EPC-Enabled
Radio Frequency Identification (RFID)

Industry Overview & Onboarding to Target’s RFID Program

Thursday, October 29th 2015
Tuesday, November 3rd 2015
Agenda

• Welcome
  (Keri Jones, Target, EVP Global Supply Chain)

• Leveraging EPC-Enabled RFID for Omni Channel Success
  (Patrick Javick, GS1 US, Industry Development Director)
  o GS1 US Update
  o What is RFID
  o Why is RFID Foundational to Retail Success
  o Community Update
  o Deployment Support

• Target’s RFID Program
  (Josh Janos, Target, RFID Program Development)
  o Program Scope
  o Specifications
  o Next Steps
RFID adoption is part of Target’s supply chain transformation.

Near-complete store inventory accuracy will bolster our guest experience and omnichannel capabilities.

In 2016, all stores in Target’s chain will be using RFID for inventory management.

Previously announced category adoption (‘Phase 1’):
- Kid’s Apparel & Accessories
- Women’s Ready-to-Wear
- Performance Wear (Men’s, Women’s & Kids)
- Select Domestics Categories (Bedding, Bath Towels, Soft Décor)

New RFID category scope (‘Phase 2’):
- Men’s Apparel & Accessories
- Intimates/Hosiery/Sleep
- Jewelry & Accessories
- Shoes
- Additional Domestics categories (Rugs, Window Treatments, Bath)

Thank you, for your support and partnership!
GS1 US Overview
GS1 OVERVIEW

We bring communities together.

• GS1 is…
  – Neutral
  – User-driven
  – User-governed
  – Not-for-profit
  – Global (110 Member Organizations in 140 countries)

• More than 2 million companies around the world and 300,000 businesses in the United States, across 25 industries, utilize the GS1 System of Standards

• GS1 Standards are the global language of business — a language for identifying, capturing, and sharing information automatically and accurately, so that anyone who wants that information can understand it, no matter who or where they are.
THE GLOBAL LANGUAGE OF BUSINESS

GS1 Standards

**Identify**
GS1 Identification Numbers
Companies, Products, Locations, Logistics, Assets, and Services

**Capture**
GS1 Data Carriers
Barcodes and EPC-enabled RFID

**Share**
GS1 Data Exchange
Master Data, Transactional Data, and Physical Event Data
OUR VALUE TO INDUSTRIES AND COMPANIES

Adoption & Usage
More and more companies using the standards

Leadership
Industry working together to break new ground

Increased Scale & Efficiency

100% USAGE
50% ADOPTION AND USAGE
0% ADOPTION

PROGRESS
FOUR KEY PILLARS OF A SUCCESSFUL OMNI-CHANNEL STRATEGY

- INVENTORY VISIBILITY
- WEB-READY PRODUCTS
- PREDICTIVE ANALYTICS
- FULFILLMENT STRATEGY
DELIVERING ON THE OMNI-CHANNEL PROMISE

Item Accuracy Drives Confidence

Improving the Selling and Buying Experience

Benefitting Retailers and Brand Owners

Increasing Consumer Satisfaction

Delivering on the Omni-Channel Promise
What is RFID and why would we want to use it?
RFID IN EVERYDAY LIFE

Car Keys  Sporting Events  Theme Parks
Libraries  Retail Stores  Tolling Systems
RFID – THE TECHNOLOGY BENEFITS

• No line of sight required
• Little or no human intervention
• “Group” processing
  – Multiple objects can be identified virtually simultaneously
  – Serialized identifiers used to “sort and count” after the actual read event
• Speed of processing
  – 20,000+ items/hr vs 250 items/hr with barcodes
• Can support both short range and long range read distances
• Capture “state” of objects in transit or in storage more often and at more points in the overall process at a lower cost
BASIC COMPONENTS OF AN RFID SYSTEM

**Tags**
- Device made up of an electronic circuit and an integrated antenna
- Portable memory
- RF used to transfer data between the tag and the antenna
- Read-only or read/write
- Active or passive
- Usually attached to specific items

**Antenna**
- Receives and transmits the radio waves
- Wireless data transfer

**Reader**
- Communicates with the tag via antenna
- Interprets radio waves into digital information
- Provides power supply to passive tags
- Receives commands from application software
- Issues commands to reader and provides/receives data

**Host Computer**
- Stores and evaluates obtained data
- Links the transceiver to an application, e.g. ERP
MANUFACTURING AN RFID TAG – WHO ARE YOU BUYING FROM?

- **Chip Manufacturer** – The company who makes the RFID chips.
- **Inlay Manufacturer** – The company who makes the inlay antenna, and attaches the chip, to make a finished inlay.
- **Label Converter** – The company who takes the finished inlay and converts it into a usable label with paper face and adhesive.
- **Two key things to know about RFID Tags**
  - Inlay Model
  - Chip Model
- **Most RFID tags are purchased from converters**

- **GS1 US Solution Provider Finder for Retail Sector**
What is EPC® and how does it relate to RFID?
- EPC = Electronic Product Code
- EPC is an *identifier*; RFID is a *data carrier* that holds the EPC identifier
  - EPC is an identifier that identifies a *specific* physical object
- EPC identifier for items is the Serialized Global Trade Item Number® (sGTIN)
  - GTIN® identifies the product SKU (U.P.C. is one type of GTIN)
  - sGTIN = GTIN + added serial number to distinguish different instances of the same SKU

\[ \text{U.P.C. Company Prefix} \quad \text{Item Reference} \quad \text{Unique Serial Number} \]

\[ \begin{align*}
8 & \quad 0123419999919 \\
+ & \quad 1732050807 \\
= & \quad \text{SGTIN}
\end{align*} \]

\[ \begin{align*}
0 & \quad 614141000734314159 \\
\text{GS1 Company Prefix} & \quad \text{Indicator Digit + Item Reference Number} & \quad \text{Serial Number}
\end{align*} \]
Industry Update – Leveraging EPC-enabled RFID for Omni-Channel Success
THE NEW RETAIL ECOSYSTEM

Consumers are demanding a **seamless, simple** shopping experience.

With expectations of:

- Infinite choices in assortment, price and fulfillment
- Increased amounts of accurate decision making

*Access to any product, anywhere, anytime from any device*
NEW SALES CHANNELS

• Shop In Store
• Shop at Home, Ship to Home
• Shop Online at Home, Ship to Store
• Shop Online From Store, Ship to Home
• Shop Online From Store, Ship to Store
• Hold at Store
• Shipping to Home from Online Distribution Center
• Shipping to Home from Store Distribution Center
• Ship to Home from Store
• Store to Store Transfers

New Channels REQUIRE Higher Inventory Accuracy!
RFID is fulfilling that need with 95%+ Inventory Accuracy

* Used with permission from Auburn RFID Lab
On May 13th, 2014, GS1 US distributed an industry written RFID outreach letter to trading partners of Bon-Ton, Hudson’s Bay, Kohl’s, Lord & Taylor, Macy’s, and Saks Fifth Avenue.

- The key talking points in the letter were:
  - Omni-channel retail is here to stay. and RFID is foundational to delivering on the strategy - in every product category.
  - RFID has moved beyond inventory replenishment. It is an essential component to enable the supply chain visibility and inventory accuracy needed to know what’s available, where it’s located and how to best deliver it.
  - A growing number of retailers already have programs in place and are rolling-out RFID, and are realizing important benefits for their customers.
  - It is important to begin developing your plans to implement now.
RFID IN THE USA TODAY

- Bon-Ton
- Hudson’s Bay
- Dillard’s
- JC Penney
- Kohl’s
- Lord & Taylor
- Macy’s
- Neiman Marcus

- Nordstrom
- Saks Fifth Avenue
- Sears Holdings
- Target
- Walmart

- Many RBO’s that operate their own stores as well as vertically integrated brands including American Apparel, Chico’s FAS, Lululemon and others

1. GS1 US Standards Usage Survey, 2014
2. The above named retailers have all discussed their RFID deployments being in various phases of testing/implementation during the 2014 or 2015 calendar year.
# LEADING CATEGORIES OF IMPLEMENTATION

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Product Category</th>
<th>Product Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath</td>
<td>Dresses</td>
<td>Luggage</td>
</tr>
<tr>
<td>Bedding</td>
<td>Footwear</td>
<td>Pants / Slacks / Long Bottoms</td>
</tr>
<tr>
<td>Belts</td>
<td>Handbags</td>
<td>Sleepwear and Robes</td>
</tr>
<tr>
<td>Children's wear</td>
<td>Headwear</td>
<td>Small Leather Goods</td>
</tr>
<tr>
<td>Coats</td>
<td>Home Accessories</td>
<td>Socks – Dress &amp; Basic</td>
</tr>
<tr>
<td>Cookware</td>
<td>Hosiery</td>
<td>Sportswear / Athletic</td>
</tr>
<tr>
<td>Cutlery</td>
<td>Innerwear - Basics</td>
<td>Suit Separates / Suits</td>
</tr>
<tr>
<td>Denim</td>
<td>Intimates</td>
<td>Swimwear</td>
</tr>
<tr>
<td>Designer / Collections</td>
<td>Jewelry</td>
<td>Ties / Neckwear</td>
</tr>
<tr>
<td>Dress Shirts</td>
<td>Kitchen Electrics</td>
<td>Toys / Games</td>
</tr>
</tbody>
</table>

*Children, Men, and Women*

**Replenishment- and Fashion-based business**
Supporting your Deployment
THINGS TO THINK ABOUT

• Leverage your partners
• Leverage industry expertise
• Visit our resources page
  • www.gs1us.org/industries/apparel-general-merchandise/tools-and-resources
• Get educated
  • Understand what is being asked of you
  • Understand your companies current capabilities
• Start now
The GS1 US EPC® Item Level Readiness Program provides the education, training, tools, and community support that the apparel industry needs to implement Electronic Product Code (EPC)-enabled item level tagging into day-to-day operations.

It supports the implementation of technology and GS1 Standards to improve business process challenges and overall supply chain efficiency.

www.gs1us.org/EPCItemLevelReadiness
EPC ADOPTION ROADMAP

Nine Interactive Steps

- Each icon links to live, web-based content
  - ROI Calculators
  - Whitepapers
  - Case Studies
  - Presentations
  - Checklists
  - Guidelines

Build Your Business Case
Build Your Project Team
Tagging Your Product
Define and Purchase Equipment and Secure Services
Moving From UPC to EPC
Manage Serialization Plan
Consumer Notice and Privacy
It’s All About the Data
Bringing It All Together
Target’s RFID Program
Target’s RFID Program

Partnersonline.com (POL)
All requirements and specifications can be found on the RFID Library Page of Partnersonline.com

Navigation:
Partnersonline.com > Library > Develop Product > Packaging > Radio Frequency Identification (RFID)
Target’s RFID Program

Program Scope:

- Previously announced category adoption (‘Phase 1’ – Jan 2016):
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  - Women’s Ready-to-Wear
  - Performance Wear (Men’s, Women’s & Kids)
  - Select Domestics Categories (Bedding, Bath Towels, Soft Décor)

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A complete list of Departments in scope can be found on RFID Library page of Partneronline.com

Timing:

- Each department will reference a ‘First Date for RFID’ in the Requirements section of the RFID page
- This date outlines the OTB (open to buy) cutoff for when all POs received by Target (new and carryforward) need to have RFID tags
- Please work with your MP BA to coordinate PO timing

Please keep this transition in mind for any stock/weeks of supply that you maintain (domestically or overseas). Any held stock/WOS will need to have an RFID tag applied before being shipped to Target to meet these dates. Please partner with an Approved Supplier for assistance in tagging.

<table>
<thead>
<tr>
<th>Division</th>
<th>Department</th>
<th>Phase</th>
<th>First Date for RFID</th>
<th>Product Scope</th>
<th>Approved Inlay Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimates/ Hosiery/ Sleepwear</td>
<td>New! 020 Sleepwear</td>
<td>Phase 2</td>
<td>Jul Wk 2 ’16 OTB Date</td>
<td>All product except for online exclusive styles</td>
<td>Spec G</td>
</tr>
</tbody>
</table>
Target’s RFID Program

Form Factors:
• Integrated/Embedded Tag
  Target prefers hang tags where the RFID inlay is Integrated/Embedded within layers of the standard UPC tag when possible. It should be noted the EPC logo is visible on the human readable side.

• Applied Sticker
  For products without a hang tag, or where an Integrated/Embedded hang tag is not possible, Target prefers the RFID inlay to be an applied sticker. The sticker can then be placed on the hang tag or product package (preferably in place of the UPC lockup as shown below). Note that the EPC logo must be visible to the guest.
Inlay Specifications & Approved Suppliers:
Target accepts Ultra High Frequency (UHF) EPC Gen2 tags and labels encoded according to GS1 SGTIN-96 standards.

Managing the serialization of EPCs is of utmost importance, therefore we stress the need to partner with an industry leading supplier.

Each Target Department has listed an approved inlay specification category (Spec G & Spec F). These specifications have been developed by the RFID Lab at the University of Auburn by studying each product category and how the product will be scanned with RFID readers in Target stores.

Each specification link provides a list of approved inlays/suppliers that meet performance needs.

In order to meet desired cost, quality and service level, Target prefers that you partner with:
• Avery Dennison, or
• SML

Contact information for Avery & SML can be found on the RFID Library page of Partnersonline.com
**Event Case Pack Labels:**
- In order to ensure a proper transition, Target requires event labels on ALL vendor case packs that contain RFID enabled product.
- Note, this case label will indicate the product inside has RFID tags. The case label DOES NOT need to be an RFID tag.
- Required for receipts of the Phase 2 categories from first PO with RFID tags until Dec Wk 1 2016 OTB date. Please back out supply chain lead time from those receipt dates to determine the appropriate time to begin shipping with case labels.

*More details & specifications can be found on the RFID Library page of Partnersonline.com*

**Product Cost:**
We understand there is a cost associated with adding RFID technology to your current packaging. Target will be partnering with you on a maximum cost allowance per unit for this onboarding process. Please work with your Merchant or Sourcing Product Manager in cost discussions.
Target’s RFID Program

Next Steps:
1. Please review RFID Library page on Partnersonline.com
2. For further education on RFID, industry best practices, and GS1 standards please contact Patrick Javick from GS1 US
3. Identify a tag supplier and begin transition to EPC-Enabled RFID tags
4. Work with your Merchant or Sourcing Product Manager to finalize department specifics

To Contact GS1 US:
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Industry Engagement Director, Apparel and General Merchandise
T +1 609.620.8023 | E pajavick@gs1us.org
1009 Lenox Drive, Suite 202, Lawrenceville, NJ 08648
www.gs1us.org/ApparelGM

To Contact Target:
If you have any further questions about Target’s RFID program, click on the Help section in POL to submit a Request Support Form (select Partners Online-Other) or Call for Support (612 304-3310 option 3, option 8).
Thank You!

[Target Logo] [GS1 US Logo]