



The Post Covid-19 Airport Terminal – Analysis and Mitigation of Touchpoints along the Passenger Journey

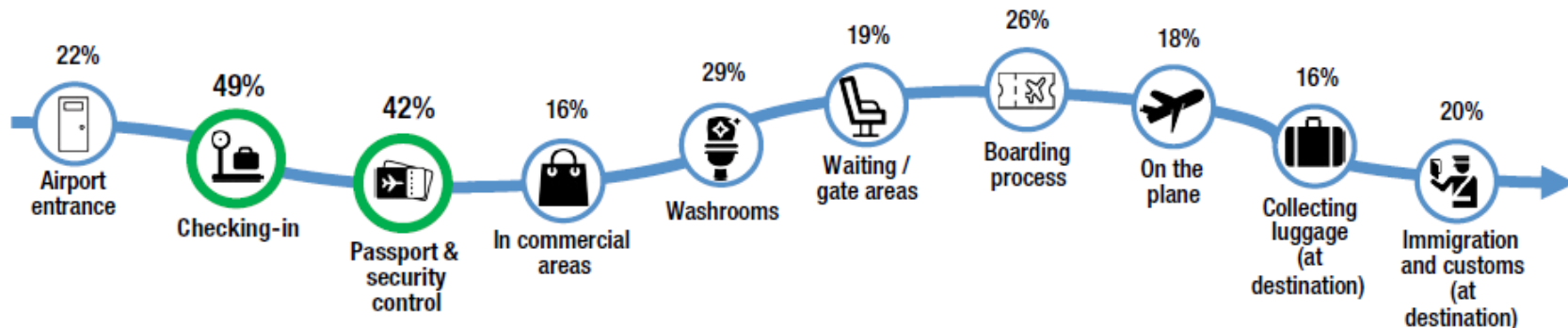
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The Impact of Covid-19 on the Passenger Journey

- ✈ Covid-19 spreads through close human contact and by touching contaminated surfaces
- ✈ There are many commonly touched surfaces and interactions between the passenger and staff in an airport terminal
 - ✈ Passengers will expect a more touchless or low-touch passenger journey

Steps of the Journey that Would Benefit the Most From Contactless Technologies



Base: All respondents Q. 20. Creating a contactless experience at the airport is one way of making the experience safer and more hygienic for passengers. In your opinion, which step(s) along the passenger journey would benefit the most from contactless technologies? Please select up to three (3) answers.

Because respondents were able to give several answers, the total of mentions may exceed 100%.

Identification and Categorization of Touchpoints along the Passenger Journey

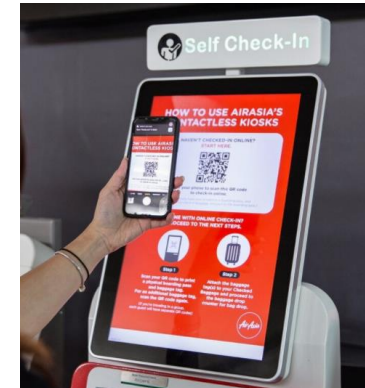


Analysis of the touchpoints and the likelihood of being touched



Source: Stuttgart Airport

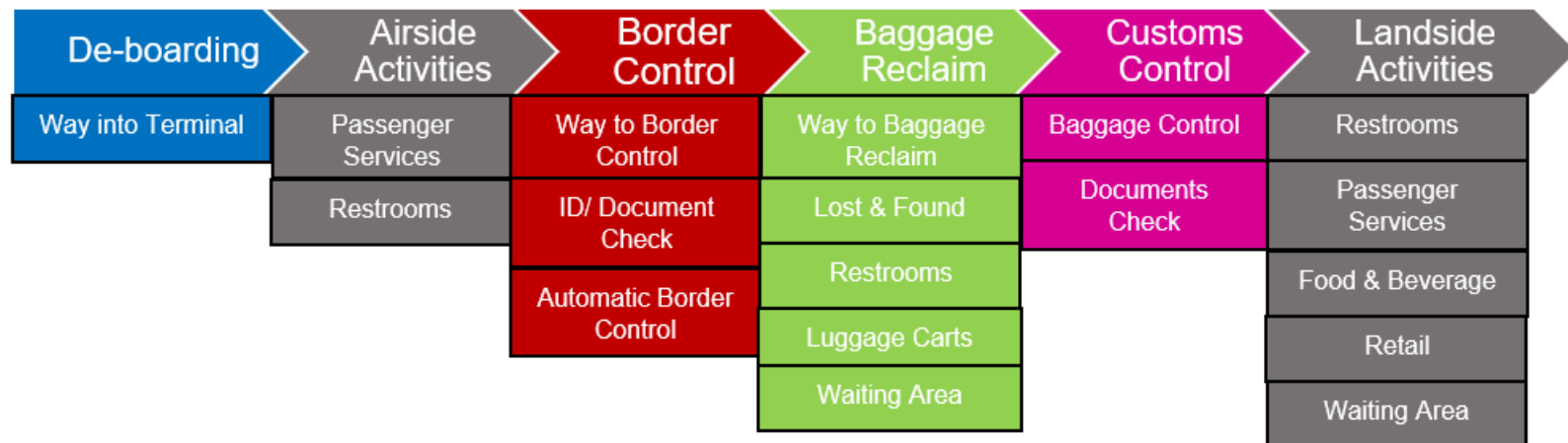
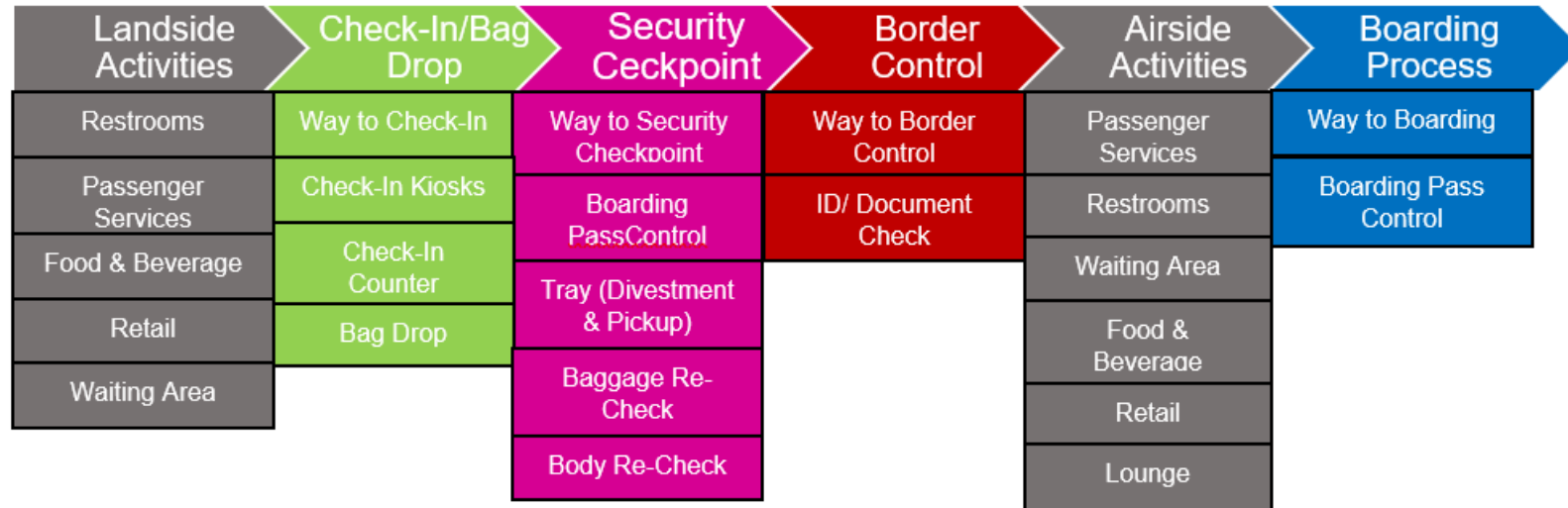
Possible contactless and low touch solutions with their advantages and disadvantages



Source: AirAsia

- ✈ The intention is to provide guidelines, solutions and ideas for the creation of a touchless or low-touch passenger journey.

The Passenger Journey Throughout the Airport Terminal



✈ All possible touchpoints of the departure and arrival journey need to be considered

Primary Passenger Processes

- Check-In/Bag Drop
- Security Checkpoint
- Boarding/De-Boarding Process
- Border Control
- Baggage Reclaim
- Customs Control

Mobility

- Elevator, Escalators, Moving Walkways & Stairs
- Walkways, Access Doors and Handrails

Washroom Facilities

Retail/Food & Beverage

Passenger Services

- Airport Lounges
- Information Services
- PRM Services
- Other

Types of Touchpoints along the Passenger Journey

1. Touchscreen



2. Push Button



3. Handrail/Railing



4. Doorknob/Handle



5. Furniture



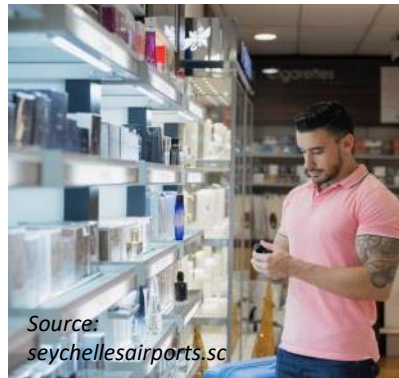
6. Seat



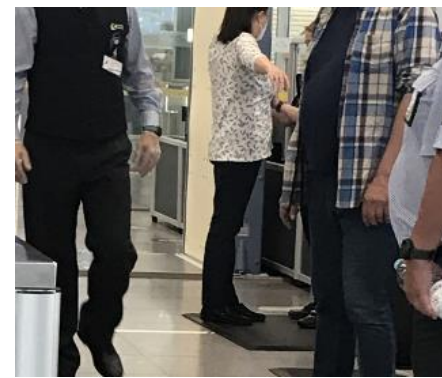
7. Mobile Equipment



8. Selected Product



9. Interaction with Staff



10. Others



Categorization	Definition
Mandatory Touchpoints	<p>These are touchpoints that passengers cannot avoid because a certain procedure or action is required during the passenger journey.</p> <p>Examples: check-in/bag-drop, security control, border control</p>
Partially Voluntary Touchpoints	<p>These are touchpoints that may be touched or interacted with on free will, though usually inevitable. Passengers might not want to use partially voluntary touchpoints, however due to their personal limitation, have no choice.</p> <p>Examples: Restroom facilities, PRM services</p>
Voluntary Touchpoints	<p>There are touchpoints that are part of an activity or action of free will without being forced to.</p> <p>Examples: Use of vending machines, eating at a restaurant or using a seat</p>

Solutions for Touchpoints in the Airport Terminal

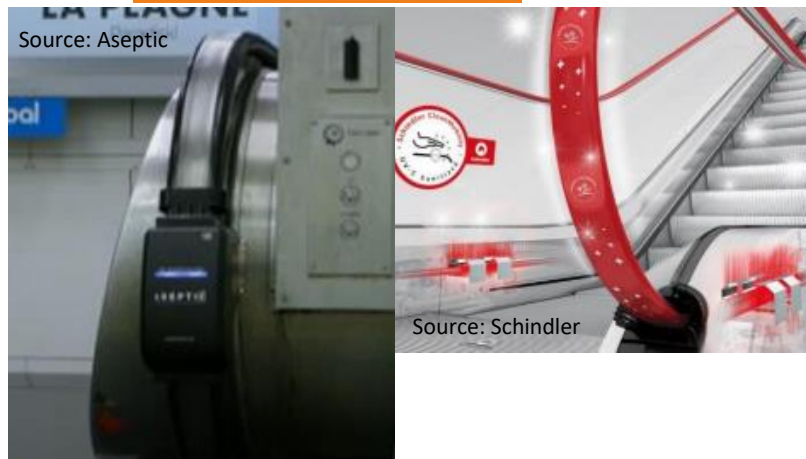
Smart Phone Solutions



Biometric Solutions



UVC Light Solutions

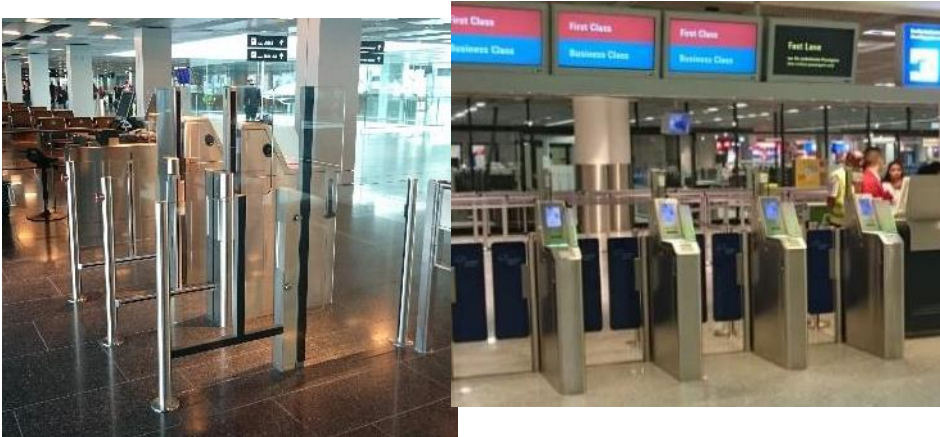


Antimicrobial Materials/Properties



Solutions for Touchpoints in the Airport Terminal

Barcode Scanning Solutions



Near-touch Solutions



Source: Changi Airport Group

Sensor Based Solutions



Source: Schäfer Trennwandsysteme

Source: Schäfer Trennwandsysteme

Contactless Payment Solutions

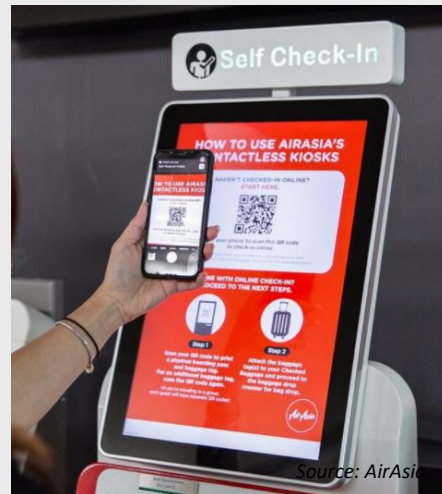


Source: VR-Payment

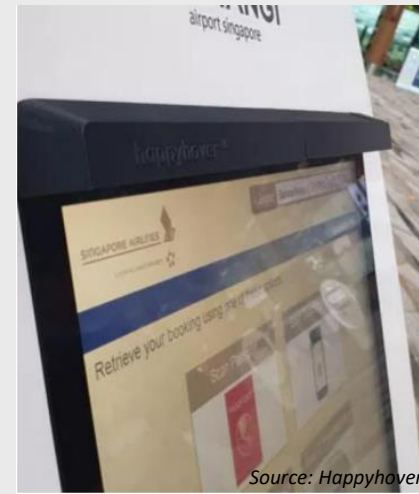
Source: Visa

Solutions for the Check-in/Bag Drop Process

- ✈ **Biometric Identity** allows to identify passengers at check-in without showing any documents.
- ✈ **Smart Phones** allow the passenger to operate the self-service kiosks without touching the kiosk itself.
- ✈ **Mid-Air Technology** enables the passenger to operate the self-service kiosk by hovering the finger over the screen
- ✈ **Antimicrobial coating** can be applied to screens, countertops, tables, etc., which kills germs within a certain period.



Smart Phone Solution



Mid-Air Technology

Solutions for Security Checkpoints

- ✈ **Biometric Identity** allows to identify passengers without showing a boarding pass.
- ✈ **Electronic Ticket Gate** allows the passenger to scan their boarding pass themselves.
- ✈ **UVC-Light Technology** can disinfect luggage trays. It can be done automatically if the light is integrated into an automatic tray return system.
- ✈ **Antimicrobial coatings or materials** for luggage trays



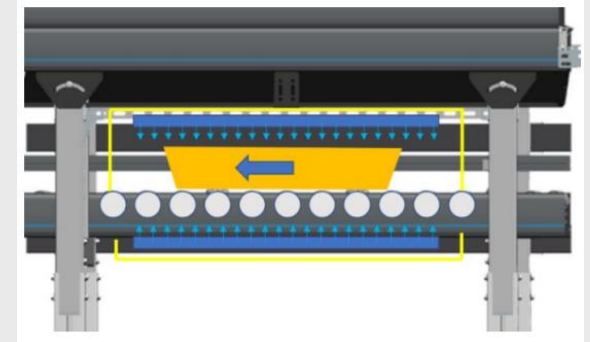
Source: SITA

Biometric Identification



Source: Integral

Electronic Ticket Gate



Source: Smiths Detection

UVC-Light Tray Disinfection

Solutions for the Boarding/De-Boarding Process

- ✈ **Biometric Identification** allows the passenger to board the aircraft without providing a boarding pass
- ✈ **Electronic Self-Boarding Gates** allow the passenger to scan their boarding pass themselves and board the aircraft.



Source: Cambaum.

Biometric Enables Self-Boarding Gates



Source: Lee, K.

Palm Vein Identification



Source: dormakaba

Electronic Self-Boarding Gates

Solutions for the Border Control

- ✈ **Automatic Border Control Gates (ABC-Gates)** compare the passport information with the border control records and the live biometric data available.
- ✈ **Biometric Identity** allows to identify passengers without showing a passport.
- ✈ **Touchless Border Control Kiosk** allow to operate the kiosk with a smart phone



Source: Thales

ABC-Gates

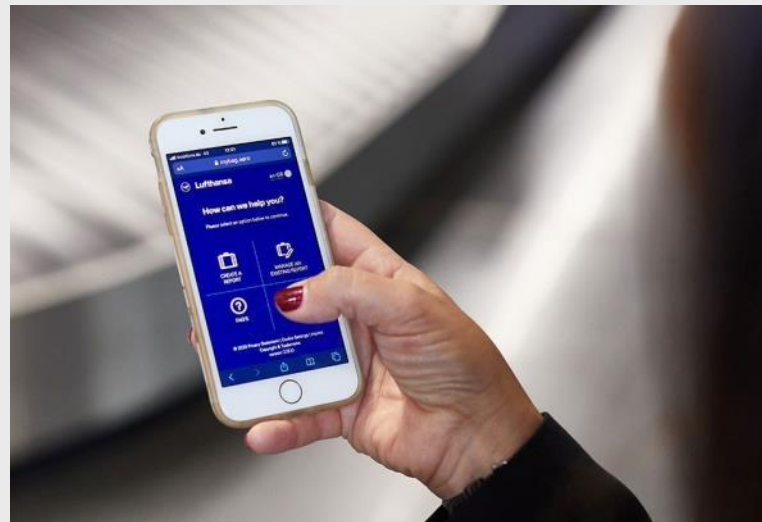


Source: Japan Customs.

Touchless Border Control Kiosk

Solutions for the Baggage Reclaim Area

- ✈ **Antimicrobial Coatings or Materials** can be applied to the luggage carts.
- ✈ Informing the passengers about the loss of their luggage prior to arrival via **Text Message** can eliminate the need of a lost luggage service counter.
- ✈ **Touchless kiosks or online declarations** for lost luggage eliminate touchpoints



Source: SITA

Online service for lost luggage

✈ Solutions for Elevators

✈ **Smart Phone Technology** to call and operate the lift using their personal mobile device.

✈ **Time-Of-Flight (TOF) Laser Ranging and floating image technology.**

An image of the button is projected into the air and sensors recognize the user's finger when the floating button is being touched.

✈ **Operational Settings** (e.g. moves to preferred floor and doors open)

✈ **UVC-Light Technology** can be used for escalators and moving walkways.

✈ **Antimicrobial Coatings or Materials** can be used for the railings of stairs.



Source: OTIS.

Elevator Smart Phone Operation



Source: Schindler

Handrail UVC-Light Disinfection



Source: Aseptic

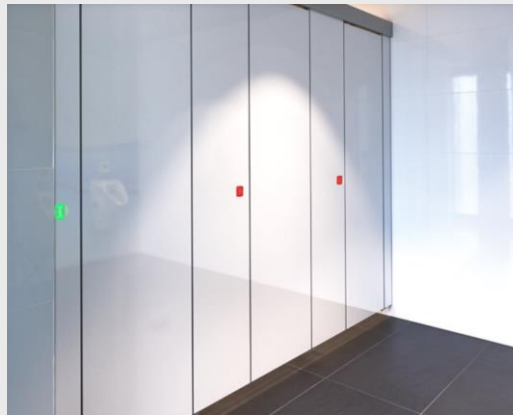
UVC-Light External Application

- ✈ **Sensor Activated Doors** for touchless opening and closing of both entry doors and stall doors.
- ✈ **Self Cleaning Toilets** to avoid the spread and growth of germs.
- ✈ **Infrared Sensor based** toilet flush, faucets, soap & towel dispenser for touchless operation.
- ✈ **Smart Toilet Facilities** to reduce the interaction with staff, as only refill and cleaning is done when the system alerts the operator



Source: TWO GmbH.

Self-Cleaning Toilet



Source: Schäfer Trennwandsysteme

Touchless Toilet Stall Door



Source: Schäfer Trennwandsysteme

Touchless Toilet Flush

Solutions for Food & Beverage and Retail Stores

- ✈️ **“Buy-Online-Pickup-In-Store (BOPIS)”** allows passengers to buy items online and then pick it up in store
- ✈️ **Cubby Holes** to pick up items without being in contact with any staff
- ✈️ **Virtual Shopping Walls** to shop items portrayed on the wall online, using a smart phone
- ✈️ **Contactless Vending Machines**, which are operated using a smart phone
- ✈️ **Digital Menu** eliminates a physical card and allows for online ordering.



Source: aeguana.

Touchless Vending Machine



Source: Dublin Airport

Virtual Shopping Wall

- ✈ **Contactless Payment** with credit or debit card.
- ✈ **Smart Phone Wallets** with a digital credit or debit card saved to it.
- ✈ **Shop without staff** allows the passenger to enter with a credit card or an app, pick the items and walk out again



Source: Apple.

Smart Phone Wallets



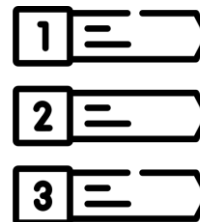
Source: Justwalkout.com

Shop without staff

1. Determine and analyse the existing touchpoints in terms of category, type and frequency
2. Review possible touchless or low-touch solutions and conduct a feasibility analysis regarding
 - Needed changes for processes and infrastructure
 - Cost and time for implementation
 - Improvement of the passenger experience
3. Prioritize and implement the most suitable touchless or low-touch solutions
4. Invest in contactless and low-touch options for passenger processes with a significant number of touchpoints first, as the overall number of touchpoints for every passenger would decrease significantly.



Feasibility



Prioritize



Thank you very much for your attention!

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