

# Pods4Rail Final Even

## “Pods4Rail” – Innovation Platform for Sustainable Mobility

Vienna, 24. June 2026



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# “Pods4Rail” – Innovation Platform for Sustainable Mobility

What is Pods4Rail?	Dirk Winkler	14:20
Pods4Rail & Supermodal Mobility	Maria Traunmüller	14:30
How does the modular pod concept complement existing mobility solutions?	Dr. Walter Struckl	14:45
Is a new approach to transport solutions feasible?	Manuel Osebek, Prof. Jesus Felez, Maria Traunmüller, Dr. Karel Ráž	15:00
<i>Coffee Break</i>		15:35
Students' presentation “Concept of a Coupling System”	Prof. Rolf Dollevoet + students TU Delft	16:05
Sustainable mobility on existing infrastructure – Is that possible?	Prof. Marion Berbineau, Dr. Andreas Lehner, Ivo Bruijl	16:20
Is the “Pods4Rail” scenario realistic?	Prof. Wijnand Veeneman, Prof. Jesus Felez	16:45

# Final Even

## “Pods4Rail” – A Modular Model for Sustainable Mobility

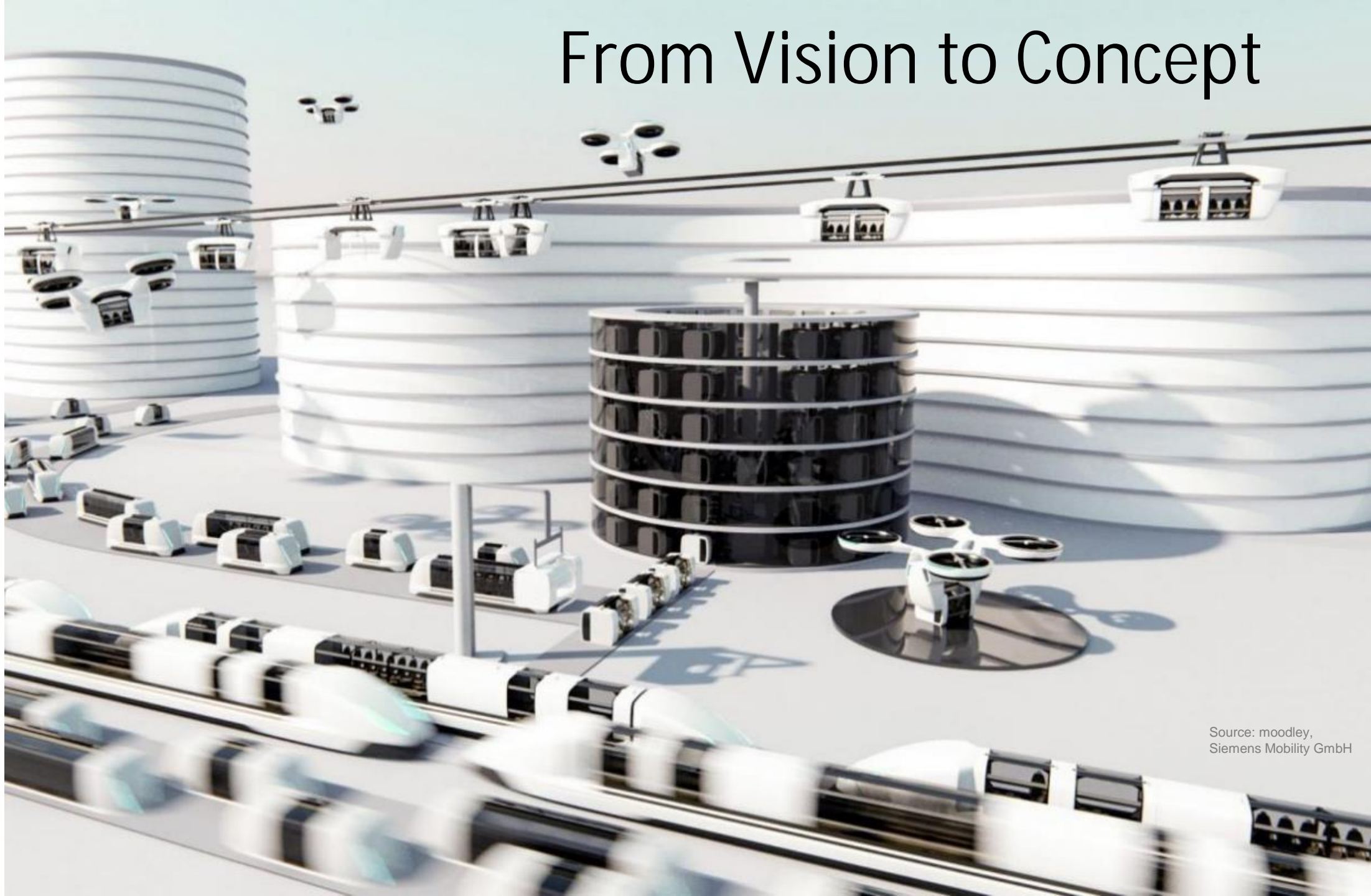
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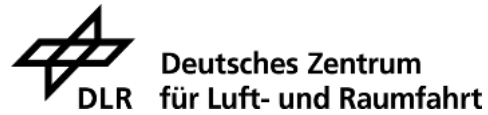


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# From Vision to Concept





part of moodley design group



UNIVERSIDAD POLITÉCNICA DE MADRID



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# A Dedicated Team

And

# Three Essential Questions

How could rail transport look like in the future?

How can intermodal transport options be strengthened and expanded?

How can we generate a seamless and sustainable mobility system for all and eliminate today's hurdles?

- 15 Partners
- 7 European Nations
- Funded by the European Union

# Why does intermodality for public transport today still not work, as it could work?

Because each mobility system optimises itself.

Because we do not think in holistic systems.

Because we do not have standardised, compatible systems.

# Destination → Supermodal Mobility

- More Flexibility and Convenience
- Available at Any Time, Everywhere
- More Efficiency
- Smart Connection
- Sustainable Transport

Autonomous vehicles



Electromobility



Intelligent Operation



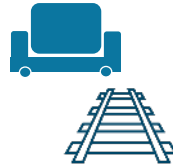
Mobility Applications



# The Path

Combine Passenger and Freight Transport optimal

Create Dual Use Solutions



Use Existing Infrastructures

Use Sustainable Resources and Enable Environmentally Friendly Mobility



Create new Business Opportunities



Create High-Tech from Europe for Global Competition

Ensure Basic Digital Services Through Resilient Mobility



Create a Flexible and Secure System



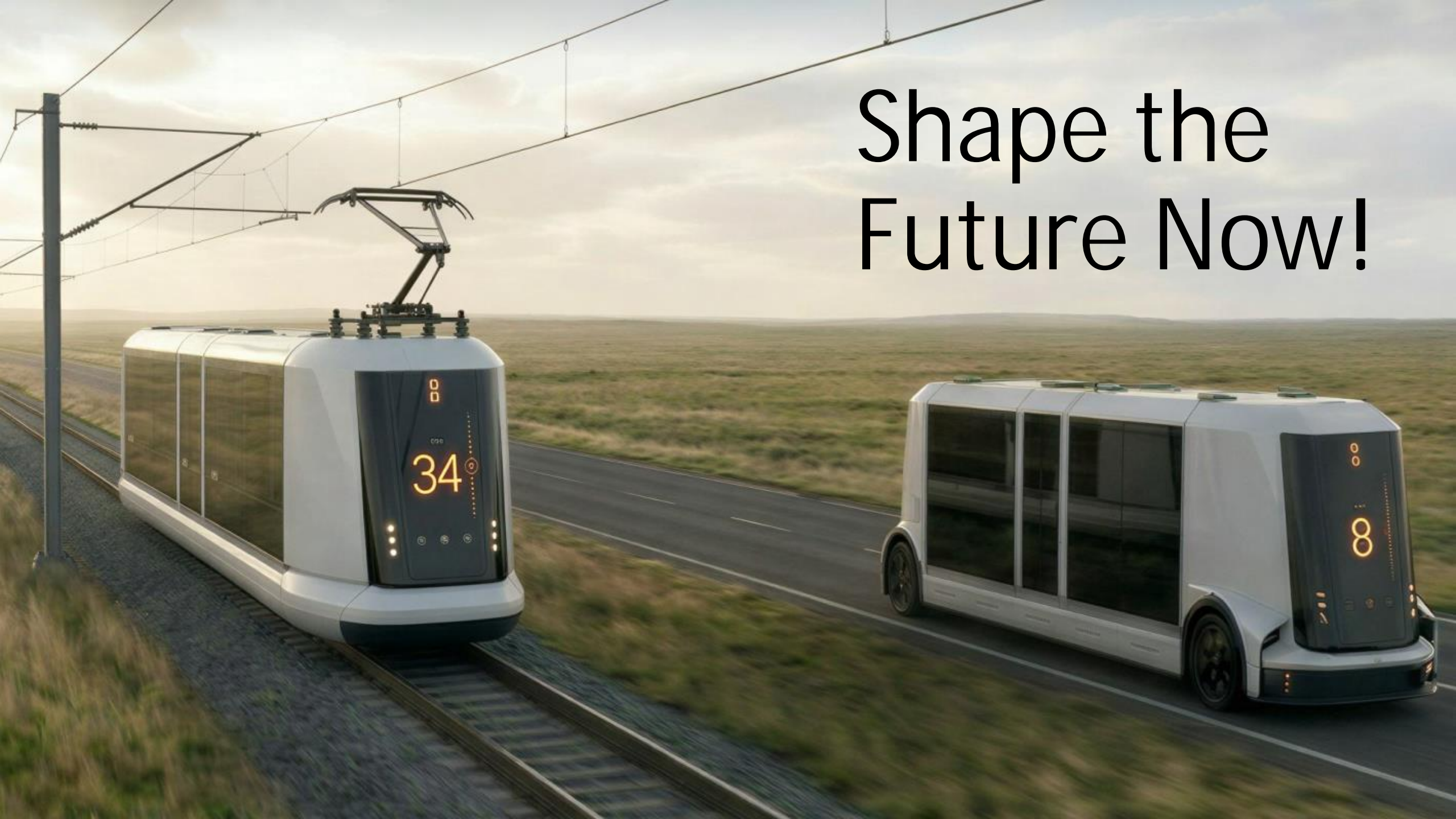
Bring Technological Advantage in a Partnerships of an Innovation Alliance



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Shape the  
Future Now!



# Thank You for Your Attention!



**Dirk Winkler**

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## Supermodality The next generation of transportation?

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# A european innovation platform exploring the future of rail transportation

FA7  
**PODS**  
FOR RAIL



Source: moodley

EURNEX



TRAFIKVERKET

moodley

SIEMENS

RAILENIUM  
RAIL RESEARCH & INNOVATION

HACON



ProRail



TNO  
innovation  
for life

Université  
Gustave Eiffel

# What is supermodal mobility?



**Mobility-as-a-»One Journey»  
service** Supermodal mobility  
seamlessly integrates multiple  
transport modes into one  
autonomous, coordinated and  
user-centric system – digital and  
physical.

Think in all dimensions!

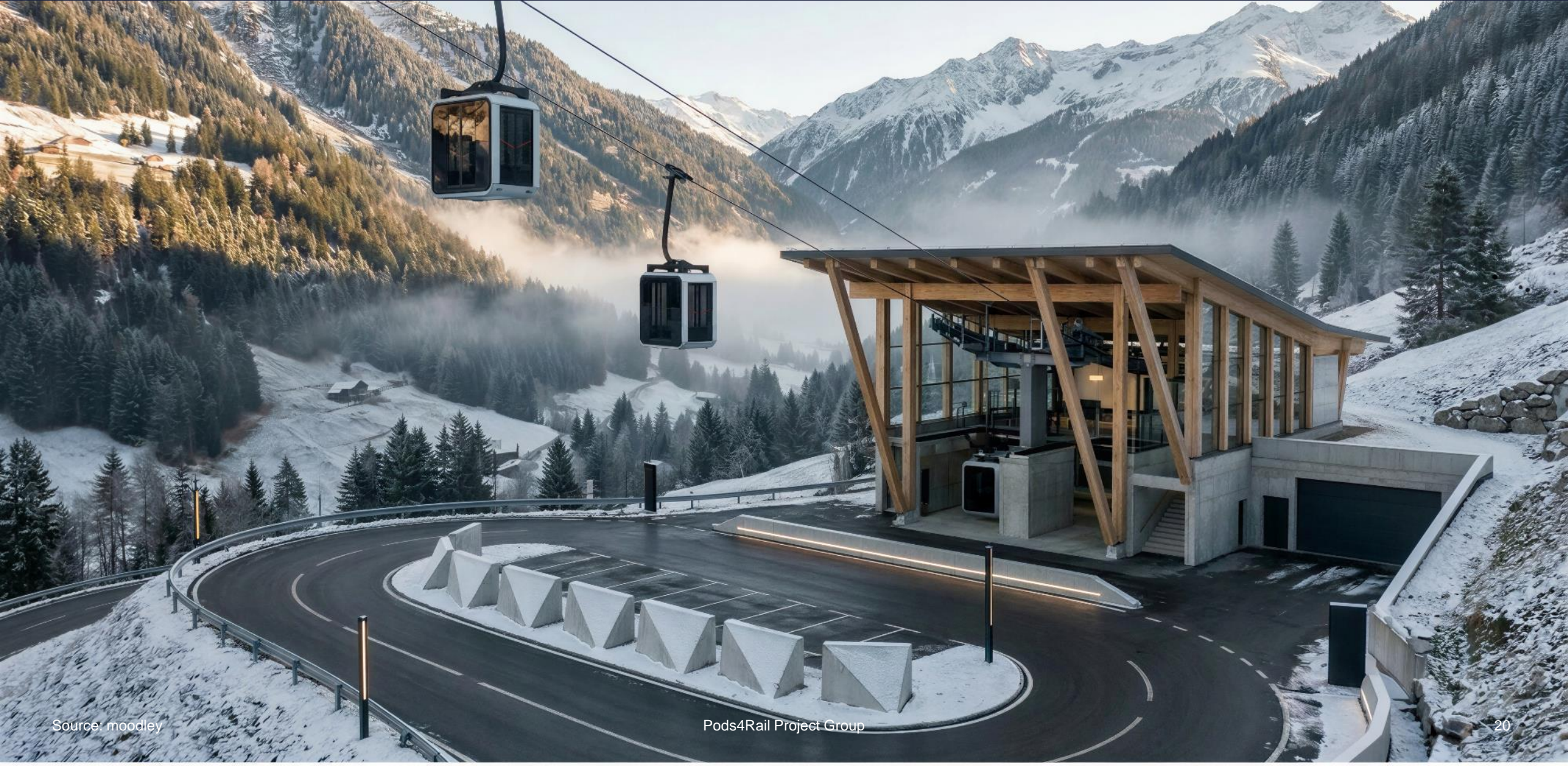








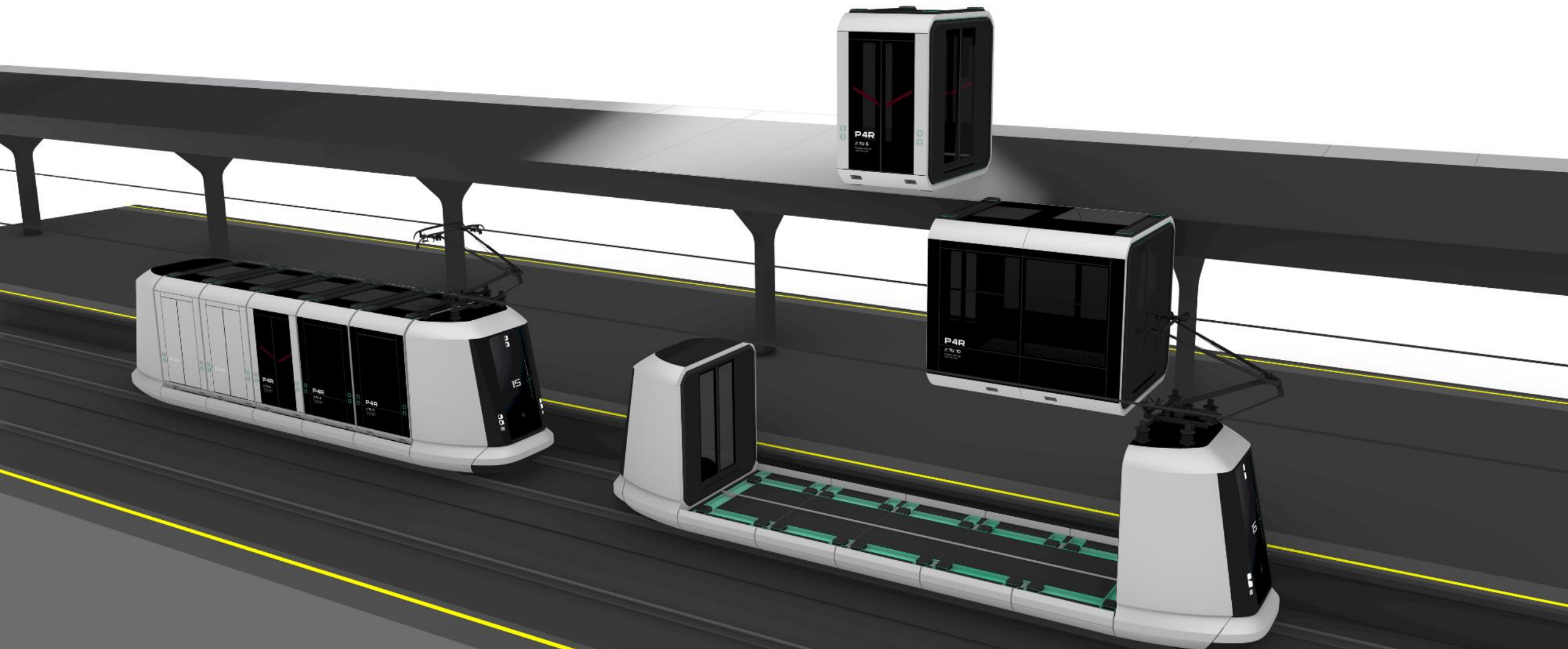
# Ropeway



# For better utilisation of existing infrastructure.



# Combine passenger and freight transport on a versatile autonomous vehicle platform

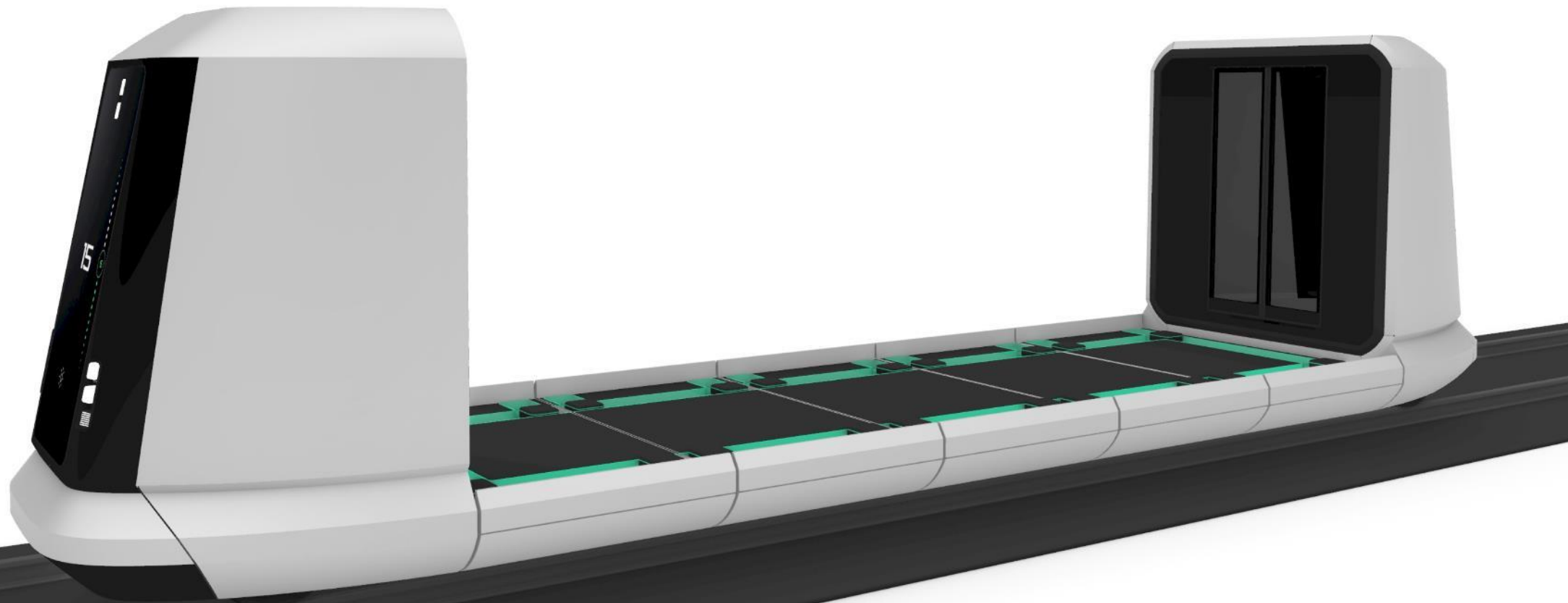


# Use detachable, fully automated units for demand-based configurations

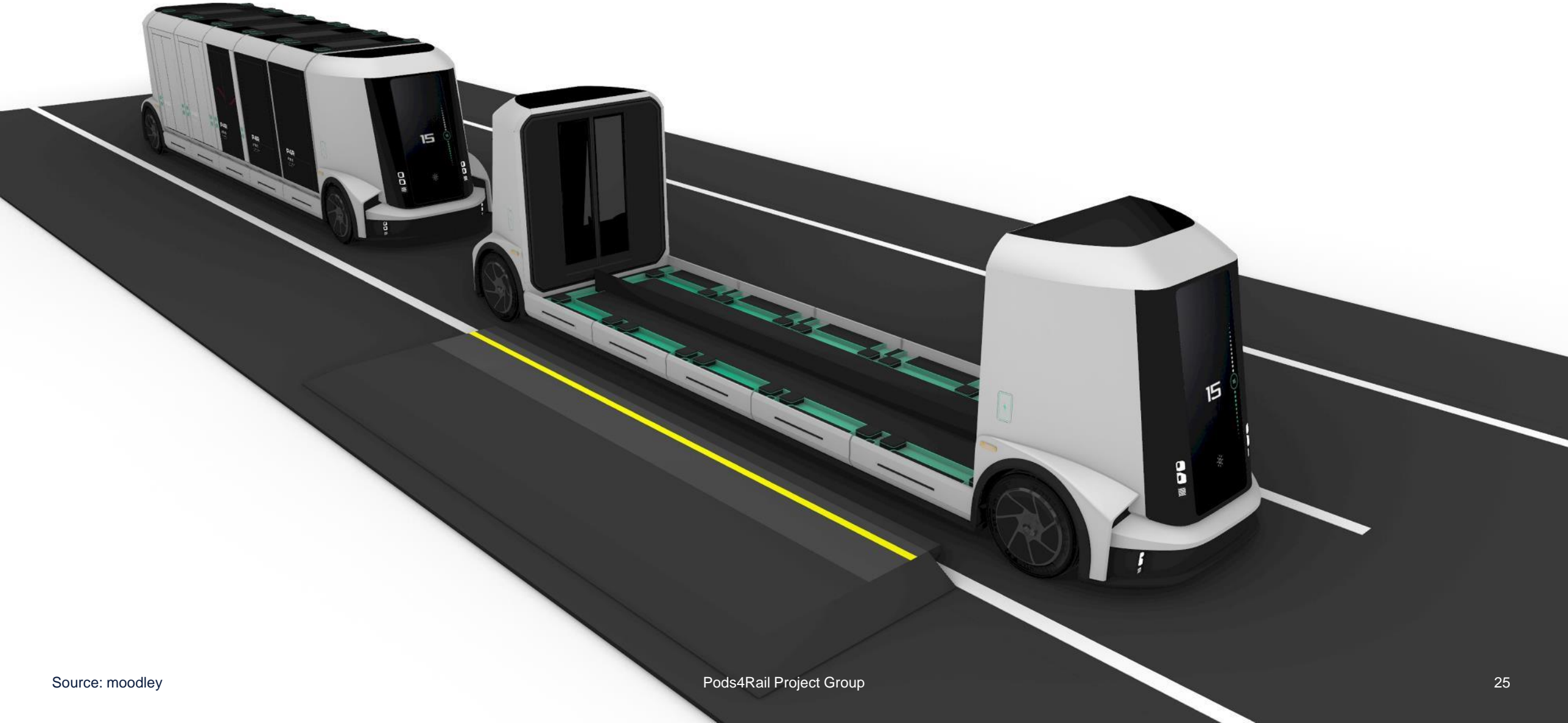


standardised transport units based on ISO container dimensions

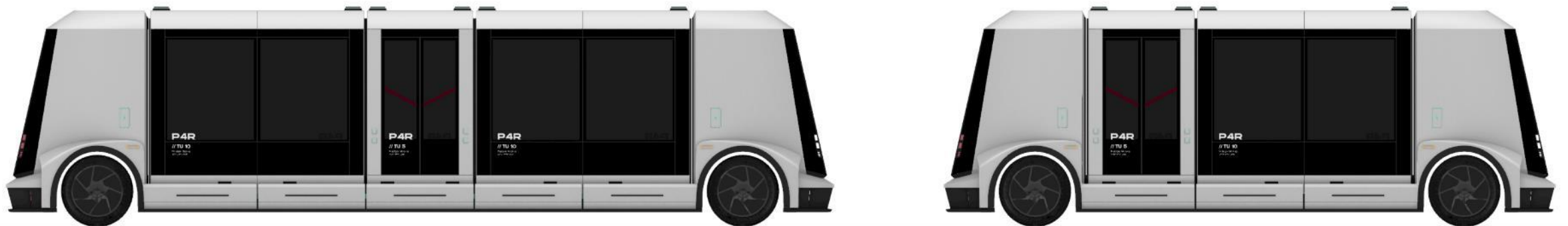
Use standardised carrier units and an intelligent communication system between carrier and land-based technology for safe routing.



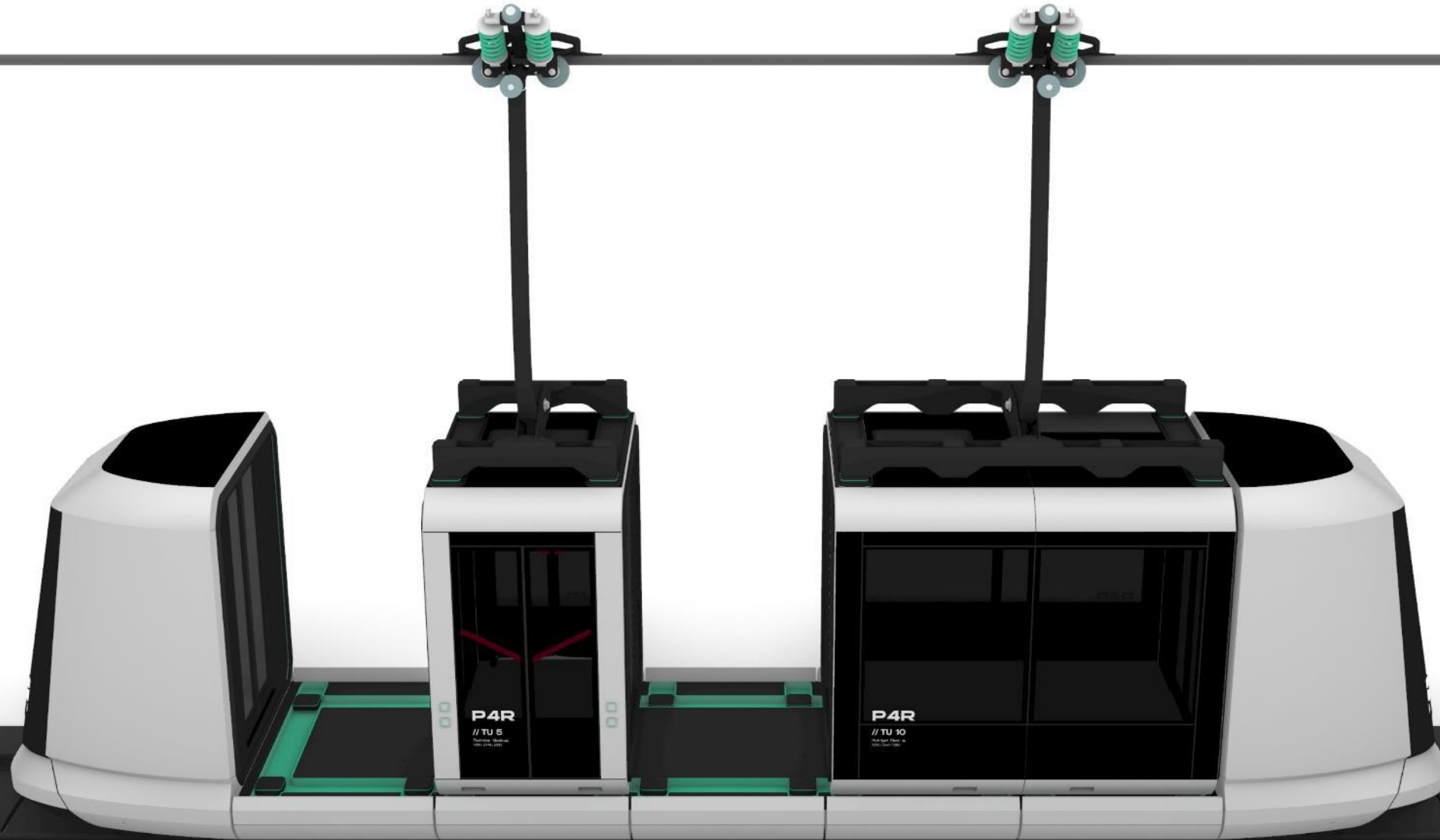
# Enabling seamless end-to-end rail-road interoperability



# From the first to the last mile



# Compatible with ropeway systems



Think in holistic systems!



# From vehicles to moving infrastructure



Flexible by design, efficient by use



# Pods4Rail - Let's get compatible!



**Maria Traunmüller**

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# Final Even

How does the modular pod concept complement existing mobility solutions?

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# Main issue of complex transport networks...



... redundant infrastructure.

... results in negative environmental impacts ...



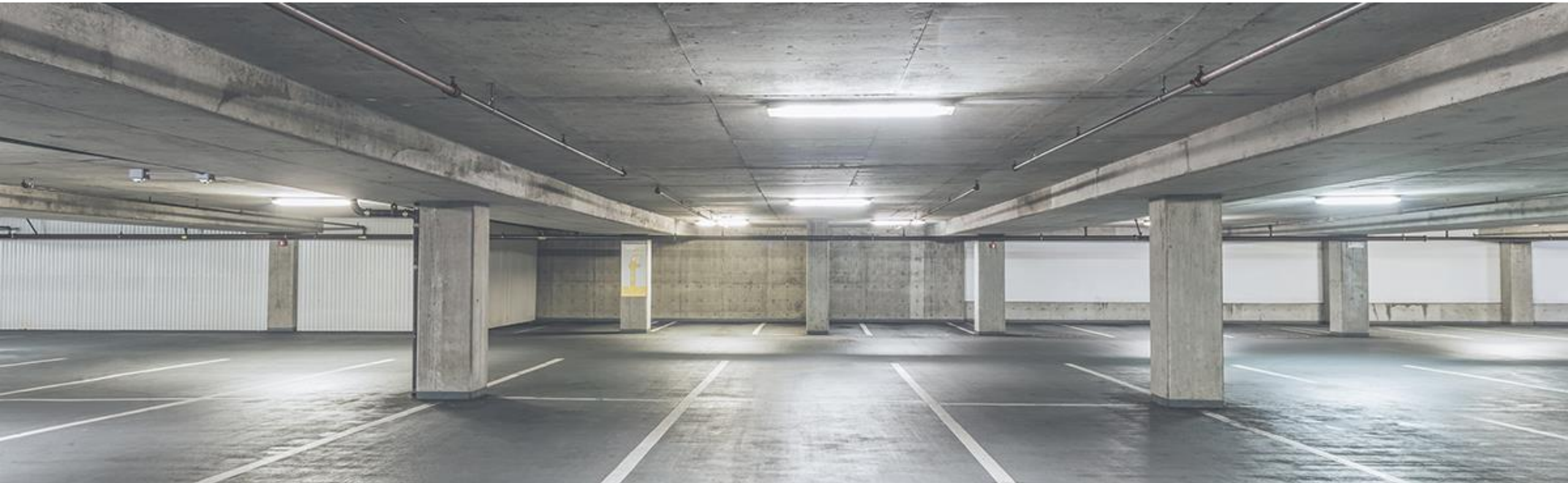
... such land scarcity, flooding incidents, enhanced surface temperature, ...

... in increasing investment cost and maintenance effort



... over the time.

... ineffective business models.



Successful investments usually pay off in the medium term (capacity).

# How can we fix the problem?

The chalkboard contains several key diagrams and equations:

- Nitrogen Cycle:** A central cycle showing  $N_2$  being converted to  $NH_3(NH_4^+)$ ,  $NO_2^-$ , and  $NO_3^-$ .  $NH_3(NH_4^+)$  is used to form **Amino acid**, **Organic acid**, and **Protein**.  $NO_3^-$  and  $NO_2^-$  are also shown in the cycle.
- Cloud Cycle:** A cloud containing boxes labeled A through J, with arrows indicating a cycle.  $NH_4^+$  and  $NH_2$  are also present.
- Chemical Structures:** A sugar structure (glucose) and a cyclic structure with nitrogen atoms.
- Mathematical Formulas:**
  - $ATP + H_2O \rightleftharpoons ADP + H_2P$
  - Arc length:  $l = 2\pi r \frac{a}{360}$
  - Distance:  $d = \sqrt{a_1^2 + b_1^2}$
  - Angle:  $\tan \theta = \frac{b_3}{a_3}$
  - Area:  $D = \begin{vmatrix} a_1 & a_2 \\ b_1 & b_2 \end{vmatrix} = a_1 b_2 - a_2 b_1 = \pm 1$
- Other Diagrams:** A bar chart, a house with a roof garden, and a globe labeled "Emission".

# The optimal solution lies in the perfect match (sweet spot)



## Cost

For example:  
Ropeways can deliver high capacities for difficult topographic locations  
Road applications best for first/last mile connections

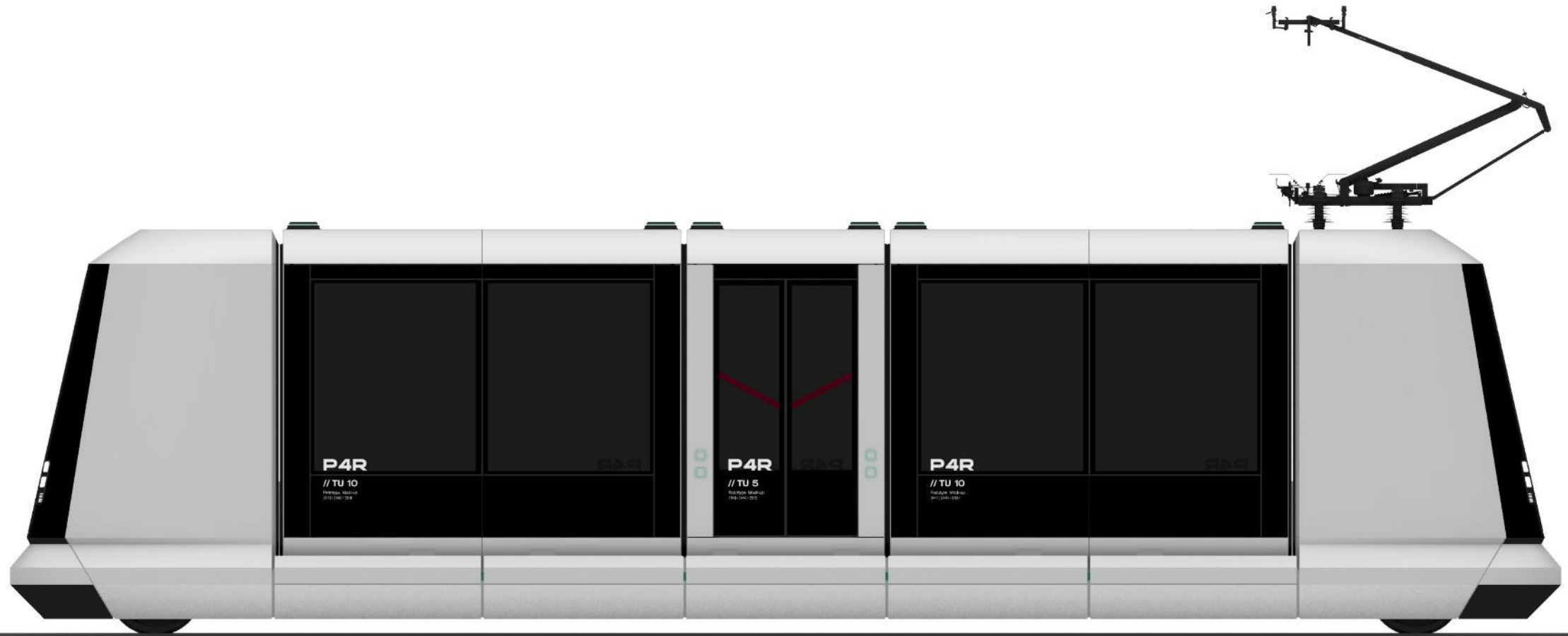
## Travel time

For example:  
Aviation can save time for very long distances (overseas)  
Railways offer best Inter City connections

For example:  
Railway are very best for comfortable (overnight) compartments

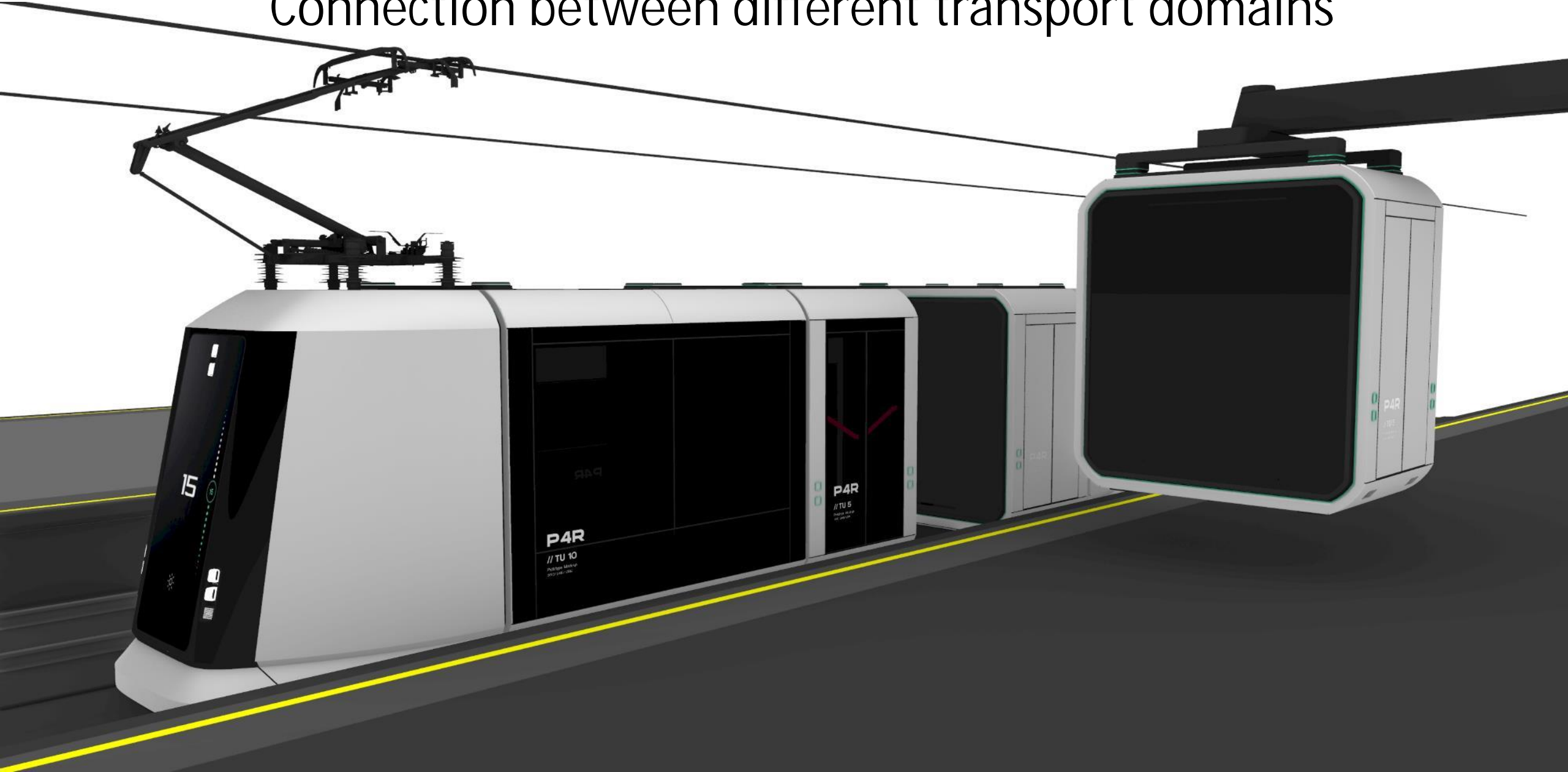
## Comfort

# Rail Carrier Unit: Lowfloor architecture

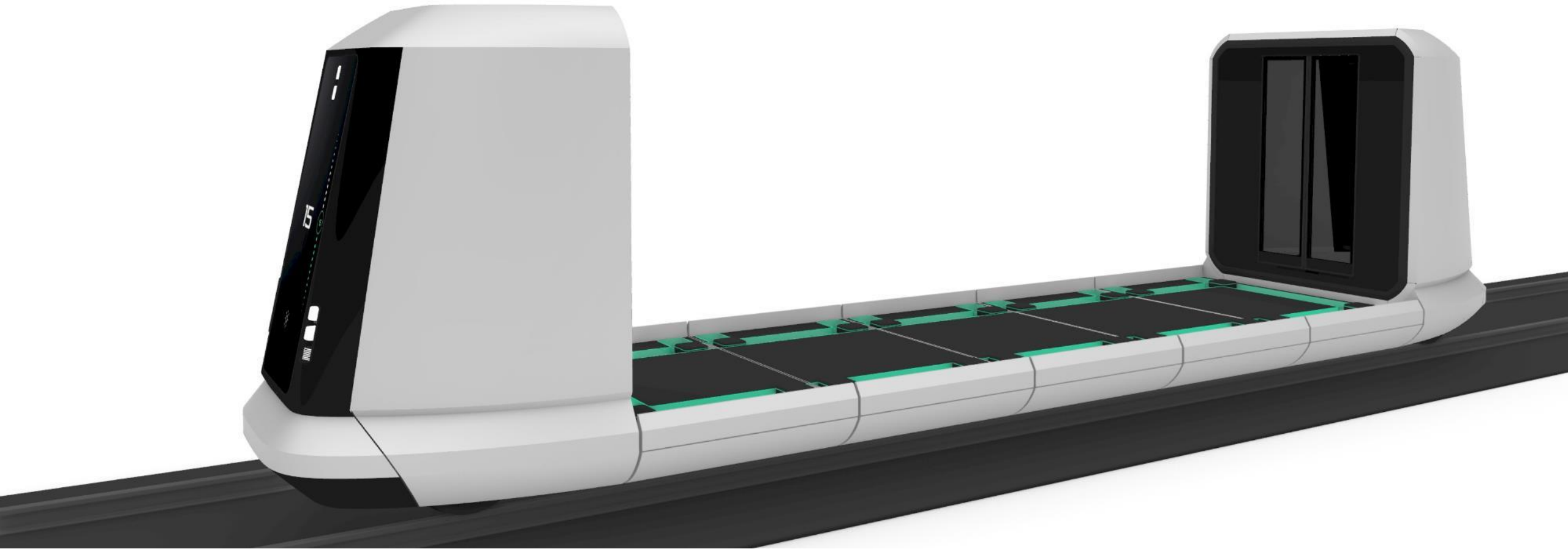


# Handling System

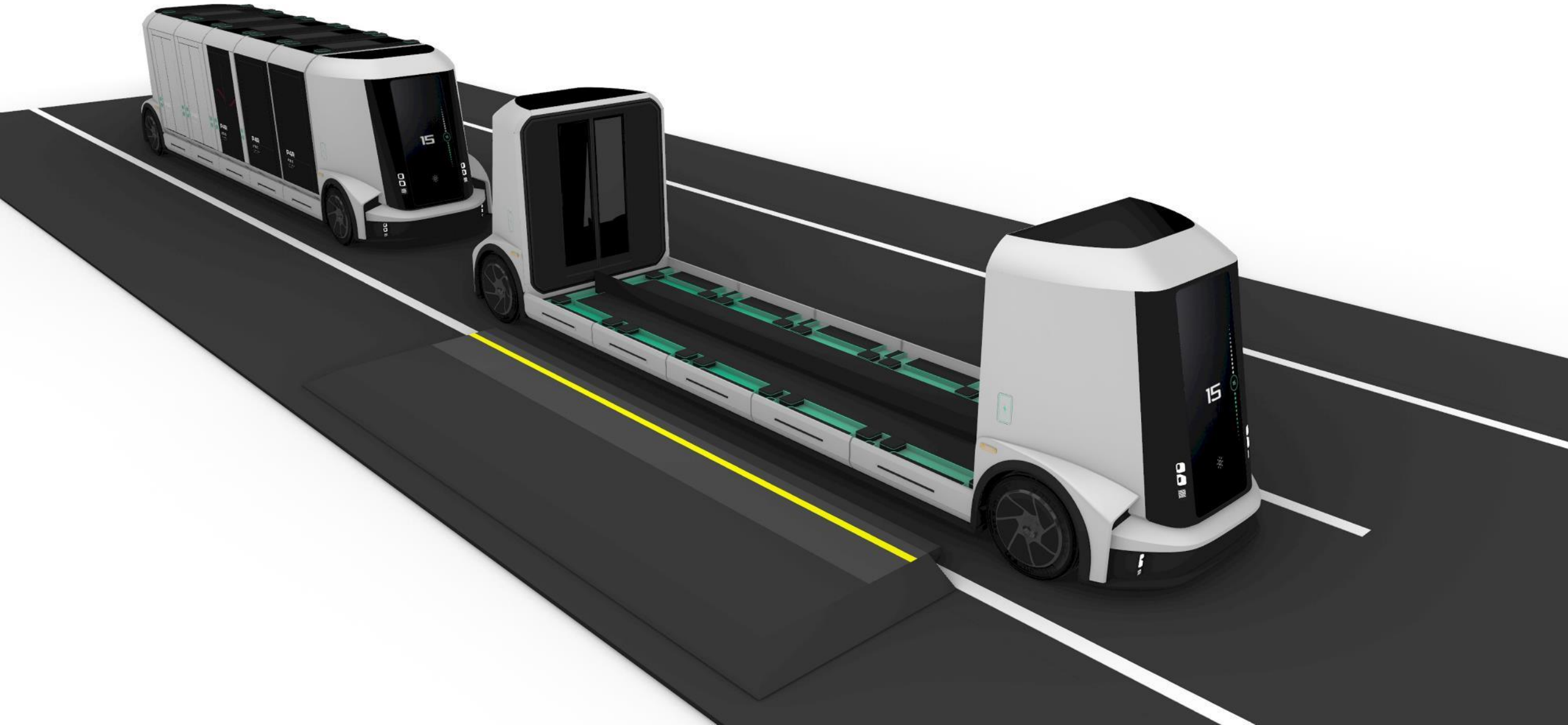
Connection between different transport domains



# Rail Carrier Unit: Skateboard platform concept



# Road Carrier Unit: Skateboard platform concept



# Ropeway Carrier Unit: Single-cable gondola lift



# Welcome to tomorrow... Moving infrastructure



07 July 2026

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## Prevent parallel structures!

# Pods4Rail – More than just dual use



**Dr. Walter Struckl**

Task-Leader Pods 4 Rail WP 8,9,13,14

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