The Convergence of Semantic Naming and Identification Technologies Conference

RFID / Wireless Coordination and Collaboration Across MHS

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RFID and wireless solutions have broad applications in the medical field

Wireless *Technologies*

▸ RFID

▸ Wireless LAN (802.11 a/b/g)

▸ WIMAX

▸ Commercial Wireless Services

▸ Bluetooth

▸ RTLS (Real Time Locations Services)

▸ LMR (Land Mobile Radio)

Wireless *Applications*

▸ Drug Counterfeit solutions

▸ Cold Chain Management

▸ Point-of-Care applications - Accessing electronic medical records at patients' bedsides

▸ Telemedicine

▸ Autonomous Supply Chains

▸ Patient Safety (e.g. medication administration

▸ Asset / Personnel Tracking

▸ Inventory management

▸ Voice Communications

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This is best evident from the proliferation of wireless systems and applications in the medical community

IDC found that more than **80% of health care organizations** polled said they have **deployed wireless LANs** or plan to deploy one in the next 12 months.

US Navy, Fleet Hospital Three, Iraq – Using RFID to track wounded soldiers, refugees and POWs

MHS – MTFs are using Wireless LANs in receiving gates, enabling mobile workers untethered access to the DMLSS application

VA – BCMA (Barcode Medication Administration) uses wireless laptops and PDAs to improve patient care

Boston, MA Beth Israel Deaconess Medical Center– wireless asset tracking

Ft. Bragg – Employed active RFID to track medical equipment

Charlotte, NC – passive RFID infant tracking security system

Houston, St. Luke – RFID to improve bed management

Ingalls Family Care Centers – provide wireless access to doctors for reviewing medical imaging output, patient records, and virtual discussion groups

2005 **HIMSS** survey showed that **79%** of 253 health care executives said they **will use wireless** information systems this year while 54 percent said they will use handheld devices.

George Washington University Hospital – wireless throughout new facility, even elevator shafts: tracks patients moving between floors

Yale, New Haven – RFID used to improve equipment management and flow of patients and medical staff

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DoD is attempting to standardize and optimize implementation by publishing directives such as RFID

▶ **Passive RFID Policy** applied to cases, pallets of materiel:

- **January 2005:** Operational Rations, Clothing, Tools, Personal Demand Items, Weapon System Repair Parts & Tools shipped to two DLA warehouses

- **January 2006:** Comfort Items, Petroleum, Lubricants, Oil, Chemicals, Additives, Barrier Material, Ammunition, Pharmaceutical and Medical Materiel shipped to specific locations

- **January 2007:** All classes of materiel shipped to all DoD locations must have passive RFID tags whether shipped vendor to DoD or DoD to DoD

▶ **Active RFID Policy** (Updated July 30th 2004)

- Applied to all freight containers, consolidated air pallets and large engine containers shipped to/from overseas DoD receiving points (includes all war reserve materiel in MILVAN, SEAVAN or air pallets)

▶ **AIS Integration**

- **Beginning in FY 2007** – logistics automated information systems (AISs) involved in receiving shipping and inventory management will use RFID to perform business transactions

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Despite policy directives, significant challenges exists

▶ The need to efficiently leverage existing / same infrastructure for multiple mobility solutions across diverse installations

▶ Security
  – Systems may be vulnerable to security threats that can affect mission resilience beyond those traditionally associated with IT systems (e.g., tag destruction)
  – Retrofitting RFID and wireless security measures could be costly and alter business case ROI
  – HIPAA compliance in the wireless and mobility environment will require specific consolidations
  – Inherent Interfere issues that can affect operations

▶ Changing Technology- Investments may be made in architecture and products that are not sustainable in the long run (e.g. EPC vs. ISO, or EPC Gen 1 vs. EPC Gen2)

▶ Lack of common policy and strategy can yield to the development of stovepipe systems that are not interoperable
  – Difficulty in extracting maximum value from RFID (and AIT) generated data
  – Inability to broadly share relevant information
  – Difficulty in fusing data from various sources
  – Service parochialism

▶ Overabundance of data
  – Potential to overwhelm existing legacy systems, data repositories and enterprise networks
  – May cause inefficient bandwidth utilization

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MHS is directly affected by these challenges as it moves forward with wireless adoption

▸ DMLSS Program has to adhere to the RFID directive

–   How to leverage existing wireless infrastructure at loading docks..

–   Which RFID technology to use in each situation

  ▪ Logistics: EPC gen1 vs. gen2

  ▪ Asset tracking – active, passive, hybrid

–   What security safeguards if any should they plan for

–   How should they exchange lessons learned with other services

▸ TMIP Program will provide POC application to medics in the tactical field

–   Which air-interface protocols should be used

–   What handheld device should be utilized that is also compatible with a broader set of applications – e.g. logistics

▸ Selecting a wireless communications technology within MTFs
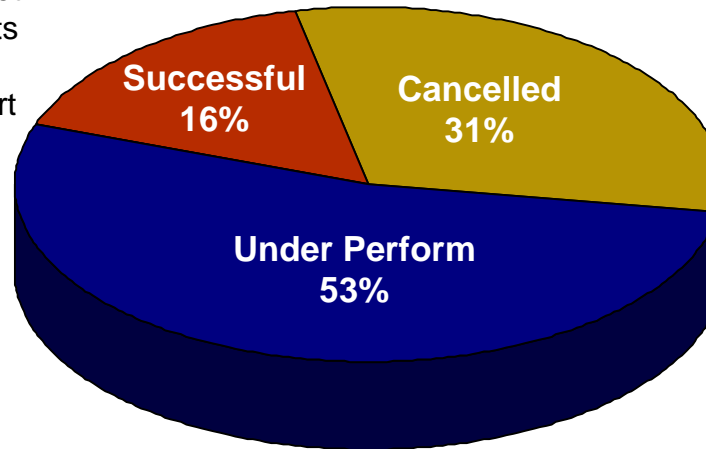
  ▪ VOIP & WIFI, Cellular, simple cordless phones, pager

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Many technology initiatives have had mixed track records

16% delivered on time/on budget
- Clear statement of requirements
- Stakeholder involvement
- Executive Management Support
- Proper training

31% cancelled before completion
- Business case invalid
- Funding
- Prioritization

Successful 16%

Cancelled 31%

Under Perform 53%

Source: Standish Group International

53% late, over budget and/or delivered less than requirement
- Incomplete requirements
- Lack of stakeholder involvement
- Lack of resources
- Unrealistic expectations
- Lack of senior support

With proper planning wireless initiatives can avoid similar pitfalls

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A comprehensive approach for a successful wireless implementation includes…..

▶ **Planning**

– Look at strategic needs of organizations and consider how wireless solutions align with those strategies

– POM process to fund all aspects of technology insertion (hardware, software, site survey, installation, etc.,). Will technology be funded centrally or through operating budgets?

– Consider impact of Enterprise Architecture on desired solution

▶ **Policy**

– Create clear, targeted policies to provide guidance on implementation and security considerations

– Consider BPA contracts for hardware, software and services to ease implementation of comprehensive solutions across multiple locations / services

▶ **R&D**

– Understand the technologies, how they may best be used and their limitations

▶ **Communication**

– Educate personnel on policies and technologies

▶ **Feedback**

– Solicit feedback from end users via working groups

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What are the benefits of a comprehensive approach?

▸ Mission Effectiveness

 – Enhanced support to the war fighter (just in-time healthcare / logistics, etc.)

 – Increased Patient Safety

▸ Efficiencies

 – A consistent solution means lower learning curves as personnel move from location to location

 – Solutions to issues at one location can quickly be disseminated throughout the network

 – Increased ability to accommodate new technologies and initiatives

 – Reduce errors and streamline the supply-chain to ensure the right product arrives at the right locations at the right time

 – A consistent approach to implementing wireless & mobility solutions that keep costs low

 – Added data allows for better activity measurement leading to more opportunities for improvement

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DMLSS will act as the Center of Excellence for RFID and wireless technologies across MHS

▶ Spearhead the development and coordination of a Wireless Working Group to include the relevant MHS stakeholders.

▶ Wireless working group to:

– Coordinate needs of MHS and introduce best practices for wireless technologies

– Provide assistance for developing guiding principles and policies that will shape application development and use as well as anticipate marketplace and standards evolution

– Provide guidance for the introduction, implementation, and operation of mobility technologies across MHS

Short Term	Mid Term	Long-Term
• Conduct a Mobility Maturity Readiness Assessment • Participate in Service AIT meetings (USAF, USA, USN) • Centrally research technologies and opportunities	• Conduct a follow on pilot at Wright Patterson AFB • Consolidate lessons learned and best practices • Assist in the development of guidance document in the use of wireless technologies	• Assist in plans for future implementations (POM, AIS changes, cross service coordination) • Ensure emerging standards and policies do not overlook medical specific requirements

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QUESTIONS

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