

***EPC* FIELD TEST**

BOARD OF OVERSEERS MEETING
6, 7 FEBRUARY 2002
PALO ALTO, CA.

SILVIO ALBANO

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FIELD TEST OVERVIEW

- In February 23, 2001 the Filed Test Charter called for:

Provide the MIT infrastructure to support *ePC*.....
in a town of at least 10,000 residents.....
at least two retailers.....at least 2 two distribution
centers.....



FIELD TEST OVERVIEW

- In a few months the field test will involve:
 - ✱ 8 states
 - ✱ 10 cities
 - ✱ 2/3 factories
 - ✱ 4 Manufacturer Distribution Centers
 - ✱ 1 Pilot lab facility
 - ✱ 2 Retailer Distribution Center
 - ✱ 3 Retailers



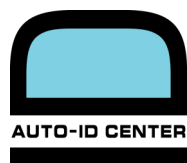
FIELD TEST OVERVIEW

- Objectives remain unchanged
- Phase I complete
- Phase II in progress
- Phase III in the planning stages
- 26 Sponsors participating
- Project is on Budget
- Phase I and II on time Phase III, early summer



FIELD TEST OBJECTIVES

- PHASE I - Evaluate effectiveness of the Auto-ID ONS and Savant development
- PHASE II - Implement and test aggregation
Add additional technologies to stress the system.
Read as many tags as possible
Make data available for Business Case
- PHASE III - Implement and evaluate low cost technology
Develop practical applications to prove *ePC* capability

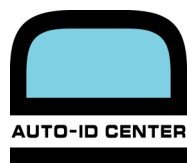


PARTICIPATING SPONSORS

END USER	TECHNOLOGY
Chep	Invensys
international Paper	NCR
Johnson & Johnson	SAP
Procter & Gamble	Sensormatic
The Gillette Co.	Sun
Unilever	Alien
Wal-Mart	Markem
Westvaco	Rafsec
YFY	Savi
Coca Cola	Checkpoint
Dai Nippon Printing	Philips
Kimberly Clark	RF Saw

UCC/EAN consulting only (non paying)

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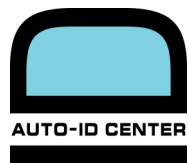
FINANCIALS

• Received	\$1,250,000
• Sponsor Commitments	\$ 245,000
	<hr/>
TOTAL	\$1,495,000
• Spent	\$ 398,136
• Committed	\$ 203,739
	<hr/>
TOTAL	\$ 601,875



FIELD TEST SUCCESS

- PHASE I - Prove that ONS and Savant work
Complete and Successful
- PHASE II - Prove that aggregation works
- PHASE III - Prove that low cost technology is
available and effective
Demonstrate power of *ePC* in some
practical application



PHASE I

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PHASE I STATUS

- Installation of Phase I is complete in:
 - ✱ P&G Factory, Cape Girardeau
 - ✱ Gillette Distribution Center, Chicago
 - ✱ Unilever Distribution Center, Baltimore
 - ✱ Sam's Club, Tulsa
 - ✱ Sam's Club Distribution Center, Kansas City



PHASE I STATUS

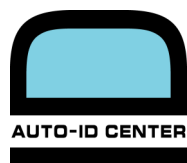
- | | | |
|-----------------|------------------------------|---|
| • P&G | 1 Exit door | Operational 10/1/01, working very well nearly 100% pallet read. Problems hardware or operational only |
| • Sam's Club | 5 Entry doors
1 Exit door | Frequency problems resolved.
Some problems still exist
Exit door operational |
| • Sam's Club DC | 2 Exit doors | System recently install. No meaningful data available |
| • Gillette | 1 Exit door | Minimal Reads available |
| • Unilever | 1 Exit door | Test data available and minimal real data |



PHASE I LEARNINGS

- ONS - works, debugged and stressed
- Savant - works, debugged and stressed
- Dial up is more prevalent than DSL.
Need to relay on disconnected networks more than expected
- Software is more reliable than hardware
Lost reader, disk, tags
- Business case process leaning, e.g. load pallets of Bounty two high two wide
- Automated network management a necessity even for small distributed systems

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PHASE I STATUS *FIELD TEST SUMMARY*

FIELD TEST SUMMARY - PHASE I

Date	# of pallets	P&G Cape Girardeau	Unilever Baltimore	Gillette Chicago	Sam' Club DC Kansas City		Sam's Club Tulsa Ok.		Comments
		Out	Out	Out	In	Out	In	Out	
1-Oct	26*	32/52 tags 25/26 pallets					36/52 tags 22/26 pallets**	10 tag 8 pallets	*34 actual pallets shipped 8 had no tags **Savi upgrades system
11-Oct	30	NO reads power outage					59/60 tags* 30/30 pallets	none to date	*One damaged tag Savi send personnel to debug problem
17-Oct	22	NO reads power outage					31/32 tags 16/16 pallets	none to date	Only 16 pallets read, suggest 6 pallets had no tags
22-Oct	22	32/44 tags 22/22 pallets					40/44 tags* 22/22 pallets	1 tag 0 pallets	* extra tag identified from pallet not shipped
29-Oct	25	32/50 tags 25/25 pallets					47/50 tags 25/25 pallets	none to date	
4-Nov	24*	33/48 tags 23/24 pallets					none*	2 tags 2 pallets	*system turned off
7-Nov	26	34/52 tags 25/26 pallets					51/52 tags 26/26 pallets	none to date	
13-Nov	31	31/62 tags 28/31 pallets					60/62 tags 30/31 pallets	none to date	
22-Nov	25	30/50 tags 25/25 pallets					0/50 tags 0/25 pallets	4 tags 3 pallets	Debugging problem
27-Nov	16	21/32 tags 16/16 pallets					0/32 tags 0/16 pallets	none to date	Debugging problem
5-Dec	35	41/70 tags 35/35 pallets					0/70 tags 0/35 pallets	7 tags 7 pallets	Debugging problem
13-Dec	25	0/50 tags 0/25 pallets					0/50 tags 0/25 pallets	40 tags 34 pallets***	***Combination with shipment 14
19-Dec	0		Initial test reads						Baltimore facility on line and operational
	14	11/28 tags 11/14 pallets					0/28 tags 0/14 pallets	none to date	Not sure why complete pallet misses
28-Dec	28	0/56 tags 0/28 pallets					0/56 tags 0/28 pallets	40 tags 34 pallets***	***Combination with shipment 12
31-Dec	0			initial test reads					Chicago facility on line and operational
5-Jan	33	44/66 tags 32/33 pallets					0/66 tags 0/33 pallets	none to date	
14-Jan	37	50/72 tags 37/37 pallets					0/72 tags 0/37 pallets	none to date	



PHASE I CURRENT PROBLEMS

- Loose power connection
- LAN problems
- Warehouse/Store personnel not able to tell if the readers are working or not
- Warehouse/Store personnel not able to tell if the readers/savant is receiving the *ePC* data as the pallets leave the dock door



HOW PROBLEMS ARE BEING ADDRESSED

- Shipping a monitor to each of the locations
Warehouse/store personnel can view *ePC* data (last 25 *ePC*s in real time as the pallets leave the dock door, as pallets (all) are being built

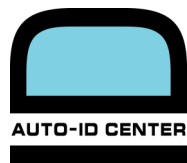
Warehouse/store personnel can monitor if all the readers, servers are up and running at any point in time



PHASE II

Implementation

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OCTOBER 1, 2001

Phase I

Pallet of Bounty first
read at P&G factory
Cape Girardeau

FEBRUARY 1, 2002

Phase II

Cases to pallet
aggregation first read at
Gillette DC, Chicago



PHASE II OBJECTIVES

***UPGRADE & EXPAND* THE FIELD TEST FROM THE PALLET READ TO THE AGGREGATION OF CASES TO PALLET READ**

**** UPGRADE***

- All participating Phase I sponsor's location and product by implementing aggregation of cases to pallets

**** EXPAND***

- Additional sponsors, products and locations

**** TIMING:***

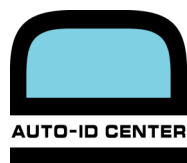
- Start February 2002



PHASE II RATIONALE

- Build Infrastructure for Phase III
- Build infrastructure for aggregation
- Increase load on system (more site servers and savants)
- Encounter more real life problems and difficulties
- Achieve a higher degree of accuracy for total system with aggregation of multiple tag reads at different points
- Test multiple technologies and how they interact
- Start building information for Business Case Development
- Continue to develop improved data display
- Keep momentum going and generate increased awareness and excitement about *ePC*

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END USERS - PRODUCTS & DC

P&G	BOUNTY TOWELS PANTENE SHAMPOO	CAPE GIRARDEAU FACT. IOWA CITY DC
GILLETTE	MACH 3, 16 PACK RIGHT GUARD 10 OZ CANS	CHICAGO DC
UNILEVER	LIQUID ALL CARESS SOAP	BALTIMORE DC
J&J	CARE FREE BEDTIME BATH	OLIVE BRANCH DC
KRAFT FOODS	MAXWELL HOUSE COFFEE CHEESE SLICES	FORTH WORTH DC
COCA COLA	2 LITER, 8 PACK TRAY	CLEVELAND TN, BOTTLER



PHASE II - STATUS

- Purchase requisitions have been submitted for Phase II installation (case reads) in Gillette and Unilever and Wal-Mart
- Site surveys have been completed
- First installation completed
- Evaluated 4 distinct supply chains for the installation of Phase II
- Purchased 1000 tags from:
 - Intermec are *ePC* programmed & available
 - Alien (semi passive)
 - SCS
 - Checkpoint
- Phase II improvements (data display)

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NEW DATA DISPLAY

- Summary
 - Shipment summary
 - Shipment detail
- Analysis
 - Time analysis
 - Visibility

Demo available during lunch break



PHASE II - 4 SUPPLY CHAINS

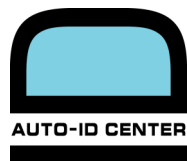
- Supply chain 1
Manufacturer DC → Retailer DC → Retailer
- Supply Chain 2
Bottling plant → Retailer
- Supply Chain 3
Pilot Warehouse → Retailer DC → Retailer
- Supply Chain 4
Manufacturer DC → Retailer



PHASE II TECHNOLOGIES

- SAVI
Intermec 915 passive tags, portal and pigeon hole installation
- INTERNATIONAL PAPER
SCS 915 passive tags, fork lift and pigeon hole installation
Checkpoint 13.56 passive tags fork lift and pigeon hole installation
- RF SAW
2.45 RF Saw passive tags, pigeon hole installation
- AUTO-ID (Prototype Phase III technology)
Alien 915 semi passive tags
Thingmagic readers, portal installation

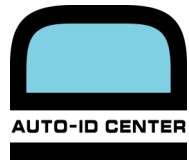
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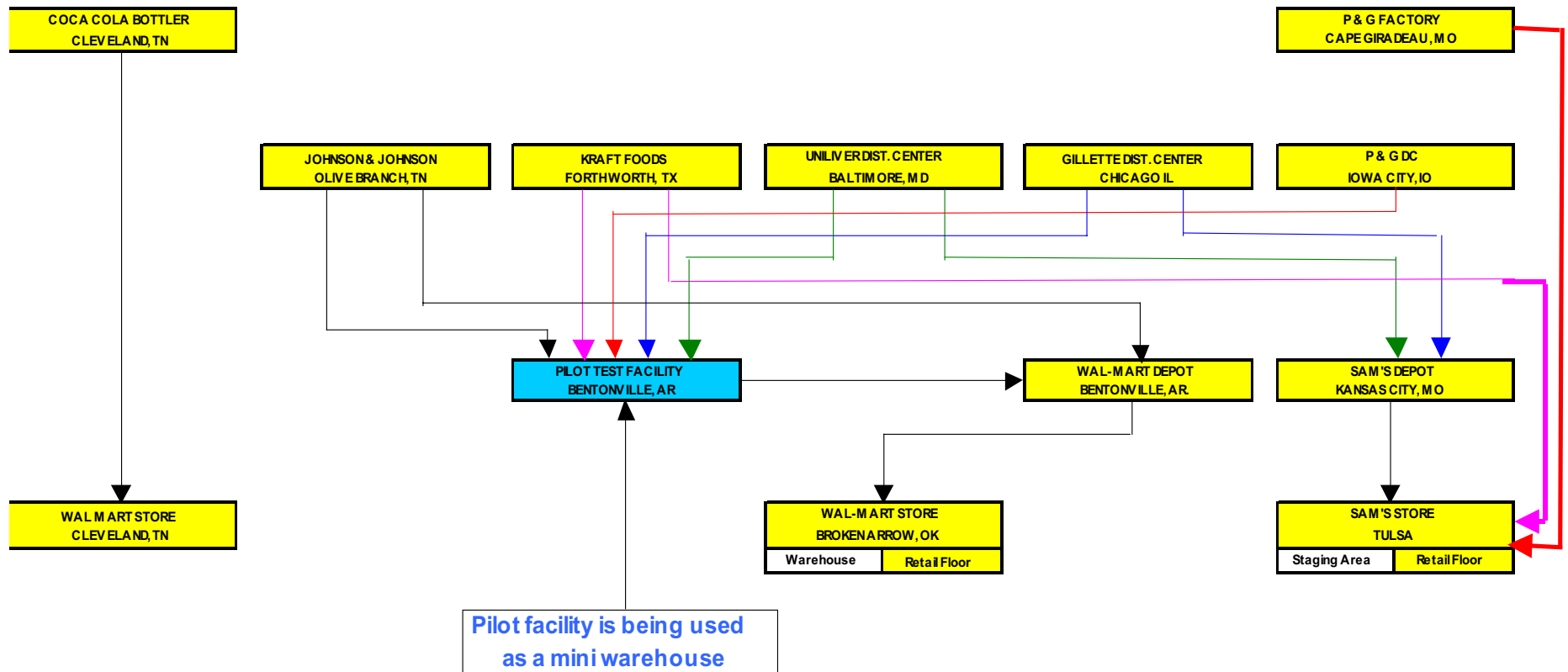
PHASE II TECHNOLOGY

- All Phase II technology to be tested in Pilot Facility prior to installation in Field Test

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PHASE II SUPPLY CHAIN





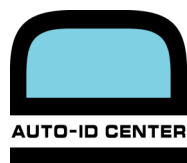
SUMMARY OF COSTS

• Supply Chain 1	\$125,000
• Supply Chain 2	\$ 65,000
• Supply Chain 3	\$150,000
• Supply Chain 4	\$ 60,000
• Tags	\$ 30,000

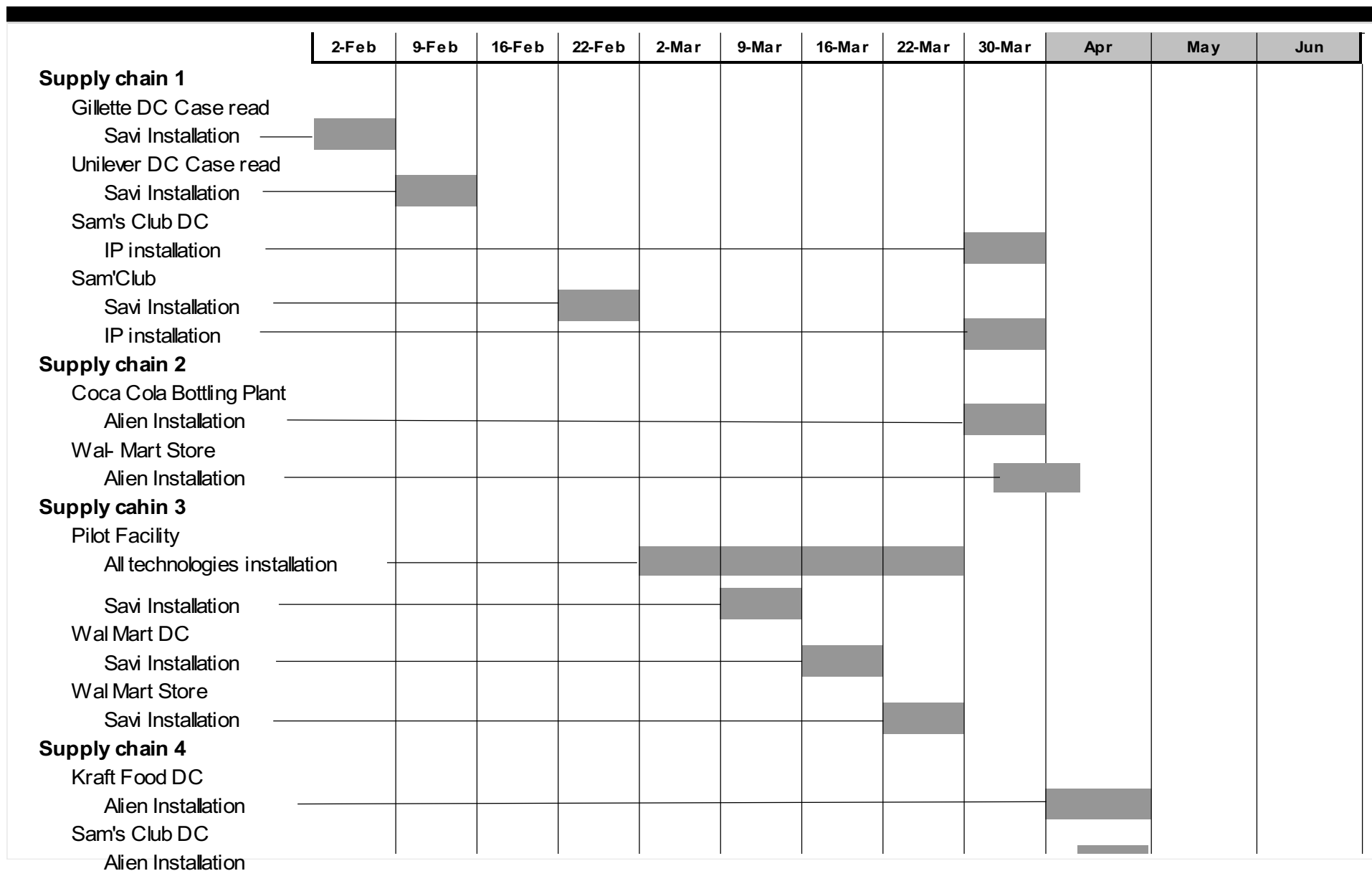
Total \$430,000

• Thingmagic Reader Dev.	\$190,000**
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**Part of this money to be paid by Auto-ID



PHASE II TIMING





FIELD TEST APPLICATIONS

- Consumer availability
- Theft prediction and apprehension
- Track, trace and pull tampered/out of date refrigerated goods
- Automatic inventory at case level
- Safe/Secure supply chain at case level



PHASE III

- Work continues on the development of low cost readers and tags
- Testing of prototype readers and semi passive tags with *ePC* protocol to be tested in pilot facility mid February
- Prototype Phase III hardware (readers and semi-passive tags to be used in Phase II)
- Initial implementation plan to be available in March



PHASE 4

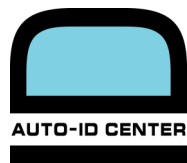
EUROPEAN CONCEPT

STORE



RATIONALE

- There are very specific regulatory issues in Europe that need to be addressed
- Need for proving the business case with small scale pilot.
- Important if we are not to be seen as US driven



EUROPEAN FIELD TEST - SPONSOR RECOMMENDATIONS

- Unanimous agreement that we should conduct a European Field test but that this should not simply replicate the US field test.
- Main recommendations are that the test should:
 - Demonstrate deployable technology
 - Be application focused
 - Be more of a pilot than a trial
 - Provide a small scale proven business case
 - Address cost implications
 - Be closed loop
 - Tackles real issues where generated data is used.
 - Test hardware and software



PROPOSAL

- We need a microcosm – an inch wide, but a mile deep.
Real, real world
Data is driving decision, actions and automation
- Builds on the US test
takes it to the next level
leverages all the learning
- Does not take resource away from US test



PROPOSAL – CONCEPT STORE

- Take one small retail outlet
- Tag everything that goes into the store
- Put readers everywhere – back room, every shelf, cold display, merchandising units and checkout
- Track product in, through and out