

## ANTECEDENTS TO RFID ADOPTION: Perspectives of Retail Supply Chain Stakeholders

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## Literature Review (cont)

<b>Compatibility issues</b> Incompatible with ERP systems Incompatible global numbering, frequency and power standards (Davenport and Brooks 2004; Twist 2005; Saygin et al 2007)	Firm size Resources needed (Narsing 2005)  Top management support (Sweeny 2005)
<b>Complexity issues</b> High levels of false reads High levels data volume (Sweeny 2005)	<b>Competitive Forces</b> Mandates Mimetic behaviour (Sullivan 2004)
<b>High Costs</b> Hardware, Software, integration, training and tag costs (Asif and Mandiwalla 2004; Chiesa et al 2002; Prater, Frazier, and Reyes 2005)	Privacy and Security (Knospe and Pohl 2004)

## Why undertake research about RFID?

### Recent increased interest in (RFID)

#### Research Problem

- An exploratory study of factors that influence the decision to adopt RFID.
  - What are the relationships between antecedent factors and the decision to adopt RFID?
  - How might RFID impact supply chain performance?
  - Will RFID tags replace barcodes?



#### The Scope

- Our research focuses on open system RFID technologies within the retail supply chain. An RFID enabled inter-organisational network



#### Importance

- This research expands our understanding of emerging RFID technologies
  - Research embracing RFID is limited and scholarly information about RFID in the supply chain appears inadequate

## Australian Stakeholder Perspectives

### Australian Retail Supply Chain Trials

- EPC Network Australian Demonstrator Project (2006)
- National EPC Network Demonstrator Project Extension 2007
- Patties and Montague's EPC/RFID Pilot Study

*Results from these pilot studies indicate an RFID enabled Network would deliver benefits to a supply chain*

### RFID Survey

- RFID AUSTRALASIA 2005 – 2006 Survey of technology providers and consultants in both 2005 and 2006

## Literature Review

### Benefits

Sweeny 2005	Increased information sharing Faster processing Increased accuracy Increased tracking capability
Narsing 2005; Saygin 2007	Increased visibility Decreased inventory levels
Twist 2005	Increased inventory turnover
Jones et al 2005	Decreased shrinkage Lower labour costs
Bagchi et al 2007	Reduced leadtimes



### RFID is not being adopted widely. Why not?

"We see the potential (in RFID), but at this stage no economic sense at the grocery item level" Woolworths Executive (August 2007)

## RFID Stakeholder Perspectives (Cont)

### Supplier to Retailer

Firm	Technological and Costs	Organisational and External	Benefits
<b>Gillette</b>	RF interference Tuning tags and readers	Require experts Top mgt support needed	Sharing of information
<b>P&amp;G</b>	Integration issues Difficulty with large amounts of data	How to measure improvements	Increased visibility Increased customer service
<b>Linfox</b>	Interference Problem with OH&S	Defining areas for improvement Inability to measure ROI	
<b>Chep</b>	Incompatible technologies Read failures High volumes of data		Increased efficiency Real time tracking Remove paper based systems
<b>Patties and Montague</b>	Significant interference	Tags will operate in harsh environment	Eliminate scanning Reduced labour reduce bottlenecks

RFID Stakeholder Perspectives (Cont)			
Technology Providers			
Firm	Technological and Costs	Organisational and External	Benefits
Peacock Bros	Significant infrastructure High costs	Fear about keeping up with competition	Will be ready for customer compliance
Omron HID Corp	Interference from metal and water		Labour Savings
TIG Int Adilam Electronics	High Costs	If don't implement will not be competitive	Tags don't require line of sight Increased accuracy
Wireless Bus Solutions	High Costs		Increased tracking capability
A.D.T Security	High Tag Costs		Need to change business processes
Sunshine Corp	Lack of Global Standards	Top management not interested Understanding what RFID can do	Automation

### Conceptual Framework (cont)

#### Alignment of Stakeholder Perspectives

- RFID is continually being developed and organisations need to update their knowledge accordingly
- Accessibility to 'quality' information about antecedent factors and their relationship

- Decision to adopt, reject, or postpone RFID.

- Factors impacting –
  - Technological developments
  - Breakthrough in new materials, technologies, models etc
  - Further reduction in costs
  - Process for handling large volumes of data
  - Protocols for privacy and security

RFID Stakeholder Perspectives (Cont)			
Retailer			
Organisation	Technological and Costs	Organisational and External	Benefits
Metcash	RF Interference	All industry need to 'buy-in' Significant resources needed Unknown link between SC problem and RFID solution	Potential Benefits mentioned
Franklins			Potential Benefits mentioned

### Conclusion, Limitations and Future Intentions

#### Conclusion

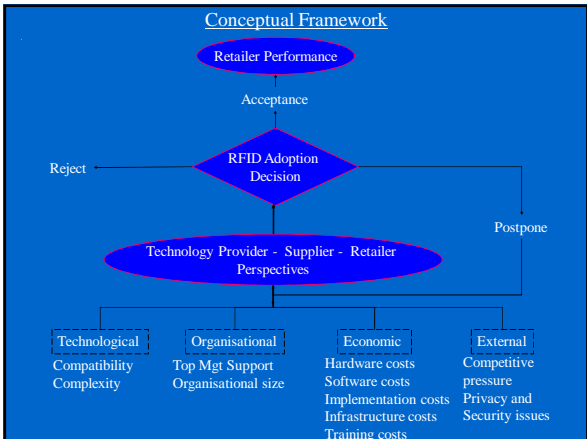
- Reviewed RFID literature and categorised antecedent factors.
  - Technological, Cost, Organisational, and External
- Identify Australian Retailer, Supplier, and Technology Providers - Stakeholders
  - Investigated Stakeholders perspectives
- A conceptual framework defining the decision to accept, reject or postpone adoption of RFID proposed
  - Highlight alignment of stakeholders perspectives

#### Limitations

- Limited sample size, major retailer not involved
- Designed as preliminary investigation

#### Future

- Validate the conceptual framework and explore the relationship between factors more thoroughly



Thank you

Any questions