



RFID JOURNAL LIVE!

SEPTEMBER 26 - 28, 2021
PHOENIX CONVENTION CENTER | PHOENIX, AZ

Building Your RFID Business Case

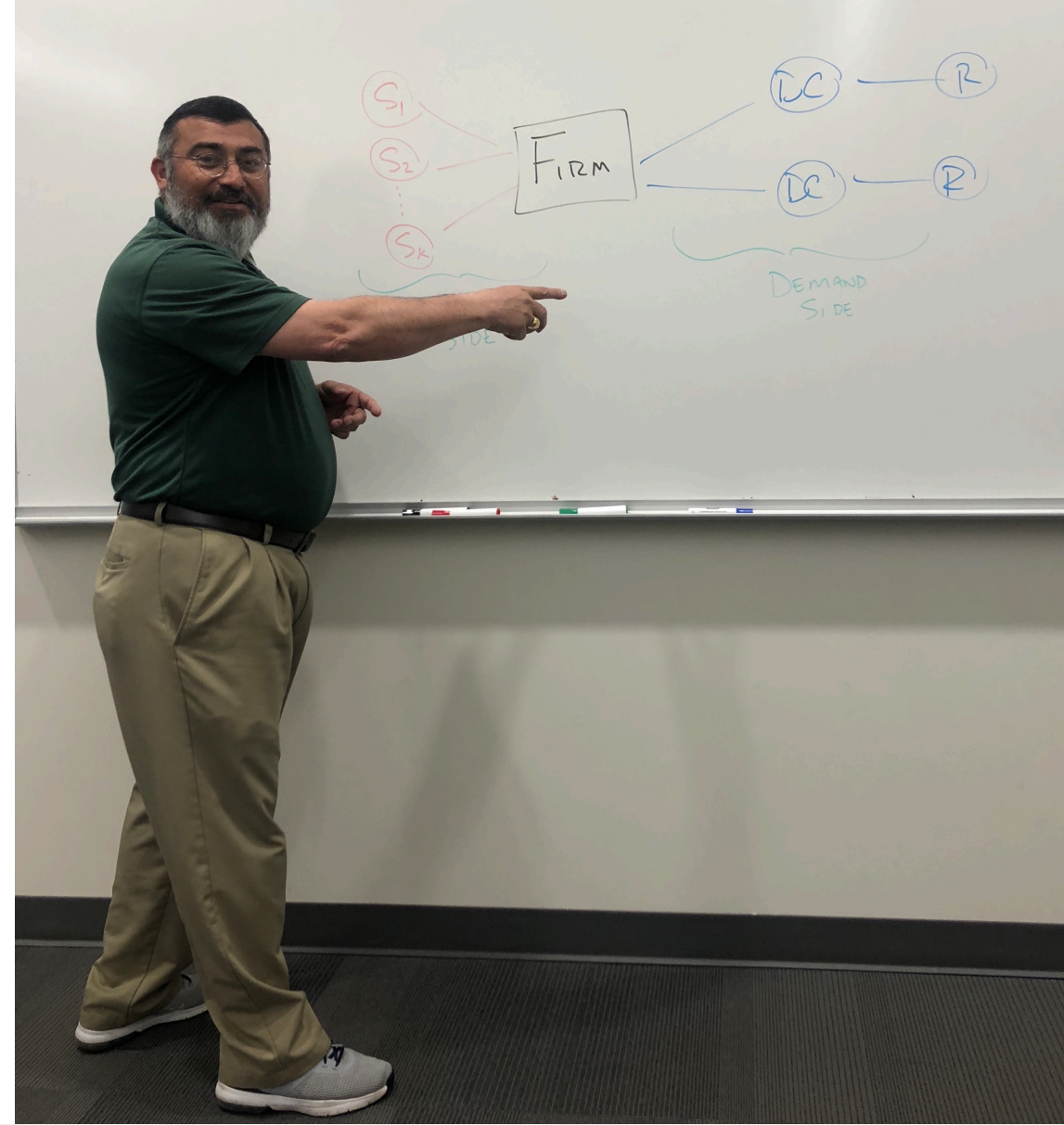
Pedro M. Reyes, PhD

Associate professor of operations & supply chain management



Your presenter

- Associate Professor of *Operations Management & Supply Chain Management*
- Baylor University



Objective of the presentation

- How to develop an RFID business case and justify your investment
(Qualitatively and Quantifiably)
 - **Assess the financial impact (cost and benefits) of your RFID project**
 - Build an RFID “business case” based on the selected technologies and solution design
 - Assess and monitor for performance

Start your business plan

Unlocking the value
“the Business Case for RFID”



Don't sell RFID as a technology but (1) as a solution to business problems (2) as a mean to leverage on new opportunities!

RFID business case

Project life cycle

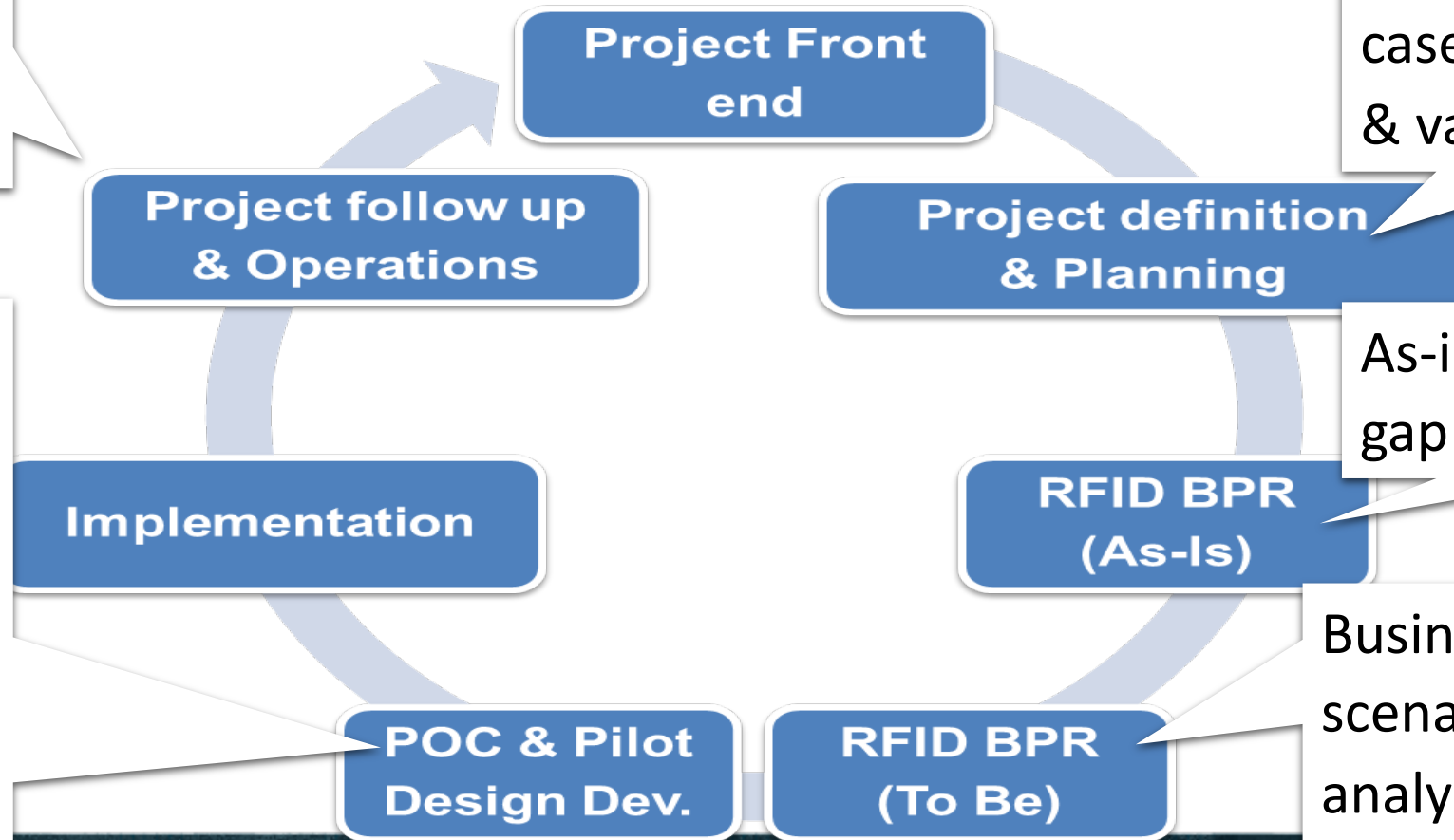
Measuring performance & continuous case assessment (TCO)

Revision of the Business case: assess realistic financial impact based on experimentation (Lab & pilot)

High level Business case & value proposition

As-is performance & gap analysis

Business cases & scenarios sensitivity analysis based on designs



Methods & tools for ROI analysis

*How to quantify & justify your RFID investment?
Qualitatively & Quantifiably*

1. Problem definition

2. Data gathering and analysis

3. Selection/development of a solution

4. Cost-benefit analysis and pay off

5. Implementation and follow up

Introduced in: "Targeting the
Correct RFID Technology for the
Right Project"

- Decision Tree
- Business Process Performance Analysis
- Balance scorecards
- SCM frameworks (e.g. SCOR)
- Infrastructure cost analysis
- Lab. scenario design and testing
- Trade off analysis
- RFID system decision matrix

Methods & tools for ROI analysis

Scorecards & performance framework

- 1.ABC: Activity-Based Costing
- 2.FLR: Framework for Logistics Research
- 3.BSC: Balanced ScoreCard
- 4.SCOR: Supply Chain Operation Reference Model**
- 5.many more...

Quantifying opportunities

Classic costs of inventory

Carrying Costs

Facility storage

rent, depreciation, power, heat, cooling, lighting, security, taxes, insurances, etc.

Material handling

Product deterioration

Spoilage, breakage, obsolescence

Ordering costs

Replenishment (\$/order)

Requisition, PO, transportation, shipping, receiving, handling, accounting, auditing, etc.

Equipment

Labor

Record Keeping

Borrowing to purchase inventory

Shortage costs

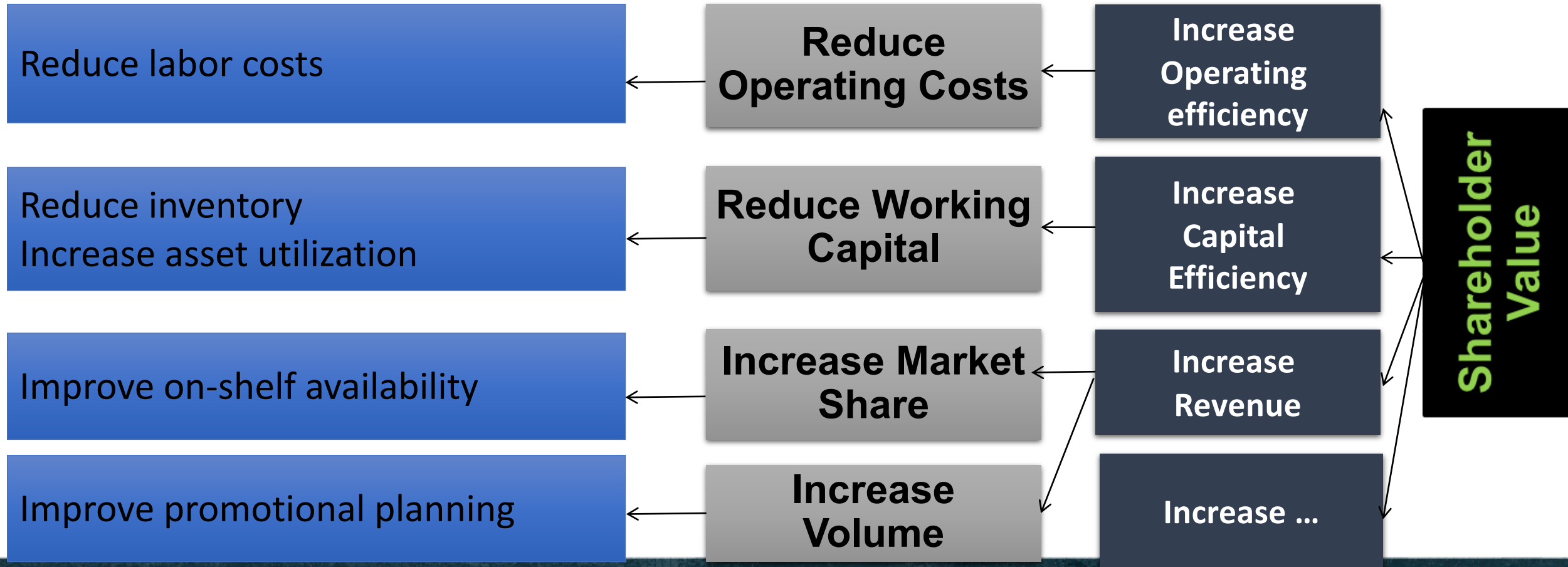
Stock outs costs – loss of sales & relative loss of profits

Customer dissatisfaction

Reputation, etc.

Quantifying opportunities

Linking the business plan to the project goals



Quantifying opportunities

Inventory control questions & related KPIs

Receiving

What is the % of orders accurately received complete and on time?

What is the percentage of orders accurately received against the ASN?

Put Away

What is the put-away accuracy (%)?

What is the put-away cycle time?

Picking

What is the picking accuracy (% orders picked accurately)?

What is the average picking time? Average picking cost?

What is the number of pull-lists processed per day?

Quantifying opportunities

Inventory control questions & related KPIs

Shipping

What is the average order turnaround time?
What is the Order Lines Shipped /Labor Hr?
What is the average back order length?
What is the average lead time for an order?

Inventory Control (Inbound)

What is the Inventory Availability?
What are the inventory carrying costs?
What is the inventory turnover?
What is the accuracy of inventory?
Is there an inventory obsolescence costs?
What is the shrinkage % (as a % of sales)?

Return management

What is the % of product returns (if any)?
What is the average return management process time?
What is the ...

Quantifying opportunities

Consider a scope of additional benefits

- **More efficient processes**

- Faster data acquisition
- Faster verification
- Reduce paperwork
- Reduce errors
- Reduce bottlenecks
- Improve asset utilization

Quantifying opportunities

Consider a scope of additional benefits

- **Improve the quality of information**

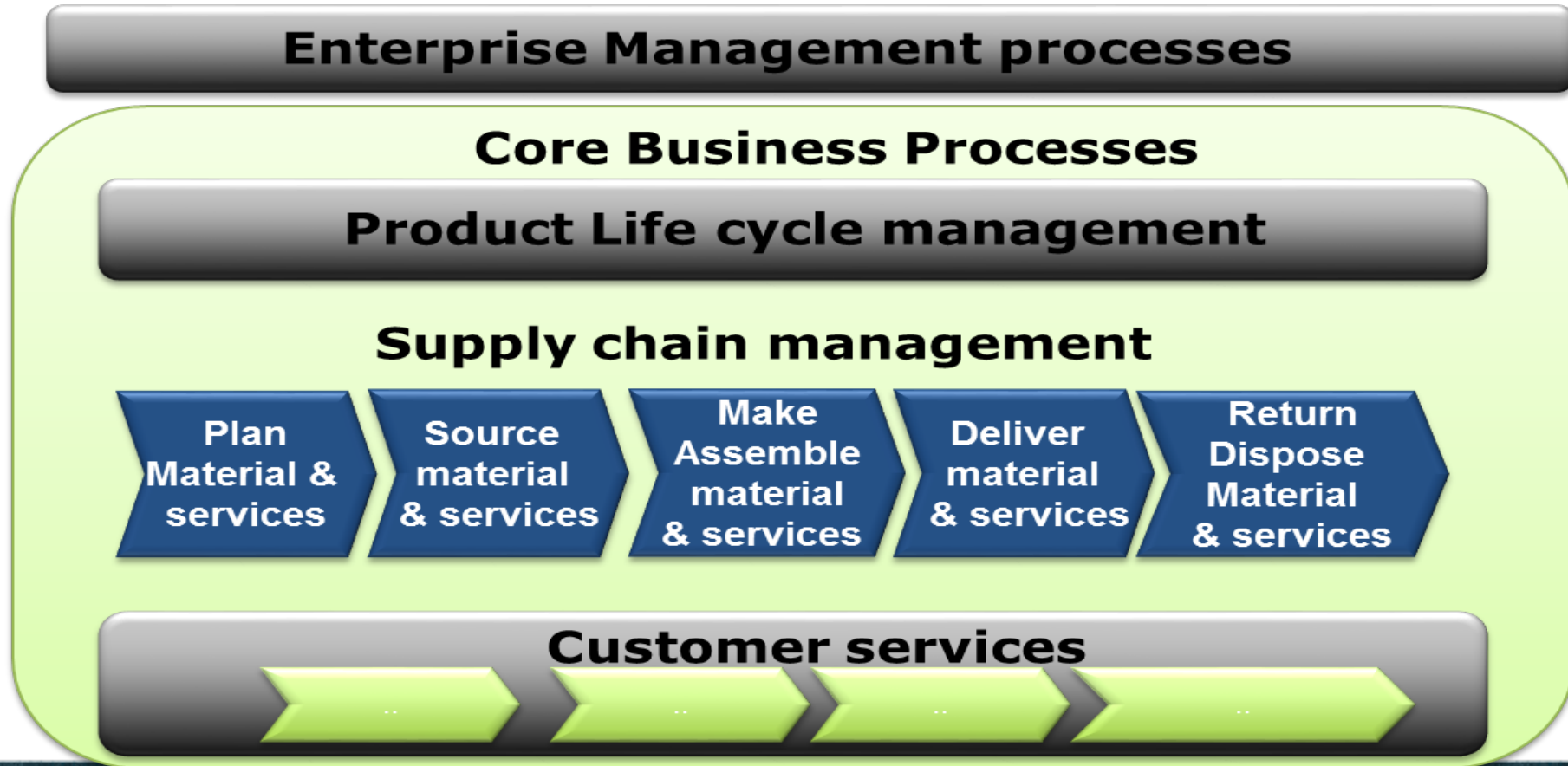
- Paperwork gets (correctly) filled out
 - (actually less “paper”)
- Fewer claims (relationship, time, \$)
- Better informed management decisions
 - Time lag for decision making

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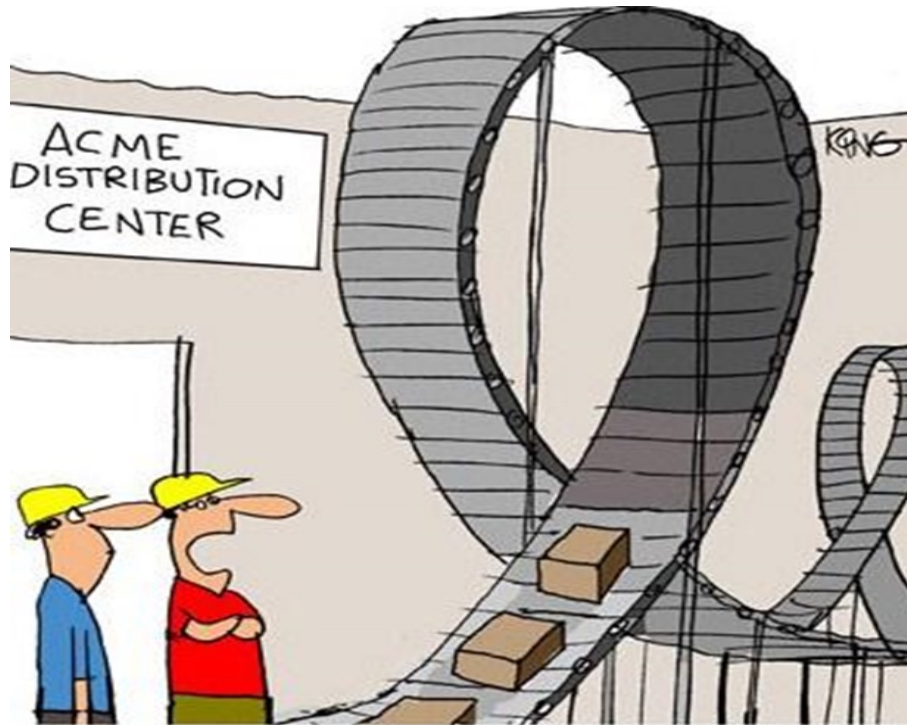
Unlock the “value”

Based on the selected RFID solution design

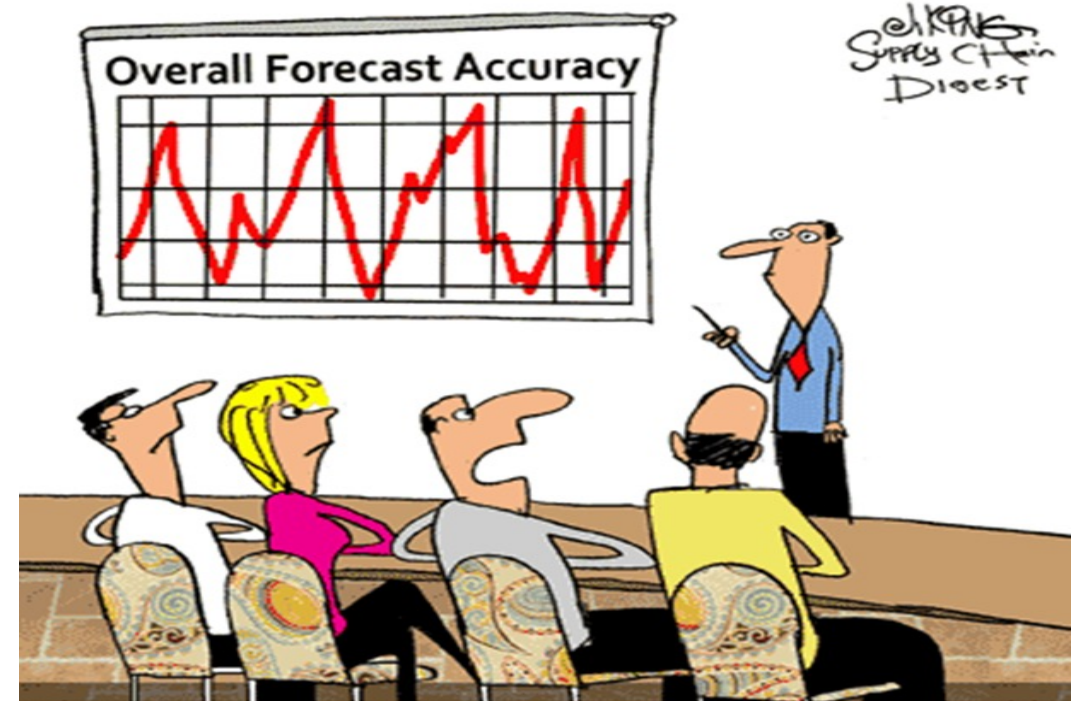


Unlock the “value”

The selected “solution” has to “fit”



“It was someone from corporate’s idea to improve our inventory turns.”



“We’re actually good except for the volumes and dates”

Build an RFID “business case” *cost analysis*

Project Preparation

- Opportunity Assessment
- Business Case Development
- RFID Strategy Development
- Use Case Generation
- Procurement Management (planning and sourcing)
- Solution Architecture Development
- System Integration Assessment
- Business Process Assessment
- Experimentation/Testing (validation of the business case)

RFID hardware

- RFID Tags (logistic units -Pallet, case, item, mobile asset, ...)
- Readers and Antennas
- Mounting Accessories
- RFID printers and label Applicators
- Ancillary devices (motions sensors, horns, lights, ...)
- Other Infrastructure Costs (new servers & computers, infrastructure upgrade,
- Etc.

Build an RFID “business case”

cost analysis

Installation Costs

- Initial Site Survey
- Design selection
- Hardware installation
- Testing and trouble shoot...

Ongoing System admin.

- Network Management System
- Reader Firmware Upgrades
- Damaged Readers/Antennas
- Performance Monitoring
- Maintenance...

RFID Software Costs

- RFID Middleware Solution
- Middleware System Integration (with WMS, ERP, Track& trace sol.)
- Interface Customization
- Engineering/Business Process Change

Other expenses

- Physical warehouse modification
- New resources (business analysts)
- Training


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Assessing & monitoring performance

KPIs in the RFID Framework

AREA	ACTION	Assessment Criteria
Process		
Organisation		
Knowledge		
Technology		
<u>Performance</u>		

 Performance	Assess level and consistency of measurement as well as actual performance against each metric	<ul style="list-style-type: none">▪ What metrics and procedures are used to measure the performance of key business process?▪ What metrics and procedures are used to measure the performance of RFID deployments?▪ Are metrics and procedures consistent enterprise-wide?▪ How does actual performance of key processes and/or RFID compare to that of industry peers?
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Assessing & monitoring performance

KPIs & RFID impact

- *With respect to previous experience on the impact of RFID in Warehouse & inventory contexts, multiple KPIs are used, such as*
 - *“right” level of inventory (reduction),*
 - *“right” service level (improvement),*
 - *“acceptable” out of stock level (& storage)*
 - *space (minimum), handling costs,*
 - *process improvement (automation, cancellation), etc.*

Assessing & monitoring performance

KPIs & RFID impact

- Benefits. How will your company benefit from RFID-driven visibility across the supply chain?
- Costs. How will your company pay, both in hard costs and resources, for RFID-driven visibility?

Assessing & monitoring performance

KPIs & RFID impact

- On time parts delivery percentage
- Percentage of receipt authorized by PO
- Percentage of orders released with full lead time
- Put away accuracy
- Put away cycle time
- Average picking time
- Shipping accuracy
- Inventory availability
- Average back order length
- Inventory accuracy

- What are your Priorities?
- How can RFID help you in addressing these challenges and opportunities

- Inventory turnover

- Obsolete inventory percentage

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Assessing & monitoring performance

KPIs & RFID impact



Assessing & monitoring performance

KPIs & RFID impact



Conclusion

- An RFID business case should be a *living, breathing* document
- Continuous RFID developments (↓ price, ↑ performance)

“Implementing RFID is just the start...”

THANK YOU

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