

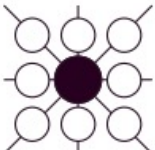
sirris innovation
forward

Sirris

- Strategisch onderzoekcentrum voor technologische sector
- Ondersteuning bij innoveren
 - Introduceren nieuwe technologieën
 - Reduceren van risico



150
MULTIDISCIPLINARY
EXPERTS



8
STATE-OF-THE-ART
INDUSTRIAL LABS



5
DOMAINS OF
EXPERTISE



**BIGGEST
PARTNERNETWORK
IN BELGIUM**

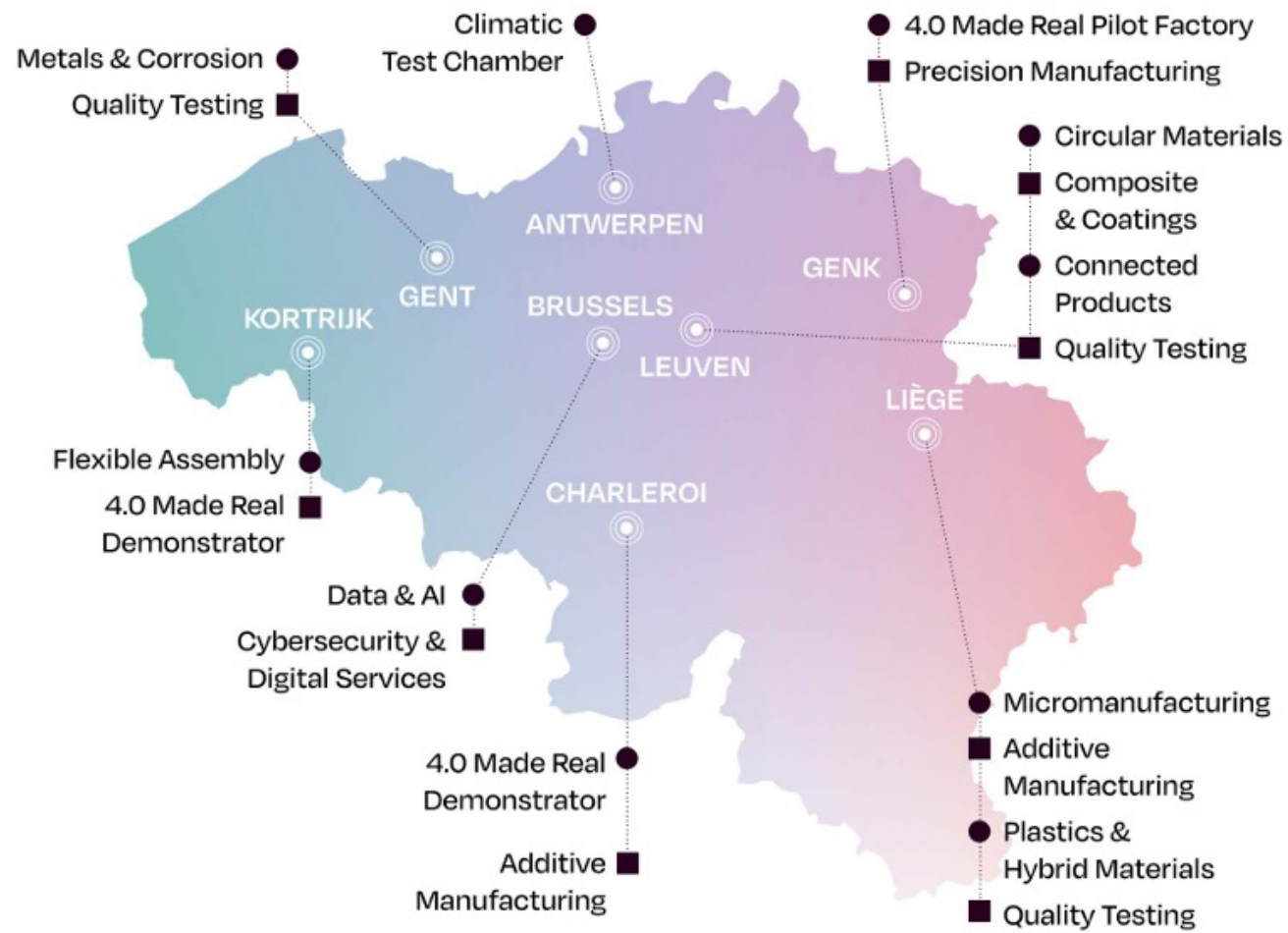


1,300
INNOVATION
PROJECTS A YEAR



>75%
SMES

Sirris



Use of AI in Machining Operations

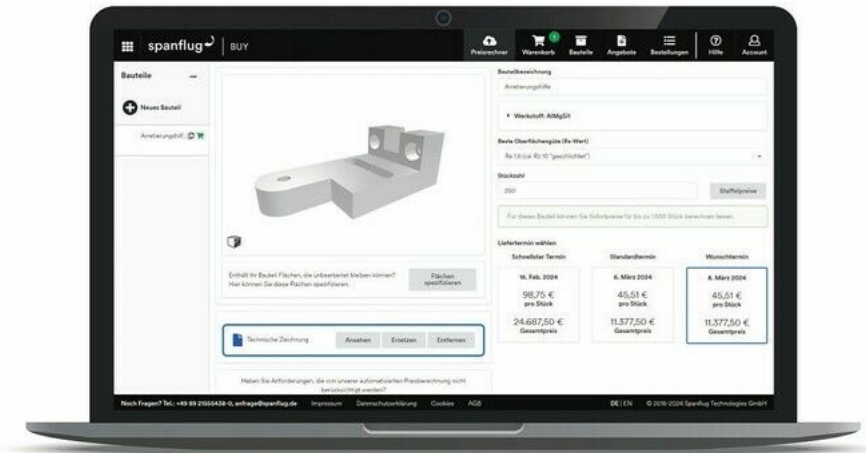
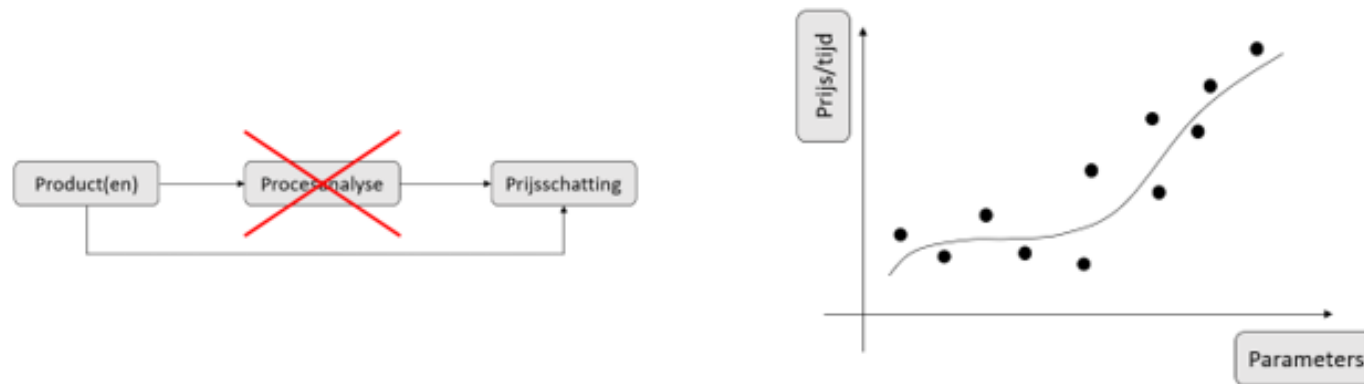
FROM OFFER GENERATION TO MEASURING

- **Predicting machining cost/time**
- **Combination of knowledge and AI for process conditions**
- Support of maintenance decisions
- Predicting and optimising the energy consumption
- Upgrading legacy machine tools
- **AI to monitor cutting tools**
- AI for quality control

Inspiratie voor
brainstorm sessie

Predicting Machining Cost/Time

- From drawing to cost (in one step)
- Based upon AI
- Commercial applications: Spanflug, Makerverse, Xometry, Costing24, CostChecker, Imnoo,... (tuning needed!)



Predicting Machining Cost/Time

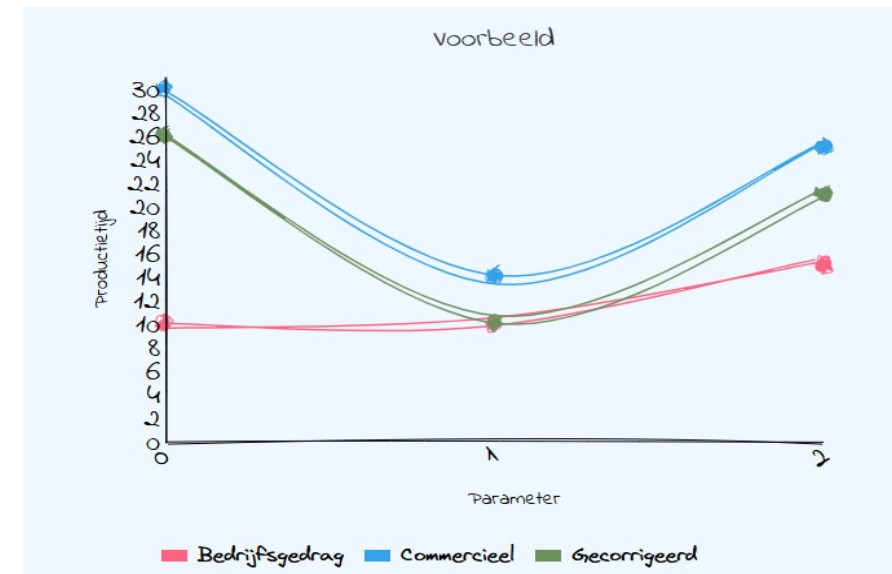
STATE-OF-THE-ART

■ Drawbacks

- One-fits-all solution
- Own strengths & weaknesses are not translated in these algorithms
- Estimating the cost of the market
- Own data?

■ Advantages

- Fast solution



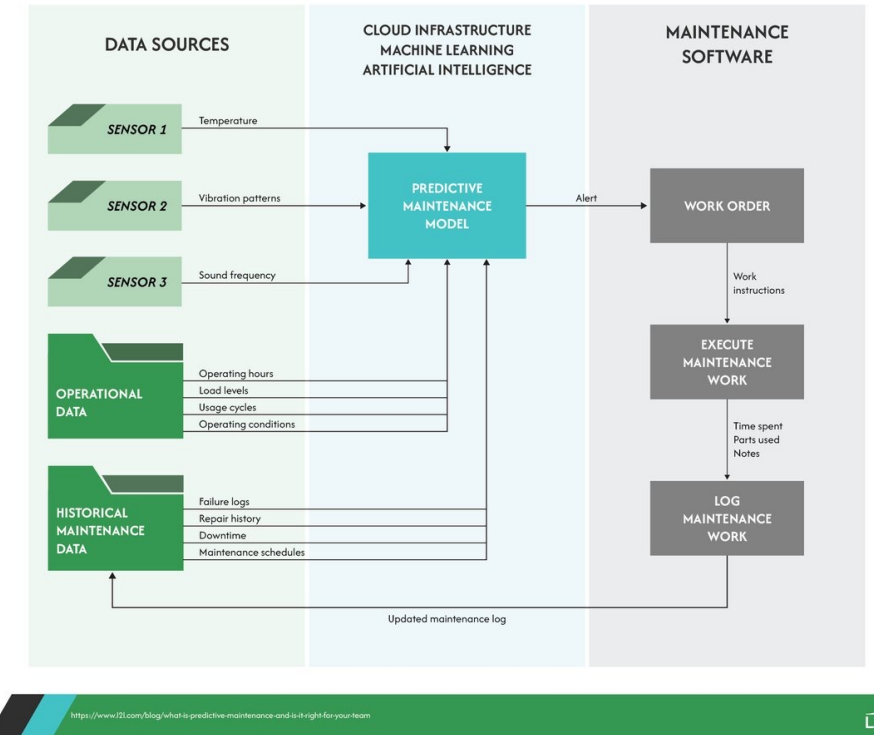
AI as a supporting tool for difficult challenges

- Chatbots based upon LLM's and trained on company data
- Possible with own developments
- Often a cooperation with Co-Pilot
- But there are also some commercial systems on the market (e.g. from Sandvik, Cimatron, Siemens,...)
- Fast searching function in own data, but be careful on the so-called 'hallucinations'

Support of Maintenance Decisions

- Anomaly detection
- Detection of degradation of components (e.g. pneumatics leakages)
- Commercial applications in modern CNC machine tools (e.g. DMG Mori)

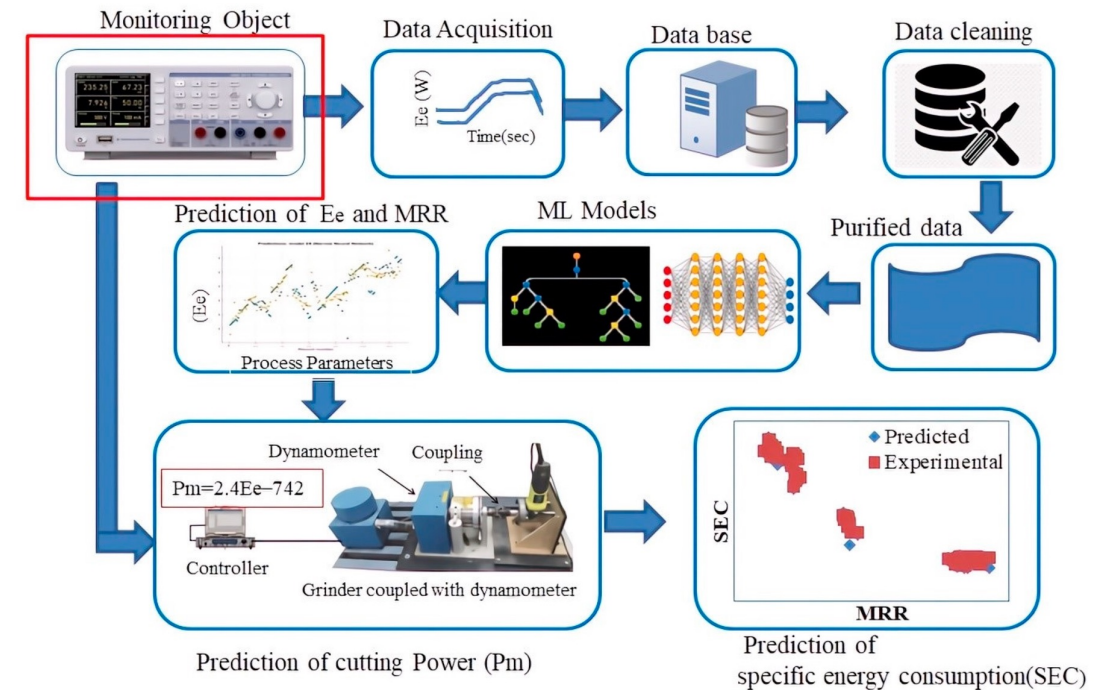
SIMPLIFIED REPRESENTATION OF PREDICTIVE MAINTENANCE



Source: L2L

Predicting and Optimising the Energy Consumption

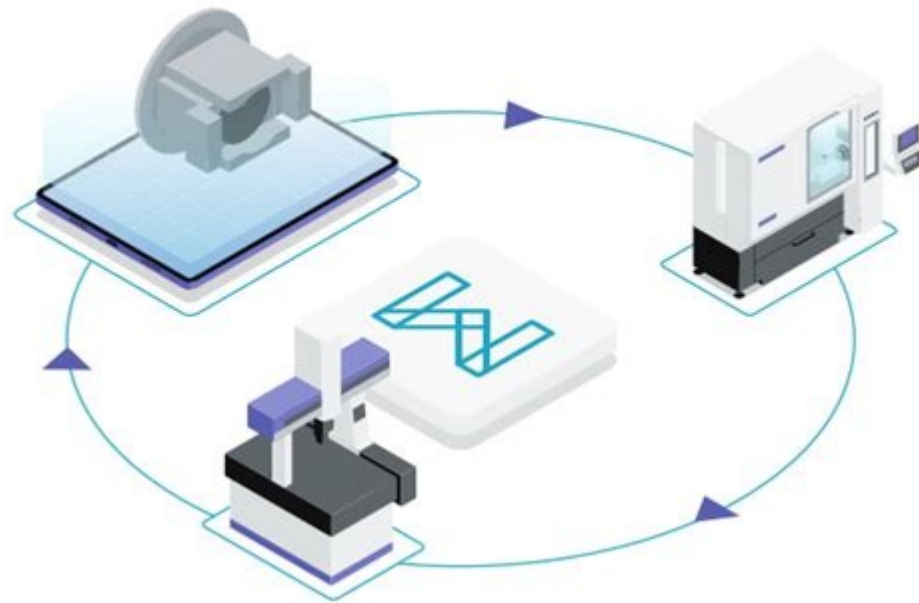
- Modelling the Energy Consumption
- Balancing (and minimising the cost)
- EUREKA-Project: combination of energy/maintenance analytics



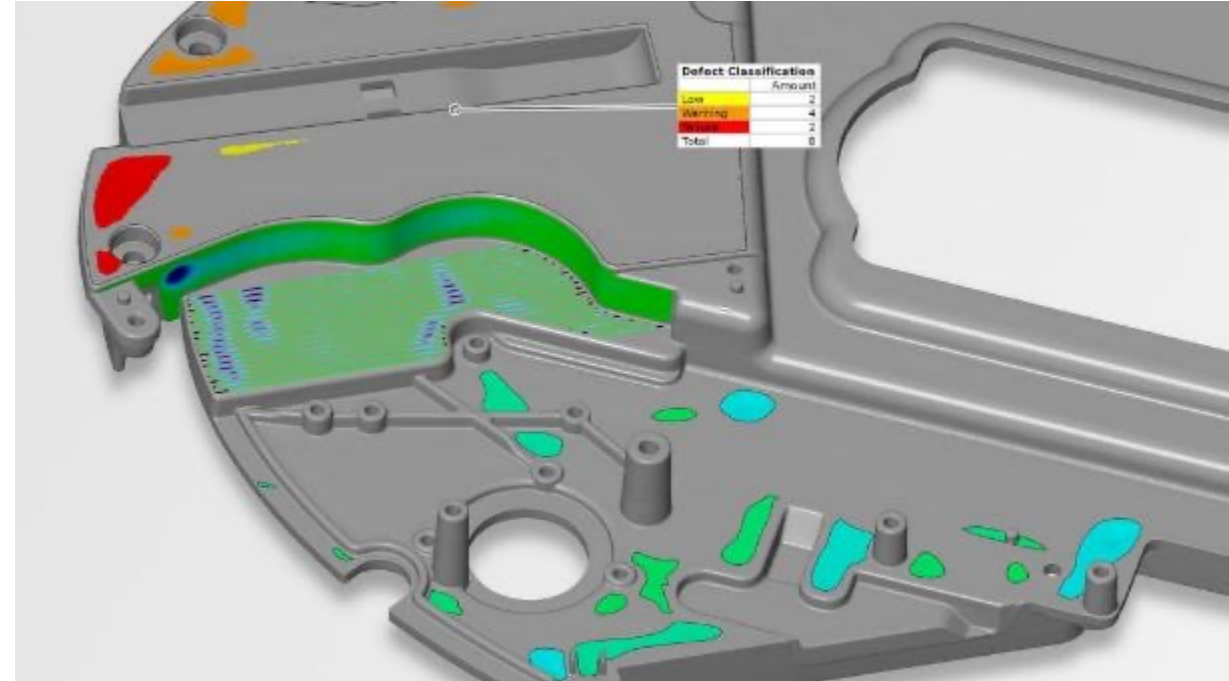
Source: MDPI

Upgrading legacy machine tools

- Automatic NC-generation based upon machine learning (Ellistat)
 - Connection between measurements, CAD & machine tool (and driven by AI)

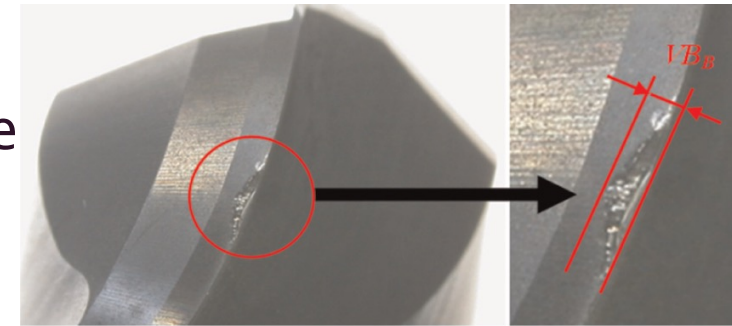


AI for quality control (recognition)

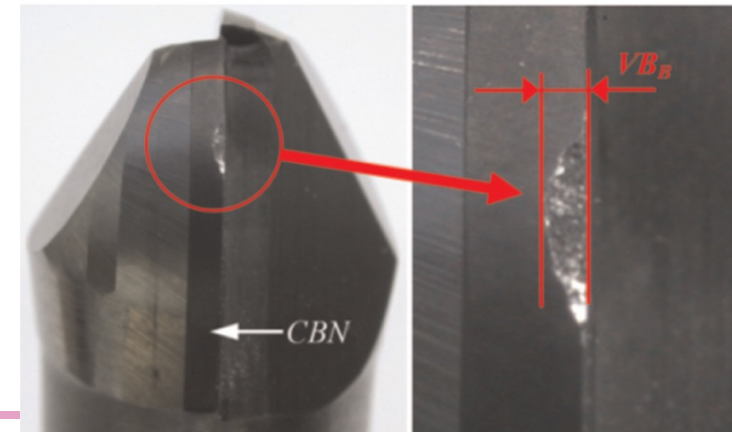


AI to monitor cutting tools

- Systems based upon sensor signals: difficult to set limits in a variable context
- AI allows the user to gain in a more advanced way the right limits
- Commercial applications (e.g. Pro Micron Spike)
- Cameras and imaging recognition techniques is also possible
- Operator stays in the lead (for now)



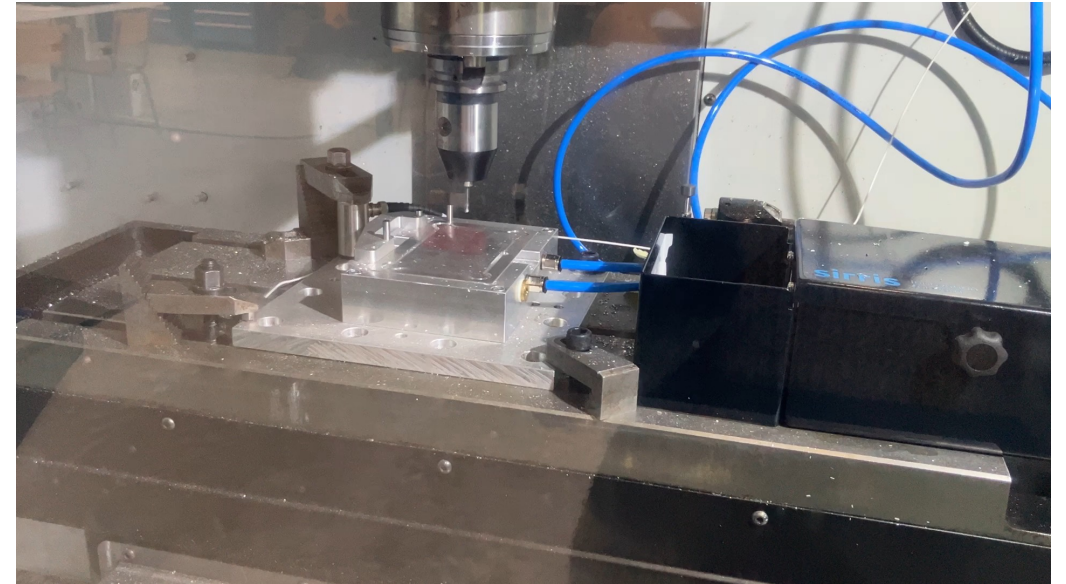
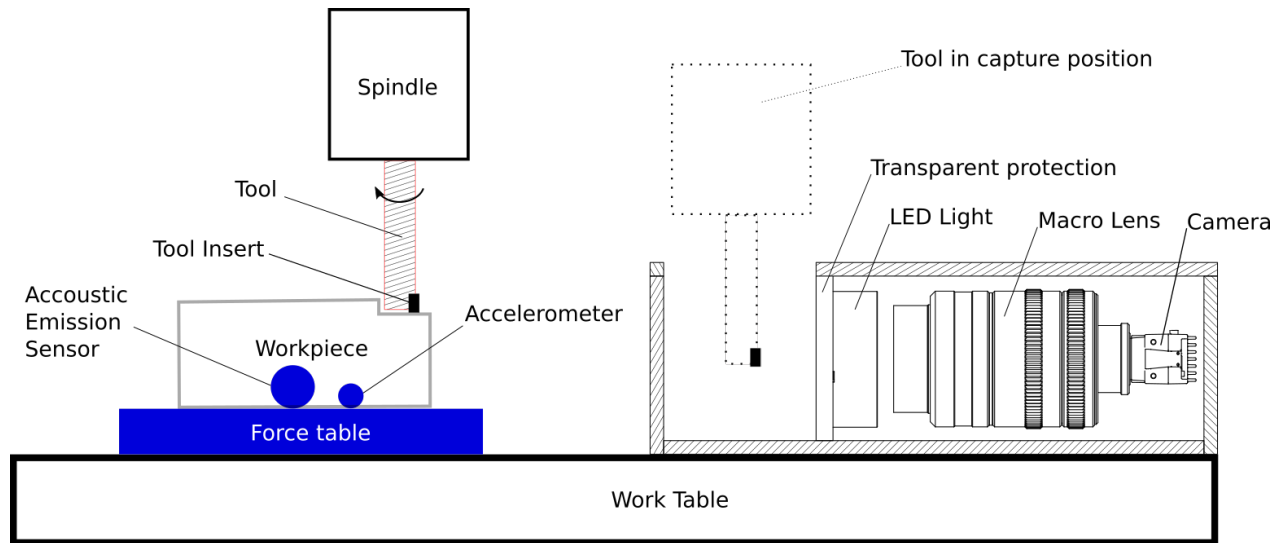
(a)



(b)

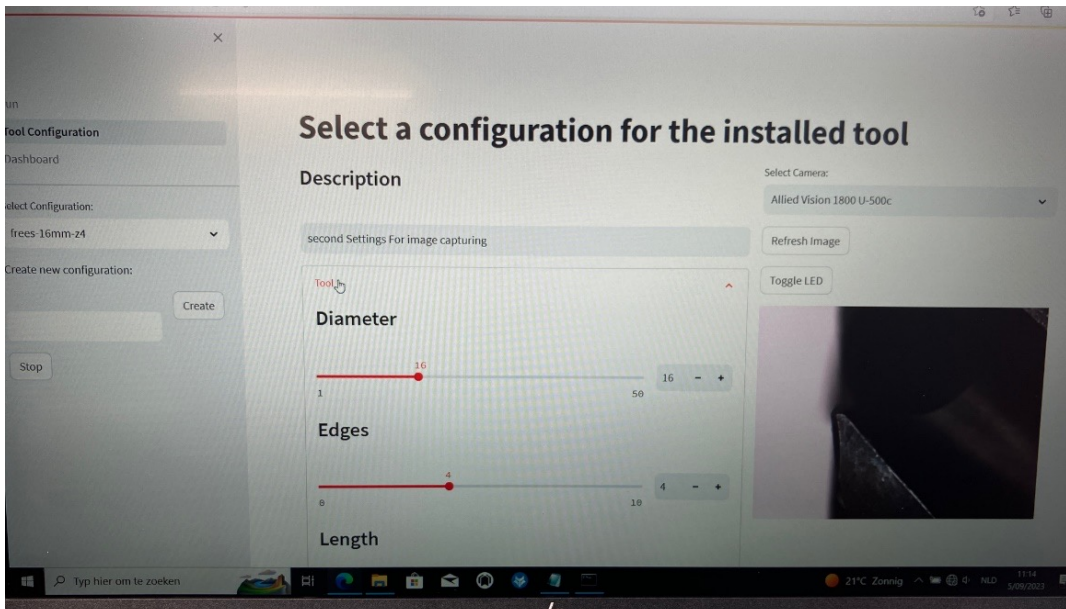
AI to monitor cutting tools

- Data becomes cheaper (and data-analytics more interesting)
- Research Project 'Autonomous Tool Wear Inspection'



AI to monitor cutting tools

- Offline Device (tested at companies) – only vision



More Questions? Don't Hesitate!

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sirris

The innovation
companion of the
technology industry

