Radio Frequency Identification (RFID) As A Competitive Advantage in Supply Chain Management

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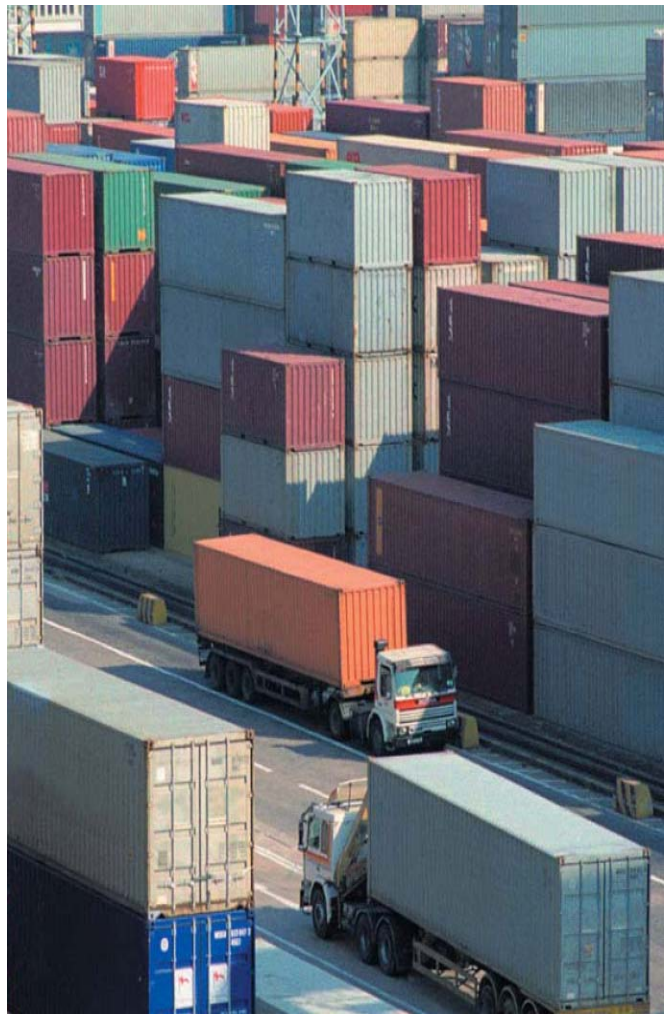
RFID in Supply Chain Management

Agenda

- What is Supply Chain Management
- Supply Chain Issues
- Intro to RFID Technology
- Advantages of RFID in Supply Chain
- Examples of RFID in use
- Current issues with RFID
- Conclusion



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- **What is Supply Chain Management?**

  Supply Chain Management is the technique to advance and improve company's performance in respect to processes for product and service design, purchasing, invoicing, inventory management, distribution, customer satisfaction and other elements of the supply chain.

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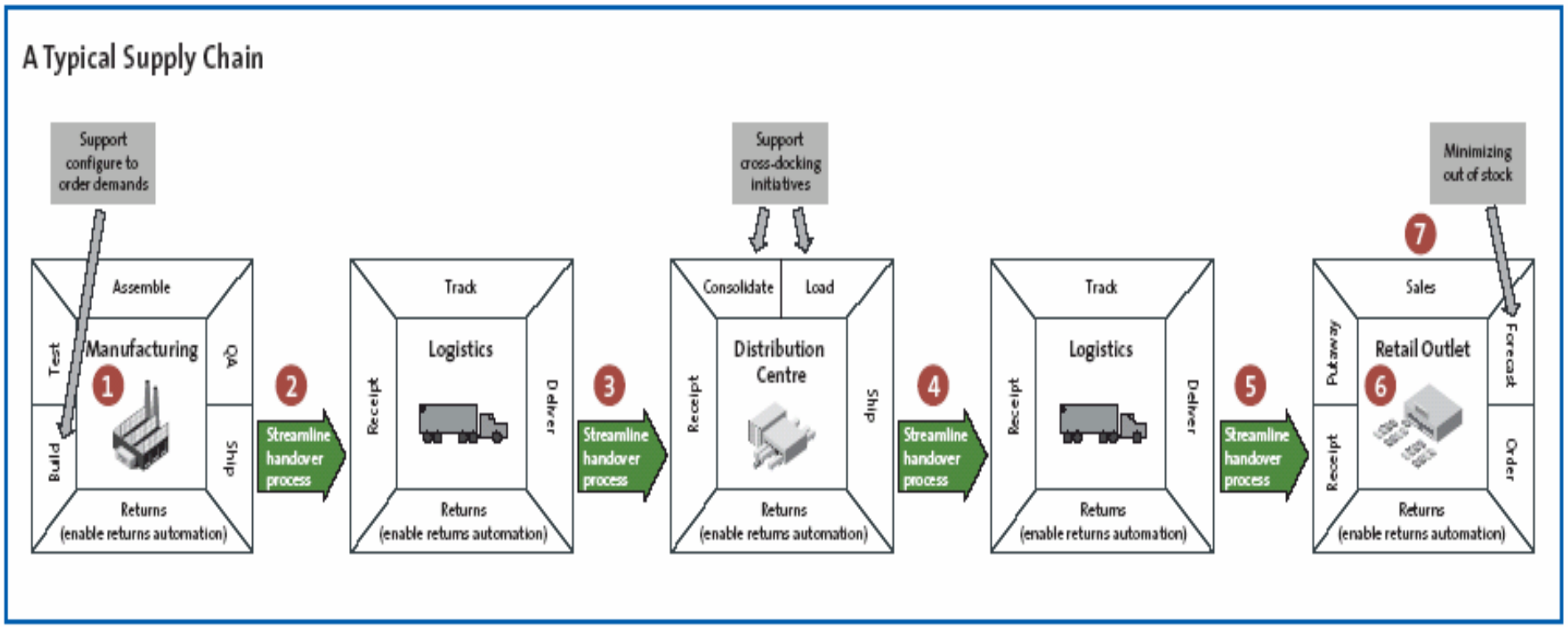

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- **Why do companies do it?**
  - Obtain a competitive advantage
  - Increased profit margin/sales
  - Increased customer satisfaction

- Supply Chain Management
  - The complexity and the cost of supply chain have increased in the past two decades.

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What are basic components for Supply Chain Management?

- Planning
- Sourcing
- Manufacturing
- Delivering
- Returning

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Advantages of supply chain management

- Delivery
- Cost control
- Forecasting
- Product quality
- Data management
- Customer service and relationships

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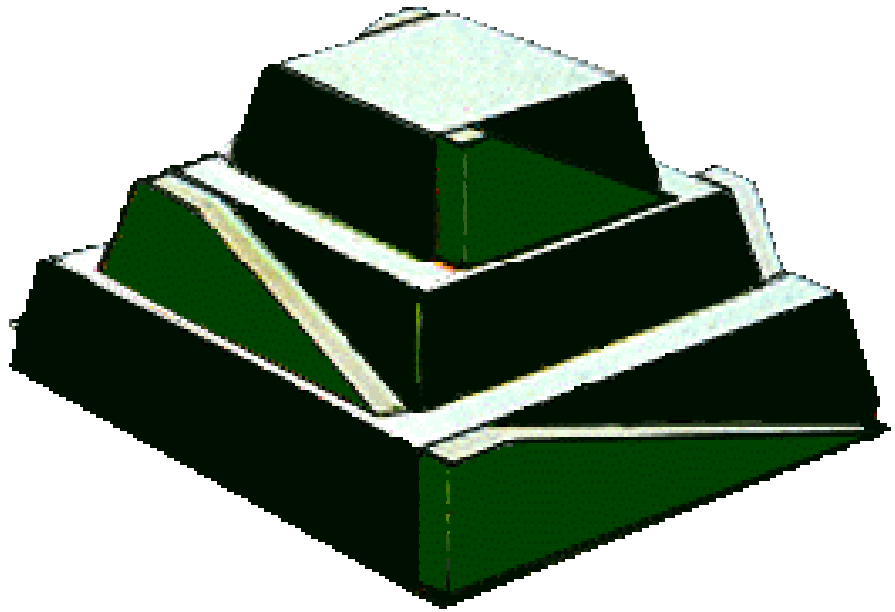
Examples of Supply Chain Management

- Great Pyramids of Egypt
  - 100,000 people
  - Materials from all parts of the country
  - Labor and slave



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- The Great wall of China
  - 7th century BC to 17th century
  - Millions of people worked to build it
  - Construction materials and labors

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Current examples

- In the early 1990s, manufacturers started to outsource their warehousing and distribution functions to third-party logistics (3PL) providers
- UPS and FedEx started to guarantee delivery times, allowing for better planning and forecasting
- The 2 largest package delivery companies and global leaders in supply chain services
- Internet shipment tracking and over night delivery

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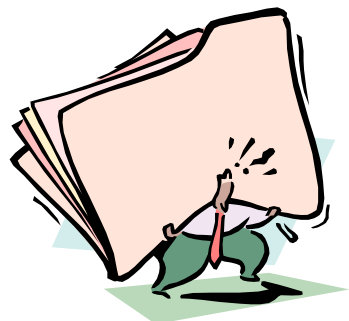
Current supply chain issues

- Incorrect goods shipped
- Late delivery of goods
- Difficulty locating goods
- Excessive effort required to accurately reconcile physical goods to customer orders/returns
- Goods misplaced/stolen
- Inaccurate forecast of goods
- Paper based business processes
- Multiple re-entry of information
- People intensive practices
- Manual reconciliation processes
- Human interaction on business processes
- Latency of data



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RFID is one potential solution……so what is it?

Introduction of RFID into Supply Chain Management

…..its been around for awhile.

- First use - WWII – ID Allied planes crossing English Channel – transponders installed “friend or foe”
- 1970’s – Nuclear research – tag workers, waste, products
- Contact-less payment – toll bridges & roads
  - Mobil *Speedpass – tags in cars – 15% increase in fuel usage*
- Livestock industry – track diseases/overall health measuring temperature (Mad cow disease), minimize branding
- Railroad industry – bar codes failed

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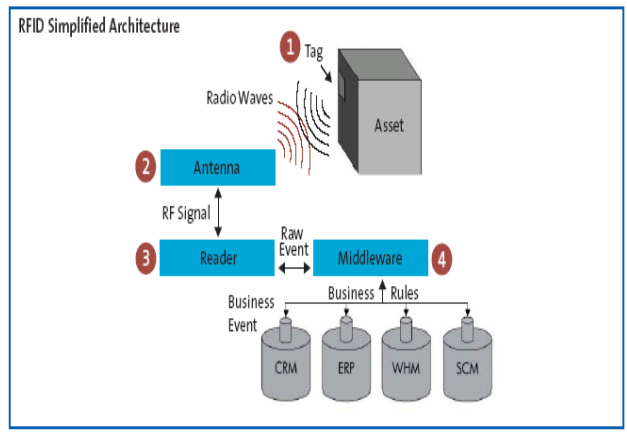
What is the basic process?

- Readers emanate a low level radio frequency magnetic field coiled antenna
- Tag – antenna/integrated circuit (IC) convert the magnetic field into current to run the circuit(passive tags)
- Enable transfer of IC's memory contents - electromagnetic signal
- Reader checks to ensure signal is valid, decoded and restructured to the end-user's host computer
- Restructuring provides the data in an electrical form and also abides by the the end-user's protocol
- Once restructured, it is sent to the host user



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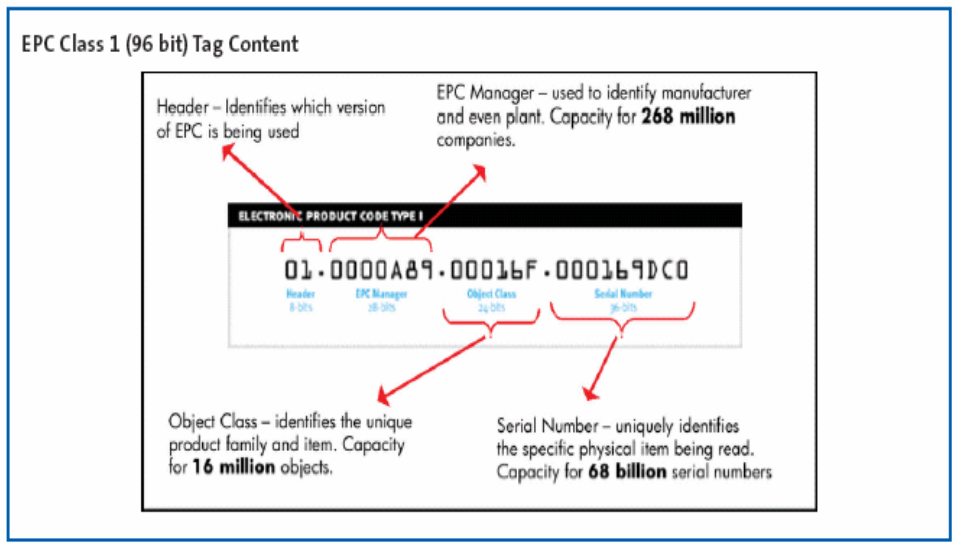
- Reader/antenna – used to read write data
- Tag stores & transmits to reader
- Types
  - Active
  - Passive/active
  - Purely passive
- Comm protocol – pre-determined radio-frequency



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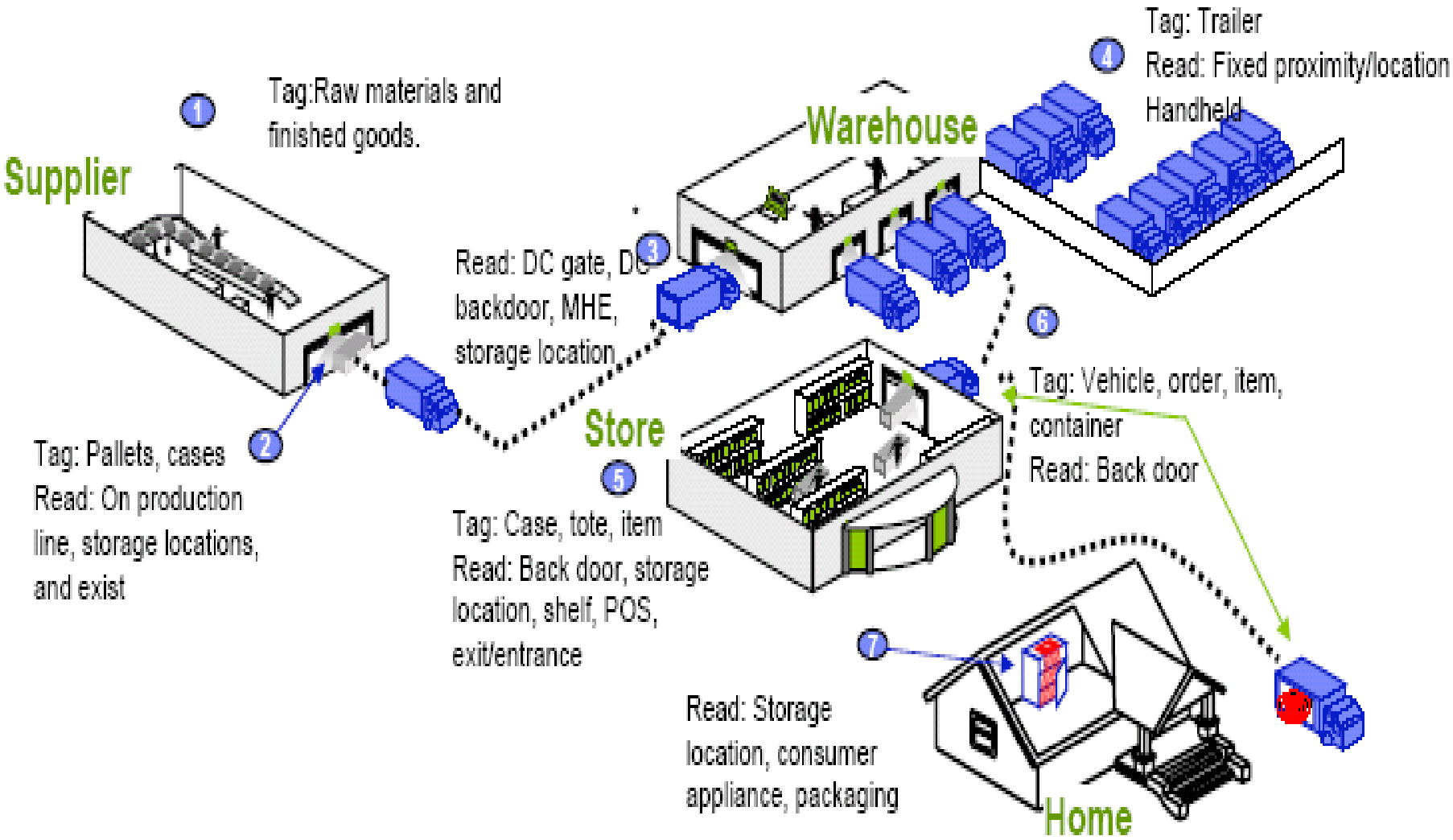

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- **What RFID is:**
  - Provides non-contact, non-line-of-sight operation
  - Very difficult to counterfeit
- **What RFID is NOT:**
  - The best solution for EVERY application
  - A good substitute for BAD business practices or poor management
  - Same to all businesses
  - new!

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Examples of RFID in Supply Chain Management

- Pharmaceuticals – possibly, the most immediate need……
- Counterfeiting - WHO 7-8% of drugs phony
- Sell back to US & give the sick Borax!
- Biggest problem in developing countries, but expected to spread
- Prescription Drug Marketing Act signed in 1988 never enforced – drug pedigrees
- $2 billion in lost revenues to pharma industry
- Verisign and use in humans (recent FDA approval)

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Examples of RFID in Supply Chain Management

- Beginning use of RFID for top 100 suppliers in 2005
- RFID tags for cases and pallets
- Significant savings due to more automated functions
- Technology Push
- Innovation

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Operational Savings

- Scanning - $6.7 Billion
- Out-of-stock - $600 Million
- Shrink - $575 Million
- Tracking $300 Million
- Product Visibility - $180 Million
- Annual Savings: $8.355 Billion

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Other players

- Hewlett-Packard
- US Department of Defense
- Marks & Spencer
  - Fresh Food Tracking
- Gap
  - Apparel Tracking
- British Airways
  - Passenger Baggage

Most of the above did pilot studies

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What is so promising about RFID?

- Been around forever – only recently economically viable
- Increased data security
- Automate & speed processes
- Improve productivity & customer service
- Accurate info about location of goods & people
- Tighten controls through supply chain/distribution management
- No line of site required
- Works in harsh environment
- Removes element of human error
- Ability to store historical information about product
- From read-only to read-write

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Why companies should implement RFID in their supply chain management strategy?

- Improved Warehouse Efficiencies
- Lower Inventory Levels
- Lower Deductions and Charge Backs
- Improved Traceability and Recalls
- Better in Stock Position
- Improved Service
- Reduced Shipping Costs
- Better Supplier Management
- Theft Prevention

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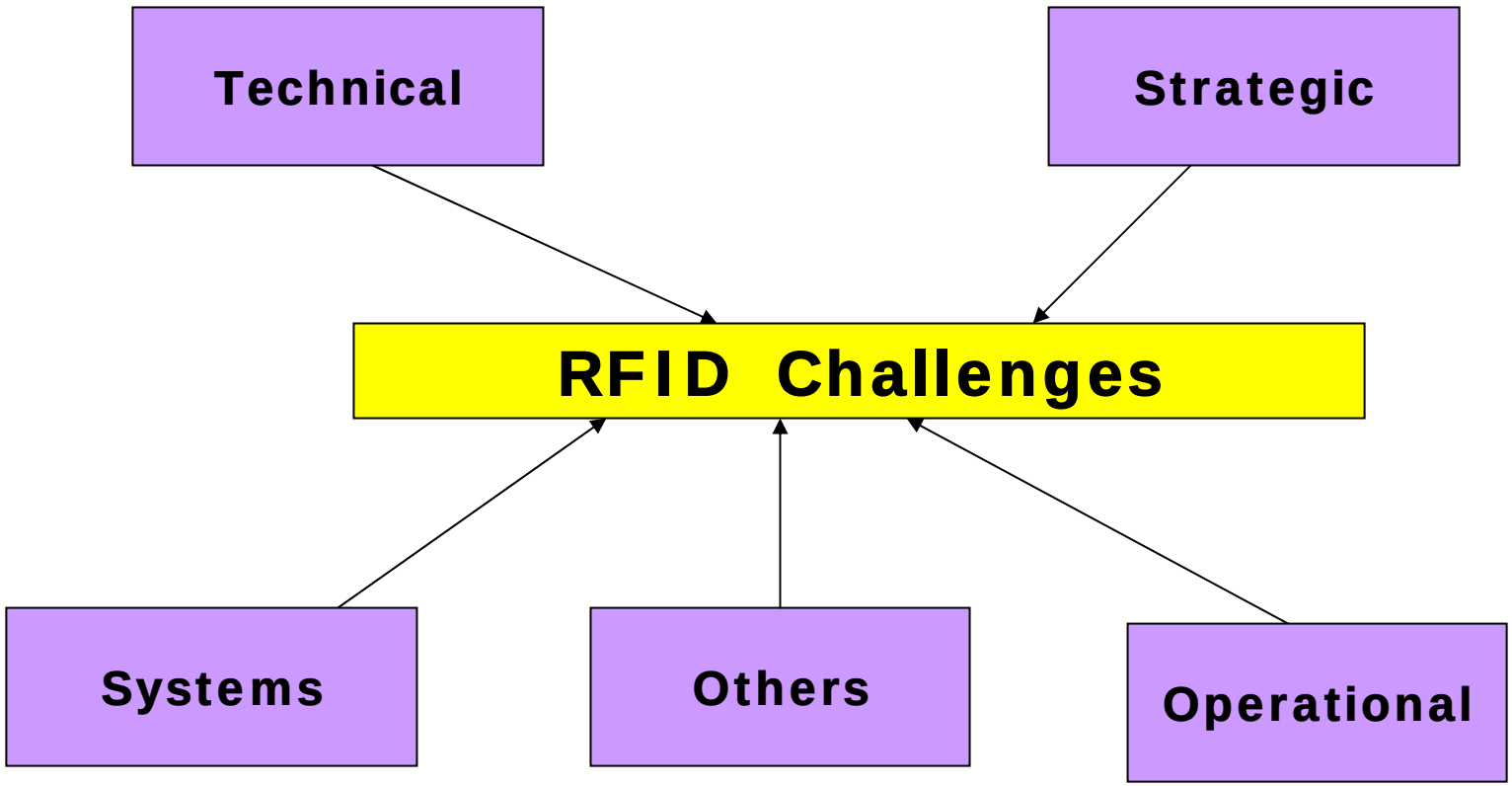

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Technology Performance Challenges:

- Reader detection rates and ranges, data accuracy
- Type of product-Metal, Liquids
- Data

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System Challenges

- Access to EPC data : Standardization watch
- Hardware and Software integration: Finding and partnering with the correct software provider will be a key.

EPC- Electronic Product Code

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Operational Challenges:

- Barcode vs. RFID adoption
- New technology learning curve and Site readiness
- Product/tag associations

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Strategic Challenges:

- Understanding RFID - Forced Business Process changes
- How to deal with a changing environment
- Establishing a business Case and Building the RFID Roadmap : ROI
- Other Costs
- Human resource strategic challenges

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Other Challenges

- Lack of knowledge of the technology and Perceived to be a new technology
- “Wait and see” mentality
- Education

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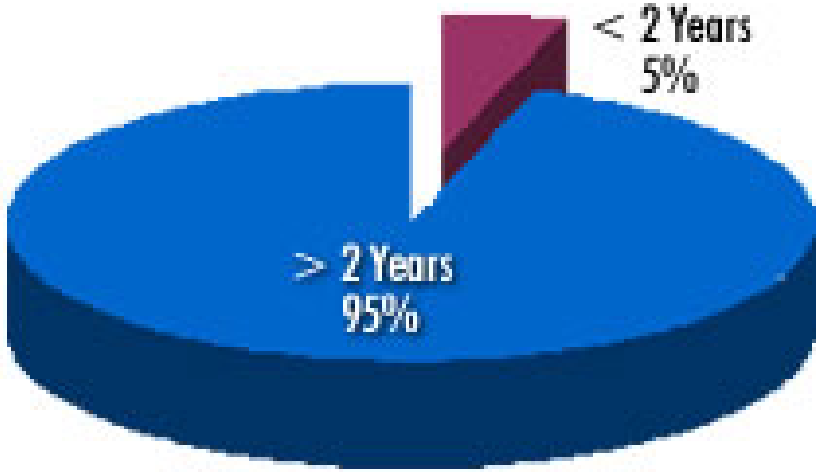
- ARC conducted an Emerging Practices study where they talked to 24 companies that were actively investing in EPC RFID (Electronic Product Code Radio Frequency Identification)

"Survey on ROI" BY - Analysis Research Consultancy



The Great Majority of Suppliers Find that RFID Offers Poor ROI

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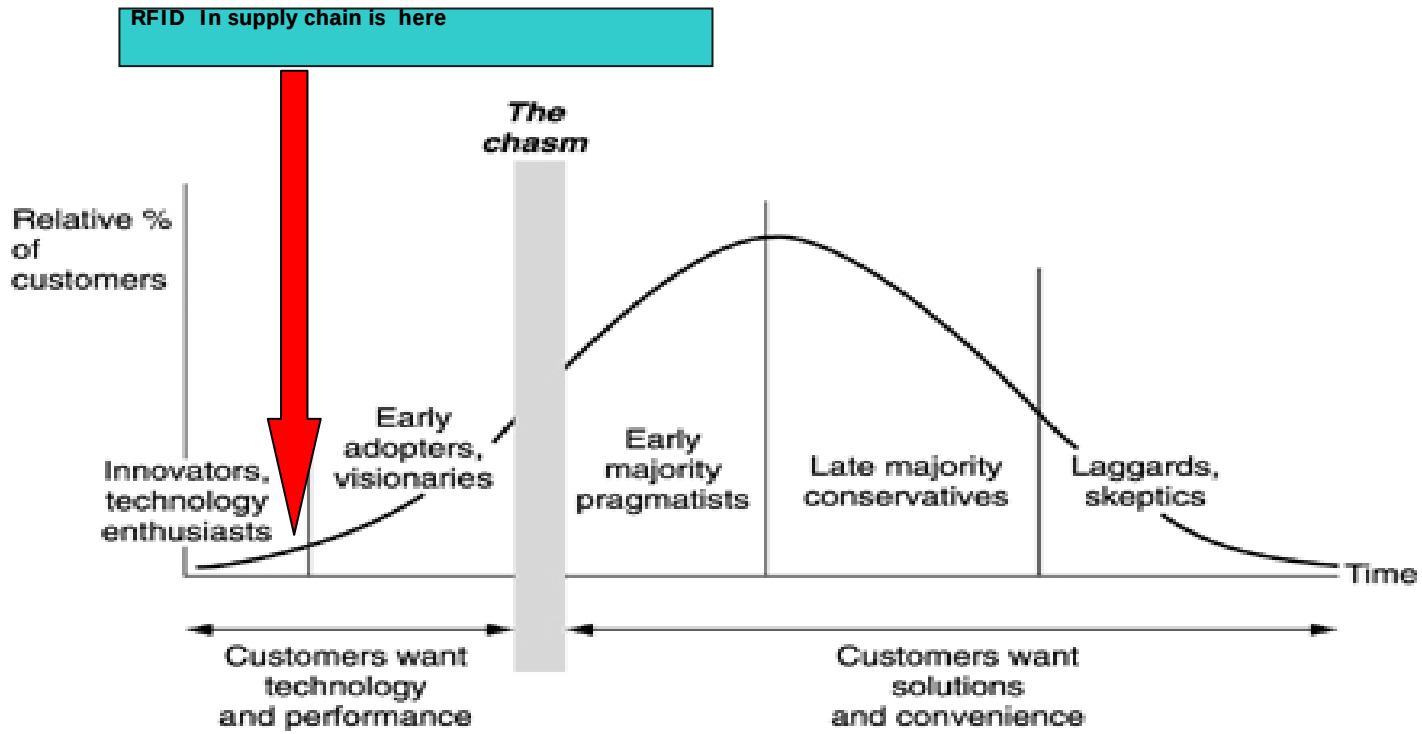
Where is RFID in TALC in terms of Supply Chain Management?



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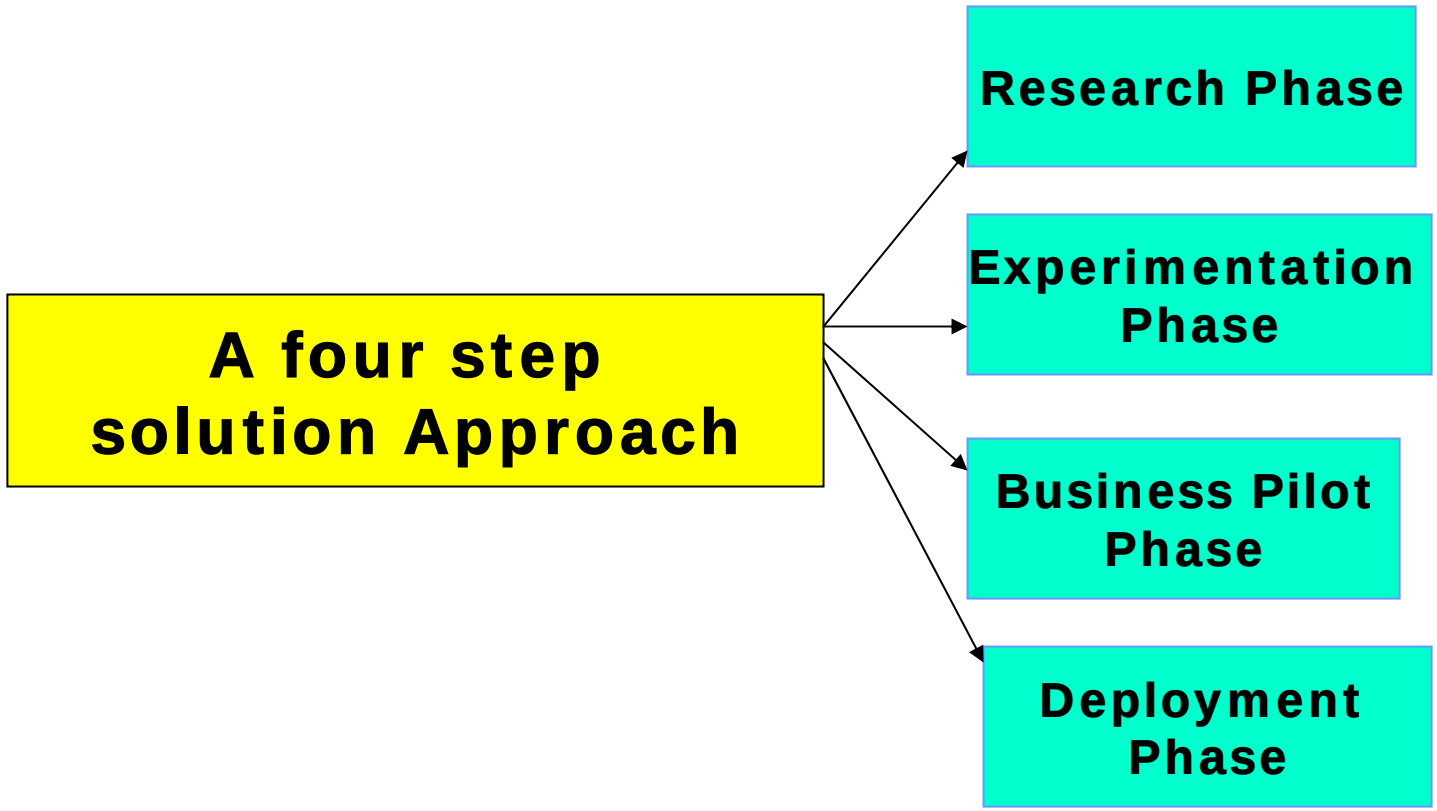
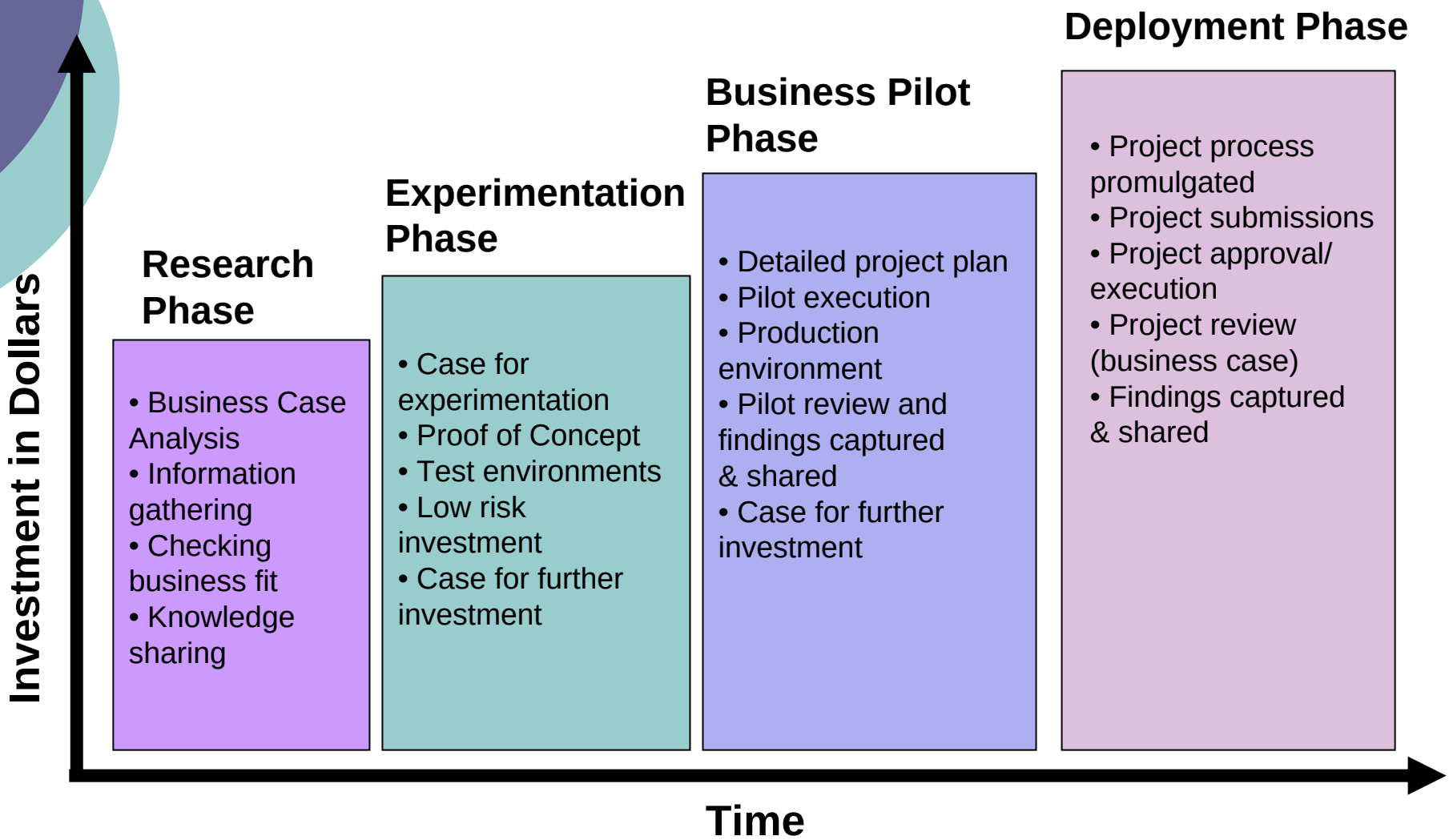


A probable journey that an organization will go through to establish and prove the business value of RFID:



Managerial questions to implement RFID in the Supply Chain?

- Are you a supplier to Wal-Mart, the Department of Defense, or other major retailers?
- Do you have real-time inventory visibility in your warehouses or across your supply chain?
- Are your current receiving and shipping processes cumbersome?
- Do you have fixed assets that are not well-tracked throughout the supply chain?
- Do inaccuracies/discrepancies in accounting for goods in trading partner commerce lead to inventory or invoice adjustments, manual reconciliation or other problems?
- Do you have products that require lifecycle tracking or are subject to counterfeiting and gray market channel activities?

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LESSONS LEARNED AND RECOMMENDATIONS

- Define your business plan
- Customize applications for your specific business
- Different for every business or company
- Understand budget and ROI
- Focus on implementation strategy tied to market challenge
- Prove the technology in your environment
  - Define label position, size, antenna, tag aspects
- Pilot the application in a controlled setting
- Define your project roadmap/deployment strategy
  - Changes over time, scalability
- Understand long term benefits (not just immediate)
- Be patient with current trends, early technology stages
- Disruptive innovation in terms of supply chain

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Quotes

- “One of the great lessons of US economic history is that you get benefits from new technology long after the innovation. That comes from businesses figuring out how to use it right” **Ethan Harries Sr. Economist**

- “RFID will be larger than Y2K. Ultimately, RFID will be a core technology deployed across the supply chain in most industries”

AMR Research

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- Q & A

Thank you ☺