Challenge for the Cities Cup

SMART MOBILITY / TRANSPORT WITHOUT BORDERS

Focus Area

Solutions in the field of transport systems and quality of urban life.
Also covers aspects of sustainable development and digitalization of urban infrastructure.

Objective

To create a realistic digital “smart mobility” system that integrates urban and corporate transport, improves comfort and accessibility of travel, and contributes to sustainable development in industrial cities of Russia.

Context and Relevance

In industrial cities of Russia, where a significant share of the population works in the coal industry, the issue of an inefficient transport system remains relevant.
Employees of enterprises use separate corporate routes that are not integrated with the urban transport network.
This leads to duplication of trips, inefficient use of resources, and inconvenience for residents.

A typical example includes the cities of Leninsk-Kuznetsky and Polysayevo (Kemerovo Region — Kuzbass), as well as Luchegorsk (Primorsky Territory).
These municipalities have populations ranging from 20,000 to 140,000 people, a large portion of whom are employees of coal industry enterprises.

The transport system includes public routes, corporate buses, and service trips, yet their schedules and routes are not synchronized.
Modern technologies make it possible to combine these flows into a unified “smart mobility” system that makes urban travel faster, more convenient, and more environmentally efficient.

For project development, participants may also choose other cities where SUEK, SGC, or EuroChem are present:
Barnaul, Biysk, Rubtsovsk (Altai Territory), Kotelniko vo (Volgograd Region), Kiselevsk, Prokopyevsk, Myski (Kemerovo Region — Kuzbass), Borodino, Nazarovo, Sharypovo (Krasnoyarsk Territory), Kovdor (Murmansk Region), Kingisepp (Leningrad Region), Berezniki (Usolye, Perm Territory), Abakan, Chernogorsk (Republic of Khakassia), Reftinsky (Sverdlovsk Region), Chegdomyn (Khabarovsk Territory).

Problem

Poor integration of public and corporate transport in industrial cities leads to:
- duplication of routes and trips
- increased fuel and maintenance costs

● higher emissions and transport load
● inconvenience for residents and a decrease in quality of life.

Task for Participants

To develop a digital platform or mobile application that integrates data from public transport, corporate routes, and mobility services.

The solution must:
● help residents and enterprise employees plan routes and reduce travel time
● provide interactive schedules and navigation
● support offline functionality (for areas with limited Internet access)
● include analytics tools and integration with payment and transport card systems.

The main goal is to demonstrate how smart mobility technologies can create a unified, flexible, and convenient citywide transport system.

Possible Development Directions

1. **Unified application for residents and enterprise employees**, including:
   o schedules and routes of public and corporate buses
   o an online navigator for stops and arrival times
   o notifications about delays and route changes.
2. **Analytics and monitoring system** that:
   o collects data on route occupancy
   o optimizes schedules and trip frequency
   o allows enterprises and city administration to analyze transport efficiency.
3. **Integration module with payment and service systems**, providing:
   o contactless fare payment
   o linking transport cards and corporate passes
   o analytics of trip statistics.

Input Data (example: Leninsk-Kuznetsky)

● Population: **90.6 thousand people**
● SUEK employees: **8,137 people** (as of December 2024)
● Transport network: public routes, enterprise corporate buses, trolleybus line
● Expected number of platform users: residents + enterprise employees
● Estimated cost of pilot implementation: **2 million rubles**
● Total project budget: **up to 4 million rubles**

Constraints

● Need for system operation without constant Internet access (offline maps and schedules)
● Requirements for personal data protection and user security
● Limited budget for operation and maintenance
● Necessity to consider environmental and social specifics of the region

Expected Deliverables from Participants

1. Concept and architecture of the digital solution
2. Prototype of the interface or mobile application
3. Implementation plan and economic justification
4. Forecast of social and environmental impact:
   o reduction of transport costs
   o reduction of travel time
   o increased resident satisfaction with urban mobility

Additional Materials

Appendix 1. Information on transport load and passenger flow
Appendix 2. Analysis of transport system data
Appendix 3. Comprehensive traffic management scheme

Appendix 1. Information on transport load and passenger flow

Leninsk-Kuznetsky

On the territory of the Leninsk-Kuznetsky Urban District, regular transportation on municipal regular routes with regulated tariffs is carried out by the Leninsk-Kuznetsky branch of the State Passenger Motor Transport Company (GPK "Passazhiravtotrans") and by JSC "Gorelectrotransport of Leninsk-Kuznetsky."
Transportation on routes with unregulated tariffs is carried out by LLC "ARIAT".

The Leninsk-Kuznetsky branch of GPK "Passazhiravtotrans" has a fleet consisting of 109 units: 98 buses and 11 utility vehicles.
From 2013 to 2023, the enterprise completed 1,250,275 trips, including:
2013 – 130,751;
2014 – 133,759;
2015 – 133,784;
2016 – 133,919;
2017 – 123,837;
2018 – 101,175;
2019 – 96,767;
2020 – 107,162;
2021 – 99,388;
2022 – 95,352;
2023 – 94,381 (urban, suburban, intercity).

JSC "Gorelectrotransport of Leninsk-Kuznetsky" operates a fleet of 30 trolleybuses and has a maintenance depot, a dispatch center, an operations-dispatch station, 3 traction substations, and a 47-km contact network.
Between 2013 and 2023, the enterprise transported 103,221.1 thousand passengers, including:
2013 – 12,607.9 thousand;
2014 – 11,584.4 thousand;
2015 – 11,182.9 thousand;
2016 – 11,092.1 thousand;
2017 – 11,148.2 thousand;
2018 – 10,745.6 thousand;
2019 – 10,466.9 thousand;
2020 – 8,456.3 thousand;
2021 – 5,526.3 thousand;
2022 – 5,280.7 thousand;
2023 – 5,129.8 thousand.

LLC "ARIAT" carries out regular transportation on established municipal routes with unregulated tariffs. The enterprise operates a fleet of 16 buses.

Passenger transport schedules are published on the Internet on the website of the Administration of Leninsk-Kuznetsky Urban District

(https://leninsk.kemobl.ru/city/information_guide/).
For real-time viewing of bus movements along routes, including route diagrams, passengers may use the Passenger Information Portal of Kemerovo Region at bus42.info.