



FINNISH
INDUSTRIAL
INTERNET
FORUM

PDSVISION – FEBRUARY 2025

DIGITAL WORK INSTRUCTIONS WITH PTC INDUSTRIAL AUGMENTED REALITY SOLUTIONS

FIIF Event: Industrial Metaverse (Feb 6, 2025)

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ABOUT ME

Juha Kanto

Sales Executive

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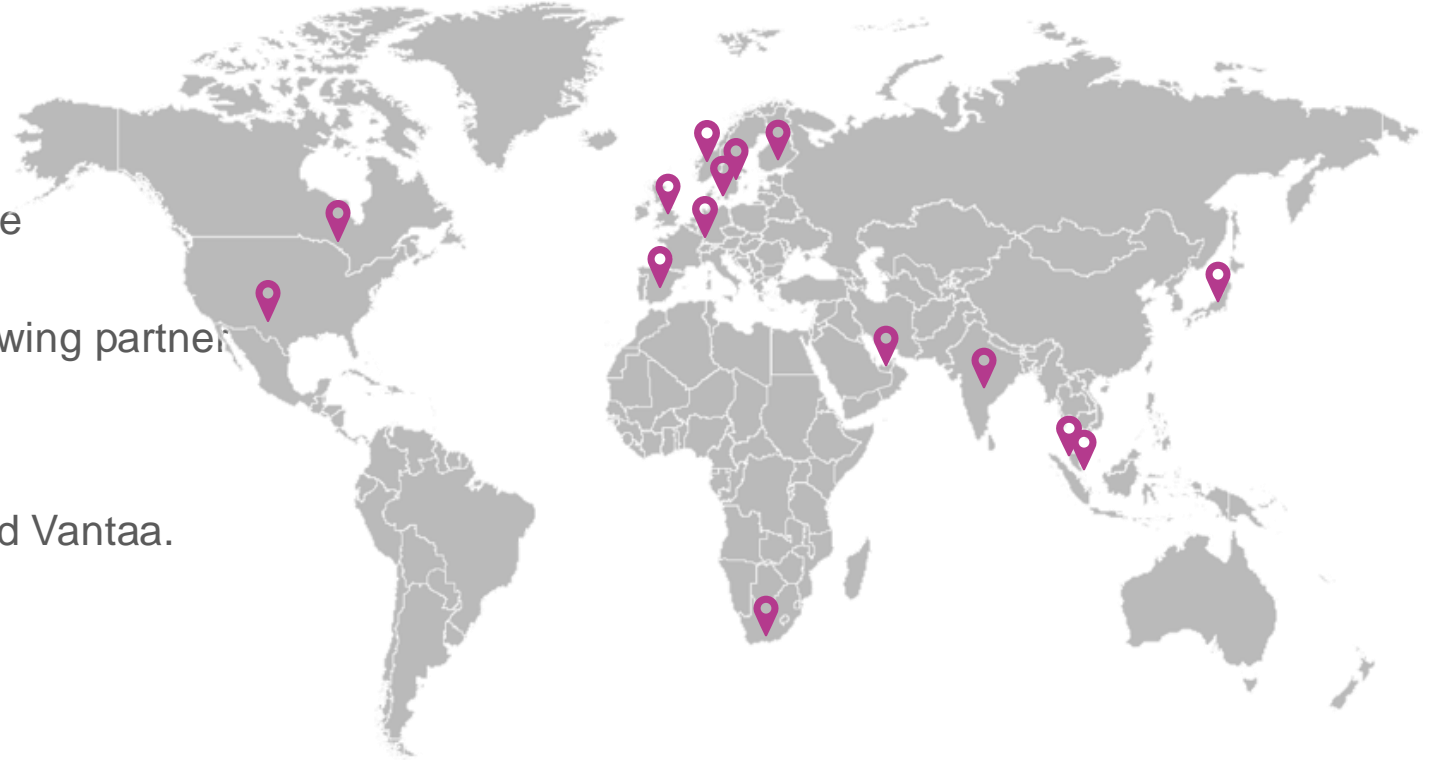
juha.kanto@pdsvision.com |  juha-kanto

- Over 30 years of experience on Industrial Digital Solutions
- Started my career as a technical expert with PTC Pro/ENGINEER software in 1992.
- Since then, I have worked in various expert positions, consulting, sales and business development positions in international organizations, mainly in the CAD and PLM areas.
- In addition to PTC solutions, I have 20+ years of experience with Autodesk and Dassault Systemes solutions.



PDSVISION

- Leading solution provider of product design, systems engineering, simulation & product lifecycle management software and services
- Trusted advisor to midsize and large enterprise customers across a global marketplace
- Worlds largest partner of PTC and rapidly growing partner of ANSYS
- Headquarter in Stockholm, Sweden
- PDSVISION in Finland located in Tampere and Vantaa.



150

MEUR Net Sales

4k+

Customers

2.5k+

Years of experience

480

Employees

15

Countries

PDSVISION DIGITAL TRANSFORMATION SOLUTION SUITE



CAD

DIGITAL
Defines
PHYSICAL



ALM

DIGITAL
Controls
PHYSICAL



Sustainability

DIGITAL
Trails
PHYSICAL



Simulation

DIGITAL
Simulates
PHYSICAL



Collaborate

DIGITAL
Connects
PEOPLE

Engineering Excellence

Customer Operations

Supply Chain

Manufacturing Efficiency

Service Optimization



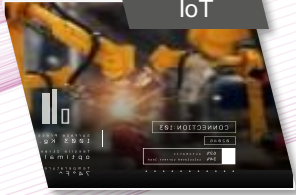
SLM

DIGITAL
Sustains
PHYSICAL



PLM

DIGITAL
Manages
PHYSICAL



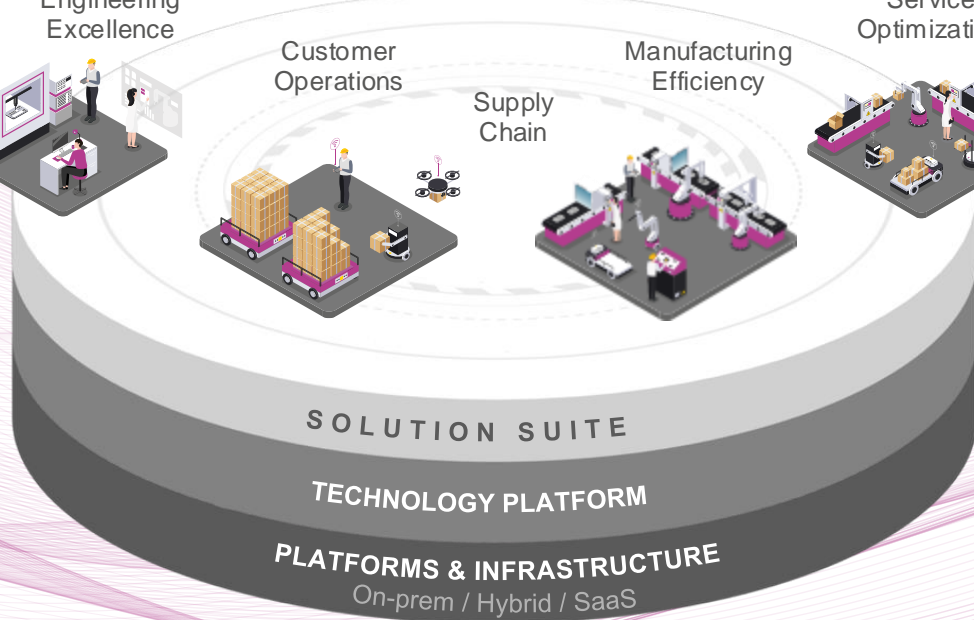
IoT

DIGITAL
Connects
PHYSICAL



AR

DIGITAL
Augments
PHYSICAL



GLOBAL CHALLENGES AND TRENDS IN THE INDUSTRY



GROWING INDUSTRIAL SKILLS GAP

There is a skills gap in the manufacturing industry that may leave 2.1m positions unfilled by 2030 in the US alone.



**KNOWLEDGE
RETIRES WITH AN
AGING
WORKFORCE**

25% of manufacturing workers are aged 55 or over. Capturing and documenting their knowledge and domain expertise is time consuming but critical.



**HIGH WORKFORCE
ATTRITION RATES
INCREASE TRAINING
COST**

High attrition rates like never before **with up to 40% in manufacturing** show the importance of onboarding, training, and retention activities.



**LEARNING NEW
PRODUCTS AND
PROCESSES STEALS
PRODUCTIVE TIME**

Learning how to assemble, operate and service products with traditional tools like paper-based handbooks and instructions leads to **long onboarding and training times.**

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UNDERSERVED FRONTLINE WORKERS

75-80% of the global workforce is deskless, but only 1% of software funding goes towards serving them.



INCREASING SKILLS GAP IMPACTS WORKFORCE EFFICIENCY

Products and processes are getting increasingly complex while training and familiarization are inefficient. **77% of frontline** workers say that they **do not have the right tools** to be more productive.



LIMITED ACCESS TO KNOWLEDGE AND WRONG TOOLS CAUSE DOWNTIME

Knowledge is often not available where it is needed, when it is needed. Experts must travel to support teams on-site which **causes massive downtime.**



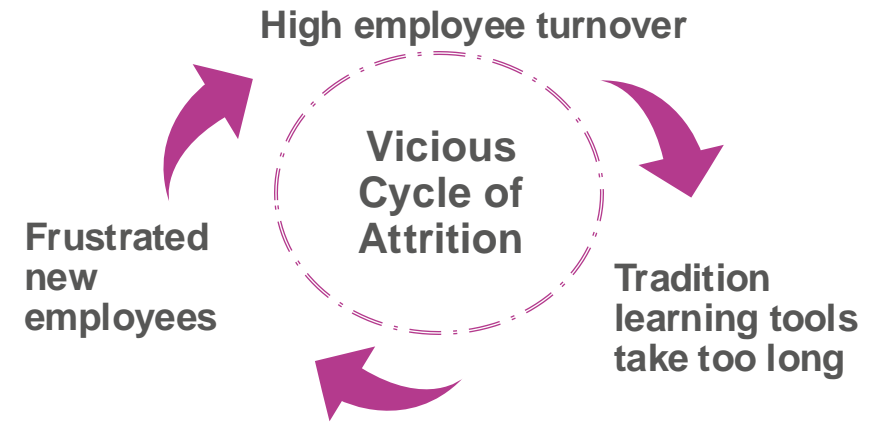
OUTDATED TOOLS AND PROCESSES REDUCE PRODUCTIVITY

The current processes to create and document instructions and knowledge are **cumbersome, slow, and often inaccurate**

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WHAT IS HURTING MANUFACTURERS THE MOST?



High attrition rates and **slow onboarding** are leaving manufacturers with **hiring gaps** that lead to **costly downtimes**

- In demand low skilled workers are leapfrogging employment to find comfortable work
- Traditional methods take too long to onboard new employees. Leaving the employee frustrated and employer in minus with time to effectiveness
- Workers have changed in the way they want to learn and work. They want to be shown and told how to do tasks with modern tools.

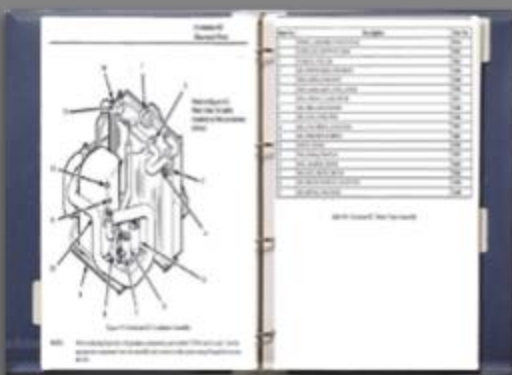


SEASONED EXPERTS ARE THE LAST STAND...

...but many experts are nearing retirement - with 25% of manufacturing workers are aged 55 or over

Long term field experts are the best hope for training new employees quickly, however:

- Every time an experienced worker shadow trains a new employee, they are less effective
- Experienced workers are getting dissatisfied and leaving because they want to work, not train
- When the experienced worker goes, the knowledge is gone forever



WHY TRADITIONAL METHODS JUST DON'T CUT IT

Learning how to assemble, operate and service products with traditional tools like paper-based handbooks and instructions leads to **long onboarding and training times**.

The 5 M's

1. **Manuals** – printed manuals are usually hard to find, hard to understand (2d is not in context) and the information is often completely outdated. If nobody reads them – there is no value.
2. **Mentors** – it is super effective to shadow an expert, but the more time an expert spends showing others what to do is more time that your most effective workers are not working
3. **Mistakes** - traditional methods do not help to prevent scrap and rework nor they actively prevent people from getting hurt on the job.
4. **Memory** - learn once and remember forever is not realistic
5. **Metrics/Monitoring** - it's hard to measure the speed at which people are becoming production ready. Time on productivity. Measure scrap

Impact: Higher Cost and Lower Output

VALUABLE RESOURCES ARE UNDERSERVED

A Forrester study found that only **77% of frontline workers** say they don't have access to the technology they **need to be productive.**



A hand wearing a grey work glove holds a tablet. The tablet screen shows an AR application. A blue semi-transparent box with the number '4' is overlaid on a mechanical part (a gear housing) on a workbench. An orange arrow points to a specific feature on the part. A green arrow on the right side of the screen indicates a navigation or next step function. The background shows a workshop environment with various mechanical components and tools.

NEW OPPORTUNITY: DIGITAL WORK INSTRUCTIONS USING INDUSTRIAL AUGMENTED REALITY

DIGITAL WORK INSTRUCTIONS

From traditional methods

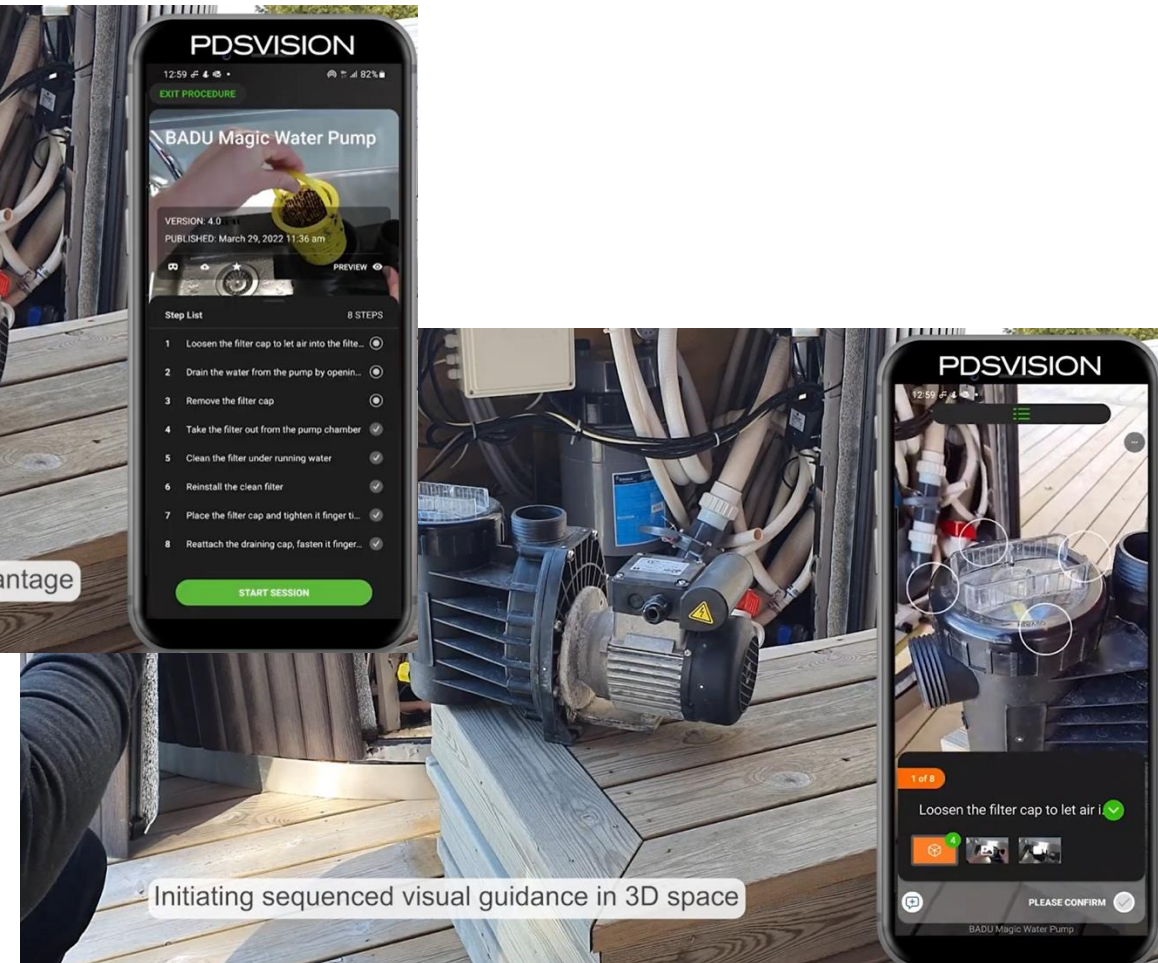


To digital at the frontline



Demonstrated using a mobile smartphone and Vuforia Vantage

Digital Work instructions allow companies to reduce cost and safety risks, while simultaneously increasing workforce efficiency and the ability to capture essential knowledge.



Initiating sequenced visual guidance in 3D space

VIRTUAL REALITY VS. AUGMENTED OR MIXED REALITY



- A Virtual Reality experience creates background and all the objects in a digital world.
- All is digital

- An Augmented Reality experience adds digital objects to your Real world



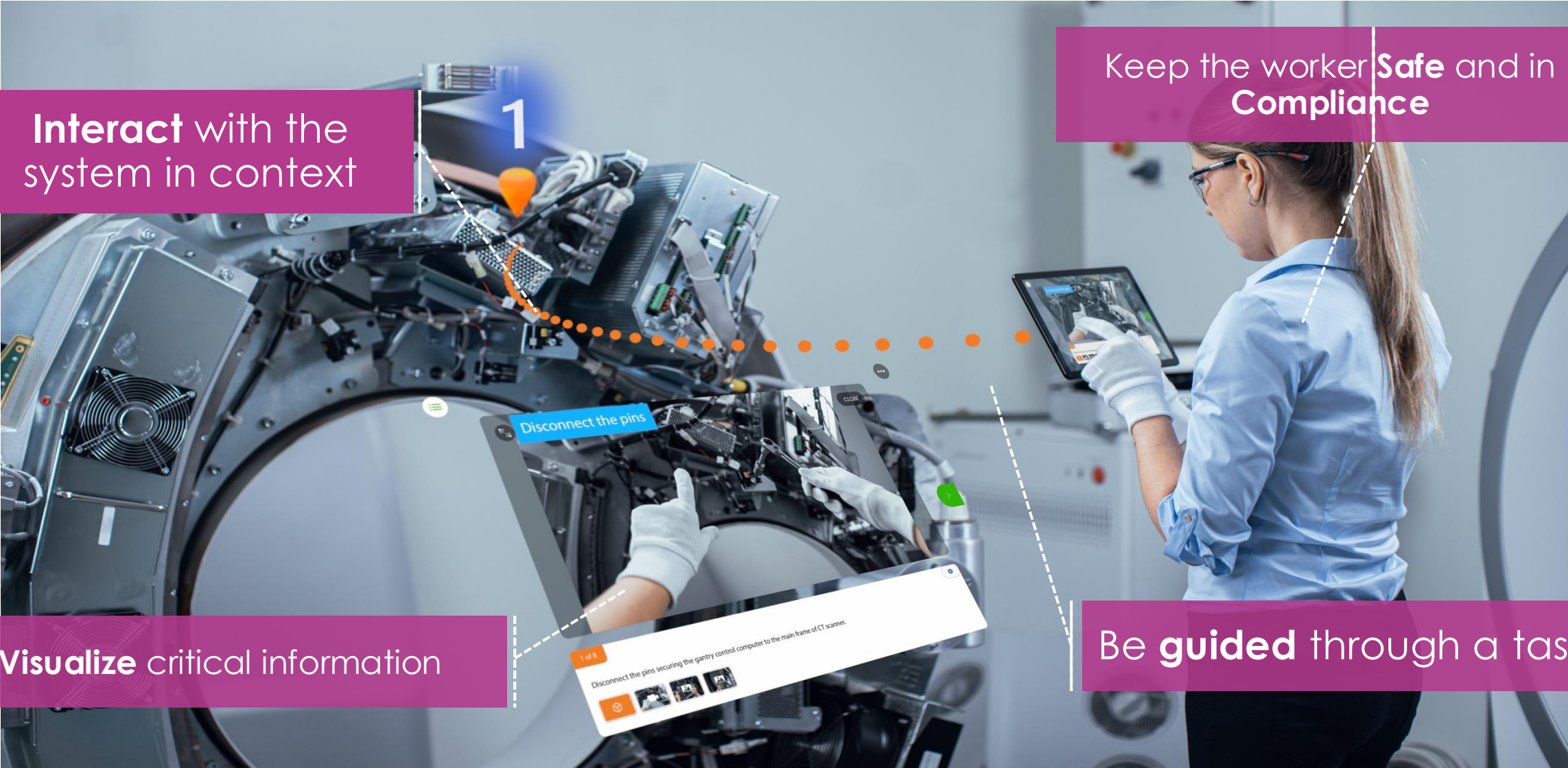
Which one is more suitable for industrial workers?

Machine cannot be built or maintained virtually!

AR IS CONNECTING WORKERS WITH PHYSICAL

Interact with the system in context

Keep the worker **Safe** and in **Compliance**



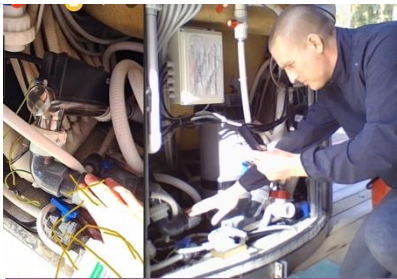
Visualize critical information

Be **guided** through a task

PTC VUFORIA AUGMENTED REALITY SOLUTIONS



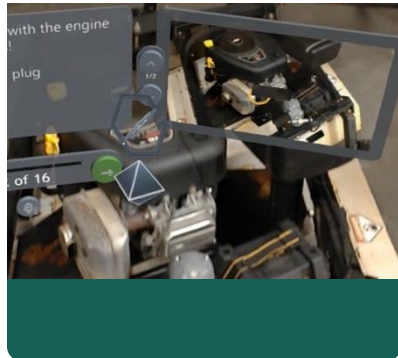
- Vuforia provides the fastest, easiest and most advanced AR content development solutions to help industrial enterprise customers address workforce challenges and meet their business goals.



vuforia® chalk™

For Remote Assistance

- Allows you to “see what I see” and annotate in a shared workspace



vuforia® expert capture™

For Workforce Productivity

- Rapidly capture, transfer and scale 1st person perspective expert knowledge



vuforia® studio™

For AR Content Creators

- Powerful AR content creation and publishing platform combining PLM, CAD, enterprise system data, and IoT



vuforia® engine

For Branded AR Experiences

- Powerful AR content creation and publishing for product demonstrations, brand campaigns and brand applications.

VUFORIA EXPERT CAPTURE

Easily create, deliver, and scale AR work instructions



vuforia™

- **Capture and Scale** domain expertise on-the-job to improve knowledge transfer
- **Leverage** new and existing video captures and CAD data to author AR instructions
- **Create AI-enhanced** automated visual inspection procedures
- Easy to deploy - Out of the box – SaaS solution



WHAT MAKES VUFORIA EXPERT CAPTURE DIFFERENT?

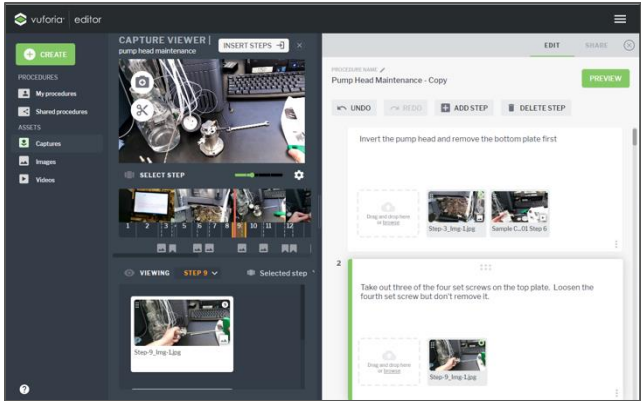
SaaS AR Solution



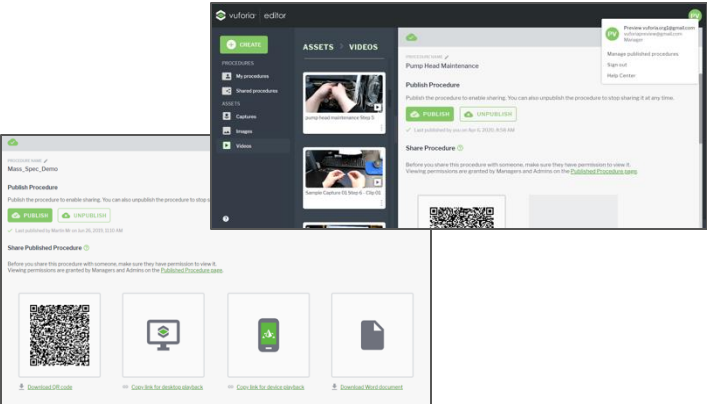
Fast, Handsfree, In-Situ Expertise Capture



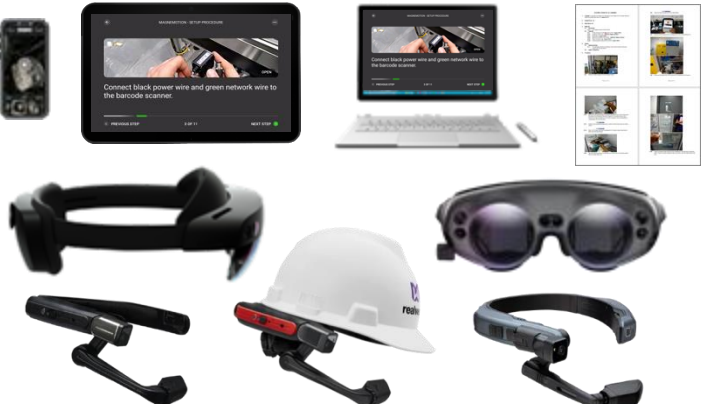
Easy, Fast & Powerful Editing



Distribution, Access Control & Compliance at Scale

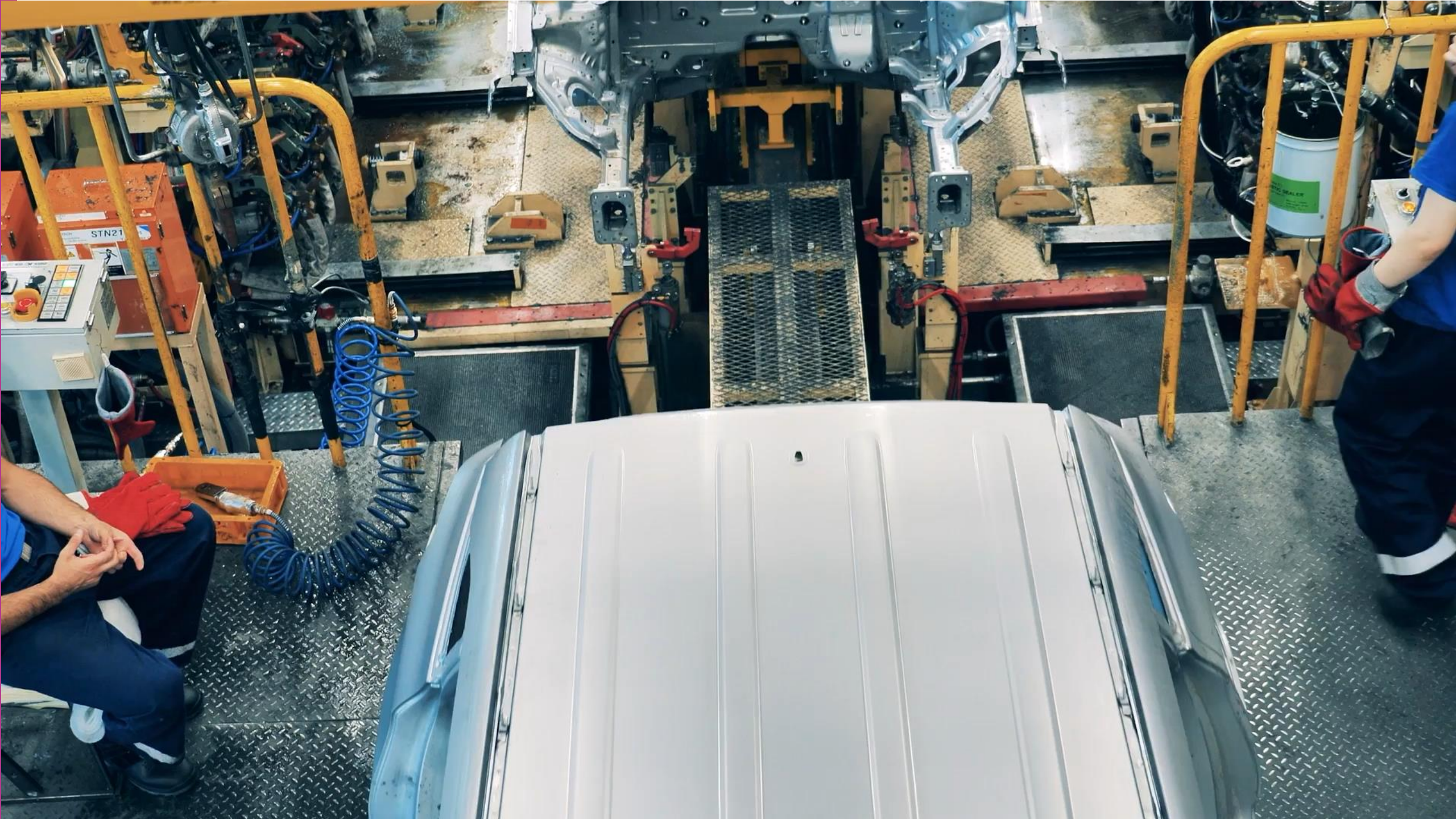


Cross-platform collaboration & user feedback



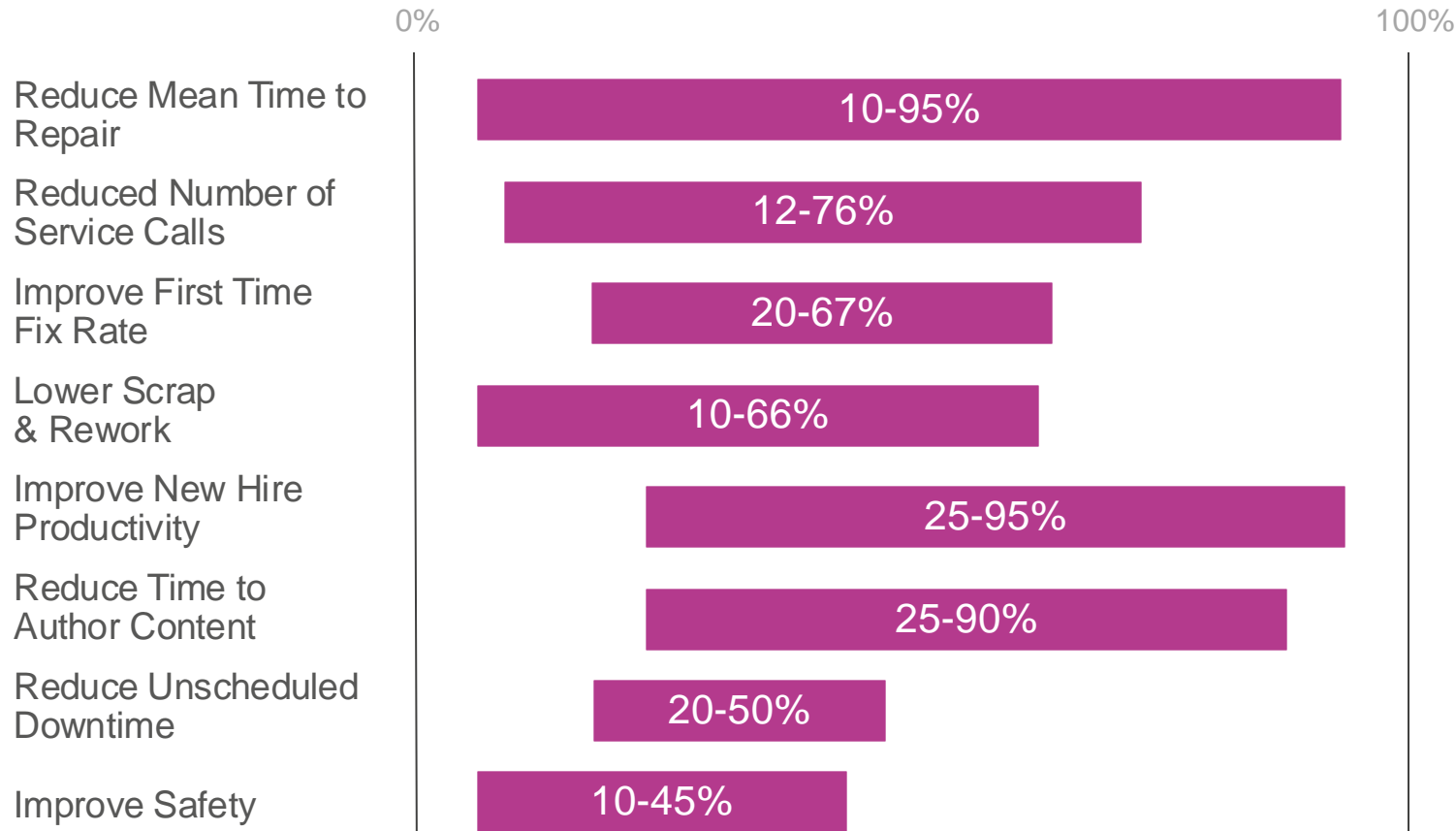
Powerful Execution Insights & Reports



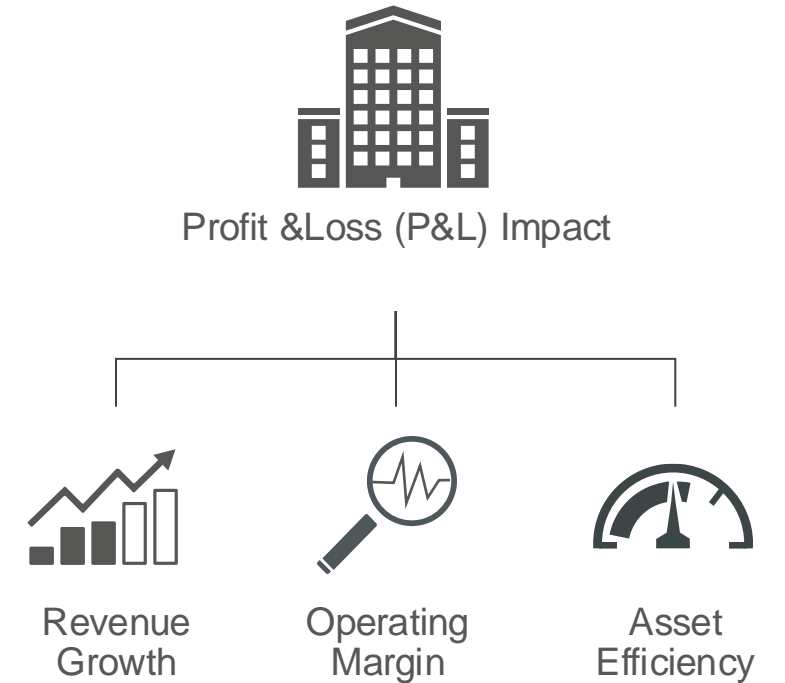


BENEFITS OF AUGMENTED REALITY

MEASURABLE, SCALABLE, AND REPEATABLE



These benefits have a tangible impact to customers...





THANK YOU | KIITOS

**IF YOU BECAME
INTERESTED,
PLEASE CONTACT US**

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www.pdsvision.com