



WEIDMANN

Medical Technology

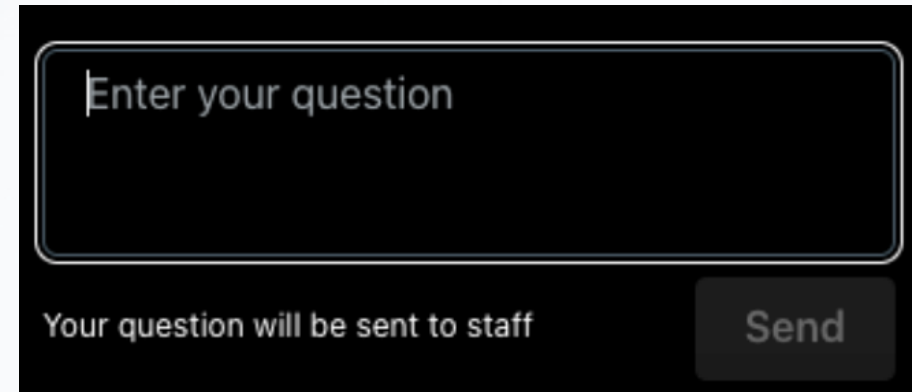
From data acquisition to AI applications
in medical plastics manufacturing

JÖRG PURKHART & JAMES SKLENKA | June 30, 2026 | 10:00 EDT | 16:00 CEST

How to ask a question



Click the question mark icon in the top right panel.

A dark-themed user interface for asking a question. It features a large, rounded rectangular text input field with a light gray border and a cursor. Below the input field, the text "Your question will be sent to staff" is displayed. To the right of this text is a "Send" button. The entire interface is set against a dark background.

Type your question. This will only be seen by the event organizers.

WEBINAR

From data acquisition to AI applications in medical manufacturing

Details

Turning production data into process understanding and into future-ready AI applications



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Content

- 01** Weidmann Group
- 02** Introduction and Basics
- 03** Statistical Analysis
- 04** AI and Prediction
- 05** Use Cases
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01

Weidmann Group

Weidmann Group*



Electrical Technology



Medical Technology



Fiber Technology



- + Leading global provider of engineered products and services to the electrical, medical and fiber industries
- + Group turnover: 573 MCHF (716 MUSD)
- + Employees: 3,663 / **Medical 232**
- + Group CEO Maximilian Veit
- + Business Areas: Electrical, Fiber and Medical
- + Established: 1877
- + Swiss, privately held
- + Shareholding company organized as a foundation

Weidmann Group Global Footprint

- Weidmann Group Sites
- Weidmann Medical Technology



Weidmann Medical Technology

At a Glance

- + Leading contract developer and manufacturer delivering customized, high-quality plastics injection molded components for the medical sector.
- + Converting conceptual product ideas into efficient, industrialized solutions.
- + Applying molding and assembly expertise to meet the demands of the life science industry.
- + Integrating technical expertise, industrialization know-how, and operational excellence drives exceptional quality and lowers total cost of ownership (TCO).
- + Market segments: 65% Diagnostics (IVD) and Medical Devices, 35% Pharma/Drug Delivery

Key Metrics*

- + 232 employees
- + 8,800 m² total cleanroom area
- + ISO 7 and 8 cleanroom classes
- + 86 injection molding machines
- + 24/7 production
- + +1,500,000,000 units/year



02

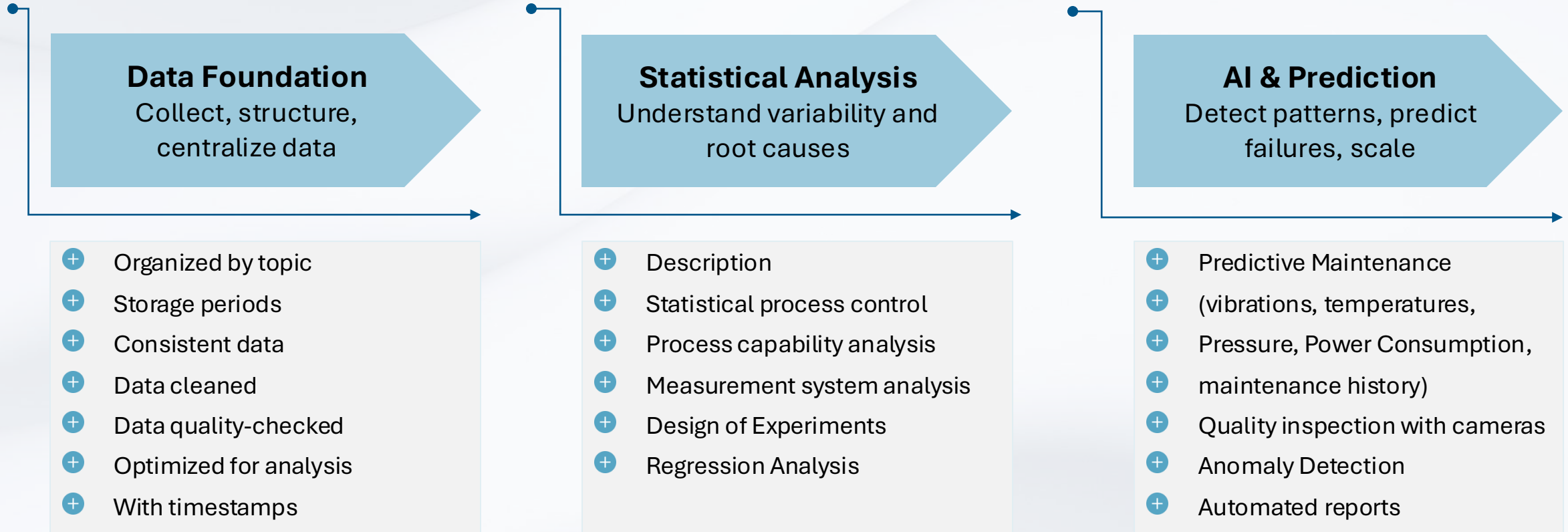
Introduction and Basics

Establish a solid data foundation

The plant locations and data network of Weidmann Medical Technology demonstrate its digital connectivity.



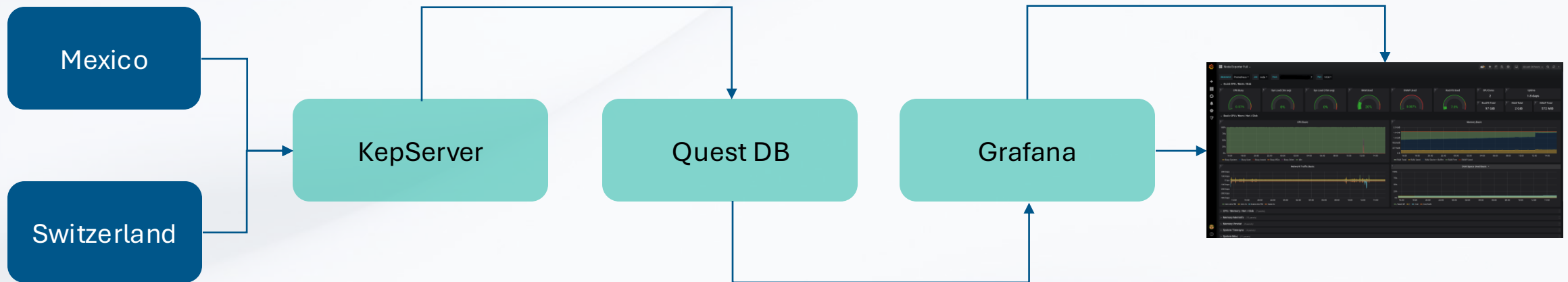
Introduction and basics



Shows how a solid data foundation enables statistical analysis and AI.

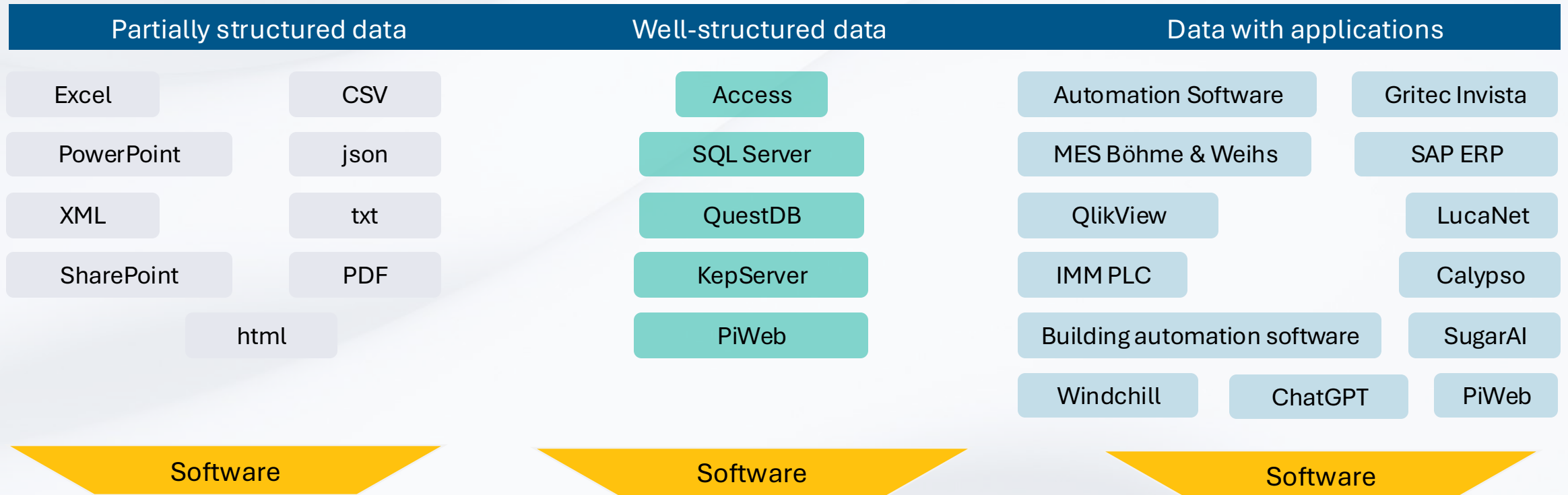
Establish a solid data foundation

Software and interfaces



Illustrates the software architecture and total cost of ownership from data acquisition to decision-making.

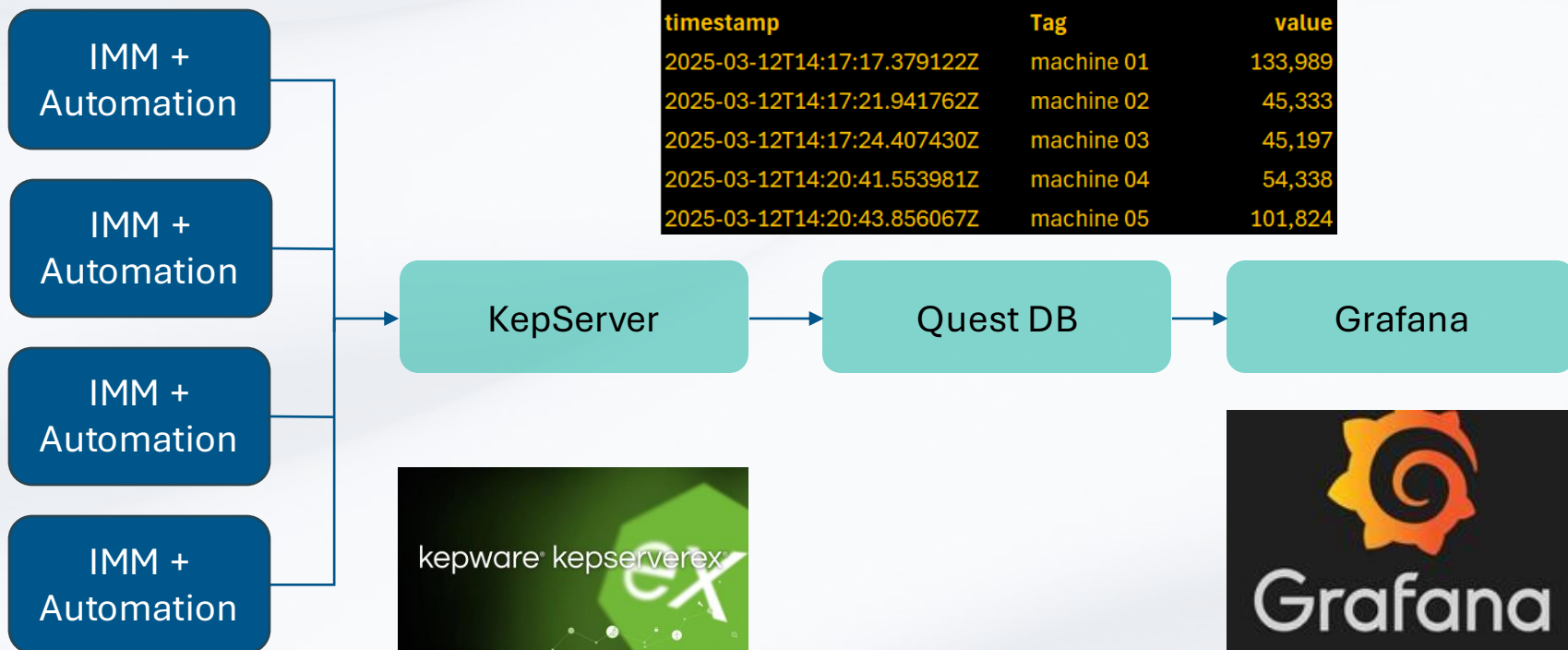
Establish a solid data foundation



Illustrates the wide range of data sources and software applications used for analysis.

Establish a solid data foundation

Production data



Provides an example of a production data flow from data collection to dashboards supporting decision-making.

Establish a solid data foundation

Quality data

Article 01

Article 02

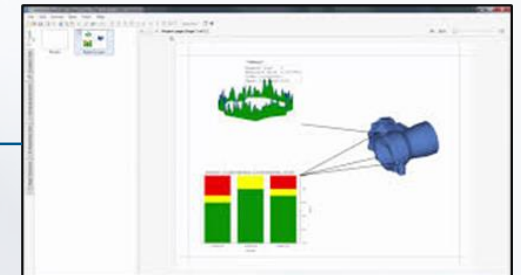
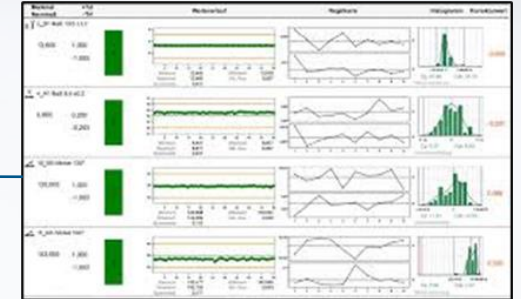
Article 03

Article 04

PiWeb

WMT datamodel

Spalten	Beispiel
Schlüssel_wmt	xxxx
Artikel Nr	
K850 Werkzeugnummer	40367
K851 Werkzeugeinsatz	
K1081 SGM	
K803 Entnahmedatum	44868
K852 Entnahmezeit	
K53 FAUF	1258820
ArtikelName	
Uuid	xxx
Status	1
Zusatzdaten	False
Pfad	pfad_xxxx
K4 Zeit	44872.35569
K5 Ereignis	
K7 Kavität	4
K8 Prüfer	Diana Storch
K9 Text	
K12 Prüfmittel	166841 - OI322 - O-Inspect322
K14 Teile Ident	14950
K15 Entnahmezweck	Serie
K16 Lot-Nummer	
K33 Werkstück Korrektur	
K34 Werkstück Temperatur	
K39 Palettenplatz Nummer	12
Merkmal	2.8_+X_Y
K1 Messwert	2.789

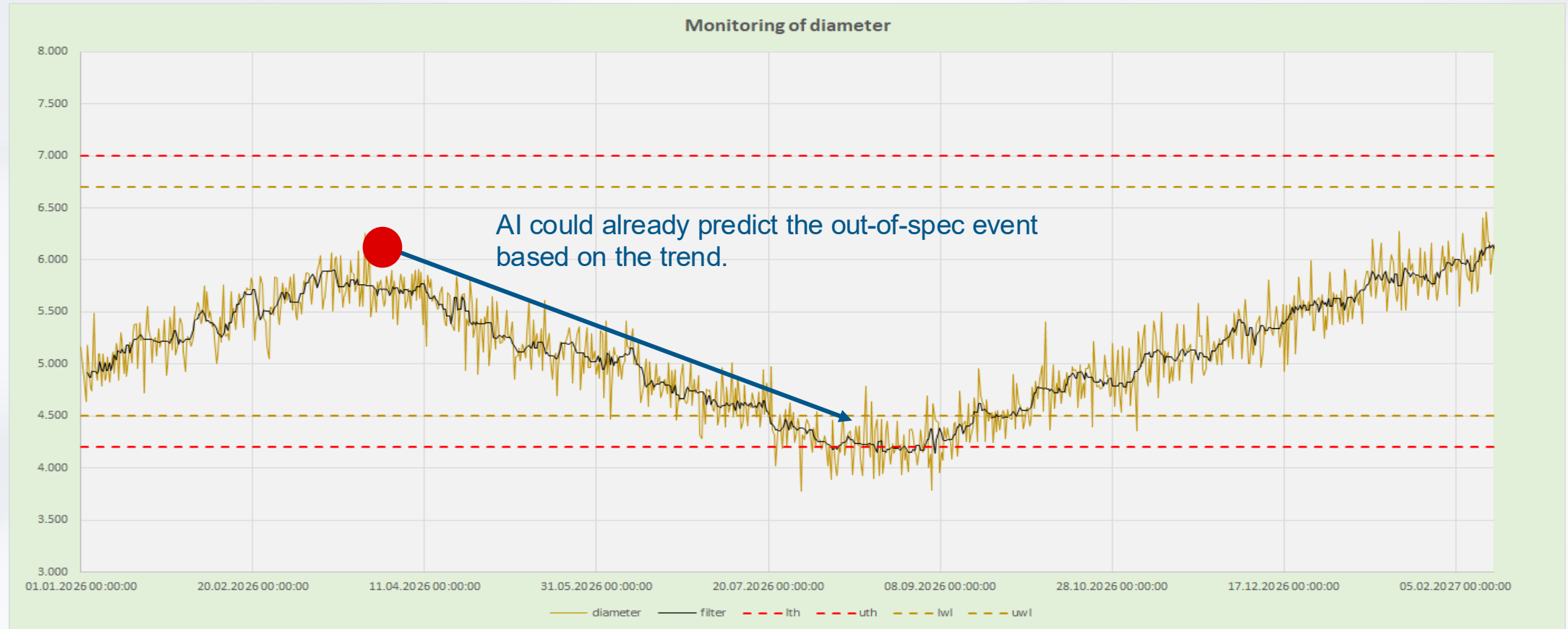


Illustrates the wide range of data sources and software applications used for analysis.

03

Statistical Analysis

Statistical process control

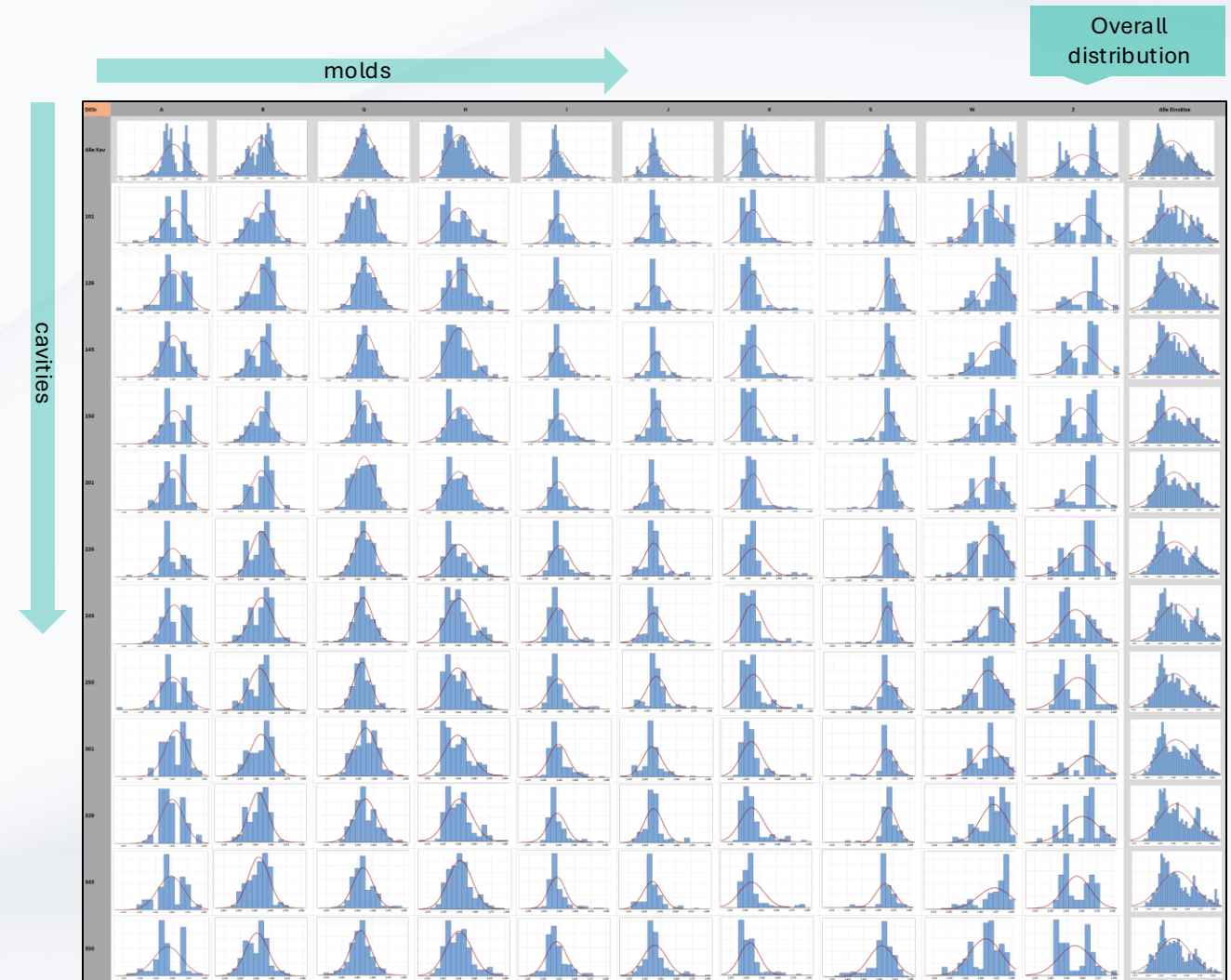


Shows how statistical process control helps detect process trends and deviations.

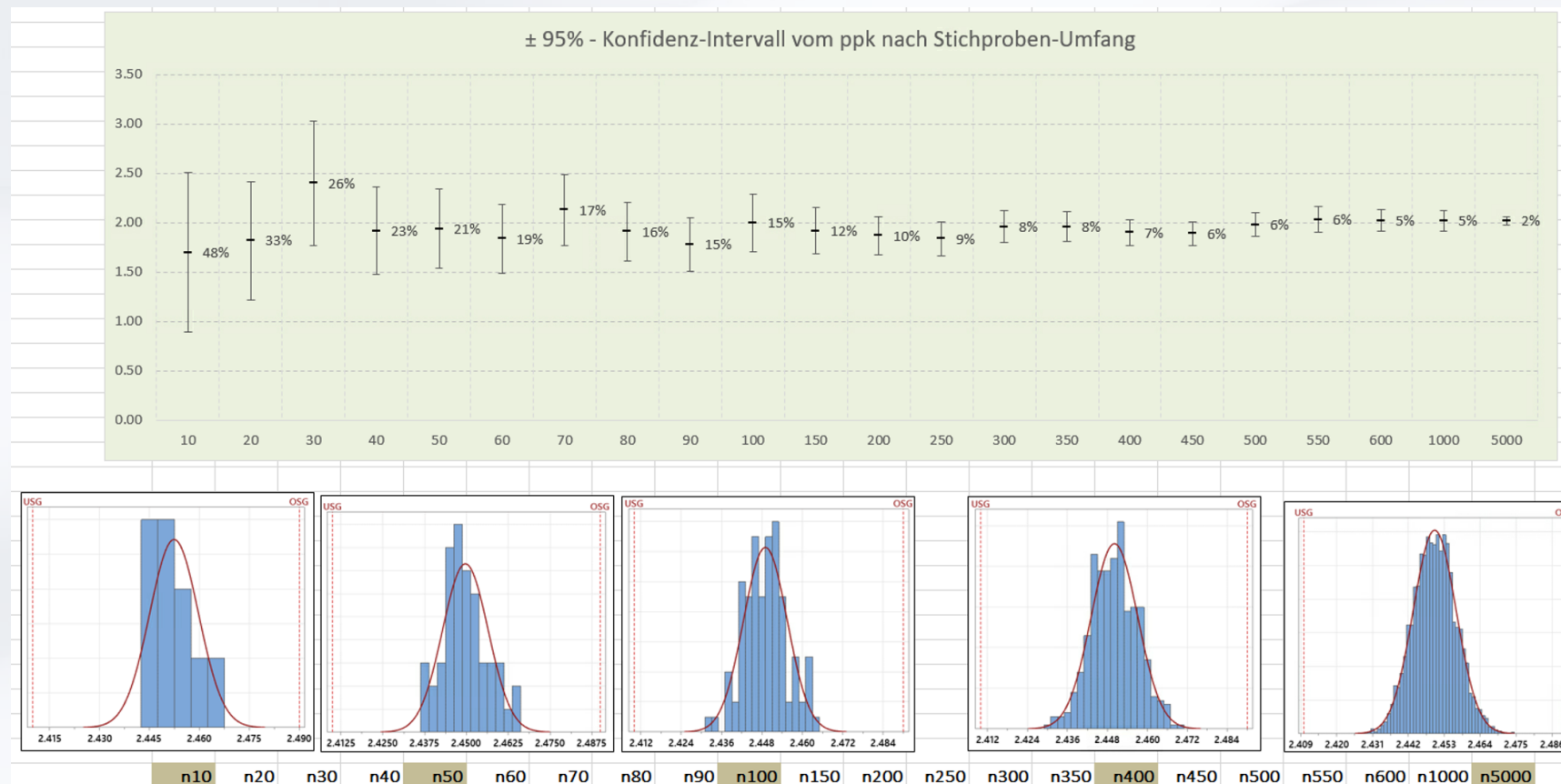
Statistical histogram analysis

- + Comparison of the same cavities in different molds for the same part.
- + Within a single mold, the cavities are nearly the same size.
- + There are significant differences between the molds
- + The analysis was performed by evaluating several hundred thousand measurements

Example of a multi-histogram comparison across multiple molds and cavities.



Statistical process control

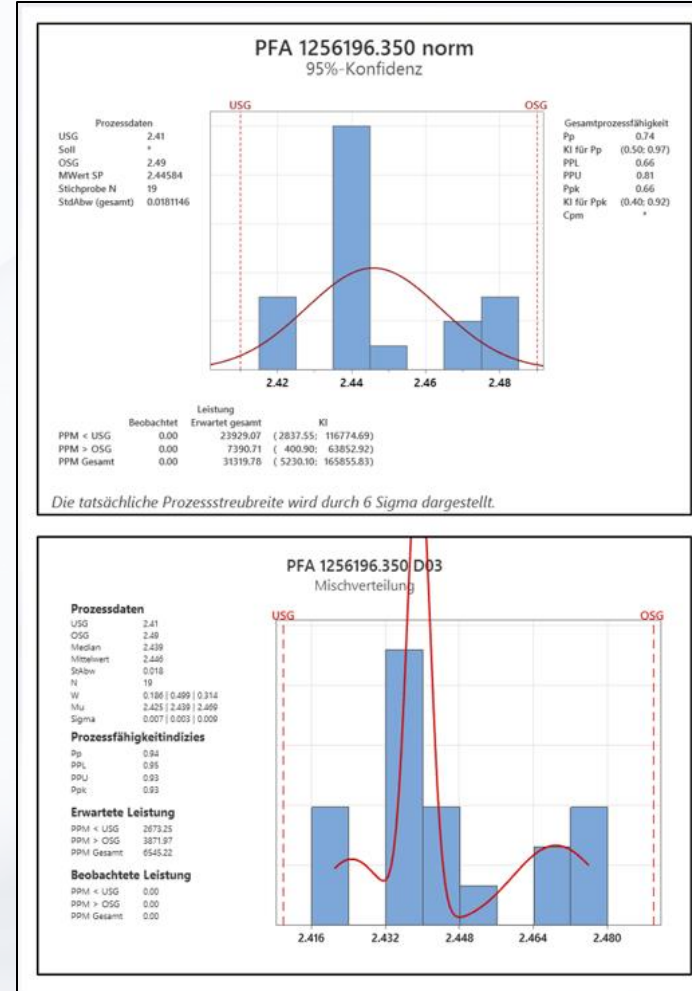


Shows how sample size affects the detection of trends and deviations.

Statistical process capability

ISO 22514

Modell	Kurzzeitverteilungen	Prozessverteilung	Zeitreihe
A1			
Norm			
A2			
LogNorm			
Weibull			
Betrag 1			
B			
Misch			
C1			
Norm			
C2			
Misch			
C3			
Misch			
C4			
Misch			
D			
Misch			



Normal
Distribution
cpk = 0.66

Mixed
Distribution
cpk = 0.92

Comparison of PFA with normal distribution and other distributions

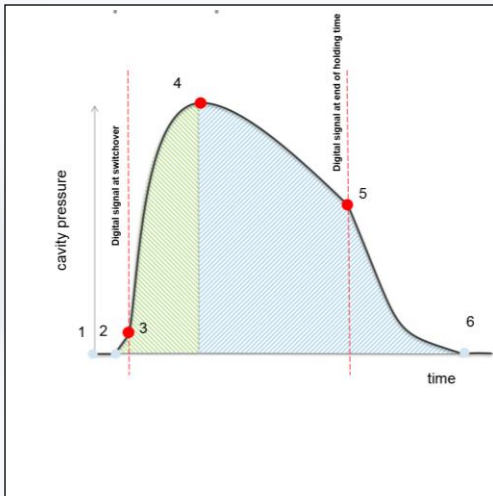
04

AI and Prediction

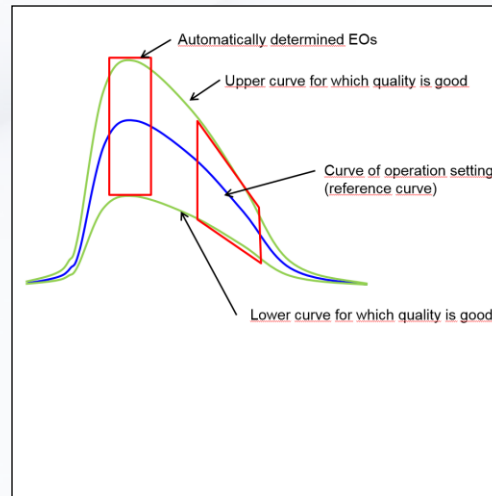
From Statistics to AI

Internal pressure curve to predict product quality

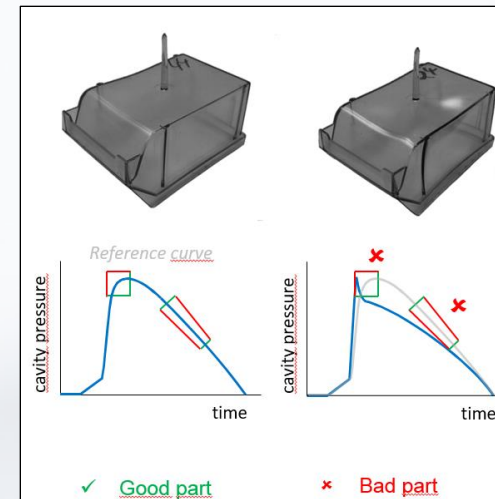
DoE to derive an internal pressure curve



DoE to derive internal pressure curves for good quality



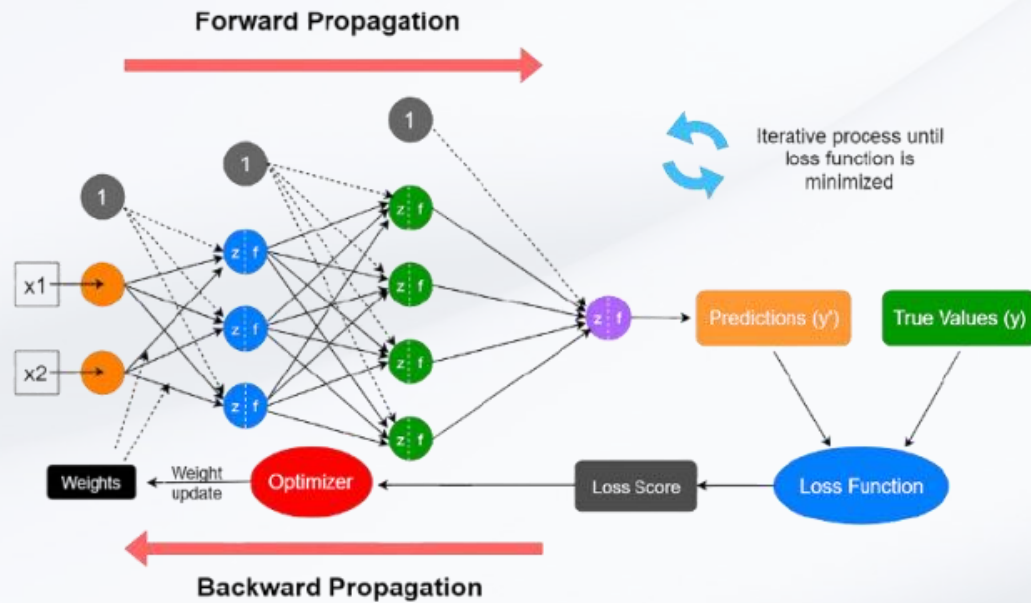
Quality prediction using an internal pressure curve



Illustrates how DoE-generated reference curves enable quality prediction by comparing actual process curves with target curves.

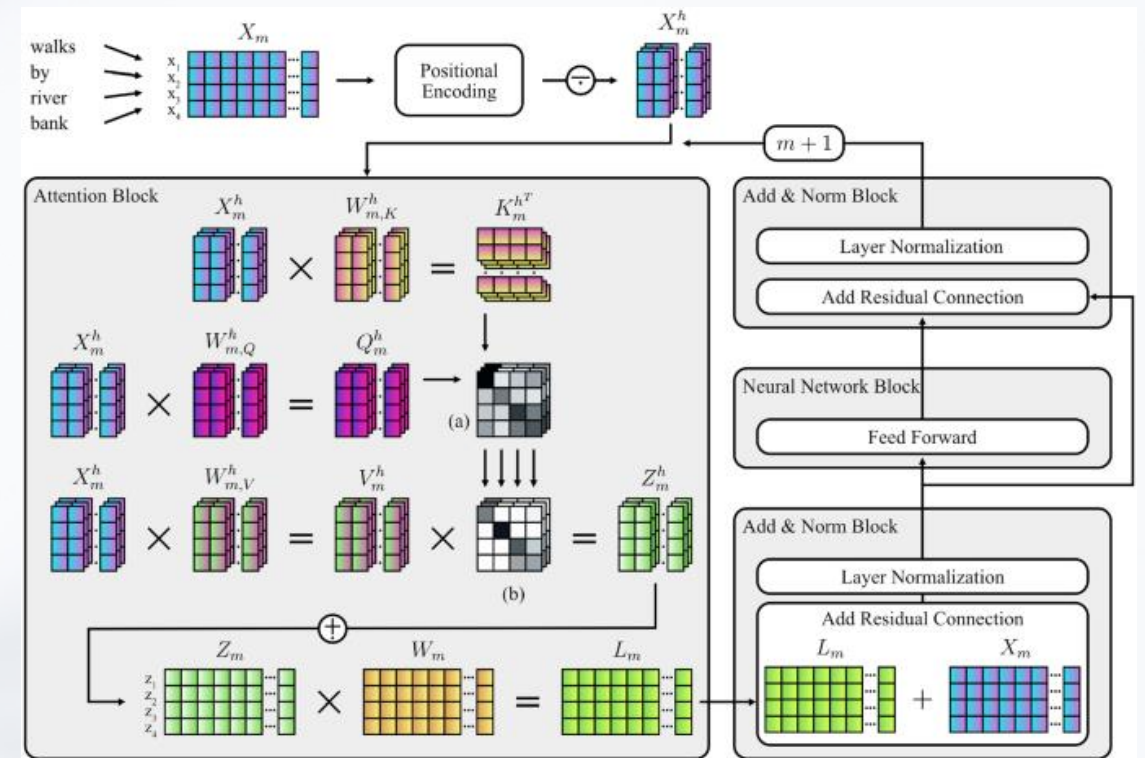
AI - Introduction

Neuronal network



Minimization loss function, update weights

Large language model



Self-attention and neuronal network

05

Use Cases

Case 1: AI strategies for detecting deviations and decision-making

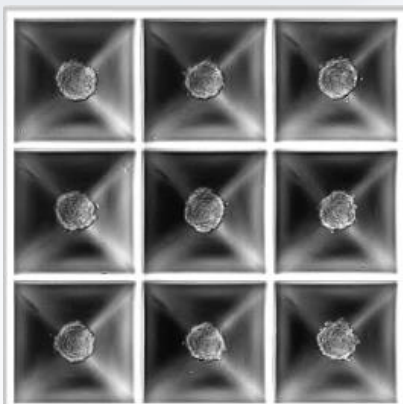


96-WELL STRIP FORMAT

2400 spheroids per plate

Flexible 3D cell culture

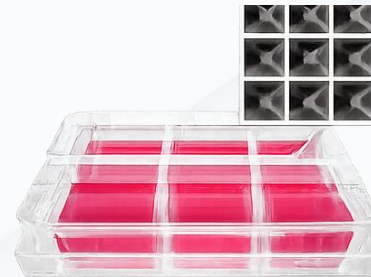
Good spheroids



24-WELL PLATE

9600 spheroids per plate

Start up your 3D cell culture

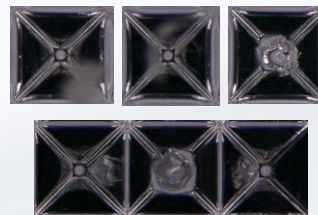


6-WELL PLATE

20 184 spheroids per plate

Scale up your 3D cell culture

Deviations



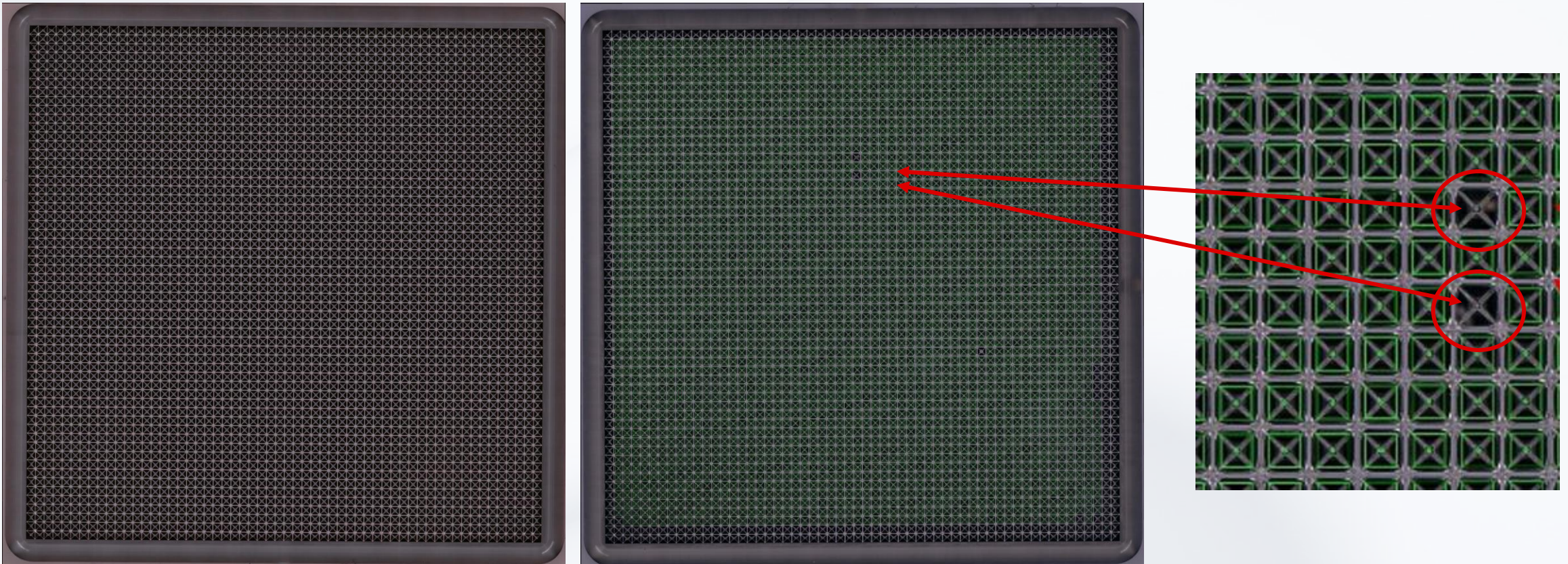
Evaluation with AI

Wellplates are used to produce 3D cell cultures for cancer research, stem cell research, and drug screening.

- + High efficiency
- + Better cell quality
- + More vital cells
- + Compatible with standard plates

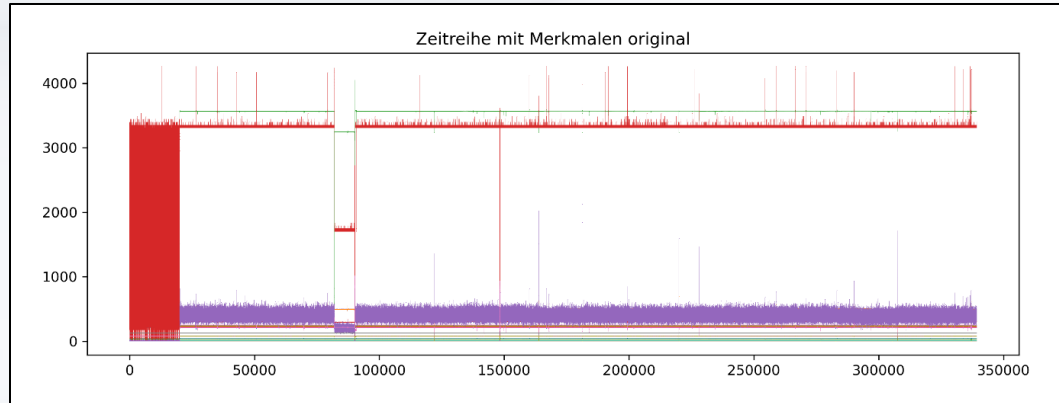
Case 1: AI strategies for detecting deviations and decision-making

Evaluation of 3,364 spheroids per image

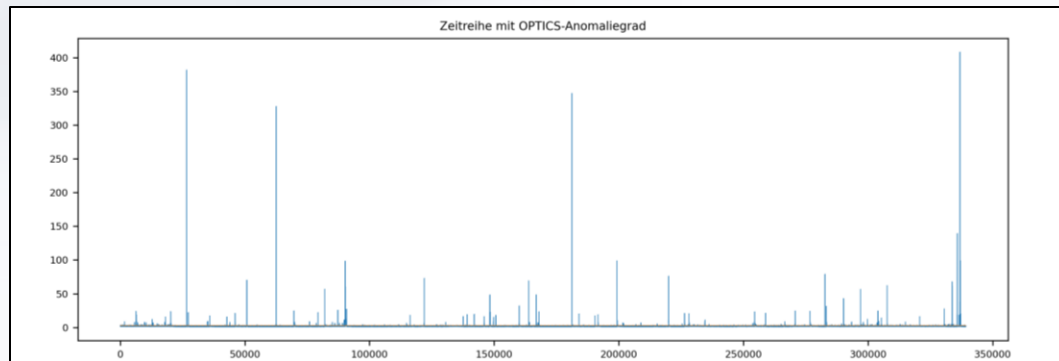


Case 2: AI strategies for detecting deviations and decision-making

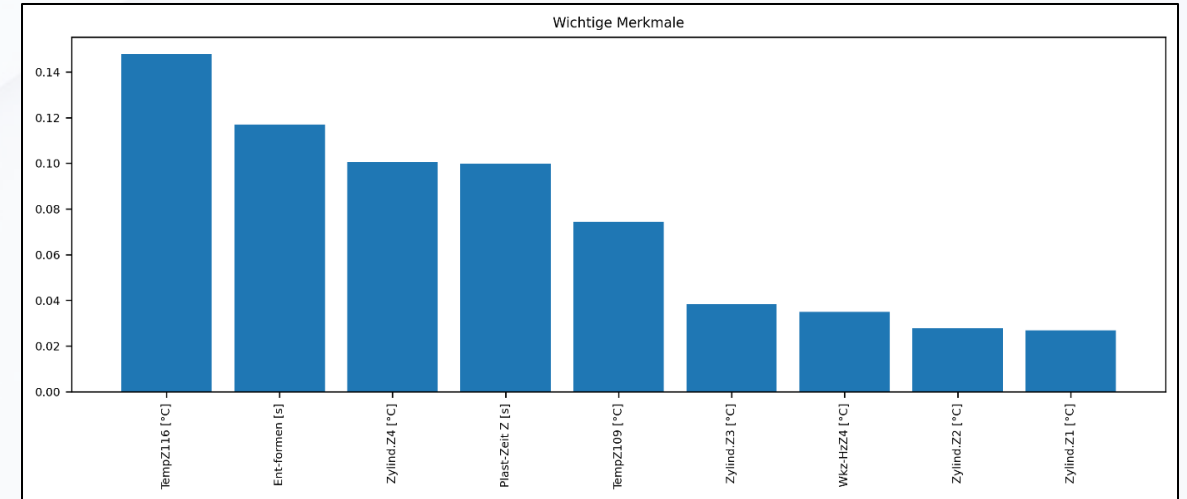
1. Capture heterogeneous data based on timestamp for example



2. Normalize data and build best clusters



3. Use decisions trees for weighting features

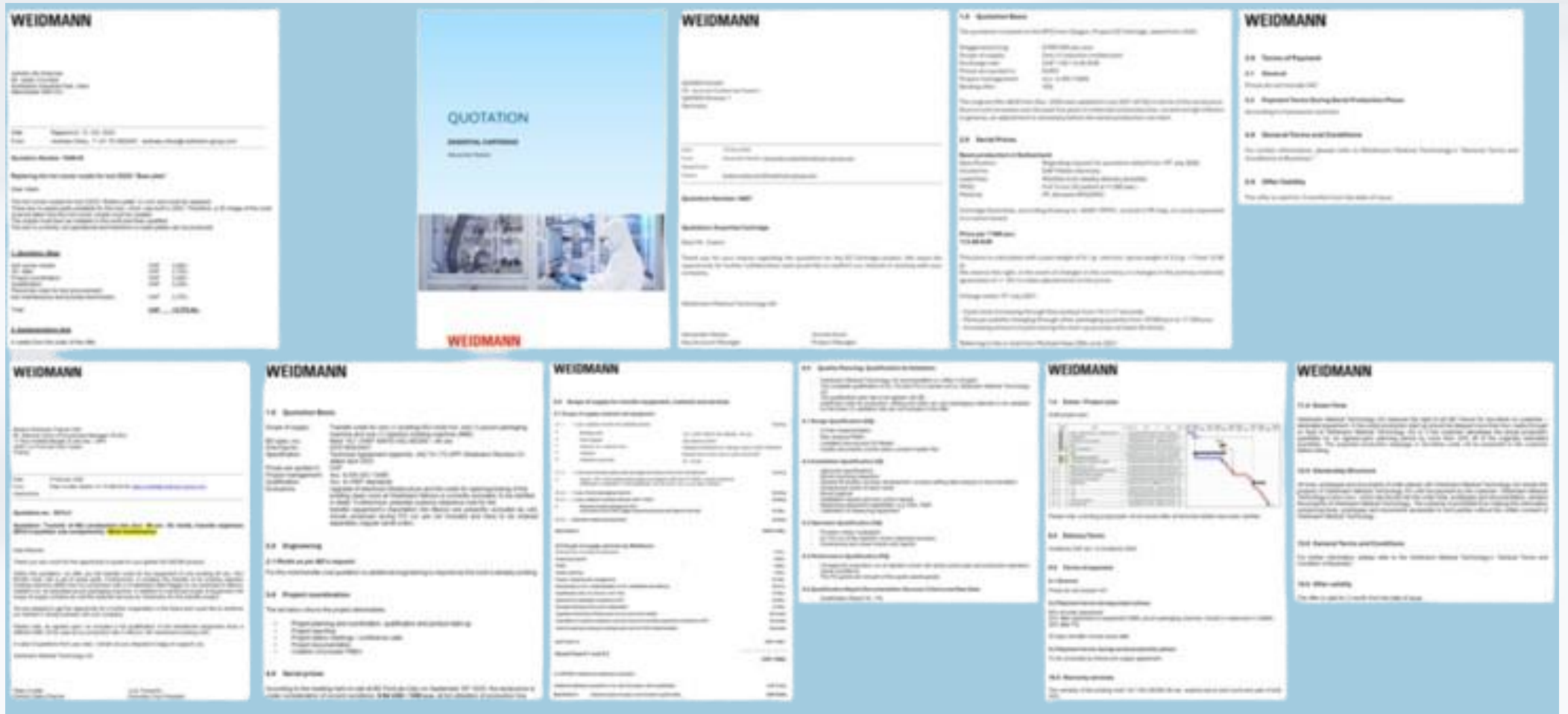


This method can process large amounts of heterogeneous data with different formats and value ranges. It can also calculate an anomaly value and weights from the data.

Identifying anomalies in a wide variety of data and weighting features based on statistical influence

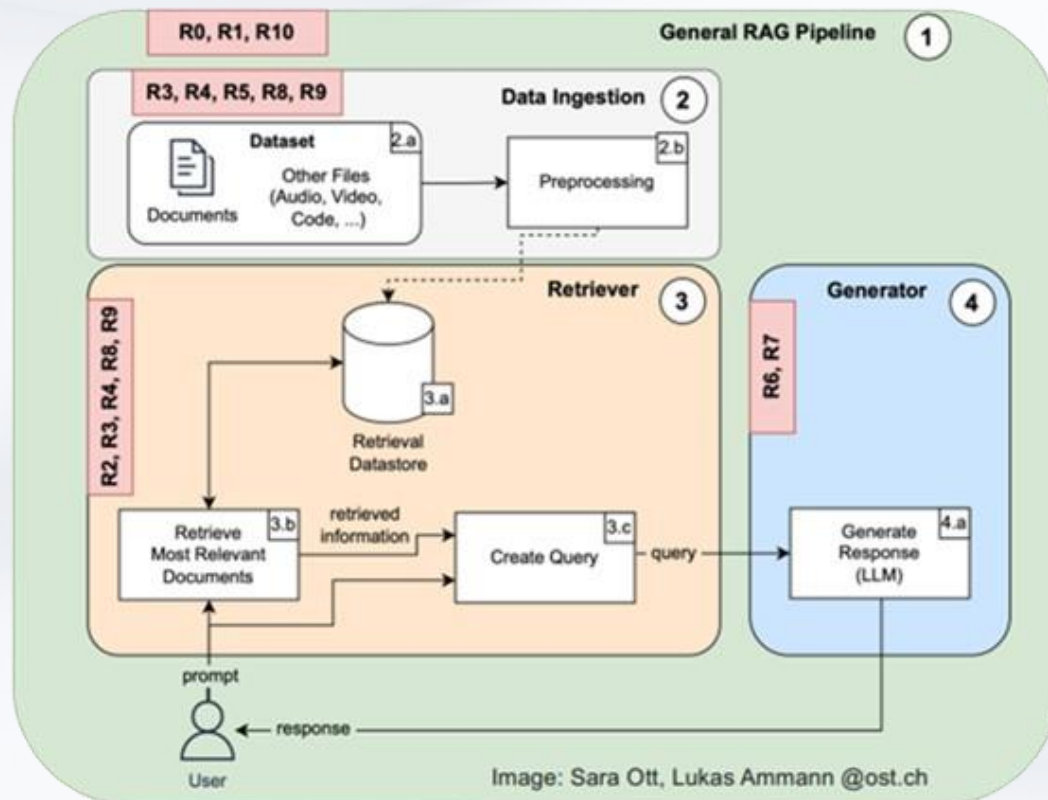
Case 3: AI-assisted quoting

Wide variety of quotation formats



Customer benefit: Faster quotation turnaround through AI-assisted reuse of existing quotations.

Case 3: Quotation-tool as RAG (Retrieval Augmented Generation)



Workflow

1. Docs – Chunks – Vectors – Database
2. User query – Vectors – Return best matches
3. Extending query with matches
4. Generating answer of query and matches
5. The answer is the new quote

Description of a RAG

06

Conclusion



Conclusion

What AI means for our customers

What customers need	How AI can help
Stable production	Earlier issue detection
High product quality	Reduced process variability
Lower manufacturing costs	Predictive quality
Higher equipment uptime	Predictive maintenance
Faster decisions	Data-driven insights

Our focus is on practical AI applications that deliver measurable value – not AI for its own sake.



07

Q & A

The background of the slide features a light blue pattern of overlapping speech bubbles and question marks. The central text 'Q & A' is white and bold, standing out against this pattern.