

# 8 STRATEGIES

- Diagnose
- Predict
- Adjust
- Detect
- Prevent
- Sustain
- Manage
- Redesign

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 iQonic Project

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## CONSORTIUM



iQonic

Innovative strategies, sensing and process chains for increased quality, reconfigurability, and recyclability of manufacturing optoelectronics



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## VISION

iQonic is offering a scalable zero defect manufacturing platform covering the overall process chain of optoelectrical parts, facing the challenge of dealing with the evolution of the equipment, instrumentation and manufacturing processes they support.

The vision of iQonic is the development of a holistic framework applicable both to new and existing manufacturing lines of opto-electronics to achieve flexibility, zero-defect production, and sustainability.



**8 Millions EU  
Contribution**



**17 Partners**



**42 Months  
Duration**



**7 Countries**

## USE CASES



**ALPES LASER**  
Manufacturing of  
semiconductor lasers



**BRIGHTERWAVE**  
New assembly process  
of opto-electronic  
multi-component  
modules



**FILAR  
OPTOMATERIALS**  
Manufacturing of  
synthetic crystals



**PRIMA ELECTRO**  
Multi-stage zero defect  
manufacturing of laser  
sources

## HARDWARE COMPONENTS

- Adaptive laser optics for feedback during processing and inspection for thin-layer material evaluation electronic nose for detection of contamination levels
- Smart grasping hand for material handling with increased precision and accuracy (micro + macro scales)
- Unified interface for static tool changing and dynamic reconfiguration of the handling and assembly process
- Smart tagging system to automate the process chain reconfiguration for each component
- Metrology and quality inspection equipment

## SOFTWARE COMPONENTS

- Inference engine for early detection and prediction of failures on machines
- Event modelling algorithm to predict and prevent defects based on Key Performance Factors (KPFs) intelligent passport generation for each component
- Knowledge Base System (KBS) encapsulating product, machine, process signatures
- Decision support system for reverse supply chain process to recuse and requalify components