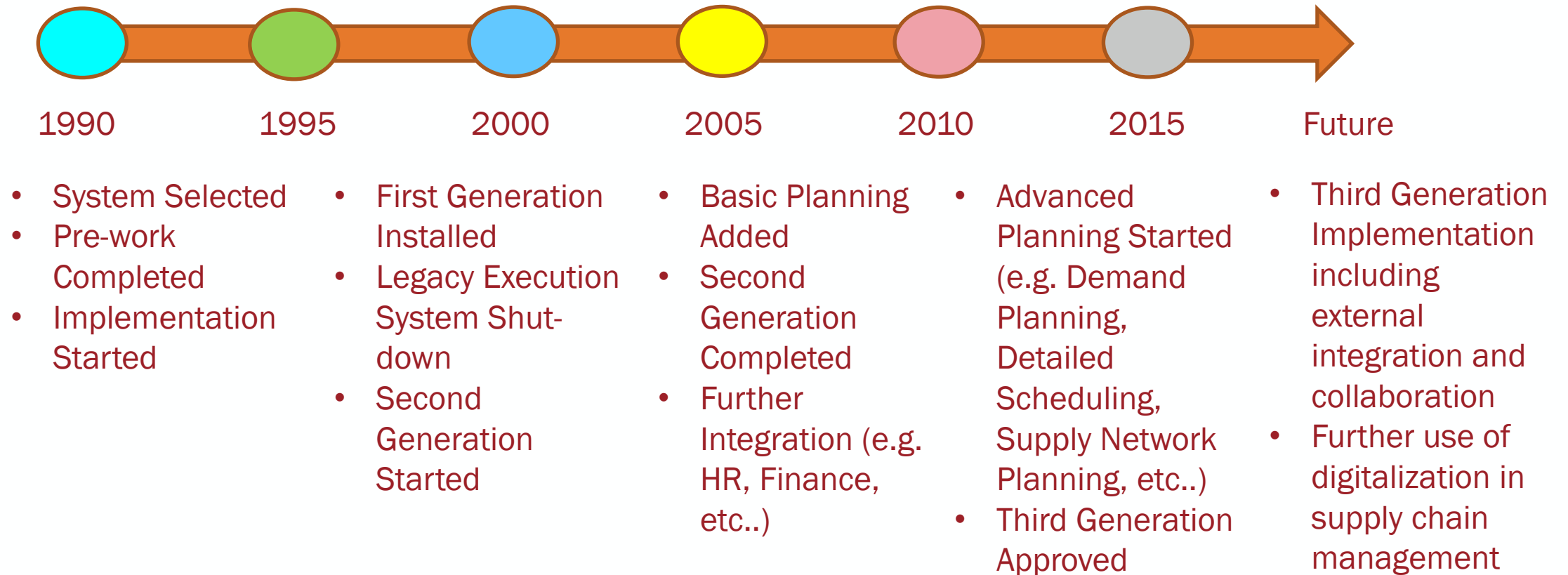
Source: APICS Dictionary

ERP - Another Definition

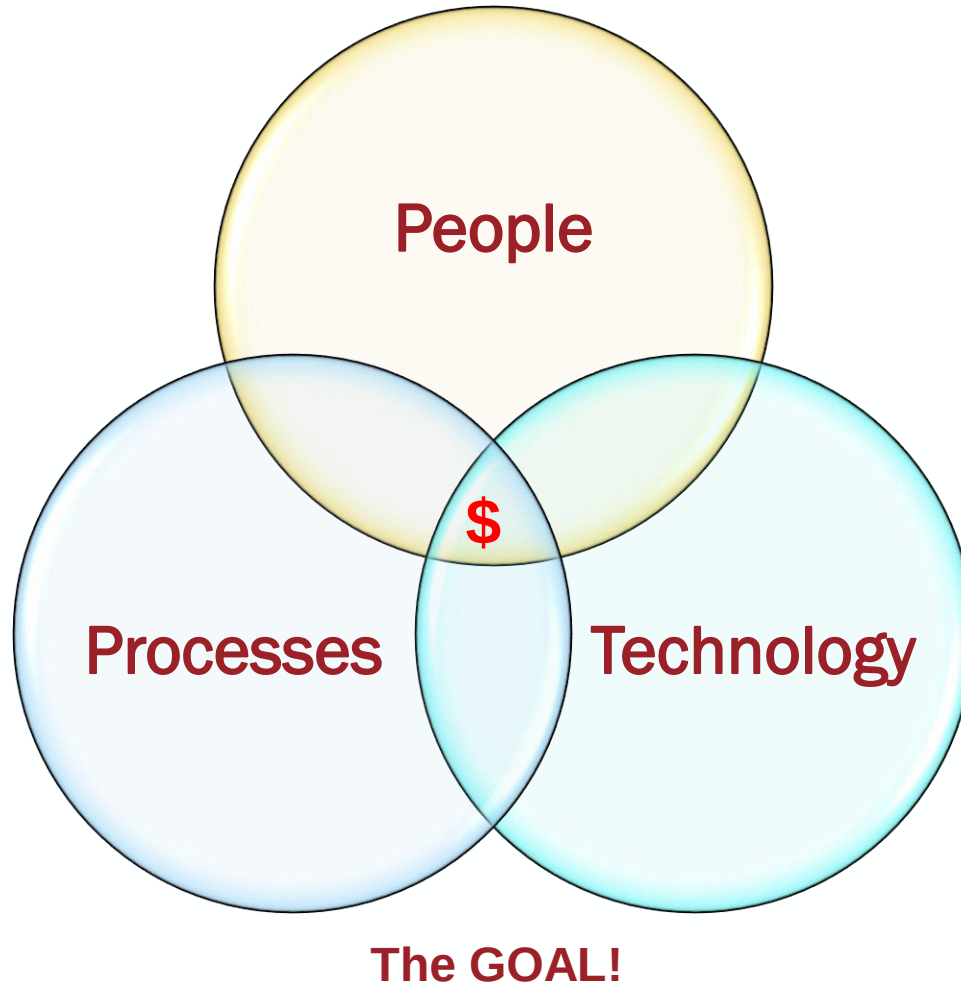


Extremely Rare Pain

The ERP Evolution – My Experience



Triad of Operational Excellence – Key to ERP Success



Which is the limiting factor that tends to lag the other two?

Hint: It is also your most important asset!

Synchronization of the Three is Complicated!



Don't forget who is flying the plane!

Have you been through an ERP implementation or are you an ERP user?

If so, would you rate the contribution of ERP to improved service, decreased supply chain cost and decreased inventory investment through improved process performance, better communication, more effective use of data, increased cross-functional collaboration, etc., as:

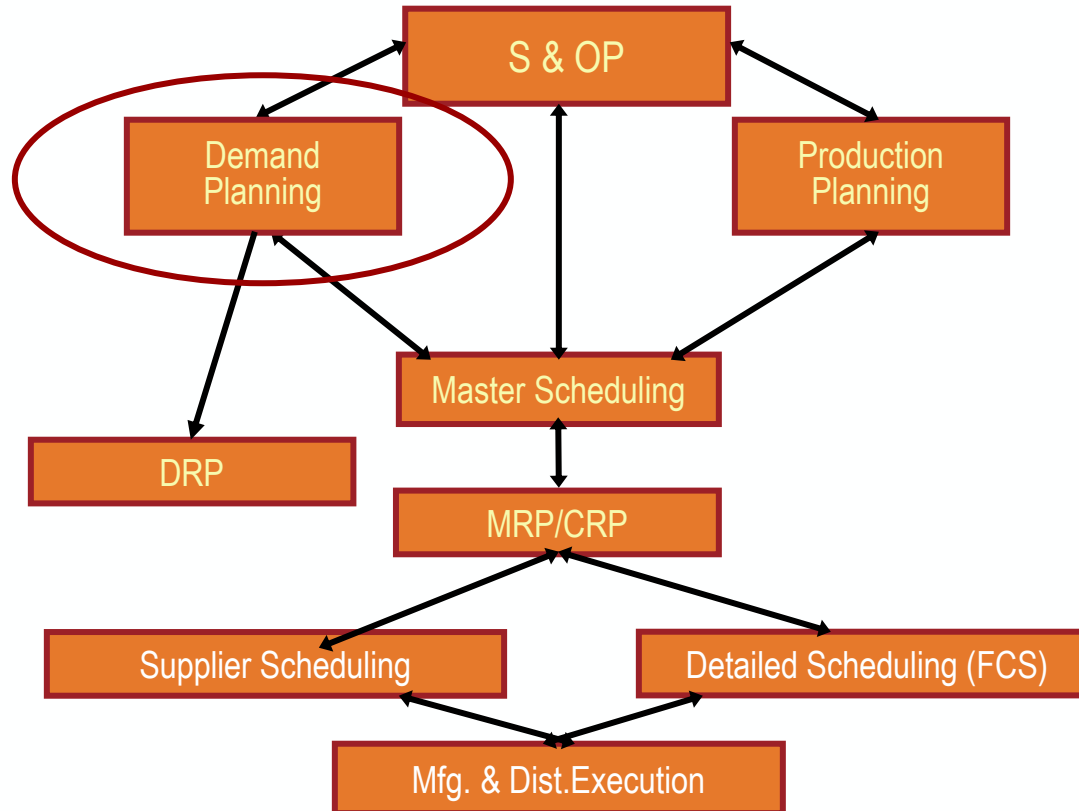
Disappointing

Step Change

Significant

ERP – PROJECT MANAGEMENT

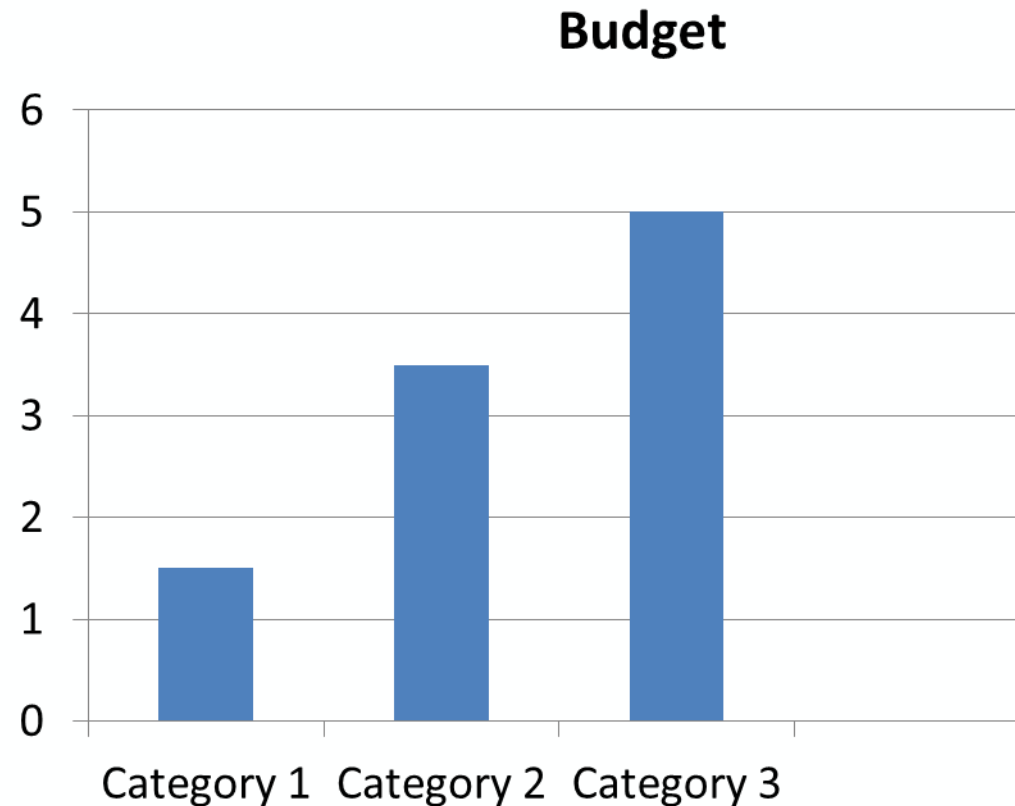
Divide Work into Reasonable Process Scope



- ERP Implementation
- ERP Upgrades
- ERP New Functionality
- **APS Implementation**
- APS New Functionality
- APS Upgrades
- Add-On Systems

For example, a project to implement “Demand Planning” enabled by the “Advanced Planning Module” of the ERP System.

Typical Budget for ERP Projects?

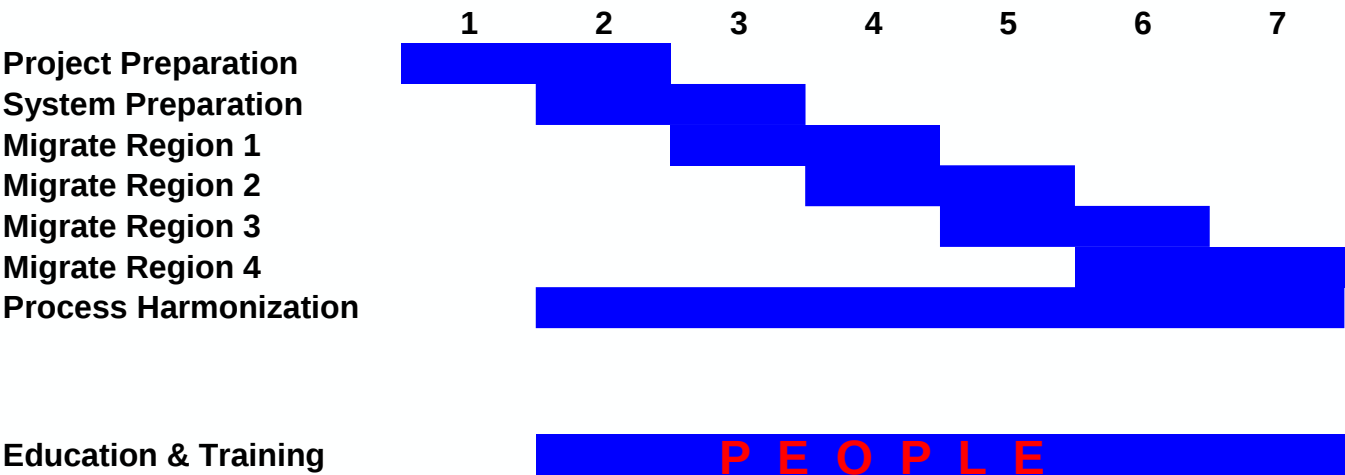


Which category represents each of the following?

- Software & Software Consulting & Programming (Technology)
- Process Engineering & Process Consulting (Process)
- Education & Training and Change Management (People)

Create a Work Plan

What component of Operational Excellence is missing from this work plan?



Identify and Assign Resources

- **Human Resources (Knowledge, Skill, Time Required, Cost)**
- **Facilities & Equipment (Work areas, Hardware, LAN access, etc..)**
- **Materials & Supplies (Software, office supplies, etc..)**

What is different about an ERP Project?

- skill in new or improved system must precede other steps
- end user should be engaged in the system-to-process design phase
- configuration & setup varies with business scenario
- the resource plan must be adapted to the “as-is” in each entity

Include Training in the Project Plan & After

APICS-ASCM

APICS CPIM Part 1 (Basics of Supply Chain Management) for all supply chain related personnel in advance of implementation.

CPIM for planners & schedulers to ensure internal operational excellence in planning.

CSCP across functions (e.g. Operations, Purchasing, IS, Supply Chain, etc..) to support internal and external integration of best practices.

Internal

Use of the ERP system within your firm (e.g. Master Data Setup, Production Master Data, Exception Messaging, Scheduling, etc...)

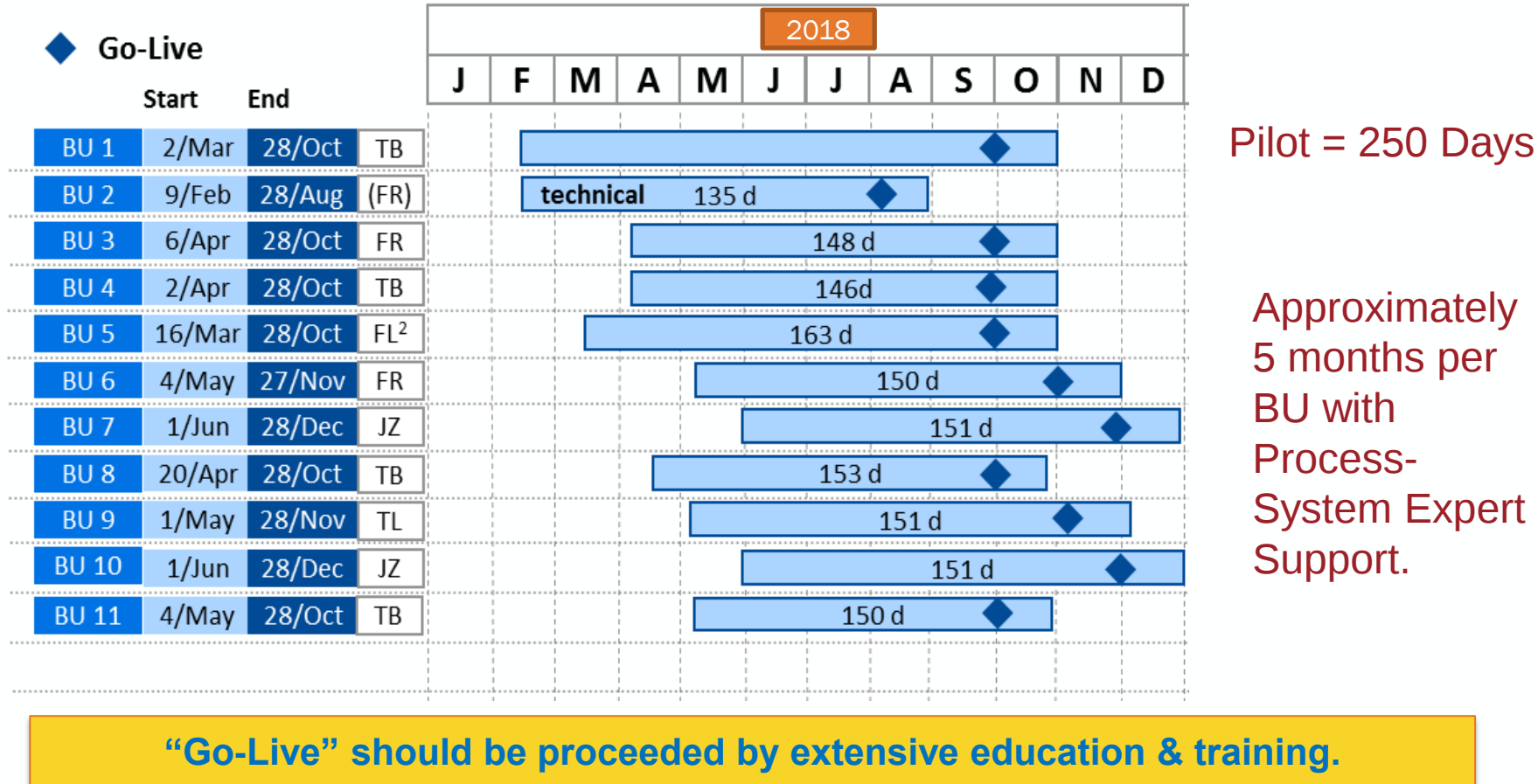
Delta training for minor upgrades (e.g. new gui's, single version upgrades, etc..)

Advanced, user specific training for major upgrades or movement to advanced planning modules. (e.g. R2-R3 Version 4.6; R3-to-APO, etc..)

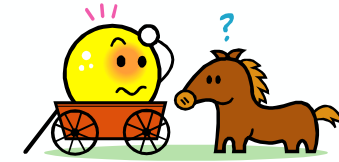
User Communities for knowledge sharing, gathering input, developing expert contacts, etc...

Remember the System is not the Goal!

Hi-Level Plan for Upgrade to Better DP Process enabled by APS System.

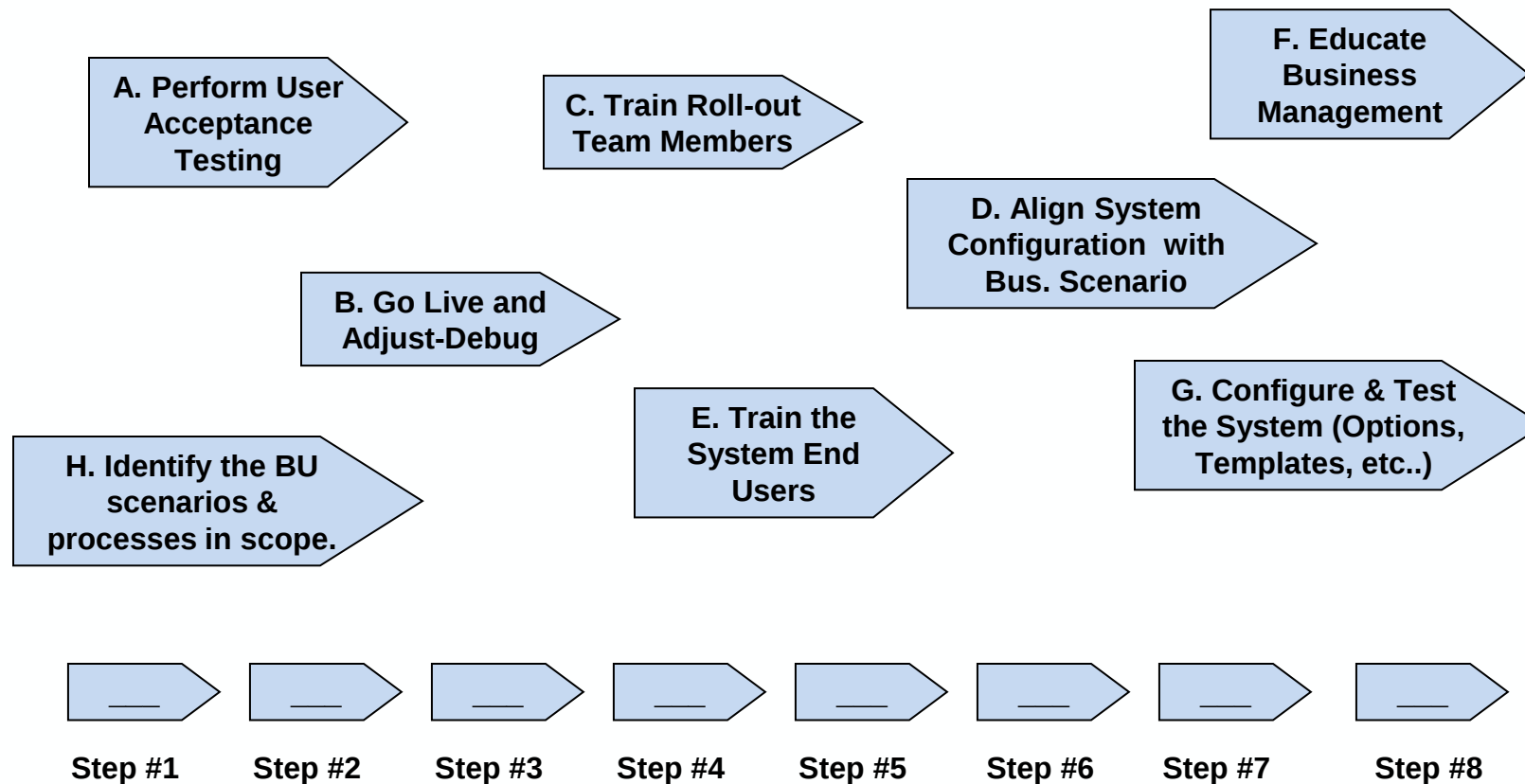


Exercise: BU Work Sequence

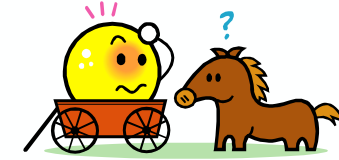


What is the correct order for the Design & Implementation Phase:

(Based on when the step should start as some steps do overlap.)

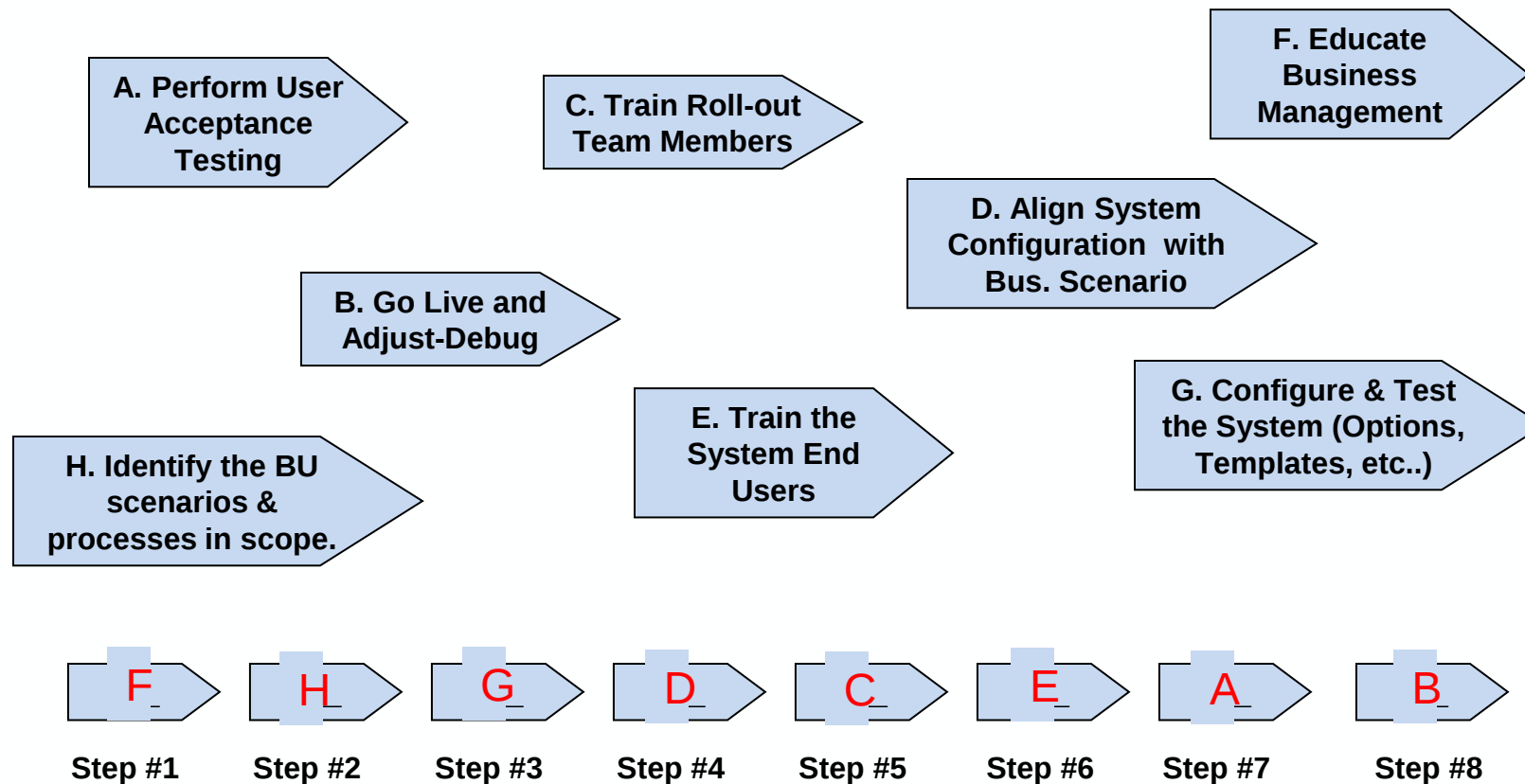


BU Work Sequence - Solution



What is the correct order for the Design & Implementation Phase:

(Based on when the step should start as some steps do overlap.)



Monitor & Improve Performance

Dimensions of Analysis



- **Key Performance Indicators**
- **Process Performance**
- **Strategy**
- **Technology**
- **Best Practices**

- Process independent KPI's, such as:
 - On-Time-Delivery to Requested Date
 - Inventory Days of Supply
 - Order Fulfillment Lead Time
- Process specific KPI's, e.g.,
 - Forecasting Accuracy
 - Assets Utilization
- Degree of functional integration
- Degree of external integration
- Supply Chain model
- Application usage
- Degree of implementation
- Maturity of Supply Chain practices
 - Effectiveness – e.g. on-time delivery
 - Efficiency – Supply Chain costs

Implement use-of-system metrics as a component of the project plan!

Sample Use-of-the-System Metric

Use of ERP System to Generate Requisitions.

BU	Total Req's	System Generated	% System Generated	Rank
NXY	2	2	100	1
NEC	19,456	18,942	97.4	2
NCP	143	134	93.7	3
NEV	2,867	2,425	84.6	4
NCZ	732	599	81.8	5
NME	860	597	69.4	6
NKT	1,248	823	65.9	7
NKU	1,940	1,205	62.1	8
NAP	873	536	61.4	9
GED	220	133	60.5	10
NED	721	414	57.4	11
NKS	845	374	44.3	12
GKT	284	40	14.1	13
NXB	29	0	0	14

More mature in use of ERP System; Requisitions generated automatically based on the material master and order management set-up.

Many orders generated manually; ERP system not supporting order planning. Excel users; should offer more training and process support. Leadership should lead change management.

Other metrics included past due MRP elements, PO's created manually, orders confirmed at request, etc..

Project Plan - Summary

Assess the “As-Is”

Develop a Vision & Mission

Create a Plan (Reasonable scope vs. timing)

Design Process & Configure System (K.I.S.S., Users Perspective, etc..)

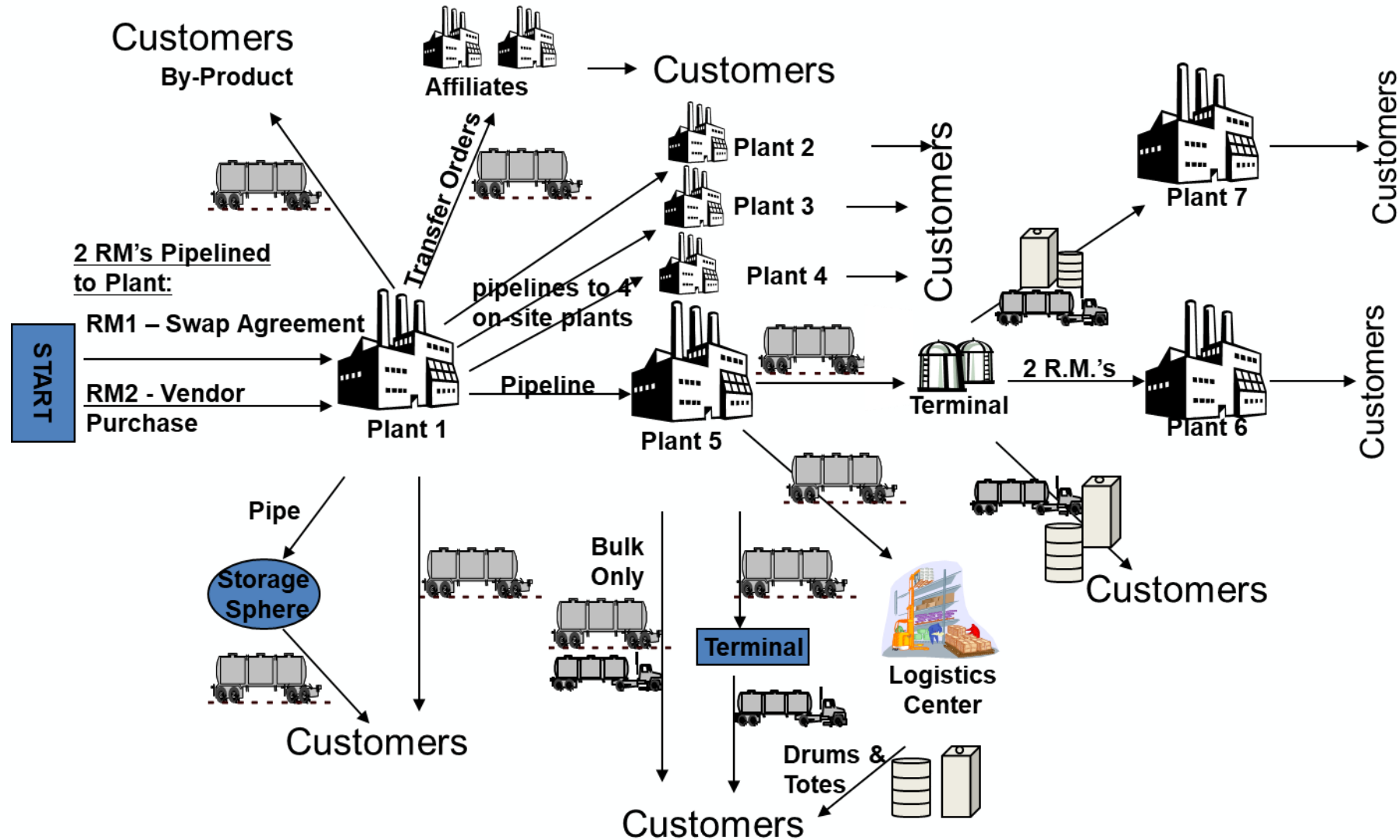
Implement and Adjust

Monitor and improve performance

Provide Education & Training (throughout the process)

LESSONS LEARNED & TIPS FOR IMPROVED RESULTS

Is this a good SC model for pilot testing of new ERP system?



Keep a User's Perspective throughout the Project



**Business
Applications
Development**

Assess the “As-Is” from the Project Perspective

Why the effort to implement detailed scheduling in the new ERP environment totally failed!

- The target business units are all scheduling in Microsoft excel.
- The APS system is part of the ERP suite and relies on the materials management-production planning module for both master data and operational status.
- The target business units do not maintain the material and production master data in the ERP system.
- In some cases, the key users (schedulers) do not have a user i.d. for the ERP system.
- Schedulers report to plant and schedule is heavily biased towards plant goals.
- The budget is for 6 weeks per plant and the key resource has a PhD in mathematical and statistical modeling and no experience in operations.

ERP Systems do not provide AI yet!

Take care in blindly accepting and using ERP auto pilot results:

NORMAL DISTRIBUTION:

	1	2	3	4	5	6	7	8	Total	Avg.	Std. Dev'n	COV	S. F. @ 95% SL	Safety Stock	SS in DOS
Demand	100	120	80	110	100	90	120	80	800	100	16.04	0.16	1.65	26	8

NOT NORMALLY DISTRIBUTED:

	1	2	3	4	5	6	7	8	Total	Avg.	Std. Dev'n	COV	S. F. @ 95% SL	Safety Stock	SS in DOS
Demand	50	0	150	0	300	50	250	0	800	100	119.52	1.20	1.65	197	59

Most statistical techniques available in ERP Systems “ass-u-me” the data is normally distributed!

Symptoms of ERP Project failures!



The Plan:

Maintain accurate real-time inventory figures in the system.



Actual:

We need to get this inventory report to the planner so orders can be placed.

Symptoms of ERP Project failures!



The Plan:

ERP system enabled planning & execution processes with global connectivity.



Actual:

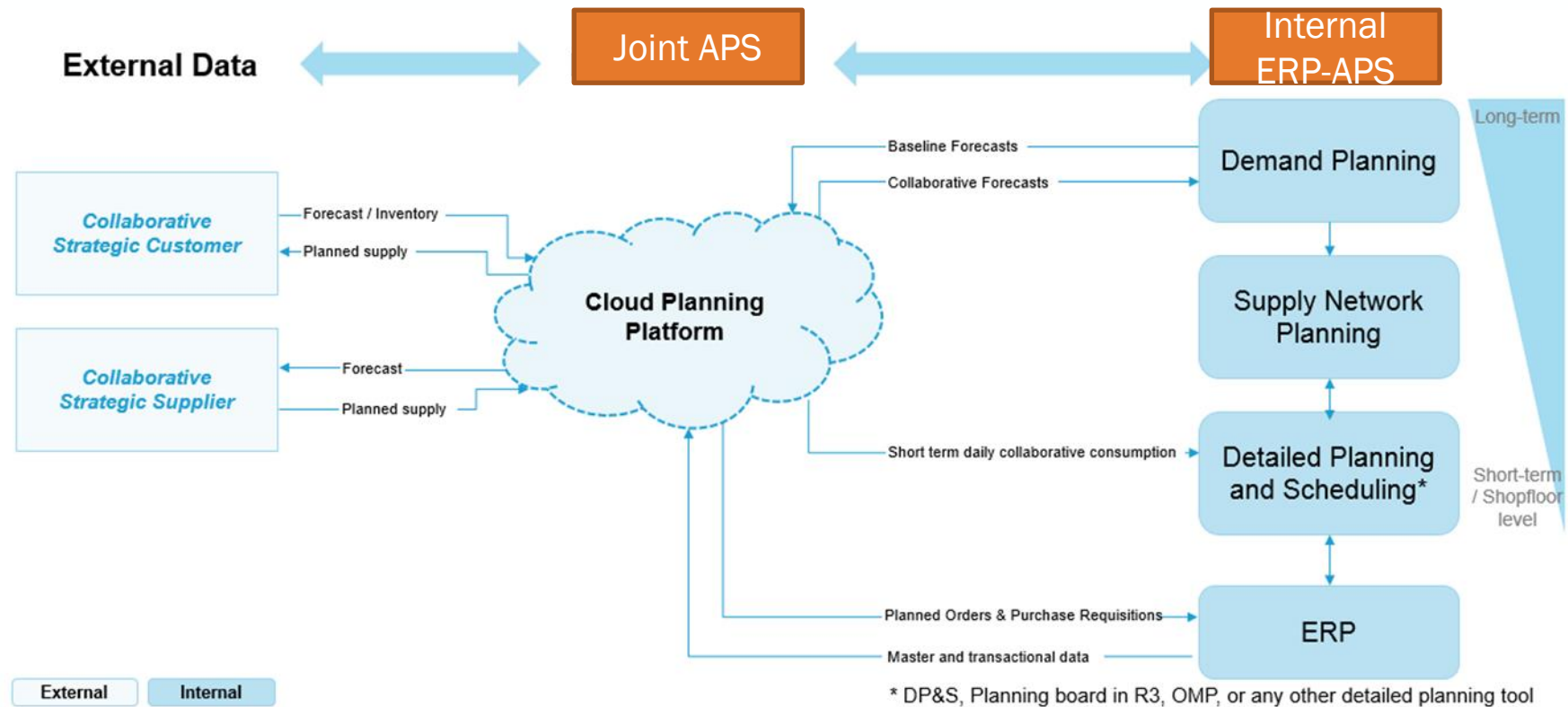
I am really not sure if this data is correct. John is on vacation and I do not know if his spreadsheet is up-to-date.

My Favorite Symptom of ERP Failure!

When pulling a customer order.



ERP in the Digital Age – Are You Ready?



#1 Barrier to External Integration and Evolution to Supply Chain 4.0 – Inadequate Set-up and Use of the ERP System!

SUMMARY

Keys to ERP Implementation Success

- Understand the “as-is” situation from a people-process-technology perspective very well.
- Take incremental steps in a logical sequence.
- Get users and key business stakeholders involved very early in the process. (e.g. beginning of process design)
- Provide comprehensive education & training including process, technology and people skills.
- Ensure KPI's drive the people to improve process results while leveraging the technology enablers.
- Perform periodic audits of both process & system use and provide training.

ERP Success – a difficult but not impossible journey!

1995 RUGBY WORLD CUP



- The NY Yankees of Rugby
- Rugby is National Sport
- Won 75% of games played
- Seeded Number ONE



- World Cup Debut
- Seeded Ninth
- New Coach

A strong vision and work plan supported by committed team members and advanced teamwork can lead to success!



QUESTIONS?



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