



The Role of Associations in the *Global* RFID Marketplace

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Exhibition & Conference

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RFID Educational Foundation, VP and COO



RFID Educational Foundation



Confucius once said

Individuals gain wisdom in three ways:

- First, by reflection, which is noblest;



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Confucius once said

Individuals gain wisdom in three ways:

- First, by reflection, which is noblest;
 - Second, by imitation, which is easiest;
- and
- Third, by experience, which is the hardest.



To begin...

- Full Circle – Emily Sopensky
- RFID Marketplace
- Associations – what are these?

Full Circle!

- Texas Instruments RFID (TIRIS) 1995-2001
 - 1996 Foshan toll www.iriscompany.com/corp_comm
 - 2008 5th Annual RFID Conference & Trade Show



Electronic future for Foshan

Texas Instruments has won a breakthrough order for its Tiris transponder system in China's Guangdong province.

Sean McManus reports on progress



There are now 23 electronic tolling locations, in or around Foshan City with 36 electronic toll collection readers spread between them

With the number of vehicles on China's roads increasing by around 13-14% each year, and roads authorities keen to develop and revitalise the road network, China has much to gain from electronic tolling.

Now the Chinese Ministry of Transport Of Guangdong Province has endorsed transponder tolling technology for the first time in the city of Foshan.

Foshan is a major city in the densely populated southern province of Guangdong. Tolls are charged on roads entering and leaving the city, but traffic is densely packed and slow-moving at toll plazas, even though roads carry only 3,000 vehicles per lane per day. Electronic tolling will smooth the congestion and reduce pollution.

The solution uses in-vehicle transponders and radio frequency identification. The project began over two years ago, when US engineering company EZ Tech was invited by the Foshan Tongda Advanced Technical and Industry Company to evaluate electronic tolling systems. Six systems were evaluated, including those supplied by Amtech, Combitech, Mark IV and Texas Instruments.

The Texas Instruments system was chosen for the project and is now recommended

by the Chinese Ministry of Transport Of Guangdong Province. One factor that contributed to the contract win by Texas Instruments, was the radio frequency used by its Tiris (Texas Instruments Registration and Identification System) transponders. Tiris operates at 915MHz, which is a comparatively congested frequency in China. Neighbouring frequencies are already allo-

The transponder contains details of the vehicle's license plate and vehicle class and these are displayed on a gantry-mounted variable message sign as the vehicle passes

cated to other mobile communications users, such as the GSM cellular phone network. It was found in trials undertaken by EZ Tech (US), however, that there was no interference between Tiris and mobile communication devices using similar frequencies.

Transponders from other suppliers use the comparatively uncongested 5.8GHz frequency, which might later be affected by applications assigned to neighbouring frequencies. EZ Tech decided to use the more crowded frequency where the effects of interference could be tested before electronic tolling was installed.

Before Tiris was finally selected, pilot trials were carried out at two tolling sites in Foshan City involving 3,000 subscribers. The sites chosen for the test were Sai Hung Qi and Rong Qi District, about 30km apart and both severely congested. The trials were operated on a fully commercial basis and were conducted by Foshan City authorities, without any input either from EZ Tech or from MFS Network Technologies, the company chosen as system integrator.

In the trial each subscriber kept a record of his or her movements for comparison with the automatic tolling record. One million passes were recorded over four months and EZ Tech claims the system was proven to be reliable. After the trial period, the system continued operations and was opened up for full scale use in May 1994.

Expanding project

The project began in February 1996 and has been expanding with the addition of new tolling sites and extra lanes since then. To date the contract has been worth about US\$2 million. There are now 23 tolling locations, with 36 electronic toll collection readers spread between them. This should rise to around 80 by the end of the year. There are now between 30,000 and 40,000 tags in use in the Guangdong province.

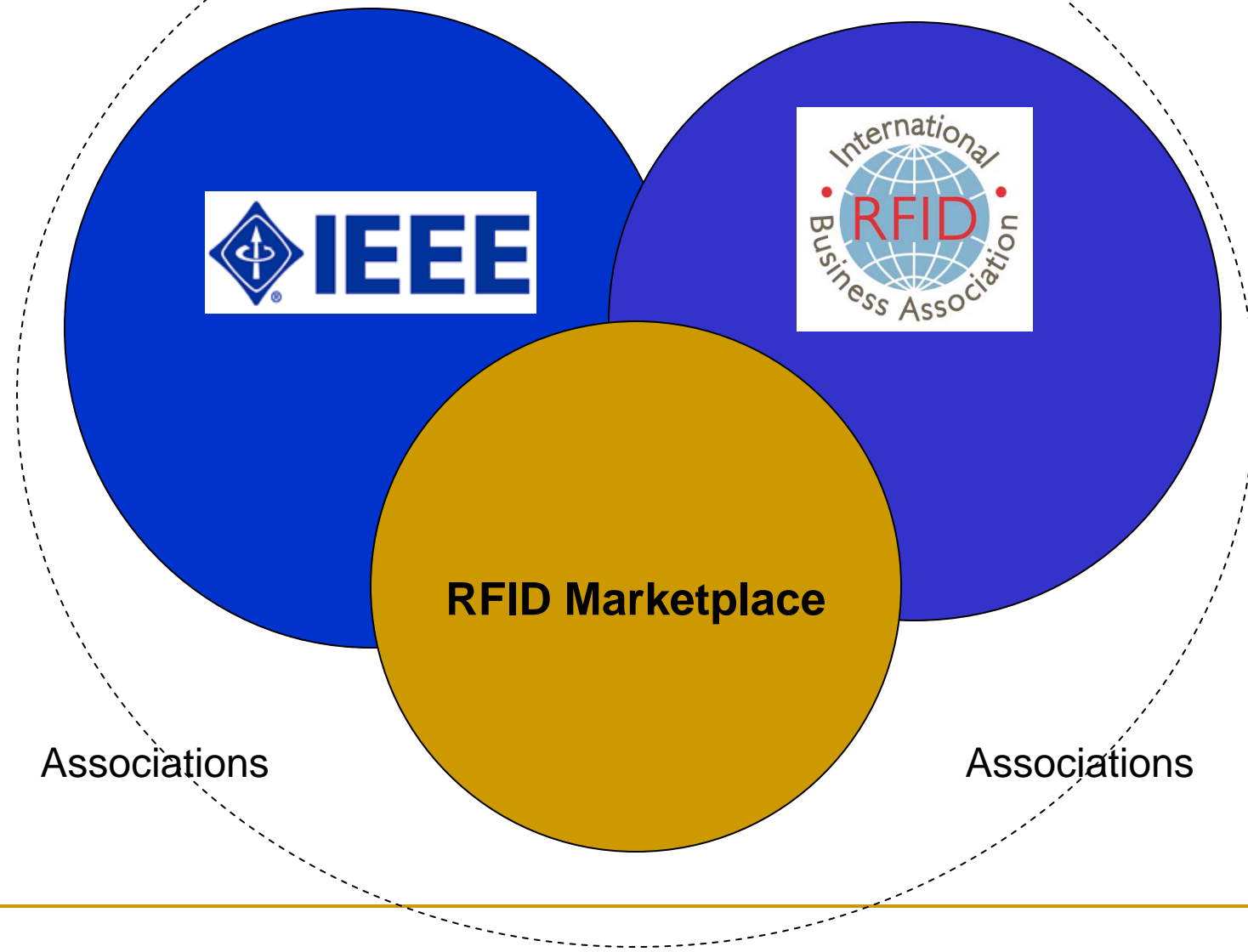
Where Tiris has been installed there is a lane set aside for electronic tolling, alongside two or three lanes for manual stop-and-pay cash tolling. The electronic toll collection systems are installed in the existing toll lanes, and the antennae are mounted on the top of gantries 5.5m above the ground. In some sites it is impossible to install a gantry, so in these installations antennae are hung beneath metal canopies.

Transponders are distributed from the customer service centres of the major banks. The banks are also responsible for programming the transponders and tracking the accounts. Most accounts are pre-paid, with drivers recharging their account through the bank, or paying by post or telephone.

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ITS International SEPTEMBER/OCTOBER 1997

The Full Circle



RFID Marketplace -- The Technology Makes the Global

Business Case

- Technological innovation drives economies

- Just look at Semiconductor chips, PCs, mobile phones
- China and the U.S. are on the forefront

■ RFID is an enabling technology that impacts ALL INDUSTRIAL nations

Principles of supply & demand dominate economics ---

Businesses seek economic productivity and wealth generation

- An interdependent world –this is the GLOBALIZATION REVOLUTION

- National economics are more dependent on each other.

- Interdependence is the watch-word
- What happens on one continent today can affect those on another continent tomorrow – OR earlier!

Where are the markets for RFID?

- 5 billion USD
 - 2007 Total worldwide RFID market
 - 5.3 billion USD (e)
- 2 billion USD
 - 2007 Total China RFID market
 - 2008 estimate 2.3 USD

National Top 10 (by # of projects)*

- | | |
|------------|----------------|
| 1. US | 6. France |
| 2. UK | 7. Australia |
| 3. China | 8. Netherlands |
| 4. Germany | 9. Korea |
| 5. Japan | 10. Canada |

*Source: IDTechEx, Boston Mass USA



RFID Business – Emerging?

- The RFID marketplace is supplied by *many* medium-sized and small businesses.
- “Emerging” technologies
 - e.g., RFID, create new products & services.
 - These require new business partners
- The BIG QUESTIONS are:
 - How do you do business in this new environment?
 - Whom do you trust?

Trust

- How do you establish trust?
 - Instinct
 - Experience
 - Associations
 - E.g., IEEE
 - E.g, RFID ba

ASSOCIATION--

Institute of Electrical & Electronics Engineers, Inc. (IEEE)

- Purpose:
 - to foster technological innovation for the benefit of humanity

www.ieee.org

- The emerging STAR is RFID!

www.ieee-rfid.org



Institute of Electrical & Electronics Engineers, Inc. (IEEE)



■ Membership

- World's largest membership society for technical professionals
 - + 375,000 members worldwide
 - 160 countries
 - 80,000 student members
 - 10 geographic regions (IEEE-USA comprises 6)
 - 45 technical societies & councils
 - wide range of technical interests

■ Publications

- 1/3 world's technical computing & electronics publications
- + 1.7 million documents in its digital library

■ Standards

- ~1,300 standards & projects under development

IEEE's business

- Membership
- Publications
 - 144 transactions, journals and magazines
 - Peer-reviewed
- Conferences
 - + 850 conferences annually
- Standards
 - e.g., everyone knows & uses 802.11



Sample of IEEE RFID Standards

- 802.15
 - WPAN devices that co-exist with other wireless devices operating in unlicensed frequency bands.
- P1902.1
 - “Fill a gap between non-network-based RF-ID standards (e.g., ISO/IEC CD 15961-3, ISO 18000-6C or 7) and existing high bandwidth network standards such as IEEE 802.11 a,b,g and IEEE 802.15.4 e.”

IEEE RFID Task Force

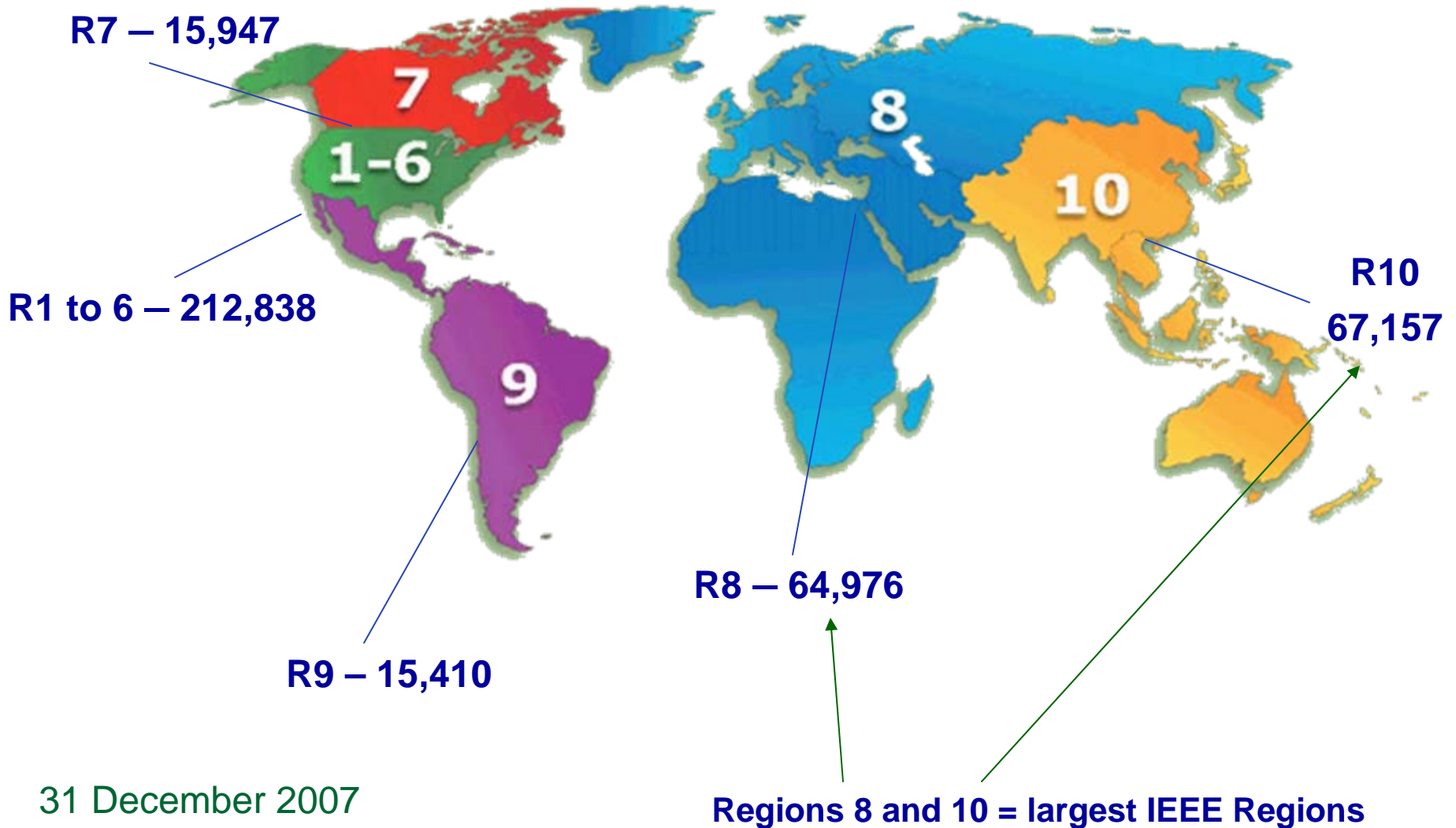
- New. First face-to-face meeting 23June08
- Charged with establishing an RFID footprint within the IEEE structure
- Outcome is a 5-year strategic plan
- Outcome may include an RFID Technology Roadmap.

IEEE's business (cont.)

- Most importantly, it's about PEOPLE!
+375K strong!



IEEE Membership By Region (1-10)



ASSOCIATION –

International RFID Business Association



- **Formed in 2004**
- **Representatives in 34 countries**
- **Not-for-profit trade association**
- **Vender-neutral**
- **Founded to deliver educational programs and industry information in a timely, accurate, factual manner.**
- **Shares “Lessons Learned” and “Best of Breed” technologies with its members so that all may learn.**

Associating with RFID ba -- Two People, Two Stories

- Peter Kuzma
 - VP Business Development,
Thin Battery Technologies (TBT)
- Liz Churchill
 - VP Solutions,
eProvenance

Peter Kuzma

- **Thin Battery Technologies (TBT)**
 - A printed electronics company
 - develops and produces printed power solutions in applications such as battery assisted RFID, sensor and display power, and medical drug delivery patches.
- **Prior to TBT**
 - VP RCD. a develops and produces application-specific RFID tags
 - President of X-ident GMBH LLC,. Produces general purpose passive RFID labels and paper tickets.
 - Avery Dennison. His team developed one of the initial high volume smart label converting processes for RFID labels.
- **BS, Electrical Engineering, Drexel University (Phila., PA, USA)**
- **MBA, University of Scranton (Penna., USA)**
- **MS, Organizational Dynamics, Pennsylvania University**



■ Peter Kuzma

“Educating one by one is too slow”

- In 2002, I saw an unmet need for a NEUTRAL technical training association that also networked companies with real-life RFID experience.
- It was too slow for me to educate end users one at a time. The EPCglobal does this but only for epc technology and ignores ISO 14443, LF, ISO 15693, etc.
 - As a consultant, people simply hired me because they wanted a neutral resource to determine what chip/inlay was best for their application.
 - As President of a company focused on RFID label converting, 50% of my time was educating customers.

His successes

- Since TBT joined RFID ba 5 months ago:
 - We found a company with a portable reader that now involves my companies as part of the solution.
 - We were brought into 2 viable projects from fellow RFID ba members.
 - We learned about wide band systems as an alternative to RFID-based RTLS systems.
 - We're using the RFID ba's guidance on global trade shows to map our 2009 trade show planning.

Liz Churchill, VP Solutions, eProvenance

- **eProvenance** applies advanced technology to authenticate and track fine wines and spirits from producer to consumer.
- Since 2004, I have been a member of RFID ba and I was with Matrics, because I believe it important for companies to **work together to promote RFID** standards and implementations.
- Working with organizations, e.g., IEEE and RFID ba, is the only way to move a new technology forward.
- **Standards** organizations, including those of IEEE, provide the backbone for standards to be usable by everyone throughout the industry.
- RFID ba and IEEE are a great **source for information**. Some of the most knowledgeable and talented folks in the industry are part of these organizations
- You can always find someone who can answer your questions.



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RFID ba Founder's Message

- **“The RFID ba will only be as good as its members. I therefore invite you to help invent and control this industry's future by becoming an active member of the RFID ba.”**

Harry Pappas, Founder & CEO

<http://rfidba.org/>

Summary

- The global RFID marketplace is brimming with activity and opportunities
- Working with colleagues from around the world takes patience, understanding and trust
- Being active with global associations helps gain understanding and trust
- And...

Summary...

- Gaining patience – now that is another lesson for another time!

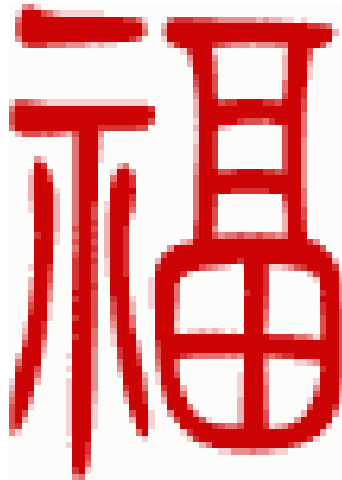


To repeat,

To gain wisdom (and prosperity!):

- First, REFLECT on what you need
- Second, IMITATE, and learn by doing
and
- Third, EXPERIENCE working together.

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- May you all have good luck with your business dealings in RFID!



THANK YOU, STE and Visitors!

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