KATHREIN

White Paper

RFID/IoT in Baggage Tracking and Aviation Environment

Customer Satisfaction with Service and Quality

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CONTENTS

ABSTRACT

Millions of pieces of luggage are misrouted every year, which means a lot of work and additional costs for the airlines. A new technology at the airport – and RFID tags attached to the suitcases – will change that.

The quality of the baggage tracking has increased greatly over the last few years. Nevertheless, airlines and airport operators are still faced with the task of handling the ever-increasing number of passengers and luggage without any losses, while at the same time meeting passengers' expectations for transparent baggage tracking.

INTRODUCTION

Cost and reliability have always been the main problems in the air freight logistics chain.

The next logical step in this field is to introduce RFID (Radio Frequency Identification) as the state-of-the-art tracking technology. With this new technology, airlines will be able to save more than 2 billion US dollars over the next 4–5 years and to improve quality of the baggage tracking.

According to the SITA Baggage Report 2018, the number of passengers has increased by 64% since 2007 and the number of misrouted/lost baggage items per 1000 passengers has fallen by approximately 70% since then.

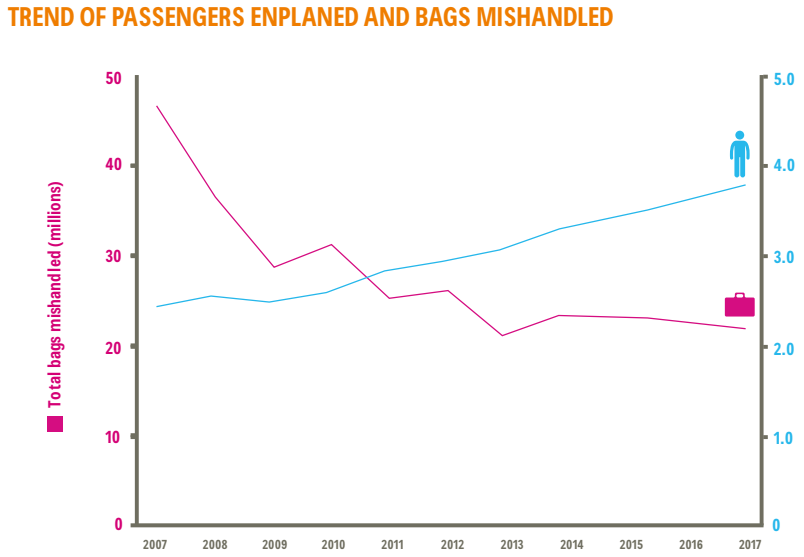

Figure 1: Trend of passengers enplaned and bags mishandled (source: SITA 2018 Baggage Report)

More cost reduction will come from the efficient baggage management, real-time tracking and lower operating expenditures for misrouted or lost luggage.

The use of RFID enables automated readings at various points along the entire process chain, from the check-in counter to the transfer of baggage to the customer at the baggage carousel on arrival.

KATHREIN'S APPROACH

With this white paper, we would like to show possible actions which the companies involved have to take into account in order to implement the IATA R753 and, in particular, the UHF RFID use, as effectively as possible.

The return on investment for the introduction of RFID clearly depends on the reliability of the systems and the perfectly aligned processes.

Kathrein and its partners provide a turnkey solution to carry out a detailed analysis of the baggage-tracking process.

It goes without saying that compliance with global technology standards is a fundamental prerequisite.

Cost-effective passive UHF RFID tags in combination with Kathrein's high-performance hardware and the modular CrossTalk IoT software suite, which has already become standard in various markets, are the components of a mature and future-oriented baggage-tracking solution.

Source: shutterstock | 268929842

WHAT ADVANTAGES DOES KATHREIN OFFER?

The main advantage of our technology compared to others is the efficiency of the hardware, which achives very high read rates without any human involvement or visual contact.

For data transmission, objects are equipped with passive RFID tags (labels with a powerful RFID chip) which are read and written via RFID antennas. In a logistics scenario, in addition to baggage, this can also include containers, transport trolleys, boxes on the conveyor system, etc. A Kathrein reader captures the baggage ID, and the tracking event is then forwarded via our CrossTalk middleware to an existing IT platform.

To enable easy implementation of RFID technology at check-in counters, Kathrein Solutions offers the ARU 2400 reader with an integrated SMSH antenna. This antenna is designed for near-field applications, providing a very high, homogenous detection field. This way, it is possible to read only the luggage placed on the scale of a given check-in counter.

This turnkey solution with a single device is a smart way to start with RFID at the very first point of the luggage journey; the reader is easily and cost-efficiently installed on the existing counters.

It is possible to seamlessly integrate the CrossTalk IoT suite into any back-end software, which brings many possibilities of data processing. It works independently of the existing IT systems and can consolidate, process and provide all kinds of sensor and localisation data from other sources.

Source: istock| 519464660

TURNKEY SOLUTIONS

- Kathrein's ARU 2400 slim RAIN RFID reader with an integrated antenna
- Kathrein's SMSH RFID antenna for precise reading
- Kathrein's CrossTalk end-to-end IoT suite
- Kathrein's RFID solution in baggage tracking
- Easy migration and upgrading of the existing infrastructure

KATHREIN'S RFID SOLUTION IN BAGGAGE TRACKING

Kathrein's hardware and software portfolio provides a wide range of RFID hardware and a leading IoT software suite to build an effective IoT infrastructure for automated data capturing and processing.

	Software	Hardware				
Baggage process points	**CrossTalk** IoT Software	**ARU 2400** Reader	**RRU 4500** Reader	**SMSH** Antenna	**WRA 6060** Antenna	**WRA 7070** Antenna
Check-In	✓	✓				
Screening	✓	✓	✓			✓
Sorting	✓		✓	✓		
Transfer	✓		✓	✓		
Make-Up	✓	✓	✓	✓		✓
Loading	✓	✓			✓	
Unloading	✓	✓			✓	
Arrivals	✓	✓	✓	✓	✓	

Figure 2: Initial proposals for turnkey solutions at different process steps during the luggage journey. For more information, see specifications of our IoT portfolio at www.kathrein-solutions.com.

We can design the processes together with your team. Our colleagues from the Professional Services team will support you in creating a blueprint and carrying out a proof of concept for your individual use cases.

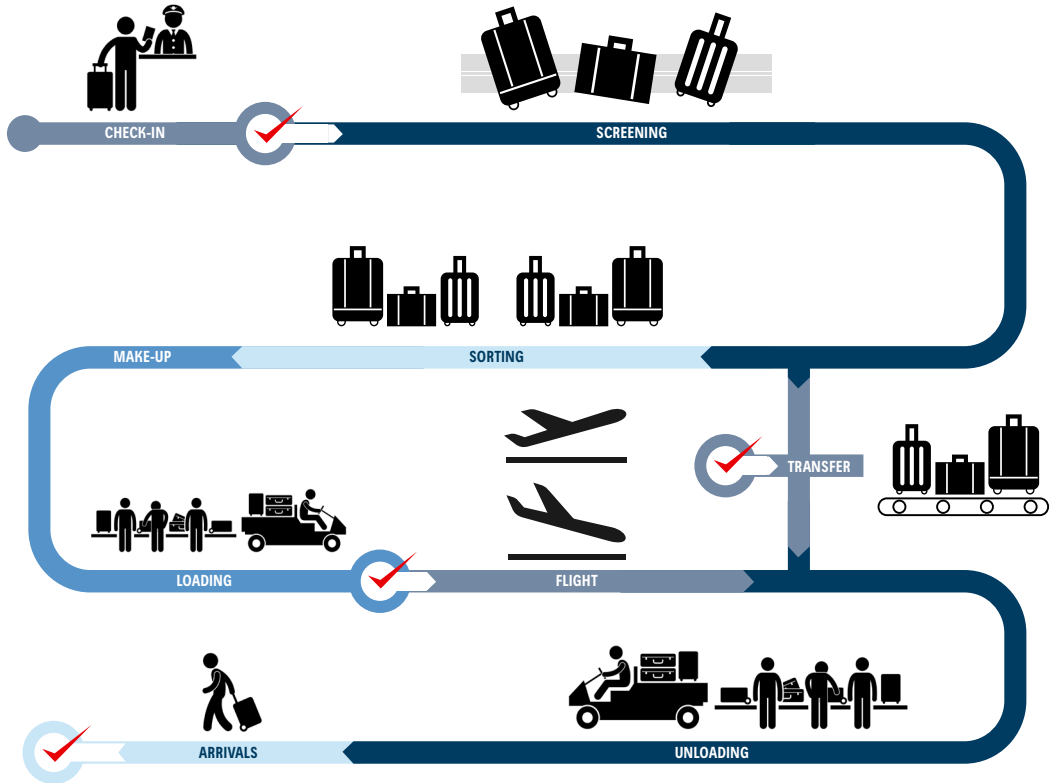

Figure 3: Capturing and processing data during the baggage logistics chain

KATHREIN'S RFID SOLUTION IN AIRPORT TERMINALS AND ON THE AIRFIELD

While RFID in baggage tracking is the main topic, we still see a variety of reasonable use cases in the airport and aviation environment and look forward to your other projects to improve your ROI in the RFID area.

Loading Containers and Trolleys:

- Tagging containers and wagons and matching them to the loaded baggage
- Better coordination of locations and idle times
- Tagging containers and baggage waggons to record weights

Airport Terminal – Gate and Entries/Exits:

- Recording entrances and exits of baggage, thus reporting the locations and times

Loading onto the Aircraft:

- Preventing incorrect loading when loading an aircraft using antennas and readers on the loading conveyors and, if necessary, hand-held devices
- Re-checking the number of suitcases and the load weight
- Automatically cross-checking the passenger and baggage list

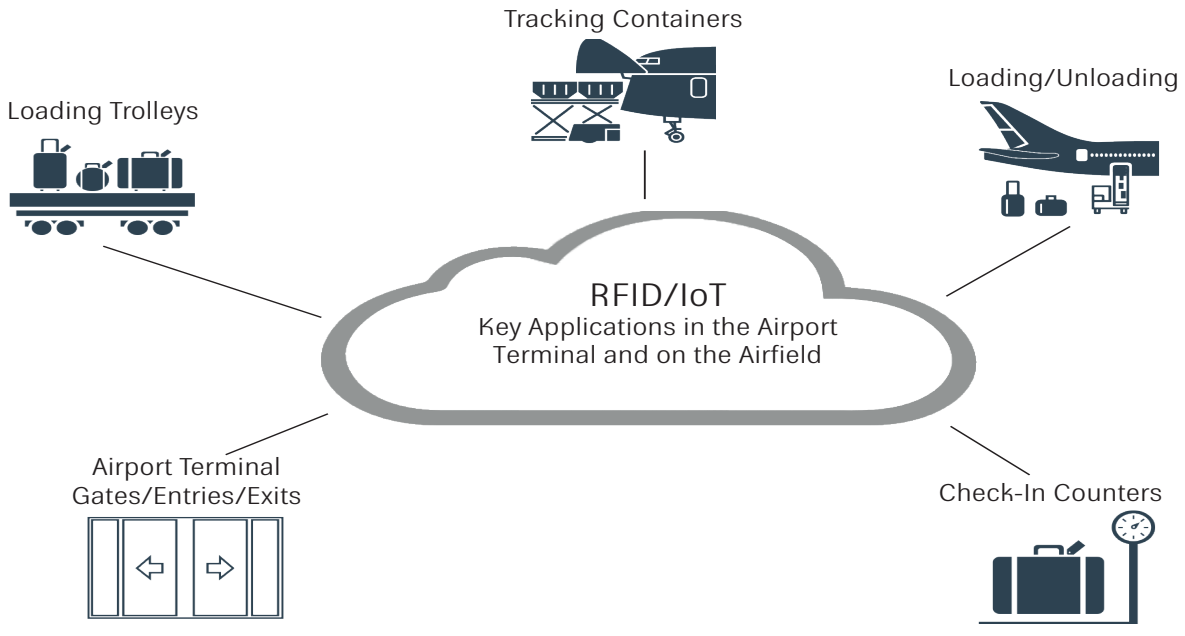

Figure 4: Different use cases at airport terminals and on the airfield

SOURCES

SITA – The Baggage Report 2018

FURTHER INFORMATION

www.kathrein-solutions.com

KATHREIN

ABOUT KATHREIN SOLUTIONS GMBH

The Kathrein IoT business unit provides AutoID turnkey solutions including hardware, software, services and support. Kathrein supports customers and applications for manufacturing and logistics, healthcare and intelligent transportation systems. From the first proof of concept up to the go-live implementation, Kathrein supports customers in applications for logistics, industrial automation and vehicle identification.

The possibility of offering all necessary components and tools enables us to give our customers and partners the most powerful solutions. From track-and-trace visualisation to seamlessly incorporating any kind of identification technology – including solutions, such as barcode readers, active RFID systems and wide-area network technologies – we combine the best suitable features and generate interfaces with all kinds of ERP systems.

In addition to our global partner network, first-class service and customer-oriented support round off our portfolio. We provide RF simulation, application support, software integration and implementation as well as operation and maintenance – all from a single source.

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