

# Improving energy efficiency and attractiveness of urban buses

The Gothenburg case



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# Advanced solutions for improved efficiency and attractiveness of bus systems



# EBSF2 – Gothenburg test arena and the ElectriCity demonstrator



# The test arena

- One bus line
- 10 buses (7 plug-in electric, 3 fully electric)
- 3 re-designed bus stops
- 1 indoors bus stop





55 Johanneberg Science park

ELECTRICITY

Keolis

EPO 136

# Activities in EBSF2 TIGot2-3

- On board questionnaires to passengers
- On board interviews with passengers
- Interviews with passengers at the indoors bus stop
- Observations at bus stops and on buses
- Co-design workshop
- Interviews with bus drivers
- Measurement of dwell-time, speed, etc.



# Buses

- In general more satisfied with the new bus
  - All interviewed stated that it was better or equal
  - 99% satisfied or very satisfied with the bus
- Silent, well kept, calm/relaxed, easy to board and move around, Environmentally better, smooth ride, friendly bus drivers, Details such as backrests on folding seats much liked, wifi & usb: liked but unused
- Perceive that boarding and egressing the bus goes faster, but the statistics show the opposite true. Hypothesis: Drivers see the passengers and wait for them to sit (corr. dwelltime/enter, but not DT/exit)



# Bus stops

## Outdoors

- 81% appreciate the new bus stops
- Small differences to standard shelters
- Heated seats well liked
- Looks sheltered but windy
- Centre pillar blocks access
- Screens not used at all

## Indoors

- 83% appreciate the new indoors bus stop
- Inside – protected from the weather
- Feels safer
- Bus always there, people board the bus, don't linger in the building
- Room for improvement
  - the interior design – garage feeling
  - integration with the surrounding buildings



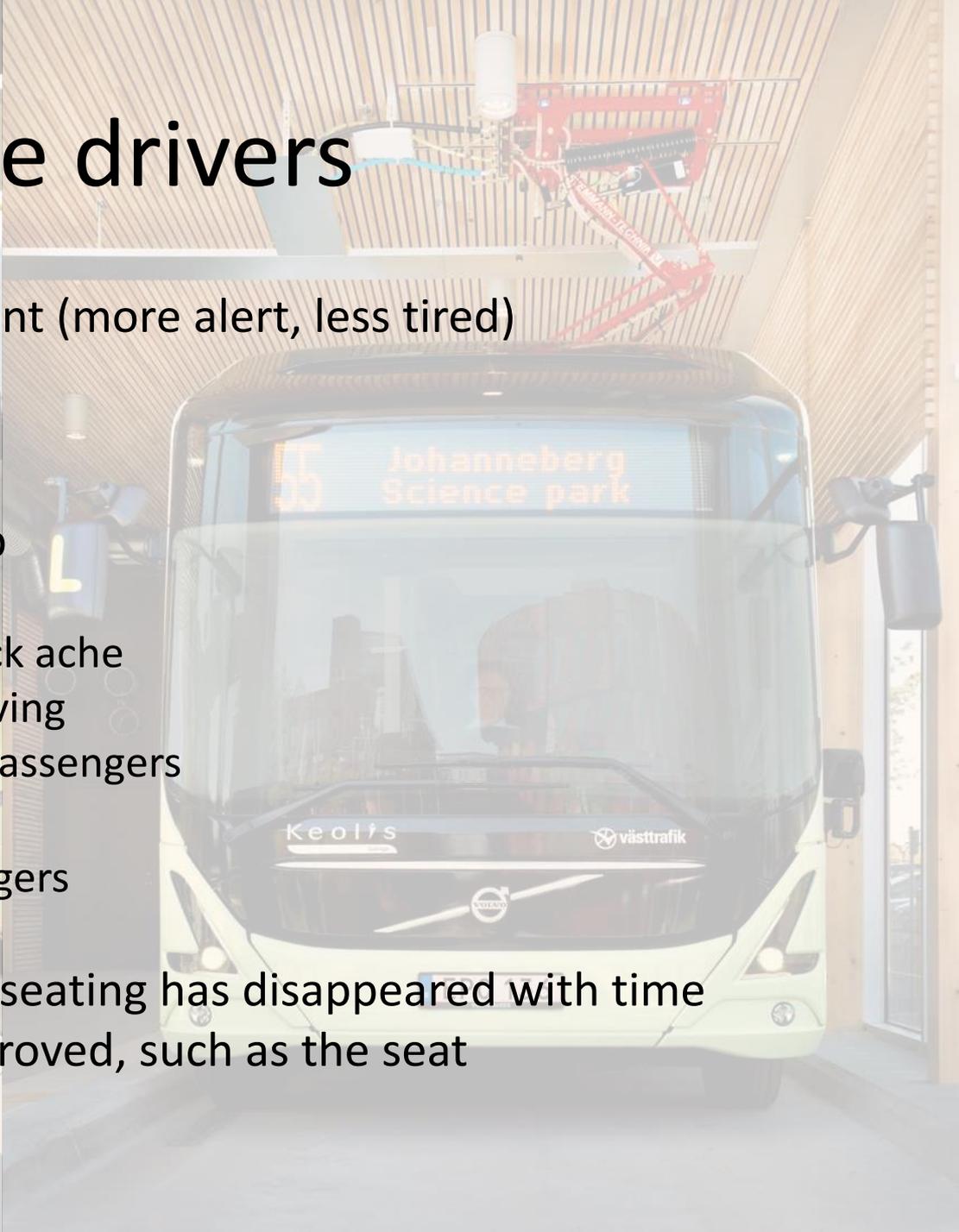
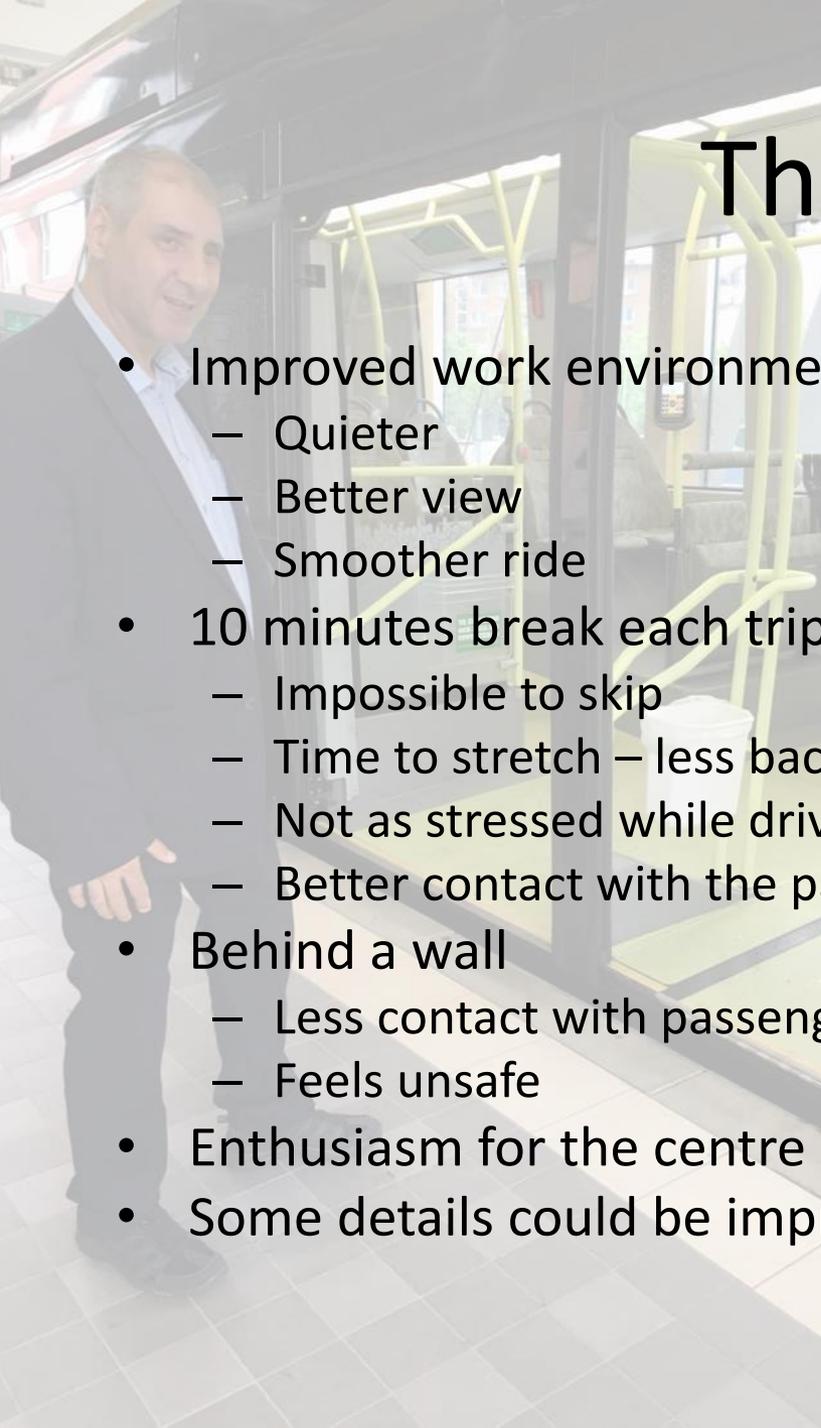
# Travellers with reduced mobility

- "The best bus ever!"
  - Large doors
  - Low step
  - Folding seats –good for companions, rollator users, etc.
  - Large open spaces- easy to pass, prams can move out of the way, etc.
  - Smooth driving makes it possible to move while the bus is driving - Less stress..
- Room for improvement
  - Monitors difficult to see if not seated facing forwards
  - Placement of buttons could be improved.
  - Automatic ramp for those who still need it



# The drivers

- Improved work environment (more alert, less tired)
  - Quieter
  - Better view
  - Smoother ride
- 10 minutes break each trip
  - Impossible to skip
  - Time to stretch – less back ache
  - Not as stressed while driving
  - Better contact with the passengers
- Behind a wall
  - Less contact with passengers
  - Feels unsafe
- Enthusiasm for the centre seating has disappeared with time
- Some details could be improved, such as the seat



Found this interesting?

Welcome to the Gothenburg demo event 24 January!

Info at [ebsf2.eu](http://ebsf2.eu)



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