

# Digitalisierung der ZfP in der Energietechnik

Lessons learned from Healthcare



# We are DIMATE, a software technology company



## We digitize NDT inspection processes in industry

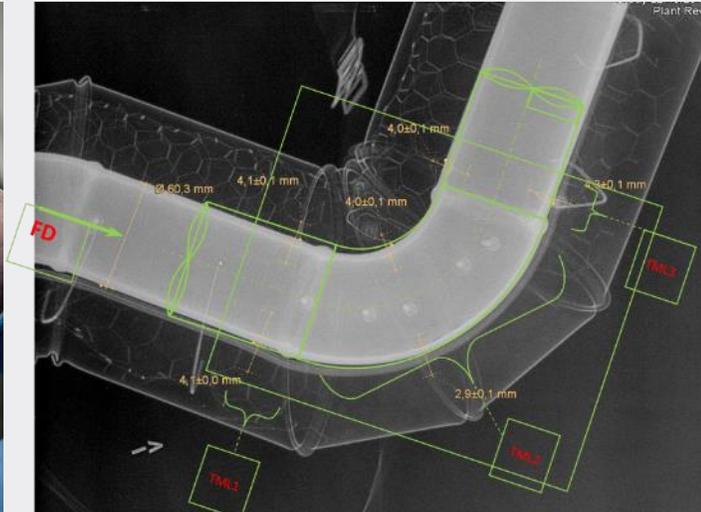
DIMATE digitizes non-destructive testing, inspection and maintenance and equips plant operators, manufacturers and service providers **with PACS**

## Because we know how IT works

We understand non-destructive testing (NDT) processes in all relevant industries and how to make them work digital as well as without disruptions.

# DIMATE Mission & Vision

People + AI for better inspection Workflows



We want inspection and NDE processes to become more reliable and make plants and components even safer.

# What is a PACS?

Origin in the field of Healthcare



# PACS = Picture Archiving and Communication System

## The system has its roots in medicine

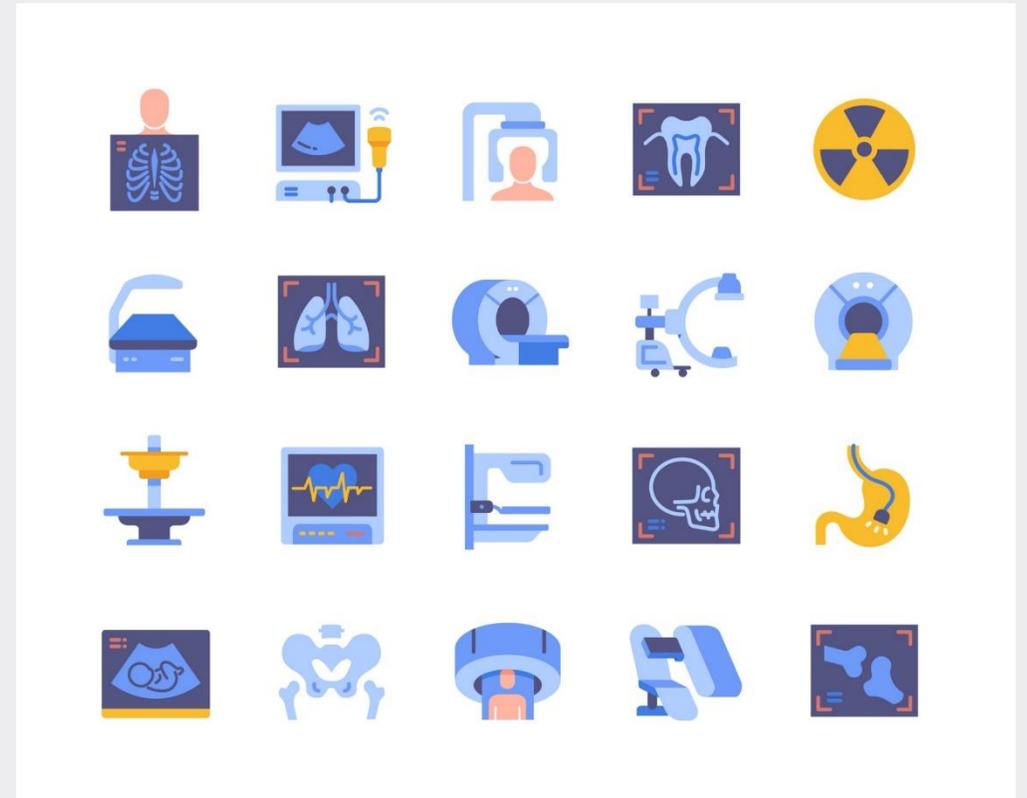


Situation in radiology departments before the introduction of a PACS:

1. Devices were already digital, but images & reports were printed on X-ray film and paper
2. Images were stored at different locations (CT-, MRI-, CR-Workstation or in the analogue archive in the basement)
3. Image data had proprietary vendor formats
4. Each device had its own viewing & evaluation software
5. No digital connection between the HIS and the diagnostic devices
  - > Manual patient data entry on the devices was necessary
6. More than 10% of the data was assigned to the wrong patient or could not be retrieved

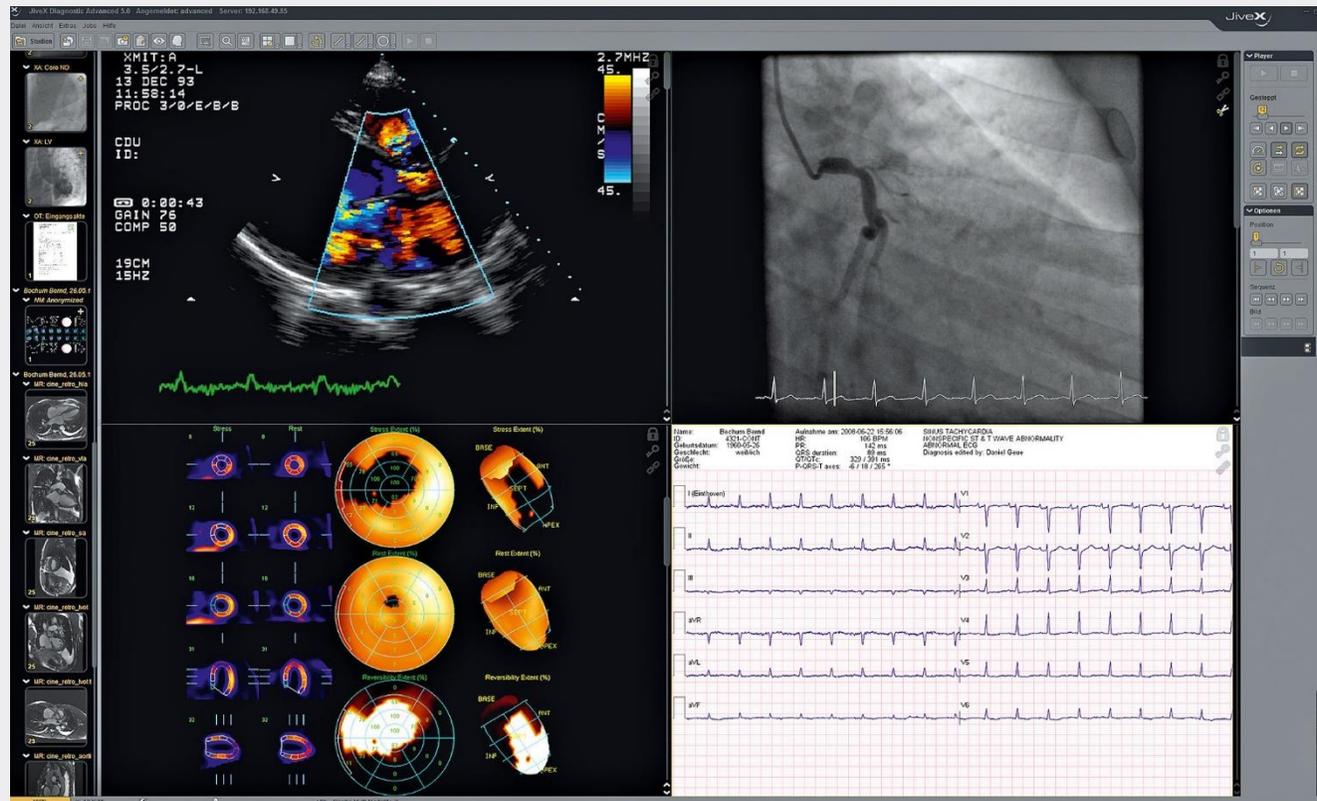
# PACS = Picture Archiving and Communication System

The system has its roots in medicine



# PACS = Picture Archiving and Communication System

Current status: Complete patient file - accessible from anywhere



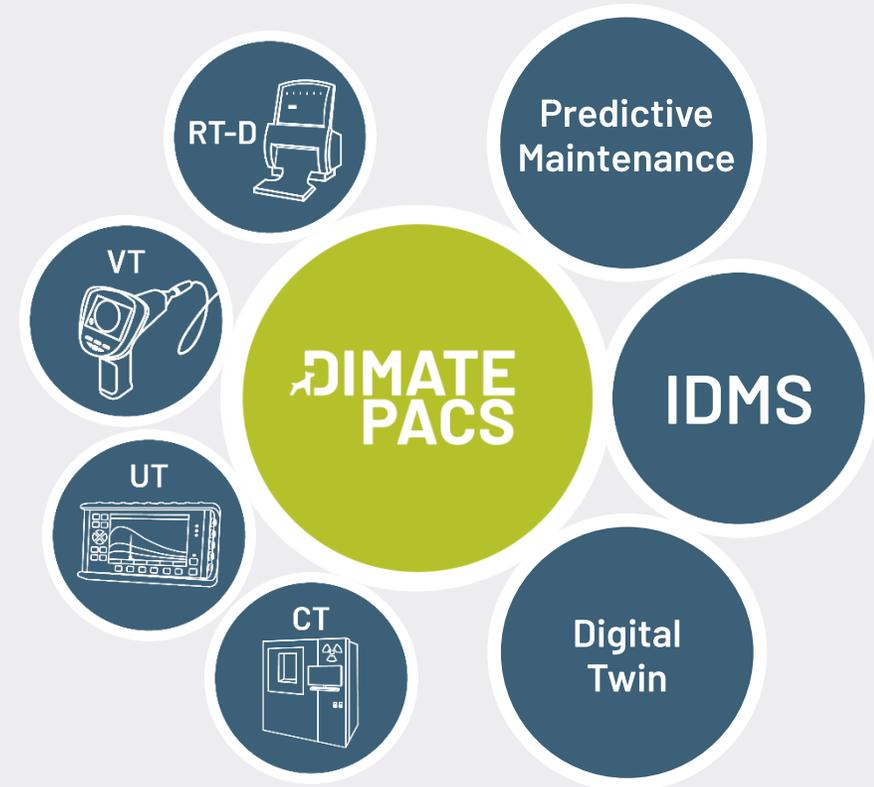
# PACS in Industry



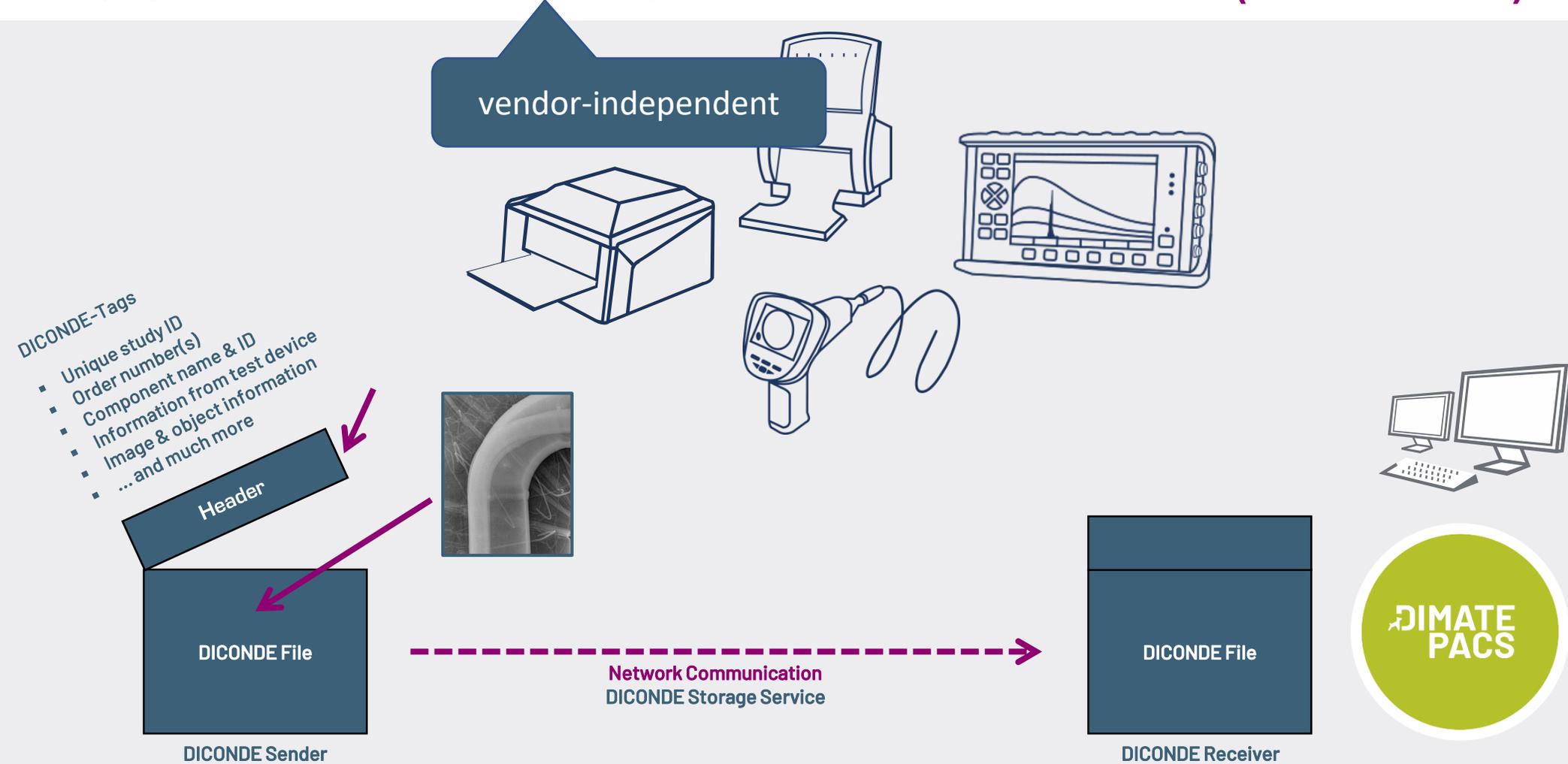
# PACS in Industry

follows three approaches:

1. Digital Storage, Viewing and Retrieval of all NDT test data in just one system
2. Integration of NDT test procedures into a Fully Digital Inspection Process
3. Supercharging IDMS & AI with reliable NDE data



# DICONDE is the IT standard in NDT (ASTM E2339)



# Digitalisierung der ZfP in der Energie(technik)branche



# DIMATE Clients



SGS



aibel®



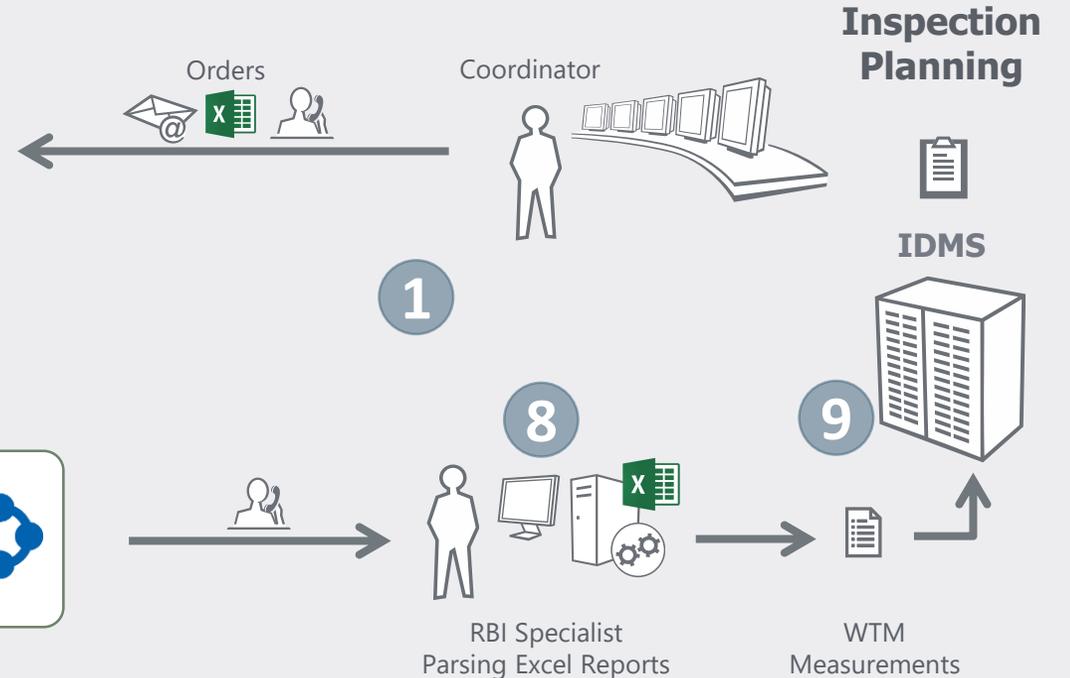
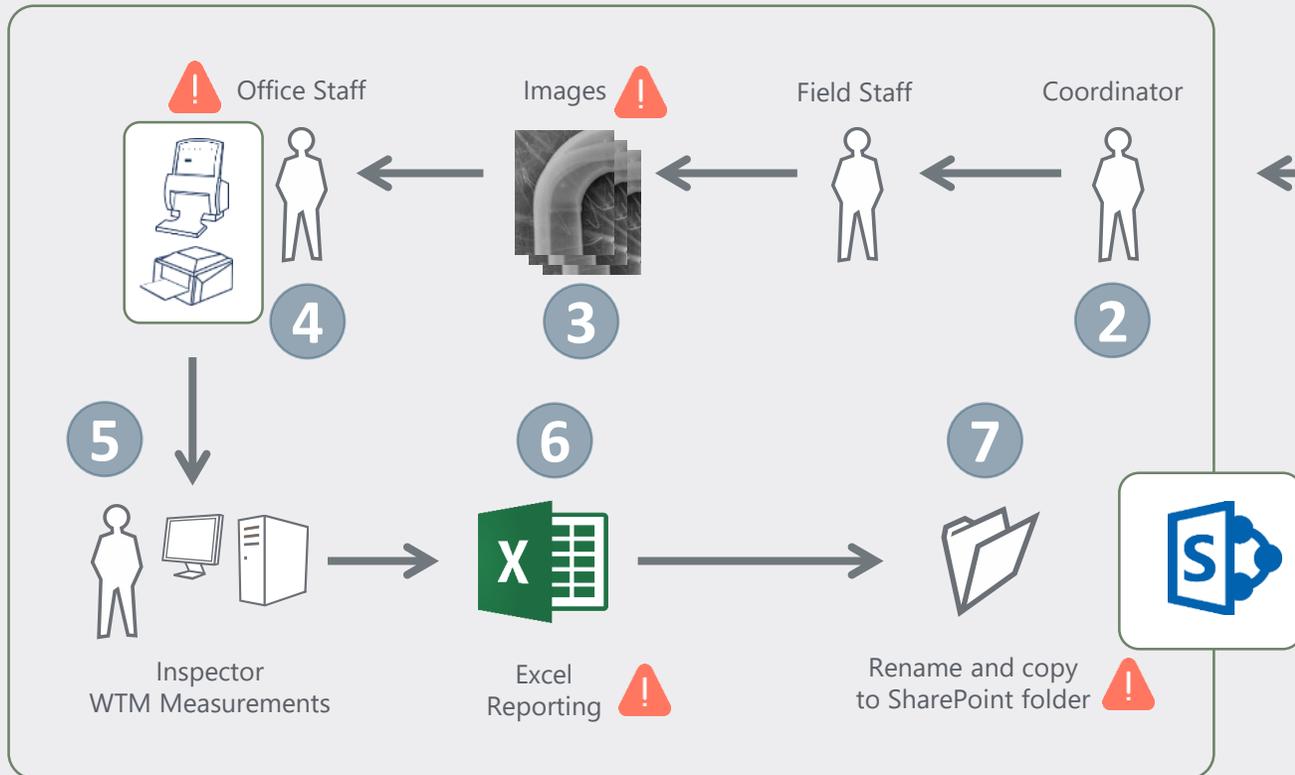
# DIMATE PACS

Inspection processes in the Energy Sector



# Typical inspection process without DIMATE PACS technology

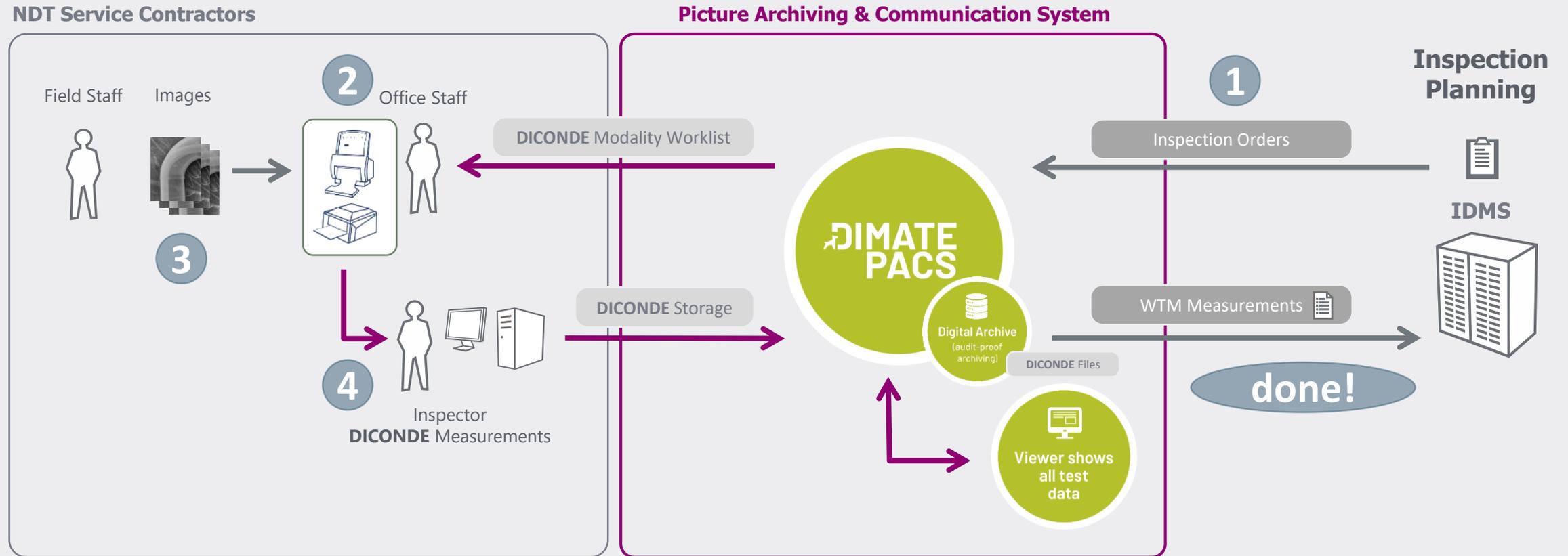
## NDT Service Contractors



! media breaks / digital disruption

18% of inspection data is assigned to the wrong component!

# DIMATE PACS: Fully digital inspection process



>20% time savings in the inspection process + Enhanced NDE data quality -> Better Decisions + 2:1 Rule

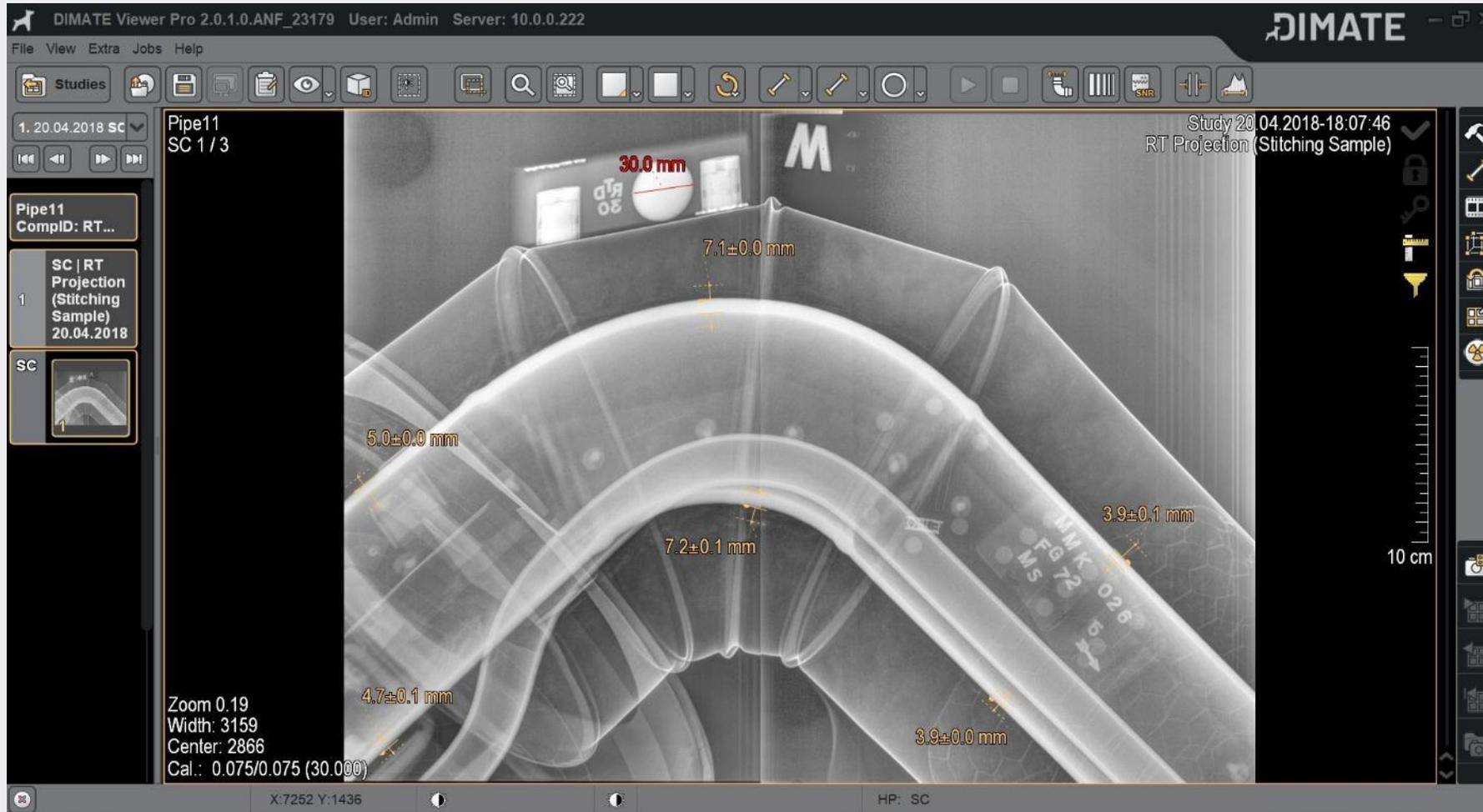
# DIMATE PACS Data Base

## Traceability of components & inspection data over time

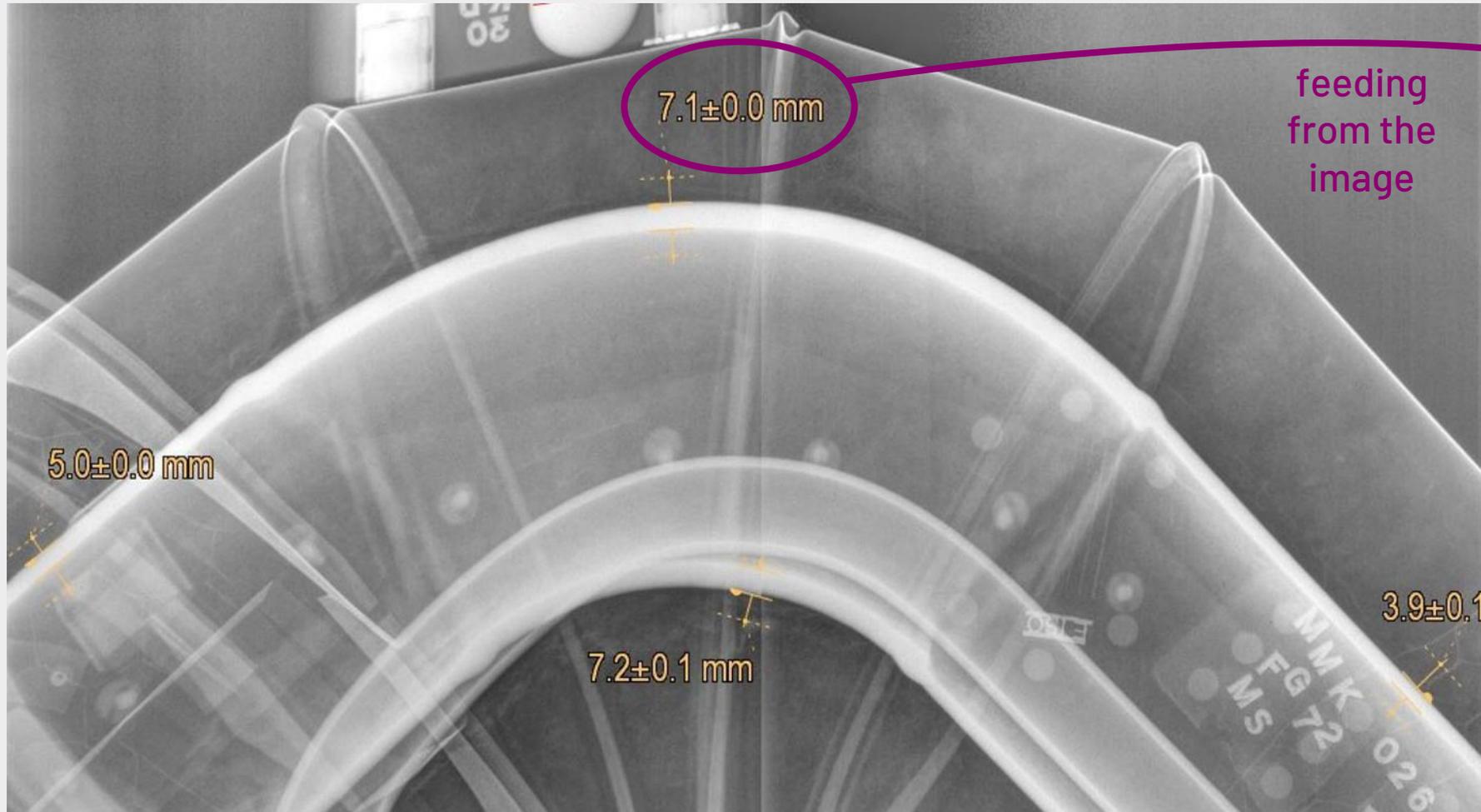
The screenshot displays the DIMATE Viewer Pro 2.0.1.0.ANF\_23179 interface. The main window shows a table of inspection data. The table has the following columns: Inspection Date, Component ID, Name, Inspection Description, Modalities, Freigabe..., and Customer. The data is sorted by inspection date in descending order.

Inspection Date	Component ID	Name	Inspection Description	Modalities	Freigabe ...	Customer
22.07.2022	KE141064	Kerosene pipe	Visual Inspection	XC	-	Power Plant Eskom
05.07.2022	B HST79	Shut-off valve	Outside corrosion	XC	-	Chevron Toledo
05.07.2022	2H3501	2H3501	Flange - outside corrosion	XC	-	Total Energy
05.07.2022	20220705	Backflow Valve	STRONG Corrosion	XC	-	Dow Chemicals
05.07.2022	HTWP1410 - Hot Water Pipe	Hot Water Fitting	Defect Fitting	XC	-	BP Refinery Rotterdam
29.09.2021	HY04-91ZA001-W08	Welding	Welding Film Scan	SC	-	Equinor
29.09.2021	HY04-91ZA001-W07	Welding+	RT Schweißnahtprüfung	CR/DOC	Cust...	Equinor
29.09.2021	272103-W01	Weld RN+	RT Schweißnahtprüfung	SC/IOT	ZÜS	Equinor
29.09.2021	163345-W13	Welding	RT Schweißnahtprüfung	SC	-	Equinor
29.09.2021	163290-W03	Welding	RT Schweißnahtprüfung	SC	-	Equinor
29.09.2021	163290-W09	Welding	RT Schweißnaht (Scan)	SC	-	Equinor

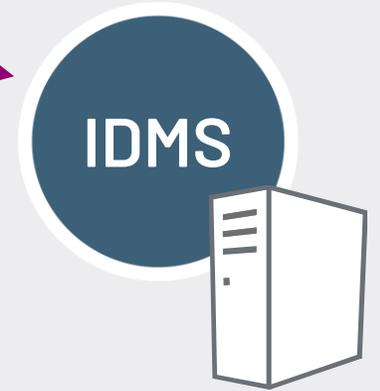
# DIMATE Viewer Pro: RT-Data Evaluation



# incl. automated Wall Detection & Measurements



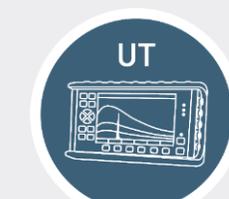
feeding  
from the  
image



# All kind of NDT Data in just one system

The screenshot displays the DIMATE software interface with the following components:

- Top Bar:** "Images - DIMATE Viewer Pro 2.0.1.0.ANF\_23179 User: caf Server: 10.0.0.222" and the DIMATE logo.
- Left Panel:** A sidebar with document and inspection details:
  - Document: 1.29.09.2021 CR, DO
  - Pipe01 CompID: ID4001
  - CR | RT Inspection Revision 2018 27.08.2018
  - CR RT Image
  - Pipe07 CompID: RTD014
  - SC | RT Schattenaufn: 23.04.2018
  - SC
  - Pipe01 CompID: ID4001
  - ES | MT Inspection 27.08.2008
- Main Viewport:** A grid of four panels:
  - Top-Left:** RT image of a pipe with a QR code. Metadata: 2H3501, DOM 01.01.1900, SC 1/2, Image 1.
  - Top-Right:** RT image of a pipe joint. Metadata: Pipe07, SC 1/2, Image 1.
  - Bottom-Left:** Inspection report table with columns for "Durchstrahlungs-Prüfbericht" and "Katalogische Inspektionsberichte".
  - Bottom-Right:** VT (Virtual Topography) scan of a pipe joint with dimensions:  $4,3 \pm 0,0$  mm,  $4,2 \pm 0,0$  mm, and  $\varnothing 60,3$  mm. Metadata: Pipe01, DOM 05.05.2018, CR 1/1, Image 1.
- Right Panel:** A vertical toolbar with icons for RT-D, Drone, VT, and UT.
- Bottom Bar:** Status information: X:8 Y:642, rgb(FF,FF,FF), HP: SC.



# NDT Data Sharing with all Stakeholders

Faster Decisions in Turnarounds and Approval Processes





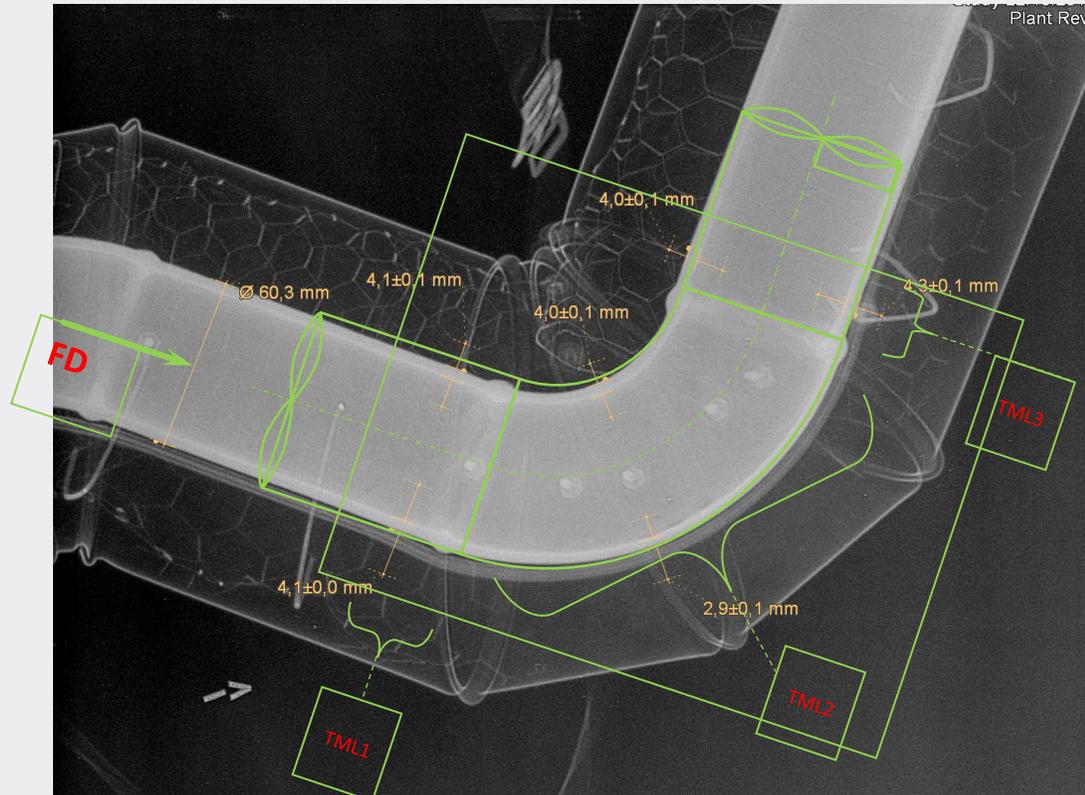
# DIMATE PACS

Automated Data Evaluations powered by AI



# Automated Data Evaluations powered by AI

The next step in Defect Detection & Automated Measurements



# Benefits of a Fully Digital Inspection Process



**Having a good hand with DIMATE**  
DIMATE PACS - Unique value proposition

- A Increased data integrity**
  - Inspection orders are no longer assigned to wrong components
- K Fully digital inspection process**
  - No media breaks
  - No digital disruptions
  - Digital integration of service contractors
  - Paperless interfaces
- 9 Increased process transparency**
  - Traceability of test orders
  - Inspection progress status follow up
- Q Increased data accuracy**
  - Digital evaluation: digital calibration, semi-automated measurements
- J Standardized NDT data**
  - Smart data source for AI processes
- 8 Data retrieval & distribution**
  - NDT data can be retrieved reliably
  - NDT data access for all stakeholders everywhere
  - Location-independent evaluation / reading
- 7 Outcome:**
  - 20% - 70% time savings for employees in the inspection process
  - Faster turnaround release processes and optimized preparation
  - Reliable inspection data for APM feeding
  - Significantly reduced non-productive time in inspection periods
- 10 Increased plant performance**
  - High traceability of components

**DIMATE**

# Thank you for listening to me

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