EPCglobal Overview

UConnect 2007
Caroline Helman
Senior Manager Community Development
EPCglobal North America

The global language of business
www.gs1.org
“An investment in EPCglobal delivers more measurable, hard-dollar benefits for your organization than any other RFID investment”
EPCglobal’s Mission

“Reduce the risks and costs of implementing RFID through a portfolio of high-value subscriber Offerings”
GS1: a diversified portfolio

GS1 has a full portfolio of products and solutions

- **Global standards for automatic identification**
  - Rapid and accurate item, asset or location identification

- **Global standards for electronic business messaging**
  - Rapid, efficient & accurate business data exchange

- **The environment for global data synchronisation**
  - Standardised, reliable data for effective business transactions

- **Global standards for RFID-based identification**
  - More accurate, immediate and cost effective visibility of information
The EPCglobal Approach

Supporting Supply Chain Convergence

Trusted business partner to shepherd industry transformation

- Neutral third-party status guarantees no misuse of information or breach of confidentiality
- No commercially-motivated agenda

Industry priorities and needs

- “By industry, for industry” is the crucial success factor
- Avoidance of fragmented approaches is a must

The only successful path is a global approach

- Subscribers determine priorities and initiatives, not EPCglobal
- Directly engage industry associations, standards bodies, and governments (i.e. ISO, FDA, China, etc.)
The EPCglobal Approach
Supporting Supply Chain Convergence

Virtual organization > 1600 people

Adoption programs – Europe, Asia

Expected New action groups 2006 – Aerospace, Automotive, Apparel
Footwear and Fashion
The EPCglobal Community
Pulling diverse organizations together

End Users
- Manufacturers
- Distributors
- Trade Organizations
- Retail
- Other

Regulatory Bodies
- Frequency Compliance
- Public Health
- Industry Regulations

Technology Vendors
- Software Vendors
- Consultancies
- Hardware Vendors

Public Policy
Technical Standards
Industry Guidelines
Education Programs

Requirements
Progress in Core Markets

- **Retail**
  - Walmart
  - CVS
  - Albertsons
  - Target
  - Best Buy

- **Consumer Goods**
  - P&G
  - Gillette
  - Kimberly-Clark
  - Sara Lee
  - The Maytag Home
  - Elizabeth Arden

- **Food & Beverage**
  - General Mills
  - Kellogg's
  - Coca-Cola
  - Dole

- **Healthcare & Life Sciences**
  - Johnson & Johnson
  - Abbott Laboratories
  - Pfizer
  - Baxter
  - Wyeth

- **Electronics & High Tech**
  - Gateway
  - IBM
  - HP
  - Motorola
  - Microsoft

- **Logistics & Transport**
  - FedEx
  - UPS
  - United States Postal Service
  - DHL
  - Maersk Line

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Through New Industries

- Healthcare
- Aerospace & Defense
- Chemical
- Industrial
- Footwear & Apparel
- Automotive
• Cambridge - UK
• MIT – USA
• Adelaide - Australia
• St. Gallen – Switzerland
• Fudan – China
• Keio – Japan
• ICU – South Korea

Widening scope to include other research organizations globally.
Academic Convocation, Cambridge (MIT) January 2006
# EPCglobal’s Areas of Focus

## High-Impact Areas of EPC/RFID Implementation

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supply Chain Management</strong></td>
<td>Apply EPC/RFID technologies to transform supply chains by providing end-to-end visibility of goods and enabling improved inventory management.</td>
<td>Inventory tracking, logistical track &amp; trace, returns</td>
</tr>
<tr>
<td><strong>Asset Management</strong></td>
<td>Optimize use of physical assets that are needed to produce and deliver products, as well as tracking of depreciating goods through EPC/RFID technologies.</td>
<td>Fleet management, service and maintenance logging, spare parts tracking, tool check in/check out, real-time location services, baggage tracking.</td>
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<td><strong>Work in Process Manufacturing</strong></td>
<td>Apply EPC/RFID technologies in the manufacturing process to enable effective inventory tracking and management, production line efficiencies, and JIT/LEAN manufacturing advantages.</td>
<td>Assembly automation, component production, configuration, and bill of materials automation.</td>
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<td><strong>Health &amp; Safety</strong></td>
<td>Applying EPC/RFID technologies to ensure the health, welfare, and security of the general population.</td>
<td>Patient safety, warranty and expiration</td>
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<td><strong>Regulatory</strong></td>
<td>Using EPC/RFID technologies to comply with federal and state laws, as well as the frameworks of regulatory bodies.</td>
<td>FDA Anti-Counterfeiting Act, Bio-Terrorism Act, and C-TPAT,</td>
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<td><strong>Access Control</strong></td>
<td>Monitor and restrict the movement and use of valuable equipment and resources through EPC/RFID technologies.</td>
<td>Animal tracking, electronic article surveillance, patient identification, and credential validation/authentication.</td>
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</table>
Subscriber Tools
Products & Services Available to the Subscriber Community

Getting Started
- Mastering EPC/RFID: The basics from how to assemble your own EPC to the functionality of RFID components.
- How to Get Started with EPCglobal

Financial Planning
- Financial KPI Guidelines
- Current and Future State Assessments
- ROI Assessment and Business Case Planning
- EPC Value Models
- Industry Issues and Drivers Overviews
- RFID Cost Tutorial

Internal Implementation Planning
- Implementation Project Plan, Process and Quick Guide
- Critical Path Planner Blueprint and timeline to implement in phases and define deliverables
- Papers addressing specific technical challenges
- Learnings from the Field

Vendor Selection
- Guidelines on selecting Tags, Readers, Consultants
- Sample RFP / Checklists
- System Integration Project Plan
- Vendor Marketplace
  - Vendor Profiles
  - Hardware Certification
  - Software Certification
  - Accredited Performance Test Centers
  - Interoperability Test Results

Trading Partner Adoption
- Trading Community Adoption Scorecard: assess your suppliers
- Trading Community Implementation Planner projects steps to meet agreed-upon tagging and data sharing needs
- Trading Community Portal
The EPCglobal Adoption Framework

Developed by the community from the experiences of our Subscribers, the EPCglobal Adoption Framework is a proven pattern for successful implementation.
EPCglobal Evolution & Execution
Rapidly Commercializing EPC/RFID

Community Growth

- Healthcare Business Action Group Formed
- Transportation and Logistics Business Action Group Formed
- Public Policy Steering Committee Formed
- FMCG Business Action Group Formed
- ALE Standard Ratified
- 800+ Global Subscribers
- Standards Development Process Launched
- First Gen 2 Products Available
- UHF Gen 2 Standard Ratified
- Gen 2 Conformance and Lab Accreditation Certifications Issued
- 5 standards ratified to date
- 3 new standards in development
- 3+ standards being updated

Standards Progress

2004 | 2005 | 2006
HLS Global Priorities

- Electronic Pedigree
- Item Level Tagging
- Serialization
- Track and Trace
- Supply Chain Integrity
- Tag Data Standard

Legislation for pedigree to prevent counterfeiting and diversion, product recalls (FDA and State).

Initiatives seeking to control regulated prescription drugs and track controlled substances

Participation from members, solution providers, regulatory agencies, trade associations
HLS IAG Participants

3M Pharmaceuticals
Abbott Laboratories
Ahold
Alcon
Amerisource Bergen
AstraZeneca
Aventis
Avery Dennison
Barr Laboratories
Baxter Healthcare
Bayer Healthcare LLC
BearingPoint
Becton Dickinson
Berlex Laboratories
Boehringer INGELHEIM Pharma GmbH&Co.KG
Cap Gemini Ernst & Young
Cardinal Health
CVS
Daiichi Pharmaceuticals
Endo Pharmaceuticals
Eon Labs
Ethicon Endo Surgery
FDA
Genzyme
Glaxo Smith Kline
Hoffmann-La Roche AG
iapharm Pharmaceuticals
IBM
Janssen-Ortho
Johnson & Johnson
Kimberly Clark
Ligand Pharmaceutical
Mallinckrodt Pharmaceutical
McKesson Corp
McNeil Consumer & Specialty Pharmaceuticals
MeadWestvaco Corporation
MedPointe Pharmaceuticals
Merck & Co., Inc.
MIT/Auto-ID Center
Novartis
Pfizer Pharmaceuticals
Philips Semiconductors
Procter & Gamble Company
Purdue Pharma
Sandoz
Sankyo Pharma
SAP AG
Schering-Plough
SUN
SupplyScape
Unichem Ltd
Unisys
Wal-Mart
Watson Pharmaceuticals
Wegmans
Wyeth
ZF Polpharma SA
EPCglobal / HLS Standards Activity

Requirements Dev.

6 wks | 6 wks | 0 wks | 4 wks | 5 wks | 10 wks | 1 wks | 4 wks | 16 wks | 12 wks | 6 wks | 4 wks | 4 wks

Standards Development

Vendor & Industry Adoption

6 wks

Tag Data Standards

Track & Trace

Supply Chain Integrity

Serialization

Item Level Tagging

Pedigree Messaging Std

Security

Privacy

IAG Business Case Dev.

IAG Business Rqmts Dev.

Collect Business Rqmts

Form WG/ IAG JRG

Define Technical Rqmts w/EU

Develop EU Technical Rqmts

BSCTSC Approval of EU Rqmts

Technical WG formation

Technical WG

Standards Development

Prototype Test of Proposed Spec.

WG Review & Approve Candidate

BSC/TSC Review of Recommended

Board Ratification of Standard

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30 DAY IP Review

30 DAY IP Review

30 DAY IP Review

30 DAY IP Review

30 DAY IP Review

30 DAY IP Review

IAG WG

IAG WG/JRG

TAG WG

6 months | 5 months | 10 months

*highlight activities cross multiple industries
Define a standard format for a Pedigree Messaging standard that will meet all current Federal and State Pedigree requirements.

**Status:**
- All Standards work complete.
- **Ratified standard – 01/2007**
- Certification Program underway
Define requirements for tagging pharmaceuticals at the item level. Include requirements for manufacturing lines, distribution environments, transportation and Retail environment.

Status:
• Requirements complete. Resulted in a High Frequency technical working group to define the standard.
• HF & UHF initiatives underway to provide uniform air interface protocol at item level.
• HF Standard expected ‘07.
Define requirements for the EPC identifier to be encoded on an RFID tag.

**Status:**

- Requirements complete. Identified 2 GS1 identifiers [Global Trade Item Number (GTIN) and Serialized Shipping Container Number (SSCC)] to be used.
- Collaborating with GS1/HUG via the “Global Healthcare Initiative” -- starting with Serialization.
  - Joint HUG/HLS Work Team

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Define requirements and/or guidelines for authenticating and decommissioning tags consistent with optimizing tag utility and consumer/patient privacy.

**Status:**

- Work Group has been approved and will start in March 2007
- US Drug Enforcement Agency interest in this capability is extremely high
- Solutions expected to span a mix of hardware, software and process responses
- Potential for this work to expand cross-industry
Define supply chain use cases, processes and information needs for sharing EPC related data for forward and reverse logistics.

**Status:**

- Forward & Reverse Logistics (Returns) processes and data exchanges completed
- Common vocabularies and location identifiers drafted
- Additional use cases to be addressed:
  - 3rd Party Logistics Providers & Repackers
  - Product Recall
- Data Sharing Strategy & Guidelines are currently being addressed
- Pedigree-on-Demand concepts being investigated
- Integrate with GS1 Traceability efforts

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Define additional user memory requirements for tags (ie. Lot Number, Expiration Date).

**Status:** Work underway. Defining common data structure that can be used by all industries.
"I don’t skate to where the puck is but to where it’s going to be”
Wayne Gretzky
In summary…

**EPCglobal ..from hope to hype to implementation.**

- The EPCglobal community grows stronger every day
- Physics and standards challenges are being overcome
- Prices are going down
- The benefits of “visibility” are starting to be realized
- The EPCglobal community has moved decisively from preparation to implementation

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**The race for business benefits and competitive advantage is on!!**
EPCglobal –
where technology standards meet business needs
Chuck Schramek  
Director, Action Groups  
EPCglobal Inc.,  
+1 609.620.4579 office  
+1 609.433.7457 mobile  
cschramek@epcglobalna.org

Bob Celeste  
Director, Healthcare  
EPCglobal North America  
+1 609.620.4512 office  
+1 609.947.2720 mobile