



**SITA**

# SITA BAGGAGE IT INSIGHTS 2024

# Contents

---

<b>Executive Summary</b>	03
<b>Baggage Mishandling</b>	05
Year on Year Baggage Mishandling Rate	06
Long Term Decrease in Baggage Mishandling	07
Long Term Baggage Mishandling Rate	08
Breakdown on Mishandled Bags	09
Reasons for Delayed Bags	10
Global Mishandling Rates for Domestic & International Flights	11
Growing Investments in Touchless Self-Service Baggage Processes	12
Long-term Improvements in Regional Performance	13
<b>India's air travel growth transformation, AAI use case</b>	15
<b>Tech to the rescue, SWISS and Swissport use case</b>	17
<b>More passengers means more bags. We must use better tech</b>	19
<b>Full tracking and real-time status updates are key to better baggage handling and passenger experience, IATA</b>	20
<b>Leveraging technology to improve baggage handling, ACI World</b>	21
<b>Methodology</b>	22

---

**SITA**



# EXECUTIVE SUMMARY

# Reinventing travel and transport

David Lavorel, CEO SITA



## Executive summary

In 2023, the air travel industry made an impressive comeback. Passenger traffic soared, surpassing 2019 levels for the first time in five years. At 5.2 billion\*, the passenger traffic surge was even stronger than the industry expected. Mishandling rates decreased from 7.6 to 6.9 bags per thousand passengers, showing good progress. This boost comes ahead of expected travel spikes, with global passenger traffic set to double by 2040.

There are still hurdles to overcome though, like transfer mishandling, making sure bags make it onto the next flight, or smooth delivery of bags at the collection belt. The challenge is even greater when facing surges in large baggage volumes. That's why it's important to push forward with digitalization and to use AI and computer vision tech in baggage handling.

Such technology is essential because it helps us gather, integrate, and share data effectively. It means we can uncover important insights that make decision-making easier and more automated.

In this year's report we see a clear move towards digitalization. There's a focus on full automation and visibility across the bag journey. With the precision of biometrics and the tracking of touchless systems, baggage is routed in the right direction. This minimizes mishandling.

Automation removes human error and reduces how much companies rely on manual processes. And advanced tracking systems allow real time monitoring and swift recovery of mishandled bags. Self-service tech, like biometrics and touchless systems, are pivotal in enhancing baggage mishandling rates. What's clear is that the industry is absolutely set on giving passengers complete visibility and control over their baggage journey.

We see this in action with SITA WorldTracer Auto Notify. It lets travelers know straight away if their luggage doesn't make it onto their flight. It's a response to the industry's need for a better process, driven by data and automation. It makes sure passengers get full visibility and control over their journey.

Airports and airlines are actively working on initiatives to collect more data, and they're planning on doing much more by the end of 2026. We're expecting a smoother and faster bag recovery experience thanks to data collection and sharing initiatives, adopted by 93% of airports at bag delivery and 95% of airlines at bag collection. These investments will mean more baggage delivered on time. They'll give confidence to passengers who always want to know where their baggage is, and less hassle when baggage is mishandled. In 2023, 24% of airlines offered bag tag printing at home, and 84% have self-service bag tag printing at airports, to make trips smoother. Plus, about two-thirds of airlines offer unassisted bag drop services, and 85% of airports have self-service bag drop tech. More and more passengers are using their mobile phones throughout their journey, including for bag collection updates – 32% used this feature last year.

These trends show that people want more self-service options to gain more control over their travel experience. That's why it's important to offer full visibility and improve communication to passengers to build trust and encourage the use of digital tools.

By working together on ongoing engineering and technological innovations, the industry can create a smoother, more seamless airport experience for passengers. Here at SITA, we're fully committed to using tech to let passengers know where their bags are at all times, and to give them control over their luggage.

\* WATS passenger traffic, IATA forecast

**SITA**



**BAGGAGE  
MISHANDLING**



# Year on year baggage mishandling rate

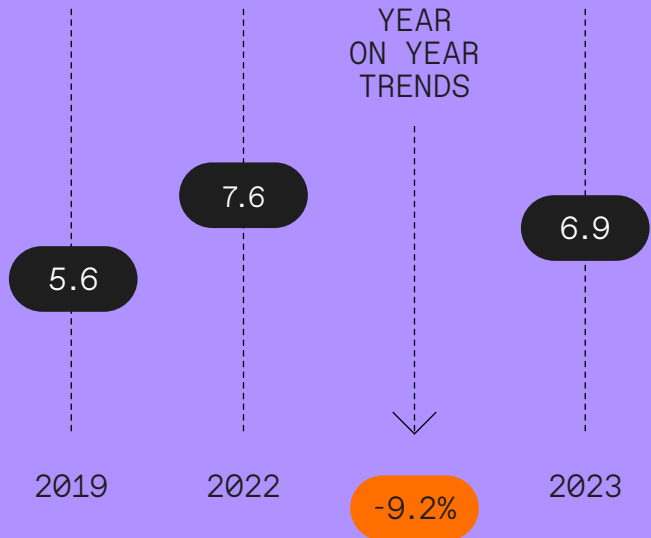
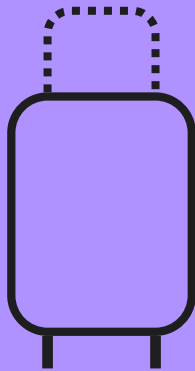
The travel industry has bounced back quickly, with passenger numbers surpassing 2019 levels for the first time in 5 years. Despite the increase in passenger traffic from 4.02 to 5.2 billion, the number of mishandled bags reduced to 6.9 per 1,000 passengers. This shows progress ahead of the foreseen travel spike, with global passenger traffic expected to double by 2040. There are still challenges to address, particularly managing surges in large baggage volumes. That's why it's

important to push forward with digitalization and use AI and computer vision tech in baggage handling.

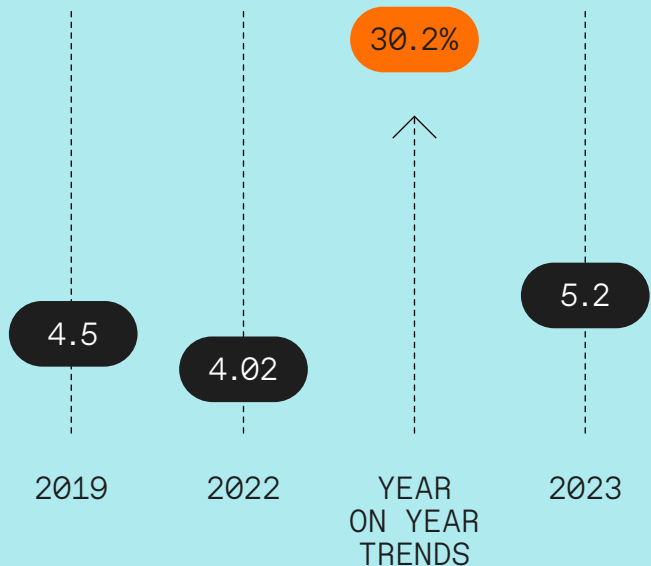
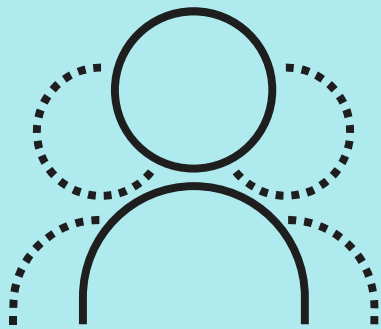
The industry is doubling down on digitalization. We're seeing more and more self-service technologies like touchless systems that help improve the passenger experience when handling their bag. This speeds up the ongoing improvement in baggage mishandling rates, seen in the

9.2% year-on-year decrease in mishandling rate (despite the surge in passenger traffic). Giving passengers full visibility and more control over their baggage journey is going to be crucial, especially for boosting passenger confidence.

### Mishandled bags per 1,000 passengers



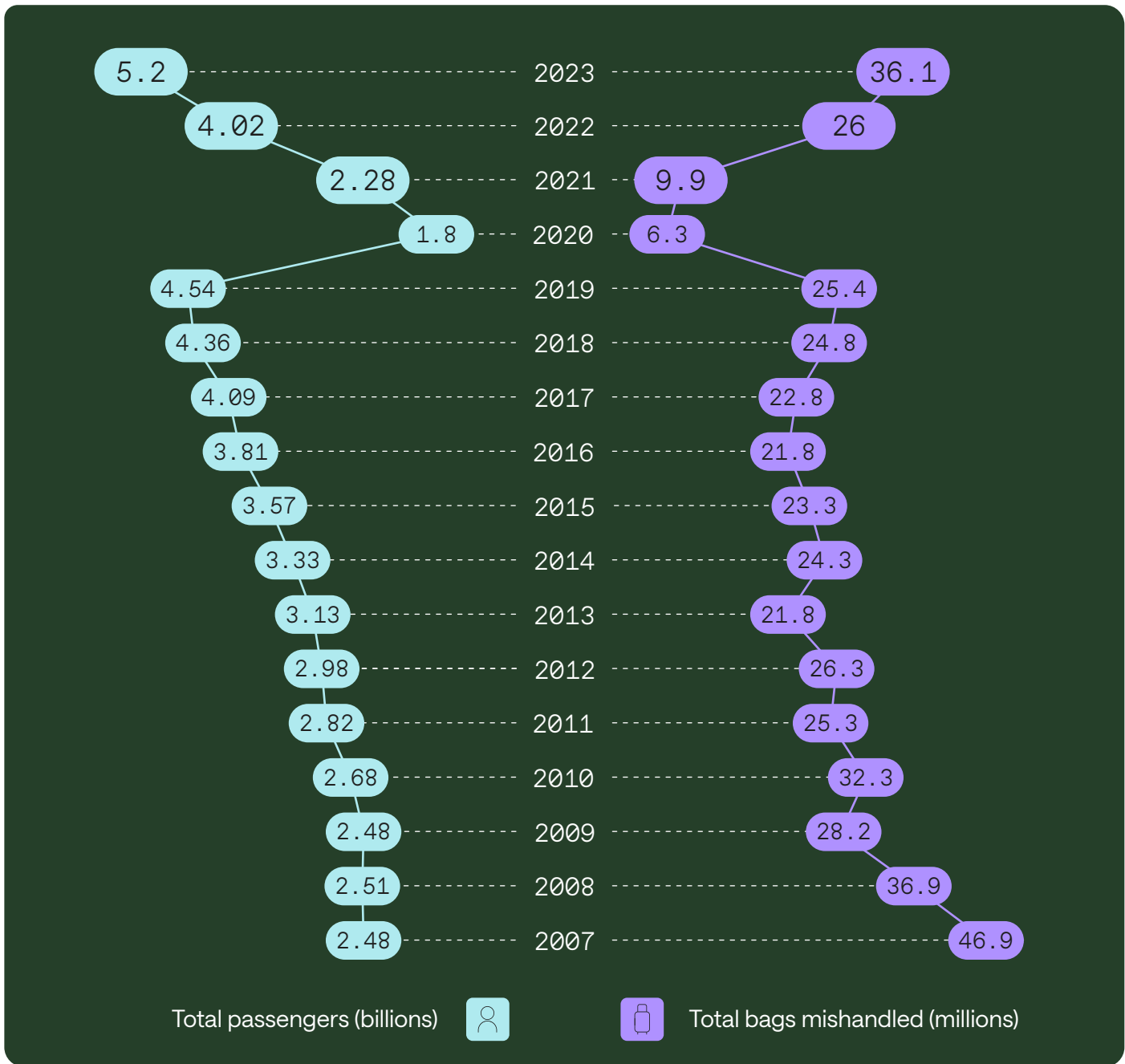
### Total passenger (billions)



# Long term decrease in baggage mishandling

In 2023, passenger traffic volumes peaked. There were 5.2 billion passengers during the year so there was a steep 10% rise in the total number of mishandled bags. However, the mishandling rate actually went down from 7.6 to 6.9 bags per thousand passengers. This includes the absolute number of mishandled bags, now at 36.1 million—a 23% drop from 46.9 million in 2007—even though passenger traffic has doubled during the same period.

The industry sees air travel returning to pre 2019 levels in 2024. The fast recovery shown in the 2023 data also supports this. The fact that 49% of airports are investing in baggage processing as part of their business initiatives has helped cope with the recovery in passenger numbers.



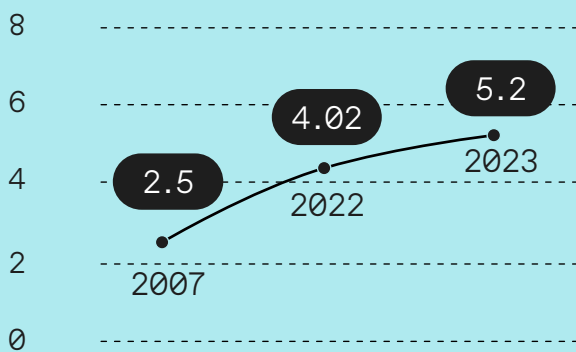
# Long term baggage mishandling rate

The 2023 passenger traffic is expected to reach 5.2 billion according to IATA. It more than doubled compared to 2007. This coupled with a steep drop in mishandling rate (from 18.9 in 2007 to 6.9 in 2023) shows the industry progressed hugely in handling baggage. Long term mishandling rate dropped by 63% compared to 2007, while passenger traffic increased by 111%. The trend of decreasing mishandling rates alongside increasing passenger traffic suggest investments in technology are bringing positive results. These advances have resulted in fewer mishandling incidents and notable progress

towards giving passengers complete visibility and control over their baggage journey. We can expect to see progress towards a baggage journey that's fully automated.

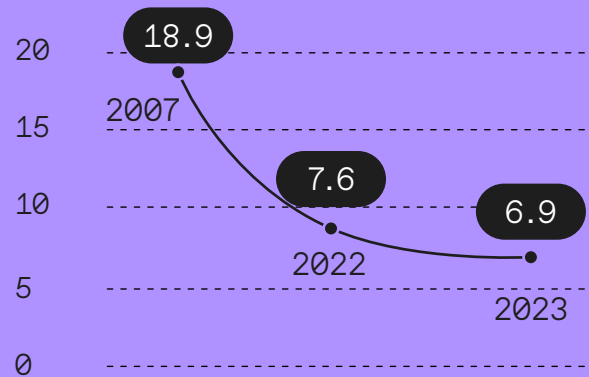
This suggests we can look forward to even more progress in reducing mishandling. It also shows how the industry is dedicated to improving baggage handling through full automation, making sure passengers have a smoother journey.

Total passengers  
(billions)



LONG-TERM TRENDS 111%

Mishandled bags  
per 1,000 passengers



LONG-TERM TRENDS 63%



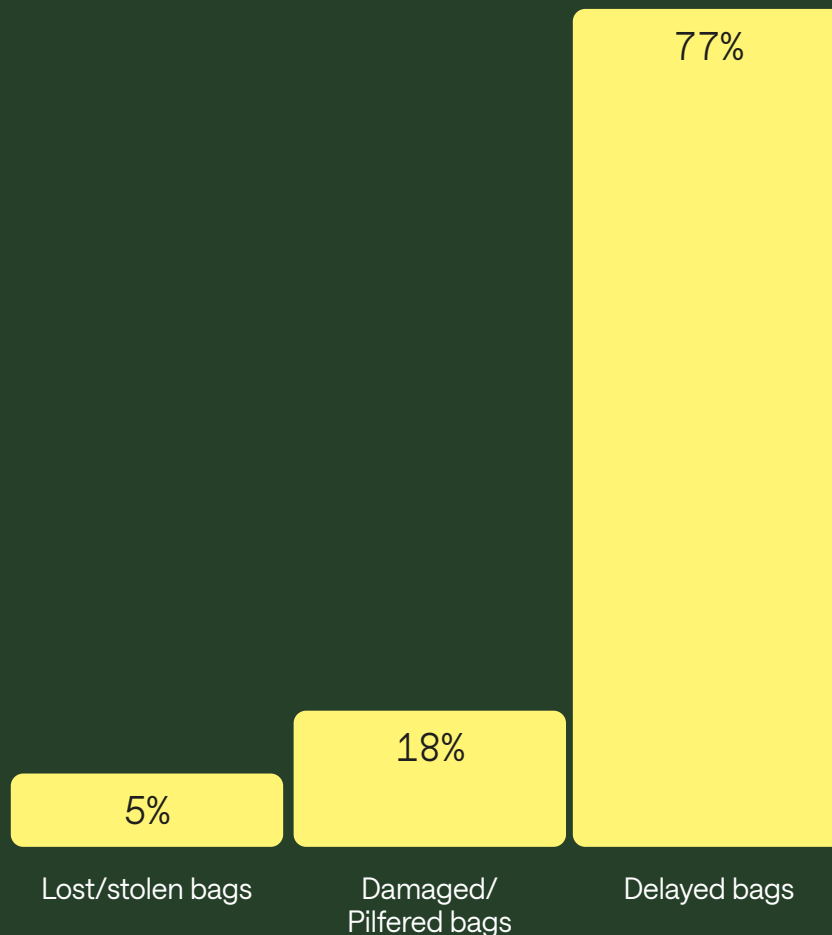
# Breakdown on mishandled bags

In 2023, delayed bags made up 77% of all mishandled bags. At the same time, the number of lost and stolen bags slightly decreased to 5% in 2023. Meanwhile damaged and tampered bags increased to 18%. When airports and airlines announce data collection initiatives, it shows the industry is trying to tackle the issue. 68% of airports are looking into investing in better ways to collect data on baggage delivery, while 64% of airlines have bag collection initiatives in mind.

By the end of 2026, we expect a noticeable bump in these figures, with baggage delivery data adoption reaching 93%, and bag collection initiatives reaching 95%.

These tech investments will help airlines improve baggage handling operations, especially through fewer delayed baggage incidents. By using data-driven approaches to give passengers full visibility, the industry is moving away from simply sharing real-time information with their staff. They'll soon be able to give passengers a clear understanding of their baggage journey. This shift will help make passengers feel more confident to check in their bags because mishandling incidents will be less likely. This will be thanks to clear visibility and automated reflighting processes, especially when getting their bags back home.

## Breakdown on mishandled bags



# Reasons for delayed bags

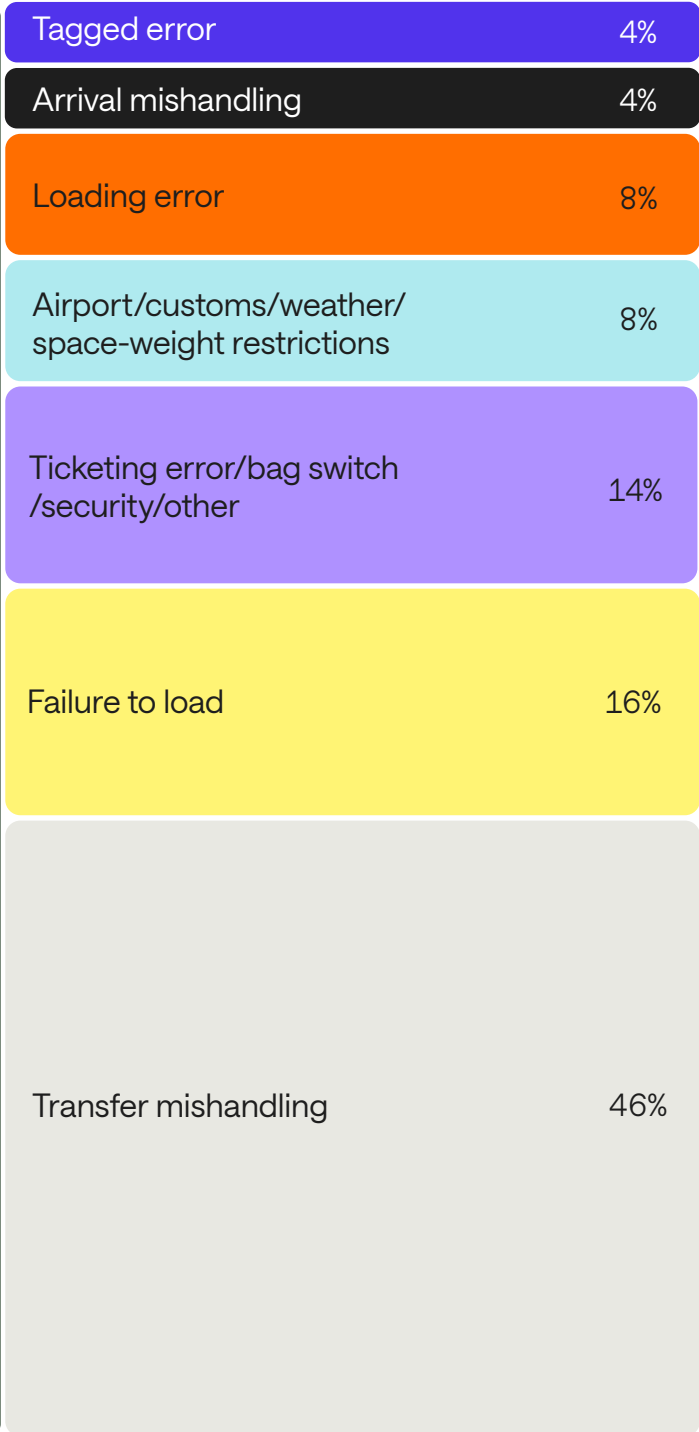
Most of the bags that are mishandled are still transfer bags. In the past, we've seen an upsurge in long-haul flights driving this trend. That's continued into 2023 with more passengers, leading to even more long-haul flights. As a result, the number of bags delayed at transfer points increased to 46% of the total mishandled bags, which is up by 4 percentage points from 2022. Concurrently, mishandling incidents caused by failure to load decreased slightly by 1%, making up 16% of cases in 2023. Ticketing errors, bag

switches, security issues, and other miscellaneous factors together accounted for 14% of mishandled bags. Mishandling attributed to airport operations, customs, weather, or space-weight restrictions stayed constant at 8%. Arrival mishandling held steady at 4%, while delayed bags due to airport loading error remained at 8%, mirroring figures from 2022.

These trends show how the industry needs to step up its game in using data wisely

throughout the baggage management process. That way, we can make sure mishandled bags get back to their owners without a hitch. By collecting, integrating, and sharing data, where baggage systems communicate with each other and give feedback throughout the process, we can achieve smooth, hassle-free automation. This would take off a lot of pressure and free up more resources to work with.

Transfer mishandling and failure to load are the top reasons for delayed bags.



# Global mishandling rates for domestic and international flights

As we expected, the mishandling rate of 12.1 on international routes stands high above the 2.4 for domestic routes. This international figure fell by 7.2 from last year. Yet the mishandling rate for domestic routes stayed the same in 2023. It's clear: our industry is about five times more likely to lose a bag on international flights than on domestic ones. It's worth noting that this 12.1 decrease was largely due to ongoing international travel restrictions as we emerged from the pandemic – a period when mishandling rates remained high. Despite increasing passenger traffic in 2022, mishandling incidents on international routes then began to decrease.

This clearly shows progress. The low level of travel in previous years, combined with proactive industry investments like improved baggage processing and predictive technology, accounts for the recovery in mishandling rates on international routes in 2023.

We now see real improvements thanks to tech investments. This momentum will spur the industry to keep on investing in a seamless and hassle-free bag handling process.

Mishandled bags per 1,000 passengers globally



# Growing investments in touchless; self service baggage processes

SITA's research tells us passengers feel anxious when booking tickets, with delays and cancellations being major concerns for 32% of them in 2023.\* Our findings also reveal a significant push towards automating baggage processes. In 2023, two-thirds of airlines offered unassisted bag drop services, and 85% of airports introduced self-service bag drop technologies.

At the same time, we're seeing passengers favor more use of their mobile phones across the journey stages, including at bag collection. They rely on bag collection information sent directly to their mobile phones. 32% of passengers surveyed used this feature in 2023.\*

These trends underscore the growing demand for self-service technologies, enhancing communication and visibility for passengers and giving them more control over their journeys.

But, there is still room for improvement in sharing baggage data. Only 58% of airlines currently share baggage data, while 66% of airports share baggage delivery data with airlines.\* Improving this data sharing, particularly at baggage collection, is essential.

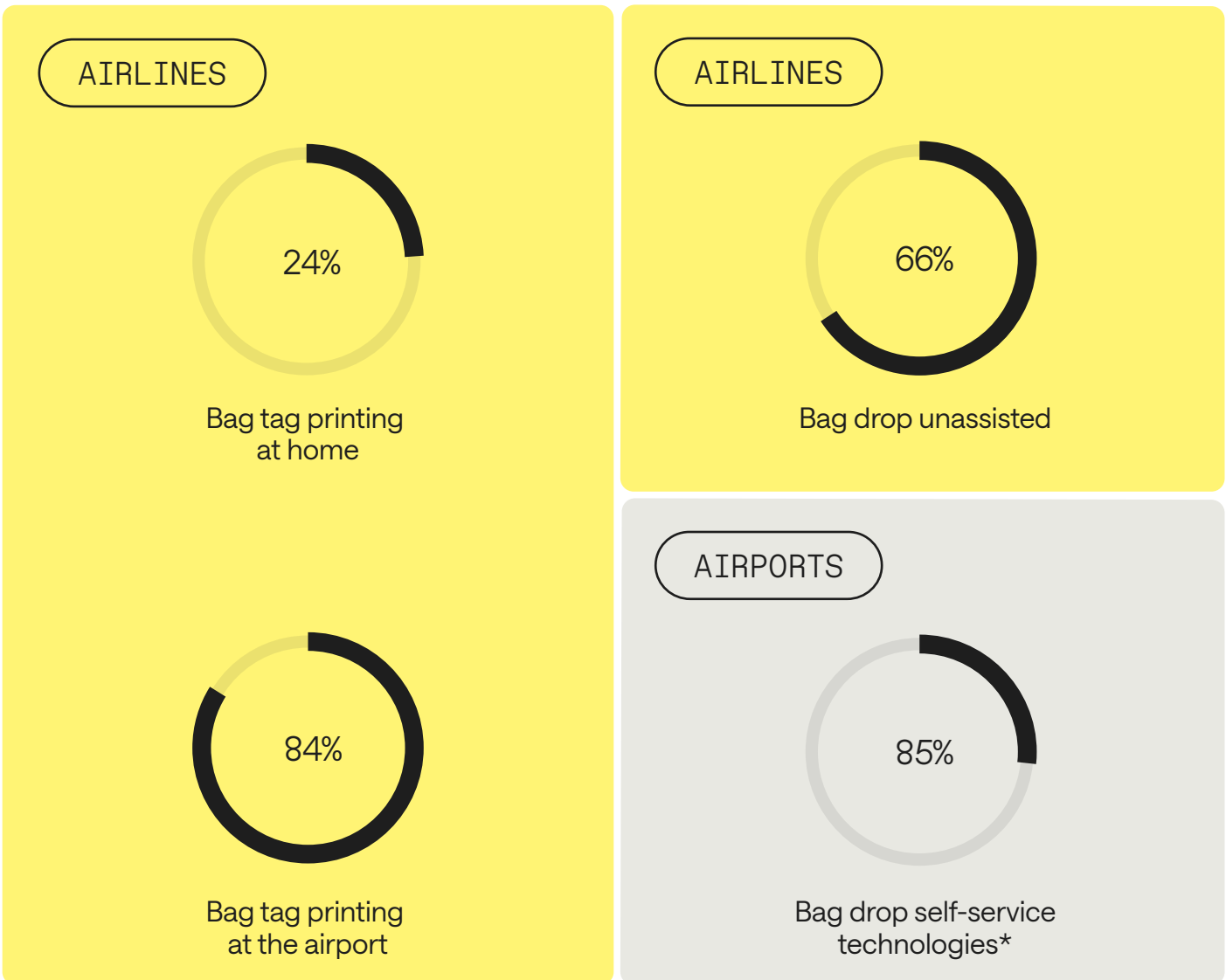
Airports are prioritizing AI for data analysis to achieve greater operational efficiencies. Currently, 63% of airports have collected and integrated data, and 24% have started

training AI with this data to move towards full automation.\*

To manage increasing passenger traffic and achieve full automation in baggage management, airlines and airports need to enhance how they collect and share data, ensuring seamless communication between them and their passengers.

\* 2023 SITA Passenger IT Insights  
\* 2023 SITA Air Transport IT Insights

## Airlines and airports continue to automate baggage processes



% Airlines and airports with implemented self-service initiatives.

\*Self-services include touchless, biometric enabled, single token and other self-service technologies.

## Long term improvements in regional performance

“Mishandled baggage rates for Asia Pacific airlines have stayed at commendable levels. This is despite the resurgence in international passenger demand and operational challenges like staff shortages.

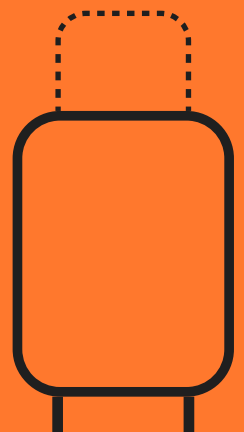
Investments in digitalizing the baggage handling process have led to significant improvements in baggage management. Despite a 131% increase in international passenger demand, the mishandling baggage rate was reduced to approximately 3 per thousand passengers in 2023.

Looking ahead, the airlines in our region are committed to always making baggage handling better. We want to meet the demand and make sure passengers get the best service possible.”

Beatrice Lim

Director, Industry & Regulatory Affairs,  
Association of Asia Pacific Airlines

Data source: Asia: Association of Asia Pacific Airlines

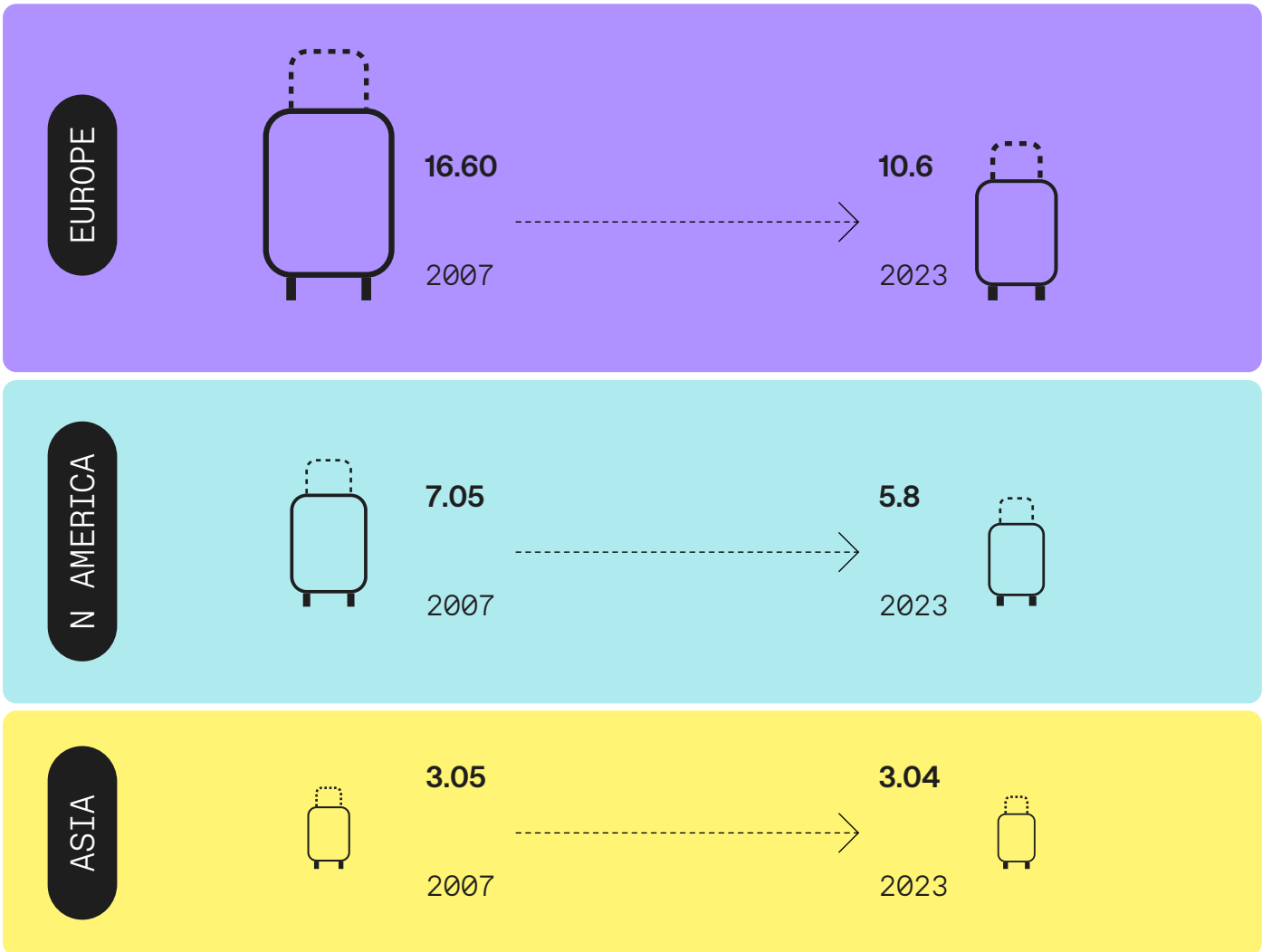


“In 2023, U.S. airlines saw an improvement in baggage-handling performance, with the mishandled bag rate dropping by 9% to 5.77 per thousand checked bags boarded.

The addition of thousands of front-line workers, investments in baggage equipment, and information technology are expected to keep paying dividends in 2024. This, along with ongoing schedule optimization, should continue to bring benefits.”

John Heimlich  
Vice President and Chief Economist,  
Airlines for America

Data source: North America: DOT Air Travel Consumer Report



Mishandled bags per 1,000 passengers by region





# India's air travel growth transformation

India's air transport sector is poised for incredible growth. By 2030, we're expecting the number of passengers to skyrocket to 500 million. It's an amazing opportunity for transformation, unlike anything we've seen before. India is harnessing ultramodern tech like biometrics and cloud computing to revolutionize the way they run airports. They want to take the passenger experience to new heights.

And we're at the forefront of it all, through our strategic partnership with the Airports

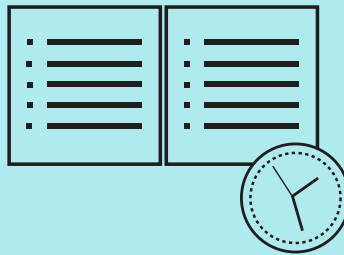
Authority of India (AAI). Together we're deploying innovative solutions across 44 of India's largest airports. We're targeting key industry challenges, especially reducing baggage mishandling incidents by 20%, through SITA Bag Manager. The Baggage Reconciliation System makes sure baggage is accounted for properly, which helps prevent any losses and security issues. What's more, we give stakeholders valuable insights with our real-time data dashboards. This helps promote transparency and makes sure

decision makers have the right information at their fingertips.

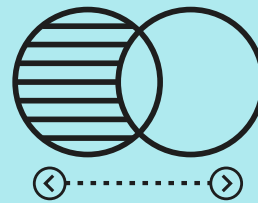
As India takes the lead in digital travel and operational efficiency, we're proud to be there with them, shaping the future of air transport infrastructure. We're driving innovation and setting new standards for sustainable growth.



State-of-the-art technology



Real-time data dashboards



Improved transparency

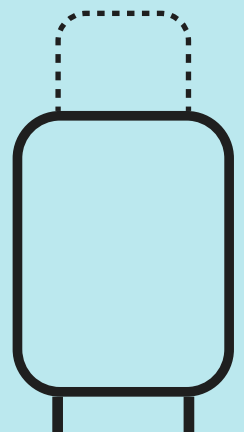




“Airports Authority of India (AAI) is dedicated to enhance the Passenger experience and the supporting Airline operations. To improve baggage management and meet Security recommendations, AAI has implemented SITA’s Baggage Reconciliation System at 44 AAI Airports nationwide. This advanced system minimizes baggage mishandling and ensures a smooth travel experience for passengers. Additionally, it bolsters India’s rapidly growing Air travel industry through robust and technology-driven infrastructure.”

Dr. Sharad Kumar

Member (Operations)  
Airports Authority of India





## Tech to the rescue

We recently introduced WorldTracer Auto Reflight for SWISS Airlines at Zurich Airport. This solution automates processes and helps handle mishandled bags more efficiently. Bags are automatically reflighted using the original bag tag, and the system can automatically detect the fault station and reason for loss without any human intervention.

To do this, we worked closely with SWISS Airlines and Swissport to adapt the solution to Zurich Airport's needs. What made the project successful was Swissport's adjustment of ground operations and development of new processes around WorldTracer at Zurich Airport.

After a few months of smooth operations, the results show that we've successfully transitioned to a more automated

baggage handling process with minimal human involvement. We've achieved an impressive automation rate of 80% since implementation. This is incredibly important because it shows the solution is adaptable and works well in any setting. Whether it's a small airport with manual baggage handling or a more advanced, tech-equipped facility, the system is scalable and efficient.

Thanks to the collaboration, SWISS, Swissport, and SITA can speed up the mishandled bag process, saving operational costs and delivering a better experience to passengers.

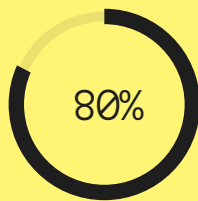
Automating reflight operations has already saved the industry a notable amount of money, projected to be up to \$30 million a year. More importantly, end-to-end automation lightens the load on airlines. It

helps them make informed decisions, adjust resources as necessary, and scale up or down based on demand, even during busy times.

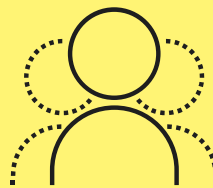
With our WorldTracer Auto Reflight solution, airlines can quickly and efficiently reflight bags, making sure their operations run smoothly.

It's this combination of data and automation that makes SITA's WorldTracer Auto Reflight so valuable for airlines. It helps them efficiently manage mishandled baggage, giving them confidence in the process.

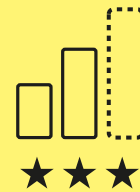
### WorldTracer auto reflight for SWISS International Airlines



Process  
automation  
rate



Improved  
passenger  
experience



Scalable  
solutions

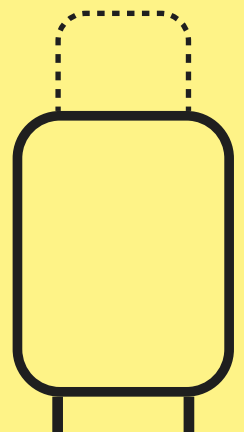




**“Working directly with SITA and our partners at Zurich Airport, we developed a system that streamlines everyday operations and makes handling lost luggage more efficient.** The best feedback comes from seeing critical staff praise the system for making their jobs easier and helping them focus on tasks that require their expertise. I’m also impressed by the system’s high success rate. **We look forward to collaborating further with SITA to expand its capabilities and address more mishandled bag scenarios.”**

Joel Widmer

Project Manager at  
SWISS Ground Operations





# More passengers means more bags. We must use better tech

## Empowering passengers with full visibility and automating the entire bag journey

We're always working to make baggage management better for major airlines. I'm pleased to say we're at the forefront of developing innovative baggage tracking solutions and apps. We want to empower travelers, giving them real-time visibility of their bags across the journey. That way, they can enjoy a stress-free experience. Looking ahead, we see a future with more and more baggage automation and visibility. Computer vision technology will play a big part. We'll be exploring collaborations with tech giants, too, so that bag tracking gets better and better.

The biggest challenge we face is reducing mishandled baggage rates. That's why we explore questions around baggage reconciliation and how to make sure the entire bag journey is the best that it can be. From tracking to recovery. We look at streamlining the recovery process, so when issues appear, they're resolved quickly.

We want to give customers greater control over their baggage. Whether that's off-airport check-ins or comprehensive tracking, we put passengers in the driver's seat.

We're revolutionizing the passenger experience by introducing features like

WorldTracer Auto Notify, pre-empting inconveniences at the baggage carousel, and keeping travelers informed in real time.

By putting control back into passengers' hands, we lessen the strain on airlines' resources, so they can redirect their efforts to other core areas. And it works. We're seeing clear reductions in mishandled baggage incidents. Thanks to technology and automation, we're driving improvements in baggage handling and passenger satisfaction.

Yet, despite advances in tech, effective baggage management hinges on seamless connectivity between airports, airlines, and passengers. Even with ultramodern tracking tech, if it's not integrated properly, it can still cause problems with getting bags to their destination on time. Our data shows the biggest mishandling is still in the transfer process. This accounts for as many as 46% of mishandling incidents. The figure shows how important it is to use automation to make transfers smoother and keep up with the increasing need for efficiency.

Our approach covers both proactive and reactive measures. We're taking the lead in adopting new technologies and digital

solutions proactively, to make sure baggage handling just gets better and better. Then, when things go wrong, our priority is effective communication, making sure passengers are informed every step of the way. We don't just focus on fixing the problem; we believe in being transparent, rebuilding trust, and making sure passengers have a great overall experience.

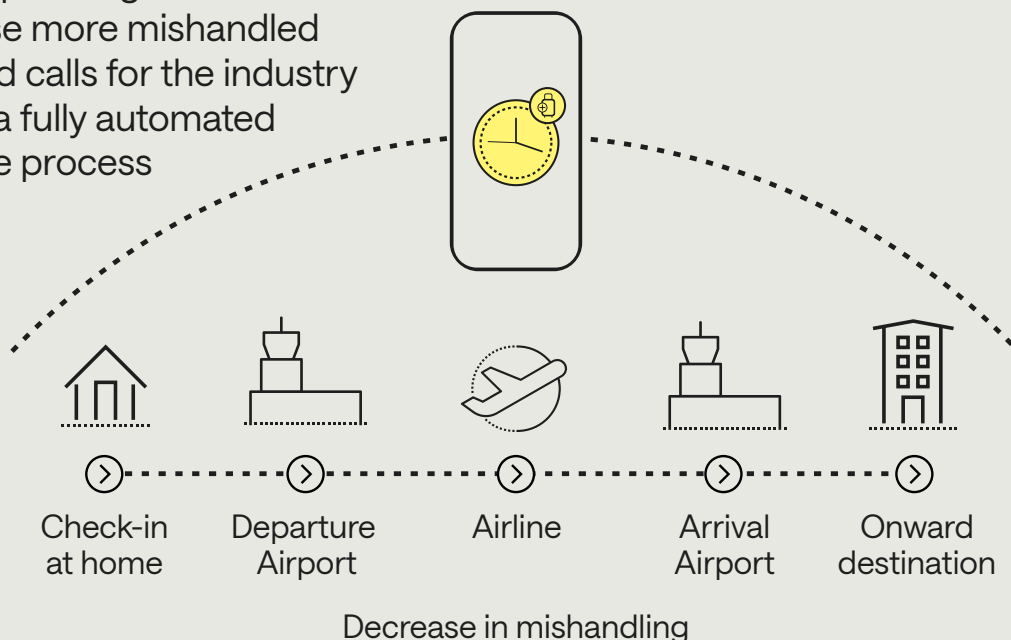
In committing to end-to-end baggage management – including real-time tracking, visibility, and reconciliation throughout the bag journey – we can recover bags faster. And it's that important commitment that builds trust between passengers, airlines, and airports.

By bridging technological innovations with customer-centric solutions, we're revolutionizing aviation's approach to baggage handling. That means a seamless and stress-free travel experience for all stakeholders.

Nicole Hogg

Product Management Director, Baggage, SITA

Soaring passenger traffic will cause more mishandled bags and calls for the industry to have a fully automated baggage process





# Full tracking and real-time status updates are key to better baggage handling and passenger experience

## Speeding up the adoption of resolution 753 is critical for reducing baggage mishandling

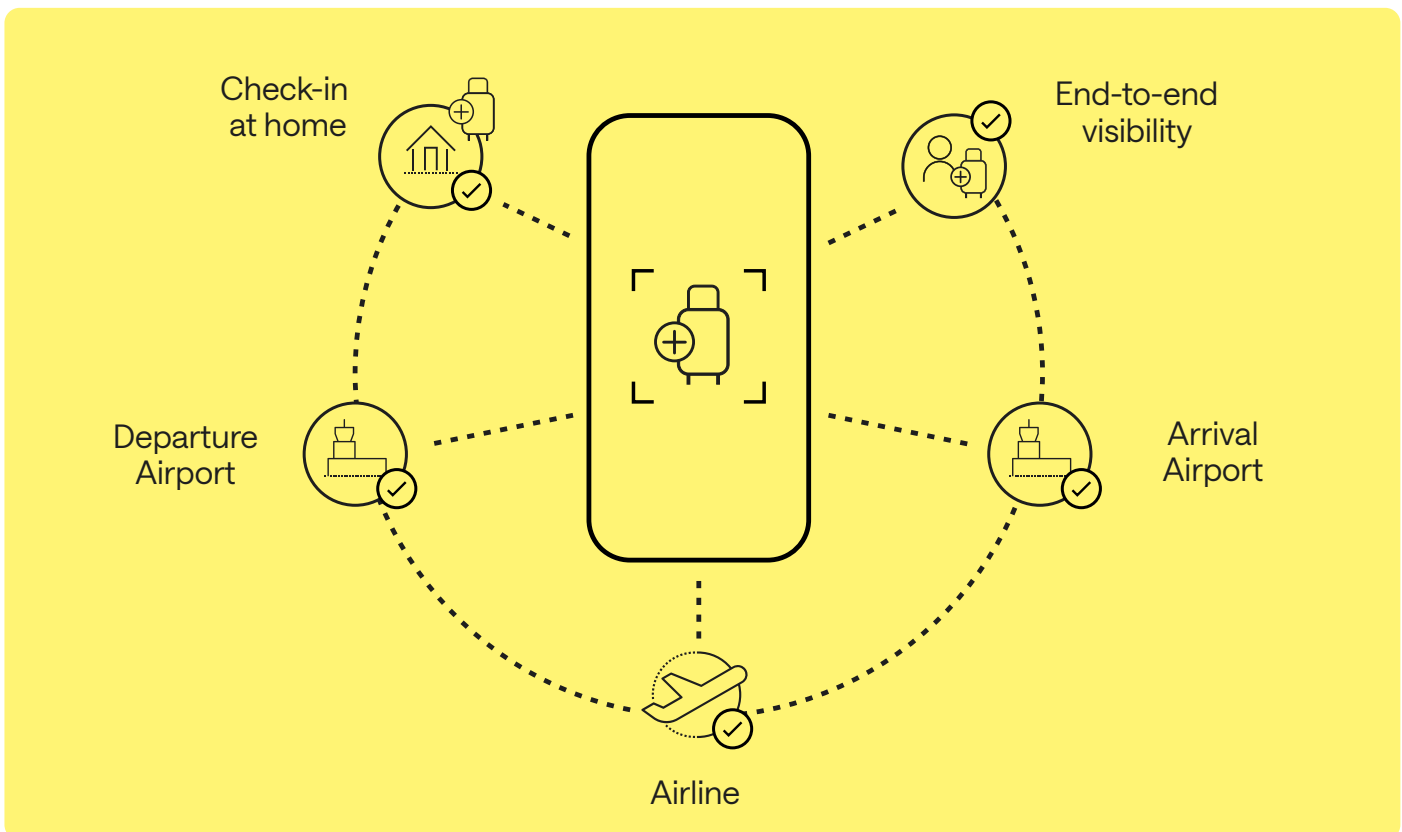
Ensuring consistent baggage tracking at various stages of the journey and sharing real-time status updates with passengers are crucial for minimizing baggage mishandling and enhancing passenger confidence in flying with checked baggage. The primary tool for achieving this is through the industry-wide implementation of baggage tracking, as outlined in IATA Resolution 753. According to the 2023 IATA global passenger survey, baggage tracking is a key enabler for positive passenger experience, with 87% of the passengers expressing their willingness to check in a bag if they could receive real-time update on their baggage status from airlines. Reinvigorating the momentum lost during the pandemic in implementing Resolution 753 will be a key priority for IATA over the next couple of years to ensure widespread adoption

across the industry. IATA will engage with member airlines to assess their baggage tracking implementation status and define plans for full adoption of Resolution 753. The resolution, which came into effect on 1 June 2018, requires member airlines to record baggage tracking data at a minimum of four core tracking points, which includes acceptance, transfer, loading and arrival.

For airlines, sharing of baggage tracking data with value chain partners is as vital as performing baggage tracking at the four core tracking points. Currently, the industry relies on the legacy Type B messaging standard for transmitting baggage messages. This standard incurs high costs and lacks the potential for innovation and efficiency. In contrast, modern baggage messaging offers

future-proof, cost-effective, and higher-quality standards for baggage messages. To expedite the industry's transition from Type B to modern baggage messaging, IATA is launching the first global pilot based on XML standards in 2024. This represents a unique opportunity for airlines and airports to test their capabilities and readiness for modern baggage messaging. Transitioning from legacy to modern messaging will not only reduce baggage mishandling attributed to low-quality messaging but also present significant opportunities for innovation and the integration of new technologies. This will ensure seamless baggage handling to meet passenger expectations.

Getnet Taye, PhD  
Senior Manager for Global Baggage Operations & Innovation, IATA







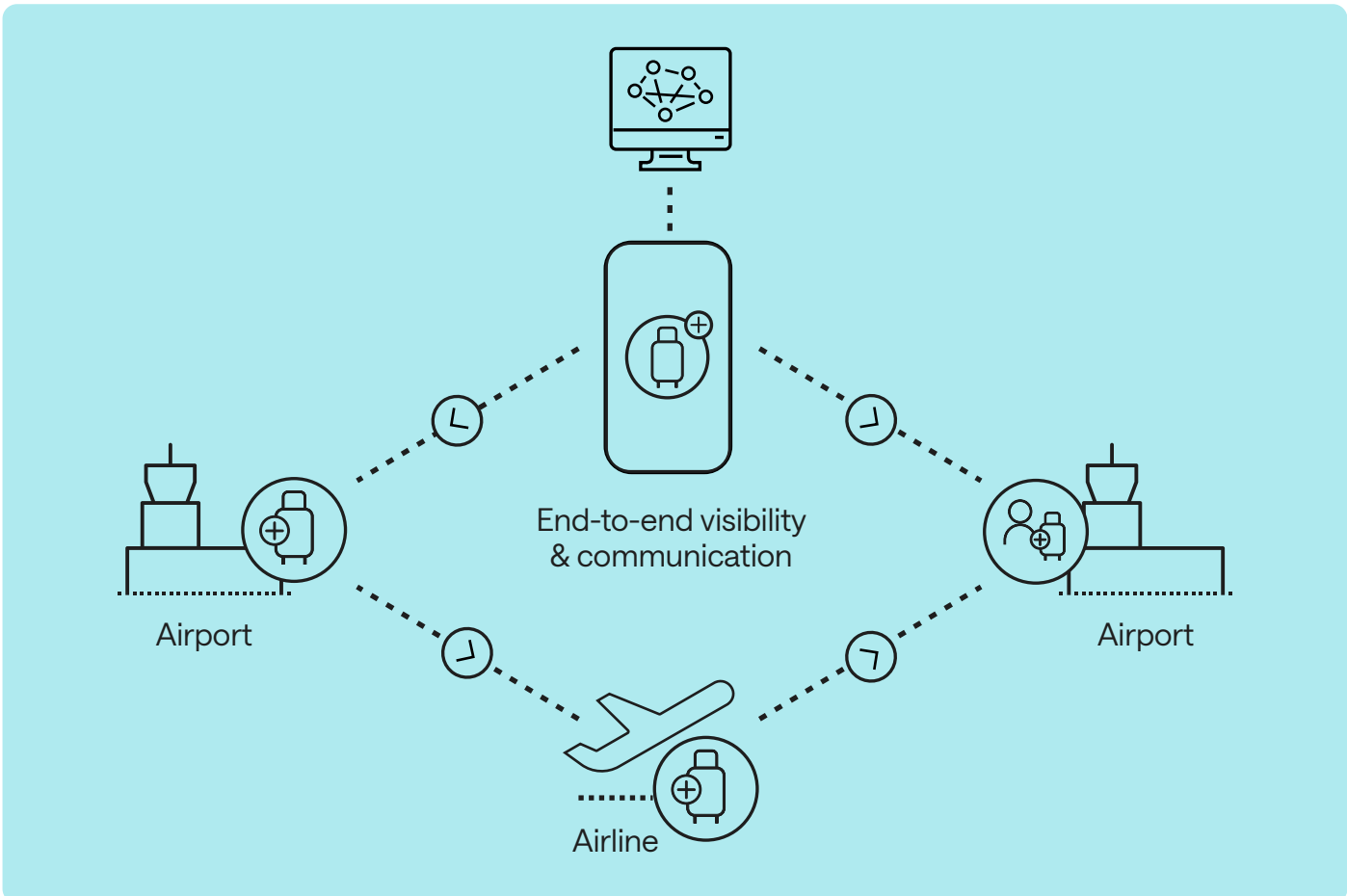
# Leveraging technology to improve baggage handling

Providing end-to-end visibility and communication to the customer will ultimately facilitate improved operations and experience for all involved stakeholders, thus freeing up resources for other business needs. In doing so, it is vital that airports collaborate with airlines and through data-driven practices (automation, digitalization, integration and sharing of data) a seamless repatriation and swift recovery is achieved.

“ACI Member airports remain focused on enhancing the customer experience, empowering passengers through baggage handling initiatives such as self-service on and off airport and comprehensive bag tracking capabilities. The goal is to leverage technology, provide seamless integration between the various sortation and tracking systems at the airport, and automate the opportunity of end-to-end tracking. Through this information and real-time communication with airlines and ground handlers, the industry will be able to share tracking information updates with passengers reducing stress and anxiety. Over the years airports and airlines have focused on the reconciliation process, minimizing mishandled baggage incidents. However today, they are also implementing robust recovery protocols that harness the power of generative AI through data-driven digitalization and automation initiatives. Airports are leveraging data insights, and working with the airlines and handlers, to streamline bag repatriation that result in faster recoveries.”

Thomas Romig

Senior Vice President Safety, Security & Operations  
Airports Council International (ACI) World



# Methodology

## 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 the passenger's behalf and handled as a claim.

This report uses IATA's forecast passenger total for 2023 in the analysis of baggage handling performance data. For year-on-year performance comparisons with 2023, passenger numbers and related bag handling statistics have been updated since last year's report to reflect confirmed IATA passenger data for 2023.

## Scope of the 2023 baggage IT insights report

SITA applies a weighting system, based on IATA passenger traffic statistics, to its WorldTracer® data to calculate the baggage mishandling rates. This weighting ensures that the results represent global passenger traffic and compensate for annual fluctuations.

## Notes

1. IATA Air Passenger Market Analysis, January 2024
2. 2023 SITA Air Transport IT Insights
3. 2023 SITA Baggage IT Insights
4. 2023 SITA Passenger IT Insights





## Registered Office

### SITA SC

2 Avenue des Olympiades  
B-1140 Brussels  
Belgium  
Tel: +32 (0) 2 745 0517

## Geographic Offices

### Americas

600 Galleria Parkway  
Suite 1000  
Atlanta, GA 30339  
USA  
Tel: +1 770 850 4500

### Asia Pacific

11 Loyang Way  
Singapore 508723  
Republic of Singapore  
Tel: +65 6545 3711

### Europe

26 Chemin de Joinville  
B.P. 31, 1216 Cointrin  
Geneva  
Switzerland  
Tel: +41 22 747 6111

### Middle East & Africa

Holcom Building  
Cornich Al Nahr  
Beirut - Lebanon  
Tel: +961 1 637300



© SITA 2024

All trademarks acknowledged. Specifications subject to change without prior notice. This literature provides outline information only and (unless specifically agreed to the contrary by SITA in writing) is not part of any order or contract.



WWW.SITA.AERO