

АКСЕЛЕРАТОР



GENERATION 

DIGITALWAVE tech.

Bulk material
monitoring system



intel®

Functional
customer:

Central Directorate for the management of the terminal
and warehouse complex and RZD Logistics

Problematics

In 2020, Russian Railways transported more than 700 MILLION TONS of bulk cargo, with a number of limitations:

- Existing counting methods have a number of limitations, are expensive and require highly skilled personnel
- Lack of operational accounting of bulk material flow leads to losses

! Only at the production site with crushed stone products Blochnaya station with an annual turnover of **270 000 TONS**, losses can reach up to **\$400 000**.

No measurements "by eye" — this is a waste of time, quality, accuracy

Our algorithms, based on machine vision technology from IP-camera images, **create a 3D model of bulk materials in online mode.**



Online
monitoring



Measurement
accuracy



Analysis, optimization,
predictability

Применение



Closed and open
warehouses



Trucks,
wagons



Transporter
belts

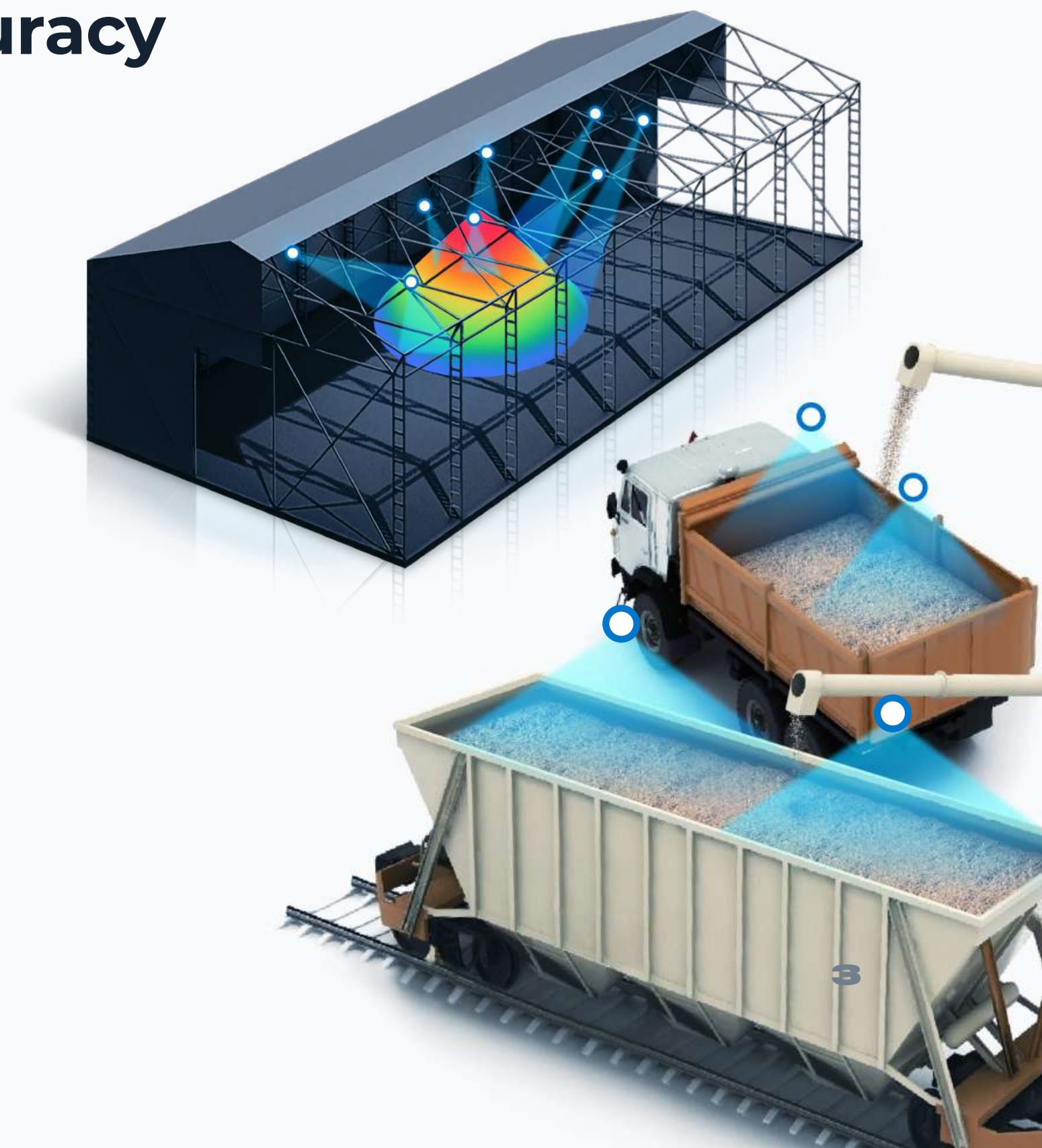
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Existing popular ways to measuring volumes of bulk materials



Tachymetric surveying team with total station



Surveying team with laser scanner

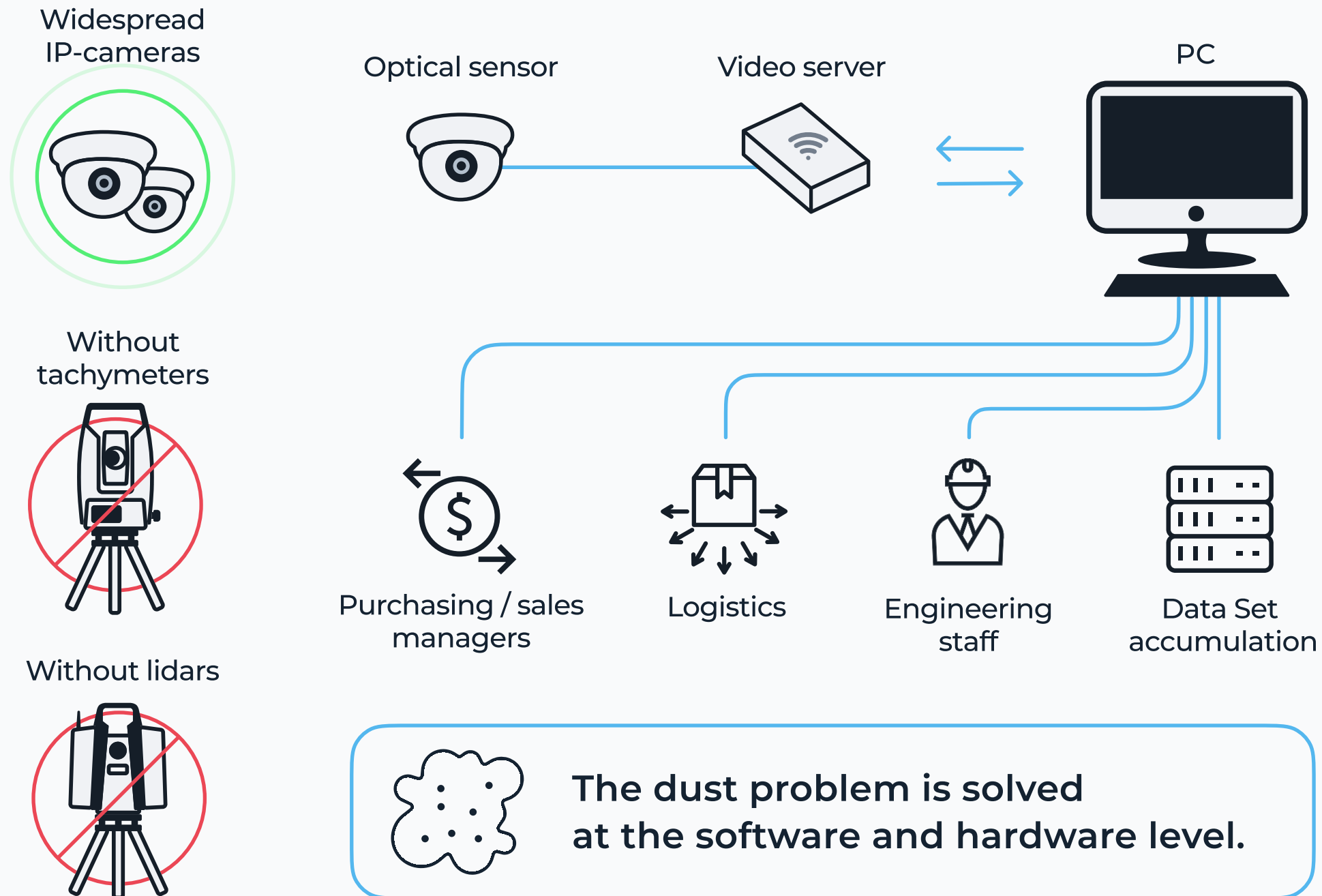


Automated devices laser scanning



Various wave and radar level sensors

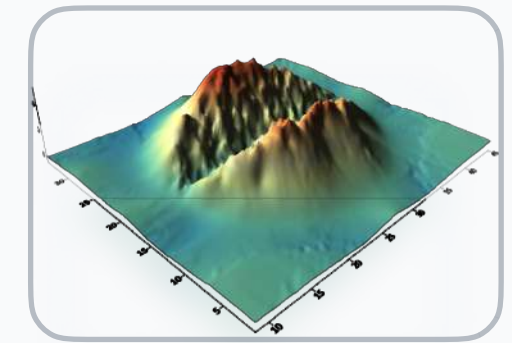
Easy and simple hardware



Digital model of embankment

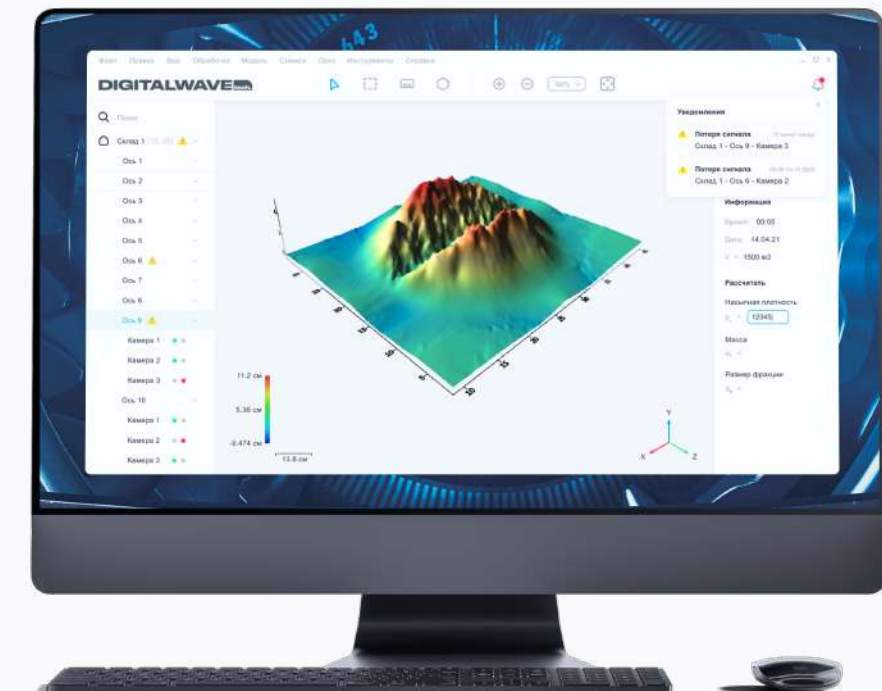


Photo



3D model

Interface



Why Digital Wave

01 Tangible economic effect of implementing our technology;

03 Human factor in processing of measurement results is excluded;

02 Wide experience with large customers;



04 Real-time monitoring.



Due to the flexible settings and adaptive mathematical model the solution is available for use in different industries.

The introduction of the product in Russian Railways

annual turnover of crushed stone

270 000 T

expected effect per year

\$400 000



Comprehensive installation of the software and hardware complex includes: monitoring points at the arrival of railcars, at the departure, and monitoring of the balance at the site.

\$33 000

cost


\$660/m

subscription

The implementation will allow to take control of the freight flow of bulk materials.

What has been done in the project and upcoming plans


During the acceleration period:



Analyzed operational activities related to bulk material cargo flows at functional customer sites;



Developed a technical and commercial proposal;



Calculated the economic effect expected from implementation.

Short-range plans — Pilot operation at the CM site in the city of Perm.

Development outlook

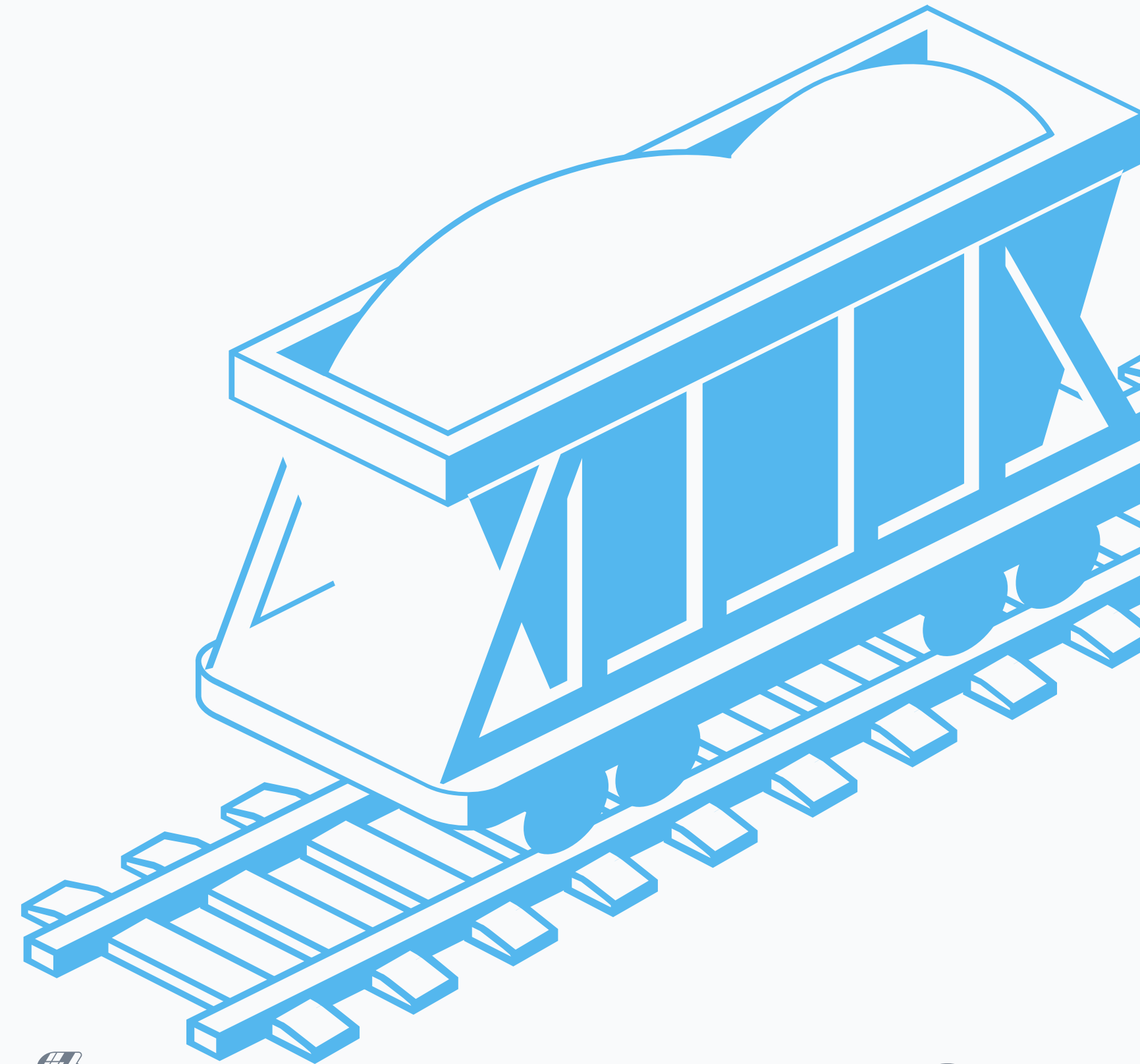
Our solution is aimed at the following functional customers:

Central Directorate for the management of the terminal and warehouse complex

RZD Logistics

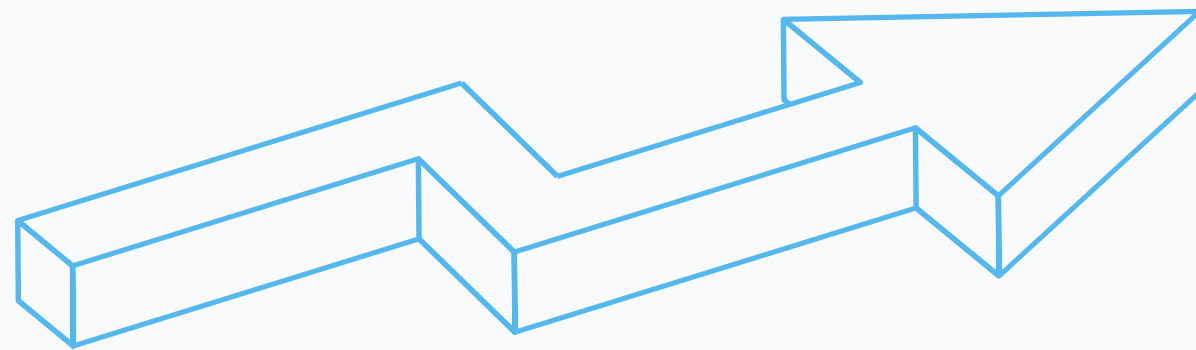
Our long-term goal is

Integration of our solution into all divisions of Russian Railways, involved in the flow of bulk materials.



Expected result of implementation

With our solution the functional customer will increase:



Efficiency of use of storage areas;

Accuracy and efficiency of data acquisition;

Operational efficiency of intra-warehouse equipment and rolling stock.

Timeline for change

2022

In as little as **6 months** after integration, functional customers will begin to see significant benefits from the implementation of our solution.

Project founders



MIKHAIL ELIN

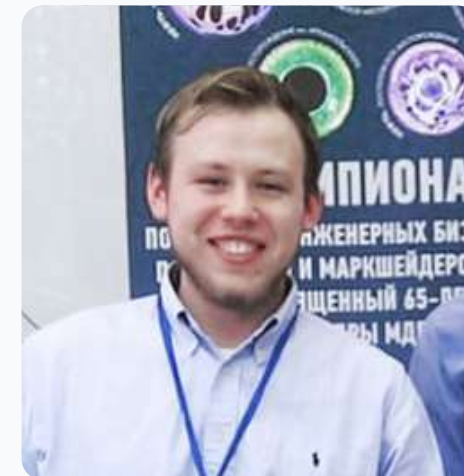
CEO

He has more than 12 years of project implementation experience and has worked with such customers as PJSC Uralkali, PJSC VSMPO-AVISMA Corporation, PJSC Phosagro. He has experience in the implementation of development projects abroad.



GALINA PASTUKHOVA

Expert of the Council on AR/VR CoE. Member and expert of the industry council "Neuronet STI". More than 40 scientific articles, including 6 VAK.



ILYA TOROPOV

Mining engineer. Specialist in the interpretation and processing of aerial survey data. Surveyor-technician of the division of surveying and geodetic works of RNYuganskneftegaz. Vast experience in digital data processing. Author of a number of patents.



ALEXANDER SALTYSKOV

CEO of EcoExpert Company
Promotion and protection of the company's interests in state bodies



KIRILL KISELEV

CEO of Rustrade IT company Marketing of Dreamhouse development project in the Czech Republic.

Contacts

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Speaker

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Comparison with counterparts

	 Tachymetric survey	 Nonstationary laser scanners	 Stationary laser equipment	 Wave and radar sensors	 DIGITAL WAVE
Time to measure	from 40 minutes depending on the area + time to deliver the team to the site	from 40 minutes depending on the area + time to deliver the team to the site	5-10 minutes	5-10 minutes	In real time
Necessary specialists	Surveyor	Surveyor	Operator commissioning	Operator commissioning	Operator selects billing zone
Equipment	Tachymeter	Geodesic laser scanner	Specialized laser scanner	Stationary wave and radar sensors	IP Camera Kit
Features of the equipment	Expensive, requires qualification	Expensive, requires qualification	Expensive, Few vendors	Work only in tanks	Not specific, can be purchased separately
Error	1-10%	0-3%	0-3%	0-3%	0-3%
Cost	\$	\$\$\$	\$\$	\$\$\$	\$