



iQonic

IQONIC

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

Deliverable

D9.1 Project Website

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Table of Contents

1	The iQonic website description	4
1.1	Homepage	4
1.2	Project	7
1.2.1	Work structure	9
1.2.2	Case studies	10
1.3	Partners	11
1.4	News & Events	18
1.4.1	Newsletter	19
1.5	Multimedia	19
1.6	Contact	20
2	Website Dissemination	21
3	Conclusions	21
4	Annex I. Table of figures	22



DISCLAIMER

The sole responsibility for the content of this publication lies with the iQonic project and in no way reflects the views of the European Union.



EXECUTIVE SUMMARY / ABSTRACT

The iQonic website is primarily intended as a window to disseminate the project purpose, strategies, activities and the outcomes of the research. Describing what the plans of the project consist in and how the funding provided by the EU are used is not the only objective of the website. Indeed, it should also act as an aggregator of news and events that are related to the topic of optoelectronic parts manufacturing, which may raise the interest of the visitors and increase the public knowledge of this matter.

As one of the communication tool, the website will be constantly updated with project progress information throughout the iQonic duration as well as to include all developed dissemination instruments/assets.

SCOPE

The present document illustrates the purpose of the iQonic project website, its main structure, contents, and the editorial process behind it.



1 The iQonic website description

The website (<http://www.iqonic-h2020.eu/>) has its home page that includes five main sections that can be accessed by the menu on the top of the page: Project, Partners, News & Events, Multimedia and Contacts.

On the far left of the home page there is a pop-up menu that includes the template to be filled in case of subscription to the newsletter of iQonic project.

1.1 Homepage

The homepage is intended as a showcase of the project that should invite the user to deepen his knowledge of iQonic project, therefore it is organized in several sections all directly linked to the other website pages.

The first part of the page shows a carousel of some emotional pictures that are related to the optoelectronic parts manufacturing.

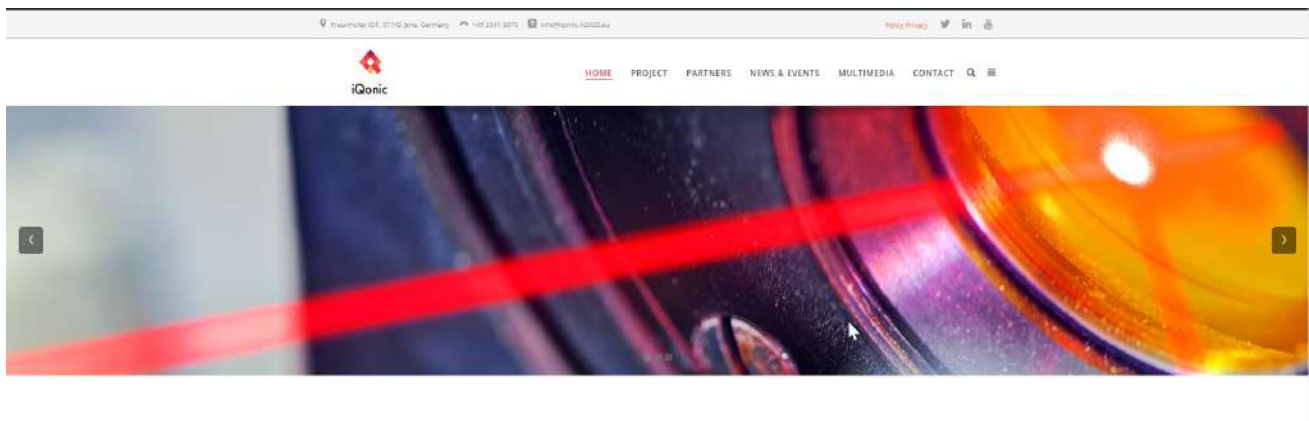


Figure 1: Home Page Slider

Scrolling down the page there is a brief description of the project. By clicking on the sentence “*Learn more on iQonic*” the user is redirected to the page “*Project*”, which is entirely dedicated to the project description.

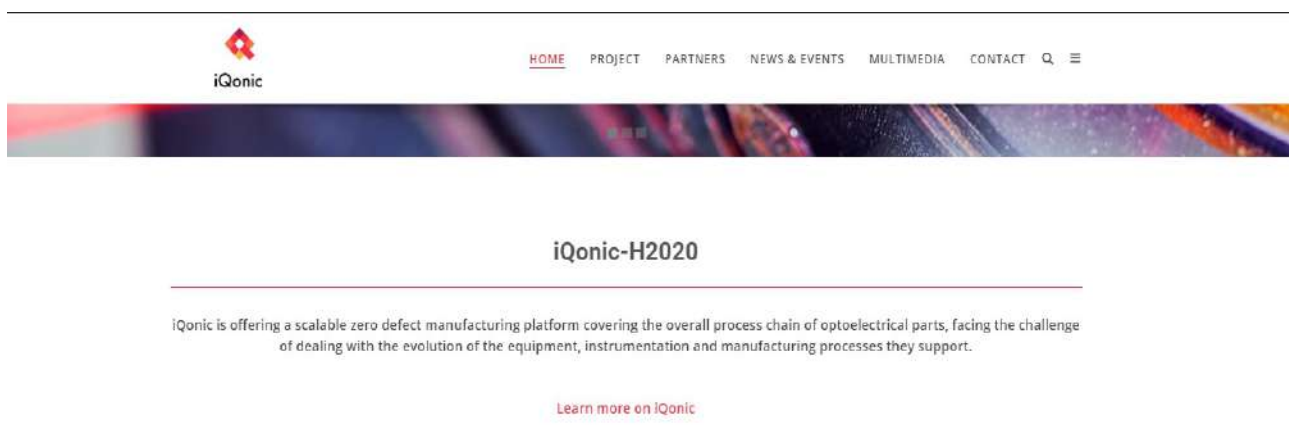


Figure 2: Home Page, Project Part

Following the project description, there is a section dedicated to the four use cases of the project. Each demonstrator is represented by a picture that should recall the topic of the case study.

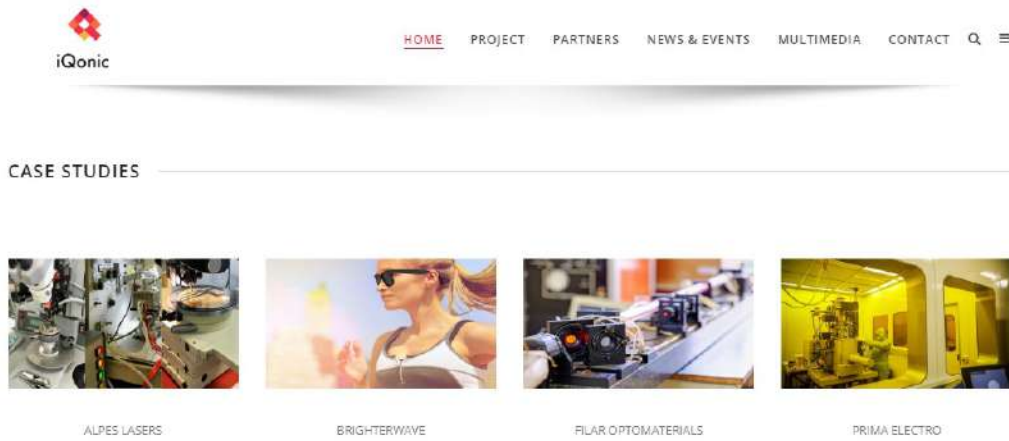


Figure 3: Home Page, Case Studies Part

Moving towards the bottom, the home page is dedicated to some communication issues. It shows the recent posts published within the website but also the recent tweets of iQonic’s Twitter account. The section is linked to the page “News & Events”. By clicking on the Twitter icon, the project’s Twitter page will be opened in a new window, so that the users can visualize the latest posts regarding the achievements and the upcoming events of the project.

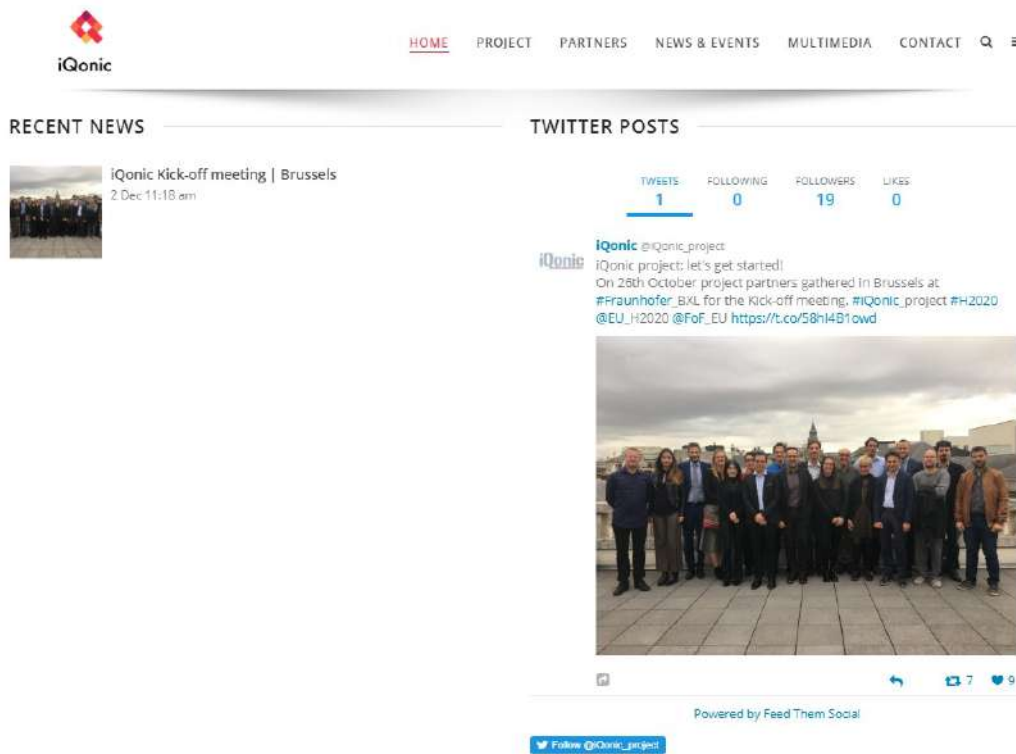


Figure 4: Home Page, News and Posts part



Right below the communication part of the page, there is a carousel where the Logo of the partners continuously rotate.



Figure 5: Home Page, Partners Part

The bottom of the page includes the form for iQonic newsletter subscription that can also be accessed from the button on the far left of the top of the page.

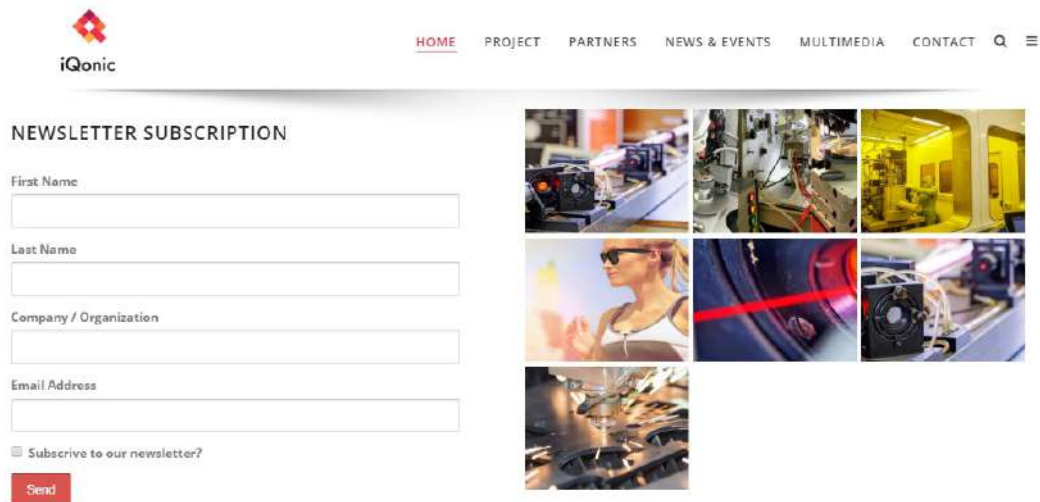


Figure 6: Home Page, Bottom part and Footer

The European emblem and the disclaimer to acknowledge the support received under H2020 programme is shown in the footer of the homepage. The footer of the homepage is the same of all the other pages of the project and contains the link to the social media accounts, the link to the recent posts, the latest tweets and contacts page.



1.2 Project

The “Project” page is accessible from both the Menu bar on the top of each page and the link “*Learn more on iQonic*” that follows the brief description of the project in the Home Page.

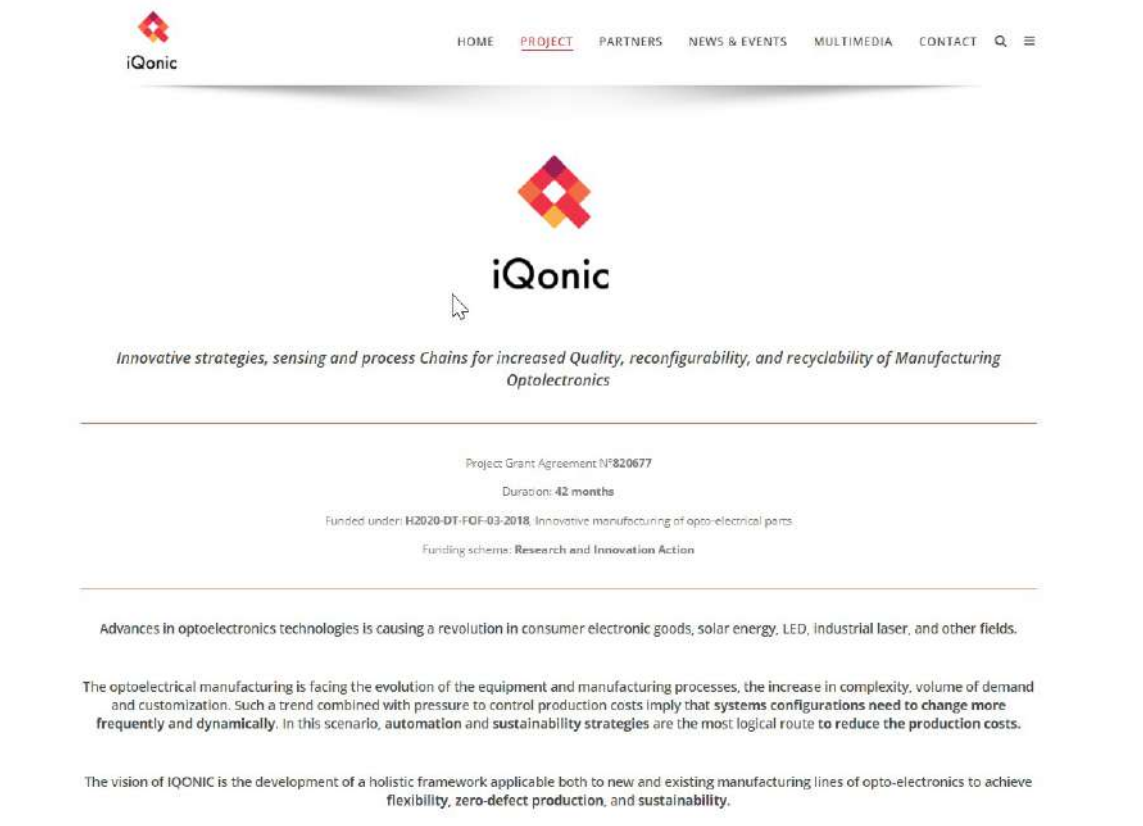


Figure 7: Project Page, iQonic Description

The aim of this page is to make a deeper overview of iQonic Project: the technological and economical context where iQonic is placed, the vision and aim of the project and solution that the project is willing to offer. The eight strategies that the project will adopt to reach its objectives are also listed and described within this page.

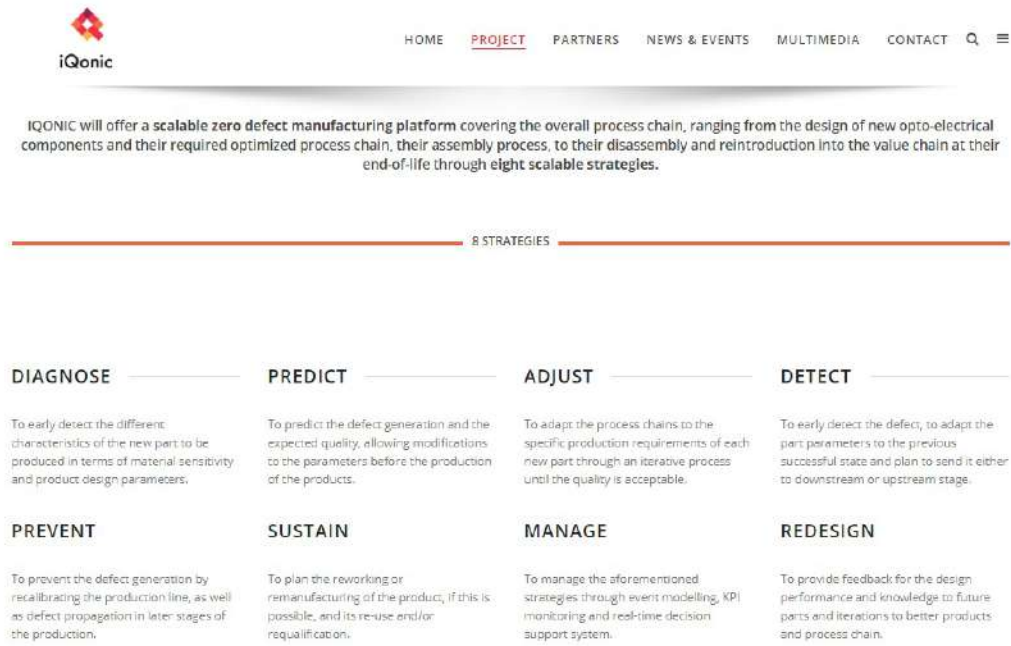


Figure 8: Project Page, The eight strategies

By clicking “Project” on the menu bar on the top of the page a drop-down menu will appear showing two more pages “Work Structure” and “Case Studies”.



Figure 9: Project drop-down menu



1.2.1 Work structure

The page is dedicated to the description of the Work Breakdown Structure of the project. The nine work packages and the relative objectives are listed.

Freunhofer IOP, 07745 Jena, Germany | +49 3641 3070 | info@iqonic-h2020.eu | Policy Privacy | Twitter | LinkedIn | Facebook

HOME PROJECT PARTNERS NEWS & EVENTS MULTIMEDIA CONTACT

Work Structure

WP1_ETHICS REQUIREMENTS

This work package sets out the 'ethics requirements' that the project must comply with.

WP2_REQUIREMENTS AND CONCEPTUAL PROCESS CHAIN DESIGN

The objectives of the WP are:

1. Define, analyse and consolidate user requirements: Strategies, updated needs, performance and specs data.
2. Update the State of the Art analysis and monitor patents and new technologies
3. Elaborate overall architecture, IQONIC Strategies, component specs, process-chain
4. Design in detail and develop the IQONIC use cases
5. Monitor IQONIC Strategy implementation.

WP3_OPTO-ELECTRICAL SYSTEM DESIGN FOR ASSEMBLY AND DISASSEMBLY START MONTH

The objectives of the WP are:

1. Define, analyse and consolidate assembly processes and parameter data interfaces for active and passive components functionalities
2. Derive requirements for component and system design data entry and output points to be used in assembly and disassembly
3. Develop the data-driven assembly and disassembly pro-cess-chain model

WP4_DATA MANAGEMENT, SENSORS, AND PROCESSES DESIGN AND SETUP

The objectives of the WP are:

1. To define the IQONIC sensorial network and introduce novel self-adjustment mechanisms through a suitable network management module
2. To develop the in-line sensors of adaptive optics and electronic nose for evaluation of materials
3. To employ the smart tracking system to adjust the handling process based on

WP5_DEFECT LIFE-CYCLE MANAGEMENT, DISASSEMBLY AND REMANUFACTURING

The objectives of the WP are:

1. To employ a defect management strategy for different defect types
2. To analyse the severity of defects and provide decision support for their rework, reuse or recycling
3. To deploy techniques for reuse or requalification of different defect types
4. To develop a CPS with integrated software to categorise product

Figure 10: Work Structure Page



1.2.2 Case studies

This page is accessible from both the Menu bar on the top of each page by selecting “Project” and the Home Page of the website, by clicking on one of the case studies pictures.

The four iQonic’s case studies are here listed and described.

The iQONIC solution will be demonstrated in four relevant environment: Laser-diodes manufacturing, Crystal production, Laser systems for industrial application and the manufacturers of RGB miniaturized lasers for augmented reality to achieve

- **increased yields** in both low and high volume productions,
- **faster reconfiguration times** accommodating more designs,
- **reintroduction of recycled components** to reduce the material costs

ALPES

ALPES laser demonstrator involves the manufacturing of semiconductor lasers through a highly complex and customized production process, involving different optical, physical and chemical parameters that make it challenging to keep track of the production.

Through iQONIC, ALPES expects to gain a better overview of the production process thanks to a “single window platform”, to improve the overall production yield, the quality of the

BRIGHTERWAVE

The Brighterwave demonstrator will be related to the study of a new assembly process of optoelectronic multi-component modules supporting a high-volume production of its laser-based products and maintaining maximum quality and zero-defects to millions of consumers.

Through iQONIC, BRIGHTERWAVE aims to address the increased yield through the quality control of the produced lasers and also speed up the reconfiguration of

FILAR

Filar-Optomaterials (FILAR) demonstrator involves the manufacturing of synthetic crystals (laser, optical and scintillation) in an industrial chain starting from raw material sintering until the supply of the final product to end user.

Through iQONIC, FILAR expects to benefit by adding value to both on-line and off-line monitoring of the process chains by seeking more accurate feedback to deeper understanding and analysis. The aim will be to reach optimum conditions

PRIMA

The PRIMA demonstrator will be linked to the demonstration of a laser production process for the multi-stage zero defect manufacturing of laser sources with increased quality.

Through iQONIC, Prima Electro aims to reduce production time and scrap rate of the diode, to eliminate defects during the production process, to monitor quality and production stages, to automate production for extra customization.

Figure 11: Case Studies Page



1.3 Partners

This page is accessible from the Menu bar on the top of each page.

A grid with the logos of each project partner is shown.

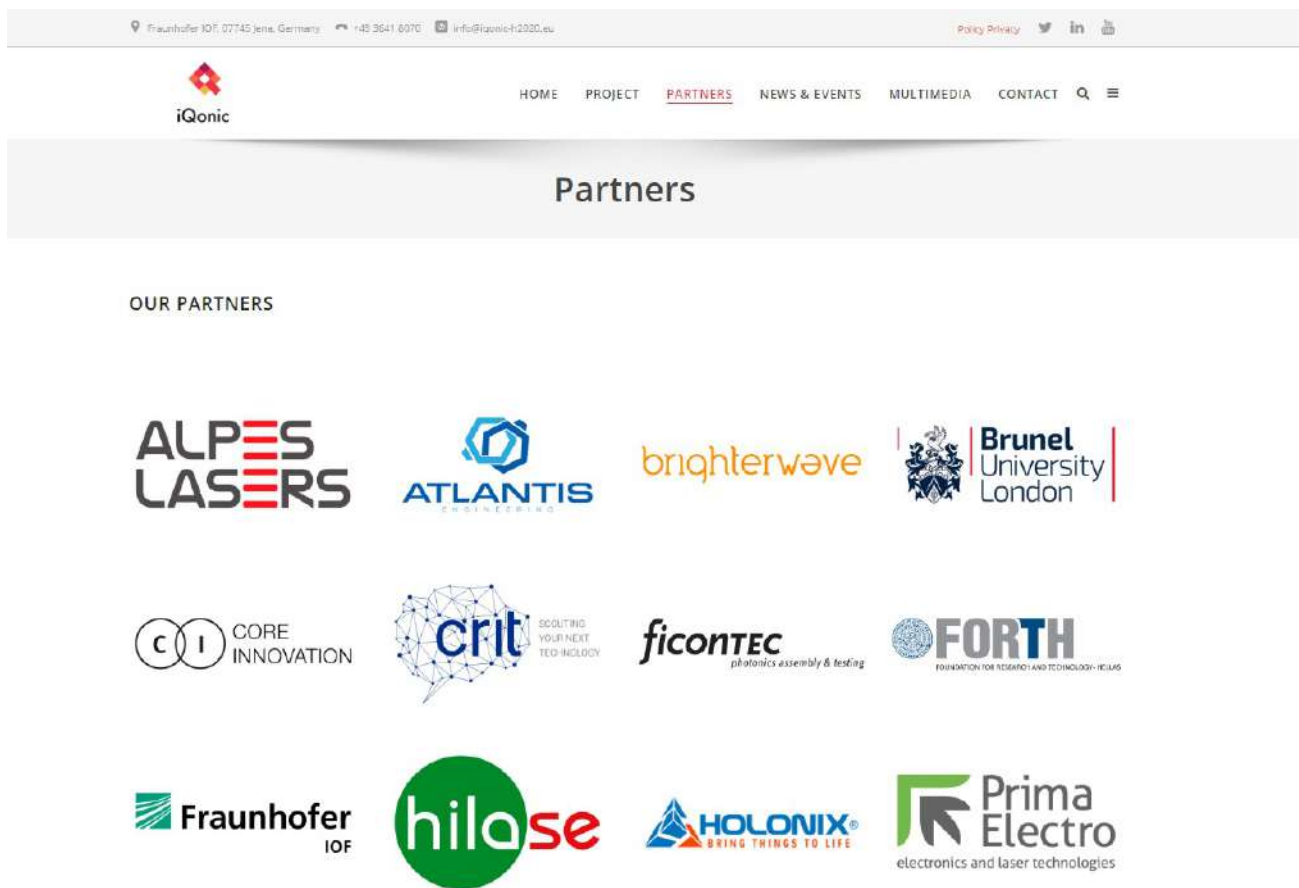


Figure 12: Partners Page

When clicking on the logo of each partner, a pop-up window appears showing the logo, a short description of the partner and a link to the website of the organization.



Figure 13: Partners Pop-up Window

The following pictures represent the project partners listed in the page.



Alpes Lasers is a Swiss engineering company pioneering advanced light sources, especially Quantum Cascade Lasers (QCLs) used in various applications such as gas detection. From our central location within Switzerland and Europe, we are dedicated to promote these technologies to customers active in a wide range of markets.

Alpes Lasers, as end-user, will adopt methods and concepts developed within the project in order to improve production yield and lead-times and minimize waste.

www.alpeslasers.ch

Figure 14: Alpes Laser



ATLANTIS is ICT SME, experienced in design, interconnection and implementation of models and protocols for Manufacturing sector, decision support for Management and optimisation of Production activities, Assets life-cycle and streamlining of various Maintenance related processes. IQONIC role: Technology provider of DSS, Reverse Supply Chain component and Middleware.

www.abe.gr

Figure 15: Atlantis



Brighterwave is developing smart glasses based on miniaturised RGB lasers and disruptive visible laser light sources to life science applications. Brighterwave's laser modules require state-of-the-art optoelectronic assembly methods, and through IQONIC Brighterwave aims to obtain increased yield in multi-stage manufacturing process.

www.brighterwave.com

Figure 16: Brighterwave



Brunel University is a research institute and university in West London, UK, educating over 13,000 students in sustainable development disciplines. Brunel was involved on over 120 projects within FP7 and was successful with 40 Horizon 2020.

Within IQONIC, Brunel will deploy Machine and Learning and Systems modelling solutions for predictive control and process optimization, for the purpose of zero waste manufacturing strategy.

www.brunel.ac.uk

Figure 17: Brunel University London



CORE INNOVATION aims at giving people the opportunity and ability to reach their full potential. In IQONIC, CORE will develop custom machine learning models to predict machine anomalies and performance to achieve zero defect manufacturing. In addition, CORE will lead the innovation management activities to reach the market on time and in the right fashion.

www.core-innovation.com

Figure 18: Core Innovation



CRT is a SME Innovation company belonging to 26 large manufacturing and processing industries in Emilia-Romagna, including SCM, FIAT Group, ALSTOM, Tetra Pak. CRT addresses services both to shareholders, mostly large companies, and to their suppliers, which are mostly SMEs. The aim of CRT is to support enterprises in innovation and technology transfer by acting as a common ground for collaborative industrial research. In addition, CRT acts as collective technological interface among industrial actors and Research centres throughout the world. Core activities of CRT are: management and deployment of technology transfer projects; analysis and processes of mission critical information on specific technology fields or key-players; development of collaborative innovation activities aimed at quickly starting up the adoption of new technologies.

In IQonic CRT is Linked third party of SACMI mainly for communication and dissemination activities.

www.crit-research.it

Figure 19: Crit, Linked Third Party of SACMI



FiconTEC provides automated micro-assembly and testing solutions for the photonics industry from simple lab setups all the way up to high-volume solutions. These solutions are cutting-edge and are independent of the device material and of the specific application the device is targeting. In IQonic ficonTEC is responsible for the integration of individual developments into an automated assembly system.

www.ficontec.com

Figure 20: Ficontec



The FilarOptomaterials is a medium sized company located in TORTOLI' (OG) in the Italian island of Sardinia. Since 1997, it operates as a reliable supplier of photonic and optical materials manufacturing and supplying synthetic optical and laser crystals.

Figure 21: Filar Optomaterials



FORTH is the largest Research Institution in Greece incorporating 6 Institutes. In this project FORTH will participate with the Institute of Electronic Structure and Laser (IESL) and Ultrafast Laser Micro and Nano Processing (ULMNP) Laboratory, which is a multi-disciplinary scientific laboratory that focuses its research on fundamental and applied issues related to materials science and technology and laser interactions with matter.

www.iesl.forth.gr

Figure 22: Forth



Fraunhofer IOF in Jena conducts applied research for photonics and develops optical systems to control light from generation and manipulation to application along the full photonic process chain from design to manufacturing of custom-specific solutions and prototypes. Fraunhofer IOF is the coordinator of the iQonic project.

www.iof.fraunhofer.de

Figure 23: Fraunhofer



HILASE Centre is focused on research, development and operation of next generation, high-performance diode-pumped solid-state laser systems for diverse scientific and industrial applications. In the IQONIC project, HiLASE Centre will be involved in testing performance and reliability of FILAR-OM crystals in real laser systems and perform LIDT.

www.hilase.cz

Figure 24: Hilase



Holonix is an IT company dealing mainly with advanced solutions for manufacturing, its focus is the creation of value from product/process lifecycle data, collected with IoT technologies and used to produce digital representations of things and of the real world to implement advanced services supporting all the phases of the product life cycle.

www.holonix.it

Figure 25: Holonix



Politecnico di Milano is a leading Italian technical university where 40,000 engineers, architects and designers are educated each year. POLIMI has always aimed at the quality and innovation of teaching and research, by developing a fruitful relationship with the economic and productive reality through experimental research and technology transfer technical university.

Figure 26: Politecnico di Milano



PRIMA ELECTRO is a division of the PRIMA INDUSTRIE Group to which it supplies the laser source for the laser machines and the proper NC. PE invests in a new diode fab in Italy to include the production of diodes in its processes.

PE will act as an end-user and will lead the respective use-case to their premises providing access to the production infrastructure.

www.primaelectro.com

Figure 27: Prima Electro



SACMI is an international group manufacturing machines and complete plants for the Ceramics, Packaging (including Beverage and Closures&Containers), Food industries and Automation. In IQONIC Sacmi will develop electronic olfactory systems ("electronic noses") for the detection of contaminants (mainly volatile organic compounds) on the product through the analysis of air.

www.sacmi.it

Figure 28: SACMI



SENSAP Swiss AG is an Independent Software Vendor (ISV) and Systems Integrator, providing turn-key solutions that address Internet-of-Things (IoT) solutions including CPS solution and components for automatic Data Acquisition from the production-floor, Machine Vision Quality Inspection, Systems Integrator and ISV.

SENSAP Swiss AG, as technology provider, will be working on the multisensorial data acquisition network for manufacturing opto-electrical parts and on the integration of software - hardware platforms and tools to support the interoperability of the IQONIC systems.

www.sensap.ch

Figure 29: Sensap



The Shadow Robot Company is one of UK's leading robotic developers, experts at grasping and manipulation for robotic hands. Shadow has worked with companies and researchers across the globe, looking at new ways to apply robotics technologies to solve real-world problems. They develop and sell the Dexterous Hand (recently used to advance research into AI and a key component of their new Teleoperation System) and the Modular Grasper (an essential tool for supporting industry 4.0). Shadow's role within IQONIC is to design a scalable modular robotic system for flexible handling that can be deployed to assemble and validate opto-electronic components. The system is to provide the long-duration of handling and installation of macro-scale components along with placing the components with sufficient accuracy to be deployable in optoelectronic manufacturing.

www.shadowrobot.com

Figure 30: Shadow



Optoelectronic Research Centre (ORC) Tampere University is the leading research group for optoelectronics in Finland. ORC's key research areas include design, characterization, fabrication, and assembly of tailored cutting-edge semiconductor light sources for various optoelectronic applications and wavelengths.

In iQonic, TAU develops the test and assembly platforms targeting for fast prototyping of micro-optic systems with laser diodes.

www.uta.fi

Figure 31: Tampere University



1.4 News & Events

The news & events section is the most dynamic content the site has. It must be always updated by posting events fully dedicated to iQonic or where the project was mentioned, meetings or conferences on predictive maintenance attended by the partners. The section is intended to attract the interest of the website visitors and to increase the public knowledge of this topic. The news will be listed with a sequence of articles containing a picture representative of the event and a short description of it.

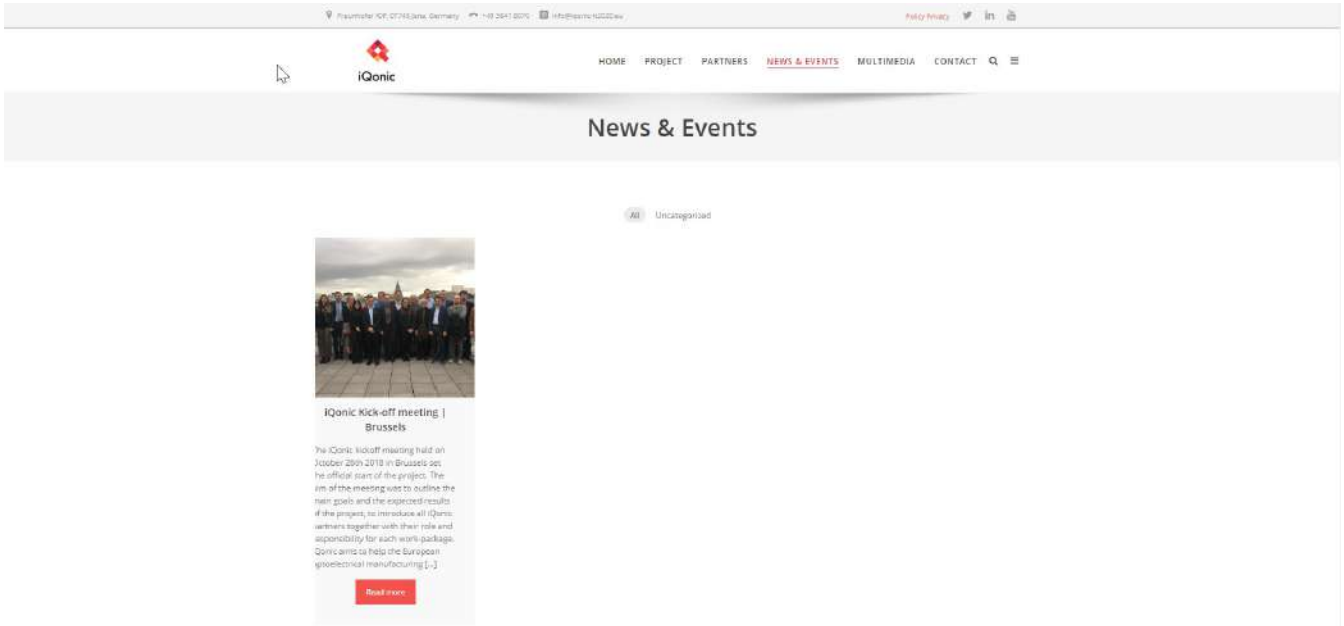


Figure 32: News and Events Page, News Preview

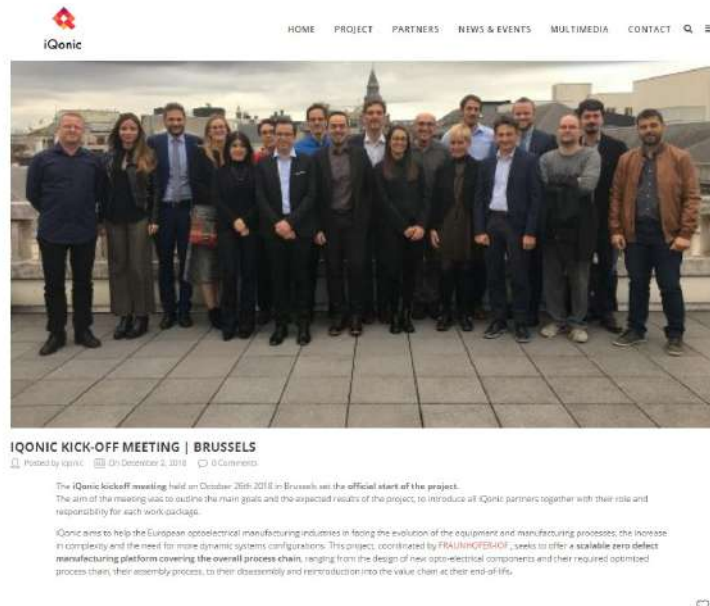


Figure 33: News and Events Page, News



1.4.1 Newsletter

The newsletters release during the project will be accessible from this page that can be reached by the drop-down menu that appears by selecting “News and Events” in the Menu bar.

1.5 Multimedia

This page is dedicated to the collection of all the pictures taken during the project activities. The photo gallery will be populated with pictures of the meetings, visits, workshops, conferences and trade fairs attended.

The drop-down menu shows also the possibility to display the videos of the project.

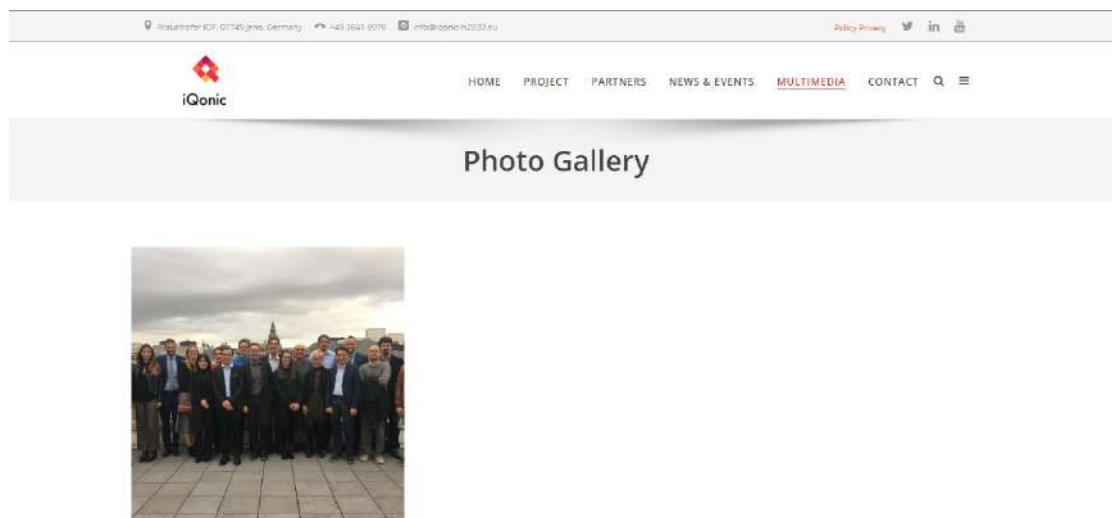


Figure 34: Multimedia Page, Photo Gallery



1.6 Contact

The page includes the reference contacts for the project and the form to be filled in to make requests.

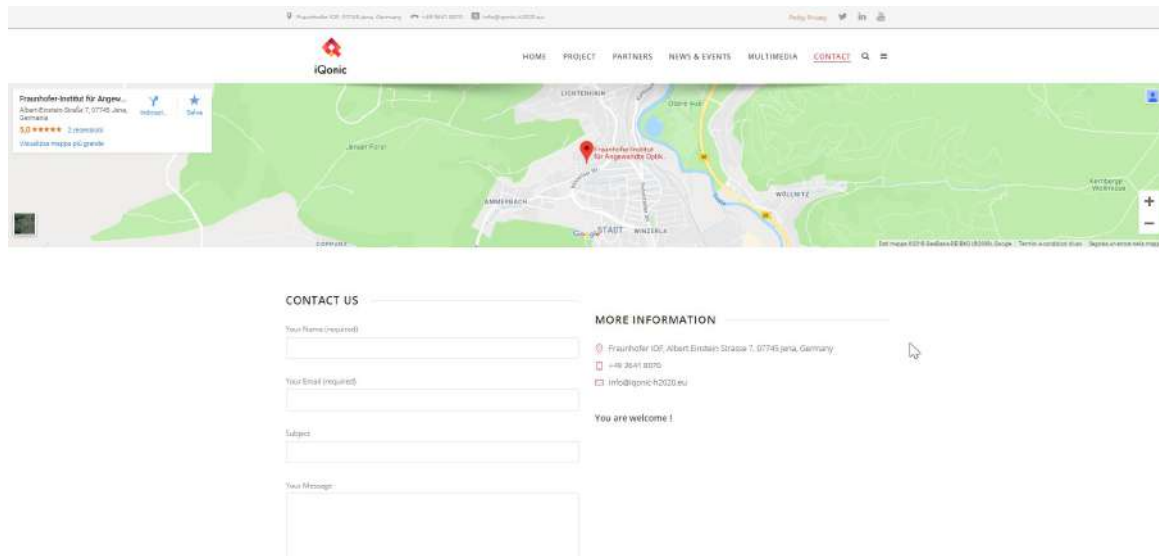


Figure 35: Contacts Page



2 Website Dissemination

Each partner is required to give the highest visibility to the website, linking it to their institutional websites, disseminating it among their networks and referring to it in any communication concerning the project.

The iQonic website will be indicated in all communication templates circulated by the dissemination.

The information on the website will grow with the proceedings of the project. Each event and achievement will be disseminated to the public through the website and the social networks.

iQonic is provided with a LinkedIn and Twitter account, at the bottom of each page of the website the visitor can access the iQonic social networks accounts.

3 Conclusions

This deliverable assures the explanations for the website development and detailed description of its present shape. Furthermore, the plan for project partners and website visitors has been introduced within this file. In order to serve communication goals and follow communication plan of the iQonic project this website will be continuously updated providing the website visibility that will take place as the project involves.



4 Annex I. Table of figures

Figure Number	Title	Page
Figure 1	Home Page Slider	Page 4
Figure 2	Home Page, Project Part	Page 4
Figure 3	Home Page, Case Studies Part	Page 5
Figure 4	Home Page, News and Posts part	Page 5
Figure 5	Home Page, Partners Part	Page 6
Figure 6	Home Page, Bottom part and Footer	Page 6
Figure 7	Project Page, iQonic Description	Page 7
Figure 8	Project Page, The eight strategies	Page 8
Figure 9	Project drop-down menu	Page 8
Figure 10	Work Structure Page	Page 9
Figure 11	Case Studies Page	Page 10
Figure 12	Partners Page	Page 11
Figure 13	Partners Pop-up Window	Page 11
Figure 14	Alpes Laser	Page 12
Figure 15	Atlantis	Page 12
Figure 16	Brighterwave	Page 12
Figure 17	Brunel University London	Page 12



Figure 18	Core Innovation	Page 13
Figure 19	Crit, Linked Third Party of SACMI	Page 13
Figure 20	Ficontec	Page 13
Figure 21	Filar Optomaterials	Page 14
Figure 22	Forth	Page 14
Figure 23	Fraunhofer	Page 14
Figure 24	Hilase	Page 15
Figure 25	Holonix	Page 15
Figure 26	Politecnico di Milano	Page 15
Figure 27	Prima Electro	Page 15
Figure 28	SACMI	Page 16
Figure 29	Sensap	Page 16
Figure 30	Shadow	Page 16
Figure 31	Tampere University	Page 17
Figure 32	News and Events Page, News Preview	Page 18
Figure 33	News and Events Page, News	Page 18
Figure 34	Multimedia Page, Photo Gallery	Page 19
Figure 35	Contacts Page	Page 20