Harmonization of standards is the basis for the success of bilateral projects in the railway sector

Valentin Gapanovich
NP «UIRE» President
The main goals of harmonization:
removal of international trade technical barriers;
national standards fund updating and development;
optimization of regulatory and technical requirements for products and their testing methods;
improving the quality and competitiveness of domestic products, works and services;
ensuring scientific and technological progress, the techniques and technology development.
### Foreign countries

<table>
<thead>
<tr>
<th>Railway projects</th>
<th>Light rail transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shunting thrust tests (Netherlands)</td>
<td>Metro launch in Riyadh (Saudi Arabia)</td>
</tr>
<tr>
<td>Electric trains testing (Germany)</td>
<td>Glasgow Subway Trains Upgrade (Great Britain)</td>
</tr>
</tbody>
</table>

### Russia

<table>
<thead>
<tr>
<th>Railway projects</th>
<th>Light rail transport</th>
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</thead>
<tbody>
<tr>
<td>Automated traffic on the MCC</td>
<td>Subway trains automation capabilities in Moscow*</td>
</tr>
<tr>
<td>Automated shunting work at Luzhskaya station</td>
<td>New Moscow trams automatic driving possibilities*</td>
</tr>
</tbody>
</table>

**Note:**
- * Included in the tender requirements for supplies in 2020-2023
- ** Included in the tender for supplies from 2021
ABOUT THE PROJECT OF THE ELECTRIC TRAINS ES2G "LASTOCHKA" MOTION IN AUTOMATIC MODE CONTROL SYSTEM IMPLEMENTATION ON THE MOSCOW CENTRAL RING

1. DEVELOPMENT AND PRODUCTION OF ELECTRIC TRAIN "LASTOCHKA" FOR OPERATION IN AUTOMATIC MODE WITH AUTOMATION LEVEL GOA4

2. ORGANIZATION OF THE REMOTE CONTROL WORK AND TRAIN CONTROL CENTER

3. MODERNIZATION OF THE RAILWAY INFRASTRUCTURE INCLUDING THE INSTALLATION OF STATIONARY OBSTACLE DETERMINATION COMPLEXES FOR RESTRICTED VISIBILITY ZONE MONITORING

4. REGULATORY SUPPORT. REGULATORY DOCUMENTS DEVELOPMENT AND UPDATE OF THE FEDERAL AND INDUSTRY LEVEL

5. REINFORCEMENT OF THE TRACTION POWER SUPPLY SYSTEM

6. HYBRID INTERVAL CONTROL SYSTEM IMPLEMENTATION TO OPERATE ALL STATION ROUTES

7. BROADBAND COMMUNICATIONS CONSTRUCTION BASED ON LTE TECHNOLOGY

8. MEASURES TO EXCLUDE THE ACCESS OF OUTSIDE PERSONS TO THE MCC INFRASTRUCTURE. PASSENGERS SAFE ENTRANCE AND DEPARTURE SYSTEM IMPLEMENTATION
The concept of standardization of rolling stock traffic control systems in automatic mode

Classification of systems and levels of automation (GOA) by analogy with the international standard IEC 62290

GOST R
"Railway transport management and control systems for passenger transportation in suburban traffic. Construction principles and basic functional requirements"

Definition of the basic terminology and basic requirements for control systems of railway rolling stock in automatic and remote modes (railway control system of PS ADR) in general

PNST "SU of the Railway PS ADR. Terms and Definitions"
PNST "SU of the Railway PS ADR. General technical
Amendments to GOST 33435-2015 "Control, monitoring and safety devices for railway rolling stock. Safety requirements and control methods"
PNST 370-2019 "ASDU with shunting locomotives. General technical requirements"

Establishment of requirements for the control systems subsystems for railway rolling stock in automatic and remote modes (railway control system SS ADR)

PNST "SU ZHD PS ADR. Requirements for the object recognition system"
PNST "Devices and systems of telecommunications for the railway control system of the PS ADR. General technical requirements"

Technical solutions and test methods approbation

GOST R approval based on PNST in accordance with article 25 of the Federal Law of June 29, 2015 No. 162-FZ "On standardization in the Russian Federation"
Unmanned control standards development scheme

- Development of draft standards
  - IV quarter 2020

- Discussion of draft standards within the NP "UIRE" Working group
  - I-II quarters 2020

- Examination of draft standards in PK 21 TK 045
  - III quarter 2020

- Standards approval
  - IV quarter 2020

6 standards should be in force already in 2022.
### INTERNATIONAL STANDARDIZATION OF INTELLIGENT TRANSPORTATION SYSTEMS

<table>
<thead>
<tr>
<th>Organizational Structure</th>
<th>Developed Standards</th>
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<tbody>
<tr>
<td>iso/iec jtc 1/sc 42</td>
<td>6 developed standards</td>
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<tr>
<td>Artificial intelligence</td>
<td></td>
</tr>
<tr>
<td>ISO/TC 204</td>
<td>290 developed standards</td>
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<tr>
<td>Intelligent transport systems</td>
<td></td>
</tr>
<tr>
<td>ISO/TC 268/SC 1</td>
<td>16 developed standards</td>
</tr>
<tr>
<td>Smart community infrastructures</td>
<td></td>
</tr>
</tbody>
</table>

More than 300 standards in the field of transport management systems have been developed and are in force at the international level.

19 international standards have been developed in the unmanned road transport driving field, and 12 more are currently being developed.
INTERNATIONAL STANDARD IEC 62290, RAILWAY APPLICATIONS – URBAN GUIDED TRANSPORT MANAGEMENT AND COMMAND/CONTROL SYSTEMS

IEC/TC 9 Electrical equipment and systems for railways
(Russia is a full member, JSC NIIAS takes part in the work)

- **PART I, 2014**
  - CONCEPTS, PRINCIPLES AND BASIC FUNCTIONS
  - PRINCIPLES AND FUNDAMENTAL CONCEPTS OF THE SYSTEM

- **PART II, 2014**
  - FUNCTIONAL REQUIREMENTS (FRS)
  - SPECIFICATION OF FUNCTIONAL REQUIREMENTS

- **PART III, 2019**
  - SYSTEM REQUIREMENTS SPECIFICATION

- **PART IV IN DEVELOPMENT**
  - INTERFACE REQUIREMENTS (FIS AND / OR FFFIS)
  - SYSTEM REQUIREMENTS (SRS)

© НП «ОПЖТ»
Dear Mr. Citroen,

I express my deepest respect and gratitude for a long-term cooperation with the Association of European Railways (UNIFE).

Due to restrictive measures caused by COVID-19 pandemic we are unable to meet personally and discuss top issues of railway engineering. I hope that we will have a chance to discuss the results of our cooperation and plan new projects in April 2021, during the InnoTrans-2021 exhibition.

Before our personal meeting, I would like to address you with a request. Currently, Russia is actively introducing unmanned technologies in the railway rolling stock management, and it is of our interest to study the European Union experience in the regulation area. I would much appreciate your information on the laws and standards regulating unmanned rail vehicles in the European Union.

Looking forward to meeting you.

Sincerely yours,

Valentin Gapanovich
President of NP UIRE
Thank you for attention!