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BWG/GAPS 2018 Overview

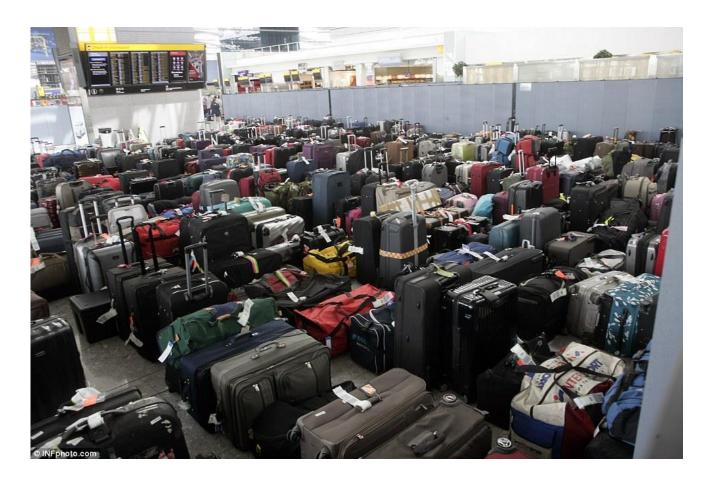
November 1, 2018



Agenda

- Introduction
- Growth
 - Economic Perspective
 - World Travel & Tourism Council Perspective
- Why and How is our Industry Changing
- IATA 2018 Global Passenger Survey
- Processes
 - ONE ID
 - ONE Order
 - Seamless Journey
 - Baggage as a Service
 - IATA 1740c
 - Level of Service (LOS)

- Data
- Identity
- Automation
- Innovation Challenges
- More Information



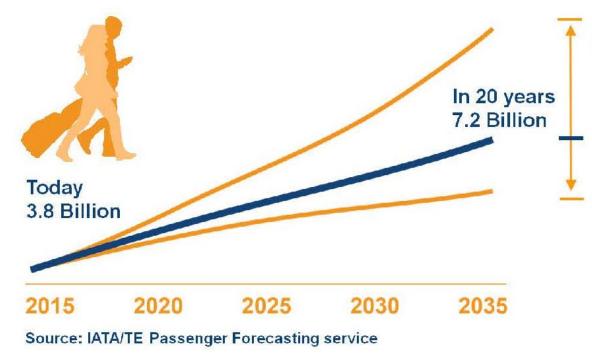


Introduction

The current concern

A starting point to determine whether we are on the right track for the future is to understand the passenger traffic forecast:





Possible additional 3 billion with Relaxing of Regulations

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







TATA

Baggage Working Group (BWG)



The Baggage Working Group (BWG) was established by the Airport Services Committee (ASC) to review and develop recommendations into a form that can be adopted by the ASC and eventually by the Passenger Services Conference (PSC) as recommended practices or resolutions.

The majority of these changes occur from examination of baggage operations, processes and management to promote effective operations and collaborations among

airlines and stakeholders for the benefit of the industry.

Objectives

- > To review and develop baggage operations, processes and baggage management
- > To review and improve relevant Resolutions and Recommended Practices related to baggage
- To review and develop baggage messages for baggage handling, baggage tag constitution and identify crossfunctional issues that need to be resolved in collaboration with other industry areas related to baggage
- > Lead the industry in baggage innovation

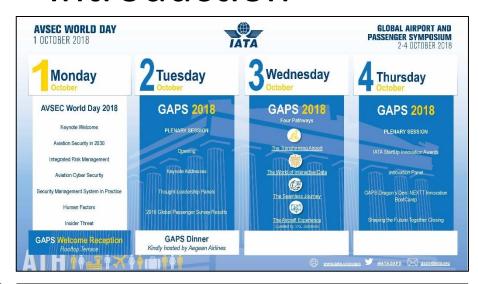
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BAGGAGE SYSTEM COMPANIES

2019 BHS Summit Growth – A Case for Change

Introduction





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2019 YP Challenge

BAGGAGE SYSTEM COMPANIES









Growth

 Economic Perspective – Highlights from a presentation by Brian Pearse, Chief Economist, IATA

World Travel & Tourism Council (WTTC)
 Perspective – Highlights of Travel Statistics from a presentation by Gloria Guevara, President & CEO of WTTC

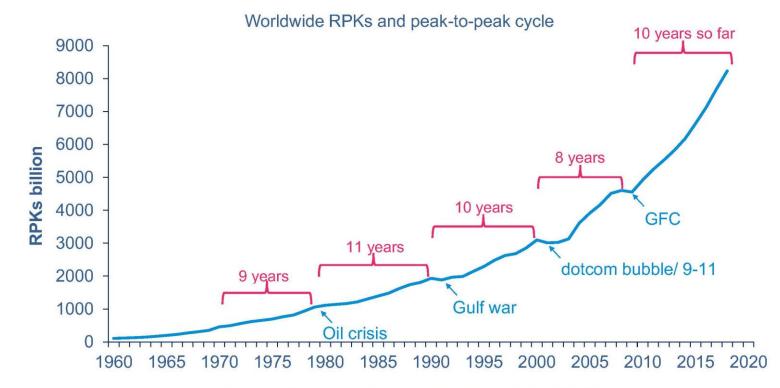






- 6-7% growth this year globally overall
- North America is growing the slowest internationally... only 4%.
- China, India, and Indonesia lead the way
- Domestically the US is growing 5.5%
- Over the past 50 years, the industry has gone through periods of solid growth followed by a short 1-2-year stall or downturn that is really just a speedbump, and then it continues upward.
- The longest previous cycle before a downturn was 11 years.
- We are in the 10th year of our current cycle
- IATA predicts there will be a downturn within the next 2-3 years but it will pass as evidenced by history.

But expansion cycles don't last forever

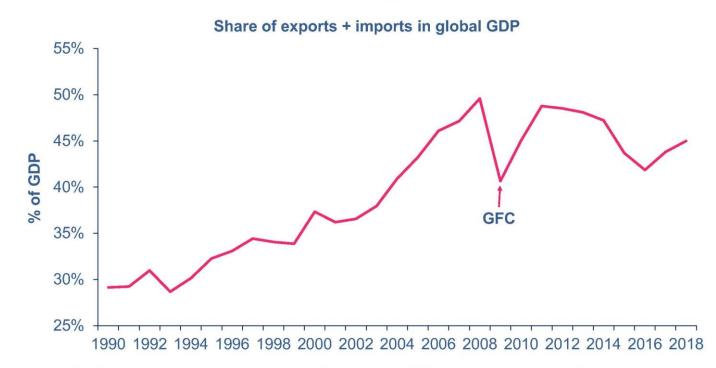


Source: IATA Economics using data from ICAO, IATA Statistics and our own forecast



- What could cause the next speedbump?
 - Cross-border trade wars. Trade has been slower in the last 10 years. Cargo has been hit the most but travel is not immune.
 - Rising interest rates and inflation US
 Federal Reserve reported \$4.4 Trillion in assets to build up economy over the last decade.
 - Capacity shortage lowest unemployment ever leads to higher labor costs, which leads to higher infrastructure costs
 - Jet fuel tending up OPEC trying to regain control of the market. US shale is helping to slow rise in price and keep this under control but there will be a cap to how much that can slow the inevitable.

Tariff war latest in a decade of creeping protectionism

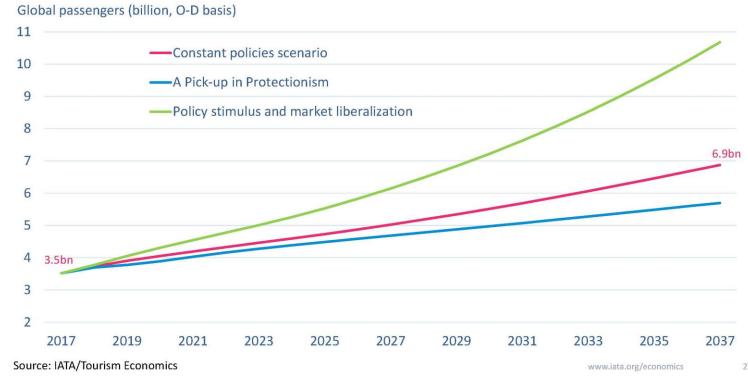


Source: IATA Economics using data from ICAO, IATA Statistics, SRS Analyzer and our own forecast



- Fluctuations in air travel are closely linked to the economy.
- There is still large expansion ahead, even if there is a pick-up in protectionism.
- Living standards are rising in China, India,
 Indonesia, and Russia a rise in the middle class.
- There are ever more increasing low-cost carrier models.
- Asia is growing faster than any other sector and the center of aviation is shifting to the east.
- Still, there will be 544M more passengers in the US.

But looking through the next cycle there is still large expansion ahead





Even after recessions expect 2x rise in air travel during next 20 years



Source: IATA/Tourism Economics

WTTC Statistics

The Facts A snapshot of the Travel & Tourism sector

3.0%

2017

Global GDP growth in 2017 (WTTC)

4.6%

Travel & Tourism GDP growth in 2017 (WTTC)

10.4%

Travel & Tourism total contribution to global GDP (WTTC)

1/10

Jobs supported by Travel & Tourism worldwide (WTTC)

1/5

New jobs created By Travel & Tourism 7th
consecutive year
that Travel &
Tourism has
outpaced the
global economy

8th

consecutive year of positive GDP growth within the Travel & Tourism sector

(WTTC)

2028

11.7%

Travel & Tourism total contribution to global GDP (WTTC)

414_{mn}

Jobs supported by Travel & Tourism (WTTC)

1/9

Jobs supported by Travel & Tourism worldwide (WTTC)







Slides taken from a presentation by Gloria Guevara, President & CEO of WTTC for IATA GAPS 2018



Why and How is our Industry Changing?

Why

- Conversion revolutionary changes
- Customer numbers, expectations, and demands
- Technology is empowering customers to become more demanding
- Technology increases competition
- More regulation
- More complexity pressure for customization and end to end travel solutions

How

- Technology smarter processes like NEXTT
- Autonomous vehicles
 - Cars change the parking and rental car landscape
 - Planes Short haul hybrid electric planes will change the airport landscape – reduce the number of slots at hubs, distribute air travel to smaller and more airports
- One Identity
- Reduced concern of regulations by refining processes

Re-Platforming the Airline Business: To Meet Travelers' Total Mobility Needs

Book by Nawal Taneja

Airline business models continue to be shaped by powerful forces relating to customers, complexities and regulators. However, at the same time, there are emerging technologies that can help airlines cater to the needs of their changing customer bases and manage the complexities of the business.

Expected Release: February 5, 2019

Highlights from *Perspectives: Transformational Changes – Evolutionary or Revolutionary?*

Nawal Taneja, Airline Business Strategist, Ohio State University, for IATA GAPS 2018



Why and How is our Industry Changing?

Revolutionary Changes

- Space and revenue changes with autonomous vehicles
- Concessions go away if I can get to my plane faster

The Airport business model will change

- Short-haul could decrease with autonomous cars
- Small hybrid planes 10 seats, great distance, doesn't need slots at major hubs
- Longer international non-stops will increase with more efficient planes this will put international hub stops out of business... like Singapore, Dubai, and even DFW – why stop there if you don't have to?

Distribution will change

The Airline model will change

Airlines will stick to what they do best – fly. They will leave the passenger to someone else. Third-party travel bundlers... end-to-end, could replace any of us dealing directly with the airline... all they will do is fly the plane.

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State University, for GAPS 2018



IATA Global Passenger Survey

Seamless Journey

- 41% of passengers book directly with airlines
- The rest want to bundle hotel, insurance, ground transport, car rental, etc. one stop shopping

Customers want

- An electronic bag tag
- An efficient queuing process
- Smoother connections with real-time notifications for both bag and flight
- Efficient transfer **they don't want to go through security again!** Or recheck a bag, or go through immigration.
- More overhead bin space
- Wifi for connecting information, end-to-end journey, and filling out customs forms
- Connectivity for transactional reasons change route, add car service, change pick-up, etc.
- 68% want self-bag drop
- Only want to wait 10 minutes max for a bag
- 74% like e-gates faster and intuitive plus better security
- 51% want their bags delivered to their destination
- They want transparency of wait times... people don't mind waiting as much as they mind not knowing how long they are going to have to wait.

Global Passenger Survey 2018 IATA's 2018 Global Passenger Survey (GPS) reveals that travelers continue to embrace technology to give them greater control and improve the efficiency of their journey. Based on more than 10,000 responses from 145 countries, the survey provides insight into what passengers would like from their travel experience. Passengers said that they want: **Real-time** identification to facilitate Wait travel processes times of less than 10 minutes immigration when things go wrong Automation of more airport processes Bags tracked Check-in (84%) **Immigration** during their procedures (74% journey

Highlights from *The 2018 Global Passenger Survey (GPS),* Results Under the Microscope

Nick Careen, Senior Vice President of Airport, Passenger, Cargo, and Security, IATA, for GAPS 2018

Passengers'

preferred

option for

information

baggage and other travel

elements was

passengers

to be notified

Smartphone

via SMS or

wanting

mobile device, with 73% of

receiving

on their

via their

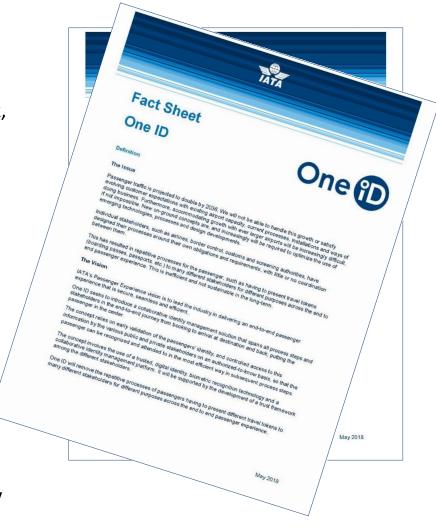


ONE ID

- A collaborative identity management system that spans all process steps and stakeholders in the end-to-end journey from booking to arrival at destination and back, putting the passenger in the center.
- Relies on early validation of the passengers' identity, and controlled access to this information by the various public and private stakeholders on an authorized-to-know basis, so that the passenger can be recognized and attended to in the most efficient way in subsequent process steps.
- Trusted, digital identity, biometric recognition technology and a collaborative identity management platform.
- One ID will remove the repetitive processes of passengers having to present different travel tokens to many different stakeholders for different purposes across the end to end passenger experience.

Benefits

- Seamless improved passenger experience
- Efficient improved productivity, capacity and cost savings
- Secure improvements in border, aviation and airport infrastructure security



Information taken from the IATA Fact Sheet for One ID, May 2018



ONE Order

- The concept of a single Customer Order record, holding all data elements obtained and required for order fulfilment across the air travel cycle - such as customer data, order items, payment and billing information, fulfilment data and status.
- It will result in the gradual disappearance of multiple reservation records as well as e-ticket/EMD concepts to be replaced by a single reference travel document.
- A new standardized and expandable reference will become the single access point for customer orders by third parties (interline partners, distribution channels, ground handling agents and airport staff, among others).
- ONE Order will facilitate product delivery and settlement between airlines and their partners with one simplified and standardized order management process.
- All parties will follow a single process to service customers throughout their entire product purchase and delivery experience.
- One Order will enable 'network airlines' and 'low-cost carriers' to interact and provide combined services to customers.
- Through a new streamlined process, both airline communities will be able to manage customers in a seamless and homogeneous manner despite having different business models and operational environments.



One Reference, One Process, One Industry



Information taken from the IATA website



New Distribution Capability (NDC)

- NDC (New Distribution Capability) is a travel industry-supported program (NDC Program) launched by IATA for the development and market adoption of a new, XML-based data transmission standard (NDC Standard).
- The NDC Standard enhances the capability of communications between airlines and travel agents.
- The NDC Standard is open to any third party, intermediary, IT provider or non-IATA member, to implement and use.
- The NDC Standard enables the travel industry to transform the way air products are retailed to corporations, leisure and business travelers, by addressing the industry's current distribution limitations:
 - Product differentiation and time-to-market
 - Access to full and rich air content
 - Transparent shopping experience





Information taken from the IATA website

ONE Order

- United is working on a series of pilot programs to
 - Better understand the benefits of order management
 - Enable collaboration across travel partners
 - Refine the One Order APIs to maximize partner integration and ensure seamless customer experience
 - Identify technical gaps towards travel platform transformation

Processes



Shop



Pay and Order



Check-in



Board



Fly

United is working on the first of a series of pilots:

- ✓ Leveraging the latest IATA Order standard message version 18.2
- ✓ From order creation to flying: enabling a seamless journey without PNR or Ticket
- ✓ Non-air partnership fulfillment



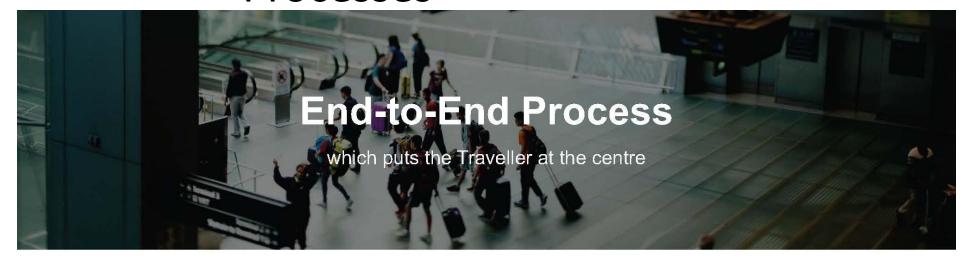


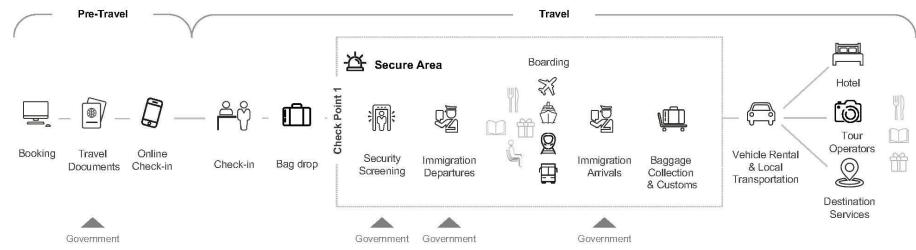
Information taken from the *United Airlines*ONE Order presentation, GAPS 2018

Seamless Journey

- The WTTC wants to expand ONE Order beyond the Airport
- They are working to set policy and guidelines for the entire travel industry

Processes

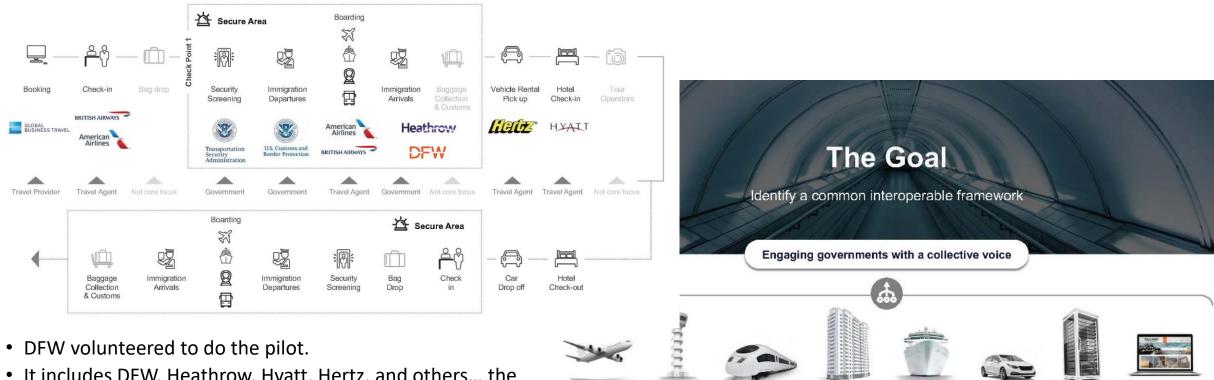




Slide taken from a presentation by Gloria Guevara, President & CEO of WTTC for IATA GAPS 2018



The First End-to-End Round Trip Pilot



- It includes DFW, Heathrow, Hyatt, Hertz, and others... the entire end-to-end journey.
- The pilot will be announced this month

Slides taken from a presentation by Gloria Guevara, President & CEO of WTTC for IATA GAPS 2018

Hotels

Cruise

World Travel & Tourism Council

IATA

Airlines

Airports

Trains

OTAs & Travel

Companies

GDS &

Technology

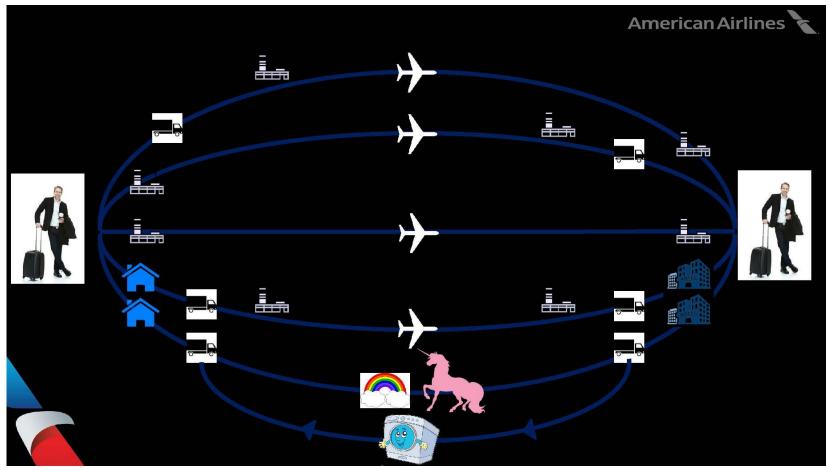
Providers

Car hire

Baggage as a Service

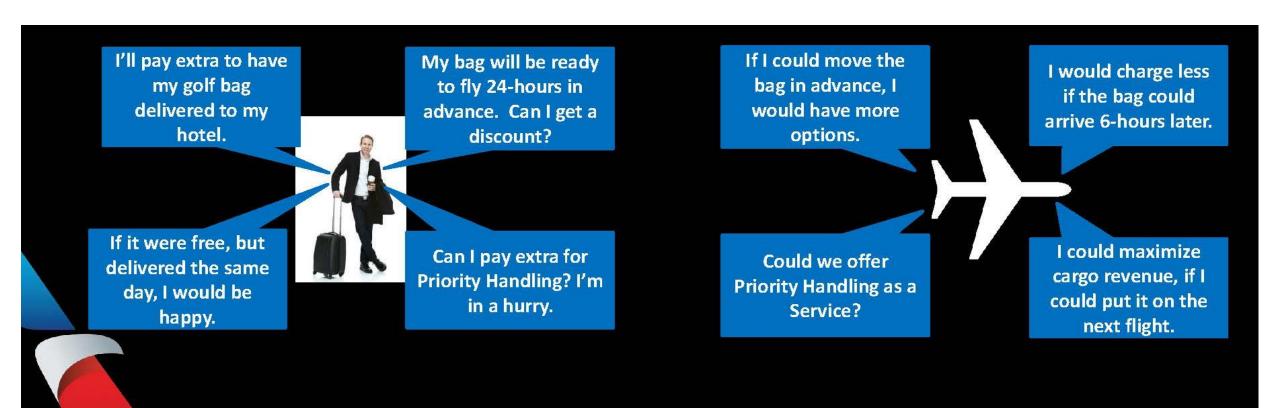
- Dramatically changes what we think of as the baggage journey
- Defuses demand and uses more of total recourse capacity
- PPBM (positive passenger bag match) is not needed on domestic US flights so implementing all the options is easier in the US.
- Even so, 99.5% of all bags arrive with the passenger on the same flight

Processes



Information taken from Baggage as a Service, by Mark Matthews – Director of Customer Planning Operations, AA, for GAPS 2018





Information taken from Baggage as a Service, by Mark Matthews – Director of Customer Planning Operations, AA, for GAPS 2018



Airportr – Off-airport processing solutions

- They are already doing this at Heathrow and Gatwick for 4 airlines
- They pick up your bag from your home, screen it, and deliver it to your claim carrousel.
- They are screening at the airport but are piloting off-airport screening
- They are also piloting door-to-hotel and other scenarios... no word on rainbows, unicorns, and washing machines yet.

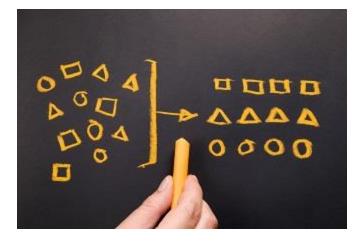


Information taken from my notes and the Airportr presentation at IATA GAPS 2018



IATA Proposed Resolution 1740c

- This would mandate RFID inlays in all bag tags starting in 2020.
- IATA thinks that 100% adoption by the airlines will take 4 years once the resolution is official (which is expected by Jan 2019).
- The airlines don't have to use RFID, but the idea is that if the inlay is part of every tag, the scale of that will bring the cost of RFID down for everyone.
- The case studies by IATA show a \$4.2B annual savings in efficiency, streamlining of processes, and reduction of mishandled baggage. Even if mishandled baggage is taken out of the equation, there is still a savings of \$600,000.00. the issue is not using RFID in the baggage handling system, it is using it for all the other manual processes... that is where almost all of the mishandling is.
- There will be another meeting about this in November in Las Vegas.
- This is being pursued as an Annual General Meeting (AGM) Resolution, which would mean they will need a unanimous vote from their members.
- They are also putting together a user guide.



IATA Baggage Standards



Information taken from IATA's website and my notes from The Baggage Working Group Meeting, Athens 2018



IATA Level of Service (LOS)

- Cost effective terminals balance capacity, demand, and level of service (LOS)
- IATA LOS has been completely revamped in the 11th addition of the IATA Airport Development Reference Manual (ADRM), which will come out at Passenger Terminal Expo (PTE) in London next year.
- LOS is about the amount of space given to a function.
- Old System A-F. A no waiting at all, F failing completely
- Key features of the revised LOS
 - Instead of letters they use four categories
 - Over-designed
 - Optimum
 - Sub-optimum
 - Under Provided
 - What they recommend is an Optimum design for the second busiest day in the average week of the peak month.
 - They are not recommending that a terminal be built for the busiest day similar to TSA's Average-Day, Peak-Month (ADPM)





Information taken from IATA's website and my notes from the IATA LOS presentation, IATA GAPS 2018

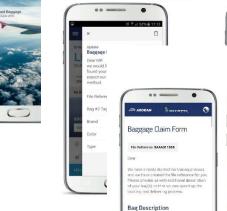
Customer Focused – an app for everything

Identity check/passport control

Planning My Trip/Ticketing

Baggage Tracking

Delayed Baggage Notification



Information taken from multiple presentations created for IATA GAPS 2018



Data

Sharing

Our

Customers'

Experience

Handling Processes

Baggage Claim Forms

Airport

Efficiencies

Airline

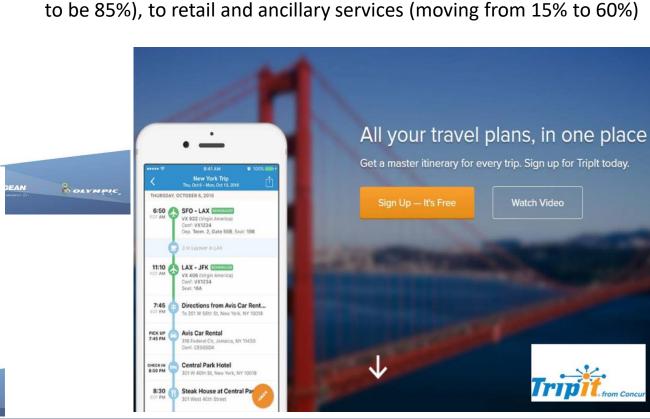
Processes

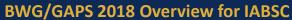
2 or every solid colors excluding tries

Automated Baggage Found Notifications

Riding the wave of Artificial Intelligence (AI)

- Data is a key driver for growth
- All industries are being transformed by data
- Aviation is shifting from ticketing/parking types of revenue (which used to be 85%), to retail and ancillary services (moving from 15% to 60%)





Trusted Traveler

- At the 2018 WTTC Summit they had a call to action to implement biometrics.
- They went to the G20 and urged governments to implement
- The US was behind in biometrics but they have been working hard on it for the past few years and now they are ahead.
- Biometrics will improve security and provide jobs.

Identity

Strategic Priority

Seamless Traveller Journey

WTTC is bringing the industry together around a technology and system agnostic, international interoperable approach to a seamless and secure **end-to-end journey**. This will be for all travellers, services, and hopefully geographies, thereby increasing security, efficiency and ultimately creating more jobs.

- Biometrics
- Federated ID

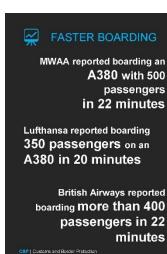


Slide taken from a presentation by Gloria Guevara, President & CEO of WTTC for IATA GAPS 2018



Identity





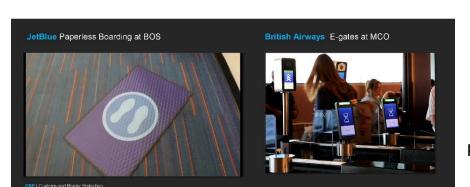


PROOF POINTS

meters passenger

better





BIOMETRIC EXIT PARTNER SOLUTIONS IN ACTION

in customer

satisfaction

Slides taken from a presentation by Michael Hardin – Director, Policy & Planning, Entry/Exit Transformation, Office of Field Operations, US Customs and Border Protection for IATA GAPS 2018



Identity

FUTURE INNOVATION



SMART QUEUING

Smart queuing during entry into U.S. – directing travelers to zones based on process time.



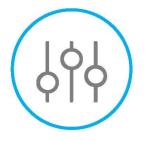
EDGE DEVICES

Integrating facial biometrics with edge devices and wearables.



EXPANDED SERVICE

Explore the possibility of expanding CBP's identity service to other travel industry partners. (car rental, hotels, UBER, etc.).



ENTRY ENHANCEMENTS

Further streamlining entry for trusted and known travelers.



DATA SHARING

Enhancing data sharing with cruise lines to automate manual forms for passengers and crew.

Slides taken from a presentation by Michael Hardin – Director, Policy & Planning, Entry/Exit Transformation, Office of Field Operations, US Customs and Border Protection for IATA GAPS 2018

CBP | Customs and Border Protection



Identity

V Chain - block-chain for identity

- Biographic and biometric data only comes together at the airport
- They have generated a super-smart mathematical signal so there is no security issue about protecting data. There really is no data it has been changed into a unique number.
- You can pre-verify passengers 91% before you see them.
- Identity as a service extremely secure
- Builds a trusted network based on math
- Creates a travel ID on passengers' device





Information taken from a presentation by VChain for IATA GAPS 2018



Flying in 20 years – away from the tube-and-wing jet aircraft









Illustrations of future travel concepts

- Smaller
- Lighter
- Fuel efficient
- Longer range
- Autonomous

Information taken from *The World of*Interactive Data presentation
created for GAPS 2018



How do we get in and out of the airport in the future?

- Car traffic is currently a limiting factor. Autonomous vehicles are not the answer... then you will just have an autonomous traffic jam.
- A train uses 1% of its infrastructure, a car uses 10%.
- Arrivo wants to increase the freeway capacity by 10x while speeding it up 3x.

Arrivo Linear

- Take one lane of the freeway each direction and replace it with electromagnetic moving belt – (accessible hyperloop with on and off ramps)
- Then use autonomous vehicles to get on and off that loop.
- The car would take you straight to the gate.
- You get screened in the car on the way.



This is not a hyperloop... but it uses that idea and others to create a seamless journey to your gate from your house.

Information taken from the presentation Shaping the Future Journey by Dr. Knut Sauer – Co-Founder of Arrivo, for GAPS 2018

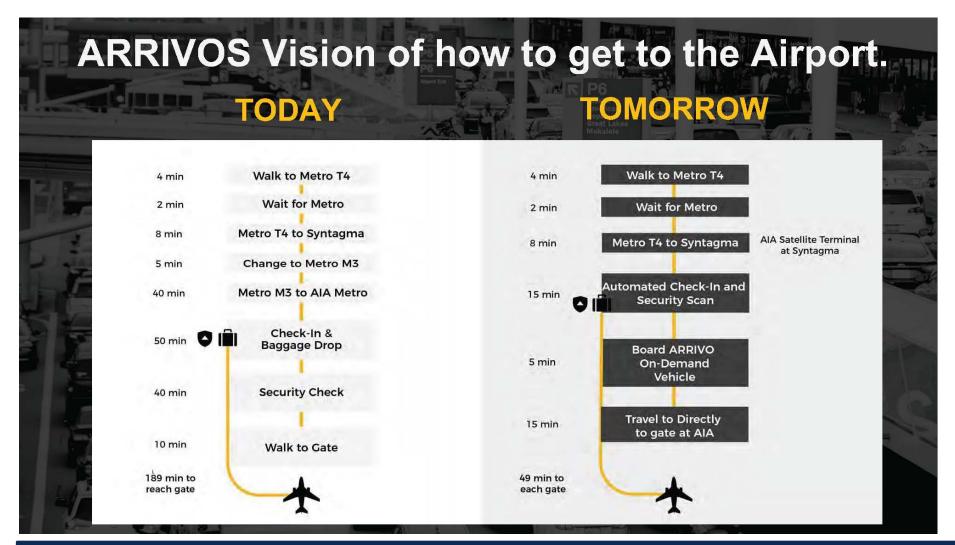


- How does this fit into old cities with no space and old infrastructure? The vehicles are small and electric.
- Arrivo is a 2-year old company. They are located in a warehouse in LA and 18-24 months away from a prototype
- Dr. Sauer moved away from hyperloop because it isn't integrated with other infrastructure and the question of "how do you get to it?" brought up all sorts of logistical challenges that hyperloop was supposed to solve.
- Arrivo solves those issues by integrating with current infrastructure (modifying some of it like part of the road and the airport) and offering a seamless journey from your front door to the gate at the airport.
- Why not just go all the way from your door to your destination? Why get on a plane at all? Airplanes really are efficient for long distances and air is free... no need to build freeways in the sky.



Information taken from the presentation
Shaping the Future Journey by Dr. Knut Sauer
- Co-Founder of Arrivo, for GAPS 2018





Information taken from the presentation *Shaping the Future Journey* by Dr. Knut Sauer – Co-Founder of Arrivo, for GAPS 2018

Automation

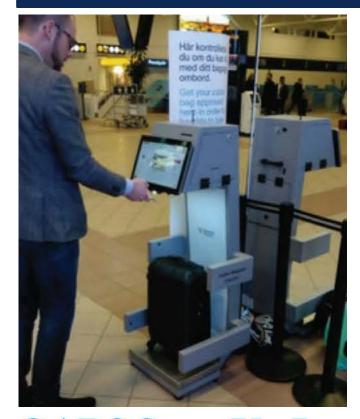








Information taken from the presentation *Shaping the Future Journey* by Dr. Knut Sauer – Co-Founder of Arrivo, for GAPS 2018



Innovation Challenges



INTERNATIONAL BOARDING SOLUTIONS

The Spanish company has developed a product to help airlines and airports solve the hand baggage problem, which is often a source of confusion between passenger and airline. For all parties involved, the boarding process can be unnecessarily difficult because of hand baggage. **International Boarding Solution's** proposition is an electronic sizer that analyzes hand baggage weight and size in relation to the carrier's cabin baggage policies, even if these policies are extremely complicated. The idea brings several benefits. Most importantly, it helps airports and airlines to know the exact moment the cabin space for hand baggage is full, eliminating unnecessary confusion. All passengers are treated equally, and any hand baggage fees can be applied and collected in a transparent manner.



VCHAIN

VChain is a blockchain-based Identity Management Platform that allows airlines to verify passenger identity prior to airport arrival. The platform is GDPR compliant and acts as an Identity-as-a-Service for the aviation industry, with seamless software implementation meaning no new infrastructure is needed for airport or airline. VChain achieves better data validation and security without sharing passenger personal data to third parties. It also delivers results without copying, seeing or processing either advanced passenger information or biometric data. The software is designed to improve operational efficiency, meaning fewer and shorter queues, happier passengers, less regulatory fines, and better punctuality. In 2018, IAG signed a commercial agreement to roll out VChain capability across the group, starting with British Airways and Iberia. VChain is also a Strategic Partner in IATA's OneID initiative.

GAPS StartUp Innovation Award Finalists 2018

Promoting a secure and efficient passenger experience, the GAPS StartUp Innovation award received many worthy submissions. **At o9:30 on Day 3, three finalists will pitch their innovative ideas and show how they can help shape the future.**

AIRPORTR

AirPortr is proposing to make on-demand off-airport baggage a secure and accessible process for airports, airlines, and their customers. Off-airport Baggage-as-a-Service is a secure process that collects bags from a customer's home/hotel, IATA tags them in a secure off-airport warehouse, then delivers them airside at an optimal time. The timescale to full operation is short at just 8–12 weeks and upfront costs are low. The solution incorporates all processes, best practices, and technology for successful implementation, including a reservation and logistics management system, a customizable passenger experience, integration with airport and airline websites, interfaces with airline and airport systems, performance analytics, and all necessary procedures, agreements, and regulatory approval. All stakeholders can reap rewards from AirPortr's off-airport baggage solution.



Innovation Challenges

NEXTT Bootcamp

- **Community Airhop** this is the idea of using smaller electric planes - maybe even autonomous, smaller airports, vertical take-off
- Fly-Bag next level off-airport baggage. Didn't really understand what made it next level... maybe the washing machine.
- **NEXTT Bag** this is a smart bag but not just any smart bag. The tracker is interactive, managed by smart phone but it can call and have itself picked up. It tracks itself, knows all the travel and size rules, tells you if it is overweight, transmits the data to other stakeholders, like your car service... if it is damaged, it files the complaint with the airline automatically
- **Trusted Traveler Cloud** traveler-centric data sharing platform. Seamless passenger journey





More Information

This Presentation will be on the IABSC Website iabsc.org

Please visit the following micro-site for more information on NEXTT

iata.nextt.org

INTERNATIONAL ASSOCIATION OF



BAGGAGE SYSTEM COMPANIES

