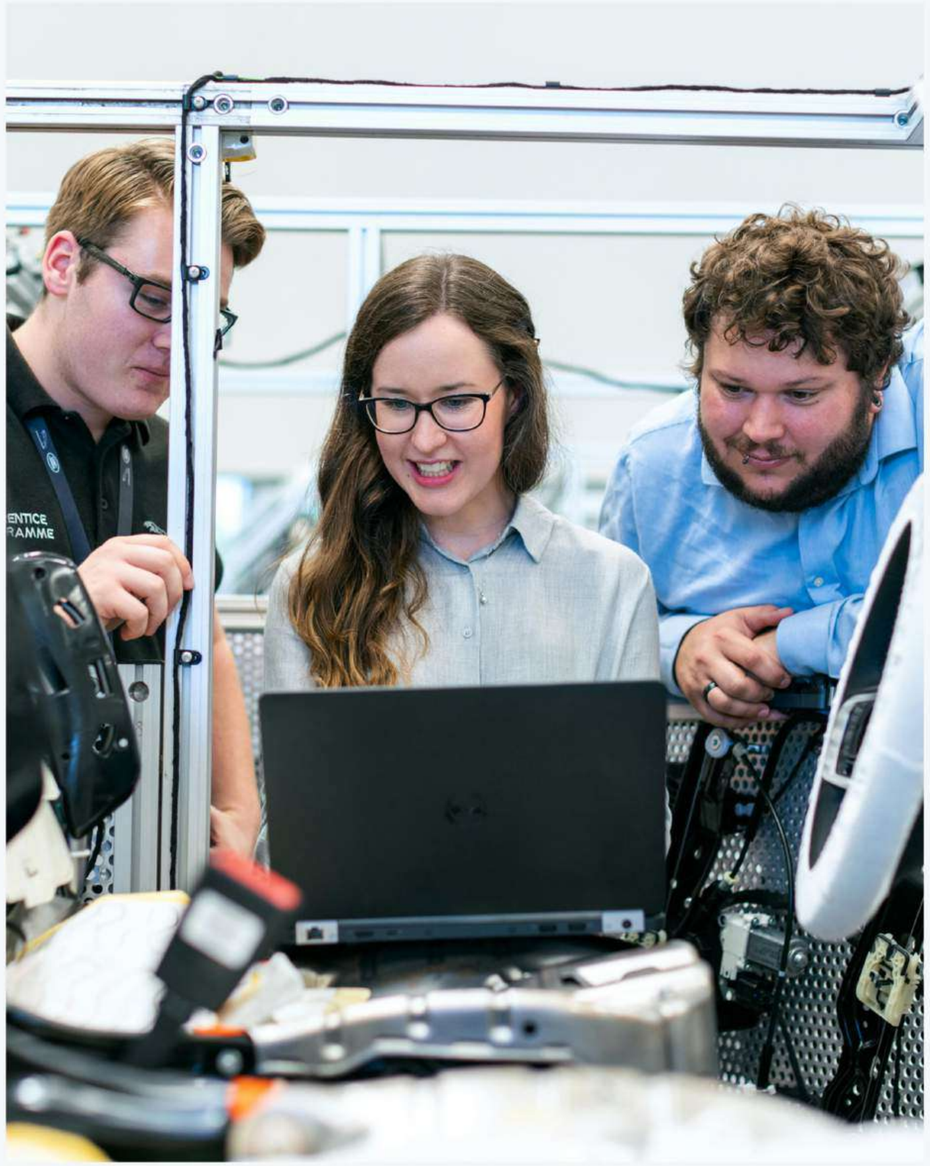
PULSAR SOLUTIONS

Digitalization of manufacturing and automotive

Trends in the digitalization of manufacturing companies and the implementation of artificial intelligence



About us

In the rapidly evolving world of industry, many companies are quickly adopting **artificial intelligence (AI)**, often using it more as a trend than as a strategic tool.

At Pulsar Solutions, we believe in the **smart application of AI**—one that directly benefits your specific processes **without** adding **unnecessary complexity**.

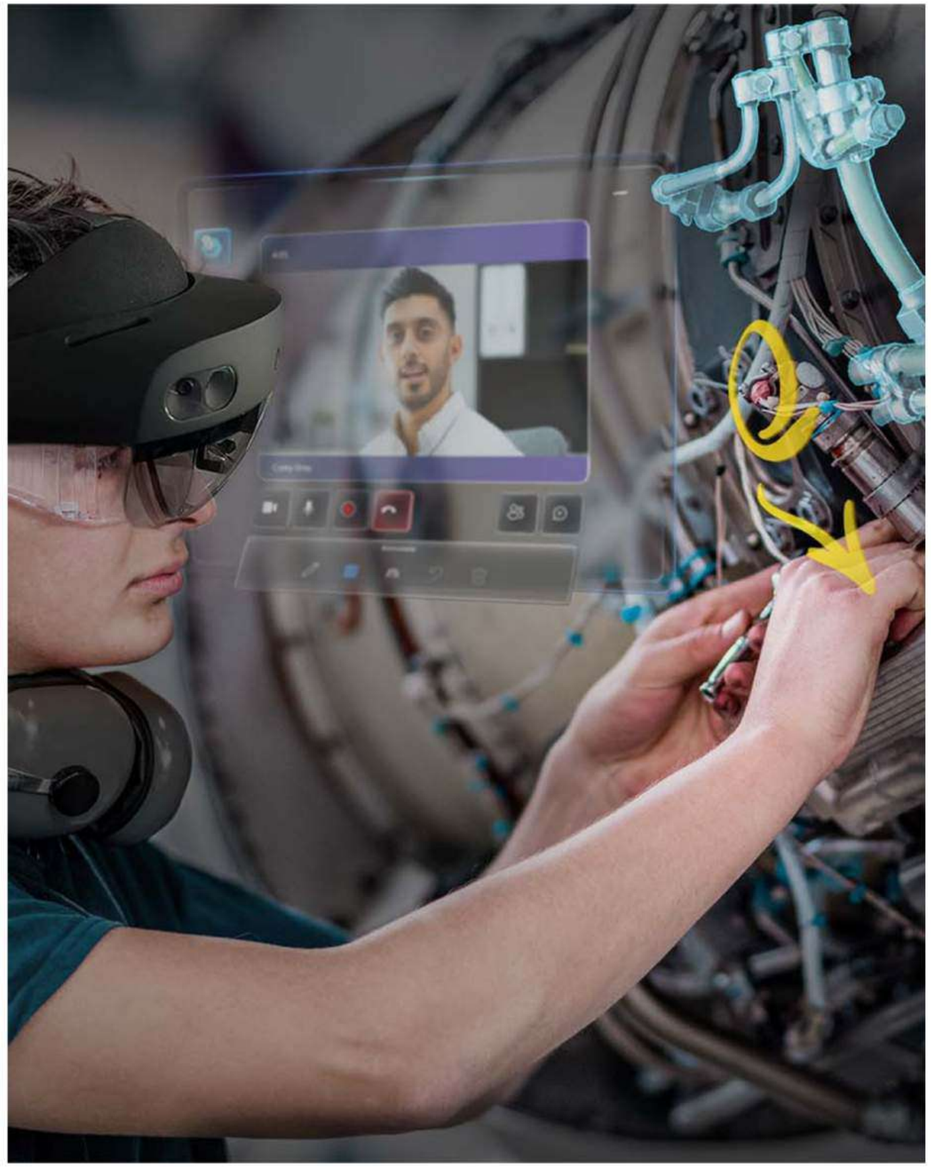
We understand that industrial manufacturing faces both simple and **complex challenges**. Our focus is on addressing the more demanding, intricate issues, with a particular emphasis on **maintenance—a key area for the future**.

By embracing digitalization and modernization, we can reduce costs by 30-50% and accelerate innovation

The future of manufacturing? Industry 5.0 trends

Industry 5.0 is a concept focused on **collaboration** between **humans** and **machines**. Key trends shaping the future of the industry, along with challenges we address defined by the EU's Industry 5.0 PoC framework.

- ✓ Loss of know-how from experienced workers
- ✓ Increasing complexity of machines
- ✓ The majority of issues stem from human error



Digitalization and new AI solutions

Facing new challenges and the evolving landscape of manufacturing digitalization, we deliver solutions that empower companies to stay competitive and innovate, whether in times of crisis or stability.

Process digitalization

Automation of invoice and order processing from emails using AI, with seamless integration into existing ERP systems.

Technical documentation

Data extraction from technical documentation, such as CAD drawings, and automation of technological process workflows.

Maintenance digitalization

Maintenance is one of the least digitalized areas and demands the highest level of attention in alignment with future trends.

AI planning

AI-powered planning of employee shifts or maintenance tasks based on company needs, employee skills, and task allocation.

Employee training

With the introduction of new machines, it is essential to continuously train new employees, retrain existing staff.

Voice assistants

Utilizing AI voice assistants for maintenance, automating support tasks, or managing shifts to enhance human-machine communication.

Case study: Unexpected issue during a shift

A factory worker encounters an issue with a machine or is uncertain about the next steps in a task. In such cases, a specialist is usually required, but these experts are few, not always available, and costly to engage.

Costs:

- Production downtime
- Employee wages
- Machine damage
- External service costs
- Lost revenue

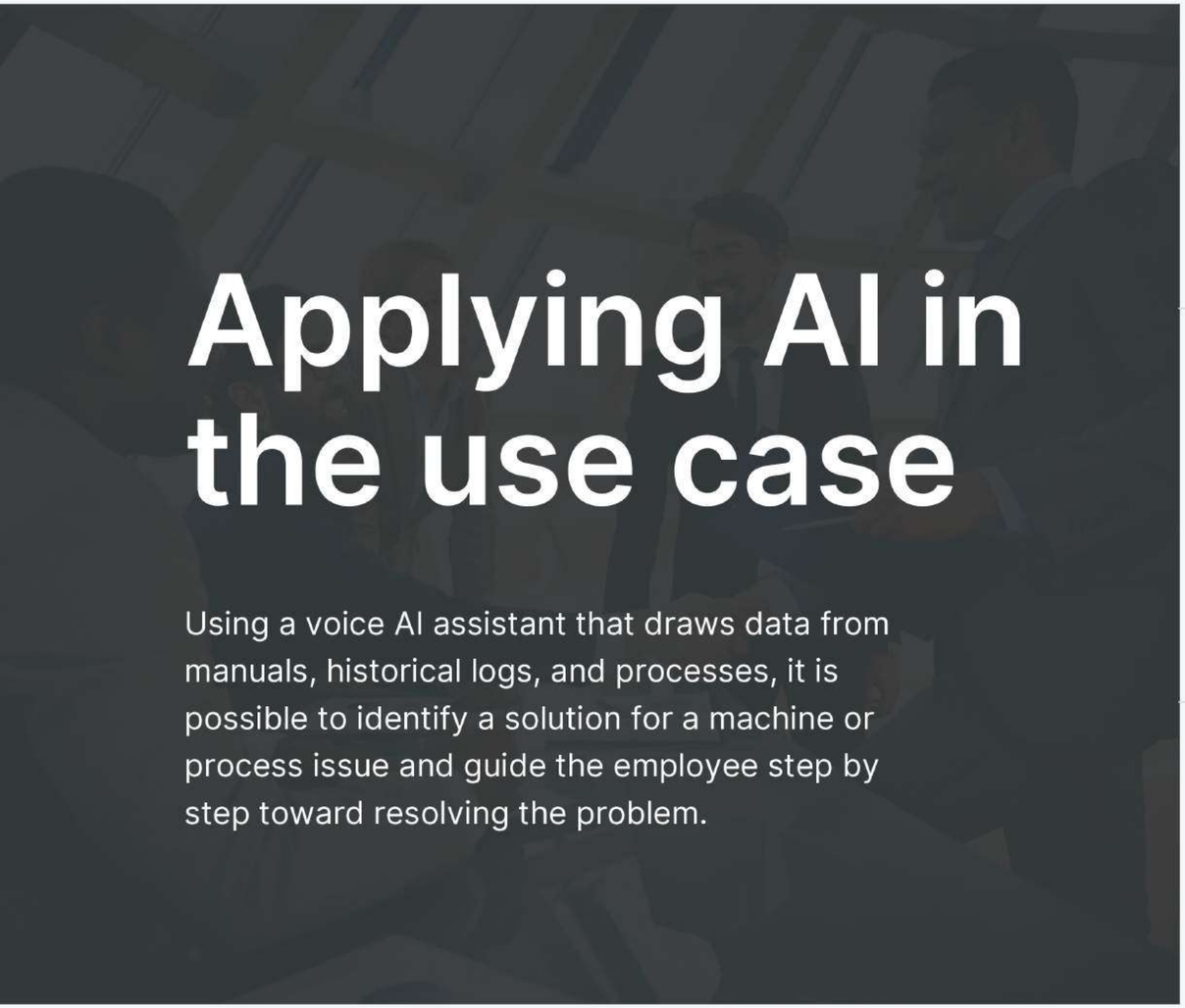
2-48

hours to resolution

30-50%

costs

Solution: Unexpected issue during a shift



Applying AI in the use case

Using a voice AI assistant that draws data from manuals, historical logs, and processes, it is possible to identify a solution for a machine or process issue and guide the employee step by step toward resolving the problem.

Identification using a QR code

Employees can ask questions and instantly receive voice-guided answers from a comprehensive FAQ database covering the most common issues and operational procedures.

Voice-activated problem reporting

The AI assistant analyzes the reported issue and immediately provides solutions for simpler problems, guiding the employee step by step through troubleshooting or maintenance procedures.

Augmented Reality (AR)

For more complex repairs or installations, AR visualizations provide step-by-step 3D instructions projected directly onto the actual machine, simplifying the process and reducing the risk of errors.

Case study: Machine inspections and maintenance

The shift supervisor performs routine inspections, or a technician repairs machines, tools, or adjusts procedures during or at the end of a shift. Currently, the process is not automated, leading to the following issues:

- **Demanding paper-based documentation**
- **High risk of human error**
- **Low motivation for innovation**
- **Loss of company know-how**
- **Challenges with new machines and training**

40-60

hours weekly

50-80%

costs

Solution: Machine inspections and maintenance

AI automatically generates **inspection forms** directly from machine manuals, ensuring all necessary checks are included. **Gamification** guides workers through the inspection process step by step.

Employees can document issues with **verbal descriptions** and supplement them with **photographic evidence**. This feature captures detailed and accurate records of the machine's condition during inspections. AI identifies gaps in the information and **suggests appropriate procedures**.

AI and digital tools enable the capture and preservation of **knowledge** and **best practices from experienced employees.** They provide a platform where workers can easily submit suggestions and feedback through voice or text input.

Case study: Technical documentation

Factory workers interact with technical documentations (CAD) on a daily basis, primarily in the following two scenarios:

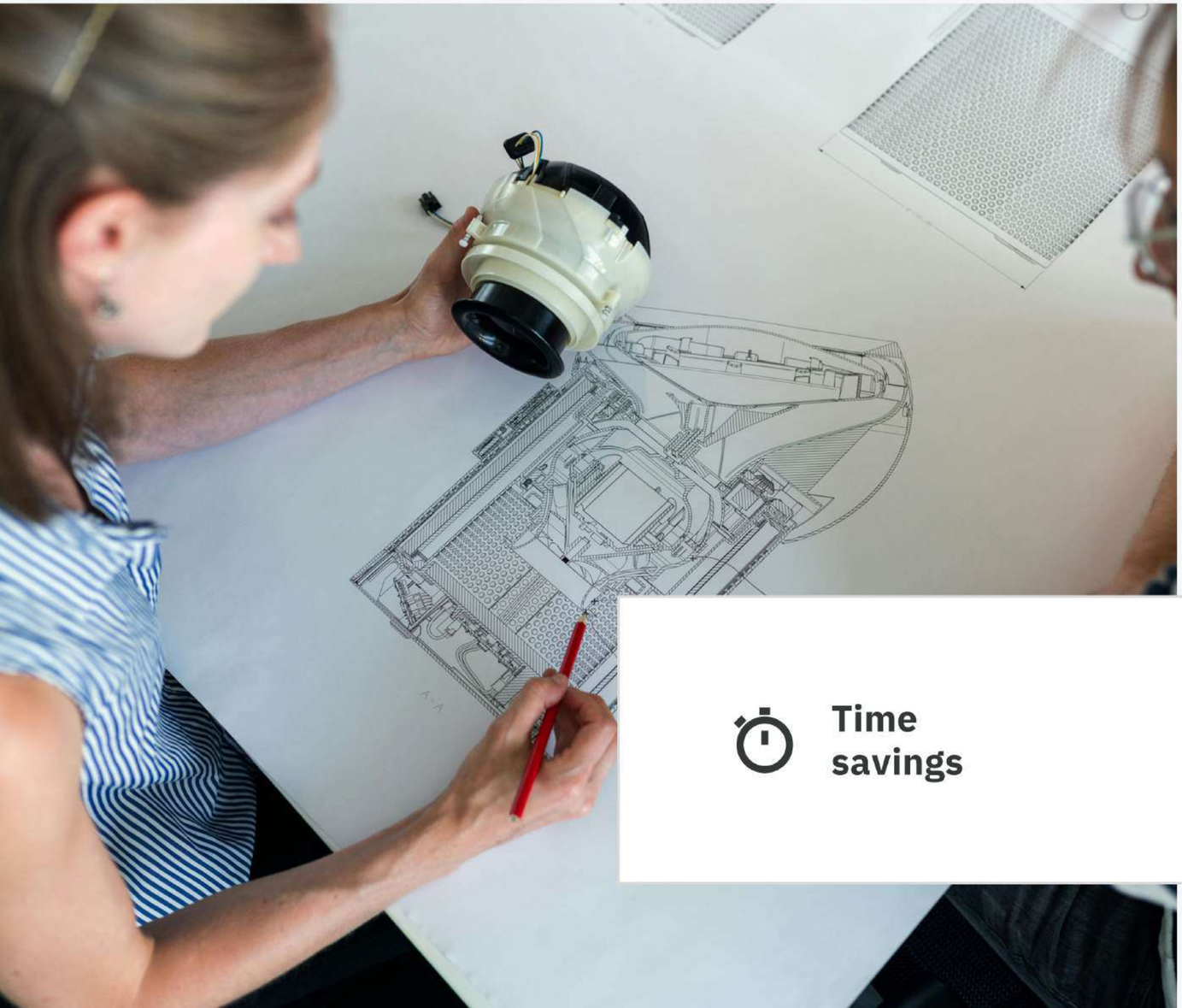
- **Cost estimation** - based on various parameters
- **Generation of technological workflows** based on specific parameters

Ideal for companies that manufacture a diverse range of products with high variability.

Current costs:

- From 2 to 40 hours to prepare a price proposal, depending on the expertise of a specialist, whose time is costly.
- From 40 hours to prepare technological workflows.

Solution: AI processing of technical documents



Extracting data from technical documentation tables with product manufacturing details and seamlessly integrating it with the client’s external systems, including material databases, pricing, and machine wear information.

Digitalization with the ability to update data from the bot and train the algorithm. Includes support for reading data from images.

Time savings

Data-driven decisions

Agile market response

Benefits in numbers

With our approach, companies not only save costs but also boost productivity and generate profit. On average, digitalization can **reduce costs** by **10%-50%** and **increase** profits by **up to 30%**.

Cost savings

A data-driven company makes informed business decisions, minimizes losses, and creates room for innovation.

Workforce optimization

By automating the workforce, it is possible to reduce the number of employees or assign them to more meaningful tasks.

Innovations

New resources are created that can be utilized for innovations in manufacturing, digitalization, and AI implementation.

WE BUILD LONG-TERM RELATIONSHIPS

OUR CLIENTS WHO USE AI

mecasys
Your needs. Our expertise.

Mubea

SICK
Sensor Intelligence.

MEDUNA
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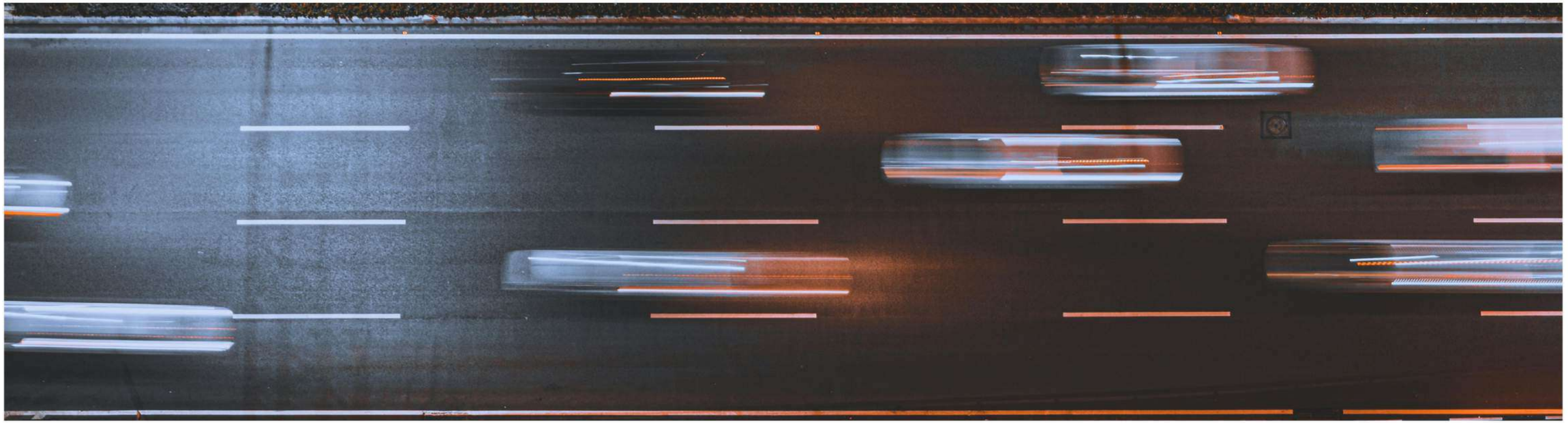

THANK YOU

We listen to our customers and strive to fully understand their goals.
Our innovation is driven by the ability to understand and adapt to their constantly evolving needs.

We embrace challenges and motivate each other to improve and achieve results.

Pulsar Solutions s. r. o.

Pulsar Solutions provides to you correct data in real time to do better and faster decisions

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