

Monitoring of Transport of Dangerous Goods by Road – C1.4. R1- I5





Monitoring of Transport of Dangerous Goods by Road e -ADR – C1.4. R1- I5

D I G I T A L I Z E . M O N I T O R . R E A C T .

Agencija za komercijalnu djelatnost (AKD d.o.o.)

AKD d.o.o. is a company of special interest to the Republic of Croatia that provides services for issuing qualified certificates. It is also an authorized legal entity for issuing qualified certificates to Croatian citizens on electronic identity cards. AKD d.o.o. produces identity cards, passports, visas, driver's licenses, and other secure documents. It develops advanced IT solutions in identity and security, complex traceability systems, and provides services to the banking and fintech sectors. AKD d.o.o. furthermore develops and delivers advanced services in the transport sector, with a focus on transforming business processes, streamlining workflows, and introducing end-to-end automated systems that create greater value for clients, improve optimization, and increase operational efficiency.

AKD d.o.o.'s solutions ensure the highest level of security, functionality, and data protection, driving efficient management of public services, administrative processes, and cybersecurity. AKD d.o.o. has established itself as a leader in the field of identity and security, building strong foundations for the further development of products and services of strategic importance for the Republic of Croatia. Its primary goal is to maintain the quality, security, and availability of its products and to provide solutions in the field of identity. In the transport and mobility sector, the goal is to develop a dynamic service provider organization that will use a digital platform for collecting, managing, and protecting data, while ensuring interoperability as required by the European Commission.

Ministry of the Sea, Transport and Infrastructure of the Republic of Croatia

The Ministry of the Sea, Transport and Infrastructure of the Republic of Croatia is the central state administration body responsible for the development, management, and improvement of the transport system of the Republic of Croatia. Through its activities, the Ministry shapes transport policies, ensures the implementation of national and European legislation, and promotes the development of a safe, sustainable, and efficient transport system.

In partnership with AKD d.o.o., the Ministry is implementing the strategic project "C1.4. R1-I5 Monitoring of Transport of Dangerous Goods by Road e-ADR", financed by the European Union under the National Recovery and Resilience Plan. Within the e-ADR project, the Ministry acts as the project beneficiary, responsible for strategic guidance and compliance with Croatian and EU regulatory frameworks, while AKD d.o.o., as the project partner, is responsible for system development, implementation, and maintenance.



REPUBLIC OF CROATIA
Ministry of the Sea, Transport
and Infrastructure
www.mmpi.gov.hr



Introduction

The transport sector is one of the key drivers of economic development and stability in every country, including Croatia, as it plays an important role in ensuring the smooth functioning of supply chains and industrial activities.

This role is particularly evident in the segment of dangerous goods transport. Due to its specific nature, this segment requires a high level of safety, reliability and supervision. The potential risks to people, the environment and infrastructure make this part of the transport system particularly sensitive, which is why it is essential to ensure effective control and clearly defined processes in all phases of the transport chain. At the same time, data show that the volume of dangerous goods transport in the Republic of Croatia is continuously increasing, further highlighting the need to modernise monitoring systems and information exchange. However, the existing system still largely relies on paper documentation and disconnected information systems, which hinders the timely availability of data and slows down procedures.

An additional challenge is the complex legislative framework, which assigns responsibilities to several administrations from different sectors. Such an organisation often makes coordination more difficult and reduces system efficiency, as data are collected and processed separately, without an integrated overview. In this context, the availability of accurate and timely information becomes crucial – not only for effective supervision, but also for the protection of people, the environment and infrastructure.

The e-ADR project was developed precisely in response to these challenges. Its aim is to establish a modern, digital and interoperable system that enables monitoring of dangerous goods transport and the connection of all relevant stakeholders within a single information environment. The implementation of the project creates a foundation for a safer, more efficient and more transparent dangerous goods transport system, benefiting carriers, competent authorities and the wider public.



PROJECT TITLE:

Monitoring of Transport of Dangerous Goods by Road e-ADR

PROJECT CODE:

C1.4. R1-I5

PROJECT OBJECTIVE:

Development of a monitoring system for transport of dangerous goods by road (e-ADR)

PROJECT BENEFICIARY:

Ministry of the Sea, Transport and Infrastructure of the Republic of Croatia

PROJECT PARTNER:

Agencija za komercijalnu djelatnost proizvodno, uslužno i trgovačko d.o.o.

IMPLEMENTATION PERIOD:

from March 2021 to July 2026.

The project is financed by the European Union under the National Recovery and Resilience Plan (NRRP)

Strategic project framework

The project “ Monitoring of Transport of Dangerous Goods by Road e-ADR” is implemented under the National Recovery and Resilience Plan and is aligned with European legislation.

Transport of dangerous goods in road traffic is one of the highest-risk segments of the transport system of the Republic of Croatia. Flammable, explosive and toxic substances are transported by road on a daily basis, necessitating strict control, clearly defined procedures and the constant readiness of supervisory authorities.

The safety of dangerous goods transport is based on prevention – avoiding accidents through timely risk identification, vehicle tracking, and proper training of drivers and safety advisers. A systematic approach to risk management is crucial for protecting people, property, and the environment.

In the existing monitoring system, participants face significant administrative burdens – a large number of paper forms, inconsistent information exchange between institutions, and lengthy approval procedures. This way of working limits the effectiveness of supervision and increases the likelihood of errors. The e-ADR project initiates the digital transformation of processes in the dangerous goods transport sector. By establishing a centralised, secure, and interoperable system, it enables automated data exchange, real-time vehicle monitoring, and digital management of documentation, as well as more efficient connectivity and information sharing among all involved stakeholders. The introduction of the e-ADR system establishes the conditions for safer, more efficient, and more transparent transport of dangerous goods, benefiting the economy, public administration, and citizens.



The regulatory framework of the project



The e-ADR project is implemented in full compliance with Croatian and European legislation, including:



- ▶ the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)
- ▶ Regulation (EU) 2020/1056 on electronic freight transport information (eFTI)
- ▶ relevant implementing and delegated acts
- ▶ national regulations on the transport of dangerous goods
- ▶ applicable international conventions and agreements



The project ensures lawful and secure data processing and contributes to the fulfilment of Croatia's European obligations within the digital transport ecosystem.

Project objective

The general objective of the project "Monitoring of Transport of Dangerous Goods by Road e-ADR" is to create the foundations for the improvement and development of the system for monitoring the transport of dangerous goods by road across the territory of the Republic of Croatia.

The purpose of the project is the implementation of an appropriate IT solution that is fully functional for all operational stakeholders and facilitates management and regulation for supervisory authorities. The project also aims to support access for public authorities, policymakers, researchers, and citizens to data, including scientific data, ensuring data portability and strengthening interoperability between different data sources.

By implementing the project, the process of dangerous goods transport will be digitalised, enabling faster information flows throughout the entire transport chain, which will contribute to more efficient and more competitive business operations.

The application of the e-ADR system will also streamline business processes within competent authorities supervising the transport of dangerous goods, positively affecting the reduction of required documentation and the acceleration of procedures.

Specific project objectives:

- ▶ **SAFER TRANSPORT AND ENVIRONMENT**
- ▶ **MORE EFFICIENT WORK OF SUPERVISORY AUTHORITIES**
- ▶ **DIGITALISATION OF KEY PROCEDURES**
- ▶ **CONNECTED SYSTEMS AND DATA EXCHANGE**
- ▶ **REDUCED ADMINISTRATIVE BURDEN**





e-ADR system functionalities

The key performance indicator of the project is the establishment of a functional information and communication system for monitoring the transport of dangerous goods by road.

System functionalities are:

- ▶ RETRIEVAL AND PROCESSING OF TACHOGRAPH DATA RECORDED IN REAL TIME
- ▶ TRAINING OF DRIVERS AND SAFETY ADVISERS
- ▶ ISSUANCE OF ELECTRONIC AUTHORISATION FOR THE TRANSPORT OF DANGEROUS GOODS
- ▶ PROCESSING AND INTEGRATION OF DATA FROM THE NSCP
- ▶ ESTABLISHMENT OF A SECURE ENVIRONMENT FOR DATA EXCHANGE WITH COMPETENT PUBLIC AUTHORITIES

ACQUISITION AND PROCESSING OF TACHOGRAPH DATA

The e-ADR system enables the acquisition and processing of tachograph data recorded in real-time for the purpose of geospatially displaying the movement of vehicles transporting dangerous goods, within the legally prescribed time limits for their collection and processing. In this way, it facilitates route monitoring for supervisory authorities, helps identify possible deviations and enables timely response in case of risk, thereby contributing to higher traffic safety and more efficient management in emergency situations.

TRAINING OF DRIVERS AND SAFETY ADVISERS

The project also includes the digitalisation of procedures for training drivers and safety advisers. The training of these stakeholders is a crucial part of the overall process and system development, as a significant share of safety factors depends on properly trained personnel. This will speed up and simplify the administrative and educational aspects of the process, which are often burdened by paperwork. The system will provide insight into drivers' training for the transport of dangerous goods, the training and status tracking of safety advisers, as well as the recording of passed examinations and valid certificates.

Target groups



The key stakeholders of the e-ADR system comprise different groups whose functions and responsibilities are connected through an integrated system for monitoring the transport of dangerous goods. The project targets all participants involved in the organisation, implementation, and supervision of dangerous goods transport, as well as the wider public that benefits from increased safety and transparency of the system.



The system links all key stakeholders - carriers, drivers, supervisory authorities, system that enables the exchange of accurate and up-to-date data recorded in real time.



End users:

- ▶ CARRIERS AND LOGISTICS COMPANIES IN ROAD TRANSPORT
- ▶ SENDERS AND RECIPIENTS OF DANGEROUS GOODS
- ▶ PROFESSIONAL DRIVERS AND SAFETY ADVISERS
- ▶ COMPETENT AND REGULATORY AUTHORITIES
- ▶ INSPECTION AND SUPERVISORY SERVICES

ISSUING ELECTRONIC PERMITS FOR THE TRANSPORT OF DANGEROUS GOODS

The digital system for issuing electronic permits has been developed to replace the previous paper-based forms. This approach enables simpler and faster processing while reducing the use of paper documentation, leading to quicker verification of relevant data, lower risk of error, and greater safety for all stakeholders in the process.

PROCESSING AND INTEGRATION OF DATA FROM NSCP

The e-ADR digital system enables full processing and integration of data from the National road transport electronic storage and data exchange system in the segment related to the transport of dangerous goods. This ensures connectivity between the vehicle monitoring system and the national electronic freight information database, in line with the Regulation on electronic freight transport information (eFTI). Data on cargo, vehicles, and carriers are retrieved, processed, and aligned with prescribed standards, ensuring timely availability, verification, and exchange of information between competent authorities and participants involved in the transport of dangerous goods.

DATA EXCHANGE AND INTEGRATION WITH PUBLIC AUTHORITIES

The system enables data exchange and integration with key public authorities, including:

- ▶ THE MINISTRY OF THE SEA, TRANSPORT AND INFRASTRUCTURE
- ▶ THE MINISTRY OF THE INTERIOR
- ▶ THE CROATIAN VEHICLE CENTRE
- ▶ THE CUSTOMS ADMINISTRATION
- ▶ THE STATE INSPECTORATE

This inter-institutional connectivity contributes to more effective supervision and enforcement of regulations.

INFORMATION SECURITY AND PERSONAL DATA PROTECTION

Given that the system constitutes critical infrastructure, a high level of availability will be ensured, allowing it to operate continuously without interruptions. A secondary site will also be provided to enable uninterrupted system operation in the event of technical issues, together with a rapid recovery solution that ensures business continuity and increases overall system security. Special attention is devoted to data protection and information security. The system is aligned with applicable regulations governing personal data protection and the security of information systems, thereby ensuring the confidentiality, integrity, and availability of all relevant information.

Long-term impacts of the e-ADR project

The e-ADR project lays strong foundations for the long-term improvement of the safety and efficiency of the transport system of the Republic of Croatia. By implementing digital processes and monitoring systems, e-ADR changes the way the transport of dangerous goods is planned, carried out and controlled.

The main advances achieved through the establishment of the system are:

- ▶ **Unified monitoring of** dangerous goods
- ▶ **Faster response** by competent services in emergency situations
- ▶ **Reduced likelihood of errors** and greater reliability of data
- ▶ **Increased efficiency and transparency of** administrative procedures
- ▶ **Compliance with national and European regulations** on safety and the digitalisation of transport

SUMMARY:

The e-ADR project establishes a unified digital system for monitoring the transport of dangerous goods, enabling faster response in emergency situations and reducing administrative burden. The system provides reliable supervision, reduces the likelihood of errors, and supports compliance with national and European regulations.

e-ADR connects different data sources and stakeholders within a single information environment. Through data integration, it enables better institutional coordination, greater process transparency, and more informed decision-making.

