

## List of requests for innovations of the Russian railway-۲۰۲۱

№ п/п	Name of request	Possible economic effect
۱.	Technological solution that allows designing of loading schemes and drawings, their coordination and signing in an automated mode	Increasing labor productivity. Revenue from increased traffic...
۲.	The development of new methods and means of fastening, allowing to carry goods on an open rolling stock without fastening disorders along the route, without the need for uncoupling of cars and their visual inspection along the route	Increase security. Reduced inspection and uncoupling costs. Revenue from increased traffic.
۳.	Technological solution that allows remote diagnostics of technical means of the economy of freight and commercial work	Increase security. Lower maintenance costs.
۴.	The technical solution that allows to automatically control the tightness of the valve of the lower drain device of the tank.	Improving traffic safety. Improving the reliability of cargo transportation with lower costs for the payment of compensation for customer complaints.
۵.	Development of an automated register of non-public railway tracks reflecting the main parameters of their work.	Increasing labor productivity.
۶.	Anti-icing coating on the passenger platform	Cost reduction
۷.	Passenger platform ۳۰ meters long with adjustable dimensions of approximation relative to the axis of the railway track and in height from the level of the rail heads	Cost reduction
۸.	Automated system for measuring the overall parameters of passenger devices	Increase labor productivity
۹.	Monitoring system for handling equipment at stations	Increase labor productivity
۱۰.	The technical solution, which allows to automatically control the nodes and parts of the brake linkage, detect defects in cast parts of the trolleys (side frames, nadressornoj beams) in the arrival parks (Digital car inspector).	Increase labor productivity
۱۱.	Technical solution for automating the process of controlling a crane on a railway	Increase the speed of restoration work. Reduced train downtime.

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۱۲.	Техническое решение, позволяющее дистанционно произвести автоматизированное формирование плана ведения аварийно-восстановительных работ.	Увеличение скорости восстановительных работ. Снижение времени простоя поездов.
۱۳.	Creation of an automated control system for issuing an admission order with a set of barrier functions for the correct issuance of an order to the job manufacturer	Improving labor protection conditions.
۱۴.	Technical solution (intelligent system), which allows to recognize the presence of workers in the danger zone, to record and notify (block) of violations of labor protection requirements.	Improving labor protection conditions. Reducing the risk of work-related injuries.
۱۵.	A technical solution to improve the quality of cold drinking water in terms of "hardness" in accordance with hygienic standards for sanitary and chemical indicators.	Improving working conditions. Reduced payment of fines.
۱۶.	Technical solution to automate the operation of boiler equipment.	Increasing labor productivity. Reducing hardware failures. Improving the efficiency of the boiler station.
۱۷.	The technical solution allows cleaning and monitoring the performance of wastewater.	Reduced payment of fines.
۱۸.	A technical solution that allows you to automate the metering of electric energy in an electric locomotive and in traction substations online with the transfer to existing metering systems, the accumulation of data for subsequent processing.	Decrease in non-production losses of electric energy.
۱۹.	A technical solution that allows continuous measurement of the mass of fuel in the fuel tank of a rolling stock.	Decrease in non-production losses of fuel
۲۰.	A technical solution that allows you to accumulate electrical energy from recovery during braking of the locomotive and issue it back to the contact network when accelerating the locomotive	Increased carrying capacity of heavy trains. Improving the energy efficiency of the traction power supply system.
۲۱.	Creating a unified system of managed network infrastructure.	Increasing cybersecurity.
۲۲.	Centralized management of mobile devices. Securing mobile devices and information on it.	Increasing cybersecurity.



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 Iran-Russia Industrial-Commercial Corporations Group

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۲۳.	A technical solution that allows you to automate the collection of information about faults (residual life of parts) of a locomotive and transmit it remotely in real time to a single database.	Reducing the downtime of a faulty locomotive.
۲۴.	A technical solution that allows you to automate the recording of the CLUB electronic card and its operational update.	Reduced locomotive downtime.
۲۵.	New business model for the purchase or use of rolling stock	Effective budgeting.
۲۶.	An automatic planning system for the procurement of inventory based on the residual resource of parts of rolling stock.	Reducing the downtime of a faulty locomotive.
۲۷.	The solution to the problem of the last mile in the communication networks.	Improving the quality of communication networks
۲۸.	Development of friction modifiers applied to the side surface of the rail rolling into the wheel-rail contact zone for use in lubrication technology.	Saving resource paths and wheelsets. Reduced repair costs.
۲۹.	Implementation of automated gantry crane control systems and troubleshooting.	Reduced repair and maintenance costs.
۳۰.	Unmanned cargo yard management technology.	Increasing labor productivity.
۳۱.	Creating a system for monitoring and managing the life support of buildings	Increase labor productivity
۳۲.	Development of a mobile workplace for STZ inspector	Increase labor productivity
۳۳.	Creation of a diagnostic system and systems that reduce the risk factor for infrastructure wear	Reducing hardware failures. Reduced train delays.
۳۴.	Creation of an automated system for verification and calibration of measuring instruments. Creation of automatic verification points.	Reducing hardware failures. Increasing labor productivity.
۳۵.	Technical solution based on the combination of the advantages of electric and diesel (autonomous) traction	Lower operating costs for locomotives
۳۶.	Implementation of an automatic brake testing system in a freight train	Increasing labor productivity. Improving railway safety.
۳۷.	Digital Locomotive Depot	Increasing labor productivity.
۳۸.	Automation of quality control of process fluids (substances and materials used in the rolling stock of TPS, MVPS)	Conservation of the resource of parts of rolling stock



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۳۹.	Digital Railway (multiple queries)	The increase in traffic.
۴۰.	Conversion of MVPS to alternative energy	Reduce energy costs.
۴۱.	A technical solution that allows you to automate the collection, structuring and detailing of monitoring data and diagnostics of automation and telemechanics devices with the function of planning troubleshooting.	Increasing labor productivity.
۴۲.	Intelligent warning system for workers on the tracks and the function of automatically issuing a prohibition signal to rolling stock.	Improving labor protection conditions.
۴۳.	A technical solution that allows automatically in real time to signal the presence of traction current asymmetry in rail circuits.	Reducing hardware failures.
۴۴.	System for monitoring the backlog of a wit from a frame rail ۲/۴ mm	Reducing hardware failures.
۴۵.	Diagnostics of infrastructure facilities using a mobile portable device and the issuance of indications of deviation from acceptable parameters on-line	Increasing labor productivity. Reducing hardware failures.
۴۶.	Creation of a mobile complex (possibly in the existing rolling stock) for demagnetization of the rail	Increasing labor productivity. Reducing hardware failures.
۴۷.	Creation of a control system for the geometric parameters of turnouts, shoe spreaders, slide retarder tires using operated rolling stock.	Reducing hardware failures.
۴۸.	Monitoring system for rocky landslide and avalanche hazardous areas, remote diagnostics of engineering structures, including using unmanned aerial vehicles, space vehicles.	Increasing labor productivity. Reducing hardware failures.
۴۹.	Diagnostics of the internal state of boilers without visual inspection	Increasing labor productivity.
۵۰.	Improving the efficiency of alternative energy sources	Reduce energy costs.
۵۱.	Creating Maintenance-Free Rail Fasteners	Reducing hardware failures.
۵۲.	Technical solutions to reduce injuries to citizens at railway infrastructure	Improving railway safety.
۵۳.	Composite Ball-Free Bridge Slabs	Increasing the resource of artificial structures.
۵۴.	Plasma cutting of rail lashes	Increasing labor productivity.
۵۵.	Equipment for cutting and cleaning old-time ballast	Increase labor productivity.



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۵۶.	Joint assembly equipment	Increasing labor productivity.
۵۷.	Improving the quality of electric power in the network by reducing the inductive currents of the inductive load	Improving the quality of electrical energy. Reduced payment of fines.
۵۸.	Lightning Surge Protection	Reducing hardware failures.
۵۹.	Sewing stray currents	Reducing hardware failures.
۶۰.	The use of anti-icing fluid to protect the contact network from frost	Reducing hardware failures.
۶۱.	Automation of jobs in the metrology laboratory	Increasing labor productivity.
۶۲.	Integration of ARM workstation with industrial automated systems (EC ASUFR, ASUP, ASUSh, etc.)	Increasing labor productivity.
۶۳.	Enhancing cybersecurity of the server infrastructure	Improving railway safety.
۶۴.	A technical solution that allows the generation of electrical energy (with its subsequent use) in the process of train movement (alternative energy sources, piezoelectric elements)	Reduce energy costs.
۶۵.	A solution to reduce the cost of the life cycle of railway infrastructure facilities	Reducing hardware failures.
۶۶.	A solution that allows you to repair infrastructure without interruptions in train traffic, without violating the requirements for train safety	Reduce train downtime.
۶۷.	Technical solution (automated system), allowing to increase the speed of trains within the existing railway infrastructure	The increase in traffic.
۶۸.	An innovative infrastructure facility that improves the characteristics of wear resistance, durability, reliability	Reducing hardware failures.