

Singapore To Grow Into Asia RFID Hub - Align, Build & Collaborate

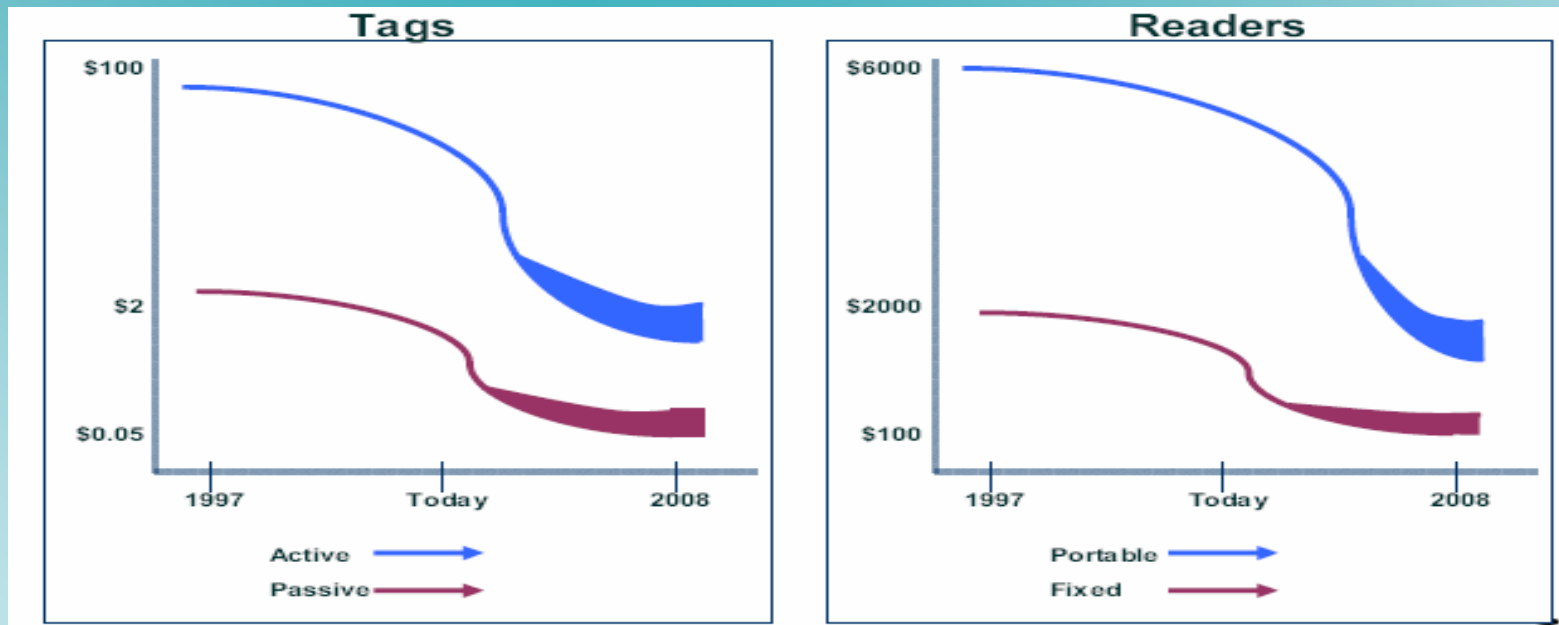


Presentation Coverage

- World-wide Trends & Development
- Implications on Singapore
- RFID Market Activities in Singapore
- Gaps & Opportunities for Singapore
- Development & Adoption

World-wide Trends & Development

- New EPC (Electronic Product Code)
- Falling cost of RFID tags & readers

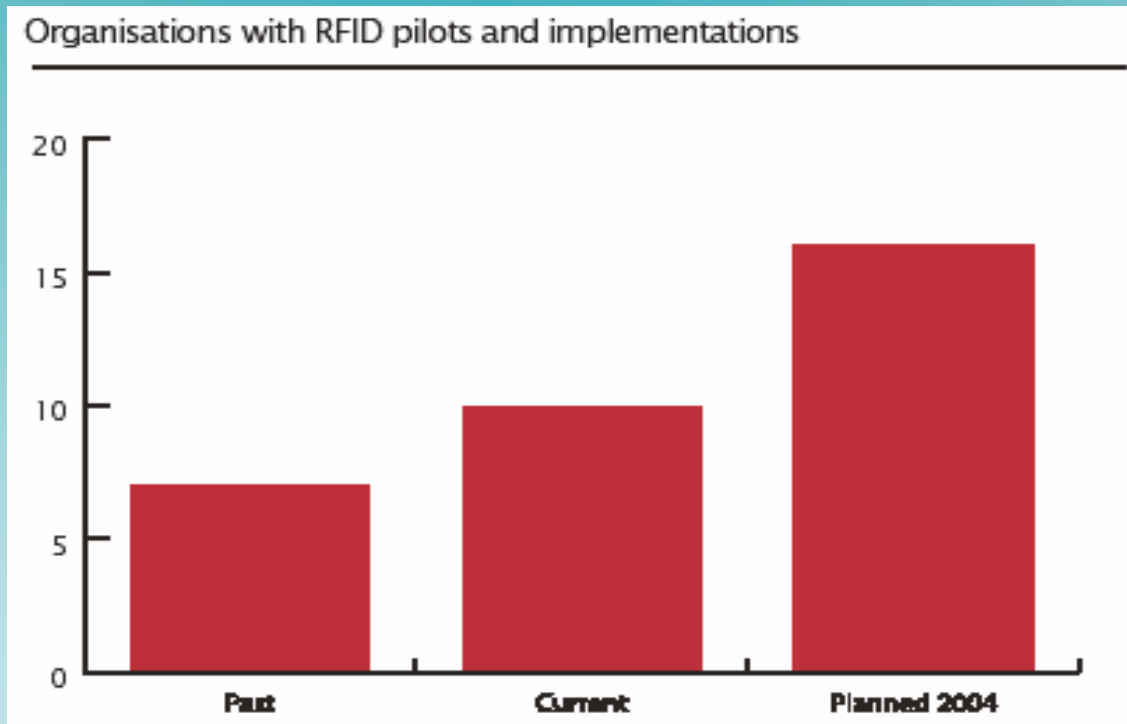


World-wide Trends & Development

- Security legislation for accurate tracking
- Growth of RFID market
 - Applied Business Intelligence:
RFID market worldwide will be worth US\$3.1 billion by 2008
 - IDC:
Spending on RFID retail supply chain systems alone will grow to US\$1.3 billion by 2008

World-wide Trends & Development

- In Europe
 - Half of companies surveyed have or planning to deploy RFID
 - Majority to start implementation within next 3 years



World-wide Trends & Development

- In USA
 - Legislation and mandates will drive RFID market

Wal-Mart, DOD Forcing RFID Wired News Report
Story location: <http://www.wired.com/news/business/0,1367,61059,00.html>
11:35 AM Nov. 03, 2003 PT

NEW YORK -- While analysts say radio-frequency identification tags don't work well e

Albertsons Joins RFID Brigade March 5, 2004
Like Wal-Mart and Target, the food and drug retailer is mandating that suppliers put cases and

FDA Backs RFID Tags for Tracking Prescription Drugs
Calls for drug makers to use them on shipping pallets and cases by 2007

Target Issues RFID Mandate
The retailer plans to require suppliers to put EPC tags on pallets and cases beginning in late spring 2005.

Implications on Singapore

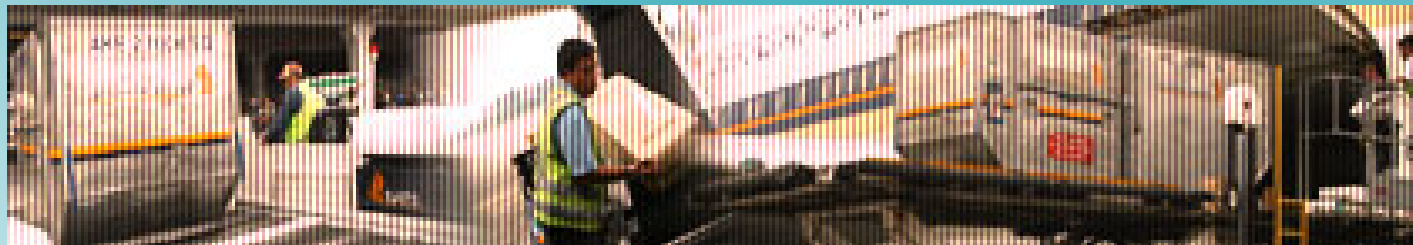
- **Tag at Source**
Manufacture and export goods & services to international countries
- **Real-Time Visibility & Security in Supply Chain**
World's 2nd busiest port by shipping tonnage and container throughput
- **New business opportunities for Infocomm sector**



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RFID Market Activities in Singapore

- 1st Pilot Port in Asia under US Container Security Initiative
 - Use of RFID electronic seals for containers bound for US ports



RFID Market Activities in Singapore



Institute of Microelectronics, Institute of Infocomm Research and Defence Science & Technology Agency developed solutions to use RFID for SARS contact tracing in local hospitals in 2003.



Land Transport Authority used RFID in implementing world's first Electronic Road Pricing (ERP) system in controlling and managing traffic volume in city areas and on expressways since 1998.



National Library Board first to harness RFID in library environment in 1998 to automate borrowing and returning of library books, and quick sorting to put books back onto shelves.

RFID Market Activities in Singapore



Global Entrepolis
@ Singapore



Use of RFID to track over 10,000 delegates at Global Entrepolis @Singapore 2003.

Tunity Technologies to develop EPC-compliant dual/tri-band RFID tag that responds to different frequencies.

Gaps

- Global
 - Lack of international RF standards (data & frequency) for interoperability
- Local
 - Capabilities to further technology development
 - Chain-masters to drive adoption

Opportunities

- Adopt open standards like EPC
- Equip staff with RFID knowledge
- Scope and pilot RFID projects
- Develop innovative RFID products and solutions

Plan to Catalyse

**Development of Vibrant RFID Ecosystem &
Growth into RFID Hub in Asia**

IDA will invest S\$10 million seed fund to develop Singapore into RFID Hub in Asia

A Align frequency spectrum
for global interoperability

B Build capabilities
to create new IP

C Collaborate to catalyse adoption

Align Frequency Spectrum







- Align RF spectrum allocation for global interoperability
- Current frequencies in use:
 - North America 902-928MHz
 - Europe/Singapore 866-869MHz
 - Japan 950-956MHz

Build Capabilities to Create New IP



- Develop new RFID training courses with Institutes of Higher Learning, e.g.

 <p>NUS National University of Singapore</p>  <p>Nanyang Technological University</p>  <p>TLI THE Logistics Institute - Asia Pacific</p>  <p>REPUBLIC POLYTECHNIC</p>	<ul style="list-style-type: none">• Equipping Electronic Engineering graduates with specialised RFID technical knowledge• Planning executive-level courses on RFID implementation• Developing RFID curriculum for students and executive courses for industry
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Build Capabilities to Create New IP



- Leverage existing expertise to undertake R&D work
 - E.g. Development of multi-frequency tags
- Set up joint research centres
 - E.g. Collaboration with MIT Auto-ID Labs

Build Capabilities to Create New IP



- Set up RFID infrastructures & services
 - E.g. Compliance Test Centres
- Form Singapore RFID Alliance & grow into Asia RFID Alliance

Collaborate to Catalyse Adoption



- Clustering approach for concerted roll-out
- Bring together groups of
 - Industry partners
 - Infrastructure service providers
 - Solutions providers

Collaborate to Catalyse Adoption



- Focus on key user sectors
 - High-tech manufacturing
 - Pharmaceutical manufacturing
 - Consumer packaged goods manufacturing
 - Retail
 - Logistics



End of Presentation – Thank You

