



Chief Executive Officer

Compound Semiconductor Applications Catapult

Application Pack



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1. About the Compound Semiconductor Applications Catapult

The Compound Semiconductor Applications Catapult was established to help the UK become a global leader in compound semiconductors through collaboration with both large companies, and start-ups to develop and commercialise new applications utilising this technology.

Compound semiconductor devices have the potential to transform the world of technology in the 2020s as radically as the silicon transistor did in the 1960s and 1970s. In the fields of power electronics and radio frequency systems, compound semiconductor devices can enable product manufacturers to achieve dramatic improvements in performance, size, weight, cost and power. In photonics, compound semiconductors provide unique emitter and detector functions to enhance sensor capability.

Compound semiconductor technology has such potential that it has triggered a cascade of innovative developments at UK companies and research institutes. But the market for compound semiconductors is so new that the infrastructure, systems and processes for realising a concept in the form of a working prototype or a complete system board have not been readily available to UK companies.

The Compound Semiconductor Applications Catapult's purpose is to deliver long-term benefit to the UK economy and accelerate UK economic growth in industries where applying compound semiconductors creates a competitive advantage and enables new products or end markets. Compound semiconductors bring many advantages in size, weight and performance when used in systems. Typically, they have a much wider bandgap compared to silicon which allows devices to operate at much higher voltages, frequencies and temperatures to power the essential technologies of the future.

Our vision is for the UK to become a global leader in developing and commercialising new applications for compound semiconductors. How do we aim to do this? Through the knowledge and expertise of our talented team based at our world-class Innovation Centre, based at the heart of the compound semiconductor cluster in Newport, South Wales.

The Compound Semiconductor Applications Catapult is a company limited by guarantee. The Leadership Team manages day-to-day operations under the supervision and guidance of the board of directors.



Governance and Structure

The Compound Semiconductor Applications Catapult (CSAC) is part of a network of world-leading centres designed to transform the UK's capability for innovation and help drive future economic growth.

The Catapult has been established by Innovate UK to connect business and research. Each Catapult Centre specialises in different areas of technology, but all offer a space with facilities and expertise to enable businesses and researchers to collaboratively solve key problems and develop new products and services on a commercial scale.

Catapults exist to:

- Reduce the risk of innovation
- Accelerate the pace of innovation
- Capitalise on UK investments in academic research
- Create sustainable jobs and growth
- Develop the UK's skills and knowledge base and its global competitiveness

Funding

The Catapult receives a core grant, under a Grant Funding Agreement, from Innovate UK. Additionally, the Catapult secures funding through direct contracts with UK business, projects with UK and international companies, and from competitive Research and Development Grants.

Board composition

Kevin Crofton: Chair

The Catapult is chaired by Kevin T Crofton who is the President of SPTS Technologies Limited. He is also Corporate Executive Vice President of Orbotech Ltd. Previous to his positions at Orbotech (and SPTS), Mr Crofton held executive positions at Aviza Technologies, NEXX Systems, and Lam Research Corporation. Mr Crofton is on the Executive Board of SEMI, the industry association of the

semiconductor equipment and materials industry. Further, Kevin is the former Chair and now member of the Governing Council of the MEMS and Sensors Industry Group.

Jonathan Lyle: Non-Executive Director

Jonathan Lyle is a Fellow of the Royal Academy of Engineering and the Institution of Engineering and Technology. He held a number of senior roles in the Ministry of Defence, including as Chief Executive of the Defence Science and Technology Laboratory (Dstl) – a government agency which works closely with companies and universities to harness innovative science and technology for the defence and security of the UK.

Stephen Duffy: Non-Executive Director

Stephen has around twenty years' experience in technical, operations and business development roles within the Semiconductor and Photonics industry. Stephen currently serves as Chief Executive Officer at Optocap Ltd, a technology company offering package design and assembly services for a wide range of optoelectronic and microelectronic devices. Stephen was co-owner of Optocap Ltd for several years following a successful Management Buy-Out (MBO) from previous owners, Scottish Enterprise and was co-owner and executive director at the time of the multi-million pound trade sale of Optocap Ltd to the German multi-national TUV NORD. He now sits on the Executive Management Committee of TUV NORD Aerospace Business Unit. He has been an expert evaluator the European Commission for a number of Horizon 2020 R&D projects for semiconductors and photonics and was a previous member of the European Space Agency working group for Hybrid and Packaging of semiconductor devices. Stephen has co-authored a number of technical papers on compound semiconductors and photonics and is the author of several trade-articles on semiconductor packaging. Stephen holds BSc Hons in Laser Physics and Optoelectronics from University of Strathclyde.

Trevor Cross: Non-Executive Director

As the Chief Technology officer of Teledyne e2v, Prof.Trevor Cross brings over 30 years of technology, product innovation and commercial experience to the Catapult, which includes over ten years spent at plc board level as Technical Director. Dr Cross played a pivotal role in e2v's university engagement programs and today leads the company's growing Quantum Technologies activity. His experience in committee roles include council membership of the former Particle Physics and Astronomy Research Council, Chair of the Electronics, Sensors and

Photonics KTN, and he currently chairs Innovate UK's Special Interest Group in Quantum Technologies.

Dr Wyn Meredith: Non-Executive Director

Dr Wyn Meredith is director of the Compound Semiconductor Centre, a new Joint Venture between IQE Plc and Cardiff University, focussed on technology translation of research and design in compound semiconductor materials and devices. Dr Meredith is also an expert advisor to the UKs Engineering and Physical Sciences Research Council, Cardiff University Department of Physics, The UK National III-V Centre, and provides executive level advisory services to numerous SMEs in the field of semiconductor technology.

Angela Noon: Non-Executive Director

Angela Noon is CFO of Siemens UK and Ireland and joined the Catapult board in January 2019 to lend her expertise to the audit and risk committee. Her experience is invaluable in ensuring that all appropriate governance and compliance is followed within the Catapult. Her support is pivotal to the next stage of the implementation of our strategy, the growth of the Catapult and driving innovation in the compound semiconductor sector.

Rob Bryan: Senior Independent Non-Executive Director

Rob is a solicitor with vast experience in the publicly-funded STEM space and runs the only legal practice dedicated to STEM. He has held senior in-house roles with major PLC's, GEC and Courtaulds Textiles. His work on behalf of learned societies, including the Royal Society, The Royal Academy of Engineering and the Physiological Society have caused him to advise on some of the more high-profile issues that challenge STEM organisations. He is a qualified Chartered Company Secretary as well as Solicitor and is also a Non-Executive Director of the Open Data Institute. Rob is a visiting lecturer in Technology Management and Protection at Warwick University and has worked on two intellectual property cases that were successful in the House of Lords.

2 About Catapult Centres

The Catapult Centres are a network of world-leading centres designed to transform the UK's capability for innovation and help drive future economic growth. The centres provide a physical place where the very best of the UK's businesses, scientists and engineers work side-by-side on translational research and development. The overall objective of the Catapults is to transform high potential ideas into new products and services to generate economic growth.

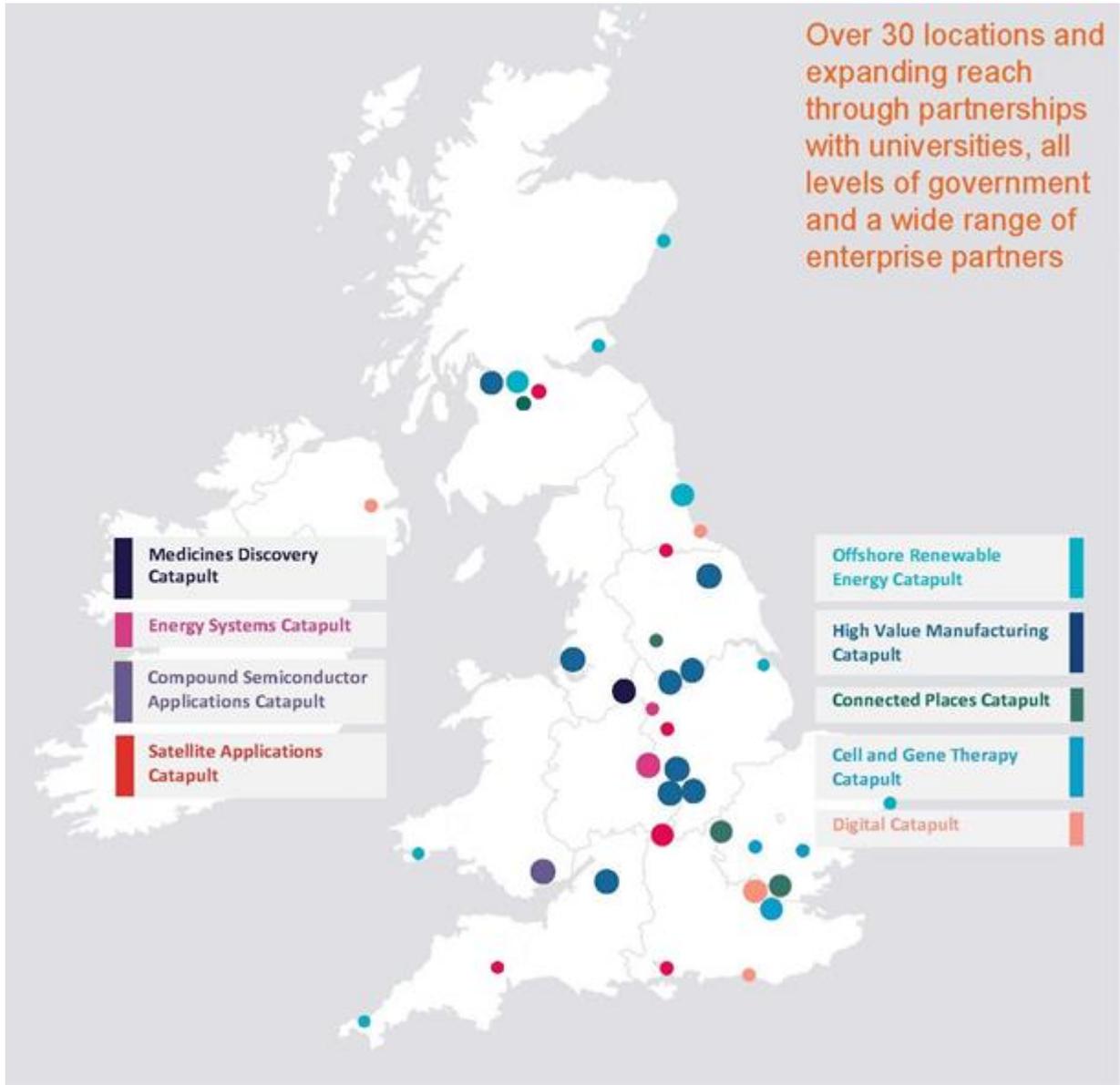
The Catapult network has been established by Innovate UK to connect business and research. Each Catapult Centre specialises in a different area of technology, but all offer a space with the facilities and expertise to enable businesses and researchers to collaboratively solve key problems and develop new products and services on a commercial scale.

Catapults exist to:

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Each Catapult focuses on an area in which the UK has genuine potential to generate growth in strategically important global markets. There are currently nine Catapults: High-Value Manufacturing Catapult, Offshore Renewable Energy Catapult, Energy Systems Catapult, Connected Places Catapult, Satellite Applications Catapult, Medicines Discovery Catapult, Cell and Gene Therapy Catapult, Digital Catapult.

Over 30 locations and expanding reach through partnerships with universities, all levels of government and a wide range of enterprise partners



3. About Semiconductors

Modern electronic products, from computers to smart phones, use silicon chips at their heart. As the name suggests, these chips are made from silicon, which is a highly abundant element found in sand

With a single element, it is possible to scale-up the manufacturing process to make highly complex silicon chips in large volumes, and hence 80% of the world's semiconductors use silicon. The remaining 20% use compound semiconductors, which combine two or more elements from the periodic table to form a compound.

Although compound semiconductors are more complex to manufacture than silicon, they possess 3 properties that outperform silicon:

Power (power electronics for electric vehicles)

Speed (radio frequency for 5G and RADAR)

Light (photonics for optical fibre communications)

The Catapult has aligned these three properties with three matching technical divisions, supported by Advanced Packaging. Those are **Power Electronics, Photonics and RF & Microwave**.

There are many ways of combining two or more elements from the periodic table, which creates a wide variety of semiconductor materials, each with unique properties. Their unique properties mean that compound semiconductors are finding increasingly diverse applications, such as **Electric vehicles** and **5G**.

Market Applications

Compound semiconductors are currently being deployed across a rapidly growing number of applications and here at CSA Catapult we are the forefront of these developments. These include:

Transportation

Electric and hybrid-electric vehicle motors and chargers

Auxiliary electric motors in conventional aircraft

Novel electric propulsion technologies for aircraft

RADAR for ADAS and autonomous vehicles

LIDAR for autonomous vehicles

Clean Energy

In the area of clean energy, Wide Band Gap technology can reduce energy conversion losses by up to 90%. Here at CSA Catapult we are the forefront of these developments. CS is fundamental in the generation of renewable energy and with high efficiency will significantly reduce the loss of energy in the process.

Wide Band Gap technology can reduce energy conversion losses by up to 90%

Solar power system inverters and micro-inverters

Inverters in wind turbines

High-efficiency power distribution

Power conversion and distribution in emerging renewable generation technologies

Digital Communications

The challenges in digital communications lie in solving 5G, implementing vehicle to vehicle communication and in satellite communications from ground stations to low earth orbit satellites.

Defence and Space

Defence and security applications bring a set of requirements for harsh environments, temperature range, and reliability considerations that can be addressed with compound semiconductors leveraging our expertise in advanced packaging and harsh environmental and reliability testing.

4. Projects

A selection of our exciting innovative projects are:

SPLICE (Single Photon LiDAR Imaging of Carbon Emissions)

SPLICE assembles a world-leading scientific and industrial consortium to develop and industrialise gas imagers based on time-correlated single photon counting. This is one of the early applications of quantum technology.

Strength in Places Fund

Developing a global advantage in a sovereign, key enabling technology which will allow the UK to increase trade globally in critical sectors such as communications, 5G, autonomous and electric vehicles and medical devices.

High-T Hall Sensor Platform

Developing a supply chain for high-temperature operation Hall sensors which can sense high-frequency switching for electric motors and drives, using an innovative Hall graphene sensor.

SNORQL

Space-certified Nonlinear Optical Rugged Quantum Lasers.

AirQAD

AirQKD will address quantum-secure last-mile connectivity and build a demonstrator for a metropolitan-scale free-space optical (FSO) QKD network.

Additional information about our projects can be found at:
<https://csa.catapult.org.uk/project-snapshots/>

5. Role Specification

It is essential that in your application you address as many of the criteria in the specification as you can. These criteria will be explored further in screening conversations.

The Compound Semiconductor Applications Catapult is seeking an inspirational and dynamic Chief Executive Officer to lead the Company as a fully sustainable and operating business, providing long-term support to help grow UK businesses within the sector.

We are looking for a high-calibre individual with a track record of running a business delivering R&D activities in electronics and related services, with the gravitas and diplomacy to communicate effectively with industry leaders, government, SMEs and academics, within the United Kingdom and internationally.

The CEO must be a visionary leader who can inspire a team of highly qualified and intelligent employees to deliver truly innovative solutions that help to foster, grow and scale companies in the UK.

As an 'intermediary' organisation with interfaces to the research base and business and operating as a not-for-profit company with support from Government, we are interested in individuals who have experience of working across these sectors.

KEY RESPONSIBILITIES AND ACTIVITIES

The CEO will be responsible for developing and delivering a 5-year strategy agreed with the Board, Innovate UK, Government and key stakeholders.

The CEO will report directly to the Chair of the Board and lead the Leadership Team. The Leadership Team (with approval and delegation from the Board) take the major decisions on resourcing and budgeting, executing the business strategy and operational direction of the organisation. The CEO is the key leadership position for the organisation, and sets the standard for behaviour and professionalism, provides visionary leadership that inspires others to deliver to standards of excellence, builds and maintains a culture of trust and mutual responsibility across the organisation, as well as ensuring we maintain highly engaged workforce.

The CEO will be accountable for performance across the following key areas:

THOUGHT LEADERSHIP AND COMMUNICATION

Positioning the Compound Semiconductor Applications Catapult and its Innovation Centre as the global cutting-edge research facility for compound semiconductor applications, complementing other facilities within the South Wales cluster and across the UK; providing direction to the organization and influencing practice on a national and international scale.

Establish a global reputation for the organization through overseeing communications and directly influencing decision-makers through speeches, presentations and other appropriate media.

STRATEGY SETTING

Develop and implement a strategy to drive business growth in the UK, making sure there are rigorous delivery plans in place, and that all parts of the organisation understand their responsibilities for delivery, and are motivated to work towards ensuring the strategy is achieved.

Provide strategic leadership and direction for the industry, and developing supporting organizational themes and research packages, in consultation with the Leadership Team, the Board and other key internal and external stakeholders.

Lead periodic refreshes of the strategy, the production of the annual delivery plan, and ensure evaluation, reporting and learnings are embedded.

PARTNERSHIP-BUILDING AND STAKEHOLDER MANAGEMENT

Build relationships with delivery partners in business, academia and other Catapults. This will mean operating at the highest levels and maintaining good senior relationships.

Maintain good relationships with Innovate UK and across central Government to ensure the Catapult is the delivery partner of choice.

Work with international research facilities where appropriate, particularly in support of UK exports. This aspect of the role will require commitment to overseas travel which could be one international trip per quarter.

BUSINESS DEVELOPMENT

Support the Leadership Team to identify target markets, clients and the development of value packages and propositions. Identify new avenues to market with a view of expanding the Catapult's reach within its targeted markets.

Develop relationships with both large businesses and SMEs, helping them to translate their ideas into commercial success, and providing support to access finance for growth.

Personally support business development in scoping and winning major projects.

PROJECTS AND PROGRAMMES DELIVERY

In collaboration with the Leadership Team, ensure the effective management and delivery of quality projects to build an international reputation.

PEOPLE MANAGEMENT

Inspire, motivate and consolidate a high-performing Leadership Team, ensuring each has the delegated authority and responsibility to deliver their objectives and ensure the Catapult meets its strategic outcomes.

Be an inspirational leader to the organisation, motivating employees to deliver and grow to their full potential, ensuring high levels of employee engagement and productivity.

GOVERNANCE AND ACCOUNTABILITY

- Overall operational accountability for the financial performance of Compound Semiconductor Applications Catapult
- Work closely and constructively with the Chair and the Board, discharge all requirements of a limited company
- Ensure reporting to Innovate UK in accordance with the Grant Funding Agreement and to other major project funders

Person specification

The Chief Executive Officer is the key leadership role for Compound Semiconductor Applications Catapult and is responsible for the good governance and operations of the organisation. The CEO must be a confident and accomplished leader, highly respected within industry, government and academia, with the vision, energy, personality and skills required to set the direction, maintain the course, and motivate the leadership team.

- A visionary and inspirational leader
- A negotiator and relationship builder with a track record of delivering success through collaboration across industry
- Entrepreneurial and a deal-maker, with the commercial ability to drive opportunities from complex, emerging markets
- Experience of developing electronic and photonic solutions within multiple sectors including healthcare, the digital economy, energy, transport, defence and security, and space
- Experience of working with SMEs, large companies, academia and government agencies
- Confident of operating in a changing environment and capable of defining a path forward which may need to evolve as circumstances require
- A strategic thinker able to see the big picture
- Persistent and high levels of accountability and responsibility
- Able to identify, communicate, and drive the development of new ideas
- Able to work constructively with the Chair and non-executive directors of the Board
- High-level communication skills with ability to communicate effectively with a diverse range of stakeholders (ranging from civil servants, academics to SME's)

Skills and experience

- Extensive, proven experience of working at a senior level in the electronics and/or compound semiconductor industries

- Previous experience managing a multi-functional team of professionals with demonstrable capability to deliver in complex environments.
- Extensive track record in a project-led environment including project delivery, commercial development, portfolio management and resourcing
- Experience of running multiple projects from diverse sources of funding, national or international, public or private
- Experience of working with Board level stakeholders and running Board level presentations
- Ability to build, guide and motivate the Leadership Team

6. Timetable

Applicants should note the key dates when you may be required to submit information and/or participate in assessment, subject to progression at each stage.

- Closing date for applications is 23rd November
- Screening conversations and Psychometric Testing will take place prior to Final Panel
- Final Panel interviews will take place in the week commencing 7th December

The dates given are indicative and subject to change.

Zoom, Telephone, video conference and Skype facilities are also available if necessary.

7. How to Apply

For an information pack and an informal and confidential conversation, visit www.bd-search.co.uk or call our advising consultants to schedule a conversation:

- Baljit Dhadda on 020 3906 7776 or 07736 880699 or Peter Ward on 07711 058871.

To submit your application details email Baljit.Dhadda@bd-search.co.uk or via the portal www.bd-search.co.uk/opportunities

You will be required to submit:

- A CV
- A brief supporting statement that provides evidence of the competencies outlined in the Person Specification.
- You will also be asked to complete an Equal Opportunities Monitoring Form which can be found at www.bd-search.co.uk or from Jo Phillips at Jo.Phillips@bd-search.co.uk
- You will be asked to submit a Declaration of Interests

Reasonable expenses for unavoidable travel expenses about attending interviews will be reimbursed.

Diversity policy

The Compound Semiconductor Applications Catapult is committed to providing equal opportunities for all, irrespective of race, age, disability, gender, marital status, religion, sexual orientation, transgender and working patterns.

This appointment will be conducted in line with principles of merit, fairness and openness.

Confidentiality and Data Protection

We are required to process confidential data as part of the recruitment process. All data is stored on a secure database and is fully compliant with General Data Protection Regulations. Please contact Baljit Dhadda at Baljit.Dhadda@bd-search.co.uk if you have any confidentiality concerns.

Identity and Reference checks

All candidates will be asked to provide proof of identity (copy of passport). Referencing checks will be carried out before formal offer is made.

