



# PEOPLE MATTER

DON'T AUTOMATE,  
AUTONOMATE

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## Production operator challenges

Objectives (orders, schedules)

Reality (production, quality)

Objectives (specs, instructions)



## Production operator challenges

Paper processes (instructions and check-lists)

Human Error

Inadequate instructions

Lack of clear instructions

Product variability

**Performance & Quality Leaks**

Poor Quality

Cycle Time Losses

Operator Misreads

Incorrect maintenance

Inadequate cleanup

Incorrect Measurement



## Automotive Business Case

Human error at 1 workstation forgetting 1 assembly step:

15 mistakes/year

10k € claims by customer

50k € follow-up projects / external audits / customer meetings

100k€ internal audits, training and "hidden costs"

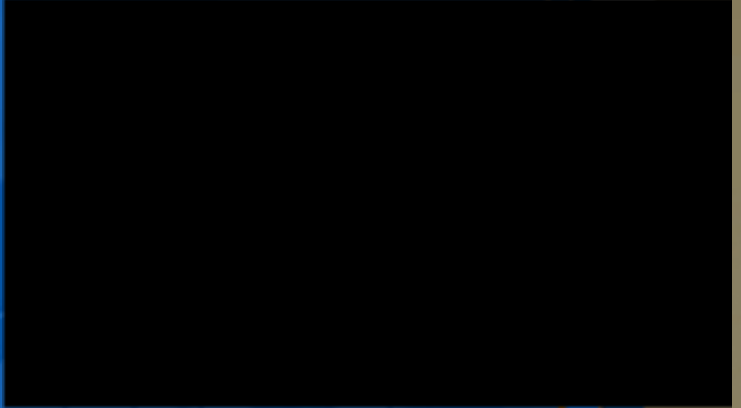
## Human Interface Mate

- Assists operators during operation
- Notifies while something goes wrong so the mistake can be corrected during cycle time
- Matches work instructions dynamically to products
- Eliminates operator's confirmations
- Deals with product variations & small batches
- Integrates with SAP for order integration and advanced analytics



The Human Interface Mate is the ultimate "Virtual Guardian Angel"

## HIM INSTALLED AT ATLAS COPCO



## 3HV: Manufacturing Overview

- **High Variability**
  - Production variances
  - Human Capital
- **High Volume** - 1000's assemblies per day
- **High Value** - €100's to €1000's per 1 finished-goods assembly



## HIM supporting processes to assemble...



HIM supporting processes to assemble...

Logos shown: Ford, CNH INDUSTRIAL, senzer, ThalesAlenia, Atlas Copco, COMMSCOPE, TENNECO, ALRO GROUP, BRINK, HONDA, SAPA, REYNAERS

BRINK: Tow Bar

**Objective:**

- **High Variability:** +700 variants
- Guidance of packing process
- Unlimited amount of variants
- Easy to implement by customer
- Dynamic workinstructions and visualisations
- Startup check

**Solution:**

- 1 HIM including 2 Projectors
- Barcode scanner

**BRINK**

CNH Industrial: Combine Rotor

**Objective:**

- **High Value:** guarantee issues
- 72 bolts in exact sequence with 4 different torque levels
- Zero Defect
- Supporting assembly sequencing tooling

**Solution:**

- 1 HIM including 1 Projector
- Integration with SAP system and Tooling

**CNH INDUSTRIAL**

SAPA Group: Engine Cover Assembly

**Objective:**

- **High Volume**
- Repetitive processes – risk for human error
- Zero Defect
- Supporting picking & assembly process

**Solution:**

- 1 HIM including 1 Projector
- Complex tasks over different stations combined into 1 station

**SAPA**  
Especialista Automoción, Pintas y Aplicaciones

Helping customers to...



- Efficiency**
  - Throughput
  - Rework Efficiency
  - Line Uptime / OEE
  - Manufacturing Agility
- Quality**
  - Avoidance of human error
  - Compliance
  - Rework / Waste
  - Brand / cost of replacing product
- Human Capital**
  - Virtual Guardian Angel
  - Multi Skilled Operators
  - Virtual Trainer

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**CUSTOMER CASE:**  
 SENZER  
 • 3HV: HIGH VARIABILITY  
 • QUALITY & HUMAN CAPITAL

**PAUL VERBAKEL**  
 DIRECTEUR WERK & PARTICIPATIE  
 SENZER



**senzer**

**participatiewet uitvoeren voor 7 gemeentes**

**2017**  
in cijfers

**5.073**  
uitkeringsdossiers, waarvan 641 statushouders

**1.078**  
mensen op regulier werk

**2.166**  
mensen in geïndiceerd werk (IGZ, beschut werk, SW en SSW)

## Klankbordgroep KIT: samenwerking met TNO en Cedris



senzer  DOREL



## Waarom HIM?

- Aantoonbare kwaliteitsborging
- Kostprijsreductie door balanceren lijnassemblage
- Inzetbaarheid medewerkers verhogen
- Bevorderen instroom
- Efficiënte werkinstructie



## Ervaringen senzer DOREL

- Voordelen
  - ✓ Kwaliteit onafhankelijk van capaciteit
  - ✓ Van 5 naar 3 werkplekken
  - ✓ Inzetbaarheid medewerkers verhoogd
  - ✓ Werkplekaanpassing bij cognitieve beperkingen
  - ✓ Werkplekaanpassing bij taalachterstand
  - ✓ Tijd voor persoonlijke coaching i.p.v. werkinstructie
- Nadeel
  - ✓ Benodigde capaciteit programmeren HIM



## Ervaringen van medewerkers

- Voordelen
  - ✓ Zelfvertrouwen neemt toe
  - ✓ Concentratie neemt toe
  - ✓ Inzetbaarheid op meervoudige taken neemt toe
  - ✓ Werk als meer uitdagend ervaren
- Nadeel
  - ✓ Gelijkblijvende instructie bij repeterende handelingen



## Doorontwikkeling

- Toepassen bij meerdere producten Dorel
- Toepassen bij meerdere inleners groepsconcepten
- Individuele uitstroom medewerkers incl. HIM
- Adaptief systeem
  - ✓ Instructie nivo op basis van uitgevoerde handelingen
  - ✓ Pilot TKI in samenwerking met TNO en Arkite



## HIM toepassing senzer x DOREL



<https://youtu.be/BkosXTZy2FI>

