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# The Role of the Organisation for Co-Operation between Railways in Rail Freight Transport in the Eurasian Space

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**Summary**

The Organisation for Co-Operation between Railways (OSJD) is an international organisation established on the basis of an international agreement. The OSJD brings together 30 countries of Asia and Europe. It successively strives to develop and improve rail transport in the Eurasian space through the development and improvement of international transport corridors, as well as unification of transport law. Rail freight transport corridors are an important element of the activities of the Organisation for Co-Operation between Railways. Activities related to the development of transport in the Eurasian space are aimed at the modernisation and development of rail transport by improving the technical and operational parameters of corridors border crossing points, standardisation of terminology used in freight transport and digitalisation of operational and transport processes in order to improve the competitiveness of railways in cargo transport in Asia and Europe. As part of its activities, the OSJD aims to continuously improve rail freight transport by simplifying border procedures and harmonising transport documents. This article aims to present the role of the Organisation in the development of rail freight transport in the Eurasian space in recent years. The scope of this study includes a synthetic analysis of the most important achievements of the organization in recent years in the context of practical application in freight transport.

**Keywords:** rail transport, consignment note, digitalisation, ecology, single window system, transport corridor, Intermodal transport

## 1. Introduction

Over the course of almost 70 years of activity, the Organisation for Co-Operation between Railways has supported the development of rail transport across Europe and Asia[2]. The OSJD's activities for the development and improvement of international rail transport in the Eurasian space have significantly contributed to increasing its efficiency and competitiveness. Currently, the OSJD brings together 30 countries[3] from Europe and Asia. Railways with observer status, railway sector companies with associate status (affiliated enterprises) and international organisations with which the OSJD has relevant cooperation agreements participate in the work of the Organisation[4]. The scope of the Organisation's operations and impact is shown in Figure 1.

The OSJD concentrates on organising efficient transcontinental rail transport and combined transport, compatible with the systems operating in Western Europe under the COTIF[5] and the European Union law. This means solving many problems concerning international transport, which must take into account the legal, economic and technical diversity

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[2] The organisation was founded on 28 June 1956 in Sofia (Bulgaria), where a meeting of rail transport ministers from 10 countries was held. At that time, these countries were the People's Republic of Bulgaria, the Hungarian People's Republic, the German Democratic Republic, the People's Republic of China, the Democratic People's Republic of Korea, the Mongolian People's Republic, the Polish People's Republic, the Romanian People's Republic, the Union of Soviet Socialist Republics and the Czechoslovak Socialist Republic. The organisation was established by an intergovernmental agreement (Russian: *Положение об Организации сотрудничества железных дорог*, Polish: Statut Organizacji Współpracy Kolei, English: The Statute of the Organisation for Co-Operation between Railways).

[3] South Korea has also been a member of the Organisation since 2018, and Laos joined in 2023.

[4] For example, DB Railways has been granted observer status, around 40 companies involved in railway operations have been granted associate status (including the Railway Research Institute), and several international organisations have signed cooperation agreements. Further agreements are being finalised.

[5] COTIF – *Convention concerning International Carriage by Rail.*

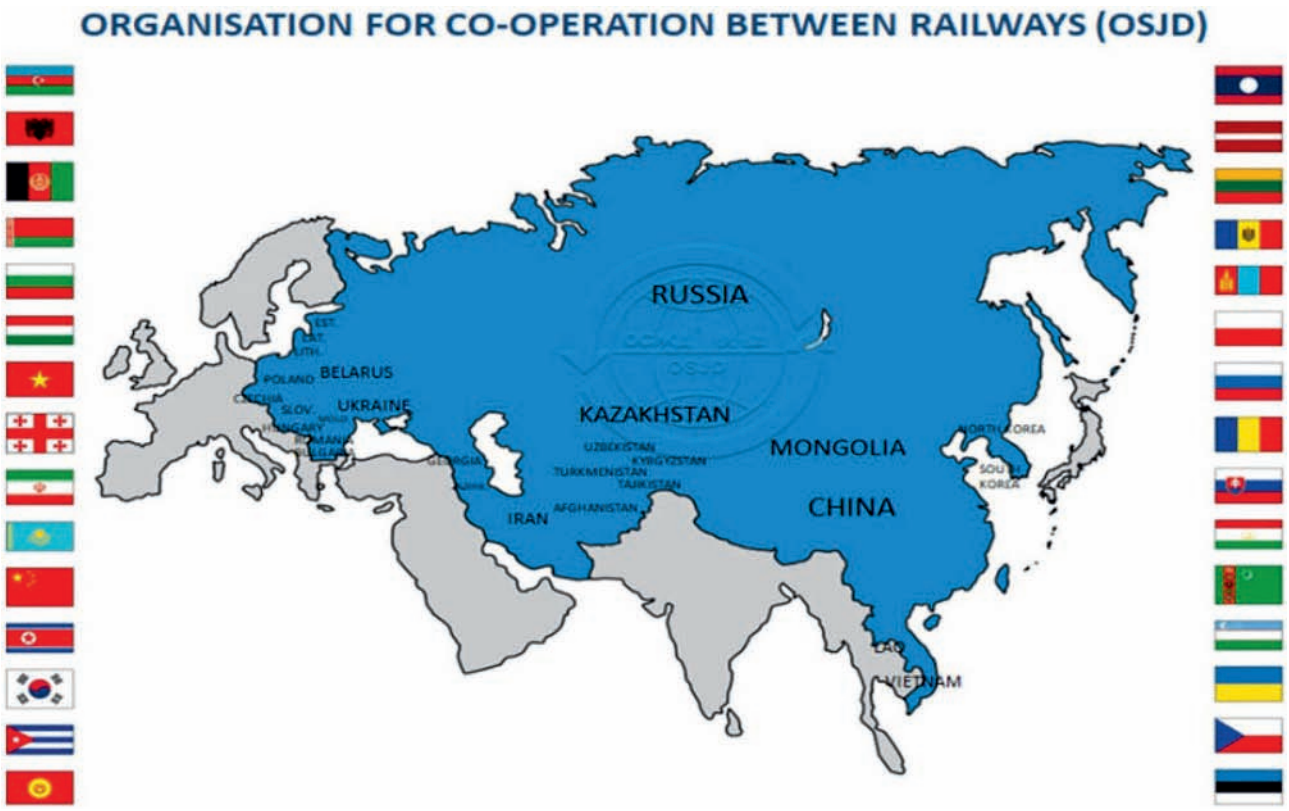


Fig. 1. Organisation of the OSJD [6]

among the Organisation's member states. With this in mind, the OSJD creates the conditions for cooperation in broadly construed rail transport by creating and improving a common area of transport law. This contributes to increasing the safety of transport and improving its competitiveness within transcontinental transport corridors[6]. International transport solutions developed as part of OSJD's activities may also be implemented in domestic transport. This article aims to present the role of the OSJD in the development of rail freight transport in the Eurasian space in recent years. Its scope includes a synthetic analysis of the most important achievements of the organization in recent years in the context of practical application in freight transport.

## 2. OSJD's basic tasks and areas of activity

Responding to contemporary efforts towards global economic integration, the OSJD provides a forum for the gradual and smooth harmonisation of the legal and technical requirements of existing railway transport systems across the Eurasian continent and their incorporation into international agreements concluded within the Organisation. While pursuing its objectives, the OSJD performs a variety of tasks which, when implemented consistently, enable increased legal and technical interoperability in freight transport within the Eurasian space. Continuous improvement of international transport law, and in particular the SMPS[7] and SMGS[8] agreements, which should be re-

[6] An international corridor should be understood as a part of a national or international transport system that ensures the movement of a significant number of people and cargo between geographical regions. It includes infrastructure facilities and means of transport of all transport modes used within the relevant corridors, as well as all technological, organisational and legal conditions for the implementation of such transport.

[7] SMPS – Agreement on International Passenger Traffic by Rail.

[8] SMGS – Agreement on International Railway Freight Communications (Russian: *Соглашение о международном железнодорожном грузовом сообщении*).

placed in the coming years by a modern Convention on Direct International Railway Traffic that corresponds to modern challenges, should be considered the main task. The executive body of the Organisation, the OSJD Committee, acts as the depositary of OSJD agreements within the meaning of Article 76 of the 1969 Vienna Convention on the Law of Treaties. In the legal system of Western Europe and North Africa, the counterpart of SMPS and SMGS is the Convention concerning International Carriage by Rail (COTIF). It should be noted that many OSJD member states, including Poland, belong to both legal systems.

OSJD's main areas of activity include [8, 16]:

- developing and improving international railway transport, primarily in communication between Europe and Asia, including combined transport;
- shaping a coherent transport policy for international rail transport, developing a strategy for the operation of rail transport and the strategy of OSJD activities;
- improving international transport law, managing issues related to the Agreement on International Passenger Traffic by Rail (SMPS), the Agreement on International Railway Freight Communications (SMGS) and other legal documents related to international rail transport;
- cooperating to resolve economic, informational, scientific and technical as well as environmental issues related to rail transport;
- developing measures to increase the competitiveness of rail transport in relation to other modes of transport;
- cooperating on operational and technical issues relating to the further development of international rail transport;
- cooperating with international organisations concerned with rail transport, including combined transport.

All documents developed and refined over the years within the OSJD, which are held by the OSJD Committee, play a major role in the legal and technical organisation of rail transport in the Organisation's member countries. The main legal acts related to this include:

- the Agreement on International Passenger Traffic by Rail (SMPS);
- the Agreement on International Railway Freight Communications (SMGS);
- the SMPS Agreement tariffs for the carriage of passengers and luggage;
- the SMGS Agreement Uniform Transit Tariff (ETT);
- the Rules for the Use of Passenger Wagons in the International Traffic (PPW);
- the Rules for the Settlement for International Rail Passenger and Freight Transport;
- the Agreement on Organisational and Operational Aspects of Europe-Asia Combined Transports;
- the Agreement on the Use of Freight Wagons:
  - the Agreement on the Use of Passenger Wagons;
  - the Agreement on Settlement Principles in International Passenger and Freight Traffic;
  - the Agreement on International Railway Passenger Tariff;
  - the Agreement on International Railway Transit Tariff;
  - the Agreement on Uniform Transit Tariff;
  - the Agreement on International Transportation of Containers by Container Trains.

## 3. Selected results of OSJD's global activities in recent years

OSJD's drive to improve international transport in the Eurasian space has resulted in positive results especially in such areas as law, ecology, digitalisation and transport corridors.

**Results related to the legal aspects of freight transport**

The existence of two legal regimes, i.e. the Uniform legal requirements for the Agreement on International Rail Freight Communications (SMGS) and the International Convention concerning the Carriage of Goods by Rail (CIM) in Asia and Europe, has not been conducive to the development of international transport between Europe and Asia. The joint OSJD/CIT/OTIF project has resulted in a unified CIM/SMGS consignment note, which allows goods to be transported within both jurisdictions without the need for additional paperwork, thus reducing transport time and costs. An analysis of cross-border transport under the SMGS-CIM legal systems has shown that a great deal of time and effort is spent on reissuing railway consignment notes at border crossings. At the same time, there are various disruptions, errors, and inaccuracies which delay cargo at the border or otherwise cause problems with its timely delivery to customers. The CIM/SMGS is a uniform consignment note used to transport goods to countries applying different international transport regulations (SMGS and CIM) and is issued for the entire journey, without the need for cargo re-registration at the point where the applicable transport law changes. It is recognised as a customs document and simplifies border crossing procedures for goods transported by rail. Today, the CIM/SMGS consignment note is used on the railways of 19 OSJD countries and its use is voluntary. The implementation of this consignment note into interna-

tional freight practice has had positive effects on rail transport, including [8]:

- significantly reduced train downtimes at border stations;
- improved service quality and reduced transport costs;
- time savings due to the lack of need to re-register documents at borders;
- reduced costs due to the lack of need to re-issue of documents to continue with the transport on railways with a different transport law;
- eliminating many inaccuracies and errors resulting from the re-registration of transport documents for consignments;
- ensuring a high level of compliance with legal standards during transport for their participants;
- increased speed of cargo delivery as a result of no downtime at re-dispatch points;
- using the CIM/SMGS consignment note as a transit customs document.

The CIM/SMGS common consignment note is now also available in electronic form. The essential elements to ensure the conformity of the common letter are shown in Figure 2.

In connection with the implementation of the electronic version of the CIM/SMGS consignment note on 1 July 2019, railway companies in OSJD member countries are actively working on its use as a basis for cross-border container transport between China and Europe.

One example of the use of OSJD's achievements is the TURKUAZ project, which involved the introduction of the standardised CIM/SMGS consignment note on the Baku–Tbilisi – Kars (BTK) railway line on the following routes: Türkiye – Azerbaijan, Türkiye – Kazakhstan, Türkiye – Turkmenistan and back [8].

The second vital element of action is the harmonisation of the transport terminology used. The rapid development of different modes of transport and technologies for the delivery of goods requires continuous improvement in the regulation of this area of activity. The most important condition for the effectiveness of regulatory measures is having unified concepts and terminology in regulatory documents and professional applications. Transport plays a decisive role in ensuring the sustainable socio-economic development of each OSJD member state. Reliable and efficient communication between different modes of transport is a major prerequisite for the development of international and interregional trade and cooperation between countries of the Eurasian continent. At the same time, more and more countries of the continent are interested in the development of overland international communication using several modes of transport, with railways playing a dominant role.

The most important prerequisite for further improvements in the efficiency of international overland communication is the simplification of cross-border trade, customs and transport procedures based on a system of uniform national and international standards and rules, which should use concepts and terms with harmonised content and meaning. At the same time, the terminology put into circulation should identify as accurately as possible and interpret the essence of the defined phenomena and processes in the relevant fields of activity like economics, technology and law. In this context, it is important to highlight OSJD's research initiative and work on improving and unifying the terminology of combined, intermodal and multimodal transport, which was carried out by experts of the OSJD Commission on Freight Traffic in cooperation with experts of the United Nations Economic and Social Commission for Asia and the

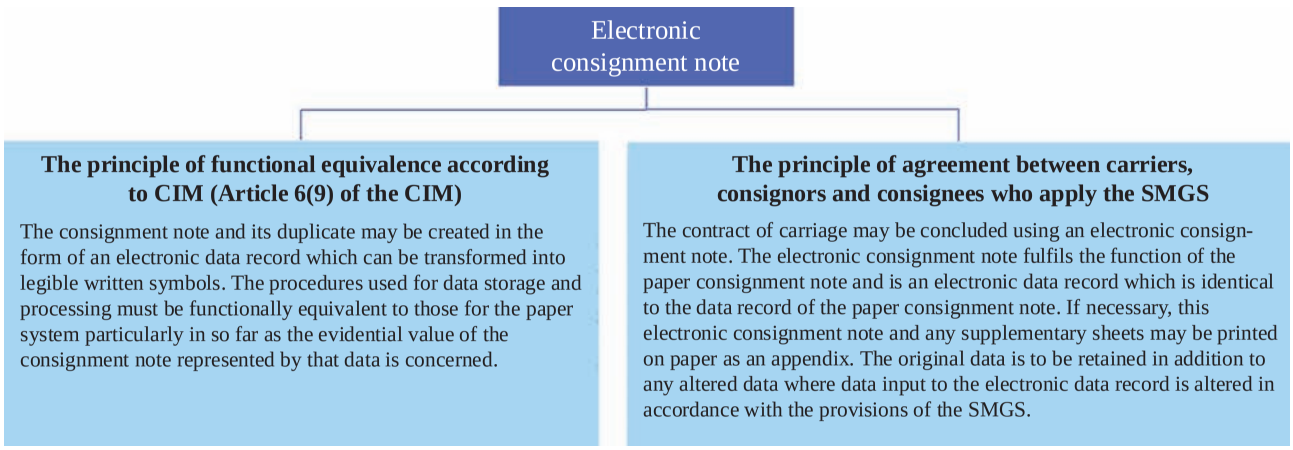


Fig. 2. Common elements of the electronic consignment note [7]

Pacific (ESCAP) and OSJD affiliated enterprises [3]. The use of common terminology in the field of combined, intermodal and multimodal transport brings such benefits as the semantic compatibility of data in trade and transport contracts; the possibility to implement unified document templates or the creation of a methodological basis for classifiers and standards for different modes of transport.

**Results related to digitalisation**

Digitalisation is a vital aspect of the development and improvement of international rail freight within the OSJD [1]. Innovative solutions using modern digital technologies affect almost all areas of railway operations. Today's key trends in railway digitalisation include unmanned train control, real-time control of rolling stock and infrastructure, processing of transport documents in national and international traffic, freight planning and settlement, improving the accuracy of passenger information and the development of booking and ticketing systems, scheduling of overhauls, as well as the integration of services across transportation modes. As part of its work, the OSJD devotes considerable attention to issues of digitisation and the introduction of modern digital technologies. One of the best examples of work in this area is the digitalisation of OSJD's rail transport corridors, which involves the integration of digital technologies and business processes of railways and other railway companies participating in corridor transport. Digital transition has four main drivers [14]:

- Digital Data;
- Connectivity;
- Automation of Processes;
- Digital Customer Access.

Full use of these drivers enables all challenges and trends in rail transport to be addressed, namely:

- creating a rail network offering based on reliable connectivity, ensuring safe, efficient and attractive rail services;
- improving customer satisfaction;
- increasing the capacity, reliability and efficiency of railways, e.g. through process automation;
- raising the competitiveness of the railways through the optimal use of data (big data analytics, cloud computing).

Leveraging modern digital technologies makes it possible to shorten border checks and customs procedures, gradually reduce the number of documents and go paperless, increase the speed of transport and provide additional services. To this end, the following activities are being carried out [1, 14]:

- unified coding and IT solutions are being created, joint OSJD documents are being developed with other international organisations (to facilitate border crossing procedures, coding of railway facilities and enterprises, etc.);
- to transition to paperless technologies in freight transport, message libraries have been created and updated, which work within the framework of and in accordance with SMGS rules (these documents are the basis for bilateral agreements on electronic data interchange – EDI), technical specifications of the IFTMIN electronic message for the CIM/SMGS consignment note are being developed and updated as well;
- work is underway on the introduction of financial settlements based on electronic documents and electronic messages in the UN/EDIFACT standard;
- in the field of passenger transport, work is under way on the development of electronic systems for information processing, booking and ticketing of rail passengers, which makes it possible to optimise the technology of operation of all elements of the passenger infrastructure, as well as to expand the range of information services and the interaction of various booking systems in the organisation of international passenger transport.

In the area of digitisation, it is worth highlighting the efforts undertaken as part of the cooperation between the OSJD and the UN to create electronic one-stop shops at border crossings using modern technologies [4]. Railways and public authorities largely require the same documents, certificates and information to carry out the relevant customs clearance procedures. Data from several sources, particularly from electronic railway systems, customs authorities, migration authorities, automated control systems and scanning systems for moving objects, may be stored on neutral platforms or at a one-stop shop for rail transport. Data and information may be made available to authorities at border crossings to carry out the checks required by the relevant national legislation. Establishing links between the information systems of railways, the information systems of state authorities with a single point of contact and the information systems of carriers will ensure efficient exchange of information and significantly reduce the need to re-submit the same information.

**Environmental measures**

The challenges of the modern world regarding climate change and environmental protection are also reflected in the activities of the OSJD. Ecological and environmental issues are increasingly relevant in any technical, economic and social undertakings. Accordingly, the governments of OSJD member states are taking large-scale measures to ensure the sustainable

development of rail transport, including by introducing and applying the latest digital and environmentally friendly technologies to increase its efficiency and competitiveness and to achieve the objectives of environmental neutrality [13]. As part of the task of minimising the negative environmental impact of railways, the OSJD member states are developing environmental strategies and programmes that take into account both the ecological transition in society and the changes related to the railways themselves, including those concerning the reforms that serve as the basis for a whole range of long-term environmental protection measures. These apply to the following technical and legal aspects:

- the improvement of the environmental management system;
- the introduction of modern environmentally friendly technologies;
- swift resolution of environmental issues of public concern;
- the systematic preparation and publication of information on the environmental impact of railways and the environmental protection measures they take;
- the voluntary adoption of environmental safety standards that are more stringent than those set out in normative documents.

One example of such measures is the Chinese Railway's initiative to protect the giant panda as part of the Chengdu – Lanzhou line, a railway project being implemented in areas of natural value [10]. A section of this line passes through the Qianfo Mountain. The area in question lies in the Baoding Nature Reserve and includes the natural habitat of many valuable species, including the particularly rare giant panda[9]. In this section, the railway route uses a long tunnel with a lowered gradeline. As the tunnel's openings are located at 1,100 and 1,800 metres above sea level, the railway infrastructure does not interfere with the higher parts of the mountains, which are protected. Thus, it does not pose a threat to giant pandas foraging in bamboo patches at altitudes above 2,000 metres ASL. Scientific studies and monitoring of the panda population confirm the effectiveness of the solution adopted at the design stage of the new railway line. The measures applied to bypass habitats both during the construction and operation of the line have effectively minimised the impact on the panda population.

The main environmental objective of railways is to protect the environment and ensure human well-being and health. To achieve these objectives, the following strategic environmental guidelines have been identified within the environmental strategies and programmes:

- progressively reducing the negative environmental impacts (e.g. the European Union's goal is to make transport climate-neutral by 2050);
- introducing innovative rolling stock, as well as efficient, resource-saving environmental technologies and environmentally friendly materials, and ensuring the rational use of natural resources;
- reducing the energy intensity of transport: reducing unit energy consumption for rail traction and fuel;
- increasing the investment attractiveness of rail transport (in today's world, investors pay as much attention to environmental issues as to economic ones);
- improving environmental safety and social responsibility for environmental protection, including by:
  - integrating into the Eurasian transport system; bringing rail transport safety levels up to the best global standards;
  - increasing the competitiveness of rail transport in relation to other modes of transport;
  - increasing the economic efficiency of railways.

This is also reflected in various recommendations proposed by international organisations such as the UN [12].

Environmental protection issues are addressed in the following OSJD documents:

- "Recommendations on environmental protection in the field of international railway transport with special regard to border and transshipment stations, including combined transport of dangerous goods";
- "Recommendations on unified environmental standards for emissions and discharges of harmful substances into the environment during the operation of railway transport, taking into account the classification of the territory";
- "Recommendations for the elimination of environmental consequences of accidents during the transport of dangerous goods";
- "Recommendations on the assessment of the impact of noise emitted by rail transport on the environment";
- "Recommendations on uniform standards for classification, placement and storage of waste for the railways of OSJD member states";
- "Recommendations on the elimination of waste from railway transport operations";
- "Environmental requirements for maintenance and repair of tracks and surrounding infrastructure".

[9] There are currently 42 wild giant pandas living in the reserve.

**Transport corridor development activities**

Transport corridors are critical for rail freight in the Eurasian space [2]. As part of its activities, the OSJD has developed the concept of "OSJD transport corridors and their parameters", which has become an element integrating railway systems in the Eurasian space with the pan-European corridor system. The OSJD system features 13 transport corridors [8]. Geographically, they cover almost all OSJD member countries from west to east and from north to south. They are all being developed because of their importance for international rail transport. Nevertheless, let us turn our attention to Corridor 1, the longest transport corridor in the world, running through Poland, Latvia, Lithuania, Estonia, Belarus, Russia, Kazakhstan, Uzbekistan, China, Mongolia and North Korea. Its total length, including branch lines, is 25,210 km. The corridor's stakeholders are currently working to establish a coordination mechanism to manage it in order to increase its efficiency. Given the current geopolitical situation, OSJD Corridor 10, running through Kazakhstan, the Caspian Sea, Azerbaijan, Georgia, the Black Sea and on to Europe, is becoming increasingly important. There are a number of initiatives in its area of impact, such as TITR and TRACECA[10]. Freight transport is steadily increasing. The volume of cargo transported along the Caspian transport corridor in the first 10 months of 2024 increased by around 70% compared to the same period in 2023. Approximately 28,000 TEUs were transported between China and Europe[11]. The Trans-Caspian International Transport Route, also known as the Middle Corridor, is part of the New Silk Road railway project[12], as shown in Figure 3.

The countries interested in shipping along this corridor (Azerbaijan, Georgia, Kazakhstan, Türkiye) have agreed on a road map for its development [11]. It consists of seven pillars focused on:

- development of commonly prioritised transport and logistics infrastructure;
- operational optimisation through the attraction of additional cargo flows;
- implementation of a unified tariff policy;
- development of a commonly agreed network of logistics centres;
- sustainable development of multimodal transportation;
- implementation of a unified digital transport corridor.


Fig. 3. The Rail Silk Road and its Middle Corridor [9]

[10] The Trans-Caspian International Transport Route (TITR), TRACECA, is an international transport programme involving the European Union and 12 member states from Eastern Europe, Caucasus and Central Asia. The programme aims to strengthen economic relations, trade and transport in the Black Sea, South Caucasus and Central Asia regions.

[11] Data obtained at the Baku Climate Summit, Baku, 2024 [see also: L. Kuś, INTERMODAL NEWS, 28 November 2024].

[12] The New Silk Road – a land and sea route. It assumes the establishment of a network of infrastructure links, mainly transport corridors, between the PRC and Europe – China's most important economic partner.

A good example of the use of OSJD's achievements is the signing of the "Agreement on the organisation of container transportation in direct international railway-sea communication with the participation of feeder vessels between the ports of the Caspian Sea (Aktau – Baku (Alyat)" as part of the TITR concept. The agreement provides for the use of the original SMGS consignment note for the entire container transport route, including the waterborne section of the route in the Caspian Sea. Further, to speed up and simplify customs procedures for handling goods and containers at border checkpoints, the TITR Parties have prepared draft agreements on the electronic exchange of data on the location and status of rolling stock [6, 9]. Analyses and studies indicate that action in three key areas related to so-called soft infrastructure is necessary for the development of railway corridors and increasing their efficiency, as shown in Figure 4.

## 4. Conclusions

The activities of the Organisation for Co-Operation between Railways are aimed at developing and improving international rail transport between Europe and Asia and increasing the efficiency and quality of the services provided. There have been clear technological changes in rail transport and logistics, ranging from the implementation of electronic transit customs declarations and consignment notes to modern digital train products. Qualitative changes have taken place in the entire land freight process between Asia and Europe. Today, it is not just the carriage of goods in a container, but a complex logistics product that is delivered strictly according to a schedule, with a precisely defined delivery date, in close integration with forwarding companies and "last mile"[13] carriers. Consequently, the use of such tools as the CIM/SMGS electronic consignment note contributes to improving the competitiveness of rail transport on global transport routes. Companies, including railways, are introducing new business models to be able to provide new value to their customers and markets. Awareness of current global phenomena and processes, including those focused on environmental protection and energy efficiency, contributes to the growing importance of railways and the OSJD-supported development of international rail transport. Therefore, the initiatives

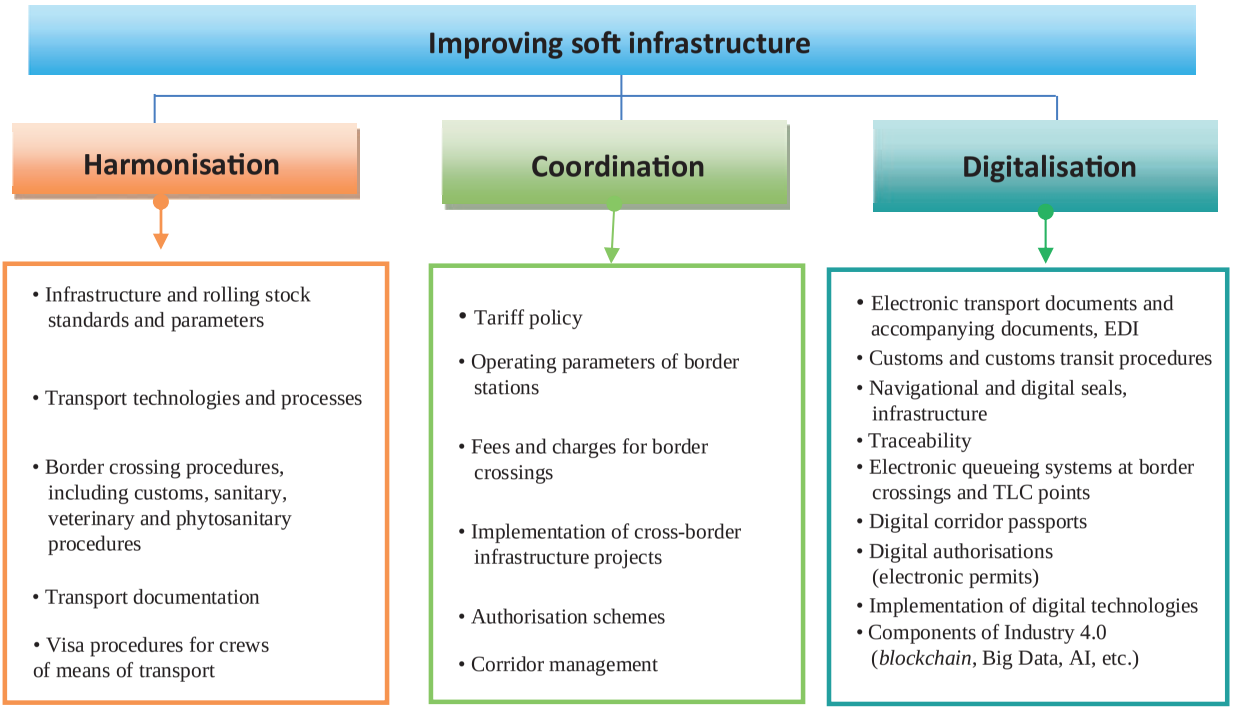


Fig. 4. The three areas of action and instruments to improve soft infrastructure in Eurasian transport corridors; compiled based on [15]

[13] The last mile is the final stage of the supply chain. It is the stretch that drivers, suppliers or couriers have to cover in order to deliver products to the end customer. In short, it is the journey from the warehouse or point of unloading to the final customer.

undertaken by OSJD are particularly important in the context of the active digitalisation of the transport industry. For this reason, in an era of digital transition of the economy, internationalisation of business activities and the social sphere, the use of a single conceptual format increases the efficiency of business processes, reduces the risk of errors, and reduces costs and lead times in international business transactions.

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