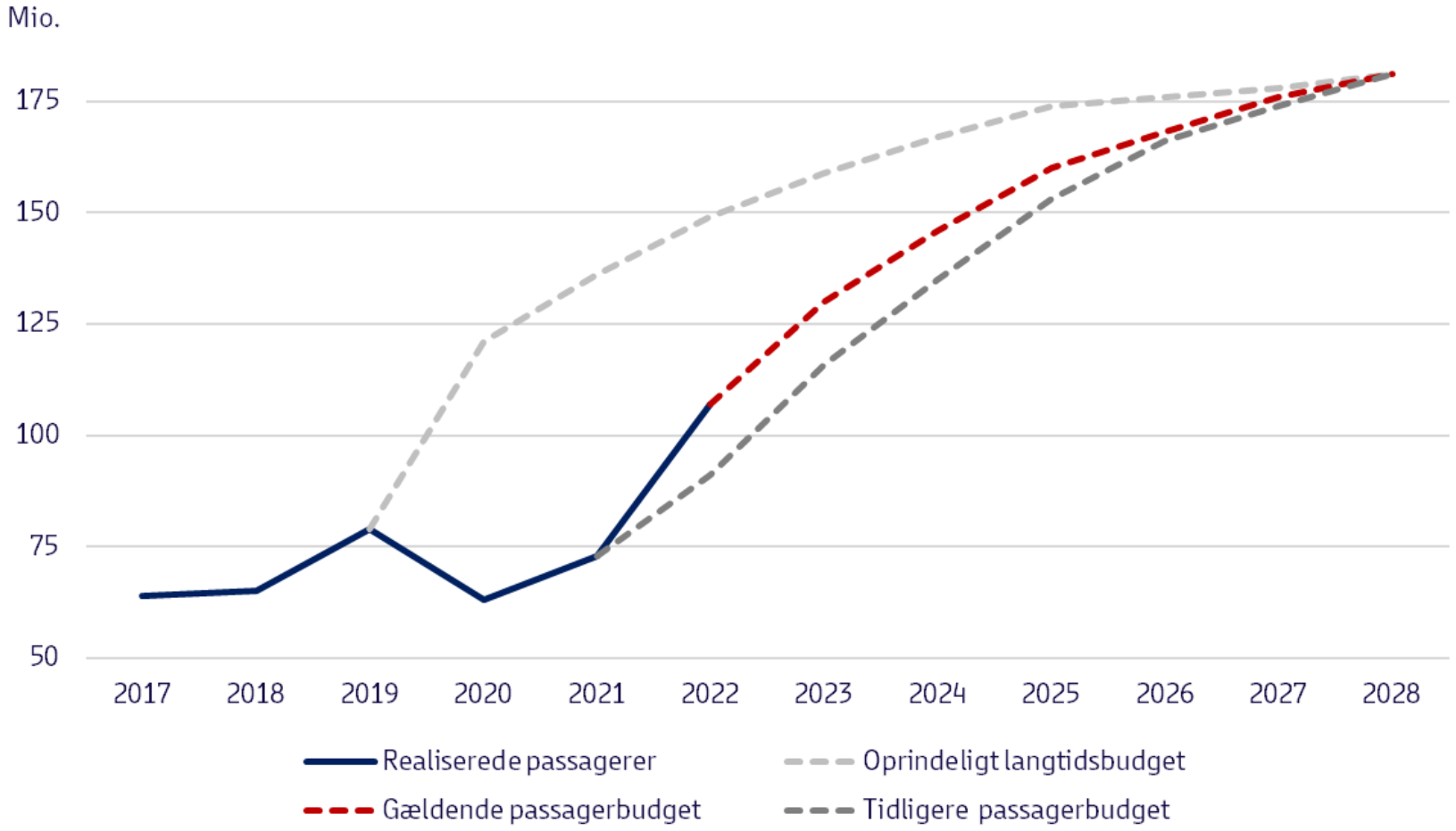
Agenda

- 14:00-14:15: Welcome and short presentation of participating companies/organizations
- 14:15-14:30: Metro’s customer segments and business strategy (MS)
- 14:30-14:45: How MS works with innovation and current ideas/projects (MS)
- 14:45-15:00: Capacity model – monitoring flow of passengers in the Metro (MS)
- 15:00-15:25: Presentation from Belgian Rail
- 15:25-15:30: Wrap up

Business strategy, customer segments and development of sales channels

October 11th, 2023

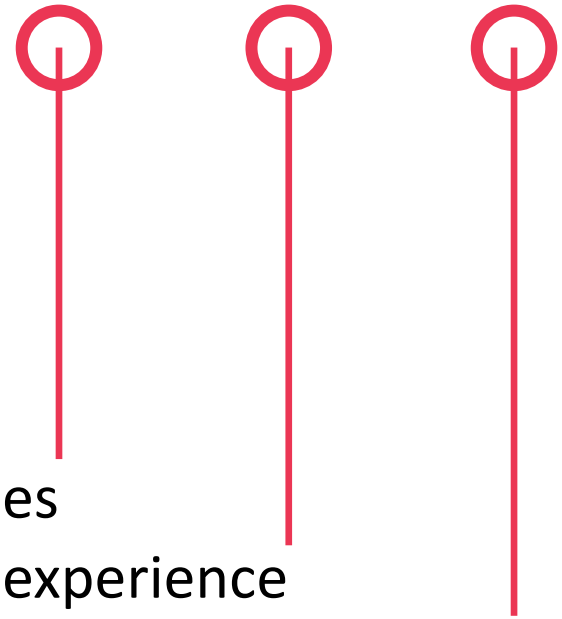
The Metro needs to regain passenger growth after COVID-19



MS needs to realize a passenger growth of more than 10 pct. Yearly in the coming years. This is crucial in order to secure the profit needed for financing new metro lines and necessary reinvestments in the Metro in operation.

Business strategy 2023-2026 – focus area 1: Customers

How can we strengthen and develop the position of the Metro, so that it continues to be the most sought-after mobility offer in Copenhagen?



Sales channels, products and services

Marketing and measurement of customer experience

Investments in further development and maintenance of the Metro

Metro's customer segments

	M	Fleksibel Mobilist	Weekendbruger	Hverdagscyklist	Antikollektivist	Forstadsbilist
Yealy journeys			mio.	6 mio.	5 mio.	3 mio.
			neys	journeys	journeys	journeys
Segment size	280.000		000	228.000	259.000	359.000
	(16%)		1%)	(13%)	(15%)	(21%)
Net Promotor Score	85		33	-44	-55	71

29 pct. of the population

Conduct 78 pct. of all journeys in the Metro

Ambitions for sales channels and products

- **It should be just as easy to buy a ticket for the Metro as it is to travel with it**
- MS would like to offer a barrier free ticket purchase free from:
  - Planning of the journey
  - Considering zones
  - A physical card you need to remember
  - Administration in terms of creating a profile, validation etc.
  - Check out at the end of the journey
- The ticket purchase should be integrated seamlessly into the flow of the customer journey and be based on the technology the customer already has available in their pocket

National sales channel development - Rejsekort

- The national electronic ticketing system called ”Rejsekort” (Travelcard).
- Rejsekort is a smartcard which can be used in all public transport within Denmark.
- Approximately 3 mio active Rejsekort in use - the most used ticketing option in Denmark by far
- High customer satisfaction and NPS was 23 in 2023
- A collaboration between all PTOs in Denmark
- The system was launched in 2009 and is nearing its end-of-life.
- Law stipulating the digitalization of Rejsekort and that it must be in the form of an app.
- The law also stipulates that an app for all forms of mobility, ticketing and traffic information must be developed
- Leading to new strategy from the company behind Rejsekort. This company is owned in collaboration by all PTOs in Denmark.

The new digital Rejsekort

- An app to replace the physical Rejsekort – having the same characteristics as the physical system
- No need for physical equipment (BYOD)
- Check in and check out – swipe in and swipe out, and possibly swipe in be out
- Travel and price calculated based on location and motion data from the customers smartphone
- Preliminary timeline (not yet confirmed):
  - Supplier chosen and development started in 2023
  - MVP launch in 2024
  - Turning off the existing system in the middle of 2026
  - Integration into a future MaaS app 2026?

Visual illustration of how the new app might look

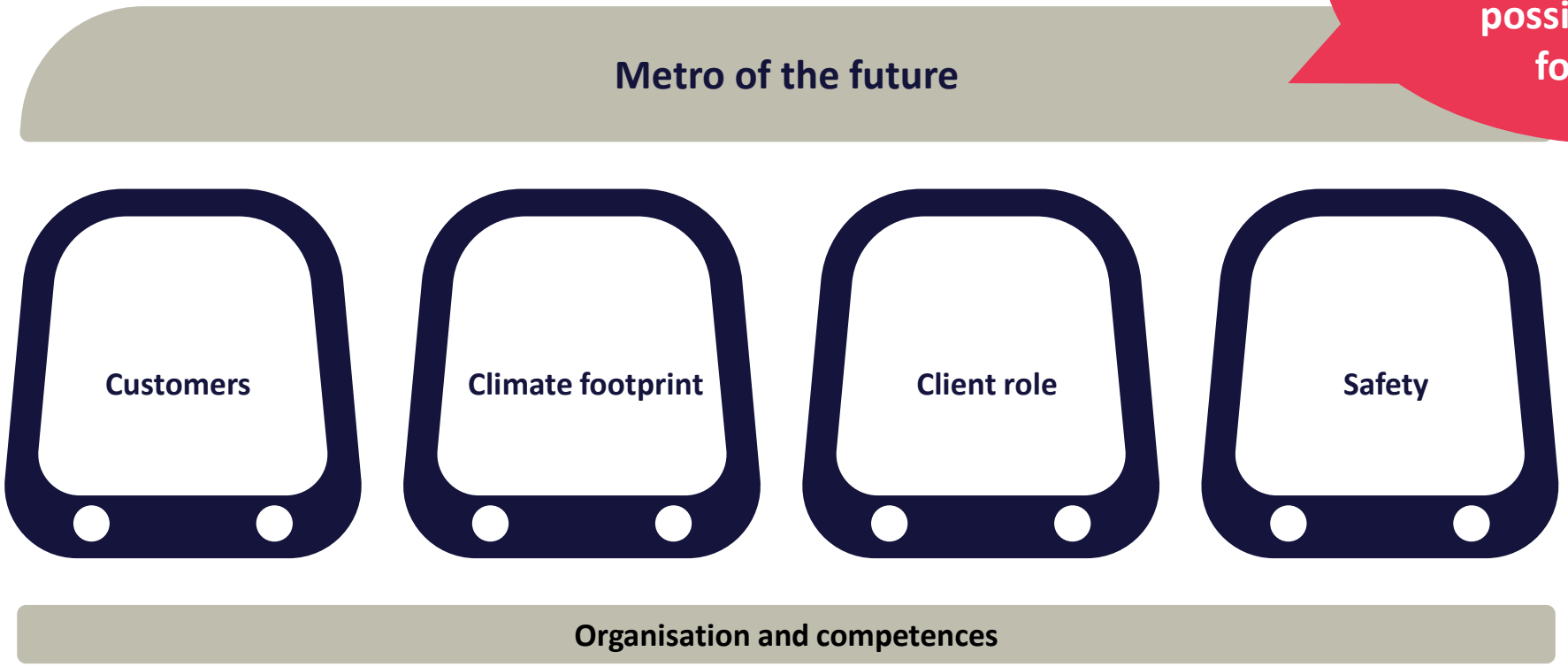
A nationwide alternative for the non-digital customers

- Rejsekort is used by a great variety of users – not all are expected to be able to switch to the coming app replacement
- Groups that might need an alternative ticketing solution include:
  - customers without a smartphone
  - customers without a credit card
  - customers with mental or physical hindrances for using the digital solution
  - customers who do not wish to share data
- The alternative solution will be a supplement to other ticketing solution in use in the PTOs (i.e. other apps, ticket vending machines, etc.)
- Solution (almost) decided: prepaid single tickets for activation, and fast ticket purchasing with credit card using EMV
- For the Copenhagen Metro the EMV technology offers possibilities for meeting our customers needs for a quick and easy ticket purchase on the go and we will perform a pilot test of the technology in the Metro before the nationwide launch.
- Expected timeline for the development:
  - Metro pilot in 2024
  - Nationwide launch in 2025

Innovation on track

Innovation is deeply anchored in our strategic goals

The greatest possible value to society with the smallest possible climate footprint!



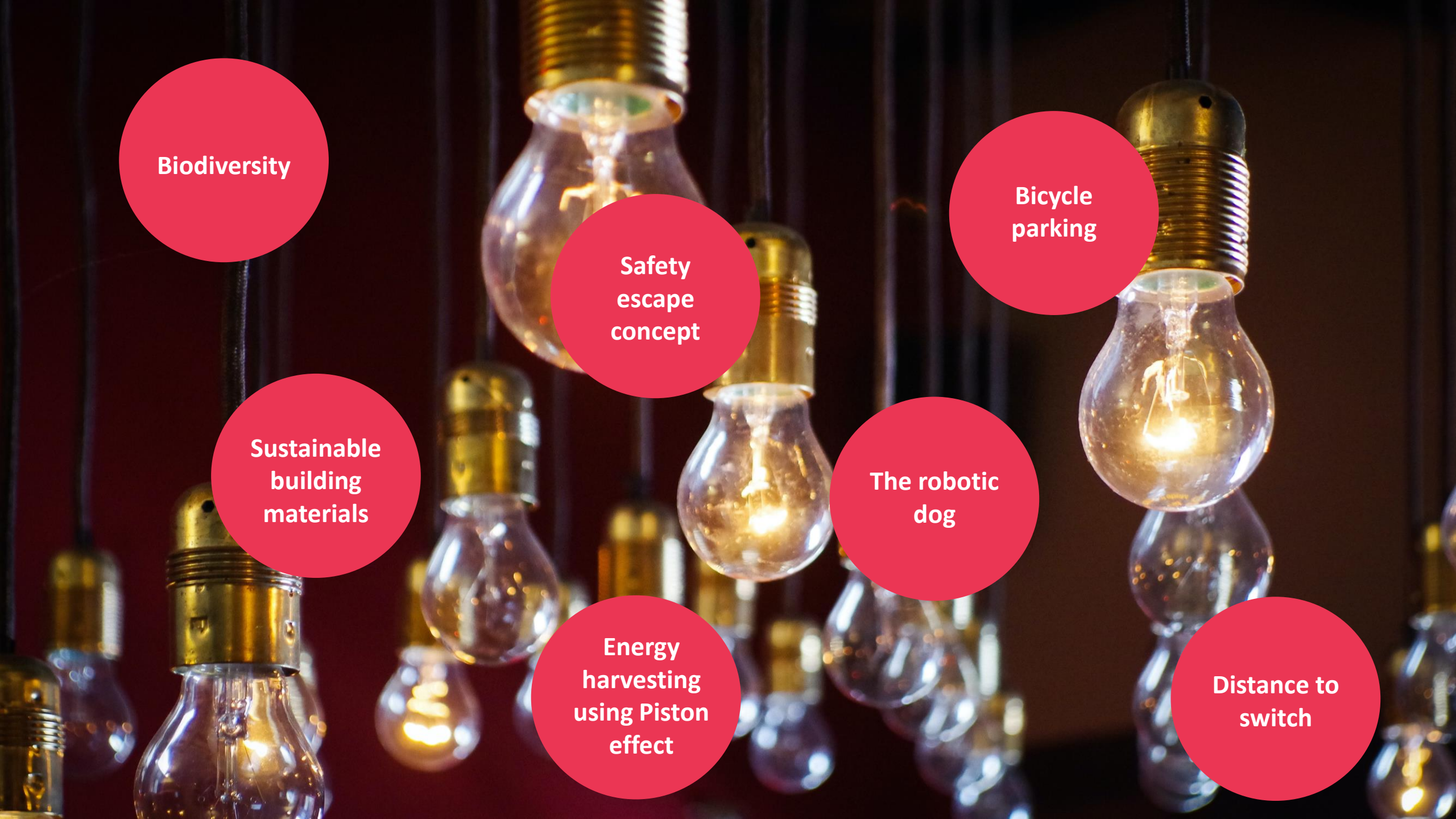
Innovation goals for all future metro and highline projects

Reduce **climate impact** and **ressource consumption**

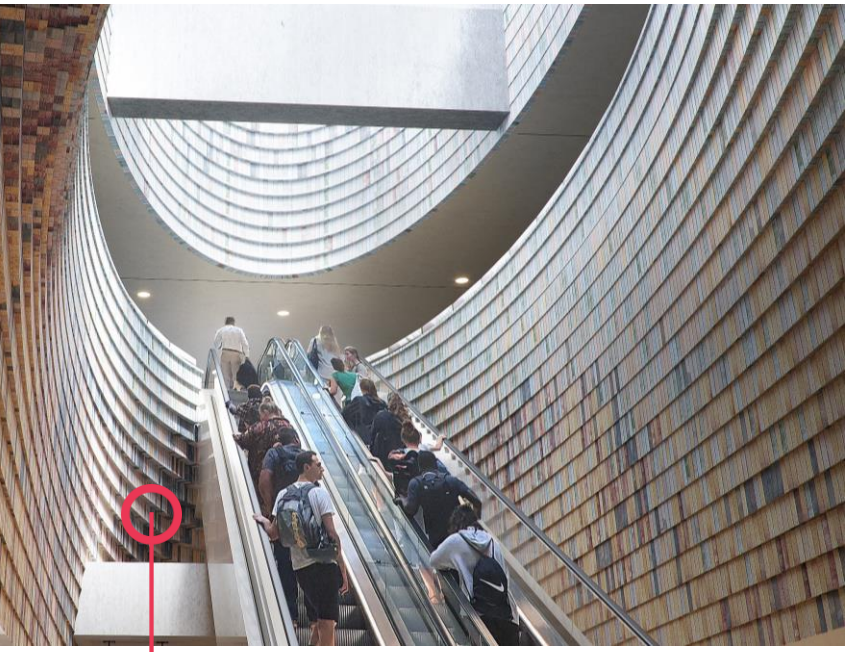
Strengthen **passenger experience** and **operational stability**

Improve **safety** and **the working environment**

We want to deliver ”State of the art” Metro

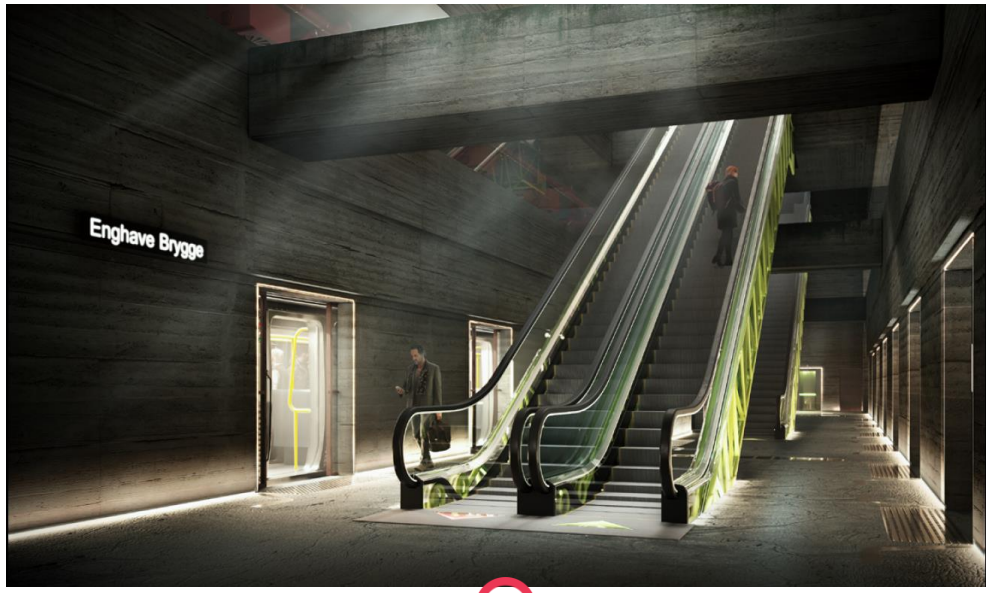

Biodiversity
Safety escape concept
Bicycle parking
Sustainable building materials
The robotic dog
Energy harvesting using Piston effect
Distance to switch

Explore how climate friendly infrastructure could look like



- Focus on use of recycled materials

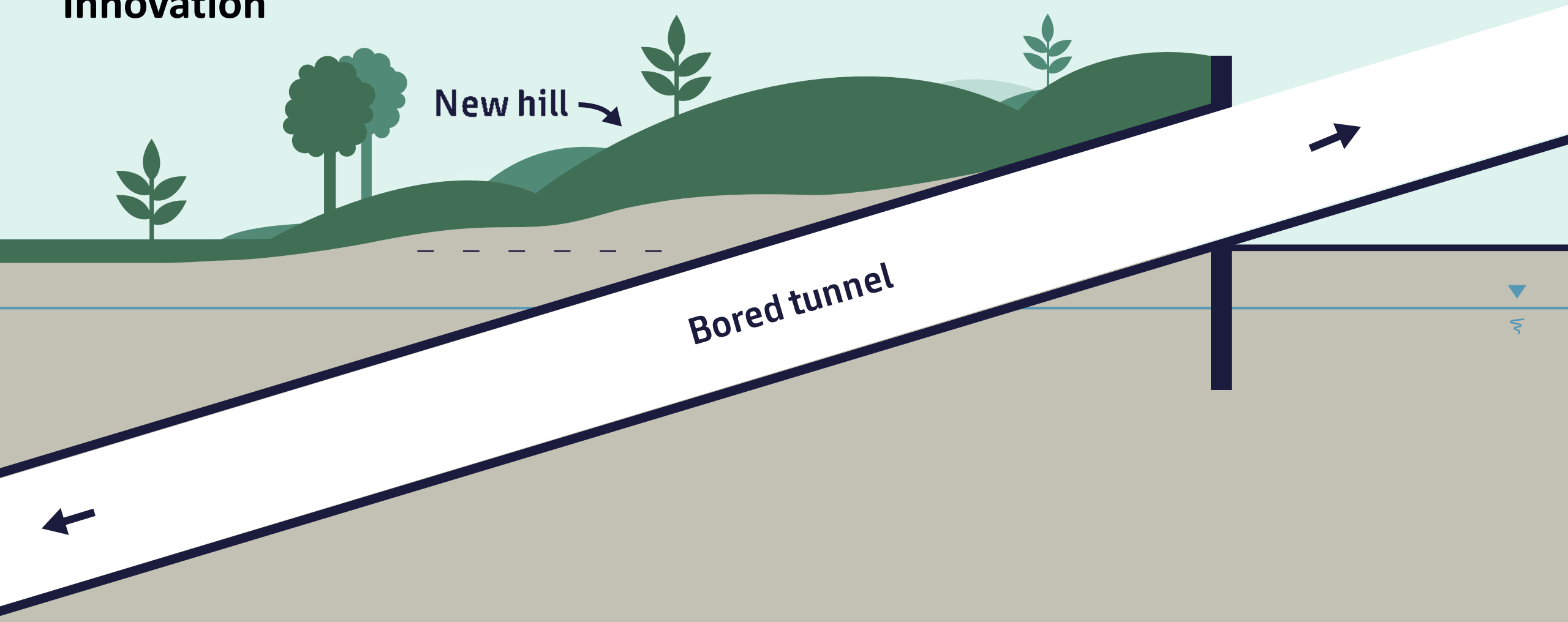
- Focus on biodiversity and accessibility



- Focus on less use of material

TBM - Tunnel boring machine

Innovation



Launch TBM into a new hill no ramp needed

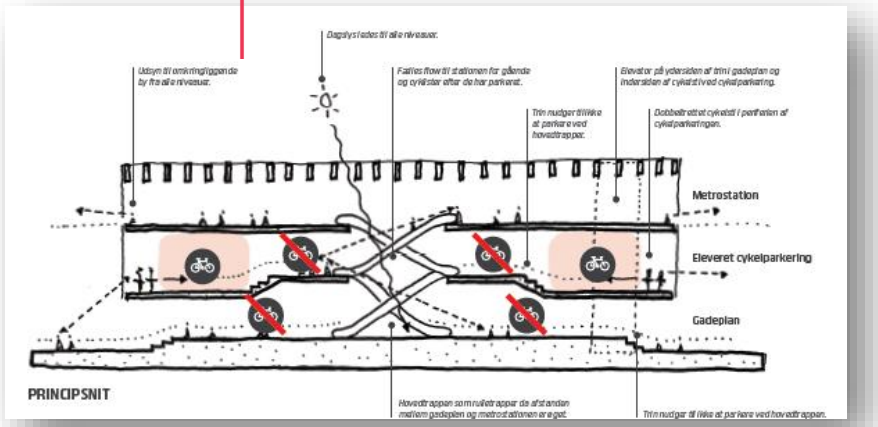
Bicycle parking

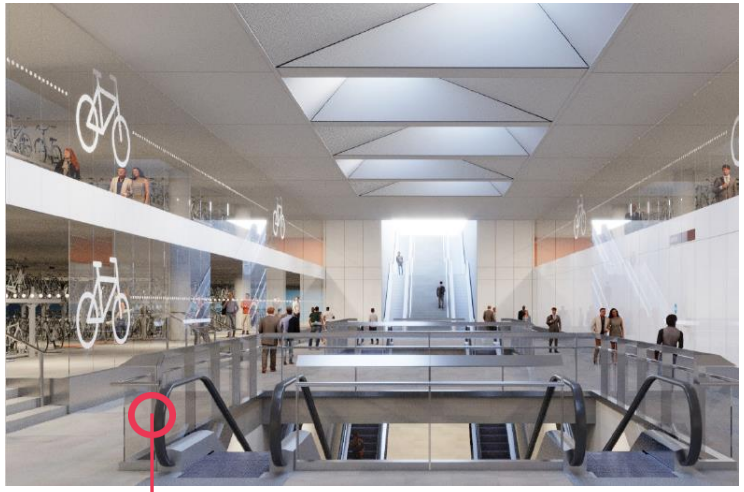
Current underground solutions

- No one uses them
- Used for other purposes

The innovation study

- User journeys
- Functionality
- Behavior





Proposals for new solutions

- Integrated bicycle parking
- New technologies

Collaboration and engagement with the external environment

Universities & knowledge institutions

Producers and manufacturers

Infrastructure and mobility providers

Thanks

Capacity model

Monitoring the capacity in the Metro

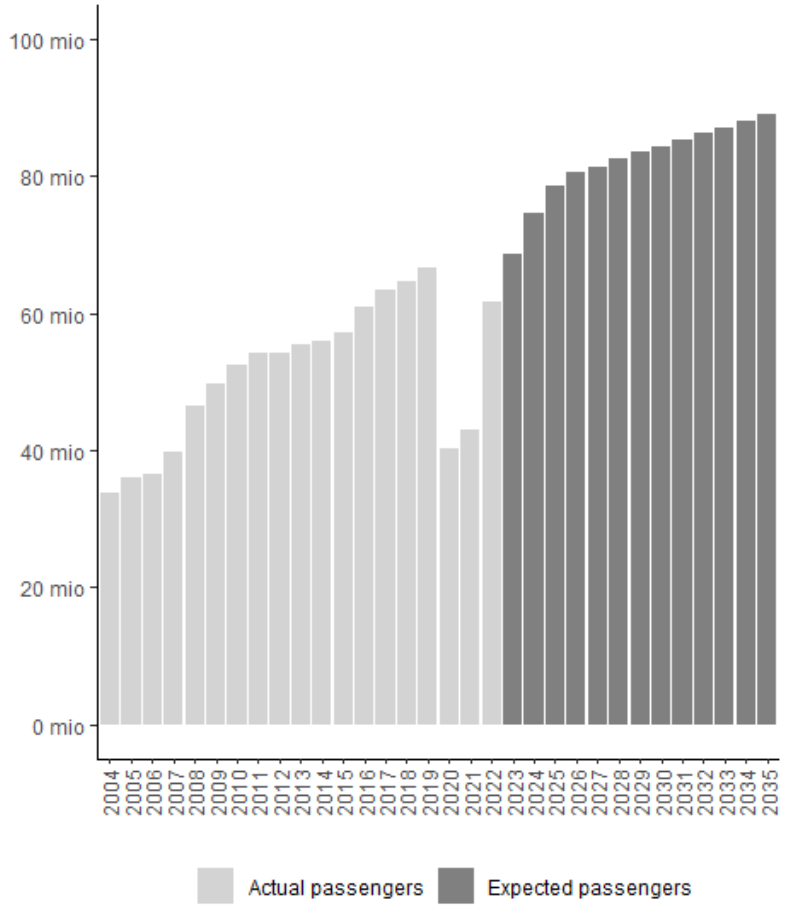
Belgian Delegation
11 October 2023

Agenda

- Capacity on M1/M2
- The Capacity Model
  - How data can help solve the problem

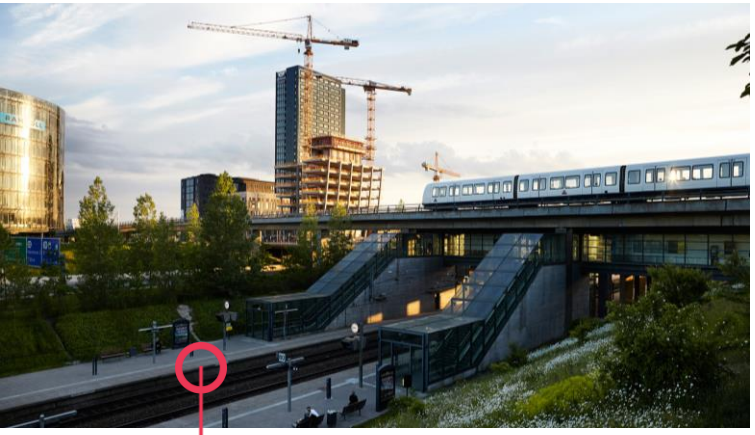
Passenger growth on M1/M2

Number of passengers on M1/M2

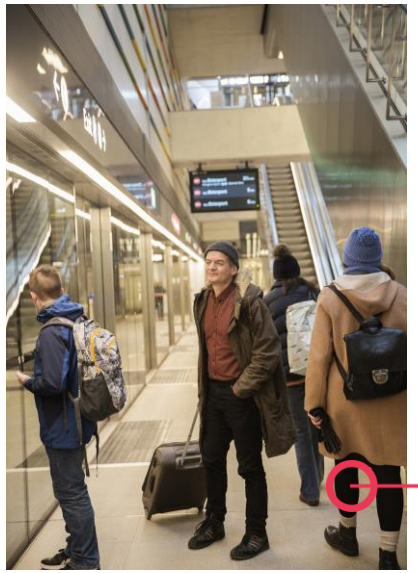


Lack of capacity across the habour

What problems can arise from lack of capacity



It can reduce the stability of the operation



The customers can have reduced travel experience

The customers will not make the trip or other transport modes prefers

Initiatives to increase capacity

Behavioural initiatives

Behavioural initiatives will increase the capacity in each train and create better flow in rush hour

More capacity in each train

Changed seat layout will increase the capacity in each train

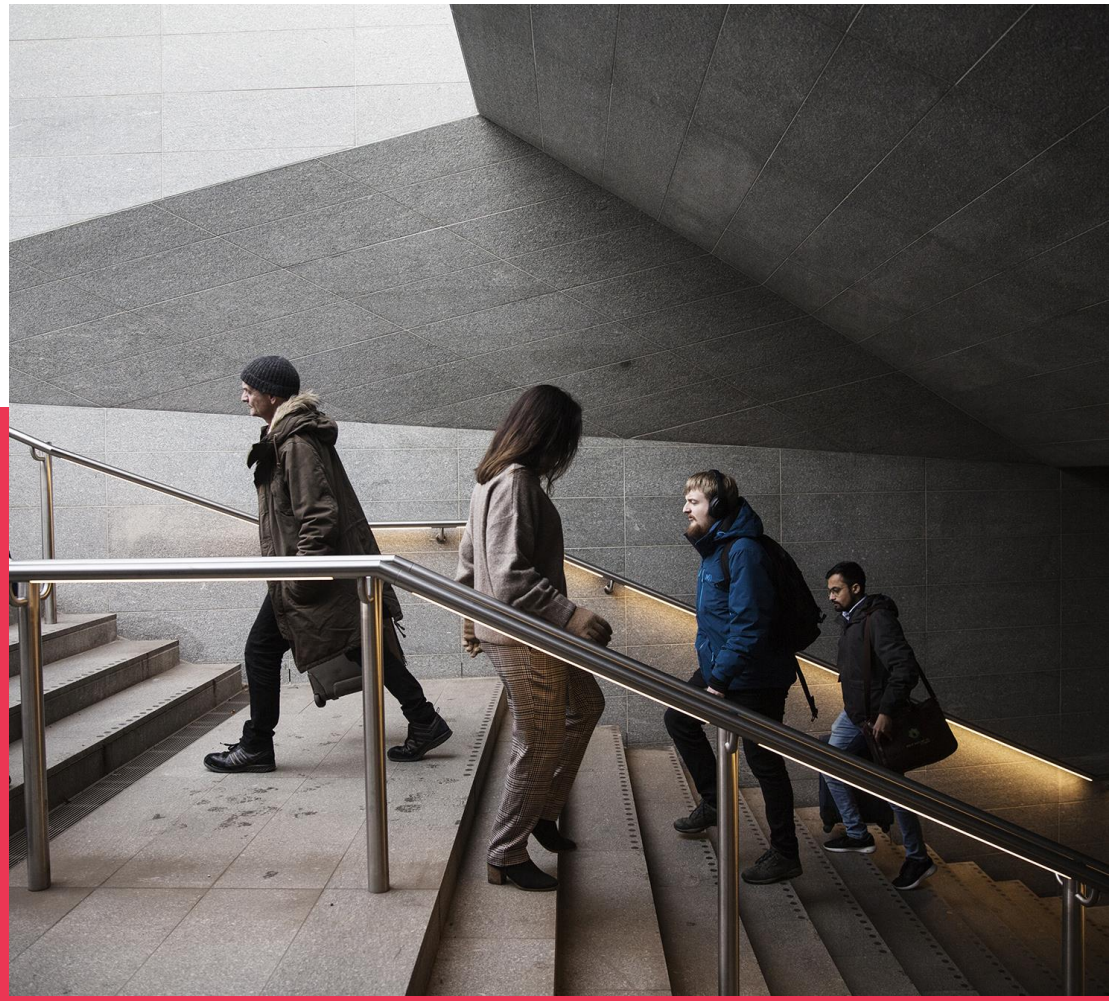
Lower headway

Purchase of new trains will make it possible to have more trains in operation. It will reduce the waiting time between trains

How to measure the capacity

- Get information about how many passengers in each train
  - Where and then is the problems with capacity?
  - How many leftovers?

- This information can be used for
  - Follow the capacity in trains over time.
  - Evaluate the effect of the initiatives implemented to increase the capacity
  - Planning the implementation of the initiatives to increase the capacity



The capacity model

The goal of the model is

To estimate the number of passengers in each train

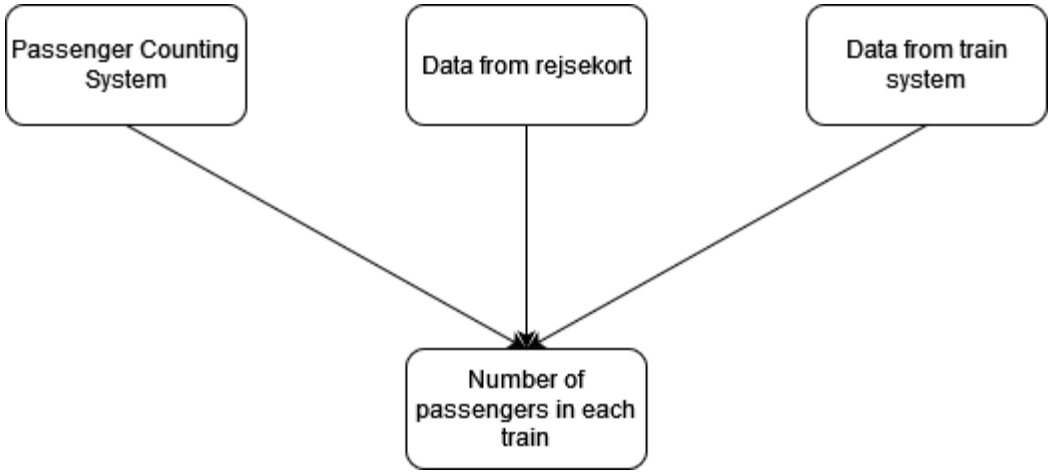
- The model use actual data to estimate the number of passengers in a train each time it leaves a station

- The results from the model can be used to get multiple key measures
  - The number of train departures with full capacity
  - The number of passengers left at the station due to filled trains
  - The number of crowded train departures

Data sources in the capacity model

By combining three data sources with actual data the number of passengers in each train can be calculated

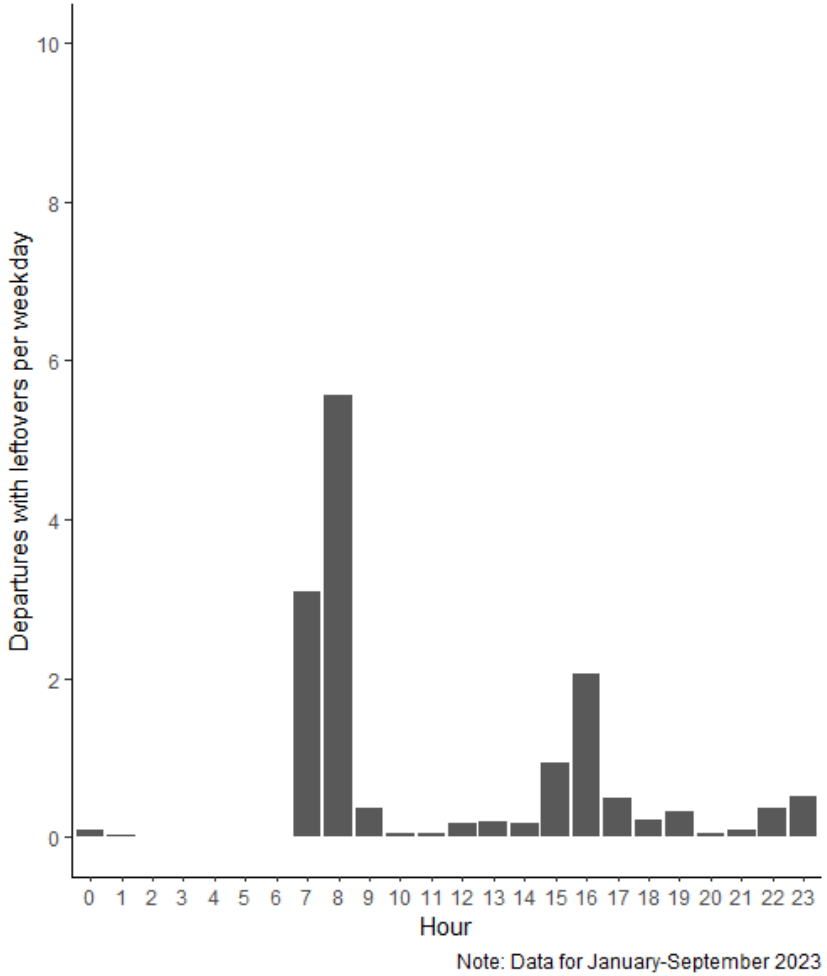
- **Passenger Counting System**
  - Counts all passengers entering or exiting the stations
- **Data from rejsekort (CI/CO data)**
  - Travel patterns is calculated based on data from rejsekort (check-in and check-out). Make up approx. 50% of all trips in The Copenhagen Metro
- **Data from train system**
  - Information about the train actual departure time and arrival time

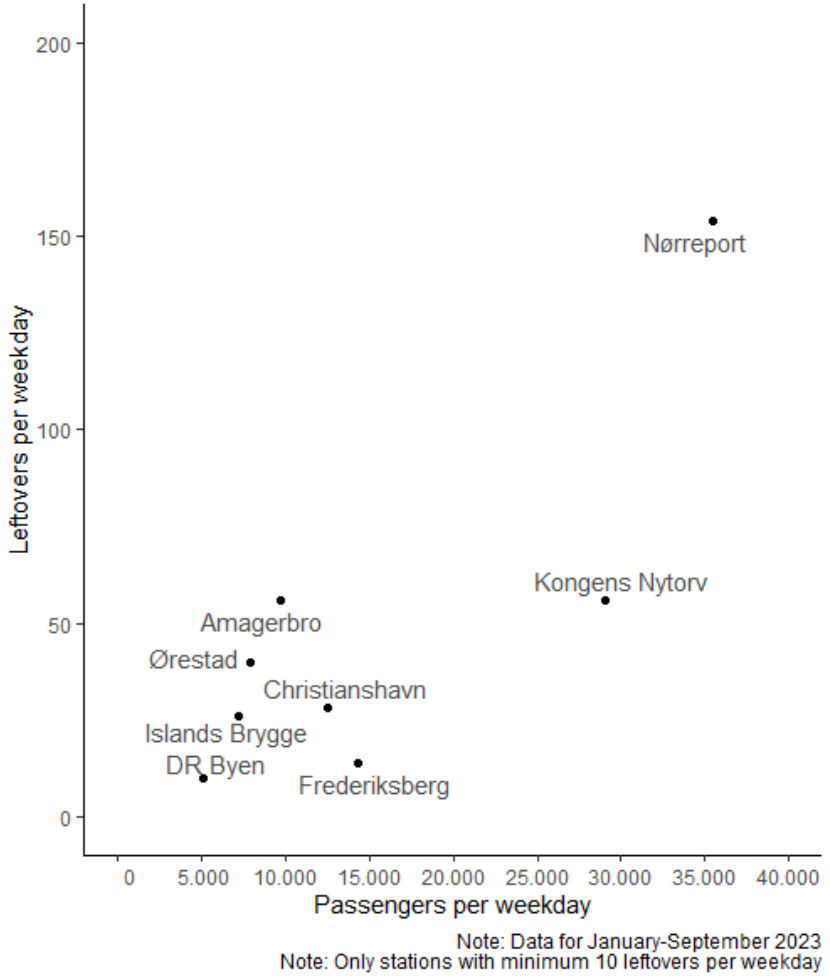


What does the model calculate?

13 March 2023				
	Arrival time	**Departure time**	**Passengers in the train**	**Leftovers**
Lufthavnen		07:53:12	60	0
Kastrup	07:54:11	07:54:32	87	0
Femøren	07:56:00	07:56:20	113	0
Amager Strand	07:57:58	07:58:19	122	0
Øresund	07:59:20	07:59:39	160	0
Lergravsparken	08:00:56	08:01:15	251	0
Amagerbro	08:02:33	08:03:08	275	36
Christianshavn	08:05:33	08:06:07	264	0
Kongens Nytorv	08:07:26	08:08:01	231	0
Nørreport	08:09:33	08:10:12	145	0
Forum	08:11:50	08:12:10	64	0
Frederiksberg	08:13:46	08:14:08	41	0
Fasanvej	08:15:05	08:15:25	14	0
Lindevang	08:16:29	08:16:49	12	0
Flintholm	08:18:19	08:18:39	6	0
Vanløse	08:19:46		0	0

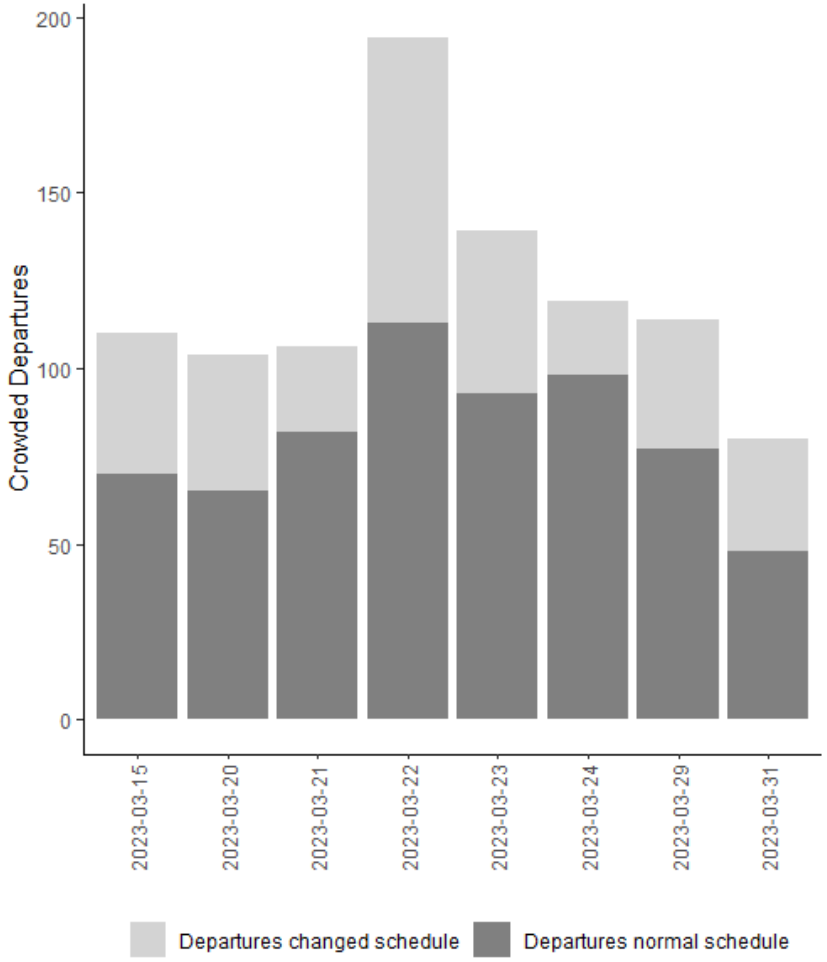
Where does the customers meet lack of capacity today?





Effect of longer time between trains in rush hour

- In week 11-13 maintenance work was made on the central branch on M1/M2.
- The work caused 6 second longer time between trains in rush hour
- The capacity model was used to estimate the effect of 6 second longer time between trains in the rush hour.
- The longer time between trains increase the number of departures with more than 200 passengers in the train



Questions?