



Report on industrial-oriented and scientific-oriented dissemination activities 2

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EXECUTIVE SUMMARY

This document summarises the industrial and scientific oriented dissemination activities performed by PASSION in its second year. The activities are broad and outlined in detail in the document. The main objective of the dissemination activities is to promote the project both from the point of view of the obtained results and for the generation of business around them.

This objective is pursued by exploiting the project dissemination tools such as PASSION:

- website
- social media
- webinars
- promotional material e.g. fliers and roll-up banners
- press-releases and newsletters,

D6.3 Section 2 provides the update statistics and related analytics of all these tools.

Section 3 discusses the scientific oriented dissemination activities, which comprise the participation to main conferences and workshops, the presentation of results in proceedings as well as in peer-reviewed journals.

Section 4 is dedicated to industrial-oriented activities including the presence at relevant exhibition fairs, the participation to industry driven workshops, and the publication in industry-related journals and magazines.

The activities related to standardization are presented in Section 5.

Finally, Annex 1 presents a description of main (second year) sponsored dissemination events, outlining evidence of their impact and connection to the PASSION project and clearly presenting funds usage and benefits of the sponsorship package in Annex 2.



1 INTRODUCTION

This document illustrates the industrial and scientific oriented dissemination activities performed during PASSION second year in order to accomplish the PASSION dissemination objectives as planned in D6.1.

The goal of the dissemination activities has been to promote the project among the different stakeholder groups, focusing on the ones that are key for the commercialization of the PASSION results, identified at the different levels of the PASSION supply chain: i) suppliers, ii) metro-network developers and iii) end-users of the technology. It includes the organization of industrial EPIC workshops and events in which PASSION has been presented to engage with suppliers. A group of relevant importance is represented by the end-users of the technology, that will be reached at the main exhibitions and invited to the different events. Furthermore, we promoted two actions toward two standardization bodies (namely IEEE 1914.3 group and ONF OTCC/TAPI group), in order to create opportunities to promote PASSION technology within standard bodies and associations.

In order to accomplish these objectives, PASSION website and landing pages at relevant social media, i.e., LinkedIn, Facebook and Twitter were continuously updated.

PASSION partners participated to workshops, conferences and exhibitions disseminating the project results also thanks to developed promotional materials. These and future activities will continue to be announced at the different social media in order to attract as much attention as possible towards the project.



2 DISSEMINATION TOOLS

In this section the updated statistics and related analytics for the dissemination tools exploited to promote the project among the different stakeholder groups and communities will be given.

2.1 WEBSITE

www.passion-project.eu

Also during this second year the most viewed page is the home page, which contains most recent news on the project, a quick overview of the objectives, the link to the project promotional video and the contact information, including social accounts, newsletter and PASSION supply chain interest group subscription links.

Figure 1 presents also the views obtained by the other website pages.

The total number of page views of this second year has been 4566 and Figure 2 gives the time domain distribution of them for the last twelve months. Some peaks can be identified around the main conferences, workshops and events.

Page Title	Page Views
	4,566 % of Total: 100.00% (4,566)
1. PASSION – Photonic technologies for programmable transmission and switching modular systems based on Scalable Spectrum/space aggregation for future agile high capacity metro Networks	1,782 (39.03%)
2. Partners – PASSION	385 (8.43%)
3. Publications – PASSION	307 (6.72%)
4. Objectives – PASSION	270 (5.91%)
5. PRIVATE AREA – PASSION	218 (4.77%)
6. News – PASSION	202 (4.42%)
7. Factsheet & project presentation – PASSION	167 (3.66%)
8. Technical approach – PASSION	164 (3.59%)
9. Deliverables – PASSION	111 (2.43%)
10. Multimedia – PASSION	95 (2.08%)
11. Events – PASSION	82 (1.80%)
12. PASSION Transmitters and Receivers: 10-Fold Power-Consumption Reduction – PASSION	79 (1.73%)

Figure 1 Number of views and related percentage for the first 12 web pages in the ranking of last 12 months.



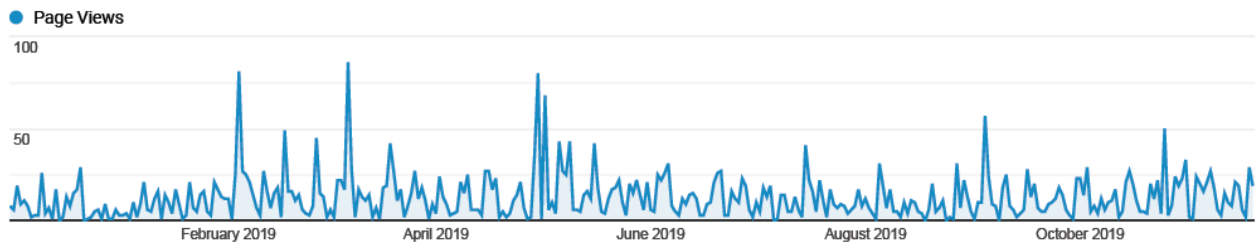


Figure 2 Time distribution of the web page views.

The number of people who accessed our website in this second year is 1743, 90% are new visitors, they come from 94 different countries as evidenced in Figure 3 b), while Figure 3 a) displays the distribution of accesses over the last 12 months.

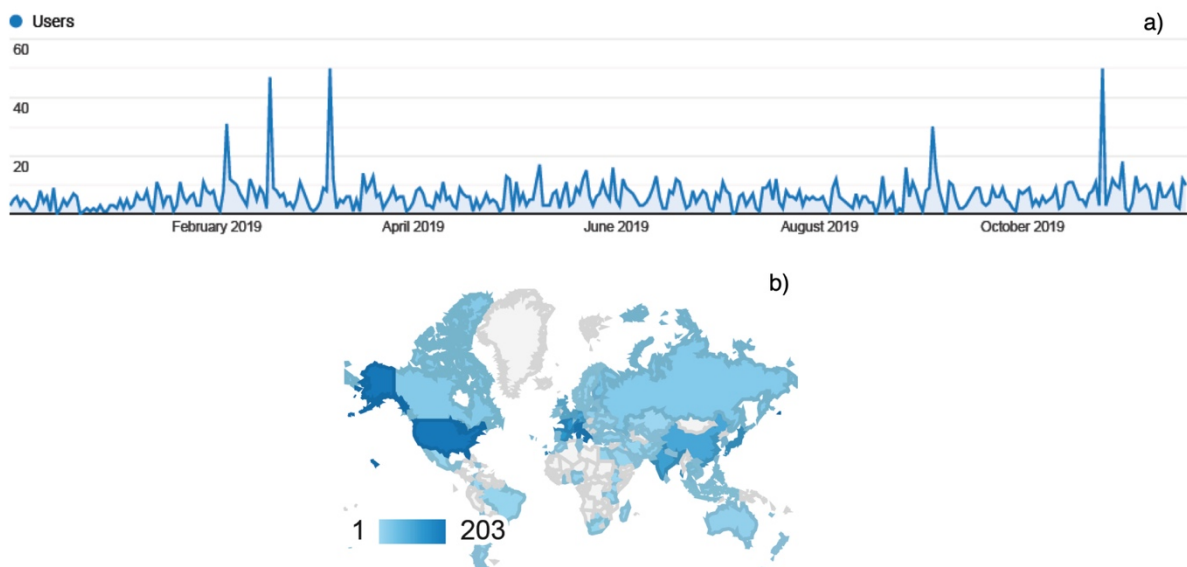


Figure 3 Time distribution of users' accesses and visiting countries location.

2.1.1 Videos

During this second year the project video (link: <https://www.youtube.com/watch?v=XmFqzquboYw>) received around 200 visualizations on YouTube. The other 2 videos present in the multimedia page, promoting PASSION vision, the “Coordinator perspective” and “Scientists harness photonics to develop faster, high capacity internet”, have been played more than 200 times.





Figure 4 PASSION video on YouTube.

2.1.2 Newsletter and PASSION supply chain interest group

The website, in the contact section, contains also the subscription to the newsletter, one release promoted the project midterm results.

Suppliers are encouraged to subscribe to the PASSION supply chain interest group through the website link present in the contact page, in the second year 7 companies contacted the project.

2.2 SOCIAL MEDIA

PASSION social network accounts are used to inform the business, global and scientific communities on PASSION achievements, events and presentations through tweets and posts. Also in this second year of the project the number of followers of the different accounts increased considerably.

2.2.1 Facebook

In this second year 20 Facebook posts were announced obtaining 215 likes and reaching out around 2400 persons.



Figure 5 Facebook account.





2.2.2 LinkedIn

LinkedIn group PASSION H2020 project

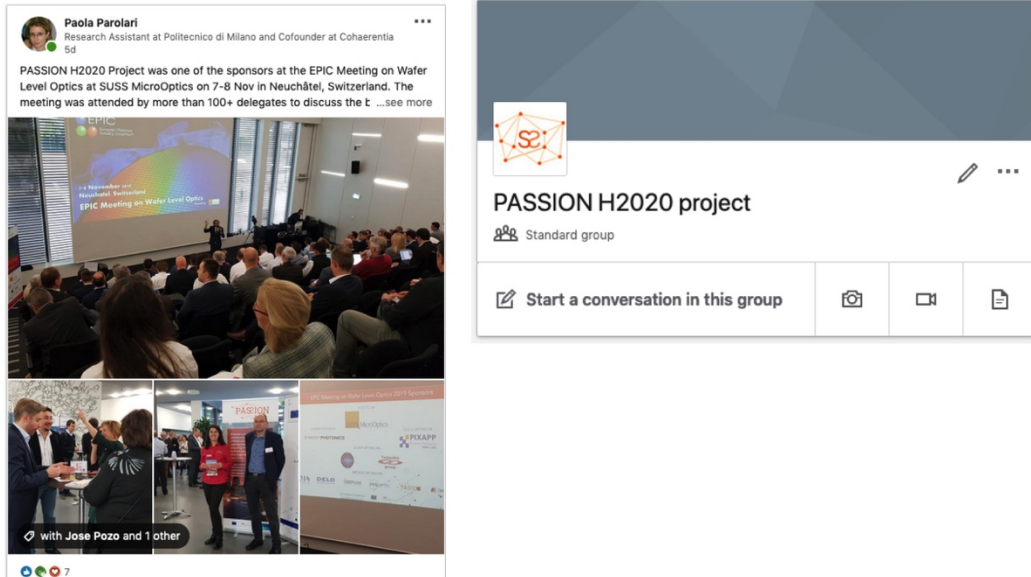


Figure 6 LinkedIn group.

The LinkedIn community has grown to more than 110 members, and 32 discussions were opened among the group in this second year.

2.2.3 Twitter

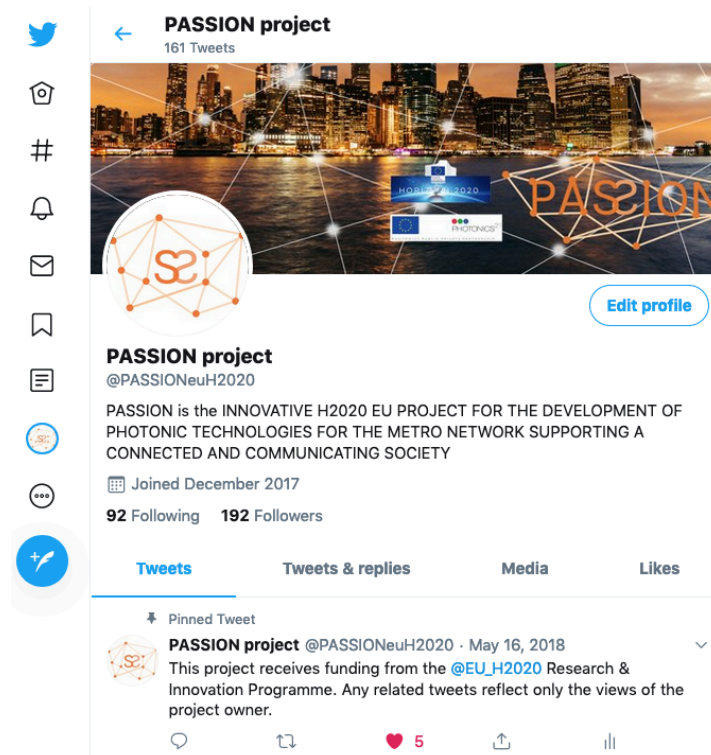


Figure 7 Twitter account



In the second project year Twitter account reached 192 followers; we had 70 tweets which received 620 likes, it is estimated that they got thousands of “impressions” with an engagement rate of 0.7%.

2.3 WEBINARS

A second webinar hosted by PASSION will be scheduled for the next year in order to present the project results.

2.4 FLYERS AND ROLLUP

During conferences and exhibitions, the attention was attracted also by flyers and roll-up, used for promotion and to create awareness about the PASSION project.

The roll-up clearly presents PASSION visual identity and outlines project funding by H2020 work programme and Photonics 21 PPP.

The current flier is presented in the figure below, while an updated version is foreseen for March 2020.



Figure 8 Current flyer.

3 SCIENTIFIC-ORIENTED DISSEMINATION

In this second year PASSION partners participated to 12 of the main relevant conferences and workshops in the field of optical communications and technologies, presenting the project results among the scientific and industry communities. The participation of PASSION was announced on the website and in social media.

Moreover 19 conference proceedings and 5 journal papers were published so far. Green open access was adopted for the conference proceedings and journals. Publications can be downloaded also from the webpage related section.



3.1 CONFERENCE & WORKSHOPS

Date	Event	Location	Activity Note	PASSION Topic
04/02/2019	SPIE Photonics West 2019	San Francisco, CA	N. Calabretta	Photonic-integrated WDM cross-connects for optical metro and data center networks
04/02/2019	SPIE Photonics West 2019	San Francisco, CA	T. Aalto	Si photonics using micron-size waveguides
05/02/2019	SPIE Photonics West 2019	San Francisco, CA	M. Svaluto Moreolo	VCSEL-based sliceable bandwidth/bitrate variable transceivers
02/04/2019	OASIS 7 (Optical Engineering and Science in Israel) 2019	Tel Aviv, ISR	O. Raz	Exploring 2.5 and 3D Integration to Meet the Bandwidth Density Challenge”
06/03/2019	OFC 2019	San Diego, CA	R. Martínez	Proof-of-concept Validation of SDN-controlled VCSEL-based S-BVTs in Flexigrid Optical Metro Networks
07/03/2019	OFC 2019	San Diego, CA	K. Prifti	System Performance Evaluation of a Nanoseconds Modular Photonic Integrated WDM WSS for Optical Data Center Networks
08/05/2019	CLEO 2019	in San Jose, CA	M. Svaluto Moreolo	Programmable VCSEL-based Transceivers for Multiterabit Capacity Networking
25/04/2019	ECIO 2019 (European Conference on Integrated Optics)	Ghent, Belgium	S. Bhat	Low Loss Devices fabricated on the Open Access 3mm SOI Waveguide Platform at VTT
9/05/2019	European “VCSEL day” Workshop 2019	Brussels, Belgium	C. Neumeyr	Integrating SiP and long wavelength VCSEL technologies to realize a 100 Tb/s programmable link architecture for scalable and agile Metro Networks
18/06/2019	EuCNC 2019 Workshop on Photonic Technologies for 5G and Beyond	Valencia, Spain	J. P. Fernandez Palacios	Cost Efficient 5G Optical Transport Architecture
18/06/2019	EuCNC 2019 Workshop on Photonic Technologies for 5G and Beyond	Valencia, Spain	G. Parladori	Empowering your metro-access optical network with micro nodes
30/06/2019	CLEO Europe 2019	Munich, Germany	M. Rapisarda	VCSEL Technologies for High-capacity Dense WDM Networks
08/07/2019	24th OECC/ PSC conference 2019	Fukuoka, JP	N. Calabretta	SDN enabled dynamically re-configurable low-cost ROADMs for metro networks
08/07/2019	24th OECC/ PSC conference 2019	Fukuoka, JP	M. Svaluto Moreolo	Spectrum/Space Switching and Multi-Terabit Transmission in Agile Optical Metro Networks
08/07/2019	2019 IEEE Photonics Society Summer Topical Meeting Series	Fort Lauderdale, Florida, USA	A. Gatto	Beyond 50 Gb/s Directly-Modulated Long-Wavelength VCSELs for Next-Gen Access Network



11/07/2019	21 st ICTON 2019	Angers, France	P. Boffi	Disruptive photonic technologies for the future sustainable high-capacity metro network
11/07/2019	21 st ICTON 2019	Angers, France	P. Parolari	Effect of filtering in dense WDM metro networks adopting VCSEL-based multi-Tb/s transmitters
12/07/2019	21 st ICTON 2019	Angers, France	P. Bitao	SDN-Enabled Reconfigurable Optical Data Center Networks Based on Nanoseconds WDM Photonics Integrated Switches
03/11/2019	ACP2019	Chengdu, China	N. Calabretta	SDN Controlled Metro Access Network with Network Slicing and Edge Computing for 5G Applications (invited)
04/11/2019	ACP2019	Chengdu, China	D. Larrabeiti	All-Optical Paths across Multiple Hierarchical Levels in Large Metropolitan Area Networks

3.2 CONFERENCE PROCEEDINGS

#	Publication Reference 2019
1	M. Svaluto Moreolo, et al., "VCSEL-based sliceable bandwidth/bitrate variable transceivers" Proc. SPIE 10946, Metro and Data Center Optical Networks and Short-Reach Links II, 1094606 (1 February 2019)
2	R. Martinez, et al., "Proof-of-Concept Validation of SDN-Controlled VCSEL based S-BVTs in Flexi-Grid Optical Metro Networks" 2019 Optical Fiber Communications Conference and Exposition (OFC), San Diego, CA, 2019, paper W1G.5
3	K. Prifti, A. Gasser, N. Tessema, X. Xue, R. Stabile, and N. Calabretta, "System Performance Evaluation of a Nanoseconds Modular Photonic Integrated WDM WSS for Optical Data Center Networks," in Optical Fiber Communication Conference (OFC) 2019, San Diego, CA, 2019, paper Th2A.31.
4	N. Calabretta, K. Prifti, N. Tessema, X. Xue, Bitao Pan, R. Stabile, "Photonic integrated WDM cross-connects for optical metro and data center networks," Proc. SPIE 10946, Metro and Data Center Optical Networks and Short-Reach Links II, 1094603 (1 February 2019)
5	Timo Aalto, et al., "Si photonics using micron-size waveguides," Proc. SPIE 10914, Optical Components and Materials XVI, 109140B (27 February 2019)
6	S. Bhat, et al. "Low Loss Devices fabricated on the Open Access 3 μm SOI Waveguide Platform at VTT" in European Conference on Integrated Optics ECIO 2019, Ghent, Belgium, April 2019.
7	M. Svaluto Moreolo et al., "Programmable VCSEL-based Transceivers for Multi-terabit Capacity Networking," (Invited) in Conference on Lasers and Electro-Optics, OSA Technical Digest (Optical Society of America, 2019), paper SW4O.5
8	G. Otero, et al. "Optical Interconnection of CDN Caches with Tb/s Sliceable Bandwidth-Variable Transceivers featuring Dynamic Restoration" paper WeC4.4, EUCNC2019, Valencia, ES, 18-21 June 2019



9	Mariangela Rapisarda, et al.” VCSEL Technologies for High-capacity Dense WDM Networks” in Proceedings CLEO/Europe-EQEC 2019, 23 - 27 June 2019, Munich, Germany, Paper CI-3.1,
10	M. Svaluto Moreolo et al., “Spectrum/Space Switching and Multi-Terabit Transmission in Agile Optical Metro Networks,” in Proceedings OECC/PSC 2019, Fukuoka, Japan, July 2019, Paper MF2-3.
11	Bitao Pan, et al. “Experimental Assessment of SDN Controlled Metro Access Network with Network Slicing and Edge Computing under 5G Applications” in Proceedings OECC/PSC 2019, Fukuoka, Japan, July 2019, Paper PDP5.
12	Xuwei Xue, et. Al, “Fast Dynamic Control of Optical Data Center Networks Based on Nanoseconds WDM Photonics Integrated Switches”, in Proceedings OECC/PSC 2019, Fukuoka, Japan, July 2019, Paper WG1-1.
13	N. Tessema, et al. “SDN Enabled Dynamically Re-configurable Lowcost ROADM Nodes for Metro Networks”, in Proceedings OECC/PSC 2019, Fukuoka, Japan, July 2019, Paper MF2-2.
14	A. Gatto et al. “Beyond 50 Gb/s Directly-Modulated Long-Wavelength VCSELs for Next-Gen Access Network” paper MB4.1, in IEEE Summer Topical Meetings 2019, Ft. Lauderdale, Florida, USA, July 2019
15	P. Parolari, et al., “Effect of filtering in dense WDM metro networks adopting VCSEL-based multi-Tb/s transmitters (Invited)” paper Th.B1.3, in 2019 International Conference on Transparent Optical Networks (ICTON), Angers, France, July 2019
16	A. Gatto et al. “Disruptive photonic technologies for the future sustainable high-capacity metro network (Invited)” paper Th.B1.2, in 2019 International Conference on Transparent Optical Networks (ICTON), Angers, France, July 2019
17	Xuwei Xue, et.al “SDN-Enabled Reconfigurable Optical Data Center Networks Based on Nanoseconds WDM Photonics Integrated Switches” paper Fr.A3.1, in 2019 International Conference on Transparent Optical Networks (ICTON), Angers, France, July 2019
18	D. Larrabeiti, et al. "All-Optical Paths across Multiple Hierarchical Levels in Large Metropolitan Area Networks" paper M4A.206, in proceedings of Asia Communications and Photonics Conference (ACP2019) China, November, 2-5, 2019
19	N. Calabretta, et al. "SDN Controlled Metro Access Network with Network Slicing and Edge Computing for 5G Applications" paper S4E.3, in proceedings of Asia Communications and Photonics Conference (ACP2019) China, November, 2-5, 2019



3.3 PEER-REVIEWED JOURNAL PAPERS

#	Publication title
2019	
1	C. Rottondi, P. Martelli, P. Boffi, L. Barletta and M. Tornatore, "Crosstalk-Aware Core and Spectrum Assignment in a Multicore Optical Link with Flexible Grid," in IEEE Transactions on Communications, in <i>IEEE Transactions on Communications</i> , vol. 67, no. 3, pp. 2144-2156, March 2019. (doi: 10.1109/TCOMM.2018.2881697)
2	T. Aalto et al., "Open-access 3 μm SOI waveguide platform for dense photonic integrated circuits," in IEEE Journal of Selected Topics in Quantum Electronics. vol. 25, no. 5, pp. 1-9, Sept.-Oct. 2019, Art no. 8201109 doi: 10.1109/JSTQE.2019.2908551
3	M. Svaluto Moreolo et al., "Synergy of Photonic Technologies and Software-Defined Networking in the Hyperconnectivity Era," IEEE/OSA Journal of Lightwave Technology, vol. 37, no. 16, pp. 3902-3910, 15 Aug.15, 2019". (doi: 10.1109/JLT.2019.2918958)
4	P. Reviriego, J. Martínez and S. Pontarelli, "CFBF: Reducing the Insertion Time of Cuckoo Filters with an Integrated Bloom Filter," IEEE Communications Letters, vol. 23, no. 10, pp. 1857-1861, Oct. 2019. doi: 10.1109/LCOMM.2019.2930508
5	P. Reviriego and O. Rottenstreich, "The Tandem Counting Bloom Filter - It Takes Two Counters to Tango" in IEEE/ACM Transactions on Networking (in press).

4 INDUSTRIAL-ORIENTED DISSEMINATION

In the second year the industrial-oriented dissemination activities continued in the establishment of a global PASSION brand identifying the most adequate entities to build strategic partnerships, targeting the different levels of the supply chain (suppliers, metro-network developers and end-users).

In particular suppliers were engaged in EPIC workshops and EPIC events and companies; metro-network developers and end-users were reached at exhibitions and conferences. In the following the main attended events and the publications in technical and generalist magazines are displayed.

4.1 INDUSTRY EVENTS AND WORKSHOPS

Date	Event	Location	Type
2-7/02/2019	Photonics West 2019	San Francisco, USA	Event
4/02/2019	EPIC Photonics Networking reception	San Francisco, USA	Event
5-8/03/2019	OFC 2019	San Diego, USA	Booth
07/03/2019	EPIC VIP Party at OFC 2019	San Diego, USA	Event



21-22/03/2019	EPIC Meeting on “Optical Communications: Coherent or Incoherent”	Mainz, Germany at HUBER+SUHNER Cube Optics	“Integrating photonics technologies to realize a 100Tb/s programmable link architecture for scalable and agile metro networks” C. Neumeyr
26-27/03/2019	PIC International Conference	Brussels, Belgium	Event, Booth VTT
23-24/05/2019	EPIC Meeting on “Automation Tools for Packaging and Testing”,	Regensburg, Germany at ASM AMICRA	“Wafer level packaging and hybrid integration in SiP” G. Delrosso
29-30/08/2019	EPIC “World photonics technology Summit”	Berlin	Event, dissemination of PASSION leaflet and roll-up
4-6/09/2019	CIOE (China International Optoelectronic Exposition)	Shenzhen, China	VTT presentation at TechWatch, Booth Vertilas
23-25/09/2018	ECOC 2019	Dublin, Ireland	Booth
23/09/2019	EPIC VIP Party at ECOC	Dublin, Ireland	Event
17-18/10/2019	EPIC meeting on “VCSEL technology and Applications”	Stuttgart, Germany	“Long wavelength VCSELs and VCSEL arrays for advanced applications in sensing and Optical Communications” C. Neumeyr
7-8/11/2019	EPIC Meeting on Wafer Level Optics	Neuchatel, Switzerland	Event, dissemination of PASSION leaflet and roll-up

4.2 INDUSTRY PUBLICATIONS AND MAGAZINES

Technical and generalist magazines 2019	
1	VCSEL Technology in the Data Communication Industry, PhotonicViews 6/2019



5 CONTRIBUTION TO STANDARDISATION

In this second year, we continued the monitoring of the main standardisation bodies, in particular the ITU-T, analysing and establishing PASSION technology positioning with respect to the current state of the art. Moreover, we have contacted some identified standardisation bodies in order to directly interact with them.

In particular, we were able to sign a liaison letter with Open Networking Foundation (ONF) specifically with ONF-OTCC/TAPI, creating the opportunity to interact with them and propose Yang model extensions to accommodate PASSION based infrastructure. The technical proposal is in preparation and in the upcoming months will be submitted to the working group. The reference SDN model is the Transport API T-API model (GitHub reference: <https://github.com/OpenNetworkingFoundation/TAPI>).

Furthermore, we have organised a meeting with IEEE Next Generation Fronthaul Interface (1914) Working Group in Milan last June 4th to share information about PASSION use case related to 5G x-hauling.

Finally, we would like to present one of the future PASSION demos, related with network disaggregation, to the Telecom Infra Project (TIP <https://telecominfrastructure.com/>) in order to give visibility about the PASSION technology advantages among operators and members of TIP.



6 CONCLUSIONS

PASSION started with the promotion of the activities and objectives since the very beginning of the project. The dissemination plan outlined in D6.1 greatly facilitated partner participation in the promotion of PASSION-project also in this second year.

Moreover, the creation of digital contents for the social channels and the organization of specific events has been very successful in maintaining the already attained group of interest in social networks: with 215 likes in Facebook, 110 members in LinkedIn and 192 followers in Twitter.

Attention has continued to be attracted by the videos on YouTube (now 500 views) and on Vimeo (around 1300 views).

After the success of the first webinar and workshops, within the upcoming activities of PASSION a second webinar will be scheduled, while more contributions and organizations of own workshops are foreseen for 2020. PASSION also foresees continuing with its participation at several different scientific conferences and industrial exhibitions strongly related to PASSION technological developments and to the most interesting stakeholder groups such as end-users of metro-networks. In this second year, partners have participated to 29 industrial-oriented and scientific-oriented dissemination events, namely congresses and workshops, and there have been 24 publications in proceedings, journals and magazines.

Finally, PASSION signed a liaison letter with Open Networking Foundation (ONF) specifically with ONF-OTCC/TAPI, to propose Yang model extensions to accommodate PASSION based infrastructure; and organised a meeting with IEEE Next Generation Fronthaul Interface (1914) Working Group to share information about PASSION use case related to 5G x-hauling.



ANNEX 1 – SPONSORED DISSEMINATION EVENTS

Meetings organised by EPIC are always set up as a business meeting. Whether it is a technology meeting (such as EPIC meeting on VCSEL technology and applications at SONY) or a networking reception or a VIP Party these meetings are always business oriented and are organized in atmosphere of networking, cooperation and discussion. In all cases, the goal of EPIC events is always to foster the collaboration between our members and EU projects and end-users/system integrators of the technology. Before the event, there is an evaluation about the companies attending and whom are the main leads to connect in order to maximize the value for the sponsor companies/projects. During the events, we make sure that all the attendees make the right contacts, giving a huge visibility to the sponsors through the benefits of the sponsorship package (see Annex 2). While technology meetings are focused on a particular technology or industry and discuss in detail the latest state-of-the-art technical achievements and needs and requirements from the end users, during networking receptions or VIP parties a full variety of representatives from different directions of photonics industry is present. The diversity of participants of the VIP parties offers new opportunities to explore different markets where the technology developed within, e.g. PASSION project, could find its new applications. Moreover, VIP parties are always limited to representatives at CEO or higher management (for large companies) level. Such participants limitation ensures high level of business discussion in increased opportunities for follow up cooperation. High visibility of PASSION project during EPIC meetings, networking events and VIP parties is achieved by using marketing materials (flyers, banners, etc.) as well as dedicated presentation, mentioning the project as sponsoring body and direct communication with those potentially interested in the technology developed within project or supplying components, services, etc. as the technology can be moved to the large scale production.

At this stage in the PASSION project, the exploitation strategy is based on maximizing the commercialization potential of the individual innovation produced by the project, that right now consists of:

- optical components; e.g. single mode VCSELs operating in the C-band
- processes; e.g. direct coupling of VCSELs on silicon waveguides, micro-optics to out-couple light from the waveguide to the fiber
- optical devices; e.g. the complete PASSION transceiver including optical components and the processes, and the optical switch developed by ETRI.

Due to the nature of PASSION project, the goal of being present at an EPIC meeting/event is three-fold:

- During EPIC meetings and events, it is possible to evaluate the interest of a company in this kind of technologies and elaborate a list of companies that will be contacted once the technology is ready to transfer.
- Large-scale manufacturing requires to plan a strong supply chain for the required components and processes, many companies interesting for the PASSION supply chain are attending the events where it is possible to evaluate the offer and capabilities for large-volume production
- At EPIC events, it is possible to explore alternatives to the technology in order to mitigate risks of not achieving the required performance with the initially proposed technology

EPIC NETWORKING RECEPTION AT PHOTONICS WEST 2019

EPIC networking reception at PW 2019 brought together 272 representatives working in photonics. The participant list accounts for 156 CEO's and executives with all other participants fulfilling positions on the highest management level as well. During this meeting, possible users of the PASSION technology were identified. The users showed an interest in the innovation carried out in the project for optical components, processes, and optical devices. The potential users include Juniper, CISCO, LIMO, Spectrum scientific, Anteryon, AMS technologies, Ocean Optics, Lumibird, II-VI, Santec Europe, HÜBNER-SCHUNER, LADIMO, Lightwave Logic, II-VI Laser Enterprise, OCTLIGHT and Panasonic Boston Laboratory. Notably OCTLIGHT is a medical sector-oriented company that could use VCSELs on Silicon waveguide for developing miniaturized OCT, thus this contact provides a potential extension of the PASSION market. The participant list also included companies which are envisaged to be able to support the supply chain for PASSION for large-volume manufacturing, if needed, e.g. Rockley Photonics, ficonTEC, INO, LEONI Fiber Optics, Teem Photonics, New Infrared Technologies, Chiral Photonics, Pilot Photonics, CoreActive, Multiphoton Optics, NIL Technology, Aixemtec.

Overall, the EPIC networking reception at PW 2019 raised the project's profile, increased its visibility among the photonics community, and brought together interesting companies for the PASSION supply chain and potential adopters of the innovations developed at PASSION.

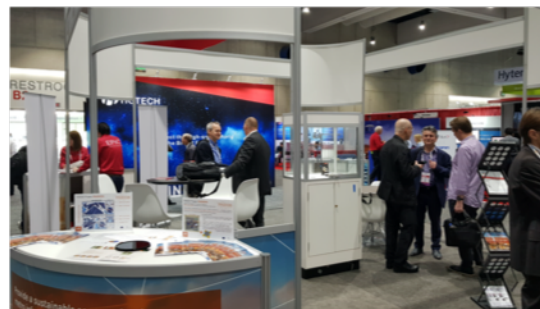


EPIC networking reception at PW 2019.

OFC 2019

EPIC VIP Networking Reception at OFC 2019 was attended by 155 people. About 24 representatives showed an interest in the PASSION technology and potential users were contacted during the exhibition at the Booth. The list of potential leads includes companies such as Rosenberger, Microsoft, PETRA, Senko, IBM Research, LUNA Innovations, Sumitomo, Juniper, LioniX International, Infinera, Aephonix, Keysight technology, Kaiam, Ciena, Sicoya, Finisar, Inphi, etc. The companies were interested in one or more of the innovations of PASSION such as the process for VCSEL placement on the Si platform (e.g. Lightwave Logic) or at the transceiver level (e.g. Elenion Technologies). Also, we note that the medical industry shows increasing interest in photonic technology, an example is the biotech company Illumina..

PASSION participation in EPIC VIP Networking Reception at OFC 2019 and the Booth created additional visibility to the project, triggering interest in the project, attracting potential users and extending the network of the supply chain by making contacts with relevant companies (e.g. Palomar technologies, Arden, Vanguard, INO, Teem Photonics, Pilot Photonics, CoreActive, etc.).



PASSION at OFC 2019 Booth and EPIC VIP Networking Reception

EPIC MEETING ON OPTICAL COMMUNICATIONS: COHERENT OR INCOHERENT AT HUBER+SUHNER CUBE OPTICS

The purpose of this meeting was to bring together the whole value chain of optical communications, on the physical, link and network layers and have a fruitful discussion on how to address the present and future needs of optical communications. 45 participants representing the supply chain in optical communication could be also directly linked to potential leads and future needs for the PASSION approach. Here, in addition to the standard networking tools, PASSION was also attracting attention as it was presented during talks.

Companies offering high precision 3D printing such as Multiphoton Optics and Nanoscribe would be a good contact when higher volume production is considered. Dassault Systemes SIMULIA, Finetech, Optoscribe can be considered as providers for simulation of structural mechanics, computational fluid dynamics and electromagnetic field simulation, tools for automation and customized fabrication of glass waveguide, respectively. Large volume production also would require higher volumes of specific materials, which can be supplied by SABIC Innovative Plastics, Saes Getters for plastic parts or other advanced functional materials. It must be highlighted the good number of leads interested in the transceiver component such as NTT, Senko, Ciena, Finisar, Juniper, IBM, Huawei.



PASSION presented at the EPIC meeting on optical communications: coherent or incoherent at HUBER+SUHNER cube optics

EPIC MEETING ON AUTOMATION TOOLS FOR PACKAGING AND TESTING AT ASM AMICRA

The purpose of this meeting was to bring together equipment manufacturers and automation of high precision manufacturing and testing lines; to discuss the production of optoelectronic components and modules and to identify bottlenecks in process automation for any industry. The supply chain of the companies present at this meeting is of high importance to PASSION project when reaching the step of high-volume production. Thus, the companies making automatized tools for alignment (Aerotech), packaging (Aifotec, Aixemtec, ASM AMICRA) and other processes (Finetech, Palomar Technologies) were addressed. Moreover, Argotec was also present, which has experience in packaging of VCSELs, while MicroCircuit Laboratories offers hermetic package sealing. Other packaging and assembly service providers present included Bay Photonics, Besi Austria, Focuz, ICON Photonics, etc. Some potential users of the PASSION technology were present at the meeting (USConec, ADVA, LUNA, Technobis, Philips Innovation, Jenoptik, Horiba) alongside with the partners of the project (VTT, EFFECT Photonics, TU Eindhoven, Politecnico di Milano) ensuring higher output of the project dissemination and future business leads.



PASSION project presented and discussed at EPIC meeting on automation tools for packaging and testing at ASM AMICRA

ECOC 2019

During ECOC 2019 PASSION project was presented at the exhibition in a booth and additional promotion and dissemination of the project took place during EPIC VIP Reception. Similar to aforementioned events here PASSION was connected with the various representatives of the supply chain and potential users of the technology. The EPIC VIP Reception counted 169 participants among which 81 would be a valuable contact for PASSION whether in form of supply chain, service or user. The potential users included companies NTT, Senko, Ciena, Finisar, Juniper, IBM, Huawei, Nokia and others.

The EPIC booth promoted 4 projects; PASSION had its own corner where devices already fabricated were displayed (see picture below). The roll up and the flyers, clearly outlining H2020 and Photonics PPP sponsorship, were used and distributed among the attendants during both the exhibition and the reception.



PASSION at ECOC 2019: at the Booth (left) and during EPIC VIP Reception.

Notably, the EPIC VIP Reception at ECOC and the EPIC VIP Networking Reception at OFC 2019 are the two events in which the members of COBO are invited and can interact with EPIC companies and delegates from the project. Thus, these meetings also provided a valuable platform for communication with COBO, which can help PASSION project to support standardisation steps, so these events are a good source of potential users for the PASSION technology, as all members of COBO are big companies working of communications.

EPIC WORLD PHOTONICS TECHNOLOGY SUMMIT

The EPIC World photonics technology summit is a unique event bringing together experts and leaders from industrial companies around the world to discuss photonics technology developments, applications, and challenges. The event is by invitation only at CTO/CEO level (companies less than 100 employees), VP R&D VP Engineering (companies 100-250 employees), Director R&D (companies more than 250 employees), NO sales NO marketing. Such setting of the meeting ensures not only the highest level of business discussion and increased opportunities for follow up cooperation, but also deep technological discussions in various directions of photonics. This meeting is a perfect platform for understanding of current state of photonics technology and its directions as well as finding best ways for cooperation. Being promoted at this meeting PASSION project got visibility among such potential user companies as Mouro Labs, OPTICS11, Ibsen Photonics, Veoneer, Firecomms, Modulight, AIO Core, Nynomic, First Sensor, Elenion, II-VI Laser Enterprise, VR/AR Association, Sanmina, Senorics, Robert Bosch, Chiral Photonics, Panasonic and many others. Representatives of the PASSION supply chain were present as well.



EPIC world photonics technology summit

EPIC MEETING ON VCSEL TECHNOLOGY AND APPLICATIONS AT SONY

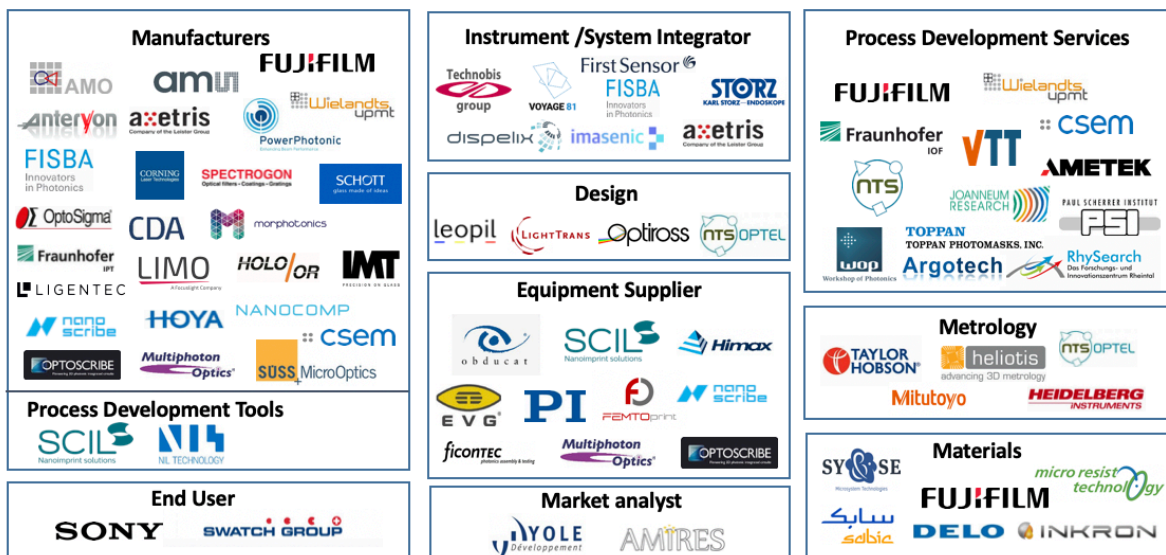
VCSEL is one of central technologies in PASSION project. EPIC meeting on VCSEL technology and applications at SONY brought together companies driving the abovementioned applications together with the full value chain of VCSELs including: OEMs, integrators, device manufacturers, epi houses, foundries, equipment and material suppliers. This meeting discussed latest developments of the technology, put together the supply chain and brought potential users. Here PASSION was presented to and put in contact with suppliers from OptoSigma, SCHOTT Primoceler, Multiphoton Optics, SABIC Innovative Plastics, Physik Instrumente (PI), Focuz, etc. Potential users for VCSEL technology included representative from automotive (Fastree3D, Ibeo Automotive), spectrometry (Avantes), and other industries (Lumentum, SICK). Other potential users include AMS Technologies, Robert Bosch, II-VI Laser Enterprise, Sony, Finisar, Thorlabs, TRUMPF, Valeo, Huawei, etc. Thus, the potential users of the VCSELs and the developed within PASSION technology of integration of VCSELs with silicon photonics as well as different markets and applications were reached.



PASSION in presentation by Vertilas at EPIC meeting on VCSEL technology and applications at SONY

EPIC MEETING ON WAFER LEVEL OPTICS AT SUSS MICROOPTICS

Optical microtechnology is a challenging but fast developing field with applications in different markets such as industrial, medical, automotive, consumer and mobile. For PASSION this meeting was a perfect chance to explore the options for light outcoupling from the waveguided as the companies attending this meeting covered the supply chain including end-users, fabrication techniques, materials and metrology (see below)



EPIC supply chain of wafer level optics meeting at SUSS MicroOptics



This meeting allowed us to explore different alternatives for out-coupling light from the transceiver waveguide to the fiber, which has demonstrated to be challenging to achieve the objectives of the project as the technology used now shows high losses. Different companies able to propose a solution were investigated such as SUSS MicroOptics, Multiphoton optics, Nanoscribe, SCHOTT, etc. Also, companies providing special materials and coatings critical for board production e.g. Sabc were present. Assembly and metrology of micro-optics are critical and challenging steps during large volume production and companies such as Delo would be a valuable contact for PASSION. Moreover, PASSION technology attracted interest from a range of companies in different industries, not involved in telecommunication (e.g. LIMO, First Sensor) which were present at the meeting, therefore increasing the potential markets for the project outcome.



EPIC meeting on wafer level optics at SUSS MicroOptics

PASSION CONTRIBUTION AND OTHER AUDITABLE CLAIMS

As agreed, in the table below the relation of the costs expensed to PASSION for booths, EPIC events and meetings is presented. The presented costs include contributions to the meetings, receptions and events (packages detailed in Annex 2), costs for travel, marketing material, etc.

The total expenses of events are typically shared among different projects disseminated by EPIC, the portion related to each project is accounted dividing the total amount by the number of projects sponsoring the event.





Table: Breakdown of the PASSION contribution and other auditable claims

MEETNG:	ECOC	World Photonics summit	Meeting at Sony	Meeting at SUSS MicroOptics	Meeting at Amicra (before M18)	OFC (before M18)
Booth	Total cost of the booth: 15859, 91 PASSION ¼: 3964.98					Total cost of the booth: 28886.21 PASSION 1/6: 4814.37
Trip expenses/ person (hotel+flight+meals+ car rental)	C. Lee 1260.88	A. Gonzalez 700*	N. Norbutaite 471.24	A. Gonzalez 700*	A. Gonzalez /A. Ripoll 1612.06	A. Gonzalez A. Ripoll flights 3322.28 J. Pozo A. GonzalezA. Ripoll hotel: 3554.25
Catering			Total amount of the catering: 2820 PASSION ½: 1410			
Networking reception: catering+ space rental		Total amount: 8500 PASSION1/4 : 2125				Total amount for the space rental: 24207.22 PASSION 1/6: 2034.54
Videographer				Total amount: 4250 PASSION¼: 1062,5		
Printing & Roll-up Flyers					677,75	
Total	5225.86	2825*	1881.24	1762,5*	2289,81	15725.44

* Actual costs have not been claimed but this is an estimation

By attending the meetings, VIP parties and receptions PASSION was visible for more than 800 companies attending these events. Participation at these events offer to PASSION great opportunities to increase awareness of the technology developed within the project and get in contact with representatives of the supply chain, services and potential users whether from telecommunication or other industries.

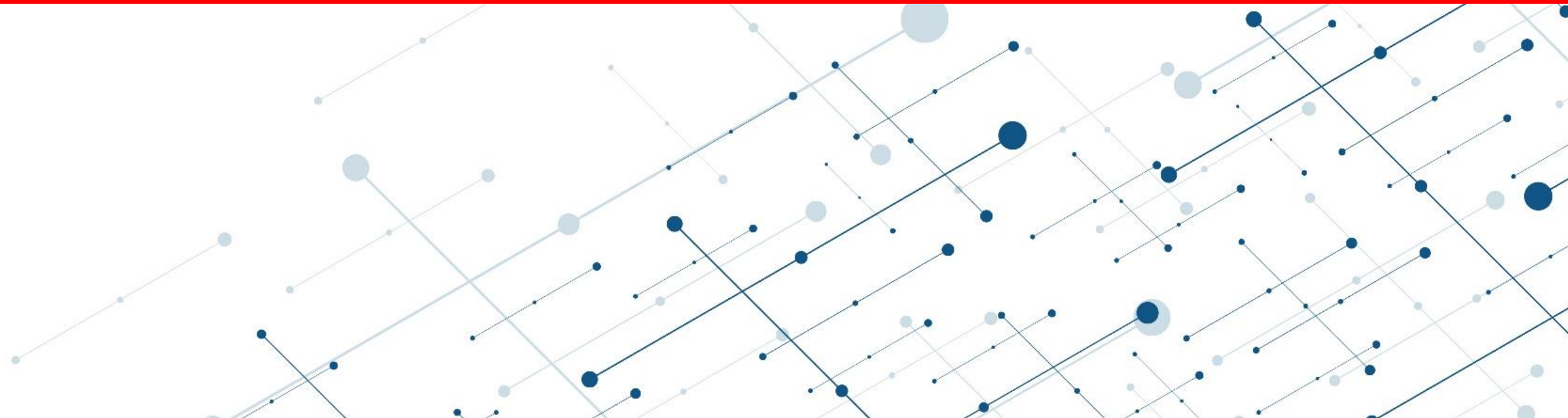


ANNEX 2 – EPIC SPONSORSHIP PACKAGE



EXPLORING MARKETS
EXPANDING APPLICATIONS
CONNECTING PEOPLE

EPIC Sponsorship Packages 2019



EPIC Sponsorship Packages 2019

Sponsorship supports the association, positions your company, and gives you additional exposure. We offer Platinum, Gold, Silver and Bronze Packages to promote your company in our different events.

To discuss and order your EPIC 2019 sponsorship package, please contact Carlos Lee by phone +32 473300433, email at carlos.lee@epic-assoc.com, or Auri Ripoll by phone +34 683343793, email at auri.ripoll@epic-assoc.com.

"EPIC has built a strong network of companies focusing on collaboration. A very valuable resource for us and the Photonics community."

Jan Meise, CEO, AMS Technologies and EPIC Board member

"I had the opportunity to make a presentation at the EPIC Annual General Meeting. The exposure was very helpful and the amount of contacts I made was staggering! This was my first EPIC meeting, but I can see why these gatherings are so attractive and crowded. It is because of the amazing level of the attendees, and the enthusiasm and positive atmosphere that EPIC builds into its events!"

Michael Thiel, CTO, Nanoscribe

"EPIC events are always consistently well organized. Attending there is a remarkably efficient way to get to know better interesting people dealing with photons as we do, too. Often mutual business opportunities emerge from these face to face contacts - making it a good ROI of my time."

Thomas Laurent, Founder, eagleyard Photonics

EPIC Sponsorship Packages 2019 Networking Reception

EPIC networking receptions gather between 150-300 C-level attendees in memorable places.

The networking receptions are held at leading photonics events including Photonics West, OFC, Laser World of Photonics in Shanghai and Munich, and ECOC.

<https://www.flickr.com/photos/epic-photonics/sets>



EPIC Sponsorship Packages 2019 Networking Reception

Activities / Packages	PLATINUM – 10000 EUROS	GOLD – 4000 EUROS	SILVER – 2000 EUROS	BRONZE – 1000 EUROS
Logo on printed material	Yes: booklet, cards on the tables	Yes: booklet, cards on the tables	Yes: booklet, cards on the tables	Yes: booklet, cards on the tables
Advertisement in printed booklet	Full page	Full page	½ page	No
Tickets	4	2	1	1
Opportunity to display printed brochures	Yes, 3 different sets	Yes, 2 different sets	Yes, 1 different sets	No
Opportunity to display rollups	Yes, 3 units	Yes, 2 units	Yes, 1 unit	Yes, 1 unit
Logo on event website	Yes, biggest logo	Yes	Yes	Yes
Announcement on Twitter	Yes	Yes	Yes	Yes
Announcement on LinkedIn	Yes, including overview of your product / service	Yes, including overview of your product / service	Yes, mention as sponsor	Yes, mention as sponsor
Name mentioned by our CEO/CTO when thanking the sponsors	Yes, plus 2 sentences on your product / service	Yes, plus one sentence on your product/service	Yes	Yes

EPIC Sponsorship Packages 2019 Technology Meetings

EPIC Technology Meetings gather between 40-60 attendees, at decision maker level to talk about a specific technology/market/application. Participants represent the entire manufacturing value chain, including end-users.

The Technology Meetings are typically hosted by an EPIC member company.

<http://www.epic-assoc.com/epic-events>



EPIC Sponsorship Packages 2019 Technology Meetings

Activities / Packages	GOLD – 4000 EUROS	SILVER – 2000 EUROS	BRONZE – 1000 EUROS
Logo on printed material	Yes: booklet, cards on the tables	Yes: booklet, cards on the tables	Yes: booklet
Advertisement in printed booklet	Full page	½ page	No
Tickets	2	1	1
Opportunity to display printed brochures	Yes, 2 different sets	Yes, 1 set	No
Opportunity to display rollups	Yes, 2 units	Yes, 1 unit	Yes, 1 unit
Logo on event website	Yes, bigger one	Yes	Yes
Announcement on Twitter	Yes	Yes	Yes
Announcement on LinkedIn	Yes, including overview of your product / service	Yes, mention as sponsor	Yes, mention as sponsor
Name mentioned by our CTO when thanking the sponsors	Yes, plus one sentence on your product/service	Yes	Yes

EPIC Sponsorship Packages 2019 Networking Activities

EPIC Networking activities create new connections, and strengthen existing ones. Connecting members means building trust within the photonics industry leaders and experts.

The EPIC runs are typically at executive / decision makers level.



EPIC Sponsorship Packages 2019 Networking Activities

Activities / Packages	GOLD – 2000 EUROS	SILVER – 1000 EUROS	BRONZE – 500 EUROS
Logo on T-shirt	Yes bigger one	Yes	Yes
Advertisement in printed booklet	Full page	½ page	No
Opportunity to display printed brochures	Yes, 2 different sets	Yes, 1 set	No
Opportunity to display rollups	Yes, 2 units	Yes, 1 unit	No
Logo on event website	Yes	Yes	Yes
Announcement on Twitter	Yes	Yes	Yes
Announcement on LinkedIn	Yes, including overview of your product / service	Yes, mention as sponsor	Yes, mention as sponsor
Name mentioned by our CTO when thanking the sponsors	Yes, plus one sentence on your product/service	Yes	Yes

EPIC Technical Meetings 2019

21-22 February 2019	EPIC Meeting on Specialty Fibers at GLOPhotonics, Limoges, France
7-8 March 2019	EPIC Meeting on Precision Optics at WZW-Optik, Bargach, Switzerland
18-19 March 2019	EPIC Meeting on Optical Communications: Coherent or Incoherent at HUBER+SUHNER Cube Optics, Mainz, Germany
2-3 May 2019	EPIC Executive Meeting on Industrial Lasers at Coherent, Göttingen, Germany
23-24 May 2019	EPIC Meeting on Automation Tools for Manufacturing at AMICRA, Regensburg, Germany
5-6 June 2019	EPIC World Industrial Quantum Photonics Technology Summit at ICFO, Barcelona, Spain
25 June 2019	EPIC Meeting on Shaping, Analyzing and Monitoring the Laser Beam in Material Processing Applications at Laser World of Photonics, Munich, Germany
27 June 2019	EPIC Meeting on Surface Structuring at Laser World of Photonics, Munich, Germany
12-13 September 2019	EPIC Meeting at European Space Agency, Noordwijk, The Netherlands
26 September 2019	EPIC Meeting on Next Generation Lightguides, OLED and R2R Manufacturing at LpS, Bergan, Austria
10-11 October 2019	EPIC Meeting on System Integration at PBF, Almelo, The Netherlands
17-18 October 2019	EPIC Meeting on VCSEL Technology and Applications at Sony, Stuttgart, Germany
30-31 October 2019	EPIC Meeting on LIDAR for Automotive at Anteryon, Eindhoven, The Netherlands
7-8 November 2019	EPIC Meeting on Wafer Level Optics at SUSS MicroOptics, Neuchatel, Switzerland
11-12 December 2019	EPIC Meeting on Photonics for Cancer Diagnostics and Treatment at NKI, Amsterdam, the Netherlands

EPIC Tech Watch at Conferences

4 February 2019	EPIC & SWISSPHOTONICS Tech Watch, San Francisco, USA
26 February 2019	EPIC Tech Watch at W3+ FAIR, Wetzlar, Germany
4-5 September 2019	EPIC Tech Watch at CIOE, Shenzhen, China
9 October 2019	EPIC Tech Watch at Photonex UK, United Kingdom
19 November 2019	EPIC Tech Watch at MEDICA, Dusseldorf, Germany

EPIC Technical Webinars

15 February 2019	EPIC Webinar on AR/VR
15 March 2019	EPIC Webinar on Quantum Photonics

EPIC General Meetings

10-12 April 2019
29-30 August 2019

EPIC AGM, Glasgow, UK
EPIC World Photonics Technology Summit, Berlin, Germany

EPIC Delegations

31 March - 3 April 2019
22-25 October 2019

EPIC Delegation to Israel
EPIC Delegation to Singapore

EPIC VIP Networking Receptions

4 February 2019
6 March 2019
20 March 2019
25 March 2019
4 April 2019
9 May 2019
26 June 2019
5 September 2019
23 September 2019
18 October 2019

EPIC VIP Networking Reception at Photonics West, San Francisco, USA
EPIC VIP Networking Reception at OFC, San Diego, USA
EPIC VIP Networking Reception at Laser World of Photonics, Shanghai, China
EPIC VIP Networking Reception at PIC International, Brussels, Belgium
EPIC Executive Breakfast at Hannover Messe, Hannover, Germany
EPIC Networking Reception + Distributor Introductions at LASERFAIR, Shenzhen, China
EPIC Laser World of Photonics Exhibitors CEO Breakfast, Munich, Germany
EPIC VIP Networking Reception at CIOE, Shenzhen, China
EPIC VIP Networking Reception at ECOC, Dublin, United Kingdom
EPIC Networking Lunch + Distributor Introductions at Laser World of Photonics, Mumbai India

EPIC Networking Activities

4 February 2019
6 February 2019
6 February 2019
16 July 2019

EPIC Golf at Photonics West
EPIC 5miles CEO Run at Photonics West
EPIC Clusters Lunch at Photonics West
EPIC 6km Run – B2Run, Munich, Germany

