

SITA



2022 BAGGAGE
IT INSIGHTS



EXECUTIVE SUMMARY

The air transport industry has begun to recover from the pandemic, with the gradual reopening of borders and 2.28 billion passengers returning to the skies. The volume of passengers represents just over half the pre-pandemic high of 4.54 billion in 2019, with a full recovery expected by 2024.

This year's report shows that traffic is up, but the mishandled baggage rate has increased by 24% to 4.35 bags per thousand passengers in 2021. We also see most of the 2021 recovery being driven by domestic travel. However, international and long-haul flights began to resume, which contributed to an increase in mishandling. To better understand this shift, we have reported the mishandling rate for international versus domestic for the first time.

Airlines, ground handlers, and airports have downsized to maintain business viability during the pandemic, which has impacted resources and expertise dedicated to baggage management. Unaddressed, this challenge may see the mishandling rate continue to creep up and become much higher than it was pre-pandemic.

The industry now needs to do more with less. As we emerge from the pandemic, the industry's focus remains on safely managing the end-to-end handling of passengers' baggage, but now it must also reduce the total cost and training required.

There is significant pressure to increase operational efficiency, which is accelerating digitalization. In 2021 investment in self-service initiatives continued to increase. A large majority of airports and almost all airlines are prioritizing touchless bag tagging options that rely on kiosks and passengers' mobile devices. Implementation of unassisted bag drop is increasing, with 90% of airlines and three-quarters of airports planning to make touchless unassisted self-bag drop available by 2024.

Digitalization also ensures that the recovery progresses sustainably, saving resources and minimizing excess emissions. There is no better way to ensure sustainability in baggage than to avoid mishandling in the first place, preventing environmental impacts such as the additional carbon emitted when repatriating the bag to its owner.

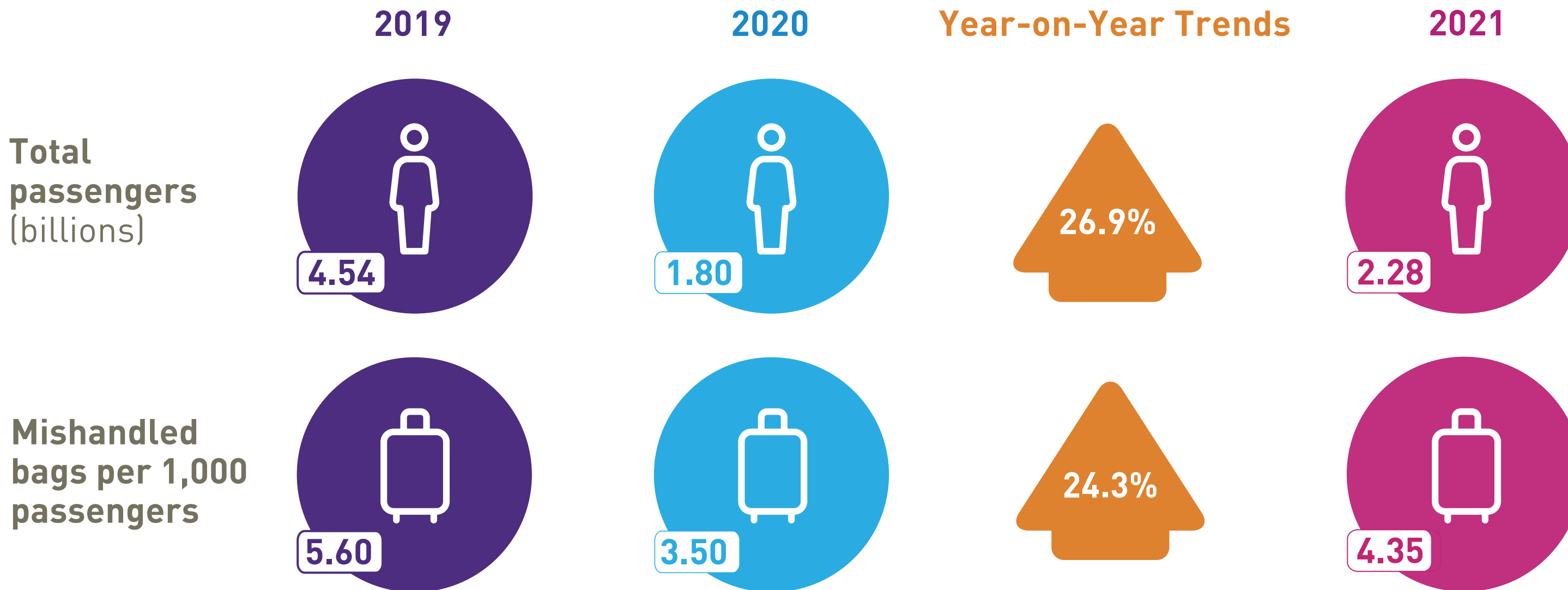
SITA has worked to refine its Baggage Management portfolio to do just that. We continue to collaborate and support the industry to reduce mishandled baggage rates while also driving operational efficiencies when they are needed the most.

David Lavorel, CEO, SITA





YEAR-ON-YEAR BAGGAGE MISHANDLING RATE



ANALYSIS

Greater automation to adjust to returning passenger volumes

As airlines and airports adjust to the gradual recovery of passenger figures, the number of mishandled bags has increased to 4.35 bags per thousand passengers in 2021. Cuts across the workforce because of the pandemic have affected the industry's ability to manage the bags in the same way.

One of the most pressing demands during the recovery period is doing more with less. Investments in technology that allow for greater automation and self-service are now a priority, enabling airports, airlines, and ground handler tenants to increase efficiency in a safe environment.



LONG TERM DECREASE IN BAGGAGE MISHANDLING

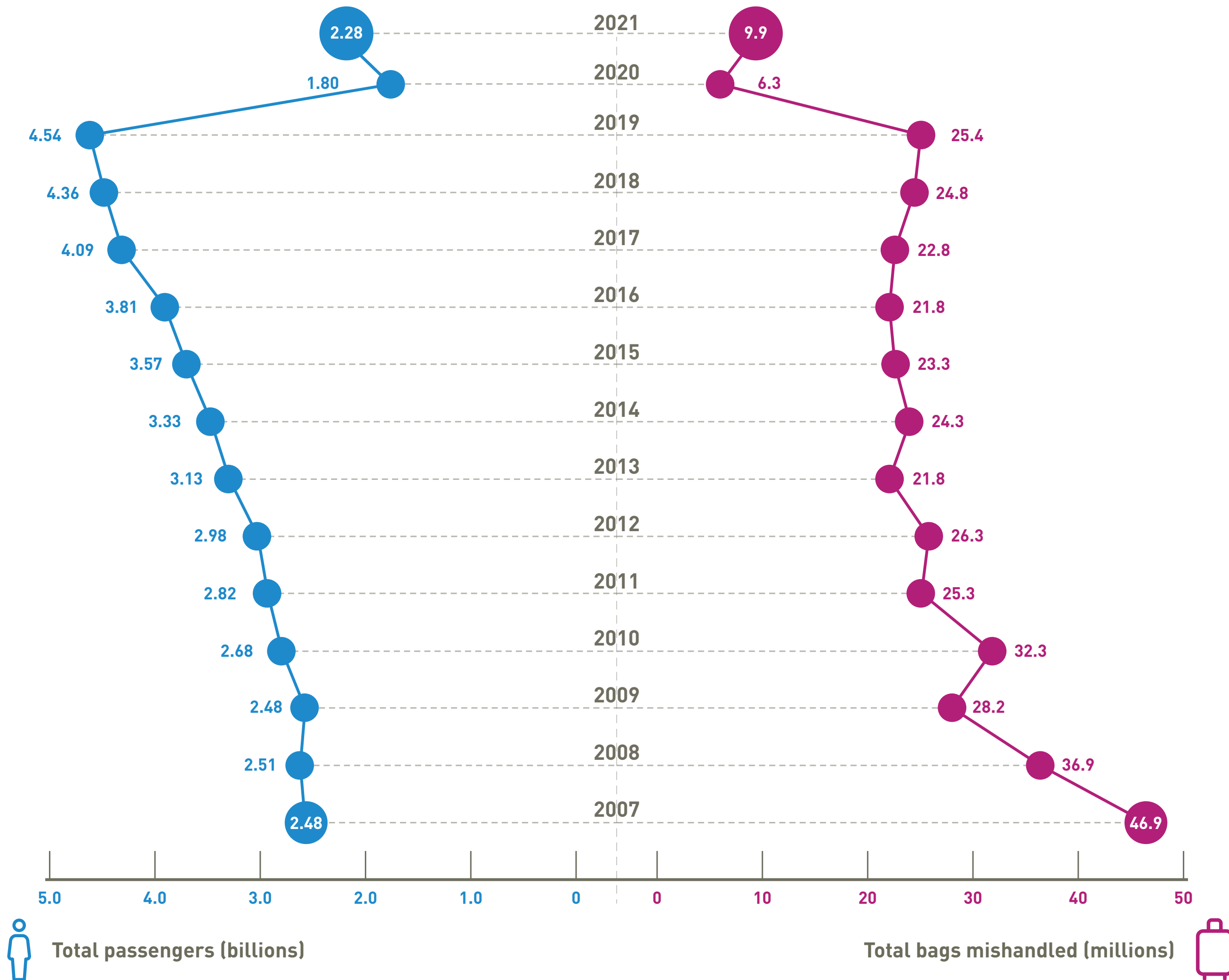
ANALYSIS

An uptick in passenger numbers and mishandled bags

After bringing the industry to a near halt in 2020, the COVID-19 pandemic entered a new phase in 2021 as borders started to open slowly and passengers returned. While 2.28 billion passengers traveled in 2021, the figure is still a long way off the pre-pandemic high of 4.54 billion in 2019. Despite the uptick in mishandled bags from 2020, the 9.9 million bags mishandled in 2021 represents a 77% reduction from the 46.9 million mishandled in 2007.

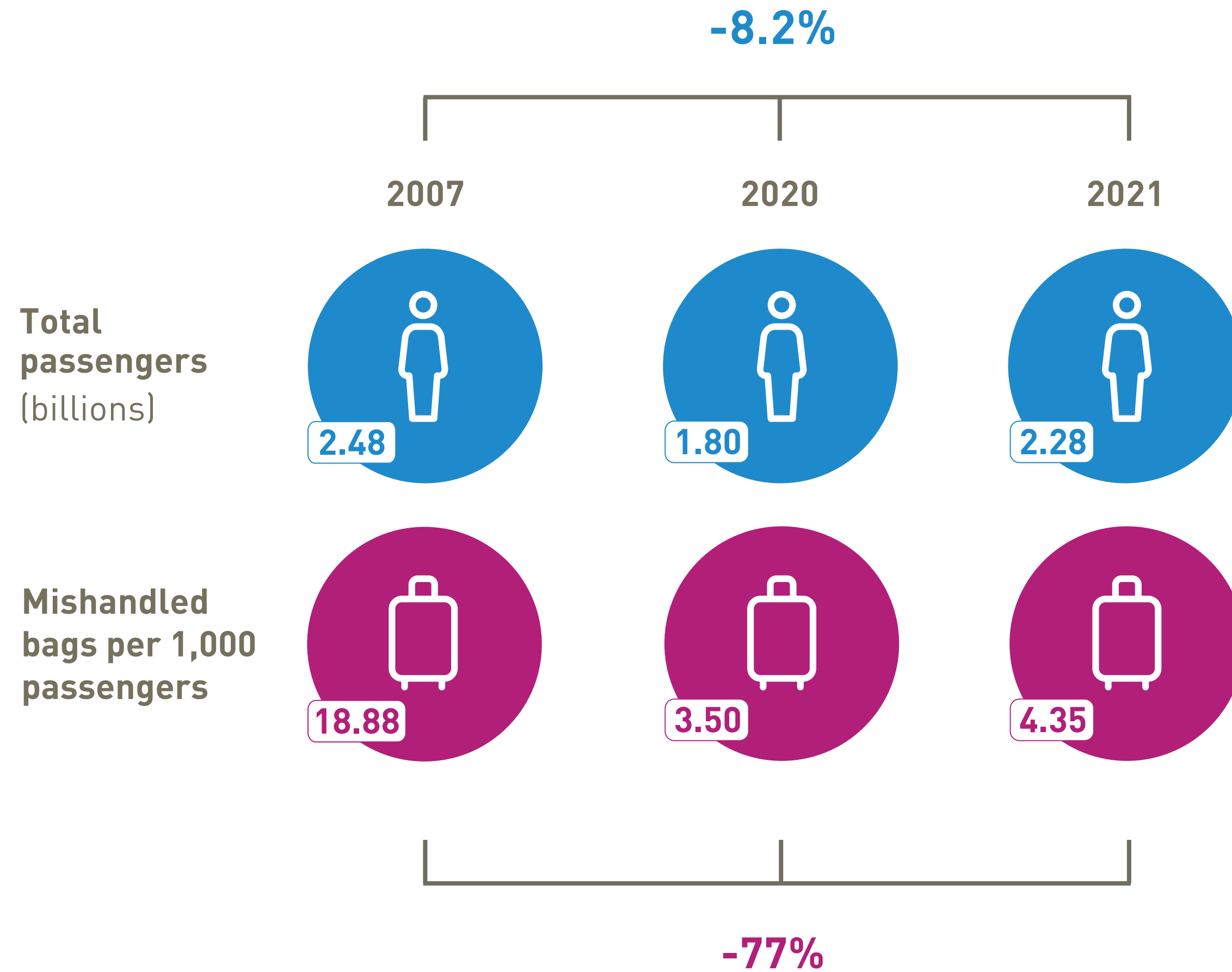
IATA predicts that air travel will not return to pre-crisis levels until 2024.¹ Still, airports and airlines are speeding up investments in touchless self-service processes to make the journey through the airport safer for passengers and staff.

1. IATA Air Passenger Forecast, March 2022





LONG TERM BAGGAGE MISHANDLING RATE



ANALYSIS

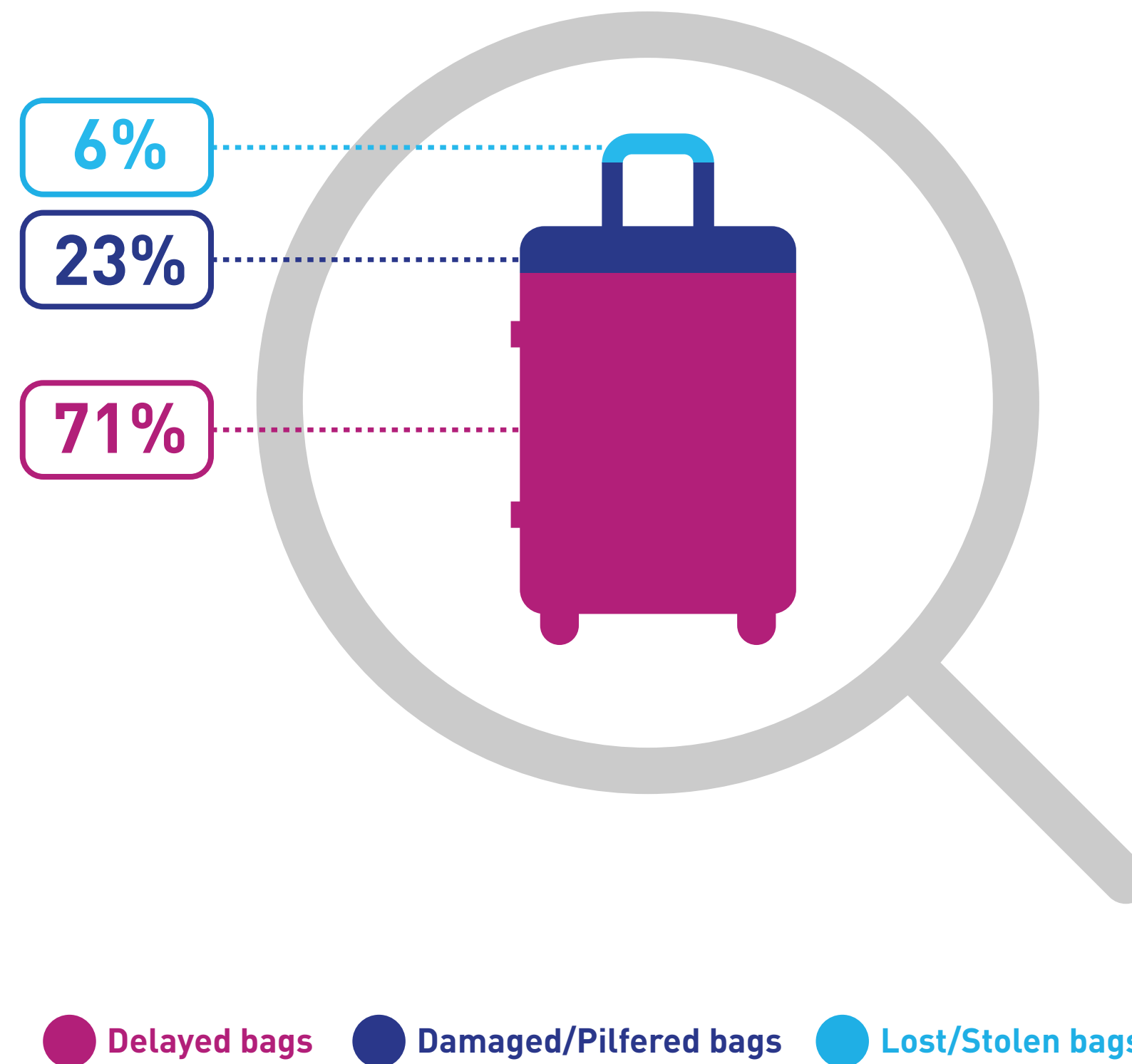
Passenger traffic variations impact the baggage process

2021 marked a turning point as traffic returned across the world. The 2.28 billion total passengers still represents an 8.2% fall from the figures of 2007 but an increase from the 1.8 billion in 2020.

As more passengers and flights return, the strains of a global crisis make getting bags to their destination(s) a tougher task. The 2021 mishandling rate of 4.35 bags per thousand passengers is a 24% increase from 2020. Despite that rise, between 2007 and 2021, the mishandling rate per thousand passengers has reduced by 77%, from 18.88 bags to 4.35 bags.



BREAKDOWN OF MISHANDLED BAGS



ANALYSIS

Reasons for mishandling remain the same

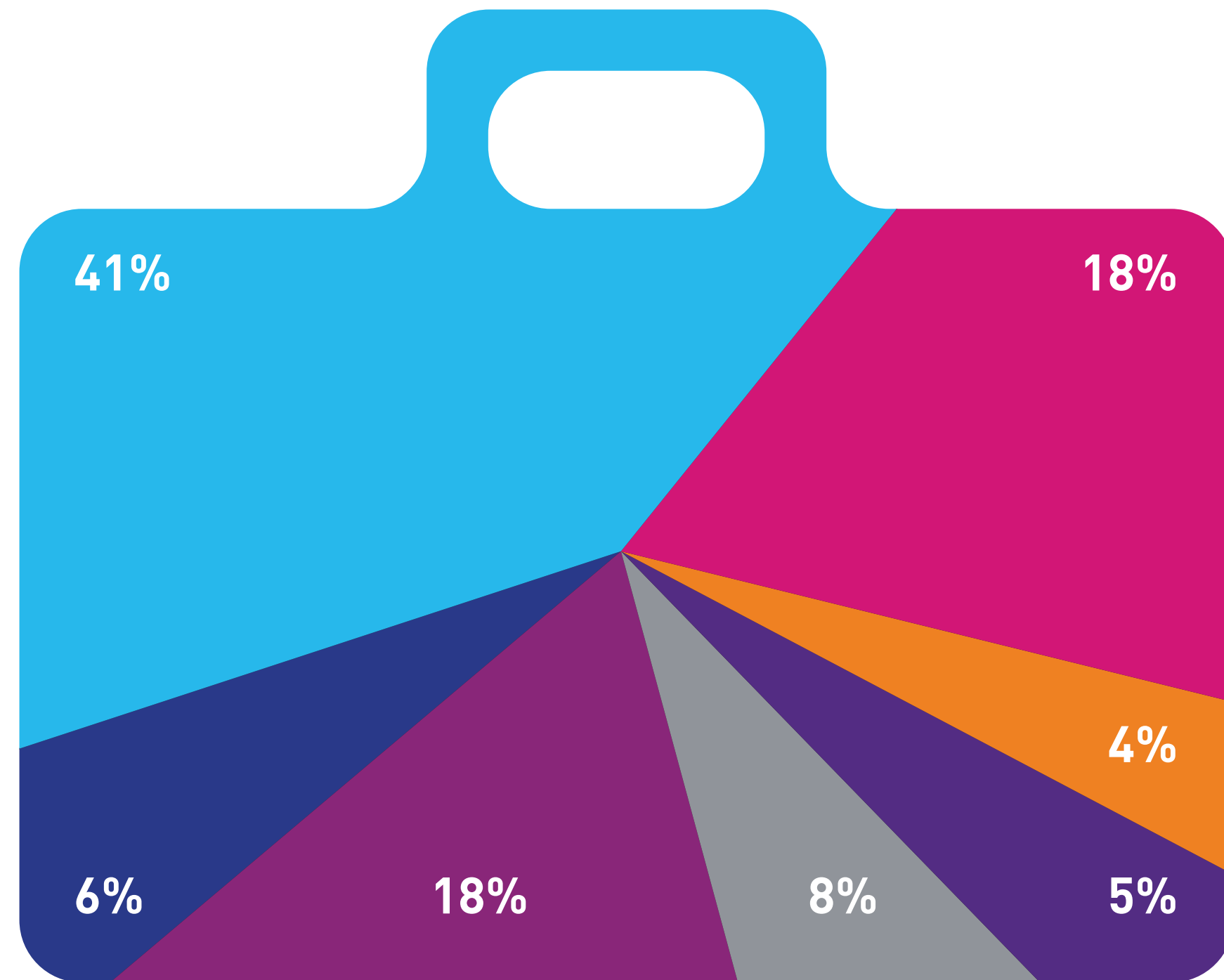
Delayed bags accounted for 71% of all mishandled bags in 2021 – a 2% increase from 2020. At the same time, the number of lost and stolen bags increased slightly to 6%, while those that were damaged and pilfered decreased to 23%.

Staff accessing real-time information on mobile devices continues to be a focus for investment, with almost all airlines (83%) planning to provide staff access to real-time baggage status information by 2024, a considerable increase from 43% today.²

2. SITA, 2021 Air Transport IT Insights



REASONS FOR DELAYED BAGS



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

ANALYSIS

The return of long-haul flights increases the transfer mishandling rate

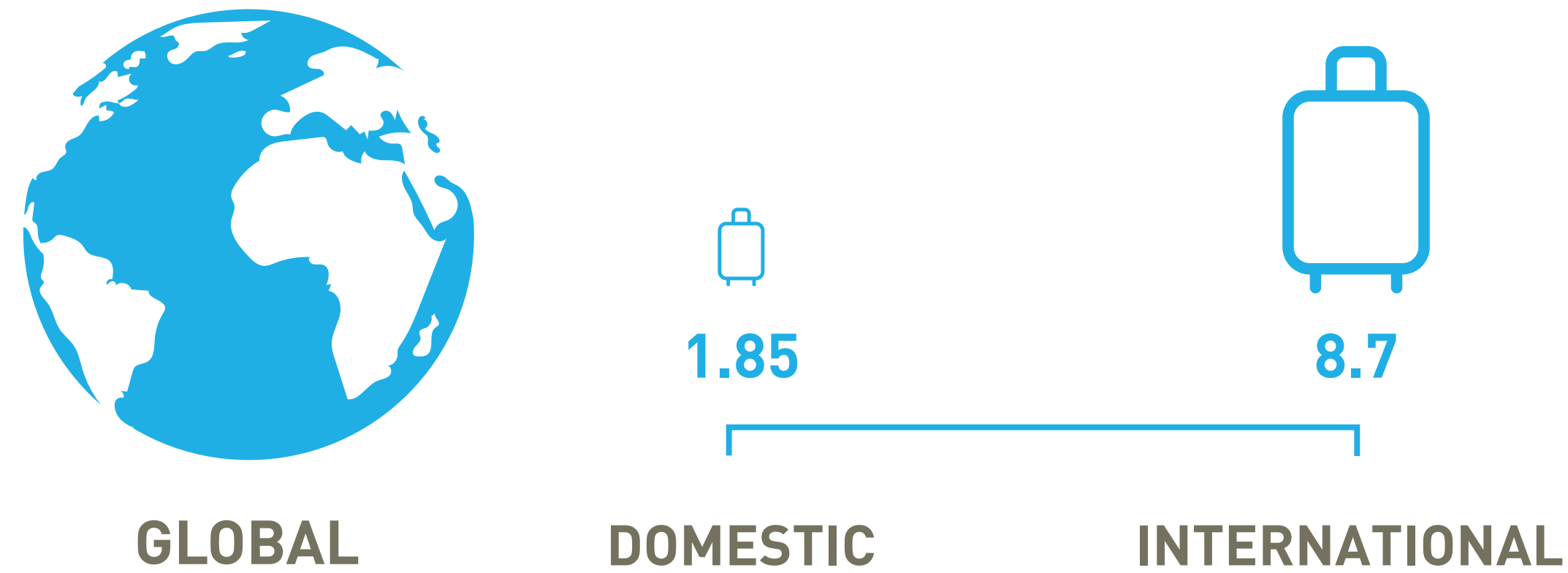
Transfer bags historically account for most mishandled bags. An increase in long-haul flights in 2021 has pushed up the bags delayed at transfer to 41% – a 4% increase from 2020.

At the same time, there was a decrease in mishandling as a result of failure to load (18% in 2021); a decrease from ticketing errors, bag switches, security and other miscellaneous factors (18%); and a decrease from airport, customs, weather, or space-weight restrictions (8%).

Loading errors, arrival mishandling, and tagging errors remain unchanged from 2020.



GLOBAL MISHANDLING RATES FOR DOMESTIC AND INTERNATIONAL FLIGHTS



Mishandled bags per 1,000 passengers globally

ANALYSIS

Global mishandling rates for domestic and international flights

As expected, the mishandling rates on international routes is much higher compared to domestic routes. The mishandling rate at the global level on international routes is 8.7 per thousand passengers, while only 1.85 for domestic routes.

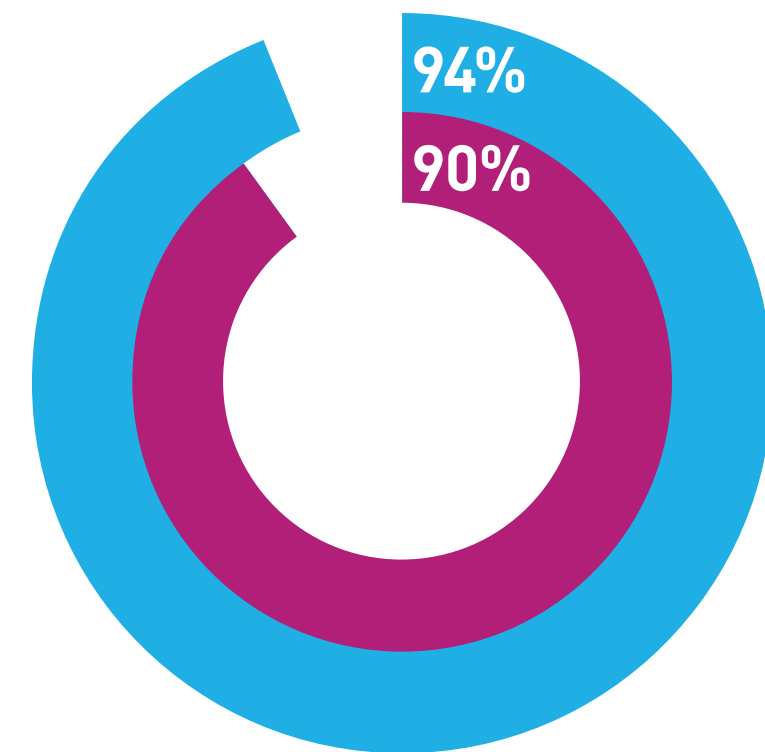
Put differently, at a global level the likelihood of mishandling a bag is about 4.7 times higher on international routes compared to domestic routes.



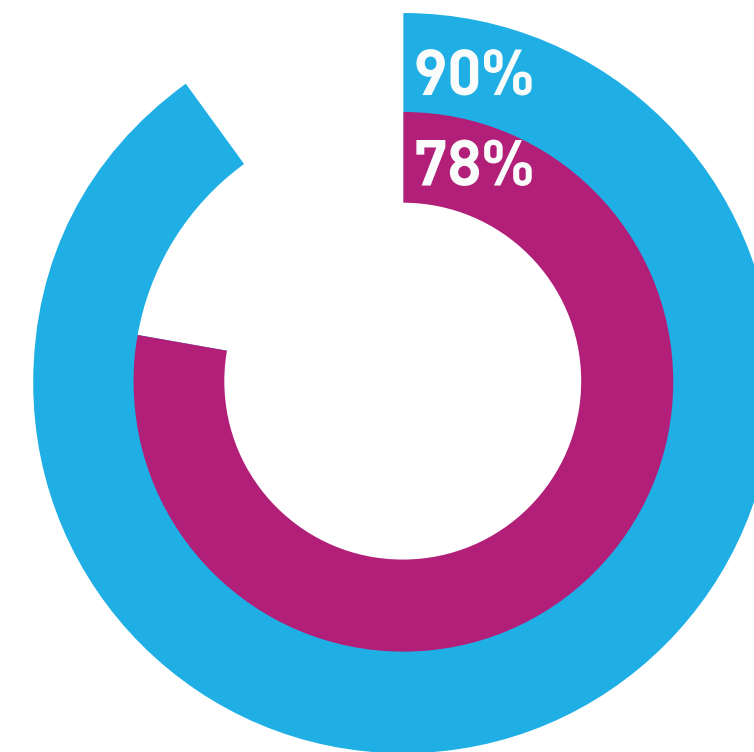
GROWING INVESTMENTS IN TOUCHLESS SELF-SERVICE BAGGAGE PROCESSES

ANALYSIS

Bag tags via kiosk/mobile



Bag drop unassisted



% airlines and airports with planned touchless self-service initiatives by 2024

Airlines and airports continue to automate baggage processes

Amid the pandemic, investment in self-service initiatives continued to increase.

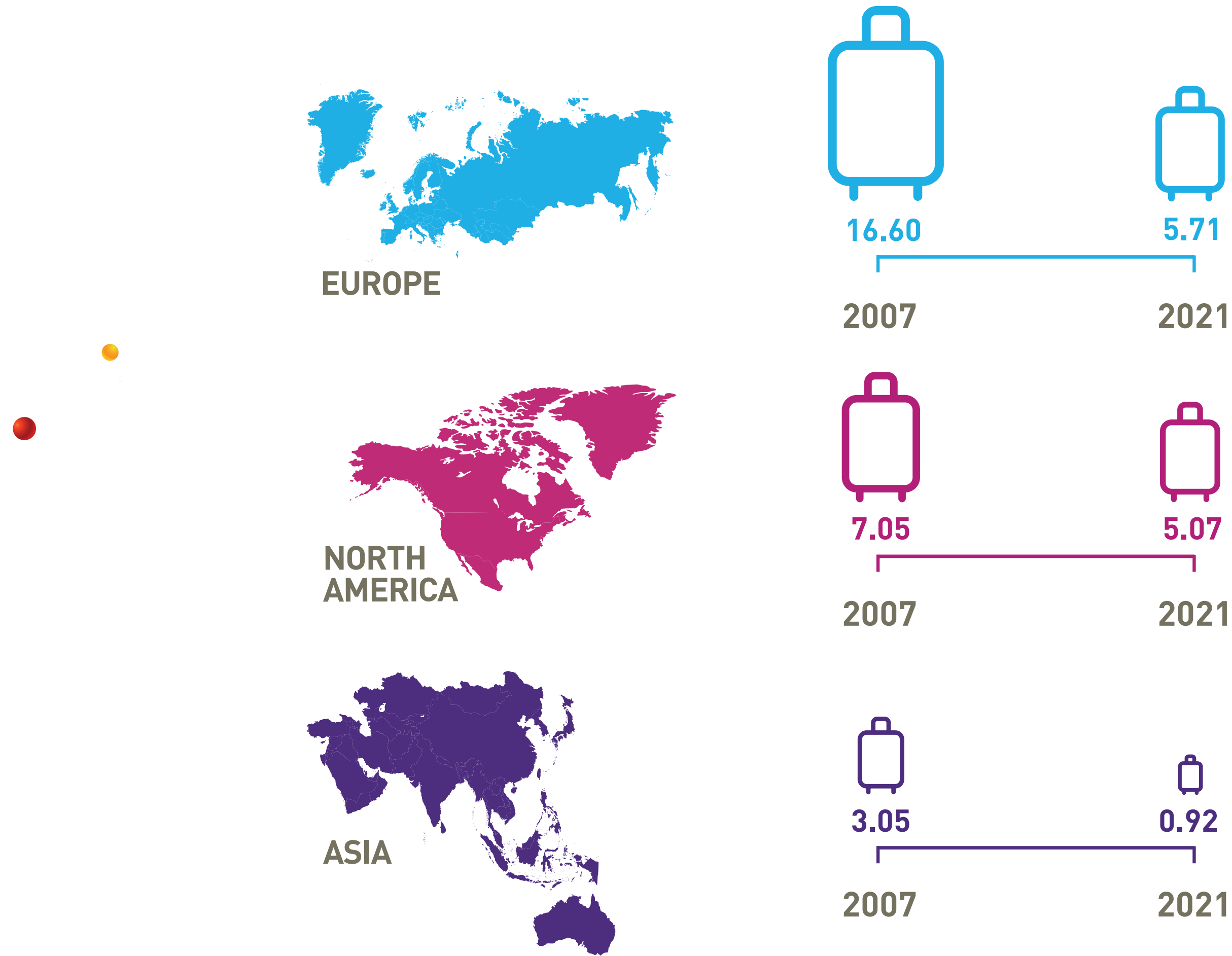
A large majority of airports (90%) and almost all airlines (94%) are prioritizing touchless bag tagging options that rely on kiosks and passengers' mobile devices.

Implementation of unassisted bag drop is increasing, with 90% of airlines and three-quarters of airports (78%) planning to make touchless unassisted self-bag drop available by 2024.³

3. SITA, 2020 Passenger IT Insights



LONG-TERM IMPROVEMENTS IN REGIONAL PERFORMANCE



Mishandled bags per 1,000 passengers by region

ANALYSIS

Technology remains key to improving the efficiency of baggage handling operations

"US airlines' baggage-handling performance improved 13% from 2019 to 2021 to approximately five bags mishandled out of every thousand enplaned. Airlines and airports are continuing to invest in baggage-handling equipment, facilities, software and personnel as travelers return to the skies."

— **John Heimlich, Vice President and Chief Economist, Airlines for America**

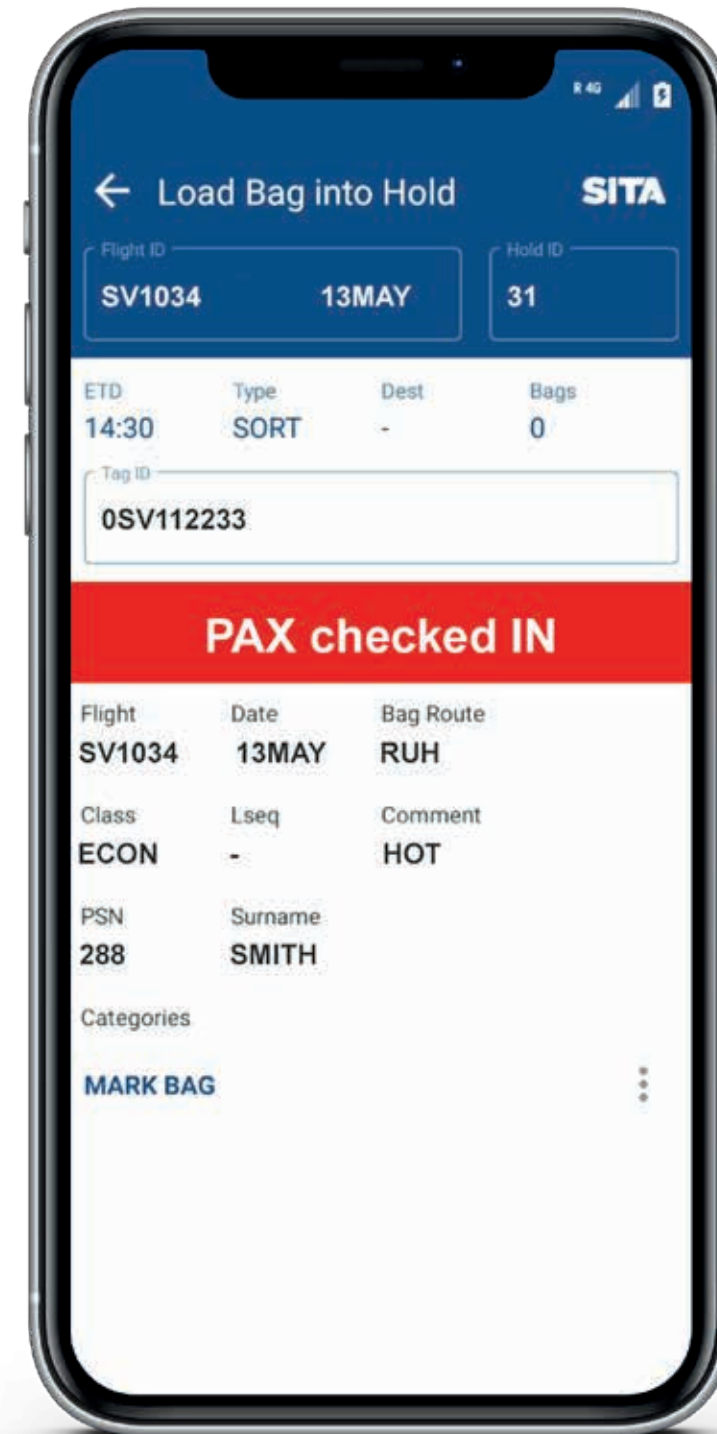
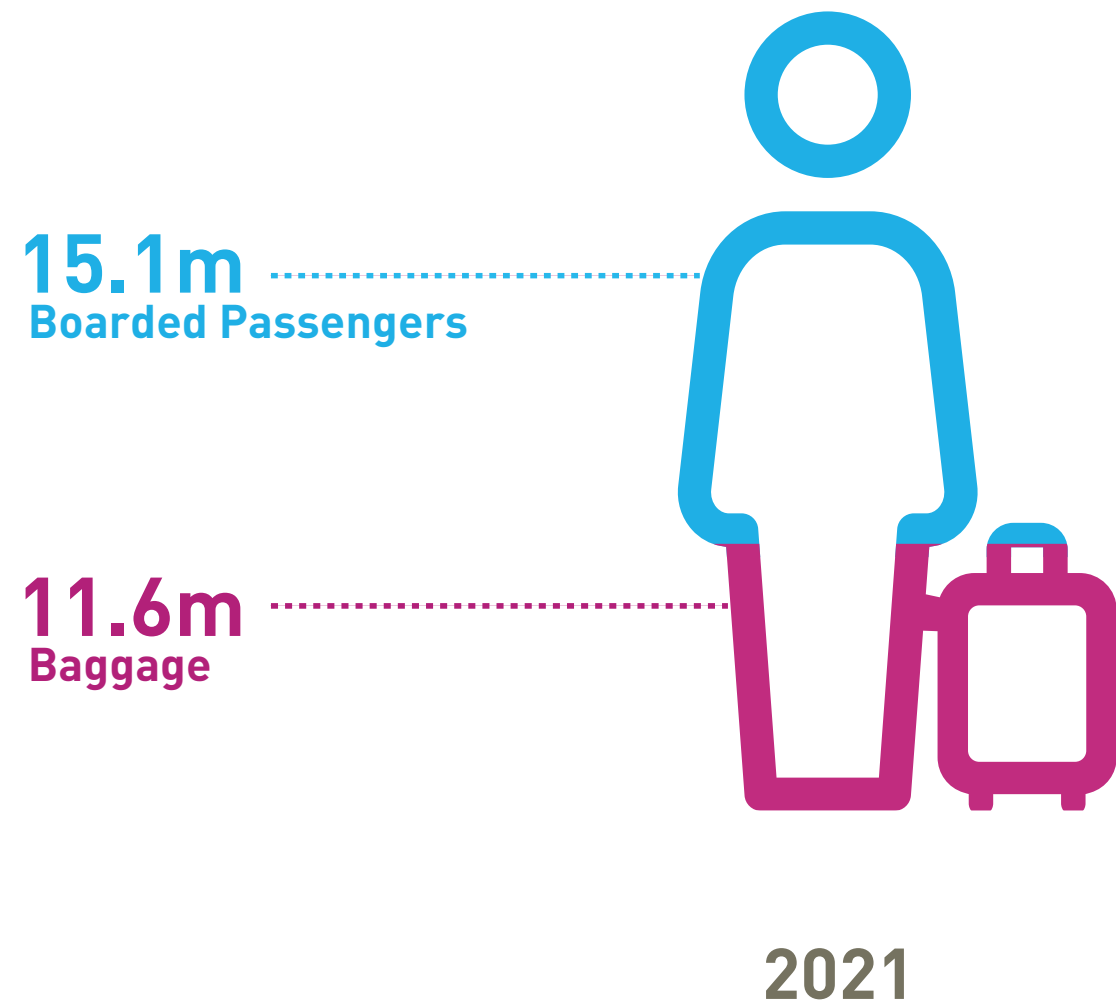
"In response to the various operational challenges caused by the COVID-19 pandemic, Asia Pacific airlines have been trialing new technologies and operating protocols that helped improve the efficiency of ground operations, including baggage handling. Investing in technological solutions is a key part of the region's preparations by airlines for the post-pandemic recovery, in addition to providing a safe and seamless travel experience for travelers."

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

Data Sources:
 Europe: 2007 - 2013 Association of European Airlines. 2017 - 2021 SITA Worldtracer®.
 North America: Airlines for America.
 Asia: Association of Asia Pacific Airlines.



A COLLABORATIVE APPROACH TO IMPROVING BAGGAGE PERFORMANCE



ANALYSIS

Automation has enabled us to enhance customer experience while deriving efficiencies from our services and operations. As our passenger numbers start to approach pre-COVID levels, it's more important than ever that we focus on ways to be more efficient while providing a seamless experience for our customers.

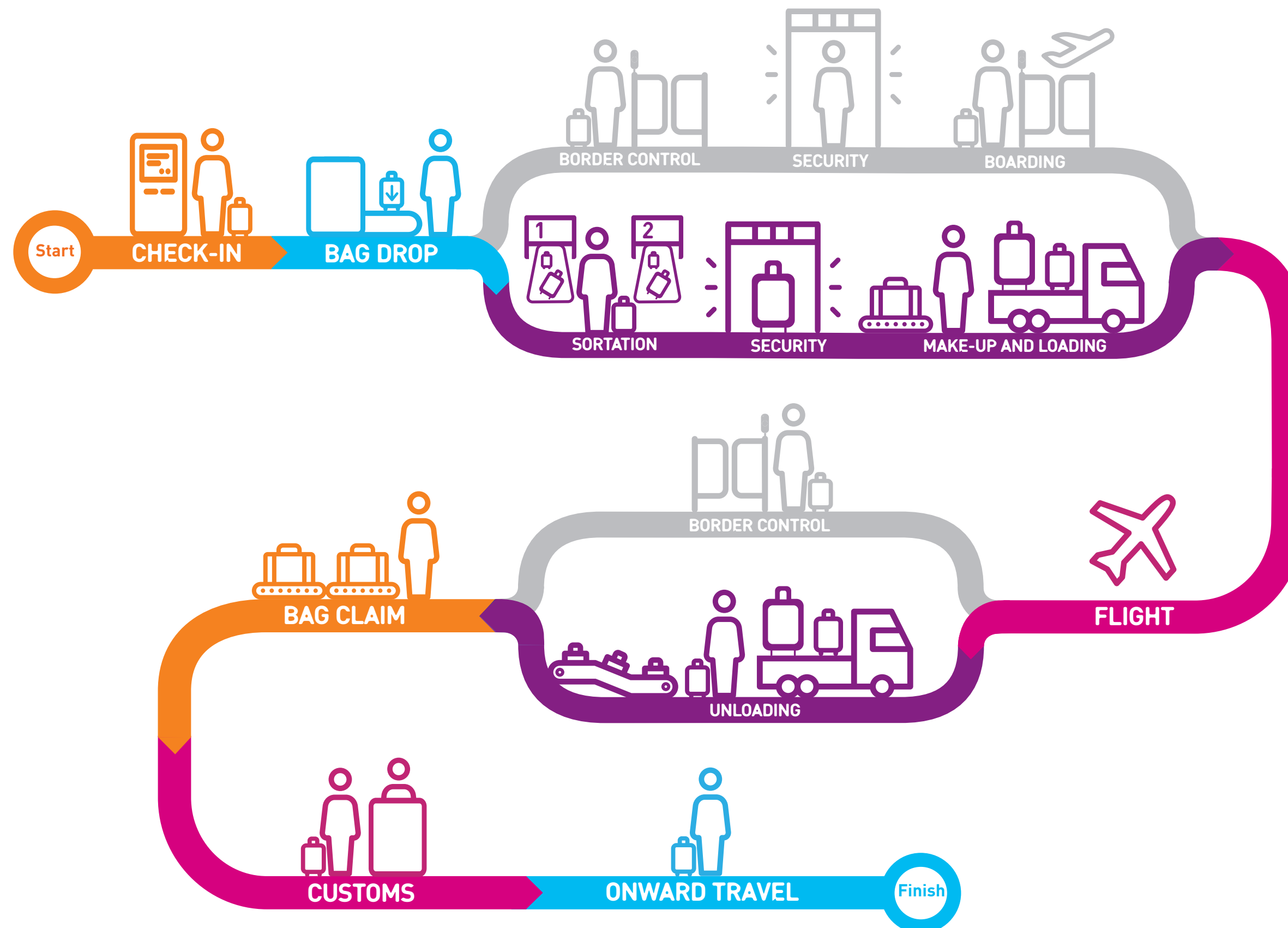
In 2021, we started the efforts with Jeddah Airports Company JEDCO to install automated tag readers (ATRs) across the arrival belts at King Abdulaziz International Airport to actively track and monitor inbound arrival bags, ensuring IATA Resolution 753 compliance. This project is expected to be finalized by the end of 2022. In an ecosystem where everyone has a role in improving baggage handling, having an end-to-end view of a bag's journey requires a collaborative effort. More accurate baggage information helps measure how baggage handling is performing and speeds up reconciliation and readiness for departing flights. This also allows us to provide passengers with more clarity on the location of their bags, which helps alleviate concerns and reduces wait time at carousels.

To avoid flight delays due to offloading bags when a checked-in passenger fails to board the aircraft, we've recently implemented a 'never onto aircraft' handheld terminal (HHT) notification in the SITA Bag Manager BRS application. Utilizing a WiFi network that covers the entirety of the Jeddah airport, our staff can quickly identify if the bag belongs to a boarded passenger, reducing the on-stand time delay by up to 20 minutes.

— **Mohammad Baakdah, VP, Ground Operations, Saudia**



ACCELERATING DIGITALIZATION: DOING MORE WITH LESS



ANALYSIS

Air travel's recovery got off to a slow start in 2021 through the summer, but pickup improved once transatlantic routes opened in November, and since then we have seen demand grow as more countries have opened their borders once again. Most of the recovery in 2021 was driven by domestic travel, driving us to report here the mishandled bag rate for domestic versus international travel for the first time.

How has that affected baggage? What is clear is that airlines, ground handlers, and airports have downsized considerably to maintain viability over this pandemic, and this has affected the amount of resources and expertise dedicated to baggage management.

In this year's report we are seeing the mishandled rate creep up again, and the concern is that, unaddressed, this rate may end up being much higher than it was pre-pandemic.

The same needs from our customers exist, namely safely manage bags throughout the entire passenger journey, from check-in to onward travel, but our customers need to reduce the total cost and level of training required to accomplish this, through intuitive apps, more automation, and self-service.

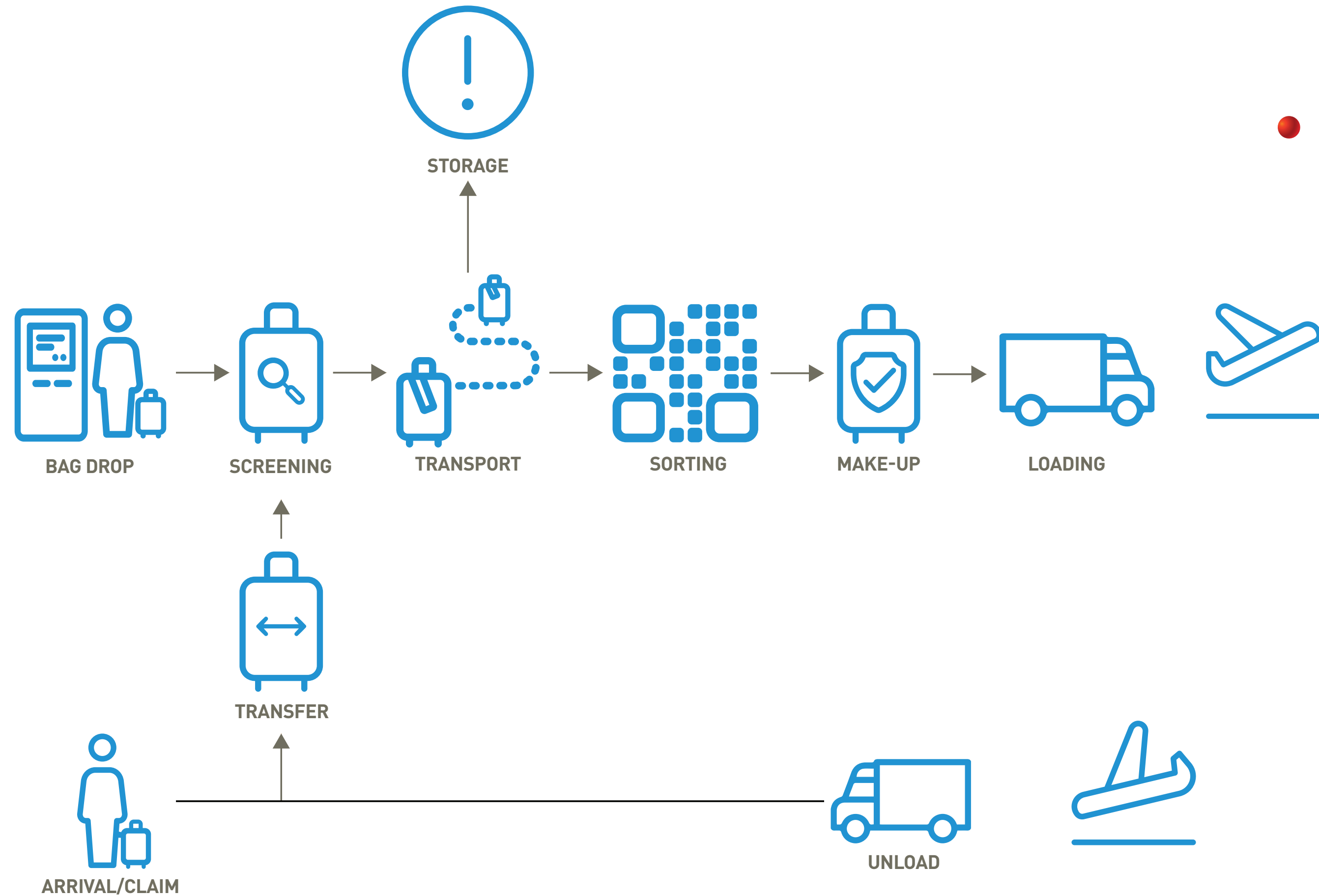
In short, be smarter by doing more with less. And this is accelerating digitalization.

Digitalization is also ensuring that the recovery progresses sustainably, both saving resources and minimizing excess emissions. Delayed baggage and its repatriation can increase carbon output with the additional conveyancing, tagging, potential re-routing, and couriering required. So there's no better way to reduce environmental impacts than to avoid mishandling in the first place, as well as optimizing through automation the processes necessary for repatriation when mishandling does happen.

— Peter Drummond, Product Management Director, Baggage, SITA



END-TO-END TRACKING AND RECONCILIATION – SITA BAG MANAGER



ANALYSIS

dnata Singapore selected SITA Bag Manager to seamlessly integrate with its more than 40 airline customers and Changi Airport's own baggage systems.

SITA Bag Manager matches bags with departing passengers and tracks bags in real-time right across the airport environment. Most importantly, it tracks bags when they're most likely to go astray – during the transfer process. Customers with SITA Bag Manager implemented report a 20% reduction in the number of bags mishandled.

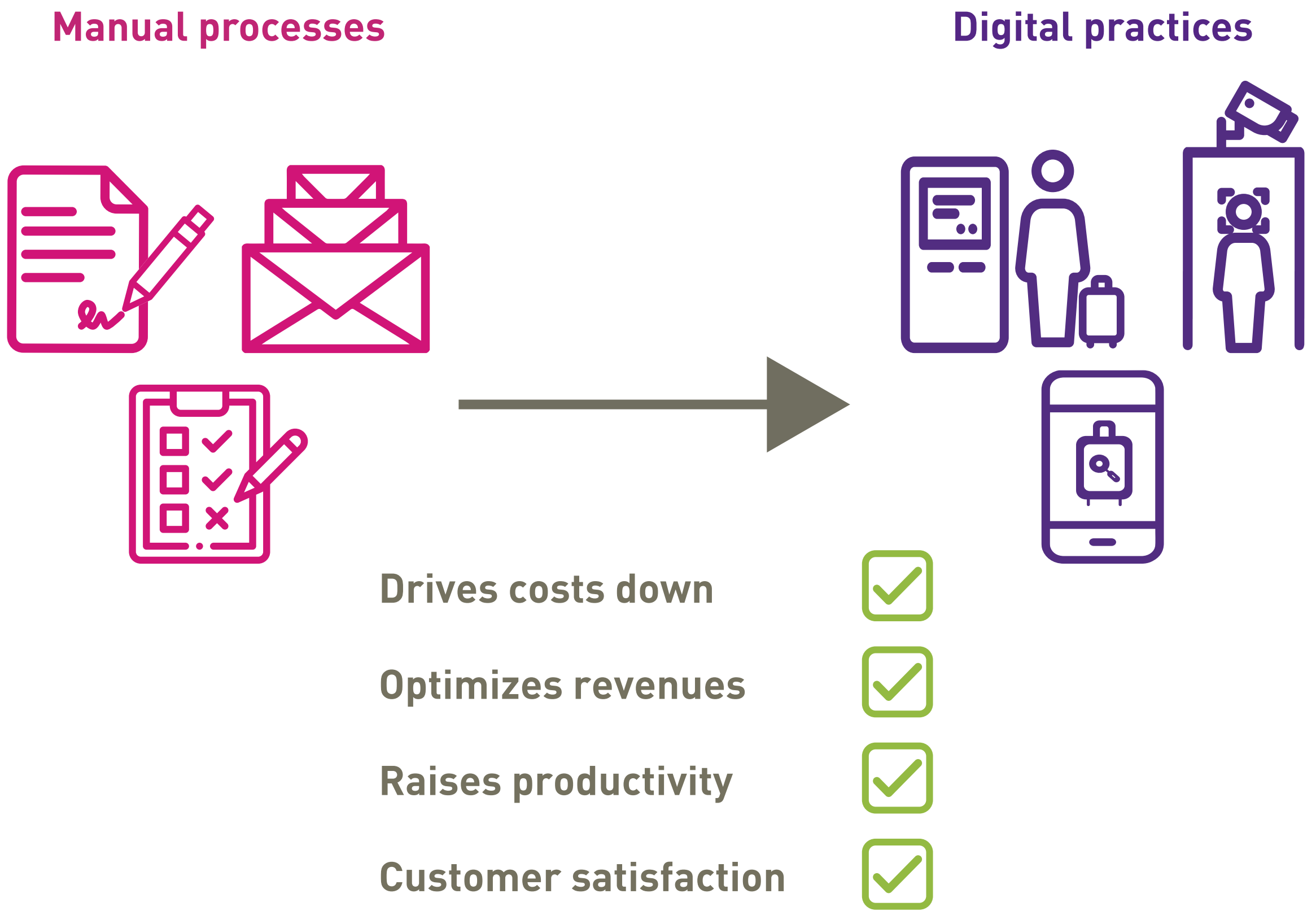
"COVID-19 has highlighted the need for greater digitalization around ground handling operations. Data-driven and customer-centric innovations and technology are key to helping our industry reduce costs, improve process efficiency and ultimately enhance the quality of service. We are working towards introducing more automation and device independent kiosk and systems for many of our airport operations."

— Daniel Suraboyini, dnata's Regional Head of IT, Asia Pacific





SELF-SERVICE INITIATIVES TO AUTOMATE BAGGAGE PROCESSES



ANALYSIS

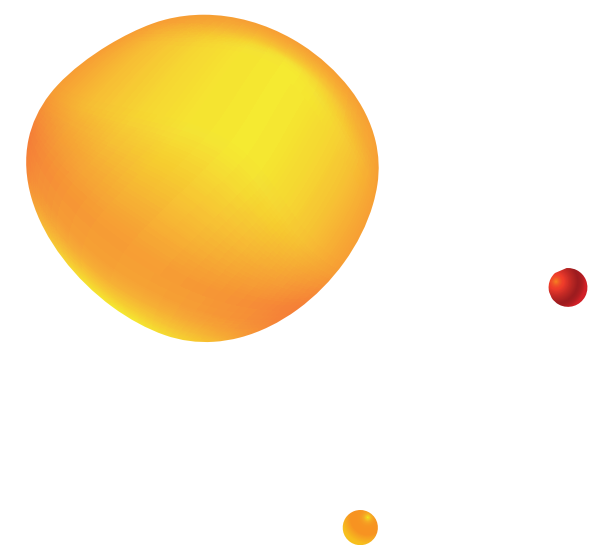
In 2021, the air transport industry was forced to adhere to rapidly changing regulations and travel requirements. The COVID-19 pandemic highlighted the need for airports to accelerate their digitalization and automation initiatives, with priorities centering on touchless technologies, cost efficiencies, and sustainability. Now, as passenger numbers quickly approach pre-crisis levels in some regions, budget shortages, staff furloughs and the ongoing recruitment challenges across the industry have meant that airports must adapt to doing more with less without impacting customer experience.

While much of the focus has been on airports' plans for passenger health certificate verification, we can't overlook the need for self-service initiatives to automate existing baggage processes. The move from manual processes to technology and data-driven practices will help airport baggage staff be more agile and adapt more rapidly to changes in passenger volumes. The end goal of a journey that focuses on digitalization and increased automation is multi-fold: Drive costs down, and optimize revenues, productivity, and customer satisfaction while gathering critical data for informed decision making.

— Thomas Romig, Vice President Safety, Security and Operations, Airports Council International (ACI) World



2022 BAGGAGE IT INSIGHTS



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 behalf of the passenger and that is handled as a claim.

SCOPE OF THE 2022 BAGGAGE IT INSIGHTS 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 2020 in the analysis of 2020 baggage handling performance data.

For year-on-year performance comparisons with 2020, passenger numbers and related bag handling statistics have been updated since last year's report to reflect confirmed IATA passenger data for 2020.

NOTES

1. IATA Air Passenger Forecast, March 2022
2. SITA, 2021 Air Transport IT Insights
3. SITA, 2020 Passenger IT Insights



SITA AT A GLANCE

Easy and safe travel every step of the way.

- Through information and communications technology, we help to make the end-to-end journey easier and safer for passengers – from pre-travel, check-in and baggage processing, to boarding, border control and inflight connectivity.
- We work with over 400 air transport industry members and 2,500 customers in over 200 countries and territories. Almost every airline and airport in the world does business with SITA, and nearly every passenger trip relies on SITA technology.
- Our customers include airlines, airports, ground handlers, aircraft, air navigation service providers, and governments.
- Our solutions drive operational efficiencies at more than 1,000 airports, while delivering the promise of the connected aircraft to customers of 17,000 aircraft globally.
- We help more than 70 governments to strike the balance between secure borders and seamless travel.
- 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 in every corner of the globe and bridging 60% of the air transport community's data exchange.
- With a customer service team of over 1,700 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 Insights reports for airlines, airports and passengers are industry-renowned, as is our Baggage IT Insights report.
- We are a certified CarbonNeutral® company, reducing greenhouse gas emissions for all our operations through our UN recognized Planet+ program. In 2022, we committed to setting science-based emission reduction targets aligned to the Science Based Target initiative Net-Zero Standard.
- We also develop solutions to help the aviation industry meet its carbon reduction objectives, including reduced fuel burn and greater operational efficiencies.



For further information, please visit www.sita.aero

For further information, please contact SITA by telephone or e-mail:

Americas

+1 770 850 4500
info.amer@sita.aero

Asia Pacific

+65 6545 3711
info.apac@sita.aero

Europe

+41 22 747 6000
info.euro@sita.aero

Middle East & Africa

+961 1 637300
info.mea@sita.aero