



iQonic

Innovative strategies, sensing and process chains for increased  
Quality, re-configurability, and recyclability of Manufacturing  
Optoelectronics

## Press Release

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Deliverable Lead: SACMI



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# Towards the development of the iQonic architecture for zero-defect manufacturing of optoelectronic components

The 1<sup>st</sup> phase (M1-M18) of the iQonic project has just concluded with the 1<sup>st</sup> Review Meeting with the Project Officer and Monitor. After the collection of requirements, the identification of optoelectronic functionalities and the development of the HW and SW solutions that will compose the iQonic architecture for the zero-defect manufacturing of opto-electronic components, the main technologies and methodologies are now ready for the testing, validation and integration in relevant use-case scenarios.

In the first phase of the iQonic R&D activities, the **needs and expectation of the consortium as well as of project's stakeholders** were closely observed and extracted from the project use-cases – ALPES LASER, PRIMA ELECTRO, FILAR OPTOMATERIALS and BRIGHTERWAVE. These results have been collected in a detailed list of technical and non-technical requirements and specifications. Moreover, **optoelectronic functionalities** for each use case, the generic development frameworks for the assembly processes and the data input and output points in the process chain were defined.

This enabled the development and laboratory testing of the iQonic HW and SW technologies, including the **iQonic sensorial network, adaptive optics and electronic nose for evaluation of materials, smart grasping robotic for flexible handling and the Knowledge Based System**. In parallel with technical development, a set of innovation management activities took place aiming to develop the roadmap to introduce the iQonic technology to the market, after the end of the project.

In the next months, these technologies will be integrated in the iQonic optoelectronics manufacturing architecture and together with the definition of **defect detection and classification techniques** - 3D imaging methodologies and smart tagging, defect severity evaluation and decision support systems (DSS), processes and tools for reuse or requalification - and **defect management techniques** - Predictive Maintenance functionalities: Cyber Physical System - CPS, end-of-life management, Reverse Supply Chain - **will pave the way towards zero-defect manufacturing of opto-electronics and photonics**.



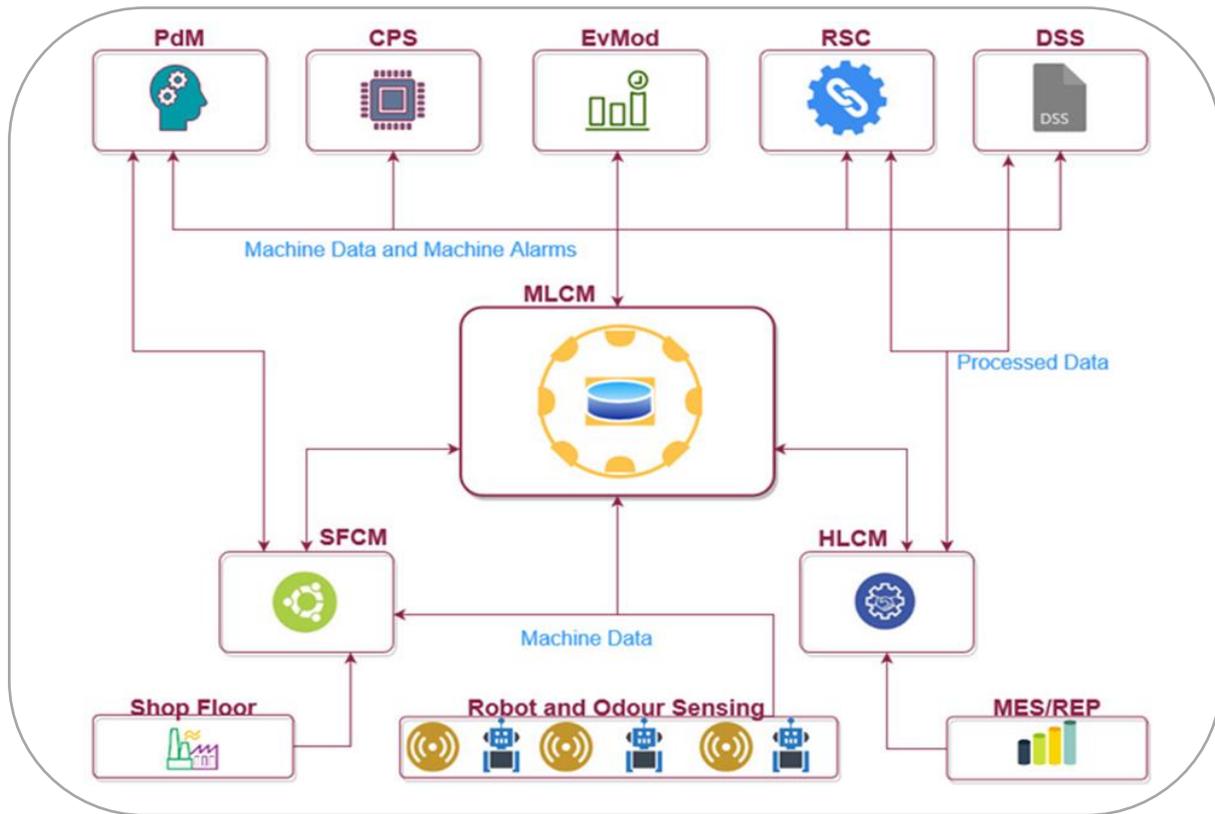


Figure 1 - Overview of the ZDM software architecture of iQonic.  
Source: SPIE Proceedings Vol. 11284 (26 February 2020)

Eventually, starting from the project 2<sup>nd</sup> phase (M19-M30), iQonic solutions will be integrated and validated at the shop floor level in several demonstrators at iQonic end-users' facilities.





## About iQonic

The iQonic project stems from the collaboration among companies and research centres in 7 European countries – Finland, Germany, Greece, Italy, United Kingdom, Czech Republic and Switzerland – that, under the coordination of the Fraunhofer Institute, aims at developing a **scalable zero-defect manufacturing platform** that will guarantee the **flexibility and sustainability of the production processes** in the optoelectronic industry.

## Project Partners

1. [ALPES LASERS SA](#), Switzerland
2. [ATLANTIS ENGINEERING AE](#), Greece
3. [BRIGHTERWAVE OY](#), Finland
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