

# Annual report 2023–24



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# About us

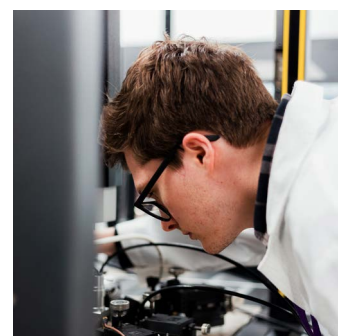
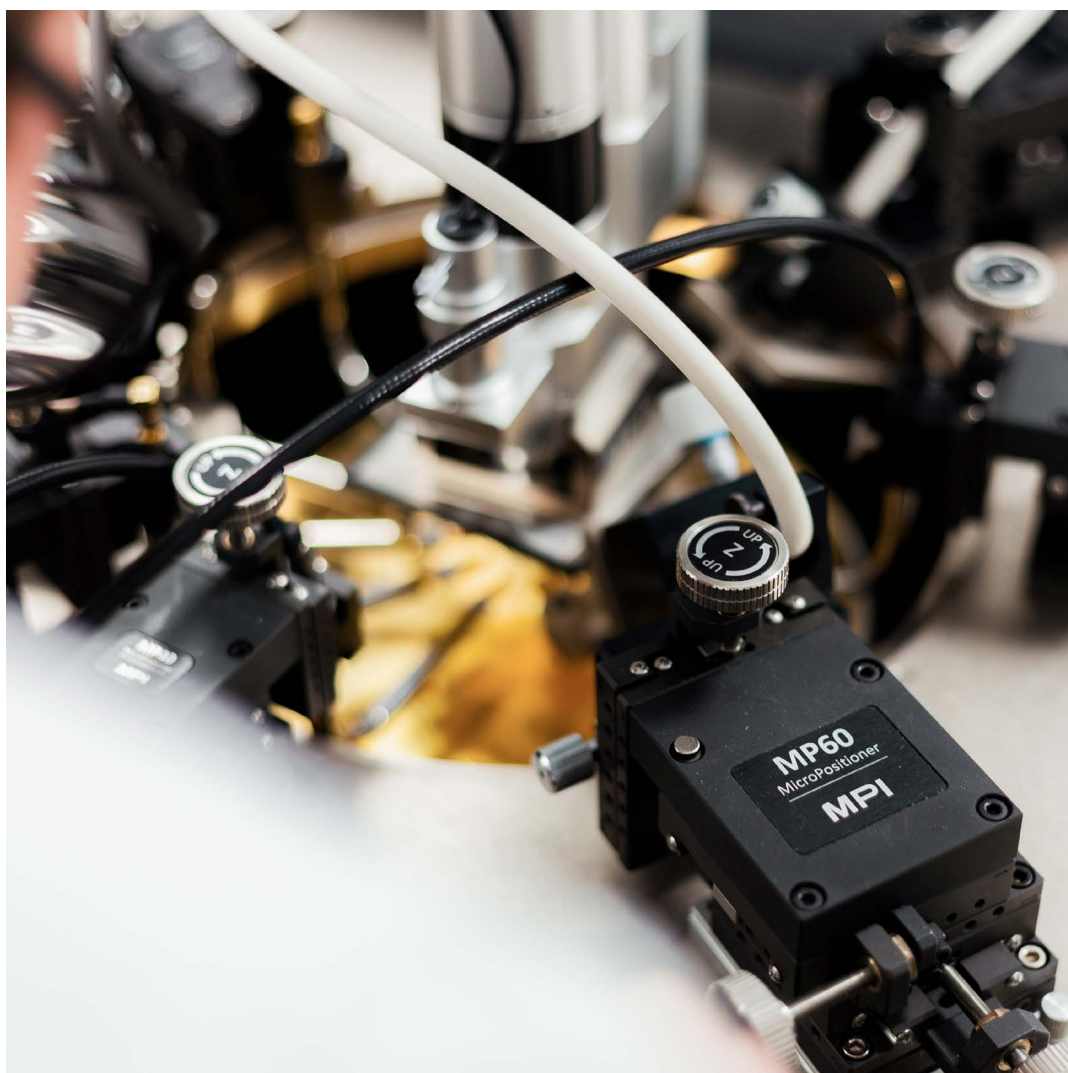
**Compound Semiconductor Applications (CSA) Catapult is the UK's authority on compound semiconductor applications and commercialisation.**

## About us

**We work with start-ups, SMEs, large organisations and academia to de-risk commercialisation, eliminate barriers to market and accelerate compound semiconductor technologies.**

Our state-of-the-art facilities are home to a world-leading team of experts with significant know-how, experience and track records in developing and commercialising compound semiconductor technologies and applications.

We're a trusted neutral convener focused on two key markets: Net Zero and Future Telecoms.



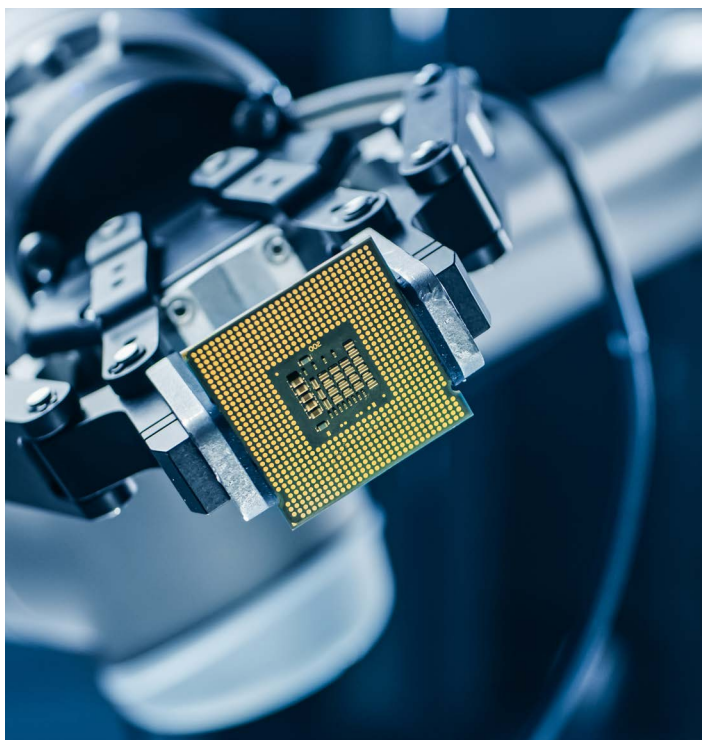
# About us

## Our vision

Our vision is for the UK to become a global leader in developing and commercialising new applications for compound semiconductors.

## Our purpose

Our 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.



## The industries we support

Aerospace

Defence

Energy

Telecoms

Transportation

Space

## Our areas of expertise

Advanced packaging

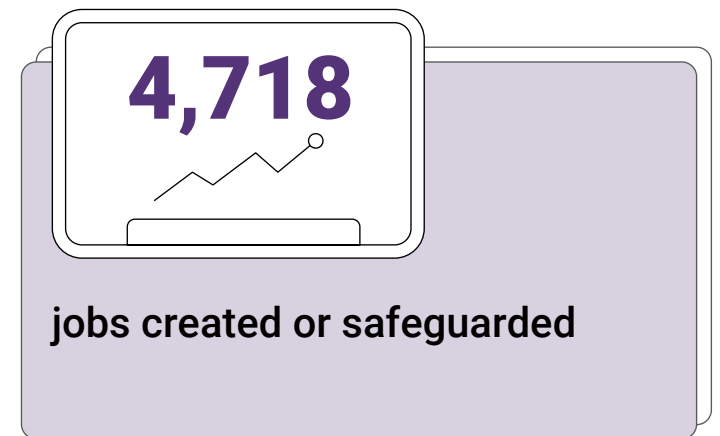
Photonics and quantum

Power electronics

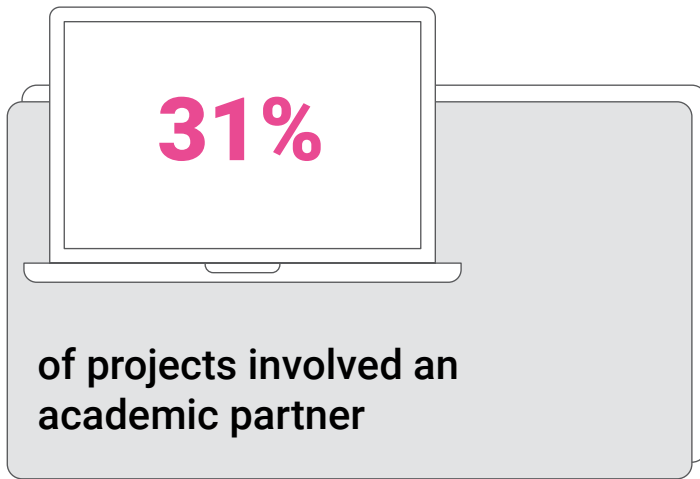
Radio frequency (RF) and  
microwave communications

# Our impact

Since 2018, we have delivered:



# Our impact



**During the summer, we surveyed our customers to understand our impact, with the following key findings:**

**97%**

said they would work with us again

**88%**

said they have been able to target new markets

**85%**

said that they could not have progressed new developments, or it would have taken longer or cost more, if they had not worked with us

**78%**

said they have stronger links internationally

**57%**

secured private funding as a direct consequence of working with us

**97%**

said they have developed new partnerships

**43%**

secured public funding as a direct consequence of working with us

**85%**

have attracted greater investment for compound semiconductors



We also examined the impact that working with CSA Catapult has on SMEs' ability to attract private and public sector funding. We compared results with a counterfactual group of SMEs who have not worked with us.

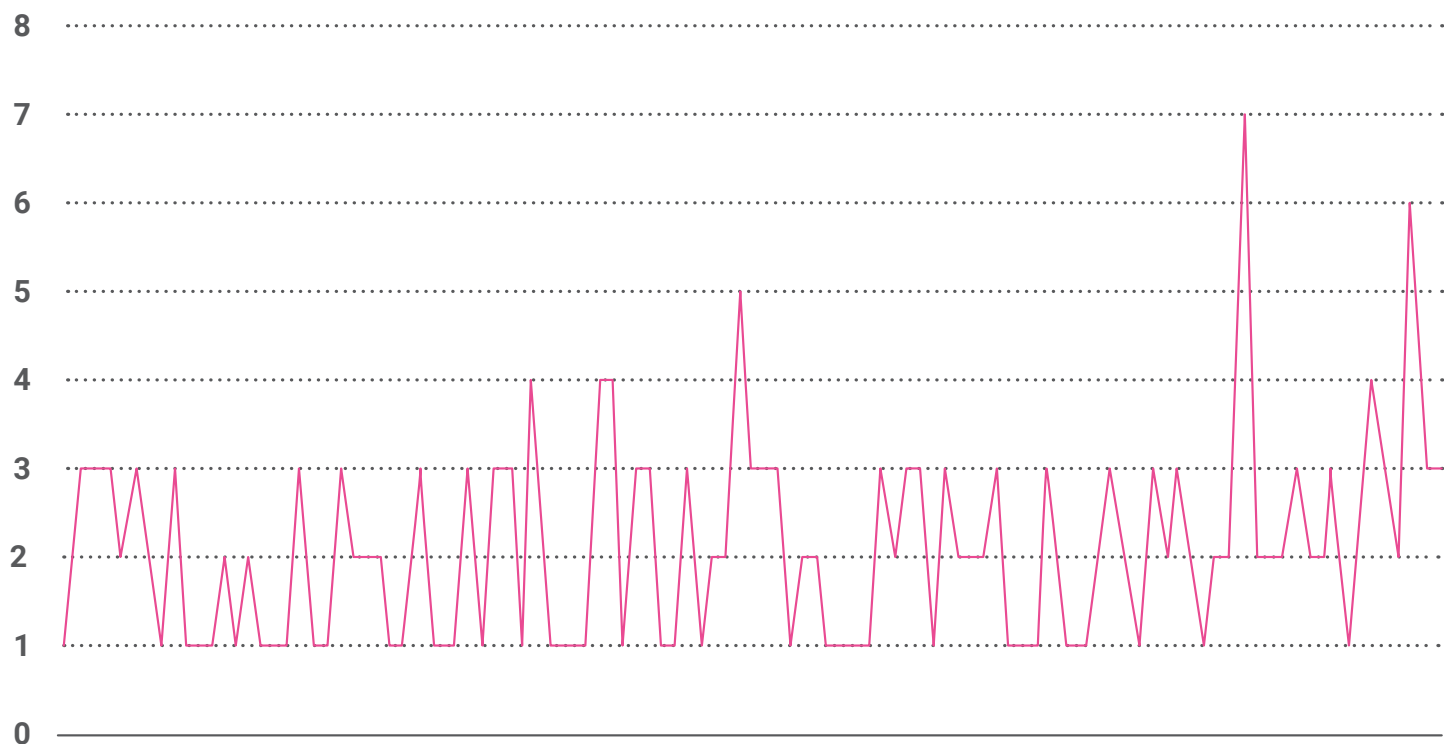
On average, since engaging with CSA Catapult, companies leveraged **£82.9m of annual private investment** and **£33.7m of annual public sector investment**. This is significant when compared to the counterfactual group, who averaged £17.6m of annual private investment and £9.3m of public sector investment.

	Total average annual private sector funding	Total average annual public sector funding
SMEs we have worked with	<b>£82.9m</b>	<b>£33.7m</b>
SMEs we have NOT worked with	<b>£17.6m</b>	<b>£9.3m</b>
	% who secured private sector funding	% who secured public sector funding
SMEs we have worked with	<b>69%</b>	<b>61%</b>
SMEs we have NOT worked with	<b>24%</b>	<b>24%</b>

We also assess the increase in Technology Readiness Levels (TRL) achieved by our projects. TRL are a type of measurement system used to assess the maturity level of a particular technology, ranging from 1 (basic principles) to 9 (actual proven system and operational).

Our results show that we typically help companies advance their TRL by one to three levels, helping more products to commercialisation.

## TRL levels increased



## Statement from Chair of the Board

### It is a great privilege to have been asked to Chair the Compound Semiconductor Applications Catapult in May this year.

I am greatly looking forward to being part of the project to improve the UK's economic performance, resilience and sustainability through the application of compound semiconductors.

In 2023–24, CSA Catapult continued to deliver economic impact for the UK economy. It has created new jobs, built new UK supply chains and is contributing to the development of next-generation electric vehicles, Future Telecoms infrastructure and quantum technology.

The Catapult has continued to deliver its strategy of building technology centres of excellence, supply chains and skills, supporting clusters and becoming more financially sustainable through commercialisation.

This year, we published our first impact evaluation report which, for the first time, showed the economic impact the Catapult is delivering for the UK. Job creation and an increase to gross value added (GVA) were highlighted as examples of the Catapult's success. The report outlined how the Catapult has a strong and clear strategic direction, particularly in two focused markets: Net Zero and Future Telecoms.

The report highlighted increased investment for companies that have engaged with the Catapult. Those companies have collectively secured, on average, annual private investment of £107m and £11m of annual public sector investment.

The report also highlighted CSA Catapult's success in helping UK industries translate fundamental research into commercially ready products. Between 2018 and 2023, three-quarters of projects supported by CSA Catapult delivered improved technology maturity as shown by an increase in their Technology Readiness Level.

In November 2023, with the support and investment of £6.5m from Innovate UK, we



officially opened the Future Telecoms Hub at the Bristol and Bath Science Park. The Hub will allow us to deepen and accelerate our expertise by building technology platforms and ecosystems for telecoms hardware in line with the UK government plans for telecoms diversification. The Hub formed part of our continued regional expansion to drive economic growth supporting compound semiconductor clusters and supply chains in Bristol, Scotland and the Northeast.

I would like to thank our previous Chair, Rob Bryan, who left the board in September 2024, for his huge contribution and commitment to the Catapult.

I would also like to thank the Catapult's CEO, Martin McHugh, for his invaluable help introducing me to our Catapult and to the wider UK Catapult Network. Martin has announced he will be stepping down next year and I wish him all the very best for his retirement. I am currently working with the rest of our board to find a successor for the CEO role.

Finally, I would like to thank the leadership team and my fellow board members for the warm welcome to the Catapult and to thank all the CSA Catapult staff for successfully delivering the strategy this year.

**Jonathan Flint**  
**Chair of the Board**

November 2024

## Statement from Chief Executive Officer

### **This financial year has been one of reflection and expansion.**

In July 2023, we celebrated CSA Catapult's five-year anniversary. This significant milestone gave us an opportunity to look back on our many achievements and look ahead to the next five years for the company.

From humble beginnings with a handful of staff and a small office in Cardiff Bay, we are now a flourishing organisation with nearly 100 employees and state-of-the-art laboratories and facilities across the UK.

During this time, we have taken part in 79 collaborative R&D projects and secured £11.2m of funding for these projects. We have instigated 261 industrial collaborations and helped create or safeguard 4,718 jobs, which was confirmed by research that began in this financial year by the Welsh Economy Unit at Cardiff University. Our customers have secured £589m of direct public and private investment.

In such a short space of time, we have firmly established ourselves as the UK's authority on compound semiconductor applications and commercialisation.

As a trusted neutral convener, we are bringing organisations together to create new supply chains and strengthen the UK's position on the world stage.

Nowhere has this been more evident than on the ESCAPE project, which ended this year.

ESCAPE was the Catapult's first significant collaborative R&D project and laid the foundations for many of our successes to date.



Together with lead partner McLaren Applied and the ten other project partners, we have helped to successfully establish the UK's first complete end-to-end supply chain for silicon carbide power electronics.

In addition to this, we've helped develop state-of-the-art converter and inverter technologies for the transportation sector, which has created new jobs, led to new collaborative R&D projects and secured significant investment for the South Wales region.

Looking further afield, 2023 saw us officially open and move into our new offices and laboratories in Bristol, Durham and Glasgow. I am very proud that the Catapult can support these key clusters across the UK.

Our expansion into these areas will allow us to deliver on our strategic aim of supporting regional clusters of strength in the industries that we support. We will help develop new technologies, build connections and collaborations, create new jobs and stimulate regional growth with a range of interventions we have planned for each region.

I was delighted to be joined by Sir John Whittingdale MP, Minister for Data and Digital Infrastructure, for the official opening of our Future Telecoms Hub in Bristol in November.

The Future Telecoms Hub will firmly establish ourselves in a region with significant strength and expertise in semiconductor technologies.

With the support of a further £4m of funding from Innovate UK, we will be working closely with academic partners at our Bristol facility to develop cutting-edge technologies in RF and microwave communications, photonics and quantum.

This is part of our wider efforts to provide the UK with a resilient and energy-efficient telecoms network for the future.

In May 2023, the UK government published its National Semiconductor Strategy and laid out a strategic vision for the future of our industry. CSA Catapult played an influential role in shaping the strategy and we were pleased that the Secretary of State, Chloe Smith MP, chose to launch the strategy at our Innovation Centre in Newport.

It was extremely pleasing to see compound semiconductors at the front and centre of the strategy and for the UK government to focus its efforts and investment on areas in which we are truly world leading.

It is imperative that we equip the next generation of scientists and engineers with the necessary skills to take our future technologies forward.

The work of our Skills Academy has continued at pace this year as we've attended outreach events across the UK, welcomed another cohort of interns to our Innovation Centre and kickstarted a critical project, funded by Innovate UK, to increase the number of children in Wales studying electronics and electrical engineering degrees.

CSA Catapult continues to be an innovative, inspiring and friendly environment for our employees, as demonstrated by our 'Great Place to Work' status, which we were awarded for the third consecutive year.

In 2024, I announced that I would be retiring at the beginning of 2025 and stepping down as CEO of CSA Catapult. It has been an honour and privilege to lead the Catapult and to be part of our journey from fledgling start-up to the successful organisation we are today.

I would like to thank everyone for their continued commitment over the time I have spent as CEO, in helping us to deliver on our vision and purpose in support of the UK compound semiconductor industry.

**Martin McHugh**  
**Chief Executive Officer**

November 2024

## Highlights from the year

April 2023

### Showcasing compound semiconductor technologies to investors

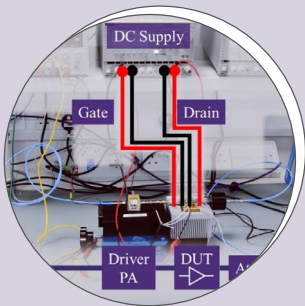
In April this year, CSA Catapult brought together start-ups, SMEs and investors at an investment workshop in London. The event gave industry an opportunity to showcase its latest compound semiconductor innovations and technologies to investors.



April 2023

### GaN power amplifier developed for next-gen communications

A high-performing gallium nitride (GaN) power amplifier was developed by a team of engineers from CSA Catapult and Cardiff University. The demonstration was an important step towards developing GaN power amplifiers for broadband satellite communication applications such as video streaming, IoT and 5G communications.



May 2023

### UK government publishes National Semiconductor Strategy

In May this year, the UK government published and launched its National Semiconductor Strategy at CSA Catapult's Innovation Centre in Newport. The strategy sets out a vision for the UK to become a global leader in semiconductor technology. Commenting on the strategy, CSA Catapult CEO Martin McHugh commended the government's focus on areas of UK strength, such as compound semiconductors and advanced packaging.

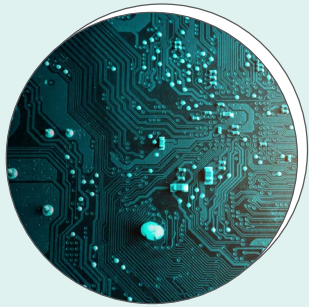


## Highlights from the year

May 2023

### **CSA Catapult joins consortium to deliver feasibility study for UK government**

As part of the UK government's National Semiconductor Strategy, CSA Catapult joined a consortium of organisations to undertake a feasibility study to understand the technical and economic feasibility of developing specific semiconductor capabilities to grow the UK industry.



June 2023

### **Space Enterprise Lab opens at CSA Catapult**

The latest addition to the Satellite Applications Catapult's network of Space Enterprise Labs (SEL) opened at CSA Catapult's Innovation Centre in June this year. The SEL is a free and open access facility for companies involved in the space industry to meet, network and collaborate using state-of-the-art conferencing technology.



## Highlights from the year

July 2023

### CSA Catapult expands across the UK

In July this year, CSA Catapult officially announced the expansion of its activities across the UK through the opening of offices and labs in Bristol, Durham and Glasgow. The expansion is part of CSA Catapult's purpose to provide long-term benefit to the whole of the UK and will enable the Catapult to support more companies, build new supply chains and help bring new technologies to market quicker.



August 2023

### Innovate UK CEO visits CSA Catapult

CEO of Innovate UK Indro Mukerjee visited CSA Catapult's Innovation Centre in August this year to see some of the innovative and cutting-edge projects that CSA Catapult is currently working on with UK industry. Commenting on the visit, Indro acknowledged CSA Catapult as a "key part of the innovation ecosystem".



November 2023

### CSA Catapult welcomes first Researchers in Residence

In November this year, CSA Catapult welcomed its first cohort of Researchers in Residence to the Innovation Centre in Newport. The Researchers in Residence scheme encourages engagement within academia and allows researchers to work alongside the Catapult Network on key technologies that address global challenges.





## Highlights from the year

November 2023

### CSA Catapult hosts skills event in the North East

As part of the ORanGaN project, CSA Catapult co-hosted a skills event in Durham in November aimed at showcasing the pathways into a career in electronics and electric engineering. The event was attended by local businesses, career advisors and students.



December 2023

### CSA Catapult achieves 'Great Place to Work' status

CSA Catapult was once again certified as a 'Great Place to Work' in December this year. This was the third consecutive year that the Catapult was awarded this status. The certification recognises employers who create an outstanding employee experience.



November 2023

### Future Telecoms Hub officially opens

In November this year, CSA Catapult officially opened its Future Telecoms Hub in Bristol. The Hub was opened by the Minister for Data and Digital Infrastructure, Sir John Whittingdale MP, who announced a further £4m of funding for the facility to help deliver a resilient and energy efficient future telecoms network for the UK.



February 2024

### CSA Catapult's impact outlined in independent report

An independent report showed that CSA Catapult has made significant achievements since its inception in 2018, despite facing many challenges brought about by the Covid-19 pandemic. The report commended CSA Catapult for its many achievements in such a short space of time, including the creation of world-leading facilities despite the logistical challenges of the pandemic.



## Future Telecoms

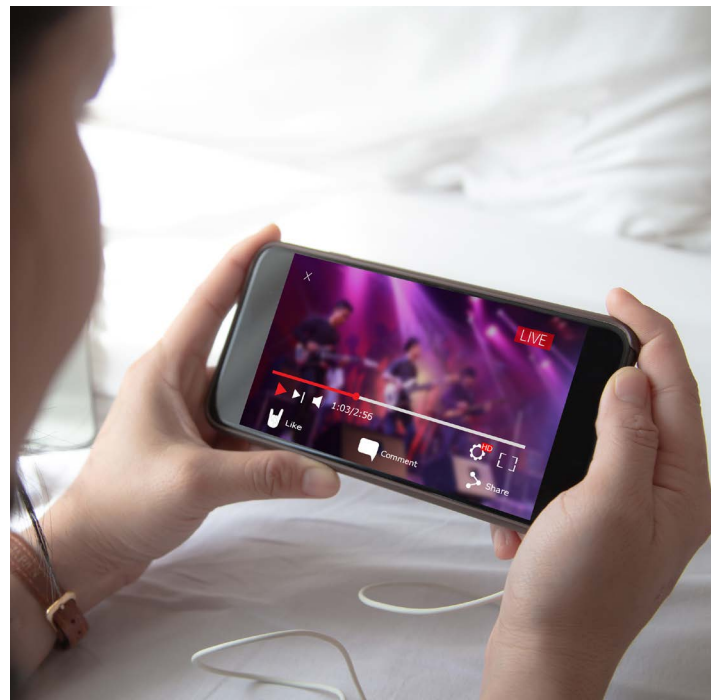
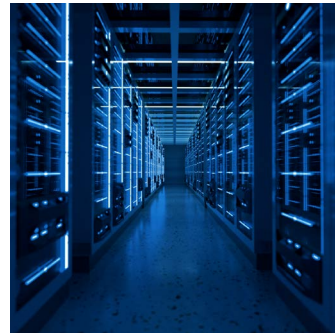
**From remote working to HD streaming and online banking, our lives are completely reliant on the high-speed transfer of data from one place to another.**

Over the past decade, 5G technology has transformed the way we operate, allowing us to connect, thrive and explore in new and innovative ways.

As we look beyond 5G, the development of technologies such as artificial intelligence, personalised healthcare and autonomous vehicles will require a significant upgrade to our telecommunications networks.

Compound semiconductors will be central to this network, providing a resilient, secure and energy-efficient base from which data can be exchanged at lightning-fast speeds with no delays.

Future Telecoms is a market in which the UK has significant capacity and is expected to grow considerably in the next decade.



## Future Telecoms

### Case study:

### ORanGaN: Establishing a UK sovereign supply chain for 5G devices

#### **Compound semiconductors such as gallium nitride (GaN) are in high demand for the development of new 5G communication devices.**

GaN offers superior efficiency and performance compared to traditional silicon semiconductor technology.

Monolithic Microwave Integrated Circuit (MMIC) chips are a key 5G component and help boost signals before they are transmitted from a base station to our smartphones and computers.

Radio frequency (RF) power amplifiers present one of the biggest market opportunities across the 5G network, with the global market set to grow to \$9 bn by 2025.

Devices built using compound semiconductors – specifically gallium nitride (GaN) – are expected to occupy 25–35% of that addressable market, with a value of between \$2.5 bn and \$2.7 bn.

#### **The challenge**

Currently, there are no commercial RF-GaN devices fully developed and manufactured in the UK that can be used in 5G applications.

The supply chain is dominated by US and Asian suppliers, which creates supply chain risks from logistics, IP leakage and device security that must be carefully managed. Due to the global manufacturing capacity shortages in the semiconductor industry, lead times are currently long.

Developing a UK supply chain will provide more security for UK manufacturers, more export opportunities for hardware manufacturers, and will enhance 5G infrastructure and resilience within the UK, helping to grow the UK economy.

#### **The approach**

The ORanGaN project brought together Inex Microtechnology, Custom Interconnect Ltd (CIL), Viper RF and CSA Catapult to develop a new sovereign supply chain for RF-GaN products and devices to be used in 5G communications.

The project was funded by the Department of Science, Innovation and Technology as part of the Future RAN Competition.

#### **The outcome**

The ORanGaN project has successfully established and extended a UK sovereign 5G RF-GaN MMIC design and manufacturing supply chain.

The ORanGaN project has led to the development, investment and enhanced capabilities of all partners, enabling them to deliver a wider range of products, including compound semiconductor devices for radar, satellite and other communications systems.

A total of 16 new jobs have been created by the project whilst four individuals have been upskilled in new design and manufacturing processes.

Off the back of the project, ten new customers have been acquired for 5G packaged devices because of increased capabilities developed by the partners.

An estimated £369,499 worth of additional income was generated through new projects, specifically the 5G SWaP+C project which will develop high-frequency and energy-efficient, ultra-wide bandgap power amplifiers.

## Future Telecoms

### Case study:

### AirQKD: Building the world's most secure fixed-mobile network

**Emerging technologies, such as autonomous vehicles, mesh networks and the Internet of Things (IoT), will require brand new forms of secure communications to protect against cyber-attacks.**

Quantum key distribution (QKD) uses the laws of quantum physics to create and distribute secure keys to prevent data from being decrypted and hacked.

With £7.7m of funding from the Quantum Technologies Challenge, led by UKRI, the AirQKD project undertook a world-first trial of end-to-end quantum-secured communications for 5G and connected cars.

The project was led by BT and included Lexden Technologies, OLC, Duality, Bristol University, Fraunhofer Centre for Applied Photonics, Strathclyde University, Warwick University Manufacturing Group, Bay Photonics, Heriot-Watt University, Angoka, ArQit, Nu Quantum, National Physical Laboratory, Edinburgh University and CSA Catapult.

#### **The challenge**

The focus of the project was on the last mile of the telecommunications network that delivers services to customers, for example, the cell towers linking local mobile phones to the cellular network.

The project aimed to create a complete supply chain from component manufacture to 5G devices and connected cars.

It combined QKD over fixed fibre and free-space networks (point-to-point laser connections between cell sites) with quantum-enhanced security chips in mobile devices.

#### **The approach**

The project utilised BT's current fibre-based testbed for QKD, which runs between Cambridge and the BT Labs at Adastral Park, Suffolk.

Cambridge-based Nu Quantum provided quantum components such as small modules capable of manipulating single photons of light to generate and communicate secure quantum encryption keys.

Warwick University Manufacturing Group demonstrated QKD between mobile roadside units and vehicles. CSA Catapult assisted the fabrication of the devices alongside Bay Photonics.

CSA Catapult also defined value propositions for the quantum components, identified key stakeholders across the supply chain, and defined market opportunity and engagement routes.

#### **The outcome**

The portfolio of prototypes developed in the AirQKD project is a global first, establishing the UK as a world leader in this industry.

The project demonstrated a UK supply chain for QKD components and secure communications infrastructure.

The project has opened new markets for the project partners and allowed them to improve and extend their core offerings.

Each of the partners involved in AirQKD either created new products or enhanced their existing capabilities.

# Net Zero

## To meet our Net Zero goals, almost all our daily activities will soon be powered by electricity.

From heating our homes to powering our vehicles, electricity will be the prominent source of energy that we will rely on.

To meet this increasing demand for electricity, the generation, consumption, storage and transmission of renewable energy must become more efficient.

This cannot be achieved without compound semiconductors.

Compound semiconductors are key to the mitigation of climate change and bringing about a Net Zero economy.

Compound semiconductors are making vehicles lighter, more efficient and capable of travelling longer distances, whilst at the same time drastically reducing charging times.

Compound semiconductors are alleviating the huge amounts of energy consumed by data centres and are also being used in renewable energy systems, smart grids, energy-efficient lighting and energy storage.



# Net Zero

## Case study:

### **ESCAPE: Creating the UK's first complete end-to-end supply chain for silicon carbide power electronics**

**One-fifth of global carbon dioxide (CO<sub>2</sub>) emissions are generated by transport, the majority of which comes from passenger vehicles and freight trucks.**

Transitioning to electric vehicles and shifting to renewable energy generation will eliminate these CO<sub>2</sub> emissions and reduce the UK's dependency on imported fossil fuels.

To enable this transition, new technologies must be created to manage the supply and distribution of power within electric vehicles.

Compound semiconductors – and silicon carbide (SiC) more specifically – are ideal for enabling these new technologies as they are faster and more efficient compared to standard silicon technology.

ESCAPE, a £20m project from the Advanced Propulsion Centre (APC), brought together 12 partners to establish a globally unique and cohesive end-to-end supply chain capability for innovative SiC power electronics.

#### **The challenge**

At present, technologies built using SiC cannot be made from parts sourced in the UK.

Establishing an end-to-end supply chain to manufacture these high-value components will provide security and resilience, protect skilled manufacturing jobs and provide significant export potential for the associated vehicles and components, providing significant benefits to the UK economy.

#### **The approach**

Led by McLaren Applied, ESCAPE consisted of 12 work packages ranging from epilayer manufacturing and fab preparation to the development of converters and inverters.

CSA Catapult's role in the project involved device and module packaging, and leading on the modelling, characterisation, integration and validation of power switches.

#### **The outcome**

The ESCAPE project has delivered a wide range of technical, social and economic benefits for all 12 project partners.

The ESCAPE project partners estimate that the project outcomes will contribute to the manufacturing of hundreds of thousands of electric vehicles and associated charging infrastructure over the next five to ten years, contributing to several million tonnes of CO<sub>2</sub> savings.

Individual project partners have developed new products and processes as part of the ESCAPE project to help establish a UK supply chain for SiC power electronic technologies.

In doing so, partners have upskilled staff, created new jobs, instigated new collaborative R&D projects and secured significant investment in the South Wales region.

For example, the ESCAPE project has had a direct influence on Vishay investing heavily in UK-based SiC manufacturing and the successful acquisition of facilities from Nexperia in Newport for \$177m.

The ESCAPE project was also pivotal in Microchip's decision to make their Caldicot site its Advanced Packaging Centre for Power Modules. Microchip has invested \$3m in the site for advanced power module manufacturing capability.

## Supporting UK clusters

**Since 2018, CSA Catapult has worked with 177 partners across the UK, ranging from start-ups and SMEs to large organisations.**

Within each of these locations, our experts have helped to build networks, connections and investment opportunities, as well as develop next-generation compound semiconductor technologies.

In 2023, CSA Catapult officially opened new laboratories and offices in Bristol, Durham and Glasgow.

The new facilities have placed the Catapult at the heart of clusters of compound semiconductor expertise and will help achieve its purpose of delivering long-term benefit to the whole of the UK.

At the Future Telecoms Hub in Bristol, the Catapult will work closely with academic partners to develop cutting-edge technologies in RF and microwave communications, photonics and quantum.

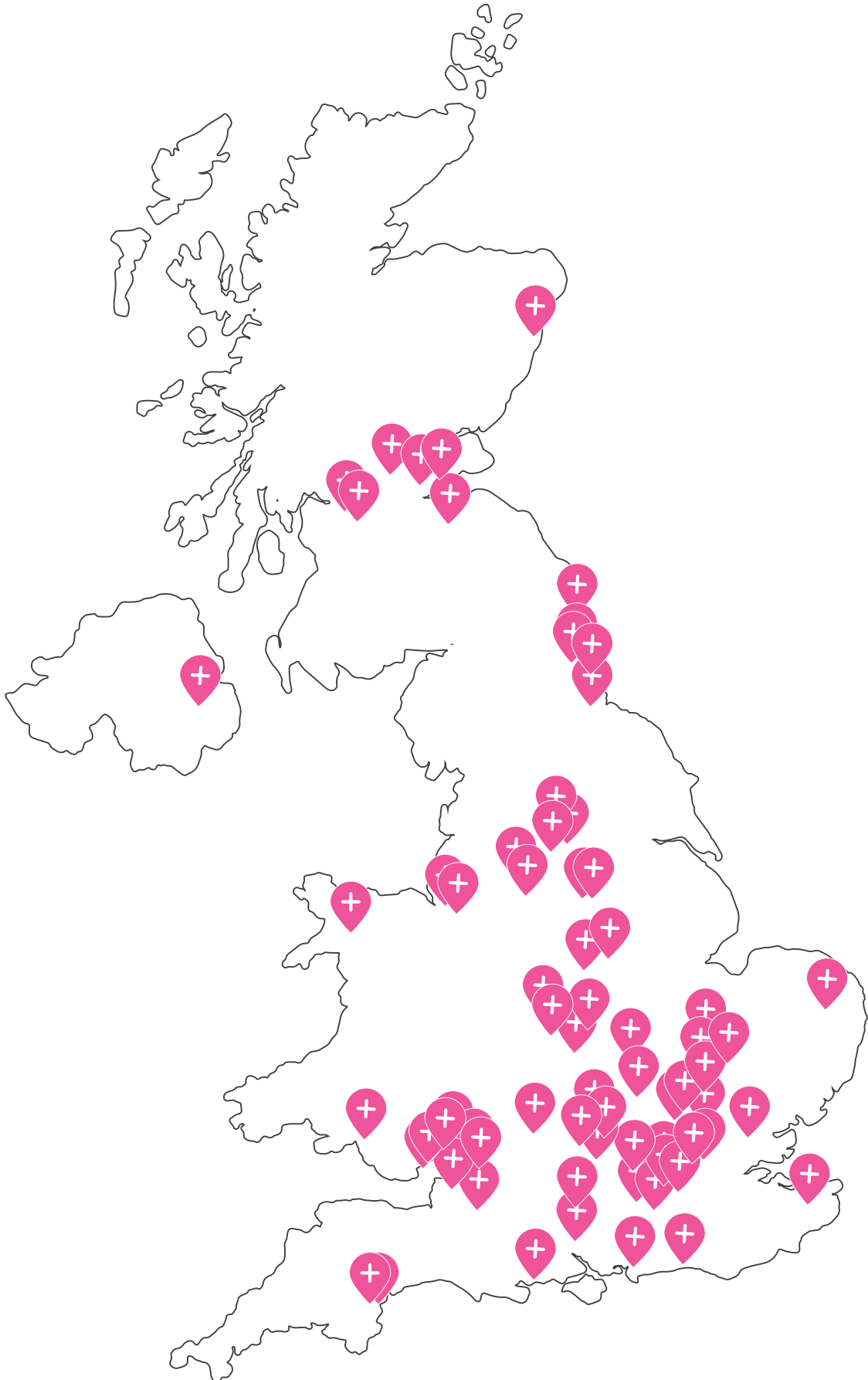
CSA Catapult Scotland will expand on the Catapult’s expertise in power electronics and advanced packaging, and will focus on high power industries such as energy, marine, aviation and rail.

CSA Catapult North East will provide a base from which the Catapult can continue to engage with a thriving cluster of experts in the semiconductor and advanced manufacturing industries.

Region	Number of companies worked with
East Midlands	8
East England	21
London	23
North East	10
North West	5
Northern Ireland	3
Scotland	13
South East	26
South West	21
Wales	12
West Midlands	12
Yorkshire and the Humber	8



# Supporting UK clusters





# Supporting UK clusters

## CSA Catapult Scotland, Glasgow

A centre focused on the design optimisation and manufacturing process for power electronics and packaging, with a specific focus on high power industries such as transport and energy.

## CSA Catapult North East, Durham

An innovation hub that brings together companies and research institutes actively involved in compound semiconductor technologies across a range of industries, from telecoms to satellite communications and defence. We support the North East Advanced Material Electronics (NEAME) cluster.



## Innovation Centre, Newport

CSA Catapult's headquarters includes state-of-the-art equipment and cutting-edge lab facilities across four areas of expertise: power electronics, RF & microwave, photonics and advanced packaging. We are part of CSconnected – the world's first compound semiconductor cluster.

## Future Telecoms Hub, Bristol

A translational research hub focused on the speed, energy efficiency and security of future telecoms networks using expertise across RF, photonics and quantum technologies. We have close links with the Western Gateway partnership.

## Supporting UK clusters

### Case study:

### Supporting a flourishing semiconductor sector in the South West

**Affectionately known as “Silicon Gorge”, the South West region is fast becoming a semiconductor powerhouse.**

It is home to start-ups such as Blu Wireless, XMOS and Graphcore, who have each received multi-million pounds’ worth of investment, whilst large multinationals such as Broadcom, HP Labs, Infineon and Qualcomm have located to the region.

The South West is fertile ground for innovation with a highly skilled workforce and huge potential to grow further.

It is also home to world-leading universities working at the cutting edge of semiconductor science and technology.

#### **The opportunity**

A recent report commissioned by the Western Gateway – a pan-regional partnership that also extends into South Wales – revealed that the South West regional economy will grow faster than any other part of the UK economy, outside of London, over the next five years.

However, the report flagged that the region is being held back by a lack of investment and is missing out on between £3m and £9m in private sector investment per business per year on average, when compared to other parts of the UK.



#### **The approach**

Since 2022, nearly a quarter of CSA Catapult’s customers and partners have come from the South West alone. CSA Catapult has worked with 37 SMEs in the region, a third of which are considered by Beauhurst to be a 10% or 20% scale-up organisation.

This was a key driver in CSA Catapult’s decision to locate the Future Telecoms Hub in Bristol. The area has a strong academic and industrial presence, specifically in the field of compound semiconductors, and would therefore benefit greatly from our expertise.

Through a total of £6.5m of investment from Innovate UK, the Future Telecoms Hub is helping develop new compound semiconductor technologies to improve the speed, energy efficiency and security of UK communications networks. It specialises in three areas: RF and microwave communications, photonics and quantum.

CSA Catapult has also instigated a series of meetups in the South West, which bring industry partners together to network, collaborate, and discuss the latest trends and technologies being developed in the region.



# Supporting UK clusters

## Case study: Supporting a flourishing semiconductor sector in the South West

### The outcome

Our most recent data shows that, on average, companies we have worked with have attracted an average annual investment of £84m from the private sector and £22m from the public sector.

A counterfactual group of companies that we have not worked with raised, on average, £56m annually from the private sector and £10.5m annually from the public sector in comparison.

Since 2022, CSA Catapult customers based in the Western Gateway area received £137.5 million of private investment – the highest amount compared to other UK regions.

Within this time frame, CSA Catapult has also invested over £1.2m towards research agreements with universities across the UK for projects based at the Future Telecoms Hubs.

The agreements, which run until 2026, involve senior academics collaborating with CSA Catapult on a range of next-generation technologies, such as RF-GaN power amplifiers, optical switches and a quantum multiplexer.



## Skills

### To become a global leader in developing new applications for compound semiconductors, the UK must develop the workforce to take this technology forward.

This year our Skills Academy continued to deliver on a range of projects, partnerships and initiatives to combat the shortage of diverse and skilled engineers needed to meet industry demands.

We have worked with schools, universities, industry, government, charities and parents to equip the next generation of scientists and engineers with the skills they need to enter the compound semiconductor industry.



### Providing industry experience

As members of the UK Electronics Skills Foundation (UKESF) Scholarships Scheme, we once again supported four electronics undergraduates who undertook a paid work placement at the Catapult.

In addition to the placement, interns also receive an annual bursary, and mentoring and networking opportunities.

During summer 2023, four scholars joined the team, each specialising in a specific technology area and were given the opportunity to work on real-world problems and projects. The interns also took part in a range of outreach and engagement events across the UK to help inspire the next generation of young learners to consider a career in engineering.

*“Getting to work on projects from start to finish, pushing technology to its limits and working with experienced engineers has been a great highlight of working in the electronics industry.*”

*“My knowledge of different software has improved, as well as being able to think critically and collaborate on projects.*”

*“I have enjoyed working with lasers and learning how to measure transformer characteristics as well as transformer design.*”

*“It feels exciting to have been a part of such an innovative industry, working with people who are advancing compound semiconductor technology.”*

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### Abi Johnson-Brett

power electronics intern at CSA Catapult

# Skills

## Spark their Imagination; power their future

This year we have delivered the Spark their Imagination; power their future project. The project has received £500,000 funding from Innovate UK and is delivered in partnership with the UKESF.

The project aims to provide thousands of learners across Wales, aged 15–18, with classroom resources and insights into the wealth of exciting and rewarding career opportunities that are on offer across the Welsh electronics sector.

Project achievements this year include:

- **214 young learners taking part in workshops at five Welsh universities**
- **Free resources sent to 40 schools in 34 different areas of Wales**
- **24 bursaries awarded to Year 13 pupils in Wales who have secured a place at university to study an electronics-related course in 2024–25**

*"I've been so pleased with the enormous interest in our collaborative Spark their Imagination programme this year. These in-person workshops have been great. The host universities have all been fantastically supportive and helped us deliver successful events."*

*"As well as the students themselves, it has been so valuable to involve teachers as their participation means that we should be able to sustain engagement in semiconductors at Welsh schools and colleges."*

### Stewart Edmondson

Chief Executive Officer at the UKESF



# Skills

## Supporting regional clusters

In November, our Skills Academy organised a careers event in Durham as part of the ORanGaN project.

The event aimed to highlight engineering opportunities within the North East and attract more students to study electronics and engineering.

Speakers from organisations such as INEX Microtechnology, Viper RF, Pragmatic, North East Institute of Technology and Tridonic presented to students at the event and participated in a panel discussion.

The ORanGaN project aimed to develop a new sovereign supply chain to develop the UK's first radio frequency (RF) gallium nitride (GaN) products and devices to be used in 5G communications such as mobile phones.



## Foresighting future skills

This year, the Skills Academy initiated a skills foresighting project with the Innovate UK Workforce Foresighting Hub for Future Telecoms, supported by the Department for Science, Innovation and Technology.

The project will involve engaging with businesses across the UK to map out the skills needs of a workforce in five to ten years' time, as well as addressing the vital need to find coordinated ways of upskilling the current workforce.

The conversations will help to identify the technological priorities of the industry and spotlight where specific skills gaps exist.

Building on the project, the Skills Academy will engage further with industry, academia, education and government to put plans in place to ensure that the UK stays ahead of the curve, and we have a workforce that is fit for the future.



# Skills

## Primary Engineer workshop – supporting primary schools in Cardiff and Newport

This year, the Skills Academy coordinated and hosted an event linking up teachers with leading engineers from industry.

Funded by Innovate UK’s Driving the Electric Revolution programme, the Primary Engineer activity paired 11 teachers from primary schools across Cardiff and Newport with engineers from KLA, Siemens Rail and Swansea University.

The engineers trained the teachers on how to build two train models and they were given building kits and teaching resources to take back into the classroom and use in their lessons.

The Primary Engineer programme is focused on embedding engineering into the classroom and giving pupils real-life examples of what an engineer does.



# Equality, diversity and inclusion

## CSA Catapult is committed to building a diverse and inclusive workforce.

Along with the eight other UK Catapults, we are signatories to the Inclusivity in Innovation Charter, which commits us to ensuring that equality, diversity and inclusion (ED&I) is embedded in our culture.

We know that an environment built on equality, dignity and respect will create a more innovative, collaborative and productive environment for everyone. We are very proud to have received a Bronze Award in 2023 from Inclusive Employers.

### Our charter

Our Equality, Diversity and Inclusion (ED&I) Charter is a commitment to improving the way we work across the organisation. The Charter commits us to:

- **Enabling all individuals to have a voice in meetings, project teams, events and the wider business**
- **Being more inclusive throughout our recruitment process**
- **Improving education around ED&I practices**
- **Ensuring ED&I is embedded in our policies and procedures**
- **Highlighting and modelling best practice across the organisation**

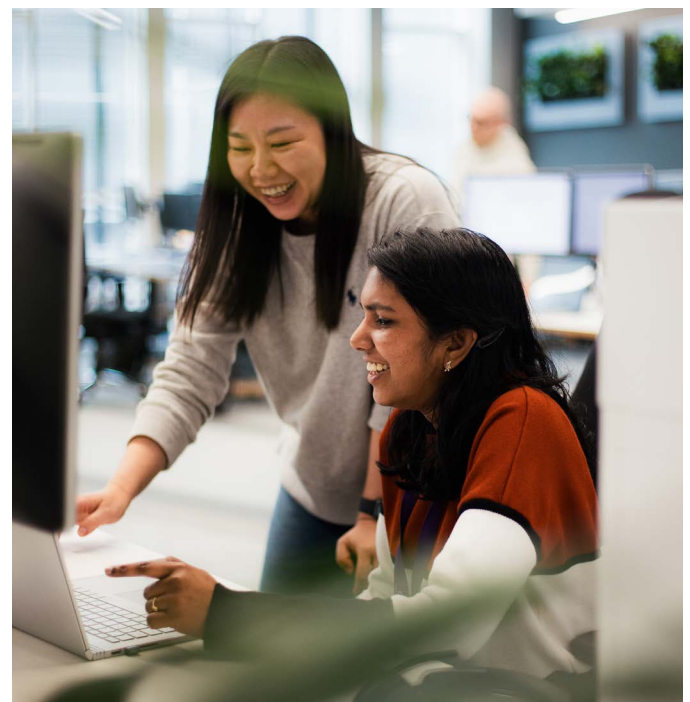


### Our initiatives

Our Inclusion Group ensures our day-to-day environment is both welcoming and inclusive, and that we take every opportunity to improve our ED&I practices across the organisation. We have a Women's Network which provides a space where female colleagues can build a programme of activities that champion different skills and experiences.

We are members of Inclusive Employers and are proud to be a Real Living Wage Employer.

As we welcome new members to the team, everyone's induction includes a series of skills workshops to show colleagues the standards we uphold for each other and how they underpin our culture.





# Equality, diversity and inclusion

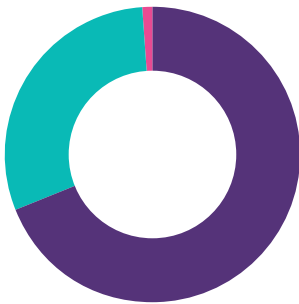
## Our people

We take pride in the diversity of our workforce and employ people of different race, ethnicity, religion, age, gender, sexual orientation, cultural background, languages, abilities and education levels.

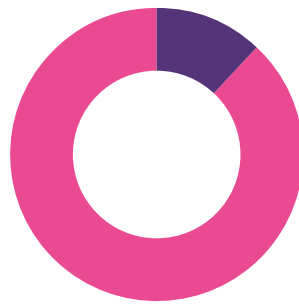
Our people come from more than 20 countries across five continents.

This rich and diverse mix of cultures, backgrounds and experiences makes CSA Catapult a truly unique place to work.

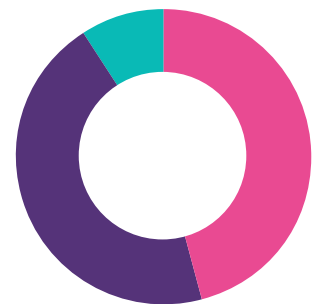
Our cultural diversity inspires creativity and drives our innovation, enabling us to find more innovative solutions in the work that we do.



**Sex**  
Male 69%  
Female 30%  
Non binary 1%



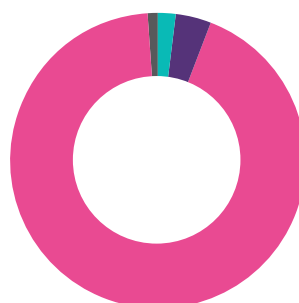
**Women in STEM**  
12%



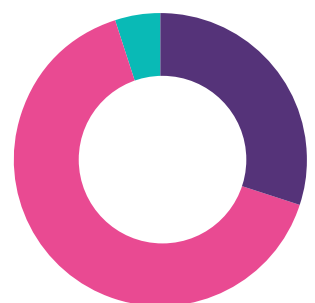
**Married/Civil partnership**  
Yes 46%  
No 45%  
Prefer not to say 9%



**Disability**  
Yes 2%  
No 98%  
Prefer not to say 0%



**Sexual orientation**  
Bisexual 2%  
Gay men/women 4%  
Heterosexual 93%  
Prefer not to say 1%



**Caring responsibilities**  
Yes 30%  
No 65%  
Prefer not to say 5%

# Financial statement

## Financial highlights

The financial information in this review represents the year-end position for CSA Catapult Limited group for the year ending 31st March 2024.

## Income

<b>For the year ended 31st March:</b>	<b>2024 £'000s</b>	<b>2023 £'000s</b>	<b>2022 £'000s</b>	<b>2021 £'000s</b>	<b>2020 £'000s</b>
Innovate UK core grant funding	10,628	9,974	9,459	8,543	8,402
Third party grant funding	3,517	3,946	3,076	1,516	482
Industrial Income	883	456	546	462	241
<b>Total</b>	<b>15,028</b>	<b>14,376</b>	<b>13,081</b>	<b>10,522</b>	<b>9,125</b>

## Balance sheet


<b>For the year ended 31st March:</b>	<b>2024 £'000s</b>	<b>2023 £'000s</b>	<b>2022 £'000s</b>	<b>2021 £'000s</b>	<b>2020 £'000s</b>
Fixed assets	10,294	10,571	11,371	12,525	11,406
Current assets	17,396	11,444	7,130	6,165	4,961
Creditors	(8,674)	(9,071)	(5,944)	(5,105)	(3,857)
Provision for liabilities	(17,621)	(12,414)	(12,433)	(13,553)	(12,503)
<b>Net assets</b>	<b>1,395</b>	<b>529</b>	<b>124</b>	<b>31</b>	<b>8</b>
<b>Capital and reserves</b>	<b>1,395</b>	<b>529</b>	<b>124</b>	<b>31</b>	<b>8</b>

# CSA CATAPULT

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 Compound Semiconductor  
Applications (CSA) Catapult