Speaking at

Understanding the UK semiconductor ecosystem Part 2



Stewart Edmondson

CEO

UK Electronics Skills Foundation (UKESF)

11 November 2026
9am to 11am (GMT)

Online

UKRI Innovate UK | Business Connect

UK Electronics Skills Foundation

Building the Future Skills Pipeline for the UK's Semiconductor Industry

Global Innovation Network, 11th November 2026

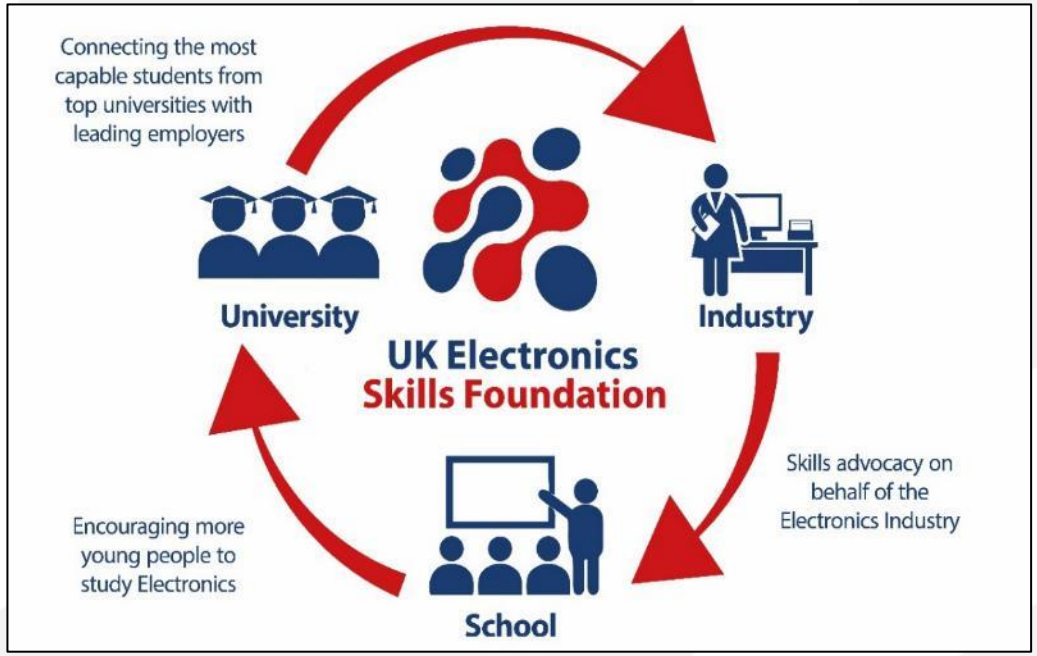
Stewart Edmondson MA MBA BSc CEng FIET CMgr FCMI
CEO, UK Electronics Skills Foundation

Building the Future Skills Pipeline for the UK's Electronics Industry

UK Electronics Skills Foundation









Founded in 2010, the UKESF is the only STEM organisation in the UK solely focused on Electronics. We are a multi award winning charity, and our purpose is to promote Electronics and semiconductors to young people and to encourage them to pursue study and careers in the industry.

UK Student Acceptances on EEE Degrees

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Subject group - HECoS CAH1, Subject group - HECoS CAH3, Age group

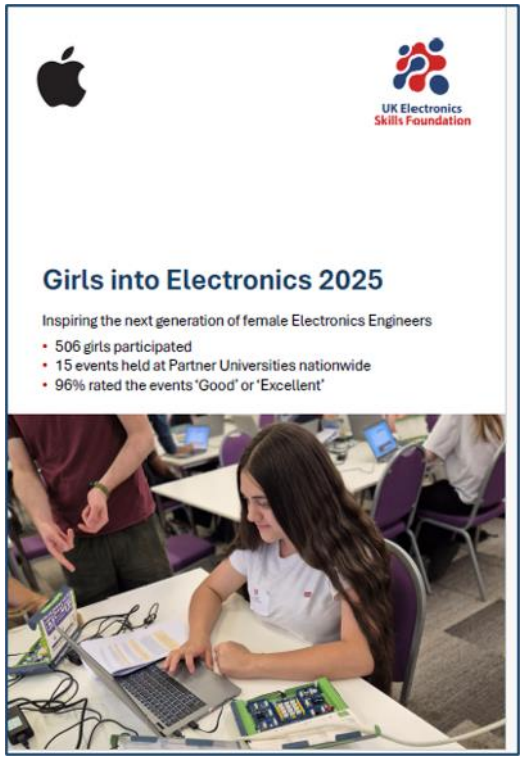
Subject group - HECoS CAH1	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
⊞ (CAH10-01-08) electrical and electronic engineering	0	0	0	3,170	3,270	3,390	3,380	3,440	3,710	4,215

Subject group - HECoS CAH1, Subject group - HECoS CAH3, Age group

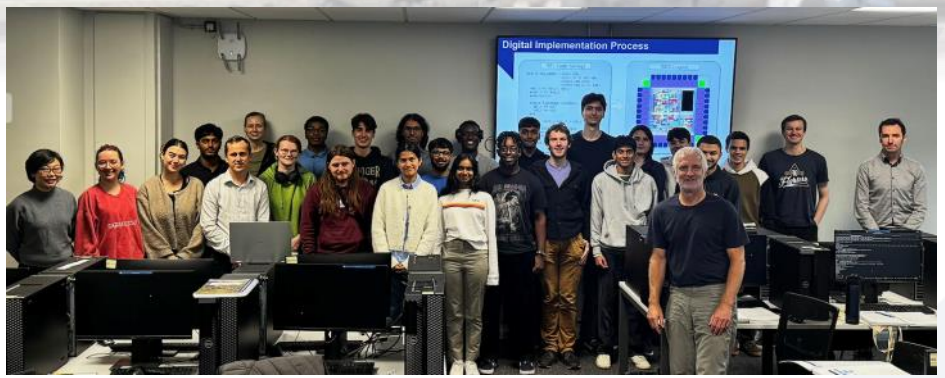
Subject group - HECoS CAH1	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
⊞ (CAH10-01-08) electrical and electronic engineering	0	0	0	300	330	350	345	435	440	540

- In 2025, there were 4,215 acceptances from UK students. This is a 29% increase from 2020.
- For female UK students, there were 540 acceptances in 2025, which is a 64% increase from 2020.

UCAS Undergraduate end of cycle data resources 2025 .









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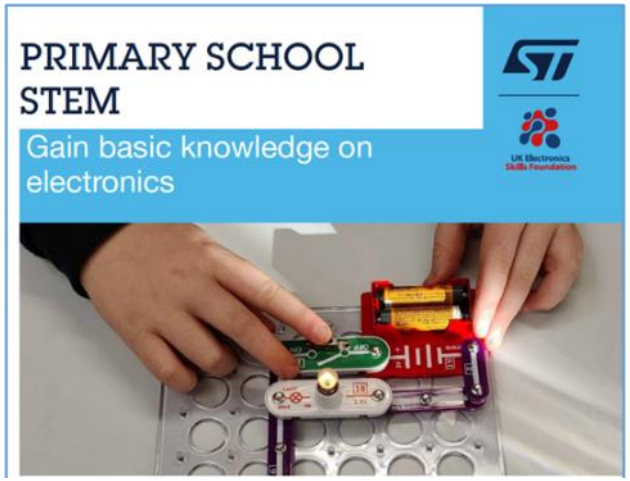

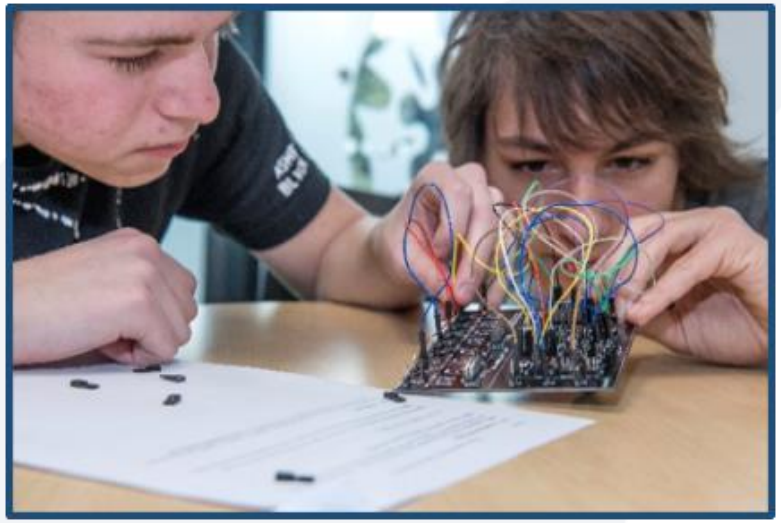



UKESF Schools Activities



UK Electronics Skills Foundation

Classroom resources: Over 900 secondary schools/teachers use UKESF resources for teaching Electronics parts of Physics and Computer Science.

Focus on ED&I: More than 2,200 girls (aged 15-18) participated in “Girls into Electronics” events 2022-2026.

Bespoke Programmes: With a grant from IUK, delivered a programme for schools (45) in Wales to promote Electronics careers.









CREST Awards

AGE 14-18

Silver CREST Awards, designed by the UKESF, to stretch students and enrich their STEM studies

Read more

Over the next 5 years, we plan to replicate our bespoke programme in other areas. Scale up Girls into Electronics and share new resources to support teaching Electronics in Primary Schools.

UKESF Partner Universities 2025/26

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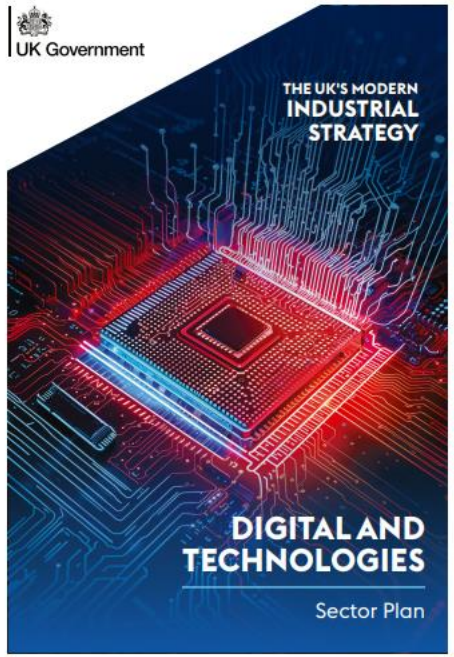
UKESF Skills Charter - Industry

UK Electronics Skills Foundation



Government Investment - Semiconductors



The interventions

- **Establishing a new UK Semiconductor Centre** to bring together industry, academia and government, and provide cross-sector leadership on semiconductor innovation, alongside ecosystem building and business services. With funding of up to £19 million, the Centre will also develop long-term R&D and infrastructure roadmaps to guide future investment in semiconductors.
- **Funding Innovation and Knowledge Centres (IKCs)** to help bring chip technologies to market, with £25 million to launch two new IKCs in Neuromorphic Computing Hardware and Heterogeneous Integration System Design joining existing IKCs in Photonics and Power Electronics.
- **Boosting the UK's chip design capability** through a new Chip Design Enablement Programme with up to £5 million initial funding to provide state-of-the-art tools, talent support, and technical expertise to boost innovation in chip design, including for AI and emerging architectures.
- **Improving the semiconductor talent pipeline** through a £35 million UK-wide skills programme, including semiconductor bursaries to boost enrolment in priority degree courses and semiconductor-focused STEM outreach activities. A new Centre for Doctoral Training in Future Semiconductor Skills will help build deep technical expertise in strategically important areas.

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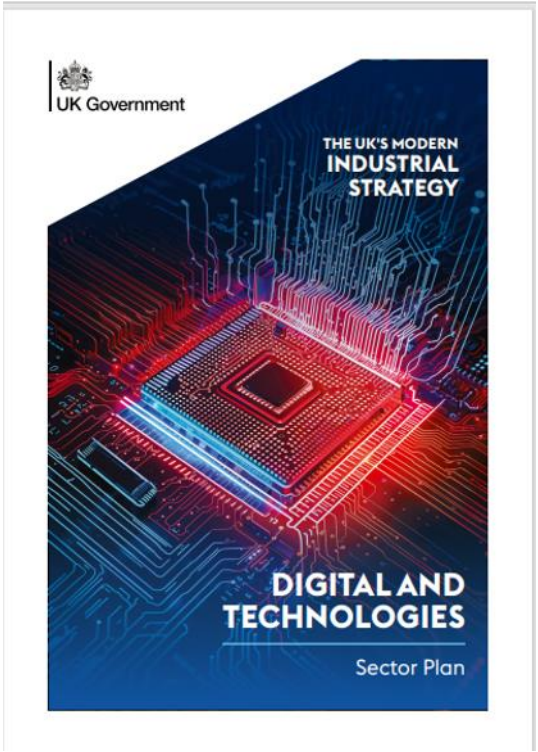


Priority Roles & Workforce Evidence - Semiconductors

UK Electronics Skills Foundation

Skills gaps. Retirements add to demand, with an estimated 10,000 workers expected to retire within 15 years. Even under the lowest demand scenario, and including the need to replace workers who leave, the sector could face an average annual shortfall of approximately 2,100 workers, which **over five years would leave a cumulative gap of more than 10,000 people.**

Recruitment challenge. 90% of respondent companies perceived a moderate or acute shortage of people to fill key technical roles. Respondents requiring manufacturing and process engineers and technicians, and IC design engineers, are **experiencing the most acute shortages, with 50% to 60% reporting acute shortages.**

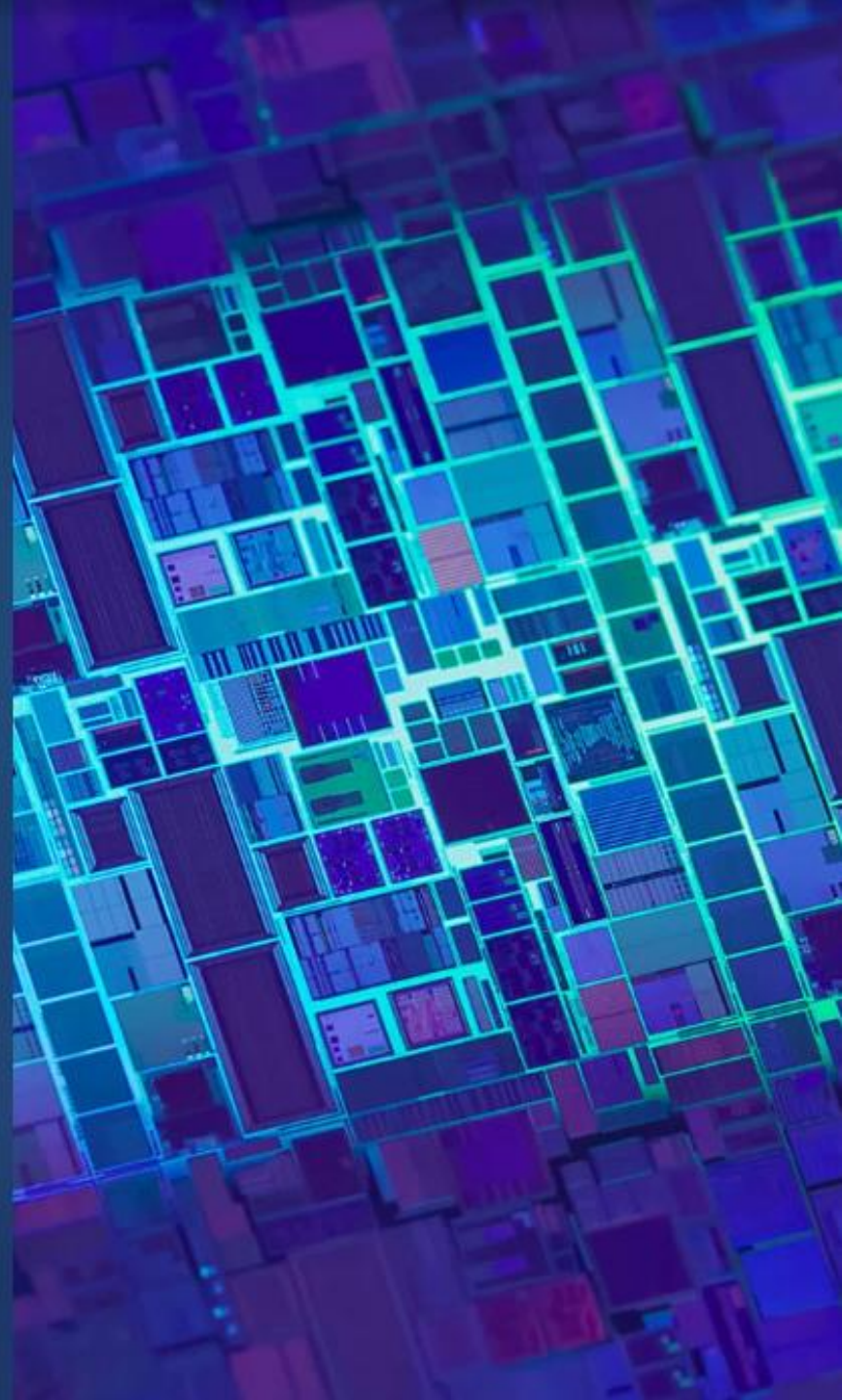
Priority roles. (a) **Integrated circuit design engineers, commonly known as chip designers**; (b) manufacturing and process engineers; (c) semiconductor technicians across process, equipment, test, production and quality. Employers have also identified advanced packaging and verification engineering as an area of growing importance.

Digital and Technologies Jobs Plan - GOV.UK

Semiconductor: Skills, Talent and Education Programme (STEP)

Equipping more young people, undergraduates and early career engineers with the skills to thrive in the semiconductor industry

Funded by UK Government



STEP: 4 projects. Delivered in FY2025/26

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P1 Semiconductor Skills in Schools

- Classroom resources for 120 schools
- Five regions across the UK
- Events at universities and careers hubs



P2 Semiconductor Talent Award

300 first-year EEE undergraduates:

- Bursary and learning & development grant
- Induction day
- Online training, mentoring and development

P3 Semiconductor Skills Development Course



- Online and in-person courses in chip design (digital)
- Industry engagement events
- Laying the foundations for future interventions

P4 Semiconductor Skills for Physics Graduates



- Examine how more physics graduates can be supported to pursue careers in the semiconductor sector
- Curriculum design and development of material
- Piloting a ‘conversion’ course in early 2026

Semiconductor Talent Award Induction Events





UK Electronics Skills Foundation















Overview of Semiconductor Talent Award

Aim	To increase the number of UK-domiciled graduates entering the UK semiconductor sector
	students to be enrolled into a semiconductor-specific strand of TechGrad in total, with 500 students joining the programme per year from 2027/28.
Payments to students	• **£4,000 per year of full-time study up to a maximum of four years**, excluding time spent on industrial placement.

> **"This Award has been phenomenal, and has made a huge difference in my first year at University. Beyond financial support, the exposure to the industry and professional development opportunities have provided me with a clearer pathway into the electronics/semiconductor industry."**
>
> Semiconductor Talent Award-holder 2025

Wraparound Programme – External Support

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While the delivery partner will retain flexibility in programme design, the following minimum expectations are set to ensure value for money, consistency of experience, and measurable outcomes across the cohort:

- **Mentoring:** Every participating student should be offered access to a named mentor with relevant industry or research experience. A minimum of one structured mentor engagement per term should be facilitated.
- **Industry engagement:** Each student should be offered at least one substantive industry facing opportunity during the academic year (e.g. site visit, internship/placement opportunity, industry project, or equivalent experience) to continue building students' interest in pursuing careers in semiconductors.
- **Extracurricular learning:** The delivery partner is expected to facilitate or broker at least two industry relevant extracurricular courses or learning opportunities over the course of the year (e.g. short courses, summer schools, technical bootcamps), open to all participants.
- **Networking and cohort activity:** A minimum of four structured networking or cohort building events should be delivered across the academic year (e.g. induction, midyear, end of year, and one thematic or industry led event).



UK Electronics
Skills Foundation

Sign up to our newsletter

Thank you

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Speaking at

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Dr Lewis Hill

General Manager

UK Photonics Leadership Group (PLG)

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Innovate UK | Business Connect

TALK OUTLINE:

- **Where is UK Photonics Now?**
  - **National picture**
- **Where is Photonics Going?**
  - **Uk's biggest divers**
- **How is the PLG Changing?**
  - **Continuing Vision, higher impact!**



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Photonics in the UK

Photonics Means 2026

Dr Lewis Hill, PLG General Manager
Dr John Lincoln, PLG Emeritus Chief Executive

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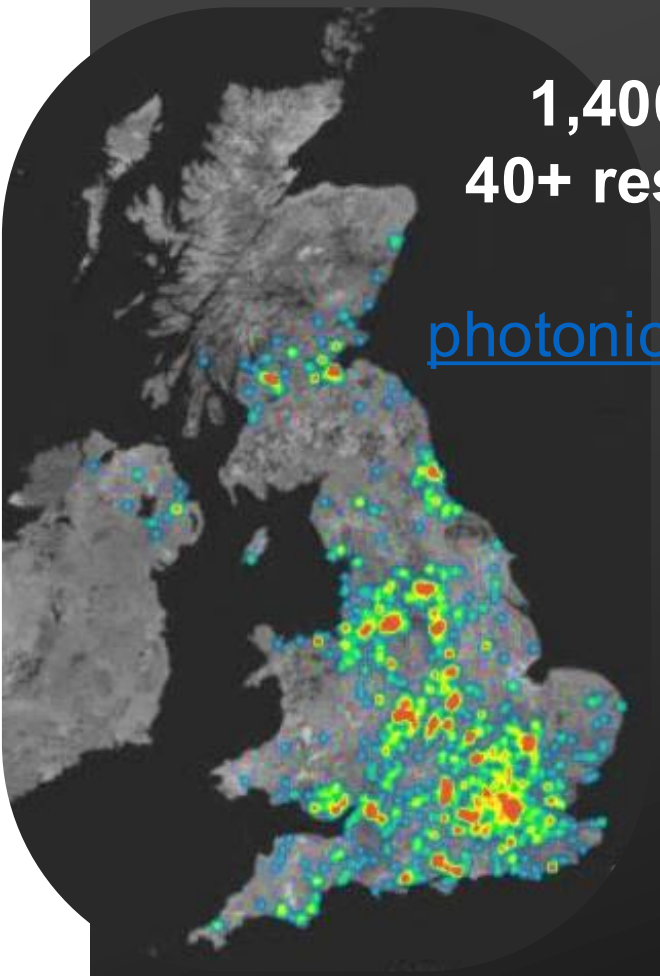
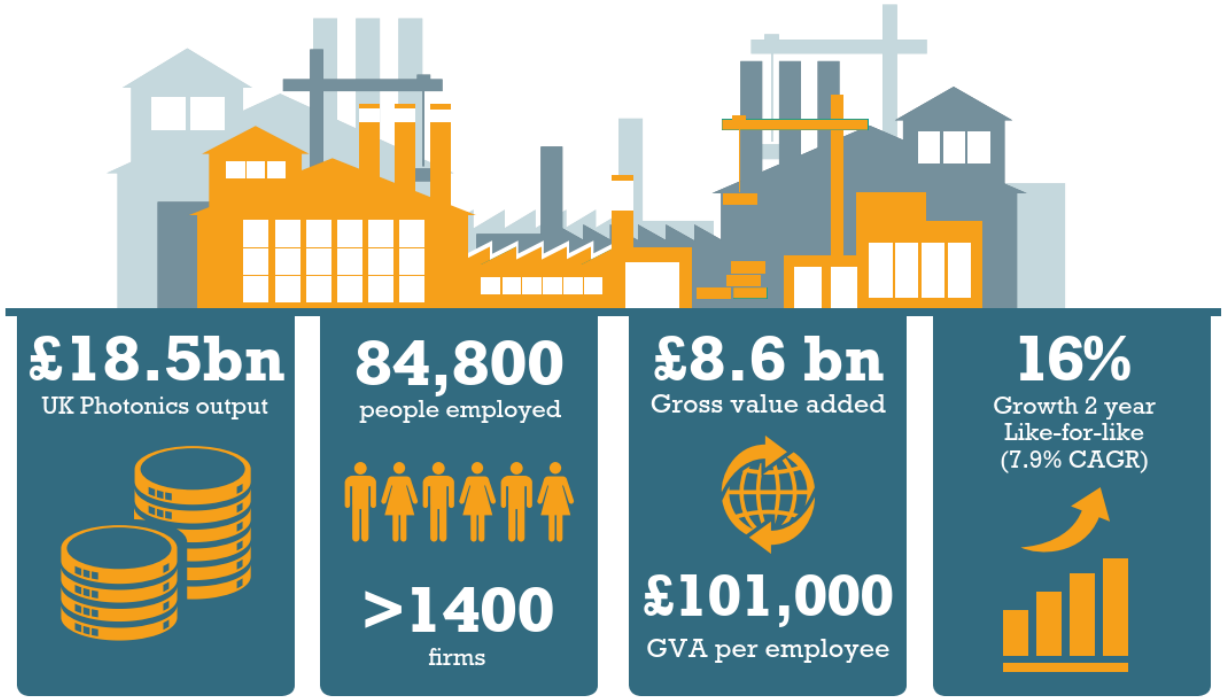
Where is UK Photonics Now?



1,400 companies
40+ research centres

photonicsuk.org/directory

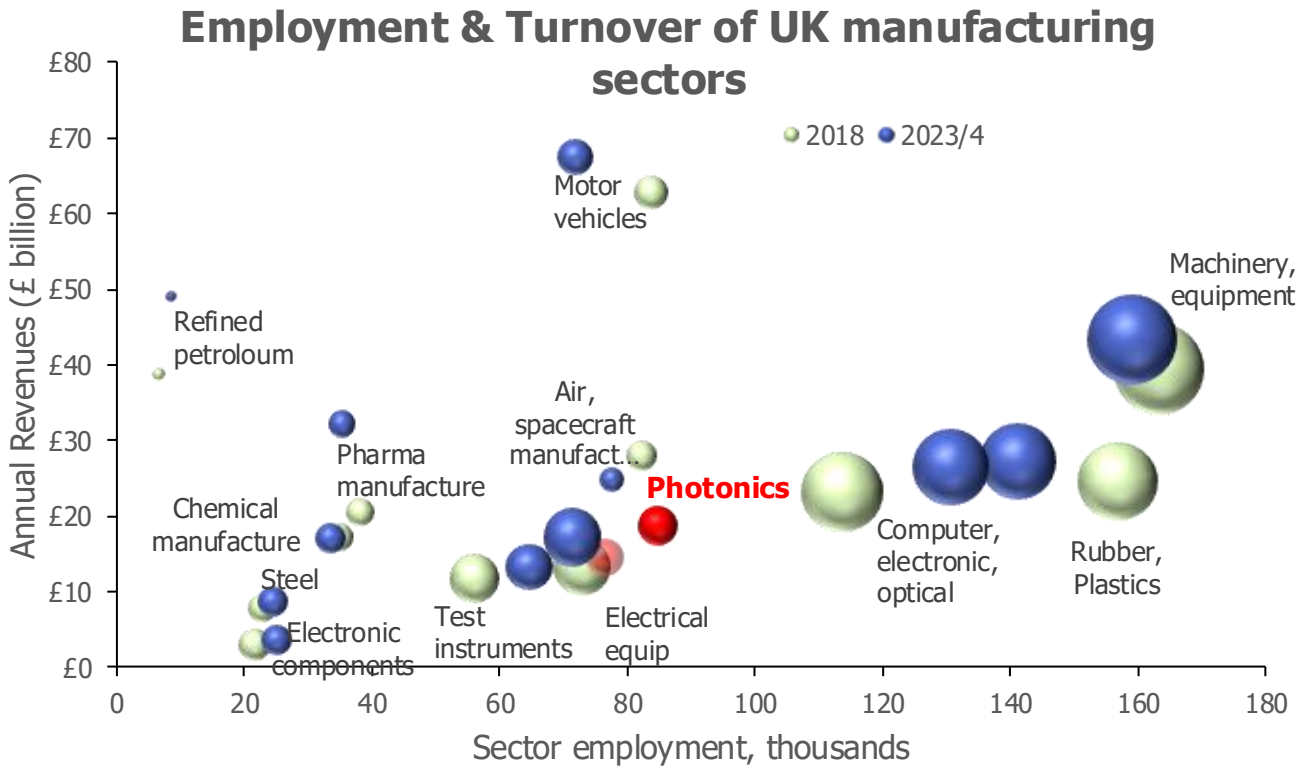


Source: Photonics Leadership Group (PLG), 2025

- Distributed across all regions
  - Clusters in NI, Scotland, Wales, NE, SW…
- Consistently growing
  - 4X general UK manufacturing
- $ trillion global industry

UK Photonics a UK success story

UK Photonics £50 billion by 2035 with coordinated action



based on comparison to ONS data by SIC code

Photonics ahead

- Outperforming higher-profile sectors

Photonics Employs:

- More than Aerospace or Motor manufacturing
- 3X more than Pharma, Steel or Chemical

Photonics Revenues:

- Greater chemical manuf, > 2X steel revenues.
- On track exceed aerospace and pharma

Number Photonics Firms

- 50% > Aerospace, Chem, Pharma, Petroleum or Steel manufacturing

Productivity

- 33% > UK manufacturing average

Growth

- 4X UK Manufacturing

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The UK has a research advantage — but global competition is accelerating

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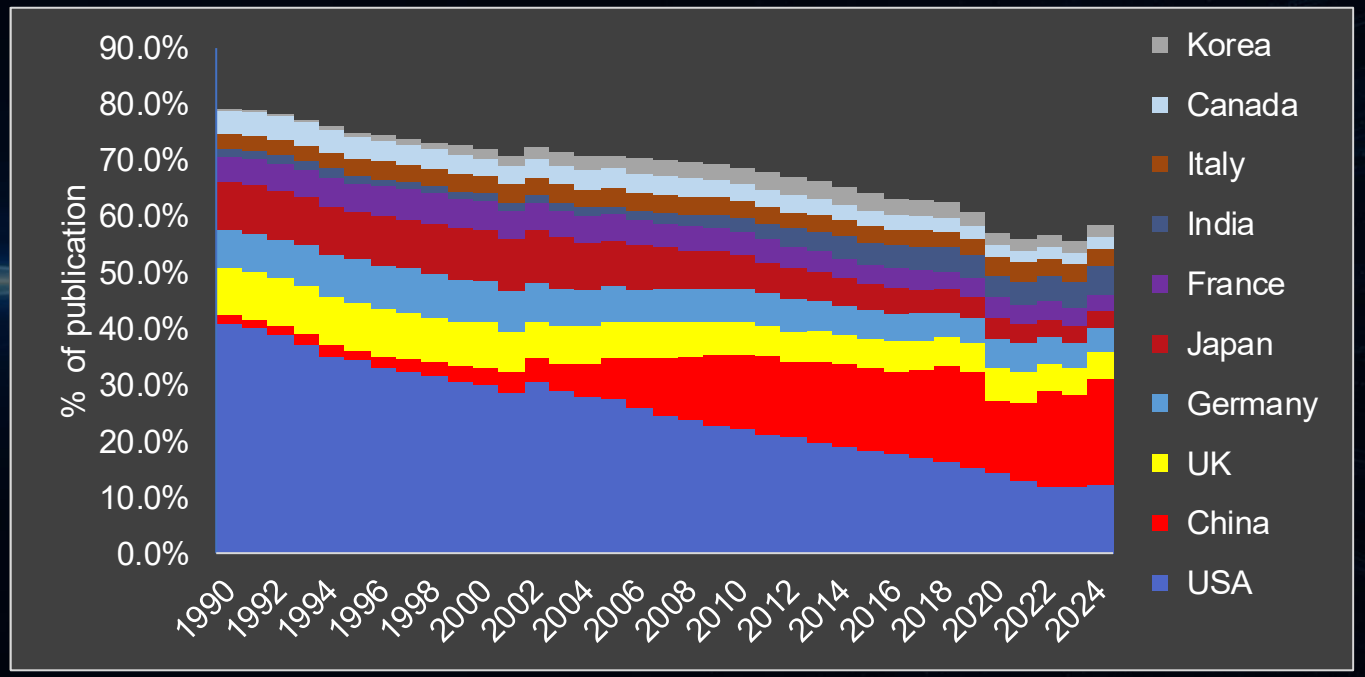
Photonics is embedded across global science.

13% of all global publications include photonics
160 million articles, 35 years

UK 3rd most prolific publisher of research including photonics

National share of publications including photonics



UK in the leading group- but competition is rising

Opportunity: turn research leadership into UK manufacturing, UK adoption = supply chain resilience and economic value

Source: OpenAlex analysis presented in Photonics Leadership Group materials.

Photonics is everywhere - enabling modern world

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Photonics connects, senses, images, manufactures, communicates & protects - across all sectors



AI · communications · health · defence · manufacturing · autonomous transport · agriculture · lighting · power

- Adv Manufacturing
- Defence
- Connectivity
- AI
- Life Science
- Clean Energy
- Quantum



Where is UK Photonics Going?

What is driving change in UK photonics?



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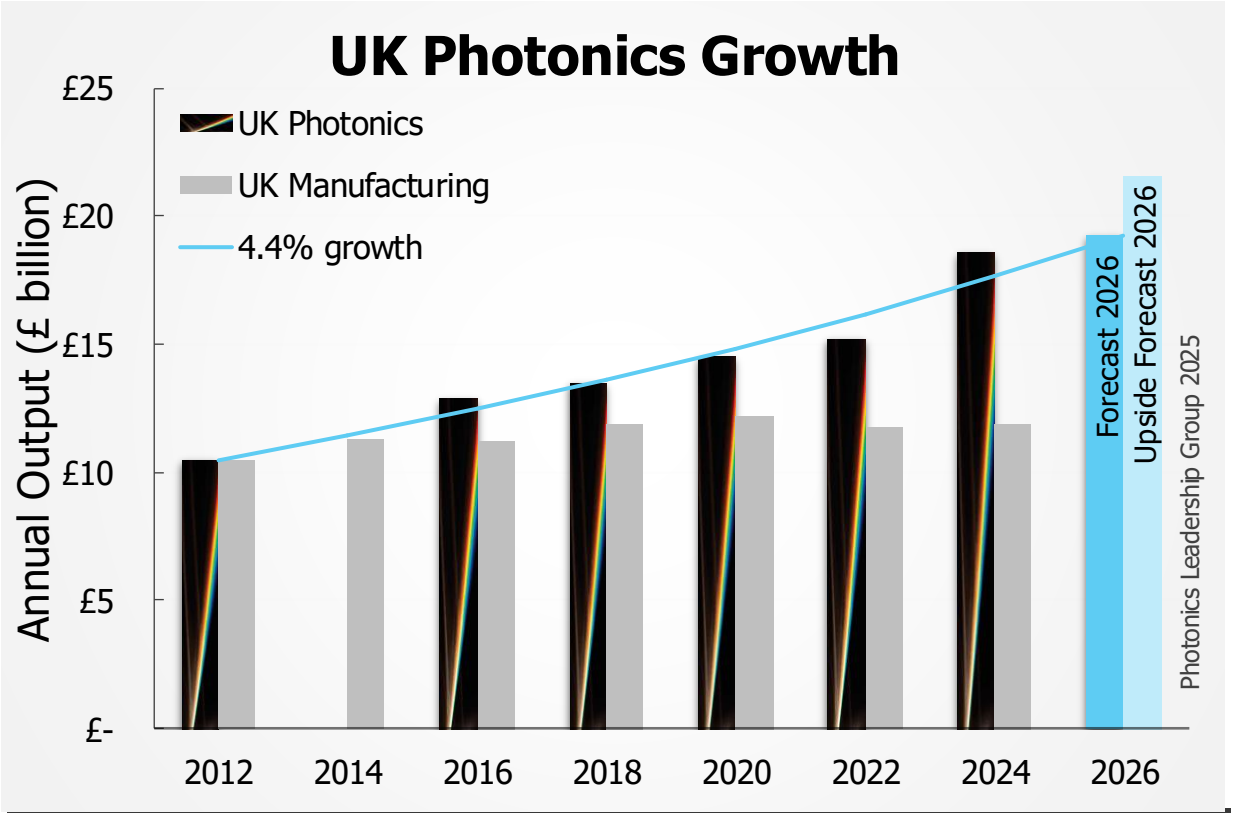
Trend: Long term growth 4.4%

- 4X general manufacturing
- Remains current best guess forecast

- £19.5 billion forecast for 2026
  - Upside £21.5 bn if 22-24 trend continues
- On track £50bn by 2035

Industry more optimistic

- 70% forecast growth > 5%
  - Aligned to upside forecast



Long term growth

… Why?

Political

Industry strategy IS8
Sovereign Capability
Deglobalisation / global competition

Economic

Productivity
Rapid Scale-up
Defence Spending

Social

XR digital interfaces
Individual & inclusive = flex products
Demographic shift: Health support

Technology

AI / Cloudification/ Data, Quantum
Autonomous systems
Complexity / multifunctional

Environmental

Energy use (AI)
Energy generation (wind, solar, H2, Fusions)
Full life cycle impact

Legal

NSI, Export control
CA, ISO, environmental
Accounting

Shifting world

- **Past performance no guarantee of the future**

- What is driving (photonics) growth
- Where are the barriers

Change 1: Integrated Photonics Revolution

Once-in-a-generation disruption to the supply chain

- From discrete optical components
- To scalable photonic chips and modules

Huge opportunity, huge risk

- Differentiation and functionality are shifting
- Design rules, suppliers and innovators will change

Coincides with investor interest in hardware

- As AI challenges software-style returns



Still need the rest of the supply chain

There will still be progress and innovation outside integrated photonics

Chips are not the solution in isolation — system integration is essential

Focus will be on the biggest point of inflection

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Council Science & Tech Feb 26 letter

"Photonics a great UK success"

National Photonics Roadmap

- **Protect and grow** UK position
- **Lead the integration** revolution, not follow
- **Leverage** in capital funding
- **Support critical defence supply**

Potential roadmap recommendations

Infrastructure

- Pilot line for integrated photonics
- £250–500m



Skills

- Add photonics modules to level 3–5 vocational courses



Procurement

- Support UK photonics components buy/develop via challenge interventions
- AI hardware plan
- Defence



International

- Full UK participation in Horizon Europe successor
- EU Chips Act 2.0



Change 2: Government has noticed

Once in a lifetime change

- "We need photonics"
- "We are good at photonics"

Step change in attention

- Across government and funders

No new money! No rewriting of industry strategy

- Will see photonics highlighted in
  - AI, Quantum, advanced manufacturing, ...
- Still requires link from photonics to priority sectors
- Unlikely to see new budgets for photonics programs

With attention come expectations

- Of growth
- Of co-investment
- Of impact on gov priorities
- Of accessibility
- Of simplification of message



How is the Photonics Leadership Group Changing?

Same Vision, New Leadership, Higher Impact



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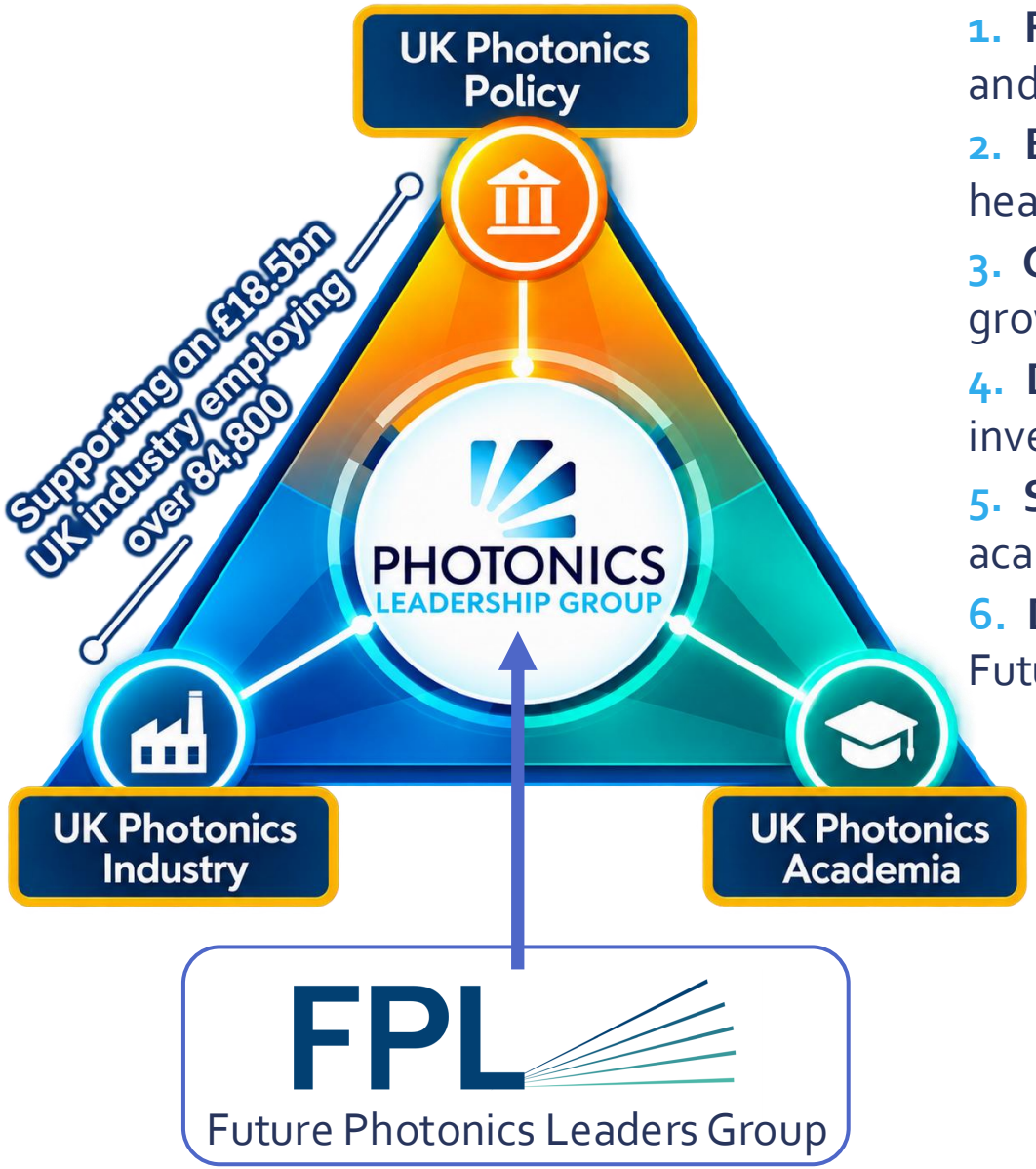
Continuity PLG Emeritus Chief Executive Dr John Lincoln

&

Succession PLG General Manager, Dr Lewis Hill



1. **Position the UK as a global top-5 photonics leader** in manufacturing and innovation.
2. **Build a strong UK photonics supply chain** across sectors, from healthcare to defence.
3. **Champion photonics** as a driver of productivity, resilience and economic growth.
4. **Drive innovation and commercialisation** to boost exports, attract investment and grow UK industry.
5. **Strengthen strategic collaboration** across industry, government, academia and support bodies.
6. **Develop the next generation of photonics leadership** through the Future Photonics Leaders Group.

The "steward" of the UK Photonics Sector

Working for the benefit of the full UK photonics ecosystem

£5,655
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Platinum Sponsor

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Gold Sponsor

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Silver Sponsor

£300
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Bronze Sponsor

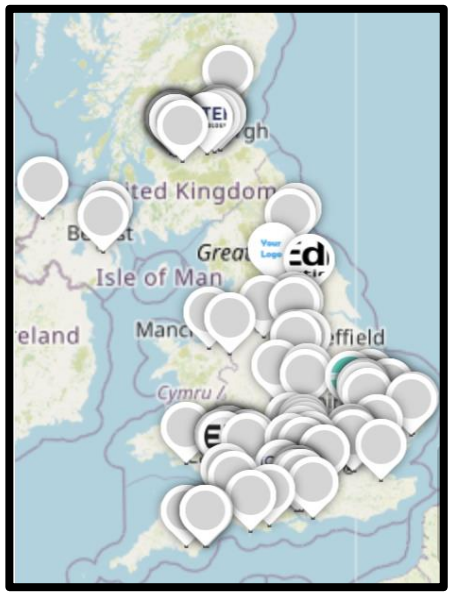
Large company

SMEs, University RTO

Micro Company

Contribution Tier	Bronze	Silver	Gold	Platinum	Diamond
Directory Listing included	Basic	Basic	Premium	Premium	Premium
Hiring link in directory listing	–	–	✔	✔	✔
Video, images and contact form in listing	–	–	✔	✔	✔
Identified on PLG presentations / publications with your name / organisation logo	–	–	By name	With logo	With logo
Identified on PLG website as sponsor/ contributor with your name / organisation logo	By name	By name	By name	With logo	With logo
Use of PLG sponsor logo	✔	✔	✔	✔	✔
Invitation to all PLG meetings & consultations	✔	✔	✔	✔	✔

Custom Benefits



63 Participating Organisations

- Four general membership meetings per year
- Two of which are in-person
- Wider feed-in to UK & European policy
- Network with the UK Photonics ecosystem
- Support the next generation of photonics talent through FPL group.

Be Part of the UK Photonics Conversation

Also UK's Photonics Voice in Europe

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Priorities and path to 2030

PRIORITISATION PRINCIPLES

- **Maintain continuity first** — protect core PLG activity and member value.
- **Stay flexible and responsive** — avoid overcommitting before capacity and income are in place.
- **Prioritise high-value opportunities** where PLG can have the greatest sector impact.
- **Leverage invitations, partnerships and grants** to extend impact efficiently.

Growth paced by member need, available capacity and sustainable income

ADDITIONAL FOCUSES INTRODUCED OVER TIME

2026–27 • CONTINUITY & TRANSITION
Maintain core activity, complete the JL → LH handover, and protect continuity for members. Hidden economy update.

From 2027–28 • LISTEN & GROW
Add membership expansion, 1:1 visits and deeper understanding of member needs.

From 2028–29 • EXTEND VALUE
Add working groups, reports, skills activity, partnerships and wider member/community value – based on member asks / needs.

From 2029–30 • SCALE & EXTERNALISE
Add stronger international engagement, more designed services and selected consulting/funded activity.

Nudging industry, academia, support agencies & government together

Making Photonics bigger, faster, stronger

www.photonicsuk.org , John.Lincoln@photonicsuk.org / Lewis.hill@photonicsuk.org

Photonics Leadership Group Supported by

AILU
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Intel (Optoscribe)
IQE
Laser 2000
Optica
Oxford Fiber
Oxford Lasers
PowerPhotonic
Singular Photonics
Photonics Scotland / Tech Scotland
SPIE Europe
STFC / Central Laser Facility
Thales
Thorlabs
University of Aston
University of Glasgow
University of Southampton
Wave photonics

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Jessica Dobson

Knowledge Transfer Manager

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Innovate UK Business Connect

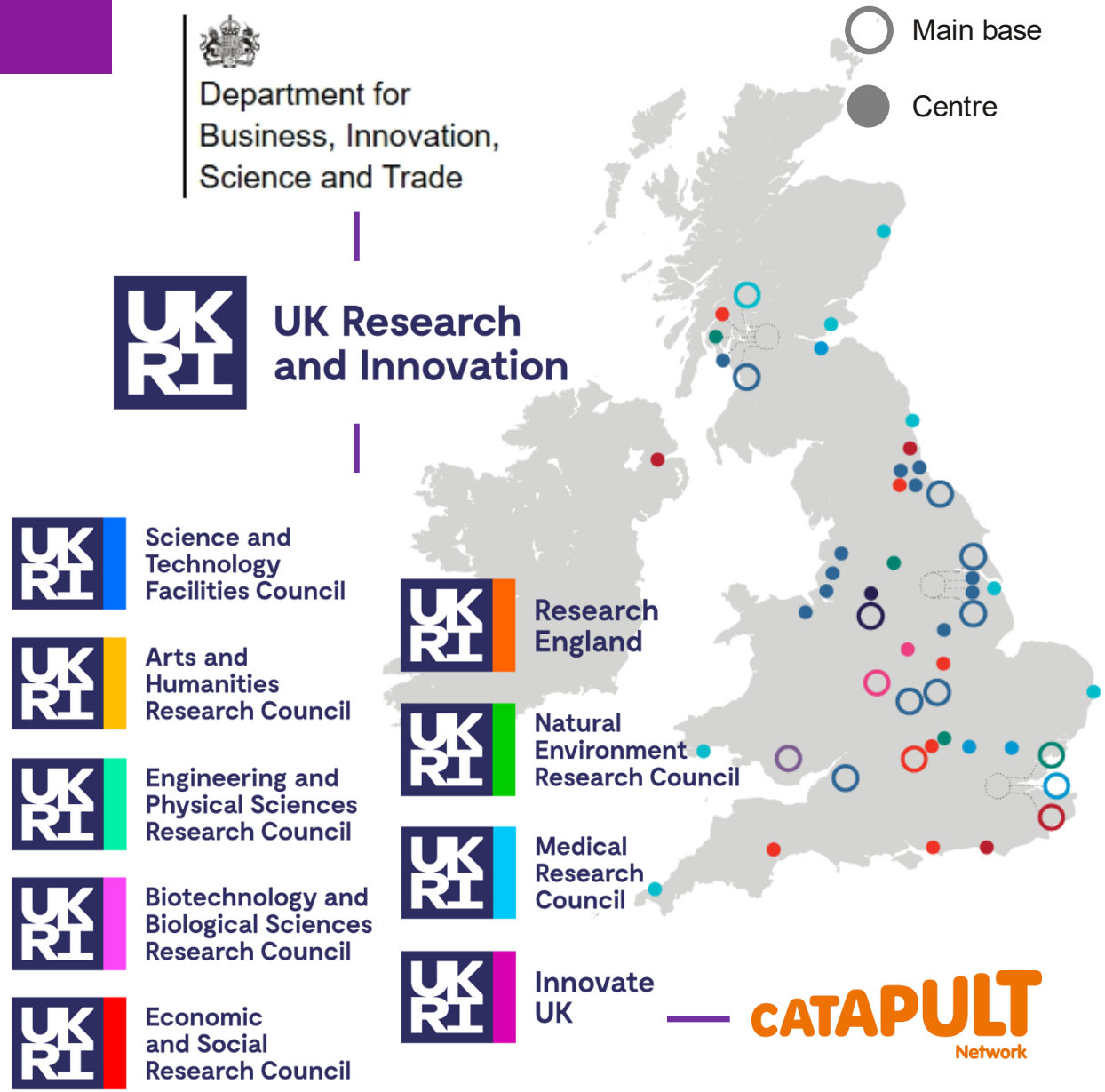
Accelerating innovation and delivering real-world impact

Innovate UK

- UK's Research & Innovation agency
- A key delivery body of HMG's R&I policies and strategies
- We support academic research and business-led innovation in all sectors, technologies and UK regions

Innovate UK mission

To help UK businesses grow through the development and commercialisation of new products, processes, and services, supported by an outstanding innovation ecosystem that is agile, inclusive, and easy to navigate



Innovate UK Business Connect

We are the home of the UK's innovation networks, connecting businesses, researchers, investors and partners to accelerate innovation.

As a strategic delivery partner to Innovate UK, part of UK Research and Innovation (UKRI), we combine data, insight and sector expertise to connect people and opportunities, helping ideas move from concept to scale.



UKRI Innovate UK | Business Connect

Our purpose, vision and mission

As a strategic delivery partner to Innovate UK

Purpose

Our purpose is to **accelerate UK innovation** by connecting people, and opportunities

Vision

Our vision is for a UK **where innovators are connected** to the people, opportunities and insights they need to take **breakthrough ideas through to global success**

Mission

Our mission is to build the trusted **connections, collaborations and intelligence** that **accelerate the growth, impact and reach** of UK innovators for UK advantage

UKRI Innovate UK | Business Connect

What we do

Ideas	Create	Grow	Scale	Supersize
Identify early ideas from across businesses, universities and other sources. Connect innovators to insight, guidance and relevant parts of the networks.	Bring together businesses, researchers and partners to develop and test ideas. Enable collaboration around shared challenges, technologies and opportunities.	Align insight and support to help businesses progress and reduce barriers. Support the development of capability, partnerships and routes to market.	Connect scaling businesses to investors, partners and new opportunities. Support adoption and wider diffusion of innovation across sectors.	Support businesses to expand impact globally and remain anchored in the UK. Feed insight back into the system to inform future priorities and programmes.

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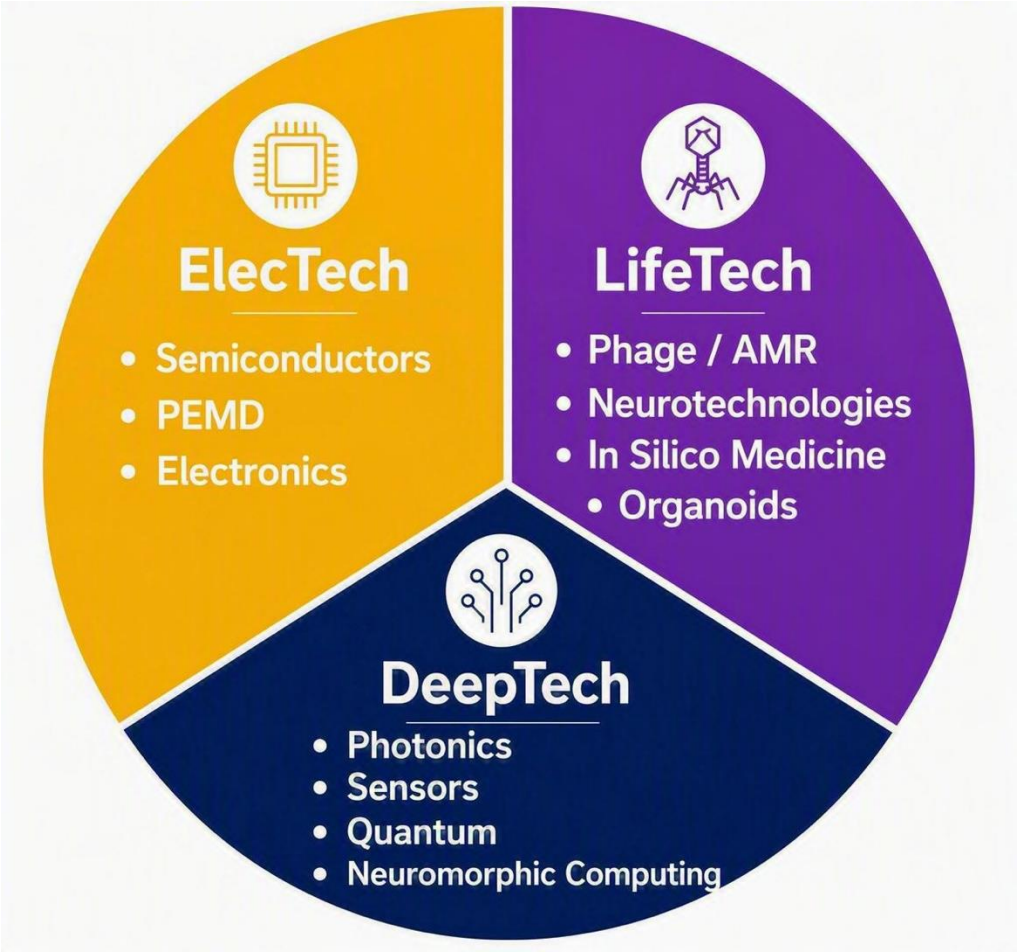
Emerging and Enabling Technologies Team

- Champion a broad range of technologies that represent a step change from the existing
- Stay at the forefront of innovation through horizon scanning
- Create space for emerging and enabling technologies to grow in the relevant ecosystems



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UK Modern Industrial Strategy - Digital and Technologies

The **UK's Modern Industrial Strategy** backs 8 Sectors (***aka IS-8***):

- Advanced Manufacturing
- Clean Energy Industries,
- Creative Industries,
- Defence,
- Digital and Technologies,
- Life Sciences
- Financial Services
- Professional & Business Services

Digital and Technologies Sector Plan *"frontier technologies":*

- *Advanced Connectivity Technologies*
- *AI*
- *Cyber Security*
- *Engineering Biology*
- *Quantum Technologies*
- *Semiconductors*







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Keep in touch

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Thank you!

Register to our Global Innovation network and join our community

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