RFID Fundamentals
What You Need to Know *Now*

Joel Confino

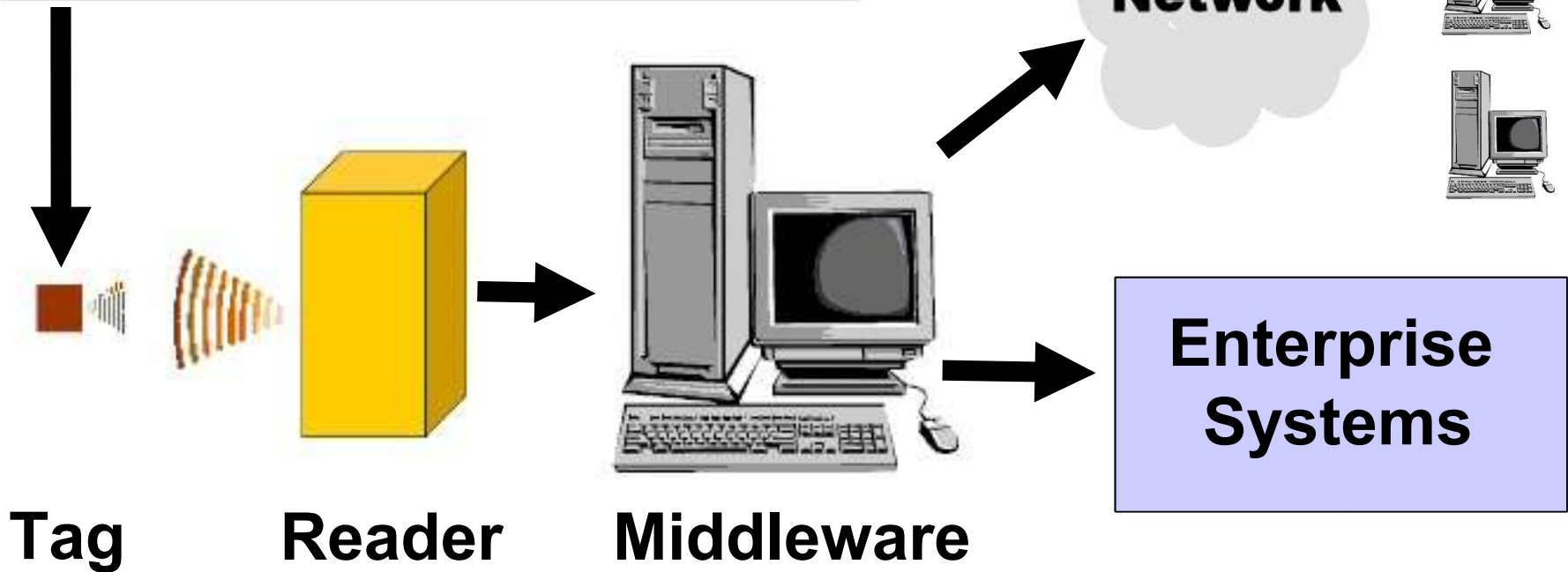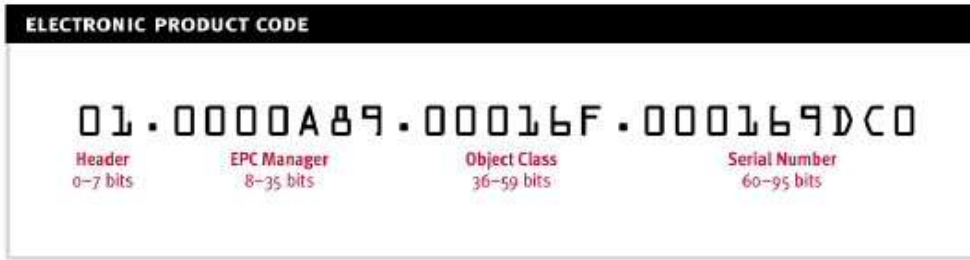Software Architect

Chariot Solutions

Alec Elmore

Director

PPT Consultants

Overview

- *How RFID is used and who is using it today*

- *Which pieces of your company's operation will be impacted by RFID*

- *Why integration is important to RFID's success*

- *How to evaluate your business process to capture RFID's benefits*

- *A path to an RFID pilot*

What is RFID?

ELECTRONIC PRODUCT CODE

01.0000A89.00016F.000169DC0

| Header 0-7 bits | EPC Manager 8-35 bits | Object Class 36-59 bits | Serial Number 60-95 bits |

Tag   **Reader**   **Middleware**

EPC Network

Enterprise Systems

Who is using RFID today?

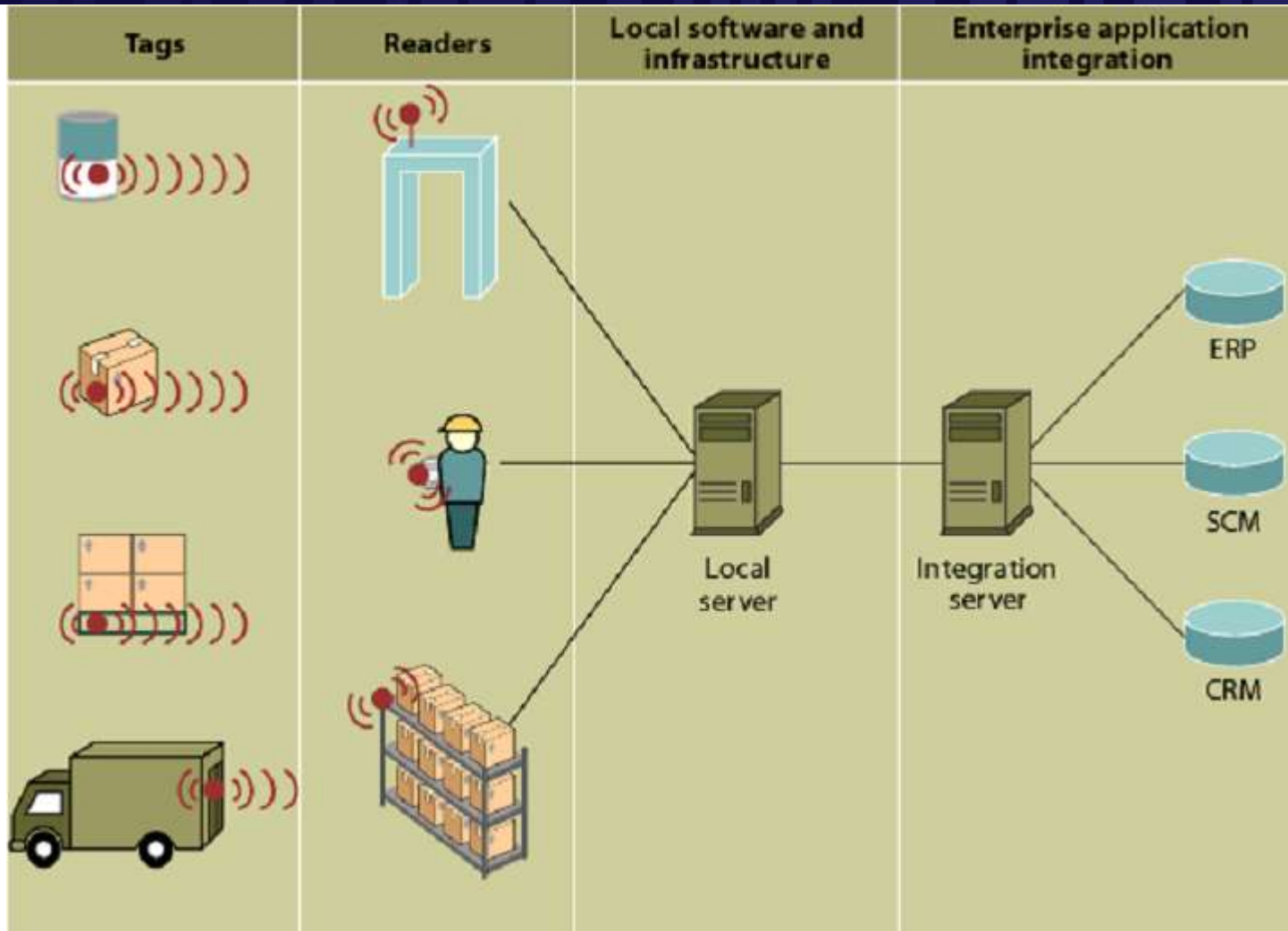# Sun's RFID Pilot

I/O Boat

MD (4800) Chassis

DS (6800) Chassis

It's More Than Just Tags

Source: Forrester Research

Why is integration important to RFID's success?

- RFID is an infrastructure to build on

- Firehose of new real-time data

- Convert the new data into relevant information

- Instantaneous access to the data

Systems Impacted by RFID

- ERP

- Supply Chain Execution

- Supply Chain Planning

- EDI

- Master data management

- Data warehouse

- New Applications

Integration Issues

- RF Issues: Tags, Readers, Environment, Regulations?

- Standards: What standards do I leverage? How?

- Scalability: Can I scale without starting over again?

- Requirements: What data do I need where and when?

- Reliability: Will it work in an enterprise setting?

- Security: What are my security considerations?

- Cost/ROI: What's this going to cost? How long to ROI?

- Partners: Who should my trusted partners be?

Source: Sun Microsystems

Business Process

Sample Situation

- Suppliers are being forced into RFID at a significant cost by retailers…
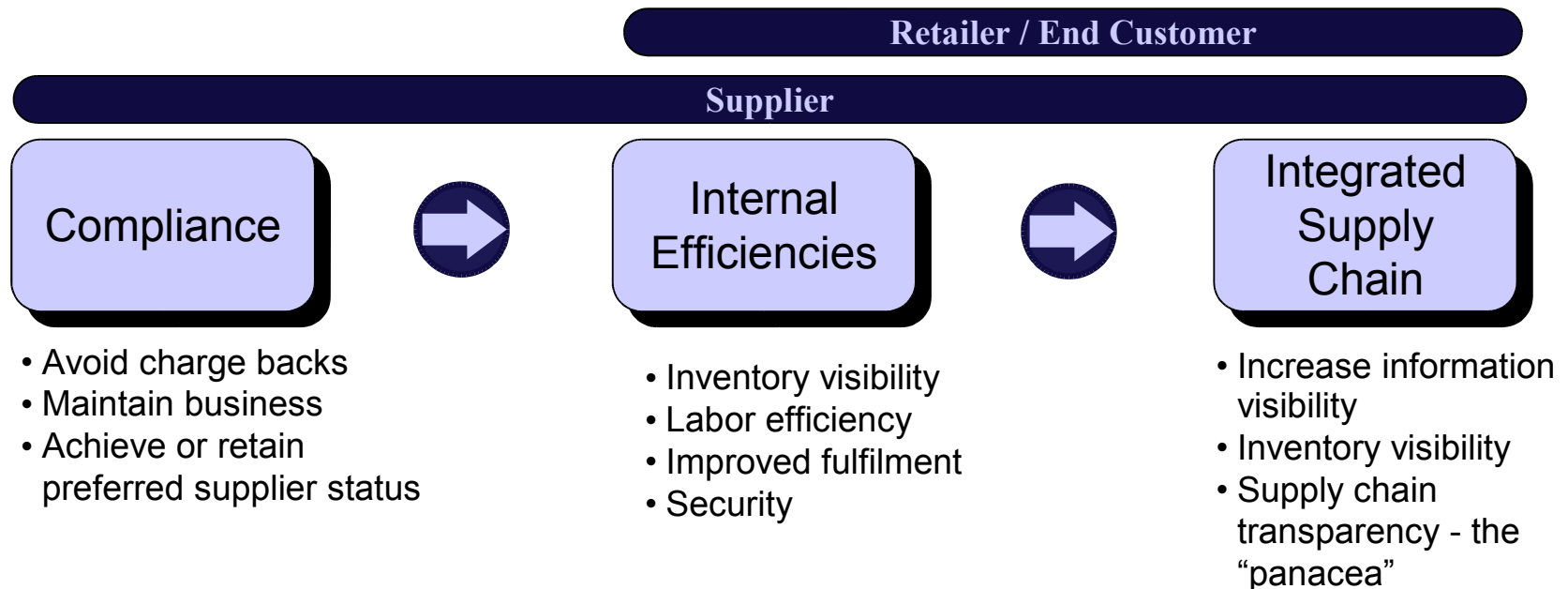
- Retailer's cost are relatively fixed

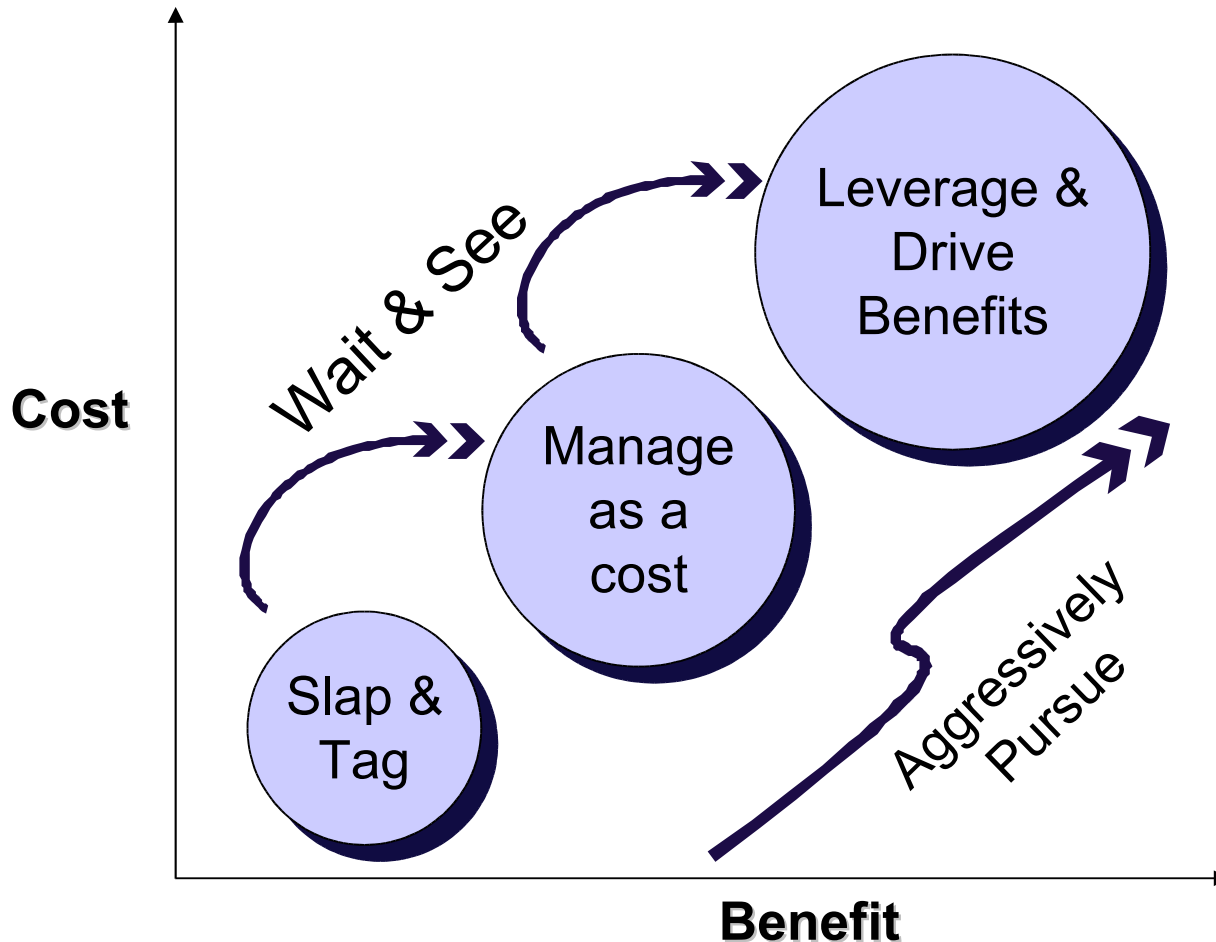- Suppliers pay for the tags which is an enormous and variable cost…

- How does a supplier, without leverage with the retailer make this an opportunity vs. cost of doing business?

Phases of Benefits

- Benefits can be categorized into the following three buckets:

Retailer / End Customer

Supplier

| Compliance | → | Internal Efficiencies | → | Integrated Supply Chain |

Compliance
- Avoid charge backs
- Maintain business
- Achieve or retain preferred supplier status

Internal Efficiencies
- Inventory visibility
- Labor efficiency
- Improved fulfilment
- Security

Integrated Supply Chain
- Increase information visibility
- Inventory visibility
- Supply chain transparency - the "panacea"

Approaches to Implementation

Cost

Benefit

Slap & Tag

Wait & See

Manage as a cost

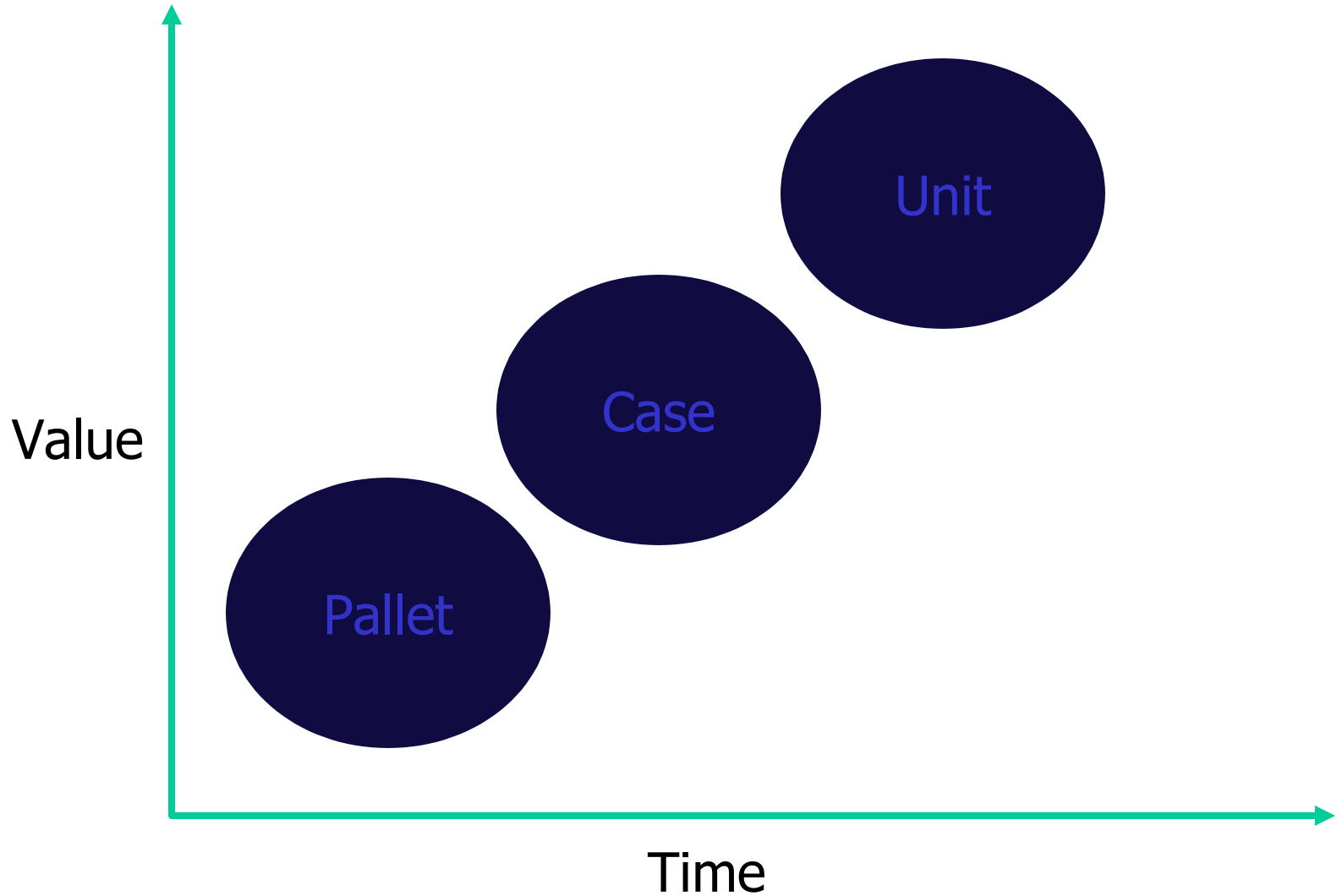Leverage & Drive Benefits

Aggressively Pursue

Wait & See:
2. Unable to comply in the future
3. Focus on RFID technology being ready vs. internal systems

Aggressively Pursue:
2. Establish a foundation
3. Integrate technology with processes

Adoption Cycle

Value

Unit

Case

Pallet

Time

Other benefits of Acceleration

- Other processes impacted by RFID:
    - Demand management (forecasting)

    - Vendor Managed Inventory

    - Collaborative Planning Forecast & Replenishment

    - New Product Introduction
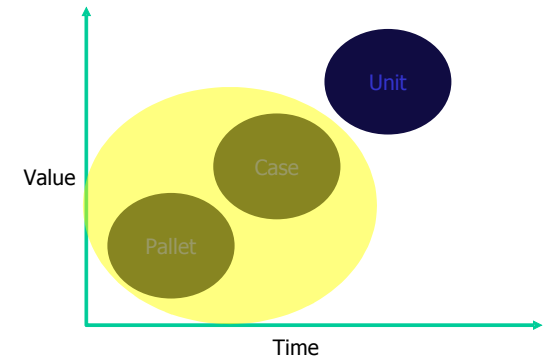
Effective Planning: Inventory

The Goal:

- Generate replenishment plans to ensure RPRPRT (Right Product, Right Place, Right Time)

The Problem: Inventory positions are rarely accurate.

- Untrained stockroom personnel
- Inaccuracy associated with POS scanning systems
- Theft / Pilferage

The Solution:

- RFID can improve the overall inventory accuracy driving improved replenishment activities (e.g. VMI)

Effective Planning: Demand

The Goal:

- Plan based on the most accurate information available

The Problem: What is demand?

- Retail orders represent replenishment plan based on forecast and inventory policies
- Shipments represent available the net available inventory not the actual retail demand
- POS data is supposed to represent consumer purchases

The Solution:

- RFID can drive demand level accuracy at the point of sale allowing for true consumer demand planning.
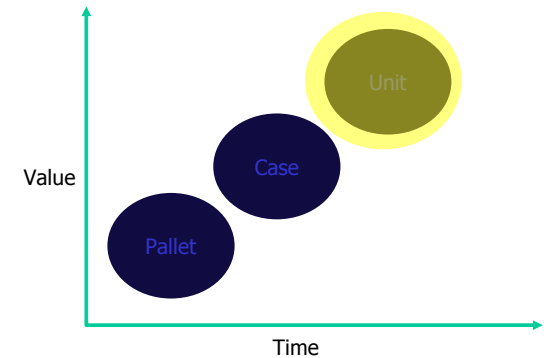
Expected Benefits

- Store Sales ↑ 20%
- ↓ Out of Stocks
- Inventory ↓ 5%
- Labor Expense ↓ 7.5%

- 5–30% ↓ inventory levels
- 2–13% ↓   warehouse and transportation costs
- 1–5% ↑   sales

- 10–50% ↓ in lead times

SUPPLY CHAIN AGILITY	REVENUE GENERATION	COST REDUCTION
– Complete visibility and traceability of products – More responsive production – Reduced order cycle times – Delivery in mixed pallets – Improving forecast accuracy	– Improved On-Shelf Availability – Mass Customisation – Frequent new product introductions	– Automated proof of delivery – Improved security of products – Eliminating stock verification – Incorporating shelf-life of products – Reducing inventory levels (& warehousing requirements)

AT Kearney, Accenture, EPC Council

Getting from here to there!

- It is a migration not a big bang
  - Layout the plan, including capital expenditures, tagging levels, partner rollouts etc.
- Establish scope
  - Document processes to be changed
- Impact analysis
  - Determine impact on current systems, organization and infrastructure
- Establish baseline of performance
  - Productivity, quality, cost
- Build communication plan
  - Internal and external constituents must understand roles and expectations

Characteristics of a Successful Pilot

- **Senior Management Support & Cross Functional Teams:** Senior staff member is the champion and peers commit necessary resources to execute project.

- **Scope defined in the context of the strategic vision:** Pilot focuses on the company's vision for growth and market penetration.

- **Designed around goals:** Establishment of measurable and verifiable goals is critical. These goals must be benchmarked at the outset of any project.

- **Phased approach:** A controlled approach to implementation will allow for mitigation of corporate risk as well as testing in a managed environment.

- **Scaleable approach:** Initial implementations may be smaller in scope, but must consider the entire enterprise and supply chain when making key design decisions.

Your First Steps

- Assess the situation:
  - Determine specific activities in process in your industry
  - Understand your customer's requirements (functions & timing)
  - Identify specific opportunities within your company & supply chain
  - Determine technology impact

- Develop an action plan
  - What constitutes scope of a practical pilot
  - What resources can be committed and in when
  - Identify system migration / implementation approach

Get started soon and focus on a phased practical approach to determining RFID's application to your specific environment.

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