AIDAR

XR SOLUTIONS FOR THE AUTOMOTIVE INDUSTRY

WHO ARE WE?

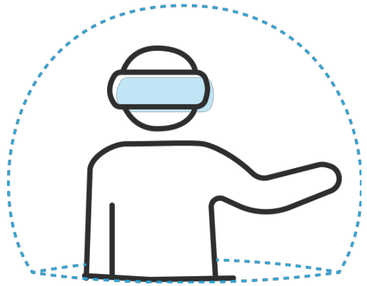
AIDAR

Ware the **leader in Poland of augmented (AR)** and virtual reality (VR) software solutions for the manufacturing industry used:

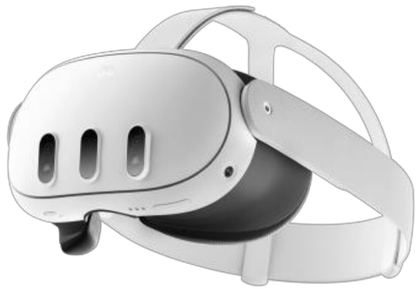
- ✓ to improve training
- ✓ for remote support

of service technicians and engineers

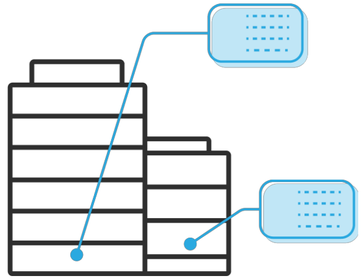
VR, AR, MR = XR (WHAT ARE THEY?)



Virtual Reality



Fully-immersive **digital** environment



Mixed Reality

Digital layer and 3D objects over physical elements

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XR IN THE PRODUCTION INDUSTRY

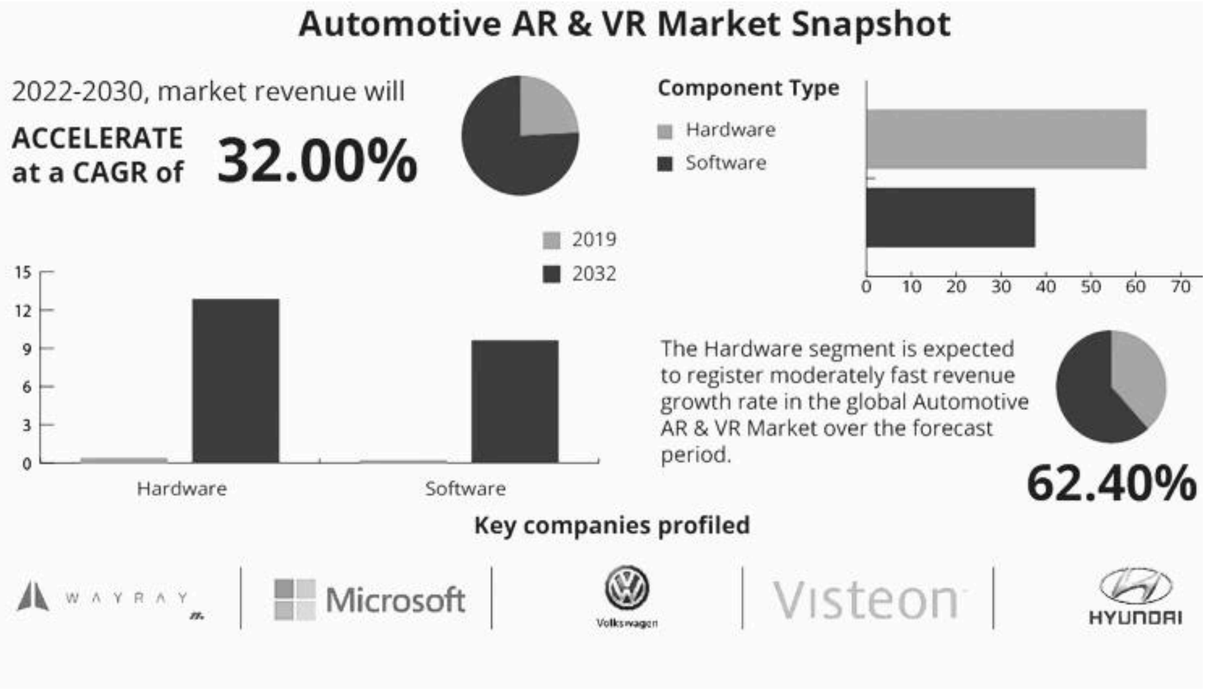
B2B MARKET ADOPTION OF **XR**

XR technologies has been **widely adopted by the business** customers in the recent years

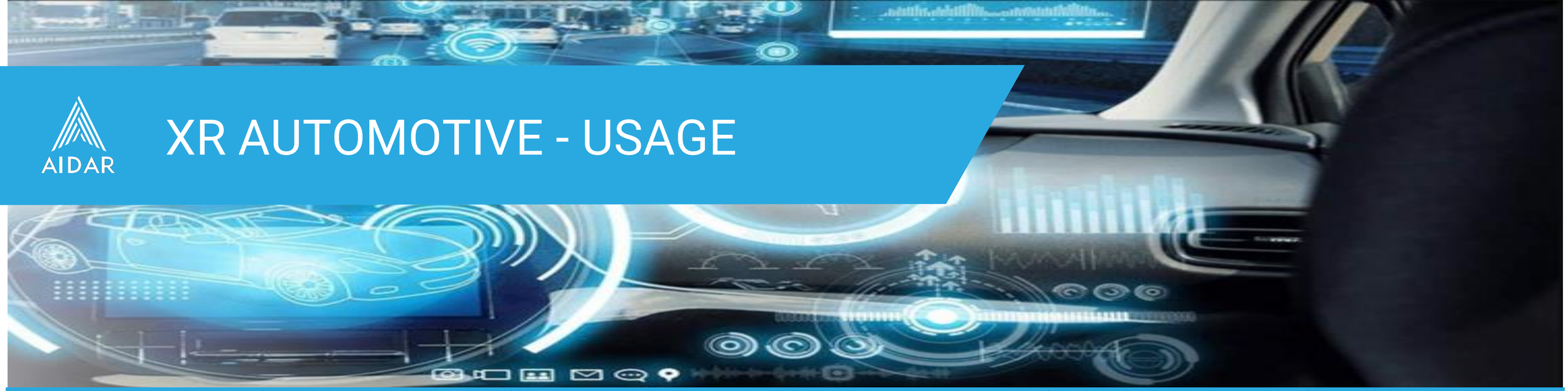
XR hardware is mature, the software is ready

TOP 3 dominators are: PRODUCTION INDUSTRY, HEALTHCARE, EDUCATION

AUTOMOTIVE is **an absolute XR TECH** adoption leader among the production industry



XR Automotive global market was valued at **USD 2263.1 million in 2022** and is expected to reach **USD 6481.9 million by 2030**, at a **CAGR** of 32 % during the forecast period. (2023 to 2032).



XR AUTOMOTIVE - USAGE

DRIVER EXPERIENCE

Infotainment and safety features in vehicles Connected cars provide XR applications with real-time data from the vehicle and its surroundings

XR plays a key role in the development and deployment of autonomous and semi-autonomous vehicles

Marketing & Sales

XR is used to create interactive and engaging marketing and sales experiences.

For example, AR is used to allow customers to visualize how a new product would look in their home or to take a virtual tour of a new car.

Manufacturing & Supply

XR is used to improve the efficiency and accuracy of manufacturing and supply chain operations.

For example, AR is used to provide workers with real-time instructions and guidance, or to visualize and simulate complex assemblies.

Research & Development

XR is used to accelerate the research and development process.

For example, AR is used to create virtual prototypes of new products or to test new designs in a virtual environment.

Aftermarket Service

XR is used to improve the efficiency and accuracy of aftermarket service operations.

For example, AR is used to provide technicians with real-time instructions and guidance, or to visualize and diagnose complex problems.

Support Functions & Training

AR/VR is used to improve the efficiency and effectiveness of support functions and training programs.

For example, AR is be used to provide employees with remote support or to train employees on new procedures.

KEY PLAYERS IN XR AUTOMOTIVE

The market is segmented by component, technology, application, vehicle type, and driving autonomy.

PLAYERS

- BOSH
- CONTINENTAL
- DENSO
- GARMIN
- GENERAL MOTORS
- HARMAN INTERNATIONAL
- HTC
- HYUNDAI MOTOR COMPANY
- JLR
- MERCEDES-BENZ
- MICROSOFT
- NIPPON SEIKI (EUROPE)
- NVIDIA
- PANASONIC
- UNITY
- VISTEON CORP
- VOLKSWAGEN GROUP

HARDWARE

- **Sensors:** Cameras, LiDAR, radar, ultrasonic sensors
- **Semiconductor Components:** CPUs, GPUs, FPGAs, ASICs
- **Displays and Projectors:** Head-up displays, head-mounted displays, projector and display walls
- **Position Trackers:** Optical tracking systems, inertial measurement units
- **Cameras:** Monocular cameras, stereo cameras
- **Others:** Microphones, speakers, haptic feedback devices

SOFTWARE

- **Software Development Kits (SDKs)**: AR/VR development platforms, tools, and libraries
- **Cloud Services**: Cloud-based rendering, streaming, and storage services

AR – BY DEVICE

- **Head-Mounted Display (HMD):** A wearable display that projects AR images directly into the user's field of view.
- **Head-Up Display (HUD):** A transparent display that projects AR images onto the windshield of a vehicle.
- **Handheld Device:** A mobile device, such as a smartphone or tablet, that is used to display AR images.

VR – BY DEVICE

- **Head-Mounted Display (HMD):** A wearable display that projects VR images directly into the user's field of view.
- **Gesture-Tracking Device**: A device that tracks the user's hand and body movements and uses them to interact with VR objects.
- **Projector & Display Wall**: A projector or display wall that is used to create a large-scale VR environment.

REGULATIONS - INDUSTRIAL META VERSE

- https://digital-strategy.ec.europa.eu
- Metaverse officially recognized by EU as an important trend for EU residents - 09.2022
- "EU initiative on virtual worlds" - **EU funds for each EU country for deployments in business and societies for 2024-2030 (from a pool of €95 billion)** - goal: to reduce the gap between the EU and America and Asia
- AIDAR we represent Poland in the VRAR Industrial Coalition under the European Commission for Virtual Worlds - 60 companies, corporations and unions

AIDAR

OUR APPROACH

AIDAR

THE HOLISTIC **APPROACH**

We help to solve operational challenges and improving performance of enterprises by using our mixed reality technology platform - AIDAR

360 VIDEOS AND WALKS

We create promotional and instructional materials for innovative companies.

VR TRAINING

We effectively train employees using VR/AR solutions.

AR REMOTE SUPPORT

We accelerate operations and services by transferring expertise to remote locations thanks to AR technology.

COST CUTTING

We reduce training and travel costs and improve safety, thus streamlining business operations

AIDAR

THE PRODUCT

PROBLEMS → **SOLUTIONS**

PROBLEM

Lack of effective and accessible training tools for employees in the industrial sector, especially in the case of new factories or difficulties in hiring appropriately qualified trainers.

Lack of an integrated solution for support service/repair of production equipment combing AR/VR, IoT, AI and remote call utilizing Cloud or Edge computing power.

SOLUTION

AIDAR.Skills – VR Editor, E-learning, Player

Utilizing innovative technologies such as Virtual Reality (VR), Augmented Reality (AR) to deliver flexible and effective training tools for employees.

AIDAR.Service – Remote support, Step-by-Step Tutorials

Build a knowledge base of step-by-step tutorials, which can be used in VR (training) and AR (service). Connect to remote experts in seconds, having free hands.

AIDAR combines **both** solutions in **one** ecosystem: **AIDAR SYNERGY**

Open platform, **XR hardware agnostic (is based on Unity)**, multilanguage supporting

THE PLATFORM

AIDAR 1.0

SKILLS
(VR/AR)

SERVICE
(AR)

MIXED REALITY-LEARNING
SaaS, On Premise, Web-browser,Desktop

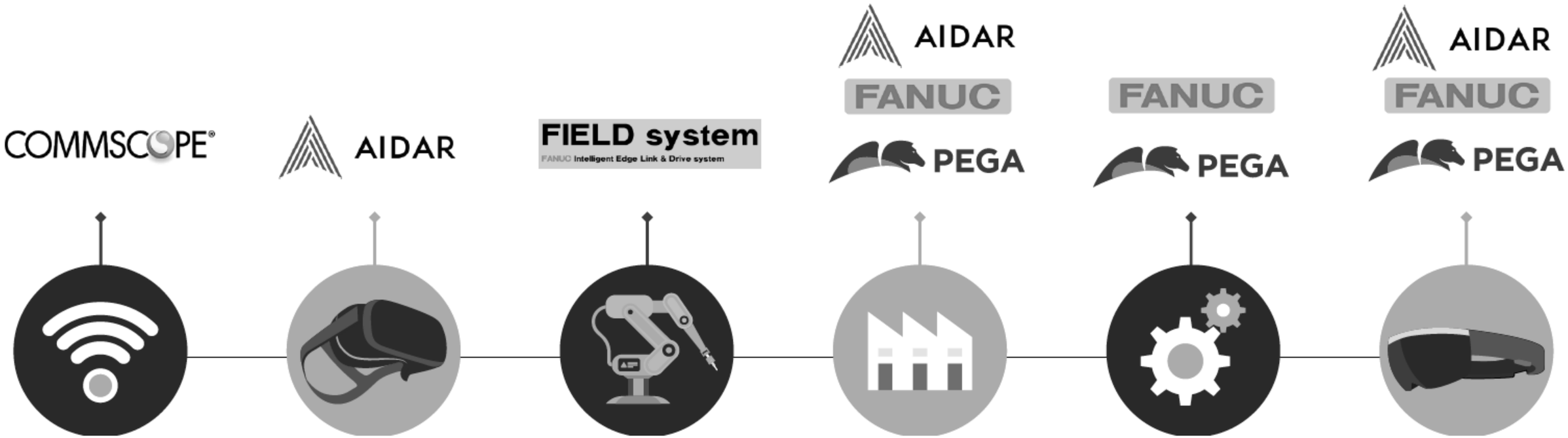
AIDAR 2.0

CONNECTORS (IIoT)

AIDAR 3.0

BRAINS (AI & ML)

INDUSTRIAL METAVERSE – CONNECTED FACTORY



IT INFRASTRUCTURE (WI-FI 6, 5G)

DIGITAL TWINS. VR TRAININGS

ROBOTS CONTROLS SYSTEM

INDUSTRIAL IOT

PROCESSES MANAGMENT

REMOTE MAITENANCE

Hardware Vendor Agnostic

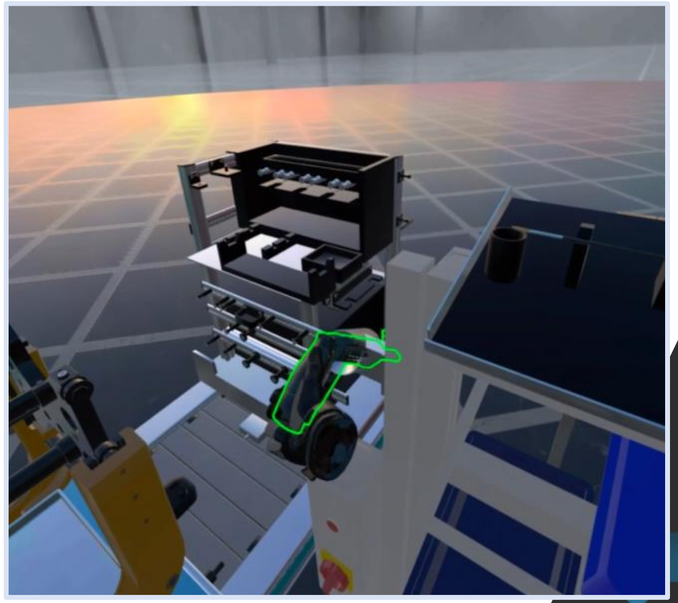
AR/MR Headset

XR – Headsets (PASSTHROUGH)

Smartphones and Tablets

AIDAR.SKILLS – **NO-CODE EDITOR**

Building atomic action training in a no-code-fdevelopment tool to provide employees with flexible and effective training tools.



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WHY DOES **VR WORK**?

4x faster **LEARNING**

Employees learn faster than in the classroom.

4x more **FOCUS**

VR / AR trainees are more focused than their e-learning peers.

4x more **EMOTION**

VR / AR trainees are more emotionally connected to training content than classroom learners.

4x more **CONFIDENCE**

VR / AR trainees are more confident to act on what they learned after training. Muscle memory effect.

SOURCE: PWC STUDY 2020 https://www.pwc.com/us/en/tech-effect/emerging-tech/virtual-reality-study.html

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BUSINESS **OUTCOMES** OF **AR**

75% FASTER

Manufacturing organizations that have deployed mixed reality solutions have reduced training time by 75%!

30 $ LESS /HOUR

Time reduction led to an average savings of $30 per labour hour.

SOURCE: MICROSOFT REPORT 2021
https://tools.totaleconomicimpact.com/go/microsoft/HoloLens2/

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GLOBALS - DELIVERING **RESULTS**

L'ORÉAL

50% LESS
SERVICE TIME

Time spent on diagnostics and resolving issues has been cut in half! This has led to lower operational costs.

EATON

5 MTHS
ROI

Saved hundreds of thousands of dollars on travel-related expenses and was able to pay-off its mixed reality investment within 5 months only!

TOYOTA

20% LESS
INSPECTION TIME

Since deploying mixed reality solutions on HoloLens 2, Toyota has reduced inspection time by 20%.

SOURCE: MICROSOFT REPORT 2021 https://tools.totaleconomicimpact.com/go/microsoft/HoloLens2/

AIDAR

THEY **TRUSTED** US!

So far 14 Customers in 5 countries **TRUSTED** us.

Mercedes-Benz

FANUC

COMMSCOPE® now meets next

WOLF

citi

Provectus smart solutions

SIEMENS Healthineers

CP CANPACK

ABB

meddo+

THE ORIGINAL OATLY!

NTT Group

thyssenkrupp

AIDAR

Mercedes-Benz

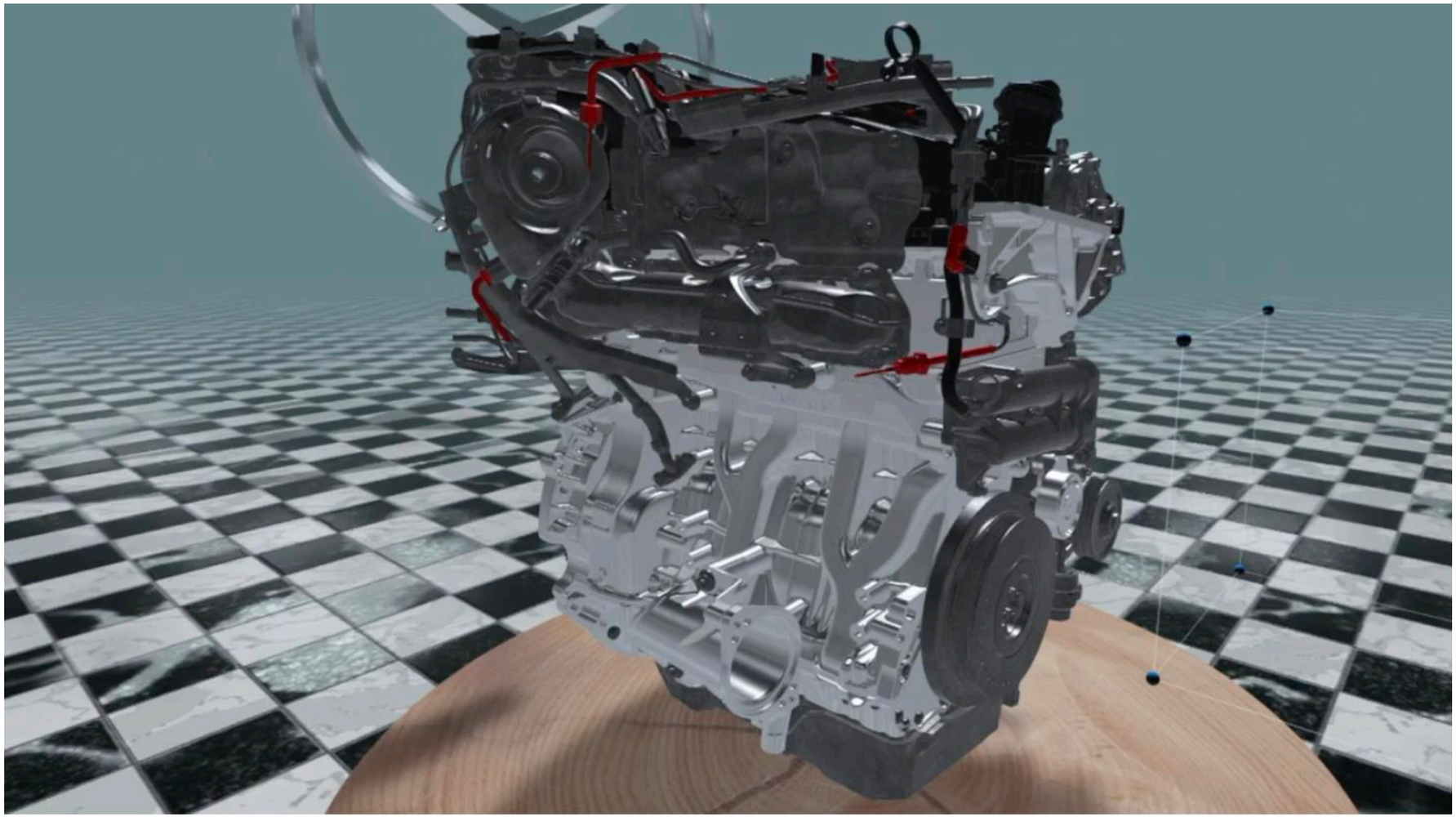
THE CUSTOMER CASE

IMMERSIVE EXPERIENCE - DAIMLER

Example

Introducing engine assembly workers to VR technology, which they will use in the training sessions

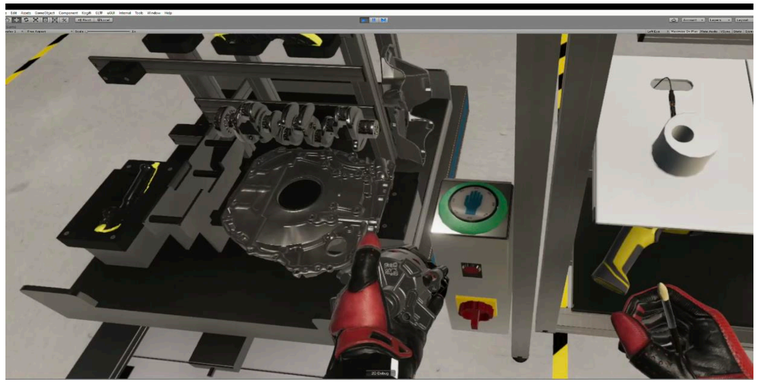
play the video



AIDAR

Mercedes-Benz

THEY **TRUSTED** US!



- ✓ This is one of the most modern factories around the world and a reference for the entire corporation globally.
- ✓ We transferred **the entire car engine to VR** and thus enable employees to learn about the next stages of its assembly
- ✓ We created virtual training stations, transferring all the required assembly stations and tools used for engine production to VR virtual reality.
- ✓ For the implementation, we used our AIDAR.SKILLS platform, which serves as a knowledge and training management system.

> Mercedes-Benz is starting to use groundbreaking AIDAR solutions in our newest, ultra-modern and referential for the entire Daimler global concern factory in Jawor near Wroclaw.
>
> AIDAR is implemented in the process of virtual activation of factory workers to improve assembly times and quality. Training with the use of virtual reality (VR) glasses not only facilitates the acquisition of practical skills, but also gives our engineers, who as a result of accident become disabled, a chance to fully participate in their work, lead and manage teams on-site, integrate with colleagues and became valuable teammate.

Thomas Kaiser
Mercedes Benz Manufacturing Poland
GM Production

Solution at MBMP - AIDAR (110 stations and training in VR)

Training before the parts arrive at the factory - workers are already ready for assembly

AIDAR- No-code training development tool for production customers.

Results – the cost of assembly workers drop-down

40% Decrease in the number of assembly errors

30% Material consumption

AIDAR.SKILLS **LEARNING PROCESS**

AIDAR: THE HUMAN-DIGITAL TWIN IN DAIMLER FACTORY

- ✓ Self learning Process:
  - ✓ 1) Demo by the Aidar system
  - ✓ 2) Guided Learning
  - ✓ 3) Tests
- ✓ 20-minute sessions 2-3 x per week
- ✓ Multilingual
- ✓ Multiclass

DELIVERING **RESULTS**

Mercedes-Benz

Mercedes-Benz Printed Magazine for dealer's stores 05/2020

> – The first results reports show that the effectiveness of training has increased by **up to 40%.** Virtual versions of training are also perceived better and people like them, emphasizes Thomas Kaiser.

Thomas Kaiser
Mercedes Benz Manufacturing Poland, GM Production

PROGRAM **PARTNERSHIPS**

We also educate and support young people

Mercedes Girls Go Technology Academy
- with Siemens & Aidar & Randstad

#Inżynierki4.0 - SIEMENS for women in engineering (STEM)

Accessibility Plus – supporting disabled people with newest technologies

More on
https://aidarsolutions.com/blog/
YouTube channel of Mercedes
https://www.youtube.com/watch?v=_symmZ3ExXI

Mercedes-Benz

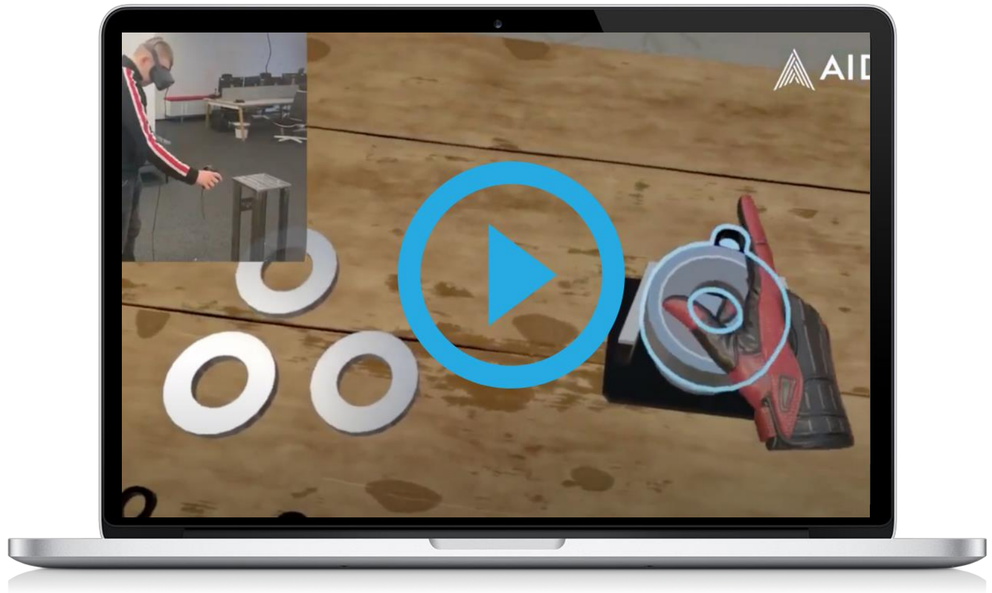
AIDAR

HOW DOES AIDAR WORK?

GET TO KNOW **AIDAR SKILLS**

play the video

HOW DOES IT **WORK?**



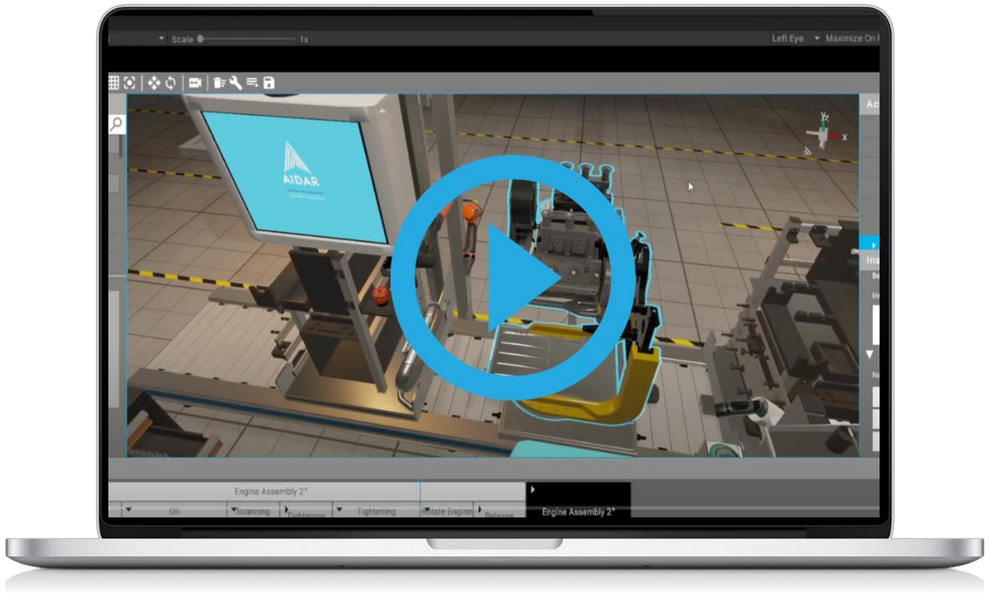
STEP 1:

We create a digital twin of the machine in virtual reality. PLAY

STEP 2:

This VR station becomes a training site that can be simultaneously used by as many trainees wearing VR glasses as we need. PLAY

HOW DOES IT **WORK? - example**



CONTENT EDITOR - STEP 1:

We create a digital twin of the machine in virtual reality. PLAY

VR LESSON – STEP 2:

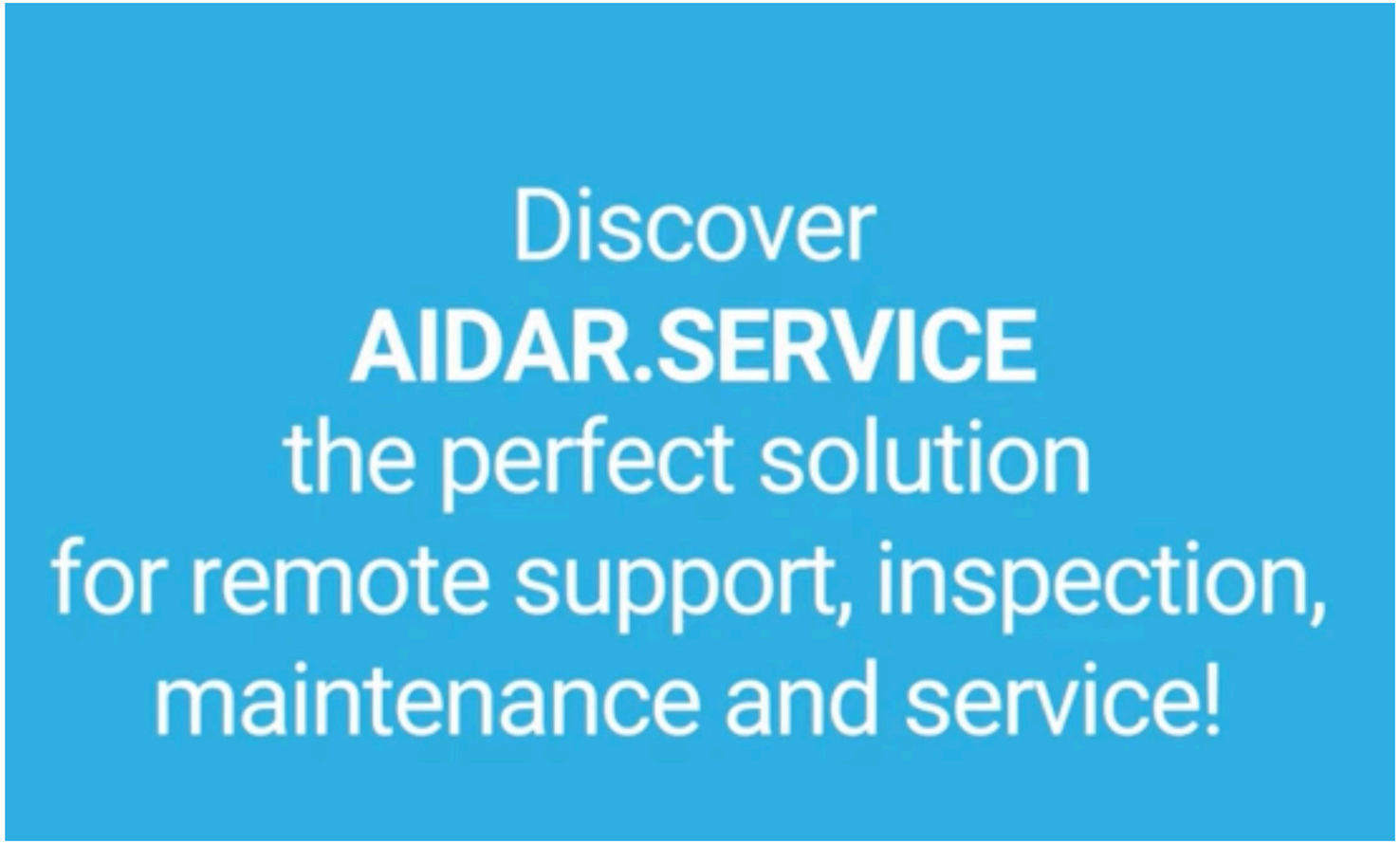
This VR station becomes a training site that can be simultaneously used by as many trainees wearing VR glasses as we need. PLAY

AIDAR. SERVICE: THE REMOTE SUPPORT FOR SERVICE

Audio, Video, Free Hands Connection with an expert, which can be in front of web browser

AR **REMOTE SERVICE**

play the video

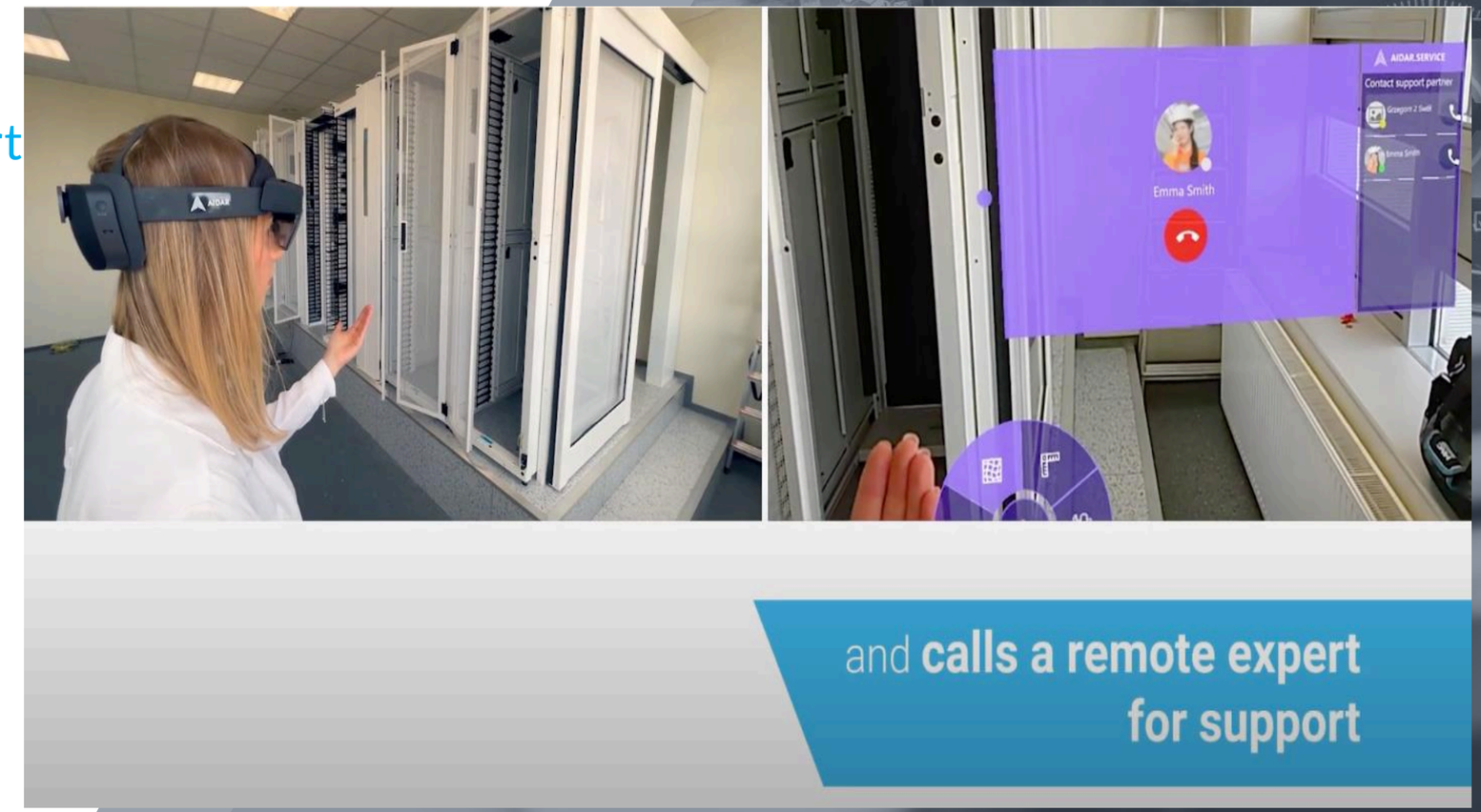


CONNECTION WITH **A REMOTE EXPERT**

Example 1

Remote service support in data center

play the video



MIXED REALITY – THYSSEN KRUPP

Example 2

Remote service of a valve

play the video

AIDAR

ABOUT US

SHORTLY

Our Story

Aidar emerged in 2020 from Wroclaw-based Kogifi Digital company as a technology firm specializing in the development of VR /AR software for knowledge transfer and remote service. From the beginning, Aidar’s business approach was strongly based on the commercial reality of manufacturing enterprises.

Its founding partners, Przemyslaw Maliszewski and Marek Czarzbon focused on building the platform with European clients and partners in mind, and they quickly added market-leading manufacturers to the portfolio.

RECOGNITON –DEC ’22– **LEADER** for the manufacturing industry in PL

AIDAR

…w produkcji

W przemyśle motoryzacyjnym rozwój i zastosowanie nowych technologii jest kluczowym czynnikiem sukcesu na coraz bardziej konkurencyjnym rynku, który wymaga szybszego wprowadzania produktów do sprzedaży i coraz wyższej jakości produktów. **Dziś rozwiązania VR są już standardem w procesie produkcyjnym, a wirtualna rzeczywistość od wielu lat napędza branżę motoryzacyjną. Wykorzystywana już od dawna przez duże firmy, takie jak Daimler, BMW, Seat, Ford, Kia, Hyundai, Volkswagen, Renault, a nawet McLaren czy Bugatti,** pozwala producentom rozwinąć kreatywność, obniżyć globalne koszty i zredukować czas produkcji nowych pojazdów. Koncepcja samochodu, szkolenie pracowników, marketing i sprzedaż, to wszystko wymaga czasu i pieniędzy, a wirtualna rzeczywistość oferuje wiele nowoczesnych rozwiązań i zastosowań dla przemysłu motoryzacyjnego, które są szybsze w realizacji, tańsze w produkcji i bardziej efektywne od tradycyjnych.

Doskonałym przykładem wykorzystania potencjału HTC Vive Pro w szkoleniach może być pierwsza w Polsce fabryka silników i baterii do samochodów elektrycznych Mercedes-Benz w dolnośląskiej gminie Jawor. Projekt stworzyła polska firma Aidar, która przeniosła 2,5 tys. elementów silnika do wirtualnej rzeczywistości, tworząc ich wierne cyfrowe kopie – tzw. cyfrowe bliźniaki aby szkolić przyszłych specjalistów odpowiedzialnych za jego składanie. Każdy element jest dokładnie odwzorowany w VR, łącznie z kolorem i numerem katalogowym.

Dodatkowo odtworzono 110 wirtualnych stacji roboczych, za pomocą których koncern mógł prowadzić skuteczne szkolenia pracowników jeszcze w czasie budowy nowej fabryki. Zakład Daimlera w Jaworznie korzysta z urządzeń HTC Vive Pro do dziś i rezultaty mówią same za siebie. Dzięki treningom w VR nowi pracownicy nie blokują linii produkcyjnych, nie są narażeni na stres, program szkoleń kończą szybciej i nie narażają pracodawcy na uszkodzenia części silnika lub narzędzi, z których niektóre kosztują nawet kilkanaście tysięcy euro.

REASONS TO **WORK WITH US**

AIDAR.SKILLS and AIDAR.SERVICE solutions can solve your company's operational problems and can improve outdated, costly processes with new technologies.

EMPLOYEE TRAINING + REMOTE SUPPORT

We deliver SaaS and On-Premise solutions that are tailor-made for your business needs.

Our solution architects provide the highest quality expertise and action plans to resolve challenges your company encounters.

We advise which tool is best for your present needs and offer compatible and complementary solutions to upgrade in the future.

We effectively train employees by using VR/AR solutions.

We speed-up operations and service by transferring expert knowledge to distant places with AR technology.

We cut training and travel costs thus improving business operations.

AIDAR

SO...

HOW CAN WE ELEVATE **YOUR** BUSSINESS?

AIDAR

GETTING YOUR JOB DONE

QUESTIONS?

DO NOT HESITATE TO CONTACT US!

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