RFID: The Right Frequency for Government

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Slides Provided by: The IBM Center for the Business of Government

RFID Overview: Everything you need to know….

RFID Definition:

Radio frequency identification uses tags, readers, and software to exchange data over electromagnetic waves in radio frequency communication.

The tag uniquely identifies the item it is attached to. The reader sends out a radio signal, and the tag responds with a signal to identify itself.

The reader then converts the radio waves returned from the tag into data that can be passed on to an information processing system to filter, categorize, analyze, and enable action based on identifying information.

The tag includes a chip, antenna and packaging.

RFID Tags can be active, semi-passive or passive.

•**Active RFID**: Larger, internal battery, expensive, limited lifetime, noise immune, better range, faster transmission rates.

•**Semi-passive RFID**: tag combined with an environmental sensor to deal with temperature, vibration, and movement.

•**Passive RFID**: Smaller, powered from reader, slower transmission.

You're using RFID already:

•Key fobs (gas pumps and car ignition)

•Watches (many sports models)

•Smart cards (credit cards)

•Disks and coins (golf balls?)

•Smart labels (Libraries)

•Electronic Product Coding (EPC) Labels (grocery stores)

•Glass transponders, which can be implanted under the skin (animal and military uses)

What's the Point? Here it is:

•RFID allows suppliers and retailers to track individual items – no counterfeit!

•Collateral information is stored on the web in a db; historical and modified data stored

•Better tracking, retrieving, analyzing, and eventually cost savings

RFID at the Department of Defense: All Suppliers by 2007

DoD's RFID Goals:

- Deliver the item to the right location

- Make tools and information to decision makers who use effects-based logistics management

- Manage end-to-end capacities and assets across the supply chain

- Enhance the combat commander to exercise directive authority over logistics

RFID Timetable

1995: 35% in Bosnia

1999: 70% in Kosovo

2001: 85% in Afghanistan

2002: 100% in Iraq

2006: Required for six classes of Army supplies

2007: Required for individual cases within pallets, all palletized loads for new contracts, for all classes of supply shipped to any location

Pilot Deployment RFID Uses:

Camouflage netting, Automobile engines, Vehicle-repair kits, Humvee radiators, Mixed Freight

Major Challenges:

•COST, COST, COST – there are bases and warehouses around the world that will need to be refitted;

• Military conditions are a challenge for tags and readers; and

•Swimming in the data – how do you analyze millions of new pieces of data?

RFID at USDA: Tracking the Food Supply

USDA's RFID Goals:

- Improve the security of the nation's food supply

- Disease containment

- Improved data analysis capabilities as many disparate (species based) systems are combined

- Entice the big dogs into voluntary compliance to work out the bugs in the system before the smaller farms and producers join the fray

RFID Timetable

July 2005: States are capable of registering premises, Animal Identification Number system becomes operational – **current focus is on premises**.

April 2007: Premises registration and animal ID "alerts" issued

January 2008: Premises registration and animal registration required

January 2009: Entire NAIS program mandatory, reports of animal movement required

NAIS stores the following for premises:

- Premises ID
- Name of Premise
- Owner or contact person
- Street address
- City
- State
- Zip code
- Contact phone number
- Operation type (vet clinic, farm)
- Date activated
- Date retired (operation sold)
- Reason retired

Major Challenges:

- Technology challenges for animal tagging and number of parts

- Cost for producers, intermediaries, and retailers

- Data privacy on the part of the farm owners

- Voluntary roll out

RFID at the Food and Drug Administration

FDA's RFID Goals:

- Pedigree reporting: track medications from component parts to distribution

- Anti-counterfeiting: Identify counterfeit drugs before they are distributed

- Anti-diversion: Improve the distribution of drugs according to need

- Cold chain management: verify the proper transport of temperature-sensitive pharmaceuticals

Legal and Business Drivers

In June 2006, a new pedigree law takes effect in the State of Florida. Drug producers and wholesalers will have to be able to electronically track the chain of custody of all controlled substances being shipped in the state. Partners choosing not to comply face severe penalties.

The vast majority of pharmaceutical sales come from the top 10 firms.

Wal-Mart and Target are also beginning to require this for all suppliers.

Pilot Deployment RFID:

Viagara and HIV Treatment drugs are beginning to be tagged; these are the current targets for counterfeit

Major Challenges:

• COST, COST, COST – there are bases and warehouses around the world that will need to be refitted;

• Impact on international drug market and patients

• Free Samples – this is a significant portion of drug makers advertising and would be difficult to track

RFID Recommendations

Policy makers and government leaders should take the following steps:

- Conduct trials and early implementations of RFID technology in a variety of areas to establish best practices

- Establish common standards, which are essential for RFID to be interoperable;

- Foster and encourage research on the technology itself and its implications for business, government, and society;

- Develop and sponsor education on RFID for diverse audiences and purposes; and

- Mitigate privacy concerns from the use and development of RFID technology.

About the Author

- The report is *RFID: The Right Frequency for Government* by Dr. David Wyld. To date, this report is the most downloaded in the Center's history, with more than 30,000 folks downloading a copy. The report is also on its second hard copy printing.

- Dr. Wyld is the Maurin Professor of Management, and Director of the Strategic e-Commerce and e-Government Initiative at Southeastern Louisiana University. He is the founding editor of the Journal of Strategic e-Commerce. He received the Outstanding Teacher Award for the College of Business at Southeastern Louisiana University in 2002.

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