The baggage experience

“Breakfast in London, dinner in Rome, luggage in Honolulu.” – anonynmous

Once checked in, it’s taken for granted that your baggage will be waiting for you at the end of your journey, often without a true appreciation of the sheer scale of the operations involved. IATA’s data puts the total number of bags carried each year by air at over *four billion*, with 99.57% arriving on time and in the right place – a herculean feat. Despite this low error rate, anxiety about bags going missing remains disproportionately high among travelers, with 29% of respondents to an Amadeus survey citing the mere possibility of losing baggage as worrying.

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99.57%

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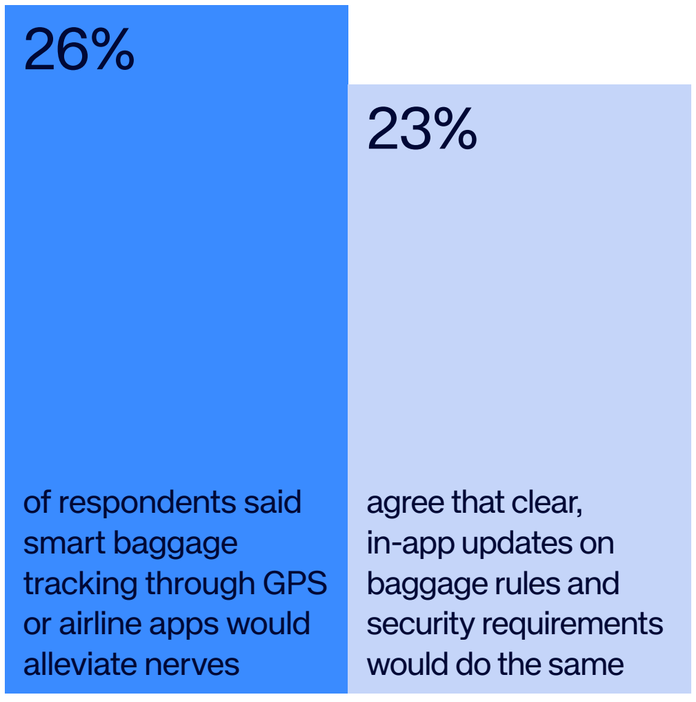
Source: iata.org

This explains why some travelers have taken to placing Apple AirTags in their luggage to do their own tracking. Seeing this grassroots development, some 30 airlines are also on board with Apple's 'share item location' feature.

Baggage handling is also being addressed through increasingly smart technology - a development which echoes passenger appetite for such solutions. Of those surveyed, 26% of respondents said smart baggage tracking through GPS or airline apps would alleviate nerves, with 23% agreeing that clear, in-app updates on baggage rules and security requirements would do the same.



Data-driven insight for tackling bottlenecks

The implementation of AI is enhancing the ability to predict pinch points and address them in advance, as well as react to, and resolve operational issues in real-time to minimize delays.

An example of this is where disruption arising from a weather event may lead to a plane carrying a passenger's luggage arriving late at its destination and the connecting flight departs without the bags. By noting this in advance, AI-driven analysis can understand where to reroute the baggage to and ensure any delay in arrival at the traveler's destination is reduced and inconvenience curtailed.

Rerouting operations staff to handle changes in schedules can also tackle disruption, through addressing peak arrival and departure times, prioritizing handling appropriately to ensure backlogs don't occur. This also ensures that delays with baggage carousel collection are minimized, meaning travelers' journeys through the airport are smoother and congestion can be addressed head on. This has the knock-on effect of avoiding any delays for others traveling through the terminal.

Future technologies

AI is already making significant improvements to tracking luggage and creating smart, reliable predictive modelling for baggage handling, as well as streamlining reactive demands. But there are many additional solutions, and many in early stages of experimentation and implementation.

As well as tracking and recovery, these can allow optimization in logistics, aligning priorities with loyalty and premium memberships, or to passenger movements. One example of the latter is when a flight departs without a passenger's bag, the destination airport receives immediate notification. This enables the airport to proactively inform passengers upon arrival that their bag didn't make the connection, along with confirmation that it will be delivered directly to their address. This approach reduces passenger anxiety, minimizes frustration, and creates a significantly better overall passenger experience.

Handling solutions

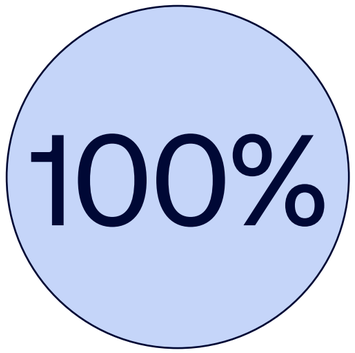
It's possible to look at baggage through two different lenses when we consider how technology is going to optimize systems. Firstly, there's the handling itself – moving the bag from A to B. Secondly, there's the tracking and maintenance – making sure the bag follows the path intended (and finding it if it diverts from this path).

When looking at the handling itself, advances in robotics will see increased efficiencies when it comes to getting items on the right flight and back off the other end. It's possible to pick up baggage from drop-off (self-service kiosks, naturally), take them to the right plane and disembark the bags. Upon arrival, robotics help ensure the bags are deposited at the right carousel having undergone the appropriate checks.

Digital Twins will also play a role here in terms of mapping the workflows and predicting potential pinch points. Here, a real-time digital replica simulates the airline's operations and identifies problems in advance, based on previous experience and scenarios. This iterative learning approach will continually optimize operations.

Tracking technologies

IATA has put in place a target for 100% of baggage to have some form of RFID (Radio Frequency Identification) in place by 2030. RFID uses radio waves to automatically identify and track tags – in this instance, those attached to luggage. By putting this in place, airlines will be able to pinpoint exactly where a bag is and reroute it accordingly. It will also directly address traveler unease related to not knowing where baggage is and allow for the in-app alerts and updates that are evidently hoped for.



IATA target:

of baggage to have some form of RFID will be put in place by 2030

Blockchain technology could also provide robust (indeed, immutable) understanding of where an item is at any given time. At every stage of the journey a record of where the bag has passed will be registered on a blockchain – an act which is impossible to alter, even by those with admin rights or by third-party bad actors. The approach aims to create total trust and transparency when it comes to where a bag has been, who it has been handled by, and where it currently stands in its own journey.

Security and safety

Beyond the logistics of an item, ensuring ownership remains a critical factor – not least when it comes to safety and security. The use of biometrics here is key through linking the bag to secure information captured ahead of the journey or at bag drop, where automated check-in kiosks are capturing facial and fingerprint recognition data.

Combined with capturing bag images during check-in and leveraging AI-powered computer vision technology, specific bag characteristics can be identified and catalogued and linked to passenger biometrics. These bag images and their detailed descriptions serve as valuable data points for tracking luggage throughout its journey, enabling bags to be mapped across all end-to-end touchpoints in the travel process. These capabilities in particular will speed up the process of identifying bags for ground handlers, either to identify misplaced luggage for travelers, or to off-load a bag in a scenario where a bag has been checked in, but the passenger has not boarded – a standard procedure to prevent smuggling. This needs to be executed as quickly as possible to prevent delays.

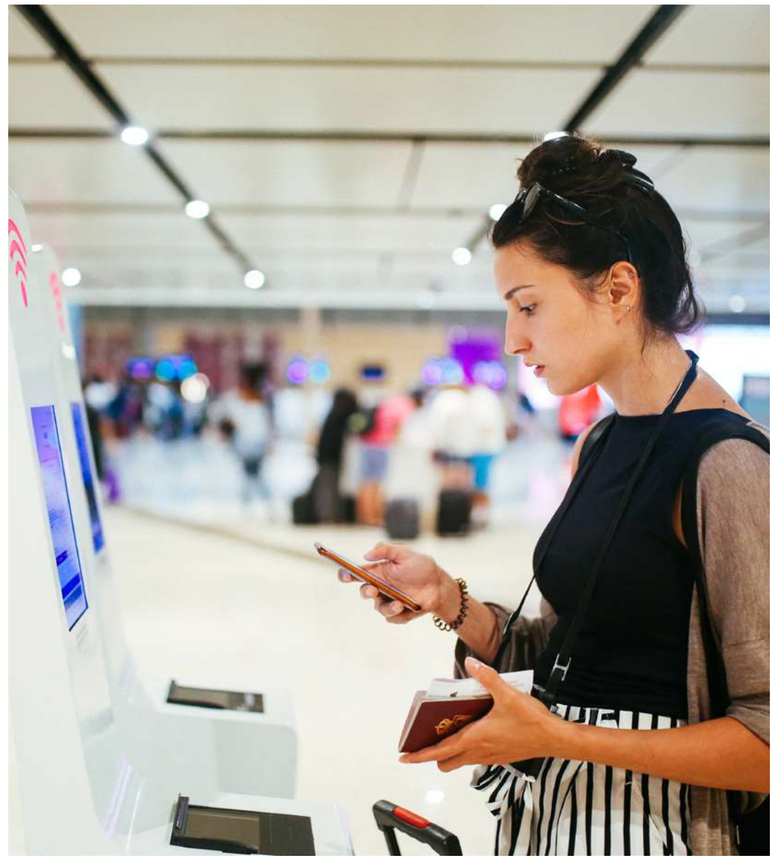
Constant improvement

While the solutions above won't entirely remove challenges when it comes to baggage in transit, they can improve them. Known challenges (and, in the instance of crime, loopholes), can be overcome and the overall passenger experience can be constantly improved.

In doing so, any anxiety about bags going missing can be reduced. And, in the event of any unforeseen issues, technology facilitates a swifter identification of where an item is, alongside the AI-driven sophistication of how to get the bag delivered to where it needs to be. And all this done faster than has even been possible before.

The speed and quality of the resolution can become, like mitigating friction elsewhere in the journey, potentially a loyalty and reputational driver.

As an instance of this, airlines are delivering fast authorization of emergency shopping trips to travelers to get what's needed to survive the first night while baggage is being tracked down. When communicated



quickly and clearly, this has the potential to significantly de-escalate a stressful situation.

The adage that you only notice when something goes wrong applies to the baggage aspect of travel – it's successful most of the time (99.57%), but when a bag doesn't turn up it has a significant impact on your trip. In reducing the potential for loss, the percentage of successfully delivered luggage will increase, while the speed of resolution will also improve.

When factoring the ability to reduce crime also, it's clear to see how some of the most transformative technologies we're witnessing today are changing the game when it comes to the four billion bags winging their way around the globe each year.