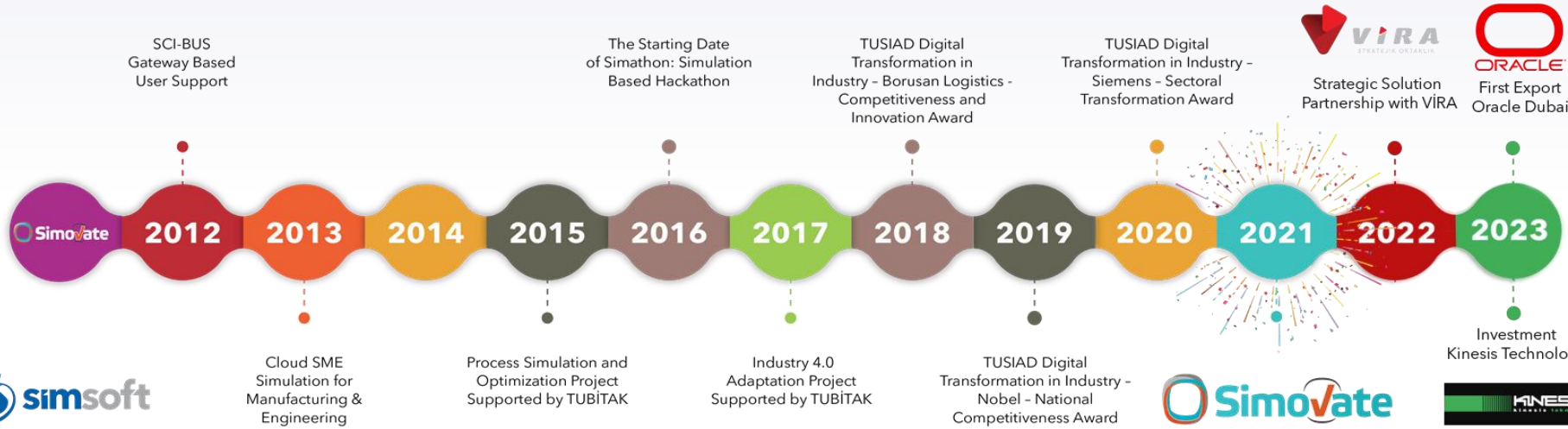
Simulate & Innovate
Digital Transformation

DIGITAL TRANSFORMATION IN INDUSTRY

simsoft


SCI-BUS
Gateway Based
User Support
Cloud SME
Simulation for
Manufacturing &
Engineering
The Starting Date
of Simathon: Simulation
Based Hackathon
Process Simulation and
Optimization Project
Supported by TUBİTAK
TUSIAD Digital
Transformation in
Industry – Borusan Logistics -
Competitiveness and
Innovation Award
Industry 4.0
Adaptation Project
Supported by TUBİTAK
TUSIAD Digital
Transformation in Industry –
Siemens – Sectoral
Transformation Award
TUSIAD Digital
Transformation in Industry –
Nobel – National
Competitiveness Award
Strategic Solution
Partnership with VİRA
First Export
Oracle Dubai
Investment
Kinesis Technology
Simovate
2012
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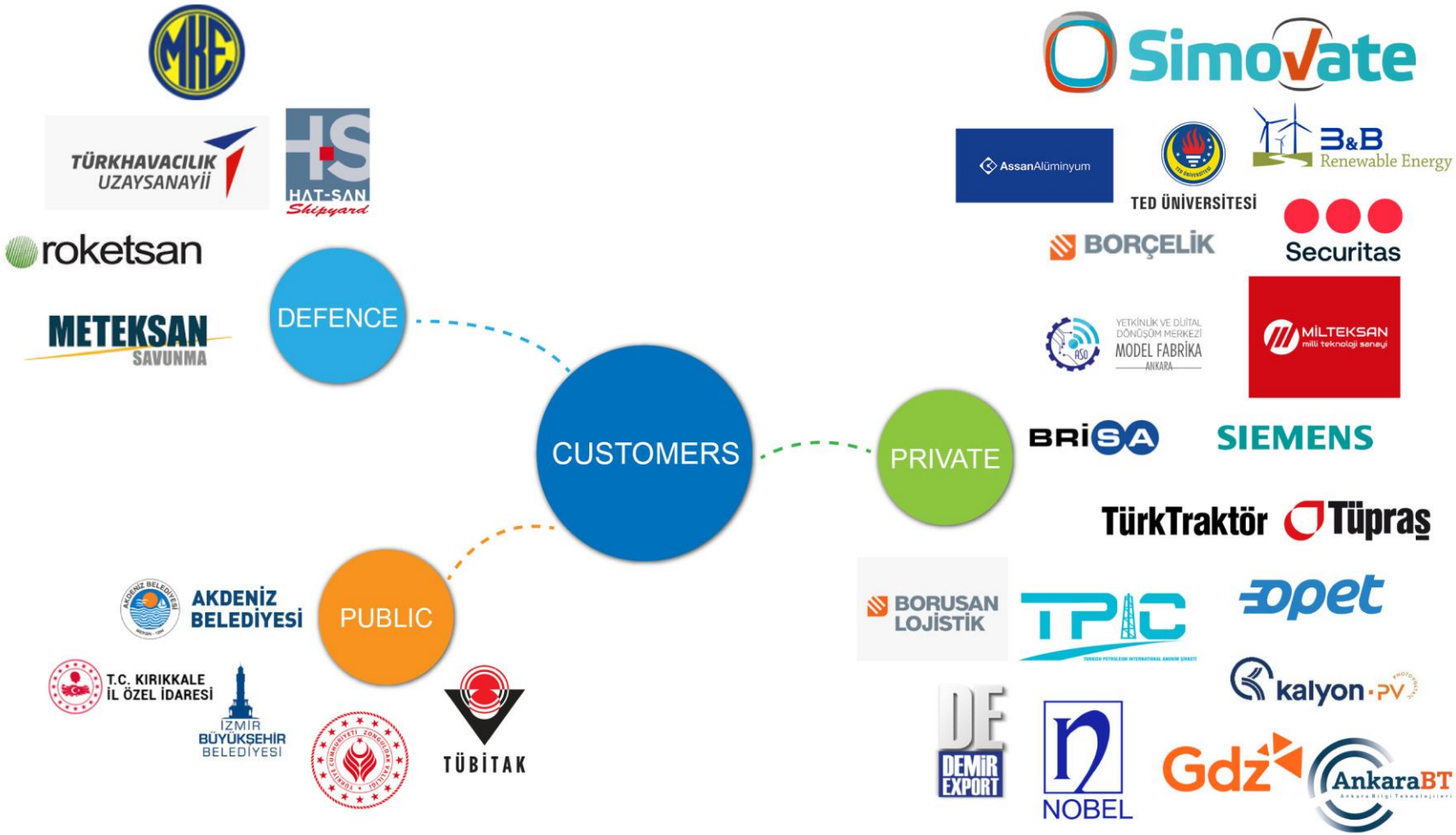
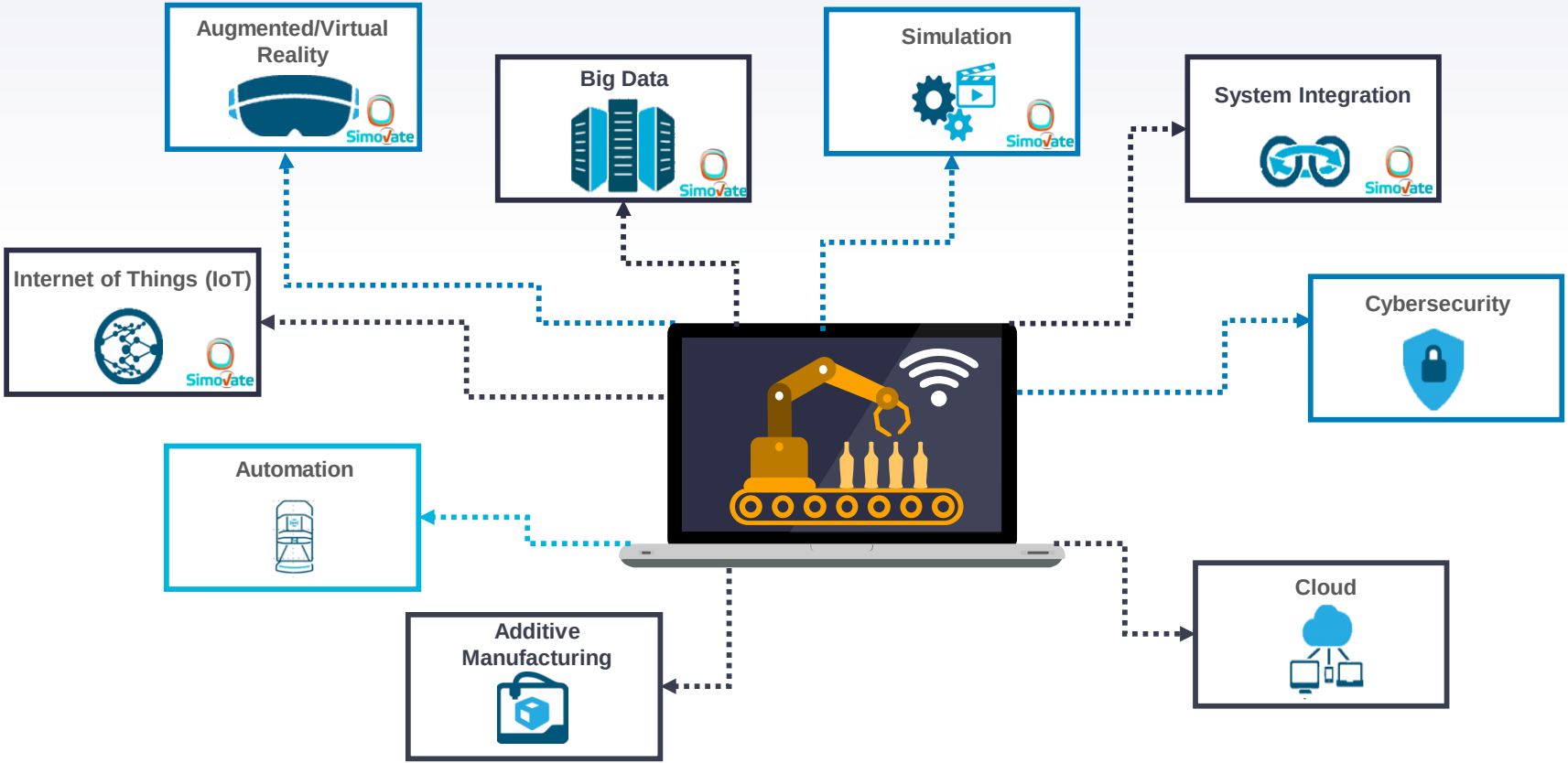
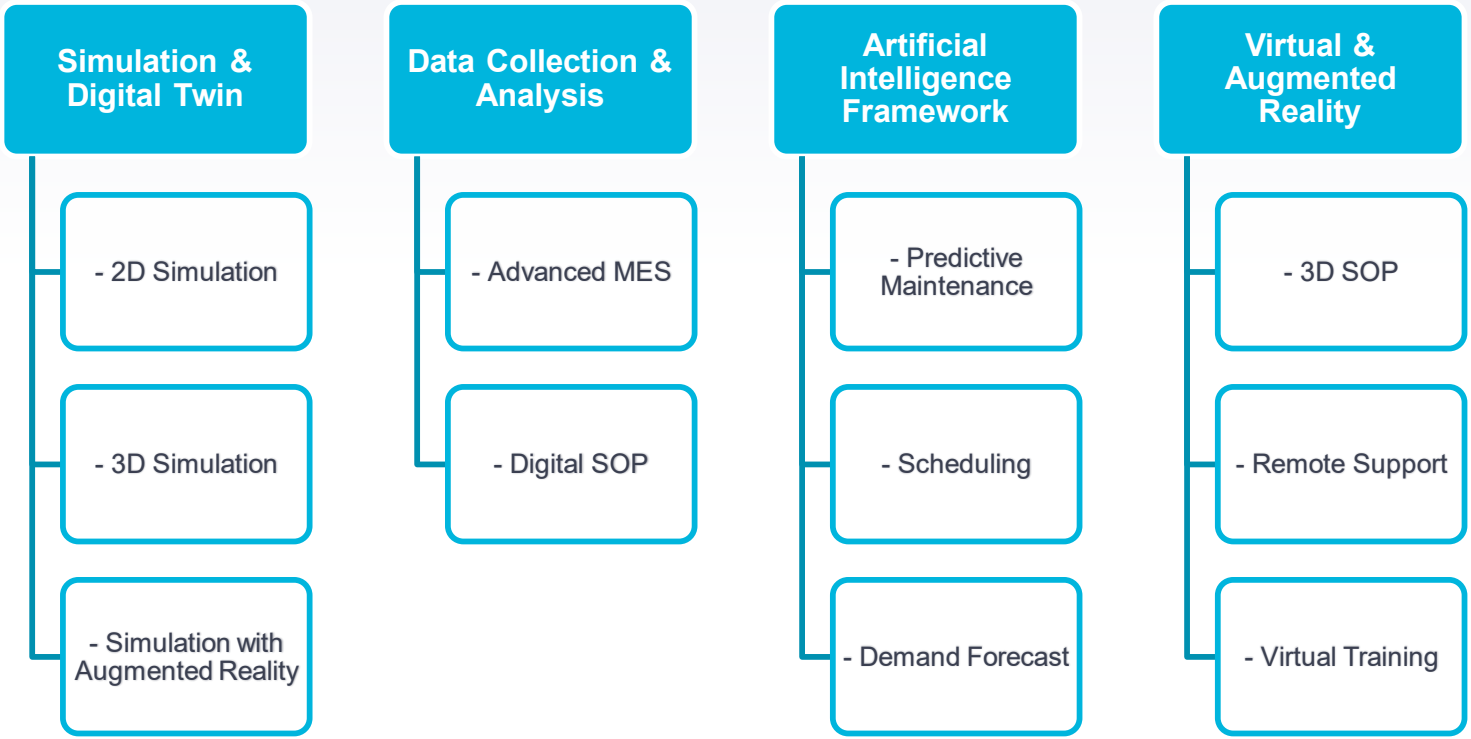

MKE
TÜRKHAVACILIK UZAYSANAYİİ
HAT-SAN Shipyard
roketsan
METEKSAN SAVUNMA
DEFENCE
CUSTOMERS
PUBLIC
AKDENİZ BELEDİYESİ
T.C. KIRIKKALE İL ÖZEL İDARESİ
İZMİR BÜYÜKŞEHİR BELEDİYESİ
TÜBİTAK
PRIVATE
Simovate
AssanAlüminyum
TED ÜNİVERSİTESİ
B&B Renewable Energy
BORÇELİK
Securitas
YETKİNLİK VE DİJİTAL DÖNÜŞÜM MERKEZİ MODEL FABRİKA ANKARA
MİLTEKSAN milli teknoloji seneyi
BRİSA
SIEMENS
TürkTraktör
Tüpraş
BORUSAN LOJİSTİK
TPIC
opet
kalyon PV
DEMİR EXPORT
NOBEL
Gdz
AnkaraBT

Digital Transformation Components



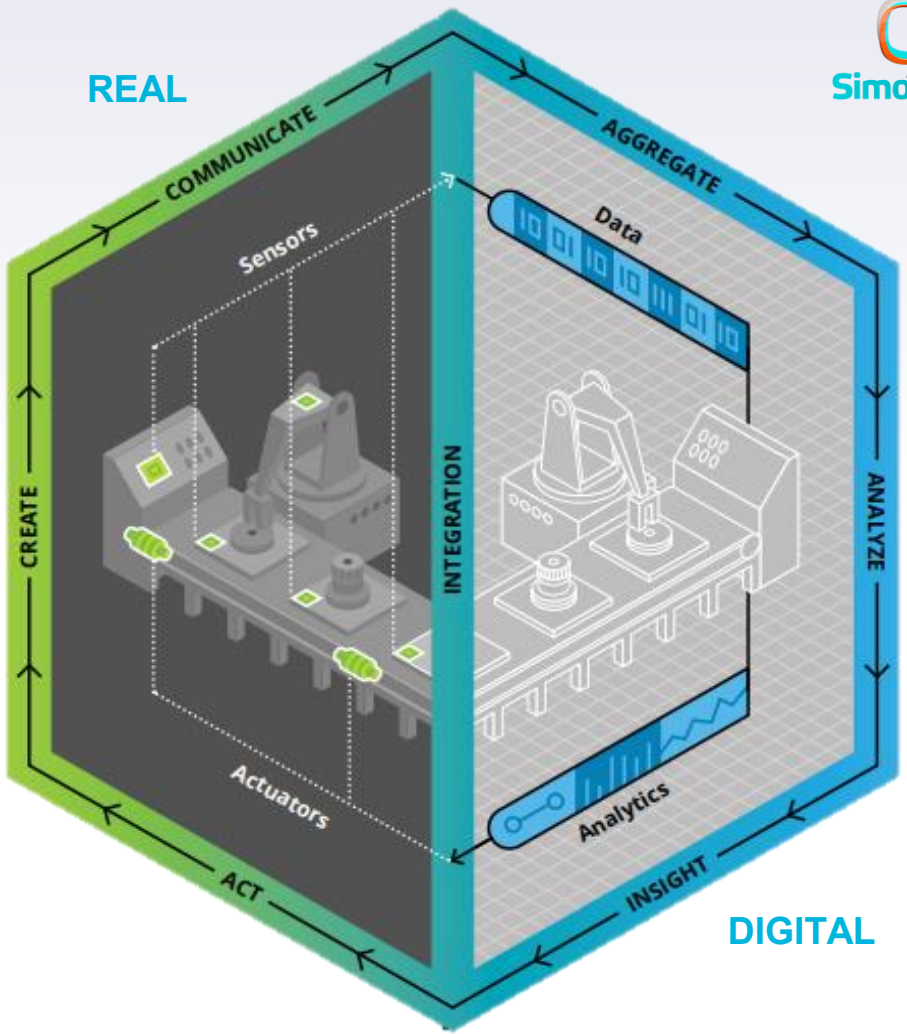
Products


Simulation & Digital Twin
- 2D Simulation
- 3D Simulation
- Simulation with Augmented Reality
Data Collection & Analysis
- Advanced MES
- Digital SOP
Artificial Intelligence Framework
- Predictive Maintenance
- Scheduling
- Demand Forecast
Virtual & Augmented Reality
- 3D SOP
- Remote Support
- Virtual Training

Simulation and Digital Twin

Digital Twin provides the opportunity by creating the current behaviour of the process in the digital environment:

- to monitor the process
- to be optimized
- forecasting by using smart algorithms about process
- to **simulate** the costly and laborious works that can not be tested in reality with real data
- to view bottlenecks and queues in processes
- to reach alternative scenario results quickly



Simulation and Digital Twin

Simovate Simulation

You can see the bottleneck and optimization suggestions and create the most accurate process at once by creating a digital twin of the factory.

- Increasing productivity
- Process improvement
- Cost reduction
- Providing viable solutions

2D Simulation

3D Simulation

Simulation with AR

Questions

- How can I see the digital twin that I created in the physical environment?
- How can I see the bottleneck and queue points before production?
- How can I see my machine resource utilization rates in advance according to my production plan and perform line balancing processes?
- How can I transfer processes to 3D environment in the easiest way?
- How can I effortlessly organize my production line with drag and drop?

SimoMES: Manufacturing Execution System

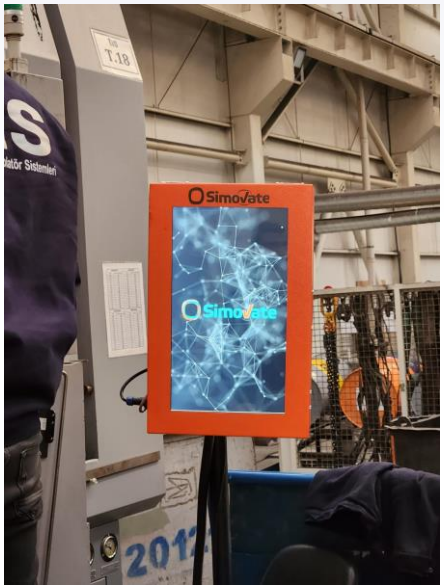
Data Collection – Product Tracking – Performans Analysis

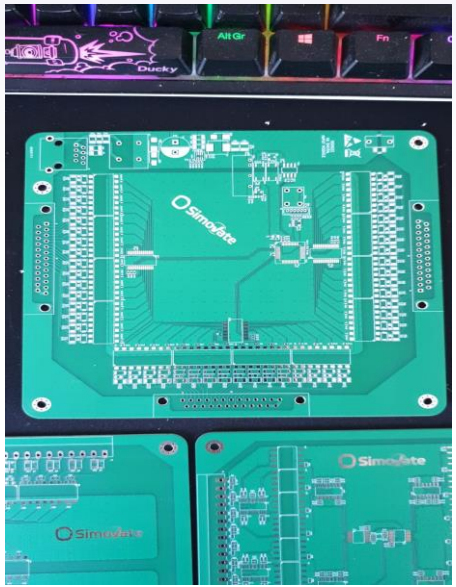
- Instant and simultaneous **data collection** from the production site
- Display panel with OEE, scheduled maintenance, predictive maintenance, sensor information and scheduling summary information where all machines can be combined and filtered
- **ERP Integration**
- Product tracking by order number
- **Overall Equipment Efficiency (OEE) analysis** with machine downtimes and ERP work order data
- Calculations and calibrations

SimoMES: Manufacturing Execution System

Compatible Products/Protocols

- PLC Compatibility (Siemens, Bosch, Beckoff, Schneider, Omron, Turck, Banner, OPC)
- Modbus
- Datascan
- Microcontroller
- Conforms to industry standards
- I/O card support in the case of not taking the data from PLC
- IP65 protected HMI display on the production area



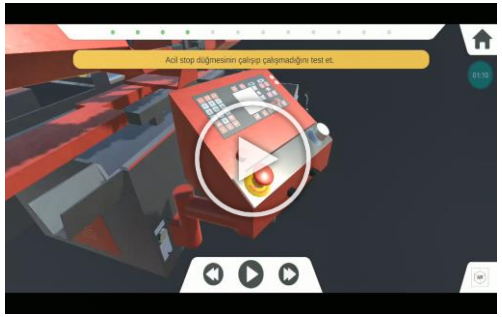


SimovIN: Digitization of Standard Instructions

- Description and demonstration of the operation steps
- Guidance with document and video
- Control and reporting of step completion times
- Increased efficiency in personnel training
- Standardization and updating of trainings
- Image transfer from the field in cases that cannot be completed

2D Panels

3D Models & Animation



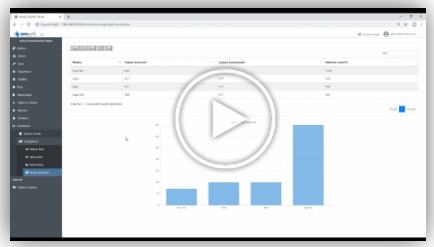
SimAI: Artificial Intelligence Framework

Predictive Maintenance

- Prediction of Future Failures from Machine Sensor Data and Failure Records
- Creating a Maintenance Plan
- Integration into the Production Plan
- Seeing the Status of Machines Instantly

Scheduling

- Stochastic, Realistic and Optimistic Scheduling Results
- Access via Web, Mobile and Desktop
- ERP Integration
- Production Plan and Maintenance Plan Integration



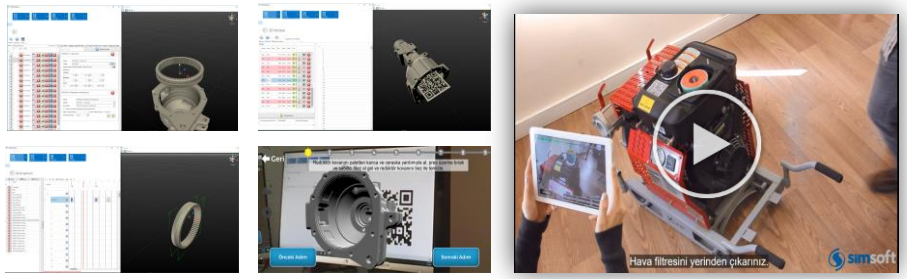
Demand Forecasting

- Analysis and Display of Historical Data
- Elimination of Idle Stocks and Wrong Orders with Artificial Intelligence Supported Automatic Ordering
- Predicting and Reporting of Order Quantities

SimovAR: Augmented Reality

Maintenance – Repair - Assembly

- Visualization of maintenance-repair/assembly instructions with 3D models and animations
- Full Integration with IoT Supported Devices
- Making Experience in process steps sustainable
- Ensuring that the Transactions are Performed Error-Free
- Reduction in Maintenance-Repair/Installation Costs



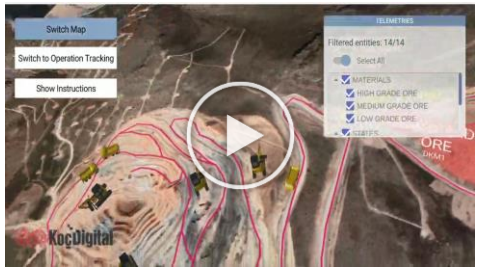
Remote Support

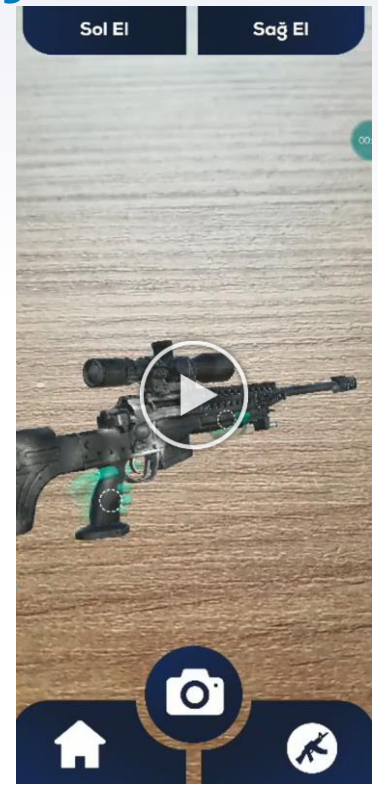
- Provide Remote Support as if you are in the field
- Significantly reduce maintenance trips
- Avoid sudden machine downtime costs
- Shorten approval processes
- Access to expert personnel information at any time

SimovAR: Augmented Reality

Museum Applications

- Visualization of history with 3D models and animations
- Interactive entertainment
- Game – Based learning tools





SimoVR: Virtual Education

- Realization of trainings that are very difficult to do in real environment in virtual environment
- Risk-free, cost-free and repeatable trainings
- Possibility to train many users
- Identifying missing trainings with the evaluation and reporting tool
- Increasing the quality and real feel of theoretical education

Crane Simulator

Factory

Port

Maintenance – Repair - Assembly Trainings

CNC

Armored Vehicle

Assembly

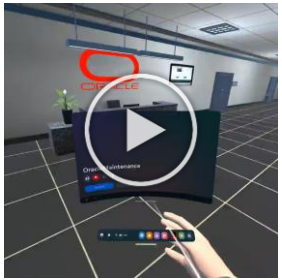
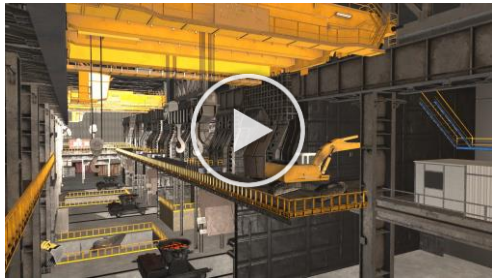
OHS Trainings

Fire

Electric

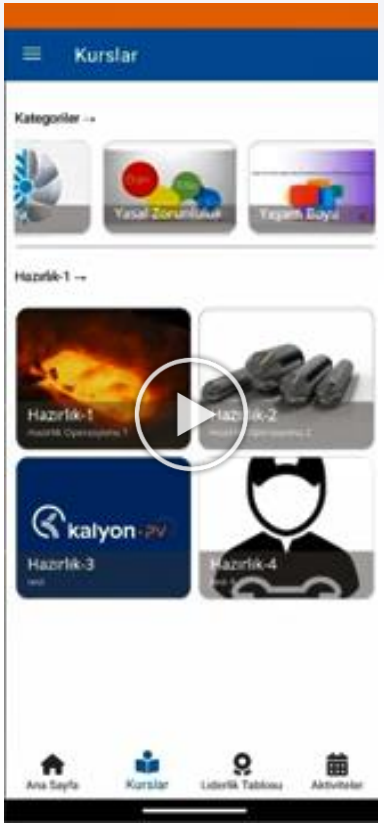
SimoVR: Digital Orientation

- Orientation with Virtual Factory Tour
- On-the-Job Training with Virtual Factory Tour
- Quiz-Based Learning Module
- Ability to Work on Platform Independent Phone, Tablet, Computer and Virtual Reality Glasses
- Information Transfer with Virtual Character

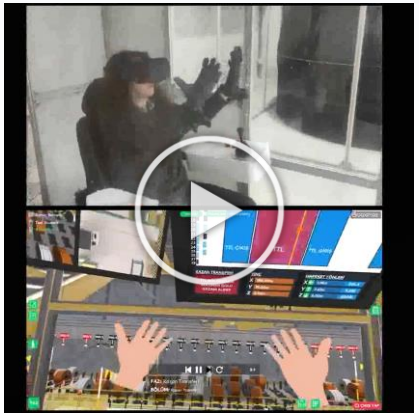
SimoVR: Learning Management System

- Virtual Reality Integration
  - Opportunity to receive practical training in an environment closest to real life
  - Risk-Free, Cost-Free & Repeatable Trainings
- WEB-Based Education Content Preparation and Report Tracking Application
  - Content Preparation
  - Detailed Reporting and Analysis Module
- Operator Content Tracking Mobile Application
  - Incentive Education with Gamification Elements



SimoVR: Wearable Technologies

Walking Platform Integration



SimoGlove: Virtual Reality Glove

Simage: Image Processing

Sleep Tracking System

- Artificial Intelligence Supported Sleep Tracking System from Driver's Eye, Mouth and Head Movements
- Audible and Vibrating Warning
- “Plug and Play” System Adaptable to Every Vehicle
- Road Tracking and Recording System with Front Camera

Quality Control System

- Faulty Part Detection with High Definition Cameras
- Automated High Precision Quality Control System
- Error Reporting System
- ERP Integration

THANKS

You can contact us for detailed information:

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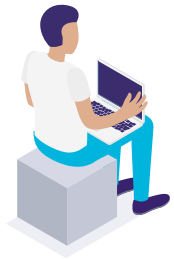
Dr. Ulaş GÜLEÇ

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