

## Photonics Leadership Group Meeting Minutes

Tue 25 February 2020 13:00-16:10,  
Keltie LLP, 1 London Bridge, London

**PHOTONICS**  
LEADERSHIP GROUP

[www.photonicsuk.org](http://www.photonicsuk.org)

### Attendees:

Ian Alderton, Alrad; Valerie Berryman-Bousquet, Sharp Labs Europe; Terry Boniface, BEIS; Dom Brady, CS Applications Catapult; Andy Brown, SPIE; Karin Burger, SPIE; Thomas Butcher, STFC; Maryam Crabbe-Mann, EPSRC; Buki Dada, Thorlabs; Iwan Davies, IQE; Chris Dorman, Coherent Scotland; Glenn George, Bay Photonics; Caroline Gray, OptiC Technology Centre; Duncan Hand, Heriot-Watt University; Tom Harvey, Nat Healthcare Photonics Ctr; Julian Heaton, InnovateUK; John Lincoln, Harlin; Anke Lohmann, Anchored In ; Kevin Mackrodt, Artemis Optical; Paul McCartney, Fraunhofer UK; Owen McGann, GTS; Ally McInroy, Technology Scotland; John Parsons , Indigo Consulting; David Payne, University of Southampton; Richard Pitwon, Resolute Photonics; Chris Sorsby, Vitritech; Malcolm Varnham, SPI Lasers; Mike Wale, independent; Duncan Walker, Pure LiFi; Matthew Wasley , KTN; Veronica Benson, Uni Surrey

### Apologies:

Yann Amouroux, OSA; Simon Andrews, Fraunhofer UK; Jon Blackburn, TWI; John Blomfield, Qioptiq; Jess Bonham, EPSRC; Nick Bowden, CST Global; Scott Bradley, BAE systems; Max Buttinger, Thales UK; Allan Colquhoun, Leonardo; Mark Greenwood, SPI Lasers; Mark Gubbins, Seagate ; Antony Hurden, Grounded Innovation; David MacLellan, AILU; Sergio Mantecon, Edmund Optics; Wyn Meredith, CSC; Georgios Papadakis, InnovateUK; Michael Robertson, CIP Huawei; Andrew Scott, QinetiQ; Alwyn Seeds, UCL; Stuart Sendall , Photonsens; Mark Thompson, IPG Photonics; Alastair Wilson, CST Global;

*\*Post meeting and editorial input in italics*

## 1) Previous Minutes and welcomes

Valerie Berryman-Bousquet, Buki Dada, Ally McInroy and Malcolm Varnham were welcomed to their first PLG meeting

Previous minutes from meeting 10 October 2020 were accepted

## 2) UK Industry and policy environment update

JohnL presented latest intelligence on development in the UK industry and policy environment post the December 2019 election.

- Biggest election impact beyond Brexit is stable 5 year government with strong focus on Science and Technology
- Since election agencies have been slightly in pending mode waiting for the reshuffle of Feb 12.
- Key reshuffle changes
  - Alok Sharma, MP (Reading) in for Andrea Leadsome, MP as Secretary of State Business, Energy and Industrial Strategy (BEIS). Alok, has been a sponsor of IOP awards showcase in Westminster for many years and has indicate an appreciation for the contribution of physics in general.
  - Michelle Donelan, MP (Chippenham) as Universities minister in department education.
  - Amanda Solloway, MP (Derby) as Science Minister in BEIS

Departments now waiting to understand focus of new Ministers

Note the separation of Universities and Science portfolios, with Donelan reporting into education and Solloway to BEIS. Solloway's background is in HR, not science and may indicate future focus on people in science rather than specific technologies. Debate in press on Solloway's role and how much science policy will be driven from No.10

- Major structural reforms in Whitehall have not come to pass- yet (departmental mergers etc), but these may only be delayed not shelved.

- **Rumours of a significant increase, potentially a doubling of science budget continue to circulate.** Highly likely an increase will occur. The scale and focus, e.g. between research and innovation remains unclear.
  - All research councils prepping for increase in funding. Change of Chancellor further increases probability but may also change focus (*Sajid Javid historically not keen on higher TRL innovation funding*)
  - Fastest impact would be in expanding budget for existing programs e.g. Innovate & EPSRC lowering the cut-off and increasing success rate for quality proposals – but far from clear that would happen. Past experience has seen submission just missing funding mark being revisited on budget increase, but no guarantees.
- With bedding in of UKRI we can expect increased focus on end-to-end innovation support from discovery to commercialisation countering the delays caused by project progressed to TRL3 from research councils being unable to secure TRL4-6 funding from Innovate.
  - Some evidence of this in axing of pathways to impact statements (doesn't mean impact is no longer relevant but must be fully integrated into any proposal)
  - Forecast a stronger link between University Research Funding and follow-on InnovateUK funding.
- Gov Advisory's (Cummings etc) known to be very keen on UK Arpa / Darpa – advanced research project agency- “pivotal investments in breakthrough technologies for.....”
  - High probability of announcement in budget on 11 March, but time to stand-up could be significant. However, the modern DARPA is not one thing or approach – Challenges, programmes, projects. So, big questions remain about how a UK ARPA would be structured.
- A revision and update to the 2017 industry strategy in light of Brexit is expected.
  - Underlying motivation remains constant – grow the economy despite Brexit. A greater focus on export stars and non-EU export locations might be anticipated- see Survey below
- **Government consultation on Global Tariff Policy, currently open, closing 5 March-** <https://www.gov.uk/government/consultations/the-uk-global-tariff>
  - GTP's will define the UK approach to applying tariffs where other free trade agreement do not apply. GTP's would also set the potential tariff applied by the UK should there be no agreement with the EU. In general, the UK can choose to apply lower tariffs or keep them but cannot raise them.
  - PLG contributors encourage to submit response direct, PLG will submit general response.
    - Discussion on approach that should be taken in PLG submission indicated that the lowest possible tariff environment on inputs and outputs was preferable for UK photonics. Current tariffs are already a low 2.5% or zero , therefore cutting them completely is likely to reduce administrative overhead which has a cost. Equally important is to keep tariffs on intermediate goods low.
    - The recent imposition of tariffs on some photonics goods by the USA was noted as giving UK businesses an advantage, illustrating the disadvantage of higher tariffs.

**Action JohnL> to prepare submission to GTP consultation.**

**Action all> please send information on specific relevant export commodity codes to JohnL.**

### 3) APPG update

APPG reconstituted on 21 Jan, with a record turnout of MPs. UK photonics stats were used to identify those constituencies with the highest photonics employment to directly contact those MPs. All attending MPs were provided with a copy of Photonics:Hidden Economy.

MPs proposed and agreed to modify the group name to the **All-Party Parliamentary Group on Photonics and Quantum**, recognising that adding quantum increases appeal to MPs to engage.

APPG activity plans discussed included:-

- Westminster Photonics Showcase (*as requested in Oct 2019 PLG meeting*)
- Joint publications- Horizon scanning & survey outputs
- Westminster meetings on Quantum, laser in defence ideally jointly with other user focus APPGs
- Dinners with MPs, e.g. following PG meeting modelled on successful dinner with Ian Campbell, Innovate chair post June 2019 PLG
- MP visit and tours to events -e.g. SPIE Defence, Space and Remote sensing in Edinburgh Sept 21-24 – very positively received by MPs

DomB, IwanD, ChrisD, KevinM, AnkeL, KarinB, PaulM, RichardP, BukiD expressed interest in participating in MP dinners

**Action all>Others interested in participating in dinner with MPs please make selves known.**

**Action all> Please flag interest in participating in another Westminster photonics showcase in end June time frame.**

Noted Greg Clark, former BEIS Minister has been appointed as the new chair of Science and Technology Select Committee (as of 29/1) potentially increasing influence of that committee (Carol Monaghan has been a previous member, detail of full membership yet to be announced)

A question was submitted to BEIS questions on 21 Jan on 'Support for photonics SME's by Carol Monaghan, MP. Response and follow-up question on foreign investment in photonics can be viewed

<https://parliamentlive.tv/event/index/5148c87d-f5e8-4766-b781-0797f243ae8e?in=11:56:57&out=11:59:17>

#### **4) Photonics Horizon Scanning**

JohnL noted that in light of potential increase in science funding and feedback from number of agencies that there was a lack of vision for photonics research in the UK it had been suggest that such a vision should be developed.

The PLG have therefore convened a Horizon scanning meeting for 24 Feb of some of the leading Photonics academics in the UK to develop a detailed view of where photonics research is headed over the next 10+ years giving an Inclusive vision for UK photonics research direction possibilities and potential futures, to counter the perception that photonics research is past its peak.

The output will provide a basis for input from industry, policy makers and user communities on research topics/ areas of greatest interest to them.

- Noted that this is a start of a process based on guidance from the Gov Office Science – Futures Toolkit - <https://www.gov.uk/government/publications/futures-toolkit-for-policy-makers-and-analysts>. The next stages will be to check policy alignment and industry interest.
- Outputs will be made available to the community and jointly published with the Photonics and Quantum APPG

Objective is for this to build on the Electech and other roadmaps which set the overall industry direction.

Discussion noted that there is a parallel need to create action directly from the Electech roadmap that present 'low hanging fruit' for intervention that build on already established centres of research excellence in UK that already have knowledge ready to exploit.

Noted that these are complimentary activities on looking to the future low TRL (EPSRC, Universities) long term research and other higher TRL innovation suitable for nearer term impact (Innovate, industry)

**Action Julian H John L> to liaise on how best coordinate next stage of horizon scanning activities and identification of actionable items from Electech report.**

Noted CSA Catapult have looked at what research has been funded in Compound Semiconductor sector in the UK.

**Action DomB JohnL**> to consider how integrate knowledge on funding focus can be incorporate in Horizon scanning activities.

Suggestion to add Profs Harold Hass, Paul French & Kishan Dholakiato (+*Chris Dainty*) the Horizon scanning invite list.

## 5) UK Photonics Industry Survey 2020

In line with recommendations from the Oct 2019 PLG meeting and building on approaches from other photonics regions the PLG has formulated a survey to gain additional evidence on

- Exports - %, change, destination, purchasing authority
- Investment- capex, R&D, change, in others
- Sources of capital, location, ownership value
- Growth impacts, skills

In the post Brexit environment gathering data on these topics is key for positioning photonics as a growth and exporting engine in the UK economy.

The survey was circulate to participant in advance of the meeting and those present additional requested to complete at <http://bit.ly/UKphotonics2020> Note data will only be used in aggregate and stored in EU Office 365 datacentres in Dublin and Amsterdam. No personal information is gathered or required.

**Action All**> please complete survey asap <http://bit.ly/UKphotonics2020>

Of the few number of responses received to date, highlights include:

- More than 30% of organisation report exporting >90% of their output
- 1/3 anticipate export will increase over the next 3 years
- North America, Europe China and Asia are the most important export destinations.
- One quarter of companies anticipate increasing capital and R&D investment significantly over the next 3 years
- External customer / market demand is the most important factor driving growth of photonics businesses, and Brexit uncertainty the biggest challenge to growth.
- Increases in degree and PhD level skills supply will be most important in sustaining growth.
- A majority of companies anticipate growing by over 10% an annum over the next 3 years.

Please note these are only very preliminary findings based on a less than significant statistical sample.

The plan is first to solicit survey response from the PLG community and they take out to broader UK photonics base. **Feedback on survey can be provided with comments at the end of the survey or direct to JohnL**

## 6) Global Photonics challenges

JohnL presented a summary of global photonics challenges based on updating and internationalising the UK 2017 industry strategy challenges and putting these in photonics context.

Available on the PLG blog at [https://photonicsuk.org/wp-content/uploads/2020/02/Global-Photonics-Challenges\\_Lincoln\\_Dec-2019\\_4.pdf](https://photonicsuk.org/wp-content/uploads/2020/02/Global-Photonics-Challenges_Lincoln_Dec-2019_4.pdf)

Key infographics will be extract for publication on the PLG blog over coming months.

Sustainability one of the highlighted key challenges. It was noted the German Spectaris association published a report on 'light as the key to global environmental sustainability' in June 2019. An English translation of this is now available. [https://www.photonics21.org/download/ppp-services/photonics-downloads/Study\\_GreenPhotonics\\_2020\\_final.pdf](https://www.photonics21.org/download/ppp-services/photonics-downloads/Study_GreenPhotonics_2020_final.pdf)

## 7) Upcoming and open funding competitions

JulianH presented a review of current Innovate competitions at <https://apply-for-innovation-funding.service.gov.uk/competition/search>

Noted that although none of these directly address photonics there were plenty of opportunities within the various calls for photonics submissions.

- Note a number of secondment orientated competitions are emerging (also from EPSRC).
- Competitions on cyber-security can include hardware innovations.

Noted that unlike some of the themed calls, the Smart Open competition has strict defined durations that cannot be extended. Competition for Smart remains very high and success rate is low.

**InnovationUK loan** pilots have been seen as a success and are likely to reappear. Unlike InnovateUK grants, they offer the advantage of being paid upfront (rather than in arrears) and can also be used for capital equipment purchase. Therefore, they may be more suited to photonics companies looking to scale-up. Success rates may be higher for good quality applications.

On **EU H2020 funding** noted that the UK is still a full member during the 2020 transition year and can fully participate (even lead) Eu H2020 bids – highly relevant for a number of photonics call closing in April 2020. Noted that whilst appreciated in the UK, awareness of the UK's current full eligibility is poor with EU partners. Support from Stafford Lloyd and Stephen Alexander national contact points for ICT and Finance is available if clarification needed.

The need for an EU project to have 3 additional partners in addition to the UK (rather than 2) was highlighted as being still advised.

For the future, the UK has clarified it would like to participate in Horizon Europe, Euratom Research as a 3<sup>rd</sup> party in it recently published approach to EU negotiations-

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/868874/The\\_Future\\_Relationship\\_with\\_the\\_EU.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/868874/The_Future_Relationship_with_the_EU.pdf)

## 8) Group Inputs

### a) SEPnet Summer placements (Benson) opportunities – please submit soon

Veronica Benson was welcomed to PLG and presented a summary of the SEPNET Summer Placement Scheme for under and post grad student. Companies and Universities are welcome to submit projects. Costs for a company per placement are £2250 for an undergrad and £3000 for postgrad. The Projects are then advertised to Physics and Maths students who select which placement they apply for.

A small number of photonics companies have made use of the scheme in the past and felt that this was a worthwhile investment. More are very welcome, helping students with future carrier choices. Submit asap <http://www.sepnet.ac.uk/students-employers/for-employer/sepnet-summer-placement-scheme-information-employers/>. Veronica's slides are available on request.

### b) P21 and Nextpho21 (MatW, MikeW)

An independent Photonics PPP most likely to go forward in Horizon Europe. However the Horizon Europe programme is likely to have a greater focus on societal challenge and end use sectors. Photoncis21 is considering how to restructure to best fit this new environment potentially around a core enabling photonics centre connected to application orientated groups closely connect to vertical markets.

Specific programme budgets are also likely to be reduced, with more funding retained to be flexibly / responsively deployed in line with requests from member states.

Photoncs21 AGM will be 27-28May 2020

### c) AILU

AILU are celebrating their 25<sup>th</sup> anniversary with a special edition of ILAS Industrial Laser Applications Symposium 20-21 May <https://ilas2020.co.uk/>

### d) Photonics Scotland

Ally McInroy has taken over from the retiring Stephan Taylor (to whom the PLG wish the very best in retirement and thank for his contribution to the PLG and photonics community in general)

Photonics Scotland focus has been on leveraging their 2019 'Photonics in Scotland: A Vision for 2030' strategic paper. This has resulted in increased engagement in Scottish government including a dedicated resource for photonics.

A new quantum cluster for Scotland will be supported by Scottish Enterprise in the near future.

#### e) WOF

'Innovative Photonics in Wales' will take place on 5 March at Optic Technology Centre in St Asaph bringing together the CPE, SPARC II and ASTUTE 2020 projects <https://www.eventbrite.com/e/innovative-photonics-in-wales-tickets-84212201963>

#### f) UKIVA

UKIVA Machine Vision Conference 14 May Milton Keynes. <https://www.machinevisionconference.co.uk/> with exhibition and presentations across deep learning vision in robotics 3d visions optics and camera technology etc

#### g) Photonics West

20,000 people attended in 2020 with number slightly reduced by the absence of all Chinese visitors and exhibitors as a result of coronavirus related travel restrictions.

#### h) Photonex update

Photonex will take place at the Ricoh arena, Coventry, in 2020, 7-8 Oct, before moving location. Inputs from PLG into future of Photonex direct have been much appreciated.

Photonex Scotland Roadshow 10 June

Photonex London Roadshow 24 April.

#### i) SPIE Security + Defence and remote sensing

Will be expanded in 2020 to include a Space, Satellite and Sustainability conference supported by the Edinburgh space data centre- [https://spie.org/conferences-and-exhibitions/space-satellites--sustainability-\(s3\)-](https://spie.org/conferences-and-exhibitions/space-satellites--sustainability-(s3)-)

The International Laser Export Control Working Group coordinated by Jennifer Douris O'Bryan of SPIE will meet during the conference in Edinburgh – 21-24 September. Participation from those in UK laser industry impacted by export control and wishing to input into revision of regulation is welcome (contact JohnL, AndyB or KarinB for introduction to Jennifer)

#### j) Opening-Up photonics

In conjunction with Photonics Scotland, the KTN and the IOP, Kirsty Annand, Glasgow Uni has been championing the Opening-up Photonics' initiative to encourage greater gender diversity in photonics. Initial Scottish focus will be expanded with support of SPIE and the Future Photonics Hub (Southampton/Sheffield) with a workshop in London in early June. (precise date TBC)

Opening-up photonics have been given space on the PLG website/blog to have to provide further information to the community.

**Action all** > Input on content and structure of Opening-up photonics workshops to maximise value to photonics community

#### k) Quantum Call feedback

A number of those present (~30%) have been successful in recent quantum calls.

Feedback that the overlap in timing of recent calls caused challenges especially for industry with minimum time between learning of the results of previous call (and therefore understanding ones financial and resource commitment) before closing of the next call. Industry close to saturation in ability to respond to calls, greater spacing would have helped considerably.

#### l) South Wales Compound Semiconductor Cluster

- A CS connected £43M wave 1 strength in places bid was submitted in September, decision due in April. Feb 19: Award of a CDT in Compound Semiconductor Technologies; 65 student cohort at Cardiff,

Manchester, Sheffield and UCL from Oct 2029 : <https://www.cardiff.ac.uk/news/view/1430396-epsrc-funds-cs-centre-for-doctoral-training>

- The new £75m facility to house Cardiff Institute of Compound Semiconductors at Cardiff Uni held topping out ceremony 9 Dec. with final phase construction due for completion in 2021
- The new £30m centre for integrated Semiconductor materials @ Swansea Uni due to start construction in August.
- IPCEI 'Important Projects of Common European Interest' with significant high TRL photonics content still requires UK funding of ~£44m as part of wider EU funding of ~€1.75Bn independent of H2020.

#### m) Shrivenham EWTC meeting

The Electronic Warfare Technology Conference featuring 3 days of photonics, 8-11 June 2020, in Shrivenham, Swindon. As per 2019 there will be an open (unclassified) day on Wednesday 10 June call for papers open contact JohnL for more info <https://www.cranfield.ac.uk/events/symposia/ewtc>

#### n) HiPOL – High Power Fibre Laser Centre

A white paper on proposed High Power Fibre laser centre to develop the required UK technologies and supply chain for High power fibre laser based defence systems and relevant sub-components / modules has been developed and is open for industry input prior to presentation to Gov. Contact JohnL if interested in participating development. Copies available.

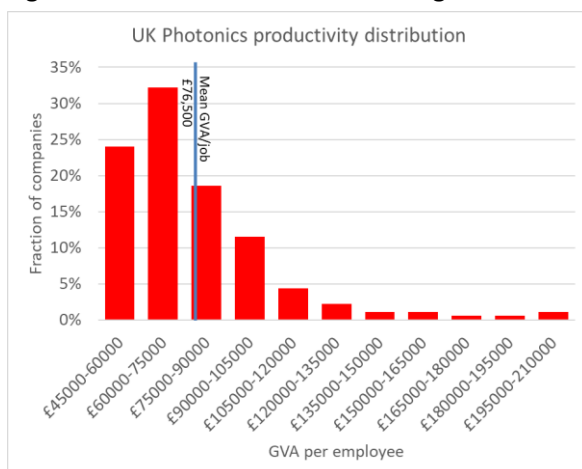
### 9) Other PLG activities.

A summary of additional PLG activities was given, including:-

- Participation in the Electech Community Meeting -Electech council under Techworks
- Participation in Quantum Computing Road-mapping workshop
- Input on SPIE photonic technician career videos to increase international / UK relevance
- Interview for [Optics and Photonics News](#) on the impact of the UK 2019 election on the industry
- Map of UK parliamentary constituencies containing photonics employers
- Identification of outline priorities for physics investment
- Meeting with Confederation of British Industry (CBI) on training needs and apprenticeships
- Identification of significant updates to 2016/17 draft Photonics sector deal position.
- Discussion of developments in sectors deals with BEIS
- Provision of key statistics on photonics in Scotland to Scottish Government.
- Participation in the Quantum Technology Leadership Group December 2019meeting

The full activity log is available online at <https://photonicsuk.org/contributors/plg-achievements> and is update as new activities are completed.

The latest analysis of industry data shows the following distribution of photonics productivity. Indicating a significant fraction of firms achieving well above the average £76,500 GVA per employees



## 10) Membership contributions

The PLG has received £10,850 in membership contributions from 18 organisations since the previous October 2019 PLG meeting.

As noted previously quotations are now issued before invoices are raised.

**Action ALL who have not contributed> if at all possible please make your annual contribution to the PLG asap. Contact KarinB for invoice or quotation.**

Contribution levels remain at £900 large organisation, £500 for RTO's, SMEs and Universities and £250 for micro companies.

Lunch and many other activities are only available with your contribution

**Your contributions are increasingly important as PLG incurs expenses in Westminster showcases, compiling industry data and convening additional meeting e.g. in Horizon scanning and ongoing organisation.**

## 11) AOB (roundtable), not covered above

- Photonics Europe, Strasbourg 29/3-2/4, opportunities to participate and exhibit- See KarinB for more info
- BiCop 2019 in December very well received. Targeting repeat in 2020 with addition of Quantum to title see RichardP for more info.
- Fraunhofer Centre for Applied Photonics will be celebrating 8<sup>th</sup> anniversary with a reception in Holyrood.
- TomH highlighted opportunities for getting involved in the Brunel challenge. Currently dominated by aerospace and automotive there are plenty of opportunities for photonics manufacturing to engage- <https://www.aerosociety.com/media/11651/martin-aston.pdf>
- PIC workshop in Brussels on 24th April with focus on building the Eu integrated photonics eco system. <https://ec.europa.eu/digital-single-market/events/cf/concertation-workshop-on-photonic-integrated-circuits/item-display.cfm?id=25151> See MikeW for more info.
- A Dissemination meeting featuring Sensing Eranet+ project will take place in Leuven on 25 March.

## 12) Next Meeting

ChrisD offered to host at Coherent Scotland New facility in Glasgow. Time TBC confirmed in June.

**Huge thanks to Robert McDougall, Peter Wiggett and Keltie LLP for hosting.**