



Global Business Services

Results from the Canadian Grocery Industry RFID Pilot



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Agenda

- Introduction

- RFID Impact on the Supply Chain

- The Canadian Grocery Industry RFID Pilot
 - Pilot Overview
 - Pilot Results

- High-Level RFID Roadmap and Considerations

Agenda

- **Introduction**

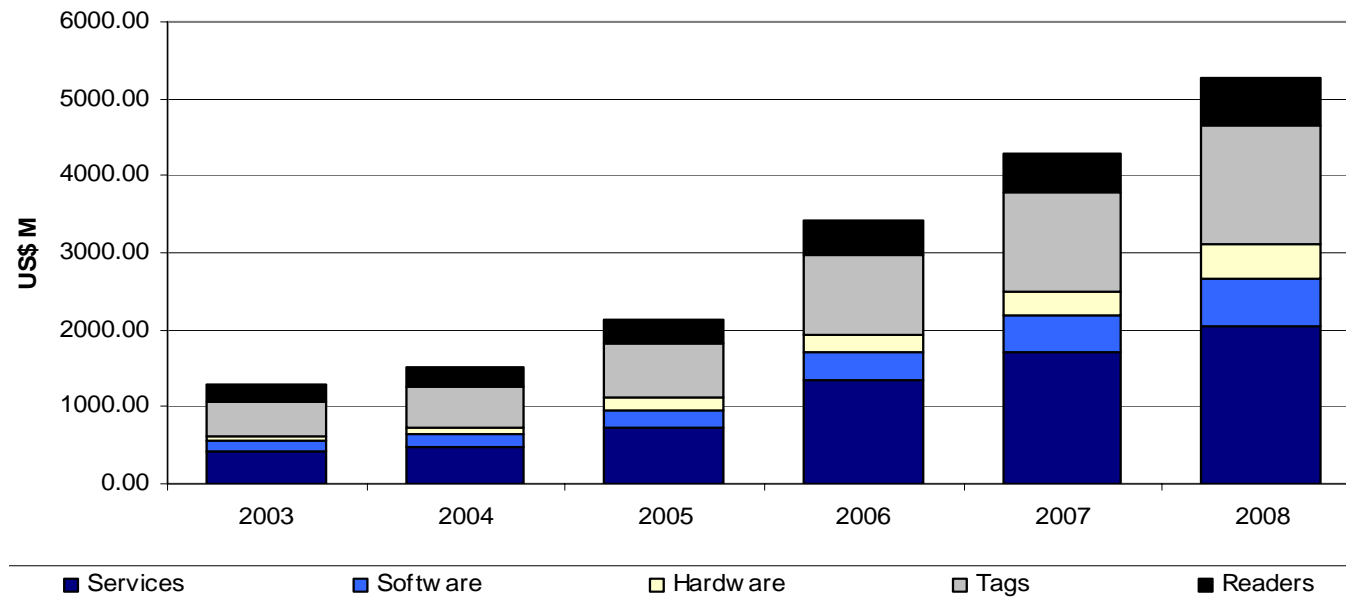
- RFID Impact on the Supply Chain

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- High-Level RFID Roadmap and Considerations

Introduction

- RFID is a technology with the potential to significantly affect the supply chain in an increasingly global and complex trading environment.
- The RFID market is growing at a compound annual rate of approximately 34%.
- IBM has worked with a number of clients to conduct business cases, execute pilots and ultimately deploy RFID solutions to deliver benefits.



Source: IBM estimates using inputs from Venture Development Corp., ABI, Yankee Group, AMR

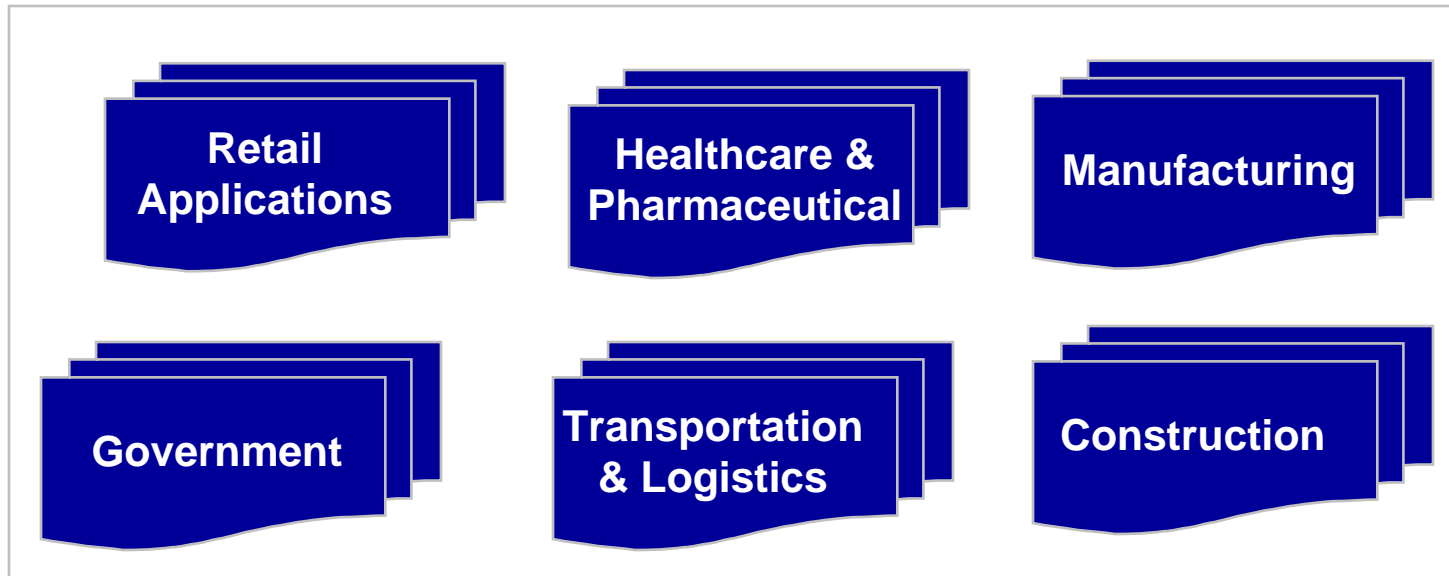
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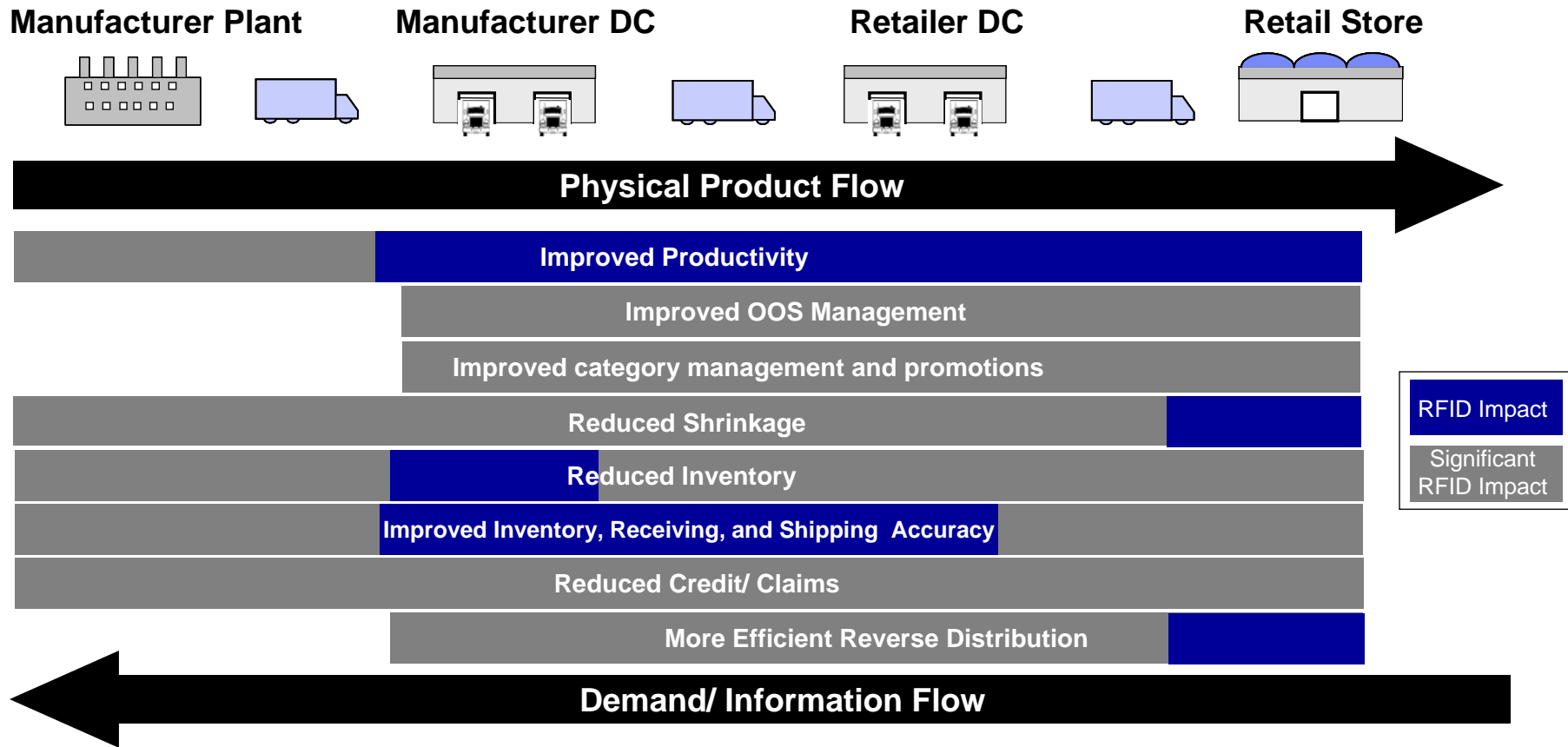
RFID also addresses many usage scenarios

| | | |
|--------------------------------------|---|---|
| Supply Chain Management |  | <p>Leverage RFID technologies to transform supply chains by providing end-to-end visibility of goods and enabling improved inventory management.</p> |
| Work In Process Manufacturing |  | <p>Apply RFID technologies to the in process manufacturing processes to enable effective inventory tracking and management, product line efficiencies, and JIT manufacturing advantages.</p> |
| Asset Management |  | <p>Companies have physical assets (plants, truck fleets, PCs etc) that are needed to make, and to deliver products and services to customers - knowing where an item or vehicle is on route, tracking depreciation of goods – tools, equipment, leased items.</p> |
| Security & Access Control |  | <p>Monitor the movement and use of valuable equipment and personal resources.</p> |
| Consumer Applications |  | <p>Monitoring peoples movements, personal security, convenience and Point of sale applications.</p> |

In our experience, there are a number of industries with significant potential benefits from RFID deployment



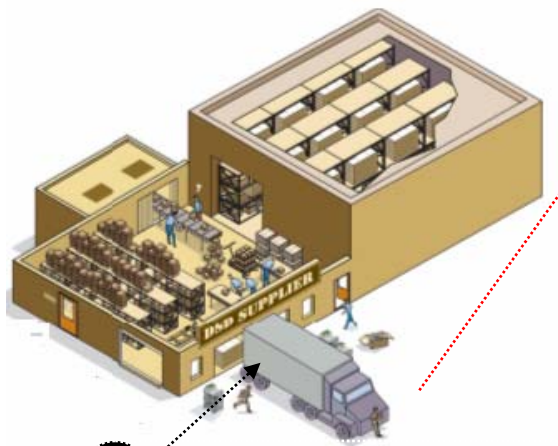
RFID has the capability to significantly impact many supply chain processes



The RFID/EPC vision can enable near-real time visibility to asset movement and condition

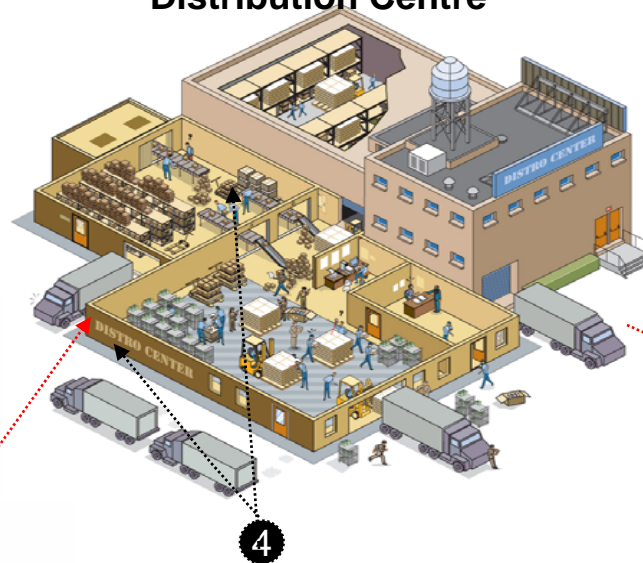
Manufacturer

- 1 Manufacturer adds an **EPC enabled RFID tag** to individual pallets, cases and products
- 2 The items are loaded into EPC tagged cases and pallets



- 3 A reader above the shipping door **reads each pallet and case** as it leaves the plant

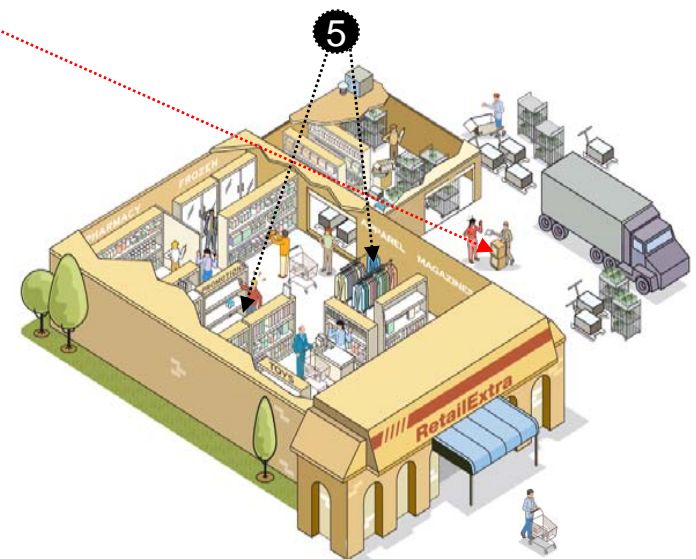
Distribution Centre



- 4 The pallets arrive at a DC and the items are **automatically received and uploaded to the Warehouse Management System**

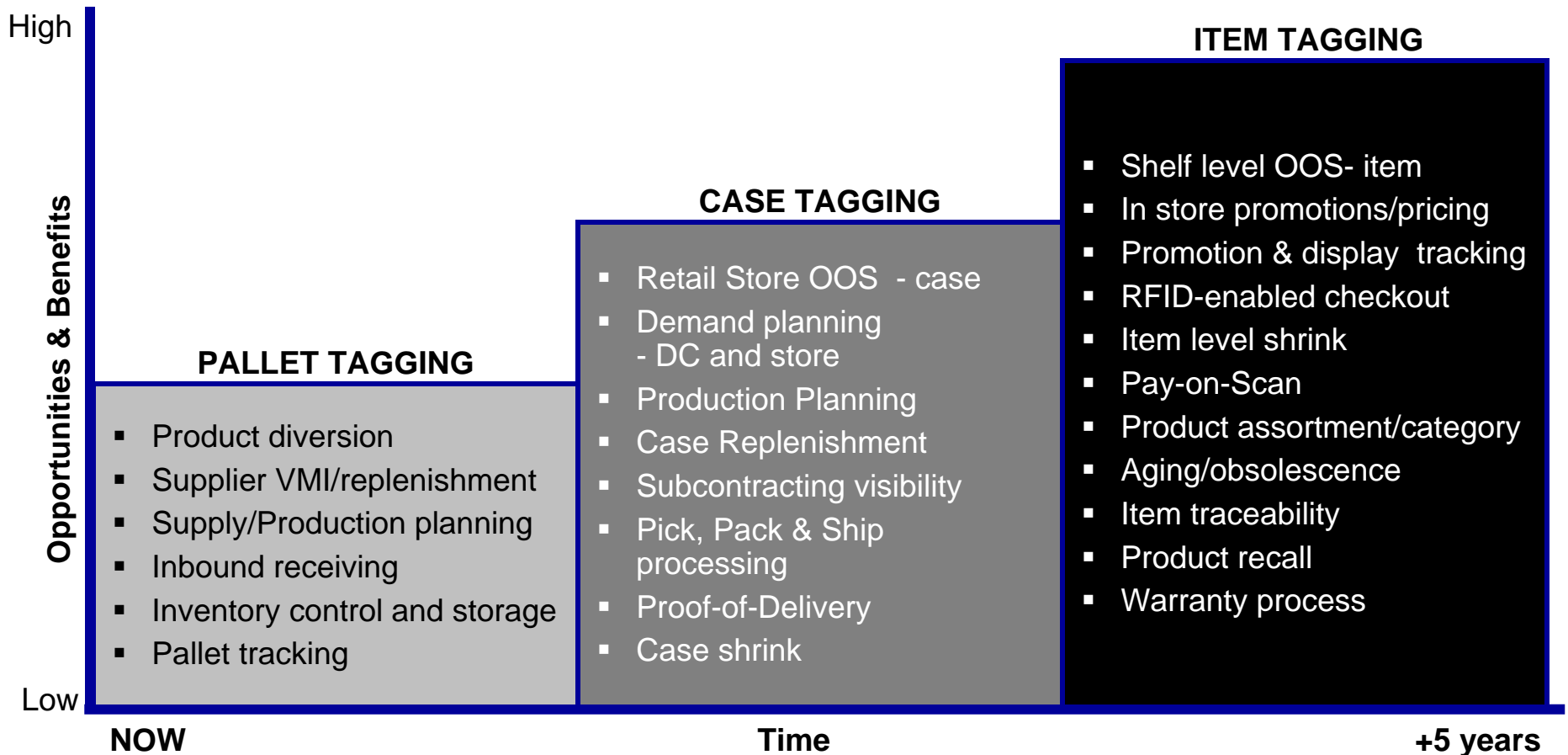
Retail Store

- EPC tagged shipments are **automatically received and uploaded into inventory**
- **Product movement is tracked** from receipt / back room / shelf / POS
- Shelf level and hand-held readers **facilitate replenishment**



Source: Auto-ID Center, IBM Global Business Services analysis

The benefit potential increases as companies transition from pallet to case to item level tagging



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Introduction

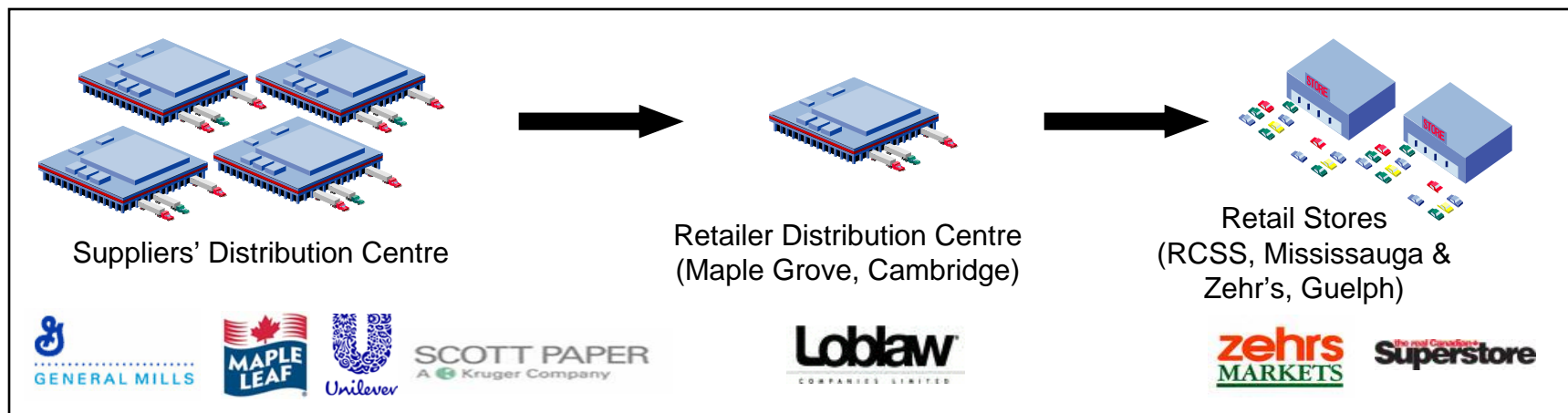
- The Canadian RFID Grocery Industry Pilot (the “Pilot”) was launched as a logical extension to the collaborative partnership created at the Canadian RFID Centre (“CRC”) between industry, associations and technology providers.
- This Pilot was conducted under the premise that RFID/EPC adoption should be approached as an industry-wide issue and all the participants identified herein have contributed significantly to this project and its findings.
- The industry participants in the project were:
 - General Mills Canada
 - Loblaw Companies Limited
 - Maple Leaf Foods
 - Scott Paper Limited
 - Unilever Canada
- The industry associations involved in this project were invaluable to ensure there was high level alignment on project objectives amongst their membership and constituents. The associations supporting this Pilot were:
 - Canadian Council of Grocery Distributors (CCGD)
 - Food & Consumer Products of Canada (FCPC)
 - EPCglobal Canada
- Also, this Pilot was made possible with the support and active participation of three technology providers. These were:
 - Intermec Technologies Limited
 - Symbol Technologies Limited
 - IBM Canada

Pilot Objectives

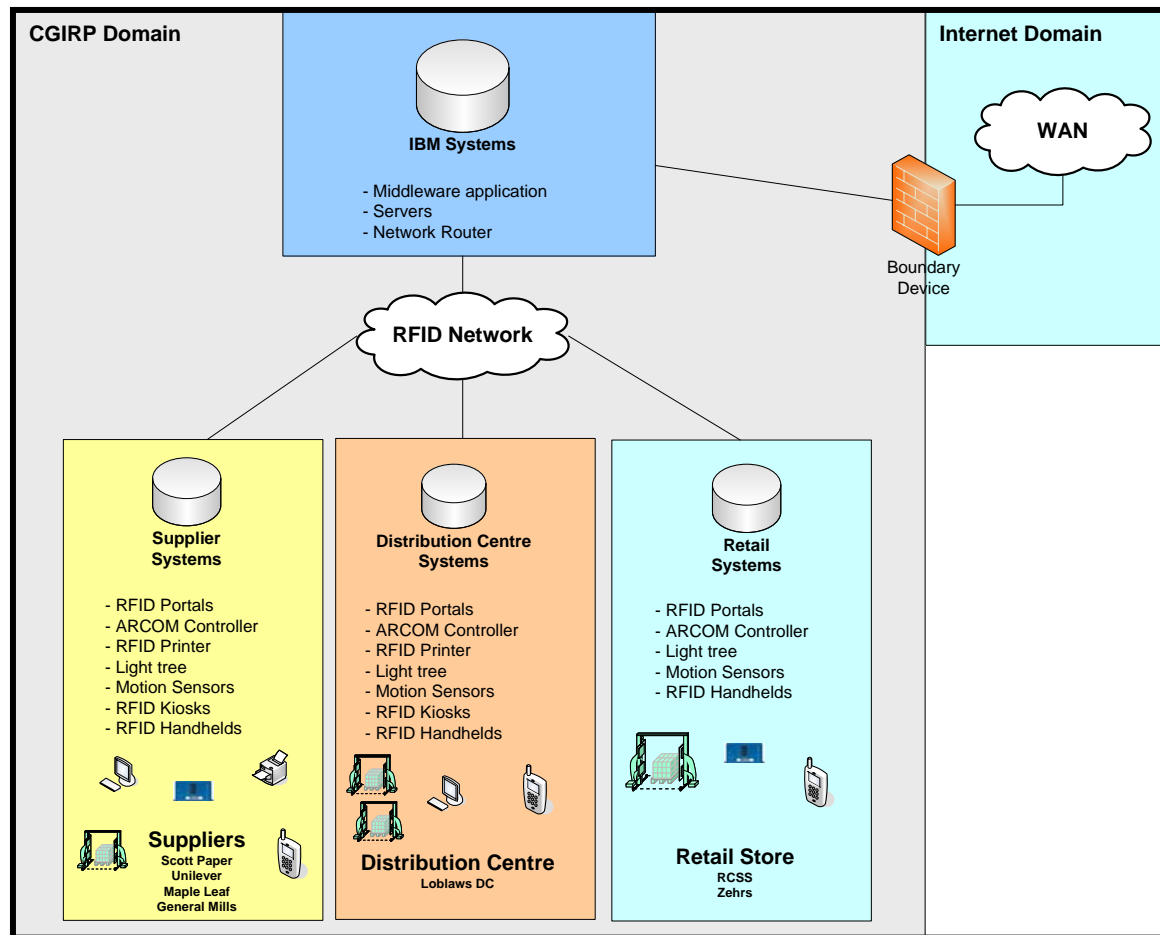
- To work collaboratively within the industry to understand the conditions under which RFID should be implemented in Canada
- To assess the conditions under which the supplier community could see benefits from RFID implementation
- To create retailer and supplier road maps on how to implement RFID for maximum advantage
- To get a first hand account of how RFID is performing in the “real” world – a Canadian view

Pilot Overview

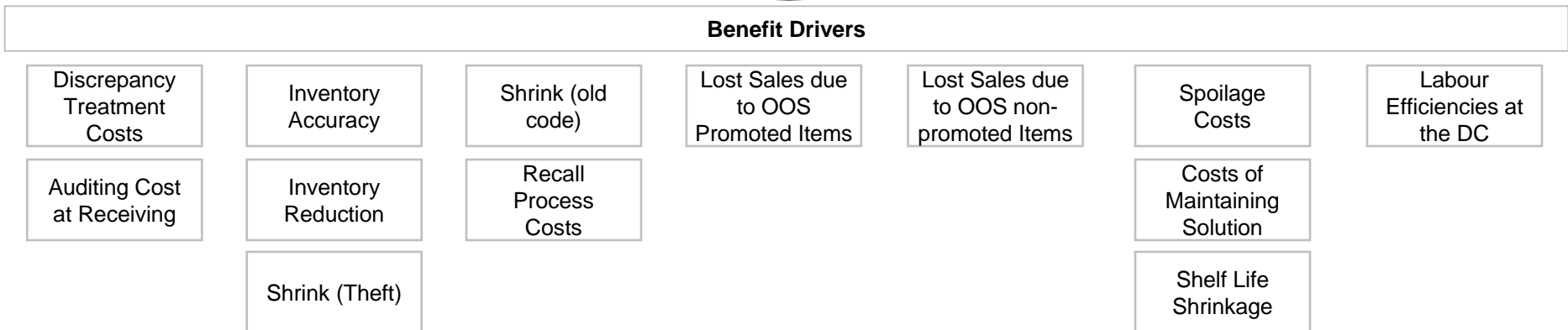
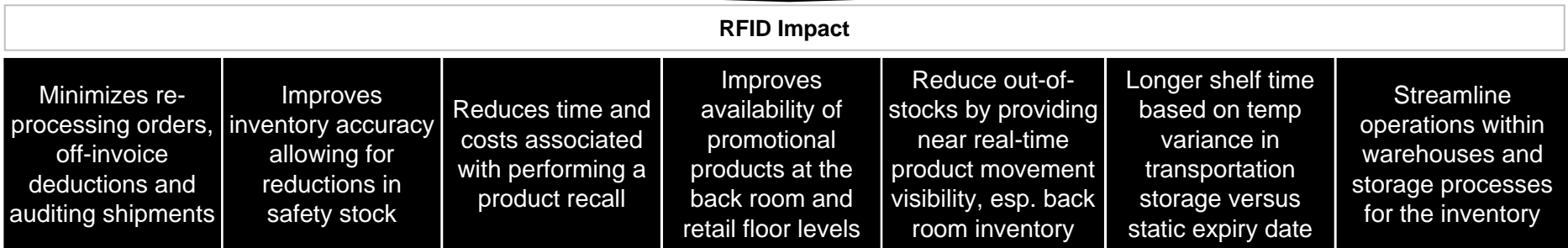
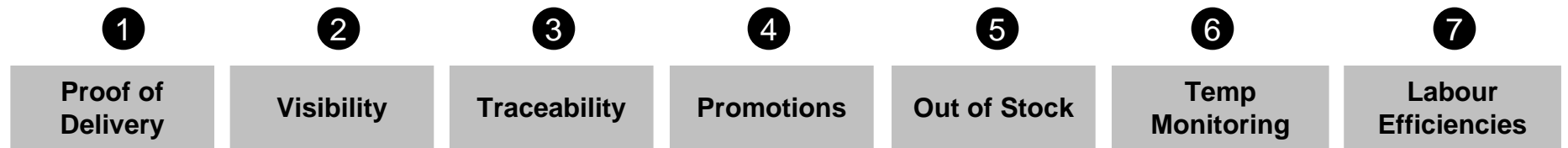
- There were four major suppliers and one retailer involved in the study during the pilot
- Each of the four suppliers chose two to three distinct SKU's to be used in the pilot timeframe, all eventually going to the Retail Distribution Centre and onwards for sale at two retail stores.
- Product categories used in the pilot included fresh meat, frozen, cans, bottles, paper, dry grocery, promotional displays



Pilot Architecture



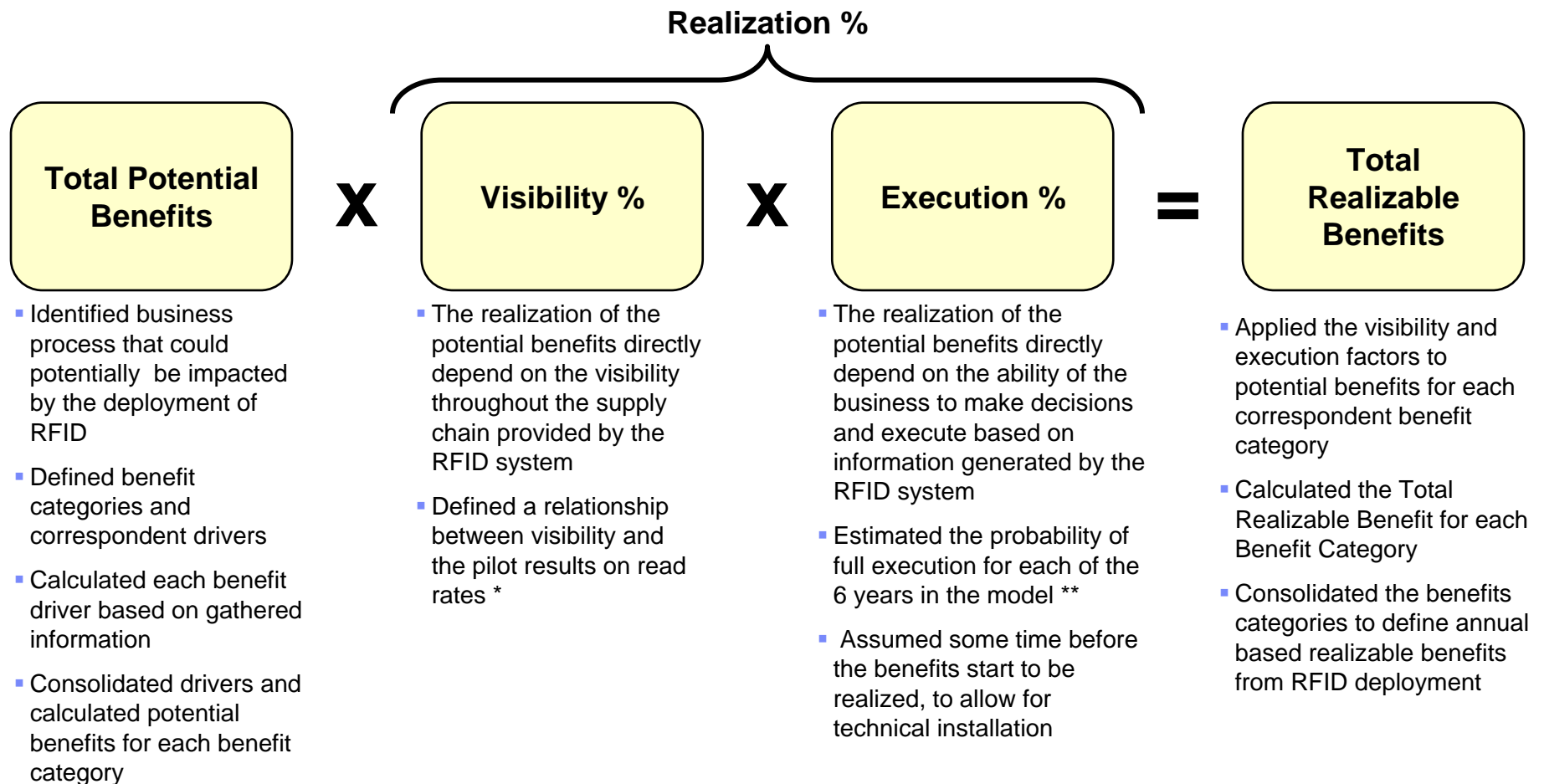
Targeted Benefits



Reporting Structure & Confidentiality

- The Pilot project has generated three different levels of reports, each intended for different audiences.
- Each of the industry participants in the Pilot will receive a report detailing how RFID has the potential to impact its specific business. This will be a Proprietary Report and will be distributed only to each specific industry participant. It will not be shared with any other participating organization.
- The industry associations and the technology partners, as well as the industry participants, will be receiving the Pilot Report which will include detailed information not deemed to be proprietary to any of the industry participants.
- An Industry Report, intended for much broader distribution, will also be published. This will act as the public report on the Pilot.

How Benefits were Calculated



Out of Stock Example

| | | Loblaw Shipment | RFID System Store Back Room | RFID System Store Sales Floor | Loblaw POS |
|----------|-----------|-----------------|-----------------------------|-------------------------------|------------|
| units | | cases | cases | cases | items |
| Week 33 | Tuesday | 15-Aug | 1 | 1 | 1 |
| | Wednesday | 16-Aug | 1 | 1 | 0 |
| | Thursday | 17-Aug | | | 2 |
| | Friday | 18-Aug | | | 1 |
| | Saturday | 19-Aug | | | 7 |
| | Sunday | 20-Aug | | | 2 |
| Week 34 | Monday | 21-Aug | | | 2 |
| | Tuesday | 22-Aug | | | 2 |
| | Wednesday | 23-Aug | | 1 | 3 |
| | Thursday | 24-Aug | | | 1 |
| | Friday | 25-Aug | | | 2 |
| | Saturday | 26-Aug | | | 0 |
| Week 35 | Sunday | 27-Aug | | | 1 |
| | Monday | 28-Aug | | | 1 |
| | Tuesday | 29-Aug | | | 0 |
| | Wednesday | 30-Aug | | | 0 |
| | Thursday | 31-Aug | | | 0 |
| | Friday | 1-Sep | | | 0 |
| Saturday | 2-Sep | 1 | 1 | 1 | 0 |
| Sunday | 3-Sep | | | | 4 |
| Monday | 4-Sep | | | | 0 |
| Tuesday | 5-Sep | | | 1 | 5 |

- A** Aug 16th: Loblaw reported that a case was shipped to RCSS (WMS)
- B** Aug 16th: RFID system captured the replenishment to the Sales Floor event
- C** Aug 23st: A half-full case was returned to the Store Back Room after 6 days
- D** Aug 24th: Remaining items sold. Shelves run out of stock
- E** Sep 2nd: Next Shipment Received
- F** Sep 5th: Cases in the back room finally moved back to the sales room

5 days of Out Of Stock occurred on the Sales Floor, even though there were available products in the backroom

Promotions Management Example

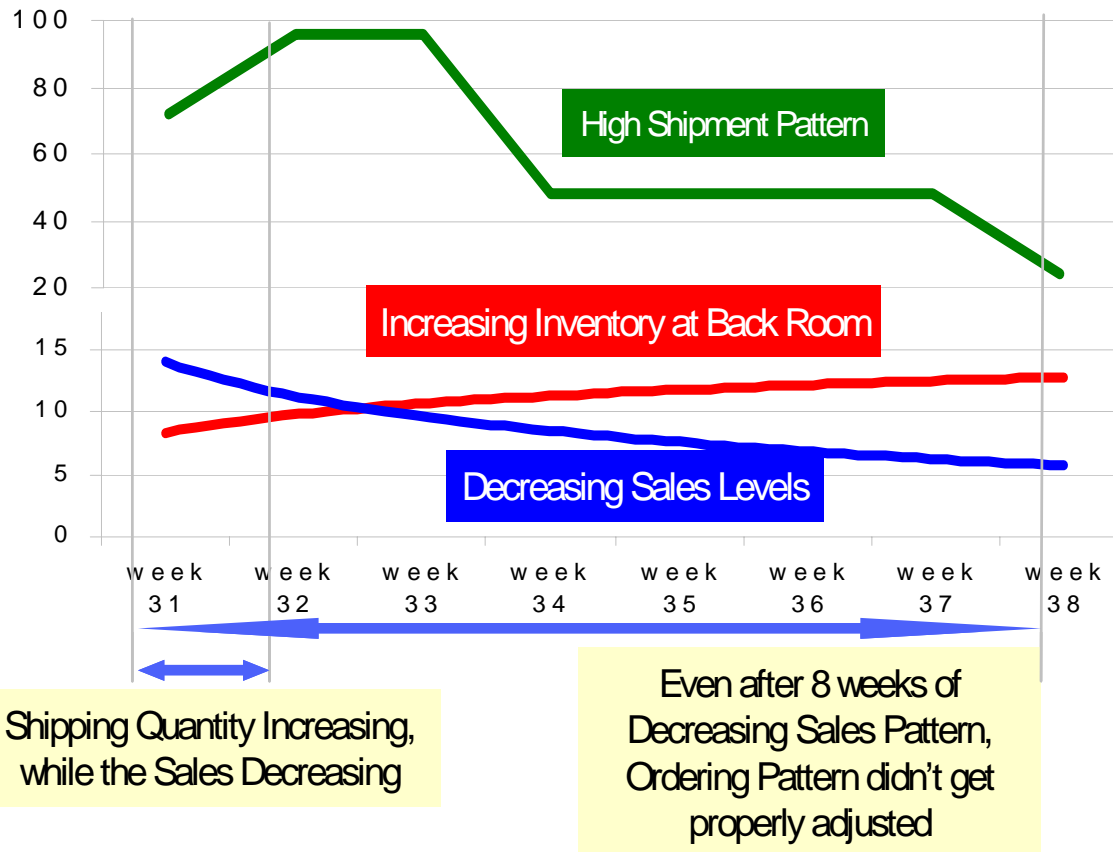


Cashmere Jumbo “on promotion” but without the “sale price” attached, or any advertisement on flyer (Friday, Oct 27th - 11AM)



Cashmere Jumbo out of Stock during promotion (Saturday, Oct 28th - 3 PM)

Product Visibility Example



- 1) The selected perishable product had a very consistent replenishment pattern coming out of the summer, when sales tend to be high
- 2) The RFID system indicated that on week 37, 2 cases went straight to the backroom instead of to the sales floor and remained there for 3 days
- 3) Checking inventory levels at the backroom and incorporating with POS data, we could see that even though the sales were trending downwards and backroom inventory was going up, the replenishment pattern (2 cases / week) continued for more than 4 weeks.

By using information provided by the RFID system (inventory levels at the back room), replenishment pattern could have been adjusted thereby reducing the risk of losses and shelf life shrinkage

Recall Traceability Example

| Information Required By Law During Recall | Time Stamp | RFID Enabled Mock Recall Test Result |
|---|---------------|---|
| Product Identification -Product Name / Codes -Production / Expiry Date | 1.06pm | Name: Perishable Item ABC Code: 583294 Expiry Date: 11/03/2006 |
| Distribution Details -Distribution Entity -Distribution Date -PO / Lot Number | 1.08pm | Retailer DC: Shipped on 09/10, 09/13; PO's: 352277-03, 390131-03 Retail Store #1: Shipped on 09/15/2006 Retail Store #2: Shipped on 09/18/2006 |
| Inventory Details -Retailer DC -Retailer Stores | 1.11pm | Retailer DC: 491 cases Retail Store #1: Back Room - 0 case, Sales Floor - 2 cases Retail Store #2: Back room - 1 case, Sales Floor: 2 cases |

10. EPC Track & Trace by Purchase Order

PAGE-BY: Product:

« 1 2 3 of 3 page(s) »

| PO Number | EPC | Expiry Date |
|-----------|---|-------------|
| | sgtin:0062000.018384.4353 | 11/3/2006 |

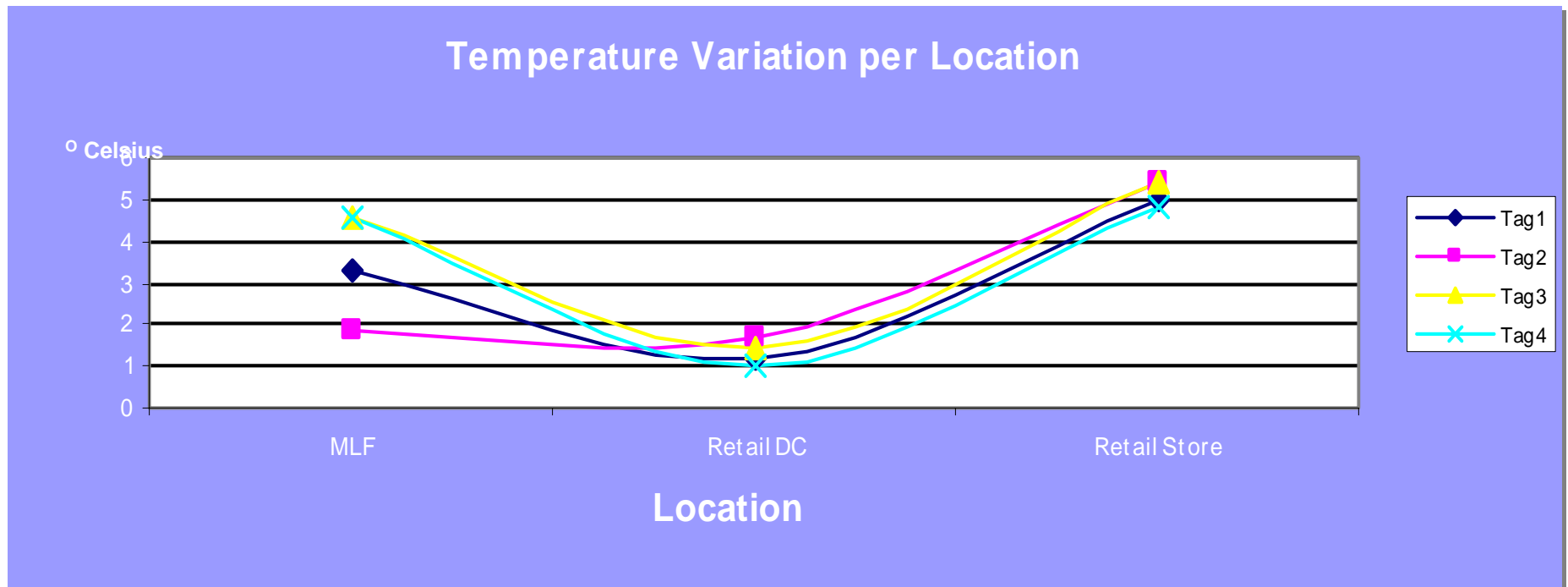
11. EPC Track & Trace by Lot Number

| EPC | Expiry Date | Purchase Order | Location |
|---|----------------|----------------|----------|
| sgtin:0062000.018384.4170 | 11/3/2006 0:00 | 352277-03 | DC |
| sgtin:0062000.018384.4171 | 11/3/2006 0:00 | 352277-03 | DC |
| sgtin:0062000.018384.4172 | 11/3/2006 0:00 | 352277-03 | DC |

During a simulated recall, a report was generated with product location data, through out the supply chain, in less than five minutes

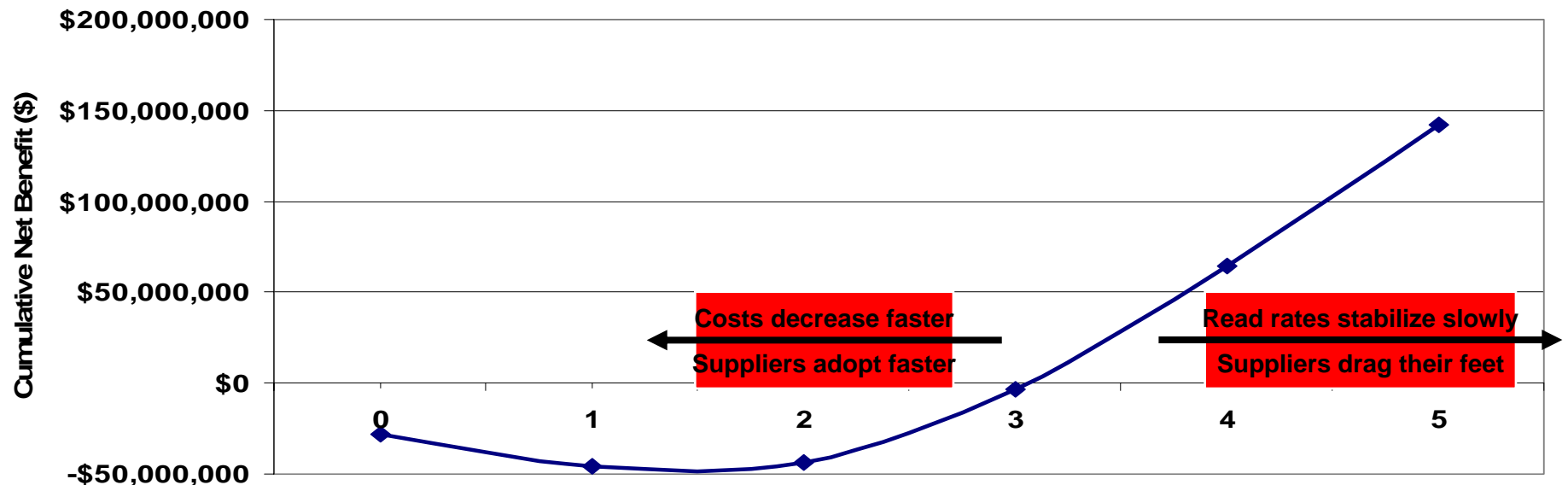
Temperature Monitoring Example

- The graph below displays the temperature profile of the product as it moved through the supply chain over a seven day proof of concept.
- During the PoC, the test showed that none of the cases were exposed to conditions outside the acceptable range (0 to 4.5 C; -3.3 to 10 C).



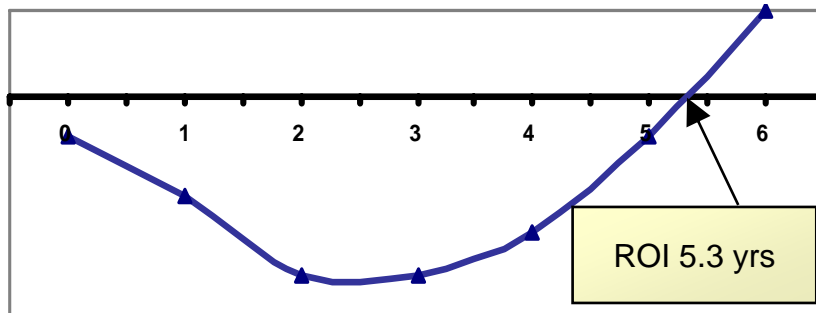
ROI's for Retailers have been consistently positive

- Driven by the significant potential benefits from reduction of out of stocks as well as others, most retailer business cases have been overwhelmingly positive.
 - Even using conservative estimates for benefits and costs (i.e. low benefits and high costs), the return on investment for retailers is approximately three years or less.

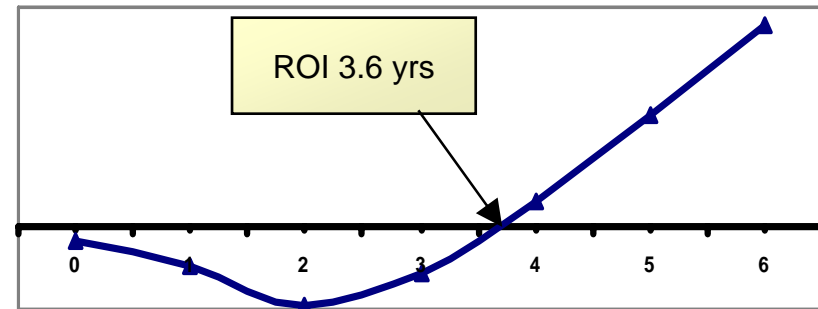


- Each retailer needs to develop an RFID business case and deployment plan based on its own business strategies and distribution and retail operations.

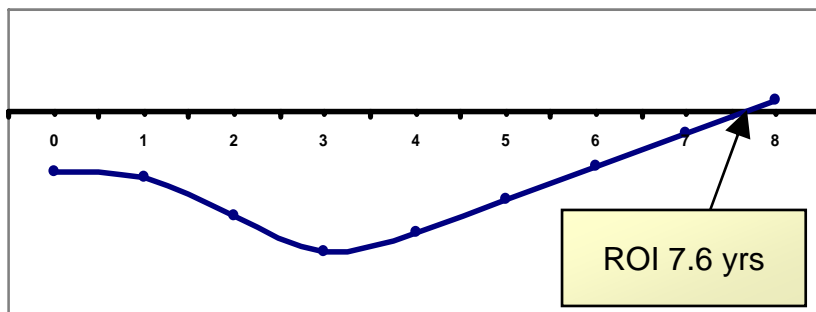
ROI's for Suppliers are generally weaker but still possible



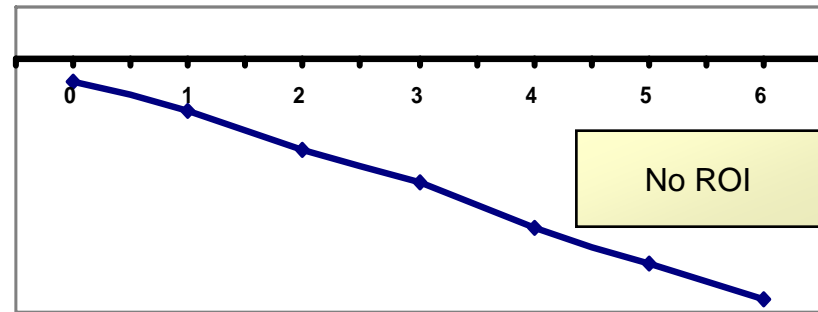
- Most traditional business case
- Benefits coming from reduced OOS and better supply chain visibility



- Benefits from reduced OOS, specifically around promoted products
- Shows “willingness” to accept RFID as a significant benefit drive

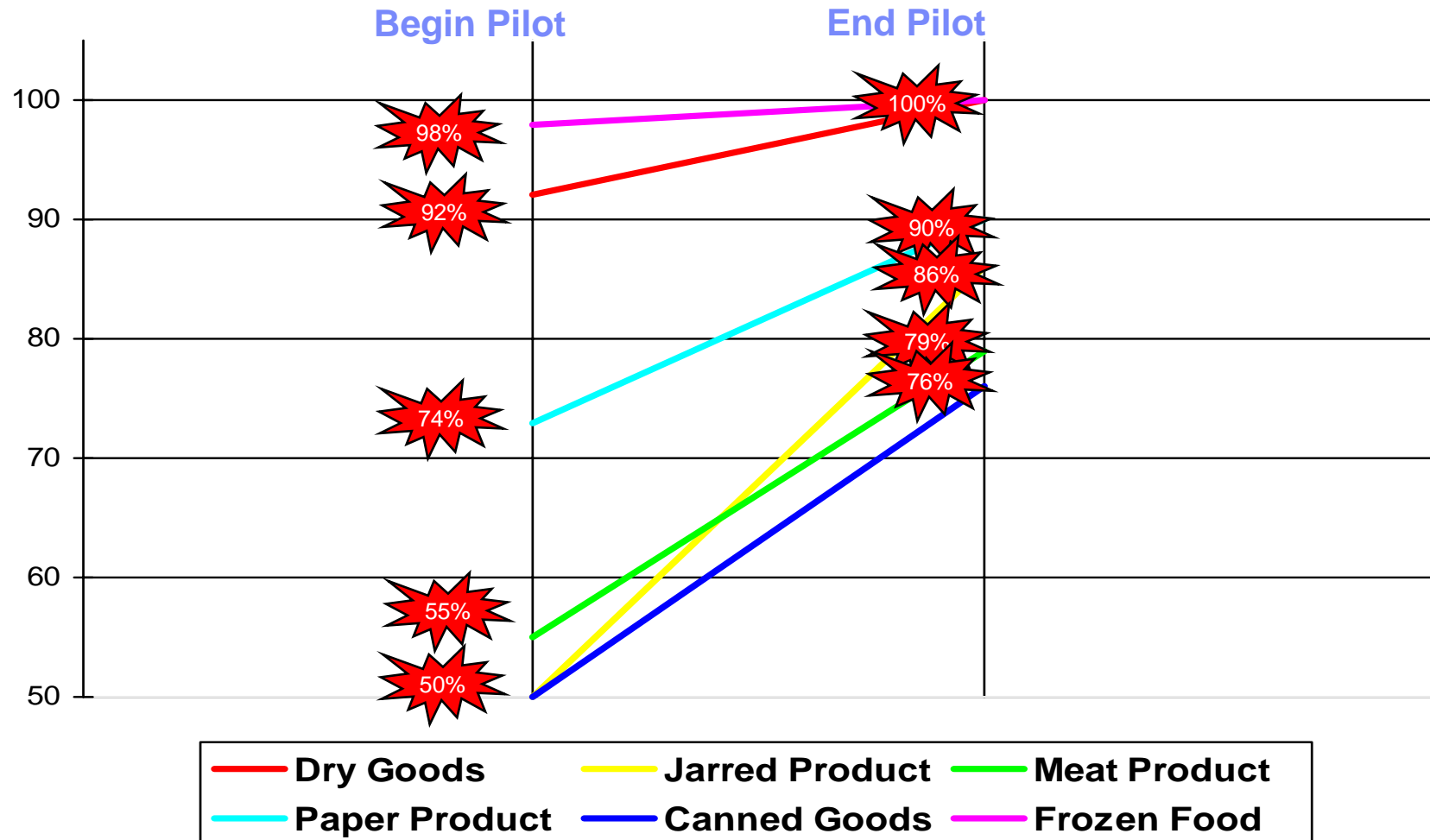


- Hybrid approach where low initial volumes make Slap&Ship okay but when they increase, automation is required for a positive ROI



- Slap&Ship is not a viable, long term option
- Costs increase as volumes increase
- No acceptance of RFID as a value driver

Read rate improvement was constant throughout the pilot



Pilot Conclusions

- The results of the pilot show that for retailers and suppliers, the critical factor that drives ROI is the percentage of product volume that is RFID-tagged and tracked through the supply chain.
 - This is to say that for suppliers, greater ROI is typically realized the greater the volume of shipped products require RFID tagging.

- This pilot evaluated RFID performance for a set number of benefit categories and therefore, the calculated ROI's for all participants may be much greater than identified in this project.
 - i.e. Inventory optimization was not evaluated directly in this study.

- The results of the pilot show that within specific parameters, RFID can show a positive return on investment for both suppliers and retailers TODAY.

- There is a deployment conflict that must be addressed: manufacturers would prefer to roll out manufacturing/packaging facility by facility where retailers would prefer to roll out by geography.

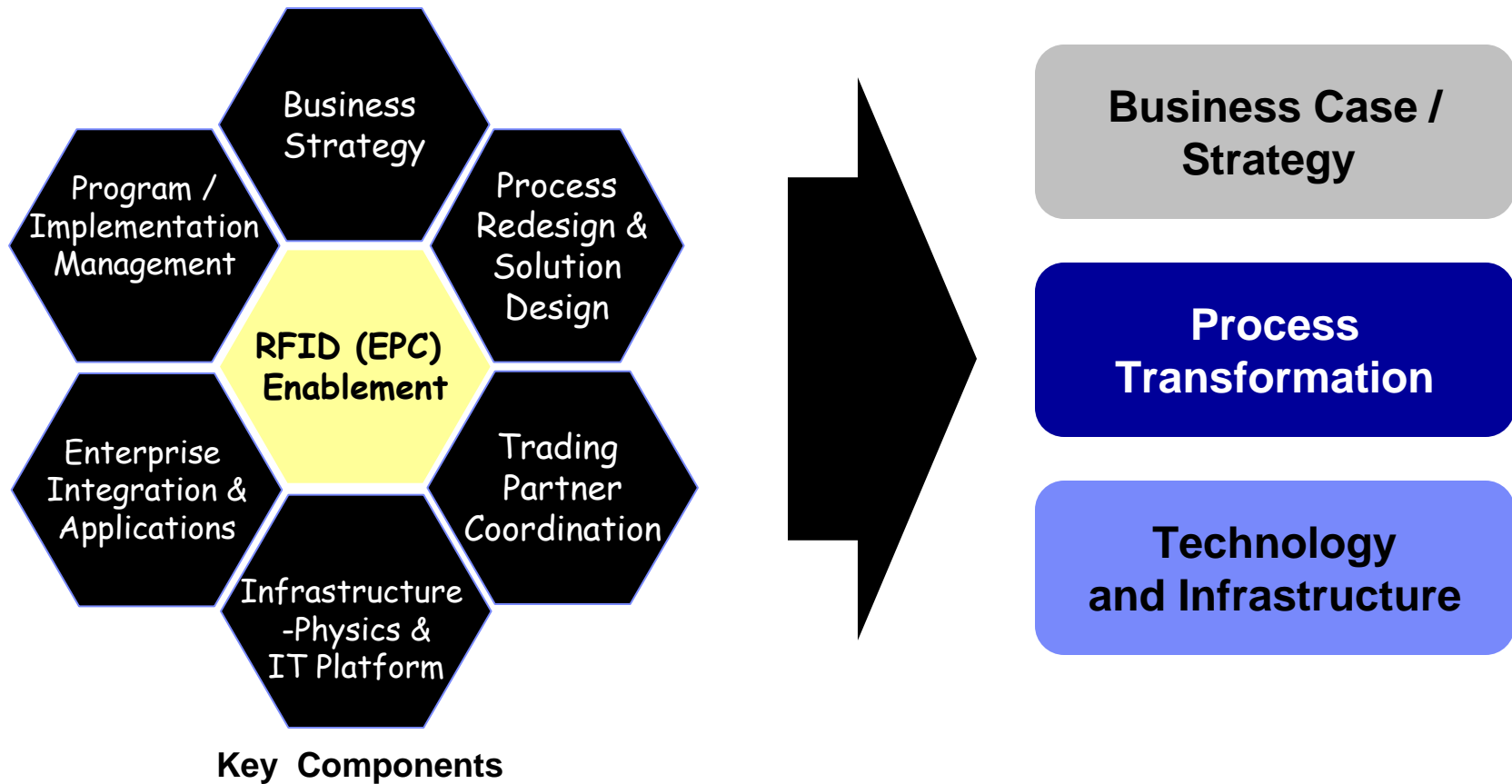
Pilot Conclusions

- Certain benefit categories offer immediate benefits including product promotions and traceability for products requiring it.
- For most product categories and packaging types RFID displays read rates of virtually 100% at case and pallet level.
 - For certain product categories, especially meat, RFID read rates can still be improved upon; this holds true of certain packaging types as well.
 - At mixed pallet level, read rates are variable. Further testing is required to ascertain performance based on specific pallet contents.
- Technical capability should not be an inhibiting factor for RFID adoption and that specific manufacturers could deploy RFID today with reasonable ROI.

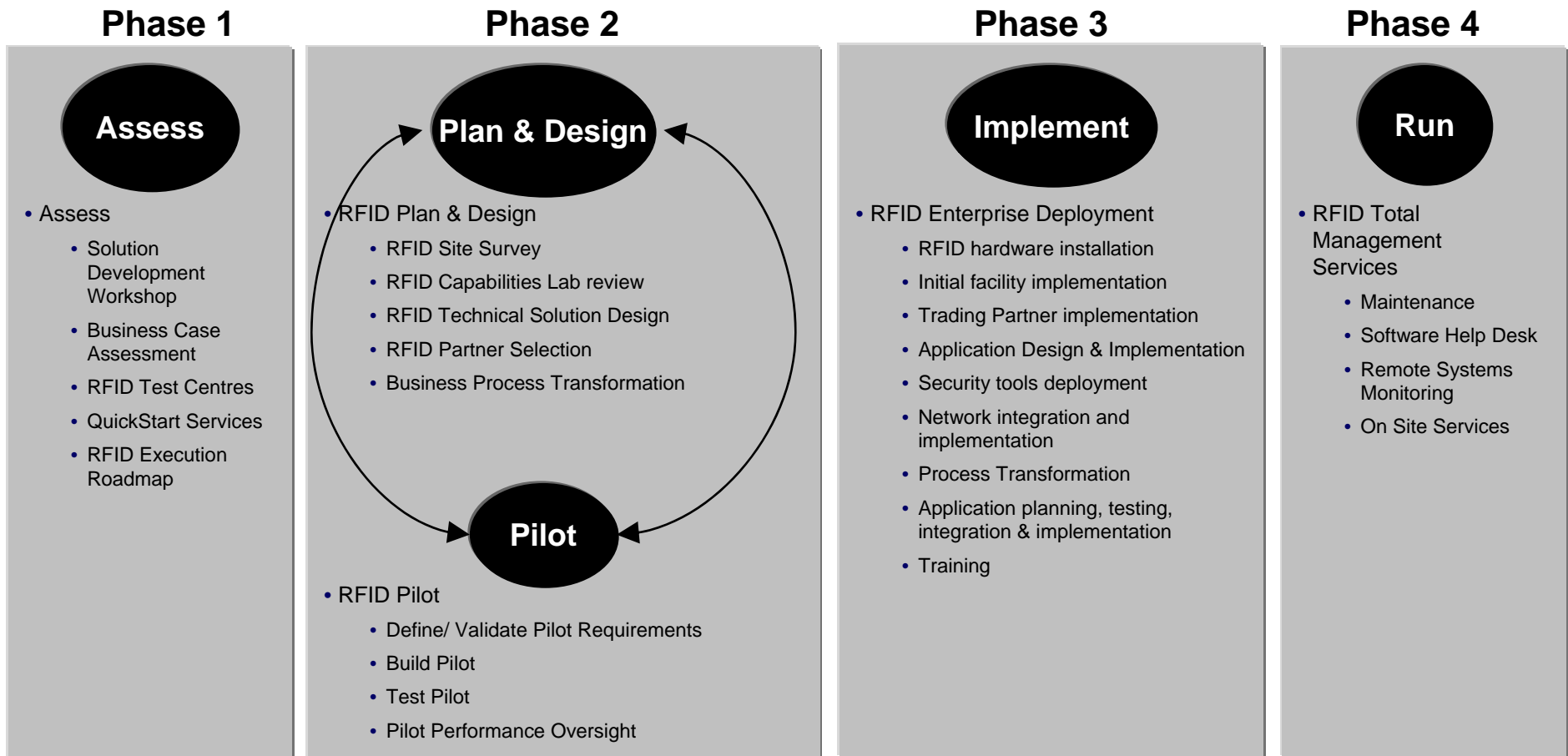
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Successful RFID initiatives will require many capabilities in three critical focus areas



Approach to a tailored RFID solution



Considerations for getting started

- **Build your own experience** through trials and controlled pilots. **There is no substitute for hands-on learning.**
- **Recognize that standards and technology capabilities will evolve** over time, and plan your deployment, partner selection and solutions accordingly.
- **Build a foundation** today that you can scale with future growth.
- **Business transformation and long term success will require flexible, scaleable and manageable infrastructure.** Start thinking about strategies for application integration and data sharing.
- **Integrate RFID into the context of a broader business strategy or transformation program**, such as “e-production”, or a “Consumer Driven Supply Chain” or “end to end visibility transformation.” Compliance alone will not deliver value.
- **Gain benefits today** by applying RFID capabilities to improve specific business processes. Manage expectations since this transformation will take some time.

The Future

Adoption Trends

2007 will be a year of extended pilots

- Focus on Specialty Retailers piloting at the store level
- Focus on continued supply chain pilots working with partners

2009 will be big rollout year – in both EMEA and AG

- Front of store initiatives being pushed up the supply chain by integrated Retailers
- Supply chain initiatives going broader across stores & suppliers

2010 will see mass adoption across all Retail segments

- Suppliers pushing RFID further upstream to move away from cost-plus scenarios

Target Segments

Specialty Retailers - front-of-store applications

- Apparel / footwear
- Controlled products
- Big ticket items
- Special order item management

Mass Retailers - supply chain efficiencies

Grocery Retailers - traceability

Pharma Retailers - controlled supply chain

DIY Retailers – special order management

Tagging Levels

Case / pallet – supply chain efforts will continue to progress the RFID agenda from the supply chain forward

Item – many retailers are looking to leverage item-level tagging to gain competitive edge around customer experience and enhanced capability to manage stock



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Questions?



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