



FOCUS ON RETAIL AND SUPPLY CHAIN

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PWC CONSULTING

CONFIDENTIAL - FOR AUTO-ID CENTER SPONSORS ONLY



AGENDA

- Our Approach and Methodology
- Product Availability insights around Auto ID
- Warehouse and Distribution Insights around Auto ID
- Implementation Roadmap
- Business Case Insights
- Next Steps



OUR SINCERE THANKS TO:

Alien Technologies, Auto-ID Center, ConAgra Foods, Checkpoint Systems, CHEP, Defense Commissary Agency, Gillette, GMA, Intel, JC Penny, Johnson & Johnson, Kraft Foods, Kroger, Matrics, Philips Semiconductors, Procter & Gamble, Shaw's, Sensormatic Electronics, Symbol Technologies, Tesco, ThingMagic, Unilever, and Wal-Mart



OUR APPROACH

- Customized our standard value chain diagnostic tools with Auto-ID specific questions and analysis
- Selected participants and scheduled workshops, face-to-face interviews and/or phone interviews
- Developed “pro-forma” points of view on technology capabilities, broad application options and migration paths
- Gathered data, participant insights and conducted analysis
- Wrote papers and validated findings
- Submitted to Auto-ID Center for finalization and publication



THE PWC CONSULTING WHITE PAPERS

Common Prelude Section, then focus on specific “pain points”

- Focus on Retail: Applying Auto-ID to Improve Product Availability at the Retail Shelf
- Focus on the Supply Chain: Applying Auto-ID within the Distribution Center

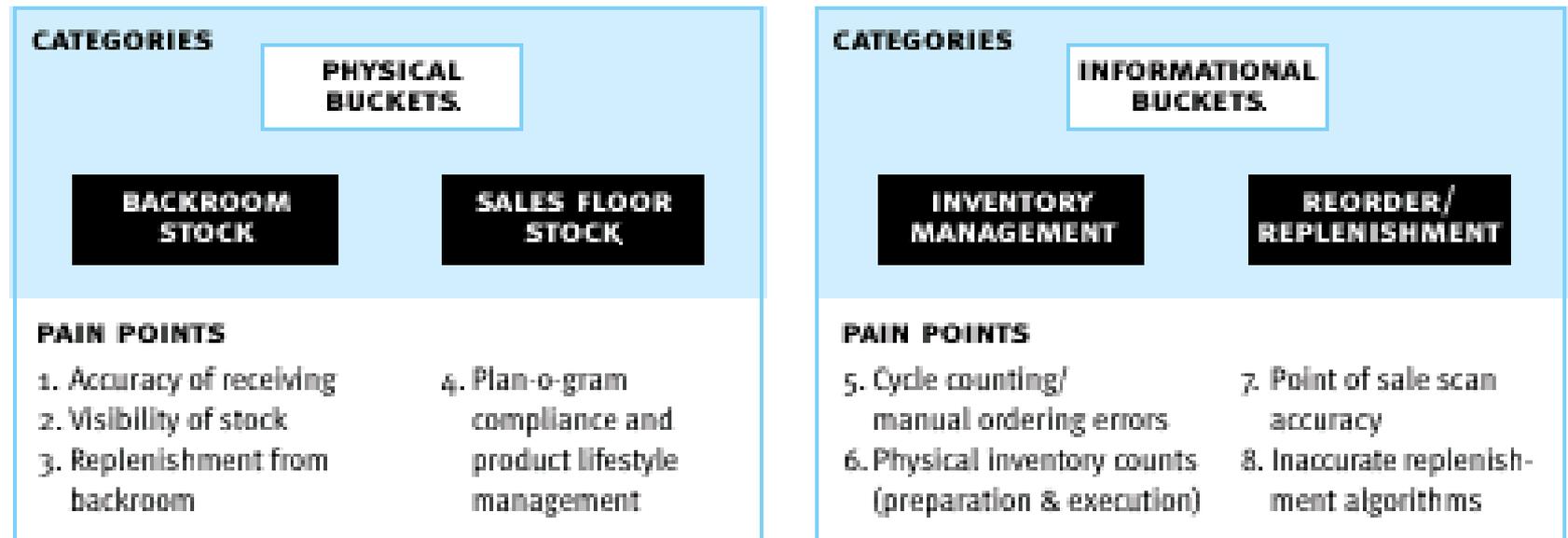


Focus on Retail: Applying Auto-ID to Improve Product Availability at the Retail Shelf



PRODUCT AVAILABILITY - - WHAT EXACTLY ARE THE PAIN POINTS?

PAIN POINT CATEGORIES



← Labor Allocation Inventory Management →



AUTO-ID PROVIDES A SCALABLE, ROBUST SOLUTION TO PRODUCT AVAILABILITY - - BUILT UPON REAL TIME PHYSICAL DATA, NOT ASSUMPTIONS

RELATIONSHIP BETWEEN RETAIL PAIN POINTS AND THE LEVEL OF TAGGING APPLIED.

	PAIN POINT		LEVEL OF AUTO-ID ADOPTION	
			CASE	ITEM
PHYSICAL BUCKETS	BACKROOM STOCK	1. Receiving Accuracy	X	X
		2. Stock Visibility	X	X
		3. Backroom Replenishment	X	X
	SALES FLOOR STOCK	4. Plan-o-gram Compliance/ Product Life-cycle Management	X	X
INFORMATIONAL BUCKETS	INVENTORY MANAGEMENT	5. Cycle Counting/Manual Ordering	X	X
		6. Physical Inventory Counts		X
	REORDER/ REPLENISHMENT	7. Point of Sale Scan Accuracy		X
		8. Replenishment Algorithm Accuracy		X



THE PROJECTED BENEFITS ARE COMPELLING...

ANTICIPATED BENEFITS AT THE CASE AND ITEM LEVEL IN \$000

RETAILER BENEFIT	INDIVIDUAL STORE		SYSTEM WIDE (800 STORES)	
	Case-reading	Item-reading	Case-reading	Item-Reading
OOS Margin lift	\$43	\$74	\$34,400	\$59,200
Labor cost reduction	\$55	\$113	\$44,000	\$90,400
TOTAL BENEFIT	\$98	\$187	\$78,400	\$149,600



THREE THINGS LEARNED ABOUT AUTO-ID AND PRODUCT AVAILABILITY:

- Auto-ID business case propositions exist at the pallet and case level TODAY for certain product supply chain characteristics
- The benefits are transformational by nature
- The same infrastructure investment provides solutions across many benefit areas – product availability, theft reduction, inventory management, DSD, reduced freight, reduced product obsolescence, improved supply chain protection through product recalls, improved promotions management etc.

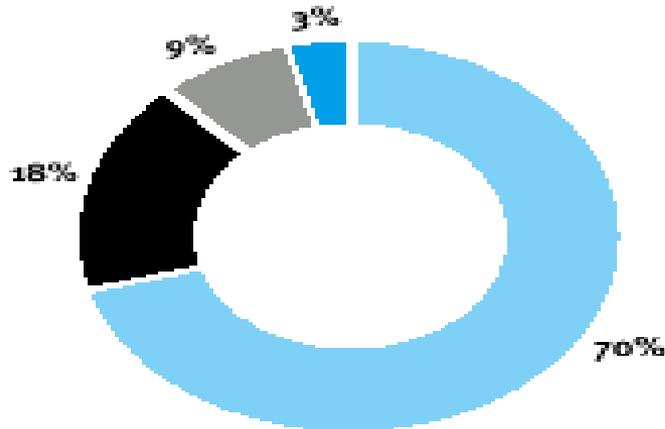


Focus on the Supply Chain: Applying Auto-ID within the Distribution Center



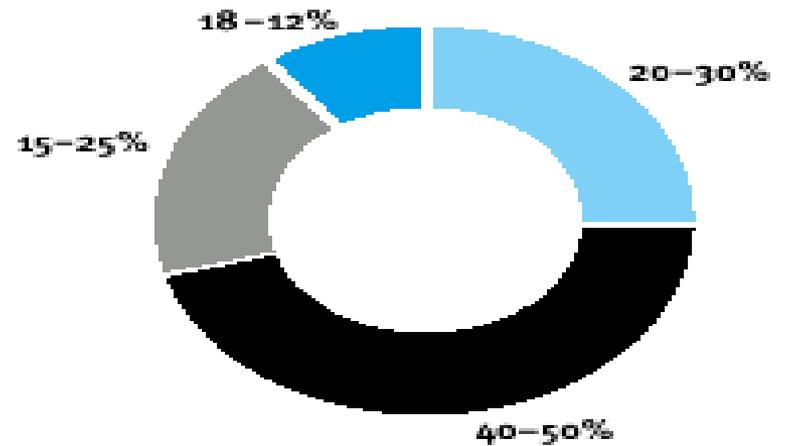
DESPITE HUGE STRIDES IN SUPPLY CHAIN SOPHISTICATION, LEADING EDGE PRACTITIONERS CONTINUE TO SUFFER COSTLY INEFFICIENCIES

TYPICAL BREAKDOWN OF DC COSTS



- 70% Labour.
- 18% Space & Building
- 9% System.
- 3% Other.

TYPICAL BREAKDOWN OF DC LABOUR



- 20-30% Receiving
- 40-50% Picking
- 15-25% Shipping
- 8-12% Other



OUR CALCULATIONS WERE BASED UPON REPRESENTATIVE MANUFACTURER DC AND RETAILER DC OPERATIONS:

CHARACTERISTIC (PER DC UNLESS NOTED)	ABC MANUFACTURER	XYZ RETAILER
Number of DCs in network	10	5
Number of Associates	140	470
Hourly Rate (includes 5% OT and benefits)	\$17	\$17
Total inventory value (Network wide)	\$518 million	\$691 million
Cases Received	40,000,000	80,000,000
Cases Shipped	40,000,000	80,000,000
DC square footage	600,000	1,200,000
Dock Doors (Receiving and Shipping)	50	100
Average Warehouse Cost (\$ per case)	\$0.25	\$0.35
Average COGS per case	\$15.55	\$25.90
Revenue per Case	\$25.90	\$35.00
Labor as a Percentage of Total DC Cost	50%	60%
Cases per pallet (shipping and receiving)	70	70
Annual inventory turns	12	15
Retail Outlets Serviced	N/A	160



THE AUTO-ID SOLUTION FOR THE DISTRIBUTION CENTER

- Automated receiving
- Automated pick list verification
- Automated update to shipping documentation
- Simplification of settlement processes between trading partners

COVERAGE AREA	HOW IT WORKS	BENEFITS	RESULTS
1. RECEIVING	<ul style="list-style-type: none"> - Reads pallet-level and case-level tags as product is moved off the truck and into the receiving area - Verifies match between pallet ID tag and cases on pallet, and source of product and purchase order – confirms receipt 	<ul style="list-style-type: none"> - Eliminates manual steps to enable faster and more accurate receiving process 	<ul style="list-style-type: none"> - Less labor - Better information accuracy - Improved throughput - Higher asset utilization - Reduces returns/claims - Improves customer service levels
2. FORKLIFT/ ORDER PICKER	<ul style="list-style-type: none"> - Reads case tags as product is taken from location and placed on a pallet or belt (case picking) - Integrates with WMS to validate product and picking quantities, updates inventory 	<ul style="list-style-type: none"> - Eliminates manual steps to count and record picks - Eliminates time spent correcting error - Improves order line fill rate 	
3. CONVEYOR	<ul style="list-style-type: none"> - Reads case tags as product passes reader on belt - Integrates with WMS and conveyor control to divert product and record transaction 	<ul style="list-style-type: none"> - Does not require line of sight - Eliminates time spent correcting no reads 	
4. SHIPPING	<ul style="list-style-type: none"> - Reads pallet-level and case-level tags as product is onto the truck moved - Integrate with the WMS to confirm product, customer, truck, load sequence 	<ul style="list-style-type: none"> - Eliminates manual steps to enable faster and more accurate loading - Enables direct loading from pick 	



THE PROJECTED BENEFITS ARE COMPELLING, EVEN TRANSFORMATIONAL IN IMPACT

ADOPTION LEVEL	ABC MANUFACTURER (IN \$M)	XYZ RETAILER (IN \$M)	TOTAL (IN \$M)
PALLET	\$2.70	\$3.80	\$6.5
CASE	\$20.1 ¹	\$33.5 ²	\$53.6
ITEM	\$39.8 ³	\$60.3 ⁴	\$100.1

- Based on a value chain with an average shopping basket item of \$1.75
- Even at today's tag costs, a standards-based EPC solution can deliver justifiable value to certain products and value chains
- A diagnostic review of the value chain is a productive way to identify the right applications and the right timing for the right products in your company's value chain



THREE THINGS LEARNED ABOUT AUTO-ID AND DISTRIBUTION OPERATIONS:

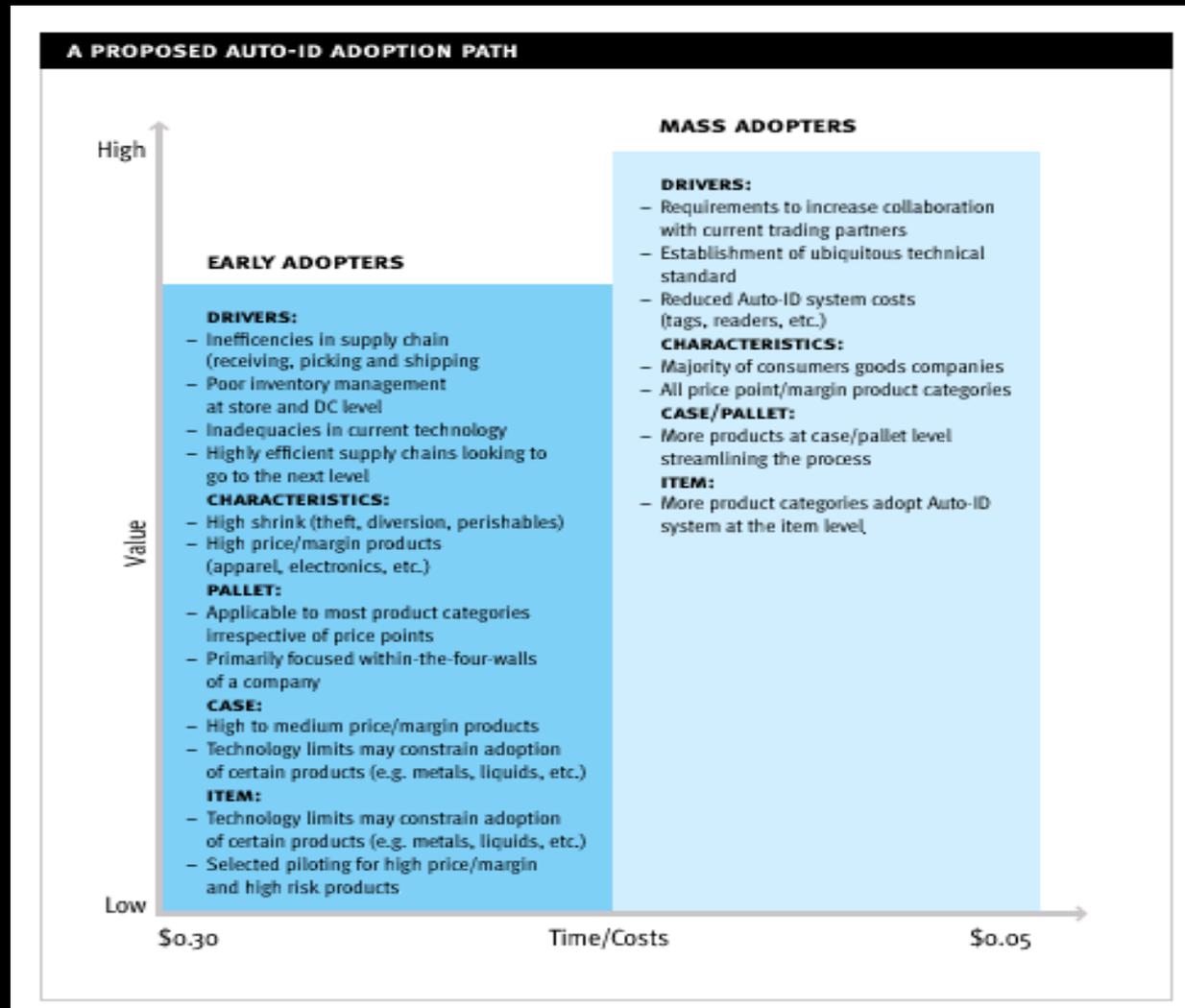
- Auto-ID business case propositions exist at the pallet and case level TODAY for certain product supply chain characteristics
- Auto-ID represents a transformational opportunity to reduce operating costs and optimize inventory levels across the supply chain
- For some companies, the value proposition exists TODAY within the four walls of the organization



ADOPTION PATH



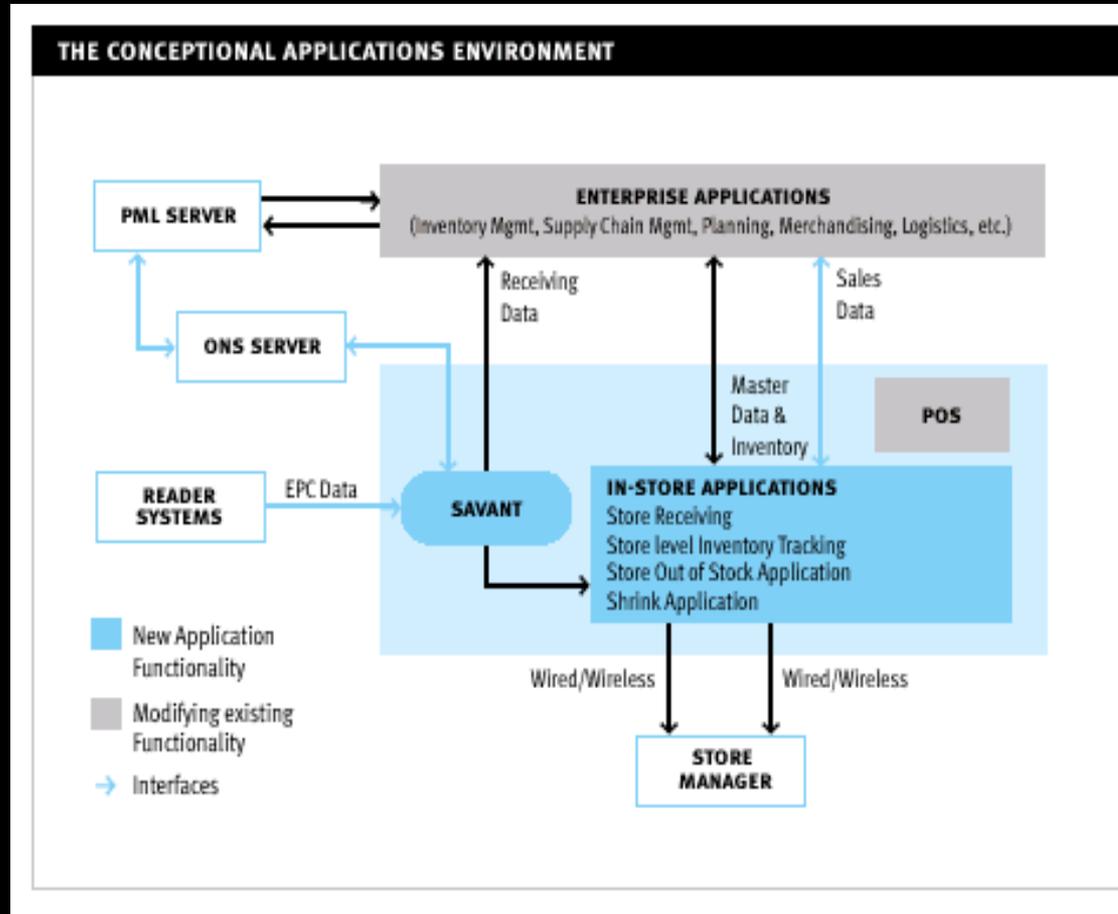
THE PROPOSED ADOPTION PATHS ARE BECOMING CLEAR





PROPOSED TECHNOLOGY AND PROCESS BLUEPRINTS ARE BEING DESIGNED

- Technology blueprints



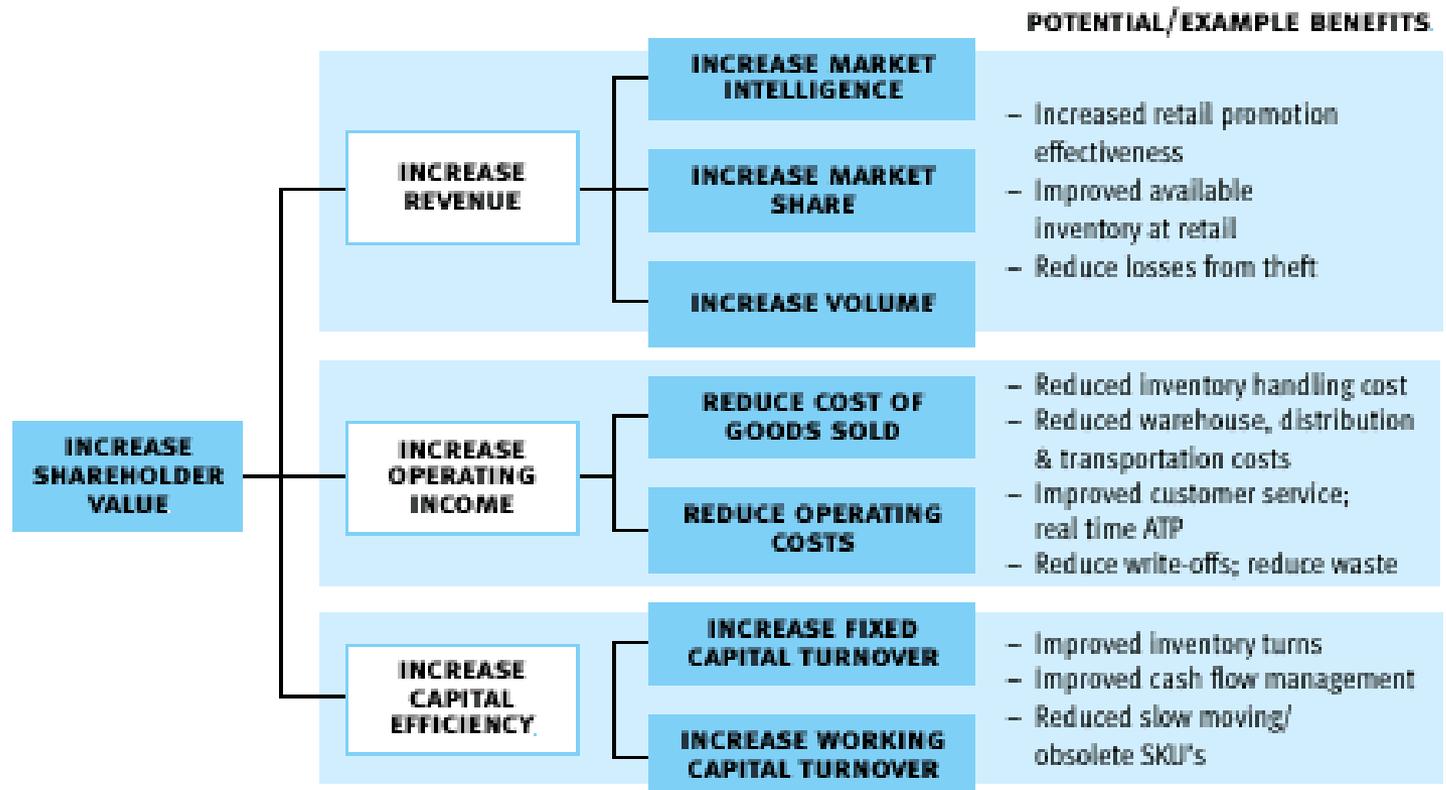


BUSINESS CASE APPROACH



THE POTENTIAL IMPACTS ON SHAREHOLDER VALUE

THE IMPACT OF AUTO-ID ON SHAREHOLDER VALUE





CONCLUSIONS



STRATEGIC CONCLUSIONS

- Auto-ID technology represents a transformational opportunity for today's leading consumer goods and retail companies
- The Diagnostic process requires some focused effort. Consideration must be given to:
 - Product categories
 - Physical attributes of the products
 - Trading partner relationships
 - Current technology state
- However, the attractiveness and immediacy of the business case analysis in turn demands that the standards process be driven aggressively