#TRANSFORMINGTHETRANSPORT


ZAKŁADY AUTOMATYKI ®
KOMBUD SA

WWW.KOMBUD.COM.PL

ZAKŁADY AUTOMATYKI ®
KOMBUD SA

We specialize in providing modern railway traffic management systems. Our devices ensure safety to millions of passengers and enable efficient work of railway staff. For over 30 years we have been driven by our belief that modern and safe railway is the cornerstone of strong, sustainable economy, international integration, and climate protection.


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## ZAKŁADY AUTOMATYKI KOMBUD – KEY FIGURES:

- 150 installed IXL systems
- 3000 switches and 4500 signals controlled by our systems,
- 28 remote control centres including RCC Szczytno supervising 165 km line
- Nearly 2000 level crossing protection systems
- 270 employees, including 190 engineers

# ZA KOMBUD S.A OFFER

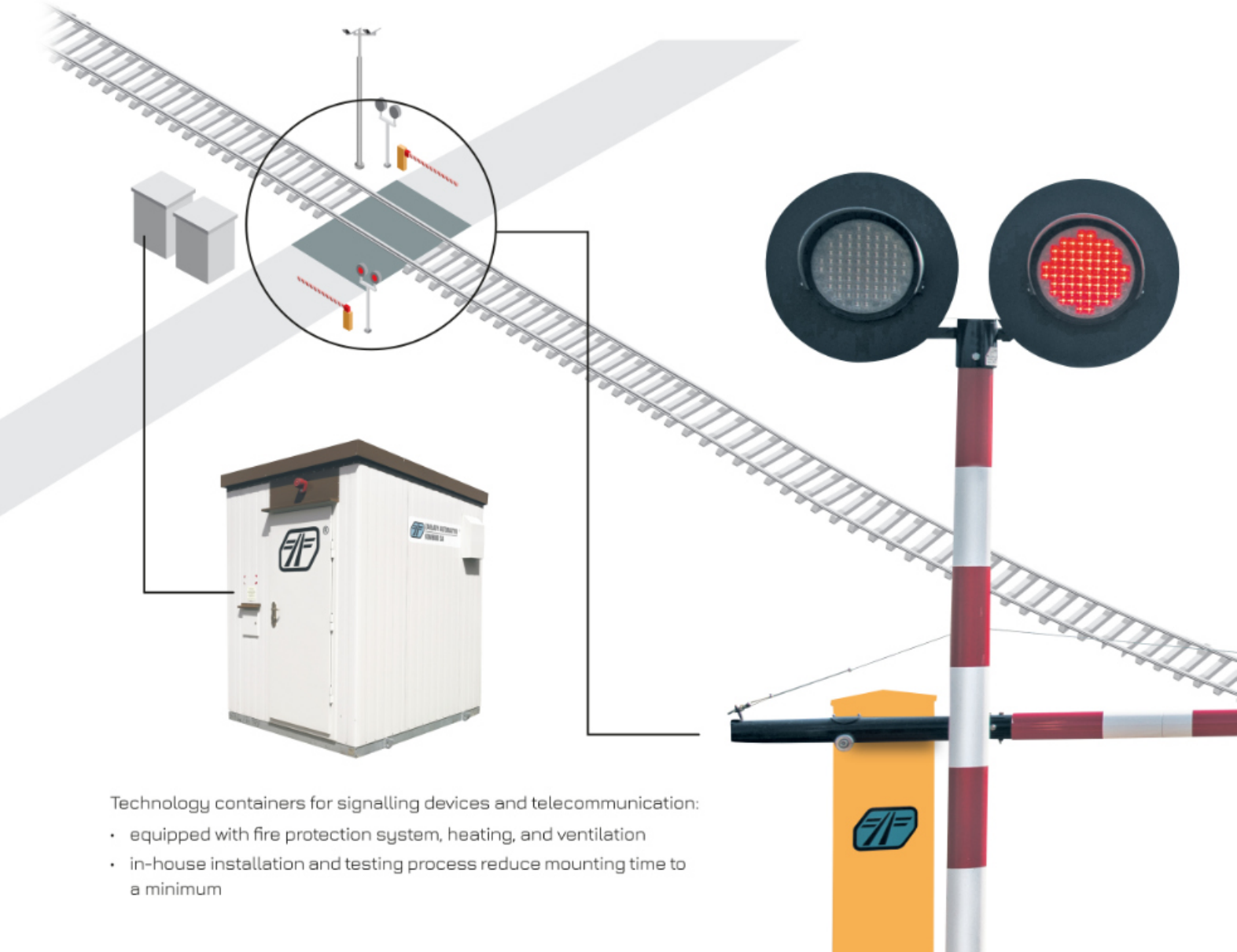
## DESIGN WORKS

Kombud designs rail traffic control systems, power distribution and telecommunication systems. Our in-house R&D department and close cooperation with the best research centres enable us to implement and certify new products smoothly , as well as modify designs quickly and efficiently.

## LEVEL CROSSING PROTECTION SYTEMS:

Our level crossing protection systems enable connection to systems operating both in relay and computerized technologies.

- automatic and staff-operated LX protection systems
- equipped with hydraulic or electromechanical drive
- level crossing notification system increasing safety level and line capacity
- full range of LX components: railway signals, distant signals, LX lights, barriers up to 12 m

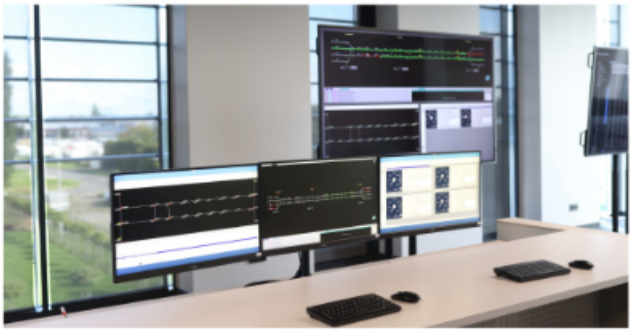


Technology containers for signalling devices and telecommunication:

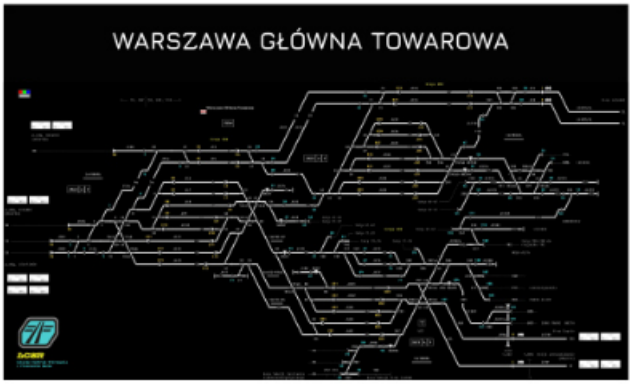
- equipped with fire protection system, heating, and ventilation
- in-house installation and testing process reduce mounting time to a minimum

## PRODUCTION AND INSTALLATION

Our devices are manufactured, assembled and tested in our factory and then installed on the railway line by specialized teams. This reduces fieldwork time to a minimum and guarantees safe and effective commissioning.



At one of the largest railroad stations in Poland, RCC Warszawa Główna Towarowa- Warszawa Jelonki, our system enables management of 150 switch point machines and 164 signals. Kombud has integrated the remote control centre with computer, relay and mechanical systems operating at adjacent stations.




MOR 3 equipment has been installed at both stations: Warszawa Towarowa and Warszawa Jelonki. MOR-2 Icsr ssystem connects the two stations and allows control and management of all the devices via MOR-1.01 computer-based control panel. MOR-3 is equipped with ETCS L2 interface.

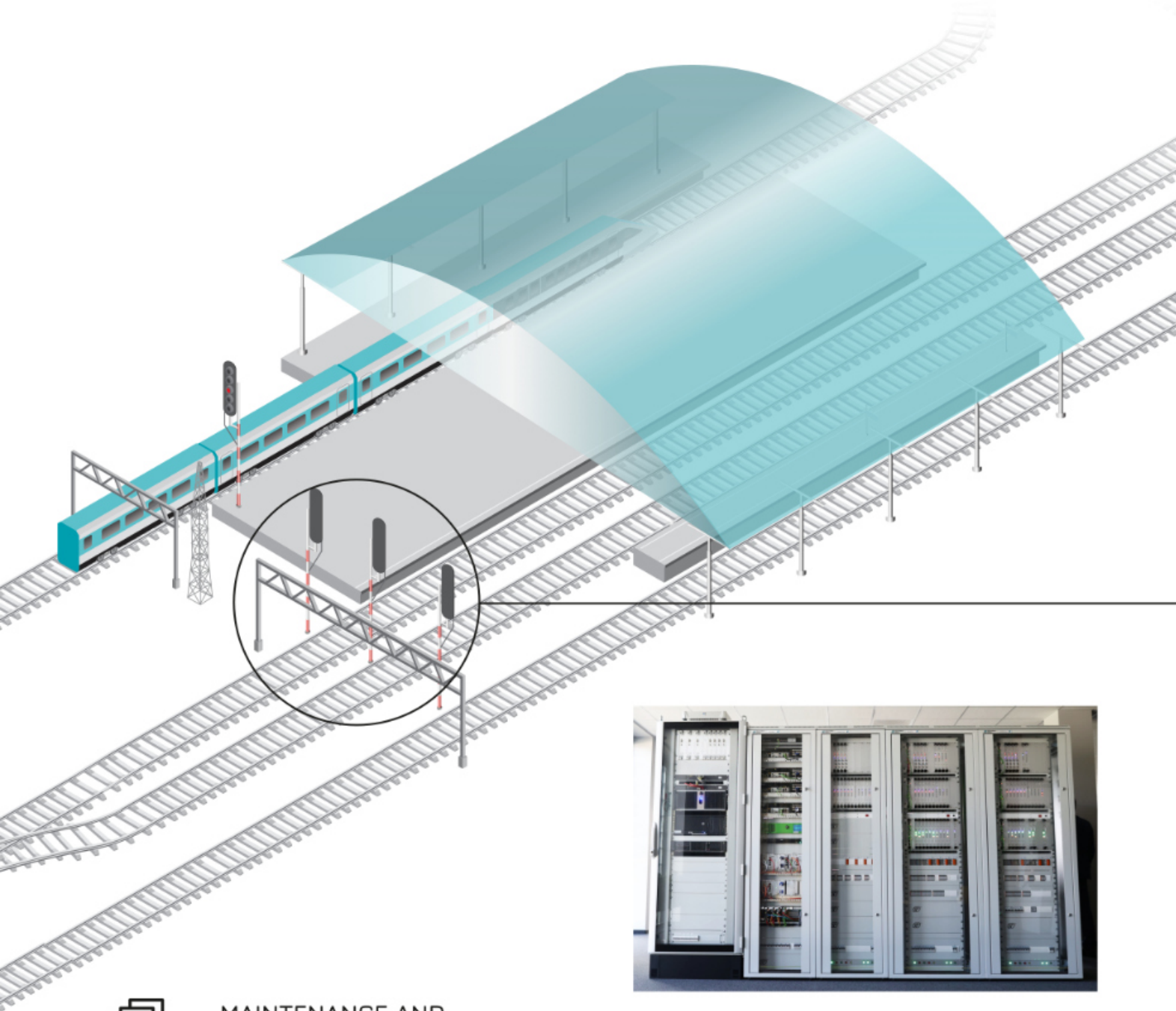
## ELECTRONIC SIGNALLING SYSTEMS

Our flagship product is MOR electronic system family including:

- MOR-3 electronic interlocking solution
- MOR-2 Icsr remote traffic control and management system
- MOR -1.01 computer based control panel (designed to work with devices made in relay or computer technology)
- axle counter system SKZR-2

## SERVICE AND MAINTENANCE

Great development of our diagnostic tools and wide use of communication technologies enables gathering and analyzing the performance data of various devices and fast problem solving. We have developed our own service network, we react efficiently to every call and offer maintenance contracts.



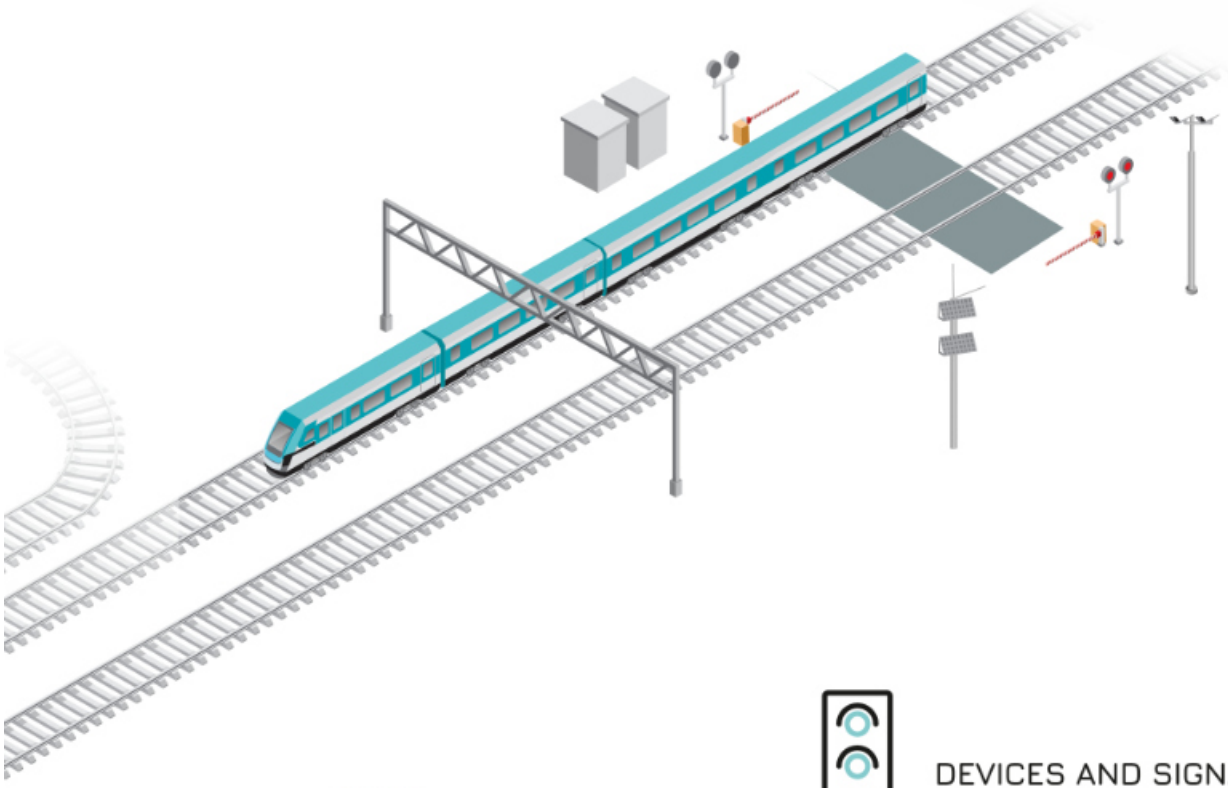


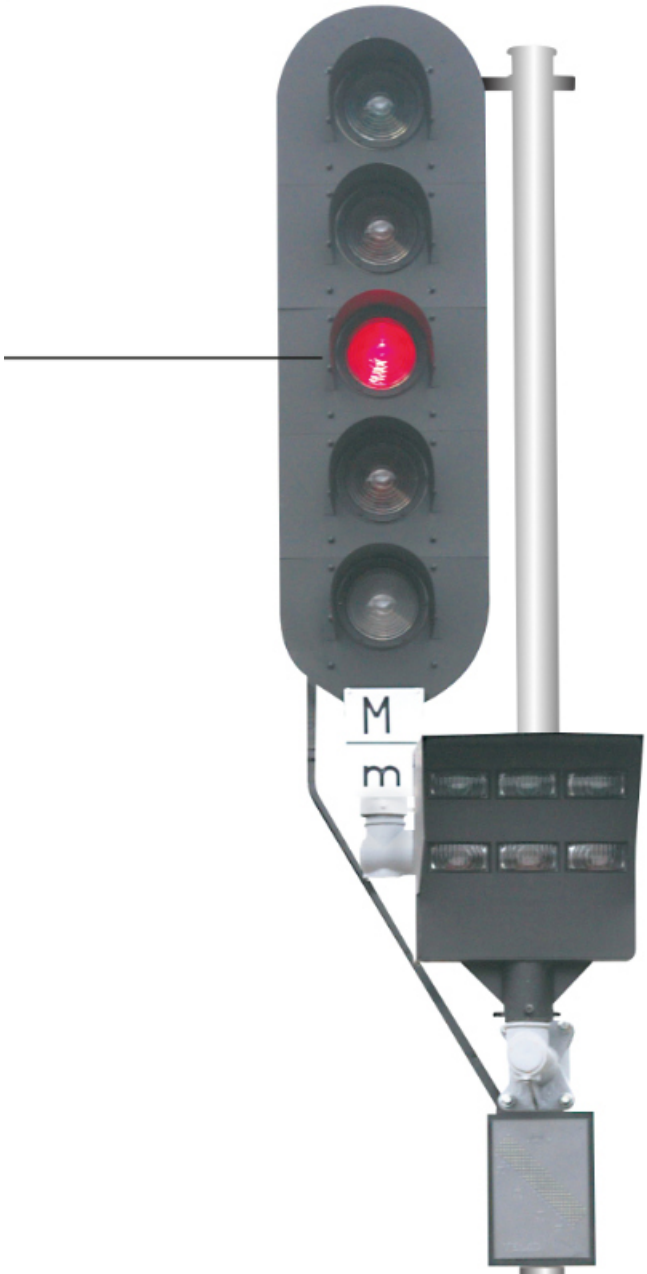
## MAINTENANCE AND DIAGNOSTIC CENTRE (CDSK-1)

Maintenance and Diagnostic Centre (CDSK-1) gathers information about all devices working within the remote control area. It enables smooth reactions and planning of life cycle of monitored devices. It may also provide a foundation for predictive maintenance.

**ETCS (European Train Control System) compliant components and systems**

- system allows conventional and high-speed trains running
- communication between the system and the train based on radio connection
- in-house laboratory to test ETCS L1 and L2 equipment





## DEVICES AND SIGNALLING COMPONENTS

10 000 semaphores delivered

- our signals are made to last for many years of duty with anti-corrosion protection, ready to be mounted in the field
- available with LED lightning technology, enabling longer operation and increasing energy efficiency

KOMBUD offer includes also derailers, mounting to point machines and point controllers.

## CYBERSECURITY

The code of our systems is developed in Poland, based on the latest techniques and programming tools, making it extremely resistant to attacks, which is particularly important in the face of an unstable international situation and cybersecurity threats.

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# WHAT MAKES KOMBUD UNIQUE?

- Over 30 years' experience in the transformation of signalling systems, starting from "post-Soviet" mechanical solutions, through relay technology, up to a modern, computer based and ETCS ready systems
- Complete portfolio of in-house developed systems and products, resulting in greater availability and shorter lead times
- Thousands of successful projects and implementations = reliability and safety of a wide range of proven, thoroughly tested, and dependable signalling solutions
- High availability of top-class programmers and R&D office in the heart of central and eastern Europe which leads to reduced design and service time
- Great flexibility: possibility of cooperation with existing systems, as well as comprehensive solutions from the ground up. The result: lower costs, shorter implementation time, enabling gradual, effective railway transformation process in the signalling field
- Tailor-made service: a credible, personalized response to real customer needs
- Extensive experience in obtaining, implementing, and settling EU funds