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IRRB WEBINAR

RAILWAY INNOVATION IN NEW TRANSPORTS
SOLUTIONS - COMPETITION AND COOPERATION

25 November 2021



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BASIC RULES FOR USING

zoom

You can join remotely via
your computer, tablet, smartphone
(ZOOM Cloud Meetings by zoom.us) or phone.

Computer is best.



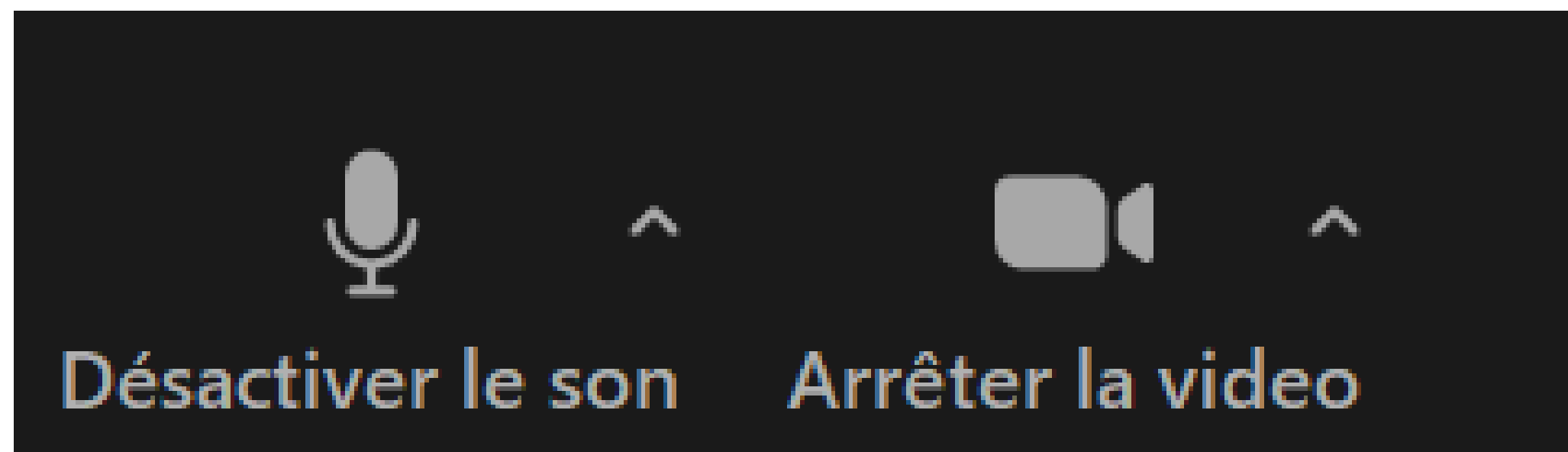
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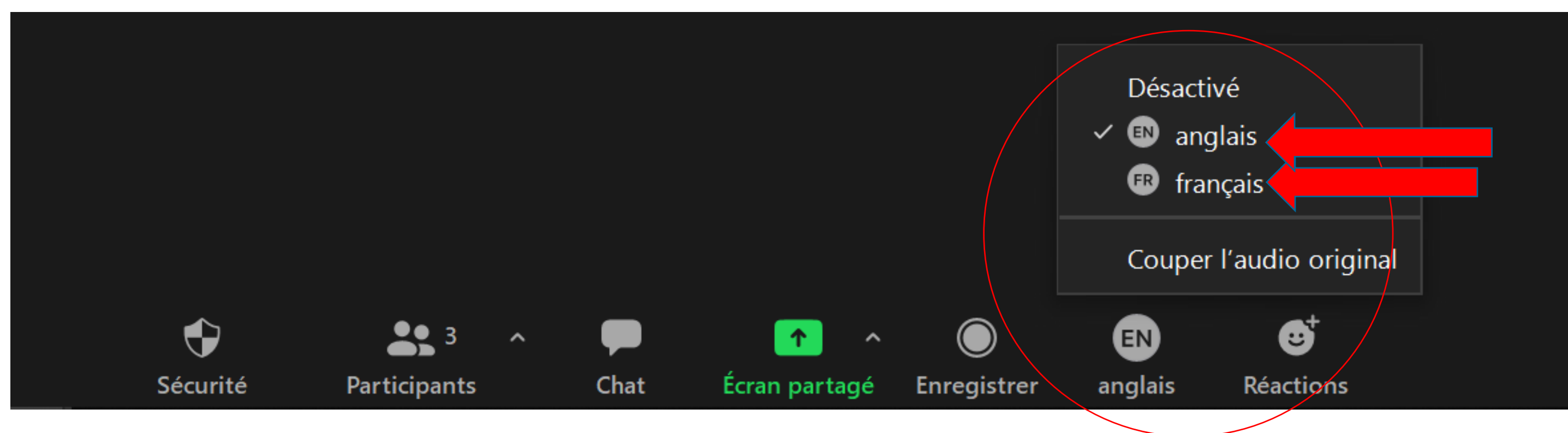
- **Ethernet cable connection** is recommended for stability and speed
- Identify yourself with “**Company - Name Firstname**”
- **Turn off your mic and video when not speaking**



- And remember to turn on your mic when speaking



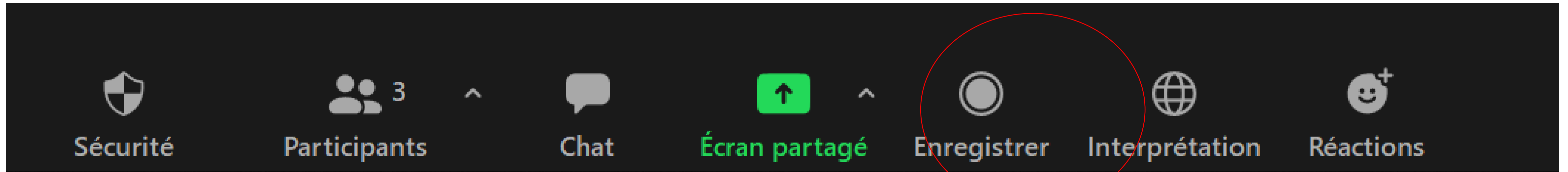
- Russian and English interpretation is available
- Доступен синхронный перевод с английского на русский язык
- Click on the language button located towards the bottom right of this screen, and select the language you want to listen to in the meeting
- **Нажмите на значок планеты внизу экрана и выберите русский канал**



- **Use the chat functionality** for direct messaging to everyone at once (for example to ask a question after a presentation)
- The chat box will be monitored

The image shows a Zoom meeting interface. At the top, there are three participant names: Vincent VU, Birgit HOPPE, T..., and Maria Lafont. The name 'Birgit HOPPE, T...' is highlighted with a green border. Below the names, the name 'Birgit HOPPE, T...' is displayed in large white text on a black background. A large red arrow points from this text down to the 'Chat' icon in the bottom toolbar. The bottom toolbar includes icons for 'Désactiver le son', 'Vidéo', 'Sécurité', 'Participants', 'Chat', 'Écran partagé', 'Enregistrer', 'Interprétation', and 'Réactions'. On the right side, there is a 'Chat' window with a 'Saisir le message ici...' input field and a 'Quitter' button.

• This webinar will be recorded





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Agenda

Agenda

13:00 – 13:05 : Opening – Welcome- Introduction

Mr Vladimir Andreev – UIC IRRB Chairman, Head of the Technical Policy Department JSC « Russian railways » (Russia)

13:05 – 13:10 : Moderator's Word of Introduction

Mr Andrzej Massel – IRRB acting Vice-Chairman (Poland)

13:10 – 13:30 : 1. « How can the railways respond to new technologies – cooperation and competition issues to be addressed »

Professor Angelos Bekiaris – Director of HIT (Hellenic Institute of Transport) at CERTH (Center for Research and Innovation and Technology Hellas) (Greece)

Followed by questions from the audience

13:38 – 13:58 : 2. « Cooperation between air and rail for integration of ticketing »

Mr David Sarfatti – Senior Advisor, Passenger Department, UIC

Followed by questions from the audience

14:04 – 14:15 : Coffee-break

14:17 – 14:37 : 3. “Railway as an integrating tool for mobility systems in metropolitan areas: a case study of the Pomorska kolej Metropolitalna – Pomeranian Metropolitan Railway (PKM)”

Mr Marcin Wolek – Associate Professor at the University of Gdansk, Faculty of Economics (Poland)

Followed by questions from the audience

14:45 – 15:05 : 4. « The new rail frame of the Moscow agglomeration »

Mr Artyom Pchelintsev – Head of the Division of the complex analysis of passenger’s transportation, RZD Passenger transportation Department (Russia)

Followed by questions from the audience

15:11 – 15:55 : **Panel discussion**

Mr Andrzej Massel – IRRB acting Vice-Chairman (Poland)

Speakers and Participants

15:55 – 16:00 : **Closing remarks**



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IRRB Chairman Word of Introduction

Mr Vladimir Andreev

IRRB Chairman



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Moderator's Word of Introduction

Mr Andrzej Massel
IRRB acting Vice-Chairman



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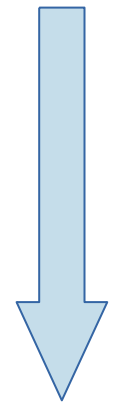
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« How can the railways respond to new technologies – Cooperation and Competition issues to be addressed »

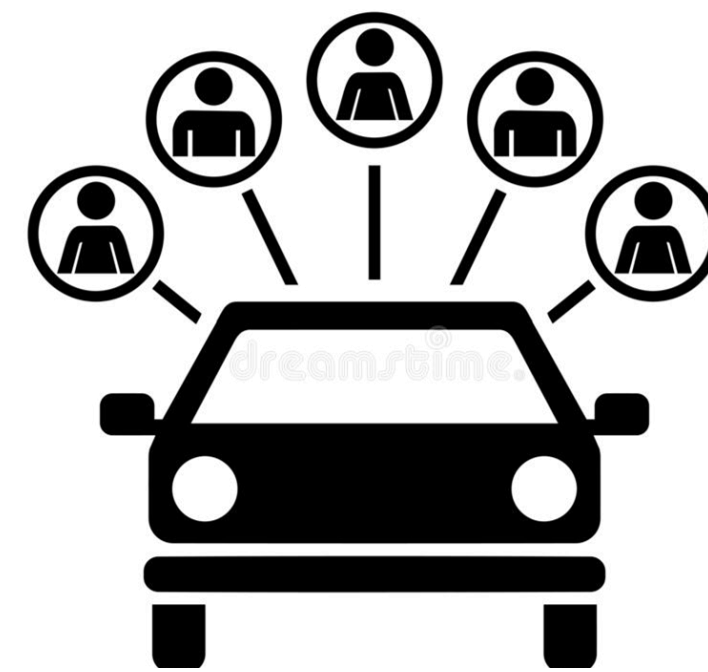
Professor Angelos Bekiaris

Director of HIT at CERTH Center for Research and Innovation and Technology Hellas

Shared systems



- Scooters
- Electric bikes
- Car-sharing
- Automated vehicles



New mode technologies (1/4)

Scooters

- E-scooters have been deployed in many cities globally.
- The rapid expansion has been boosted by venture capital
- The world's 12 leading e-scooter start-ups attracted more than US\$1.5 billion in funding.
- The global market value of e-scooters could reach US\$40–50 billion by 2025 (BCG, 2019).
- Major future markets include Europe and the USA (US\$12–15 billion each) and China (US\$6–8 billion) (BCG, 2019).
- **Business expectation → Important transport mode in cities → Primarily for shared systems**



New mode technologies (2/4)

Electric bikes

- The global electric bikes market is expected to grow from \$18.46 billion in 2020 to \$26.3 billion in 2025 at a CAGR of 7%.
- The European region accounted for approximately 39% of the e-bike market, dominated by Germany, France and Italy.
- There will be 130 million e-bikes and e-scooters in production in 2025 worldwide.
- E-bikes, reaching ranges of 50–60 km and 250–350 W, could compete in performance with the gasoline-powered scooter.



New mode technologies (3/4)

Autonomous cars (automation of transport)

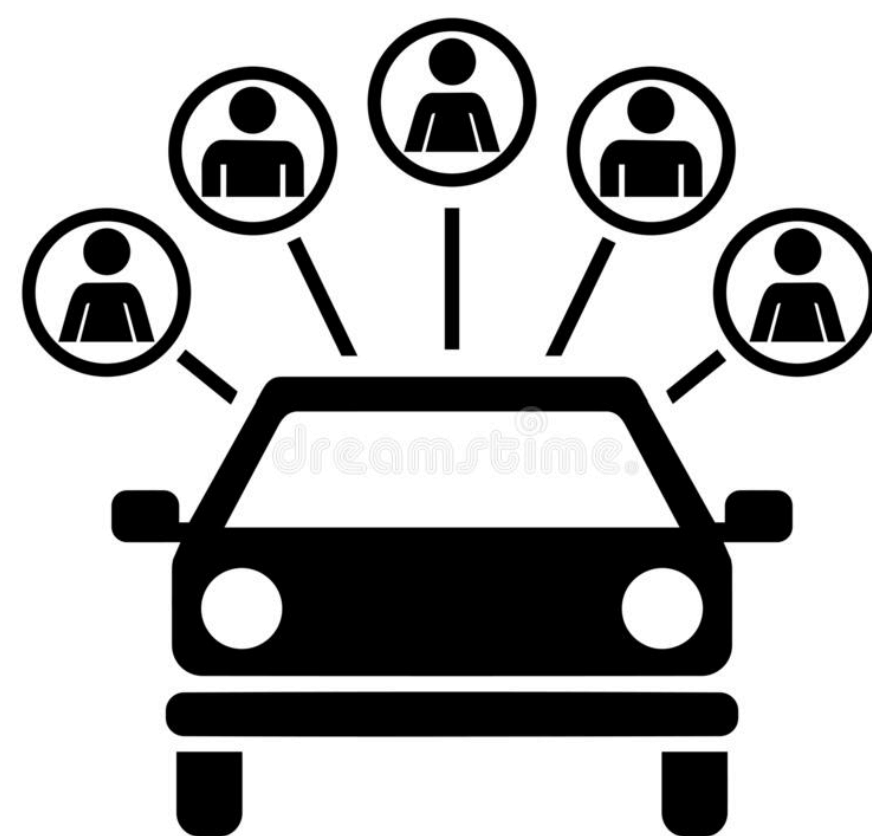
- Most cars are expected to be fully autonomous by 2035.
- Autonomous vehicle market was valued at \$54.2 billion (2019) and is estimated to increase to \$2,044.9 billion by 2030.
- Autonomous vehicles sales 1.4 million units (2019) → Reach 58 million units by 2030.
- In a recent survey of 5,500 consumers in ten countries → at least 50% of the respondents expressed interest in buying or riding in an AV.



New mode technologies (4/4)

Car-sharing

- Revenue in the car-sharing segment is projected to reach US\$9.7m in 2021.
- The number of users is expected to amount to 58.9m users by 2025.
- Car sharing is concentrated 95% in metropolitan areas.
- About 20% of car sharing members give up their car or a second or third vehicle.



Rail and new modes

Compete or Complete?

- Shared modes trip distances overlap with the urban light rail and bus trips
 - For example, trips of 0-3 miles for e-scooter trips and 1.7-5.6 miles for bus trips → **For overlapping trip distances riders may prefer to use shared e-scooters due to their flexibility, rather than the existing bus service.**
- If a share mode trip's origin and destination are both close to urban light rail stops, it is then possible for this trip to substitute a rail trip, reflecting **competition** between the two systems.
- If only one end of a share mode trip is close to a urban light rail stop, the trip may have served as a first/last mile trip to or from a rail connection, indicating a **complementary** relationship between the two systems.

The relationship between the shared systems and the public transport is still unclear.



Need of new evidence of the effects of rail–new modes competition.

Competition: Rail–new modes (1/2)

- First class train travelers prefer the use of **AVs** as egress mode (as last mile transport , compared to the use of bicycle or bus/tram/metro as egress.
- Second class train trips, prefer the **use of other modes** as egress mode compared to AVs.
- Conventional PT services may not survive once the shared AV services become available (Liu et al. 2017).
 - Comparing the shared AV services with light rail services in New York City → AV is more cost-efficient in providing the same level of service (Mendes et al. 2017).

Competition: Rail–new modes (2/2)

- Bike sharing systems could compete with buses (Shaheen et al., 2013).
- Survey results from Melbourne (Australia), Brisbane (Australia), Washington, D.C. (US), and London (UK) → 40% of bike sharing users shifted from public transit for their most recent bike sharing trip (Fishman et al., 2014).

If the shared systems were used to substitute trips that were originally served by public transport, their benefits to improve urban transportation sustainability would be reduced.

Complementarities: Rail–new modes (1/2)

The main potential → solving the first- and last-mile problem

- Satisfying travel demands that are outside of the rail's service time or service area
- Improving access to public transport → Increasing access to services and opportunities → The geographical coverage of PT services will increase.



Complementarities: Rail–new modes (2/2)

- Vakayil et al. (2017) proposed a hybrid transit system where Autonomous Mobility-on-Demand (AMoD) serves as the first- and last-mile feeder for the subway → An integrated system can provide up to 50% reduction in total vehicle miles traveled.
- Liang et al. (2016) studied AV as a last-mile connection to train trips, which showed that automated taxis can reduce the pick-up cost and improve profits.
- In U.S. locations, typically, 1/3 of e-scooter trips replace car or taxi (SFMTA 2019; Denver Public Works 2019)
 - A majority, 57%, confirmed their last e-scooter trip was made in combination with other modes (metro, bus, train and tram).
 - E-scooters play a role in complementing and supporting PT services.

Complementary modes: Win – Win

Portland, Oregon, followed a dramatic drop in public transport ridership due to the Covid-19 pandemic.

The Portland Bureau of Transportation waived the fees it charged a shared micromobility operator and allowed them to increase the overall fleet size by 250 scooters.

- This provided readily available access to safe mobility in the midst of a public-health crisis. This has led to:
 - ❖ 46% increase in overall ridership;
 - ❖ 137% increase in ridership in East Portland — a priority underserved area;
 - ❖ 35% increase in average daily new users; and
 - ❖ 60% increase in average trip distance.

First case study in the United States that demonstrates the promise of these creative micromobility partnerships.

*“To reach our climate targets, emissions from the transport sector must get on a clear downward trend. **Today’s strategy** will shift the way people and goods move across Europe and make it easy **to combine different modes of transport in a single journey**. We’ve set ambitious targets for the entire transport system to ensure a sustainable, smart, and resilient return from the COVID-19 crisis.”*

(Frans Timmermans, Executive Vice-President for the European Green Deal)

Challenges

Crucial to understand the potential complementarities between the two services:

- How accessible rail stations are?
- How well sharing services, infrastructure and facilities can be accessed?
- How well these provide access to services and opportunities within a given time?
- What are the user needs and modes' characteristics?

Utilize the existing resources in an efficient and effective way.

To effectively design new transport systems we need to answer questions, and integrate these in transportation planning.

Disruptive niche innovations

Any transformation of an existing transport system requires change in:

(Geels et al. 2017)

- Policy-regulations
- Infrastructure
- Technology
- Organizations
- Markets
- Users behavior and practices

Stakeholders introducing innovative transport modes should be aware of these cultural resistance, infrastructural and technical challenges.



Develop cooperative and integrated mobility solutions, which could significantly increase efficiency while reducing congestion, emission, and resource consumption.

Future recommendations

- Implement docks and pods of shared bicycles-escooters and carsharing to be able to meet the existing demand → Optimize the redistribution system.
- Design micromobility sharing stations, car-sharing parking areas, in proximity of the rail stations.
- Suggest a minimum walking distance from the docking station to the rail station.
- Sharing services should be expanded to suburban areas.
- Provide mobile applications and real time data on availability at different locations to improve the usability and user-friendliness of the services.
- Provide pricing and incentives such as flexible and integrated ticketing.
- Provide discounts for user groups and frequent users that combine both services.
- Reward employees that use micromobility and public transport for trips to/from work.

Shift2Rail

Objectives in Shift2Rail Master Plan: **Technical framework, Customer experience applications and Multimodal travel services.**

IP4 Research and Innovation (R&I) Activities



- Makes ride-sharing a complementary transport mode that extends public transport networks.
 - Makes ride-sharing an effective feeder for high-capacity transport.
 - Use traveler preferences to enhance travel experience.
 - Integrates multiple (public/private/social) data sets and existing transport platforms for promoting an effective ride-sharing practice.
-
- Builds a digital ecosystem for door-to door travel in Europe, making railways and public transport more attractive.
 - Integrates e-scooters, bikes, carsharing with urban public transport
 - Combines technological solutions for specific demonstration scenarios in multiple real environments across Europe.



Other platforms

SiMobility Flow
Proximity-based push
information for
passenger guidance

Source of usage data
for operators



SiMobility Connect
B2B platform
enabling information and
transactions before, along
and after the multimodal
journey

SiMobility JustGo
Hands-free, on-the-go
ticketing with BiBo
(Be-in/Be-out) and CiBo
(Check-in/Be-out) flavors

SiMobility Connect is a B2B platform integrates real-time passenger information, multimodal journey planning, booking, ticket purchase and payment – across public transport (railways, ferries, cable cars, etc.) and private transport services such as car sharing, bike sharing and taxis, into a one-stop portfolio for the user.

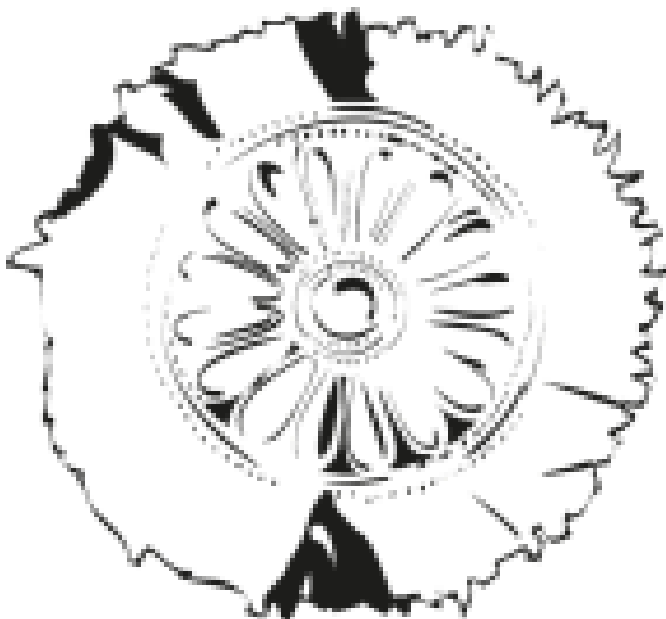
Deutsche Bahn's Multimodal Full-Service Mobility Platform 4.0 will consolidate and interlink the existing mobile applications

DEUTSCHE BAHN'S MOBILE APPLICATIONS FOR MULTIMODAL JOURNEY PLANNING

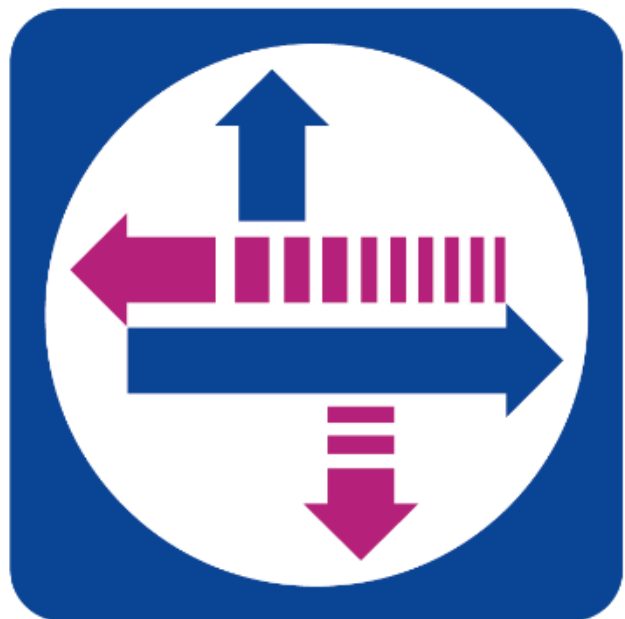


Source: Deutsche Bahn AG (2016).

Thank you for your attention!



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« Cooperation between air and rail for integration of ticketing »

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Open Sales and Distribution Model (OSDM)

And UIC-IATA cooperation

David SARFATTI

25 November 2021

UIC Air + Rail project

The UIC Air+Railproject started in 2019, to facilitate the development of air-rail intermodality

AWARENESS
Increase the awareness and knowledge of members about intermodal integration, including opportunities, scenarios and solutions

ELIMINATION OF BARRIERS
Identify the major technical barriers to adoption and develop a solution strategy to remove or mitigate them

STANDARDISATION
Provide technical guidance and standards in order to facilitate integration and increase confidence of players in investing

ENABLEMENT
Provide technical solutions, including enabling platforms, to accelerate adoption and facilitate multilateral approaches

INCUBATION
Encourage open innovation around intermodal integration through initiatives aimed at members and technology players (eg start-ups)

UIC-IATA Memorandum of Understanding

Objectives

- ✓ **Strengthening mutual cooperation**
- ✓ **Endavour to develop a framework for dialogue in areas of mutual interest**
- ✓ **Formalize, maintain and share their strategic visions, efforts and solutions**
- ✓ **As far as possible, strive to promote information sharing and the coordination of their work**

Envisaged activities

- ✓ **Attend those of one another's meetings**
- ✓ **Send representatives to specialist working groups**
- ✓ **Identify relevant expertise which may be beneficial to the other's work**
- ✓ **Exchange views on how to improve passenger rail transport**
- ✓ **Share their official written communications on specific matters and matters of shared interest**

Appendix

The Appendix to the MoU describes the core domains of common interest for dialogue on work and cooperation, which are:

Pricing	Ticketing	Timetables / Schedules
Availability	Legal Aspects	Passenger Travel Experience
Reservation	Industry Coding	Accounting / Settlement



Memorandum of Understanding

Signed

Geneva
30th January 2020

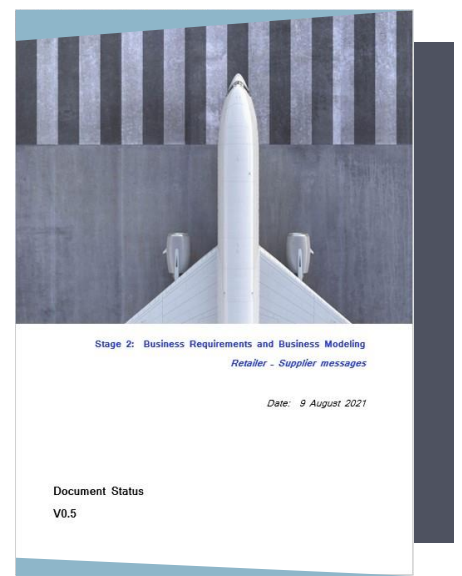
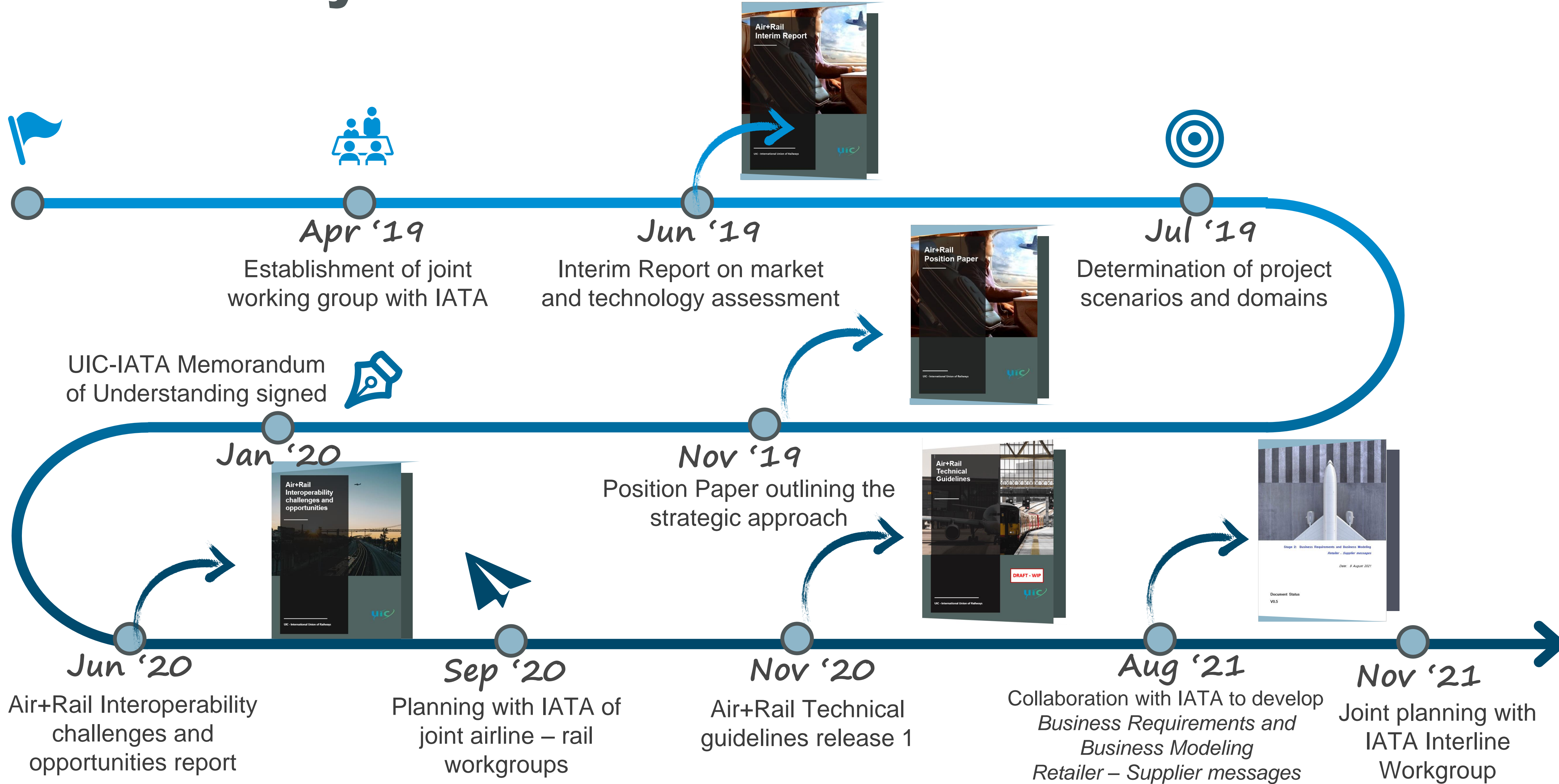


François Davenne
UIC Director General



Alexandre de Juniac
Director General and CEO
of IATA

Air+Rail key milestones



UIC and IATA Distribution Standards

To sell tickets both organisations developed new distribution API definitions to replace the former edifact protocols.

1. IATA is developing NDC (New Distribution capabilities) to interline different airline tickets in XML messages
1. UIC proposed OSDM (Open Sales and Distribution Model) for the distribution of Rail Through tickets in JSON..

OSDM Standard

OSDM scope

The aims of the **Open Sales and Distribution Model (OSDM)** are twofold:

- to substantially **simplify and improve the booking process** for customers of rail trips and,
- to **lower complexity and distribution costs** for distributors and railway carriers.

OSDM **strengthens rail and public transportation** as a convenient and ecological means of transportation by simplifying distribution.

Finally, it lays a **solid fundament** which can be extended to the distribution of other means of transportation.

OSDM participants

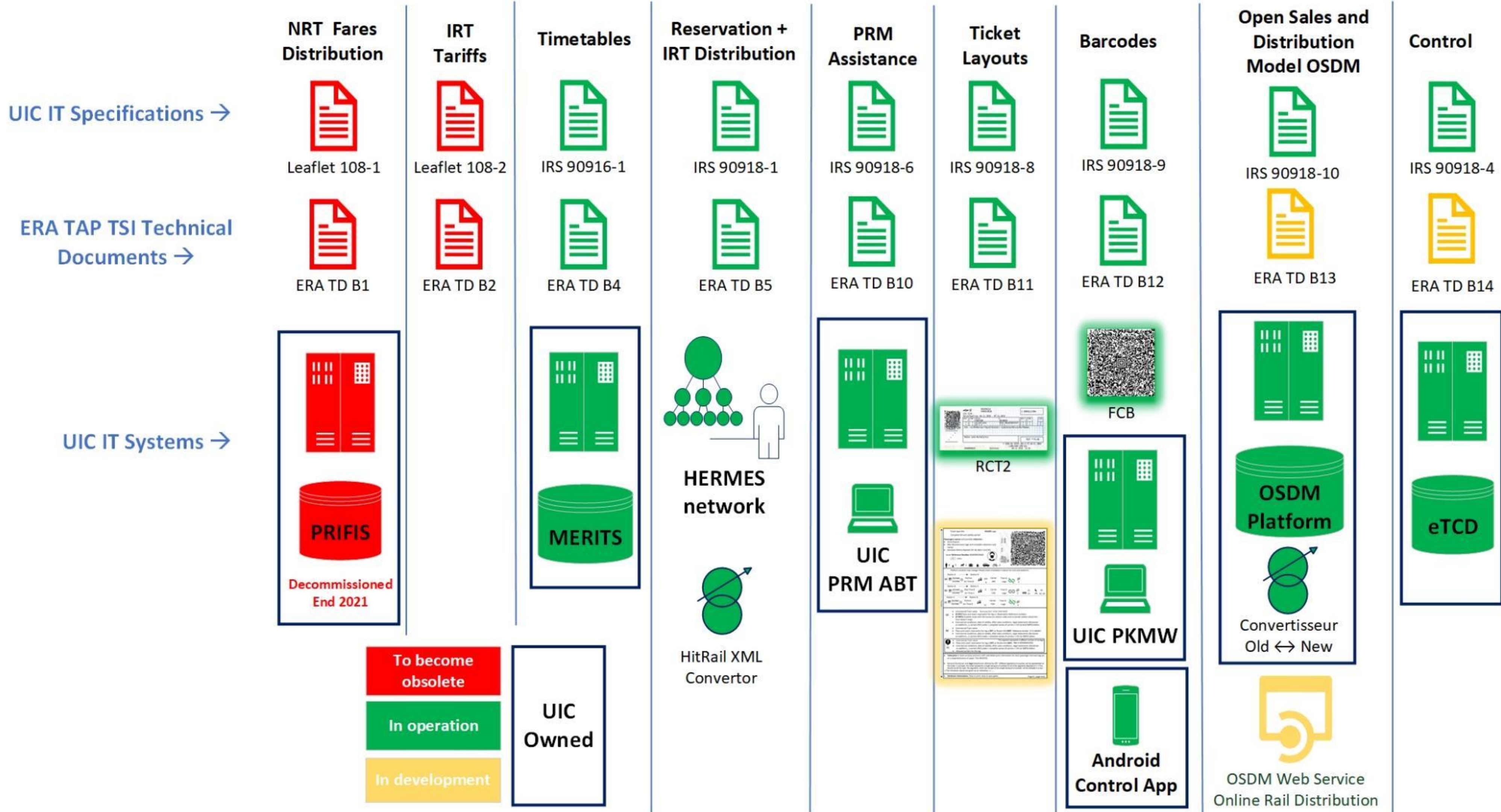
OSDM (Open Sales and Distribution Model) is the new Europe-wide **B2B Sector Distribution Initiative** (Railways and Ticket Vendors) seeking an **Open IT- Specification for ticket sales, reservations and price distribution.**

OSDM is **jointly managed by UIC** (the International Union of Railways) and **ticket vendors represented by EU Travel Tech and ECTAA** (European Travel Agents' and Tour Operators' Association).

Companies IT technical experts gather weekly in OSDM Working Group (WG)

Companies' managers gather monthly in OSDM Executive Committee (EC)

UIC Ticketing and IT solutions and link with ERA TAP-TSI Technical Documents



OSDM free Open-source specification

The IRS license is Open-source Apache 2.0.

IRS 90918-10 Version 1.3 is published on GitHub **1st November 2021**.

During ERA UIC meetings, the parties have agreed that IRS 90918-10 will be integrated in a TAP-TSI Technical Document (TD B13).

<https://unioninternationalcheminsdefer.github.io/OSDM/>

OSDM implementations: Offline and Online types

OSDM enables the sale of both online and offline tickets in the same interface.

For offline distribution, the OSDM Platform replaces the existing Price and Fare Information Storage (**PRIFIS**) international tariff distribution tool, a shared database containing prices and tariffs for **static price** tickets.

For online distribution the new OSDM standard uses an **API** (Application Programming Interface), **which allows dynamic price distribution.**

OSDM-Offline Platform

OSDM Platform (-Offline)

Due to the old 2004 format and the obsolete technology of PRIFIS (PRIce and Fare Information Storage), UIC completed in 2020 the procurement process for the implementation of a new tool and the design of related specification.

The new system is called **OSDM Platform** and is a central database for the exchange of priced segments.

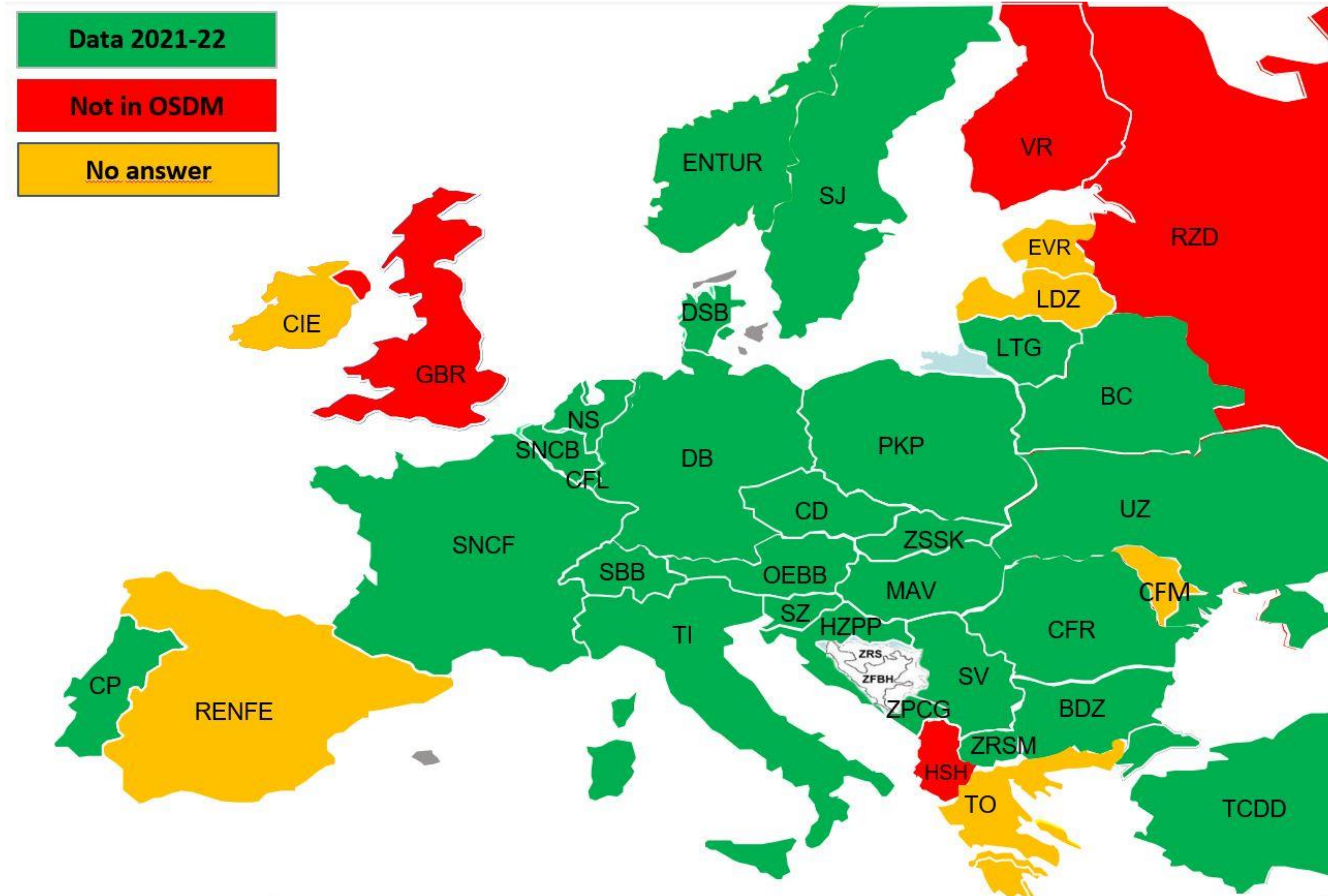
In September 2021, the OSDM Platform for the Offline distribution of fixed fares was successfully deployed by UIC as defined in the 2020 planning.
<https://osdmplatform.uic.org/>

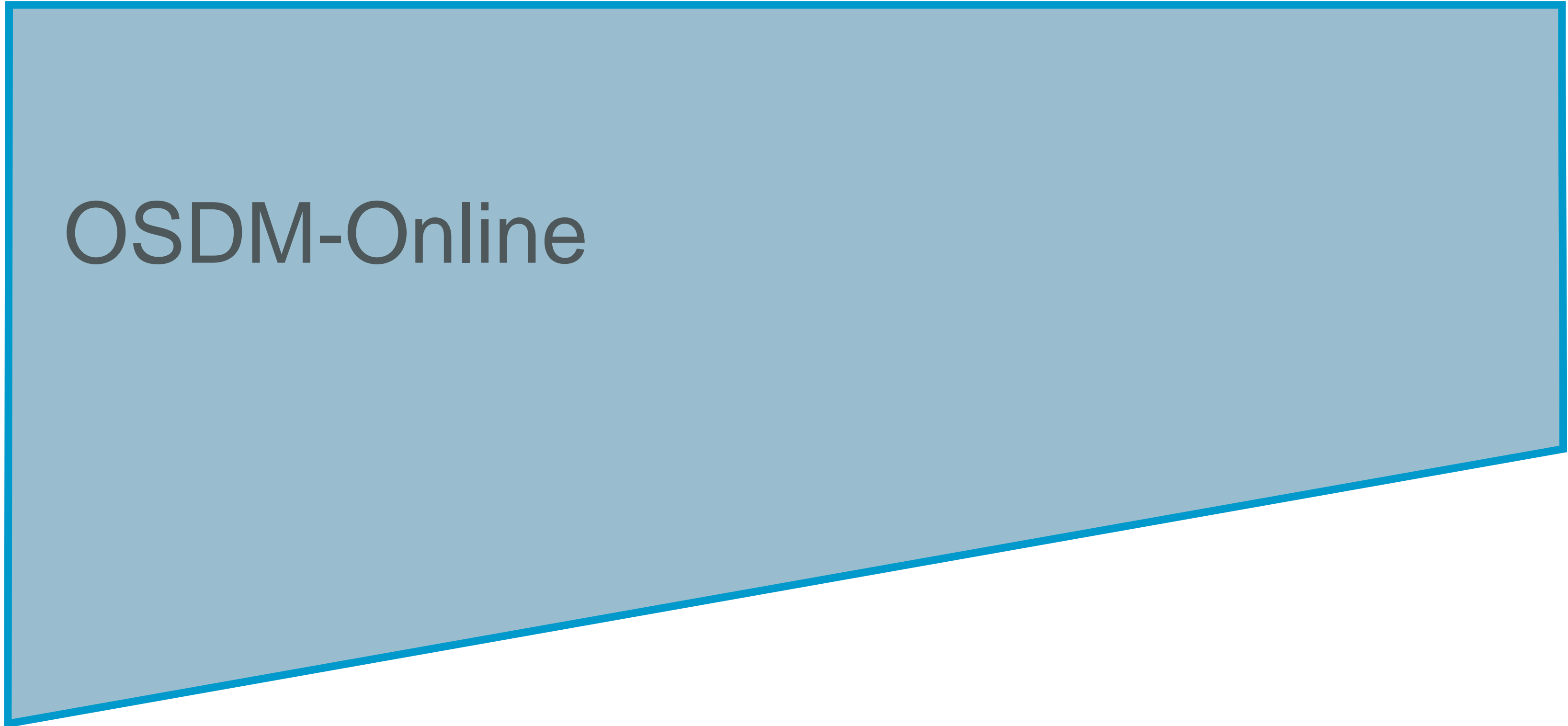
21 Railways have uploaded their 2021 Tariff data in OSDM format.

5 Railways request that for this year, to use their old 2020 108-1 tariffs file.

25 weekly meetings took place from April to September and from October biweekly meetings are going on.

OSDM Platform (-Offline)





OSDM-Online

OSDM-Online

For the Online distribution the sector wants to gradually work together to ensure a migration from the previous interfaces to the new OSDM-Online-compliant APIs.

Only in this way the capability of a specific company to receive and send OSDM messages will be ensured. This step is a prerequisite to a pan-European roll-out of OSDM online to reciprocal links between all railway undertakings and distributors in the medium term.

OSDM-Online

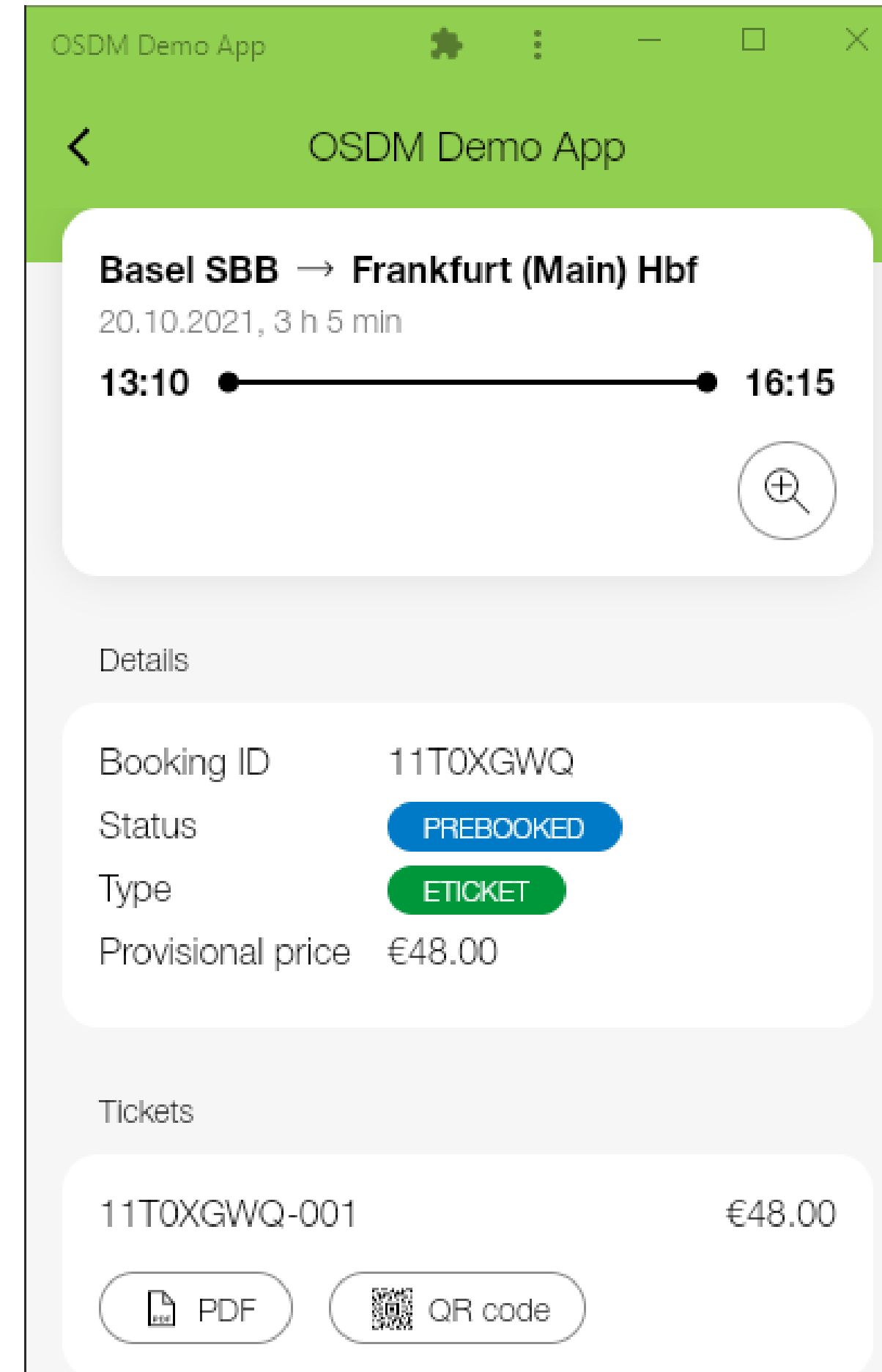
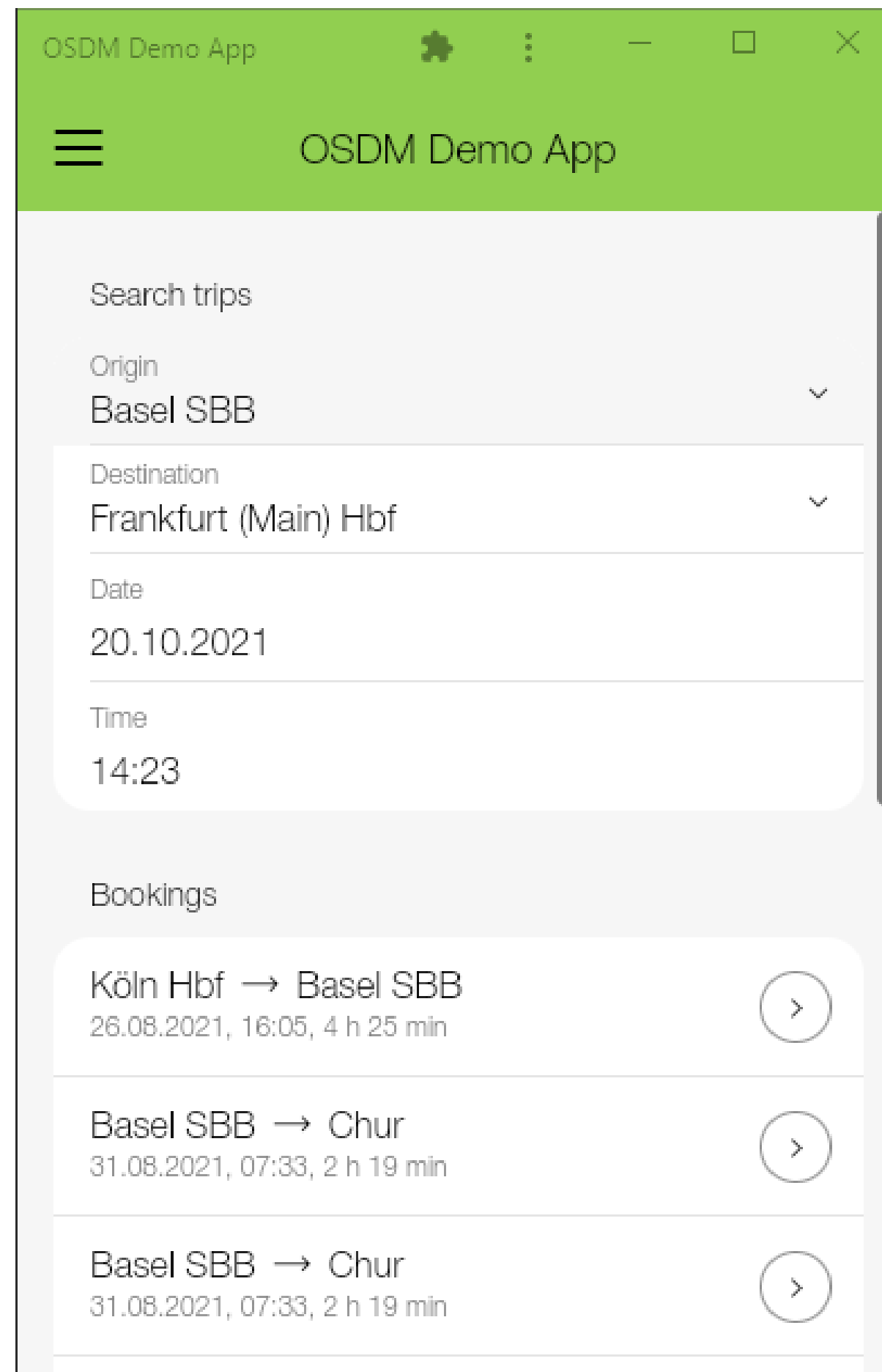
OSDM Online implementations are ongoing:

- Sqills has provided a sandbox environment
- Amadeus has connected to Sqills
- SBB, HITRAIL and Infosystem have started to implement OSDM for seat reservations within Switzerland
- ÖBB and SBB have started to implement a prototype for online fare combination
- Turnit has started to implement

Bileto is live in July 2021 with an initial implementation of OSDM

<https://www.bileto.com/en/blog/bileto-launches-europes-first-osdm-implementation-to-enable-next-gen-reservation>

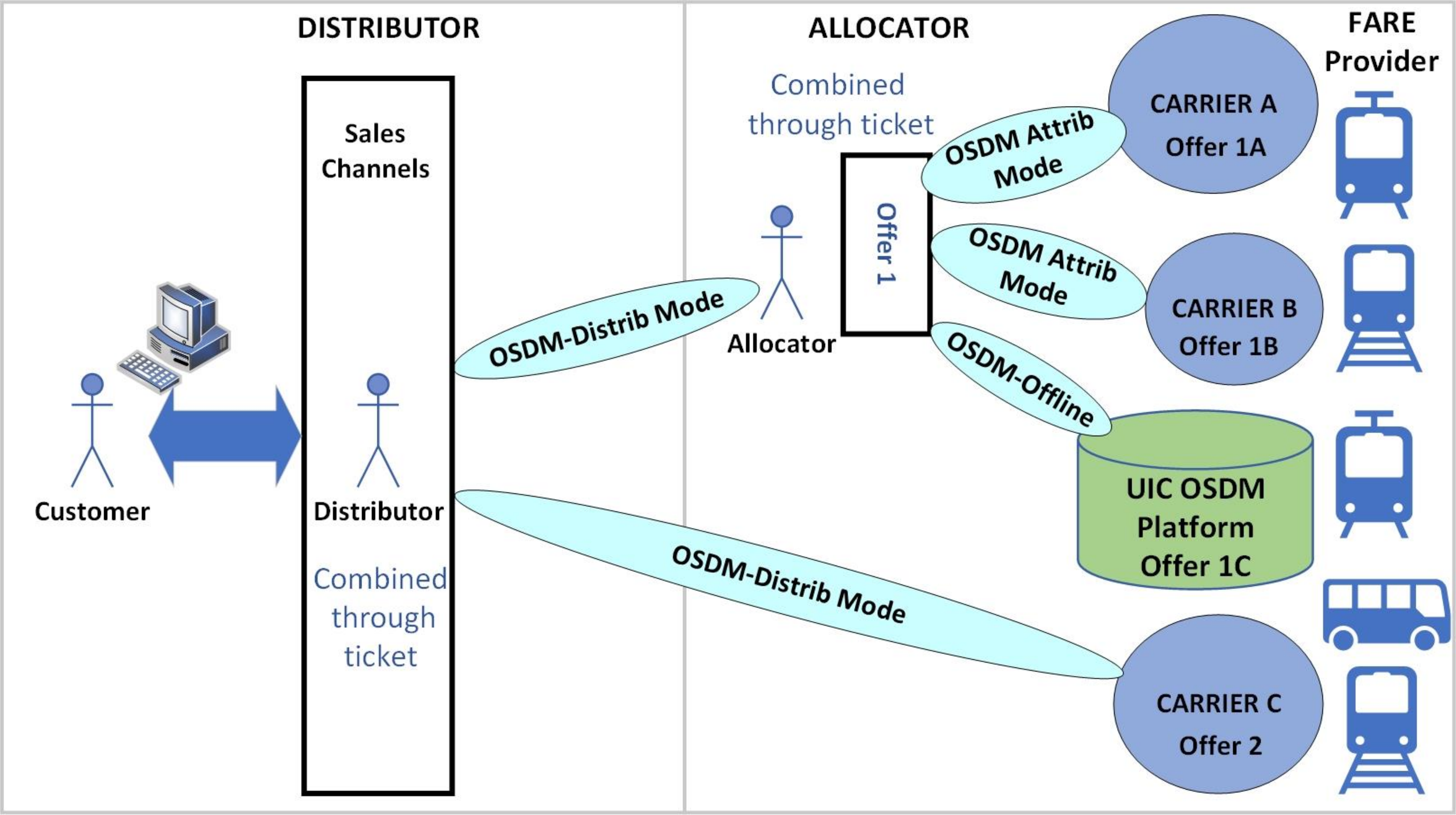
OSDM App by SBB



The app directly connects to the OSDM API.

Realized in 7 days by one developer.

OSDM Flows



OSDM Other

Alignment with other Entities

CEN

- OJP/Transmodel definition is now integrated in the OSDM V1.3 Trip Search functionality.

ERA

- ERA adopt OSDM IRS 90918-10 for TAP-TSI Technical Document B13.

TSGA

- TSGA will be notified when a New Tariff file is uploaded in OSDM platform

MERITS

- MERITS update stations list once a month. MERITS is notified when a station is missing in the OSDM Platform.

IATA

- Air+Rail Business requirements are now defined. Technical OSDM alignment could begin in 2022.

OSDM Communication

An OSDM page is available on UIC Website:

<https://uic.org/projects/osdm>

A two pages fact sheet was published in July 2021.

<https://uic.org/IMG/pdf/uic-passenger-open-sales-and-distribution-model.pdf>

A long video proposal is shown proposed from September 2021

<https://www.youtube.com/watch?v=TVxQdq8nMAI>



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10 minutes Coffee-Break



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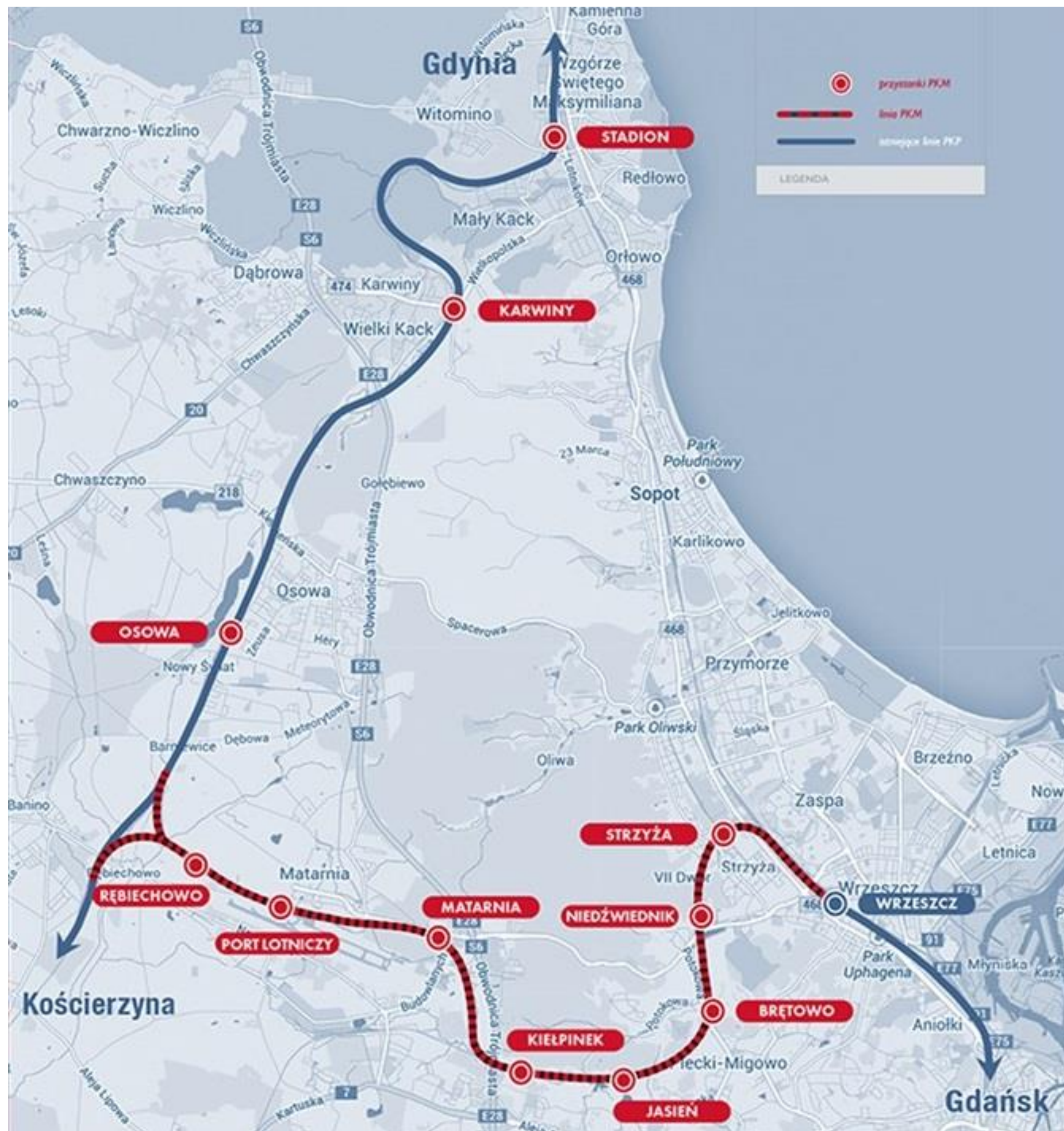
« Railway as an integrating tool for mobility systems in metropolitan areas: a case study of the Pomorska kolej Metropolitalna – Pomeranian Metropolitan Railway (PKM)»

Mr Marcin Wolek

Associate Professor at the University of Gdansk, Faculty of Economics

The structure

- PKM – a history of development and current status;
- COVID and testing the railway resilience;
- PKM – a corridor open to integration;
- Summary.



PKM – a history of development

KOLEJ METROPOLITALNA NARZĘDZIEM INTEGRACJI TRÓJMIASTA I POMORZA METROPOLITAN RAILWAY: THE TOOL FOR INTEGRATION OF TRICITY AND POMERANIA REGION



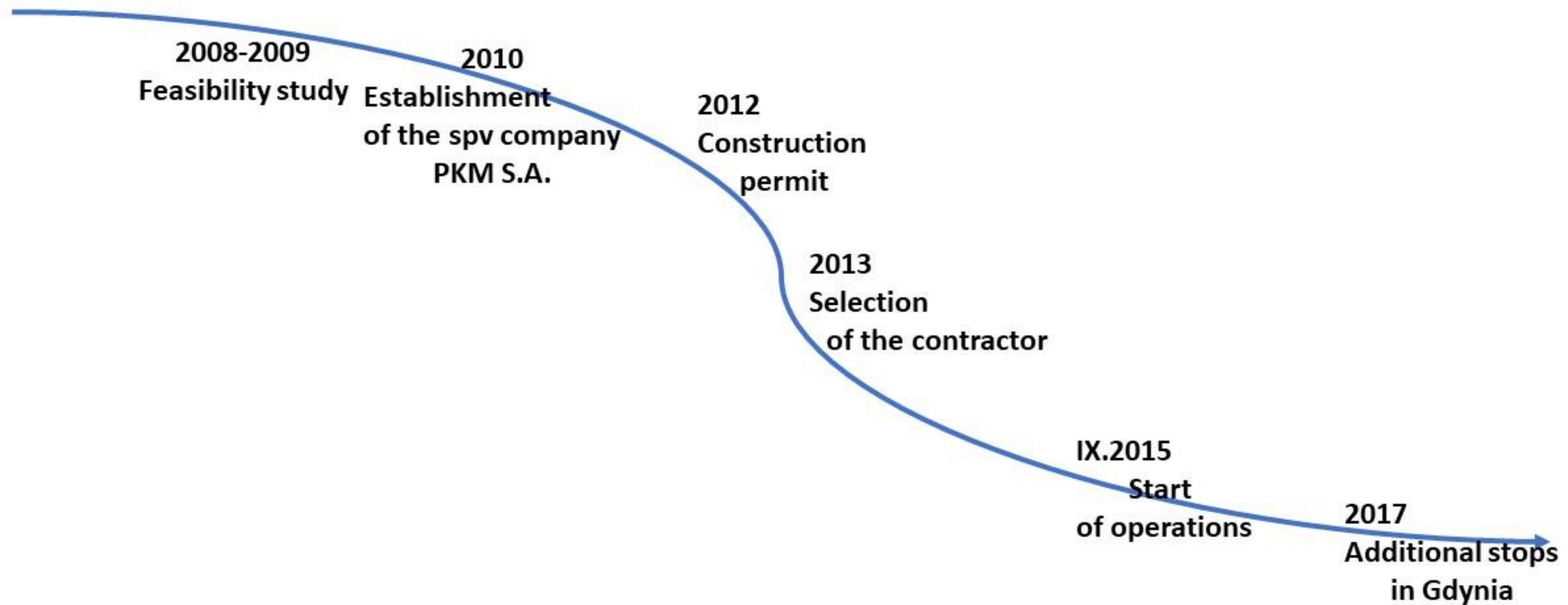
Gdynia, 9 września 2005



A viaduct in Gdansk Bretowo, 2004

The first concept of PKM launched by group of Scientists 2005

- „train to airport”;
- „another electrified urban railway line (1-track)”;
- „regional tram” (Karlsruhe system);
- „two-track, non-electrified railway line”.

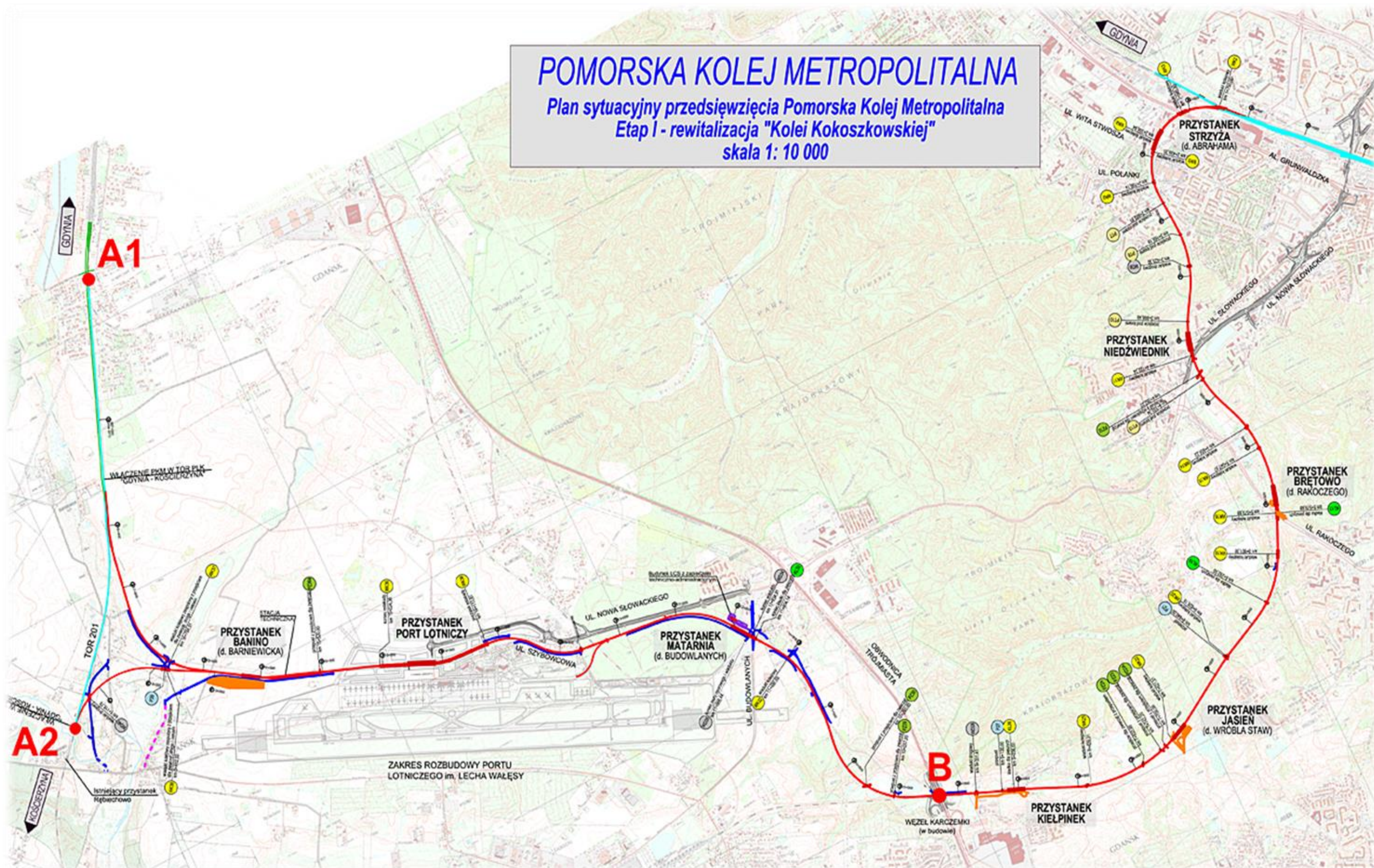


PKM today

- ca. 18 kms of new railway line;
- 8 passenger stops;
- local traffic control centre;
- 41 engineering structures;
- ca. 1,5 mio. train- kms p.a.;
- 4 lines using the infrastructure of PKM;
- 2 railway operators in the service.



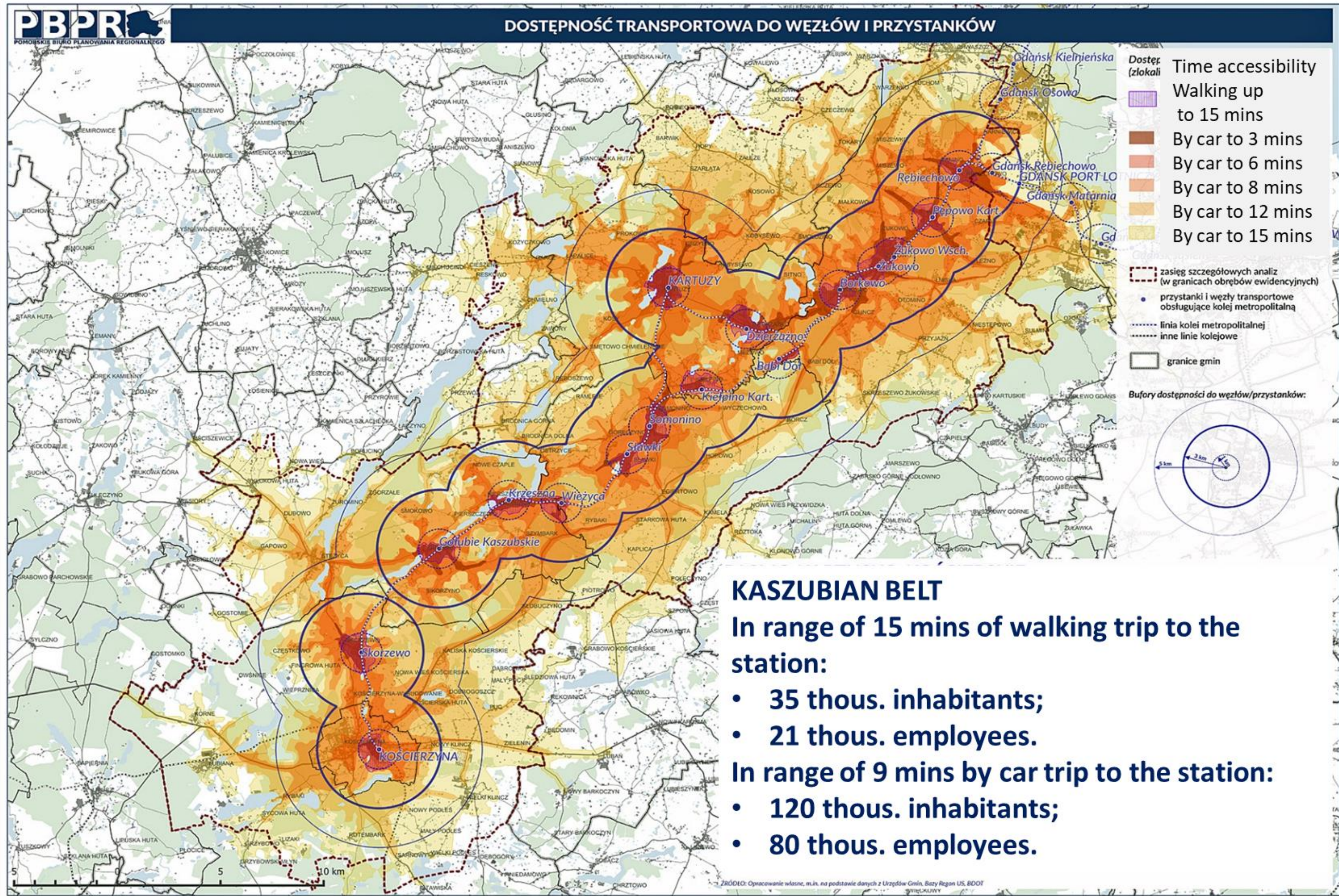
PKM – the spatial layout



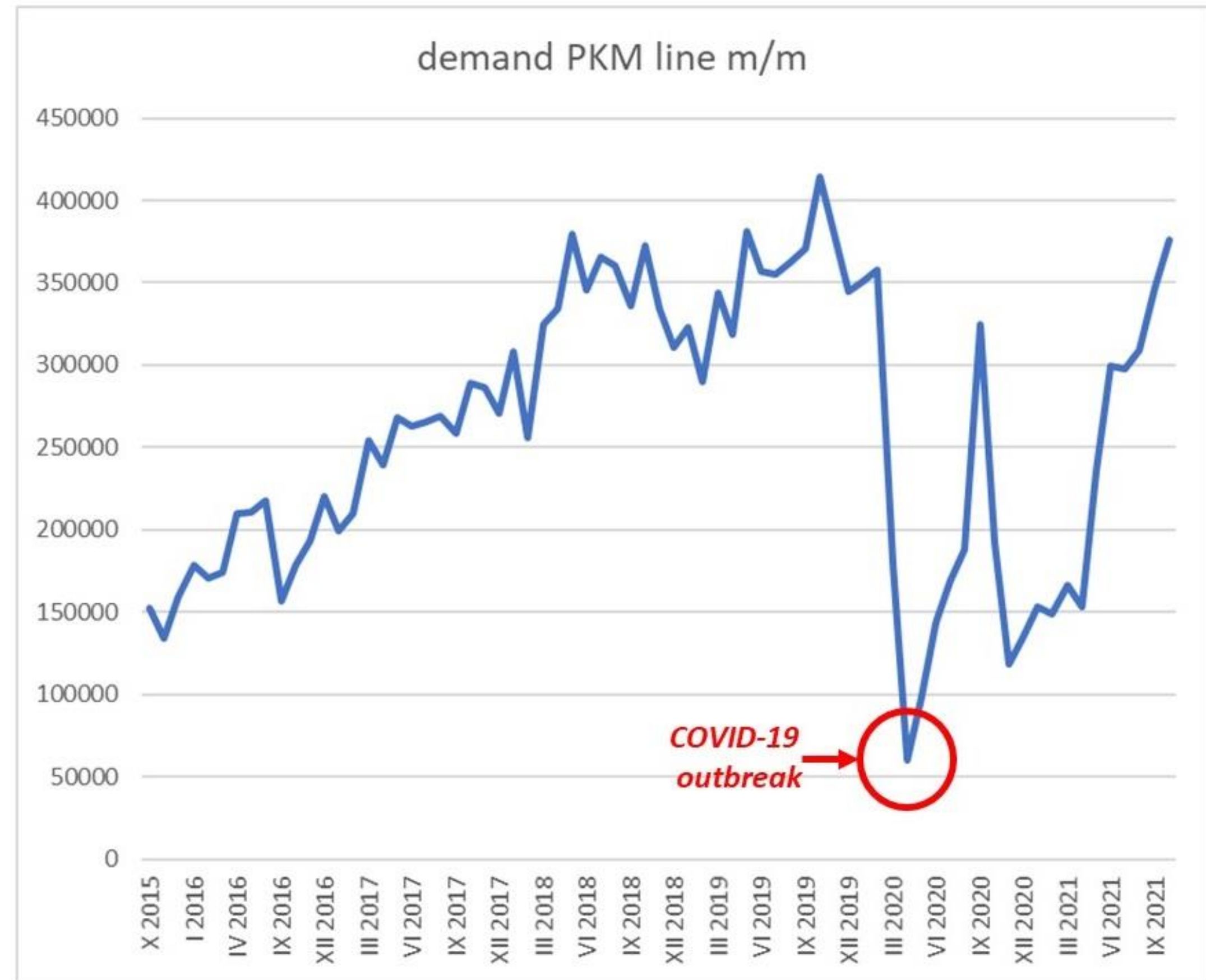
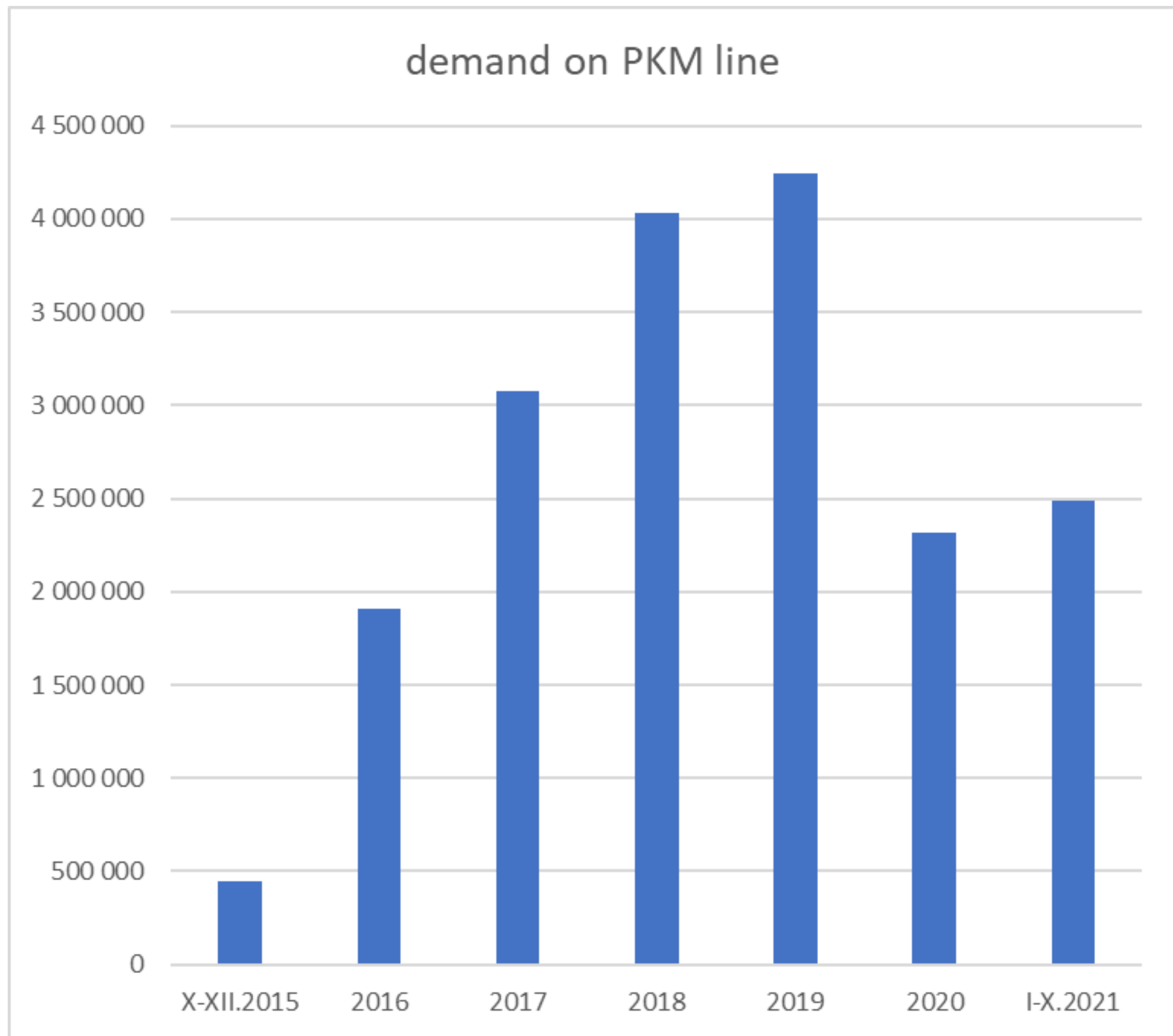
PKM – current status and before the investment



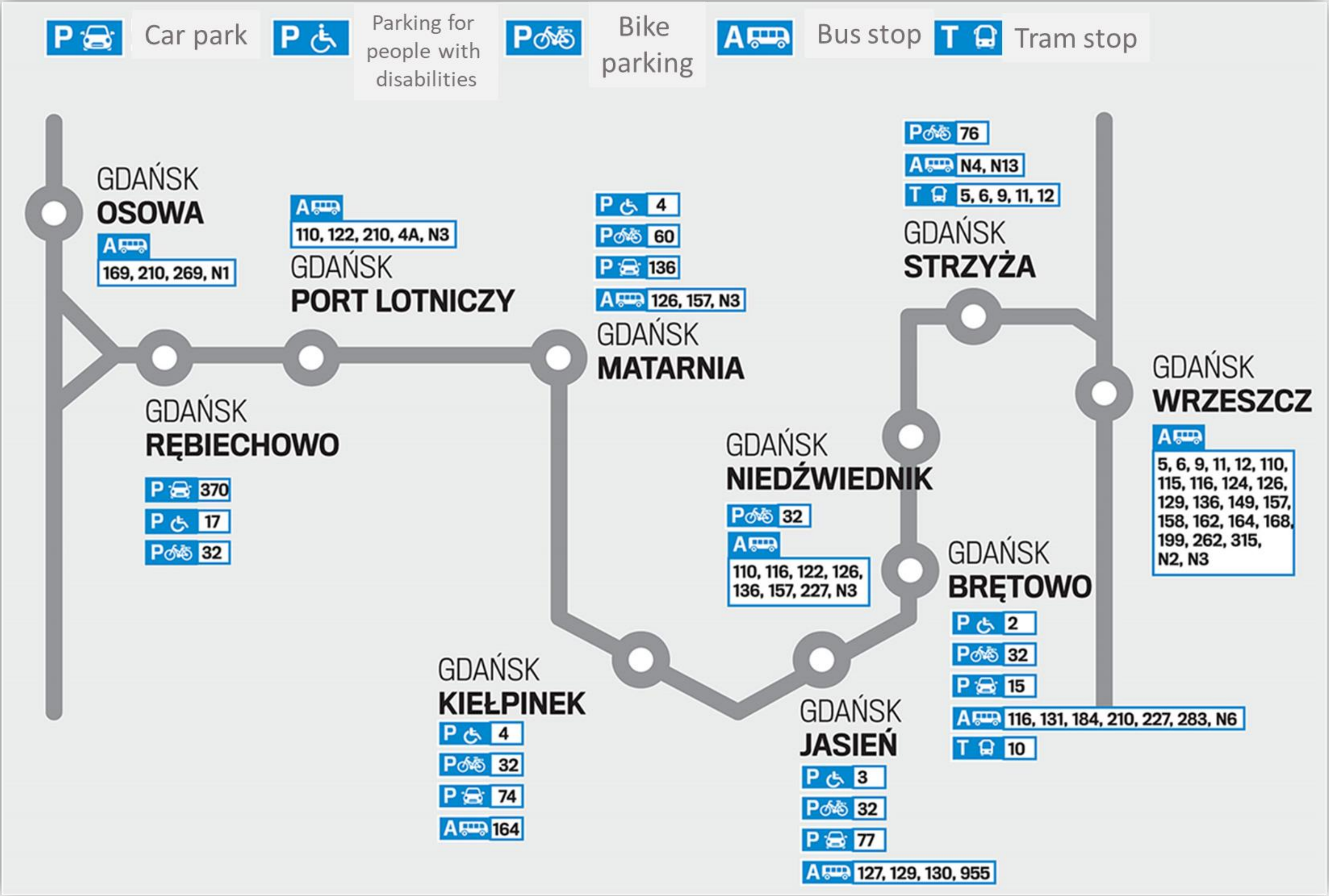
PKM – accessible corridor of spatial development



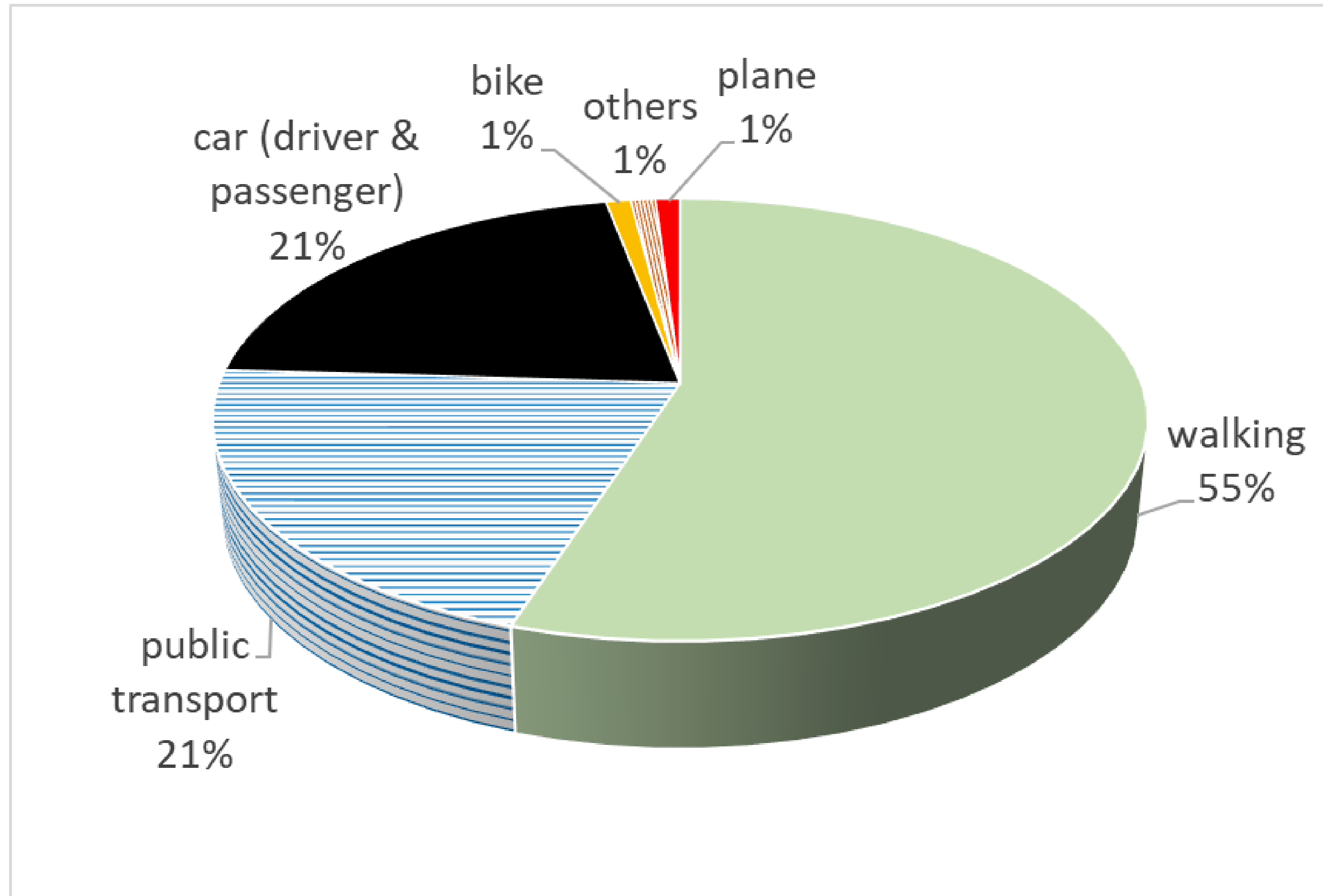
PKM – demand on the line



PKM – the corridor open to integration



Modal split of the first-mile trip to stations of PKM (autumn 2017)



Summary 1: Factors of success

- Consistent support from local and central government at various levels;
- "Political resilience" of the project due to the involvement of experts from various sectors;
- Early establishment of cooperation with the JASPERS initiative and PKP PLK S.A. (national infrastructure manager);
- Establishment of a special purpose vehicle to design and implement the investment by the Self-Government of Pomorskie Voivodeship;
- Clearly designed and conducted tender procedure resulting in selection of a reliable and experienced contractor;
- Project open to further development (electrification - ongoing, new stops, expansion of integration nodes, Kartuski Bypass, serving the southern districts of Gdansk, North Agglomeration Railway to serve the northern districts of Gdynia and Kosakowo Municipality).

Summary 2: A demand perspective

- Various locations of stations with (nearly) sufficient capacity for other modes of transport;
- Different structure of the demand (intra-city trips, regional trips, „to/from airport trips”, metropolitan trips) providing better balance and higher level of resilience in time of COVID-19;
- Growing importance of the whole corridor to integration of individual modes of transport;
- Potential for further growth.



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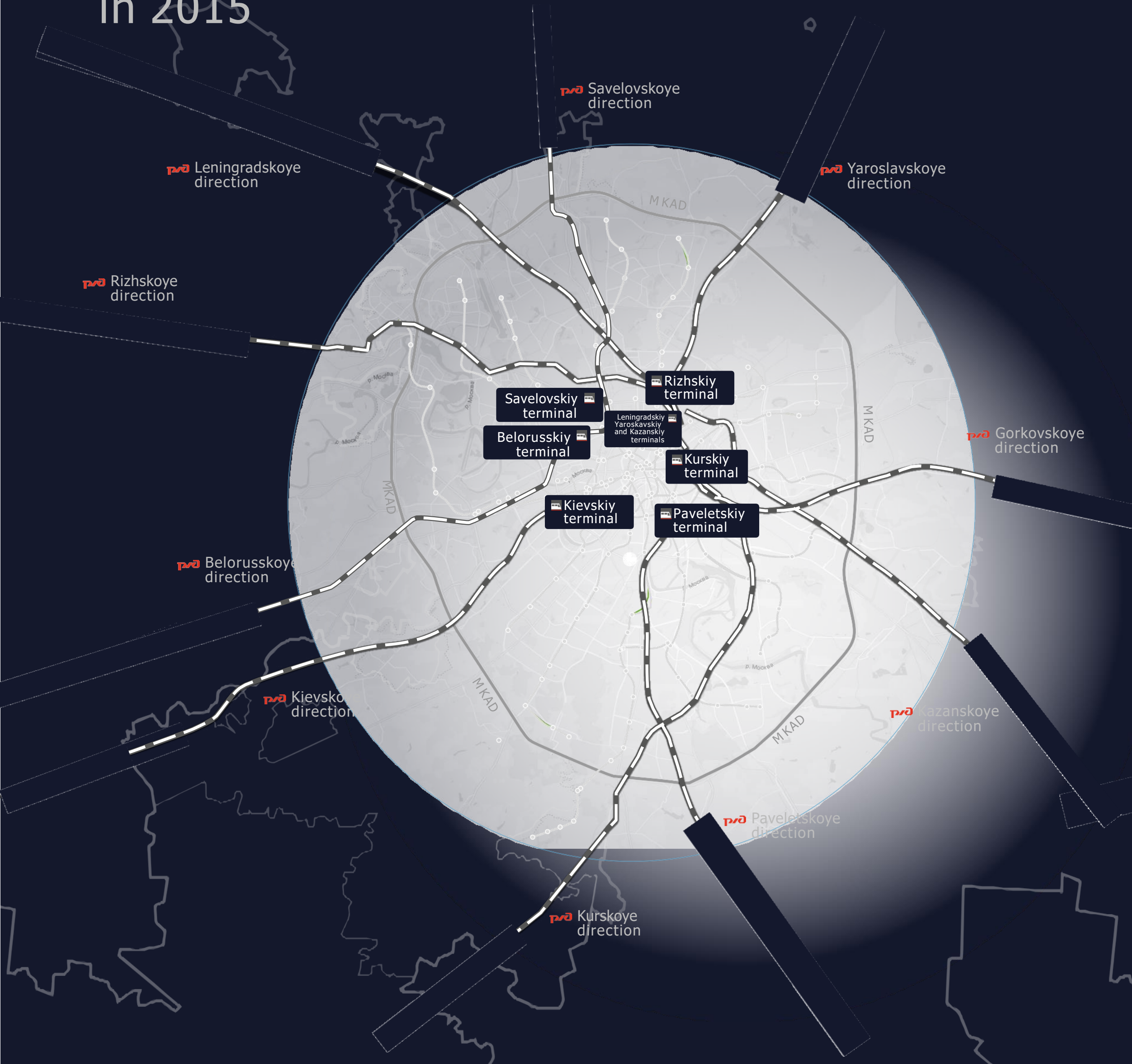
« **The new rail frame of the Moscow agglomeration** »

Mr Artyom Pchelintsev

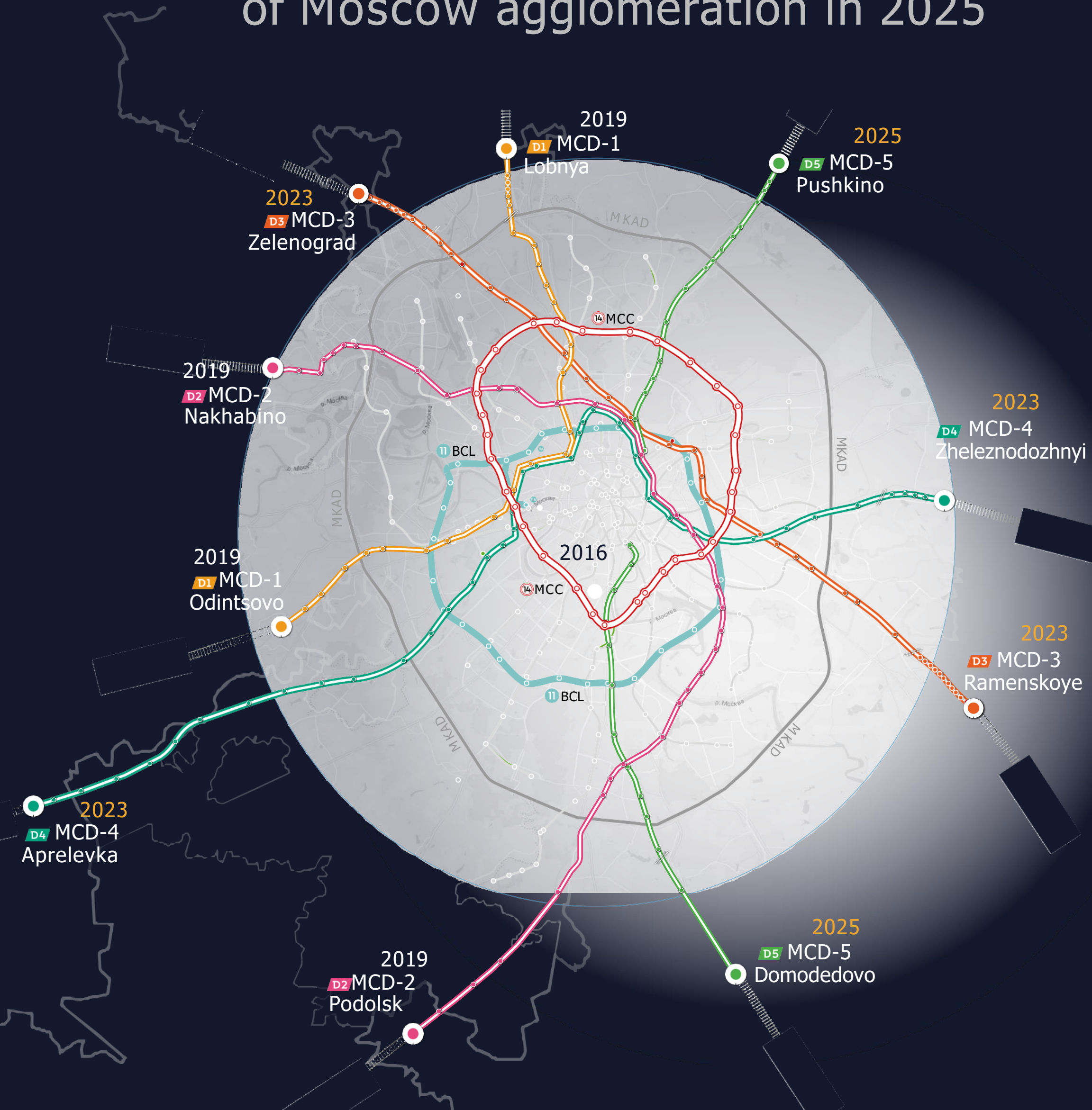
Head of the Division of the Complex Analysis of Passenger's Transportation, RZD Passenger Transportation Department

Developing of the rail transport

Suburban rail transport in 2015

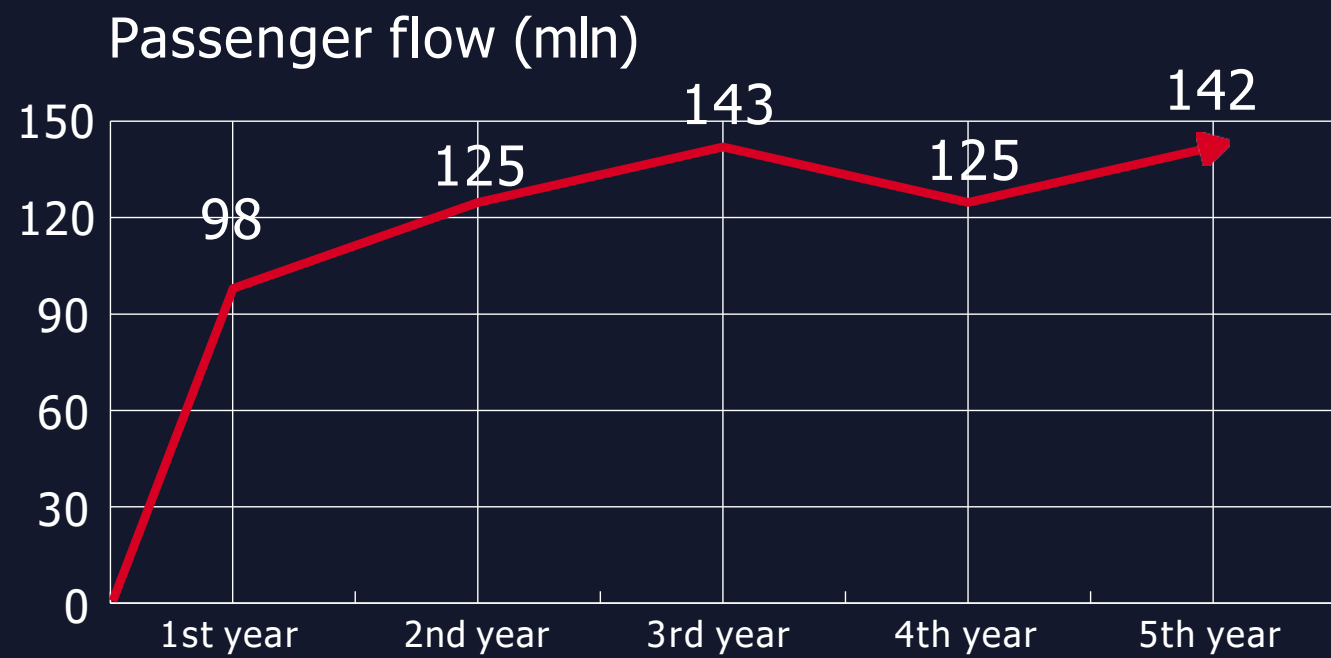


New rail frame of Moscow agglomeration in 2025



Moscow Central Circle: 5 years in operation

Passenger flow growth in 5 years:



633
mln people total

582
thou. max daily

Train interval and number of trains



4 min.
on rush hour



8 min.
on other time

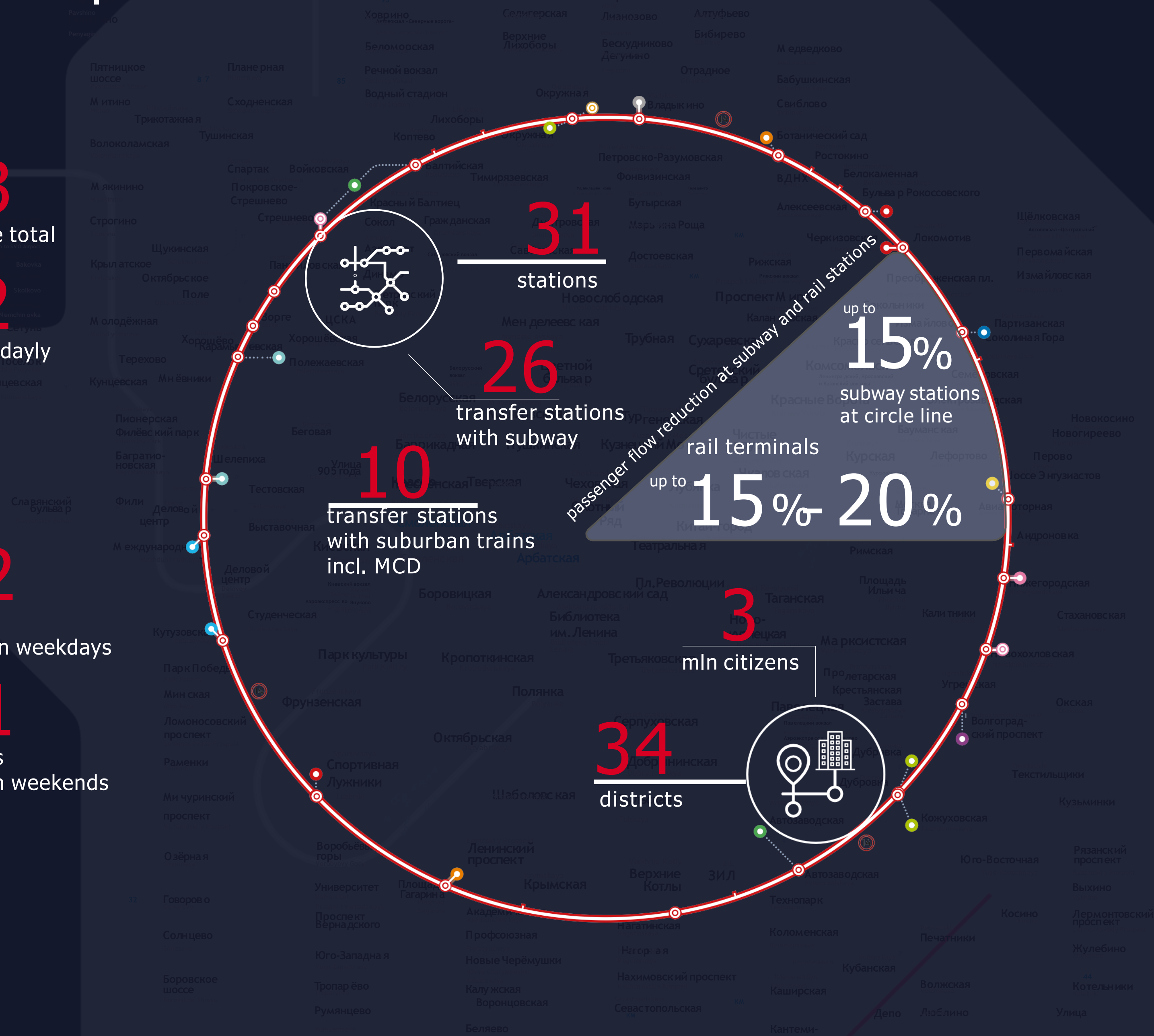


242
train pair
per day on weekdays

211
train pairs
per day on weekends

Social and economical benefits

- new apartments and malls
- development of small and medium-sized businesses
- landscaping areas close to the railway and stations



Main figures about MCD **МЦД** **D1** and **D2**



132

km of tracks



> 15%

passenger flow growth
in comparison
with pre-MCD period



> 280

mln of passengers
with the start



45 **6**

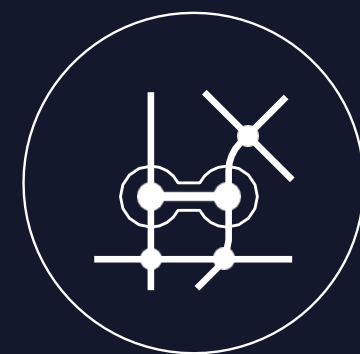
districts towns
in Moscow region



60

stations

(66)
in future



21

transfer stations

(27)
in future

> 85
mln of free transfers
between
MCD, subway and MCC

5%— 20%
unloading of roads
near MCD
up to **12%**
unloading
of subway
lines

Benefits and profits:

- improved transport accessibility
- development of areas near railroad



Seamless transport space: transfers at the MCD

D1 12

D2 15

D3 14

D4 18

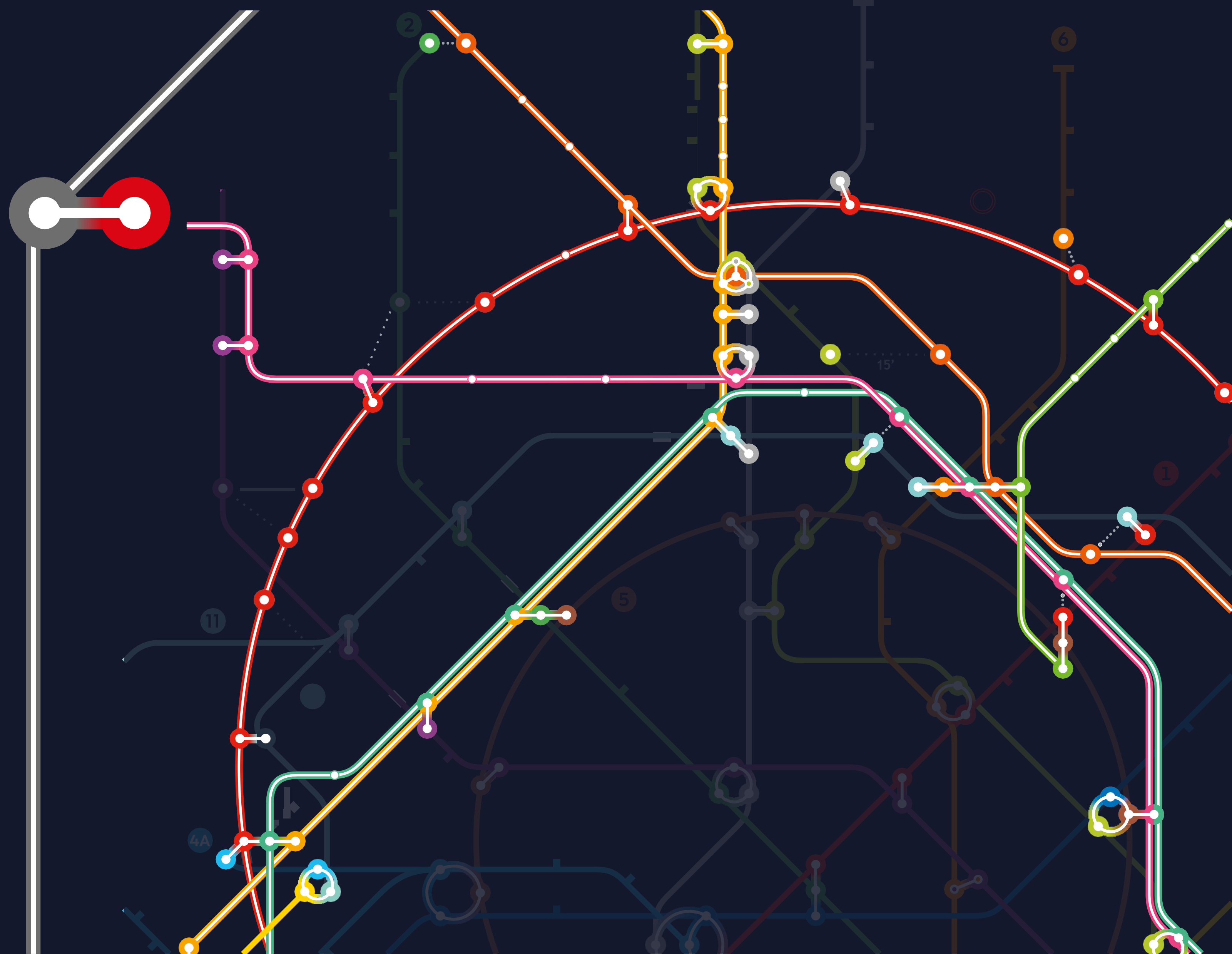
D5 8

67

transfer
stations at MCD
МЦД



Fast and comfortable
line changing – up to 15 min



Seamless transport space: transport hubs

«Schukinskaya» hub
as an example
multimodal transfer hub



Transport hubs

77 thou. passengers daily

2019	MLD D1	-
	M3	59,9
	🚊	17,1
thou. passengers daily		

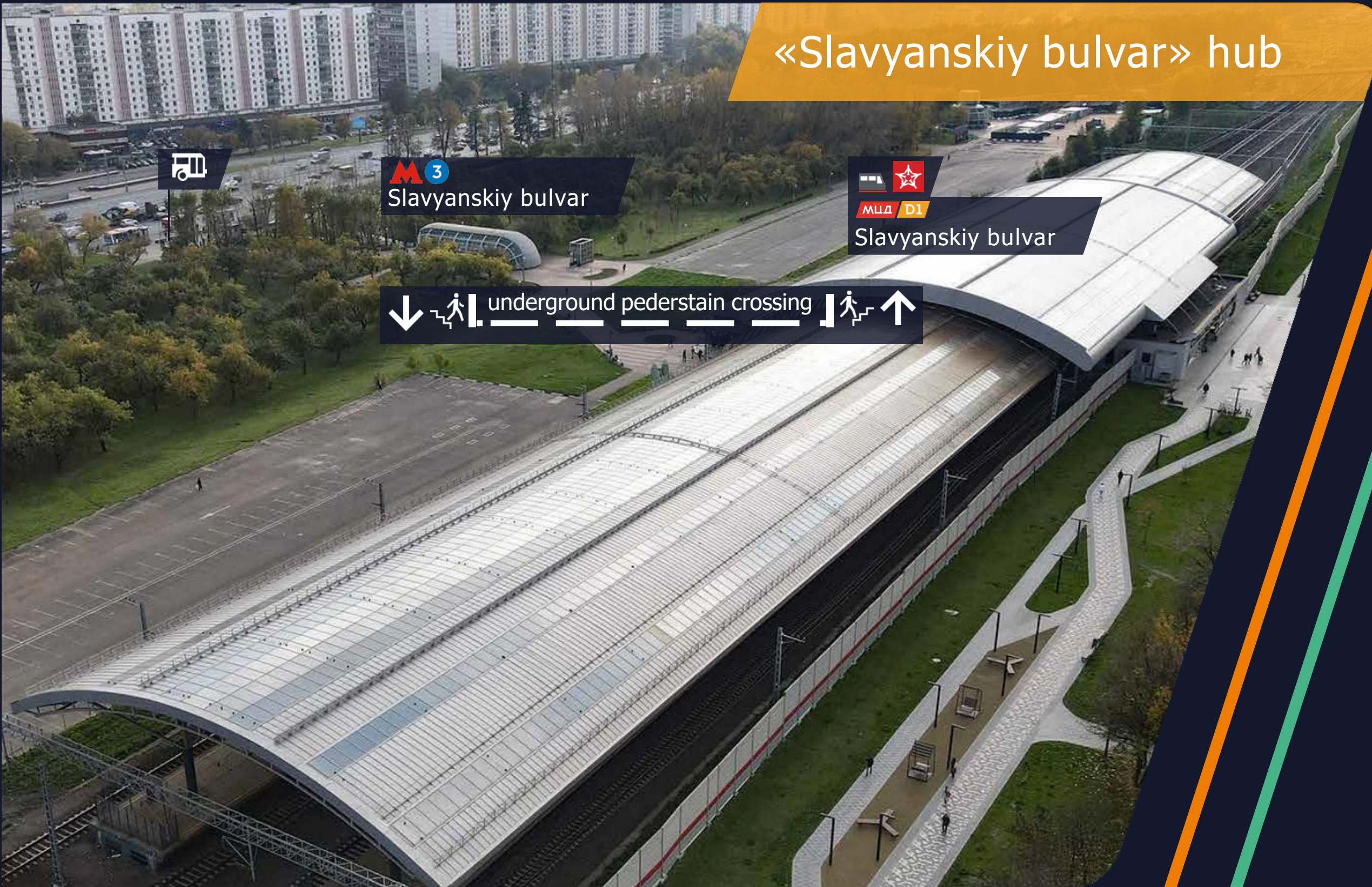
100,7 thou. passengers daily

2021	MLD D1	22,1
	M3	67,3
	🚊	11,3
thou. passengers daily		

121,9 thou. passengers daily

2025	MLD D1	27,3
	M3	71,6
	🚊	23
thou. passengers daily		

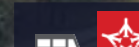
«Slavyanskiy bulvar» hub



M3 Slavyanskiy bulvar

MLD D1 Slavyanskiy bulvar

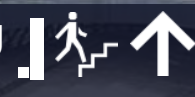
↓ underground pedestrian crossing ↑



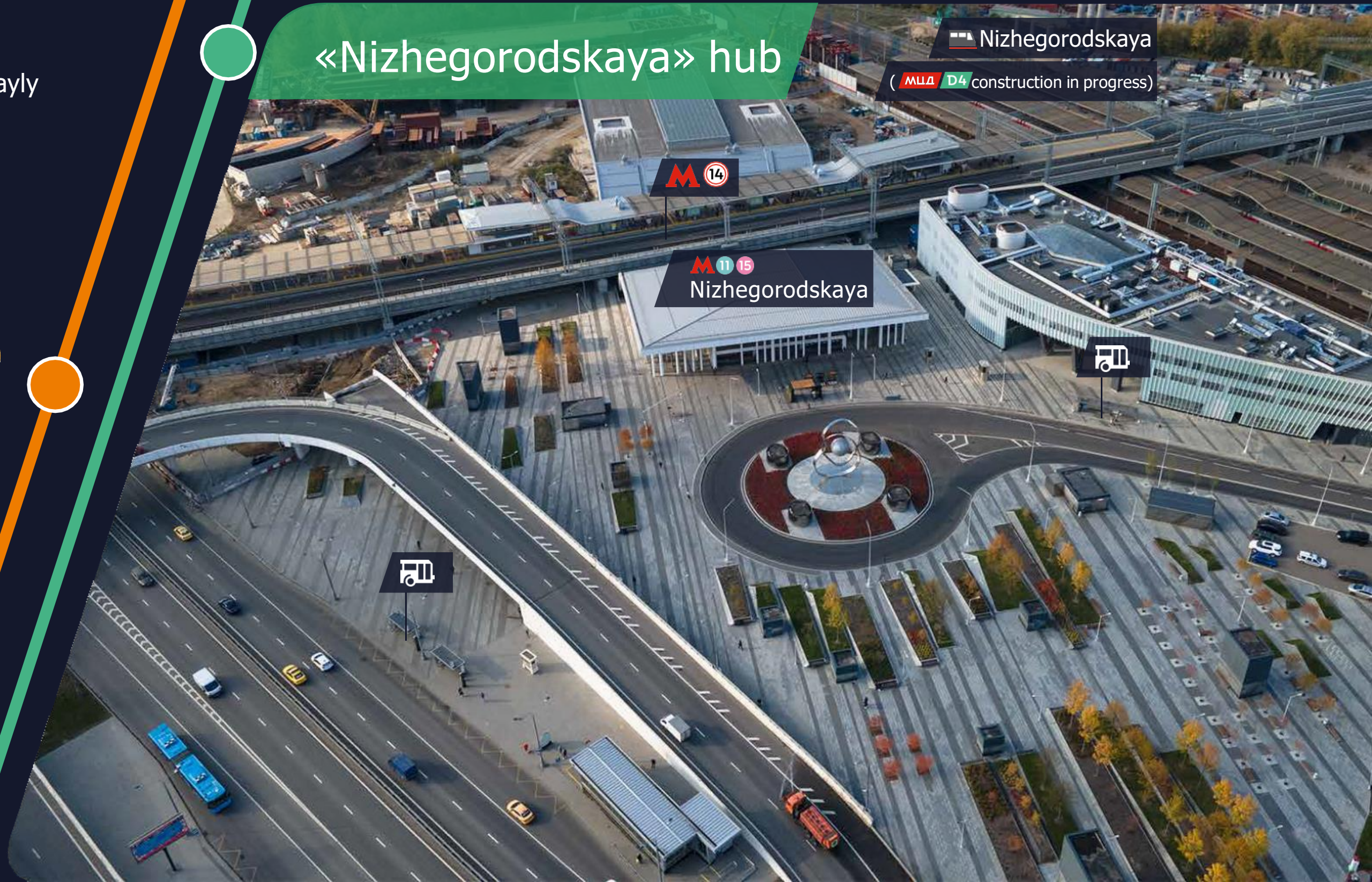
MLD D1



underground pedestrian crossing



«Nizhegorodskaya» hub



Nizhegorodskaya

(MLD D4 construction in progress)

M14

M11 M15 Nizhegorodskaya



31 thou. passengers daily

2019	MLD D4 (in future) «Nizhegorodskaya»	5,6
	M14	16,5
	M15	-
thou. passengers daily		

52,4 thou. passengers daily

2021	MLD D4 (in future) «Nizhegorodskaya»	11,3
	M14	21,6
	M15	10,9
thou. passengers daily		

74,1 thou. passengers daily

2025	MLD D4 (in future) «Nizhegorodskaya»	27,9
	M14	14,8
	M15	9,1
thou. passengers daily		

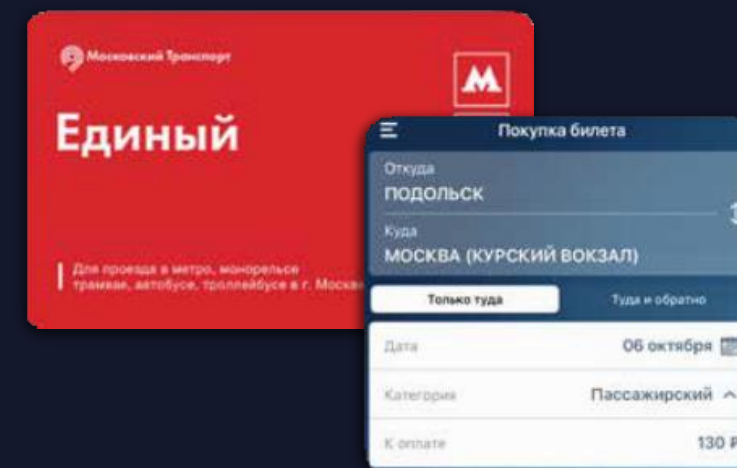
* number of dispatched passengers

Seamless transport space: unified ticket service

«Troyka» is the one key for for the whole transport system up to

75% cheaper ride with «Troyka» card payment

Price for the Nakhabino — «Moskva-City» ride



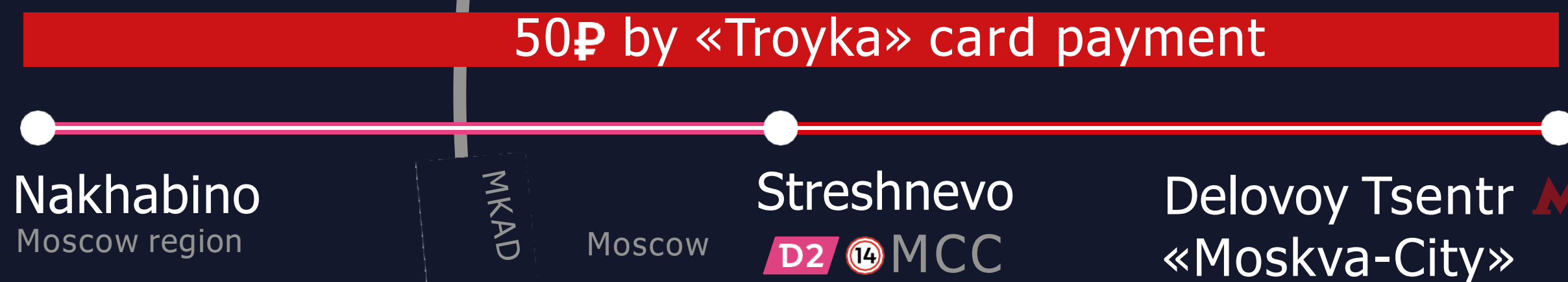
- **50₽** – max ride price
- free transfer to subway lines
- loyalty programm
- **from 26 to 234 rubles** — price for the suburban train ride
- **60 rubles** — single ride in subway

Ride from Nakhabino to «Moskva-City»

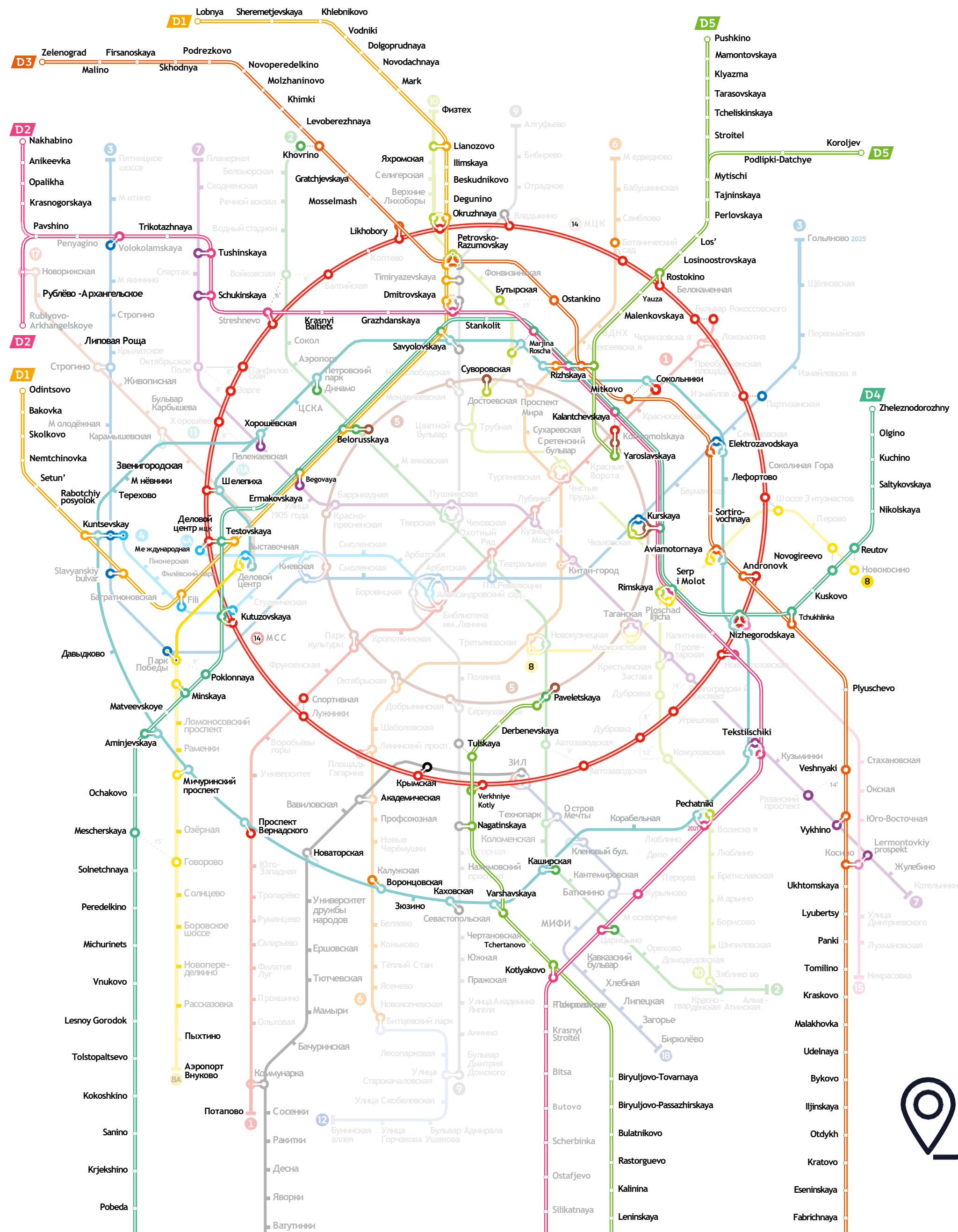
112₽



50₽



The nearest future of rail transport in Moscow agglomeration



+311
stations in 2025



+759
km of routes in 2025

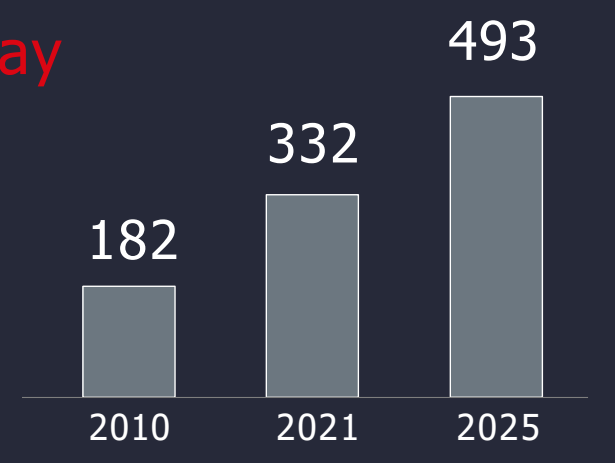


+5,5
mln of passengers

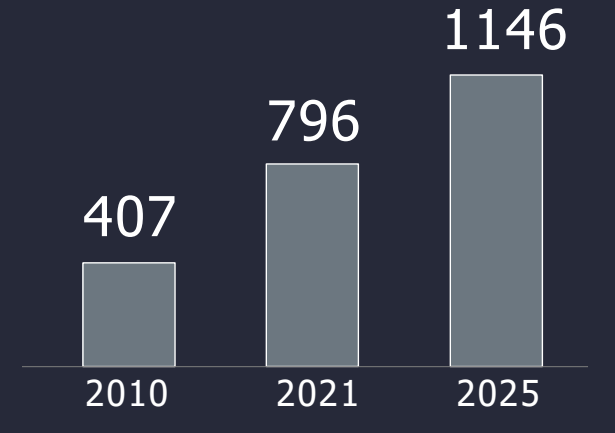
by **91%**
part of Moscow citizens
in 2025, who lives
in 20 minutes walk from
stations of rail transport frame

MCC, MCD and subway

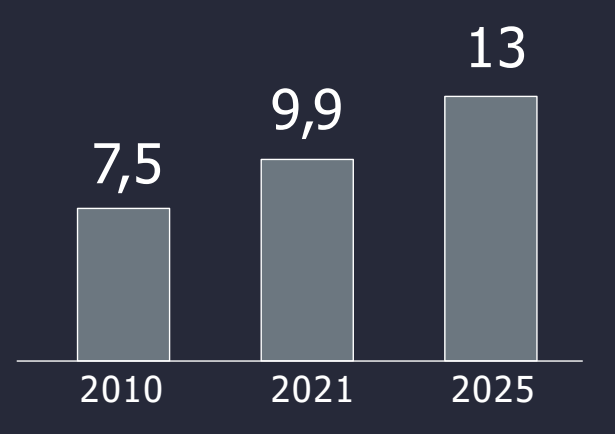
Overall number of stations



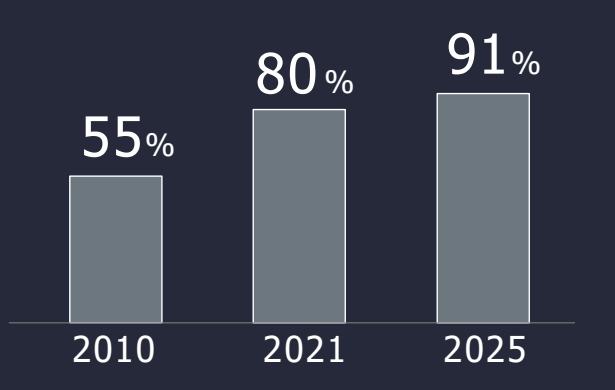
Total length (km)



Total passenger flow daily (mln)



%citizens living in 20 minutes walk from the station





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Panel discussion

Mr Andrzej Massel

IRRB acting Vice-Chairman



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Closing remarks

Mr Andrzej Massel
IRRB acting Vice-Chairman



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Thank you for your attention.