

BIT Session 10: RFID Baggage Tagging – What's Next for Airports?

Moderator:

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Speakers:

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Mark Summers, Market Development Manager, Global RFID Solutions – Aviation, Avery Dennison

Pankaj Shukla, Director, Global RFID Market Development, Zebra Technologies



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SEPTEMBER 15 – 17, 2019

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RFID Baggage Tracking

What's next for airports?



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4.08 billion
scheduled
passengers
in 2017



70.5%
Drop in rate of
mishandled
bags since
2007



99.5%

In the right place at the right time!

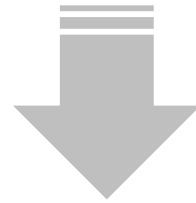


So what seems to be the problem?

0.5% mishandled bags



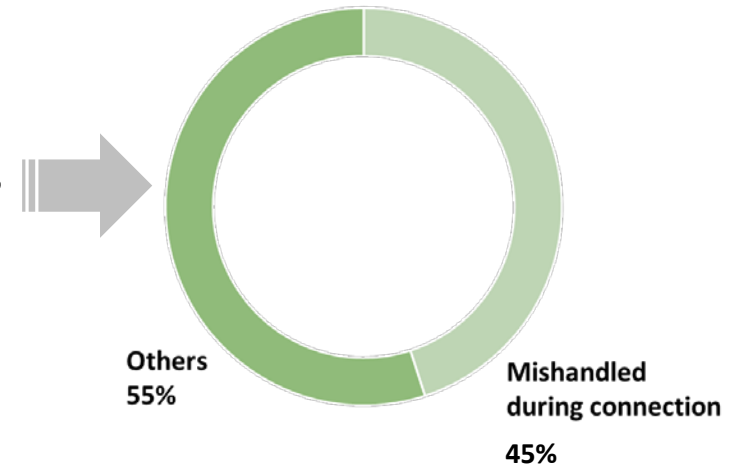
5.57 mishandled bags per 1000 pax



22.7M mishandled bags



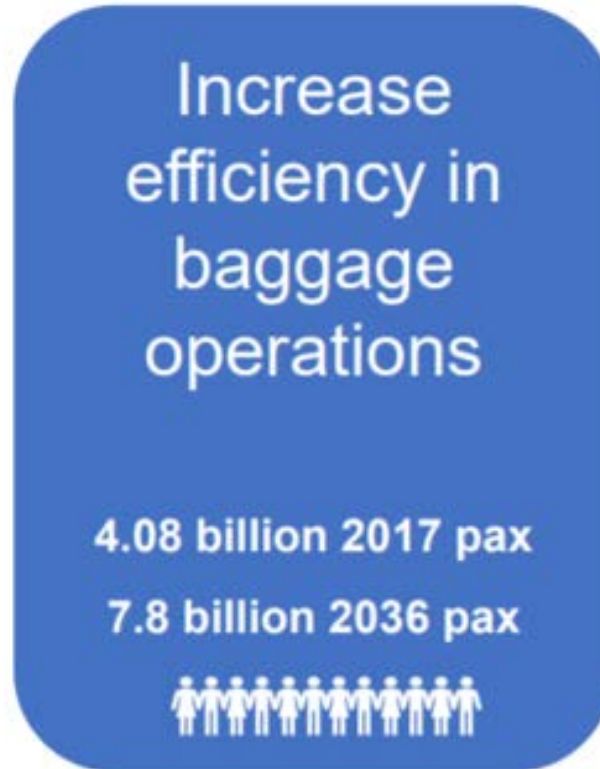
\$2.3B net cost



Source: IATA, 2018

84% of pax expect to know where the bag is at all times

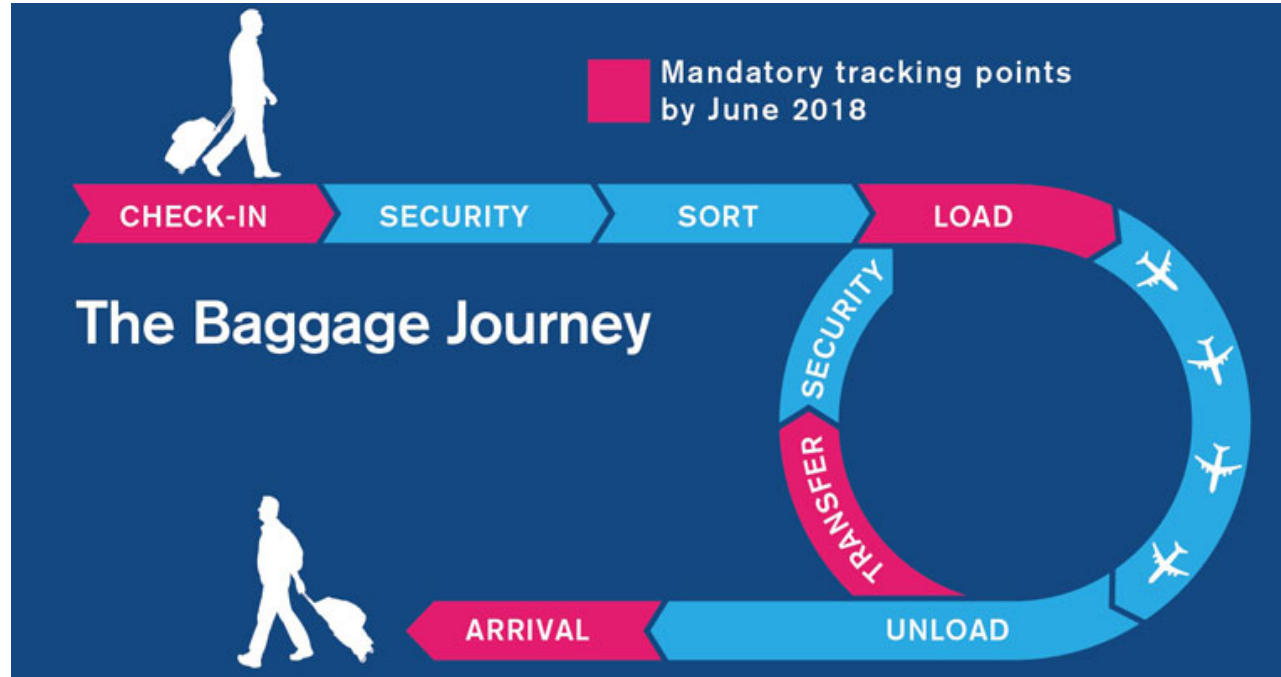
IATA Global Pax Survey 2018



We need to do better 😞

RESOLUTION 753: BAGGAGE TRACKING

1



2

RESOLUTION ON RADIO FREQUENCY IDENTIFICATION (RFID) IN BAGGAGE



Pankaj Shukla

Director – Global RFID
Market Development
Zebra Technologies



Mike Irons

Practice Director – Airports
Wipro Technologies



Michael Saunders

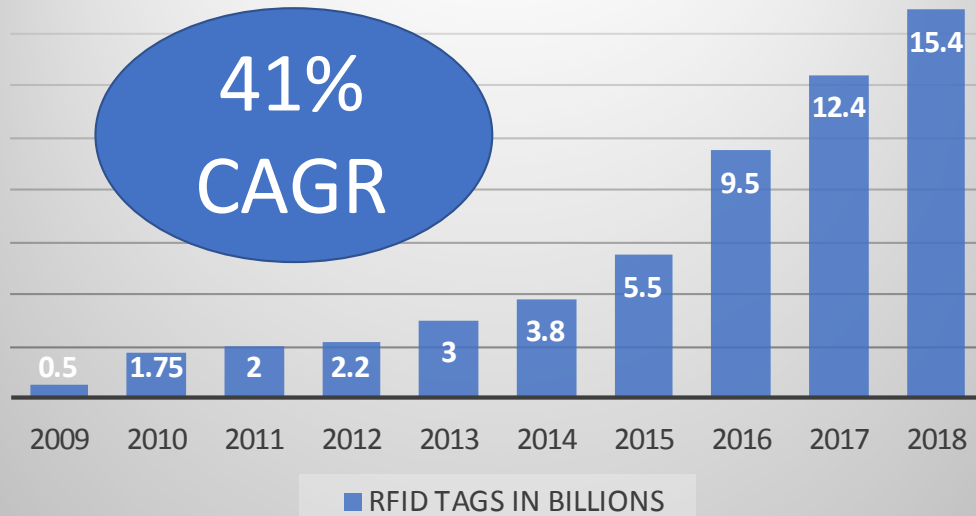
Sr. Director, Business
Development
Aviation Services
Lyngsoe Systems



Mark Summers

Market Development Manager
Global RFID Solutions
Avery Dennison

UHF RFID TAG VOLUME



RFID MATURITY



**Mature Standards
Proven Technology**

Global Frequency Allocation

- 125 countries have RFID spectrum allocated
 - Covers 97% world GDP!
- ETSI, Japan, China revised rules to improve usability

IMPLEMENTATION MATURITY

What?

Where?

How?

Why?



210M
RFID tags printed/scanned at LAS since 2005

PERFORM DOM
DATABASE DATA MAINTAINING
ACCUR
INTEGRITY
CONSISTENCY
CLE RE
TING

XML

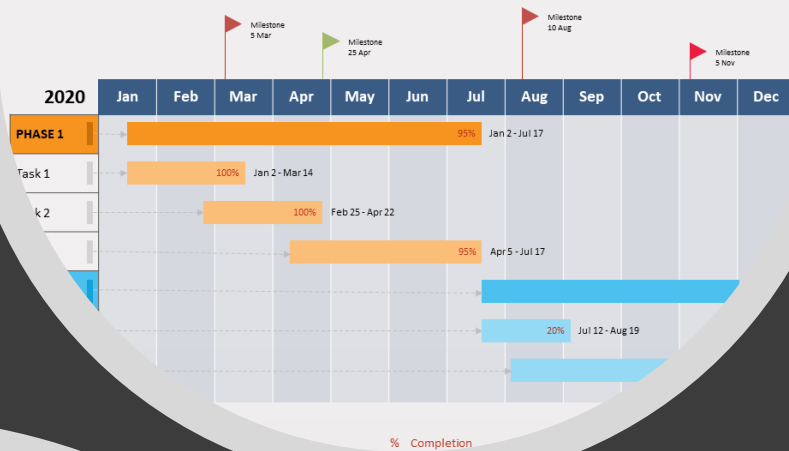
process choose people
improving qualitative
performance use data management aspects
Operations optimal modeling
science based mathematics
fraud using include
understand marketing computati
an field
risk term
predictive simplest thumb discover
Others tends



Data

ONLINE DAY
MAKING INTEGRATION
WORLDWIDE
PROCESS VOLUME
TECHNOLOGIES
FRAMEWORK BETWEEN STATISTICS
BUSINESS EFFECTIVE VISUALIZATION
DATABASES PROCESSING SIZE
ANALYTICS HIGHER DEPARTMENT USERS
SIMULATIONS COMPANIES
EXABYTES PETABYTES
ANAL RESEARCH
PRIVATE LEARNING
EVERY WORD
BASED TI
SEARCH
FUTURE
CRITIQUES
BILLION NEW
STATE CRITIQUE
PEOPLE TRAFFIC
CURRENTLY
TERABYTES MARKET VARIETY
RELATED TIME SENSOR
WORLD NOW
INITIATIVE ECONOMIC
PROJECT DISTRIBUTED
RELEVANT ANNUAL
USED
PARADIGM FUNDING
RECORDS COST INSIGHT TOOLS
CENTER

Tinker



RFID Inlay

ARC spec U (IATA) compliant
 Pre-encoded Unique Tag ID
 10 digit Licence Plate Number
 3 digit Julian Date




Deployment and Implementation



RFID Implementation Guide:

➤ Implementation Options

- Complementary to existing technologies
- Use in specific process areas (include baggage irregularities)
- RFID only solution
- RFID and non-barcode solution



Singulation

Lower Costs v
Barcode
Readers

No “faraday
Cages”, Tunnels
or Curtains

Printers

Improve
TCO

Ease of
Implementation;
Simplicity

Transfer Bags

Deployment and Implementation

Implement Change

=

Efficiency and Productivity



Benefits



Proven results:
4 min saved loading
to aircraft

Proven results:
10 -15% saving resources
performing exception
handling at
sortation/transfer

Proven results:
14-17% increased BHS
capacity

Providing Operational Excellence

Business Execution

=

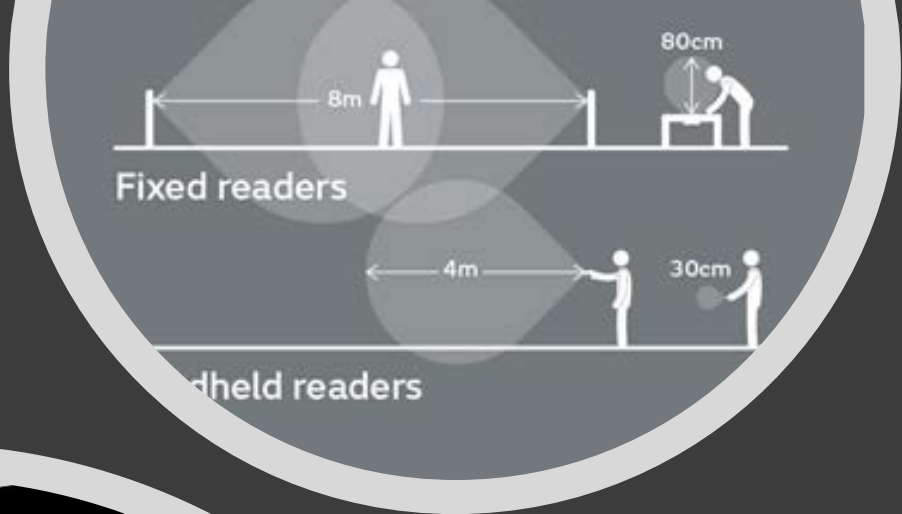
Proven Benefits

Consider the Following:

Joint MIT and Cambridge University Study on Improving Operational Efficiencies at Airport concluded in their time study:

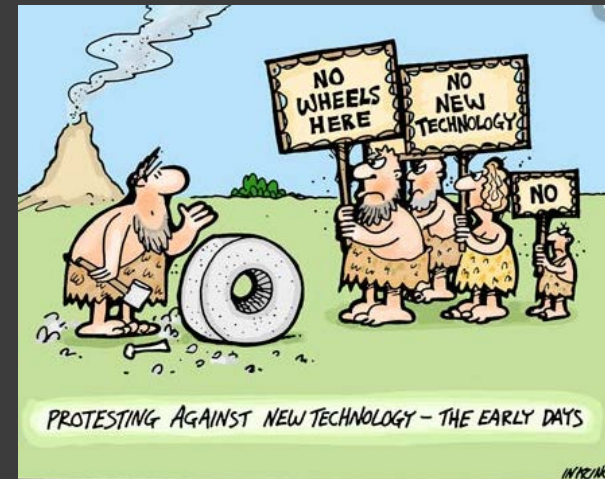
“If airlines and airports collaboratively improve turn around times by 5 minutes at a medium hub operation, an entire new bank of arrivals/departures is very achievable”

Leveraging emerging technologies will facilitate that outcome !!



Mythbusters

The thing about making assumptions...



Myth - The cost of the tag is high

Reality – Cost Is Falling

- The price per tag has steadily fallen since 2008, especially in the last two years when it went from USD\$.10 - and continues to drop.

Myth - The read range is too short

Reality – Read Range Appropriate

- Common maximum range for a UHF RFID tag is 10

Myth - RFID readers have trouble in a bag room and on the ramp

Reality – Ensure Proper Install

- Any reader will have trouble if not surveyed and deployed properly. It can be used to help define positioning

Last Myth - RFID is an old technology....maybe, but so what?

Consider that the internet was created in 1974, and yet the World Wide Web was activated in 1990.

Maybe we are just slow to adopt, or perhaps we have found a business case to match the technological solution?

Myth - The aviation industry does not have a standard

Reality – Standards Adopted

- IATA has published their document RF-1000, which defines the aviation industry with RFID to be in line with baggage standards, including defined

Myth - RFID is not worth the cost when bar code gets a 92% read rate

Reality – Business Case Established

- The difference between 92% and 99.5% can be very compelling when applying the accepted repatriation cost metric of \$100 per lost bag. Declining costs are also contributing to an improving business case.

RECOMMENDED that: The following specifications be followed as the community develops radio frequency identification (RFID) technology to more efficiently handle (e.g., sorting, reconciliation, etc.) baggage, offering the lowest state contract defined in Resolution 1740. The community shall ensure the compatibility of the technology with airline data systems and the ability of RFID to be used in the interim baggage handling environment.	
1. THE RFID SYSTEM	
1.1 The RFID Device:	
1.2 The RFID reader/writer:	
2. CONSIDERATIONS	
2.1 Improved read rate and data accuracy on automated baggage handling (compatibility of RFID manufacturer technology elements)	
2.2 Line of sight is not required for reading (active RFID)	
2.3 The data capacity of RFID technology enables:	
2.4 Potential for higher speed throughput at read/write locations	
2.5 Potential for future elimination of human-readable information	
2.6 Allow for unique passenger and baggage travel identification number	
2.7 Should not require major modification of existing structure or mechanical and electronic services due to either physical or RFID interference, including all check-in and baggage handling areas	
2.8 Should be manufactured at a cost that will encourage adoption by the airline industry	
2.9 Data privacy issues must be addressed	
2.10 The migration of existing RFID sites to this RF shall take place over a period of several years, until new installations should adopt this RF	
3. SCOPE AND APPLICATION	
3.1 The Scope and Application are:	
3.2 A RFID system capable of continued enhancement to meet changing requirements	
3.3 A RFID system must allow the transfer of information from a passenger's bag to an automatic processing system to RF transmission and vice versa	
3.4 Baggage RFID applications shall not interfere with other applications, e.g., passenger, cargo, mail, catering, etc. and VOT units	

Myth – RFID isn't going to happen

Reality – It's Happening

- A priority from the airline CEO's, who reconfirmed their commitment end of 2018
- The AGM resolution on RFID was unanimously adopted in June 2019
- It isn't about one airline but the good of the industry

Myth – RFID isn't Global

Reality – RFID is Global

- Regulators have approved RFID for global use
- Readers need to be selected for the country but the tags are tuned for global
- RP1740c ensures a global standard of performance for RFID tags

Myth – RFID is a push by one Airline

- A push from one airline to get the world to follow
- The Airline accused is Delta

Reality – Delta is not even on the board

- This is a priority from the airline CEO's
- Many other airlines are looking into RFID

Myth – It is RFID or Nothing

Reality – RFID works with barcodes

- No Need to replace what works like the sortation system
- RFID is about Tracking
- Start with New areas and replacing inefficient manual process
- It all fits together

Myth – A new technology is just around the corner

- Baggage biometrics, LORA, SigFox, Bluetooth, even DNA sprays

Reality – There always will be

- Technology changes much faster than our infrastructure
- RFID is cheaper, RFID has proved itself in multiple trials, RFID is used today

According to IATA, they
also see myths...



Questions?



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