Zero Defect Manufacturing (ZDM) Powered by Massive Metrology

TRIMEK
METROLOGICAL ENGINEERING

CAPTURE MORE | PROCESS FASTER
REUSE ALWAYS | DECIDE BETTER

Future metrology will be used to assess and guarantee the fit, performance and functionality of every part and support the targets of zero waste and carbon neutrality.

Factory 4.0 Big Data Pilot Motivation
• Slow, low productivity part quality analysis and late End of Line (EoL) defect detection
• Low resolution quality control processes (sample-based statistical analysis)
• Expensive, disconnected, rigid, off-line control decision loops performed in metrology rooms

High Density & Virtual Massive metrology Big Data Process
• Rapid processing and high-performance visualisation of massive and multi-sensor 3D point clouds (10-100 million points)
• Multi-purpose QIF-enabled Industrial IoT digital quality control workflows for massive digital thread product and manufacturing process information & trend analytics
• High-speed high resolution texturized colormaps for high fidelity visual analysis of massive point clouds (30 secs)

Competitive Advantages
• 50% reduction in measurement planning and programming times
• 10% reduction in massive point clouds acquisition & processing
• 5% rejected products reduction
• 5% cost reduction through faster decision-making processes

Big Data Pilot Lifecycle Scope

Big Data Pilot Site

Pilot Partners

TRIMEK METROLOGICAL ENGINEERING
3D Quality Control & Big Data Analytics Platform

redborder Industrial Cybersecurity

inovaia ID/IFIWARE

CAPVIDIA PMI Platform & QIF

Gestamp Automotive Lighthouse Factory

Automotive Smart Factory, Automotive Intelligence Centre (AIC)
Boroa | Basque Country, Spain
I4.0 Big Data Pilot Solution Framework

I4.0 Big Data Pilot Features

**Sector / Product:** Automotive  
**Manufacturing Process:** Stamping  
**Big Data Analytic Techniques:**  
3D Industrial Data Lake Visual Analytics & Computational Geometry  
**Big Data Platforms:**  
- M3 - m3.innovalia-metrology.com  
- CAPVIDIA MBD - www.capvidia.com  
**IDS-FIWARE Connectors & Standards:**  
- NIST Quality Information Framework (QIF)  
- ETSI Context Information Management (CIM)  
- ProStep

Open I4.0 Big Data Pilot Pillars

**International Data Spaces Association**  
IDSA defines a reference architecture and an ecosystem, which supports sovereign exchange and sharing of data between industrial partners.

**FIWARE**  
FIWARE is a curated framework of open source platform components to accelerate the development of smart solutions for Industry 4.0.

**Hyperledger**  
Hyperledger is an open source collaborative effort created to advance cross-industry blockchain technologies.

The BDE offers an open source platform, allowing to build several Big Data components into a pipeline through a simple graphical UI.

Boost 4.0 led by:

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