



Towards AI powered manufacturing services, processes, and products in an edge-to-cloud-knowlEdge continuum for humans

Pilot 3 – Zero-defect Manufacturing

FIIF event

14.03.2024

Bonfiglioli Slovakia

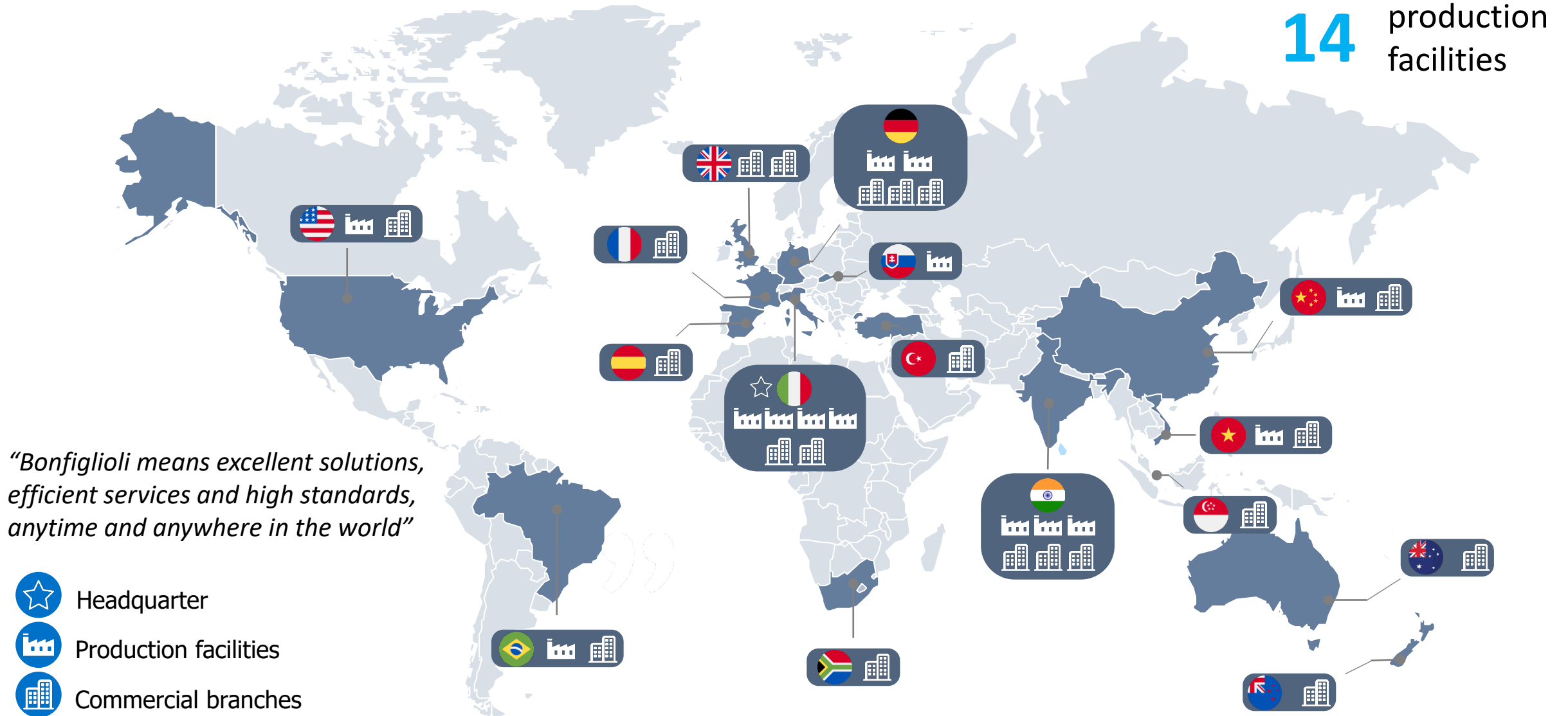


Zero-defect Manufacturing




Bonfiglioli Global footprint:

21 Branches & over **550** distribution partners

14 production facilities

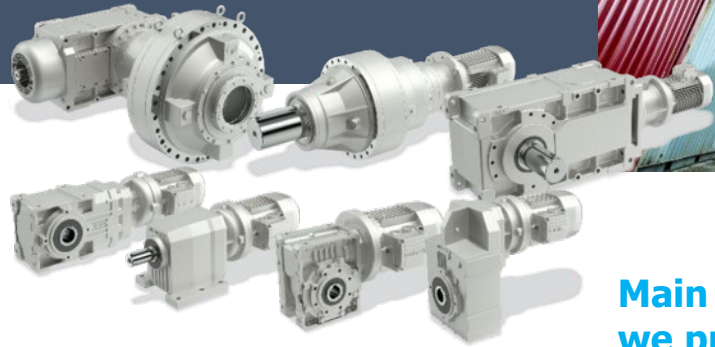


“Bonfiglioli means excellent solutions, efficient services and high standards, anytime and anywhere in the world”

-  Headquarter
-  Production facilities
-  Commercial branches

Discrete Manufacturing & Process Industries

Over 1.5 million products a year for over 20 different areas of industry, focusing on industrial processes and automation.



Main sectors where we provide expertise



FOOD, BEVERAGE, AND TOBACCO



RUBBER AND PLASTICS



MINING



METAL PROCESSING



MATERIAL HANDLING



WASTE WATER TREATMENT



BIOGAS



PACKAGING



RECYCLING



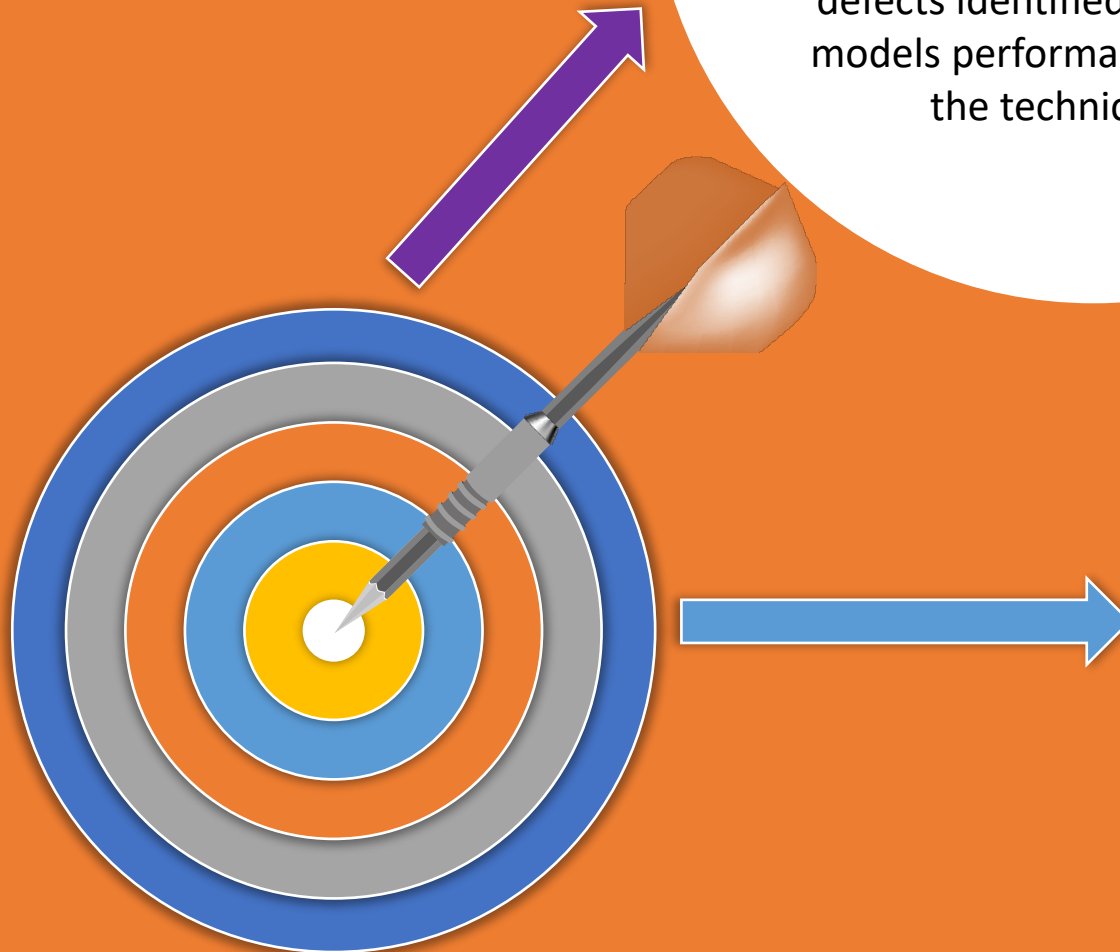
Demo Session

Scenario

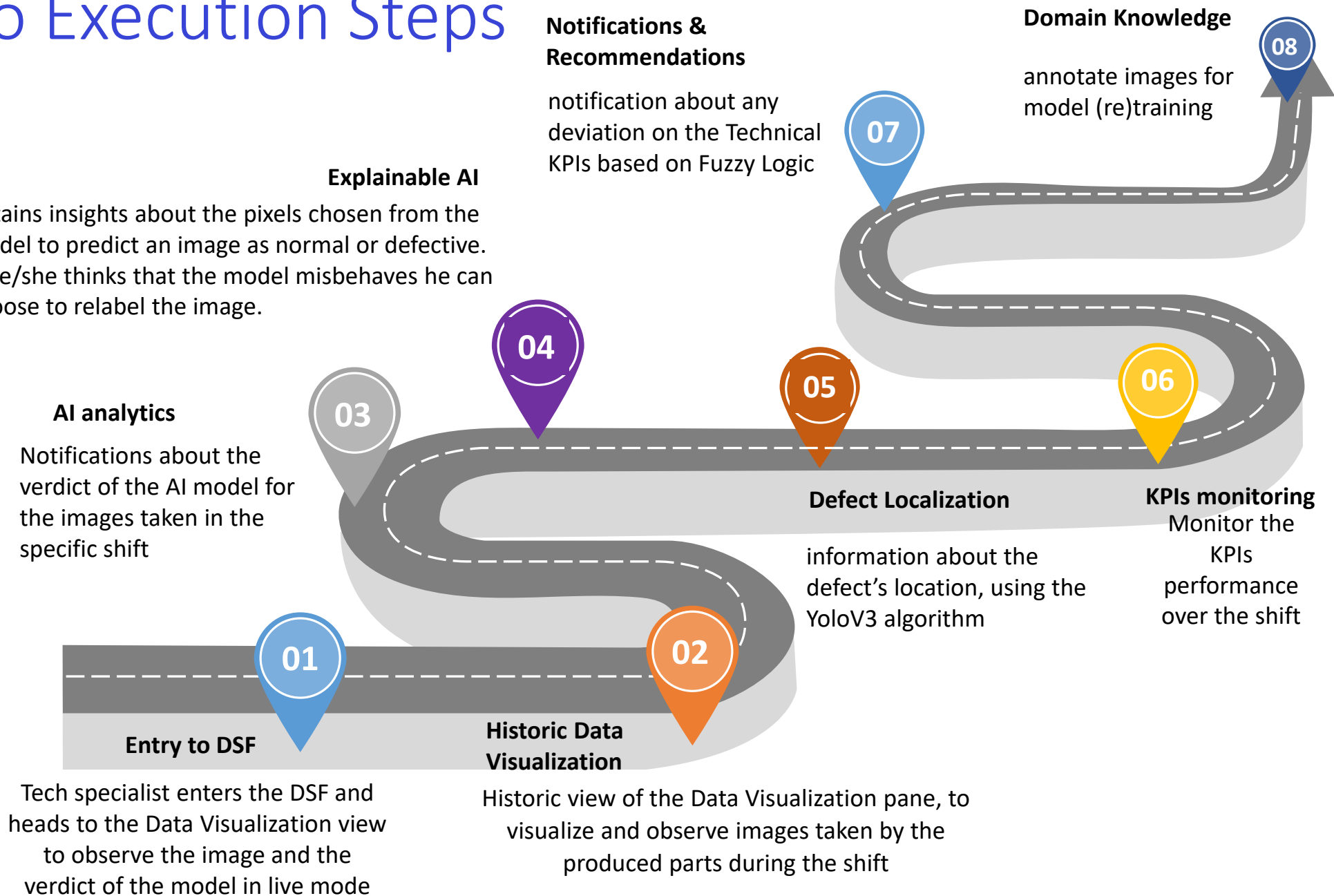
The technology specialist wants to be informed about the production process during a shift. For this reason, he/she wants be informed about any defects identified, about the AI models performance and about the technical KPIs.

Objectives

1. Demonstrate the assistance of DSF to zero defect detection problems
2. Provide insights into the performance of the business or operational processes by monitoring Key Performance Indicators (KPIs) over shift
3. Introduce AI interpretability to understand the AI models' verdicts



Demo Execution Steps





Home

Data Sources & Monitoring

AI Analytics & Explanation

Key Performance Indicators (KPIs)

Recommendations

Human-AI In The Loop

Decision Support System Homepage

Welcome

Data Sources & Monitoring



This section includes live and historical monitoring of all the available data sources. You can either explore these data sources or visualize them using various parameters.

AI Analytics & Forecasting



In this section you can explore all the available Artificial Intelligence (AI) models created by the KnowEdge team. All these models can be used in forecasting and their outcomes can be examined in historical data. Depending on the performance of the models you can select which ones to trust.

Notifications & Recommendations



Here you can view all the available notifications and their corresponding recommendations



Key Performance Indicators (KPIs)



In this section you can explore all the available Key Performance Indicators (KPIs). You can see the details of the already existing and even create a new one. Furthermore, you can select a KPI to visualize it.



Results - Key Performance Indicators

KPI	Goal	Measure	Final values
Rework Time	Reduction of rework time	Rework time (number of hours) will be manually recorded during a month in spring 2022 and autumn 2024.	-3% We saw a decrease of working time, instead to wait other test to then rework the pieces
Risk reduction	Increase corrective actions proposed by AI solution	Record the corrective actions (proposed by the AI solution) on critical steps during a month in spring 2022 and autumn 2024.	+6% instead to try the same way to solve one issue, we have another view how to fix it
Data storage	Amount of exploitable data from manual operations will increase	Data volume (Gb) of manual operations will be registered in spring 2022 and autumn 2024.	+2% we can provide more and accurate data to Quality department
Real time control	Real-time control with step-by step checks (based on Ai solution) detects errors of manual operation before the final test.	Number of errors detected before final test during a month in spring 2022 and autumn 2024 are registered manually (spring 2022) and by AI (autumn 2024).	+5% We can manage during the assembly and before the final test to fix possible issue
Quality control	The quality control of unique gear boxes is powered with configurable digital twin and camera-based measurement system.	Number of produced gear boxes validated with the configurable digital twin and camera-based measurement system during a month in spring 2022 and autumn 2024.	+9% The risk that we can assemble and send problematic pieces are low; it mean that our quality of pieces are increase



Thank you!