



IBM FORUM 06

Results through Innovation



RFID Driving Business Innovation

Leveraging technology for competitive advantage

what makes you *
special?

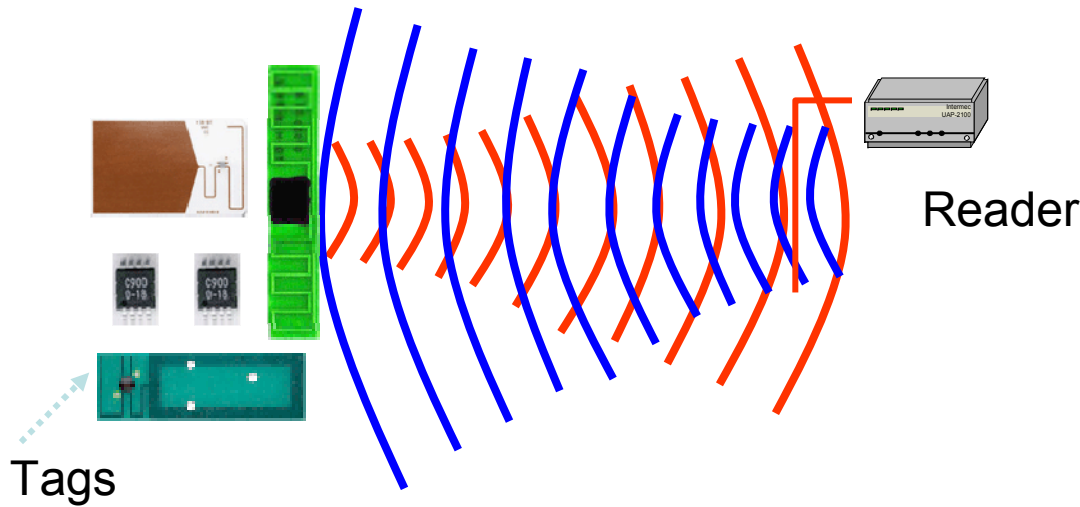
Agenda for today

- Recap – RFID “101”
- RFID adoption
 - Where are we at ?
 - IBM’s point of view
- Getting started with RFID – IBM’s experience with The Warehouse
- Looking forward to 2007 –
 - Where the growth will come from
 - How will **YOU** get started with RFID?

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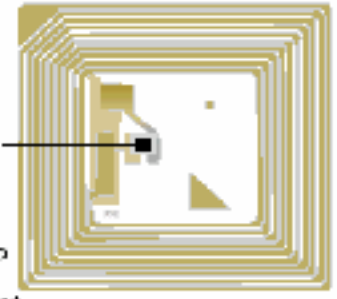
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Recap – RFID 101



RFID tags are made up of three parts:®

- 1) **Chip:** holds information about the physical object to which the tag is attached
- 2) **Antenna:** transmits information to a reader (e.g., handheld, warehouse portal, store shelf), using radio waves
- 3) **Packaging:** encases the chip and antenna so that tag can be attached to physical object



What is RFID?

- Radio Frequency Identification
- A means of identifying a unique object or person using a radio frequency transmission
- Tags (or transponders) that store information, which can be transmitted wirelessly in an automated fashion
- Readers (or interrogators) both stationary and hand-held read/write information from/to tags

How does it operate?

- RFID tags are affixed to objects and stored information may be written and rewritten to an embedded chip in the tag
- Tags can be read remotely when they detect a radio frequency signal from a reader over a range of distances
- Readers then either send tag information over the enterprise network to back-end systems for processing or display it to the end user



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Current Status

What's happened over 2005 and 2006

RFID adoption has been slower than many predicted.....

- **Hype** in 2003/4/5 created great expectations that are still proving hard to shake off
- Evidence of global organisations feeling “**scarred**” by their **RFID experience with large retail mandates** – holding back investment in RFID
- **Costs** (particularly tags) have not declined as quickly as many thought
- **Supply issues** – particularly tags and *experienced* skills
- **Requirement to improve / “fix” other elements of the supply chain** before deploying RFID
- **On-going standards development** - Generation 2, ISO, etc.
- **Watch and wait mentality** continues to pervade.....

But this is not to say that nothing is happening – *far from it*

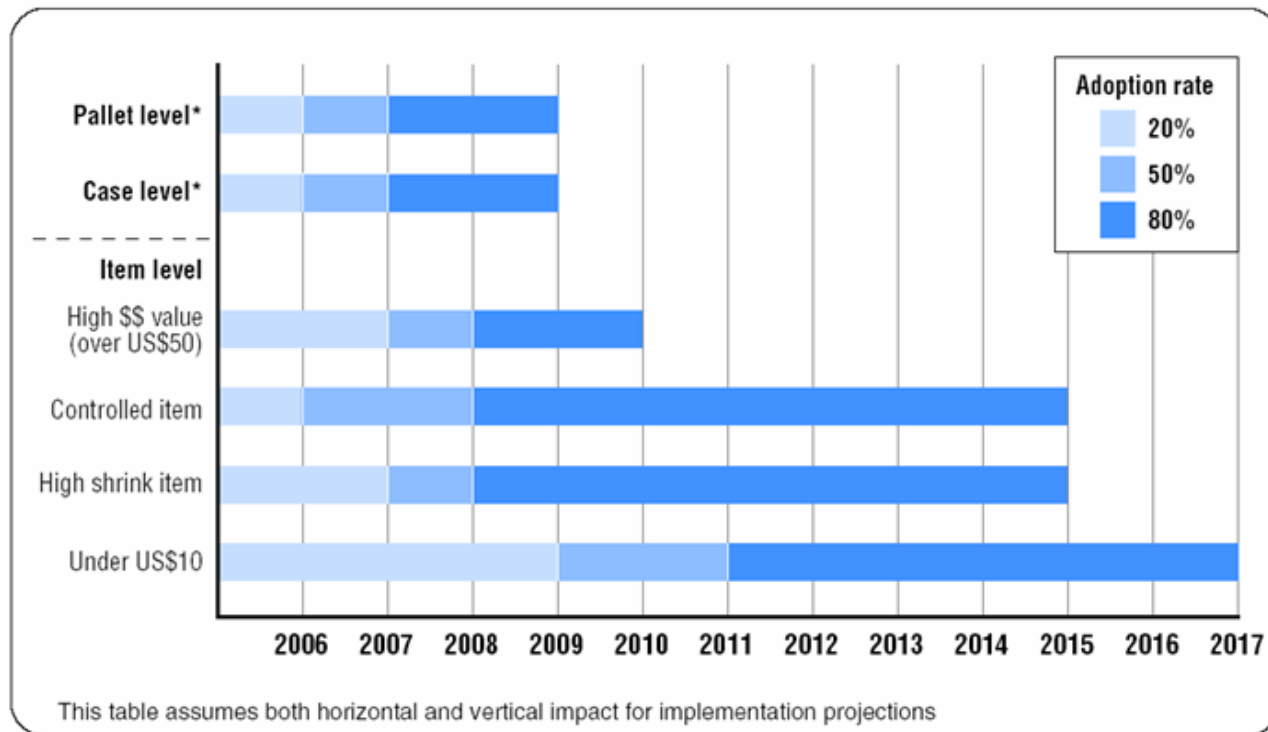
- **Greatest level of adoption** continues to be in **Retail** where adoption has moved to significant scale rollouts for selected products or geographies (US/Europe)
- **Highest Growth Segments:**
 - Retail & Consumer Products
 - Logistics
 - Manufacturing – electronics, automotive.
 - Security & Access
 - Healthcare
- **Regional Market Trends:**
 - Fastest growth market: **Asia Pacific**
 - Highest adoption and acceptance rate: **Europe**
 - **New Zealand** – plenty of activity – particularly in export led, primary produce organisations and in Retail with The Warehouse.



But this is not to say that nothing is happening – *far from it.....* Latest view – Adoption rate by Retailers

Pack Level and Category Assumptions – Retail RFID Implementation Timeline Estimate (US)

Source: IBM Global Business Services



* Assumes total commodity value (source: IBM RFID Leadership Team)



**But this is not to say that nothing is happening – *far from it.....*
Proof of Concept (POC) activity in New Zealand is growing...**

Primary Producers



Transport



Retail

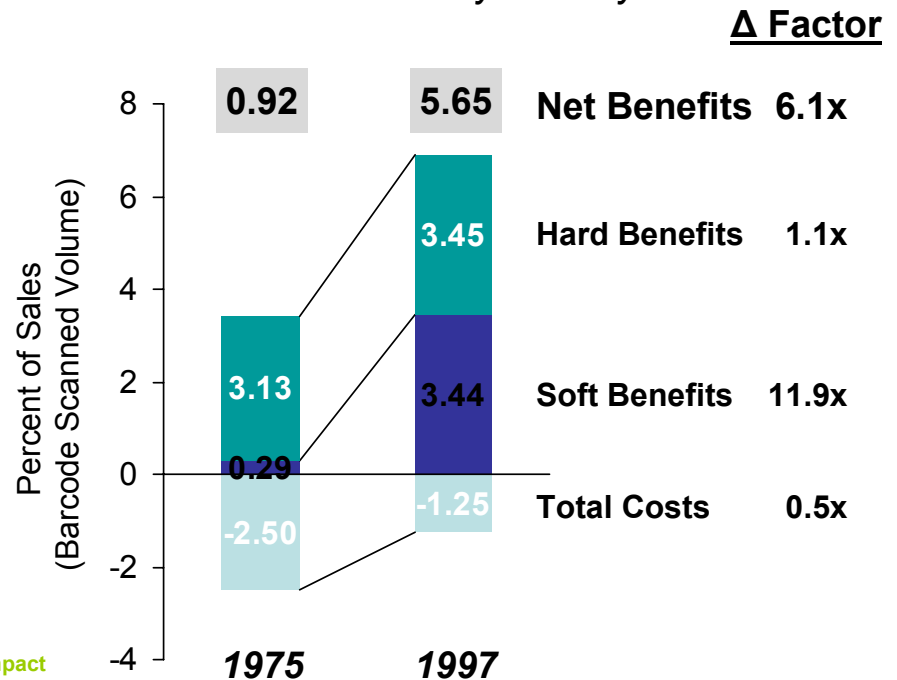


Past experience can help us better understand the long-term context for RFID

Lessons Learned from the Barcode Experience

1. Standards are critical to drive widespread adoption
2. Collective industry action is key to achieve critical mass and speed realization of benefits
3. Full realization of benefits requires open information sharing and sustained change in business practices and processes
4. Forecasting benefits and costs is difficult

Estimated Barcode Scanning Benefits, 1975 vs. 1997
U.S. Grocery Industry



Source: "17 Billion Reasons to Say Thanks: The 25th Anniversary of the U.P.C. and Its Impact on the Grocery Industry", PricewaterhouseCoopers, 1999; IBM Institute for Business Value analysis



Evidence of Adoption Trends - IBM's Research for the GMA, "EPC/RFID Proposed Industry Adoption Framework"

Manufacturers believe in EPC/RFID's long-term potential...

- 97% of manufacturers believe EPC/RFID has long-term value potential for the industry
- 94% believe EPC/RFID will be "somewhat" or "very" important to the future of the CPG industry
- Potential benefits around promotions compliance, out of stocks and proof of delivery.

...but many still struggle with near-term value

- 48% indicate they see little or no short-term value in the technology
- 73% of manufacturers have not seen tangible business benefits from pilot activities
- 93% of manufacturers believe EPC/RFID challenges and benefits vary by products or categories
- Data quality issues and lack of business process changes were cited as the main reasons for the lack of realized benefits

"This technology is the first and only technology I've seen that can help enable automation of what is today a very manual process – retail backrooms and the last mile of the supply chain."



"We estimated out of stocks was the biggest expected benefit for us. What we have learned in the pilots is that we understated that benefit [which was a surprise]."

"Our business case estimate didn't show a positive return. It did predict that there were some benefits around eliminating out of stocks...but what we are seeing in the data isn't showing us a real advantage yet"

IBM Point of View - It is not just about tags and readers

- Tags + readers \neq Transformation
- Tags + readers = More efficient data collection
- Tags + readers
 - + Business Process Change
 - + Proactive Decision Making
 - + Integration to enterprise systems and infrastructure

= Transformation

To achieve transformational results, RFID should be viewed as one enabler among many in an overall business strategy.

IBM Point of View : Getting More ROI

- 1. For existing implementations focus in on key benefit areas**
 - Promotion Execution
 - Proof of Delivery
 - Out of Stock Improvements
 - Asset Management
 - Select Item Level Management
- 2. Leverage into areas that have stronger ROI – Asset Tracking**
- 3. Develop a business case before you pilot**
- 4. Focus on your processes**

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The client's needs - The Warehouse



Requirement : The Warehouse's wanted a game changing RFID solution to make its in-store supply chain more effective

Proposition : IBM's proposed an innovative solution across software, services and technology to address above-shelf inventory visibility.

Implementation : Solution developed and in-store proof of concept completed

The Client : The Warehouse presented an ideal client for such a solution :

- Real business requirement
- Strong business/IT communication and buy-in
- Thorough research into RFID
- Keen to leverage technology innovation for business benefit



The Warehouse Unique Application Mobile Stock-Take Device (MSD)



POC Findings



Technical :

Good read rates :

85%+ with no change to storage processes

98%+ with minimal case orientation process changes

Good read range : from **400/500mm up to 1 metre** and sometimes more from RFID antenna to the tag.

Great location accuracy : goods can be located with **98%+ accuracy** within the store.

Range of successful reads depends on orientation, tag positioning, and product specifics.

Business :

The solution works and **achieves the business objectives**

Process changes to stocking shelves will yield even better results

Generation 2 will yield significantly better read rates, potentially negating the need for process changes



Lessons Learned – The Warehouse POC
















- There is no substitute for hands-on learning – **work with the technology**
- Target work to more than just compliance – **look to gain benefits today**
- **Focus on your processes** and where RFID capabilities can improve them – this is the key for long term success
- Build a foundation today that you can **scale with future growth**
- **Manage expectations** since this transformation will take some time
- Success requires **teaming from leaders in business and IT**



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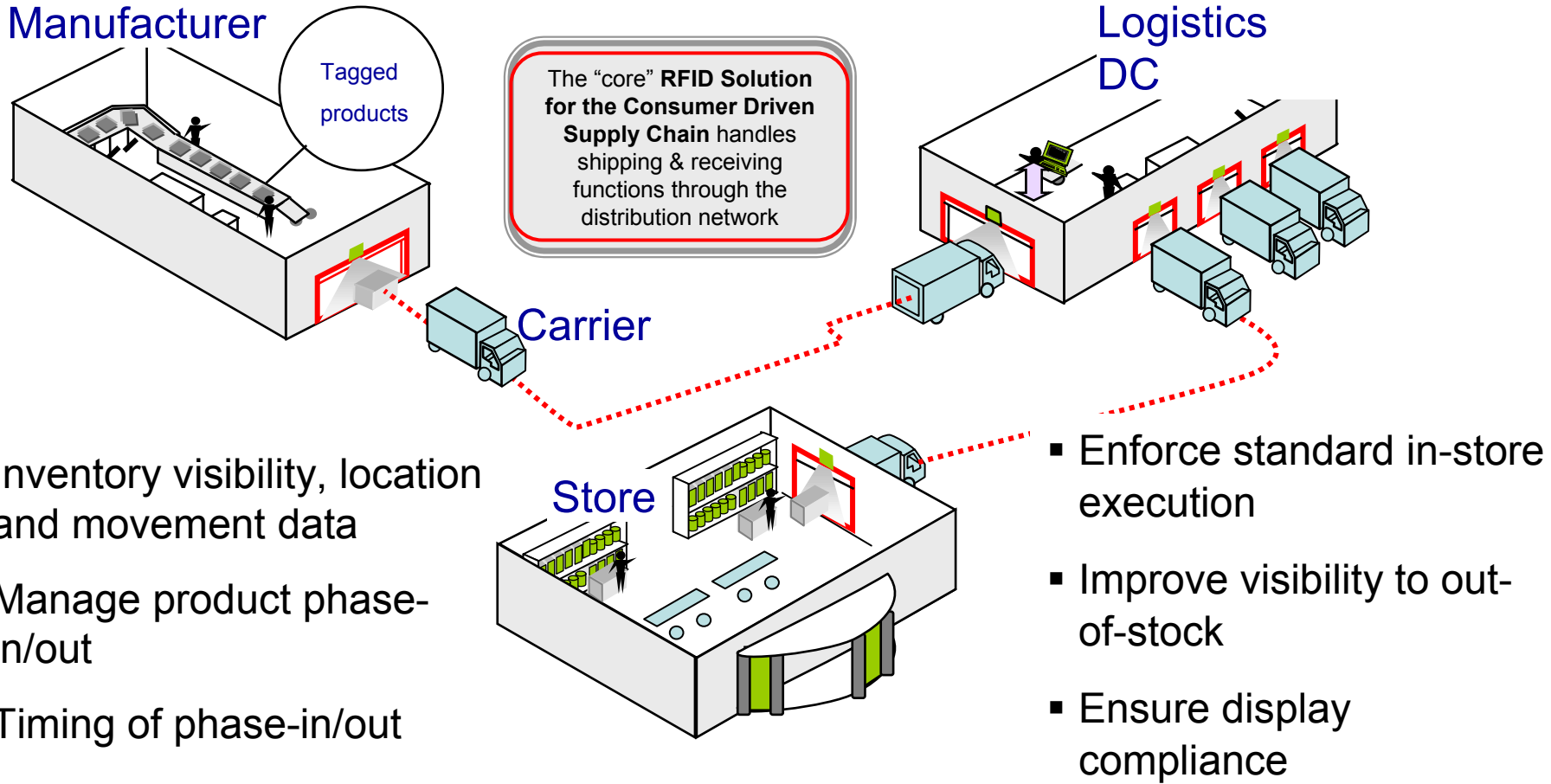
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2006 IBM RFID Solution Focus – RFID

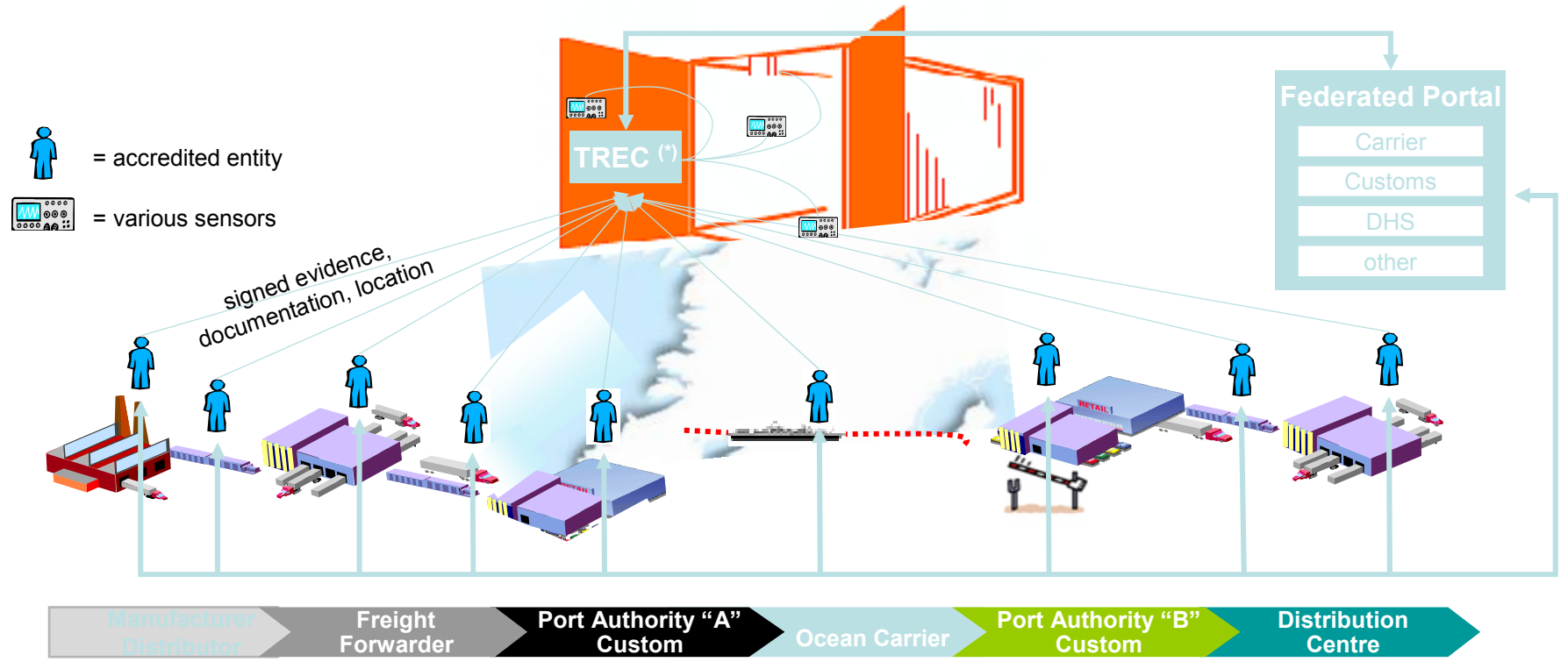
Solution Area		Description	Sectors	Clients
Supply Chain	Supply Chain Mgmt	 Shipment, inventory, and warehouse management	Distribution Industrial Public	METRO Group   
	Tracking – Work In Process Mfg	 Locating and retrieving parts to manage production	Industrial	  
Tracking and Traceability	Tracking - Assets	 Tracking, monitoring, and identifying assets	Industrial Public Communications Financial Services	   
	Traceability	 Tracking products, verifying authenticity	Industrial Public Communications	Major Global Pharma 



IBM RFID Solution for the Consumer Driven Supply Chain



Intelligent Trade Lane – multi-sensor monitoring for global trade lane visibility from manufacturer to customer.

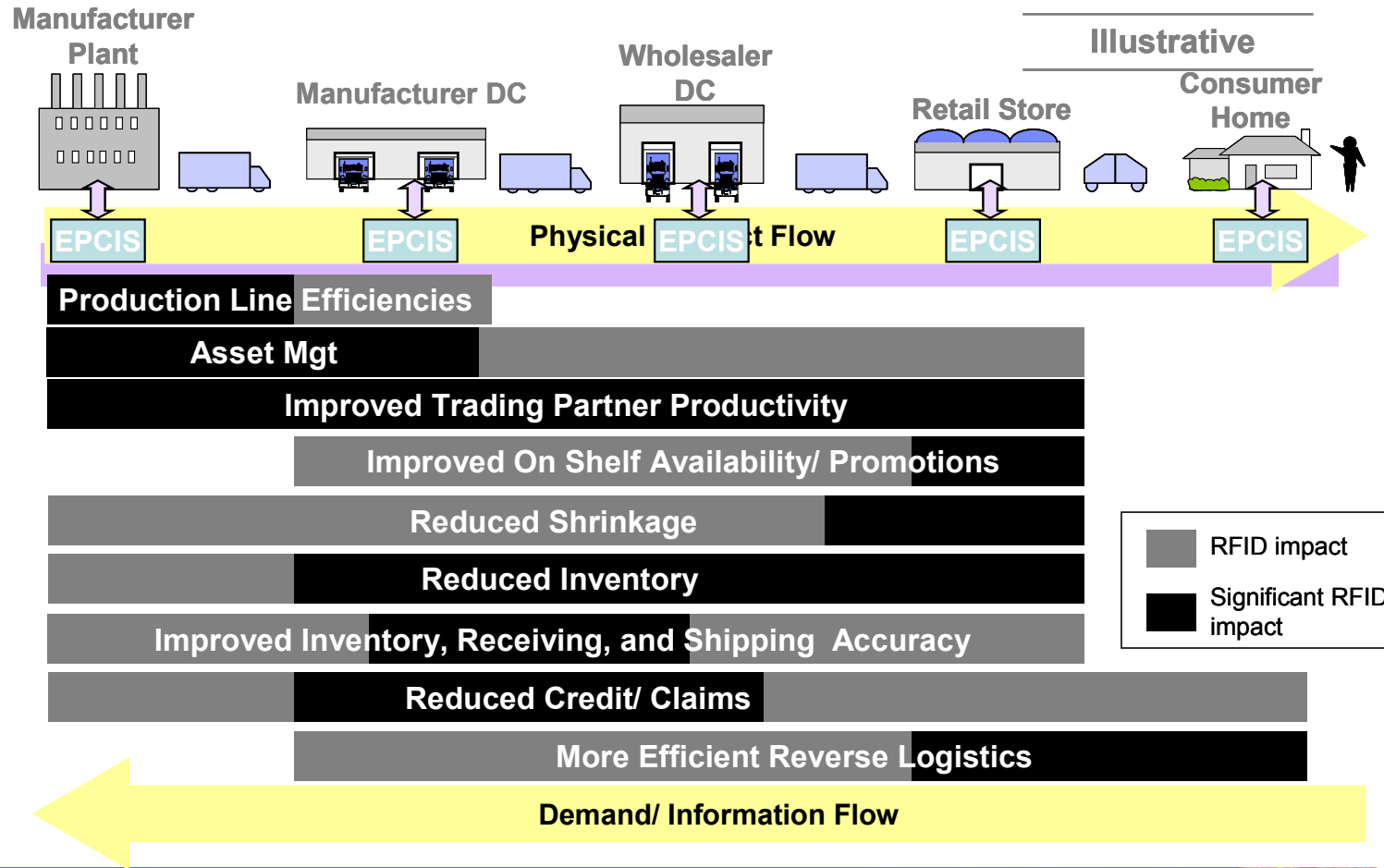


Technology is the enabler for a Secure Trade Lane with the highest possible security and efficiency only be given through an end-to-end approach

(*) TREC= Tamper-Resistant Embedded Controller



Getting started – the business case is key as RFID benefits cut across value chain and functional boundaries



Summary – looking forward to 2007

- **In 2007**, supporting the need for responsiveness across the supply chain, we expect to see continued **sustainable growth** in RFID business solutions.
- **New Zealand is positioned to be a strong adopter** – mature standards, strong foundation work and pilots, available and experienced skills.
- 2006 is seeing an increase in NZ organisations wanting to undertake a Proof of Concept ..particularly **retail** and **export led, primary producing** organisations
- Expect **EPCIS-driven, cross value chain activity** to expand
- **Growth industries** : retail, primary producers, logistics, asset intensive.
- **More disruptive technology** :
 - **Smarter tags** for a wider range of applications
 - **Smarter sensors** to complement simple RFID tags
 - **Smarter infrastructure** to support business-level decision making.
- **Why delay ?** Understand the proposition, develop the business case, pilot the technology and be armed with knowledge on how and when to improve your business.



To leave you with...

“In the next 20 years, someone’s going to become very rich and enter the Fortune 50 because of RFID”

Jeff Woods,
Gartner Group, 2003

“ (RFID will)...not just transform, but Revolutionise how we all do business”

Mike Duke
CEO, Wal-Mart
May 2004

“ I would expect us to have a significant piece of our supply chain RFID enabled within 2-3 years”

Andrew Buxton
GM Supply Chain
The Warehouse
July 2006





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Thank You

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