

# Photonics Leadership Group

## Meeting Minutes

Wed 3 June 2020 9:00-12:00,

Virtually by Zoom



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

### Attendees (Includes those attending for only part of the meeting):

Ian Alderton, Alrad; Ric Allott, STFC; Yann Amouroux, OSA; Simon Andrews, Fraunhofer UK; Ali Anjomshoaa, CSC; Terry Boniface, BEIS; Nick Bowden, CST Global; Dom Brady, CS Applications Catapult; Karin Burger, SPIE; Allan Colquhoun, Leonardo; Iwan Davies, IQE; Chris Dorman, Coherent Scotland; Glenn George, Bay Photonics; David Gillett, Laser 2000; Caroline Gray, OptiC Technology Centre; Mark Gubbins, Seagate ; Duncan Hand, Heriot-Watt University; Tom Harvey, Nat Healthcare Photonics Ctr; Julian Heaton, InnovateUK; Jon Heffernan, University of Sheffield; Richard Jackson, Arqit; Stratos Kehayas, Gooch and Housego; John Lincoln, Harlin; Anke Lohmann, Anchored In ; Kevin Mackrodt, Artemis Optical; Sergio Mantecon, Edmund Optics; Nick Martin, BAE systems; Owen McGann, GTS; Ally McInroy, Technology Scotland; John Nolan, UK Fibre Connectivity Forum; John Parsons, Indigo Consulting; David Payne, University of Southampton; Michael Robertson, CIP Huawei, Alwyn Seeds, UCL; Jianming Tang, UK Fibre Connectivity Forum; Mark Thompson, IPG Photonics; Sergei Turitsyn, University of Aston; Malcolm Varnham, SPI Lasers; Mike Wale, UCL; Matthew Wasley , KTN..

### Apologies:

Valerie Berryman-Bousquet, Sharp Labs Europe; Jon Blackburn, TWI; John Blomfield, Qioptiq; David Bolton, EW Simulation Technology; Scott Bradley, BAE systems; Thomas Butcher, STFC; Max Buttinger, Thales UK; Russell Childs, Optoscribe; Maryam Crabbe-Mann, EPSRC; Trevor Cross, Teledyne e2V; Buki Dada, Thorlabs; Dan Daly, Lein Diagnostics; Geoff Duggan, Lumerical; Andrew Ellis, University of Aston; Mark Greenwood, SPI Lasers; Antony Hurden, Grounded Innovation; Andrew Kearsley, Oxford lasers; David MacLellan, AILU; Graeme Malcom, M Squared Laser; Rachel Maze, BEIS; Richard Pitwon, Resolute Photonics; Dave Rimmer, WOF;; Andy Robertson, independent; Andrew Scott, QinetiQ; Stuart Sendall , Photonsens; Jason Smith, University of Oxford/ Oxford High Q; Chris Sorsby, Vitritech; Duncan Walker, Pure LiFi; Philip White, DIT; Alastair Wilson

\*Post meeting and editorial input in *italics*

### 1) Previous Minutes and welcomes

Ali Anjomshoaa, John Nolan, David Gillett, Stratos Kehayas, Richard Jackson and Jianming Tang where welcomed to their first PLG meeting (*Apologises for not calling out Richard at the time*)

Previous minutes from meeting 25 Feb 2020 were accepted

### 2) Impact of coronavirus measures on photonics

JohnL presented statistics from the PLG survey on the impact of coronavirus measures on UK photonics conducted 23-10 May. [Presentation is available along side meeting minutes](#), summary was published on [PLG blog](#).

Headlines:

- 90% of photonics manufacturers have been able to continue production during pandemic
- <50% of photonics companies are using Gov emergency support measures
  - Both showing the huge resilience of UK Photonics manufacturing
- 30% of requested additional support measures have been addressed since survey undertaken
  - Including most common request for part-time furloughing now brought fwd to July.
- Most immediate impact has been to various stages of the order pipeline
  - Discussion highlighted this may be storing future challenges for production as booked orders are filled
  - ~ 50% of Manufacturing organisations also highlight challenges in importing of key parts and components
- For future impact >1 year, significantly greater uncertainty highlighted.
  - Where expressed 30% see output in 1 year returning to pre pandemic levels or increasing, 50% see as decreasing.
  - 50% see new product development plans remaining the same of increasing in a years time.

- To return to normal lifting of social distancing and ability to have face-to-face meetings dominate as expected.
  - At next level, lifting of EU travel restriction is more important to photonics (than acoustics who surveyed at the same time)
  - For photonics manufacturing organisations lifting transcontinental travel also important – a reflection of the global nature of the UK photonics industry.
- Unsurprisingly more remote working and virtual meeting dominate views on what the ‘new normal’ will look like, supported with greater investment in IT and some reconfiguration of supply chains.

Gov agencies have confirmed the such ‘temperature check’ factual information on impact has been very useful.

#### **ACTION All> suggestions for question to include in next survey welcome**

Initial suggestions include:-

- Regional breakdown with Question on location (only UK or none UK was in initial survey)
- Relevance of safer working guidance and feedback on same
- Plans for increasing investment in automation

#### **Additional and future surveys**

Recognising that perception and impact is a dynamic situation, the survey will be repeated. Discussion indicated that given the high impact on the order pipeline revisiting the survey in ~August, maybe preferable over September.

Findings from the [Photronics Scotland survey](#) are now also available. Contact Ally McInroy for more info.

The similar UK wide survey stopped getting inputs, with Covid-19 potentially impacting responses. PLG will look to incorporate key questions into updated Covid impact survey.

Survey response was noticeable lower in photonics than acoustics attributed to the lack of a comprehensive emailing list for rapidly contacting the industry, beyond the PLG. Suggested such a list GDPR compliant should be compiled by the PLG.

**ACTION PLG>** compile UK photonics contact list, beyond PLG membership.

#### **Additional discussion on Covid-19 lockdown impact**

- The resilience and adaptability of photonics to adapt to changing circumstance and keep operating is a significant feature of the industry to highlight going forward
- Noted that in high value industries such as photonics, the £2500/month/employee furlough cap doesn’t cover wages of many employees
- Whilst many engineering can effectively work from home for short periods, to be effective in longer term they need to be in facilities, impact may therefore be more severe if work from home times are extended
- Many noted impact on Universities have been much more severe, with all academic facilities including research labs closed. Despite easing of restriction and clear government guidance for returning to work, Universities research labs are finding it very difficult to reopen. This is creating challenges where industry partners can progress joint project but university progress is on hold. Situation in Scotland slightly easier, as guidance clear that research labs should currently be closed but should open under phase two.
  - PLG, with industry support, requested to submit open letter to Vice-chancellors calling on them to prioritise opening of research facilities, highlighting that industry has been able

open similar facilities by following government guidance and there should therefore be no barrier to reopening.

**ACTION JohnL> to draft letter distribute for refinement and co-signatory by industry.**

### **3) Gov & EU support programs & changes relevant to photonics**

Presentation from Mat Wasley on latest UK and EU funding schemes including emergency pandemic support and updates to existing programmes. Please consult [slides available with minutes](#) for details.

Note current open SMART programme has been suspended subject to review.

Overall Covid-19 has created major disturbance to the Innovation support landscape. Whilst impact remains unknown efforts continue to build case for reinstating dedicated support for enabling technologies, building on the Electech roadmap. This will be supported by discussion of where can photonics improve national readiness, resilience and capability scheduled for today's meeting

### **4) Likely future policy directions**

As noted much up in the air and speculation is just that. Possible direction include

- Increase focus on resilience, both in technologies and supply chains, with the potential for resilience to be placed along side economic, social and environmental impact
- Increased focus on communications infrastructure with the ability of UK comms networks (all dependent on optical fibre) one of the positives to emerge
  - Further discussion of photonics impact see next item

### **5) Where can photonics improve national readiness, resilience and capability, near & longer term.**

Virtual attendees were split into 5 breakout rooms to facilitate discussion of where post pandemic photonics would have an increase role in supporting recovery resilience and capability. Ideas were captured on a [Mural virtual wipe board](#) and reported back to all attendees by group appointed reporter after 30 mins of discussion.

Ideas captured from each room summarised below. Group discussion indicate some common high level themes:-

- **Photonics for de-densification**, Covering laser and machine vision supported automation in manufacturing, smart imaging of people flows based, comms for remote working and autonomy
- **Photonics for confidence**, Covering UV disinfection , monitoring of people flows, confirmation of disinfection protocols and rapid diagnostics
- **Photonics for resilience**, covering optical networks, photonics supported digital manufacturing

Frequent technical themes included UV based disinfection with UK supply chain, sensing & imaging for autonomy monitoring and optical comms / data. Bolstering supply chain clear structural theme

Initial outputs noted as useful for Innovate in identifying priority themes where photonics can have additional impact.

Noted in discussion that a big unifying idea was required as umbrella for various details ideas. Noted that fear uncertainty and doubt were key element in pitching and building support for such.

**ACTION JohnL JulianH. MatW.> To develop process to pulling next level of detail needed**

#### Room 1

- Remotely operated manufacturing supported by laser manufacturing which easier to automate,
- Comms resilience, depends on power access- photonics solution to remote power and min reduced power functionality
- UV-c for disinfection- needs UK source of UVC LEDs
- More automation in compound semi-device fabrication
- More calls / drive from disaster planning committees into innovation communities e.g. driving innovation into areas that would improve resilience
- Anticipate resilience being a key driver of innovation
- photonics solution to measuring people flow and density, provide data driven solutions to give confidence

#### Room 2

- Sovereign capability - needs looking at
- Vulnerability
- Can't extend everywhere (Si foundry etc)
- Green economy - supported by photonics
- Supporting communications - higher temp, speed
- Security of supply - can't isolate if can't produce. Avoid single source, know ones supply chain. Where are the photonics supply pinch points?
- Diagnostics - rapid - strategy?
- New photonics needs: partner w Viola/Biffa
- Optical sensing - unclear what sensors needed
- Challenge in data centre resilience to support comms

#### Room 3

- Physical sensing and monitoring of people
- UK UV LED supply chain? IQE, Plessey?
- High speed imaging -- related to diagnostics
- Imaging important role
- SiN Pilot lines
- Identification of contaminated surface - enhance of confidence
- UK supply chain e.g. of glass - where is photonics supply chain / weak
- Improve optical networking

#### Room 4

- Data Safety;
- COVID response: can Photonics be used to help improve public safety?
- Pay attention to UK content to claim preferential status of a free trade agreement. Have to get certification from your UK supply chain.
- Agility is built into the photonics industry.
- External sources being closed down impacted companies.
- National infrastructure: Fibre to the Home; 5G backbone; Resilience of national supply chain (Comms, Las4manuf)
- Build national supply chains for photonics? e.g. lasers for battery manufacturing in high demand from China- could be done in the UK.

#### Room 5

- Significant challenges- societally, defence resilience and capability will be key.
- UV—c & -d for disinfection. Needs UK LED / diode capability
- Direct gov funding for specific hard hit sectors (civil aerospace) that utilises photonics. Also impacts defence and space.
- Manufacturing automation (Robots), lots of photonics technology.
- High end PCR testing uses sophisticated laser technology, much COVID detection is Photonics tech
- Devices for enabling social distancing (sensors)
- Data Centres -- holding up -- but may need to have support. (Green elements to power supply)
- Autonomous vehicles (lots of photonics for Track and trace (combine with other techniques))
- Higacomms and Digital Communications - need for compound semiconductor photonics
- Climate change focus and photonics challenges
- Plastics - were bad, but with Covid lots of migration to single use, need to address this challenge. Any photonics input?

Most found Mural board worked adequately, with some more technical difficulties than others. *Feedback indicate a little more structure and preparation for discussion groups would have been valuable)*

## 6) Future Photonics Research Horizon Scanning: outputs & next steps

Presentation on recent photonics horizon scanning activity by JohnL available for [review with minutes](#), Key summary of future topics arising at <https://photronicsuk.org/what-is-on-the-horizon-for-future-photonics-research>.

Despite undertaking remotely, quality of outputs were generated with positive feedback from participants. Report is currently in preparation with anticipate release jointly with the photonics and Quantum APPG in July.

Discussion note importance of introduction explaining how dependent we are on photonics

**ACTION JohnL > to review draft to make sure photonics impact clear and obvious**

Report will be followed by consultation with industry on those topics of greatest interest to theme.

## 7) Updates and inputs from other groups, and additional PLG activities

**Group Inputs** requested in advance and posted on a [Mural board](#) included:-

- New UK import tariffs from 2021 now published - <https://www.gov.uk/guidance/uk-tariffs-from-1-january-2021>

- Dr Andrew Robertson moving to Bay Photonics as Research & Innovation Manager who have relocated to EPIC centre in Paignton
- Photonics is officially a "candidate partnership for Horizon Europe. Good news but not done and dusted.
- The next round of SMART has been paused 'while we review the number of applications received for the most recent round of SMART funding and best determine how it might sit alongside future funding opportunities to best support UK businesses'
- UKIVA MVC Technology Hub Live learn about Machine Vision Live until at least end of year. 37 plus presentations - <https://www.machinevisionconference.co.uk/technology-presentation-hub-2020/>
- SPIE: Optics & Photonics has just been moved to a Digital Forum. At this point, the Security + Defence, Remote Sensing and Space, Satellites and Sustainability will continue as planned.
- If anyone from this group is interested to join a discussion with SILC (Sensors Innovation Leadership Council) about a new National Sensors Initiative (NSI) contact Tom Harvey
- Two questions posted- response to Mat Wasley please
  - How can KTN best help companies post-COVID?
  - What International activity would be useful - e.g. trade missions?

#### **On going PLG activities (captured on same Mural board)**

- APPG, Virtual meeting suggested but Zoom overload. APPG newsletters still going out.

#### **ACTION all > Positive news stories for inclusion to MPs engaged with APPG welcomed**

- There remain a small number of constituencies with major photonics activity whose MPs are not engaged with the PLG.

#### **ACTION all relevant> Those in following constituencies are encouraged to contact their MP's to recommend their engagement with the Photonics and Quantum APPG - Aldershot, Foyle, Rochester, S. Northamptonshire, Torbay, S &SE Cambridgeshire**

- Collaboration with UK fibre connectivity forum in discussion
- Westminster photonics showcase delayed to 2021
- Analysis of PLG participation shows PLG has representatives from over 63 organisations. Participating companies are directly responsible for more than 22% of UK Photonics industry turnover and employment
- Update and revision to the [KTN photonics landscape](#) in motion incorporating latest insights from PLG

### **8) Next Meeting**

At Photonex in Coventry. In person 7 or 8 October 2020 depending on fit with Photonex programme

**Huge thanks to KTN for setting up the Zoom and managing the breakout rooms and everyone patience with virtual format**