

# Buffer management of baggage in airports

**Airneth-IFFAAD seminar  
5 April 2011, Hyatt Regency, New Delhi**

**Lodewijk (Louis) Reineke  
Vanderlande Industries**



Business

Process

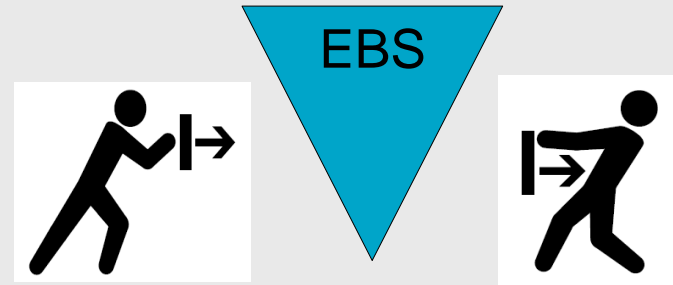
Mechanisation

Balance

# CONTENTS

## ➤ Business Challenges

## ➤ Process Improvement Choices



## ➤ Benefits of buffering with an Early Bag Storage

# BUSINESS CHALLENGES FOR GROWING AIRPORTS

## ✦ Facilitate strong growth of passenger travel

**Outbound traffic boosted by economic development**

**Inbound traffic growing with tourism**

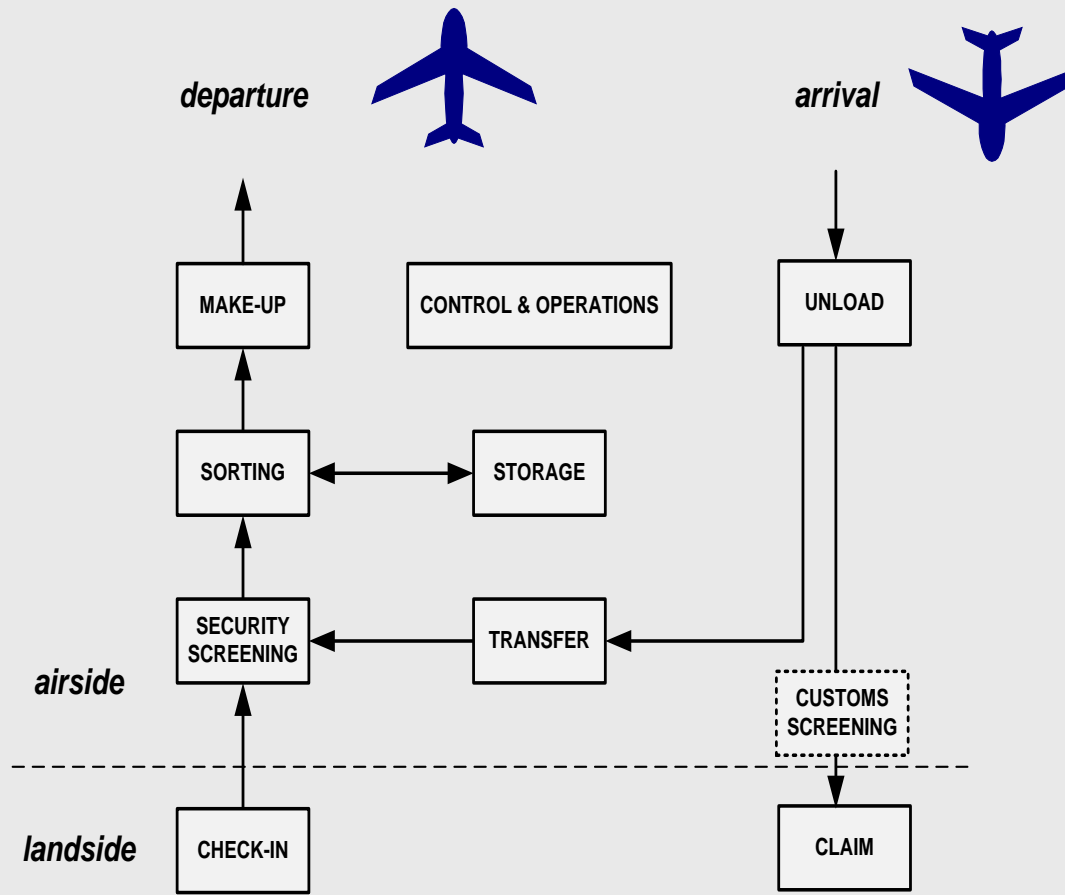
**Transfer traffic:**

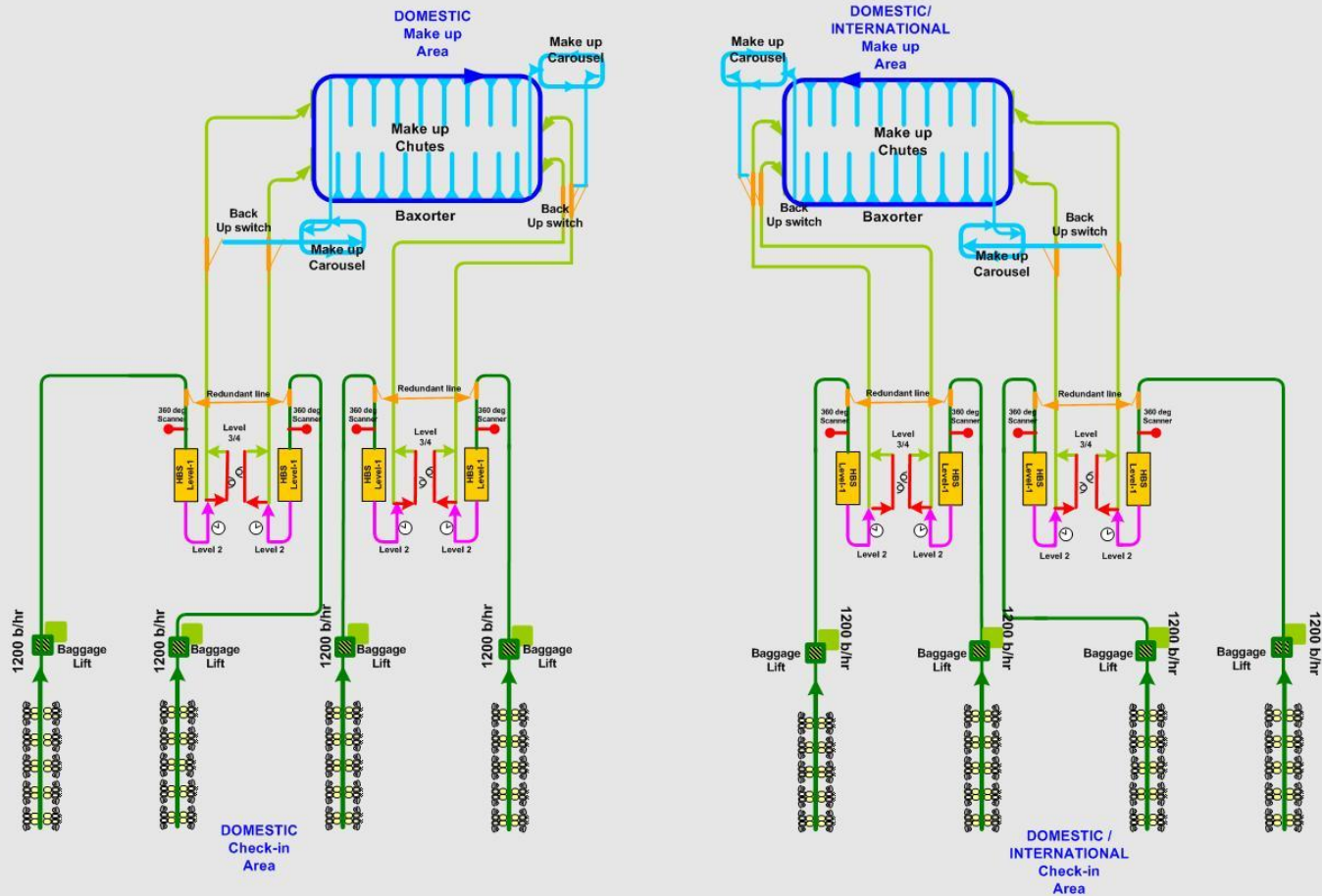
- ✦ Domestic ⇔ Domestic
- ✦ Domestic ⇔ International

## ✚ Increase operational profit

- Increase airport revenues
  - Passenger satisfaction and spending
  
- Decrease costs on baggage handling
  - Investments
  - Operational costs related to baggage handling (space, operators, errors)

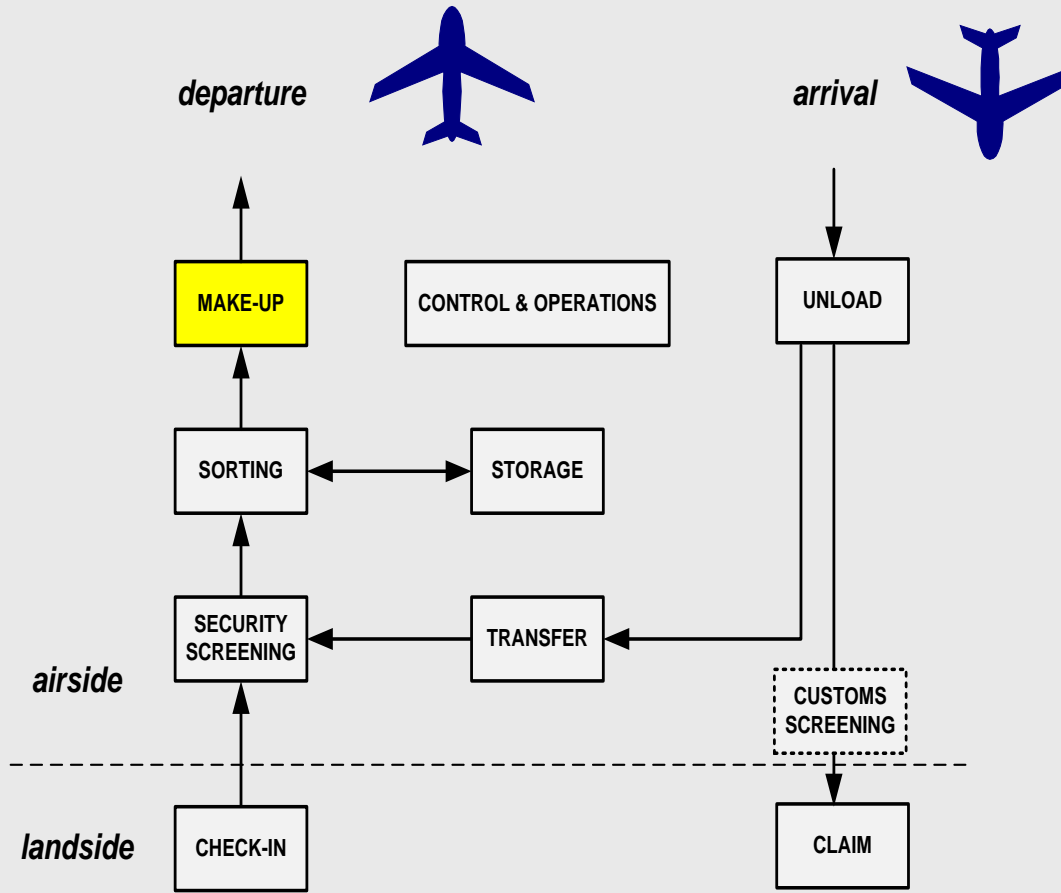
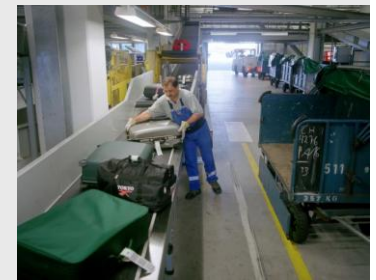
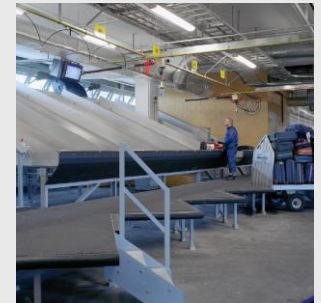
# BAGGAGE PROCESSING AT AN AIRPORT





System design

# MAKE-UP PROCESS



## PROCESS IMPROVEMENTS MAKE-UP

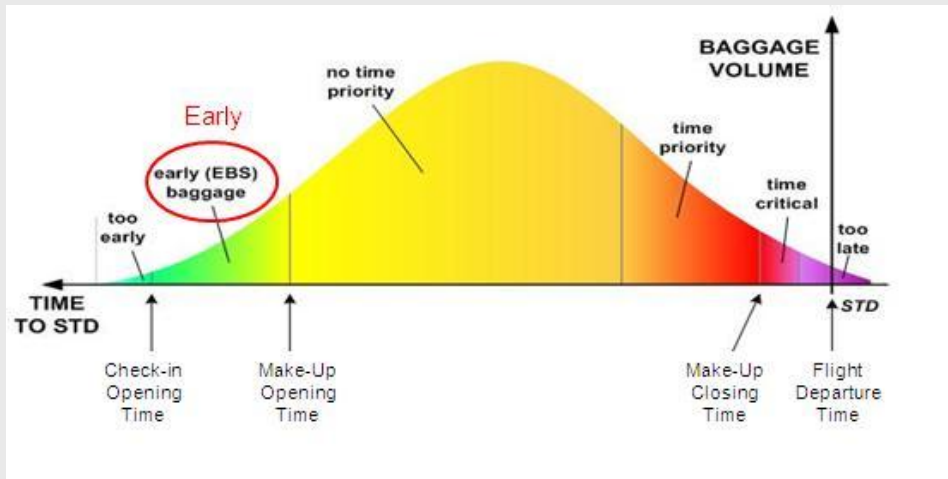
- Reduce make-up **space** in baggage hall
- Reduce **operators** needed to load bags into rampcarts / ULDs



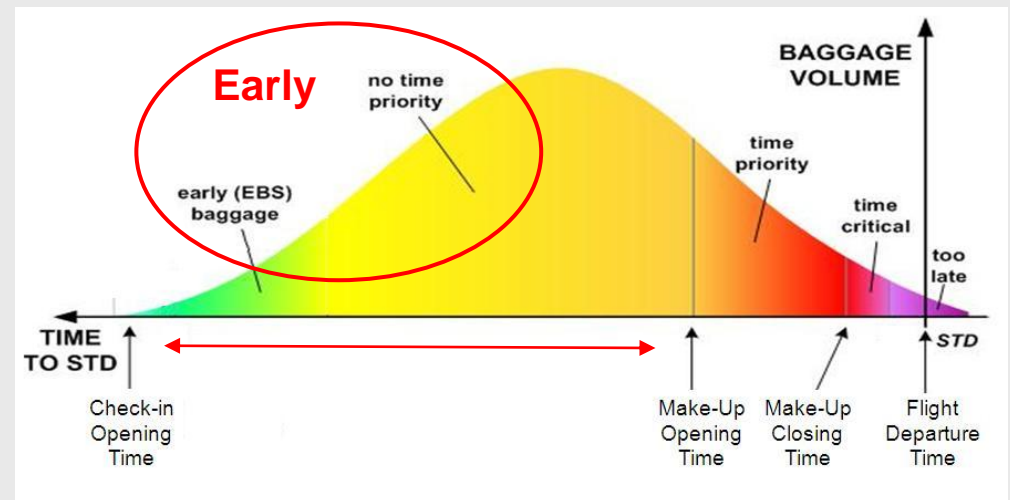
*Create buffer to introduce Make-Up on Demand*



# INCREASE VOLUME OF BAGGAGE TO BUFFER



- Open Bag Check-in earlier
- Open Make-up later



# HANDLING BAGS ACCORDING PRIORITY

## Organise “Priority”

### Time

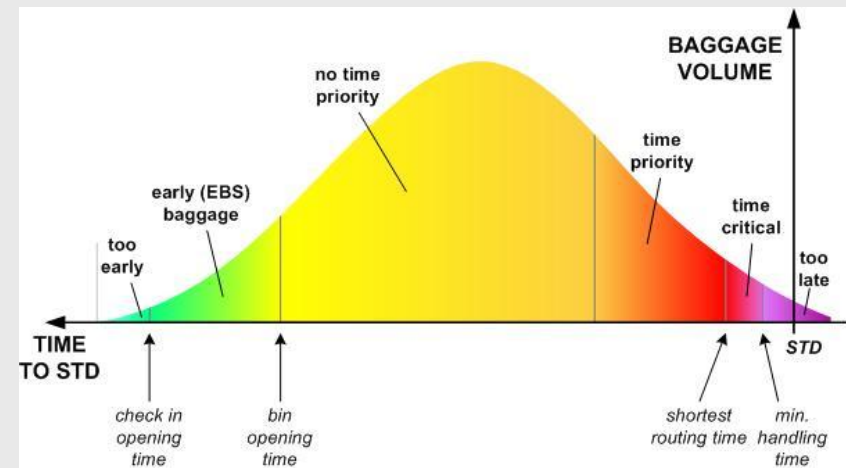
- STD, late check-in, late inbound

### Passenger Class

- Economy, Crew, Business, Premium

### Appearance/size

- OOG, difficult to handle, manual



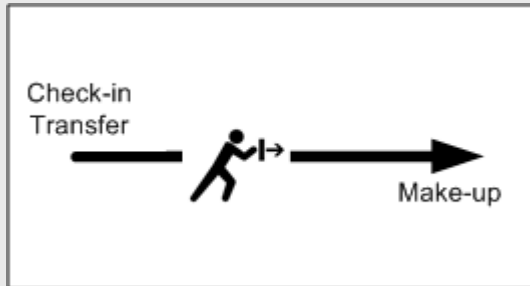
*Differentiated product*



*Differentiated process*

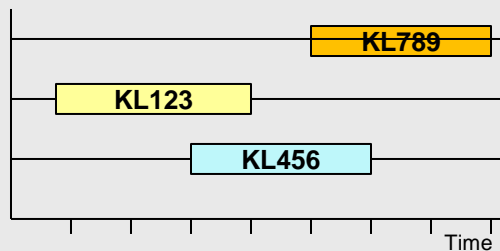


## PUSH vs PULL OPERATION AT MAKE-UP

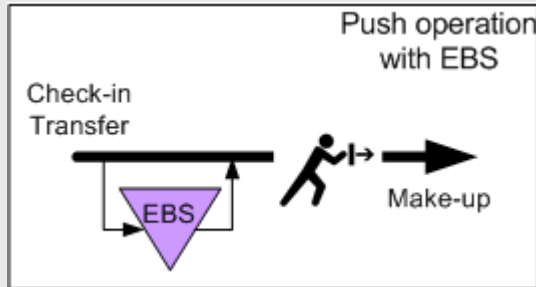


- Operation forced to follow supply of bags
- Workload for operator strongly fluctuates

9 hours

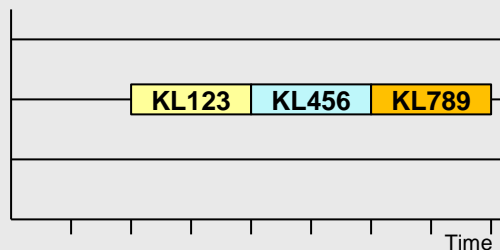


# PUSH vs PULL OPERATION AT MAKE-UP

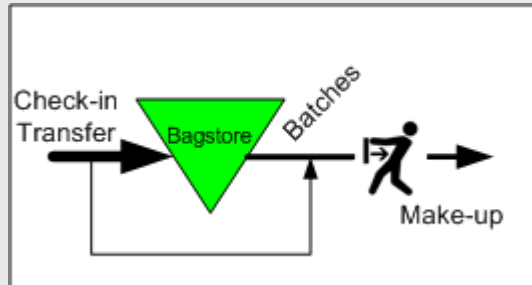


- Open **make-up later** for a shorter period
  - Improved resource planning
- Open **baggage check-in earlier**
  - Increase revenues for airport
  - Increase PAX satisfaction

6 hours



# PUSH vs PULL OPERATION AT MAKE-UP



➤ **Use Bagstore**

➤ **Make-up in batches**

When resources are available

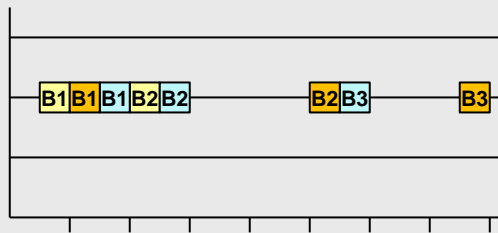
Maximum throughput at make-up

➤ **Open baggage check-in earlier**

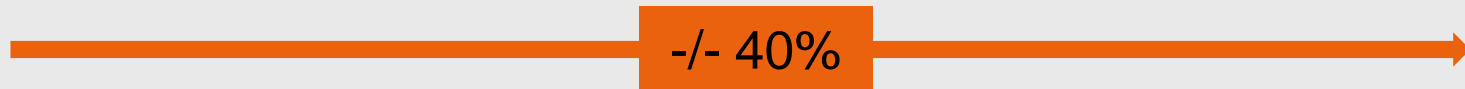
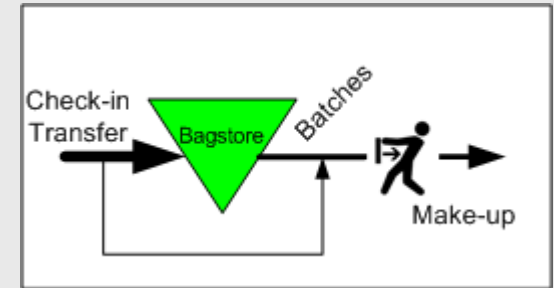
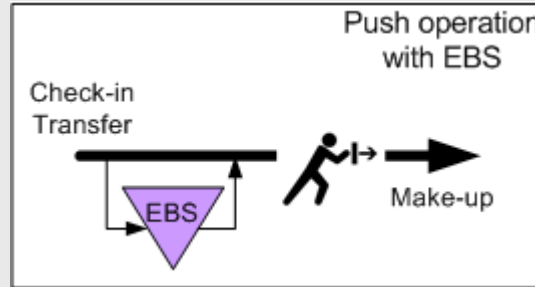
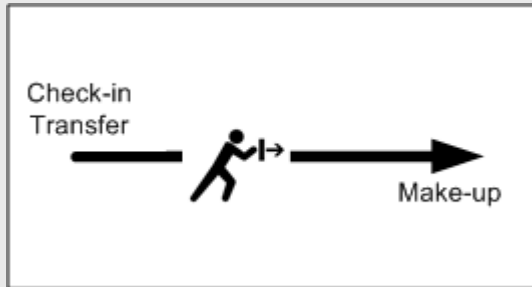
Increase revenues for airport

Increase PAX satisfaction

4 hours



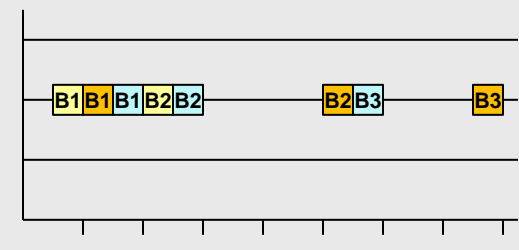
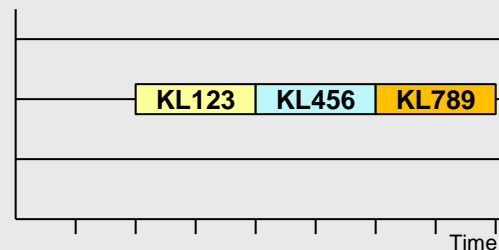
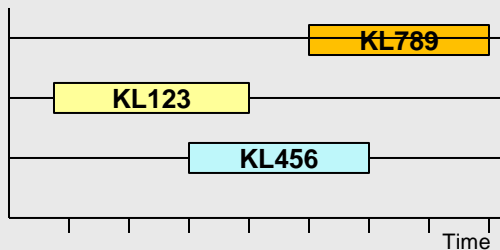
# PUSH vs PULL OPERATION AT MAKE-UP



9 hours

6 hours

4 hours



## Conclusions and benefits

### ➤ Reduces the amount of destination shutes/carrousel

- Reduce handlers/operators
- Reduce parking space for dolly's in the make up area
- Reduce complexity of planning
- Reduce amount of missed bags  
± \$100/bag: 10.000.000 bags/year  
99.5% → 99.7% = 2 million USD savings

### ➤ Increase the opening time of check inn

- Increase passengers satisfaction
- Increase commercial revenues
- Increase service level of your Airport

