Augmented Reality for Maintenance Execution

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Asset Performance Management
Solutions for maximum return on industrial assets

STRATEGIZE
- APM Assessment
- Risk-based Maintenance
- APM Consulting

ANALYZE
- Business Intelligence
- Predictive/Prescriptive
- Optimization

MAINTAIN
- Operator Rounds
- Industrial Workflow
- Enterprise Asset Management

Cloud
Industrial IOT
AI
AR and VR
Cyber-security

Engineering
Visualization
Interoperability
Asset Performance
Planning and Scheduling
Monitoring and Control
Operations and Optimization
Analytics

APM Assessment
Business Intelligence
Operator Rounds
Industrial Workflow
Enterprise Asset Management
Risk-based Maintenance
Predictive/Prescriptive
Optimization

STRATEGIZE
ANALYZE
MAINTAIN
Workforce view of today's industrial landscape

- **Years Experience [retirement]**
- **New Hires [millennial]**
- **Staffing Reduction**
- **Time to Mentor**
- **Tech Savvy**
- **Regulatory Compliance**
- **Asset Complexity**
- **Sophistication Control and Safety Systems**
- **Sensors Connected Points**
- **OJT Practice**
- **Active Moves**

**Workforce**

**Workplace**
Prepared for the job…with the right information to hand

Making the right decision at the right time……
Connected technologies for Performance Management of Operators, Assets & Process Units

**Immersive Training Systems**
Virtual Reality Experiential Learning

**Operator and Maintenance Work Execution**
Mobile Workforce Enablement

Prepared to act

Right information to hand at right time

- My Correct Action
- Analytics / Alarms
- Real-time Learning
- Data Available (unsorted)
- Information Available (sorted)
- Standard Learning
- OJT Experience
- Experiential Learning
- My Education

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Industry Leader Experience Today

• Ability to mix physical and virtual environments
• High interaction between humans and machine
• Collaboration across the value chain

NEW Class of digital applications is needed!
Mobility with AR/VR

• Mobility
  • Improved communication and information access to field worker
  • Empower personnel to act before equipment failures occur
  • Accurate and timely collection of data
  • Quality is “built-in” as complex tasks proceed
  • Best practice deployment

• AR/VR
  • Help speed up training and close the skill gap
  • Augment local skillsets with expertise from remote locations
  • Immediate access to all information needed to perform work
  • Identification of mistakes before subsequent tasks are started
AR is not a strategy within itself. It is a set of technologies used to augment the user's world view with contextual, relevant and actionable information.

- Gartner
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- Gartner
A New Window Into the Information

AR/VR Core Platform

Real-time Information, Asset Data, & Simulation

AR and MR Information Visualisation

Process Data
Asset Condition
Operation Manuals
Live Remote Support
Maintenance Procedures
Workflow
Location Navigation
Trends & KPIs
Alarm Status

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Key Enabling Features

Accurate 2D/3D rendering engine

Scene Recognition 2D and 3D

Remote Support Teleservice

Positional awareness Navigation

Information Connectivity

Hardware Agnostic
Mobile Tablet Applications

On site training applications OR supporting operations in the field
Positional Information and Navigation

NEKO framework is positioning system agnostic depending on the working environment:

- GPS data for outdoor applications
- Wi-Fi Hotspot triangulation
- Beacons
- Marker approaches
- RFID identification
- Find & Search

Positional information is exchanged in real-time with the VR engine to allow the user to navigate themselves to different equipment, locations or other colleagues.
Scene Recognition

No single industry standard approach that covers all situations

Dependant on the hardware of the device

- 2D Camera (Resolution, Optical Distortion, more)
- 3D Depth Camera (Resolution, refresh rate, more)

NEKO Framework must be open to work with all approaches and combination of approaches to achieve a useful robust user experience in different working environments
The technology must be able to render the information accurately in relation to the real world

High quality real-time visualisation of massive 3D data with low latency connection with the data source

Scalable graphic features to deal with the variety of hardware performance available on different mobile devices

Proprietary framework for the creation of content for a wide range of applications and deploying on different operating systems
Remote Support

Live remote assistance from a support centre anywhere in the world

1 on 1 guidance using the live video and voice communication sharing in AR and MR.

Application sharing and control from the remote expert

Collaborative problem solving and efficient issue resolution

Integration with CRM systems
Holographic Control Room - HCR

- Based on Microsoft **HoloLens** Holographic Computer
- Native connection to **System Platform** & **Archestra**
We are Hardware Agnostic

- VR HMD (all types)
- 3D Projection
- UHD Screens
- AR/MR Wearables
- CAVE – Multi-screens
- Mobile & Tablets
- Cloud Deploy
Main HUB application for the Asset Performance Management
Italpresse
Application for Asset Performance Management & New Business Model
• OEM Automotive
• Top 3 Worldwide player for complex automotive castings
• 100 M€ Turnover
• 200 employees + external
• 3.500 installations worldwide

VISION: We want to attain an well established leadership position, increasing our worldwide presence, thus obtaining an even more prestigious market position. We want to become the benchmark in the foundry of light alloys for advanced applications, where innovation is crucial for the creation of cutting-edge technological solutions.
« …we’re eager to face new challenges in Foundry market and Schneider is the right partner to help us in Changing the Rules of the Game.”

Carlo Scalmana Italpresse CEO
VIDEO
Digital Transformation

Workforce Enablement

- Improved knowledge transfer
- Increased situational awareness
- Capture data from stranded assets
- Accelerated operator training
- Digitalize operational processes
- Ensure best practices are followed
- Enable team collaboration for accelerated problem resolution
Application Demo