

Photonics Leadership Group Meeting Minutes

Tuesday 2 February 2021 10:00-12:00, Virtually by Teams

Attendees (Includes those attending for only part of the meeting, based on Teams listing):

Ian Alderton, Alrad; Yann Amouroux, OSA; Simon Andrews, Fraunhofer UK; Ali Anjomshoaa, Compound Semiconductor Centre; Terry Boniface, BEIS; Dom Brady, Fibercore; Karin Burger, SPIE Europe; Max Buttinger, Thales UK; Paul Callan, Teropta; Allan Colquhoun, Leonardo; Buki Dada, Thorlabs; Iwan Davies, IQE; Chris Dorman, Coherent Scotland; Tim Durrant, Effect Photonics; Daniel Esser, Heriot-Watt University; Mike Fake, Lumenisity; David Gillett, Laser 2000; Mark Goossens, CS Applications Catapult; Caroline Gray, OptiC Technology Centre; Tom Harvey, Nat Healthcare Photonics Ctr; Julian Heaton, InnovateUK; Jon Heffernan, University of Sheffield; Alan Hughes, Laser 2000; Shahida Imani, Chromacity; Louise Jones, Welsh Optoelectronics Forum – WOF/ KTN; Andrew Kearsley, Oxford lasers; Stratos Kehayas, Gooch and Housego; John Lincoln, Harlin; Anke Lohmann, Anchored In ; David MacLellan, ALLU; Sergio Mantecon, Edmund Optics; Owen McGann, GTS; Alison McLeod, Technology Scotland; Wyn Meredith, Compound Semiconductor Centre; Olly Morris, Paragraf; John Nolan, First Mile Networks/ UK Fibre Connectivity Forum; John Parsons , Indigo Consulting; Graham Peters, Arqit; Richard Pitwon, Resolute Photonics; Alistair Poustie, Rushmere Technology; John Rawsthorne, CIP Huawei; Andy Sellars, CS Applications Catapult; Mike Sharratt, Teropta; Jianming Tang, UK Fibre Connectivity Forum; Sergei Turitsyn, University of Aston; Malcolm Varnham, SPI Lasers UK; Matthew Wasley , KTN; Philip White, DIT; Alastair Wilson, CST Global; Nick Wood, Thales UK;

- **At 50 this represents record attendance at a PLG meeting**

Direct Apologies:

Ric Allott, STFC; Maryam Crabbe-Mann, EPSRC; Trevor Cross, Teledyne e2V; Duncan Hand, Heriot-Watt University; Antony Hurden, Grounded Innovation; Richard Jackson, Arqit; David Payne, University of Southampton; Michael Robertson, Huawei CIP, Rob Scudamore, TWI

**Post meeting and editorial input in italics*

1) Previous Minutes and welcomes

Those attending their first PLG meeting formal welcomed including Paul Callan, Teropta; Tim Durrant, Effect Photonics; Daniel Esser, Heriot-Watt University; Mike Fake, Lumenisity; Alan Hughes, Laser 2000; Shahida Imani, Chromacity; Olly Morris, Paragraf; Graham Peters, Arqit; Alistair Poustie, Rushmere Technology; John Rawsthorne, CIP Huawei; Mike Sharratt, Teropta; Nick Wood, Thales UK.

Increase in-part due to inviting those who have been working with the PLG on communications proposition to the main PLG meeting.

Previous minutes from meeting 8 October were accepted

2) Impact of Brexit Deal

a) Immediate impact of Brexit, hurdles challenges and experiences

- Many report delays in importing and export from UK. Previous overnight deliveries now taking 3-4 days is a common experience. Northern Ireland deliveries experiencing even longer delays of ~2 weeks.
- Industry and academic report- many examples of goods being held at customs often due to VAT issues.
- Apparent lack of ability to pay VAT on account on import/ export causing further challenges
- Many are seeing freight forwarders rationing shipments/ number of boxes they will accept per day. Challenging for those with warehousing in Europe.
- Anything worth over ~£800 being inspected.
- Appears to be a lack of exemption on duties for temporary imports. Causing those importing, adding value and re-exporting to pay double duties i.e. on import and on export with the latter at the higher added value

BEIS noted above will communication onward in department. Many sectors experiencing similar with lack of capacity at freight forwarders and issues processing paperwork rather than delays at ports creating biggest challenges.

b) Horizon Europe and other EU program Membership

- Brexit agreement has confirmed the UK will be full associate members of Horizon Europe and many other EU programmes. *A small number of exceptions apply.*

Markus Wilkens on behalf of photonics21 requested sent message 'We are all very happy that the UK photonics community will be part of Horizon Europe and that we can continue to work with you on future Photonics21 activities'

Before looking to future there are a number of **ongoing EU activities** continuing from Horizon2020, notably

- BestPhoRM21 will be the continuation of Nextpho21 and is the EU funded CSA (collaborative & support action) that supports photonics21 and engagement with national photonics platforms across EU. The KTN will continue as the UK representative – see Matt Wasley
- Photonhub, a ~ £19m pan EU program that forms part of the EU flagship digital innovation hub network. Kicking-off formally in February 2021 this will support access to pan EU photonics capability for companies, especially SMEs, similar to the previous ACTPHAST program. Uni of Southampton (Callum Littlejohn) are the UK lead with CPI (Tom Harvey) having an additional dissemination

Within Horizon Europe discussions are ongoing about the precise dedicated photonics budget. This will be substantially less than the budget under H2020. However, there will be more focus in Horizon Europe on challenge led funding enabling many more photonics activities than just the core photonics calls. There will also be a shift in tone in H_Europe with more focus on resilience, decarbonisation and origin as well as leverage of all things digital.

- *Very latest information indicates there will be 4 photonics calls (3 in photonics area - optical comms, PICs, multi sensing; 1 elsewhere – Laser-based tech for green manufacture) with a total budget of ~ £65m over 2 years*
- Many noted importance of early engagement in generation of calls and review of drafts to get visibility of and show interest in being part of consortia.
- Identifying opportunities may also be harder under HEurope due to the sheer variety of vertical challenges where photonics can have impact.
- PLG participants are encouraged to re-engage with Photonics21 working groups in order to get early sight and input into drafting and begin to build potential consortia relationship
- Discussions on going with KTN about how to reinvigorate awareness of opportunities in European programs.
 - Strong Gov support for participation anticipated, but concerns there will be too much emphasis on 'getting UK money's worth' - such approach unlikely to see one welcomed into consortia.
- Noted that previous chains where participation in one project led to invitation to participate in the next providing a steady stream of EU project participation has been broken over the last 4 years.
 - Simon Andrews offer support for those trying to make connection through to the Fraunhofer network in Germany.
- At next election to board of stakeholders noted that will be important to field UK candidates, currently Iwan Davies is the only UK representative on the BoS, *previously it was broadly in-line with UK share of the EU industry with ~10 UK BoS members. UK participation in the annual BoS election has also dropped from 10% (36 UK registered voters) in 2015 to <5% in 2020 (just 9 people). Voter registration being a proxy for activity P21 members. Notably overall voters registration from all countries dropped by 50% over the same period.*
- Uncertainly defiantly has negative impact on European project participation – experience of the Swiss and UK confirm. Will require effort to reassure potential partners that the Brexit agreement does indeed provide certainty and commitment to HEurope.

As example of the collaboration with challenges, a workshop on opportunities around photonics integrated circuits for quantum (QPICs) is being organised for 1 March by Mike Wale between P21 and the

Quantum Flagship community. Workshop explores if joint activities are of benefit between both communities and will feed into a position paper. Already proving popular early registration advised - <https://www.photonics21.org/events-workshops/2021/01/2021-01-online-workshop-quantum-photonics-integrated-circuits.php>.

Electro-Optics has also request article from PLG around Horizon Europe membership

- Any quotes that could be included in article on experience of or thoughts on participation in Horizon programmes very welcome to John Lincoln, by 7 Feb.

The Latvian and Dutch embassies have also contacted the PLG to explore ways of encouraging collaboration between our respective photonics communities.

3) Legislative developments

a) National Security Investment (NSI) Bill

NSI bill making rapid progress through parliament. Current ½ through Lords. Royal assent anticipated End Feb/ March Royal assent. Two aspect core bill and secondary legislation on the sectors covered. Whilst number of amendments put forward in committee stage e.g. to more clearly define national security risk and monitor impact on SMEs and academia none of the amendments were adopted. The potential of very high volumes of notification has been repeatably noted during parliamentary debates on the Bill.

The PLG provided [extensive input to gov on the definitions of the 17 sectors proposed for mandatory notification under the bill](#), including areas around photonics materials. State of revisions for the mandatory notification sector unknown – parallel process to the passage of the core Bill.

In conjunction SPIE with Department of International trade, the PLG have organised a webinar on the potential impact of the Bill on photonics on 9 Feb @16:00. Register at https://spie-org.zoom.us/webinar/register/9016105865290/WN_T8Ys8CnUQ2OUCYzCcXfwbw

b) Communications hardware

Picking up action from last PLG meeting a working group for development of concepts for supporting for UK communications hardware has been convened.

A [white paper](#) and [policy paper](#) have been generated and widely circulated to BEIS, DCMS and MPs.

PLG have also support witnesses (Mike Fake, Andy Sellars) appearing at the committee stage of the Telecom (Security) Bill, providing community input to key questions, and briefing materials. At invitation the PLG also supplied written evidence to the same committee.

- This Bill also provides basis for the £250m telecommunications diversification strategy. Many of the committee questions were therefore directed to how diversification should be supported.
- A sustained combined effort from PLG and Compound Semi Applications Catapult, who have notably presented at multiple parliamentary committees & diversification task force, has shifted the agenda from software being seen as the only opportunity for the UK, to the opportunity in hardware also being seen as open for UK innovation.
- Efforts continue to liaise with DCMS to increase awareness of UK capability throughout the communications supply chain right down to the enabling materials.
- The combination of the NSI and Telco Bill have also presented timely opportunity to engage with more MPs – both bills have had extensive cross-party support and wide engagement from MP's. One of the key requests has been that opportunities in hardware don't fall in the gap between BEIS – traditional home of hardware and manufacturing support and DCMS where telecoms is based. The transfer of comms between department being noted as presenting risks to hardware support.
- With introductions from of the HotSW LEP we are also in senior level discussion with BT R&D who have been very receptive to our approach. *BT have been invited to be regular participants in the PLG and past documents e.g. on future of photonics research Horizon and above white papers welcomed.*

As an early opportunity to secure focused funding in this area, an internal request for funds from UKRI's New Venture Fund has been developed by Julian Heaton with support from the PLG and telco working group. a short feasibility program on demonstrating UK optical comms hardware with open interfaces

being the focus. Having progressed through a highly competitive initial filter, we are hopeful this will progress over the final hurdle soon.

- Note constraints on Innovate's funding will mean this program will need to be completed by the end of 2022 fiscal year (April 2022) setting aggressive requirements for getting started quickly.
 - Challenges about participating in and delivering on such compressed competitions were noted.
- This is intended only an initial program feeding (without commitment) into more substantial support from the diversification strategy and covering a wider remit.
 - Support for alternative more creative interventions including increase use of direct procurement and SBIR were noted.
 - Suggests for alternative interventions were made in the committee stage of the telco bill and Minster noted for asking witnesses on where they think spend would be most effective.

For those unfamiliar with the diversification strategy, it covers two timescales.

- 1) *The short-term replacement, especially on the wireless side, of equipment from deemed high risk vendors. This is mostly focused on bringing in alternative established players.*
- 2) *The longer term fostering of a more diverse supply chain and more UK supplies on the back of open interfaces. It is the latter where we will find greatest support for UK photonics.*

4) Impact of the Spending review

Government spending review and associated integrated review for MOD was released in November. development and support for building up the UK supply chain in this area.

- The MOD funding was significant both in 4 year term and increase support. The parallel MOD Science and Technology Strategy 2020, sets the frame work for future investment with significant focus on generation after next capability.
 - *The [PM's statement to the House](#) on the integrated review included photonics!*

"Our warships and combat vehicles will carry "directed energy weapons", destroying targets with inexhaustible lasers.... our investment is designed to place Britain among the winners. The returns will go far beyond our Armed Forces. From aerospace to autonomous vehicles, these technologies have a vast array of civilian applications"

- Whilst research councils were given a multi year settlement in the spending review, Innovate was only given 1 year – hence the 1 year constraint on some Innovate programmes.
- The £250m allocation to telecom diversification was also linked to the spending review. The DCMS Ministers has used the term 'initial' to describe the £250m

Overall the impact of the defence and telecom strategies for photonics is very significant and similar. In both cases we are likely to new funding at a level not seen for many years (decades), a focus on UK capability and supply chain development- all of which will present many opportunities for photonics.

The PLGs contacts have emphasised repeatedly the scale of funding emerging and the need to be able to hit the ground running i.e. reduce the time between agreeing to a project and starting to weeks and months not 1/4s or years.

5) Forecast developments in new Industrial Strategy

A new **UK industry strategy** is due out this quarter. This is likely to have strong focus on decarbonisation resilience and origin as well as levelling-up. Expect more of build back greener build back stronger.

- With UK hosting Cop26 we can expect de-carbonisation (and supporting the pathway toward) to be fully embedded in all programs. It will become increasingly important to present how your strategy/ proposal/ program supports decarbonisation.
- We also have new Secretary of State for BEIS with associated interest in new ideas. BE on the look-out for new initiatives.

6) Planning for additional community / PLG activities

a) APPG.

Most activities on hold at present due to the difficulties of convening remotely. Looking to see how we can get more engagement to leverage parliamentary interest/ awareness of photonics through NSI and Telecom Bills

b) Requests for Workshops and Seminars KTN

Having run a successful series of 'Photonics for'...events in 2020, the KTN (Mat Wasley) are open for suggestion on similar events for 2021. Suggestion direct to Mat or via [survey](#)

Innovate (Julian Heaton) will be working with KTN on a series of workshops to link photonics to various challenges e.g. in food production and Made Smarter. The focus will be on clear problem definition and working on mapping to potential solutions from photonics (and other enabling tech)

SPIE are stepping up their organisation of Photonex (Glasgow 28-30 Sept) and increasing the organisation of the conference program with addition of symposium chairs. Thanks to Caroline Gray, Simon Andrews and Graham Reed for taking on roles. An additional quantum conference support the UK Q hubs is also in development.

c) Wassenaar Laser working group.

- This group now chaired by Jennifer Douris O'Bryan, SPIE will be taking community suggestions for potential requests for modification to Wassenaar export control regulations as next group meeting on 23 March. Contact John Lincoln or Karin Burger for introduction if interested in participating.

d) COP26.

- Expressions of interest for supporting activity open until 5 March- <https://ukcop26.org/the-conference/get-involved/>. DIT (Philip White) would also like examples of relevant local organisations
 - Coherent Scotland's new Carbon neutral factory noted as an excellent example.

7) Updates from communities and programs

a) Scottish Photonics (Alison McLeod)

- Continue discussion on development of skill program
- Follow-up to sector report due in Q2 this year
- Looking to submit proposals to Cop26

b) WOF (Louise Jones)

- Ray Davies, long time champion of photonics outreach sadly passed away in sadly on 14 January. He was 85 and still actively engaged in photonic education. Known to many in photonics he will be sadly missed.
- WOF are currently looking at new / rejuvenated propositions for operation and direction for WOF

c) UKIVA (Ian Alderton)

- Neil Sandhu, Product Manager @sickUK has been appointed Chairman of the UKIVA
- UK Machine Visions conference still planned 15 July @ Marshall Arena, Milton Keynes - <https://www.machinevisionconference.co.uk/>

d) Quantum (Anke Lohmann)

- Latest round of quantum ISCF competitions are open including germinator £50k ideas exploration - [Commercialising Quantum Technologies: feasibility studies round 2](#)
- Despite Innovate 1 year settlement Quantum area remain bullish on multi year project.
- The number of larger companies involved in quantum program continues to increase.

e) AILU (David MacLellan)

- ILAS conference going ahead online 24-25 March with additional opportunities for networking and even virtual social evening. 😊 <https://ilas2021.co.uk/> Participation costs £80 members £120 non.

f) **CS Connected** (Wyn Meredith)

- Strength in Places support of ~ £45million, started 1 November, with ~40% total resources dedicated to semiconductor based photonics.
- Anyone involved in wave 2 or 3 Strength in Places bids welcome to contact Wyn for advice.
- 2020 impact survey shows headcount holding at >1400 direct employees and 2010 indirect supported by cluster, vacancies increasing, labour supply tightening. Output down by ~4% (with exports fraction still >90%) with those supplying digital solutions doing well being offset by those supplying e.g. automotive less doing well.
- Global trends show semiconductor shortages causing automotive manufacturing shutdowns. Shutdown. Apparently cause by inertia in supply reconfiguring between power, digital and automotive semi plus US-China dynamic.
- Europe signed a joint declaration to support semiconductors RD&I. With 20% of EU recovery and resilience budget heading toward digital recovery (~€145Bn over 2-3years)

g) **IEEE** (Richard Pitwon)

- Organising a joint symposium on standards development in Quantum Technology on 23 March bringing together all the worlds leading standard setting bodies. Objective is look for early harmonisation e.g. on definitions. Contact Ricard to be involved.
 - IETF also looking at working group on quantum standards. John Nolan will loop in.

h) **SEPnet**

- *Summer placement programme open for project requests [online](#) until 12 Feb*

8) AOB

- CST Global notes their have formally changed name to Sivers Semiconductors
- Change of Photonics Leadership banking arrangement to Lloyds remains on-hold as account transfer remain suspended due to Covid.
- Reminders for 2021 contributions to the operation of the PLG will go out shortly
 - many thanks to those who have already made their contribution
 - new back office systems are working more smoothly.
- Discussion on the relevance of updating the UK photonics figures concluded that update in 2021 that would likely reflect figures up to ~ the start of the pandemic would be useful

ACTION John Lincoln > to start process of updating figures

9) Next meeting

The Next PLG meeting will be on 8 June 10-12:00, virtually on Teams. This [link to an ics file to add to your calendar](#).