

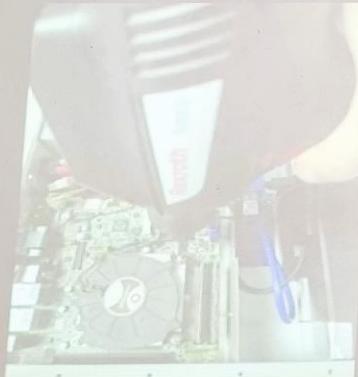
# ARKITE

Guiding operators with Augmented Reality

Batch #82 of 120  
Step time: 2.08s  
Cycle time: 152  
Torque: 1.06Nm

Step 21: Take smart tool

(•)  
ARKITE



# Arkite: Executive summary

Arkite Human Interface Mate (HIM) is a proven product: over 250 installations sold

Potential leadership in extensive global market with new innovative concept and offering: Arkite Operator Guidance Platform. A software and hardware solution with 70% gross margin.

Positive market response with more than 65% revenue growth since 2020 (shift to recurring and indirect).

Increasing (international) sales momentum and proven partner model: over 30 partners in Europe signed Strategic Partnerships signed with Bosch Rexroth and SAP

IP protection through patents and trade secrets

Arkite is looking for:

- Capital Increase of 2M Euro
- Strategic partner

To further extend our growth in other regions, such as the Asia and the Americas and to broaden the market and product portfolio.

# Who are we?



HQ Belgium



+20 Countries



Fast growing



2016 Software launch



Partners worldwide



#1 AR Platform

# Manufacturing challenges

---

Resulting in the need for a technology that Improves Operator Performance integrated into the larger Manufacturing Ecosystem

## **Knowledge Preservation:**

Knowledge storage and transfer due to aging workforce and increase in temporary contracts.

## **Mass Customization:**

Extra complexity, resulting in higher likelihoods of human errors.

## **Industry 4.0 – Integration:**

Extracting useful data from manual work environments

## **Environmental, Social and Governance:**

Environmental - social sustainable goals  
The human asset central

# Operator 4.0

Provide modular software for the  
**GUIDANCE** of manual manufacturing  
operations

With process and/or product **VALIDATION**  
using different sensors and smart tools

## **Smart:**

Intelligent detections and process steps with semi-automatic configuration

## **Integrated:**

With factory on all possible levels (MES, ERP, Tooling, Databases, Dashboarding, etc.)

## **Contactless Multi-Client :**

Sensor, projector, PC, tablet etc. All speaking the same language.

## **Easy:**

To install and configure, use, maintain adapt and scale: plug and play.



“Arkite Operator Guidance Platform  
transforms workstations into a digital  
and interactive environment”





# Arkite Operator Guidance Platform

Your manufacturing instructions real-time projected on the workstation.

**AR Guidance  
instructions**

Data export of real time operations for dashboarding.

**Data Analysis**

**Workflow  
Management**

Manage your workflow applications through our server-client architecture.

**Process  
validation**

Integrate sensors and automation to validate manual operations.



# Arkite Operator Guidance in production

Engineer can update assembly instructions in one central application.



Specific instruction for each product variant projected on the workbench.

Supervisor can use data to analyse all manufacturing operations



Step-by-step guidance for new employees and feedback when making a mistake.

Powerful reporting shows you all insights of manufacturing operations



Step-by-step guidance for new employees and feedback when making a mistake.

# Arkite Operator Guidance for all operations

**Volume**  
**Variety**  
**Value**

## Operator Guidance

Clear operator instructions  
projected on the workbench

## Quality Safeguard

Build-in traceability and  
quality assurance with a focus  
on validation of critical steps

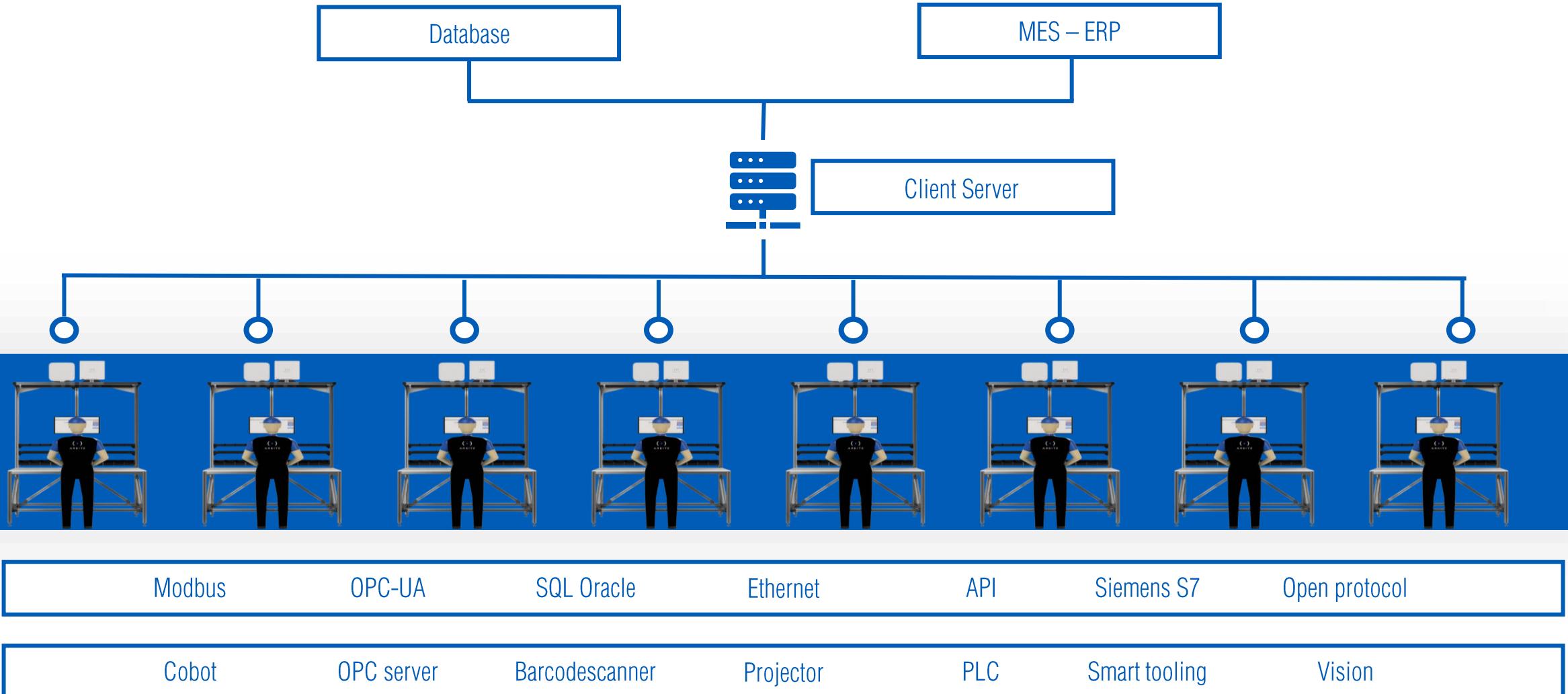
## Flexible Production

Easy configuration of the workbench  
according to the order (on demand  
configuration)

## Operator Trainer

Faster learning curve leading into  
reduced training costs

# Arkite Operator Guidance Ecosystem



# Use case - Electronics

*PCB Assembly*

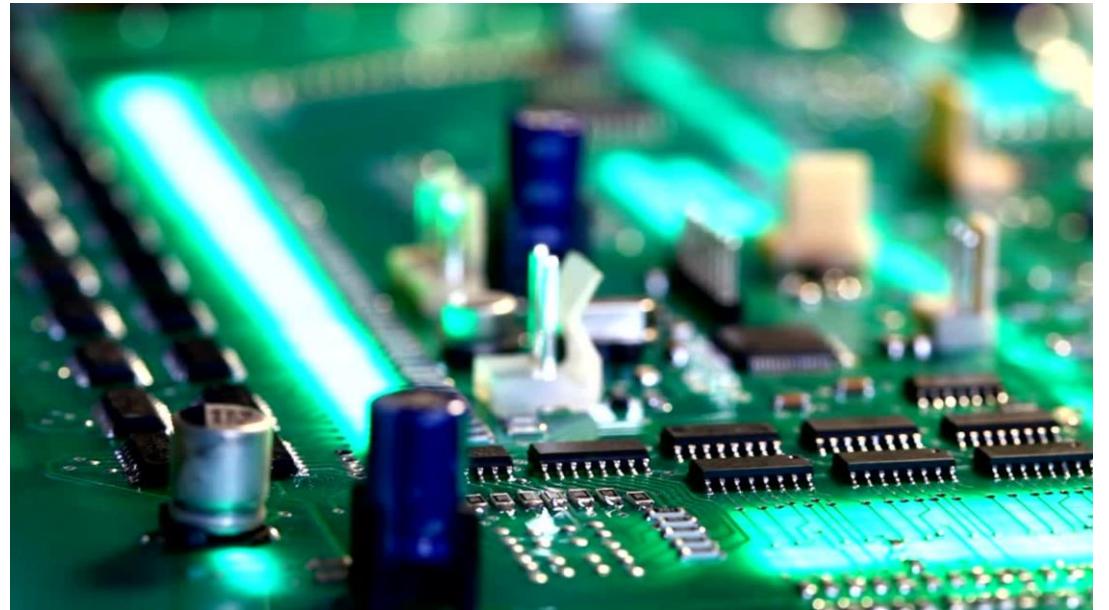
---

## Manufacturing challenge

- Train new operators without experience
- Multiple product variants
- Complex assemblies
- Convert all manual operations into digital data

## Application value

- Integrate easy in your manufacturing environment as layout and communication
- Monitor and validate the operation performed
- Guiding the operator with visual work instructions, focus on the job.



**+6%**

Improved productivity

Takt time before 100 seconds after  
94 seconds

**100%**

Reduction in scrap

Yield improvement from 99.89%  
to 100%

**60%**

Reduction in rework

Decrease rework from 0.11-0.27%  
to 0.01-0.11%

**> 50%**

Reduced training time

Training time went from 2 hours to  
1 hour



# Arkite Operator Guidance Platform

---

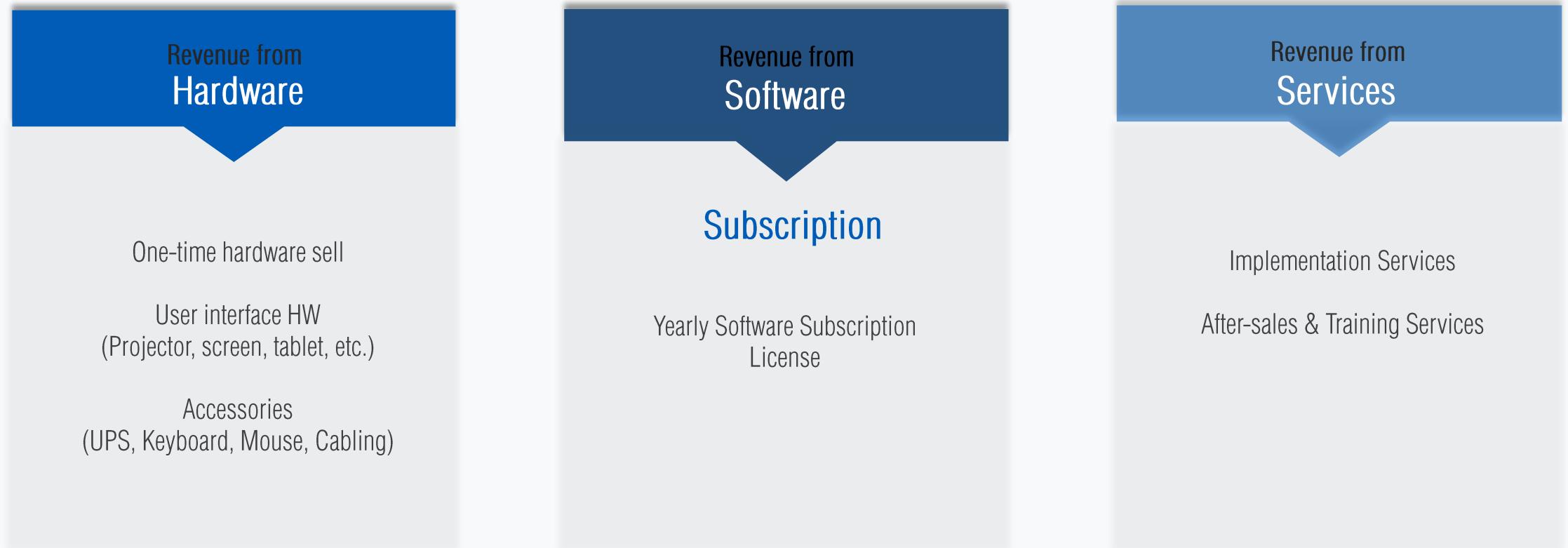
Horizontal solution towards manual operations in manufacturing industry (various target markets)

Total Addressable Market of +2M manual workstations

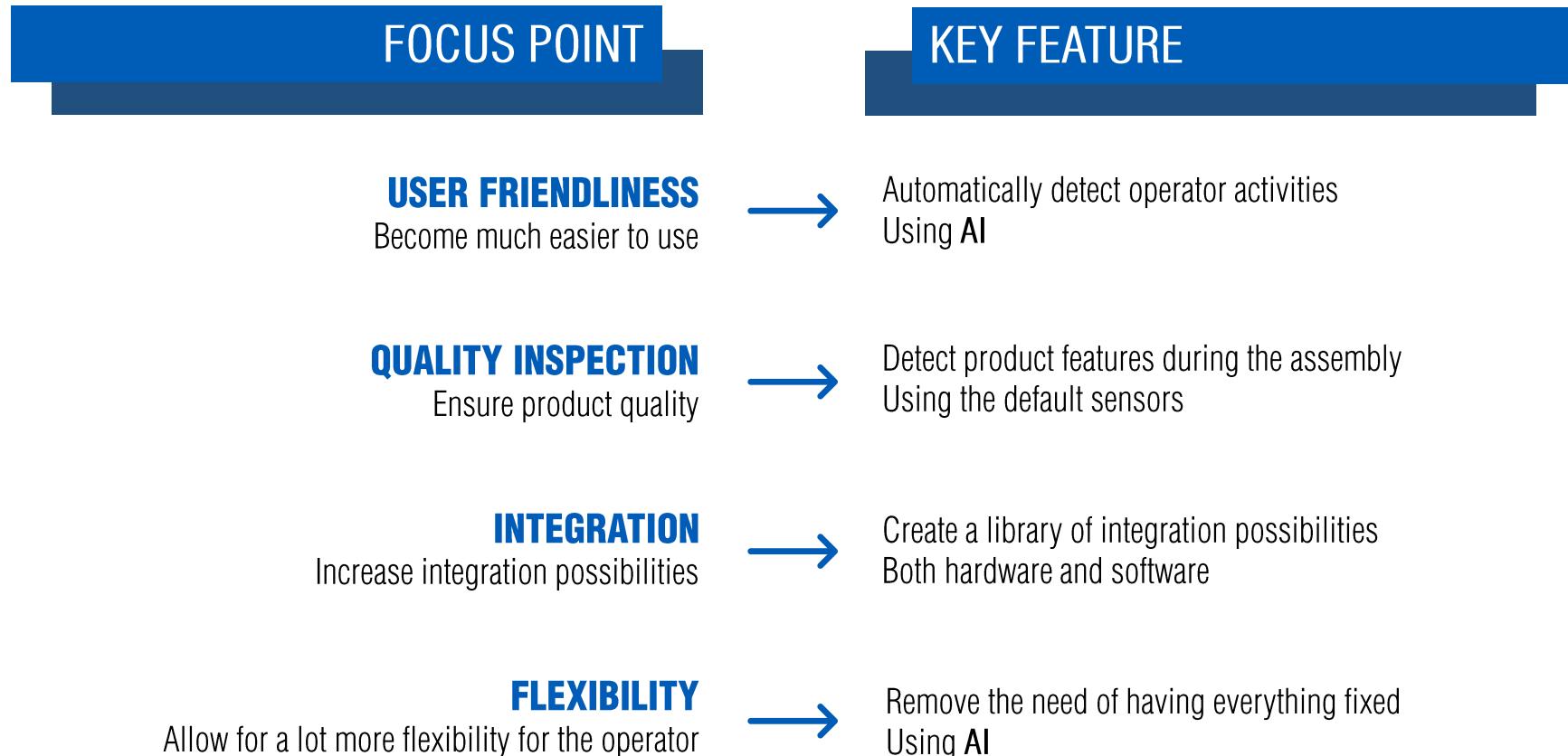
Arkite Operator Guidance platform addresses especially manufacturing operations with following characteristics:

- Manual operations
- High value products
- Product size/dimensions (Work bench)
- Repetitive workstations and/or production lines
- Human Capital challenges: High rotation / Knowledge
- Medium level of automation - Hardware & Software integration

# Arkite Business Model



# Arkite roadmap



# Arkite - ESG

Arkite Operator Guidance Platform provides tools to assist operators in tedious and/or complex manual assemblies while respecting privacy. This solution therefore contributes positively to Sustainable Development Goals.



Environmental



Social



Corporate Governance

Arkite Operator Guidance Platform reduces stress of operators and operators can complete more complex operations without burden. In social enterprises, Arkites platform is used to assist persons with a disability.

Our Operator Guidance Platform reduces the errors in manual assembly tasks, avoids reworks and diminishes the training time. In a industry 4.0 context, the Arkite offering helps manufacturing companies in knowledge preservation, mass customization and data integration of manual assembly tasks and processes. The operator as a human asset is placed central.

# Arkite Intellectual Property

---

Our goal is to build IP assets and leverage the most value from existing IP assets, while maintaining the Freedom to Operate in the global market.

EP3136314 - QUALITY CONTROL SYSTEM FOR A WORKING AREA OF AN OPERATIONAL PROCESS  
WO19063133 – CONFIGURATION TOOL AND METHOD FOR A QUALITY CONTROL SYSTEM  
CN201820623408 – QUALITY CONTROL SYSTEM - "Chinese Utility Model"

# Meet our customers

---



McKinsey  
& Company

TIBERINA



Schréder  
Experts in lightability™



# Arkite Commercial Roadmap

---

Our goal is to have a successful global partner landscape that sells, implements and supports our customers locally.

- |      |   |
|------|---|
| 2021 | Increase installed base at target accounts in discrete manufacturing (roll-out) and extend the ongoing relation with existing partners<br><br>Line up mature partners in order to broaden our regions |
| 2022 | Extend our commercial success in European market with priority DE, FR and CEE   |
| 2023 | Regional office in Asia and adding partners<br><br>Extend target markets (Pharma, Logistics, ...)   |
| 2024 | Regional office in North America  |

# Arkite Customer Rollouts

---

Going from multiple one-offs to repeatable roll-outs

Ongoing discussions with different customers for +20 licenses implementations

## Improvements over 2020-2021:

Average licenses per customer per year: from 1,7 to 3,5

Satisfied Customers

Shift from high complexity to repeatable use cases

Operator guidance platform from MVP to industry ready

New optimized pricing structure that enables roll-outs

Sales Approach:

Targeted horizontal sales strategy

With focus on partner development

Market moves from innovation to production

# Arkite Partner network

---

Customer roll-out speed and project based approach leads to need for extensive partner network

## **Sales Partners (SP):**

Channel that offers programs and services that add value to the distributed AR Guidance platform that increase their value or worth (pre-sale / support of sale / post-sales)

## **System Integrators (SI):**

Company that specializes in bringing together component subsystems into a whole and ensuring that those subsystems function together.

## **Strategic Partner**

Partner that brings global presence through direct sales organization and an extensive partner network in each region (both SP and SI).

## **Targeted Key Accounts:**

Joint GTM by above partners and Arkite Key Account Managers

# Arkite Strategic Partnerships

---

Access to sales and partner organization to accelerate growth



Strategic partners operating in the market with global presence and huge customer base that can market Arkite Operator Guidance Platform.

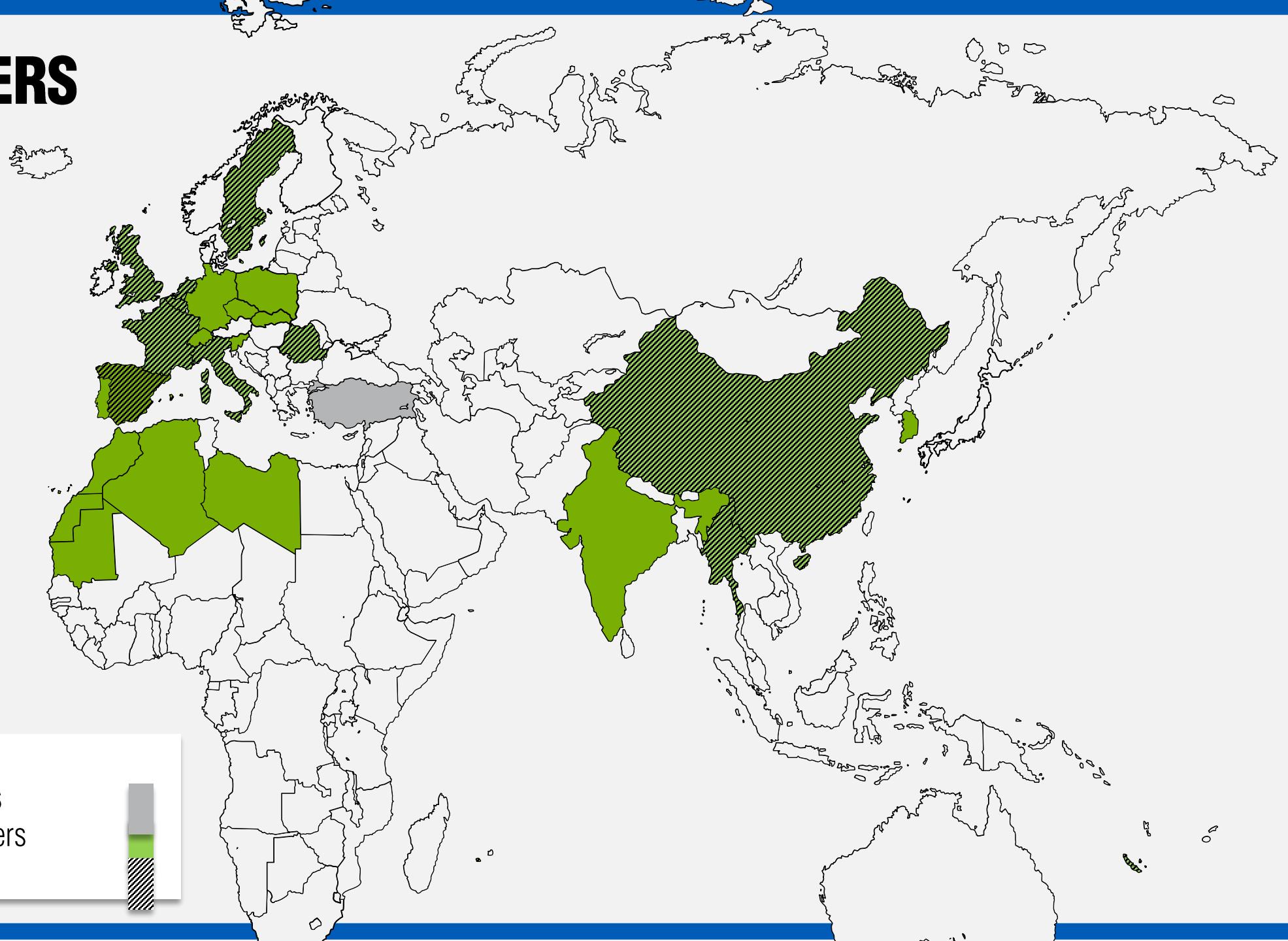
This partner brings global presence through direct sales organization and an extensive partner network in each region (both SP and SI).

Arkite and Bosch Rexroth signed partner contract for France. Currently extending to other regions.

First successful sales at Bosch Marignier.  
Press Release to be announced shortly.

Arkite and SAP signed PartnerEdge contract. Arkite Operator Guidance Platform available on SAP Store

# PARTNERS



**Partner:**  
Partner Leads  
Signed Partners  
Customers



ARKITE

# Partner testimonial

---

A happy partner means a happy business

## **Sempre Group (UK):**

“Arkite provides us with an exciting opportunity to engage UK manufacturers with an innovative product that can truly improve their quality and productivity. The Arkite team support our activities here in the UK as partners, ensuring we can all exploit the opportunity.”

## **Angiolini Consulting (IT):**

“Arkite is an outstanding group of professionals that always respond with competence and sense of urgency in any situation. Customers feel in good hand because they know that someone at Arkite will either prevent or solve their issues.”

## **Rimas (NL):**

“We see a need in the manufacturing industry to digitize manual processes. Our clients want to be able to real-time monitor, control and trace manual processes so that they can switch faster and optimize production costs. Through the collaboration with Arkite, Rimas is even more better able to meet this need. Arkite has opened many doors for us in the past 2 years and has further strengthened our image as an "assembly specialist".”



# Global Competition



## OPS – Light Guide Systems

USA, Michigan

\$15M investment round

39 employees

Biggest customers:

Ford, GE, Luxottica, ...



## Optimum - Smart Klaus

Germany

€3M revenue

22 employees

Biggest customers:

Hilti, ...



## AssistAR– Siemens

Germany

??? Investment round

16 employees

Biggest customers:

Siemens,



# Arkite team

---



Johan Smeyers  
CEO



Vital Ulenaers  
Sales



Bart Lamberigts  
Development



Eric Pieters  
Advisor



# Venture Capital backed growth

---

- 2015: founded and first capital increase (750k Euro) by CEO & Founder Johan Smeysters
- 2017: Seed Round of 1,6M Euro by Capricorn Partners
- 2019: Series A Round of 1,5M Euro by LRM and Capricorn Partners
- 2020: Extension Series A Round of 1,5M Euro by LRM, Capricorn Partners and Johan Smeysters



**Capricorn**  
VENTURE PARTNERS

October 25, 2017 · 11:11 am

**Arkite Raises 1.6 Million Euro To Accelerate Its European Expansion**

Industry 4.0 specialist Arkite announces that it has closed a financing round of 1.6 million Euro to further accelerate its commercial expansion in Europe.

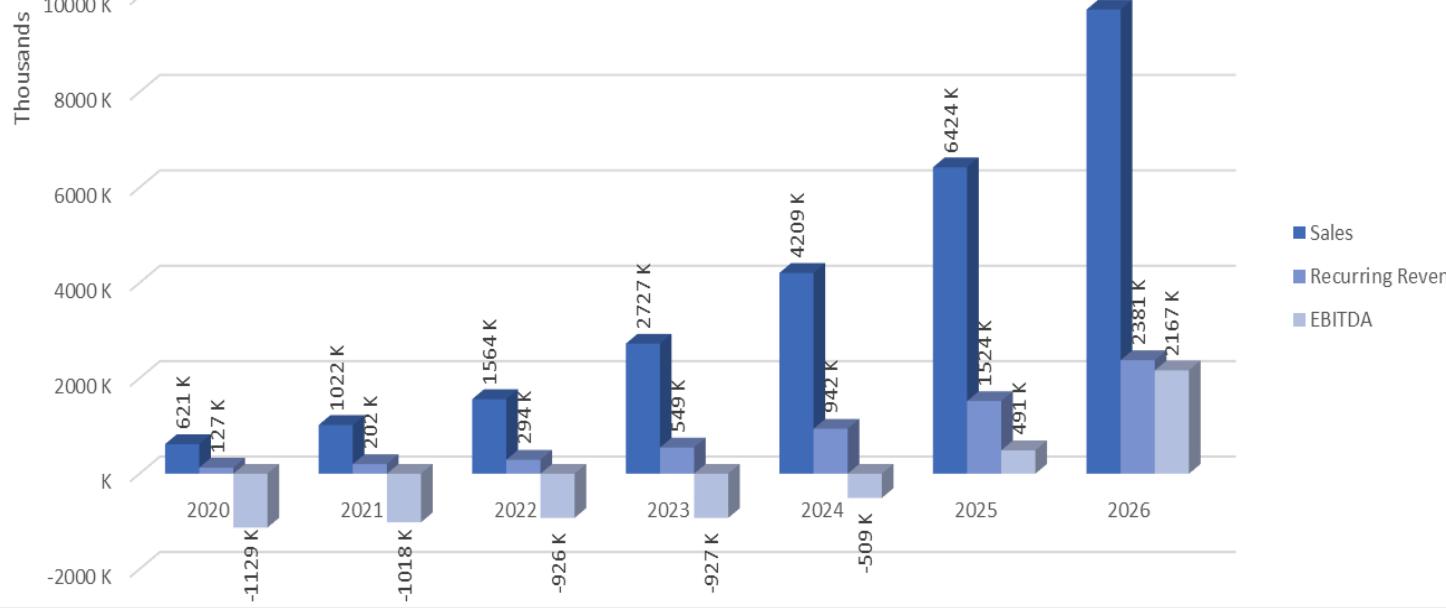
  


June 27, 2019 · 9:35 am

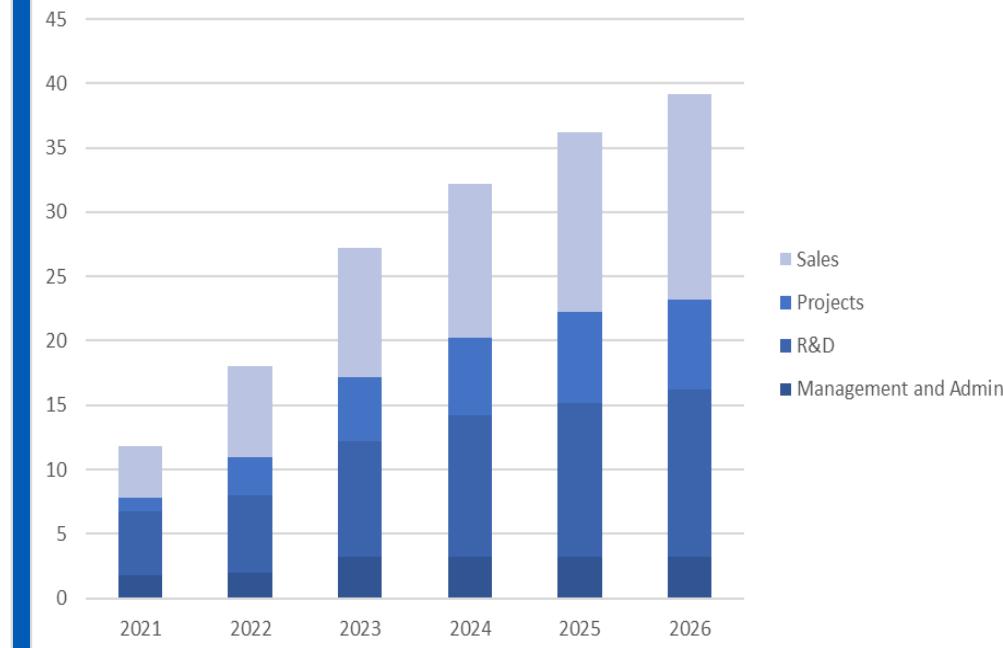
**Arkite raises 1.5 million euros to grow internationally**

The technology company Arkite, active in augmented reality technology that helps operators in production companies to work error-free, raises 1.5 million euros in a new capital round from LRM, the Limburg Investment Company. Existing shareholders, including Capricorn Venture Partners and Johan Smeysters, CEO of Arkite, also joined the capital round. With the raised capital, the young company wants to make the team grow strongly and expand into the European and Asian markets.

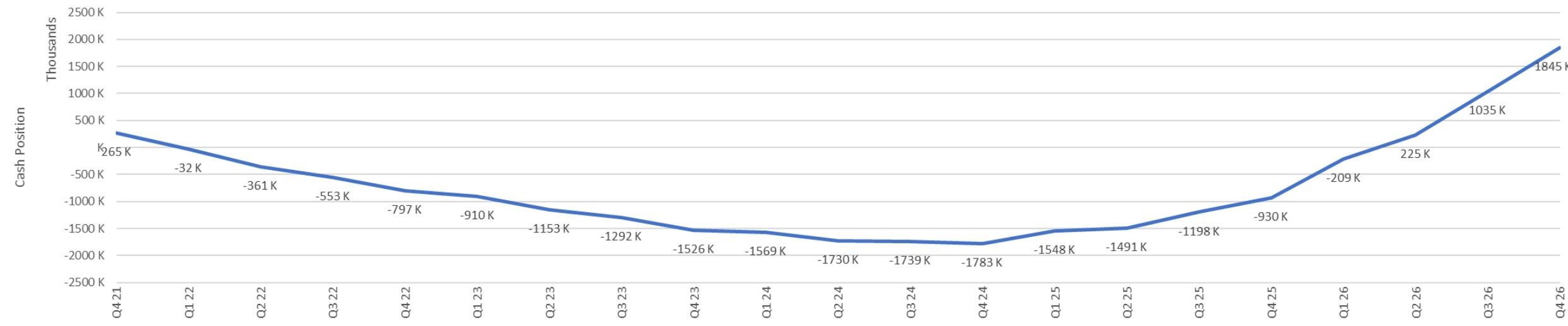
### Revenue & EBITDA



### Personnel

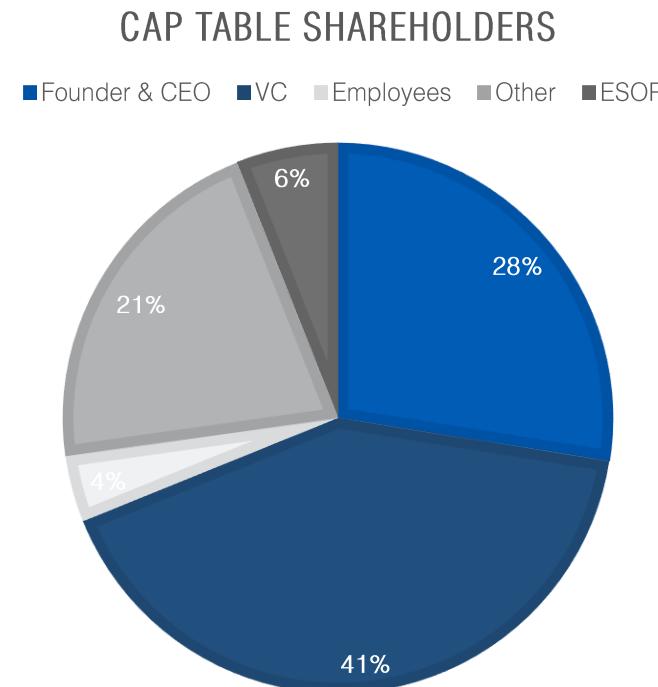


### Cash Position



# Investment Opportunity

Capital Increase for a total of 2M Euro



Financing up to end 2023 to:

Increase Sales momentum

- Recruitment of Sales talent
- Targeted sales to extend customer roll-outs
- Build a partner ecosystem in Europe and Asia.

End 2023: Exit to strategic buyer or new round to further extend growth in other regions, such as the Americas and to broaden the market and product portfolio.

# Let's get in touch!

**CEO**

Johan Smeyers

**phone number**

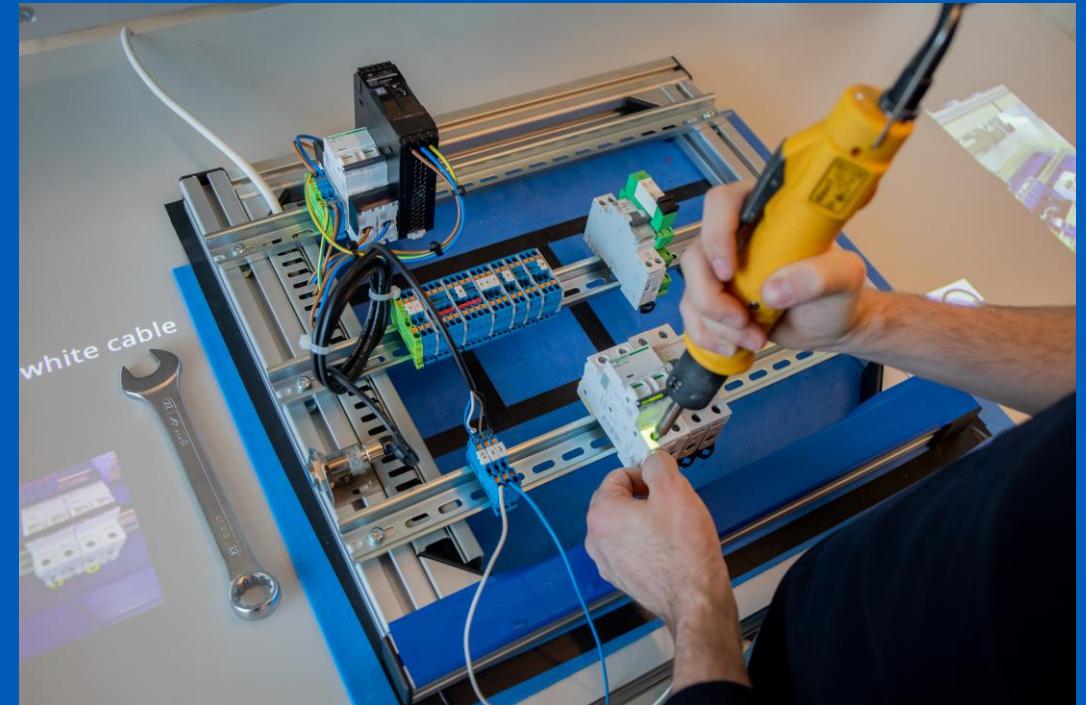
+32 475 93 03 04

**email address**

[Johan.smeysters@arkite.com](mailto:Johan.smeysters@arkite.com)

**Headquarters**

C-Mine Crib, 3600 Genk - Belgium



# **EXTRA SLIDES**

# Production Challenges

---



## OPERATIONS

How to keep track of different variants and increasingly complex processes?



## ENGINEERING

How to distribute assembly instructions to operators?



## TRAINING

How to efficiently train new employees to become independent operators?



## QUALITY

How to avoid scrap and production errors?



## PRODUCTION

How to improve process efficiency?

# Augmented Reality instructions

---

**01**

Contactless manufacturing -> built for 24/7 manufacturing

**02**

Custom-built to meet ergonomics -> extra safety measures

**03**

Paperless manufacturing -> Operator can focus on the job

**04**

Create 5s work environment

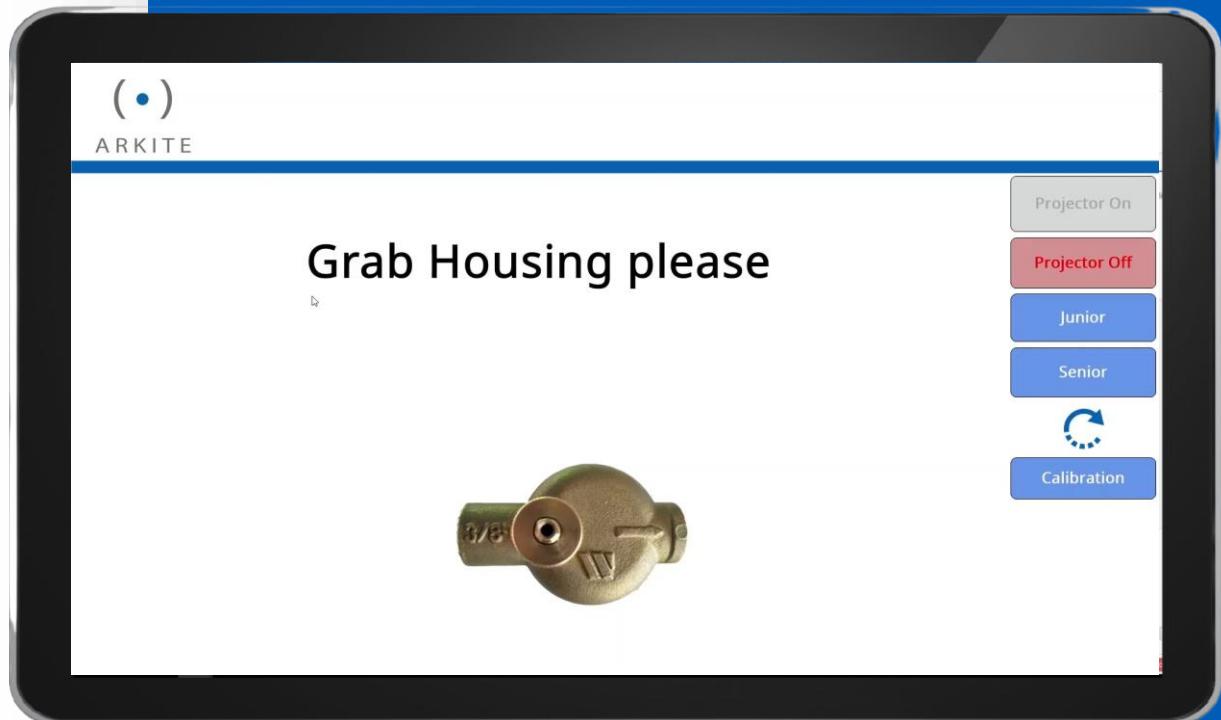
**05**

Limited change management

# Arkite Operator Guidance Platform

---

- Easy to create virtual work instructions
- The platform is intuitive, easy to use and visually engaging.
- Maintain your projects after a 2-day training.
- No coding experience needed.



# Arkite Operator Guidance Platform

## AR WORK INSTRUCTIONS *by projector*

Projections on the workstation  
Text, visuals, CAD, video,  
process data

Step-by-step instructions

Interaction that creates operator  
adaptivity



## PROCESS VALIDATION *by sensor*

3D sensor to check manual operations  
Object and tooling presence  
Pick-by-projection check  
Virtual button

# Powerful data analytics



## Optimize your assembly process:

- Reporting of product output shows you which product takes a long time to assemble
- Reporting of step time shows you which steps in the process cause the issue

## Identify training needs:

- Reporting of cycling times shows you which operators have issues assembling a particular product
- Reporting of scrap rate shows you which operators make more errors
- Reporting of step duration shows you which step in the process causes delays

## Immediately act upon issues:

- Reporting of current step duration shows you if the process hangs on a particular unit
- Reporting of unit status immediately shows you which unit requires attention.

# Meet our research partners

---



Flanders Make



Agentschap innoveren  
en ondernemen



eavise



driving industry by technology

Sirris



Horizon 2020



TNO – Innovation for  
life

# References



**ALRO**



**Volvo  
Cars**



**CNH Industrial**



**Petersime**



**Senzer**



**Benteler**



**Atlas  
Copco**



**Webasto**



**Youtube  
Channel**

# Alro

## Problem

- Drilling location depends on market (US, EU, JPN)
- Multiple product variants due to combination of market, sensor, grill
- Multitude of components that need to be picked and placed correctly
- Physical checklist required by customer

## Application

- Complete process guidance of 2 workstations: picking, assembly, tooling
- PC communication é internal network for planning and checklist
- Project setup: 2 HIM's + 2 Projectors



- Elimination of drilling, picking & assembling errors
- Elimination of rework and scrap caused by human error
- Reduction in faulty products delivered to customers
- Automated checklist confirmation after process completion



[Back to reference slide](#)

# Volvo Cars

## Problem

- Replacement of 60 raptards contains a high risk for human error: missing or wrong parts
- Hight training efforts due to new line at area
- Errors only get detected at the end of production line

## Application

- 2 workstations supported for the picking process of components
- Placement guidance for all components
- Integration with PLC: Line interlock
- Project setup: 3 HIM's + 9 projectors



- Step by step guidance for the operator: monitoring of picking & assembly
- Production flexibility
- Reduced training efforts



[Back to reference slide](#)

# CNH Industrial

## Problem

- Critical screwing sequence
- Sequence needs to be finished 3 times, with 3 different torque value (low to high)
- Operators often skip first 2 sequences and go straight to the highest torque

## Application

- Guidance of assembly sequence
- Communication with tooling to ensure the right torque on the right location
- Project setup: 2 HIM's / 2 Projectors



- Reduced training efforts for new operators
- Step by step guidance for the operator
- Secure process completion
- High reduction in faulty products



[Back to reference slide](#)

# Petersime

## Problem

- High amount of cables, with all unique characteristics (and color coding)
- Hight amount of (small) assembly locations
- High risk for human error due to combination of unique cables and multitude of locations

## Application

- Guidance of picking and assembling process
- Precise instructions on picking and cable assembly to prevent human error
- Project setup: 1 HIM / 1 Projector



- Easily manageable and efficient training of new operators
- Reduction of picking and assembly errors



[Back to reference slide](#)

# Senzer

## Problem

- Despite being a social organization, Senzer is faced with a strong focus on costs and efficiency
- People 'with a distance to the market' are employed. Often this entails physical, mental or language limitations.
- Extensive quality controls are added to the flow to ensure quality products

## Application

- Picking and assembly guidance on workstation
- Connection with smart tooling to ensure correct sequence, presence and torque for all screws
- HIM and Interlock: process only starts when product is mechanically locked in fixture.



- Elimination of rework & scrap or faulty products delivered to customers
- Reduced training time and increased multi employability of operators
- Efficiency gain due to takt time reduction: line optimization resulting in the merge of 5 workstations into 3.



[Back to reference slide](#)

# Benteler

## Problem

- Operators need to load cart with poles on specific location – this to keep plates in place during pressing
- Infinite amount of product variants
- Operators needs to place the poles based on a technical drawing – database interface to retrieve and communicate this information

## Application

- Visual guidance and verification where the operator must place a pole based on X/Y coordinates
- Project Setup: 1 HIM + 2 Projectors



- Paperless environment
- Efficiency improvement – training and execution
- Reduction of mistakes



[Back to reference slide](#)

# Webasto

## Problem

- Multiple product variants
- High rotation in between product variants
- High risk for human error: missing steps of sequence (especially priming) → Quality and Safety impact

## Application

- At start up: communication with PLC to define to product type
- Guidance & monitoring of all operations
- Specific guidance of the critical priming process (sequence and location)
- Project setup: 1 HIM + 1 Projector



- Complete guidance of operations
- Reduced faulty finished products
- Reduced training efforts for new operators



[Back to reference slide](#)

# Atlas Copco

## Problem

- Complex manual assembly
- Wrong or missing components due to picking or assembly errors
- Process design contains a certain degree of freedom for the operator → higher risk for human error

## Application

- Process guidance for picking and assembly actions
- Barcode scanner for serial number tracking
- Communication with power tool to define specific task
- Snapshot for quality tracking linked to serial number
- Project setup: 1 HIM + 1 Projector



- - Reduction in faulty products delivered at customers
- - Easy and efficient training of new operators



[\*\*Back to reference slide\*\*](#)