

INTERNATIONAL ASSOCIATION OF



BAGGAGE SYSTEM COMPANIES

Baggage Basics

September 26, 2018

Baggage Basics – purpose of this webinar

- The purpose of this webinar is to give all attendees an overview of Baggage Handling System (BHS) and Check Baggage Inspection System (CBIS) terms, processes, technology, and concepts.
- This information is intended to give the participants in the IABSC 2019 Young Professional Challenge some BHS/CBIS background as a starting point toward the development of problem statements and ultimately, high-level concepts to address critical BHS infrastructure challenges in Airports.

Webinar Agenda

- Define YP Challenge Scope and Schedule
- Introduce Mentors – The IABSC Board of Directors
- Baggage Handling System/Checked Baggage Inspection System (BHS/CBIS)
Fundamentals
- Emerging Trends
- Technologies
- Next Steps
- Questions & Answers

YP Challenge Parameters

Initial Problem Statement: Airline travel is expected to double in the next 20 years in the US. With aging infrastructure and limited capital budgets, accommodating this growth cannot be as simple as doubling the size of current US Airports because we do not have the time or resources to do that. Additionally, as infrastructure gets larger and more spread out, customer levels of service can suffer. What processes, technology, or other tools/resources would you use to accommodate this growth in passengers and baggage at the same or better level of customer service in roughly the same footprint that Airports occupy now?

Phase 1 - Quantify the Problem: Define and present the problem statement at a level where laymen and all stakeholders can understand the impact. The deliverable could be a drawing, a picture, a short paper, a short video, whatever the participants believe delivers the message.

Phase 2 – Develop and Propose Solutions: Deliver a video no longer than 20 minutes quantifying the problem and outlining your proposal, explaining both the resulting customer experience and baggage handling process.

Potential Teams: 1-4 Young Professionals

Prize: \$5,000 to winning team

Mentors: IABSC and Board Mentors

Proposed YP Challenge Schedule

Kick-Off Webinar	September 26, 2018
Phase 1 - Quantify the Problem	September-December 2018
• Deliverable Due	October 31, 2018
• Review and Presentation of Phase 1	November/December 2018
Phase 2 – Develop and Propose Solutions	January-June 2019
• Deliverable Due	Early June 2019
• Presentation of Selected Solutions	July 2019

Mentors – The IABSC Board of Directors



**CHRIS
NORTON**

CHAIR
*Chief Executive
Officer, VTC*



**CLINT
AUTEN**

VICE CHAIR
*Director Corporate
Facilities, Southwest
Airlines*



**MICHAEL
CONNER**

SECRETARY /
TREASURER
*Chief Financial Officer,
JSM & Associates*



**BRUCE
MCMICKLE**

IMMEDIATE PAST
CHAIR
*Global Market-Airports,
Forbo Siegling*



**NICK
PORTER**

DIRECTOR
*President,
Vanderlande Industries
North America*



**TERRY
DISALLE**

DIRECTOR
*Business
Development,
Daifuku NA*



**LARRY
STUDDIFORD**

DIRECTOR
*President, Studdiford
Technical Solutions*



**FINN LYNG
PEDERSEN**

DIRECTOR
*President, BEUMER
Glidepath*



**BRANDON
SORRELL**

DIRECTOR
*Director, Sabel Systems
Technology Solutions*



**JEROME
VAUGHAN**

DIRECTOR
*VP Customer Service,
Siemens PPAL*



**BILL
MCGUIRE**

DIRECTOR
*Office Manager,
Brock Solutions*

Baggage Handling System/Checked Baggage Inspection System (BHS/CBIS) Fundamentals

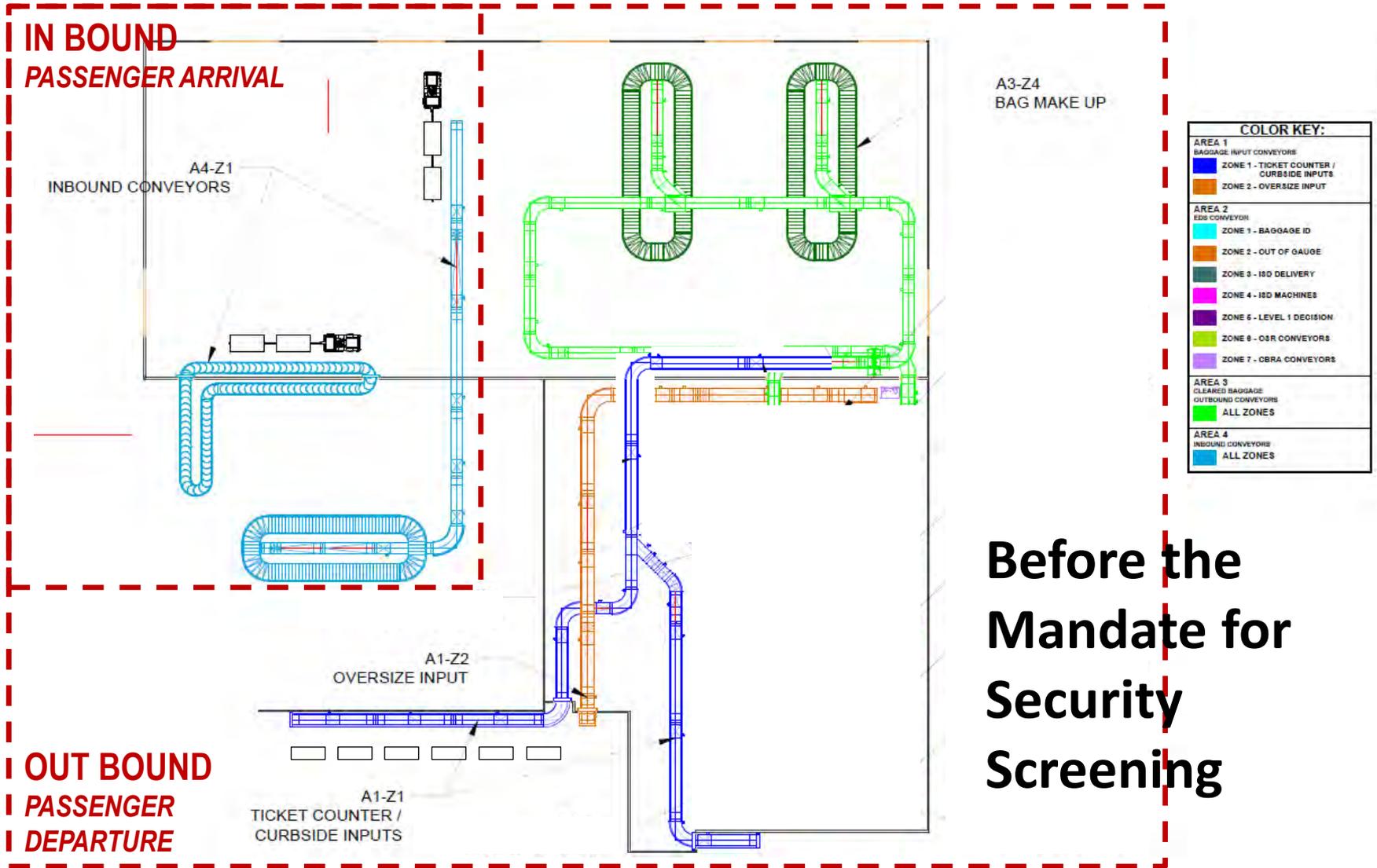


The Evolution of BHS and CBIS

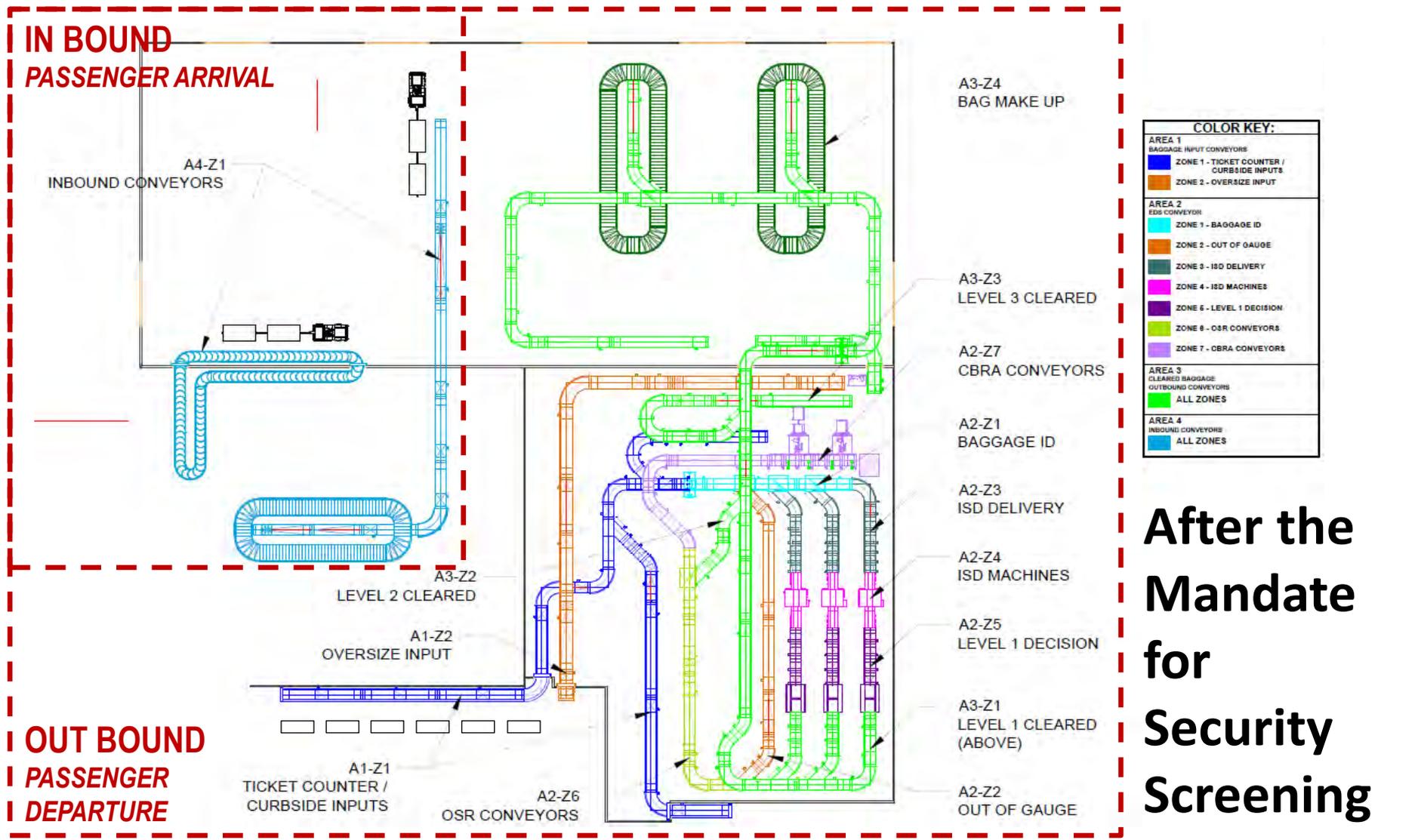
A look back:

- September 11, 2001
- November 2001: Creation of the Transportation Security Administration (TSA) as part of the Aviation and Transportation Security Act
- December 2002: Congressional mandate for 100% screening of all checked baggage departing U.S. airports
- October 2007: First version of the Planning Guidelines & Design Standards (PGDS) for Checked Baggage Inspection Systems (CBIS)



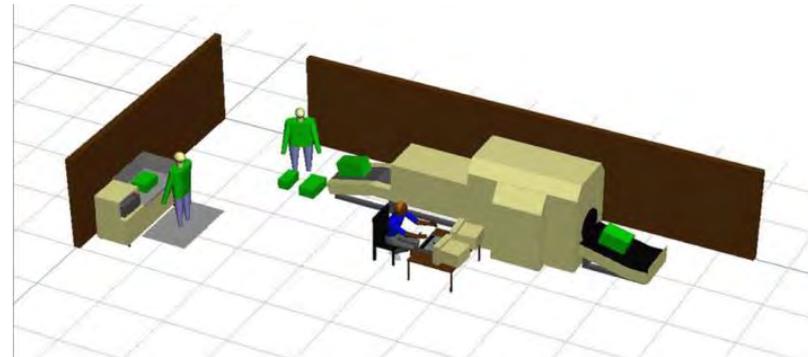
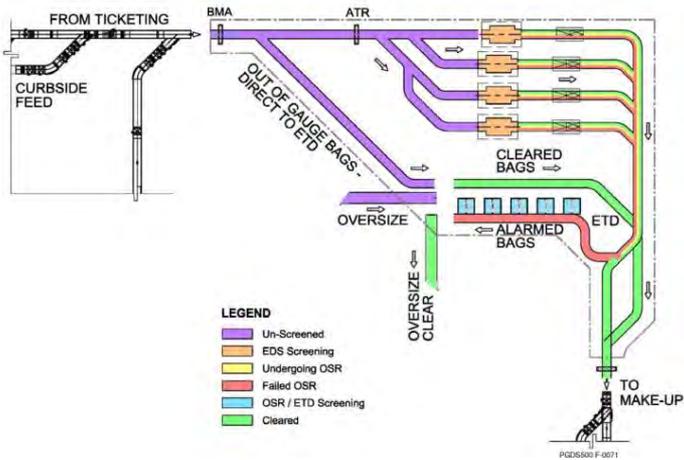


**Before the
Mandate for
Security
Screening**

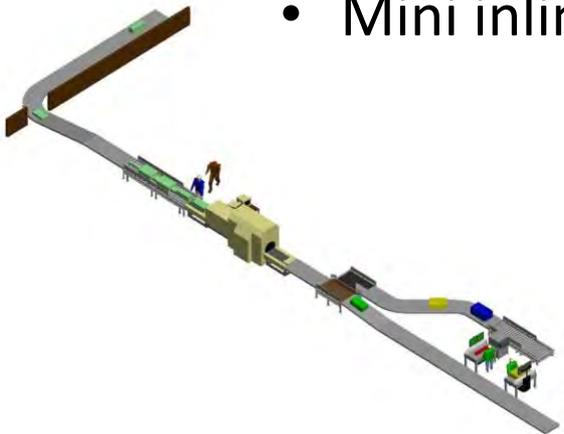


**After the
Mandate
for
Security
Screening**

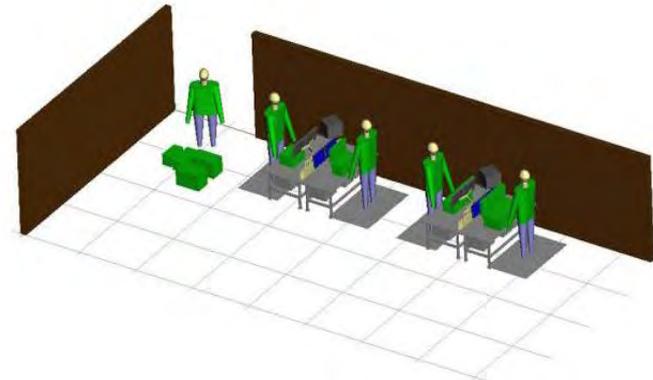
Basic Screening Solution Configurations

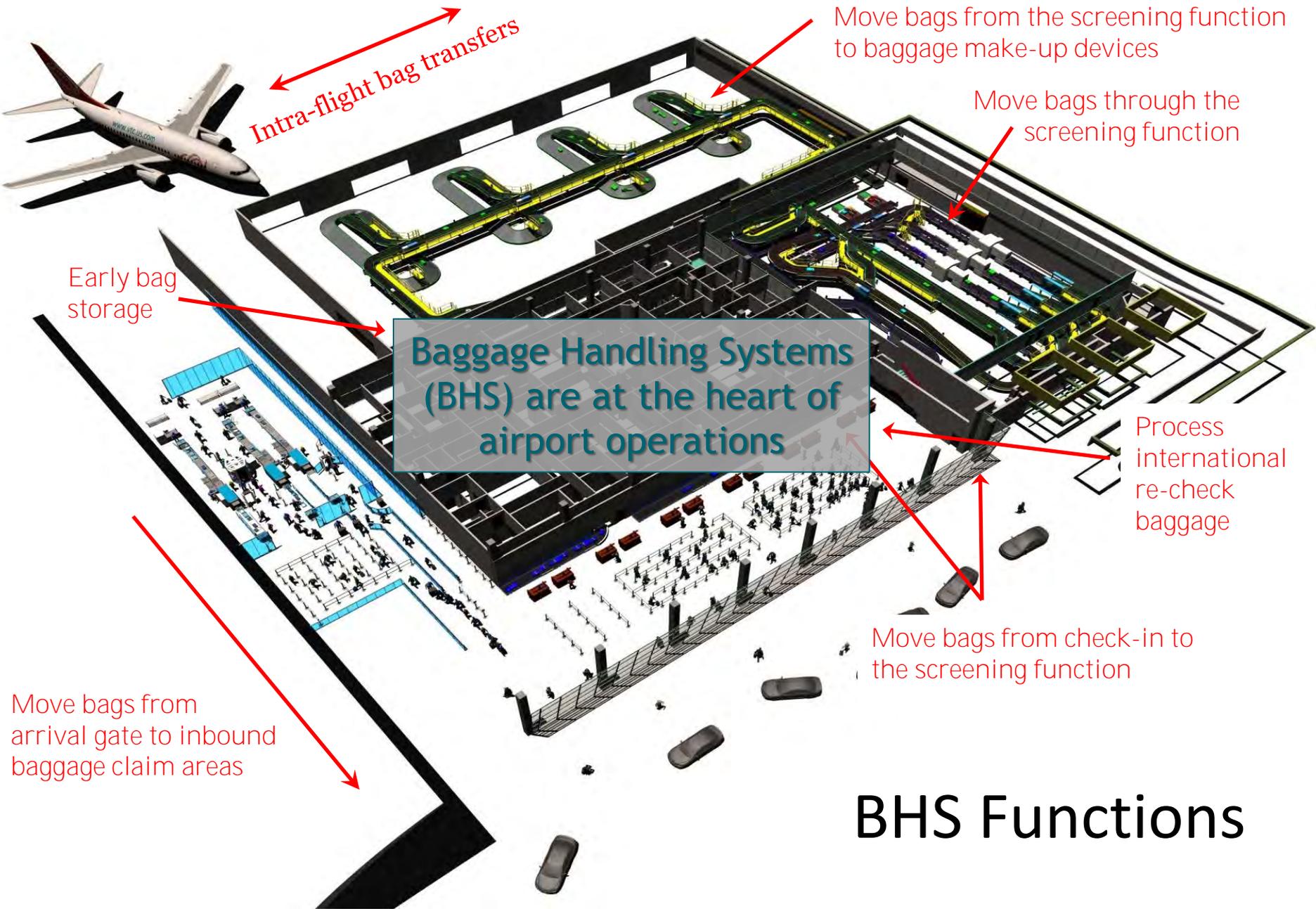


- Stand-alone EDS
- All ETD



- Fully inline
- Mini inline

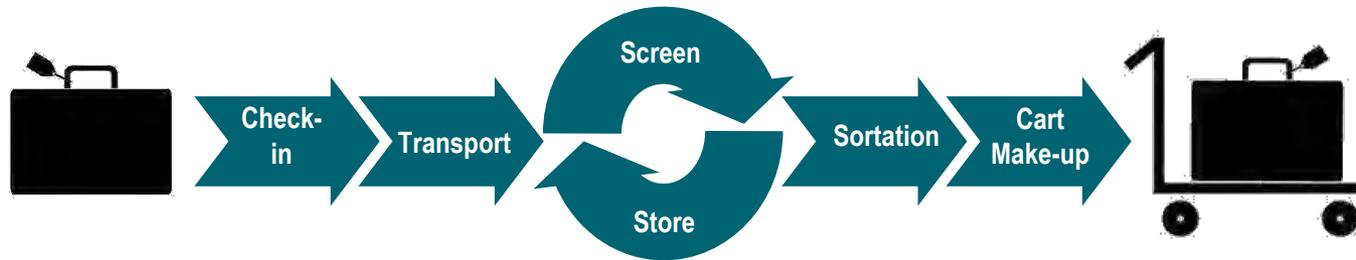




BHS Functions

Airport BHS Is A “System Of Systems”

- Connecting Concourses, Airlines, FIS across the Airport -

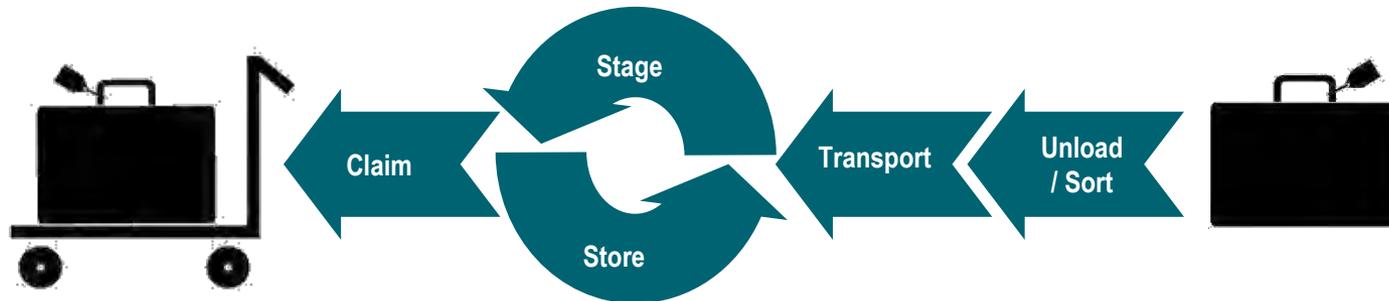


Critical Concerns in A Global, Connected Network:

- **Varying levels of service guarantees**
- **Baggage disposition intra- and inter-airport**
- **Characteristics and size of “baggage” between markets**
- **Cold and hot baggage processing**
- **Integrated, flexible screening**
- **INFORMATION and CONNECTIVITY are at the heart of meeting expectations for Passengers**

CBP / FIS

Hot Bag Service

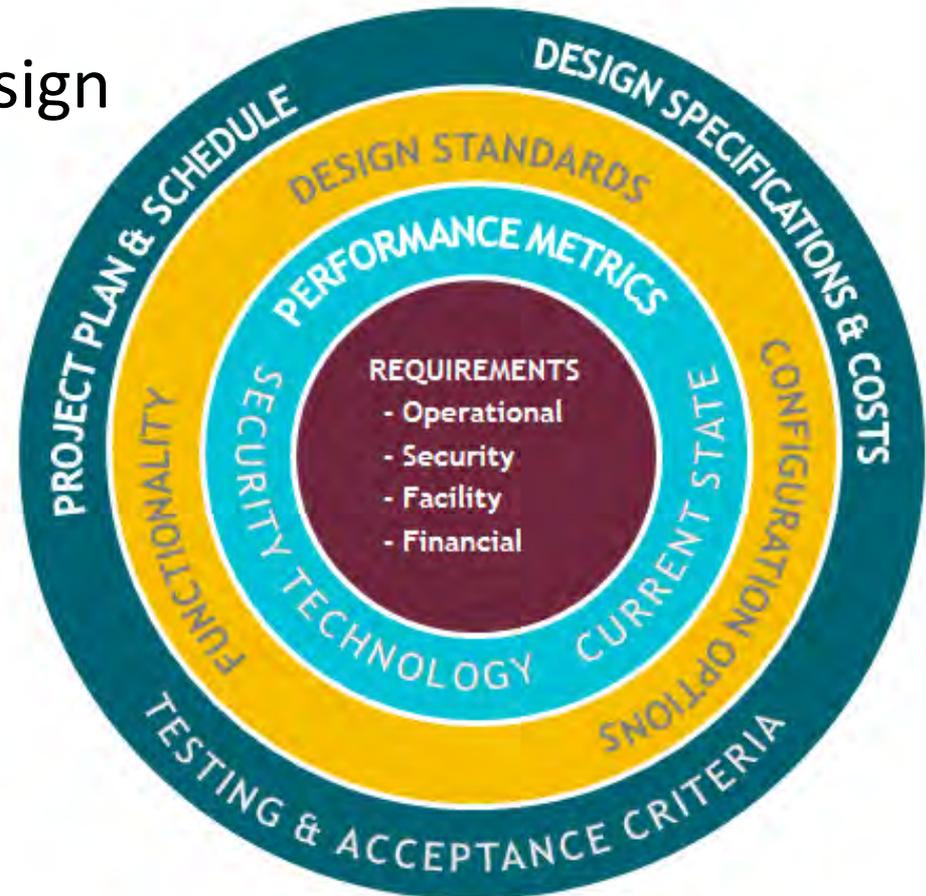


“Best Value” occurs when smart options offer flexibility and cost-effectiveness while fully solving operational challenges

Key Considerations

Requirements Drive BHS Design

- Operational
- Security
- Facility
- Financial



Key Considerations

INHERENT COMPLEXITY

- Must meet not only today's requirements, but also future demands for changes in checked bag volumes and checked baggage characteristics, e.g.: size, dimensions, and composition
- Must work at a stable, consistent level of reliability under all conditions with very little "down time" for maintenance

DESIGN FLEXIBILITY IS KEY

- Each airport has unique constraints and requirements to consider – market demand, resource limitations, etc.
- Each BHS configuration must:
 - Fit within the available building footprint
 - Satisfy the specific technical needs of the airport, airlines and TSA – reliability, delivery times, systems integration, etc.
 - Account for future growth requirements and evolving needs of the airlines and TSA

Baggage Screening – Integrated System Overview



A Unscreened checked baggage travels on conveyor belts leading from the point of induction (e.g. check-in counter) to take-away belts into Level 1 screening:



B Checked baggage automatically screened by EDS machine for explosives



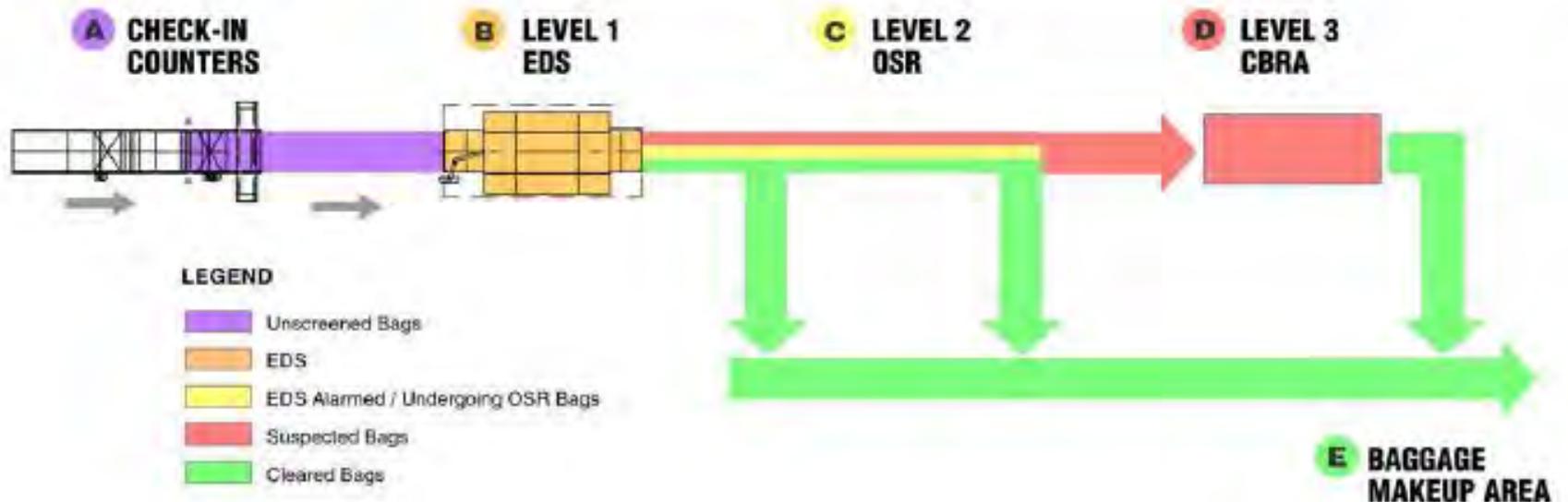
C Transportation Security Officers (TSOs) viewing EDS generated images for alarm baggage, try to clear such alarm bags using OSR tools



D Alarm bags not cleared by TSOs during the OSR process and error bags travel to CBRA for manual inspection using ETD

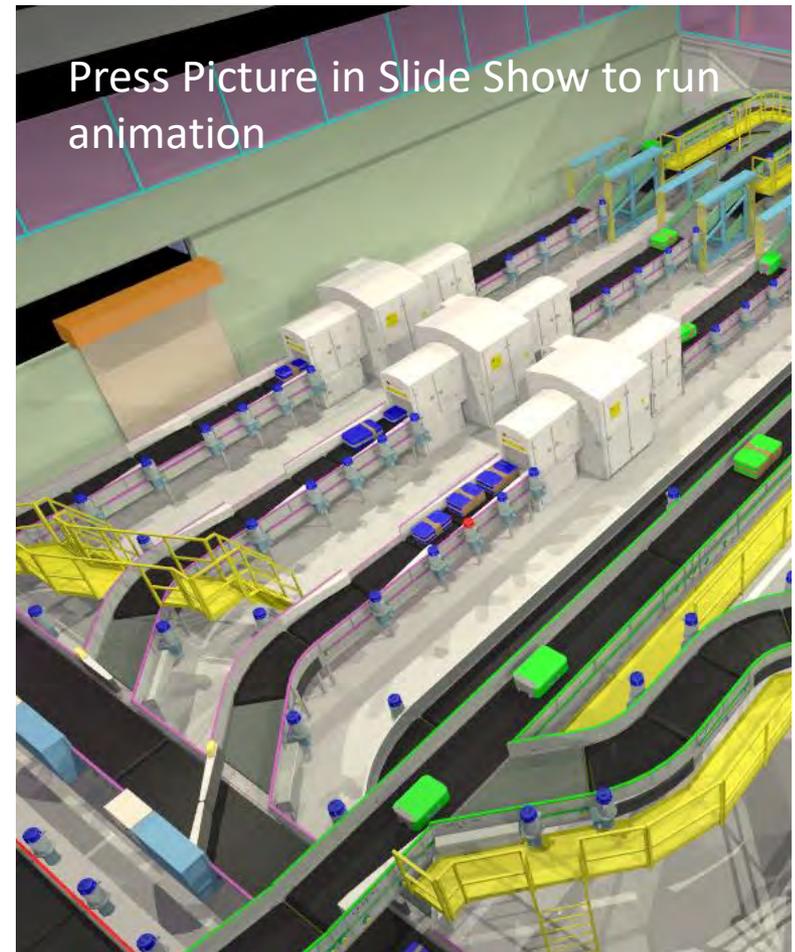


E Clear bags travel to baggage makeup and are then loaded onto airplanes



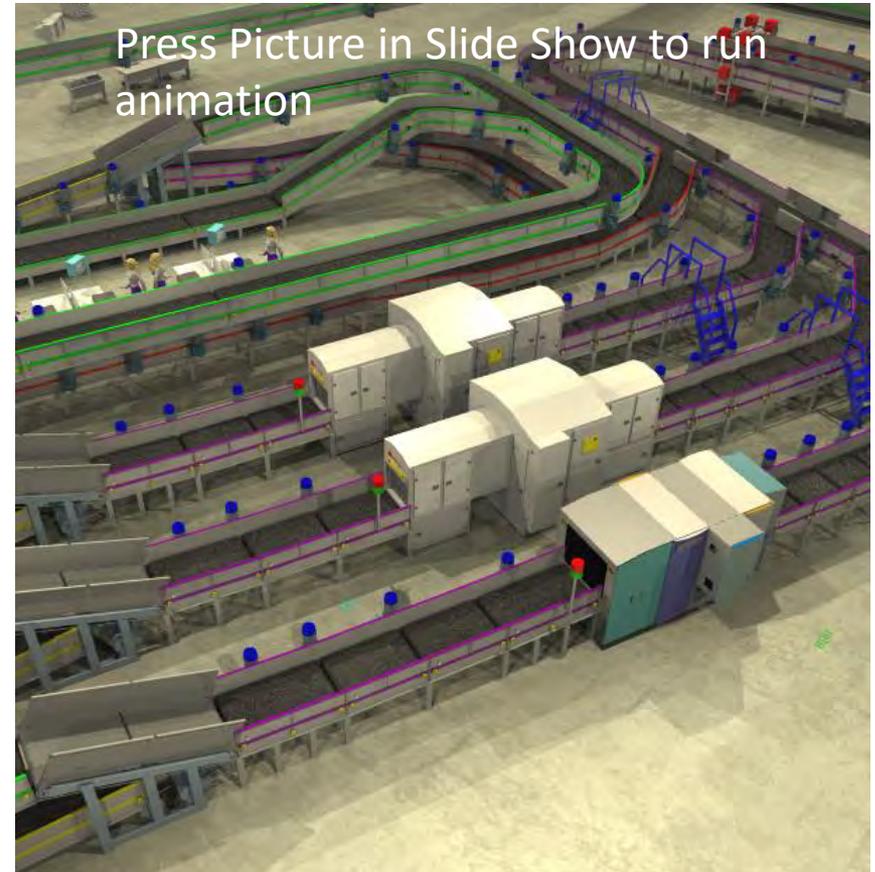
The Anatomy of BHS/CBIS

- Area 1: Inputs
 - Zone 1: Ticket Counter/Curbside (TC/CS)
 - Zone 2: Oversized Input (OS)
- Area 2: Screening
 - Zone 1: Baggage ID (SSM)
 - Zone 2: Out-of-Gauge (OG)
 - Zone 3: ISD Delivery Conveyors(SS)
 - Zone 4: ISD Machines
 - Zone 5: Level 1 Decision (ISD SS)
 - Zone 6: Level 2 Decision On-Screen Resolution (OSR)
 - Zone 7: Level 3 Decision Checked Bag Reconciliation Area(AL) (CBRA)
- Area 3: Make-Up
 - Zone 1: Cleared – Machine Level 1 (CL)
 - Zone 2: Cleared –OSR Level 2 (OSRCL)
 - Zone 3: Cleared –CBRA Level 3 (ALCL)
 - Zone 4: Make-Up/Sortation (CLM)



The Anatomy of BHS/CBIS

- Build in Flexibility
- Plan for future technology
- Plan for removal/arrival of new equipment
- Plan for new protocols like Risk Based Security



Emerging Trends



Emerging Trends in Aviation

- Passenger and baggage demand is growing
- Market and passenger expectations have changed
- Use of technology is expected, even preferred
- Off-airport and pre/post airport processing will become the norm



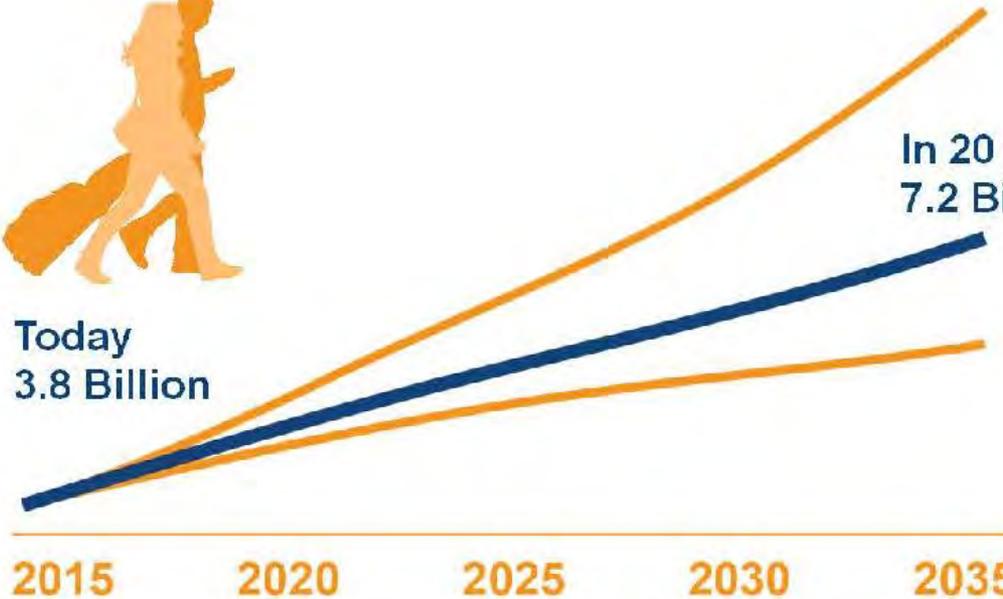
Passenger and Baggage Demand



The world freighter fleet will grow by 70% in the next 20 years from 1770 to 3010 airplanes



Today
3.8 Billion



In 20 years
7.2 Billion

Possible additional 3 billion with Relaxing of Regulations

Even if protectionism picks up, still 50% more passengers travelling than today

Source: IATA/TE Passenger Forecasting service

Infrastructure

Runway and passenger terminal capacity assessment for airports with more than 20 million passengers per year



- \$1.2-1.5 trillion in airport development over the next 15 years
- We can't just make terminals and systems bigger, we need to build them smarter

www.nextt.iata.org



Why is Baggage Infrastructure a Bid Deal?

- BHS is Critical Infrastructure
- A fragile or ineffective system will negatively impact passengers
 - Over-crowded lobby
 - Long lines
 - Extra wait time
 - Delayed flights
 - Lost bags



Baggage Handling Directly Impacts Quality of Service

- A fragile or ineffective system will negatively impact the Airport and Airlines
 - More staff
 - Increased cost
 - Increased Coordination
 - Managing Chaos makes it harder to deliver a high level of service to passengers



Changing Expectations and the Use of Technology

- Passengers are increasingly demanding and expecting
 - Faster airport and security processing
 - Instant access to information about their trip and their bags
 - Greater flexibility in booking and changing their route both before and during their trip
 - More amenities
- The use of technology is transforming all of these areas
- It starts with establishing and verifying identity – of both the passenger and the bag

Processing Changes Envisioned

Off-Airport Activities	Advanced Processing	Interactive Decision Making
<ul style="list-style-type: none"> • Distributed, secure entry gates located within cities • Choice for baggage drop / collection • Use of smart technologies and e-commerce 	<ul style="list-style-type: none"> • Walking pace processing through airport terminal • Automation used for ramp operations • Environmentally friendly facilities and operations 	<ul style="list-style-type: none"> • Predictive data analytics for optimum airport management • Passengers personalize the journey from home to destination and back • End to end tracking of shipments and baggage



NEXTT

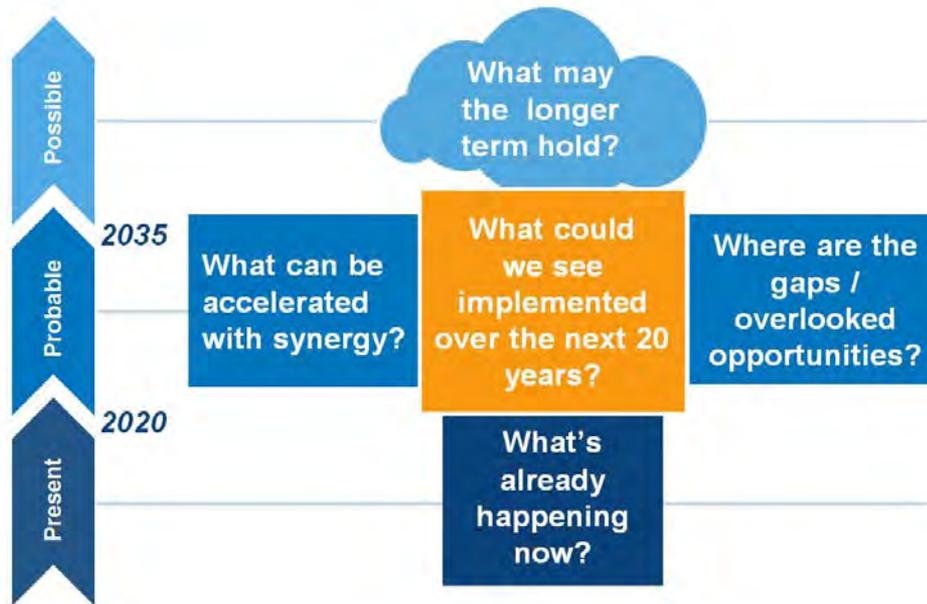
www.nextt.iata.org



**AIRPORTS COUNCIL
INTERNATIONAL**



Approach



First steps

A key opportunity is to bring together and coordinate the wide range of IATA and ACI initiatives which already have an impact on the airport space – currently these are considered under 10 different areas:

- Airport Infrastructure Design
- Security
- Passenger
- Cargo
- Ground Operations
- Baggage
- Financial Systems
- Information and Technology
- Safety and Flight Operations
- Environment

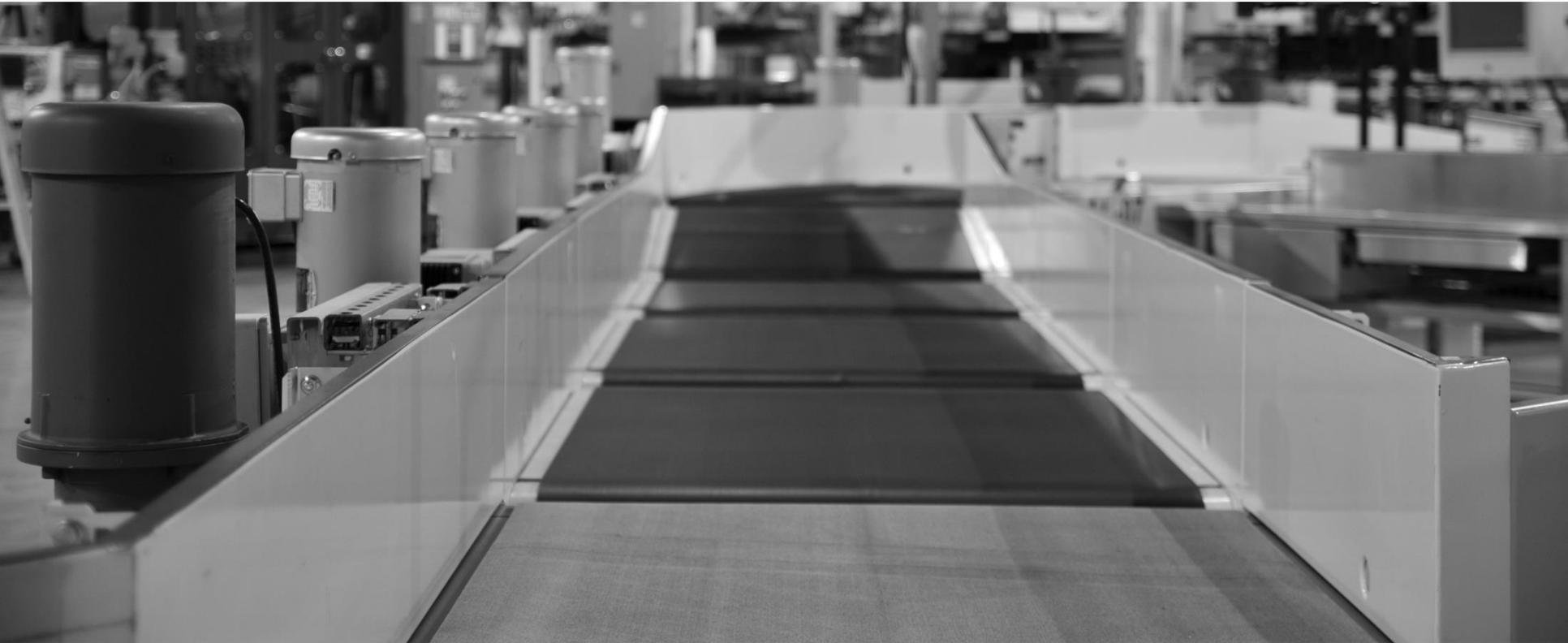


NEXTT

www.nextt.iata.org



Technologies



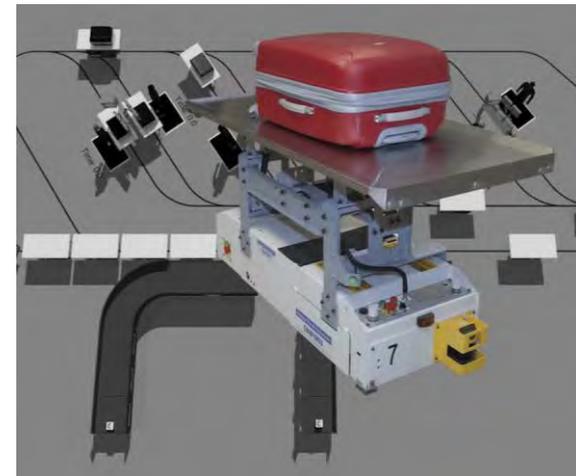
Technologies



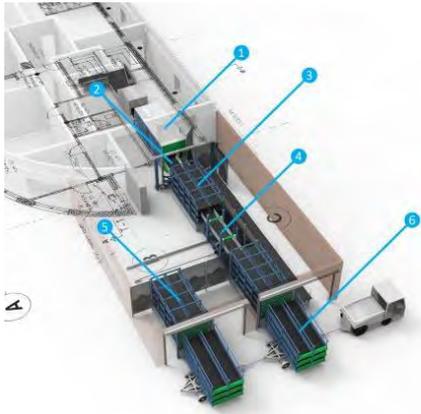
Technologies



Permanent Bag Tag



Technologies



Technologies



Next Steps



Next Steps

- Form teams
- Pick mentors
- Set team meetings
- Phase 1 Deliverable – October 31, 2018
 - Quantify the Problem:** Define and present the problem statement at a level where laymen and all stakeholders can understand the impact. The deliverable could be a drawing, a picture, a short paper, a short video, whatever the participants believe delivers the message.
- Next Webinar – November/December to review submissions

