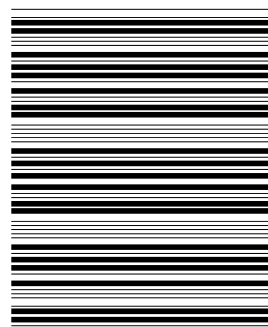
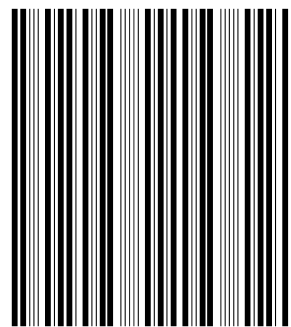




2018

AIR TRANSPORT INDUSTRY INSIGHTS

THE BAGGAGE REPORT



In association with

ATW
AIR TRANSPORT WORLD

SITA

FOREWORD

The air transport industry continues to grow globally with passenger numbers reaching an all-time high of more than four billion last year. Rising passenger numbers are good news however they can put pressure on the industry's existing infrastructure and processes, including baggage management. Despite the pressure, 2017 was very positive with another year of improvement when it came to handling passengers' baggage. In fact, at 5.57 per thousand passengers it was the lowest rate of mishandled bags ever recorded.

This is the 14th year of the SITA Baggage Report, which gives the global picture of the state of baggage management. Over more than a decade, we have seen increased focus and investment by airlines, and their airport and ground handling partners, to improve baggage handling. In this time the baggage mishandling rate has dropped by more than 70%. As you read through the report you will learn how some of these improvements were made.

But there is more that can be done. We have the technology and the expertise to improve operational processes further and to bring benefits beyond reducing mishandling. I am excited to see the focus on baggage operations in 2018. There are initiatives from industry organizations being adopted globally and we see significant investments in the technology that will improve the overall performance, including the adoption of scanning technologies and RFID.

The digital transformation is coming to baggage management. Over the next two years, services like real-time notifications and fast self-service bag drop will be more commonplace and 2018 is the year that the International Air Transport Association (IATA) Resolution 753 comes into effect which will see the industry increase baggage tracking.

This tracking produces data which reveals where improvements can be made in baggage management processes. While we won't see a sudden change in 2018, it is a real turning point for the industry as airlines begin to unlock the value of the tracking data for the 4.65 billion bags they carry.

Looking further ahead, combining data collected from bag tracking with data science and machine learning promises even more significant improvements in baggage handling operations which in turn will reduce costs and improve the passenger experience. A transformation that will be welcomed by all.

Barbara Dalibard, CEO, SITA

4.08
BILLION

SCHEDULED
PASSENGERS IN 2017

5.57
MISHANDLED BAGS PER
THOUSAND PASSENGERS
IN 2017

70.5%
DROP IN RATE OF
MISHANDLED BAGS
SINCE 2007

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BAGGAGE: REBOOTING THE PASSENGER EXPERIENCE

By 2020 a step change in the passenger baggage experience will begin to appear. Travelers can expect to be offered more self-service options that will take the hassle out of managing their bags. They will arrive at the airport unburdened by their luggage and will receive communications about what's happening to their bags in real-time.

DROP-OFF IN THE CITY

Self-service bag tagging and drop-off, before passengers reach the airport, are new services the industry is investigating. Almost six out of ten airlines are planning to offer their passengers the option to print their bag tags at home, according to SITA's Air Transport IT Trends Insights. Additionally, up to six out of ten airports are planning to roll out pre-airport self-service bag tagging via a kiosk and assisted bag drops at hotels and transport hubs.¹

In February 2018, Virgin Australia Airlines unveiled plans for a pop-up check-in and bag drop service, which will allow its passengers to drop off bags at locations such as cruise ports, conference venues and hotels, with the service launching at Sydney's Overseas Passenger Terminal and White Bay Cruise Terminal.

Virgin Australia Group Executive, Rob Sharp said: "This new service means tourists can check-in and drop their bags off once their cruise ship has docked, and can then enjoy the freedom to explore the city, bag-free, before taking off to their next destination. In addition, this service will help ease airport congestion as these passengers will now be checked in and ready to go for their flight."

AUTOMATION EVERYWHERE

The trends show that bag-drop stations will be much more widespread. Almost nine out of ten airports and airlines expect to be providing assisted bag-drop stations by 2020, and around three quarters are planning to implement fully self-service bag-drops.²

Cathay Pacific implemented self-service check-in and bag drop for customers arriving at London Gatwick Airport's South Terminal in November 2017. It reported that before the self-service system went live, passengers were spending around two minutes at the check-in counter, while self-processing could reduce the time spent to "under a minute".

Cathay Pacific's Regional General Manager Europe, James Ginns explained the strategy was to improve the quality of time passengers spend before they board the aircraft. "If we ask ourselves how we wish to spend our time at the airport, the answer is most certainly not 'in a queue'. The latest facilities not only meet our customers' growing demand for faster, smoother journeys, they also enable our Cathay Pacific staff to interact more proactively with our customers," he said.

European low cost carrier easyJet took the concept of "hands free" one step further in August 2017. For a small fee, passengers can check-in their hand luggage at the bag-drop desk, where it is tagged as priority and will be among the first to be delivered at the baggage belt on arrival.

Innovative passenger services at arrivals are also on the horizon, with baggage handling specialist BEUMER Group unveiling a "Reclaim on Demand" concept in September 2017. Self-service pick-up kiosks give passengers greater flexibility in deciding when to collect their baggage, enhancing security for reclaimed baggage and allowing travelers to spend time in a shopping area before collecting their bags.

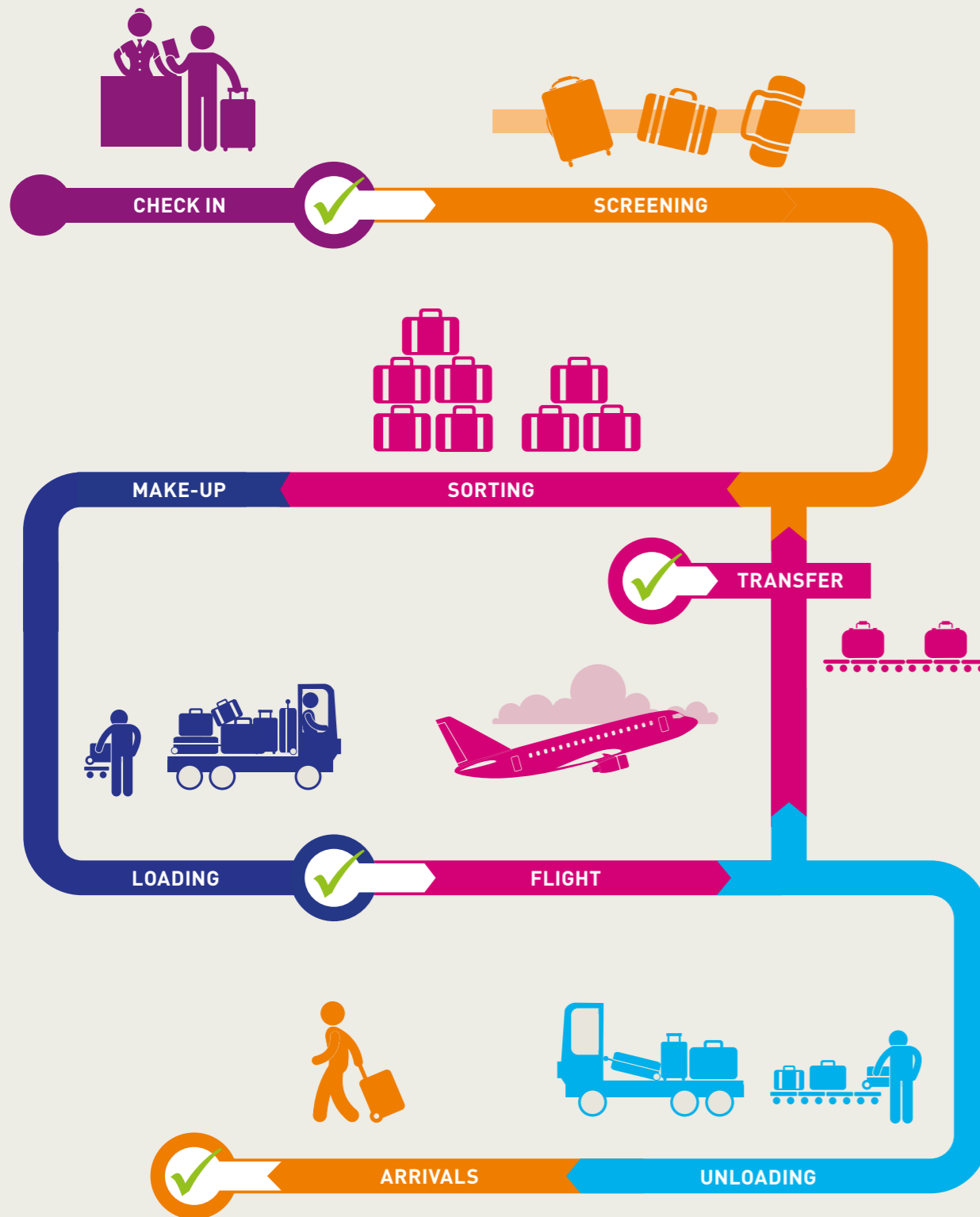
REAL-TIME NOTIFICATIONS

One significant service improvement passengers will experience will be to get more information about the status of their bags on the journey as part of the International Air Transport Association (IATA)'s Resolution 753 on bag tracking. From June 2018, member airlines, who represent 83% of global air traffic, will be required to keep track of each bag and to share that tracking information with all involved in delivering those bags back to passengers at their final destination.³

As airlines prepare for Resolution 753, there will be a rapid increase in those planning to provide bag tracking information to their passengers and staff. At least seven out of ten airlines expect to be providing these services by 2020. Resolution 753 is also driving mobile services for mishandled baggage, with up to eight out of ten airlines implementing, or planning to implement, missing bag reporting and missing bag communications.⁴



✓ IATA RESOLUTION 753 MANDATORY TRACKING POINTS



AIRLINES AND AIRPORTS: A SHARED STRATEGY

AIRLINES

Resolution 753 will deliver a fundamental step change in baggage operations. It has been driven by IATA's and the Airports Council International World's shared strategy to transform baggage operations.

To support the aviation industry as it implements baggage tracking, IATA has informed over 80% of airline members regarding Resolution 753, which describes minimum baggage tracking requirements for the industry. IATA has also supported them in their implementation strategies to track baggage in the most effective and cost efficient manner at their hub and network.

This work was conducted through a series of activities such as the delivery of five regional workshops, two training courses and the publication of a baggage tracking implementation guide explaining the requirements of Resolution 753 and showcasing best practices. Moreover, IATA is open to working with any member airline requiring help on the implementation of Resolution 753 and nearly a fifth of airline members have shared their implementation plans with IATA.

Overall, many airlines are able to track bags throughout their hub operation or are implementing this capability. In the United States, this has extended into the entire airline network for some carriers. There are still areas that are hard to track, especially when it comes to arrival scanning, and issues such as Wi-Fi connectivity for some loading and transfer operations remain a challenge. However, as each airport infrastructure is slightly different, and used by different airlines in different ways, there are a lot of unique challenges. What is encouraging to see is that stations from the same airline are keeping track of the number of mishandled bags and even competing amongst each other to see who achieved the lowest percentage over a given month. Throughout 2017, airline members have often requested IATA to share the global status of compliance with IATA

Resolution 753. With this in mind, IATA has started work to offer an industry-wide platform to collect and report on baggage tracking data. This platform will allow airlines to send their tracking information at zero cost, so that a complete picture of the industry's tracking capability can be built.

Closely linked to baggage tracking, there is momentum building towards RFID, which is an efficient technology that facilitates 753 implementation. Recent changes in the way baggage messages reference bags enable the use of RFID labels without changing the check-in infrastructure at the airport. This removes a major barrier to implementing RFID. The ability to collect additional data through RFID and processing this data into insightful information builds a virtuous circle leading to improved performance.

The impact of having quality data on baggage operations is a key driver for baggage performance, however another main driver of performance is being aware of, and following, best practices. IATA is therefore also developing a baggage best practice program to recognize those airlines and other industry stakeholders that have met best practices in areas such as tracking, automation and fraud prevention.

(For further information, go to www.iata.org/baggage or for inquiries related to IATA's end-to-end baggage priorities, please contact: baggage@iata.org)

**Andrew Price, Head, Global Baggage Operations,
International Air Transport Association**



AIRPORTS

Airports Council International (ACI) World is committed to helping airports optimize the capacity and flow of their terminal facilities and processes by providing a set of recommendations, guidelines and best practices. The subject-matter experts on the World and Regional Facilitation and Services Standing Committees work hard to produce up-to-date solutions.

ACI World promotes an optimized end-to-end baggage handling process, and airports and airlines are committed to investing in technology to improve the passenger experience and airport operations. Recognizing the need to reduce the number of mishandled bags, ACI World signed a Memorandum of Understanding (MoU) with IATA to work together on an end-to-end baggage process and to develop and promote best practices. The improved process will help operators reduce mishandled baggage while increasing the efficiency of baggage operations. Baggage tracking has been identified as the ultimate solution to increase transparency.

ACI World has welcomed IATA's Resolution 753 and recommends that airports, airlines and ground handlers adopt a collaborative approach in order to meet its objectives. Specifically, ACI World and IATA have collaborated on a Baggage Tracking Implementation Guide to provide guidance on how an airline could meet its obligation, and how an airport could support their airlines in doing so. This guide helps airlines and airports by providing options to meet the terms of the Resolution.

Key benefits for airports are:

- Baggage mishandling reduction;
- On-time departure improvement;
- Faster mishandled baggage repatriation;
- Fraud prevention/reduction;
- Baggage handling system performance measurement; and
- Passenger experience improvement.

The full benefits of baggage tracking are likely to be achieved once tracking data collection and processing has become fully effective. All stakeholders involved in the baggage handling life cycle, including airlines, airports and ground handlers, will benefit from it, but most importantly passengers are less likely to have to deal with the inconvenience of delayed or mishandled luggage.

Angela Gittens, Director General, Airports Council International World



INNOVATING BAG TRACKING WITH PROVEN TECHNOLOGY

As IATA's June 2018 deadline for Resolution 753 bag tracking compliance approaches, we are committed to delivering new and innovative solutions to enable IATA members to realize the benefits of compliance.

In 2017 SITA tested a very light infrastructure scanning application live at two airports. This solution is provided on smartphones in ruggedized encasements. While it was not new or disruptive, it was an innovative use of existing and proven technologies. And as result Bahamasair went from scanning bag tag labels on a "Bingo" card to full Resolution 753 tracking in Miami and Nassau inside seven days. This included the full ability to share tracking data in real-time via SITA's BagJourney service.

We have observed a remarkable increase of interest in digitizing baggage processes to meet the requirements of Resolution 753. Russia's S7 Airlines was able to achieve this very quickly as 50% of its baggage traffic was already digital thanks to SITA's baggage services already in place. These services have also allowed the carrier to improve its passenger experience by enabling its customers to track their baggage at Domodedovo Airport via the S7 mobile app.

India's newest airport, the Multi-modal International Cargo Hub and Airport at Nagpur (MIHAN) is planning to have efficient technologies in place that will future-proof growth from day one. The airport, which is expected to accommodate up to 14 million passengers on completion in 2035, will be deploying SITA's BagManager to accurately track passengers' bags and significantly reduce the likelihood of them being mishandled.

The key learning from these examples is that Resolution 753 returns real benefits to the airports and airlines that are implementing its requirements. However, we are on the threshold of potentially even greater, albeit yet to be defined, rewards. The collection of all this bag tracking data when combined with data science and machine learning will really help the air transport industry achieve a major a step change in baggage handling.

One of the key gaps with tracking is at arrivals, often the last thought about the area in the end-to-end baggage process for Resolution 753. Airports are going to need to provide arrival-tracking services to their airline customers. SITA has been working with a number of airports to test BagTrac ATRs that integrate easily with existing baggage management systems and explore commercial models that work for vendors, airports and airline alike.

The final aspect of arrivals that needs to be considered is tracking the mishandled bag. While we aim to reduce the occurrence of these bags it is doubtful if it can be fully prevented. This is where the WorldTracer® Baggage Delivery Service can help, enabling tracking from the destination airport through to the passenger's hotel or home and providing full visibility to the airline and, ultimately, the passenger.

Peter Drummond, Portfolio Director Baggage, SITA



TRACKING: ACHIEVEMENTS AT A GLANCE

All aspects of air transport infrastructure, including baggage operations, will come under increasing pressure over the next decade, with passenger traffic doubling from around 4 billion to 7.8 billion passengers by 2036.⁵ Airlines and airports are working to harness new technologies and implement simpler, more efficient processes in order to cope.

The past 12 months have seen some of the world’s front-running airlines achieve some early, and critical, bag tracking goals on their route to Resolution 753 compliance. In the same period, leaders in the airport community have unveiled baggage handling initiatives that will support their airline partners’ bag tracking requirements.

THE LEADERBOARD

First off the starting blocks was Qatar Airways, which announced Resolution 753 compliance at its Hamid International Airport hub in Doha in April 2017. A key element to this success was the airline’s in-house baggage management system and its seamless real-time integration with Qatar’s website and mobile app. The mobile app enables passengers to track their bags’ progress through check-in, transfer and arrival. The baggage system allows airline staff to proactively manage delayed bags to provide an optimized handling process.

More recently, in January 2018, Aeroflot became the first airline in Russia to provide real-time location for all the baggage it handles, using SITA’s BagJourney system for end-

to-end tracking. Aeroflot’s Deputy Chief Executive Officer for IT, Kirill Bogdanov explained that the bag tracking initiative was part of a wider focus on technology innovations to improve passengers’ experience. “We recognize that baggage is such an important area for passengers, and through this solution we will be able to provide them with more certainty on where their bags are at every step of the journey.”

In February, Delta Air Lines rolled out RFID baggage tags to checked luggage on its routes between the USA and London Heathrow. Scanners use radio waves to capture highly accurate and consistent data stored on the RFID chip. This followed the introduction of RFID in its domestic market in 2016. Delta has invested more than US\$50 million to ensure the accurate routing and loading of the 180 million bags it handles each year. The airline noted that this commitment to reliability has been recognized with Delta recording the lowest mishandled bag numbers in US Department for Transportation data six times in recent months.

All of Delta’s 344 airports across the globe are scheduled to receive the technology, with additional European hubs, Amsterdam and Paris, due to come online in the coming months. “Following a successful roll-out in the US, we are on track to equip all of our international stations, including Heathrow, with this technology as part of our continued efforts to improve our customer experience,” said Corneel Koster, Delta’s Senior Vice President Europe, Middle East, Africa and India.

TREND OF PASSENGERS ENPLANED AND BAGS MISHANDLED



AIRLINE SHOWCASE: BAHAMASAIR

Before September 2017, Bahamasair, the national airline of the Bahamas, was tracking passengers’ baggage manually. As a small carrier with a fleet of eight aircraft operating scheduled services to 25 destinations in the Caribbean and United States, we were heavily reliant on human interactions and manual processes. However, we are currently on target to be at least 70% compliant with IATA Resolution 753 by June 2018, with full compliance achieved by the end of the year. We have deployed SITA’s BagJourney solution to automate our processes and improve our tracing ability, accuracy and reliability.

We have set a goal of firstly implementing BagJourney across our entire network by the end of 2018, with all applicable staff members appropriately trained to use the system. As a new venture, implementation may be slow, but we will get to where we need to be. We are in the process of reaching out to our interline partners to ensure that we are able to receive their baggage source messages (BSMs) so that we can achieve total passenger satisfaction, even when they transfer between carriers.

Our key strategy is to ensure our passengers can see the status of their luggage in real time. We have implemented scans to allow them to see their bag check-in time, when it arrives at the baggage sortation area, the time the bag is loaded and to which aircraft and, lastly, the time it arrives the baggage claim at their destination. We intend to have this information available to our customers via the Bahamasair App and are planning to integrate BagJourney into our app.

From beginning the proof of concept with BagJourney, we have seen a drastic reduction in lost and delayed bags. In instances where mishandling occurred, we were able to obtain the information from the solution, to efficiently and quickly resolve and close the claim.

This transformation is costly due to the numerous devices and infrastructure that must now be acquired and erected, but we are committed to achieving compliance and we fully understand the benefits of Resolution 753. My advice is that although the price tag may look big at the beginning, the savings from reduced claims and payouts, and improved customer satisfaction, will create more value. The resolution will save all airlines in the long run.

Technology is ever changing and will only make the aviation industry more efficient. We must do what we can to ensure our customer receives the best service we can provide.

John Fowler, Senior Director with responsibility for Customer Service, Bahamasair



AIRLINE SHOWCASE: ALITALIA

Alitalia became Europe's first airline to be certified by IATA for achieving compliance with Resolution 753 at its Rome Fiumicino hub in November 2017. However, the foundations for this achievement began in 2015 with a significant investment in baggage management and a complete reorganization of the baggage handling process at the airport.

We introduced zonal allocation of staff and resources and have reviewed our baggage handling system (BHS) management. We also introduced a scanning machine for our staff, adjacent to the baggage sorting area and under the aircraft, supported by IT tools. A dedicated baggage location has been introduced in the Hub Control Center to support the transit process and reduce baggage mishandling and delays.

Baggage management has significantly improved: the mishandling rate has been reduced by more than 40% compared to 2015. We have recorded days where the mishandling rate in our hub was only just above two bags for every one thousand carried passengers and we are very proud of the commitment demonstrated by our baggage team. In addition, our costs were positively affected by the baggage handling improvement. Delays related to baggage processing were also reduced significantly – Alitalia was the second European carrier for on-time performance in 2017. It has continued the positive trend into 2018, achieving the rank of second-most punctual airline worldwide in February and number one for the entire period January-February 2018. The entire baggage process at Rome Fiumicino is already well tracked and monitored. We are looking at RFID solutions for the future, but the airport must support

the investment. Our next challenge is to improve our performances in 2018 and introduce baggage tracking in some key domestic stations.

Appropriate technology is still not widespread in our network of airports and this represents a bottleneck in our vision. Airports and handlers must invest in technology and tools to support airlines. We are working with some key airports to deploy baggage tools and start mutual cooperation in baggage tracking.

Our Rome Fiumicino experience demonstrates that baggage tracking is essential to deliver a good service and our results prove that Resolution 753 compliance is essential also for our network airports. We are already experiencing a positive approach from our partners and we would like to collaborate with them to extend Resolution 753 compliance to the majority of our key airports in two years.

Innovation and technology are essential to our business. Apps, mobile device tools and web applications can enhance passengers' satisfaction and simplify the journey experience. But there is more to do and we want to explore any new possibility that technology may offer.

Gianluigi Lo Giudice, Vice President, Alitalia Ground Operations



AIRPORTS INVEST

Terminal refurbishments and expansions have enabled airports to invest in solutions to support bag tracking. San Francisco International's upgraded Terminal 1 will feature a new baggage system with a layout optimized to ensure 100% track and trace throughout the system. Inbound baggage handling will also be enhanced to allow full tracking and traceability at every stage. Another example is Florida's Orlando International Airport investment in a state-of-the-art baggage handling system as part of its US\$2.15 billion development of its South Terminal Complex. It will be deploying RFID technology to ensure a 100% bag tracking capability.

In Ghana, Kotoka International Airport in Accra is expanding its capacity to address significant growth in international passenger traffic and cement its position as a vital regional hub. The new Terminal 3 will deploy SITA's baggage management technology to assist airlines in tracking bags every step of the way, helping them meet IATA's Resolution 753 requirements from day one. This technology will also be fully integrated with the existing terminals.

Further innovation is set to help airports and airline baggage user groups automate accurate bag scanning, no matter what type of tag is attached, whether the tag has a barcode or is embedded with a RFID chip. SITA's BagTrac scanning arch can deploy laser, optical, and/or RFID automatic tag readers (ATRs). Rather than users manually scanning each bag at transfer or arrival, the conveyor belt system moves bags through the arch and the ATRs capture the tag information. This tag data is sent to one of SITA's baggage platforms, BagManager or BagJourney, to register and store the tracked bag tag number, its locations, and time of scanning.



AIRPORT SHOWCASE: ISTANBUL NEW AIRPORT

New airports, such as Istanbul New Airport, which is readying for the first phase of opening in 2018, are ensuring that their baggage operations can provide the required bag tracking facilities from the outset. Initially, Istanbul New Airport will have the capacity to accommodate 90 million passengers annually, rising to over 200 million passengers per year on completion of the fourth and final phase. By this stage, the airport will be required to track more than 28,800 bags an hour.

Our baggage system was designed first in relation to the terminal building design, so we do not foresee any risk regarding incorporating the latest bag tracking equipment.

All the bags delivered to the baggage handling system after check-in and transfer will be scanned by automatic tag readers and optical character recognition (OCR) scanners. Then they will be loaded into unique individual carrier system (ICS) trays. These ICS trays will have RFID tags and the baggage tags will be matched with them throughout the bags' journey in the chute area. We will use Wi-Fi hand scanners to deal with over-sized bags.

There will also be "Hot Bag" carousels at the manipulation area for flights with short connection times. Short-connection bags scanned by the OCR will be included into the system 35 minutes before the scheduled departure time. Late-connecting bags will be redirected to those "Hot Bag" carousels in order for them to catch the next flight.

In response to feedback from our stakeholders, we are providing an OCR system to scan bags on arrival, plus hand scanners for over-sized bags. SITA's baggage solution will provide the IT infrastructure that makes it possible for airlines to track bags at key points in the journey, including check-in, transfer and arrival.

We expect the number of mishandled bags will be lower, thanks to this 100% bag tracking and compensation fees will be lower as well. At the same time, the OCR technology will reduce the number of "no-read" bags, so we will not require as many staff at some work stations, for example manual coding, problematic bag stations. Finally, we expect ground handler, airline and passenger satisfaction will be higher.

**Vedat Yildiz, Airport Systems Manager,
Istanbul New Airport**



2017 BAGGAGE MISHANDLING IN DEPTH

THE GLOBAL PICTURE

Aviation experienced a stand-out year in 2017, with IATA reporting a 7.6% rise in global passenger traffic, in terms of revenue per passenger kilometers (RPK), which is well above the 10-year average annual growth rate of 5.5%.⁶ Passenger numbers rose by 7.1% on 2016 to an estimated 4.08 billion and overall revenues grew by 6.3% to US\$754 billion.⁷

"2017 got off to a very strong start and largely stayed that way throughout the year, sustained by a broad-based pick-up in economic conditions. While the underlying economic outlook remains supportive in 2018, rising cost inputs, most notably fuel, suggest we are unlikely to see the same degree of demand stimulation from lower fares that occurred in the first part of 2017," said Alexandre de Juniac, IATA's Director General and CEO.

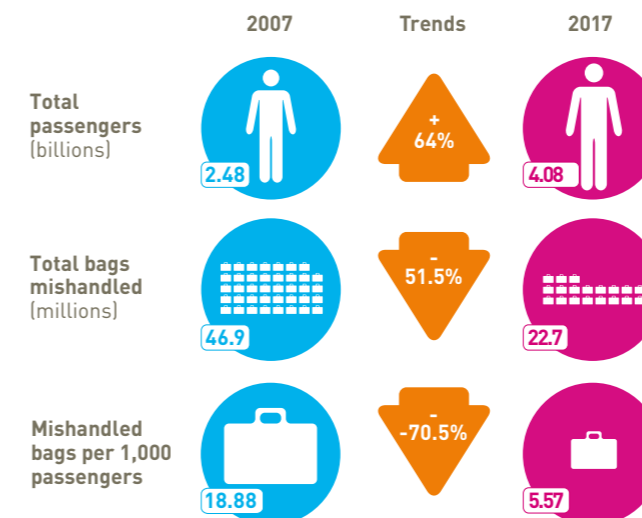
Despite this note of caution, IATA is predicting that 2018, will be the fourth consecutive year of sustainable profits for the airline industry, with passenger numbers forecast to reach 4.3bn and revenues growing by 9.4%.⁸

Although 2017's growth in passenger numbers will have added considerable pressure to the industry's baggage systems and processes, SITA WorldTracer® data reveals that the mishandling rate improved by 2.8% in 2017, at 5.57 bags per thousand passengers compared to 5.73 in 2016. The total number of mishandled bags was 22.7 million. This represents a 4.1% increase on 2016, but still lower than the overall passenger growth rate.

Mishandled bags represent a minority of the estimated 4.6 billion or so bags handled each year. Nevertheless, they cost the industry an estimated US\$2.3 billion in 2017, which gives an indication of the business benefits that airlines can reap from their investment in end-to-end bag tracking.

Looking at the longer term trend, passenger numbers have soared by 64% since 2007. In this period, the mishandling rate per thousand passengers has reduced by 70.5% and there has been a 46.2% cut in the annual cost of baggage mishandling to the industry.

2007 – 2017: LONG TERM TRENDS

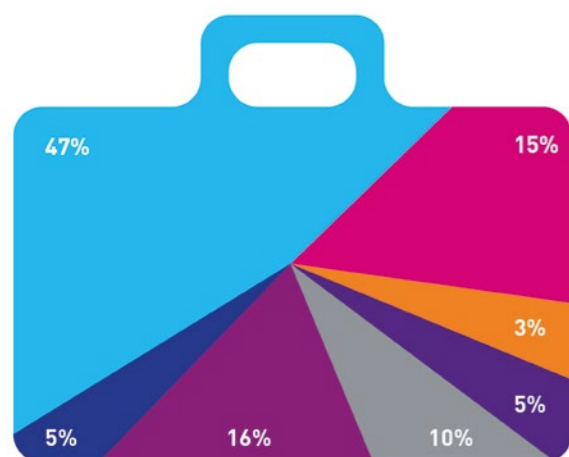


Source: SITA Baggage Report

REASONS FOR DELAYED BAGS

Journeys where luggage must be transferred from one aircraft to another, or from one carrier to another, pose the greatest risk of bags being mishandled. This is a critical pinch-point in the bag handling process. In 2017, 10.67 million transfer bags were mishandled, representing 47% of all mishandled bags, the same proportion as 2016.

REASONS FOR DELAYED BAGS IN 2018

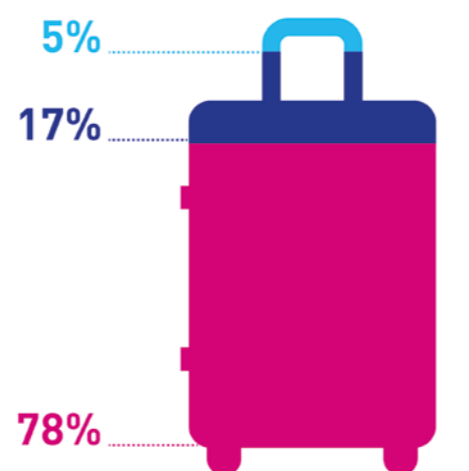


- Transfer mishandling
- Ticketing error/Bag switch/Security/Other
- Loading error
- Arrival mishandling
- Airport/Customs/Weather/Space-weight restriction
- Failure to load
- Tagging error

Failures to load accounted for 16% of mishandled bags; ticketing errors, bag switches, security issues and other problems represented 15%; and airport, customs, weather or space-weight restriction 10%, all unchanged from 2016.

Delayed bags represented 78% of all mishandled bags in 2017, 17% were damaged or pilfered and 5% were lost or stolen.

2018 DELAYED, DAMAGED OR LOST BAGS



- Lost/Stolen bags
- Damaged/Pilfered bags
- Delayed bags

Source: SITA Baggage Report

REGIONAL INSIGHTS

The airline associations reporting on baggage mishandling have disclosed that carriers in the USA and in Asia Pacific once again achieved mishandling rates markedly below the global average of 5.57 per thousand passengers. In Europe, SITA WorldTracer® data reveals that the mishandling rate was above the global average at 6.94 bags per thousand passengers. However, there is a distinct improvement on 2016 when the rate was 8.06.

USA

"In 2017, despite the significant operational challenges of coping with three major hurricanes, a power outage in Atlanta, multiple Federal Aviation Administration ground delay programs in New York and elsewhere, and some airline outages, airlines continued to improve upon previous years' progress in handling checked baggage.

"Data from the US Department of Transportation show that the rate of mishandled bags fell to an all-time low of 2.4 reports per thousand domestic passengers, which translates to a 99.76 % success rate. More and more US airlines are also allowing passengers to track their bags in real time using mobile applications on the phone or tablet."

John Heimlich, Vice President & Chief Economist, Airlines for America

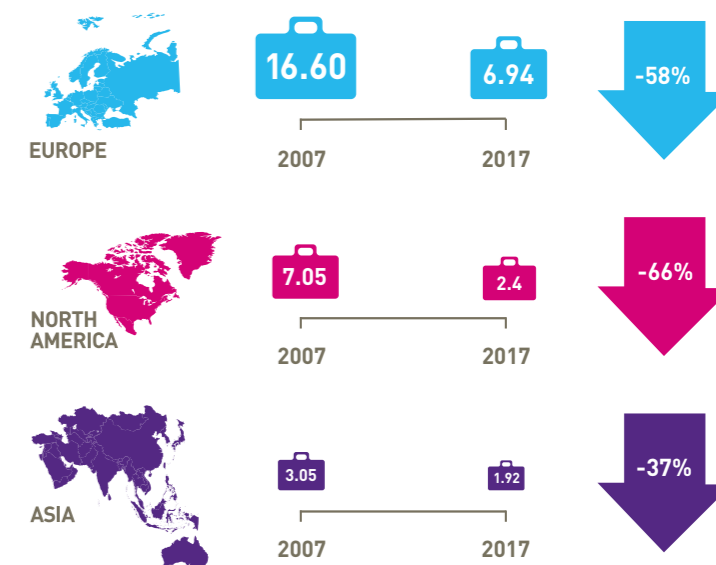
ASIA PACIFIC

In 2017, Asia Pacific airlines registered an average mishandling rate of 1.92 bags per thousand passengers, well below the global average but 6% higher than the previous year. During the same period, the region's airlines recorded a strong 10% growth in the number of passengers carried. With major airports in the region operating close to, or above, their planned capacity, the robust increase in passenger traffic led to increased pressure on the airlines' and airports' baggage handling systems.

"Overall, the region's average mishandling rate remains well below the industry average. Recognizing the challenges, airlines and airports are continuously investing in upgrading and modernizing baggage handling systems and related infrastructure, as well as exploring advanced IT solutions with the aim of improving operational efficiency."

Beatrice Lim, Director – Industry & Regulatory Affairs, Association of Asia Pacific Airlines

MISHANDLED BAGS PER THOUSAND PASSENGERS BY REGION



Data sources:
Europe: 2007 - 2013 Association of European Airlines. 2017 - 2017 SITA. North America: Airlines for America. Asia: Association of Asia Pacific Airlines.

FINAL THOUGHTS

- Baggage operations across the air transport industry are evolving dramatically, thanks to Resolution 753 and IATA's and ACI World's shared strategy to drive improvements.
- Primarily, Resolution 753 is an operational initiative. However, passengers will benefit from new services to provide them with more information about the status of their bag on the journey, with implementation introduced by individual airlines.
- Improvements in baggage handling performance will be accelerated by the adoption of scanning technologies and RFID.
- Looking further ahead, combining data collected from bag tracking with data science and machine learning promises even more significant improvements in baggage handling operations.



APPENDIX

WHAT IS A MISHANDLED BAG?

A mishandled bag is a report of a delayed, damaged or pilfered bag which is recorded by either an airline or its handling company on behalf of the passenger and that is handled as a claim.

SCOPE OF THE 2018 BAGGAGE REPORT

SITA applies a weighting system, based on IATA passenger traffic statistics, to its WorldTracer data in order to calculate the baggage mishandling rates. This weighting ensures that the results are a representative sample in relation to global passenger traffic and compensates for annual fluctuations. Backward comparison with results published pre-2016 should be undertaken with caution.

This report uses IATA's forecast passenger total for 2017 in the analysis of 2017 baggage handling performance data. For year-on-year performance comparisons with 2016, passenger numbers and related bag handling statistics have been updated since last year's report to reflect confirmed IATA passenger data for 2016.

NOTES

1. 2017 SITA Air Transport IT Trends Insights: 59% of airlines have implemented or are planning to deploy bag-tag printing at home; 54% of airports expect to offer pre-airport self bag-tagging via kiosks by 2020 (up from 20% in 2016); 61% of airports are planning to have implemented pre-airport assisted bag-drop in the same period (up from 39% in 2016).
2. 2017 SITA Air Transport IT Trends Insights: 88% of airports plan to have implemented assisted bag-drops by 2020 (up from 59% in 2017) and 76% expect to have implemented fully self-service bag drops (up from 28% in 2017). 87% of airlines plan to have implemented assisted bag-drops and 73% to have deployed fully self-service bag drops (73% in 2017).
3. The International Air Transport Association's (IATA) Resolution 753, which comes into effect in June 2018, will airlines to demonstrate delivery or acquisition of baggage when custody changes. The four key tracking points are check-in, loading onto the aircraft, transfer between carriers and delivery of the bag back to the passenger at arrival. Airlines will also need to provide an inventory of bags upon departure of a flight; and be capable of exchanging this information with other airlines, or their agents, as needed.
4. 2017 SITA Air Transport IT Trends Insights: 71% of airlines expect to offer real-time baggage information to passengers by 2020; 82% plan to provide real-time baggage information to staff. In 2017, 80% of airlines have implemented or are planning to provide passengers with the ability to report missing bags via mobile phone (up from 67% in 2016); 79% have rolled out or are planning missing bag communications (up from 72% in 2016).
5. IATA press release: 2036 Forecast Reveals Air Passengers Will Nearly Double to 7.8 Billion, issued 24 October 2017. <http://www.iata.org/pressroom/pr/Pages/2017-10-24-01.aspx>
6. IATA press release: "2017 Marked by Strong Passenger Demand, Record Load Factor", published 1 February 2018. <http://www.iata.org/pressroom/pr/Pages/2018-02-01-01.aspx>
7. IATA Airline Industry Economic Performance 2017, Year End Tables, published 5 December 2017. <http://www.iata.org/publications/economics/Reports/Industry-Econ-Performance/Central-forecast-end-year-2017-tables.pdf>
8. IATA press release: "Strong Airline Profitability Continues in 2018", issued 5 December 2017. <http://www.iata.org/pressroom/pr/Pages/2017-12-05-01.aspx>

SITA AT A GLANCE

**Easy air travel every step of the way.
Transforming air travel through technology for
Airlines, at Airports, on Aircraft and at Borders.**

- SITA's vision is: 'Easy air travel every step of the way'.
- Through information and communications technology, we help to make the end-to-end journey easier for passengers – from pre-travel, check-in and baggage processing, to boarding, border control and inflight connectivity.
- We work with about 400 air transport industry members and 2,800 customers in over 200 countries and territories. Almost every airline and airport in the world does business with SITA.
- Our customers include airlines, airports, GDSs and governments.
- Created and owned 100% by air transport, SITA is the community's dedicated partner for IT and communications, uniquely able to respond to community needs and issues.
- We innovate and develop collaboratively with our air transport customers, industry bodies and partners. Our portfolio and strategic direction are driven by the community, through the SITA Board and Council, comprising air transport industry members the world over.
- We provide services over the world's most extensive communications network. It's the vital asset that keeps the global air transport industry connected.
- With a customer service team of over 2,000 people around the world, we invest significantly in achieving best-in-class customer service, providing 24/7 integrated local and global support for our services.
- Our annual Air Transport and Passenger IT Trends Surveys for airlines, airports and passengers are industry-renowned, as is our Baggage Report.
- In 2016, we had consolidated revenues of US\$ 1.5 billion.

For further information, please visit **www.sita.aero**



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