

# LAVATORY 100% BARRIER-FREE



LAV4ALL – the aircraft lavatory anyone can use  
without assistance on single-aisle aircraft.

**1** Bn. people



Individuals with disabilities worldwide

**largest** minority



Individuals with disabilities worldwide

**Rising** rates



Due to ageing populations and increasing chronic health conditions

**200** Mio. people



Have significant disabilities

**DISABILITY OVERVIEW**



#### GOOD EXISTING SOLUTIONS

- Accessibility in daily mobility
- Accessibility in rail system, bus system etc.

#### ALL PEOPLE MUST BE ABLE TO PARTICIPATE IN MOBILITY EQUALLY

- Accessibility of transportation systems is a must
- Ethical Question
- Different national & international regulations (e.g. European Accessibility Act, US NPRM)

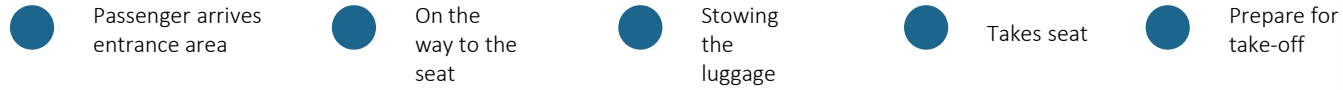


#### AIR TRANSPORTATION

- Poor situation in aircraft cabins

INITIAL SITUATION

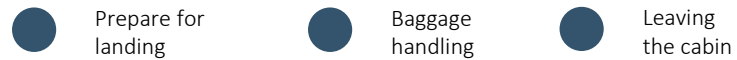
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## BEFORE DEPARTURE

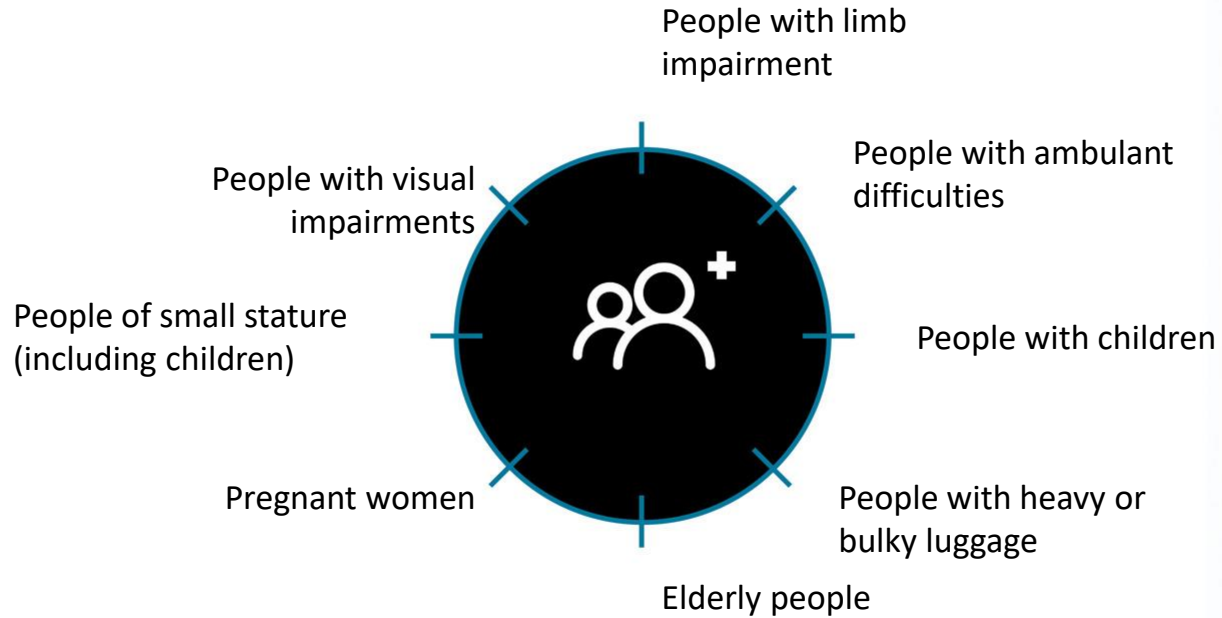


## DURING FLIGHT



## AFTER LANDING

**PROBLEM IDENTIFICATION  
IN THE CUSTOMER JOURNEY**



TARGET GROUPS



Perception **without** any  
visual impairment



Perception with  
**Cataract**



Perception with  
**Glaucoma**



Perception with **AMD**  
(Age-related) Macular  
Degeneration



Perception with  
**Diabetic Retinopathy**



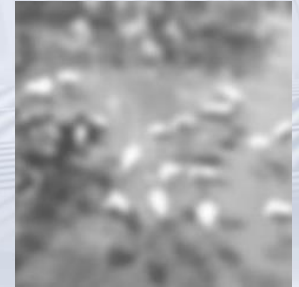
Perception with  
**Retinitis Pigmentosa**



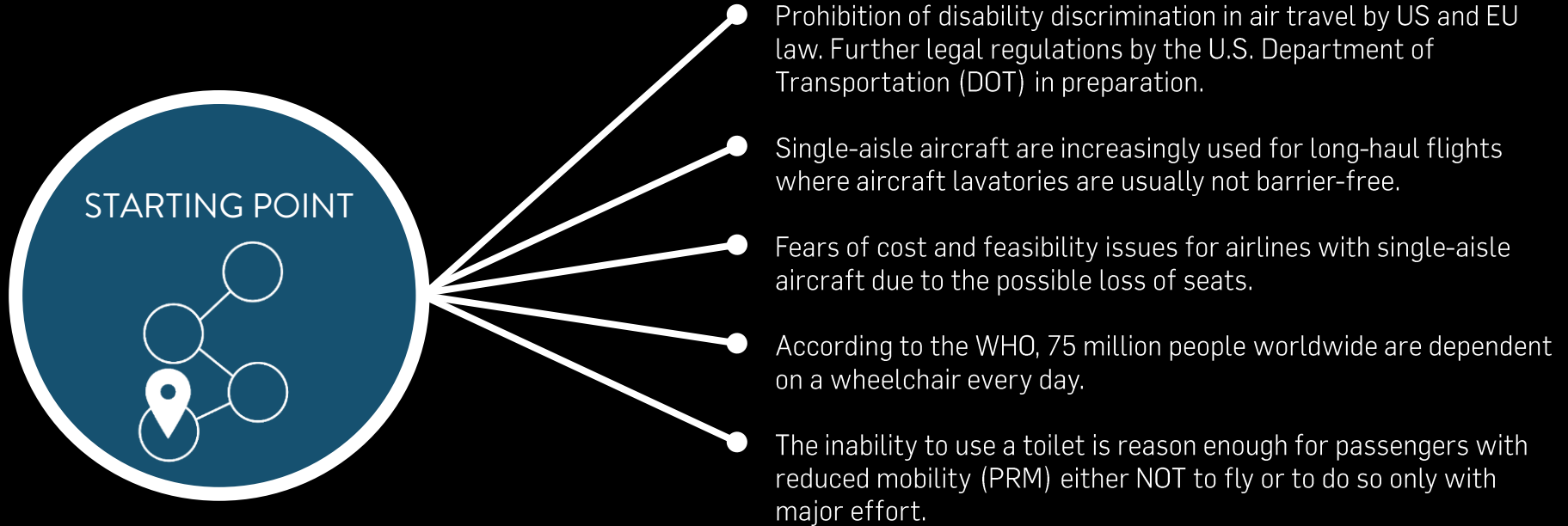
Perception with **red-green color deficiency**



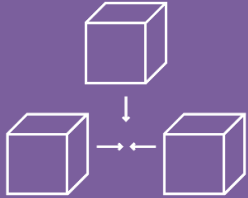
Perception with **total color blindness**



## TYPES OF VISUAL IMPAIRMENT



## REQUIREMENTS

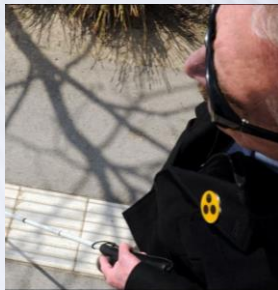


- Grab bars must be available and adapted to the needs of people with disabilities.
- To prevent burns, water taps should have controls with tactile information about the temperature.
- Attendant call buttons, controls and door locks should be accessible and haptic identifiable.
- The door sill shall not block the entry and exit of the on-board wheelchair and at the same time prevent the leakage of liquids.
- The legroom shall not be reduced compared to the current measurements.





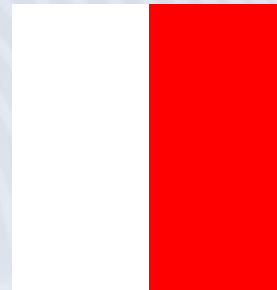
Embossed printing  
(Braille)



Tactile elements



Guide dog



Strong contrasts

**MOBILITY AIDS FOR BLIND &  
VISUALLY IMPAIRED PEOPLE**

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### Hygienic Surfaces

Permanent antimicrobial surfaces  
against bacteria and viruses  
(including SARS-CoV-2)

### Mirror

Easily adjustable

### Touchless Features

Highly developed sensors and  
sensitively reacting actuators

### Easy entry

The patented door opens the entire  
corner area and provides maximum  
privacy

### Grab bars

Additional handles support  
the transfer to the toilet



### RETROFITABLE

Retrofittable for A3SA aircraft. Available for other aircraft types on request



### SAME EXTERNAL DIMENSIONS

Maximum seating capacity and galley space remains unchanged with a width of only 930 mm (in flight direction)



### BRAILLE

Optimization for people with visual disabilities



### 100% BARRIER-FREE

Appreciation for passengers with special needs



### HYGIENIC SURFACES

Permanent antimicrobial coating (PURE CABIN), seamless design



### TOUCHLESS OPTIONS

Highly developed sensors and actuators enable contactless processes at the customer's request



### COMPLIANT WITH NEW REGULATIONS

Already compliant with upcoming aviation regulations



### MAXIMUM COMFORT

Significantly increases travel comfort, privacy and dignity of passengers



### MORE SPACE

A tapered geometry of the lavatory offers passengers more free moving space



### NEW MARKET SEGMENTS

PRMs represent one of the fastest-growing demographics in aviation

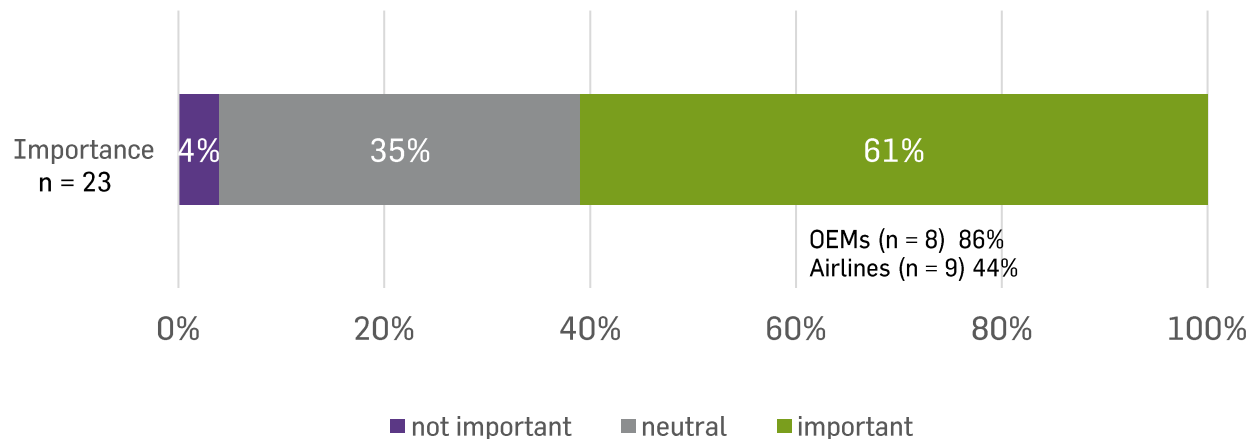
Features	“LAV4ALL” by FACC
Optimization for people with visual disabilities by using a special concept and braille	x
Hygienic surfaces with PURE CABIN	x
Easy stand-alone transfer by reduced transfer angle	x
Touchless features where useful. Studies showed that often mechanical actions increase the sense of security of PRMs. (Locking the door, opening/closing the toilet seat, etc.)	x

# LAV4ALL SURVEY

## IMPORTANCE OF ACCESSIBILITY

How important do you evaluate the topic accessibility on airplanes within your company?

(scale: 0 = not important at all, 10 = very important, only participants who answered "yes" at last question)



Categories 0, 1, 2, 3 merged to not important

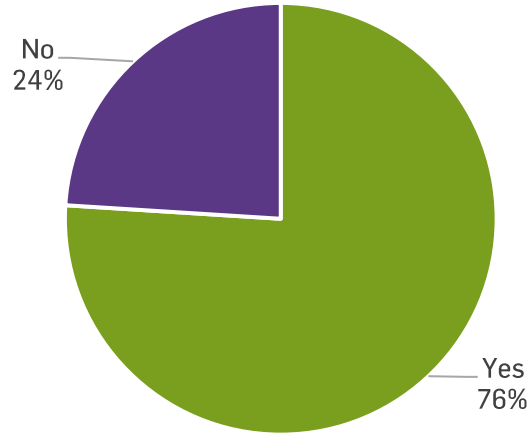
Categories 4, 5, 6 merged to neutral

Categories 7, 8, 9, 10 merged to important

# LAV4ALL SURVEY

## DEMAND FOR A PRM LAVATORY I (PRM = persons with reduced mobility)

Do you think a PRM lavatory could be a competitive advantage for airlines?



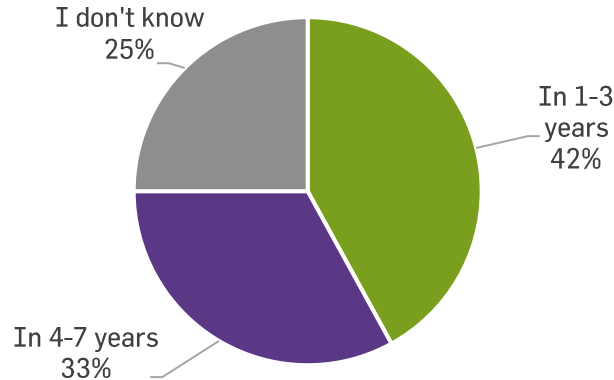
n = 29

# LAV4ALL SURVEY

## DEMAND FOR A PRM LAVATORY III

### EXISTING FLEET (RETROFIT)

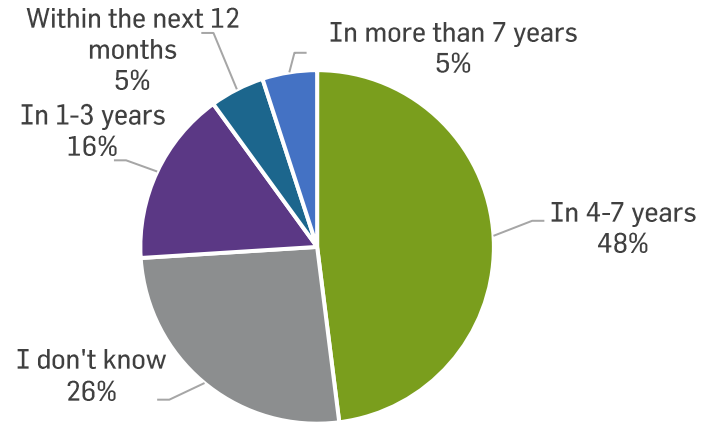
When do you think the aircraft will be refurbished with a PRM lavatory?



n = 24, 0% within the next 12 months, 0% in more than 7 years  
only participants who gave the relevant answer on the last question, see previous slide

### NEW FLEET (LINE-FIT):

When do you think the aircraft will be purchased/leased with a PRM lavatory?

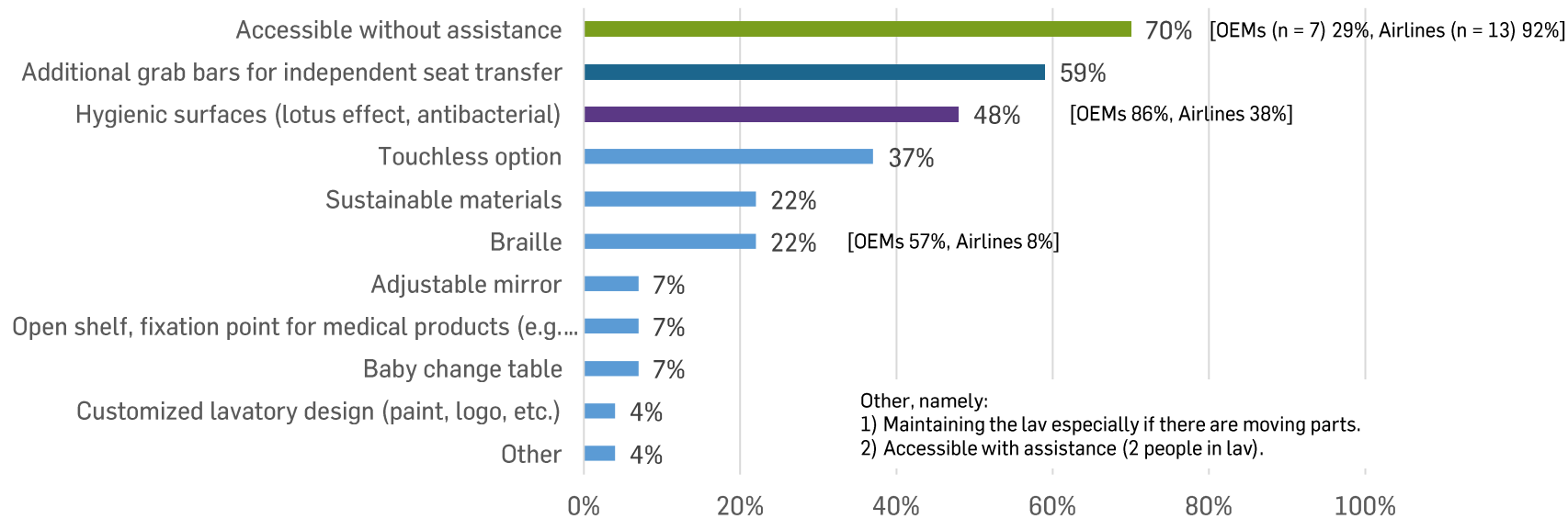


n = 19

# LAV4ALL SURVEY

## PRODUCT FEATURES I

Please choose what you consider the 3 most important features for a PRM lavatory.



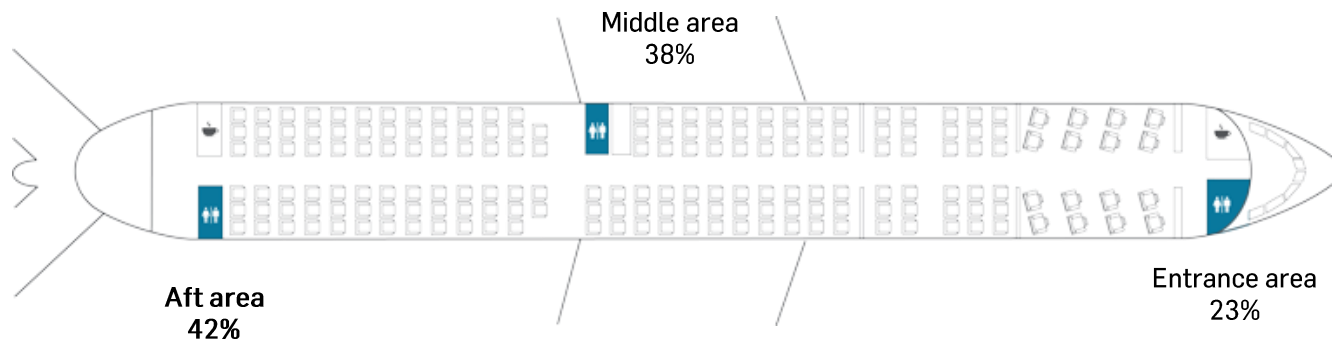
n = 27 (multiple answers possible), some participants indicated more than 3 features, 0% light dimming option  
answers were randomized at online survey



# LAV4ALL SURVEY

## LOCATION FOR PRM LAVATORY

Which location for your PRM lavatory would you prefer?



n = 26 (2 participants indicated two locations, 4% anywhere)

# LAV4ALL Target market for replacement

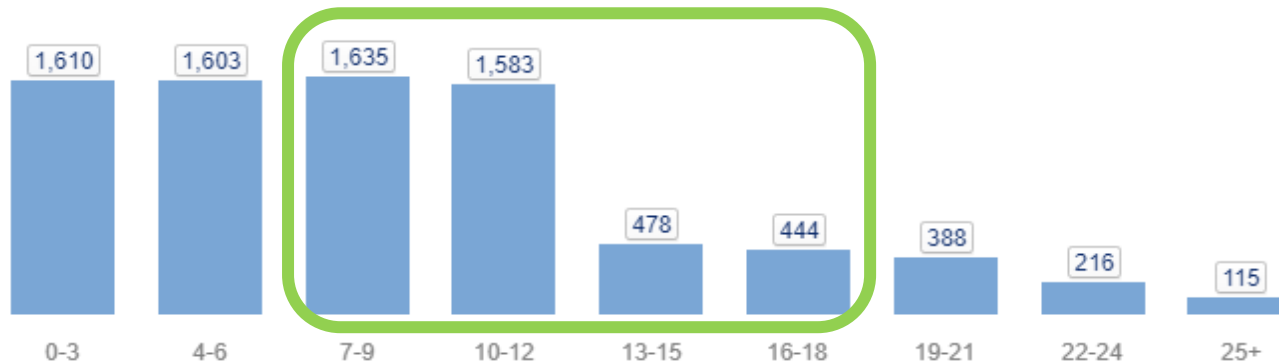
Replacement of 7 - 18 years A320 & A321 for **mid & long haul** flights

with **existing corner lavatories**: Potential of 4140 Aircraft

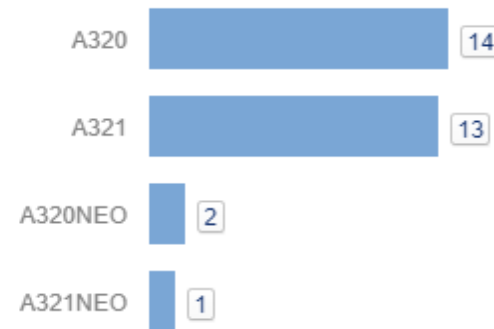
Age

2022

Aircraft Average Age



Top Aircraft Groups By Age



DEVELOPMENT  
PARTNERS





# READY TO FACE THE FLIGHT

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LAVATORY  
100% BARRIER-FREE

YES TO #EQUALITY



Nico Langmann  
Professional wheelchair  
tennis player