



Contents



**Aviation History and
Challenges**



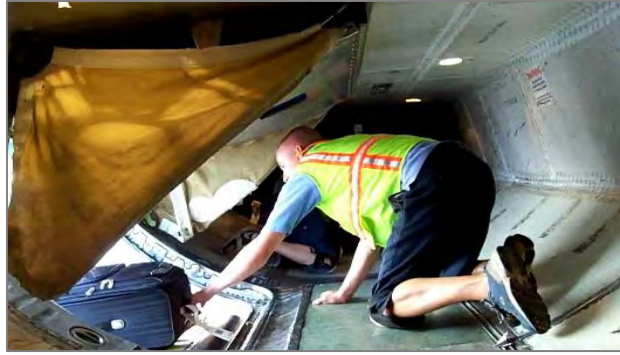
The BBHS System



**Integration and Scale
Approach**



**Benefits and
Opportunities**



History

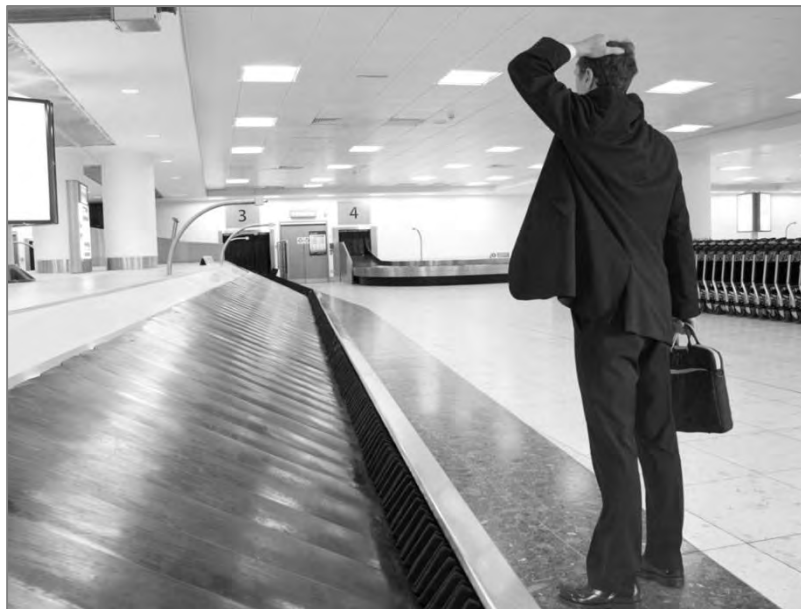


Passengers satisfaction rate according to waiting time:

88% if < 10 minutes

68% if < 30 minutes

54% if < 60 minutes



79% of mishandled bags were delayed bags
15% damaged or pilfered
6% lost or stolen



Baggage was the topic of three of the top six items on a list of mobile services that passengers would use regularly

Passenger experience

Industry Challenges

- Low production efficiency and capacity per squaremeter
- Space intensive infrastructure
- Poor CAPEX utilization

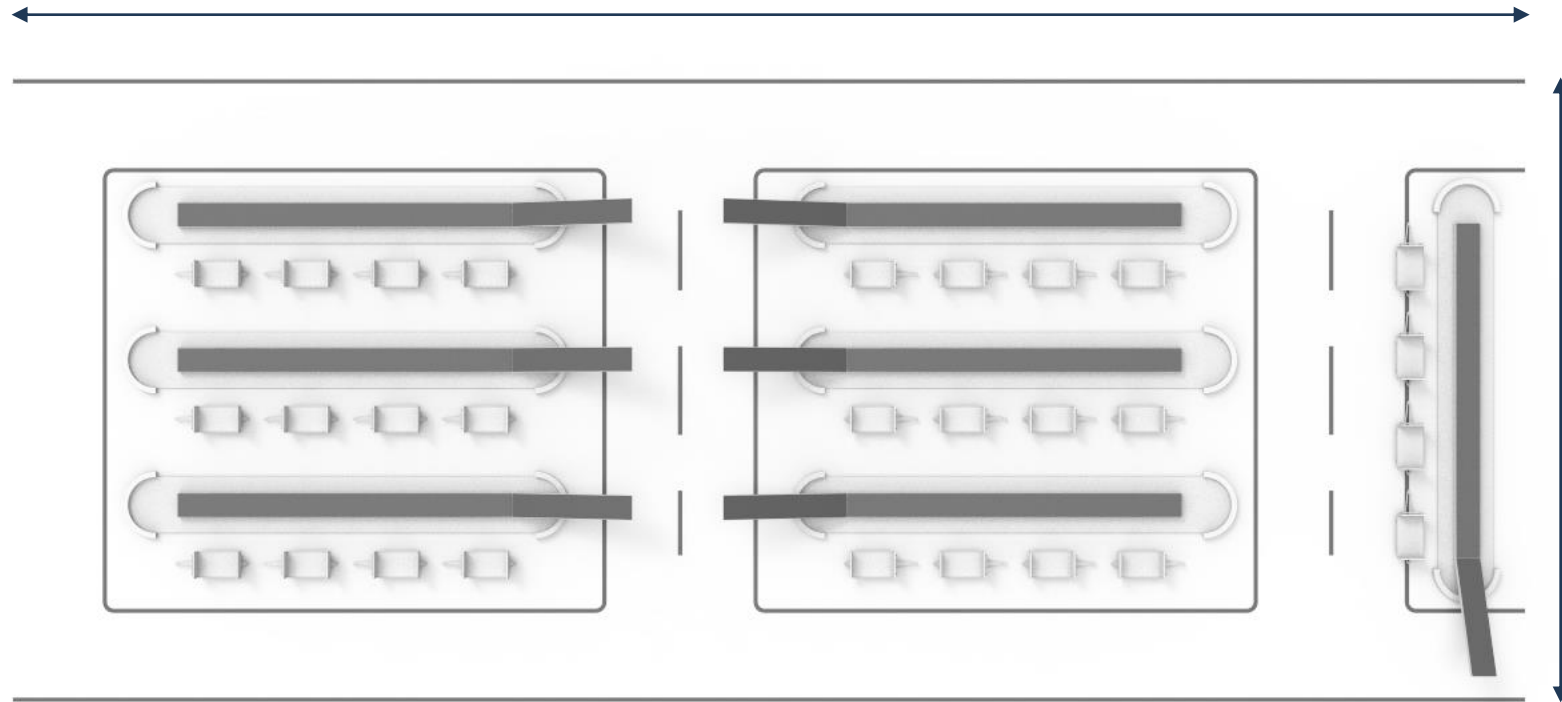
- High operational costs
- Poor work environment

- Inefficient handover of responsibility between stakeholders
- Poor tracking of baggage



1904sqm / 20516 sqft

68m / 223 ft

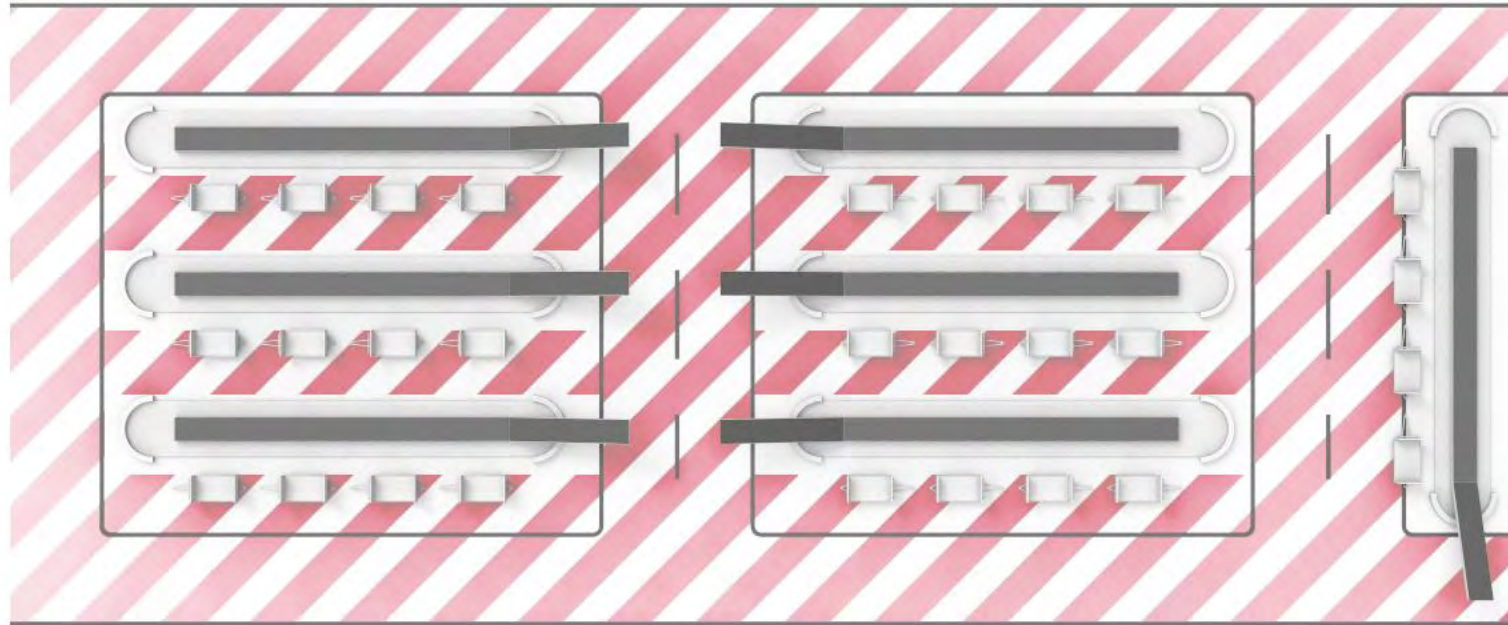


28m / 92 ft

Sorting hall utilization

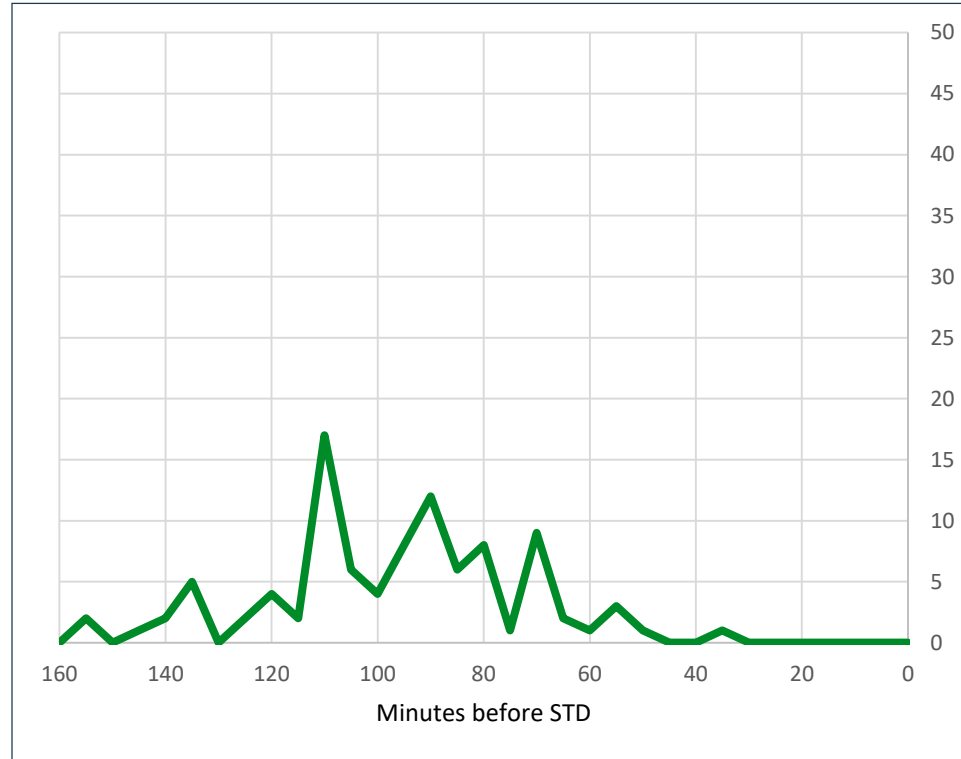
66%

of floorplan is driveways, make-up positions, and staging area

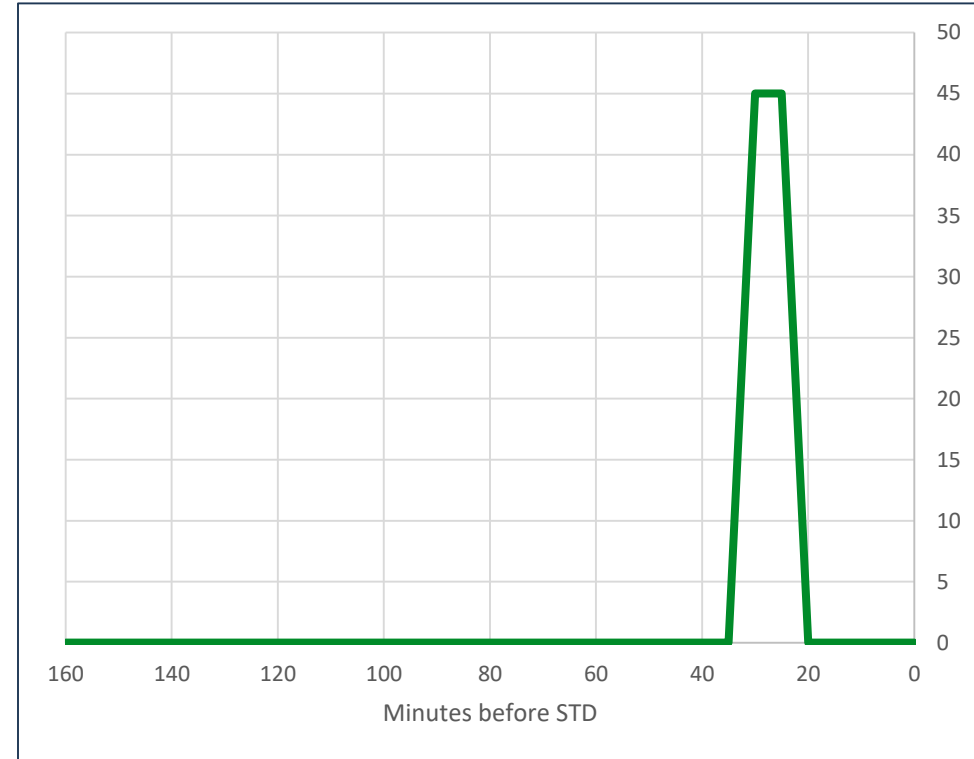


Sorting hall utilization

Regular Check-in



Absorbed Check-in



Check-in Pattern

Summary of challenges



Baggage tracking



Work environment



**Controlling check-in
pattern**



Space utilization



The BBHS System

BAX storage



Delivery to aircraft



**Current operation is based on filling carts one-by-one with BAX until full,
resulting in low efficiency and utilization**

BAX storage



Delivery to aircraft



BAX storage
in Conciliation Units



In system storage for high utilization of carts, resulting in efficient make-up and reduced turnaround time.



Delivery to aircraft via Carts

Increased cart utilization resulting in up to 1 BBHS cart per 8 traditional carts



TAKING BAGGAGE HANDLING INTO THE 21ST CENTURY

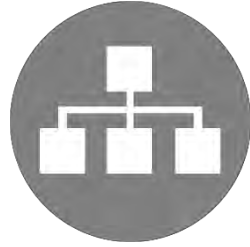


Subsequent process enhancements

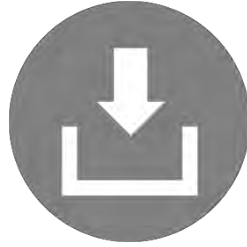




**Delivery of BAX
(from Sorter)**



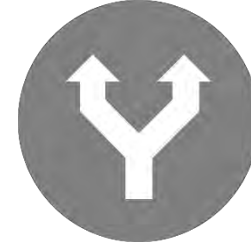
Reconciliation



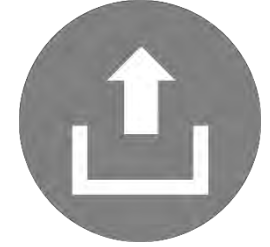
Loading carts



**BAX storage
(on carts)**

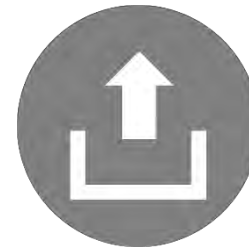
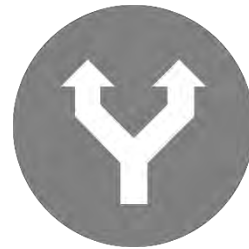
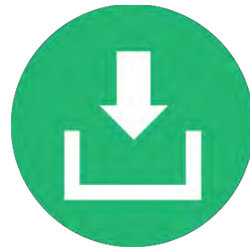
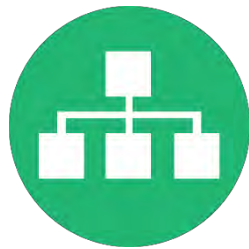
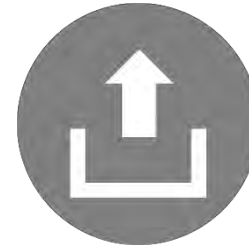
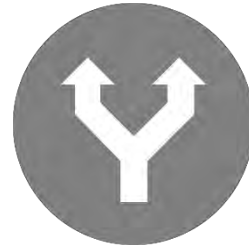
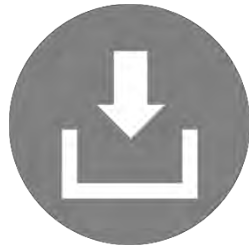
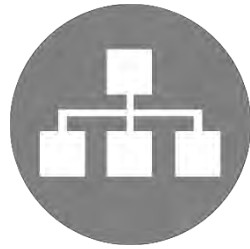


**Delivery to
aircraft**



Loading aircraft

Typical departure process



**Delivery of BAX
(from Sorter)**

**BAX storage
(in System)**

Reconciliation

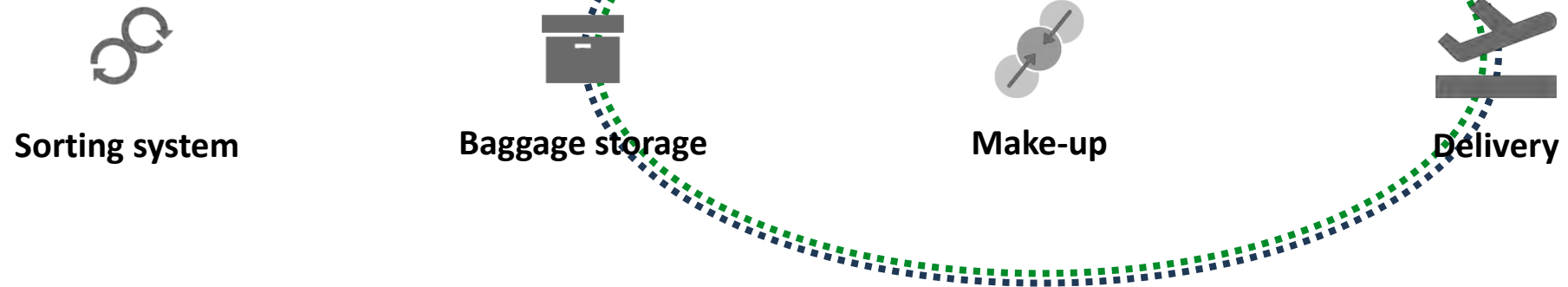
Loading carts

**Delivery to
aircraft**

Loading aircraft

BBHS departure process

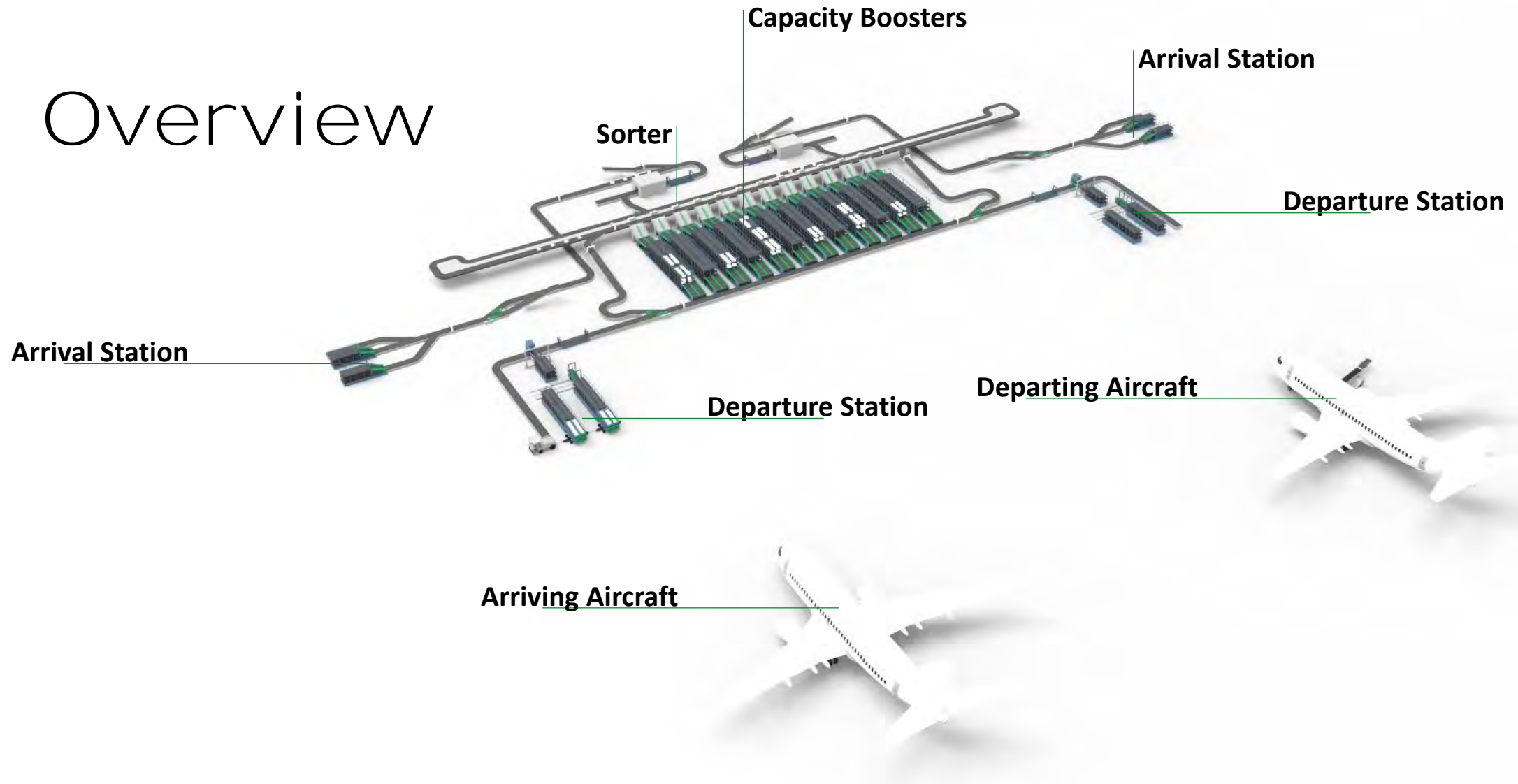
BBHS Fit





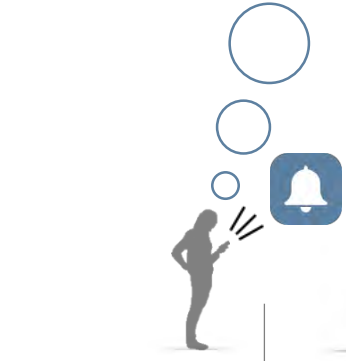
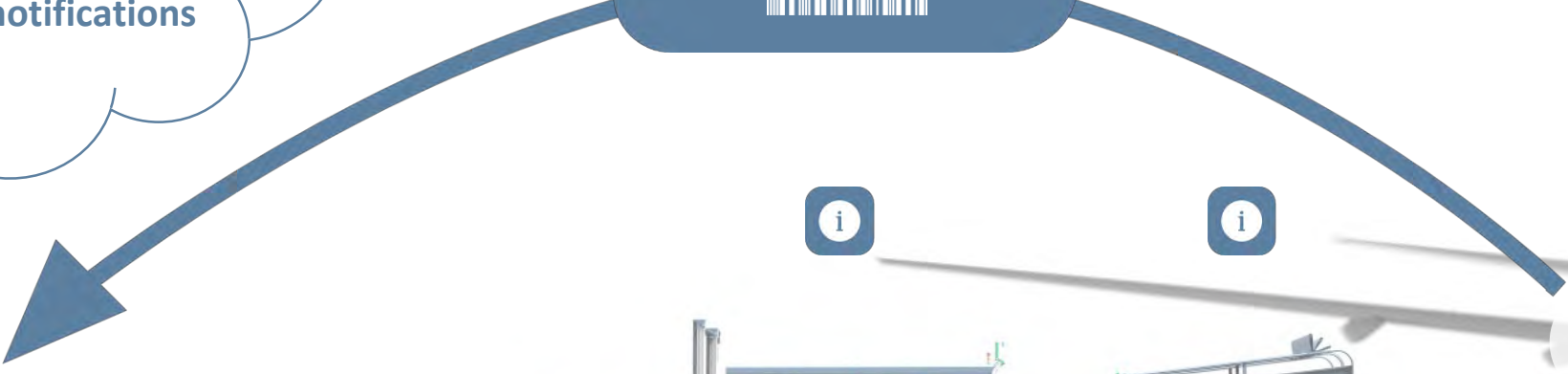
Lean concept animation

Overview



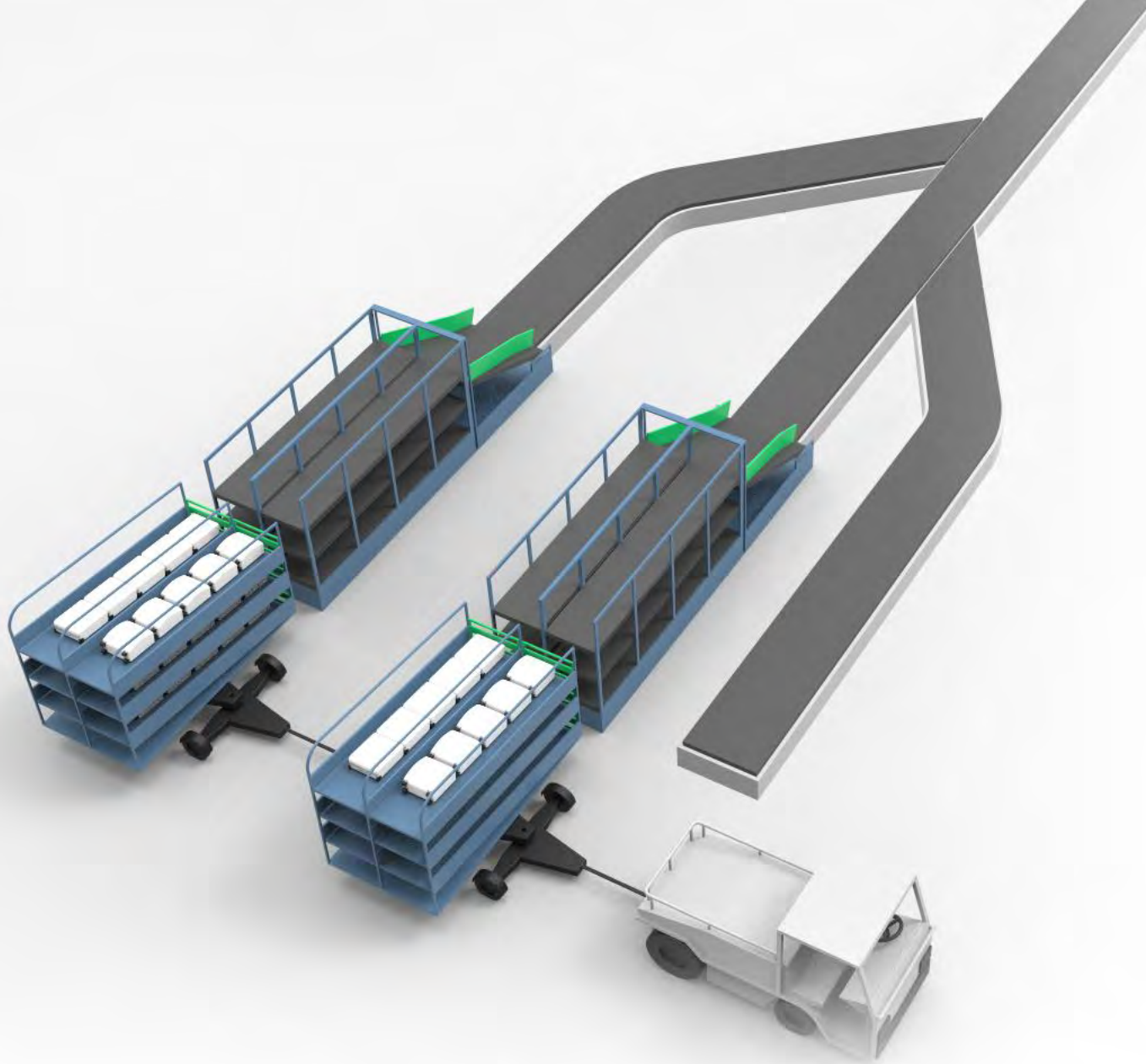
IT integration for tracking

- Faster baggage deliveries
- Gentler baggage handling
- 50% less lost baggage
- Passenger notifications



Passenger notification

Acquire information through Barcode or RFID



60 BAX flushed in < 10 secs

Full traceability of BAX

Automated inbound sortation

Quick handling of transit BAX



Arrival



Unloading aircraft



Positioning carts at Arrival Station



Flushing baggage



Arrival

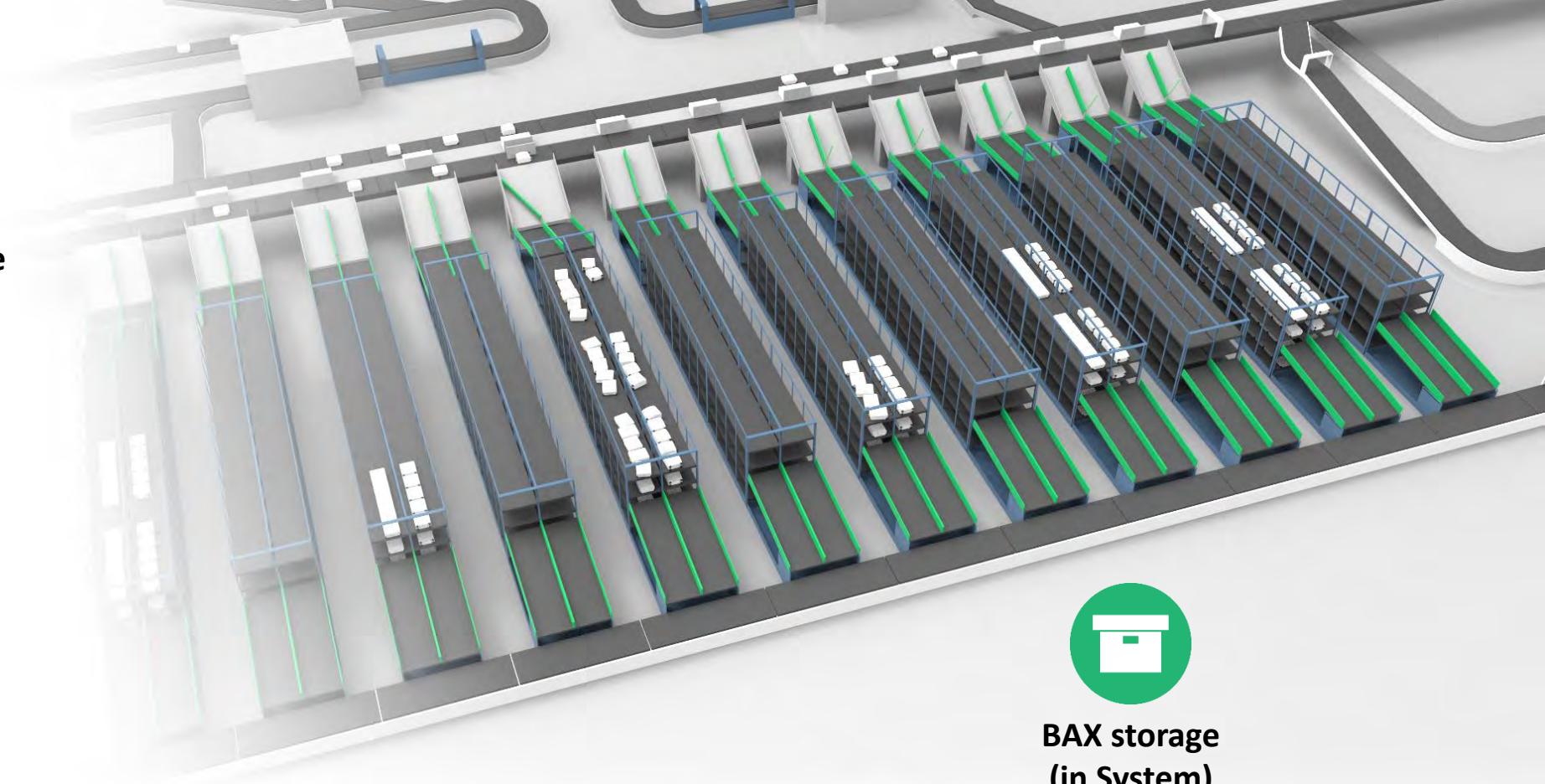
**Full baggage inventory available
real time and upon dispatch**

**Modular build up of early
storage and sortation lanes**

Intelligent baggage storage

**Adaptable to pier, carousel
and chute departure setups**

**Flexible size and capacity
with high space utilization**



**BAX storage
(in System)**

BBHS departure process



Reconciliation



Loading carts

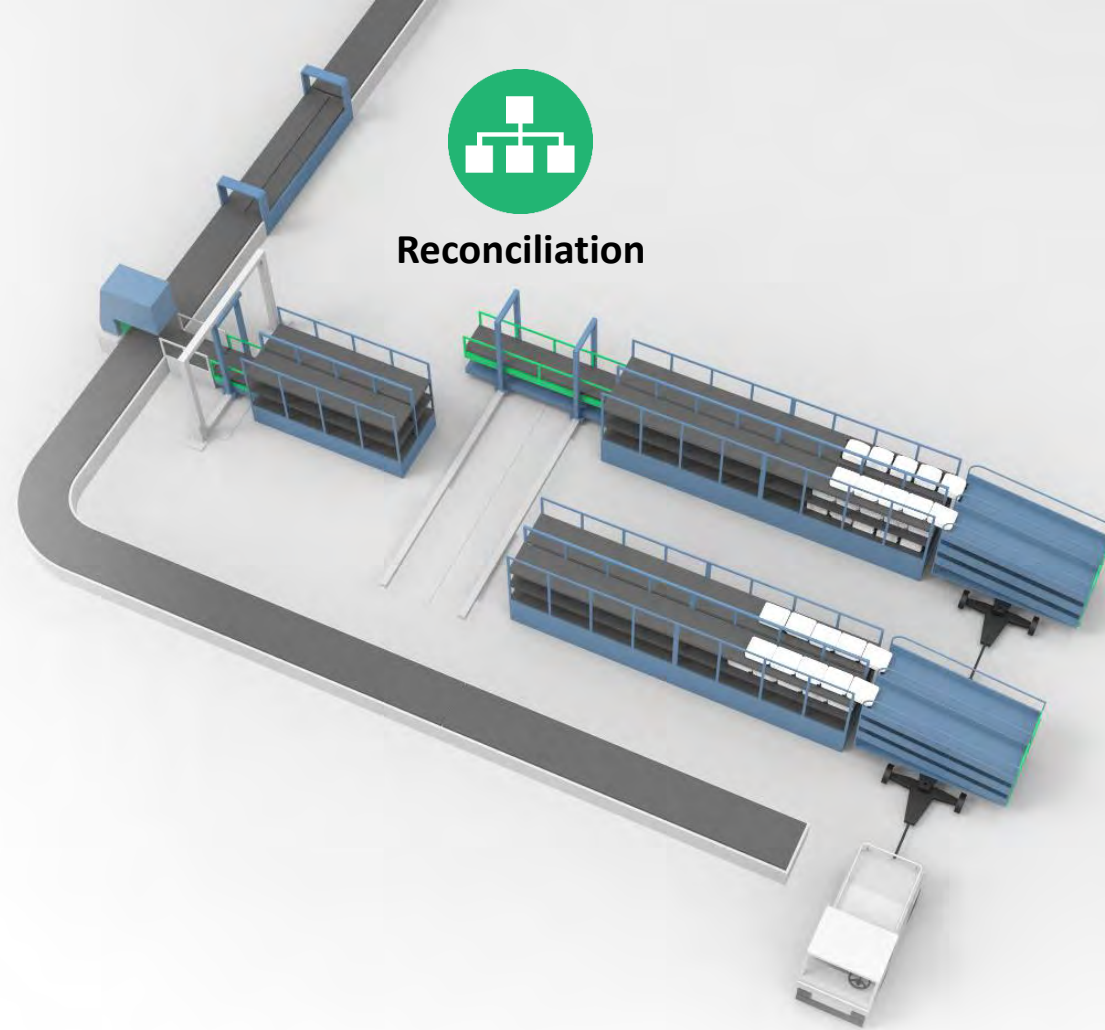
Rapid on demand make up

Reconciliation based on pull principle

Manual handling reduced by 95%

High process efficiency

Carts filled in < 10 secs



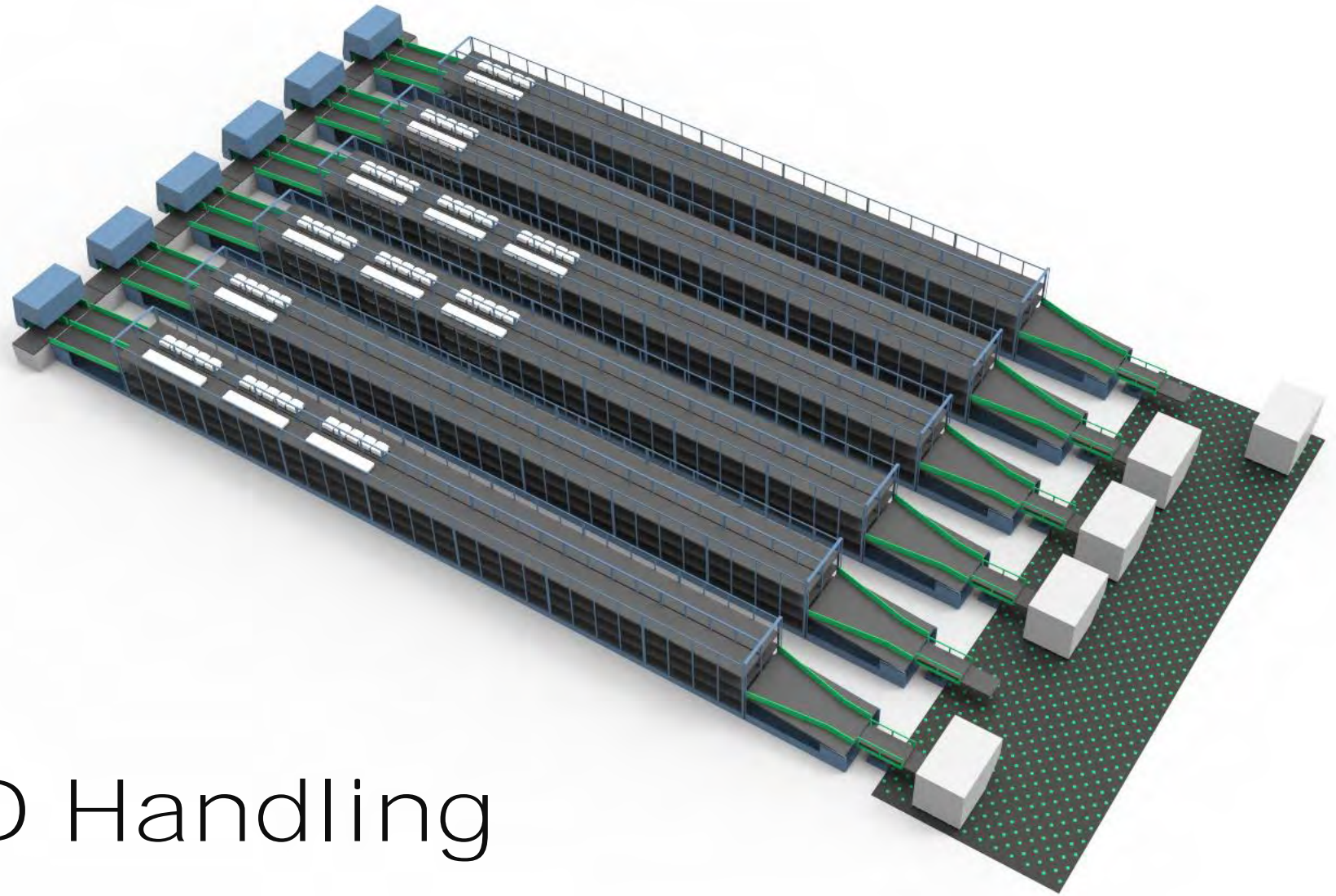
BBHS departure process

Rapid on demand make up

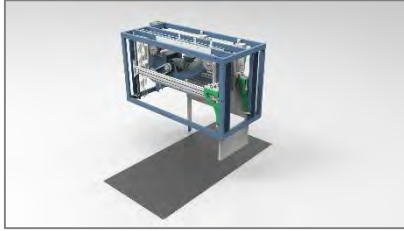
Reconciliation based on pull principle

Full tracking

Increased filling efficiency



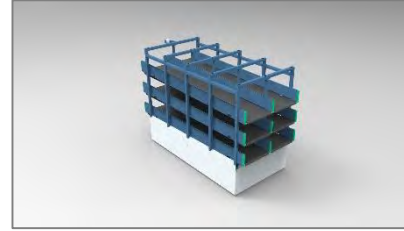
BBHS ULD Handling



Pusher



Mini Loader



Conciliation Unit



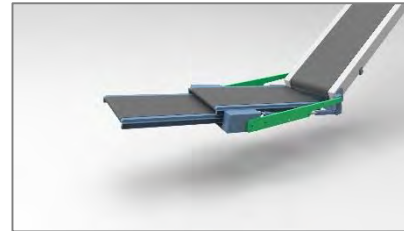
Batch Mover



Orienter



BBHS Cart



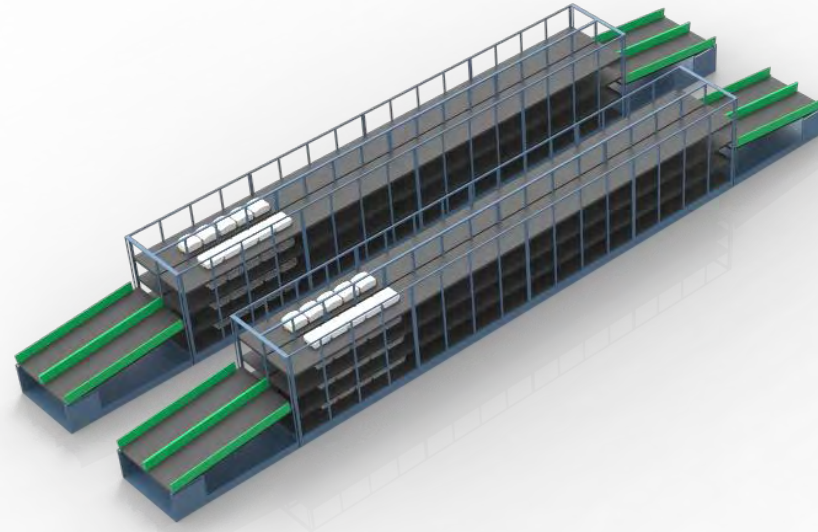
Belt Connector



Vertical Unit

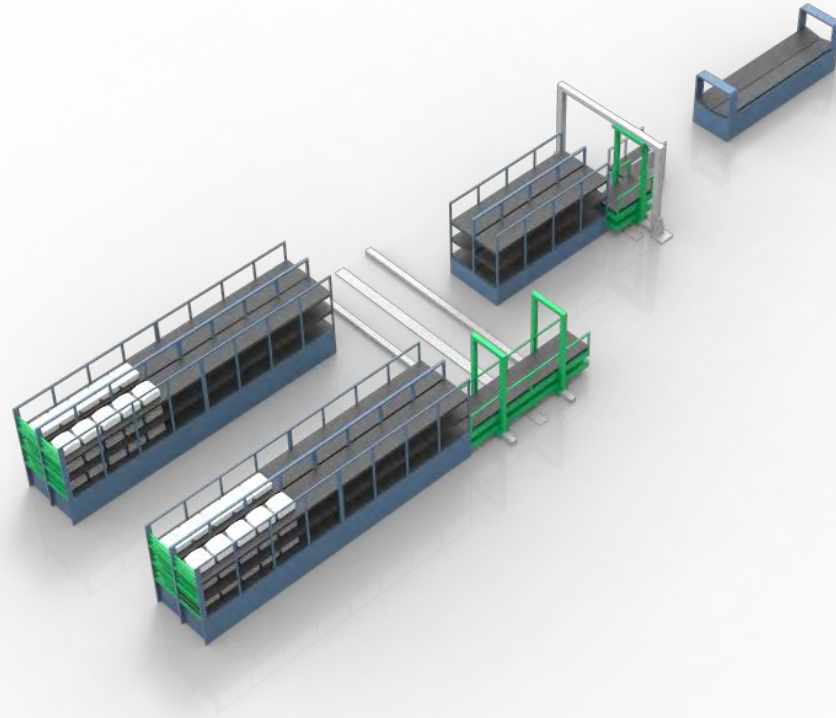
BBHS Components

Capacity Boosters



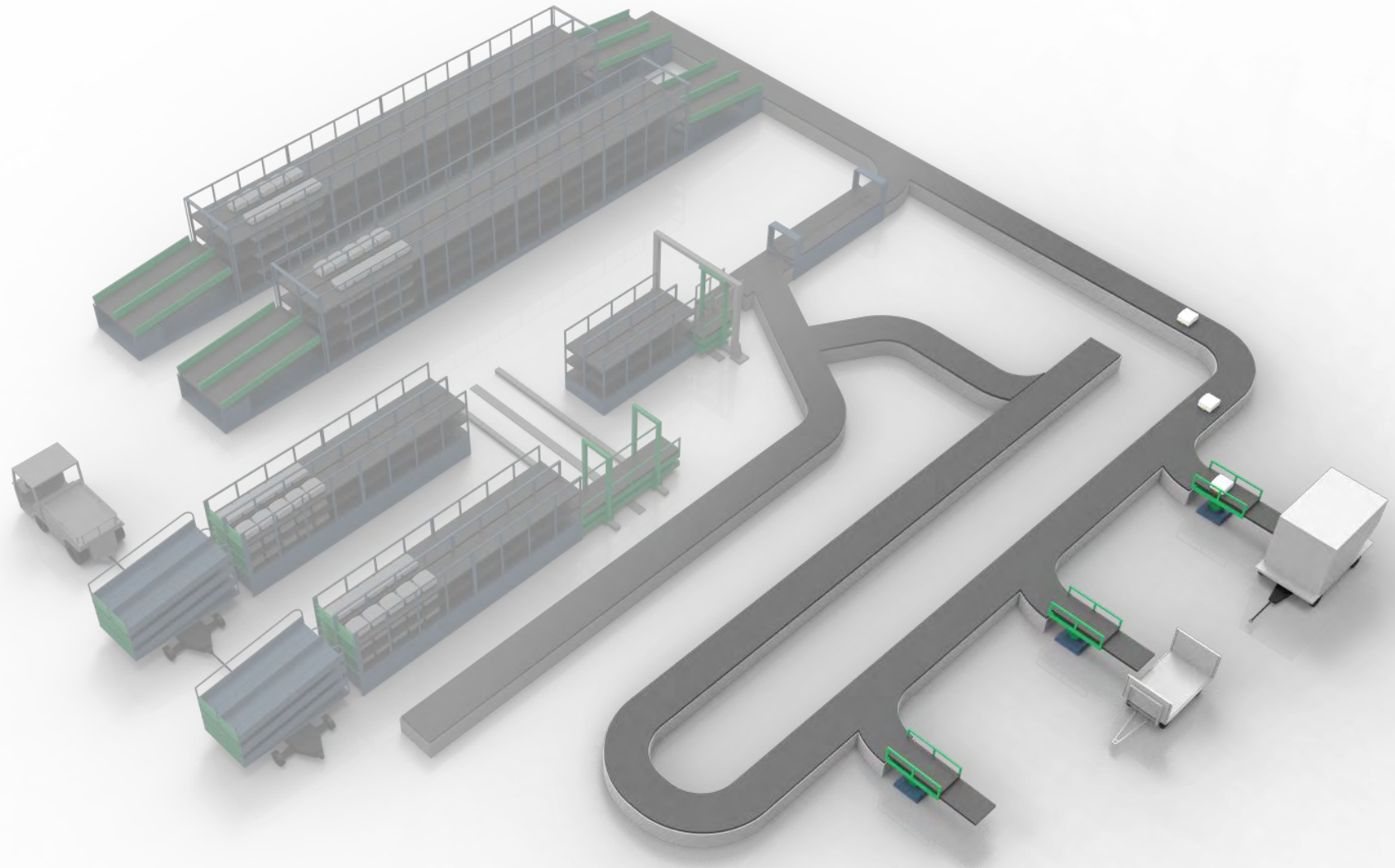
Make-up

Make-up Station



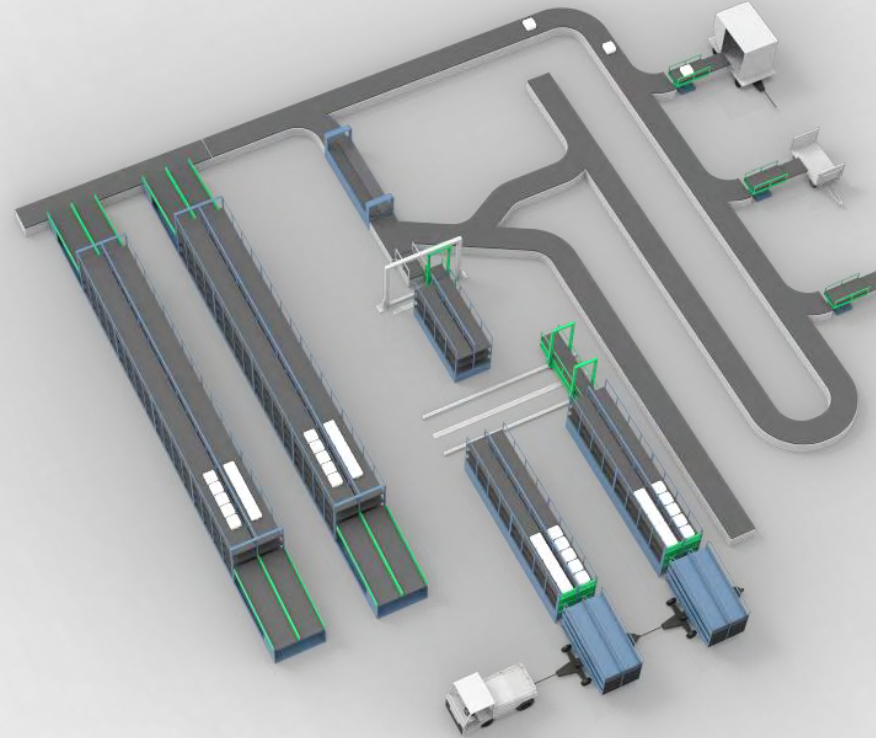
Make-up

ULD and Manual Station



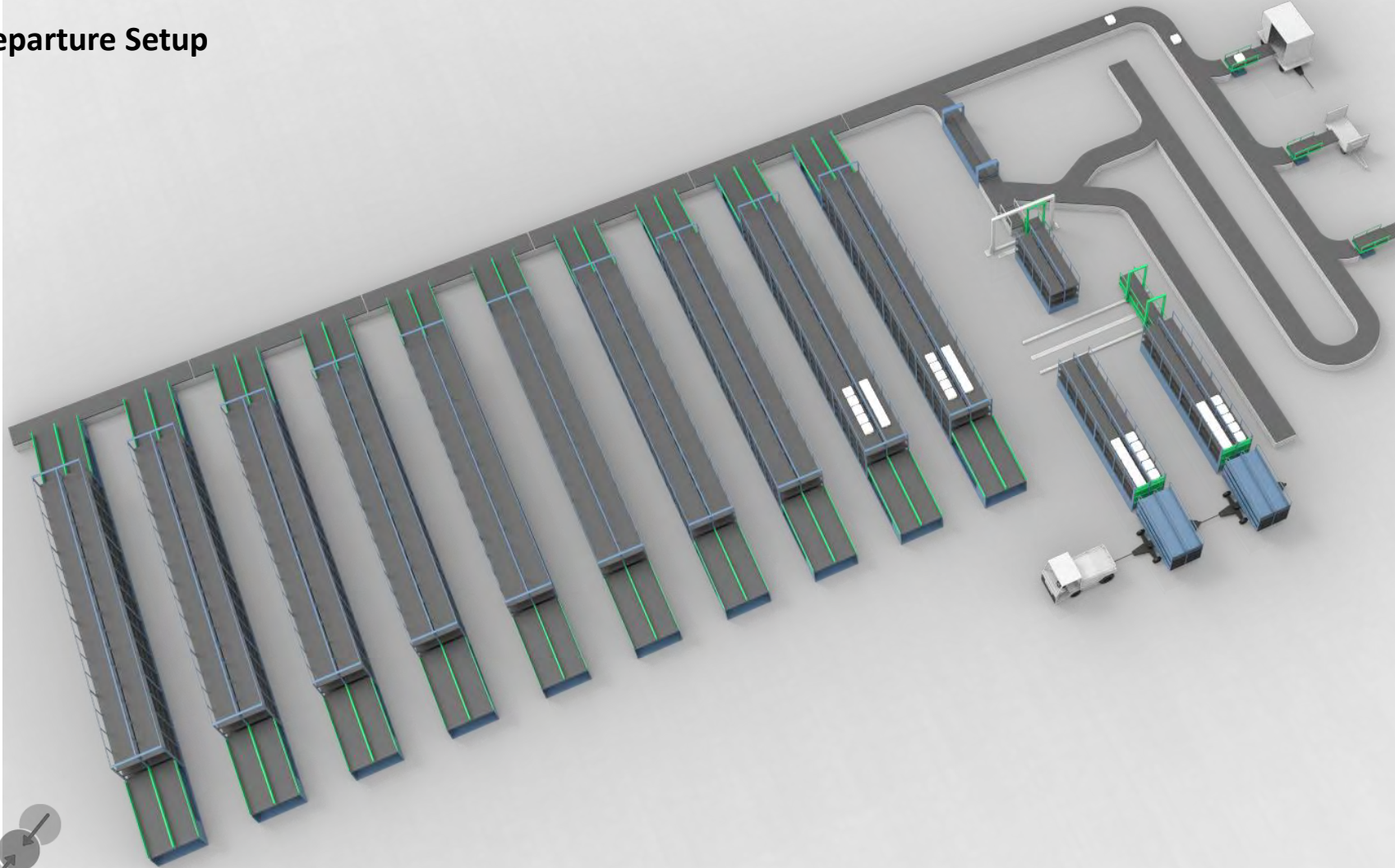
Make-up

Departure Setup



Make-up

Departure Setup



Make-up





Buffering baggage in Capacity Boosters



Make-up and segmentation



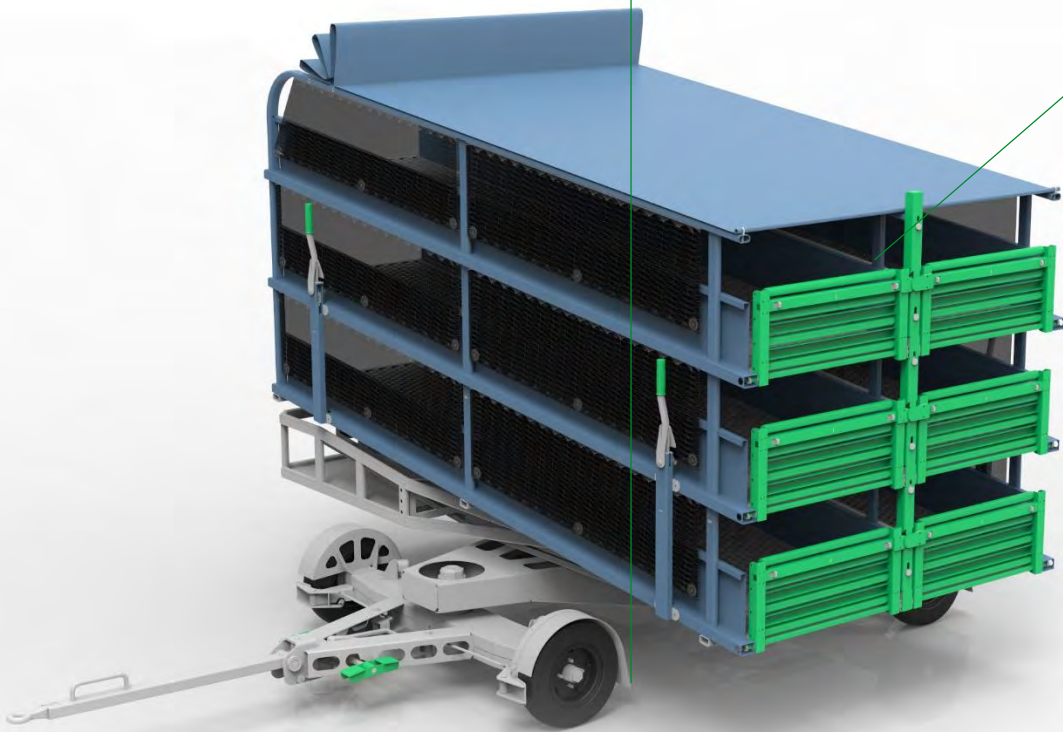
Flushing baggage



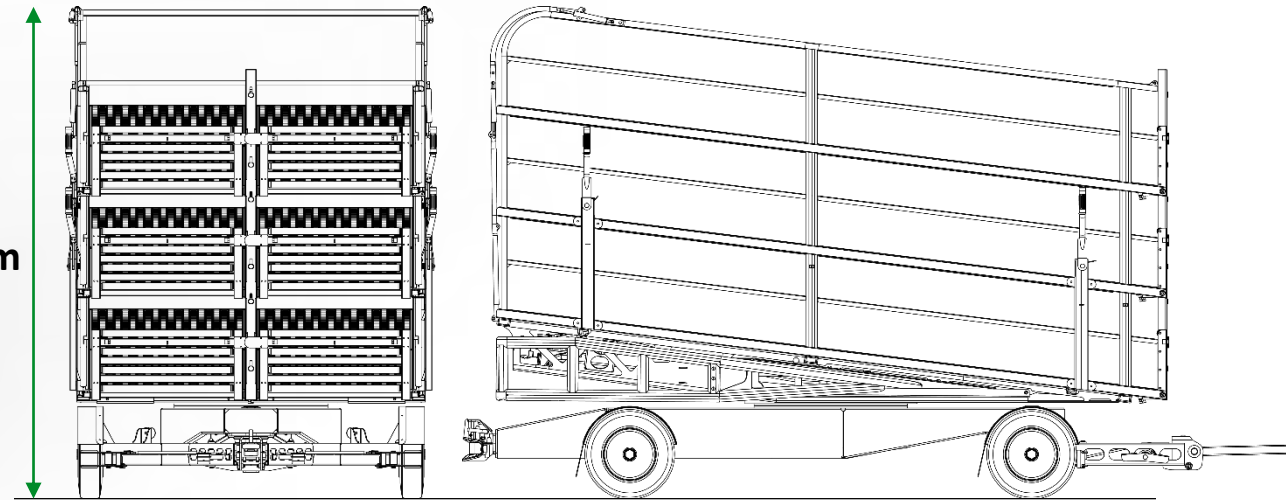
Make-up

 360 degree rotation

All shelves are equipped with rollers, ensuring baggage moves off the shelves when the lids are opened.



2300mm



1600mm

3000mm

BBHS Cart

One cart has the capacity of approx. 30 BAX. BBHS suggests that carts are paired in two forming a train.