

# RFID Market –ASEAN Growth Trends

**Thailand RFID Summit 2006**  
**22 February 2006**

**Parul Oswal**  
**Senior Research Analyst**  
**Smart cards and AutoID Group**

# FROST & SULLIVAN

The background of the slide is a blue-toned image. On the left, there is a wireframe globe. On the right, the silhouettes of two people are shown in a professional setting, possibly a meeting or presentation. A bright light source is visible in the lower center, creating a lens flare effect.

- A global growth consulting company that partners with clients to support the development of innovative growth strategies.
- For more than 40 years, we have leveraged our comprehensive market expertise to serve an extensive clientele that includes Global 1000 companies, emerging companies, and the investment community
- We offer industry research and market strategies, provide growth consulting and corporate training, and support clients to help grow their businesses.

*“Partnering with Clients to  
Create Innovative Growth Strategies”*



# Agenda

## RFID Overview

- Marketplace
- Drivers
- Restraints
- Challenges

## Asia Market

- Market Overview
- Key Applications
- Emerging Applications
- Market Size Forecast

## ASEAN Market

- Market Overview
- Malaysia
- Singapore
- Thailand
- Philippines
- Indonesia



**Conclusion**

# Agenda

## RFID Overview

- Marketplace
- Drivers
- Restraints
- Challenges

## Asia Market

- Market Overview
- Key Applications
- Emerging Applications
- Market Size Forecast

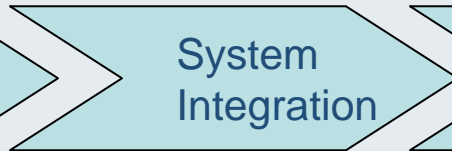
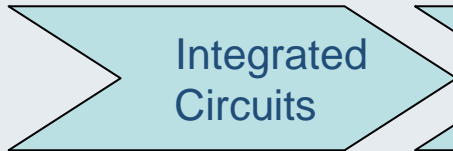
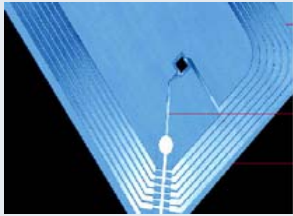
## ASEAN Market

- Market Overview
- Malaysia
- Singapore
- Thailand
- Philippines
- Indonesia



**Conclusion**

# RFID Marketplace



Products/  
Services

- IC design
- Antennas
- IC manufacturers

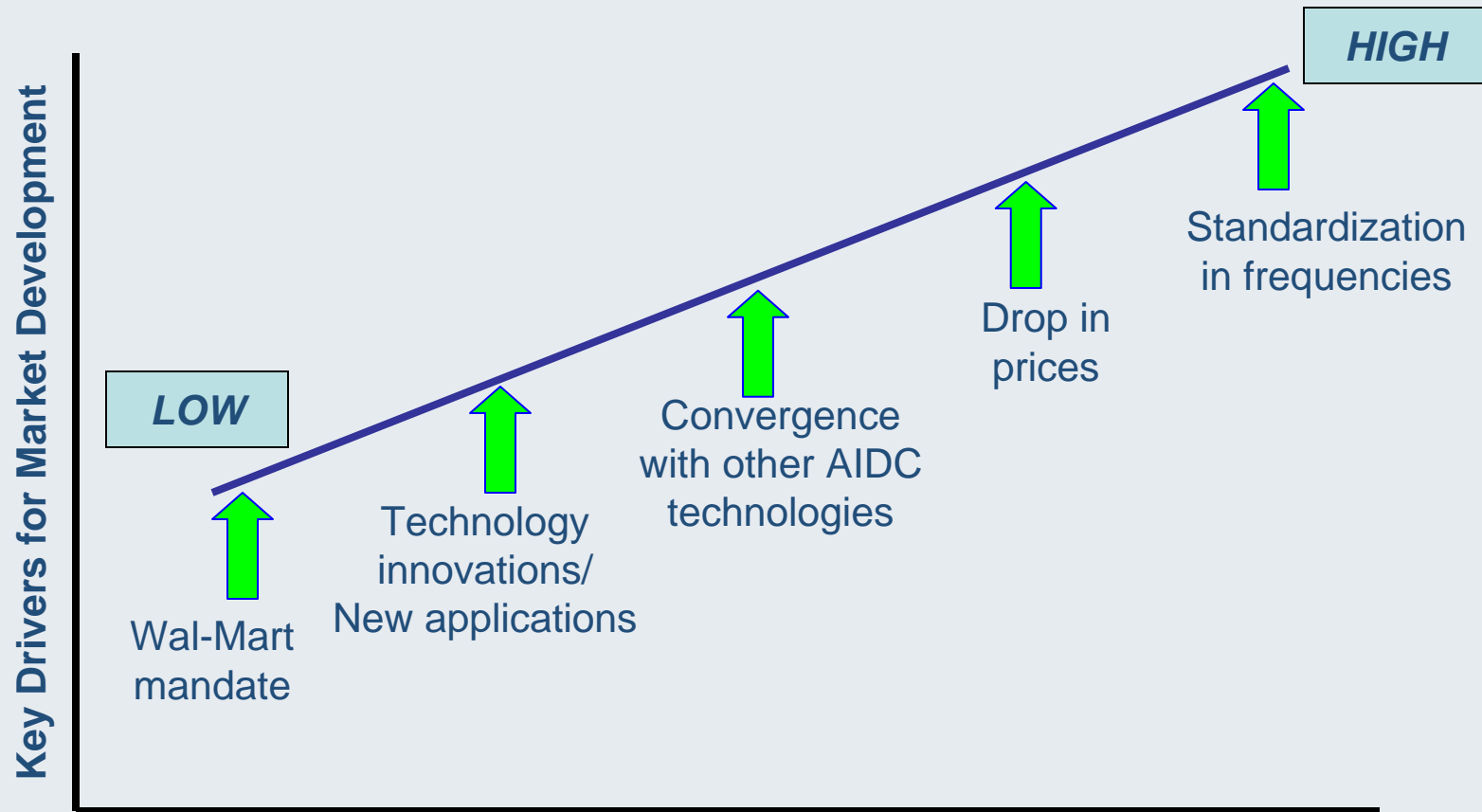
- Tags
- Readers
- Label printers

- Middleware
- Software applications
- System integration

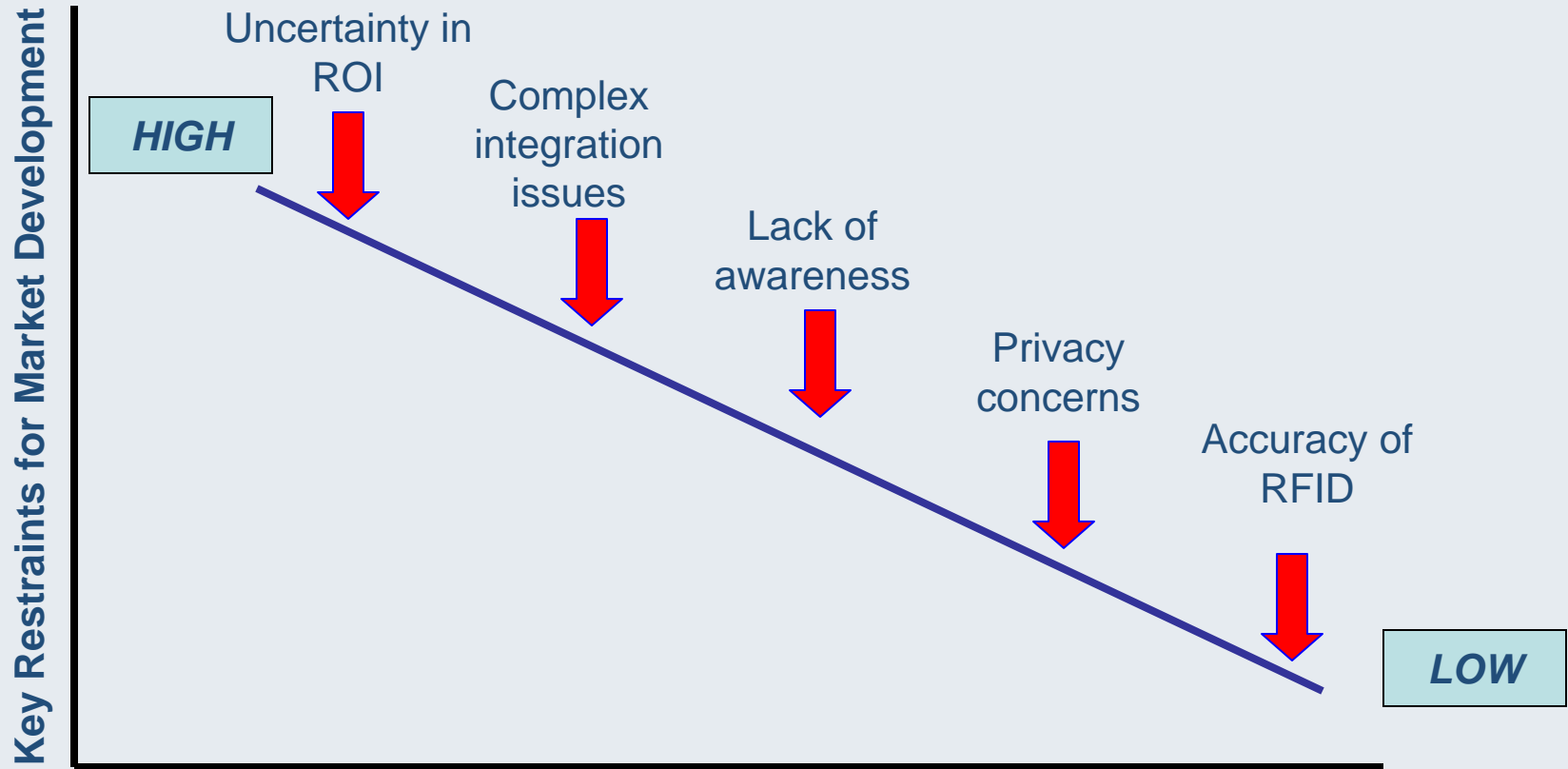
- Training
- Consultancy

Key Players  
(Examples)

# Market Drivers



# Market Restraints



# Market Challenges



# Agenda

## RFID Overview

- Marketplace
- Drivers
- Restraints
- Challenges

## Asia Market

- Market Overview
- Key Applications
- Emerging Applications
- Market Size Forecast

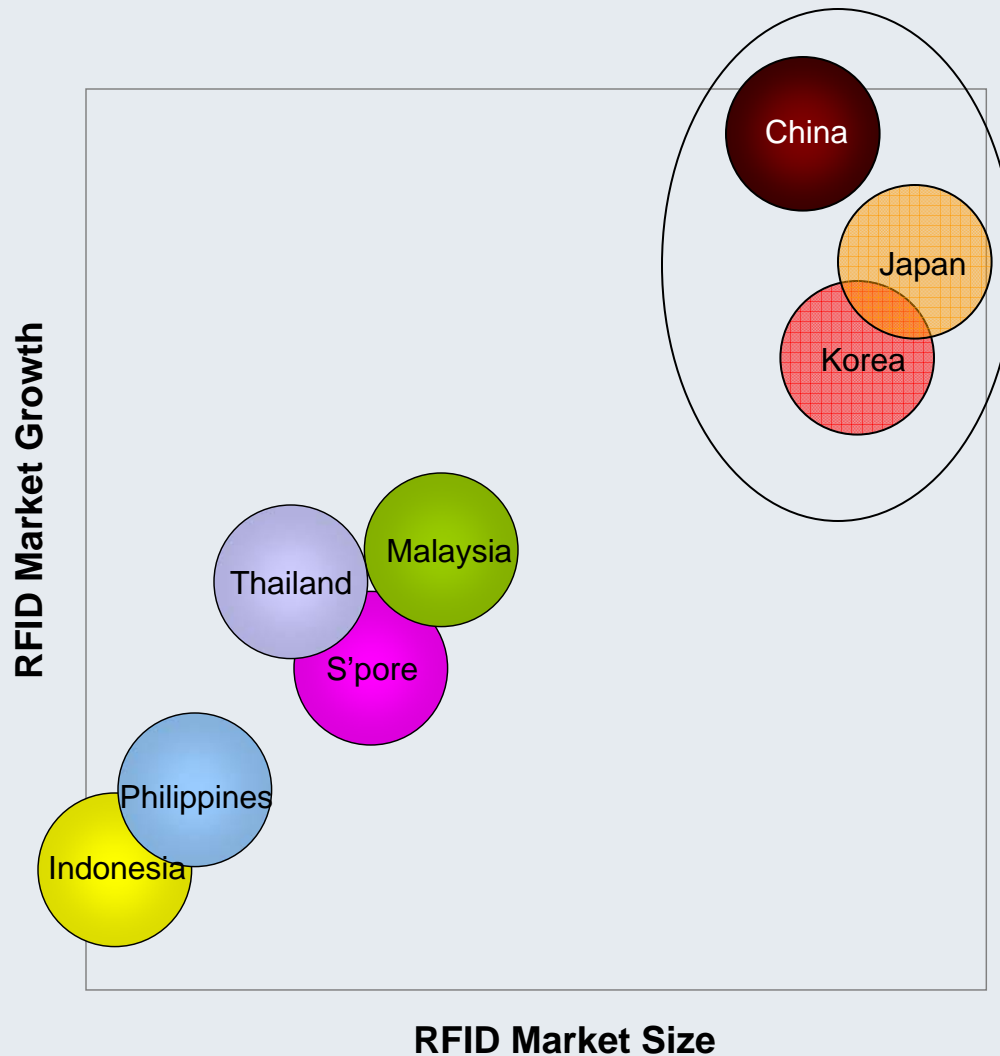
## ASEAN Market

- Market Overview
- Malaysia
- Singapore
- Thailand
- Philippines
- Indonesia



**Conclusion**

# Asia RFID Market Overview



- Asian RFID market is expected to grow at a healthy CAGR of approx. 35% for the next 5 years.
- Korea and Japan are spearheading the growth of RFID in Asia
- China, Korea, and Taiwan are expected to be promising markets being large manufacturing bases
- Other countries such as Australia are big in niche applications such as animal tracking
- However, adoption rate in Southeast Asia has been relatively sluggish compared to other Asian countries

Source : Frost & Sullivan

# Key Applications in Asia



## Security / Access Control

- Used for door access for buildings, parking lots, library applications etc.
- Fairly developed and dominates the RFID applications in Asia
- Expected to grow at a moderate rate due to saturation



## Transportation

- Used for electronic toll collection and fare payments (e.g., ez-link cards)
- Second largest application in Asia
- Expected to grow at a moderate rate due to low labor costs in Asia



## Livestock

- Used for cattle, sheep, fish, horse and dogs tracking
- More established in certain countries (e.g., Australia, NZ etc.)
- Will gain importance due to issues such as mad cow disease, bird flu etc.



## Supply Chain

- Used for warehouse management, product inventory tracking, store shelf management, container tracking etc.
- Small market currently
- Most projects in pilot stage (more suitable for high value items)
- Expected to be the most promising application for RFID

# Emerging Applications in Asia



## Healthcare

- Used for patient tracking, storing patient medical records, drug and medical equipment tracking
- Emerging application globally driven by regulatory requirements
- Advance of medical tourism in ASEAN will require safety commitments



## Sports Timing

- Used for timing athletes during sporting events, especially useful to settle 'off the line' disputes during tight finishes
- Also used for animal and automobile races
- Relatively small currently but expected to grow



## Baggage handling

- RFID tags used to track baggage at airports
- Promising application in most Asian countries; expected to grow with development of infrastructure

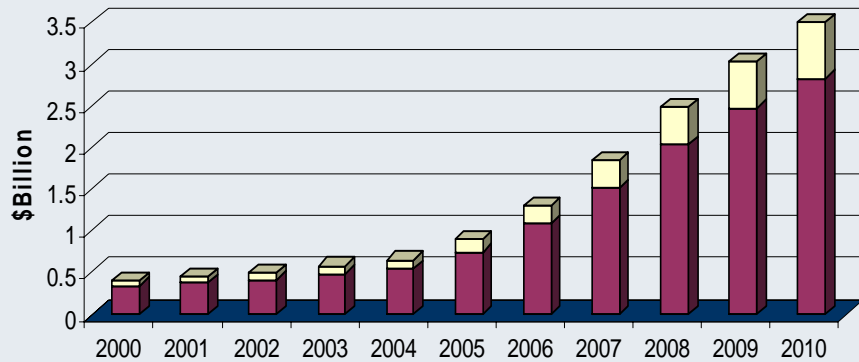


## Prisoner Tracking

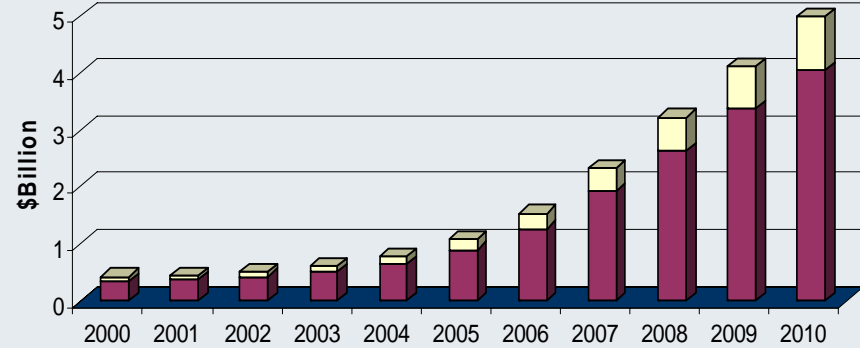
- RFID tags used to track prisoners
- Countries adopting it are Australia and Malaysia

# Asia RFID Market Size Forecast

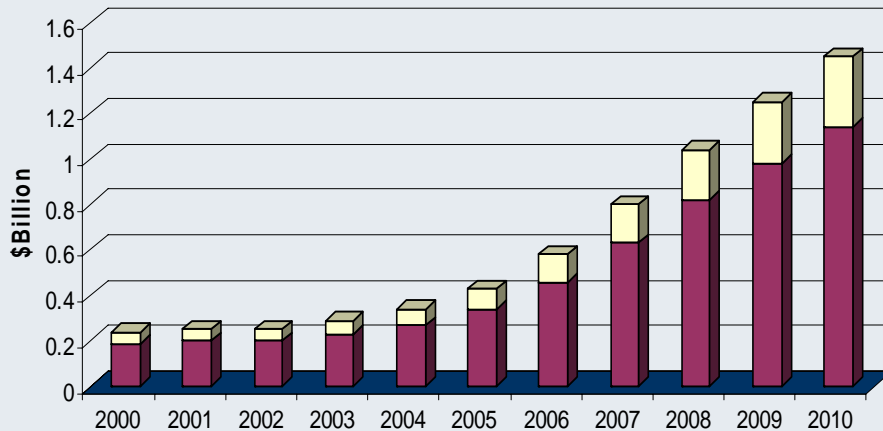
RFID Markets (World and APAC) for Security, Asset Mgmt and Access Control



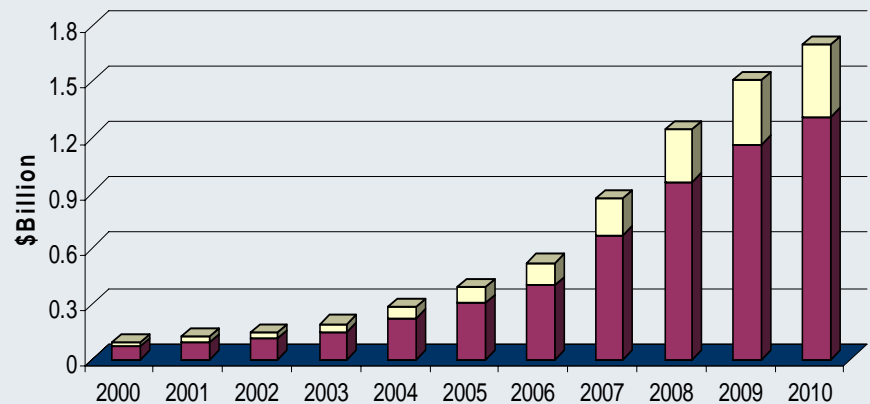
RFID Markets (World and APAC) for Supply Chain Mgmt Applications



RFID Markets (World and APAC) for Transportation



RFID Markets (World and APAC) for Other Applications



ROW
  APAC

Source : Frost & Sullivan

# Agenda

## RFID Overview

- Marketplace
- Drivers
- Restraints
- Challenges

## Asia Market

- Market Overview
- Key Applications
- Emerging Applications
- Market Size Forecast

## ASEAN Market

- Market Overview
- Malaysia
- Singapore
- Thailand
- Philippines
- Indonesia



**Conclusion**

# ASEAN RFID Overview



- Adoption rate in Southeast Asia has been relatively sluggish.
- Over 200 companies are actively involved in this region, with most of the big companies having a presence in this developing market
- Lack of standards/frequency allocation and lack of government support has been one of the key reasons that has so far restrained growth in the market
- However, ASEAN Telecommunications Regulators Council is now looking into cooperation in the area of alignment of power limits and spectrum allocations to facilitate the development of RFID within ASEAN.
- ASEAN is currently working for common spectrum allocation for RFID picking 2 locations within the 860-960MHz frequency range. It is expected that frequency allocation will be harmonized in ASEAN in 2006



# Malaysia

## Market Overview

- Malaysian RFID market is in a growth stage, and expected to grow at a CAGR of approximately 20.0% percent for the next 5 years.
- Malaysia has about 30-40 active participants in the RFID industry
- Wal-Mart mandate will drive RFID growth; out of Wal-Mart's approximately 4,000 suppliers in Asia-Pacific, 10% are Malaysian suppliers. By 2008, it is expected that, most Malaysian suppliers to Wal-Mart will be RFID compliant.

## Regulation

- Malaysian Communications and Multimedia Commission (MCMC) is the regulatory body for frequency allocation
- HF 13.56 MHz is the trend with ISO 15693 standard, UHF 860 MHz has been introduced and 433 MHz has been opened but, UHF RFID spectrum allocation at 868.1MHz, and 919 – 923 MHz for transportation and logistics applications is still under consideration with MCMC

## Applications

- Security/access control is the largest application in Malaysia
- Transportation (Electronic Toll collection by Touch N Go and Smart Tags, payments for monorail etc.) is the second largest and growing application
- Manufacturing and logistics (including movement of containers at Port Klang) is still at a nascent stage with very limited retail projects
- Other key application include RFID in hospitals, baggage handling at airports, tagging people at amusement parks, document tracking etc.



# Singapore

## Market Overview

- Singapore is among the leading adopters of RFID in ASEAN; however, the market is still small with a huge potential and expected to grow at a CAGR of approx. 15.0% for the next five years
- Although there are over 100 companies in RFID arena, approximately 40-50 are large and active
- Government is focused on developing a vibrant ecosystem for RFID

## Regulation

- IDA's RFID development plan to position Singapore as an RFID hub includes an investment of S\$10 million (USD5.9 million)
- IDA formally allocated UHF spectrum (866-869MHz and 923-925MHz with 0.5W without a license) and up to 2.0W with a license (923-925MHz)
- Several frequencies currently in use for RFID in Singapore (13.553-13.567 MHz, 433.79-434.79MHz , 866-869 MHz, 923-925 MHz, 2.4-2.48GHz)

## Applications

- Security/access control (mainly National Library Board and residential and office access) is the largest application; expected to grow at a slower rate
- Transportation (with Electronic Road Pricing and eZ link cards for fare payment) is expected to grow moderately
- Manufacturing and logistics is the focus and expected to grow the fastest
- Other applications - retail, aviation, food, pharmaceutical and medical industries expected to provide the boost to the RFID market in the future



# Thailand

## Market Overview

- RFID market is small, but there is high potential expected to grow at a CAGR of approximately 14% for the next 5 years
- GS1 Thailand, part of Federation of Thai Industries (FTI) and Thailand RFID Cluster set up under the Thai Embedded Systems Association plan to promote Thai RFID businesses and industry locally

## Regulation

- National Telecommunication Commission (NTC) is the regulatory authority. The government has not yet allocated a frequency band for RFID.
- At present, 135MHz (with power less than 150 milliwatts) and 2.4-2.6GHz (power less than 100mW), 26MHz (power less than 100mW) and 13.5MHz (power less than 1Watt) can be used without NTC's permission.
- FTI has urged the NTC to consider allocating a band in the 800-900 MHz band for the logistics industry, complying with standards of other countries.

## Applications

- Security/access control (including Shinawatra and Thammasat University for library applications) is the largest application
- Animal tracking (including aquaculture for shrimps, chicken, cows) has high potential. Due to recent avian flu, government plans to implement RFID system
- New Bangkok airport, Suvarnabhumi, will use RFID for baggage handling
- Due to large manufacturing base, logistics will be a key application in future



# Philippines

## Market Overview

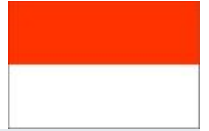
- Philippines market is still in the development stage for RFID.
- There is moderate growth in the market, with expected CAGR of approximately 10 % during the forecast period
- Systems integrators and value-added resellers are the preferred channels of distribution because of their ability to provide a full range of integrated security solutions to end-users

## Regulation

- National Telecommunications Commission of the Philippines (NTC) recently drafted rules regarding frequency allocation for RFID
- RFID devices to be used within 13.553 to 13.567 MHz, 918 to 920 MHz and 2.446 to 2.454 GHz frequency bands with maximum power of 0.5 watt
- Operators cannot claim protection against interference and are not permitted to cause harmful interference to other radio services to which the bands are also allocated

## Applications

- Philippines military is deploying RFID to try and control illegal fuel consumption. Military personnel will be provided with RFID-equipped key tags to monitor consumption of the fuel allocated every month in real time
- Electronic toll collection uses RFID cards (e-PASS) in the Philippines and is convenient and preferred flexible payment system
- RFID is being used for scanning baskets in a retail outlets in Philippines



# Indonesia

## Market Overview

- Indonesian market is still at a nascent stage and is expected to grow at a CAGR of approximately 8 % over the next 5 years.
- Brand name, price, quality and relationship with key stakeholders are key competitive factors
- Availability of cheap labor and high import duties is a key restraining factor for RFID growth.

## Regulation

- Directorate General Posts and Telecommunications is responsible for frequency allocation.
- Allocation of radio frequency bandwidth for RFID and regulations related to RFID has not yet been made; this is a key restraint limiting the growth of the market.

## Applications

- RFID is used mainly in security/access control
- Increasing security considerations due to riots will drive RFID growth in residential and commercial buildings; Book management at National Library at demonstration experiment stage, no concrete projects at this stage
- Electronic toll collection (ETC) is in the pipeline and growth is relatively low.

# Agenda

## RFID Overview

- Marketplace
- Drivers
- Restraints
- Challenges

## Asia Market

- Market Overview
- Key Applications
- Emerging Applications
- Market Size Forecast

## ASEAN Market

- Market Overview
- Malaysia
- Singapore
- Thailand
- Philippines
- Indonesia



**Conclusion**

## Conclusion

### **ASEAN poised for RFID growth over the next five years...**

- Progress has been slow to date
- Drop in prices, emergence of standards and improving awareness will drive growth
- Growth will mainly be in the traditional applications in the medium term and emerging applications will drive long term growth

### **...however RFID will complement rather than replace other AIDC technologies**

- Barcodes and RFID will co-exist for another 5-10 years
- Skills gap in system integration, lack of establishment of global standards, fragmented distribution channels, government apprehension on power limits, needs to be addressed before RFID takes off as a mainstream tracking technology in ASEAN

# Conclusion

## Implications for RFID players

- Chip manufacturers need to invest in R&D to develop innovative products in a cost effective manner as price is a key determining factor
- Hardware manufacturers need to establish market presence to take advantage of a growing market
  - Strong distribution channels need to be identified either directly or through system integrators (who are closer to the customers)
- System integrators need to be well versed not only with RFID but with other complementing data capture technologies
- Training and consulting firms need to play the role of growing the RFID market by creating awareness

FROST & SULLIVAN



**Analyst Queries:**  
**[parul.oswal@frost.com](mailto:parul.oswal@frost.com)**  
**(65) 6890 0974**

**All Other Queries:**  
**[albert.chan@frost.com](mailto:albert.chan@frost.com)**  
**(603) 6204 5876**  
**(6012) 2277998**

**THANK YOU**