IBM Baggage Tracking for airlines and airports

End-to-end, RFID-enabled baggage tracking and analytics

Highlights

- Uses RFID technology to provide a comprehensive end-to-end baggage tracking solution
- Provides a flexible, extendable baggage tracking capability by combining hardware, software and services
- Integrates with existing baggage management systems
- Helps ensure compliance with IATA Resolution 753
- Offers a platform for expanding tracking capabilities to cargo and mail, as well as new passenger services

Mishandled bags cost the global airline industry more than USD 2.5 billion per year, and are a leading reason why passengers express dissatisfaction with air travel. The number of complaints has increased 21 percent since 2015. Forty-five percent of bag mishandling occurs in transfer from one aircraft to another, where bag scanning may be unavailable or not performed due to time constraints. Technology-savvy passengers want solutions that give them information in real time and improve their air travel experience.

In response to this industry challenge, in 2016, the International Air Transport Association (IATA) issued Resolution 753, which mandates that member airlines must "maintain an accurate inventory of baggage by monitoring the acquisition and delivery of baggage" by June 2018.

IBM Baggage Tracking is a comprehensive solution using radio-frequency identification (RFID) technology to deliver a flexible, extendable baggage tracking capability that integrates with existing systems. RFID uses electromagnetic fields to automatically identify and track objects using tags containing electronically stored information. The solution uses RFID chips embedded in bag tags with readers and antennae positioned at critical points along the baggage journey. The antennae read the information embedded in the RFID chips and pass it on to the baggage management system. Bags are then processed according to the business rules of the airline.

IATA Resolution 753

The IATA Resolution 753 was published in 2016 and states that by June 2018, members must be able to:

- Demonstrate delivery of baggage when custody changes
- Demonstrate acquisition of baggage when custody changes
- Provide an inventory of bags upon departure of a flight
- Exchange these events with other airlines as needed

Although the resolution doesn't specify the technologies by which these capabilities are to be attained, IBM believes RFID provides reading reliability greater than 99 percent over current optical scanning of 2D bar codes. RFID readers can also be attached to fixed and mobile assets, such as belt loaders, unit load devices (ULDs) and more. This capability is designed to provide visibility into tracking each bag's location at every critical step of the baggage handling process.

IBM Baggage Tracking hardware

The IBM Baggage Tracking solution includes RFID readers for the following applications:

The IBM Baggage Tracking solution includes RFID readers for pier (transfer) and baggage claim areas, RFID readers for belt loaders (for both on and off the aircraft), RFID printers and printer upgrades, RFID tag stock, and network communications analysis and infrastructure (wired for in-terminal and cellular or wifi network coverage outside of terminal) and handheld RFID scanners and RFID scanner attachments. IBM can also provide RFID readers for the baggage make-up areas, as well as extend the solution to cargo, mail and other airline use cases.

IBM Baggage Tracking helps ensure visibility into real-time status at every baggage process milestone, within each station and terminal across the airline network.

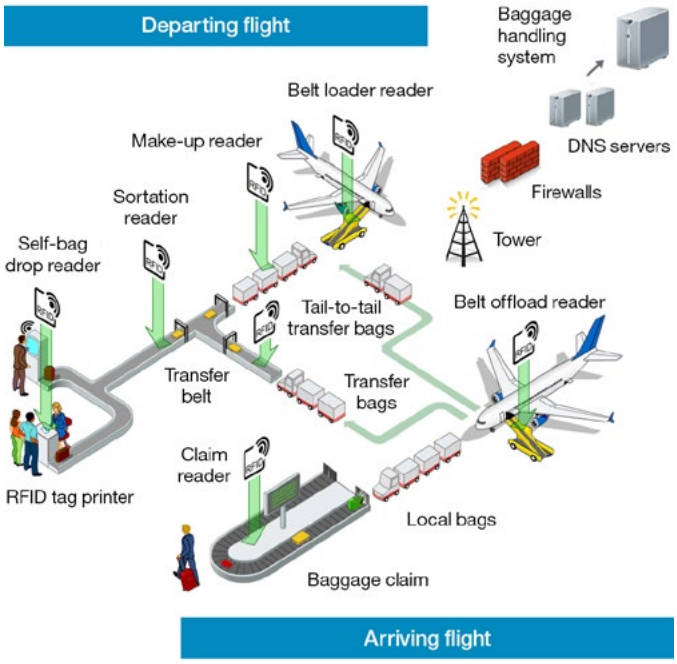

Figure 1: Illustration of the various RFID touchpoints in an airline's baggage operation

IBM Baggage Tracking software

RFID reader software is deployed for the pier, claim and belt loader readers, and integrates with the airline's baggage management system (BMS). The solution comes with embedded algorithms to handle a wide range of potential process exceptions, such as no RFID tag, multiple tags and more. Reader device manager software provides a centralized administrative capability for fixed and mobile readers.

IBM Baggage Tracking services

Deploying baggage tracking for an airline is a complex initiative that requires coordination of multiple tasks across geographically dispersed and cross-functional teams. IBM Baggage Tracking uses components supplied by various vendors, with whom IBM has established partnerships to help ensure a more reliable supply of the necessary items.

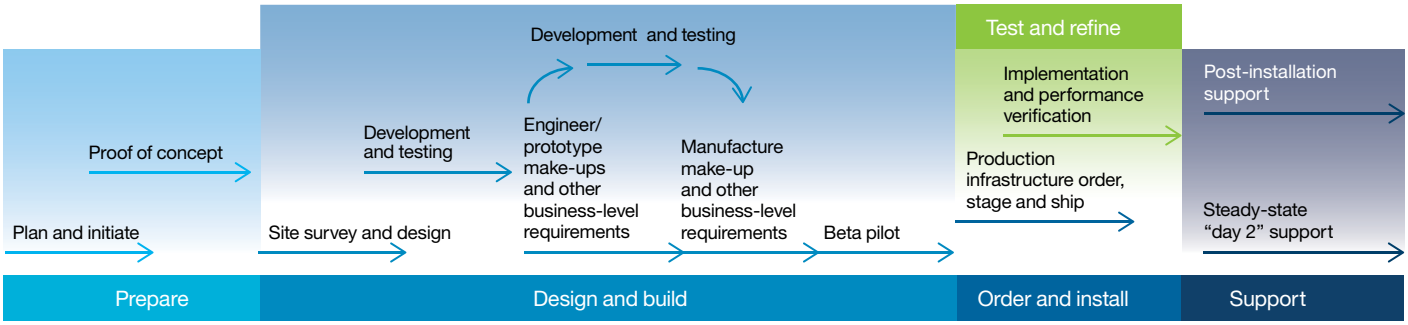

Figure 2: Deploying IBM Baggage Tracking follows a five-step process

IBM Baggage Tracking services include:

- Program management. Helps ensure activities across multiple workstreams and teams follow the overall project plan while mitigating risk.
- Organizational change management. Baggage processing is typically done by ground-handling personnel, which is often unionized. Early engagement with the respective organizations and management of the changes brought by the RFID technology is required for its adoption and accomplishment of the business objectives.
- Software development. Helps ensure the baggage tracking solution connects with the airline's baggage management system. Monitoring, reporting and other functions may have to be developed based on client requirements.
- Site surveys. Collect data on the number and type of bag tag printers, belt loaders and other assets that have deployed RFID readers. It also maps coverage, strength, and bandwidth of cellular and wifi coverage inside and outside the terminal.
- Hardware provisioning, deployment and installation. Helps ensure the supply chain is fully equipped with the appropriate hardware across all stages of the baggage journey.
- Customer support. Provides end-to-end support to help ensure seamless solution implementation, as well as post-installation support.

As shown in Figure 2, implementing IBM Baggage Tracking follows a five-phase process:

1. Prepare
2. Design and build
3. Order and install
4. Test and refine
5. Support

Business benefits

Deploying IBM Baggage Tracking helps ensure compliance with IATA Resolution 753, which requires airlines to employ an end-to-end baggage tracking capability by June 2018.

IBM Baggage Tracking is designed with reliability, flexibility and scalability as imperatives, and includes the capability to expand to other aviation use cases. The solution incorporates key insights gained while solving technical, organizational and regulatory challenges during previous deployments.

Implementing IBM Baggage Tracking can help streamline operations and control costs by minimizing the cost of tracking and rehandling lost baggage. This process includes expenses associated with third-party delivery services that deliver baggage directly to the passenger's hotel or home on behalf of the airline. IBM Baggage Tracking helps reduce these expenses significantly and, in turn, helps airlines maintain competitive cost structures to retain profits.

This reduction in baggage mishandling is designed to increase passenger satisfaction, loyalty and lifetime value. Passengers increasingly expect differentiated and engaging experiences and, if their baggage is handled seamlessly, it can become an opportunity for the airline to meet these expectations. Airlines that leverage IBM Baggage Tracking can differentiate themselves by delivering on the vision of an optimized end-to-end customer journey by helping to ensure baggage is processed smoothly.

Why IBM?

IBM is uniquely positioned to deliver this solution to airline and airport clients because IBM has:

- Successful integration, implementation and installation experience for this comprehensive hands-free baggage tracking solution for international airlines, each handling an estimated 550,000 bags daily
- Established a partner ecosystem of leading hardware, software and RFID service providers who also have aviation project expertise
- Deep knowledge of the aviation environment from both the operator and the passenger perspective, with a track record of serving many global airlines and airports
- Global reach, local presence and customer support for virtually all services and products

For more information

To learn more about IBM Baggage Tracking, please contact your IBM representative or IBM Business Partner, or visit: **ibm.com/**travel

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