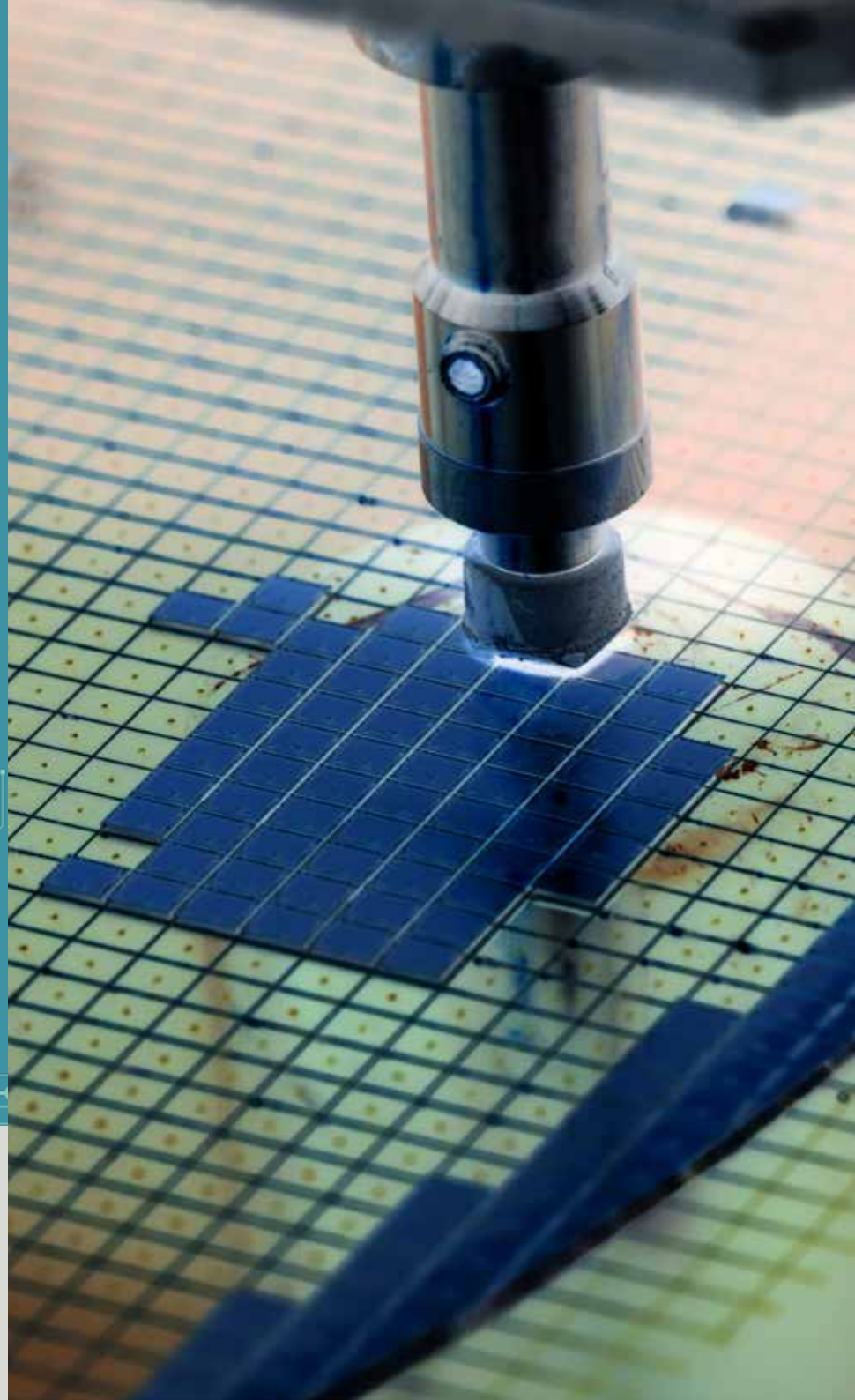
CSconnected Annual Review



The CSconnected SIPF project is supported by

UK Research and Innovation

Welcome

Howard Rupprecht
Managing Director,
CSconnected Ltd

As the global semiconductor market moves toward a trillion-dollar valuation by 2030, South Wales continues to play a pivotal role.

We're home to a unique concentration of compound semiconductor companies, leading research institutions, and a highly skilled workforce. Together, we've built a globally recognised ecosystem delivering innovation, productivity, and long-term impact in the compound semiconductor industry which is driving so many of tomorrow's technologies.

The progress made in 2024 reflects years of sustained momentum across the CSconnected cluster. Through the Strength in Places Fund (SIPF) and strong collaboration between industry, academia, and government, we've established a solid foundation for continued growth. As SIPF enters its final phase, the impact of that investment is clear: new infrastructure is operational, technologies are moving closer to market, and we're building capability across the workforce. Compound semiconductors are enabling the technologies that are defining the future from artificial intelligence and high-speed communications to clean energy and the innovations needed to achieve Net Zero.

2024 saw the start of a new programme supported by the Cardiff Capital Region (CCR) to expand local supply chains and address targeted skills needs. This comes at a time when the global focus on semiconductor resilience and sovereignty is growing rapidly. The CCR support has not only strengthened our technical base — it also helps create high-value, long-term careers and opportunities for the communities living across South Wales, while attracting more business and private investment to the region which can only strengthen our economy. We're working closely with CCR on how that support can continue.

Last year was also a year of transition for us. Chris Meadows, who has played a defining role in establishing and growing the cluster since its inception, stepped into a non-executive director role. His leadership has been central to building the reputation of CSconnected as a respected voice in the semiconductor sector, both in the UK and internationally. I took on the role of managing director in June 2024, focused on delivering the next phase of the cluster's growth — strengthening its long-term sustainability and reinforcing its role as a national asset. That includes ensuring the cluster is well-positioned for the critical future strategic investment, including the Cardiff Capital Region Investment Zone and the UK's industrial strategy, in order to sustain its work in maintaining the benefits of the cluster.

What defines CSconnected isn't just co-location — it's alignment of purpose. With our partners, we've built a collaborative community that spans academia, industry, and government to ensure the UK remains at the forefront of next-generation semiconductor innovation. As global demand accelerates, the role of regional clusters like South Wales becomes even more important to our national success on the international stage.

I'm excited to share this Annual Review which highlights the progress made in 2024 and outlines our plan in continuing to support growth of the cluster and industry in the years ahead. From world-class research, to skills and outreach, the cluster continues to grow its impact regionally, nationally and globally.

About CSconnected

CSconnected is the world's first compound semiconductor cluster, located in South Wales. Supported by the Strength in Places Fund (UK Research and Innovation) and Cardiff Capital Region, the cluster unites leading companies, research institutions, and government partners to drive innovation, economic growth, and global leadership in semiconductor technology.

Since the launch of CSconnected, the cluster has demonstrated robust growth and resilience, attracting major private investment to the region, while building a robust local supply chain and developing a pipeline of talent that directly impacts the South Wales community and economy.

Specific impact includes:

- Direct employment has increased by 28%
- 3,000 jobs created by 2024
- Cluster activity now supports 2,748 jobs in the Welsh economy
- Every full-time equivalent semiconductor job in Wales supports a further 1.24 jobs in the wider UK economy, a total of 4,047 UK employees
- The sector's cumulative Gross Value Added (GVA) contribution to the Welsh economy has consistently strengthened, reaching £255 million in 2024
- Exports, which account for over 90% of the cluster's output, have grown to an estimated £466 million, supporting the UK's trade and industrial strategy
- Average salaries in the cluster are 60% above the Welsh average, reflecting the sector's high-value and productive jobs.
- Average salary per full-time employee within the cluster is £67,765

Looking ahead:

We anticipate continued growth into 2025, driven by rising demand for advanced semiconductor technologies and recent capacity expansions. As the global semiconductor industry approaches $1 trillion annually by 2030, South Wales is uniquely positioned to capitalise on this opportunity.

Supported by the right public funding, CSconnected will strengthen supply chains and drive optimised long-term industry growth that benefit South Wales and the UK economy.

Semiconductor: A global opportunity

The global semiconductor industry is experiencing unprecedented growth, with projections placing its total market value at US$1 trillion by 2030, driven by the rising demand for computing power, connectivity, and artificial intelligence. Following a 20% market growth in 2024, boosted in part by a rebound in memory markets and accelerated investment in AI infrastructure, the industry is expected to double again by the early 2040s.

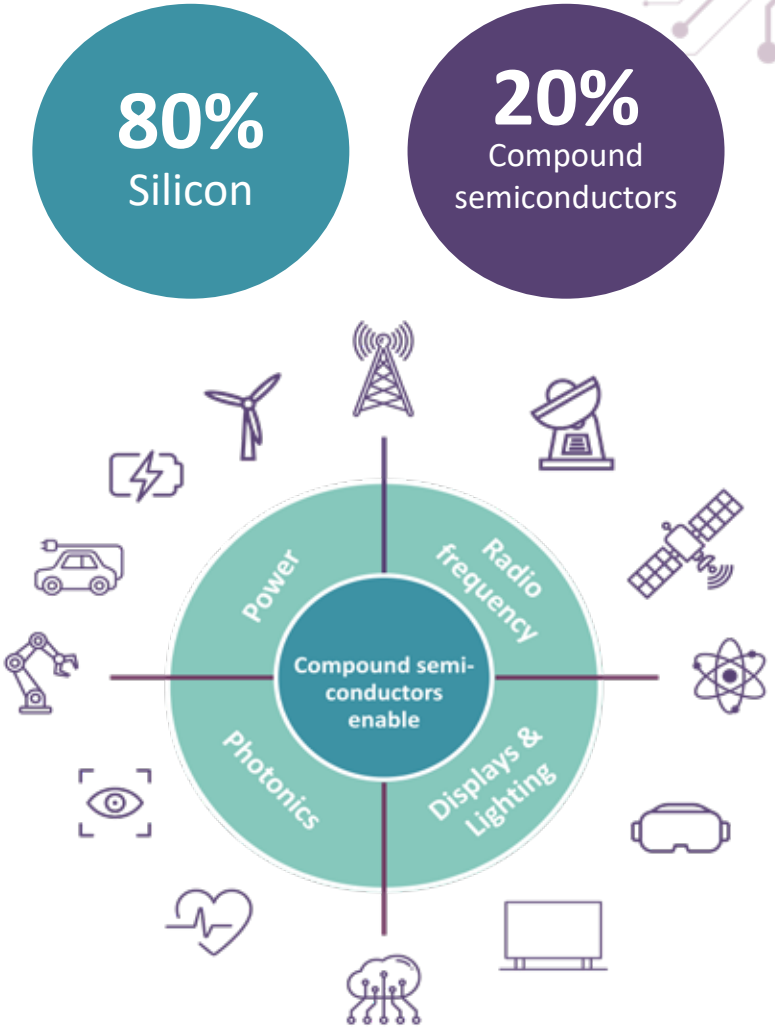
Amid this global expansion, compound semiconductors represent a specialised, high-growth segment. Unlike traditional silicon-based chips, compound semiconductors are made from materials, offering superior performance in power handling, speed, and energy efficiency. These properties make compound semiconductors indispensable for electric vehicles, 5G networks, renewable energy, defence systems, and space applications.

At the heart of this emerging sector, the CSconnected cluster in South Wales brings together industry, academia, and government to form the world's first dedicated compound semiconductor cluster. It is uniquely positioned to contribute to the global transition to advanced semiconductor technologies.

In 2024, the South Wales cluster employed approximately 3,000 people, with an estimated £507 million in combined revenues and 95% of output was exported, underscoring the cluster's critical role in international supply chains.

As the global industry faces a projected shortage of 250,000 to 300,000 skilled workers by 2030, the region's talent pipeline offers a distinct advantage. Universities in South Wales are collectively producing around hundreds of highly skilled graduates each year in relevant fields such as materials science, physics, and electronic engineering. Complementing this, CSconnected is investing in vocational training, apprenticeships, and reskilling initiatives to expand access to high-value technical roles.

The strength of the cluster lies in the achievements of its partner organisations. Global companies such as Vishay Intertechnology and KLA have made major strategic investments in South Wales. KLA recently opened a $138 million advanced R&D and manufacturing facility, while Vishay has announced a £250 million expansion to develop the UK's larget semiconductor facility in Newport. These investments are set to create hundreds of high-skilled jobs and align with the UK Government's Plan for Growth, which recognises semiconductors as a priority technology for future prosperity.



Unlike traditional silicon-based chips, compound semiconductors are offering superior performance in power handling, speed, and energy efficiency.

Maintaining our solid foundations for future success

CSconnected is committed to supporting the South Wales compound semiconductor industry to grow sustainably, building on its regional, national, and international reputation as a growth enabler to the industry. We are focused on driving lasting positive impact, building on the legacy of the CSconnected SIPF project to maintain and enhance our globally competitive position, supporting South Wales and the UK economy to reap the benefits of this opportunity.

End-to-end supply chain

From the concept R&D fuelling innovation in the industry and its critical role in future technology, to real-world application, to manufacturing and packaging, today the CS cluster supports the lifecycle of compound semiconductor creation. While the cluster is uniquely based to support this, we continue to look at ways to develop the supply chain further within the South Wales region and beyond.

Addressing the skills shortage

Wales has the unique opportunity to help address the global talent shortage facing the compound semiconductor industry. With established universities producing many high-level graduates a year in relevant fields, CSconnected is further enhancing this by building out the vocational and apprenticeship pipeline for skilled technical roles. This is not only creating high-value, knowledge-intensive "sticky jobs" – roles that are deeply rooted in place, due to the enormous capital investment and long lead times involved in setting up a semiconductor fab, this is directly addressing the global talent shortage and attracting further private investment into the cluster.

Infrastructure for growth

We support organisations seeking to establish or expand in the region with the launch of Centre 7 in 2024. The new hub acquired by the Welsh Government is designed to support innovation, collaboration, and expansion across the sector. New tenants such as CSconnected Ltd. and MicroLink Devices UK have already moved into and begun operating within the building, with the centre set to welcome Cadence Design Systems in 2025. Facilities include lab space, high quality office accommodation with the potential for manufacturing of semiconductor technologies, small conference facilities, training rooms, meeting rooms, breakout areas and collaborative spaces.

Vertical sector expansion

In 2024, the CS cluster advanced its commitment to vertical sector expansion, further supporting the UK government's ambitions in clean energy and artificial intelligence. Significant investments underscored this alignment, particularly the £250 million investment by Vishay Intertechnology in Newport, focusing on the production of the advanced Silicon Carbide (SiC) semiconductors which are essential components for electric vehicles and renewable energy systems, directly contributing to the UK's net-zero goals. Collaboration with academic institutions and industry partners have continued to facilitate the development of cutting-edge semiconductor technologies, bolstering the UK's semiconductor capabilities and reinforcing its position as a leader in sustainable and intelligent tech advancements.

Global impact

We continue to actively engage with Government agencies and organisations to cement our role as a key voice for the semiconductor industry. Regularly meeting with and advising policymakers, we deliver roundtables with key politicians in Wales, the UK and beyond, and facilitate meetings between our partners and key clusters and organisations, creating a pathway to support continuous growth for the cluster.

Driving regional growth through innovation: The CSconnected SIPF programme

In 2020, CSconnected was awarded a major UKRI investment through the government's flagship Strength in Places Fund (SIPF). This award recognised South Wales's established expertise in compound semiconductor technologies and aimed to build on its distinctive strengths to create sustainable economic growth.

The CSconnected SIPF programme represents a total investment of £43 million, with £25 million of funding provided by UK Research and Innovation (UKRI). Originally scheduled to conclude in 2025, the programme has now been extended until May 2026, ensuring continued impact through collaborative innovation, job creation, and inward investment.

Tracking Impact: Economic Outputs and KPIs

Each year, CSconnected publishes a review of the economic activity supported by the cluster to measure progress against a defined set of key performance indicators (KPIs), which include:

These KPIs include:

- Growth in direct employment within core cluster companies and new inward investors
- Increases in exports of cluster firms
- Gross Value Added (GVA) generated directly and indirectly by cluster activity

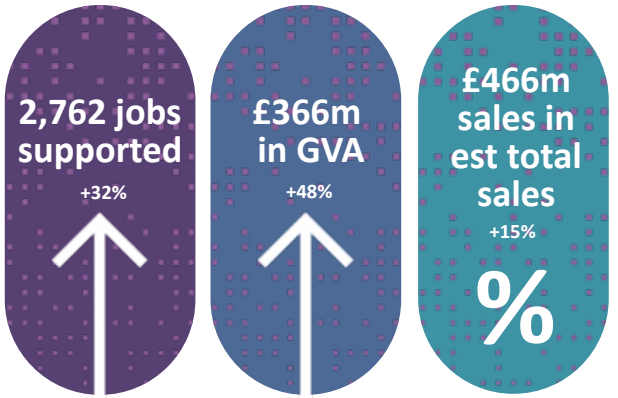
At the heart of the SIPF project are four major R&D programmes, bringing together industry and academia to develop new technologies and capabilities in:

- **Next-generation optical communications and sensing**
- **Large-scale GaAs-based wafer manufacturing**
- **Novel, energy-efficient CS wafer fabrication tools**
- **Advanced processes for 5G and electric/autonomous vehicle (EAV) systems**

These programmes are designed to accelerate innovation and translation into commercial products, securing the UK's competitive edge in emerging global markets.

Alongside R&D, the SIPF project supports the coordination and promotion of the CSconnected cluster, while delivering a dedicated focus on regional skills development.

Economic Outputs of the CS Cluster in 2024 (% arrows are in comparison to 2020)



CSconnected SIPF

CSconnected SIPF uses a number of Key Performance Indicators (KPIs) to measure our impact and achievements. An overview of the project cumulative figures from November 2020 up to December 2024 is detailed below.

67 publications

242 events

101 PR pieces

88 connections and affiliations

£66million grant funding

405 CPS attendees

32 products and processes

6 new entities established in the region

CSconnected SIPF technical highlights

CSC demonstrates a 100mm AlInGaAs DFB laser base epitaxy method of manufacturing. The DFB chip fabrication platform has been demonstrated using 'an all regional' supply chain for device design, epitaxial material, wafer and chip fabrication and test.

CSC demonstrates grating epitaxial overgrowth.

IQE demonstrates a VCSEL 6" automated device characterisation.

IQE World's first VCSELs 8" 200mm wafers was fabricated, packaged and tested.

CU demonstrates DFB grating definition process.

MTCL demonstrates over moulding.

MTCL demonstrates CuccorAI wire bonding.

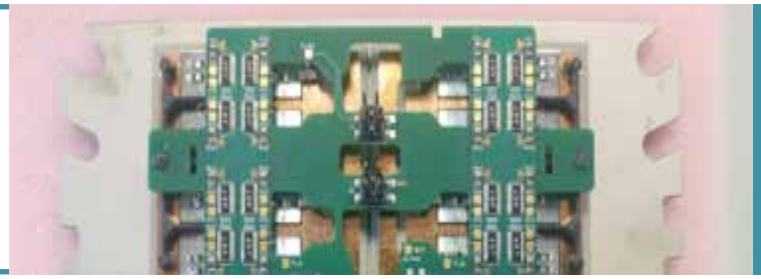
Microchip first UK demonstration of a 1200V vertical GaN epi design on bulk GaN substrates.

KLA created a new 250ksqft manufacturing site for SPTS Technologies, via inward investment from its parent company KLA corporation, a supplier of industry-leading semiconductor equipment.

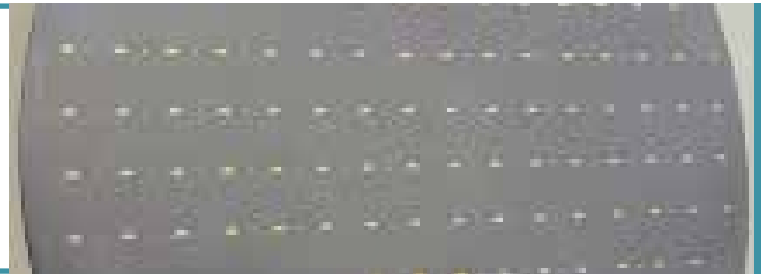
MicroLink successfully relocated their testing and manufacturing facility to Centre 7 in September 2024.

CSconnected SIPF technical highlights

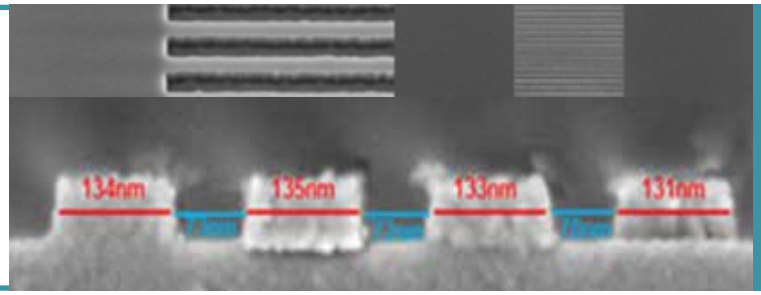
CRD4: MTCL Apollo Modules over-moulded - New process capability demonstrated by Microchip



MTCL part-assembled module post ribbon bond/wirebond



Scale-up Milestone - World's first VCSELs on 8" (200m) wafers was fabricated, packaged and tested.
Automated 6" VCSEL device characterisation



First DFB grating fabrication and epitaxial waveguide overgrowth using all-regional capability

Recent major private investments announced

£250m investment into UK's largest semiconductor facility

US tech company Vishay Intertechnology announced £250m investment into its Newport foundry which will transform the powering of electric vehicles. It is the latest stage of longer-term plans to inject £1bn into the region which will create hundreds of new high-skilled jobs.

The investment will position the foundry to make advanced silicon carbide semiconductors, an integral part of electric vehicle production, at scale. Silicon carbide allows electric cars and wind turbines to convert power more efficiently, while enabling speeds up to 100 times faster than traditional chips.

$138m investment in new R&D and manufacturing facility

Global player in semiconductor process control and process-enabling technology, KLA, announced the opening of its new $138 million research and development (R&D) and manufacturing centre in Newport. Reflecting the existing KLA portfolio strength and growing customer demand, the new 237,000-square-foot Newport facility provides additional production and customer collaboration spaces, including 25,000 square feet of R&D clean rooms, 35,000 square feet of state-of-the-art manufacturing space and tool demo areas, all designed to support development of semiconductor process technologies across advanced packaging, power devices, microelectromechanical systems (MEMS), radio frequency (RF) and photonics sector technology.

With capacity for 750 employees, KLA's new facility is expected to support the continued growth of the electronics ecosystem, serving as a centre of engineering and manufacturing excellence, as well as an anchor for the larger community.

An estimated £34m contribution to the UK economy

A new semiconductor design centre, jointly funded between Welsh Government, Compound Semiconductor Applications (CSA) Catapult, and Cadence Design Systems, Inc. will address long-term skills needs within the semiconductor design sector and support the industry's growth by providing critical design services to SMEs and scale-up companies across the UK.

The dedicated centre will create over 100 new jobs for graduate students in the next five years, contribute an estimated £34m to the UK economy and help deliver the UK government's industrial strategy. The new company aims to become a leading provider of semiconductor design services, supporting key industries such as automotive, aerospace, space, telecoms, defence, and AI.

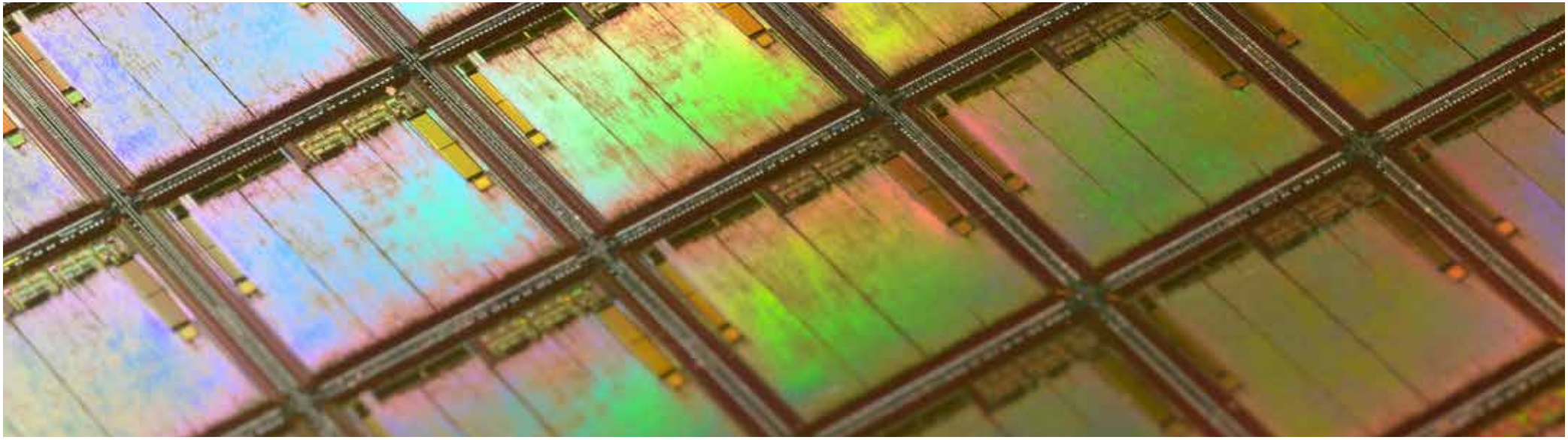
Recent major private investments announced

A leading Malaysian semiconductor company, SMD Semiconductor has opened a new R&D Innovation Hub in Wales, located at the Compound Semiconductor Applications (CSA) Catapult's Innovation Centre in Newport.

SMD Semiconductor and CSA Catapult have exchanged a formal agreement to collaborate on developing new compound semiconductor chips for AI and edge devices. Edge devices, such as sensors and cameras, perform data processing at the location of the device instead of sending it to the cloud. This makes them quicker, more energy efficient, more secure, and will enable real-time data processing, which is critical for applications in defence, healthcare, surveillance and robotics.

Semiconductor manufacturer Kubos is set to bring its revolutionary new compound semiconductor material to South Wales, thanks to a £670,000 equity investment from the Development Bank of Wales. Kubos has chosen Cardiff University's Sbarc building for its base, putting them at the heart of Wales' world-class compound semiconductor eco-system. The business will recruit for five new positions including testing engineer, device manager and VP of development.

The business is working on a new compound semiconductor material called cubic gallium nitride (GaN) aimed at enabling next-generation microscopic scale, light-emitting diodes (microLEDs), which find uses in small scale displays such as smartwatches and augmented or virtual reality devices.



Policy engagement impact

CSconnected is committed to working with government, industry, and academia to ensure continued investment in skills, infrastructure, and innovation.

APPG for semiconductors

We were pleased to join over 30 MPs and Peers to attend the APPG for semiconductors parliamentary reception, where our Chair, Wyn Meredith, and Director, Howard Rupprecht joined MPs, policymakers, and leading semiconductor companies and research institutions, including our partners IQE, Compound Semiconductor Applications (CSA) Catapult, Vishay Intertechnology, Inc., Swansea University, to discuss the future of the UK semiconductor industry.

Tech UK Guest Vlog by Chris Meadows - Building on key UK strengths in semiconductors

CSconnected non-executive Chris Meadows, joined Tech UK for a guest vlog as part of their #UnleashInnovation campaign week 2024. Here, he explained the critical role of the CS cluster in creating and distributing the compound semiconductors needed to enable the technology of tomorrow from EVs to AI to sustainable energy. He highlighted the unique opportunity offered by the cluster to help the UK achieve its aspirations to be a world leader in compound semiconductors, and the importance of continued CCR investment in coordinating talent, skills and outreach activities across the region, while focusing on development of regional, national and international supply chains.

Scale in Wales: Invest, Locate, Innovate

Our managing director, Howard Rupprecht, spoke at this event, dedicated to why Wales is a prime location to invest, locate and innovate. He was joined by key stakeholders across the ecosystem as well as national and international tech businesses who have successfully expanded or relocated to Wales.

Photo credit: Tramshed Tech

Policy engagement impact

CSconnected continues to play a central role in representing and promoting the interests of the Welsh compound semiconductor cluster, working closely with policymakers, regional partners and international stakeholders to advance long-term collaboration and investment.

Regional and National Engagement

The cluster has welcomed several high-profile visitors over the past year, including Rt Hon Jo Stevens MP, Shadow Secretary of State for Wales, and Rt Hon Peter Kyle MP, Shadow Secretary of State for Science, Innovation and Technology. These visits provided an opportunity to showcase the cluster's capabilities and highlight the strategic importance of the sector to the Welsh economy, the UK's ambitions for high-value manufacturing, and the development of sovereign technology infrastructure.

Throughout the year, CSconnected maintained regular engagement with UK Government departments, including DSIT, DBT, and the Wales Office, as well as with the Welsh Government and the Cardiff Capital Region, contributing to policy development and regional delivery strategies.

In June 2025, the cluster was cited in the UK Government's refreshed Industrial Strategy, which highlights the South Wales cluster as an example of regionally anchored, globally relevant innovation. The cluster continues to provide evidence and insight to support national policymaking and is an active member of the All-Party Parliamentary Group (APPG) for Semiconductors, ensuring regional voices are represented at Westminster.

Two recent publications have reinforced the strategic case for compound semiconductors in the UK:

A new Policy Exchange report called for greater focus on the UK's strengths in compound semiconductors, noting that while the UK lacks a general-purpose chip manufacturer, it holds world-class expertise in a field that will be critical to future technologies. The report positioned compound semiconductors as a key strategic asset in the global semiconductor race.

A case study from Cardiff University's Welsh Economy Research Unit outlined the supply chain opportunities created by the growth of the CSconnected cluster. The report emphasised the potential for Welsh and UK-based suppliers to boost employment, drive innovation, and strengthen buyer-supplier links, highlighting the importance of joined-up policy and industry collaboration to maximise regional and national benefits.

Through the coordination of the SIPF programme, CSconnected has continued to work across industry, academia and government to track economic performance and promote the value of regional investment. This includes regular reporting to UKRI and active participation in industry-facing events and working groups.

International impact

Over the past year, the cluster has expanded its global presence, strengthened international partnerships, and continued to position South Wales as a centre of excellence in compound semiconductors.

Throughout 2024–2025, CSconnected and its partners attended major international trade and technology events, including SEMICON Taiwan; Photonics West (San Francisco); SEMICON Europa (Munich); CS International (Brussels); CS Mantech.

These events provided valuable opportunities to showcase the cluster's capabilities, promote Welsh-based expertise, and build strategic relationships across Europe, North America and Asia.

In parallel, CSconnected has supported the organisation of visits from international delegations to South Wales, showcasing the cluster's strengths in research, skills, and manufacturing. In October 2024, a visit from Arizona State University, supported by Global Wales and co-organised with Swansea University, brought together researchers, and companies for a collaborative industry workshop on wide bandgap power electronics.

A major milestone was achieved in 2024, as CSconnected and Swansea University won the bid to host the prestigious ICSCRM conference in South Wales in 2027. This global event on silicon carbide materials and power electronics will attract thousand of international researchers, companies and institutions, placing Wales at the centre of next-generation semiconductor research and reinforcing the cluster's global standing.

SEMICON Taiwan

Our Director, Chris Meadows, joined the UK delegation at SEMICON Taiwan on the UK Pavilion to represent CSconnected, alongside our cluster partners KLA and Kubos Semiconductors, and other industry leaders showcasing their cutting-edge technology. The show helped highlight the UK and Wales's strengths in compound semiconductors and advanced manufacturing.

Arizona State University visit funded by Global Wales

CSconnected facilitated a visit as part of a Global Wales funded project, led by Swansea University and Arizona State University. The project promotes knowledge exchange and skill development in wide band gap (WBG) semiconductor technology while fostering sustainable, long-term international collaborations.

Business development: Growing value

CSconnected has focused its business development activity on strengthening the local supply chain, supporting new industry partnerships, and expanding the cluster's long-term reach.

CSconnected leader talks with CS magazine

Our managing director, Howard Rupprecht, shared insights on maintaining momentum in the compound semiconductor sector when interviewed by leading trade publication, CS Magazine. In recognition of the strong foundation already established by CSconnected, Howard shared our strategic focus towards skill development, and strengthening of supply chains in order to keep South Wales at the forefront of the global industry.

Bhattacharyya Award 2024

CSconnected was proud to be named as a one of five finalists for this year's Bhattacharyya Award, which recognises the UK's most impactful academia-industry collaborations. This prestigious award, supported by the UK government, celebrates the significant contributions that long-term partnerships between universities and industry bring to innovation and the economy.

Compound semiconductor supply chain resilience

CSconnected continued to focus on supporting and building on the now established compound semiconductor ecosystem in South Wales, ensuring supply chain resilience within the region. With a strong network of research institutions and industry leaders, CSconnected continues to the voice of the cluster, expanding its supply chain capabilities in partnership with core partners.

The Compound Semiconductor Supply Chain Development Scheme, funded by the Cardiff Capital Region, is another step forward. With a total investment of £1 million, this initiative builds on our existing work by supporting suppliers and buyers in the semiconductor sector, encouraging localised supply chains, and reducing reliance on overseas providers.

CSconnected expands team with Business Development Manager

Hazel Hung joined CSconnected in July 2024 as Business Development Manager, bringing with her extensive expertise and a proven track record of fostering growth within the photonics and semiconductor sectors.

With over 15 years of experience in R&D, sales, and business development, Hazel has played key roles in both academia and industry. Notably, Hazel was instrumental in the growth of Covesion Ltd from a start-up to a key quantum technologies manufacturer. Since relocating to Wales in 2015, she has driven collaboration between industry and academia through her leadership of the Centre for Photonics Expertise.

Skills & outreach: Developing the talent pipeline

CSconnected continues to play a key role in developing the skilled talent pipeline needed to support the compound semiconductor sector in South Wales. Through a coordinated programme of outreach, education, qualifications development and workforce training, we are working to ensure the region remains globally competitive and inclusive for future generations.

In 2024, we appointed Brandon Jones as CSconnected's new Skills Manager, bringing experience from WJEC and FE teaching to lead the development and delivery of our regional skills plan.

1. Inspiring the next generation towards STEM

CSconnected has scaled up its outreach activity across Wales to engage students of all ages and introduce them to real-world opportunities in the sector.

- **At the 2024 SEMI Talent Forum, hosted at Swansea University, we welcomed over 500 students from across the UK, providing direct access to cluster employers and showcasing the breadth of careers available.**
- **As part of our new career session series, we welcomed speakers from across the cluster to share their journeys and advice with students, including Professor Owen Guy from Swansea University.**
- **At the National Eisteddfod, we partnered with Cardiff Capital Region to deliver interactive experiences, including VR headsets demonstrating compound semiconductor applications, in partnership with Swansea University and Imersifi.**

A major highlight has been the launch of Sparking STEM Futures, a cluster-wide initiative designed to inspire young people across South Wales and build early understanding of semiconductors and their real-world impact. Delivered through partners including EESW, Iungo Solutions, Techniquest, Oriel Science, and UKESF, the programme reaches learners from primary through to post-16 with a wide variety of hands-on workshops, accredited projects, and industry engagement. Sparking STEM Futures is made possible with funding from the Cardiff Capital Region (CCR) and the Strength in Places Fund (SIPF).

2. Education and Qualification Pathways

This year marked the launch of Wales' first qualification in compound semiconductors, developed in partnership between WJEC and CSconnected. The new Advanced Manufacturing Technologies (Semiconductors) qualification addresses a key skills gap and introduces clear progression routes from college to industry.

We continue to work with colleges, apprenticeship providers and employers to:

- **Promote industry-relevant pathways through awareness campaigns and taster sessions**
- **Support development of modular, stackable qualifications to enable flexible upskilling**
- **Improve transitions from FE into both higher education and immediate employment**

Skills outreach impact

SEMI Talent at Swansea University

CSconnected was a proud sponsor of the SEMI Europe Talent Forum hosted at Swansea University. The event brought the CSconnected semiconductor cluster together, along with the wider microelectronics industry, to showcase the career opportunities available here in Wales to the 500 registered students from across the UK. Our Director, Chris Meadows took to the stage to explain the history and ambitions of the South Wales semiconductor cluster, providing insights into how we're addressing the skills shortage working alongside industry and educational stakeholders to identify the skills needed in the sector, attracting the right talent, and building a robust talent pipeline.

CPD developed under SIPF

Introduction to compound semiconductor electronics

This two-part course introduces compound semiconductor electronics and emphasises their practical applications. In part one participants gain insights into how semiconductor and compound semiconductor electronic technology is created through self-directed online study, while part two is a hands-on, in-person workshop which allows participants to collaborate on group activities that put the technology into action.

Cleanroom protocols

Understanding cleanroom environments is critical for semiconductor manufacturing. This online course introduces participants to the essentials of working in these highly controlled environments for nanoscale production, including safe working principles and typical practices. It's a must for those entering or working within cleanrooms, where precision and safety are paramount.

CPD impact

CSconnected SIPF Continuing Professional Development (CPD) objective is to coordinate the strategic planning and development of activities designed to up-skill, re-skill and/or new-skill those already in the workplace.

CPD is vital for growth, both for business and industry advancement, but also for individual goals and fulfilment. We are pleased to be offering several courses tailored for people working in, or wishing to join, the semiconductor industry providing a wide variety of development opportunities, while helping support growth of the sector by matching skills demand with supply. Cardiff University is leading on the CPD activities for the CSconnected SIPF project.

As the CS sector continues to grow, staying ahead of the curve is essential. Our CPD courses are structured to balance theoretical knowledge with practical application, catering to professionals at various stages of their careers and align with the needs of the UK's growing CS sector. Our combination of online and in-person courses makes our learning experiences flexible and convenient.

Introduction to compound semiconductor photonics

This e-learning online course introduces compound semiconductor photonics tech and its applications. It provides a comprehensive overview of the topic including helping participants understand what photonics (the physical science of light) are and where they are found in everyday life, as well as the difference between elemental (silicon) and compound semiconductors.

Introduction to wire bonding

This one-day in-person course offers a blend of theory and practical learning about wire bonding, one of the key interconnection processes involved in semiconductor manufacturing. The training includes the opportunity for participants to observe how wire bonding equipment works and learn how to make better decisions when implementing the wire bonding process. We hope to be able to convert the theoretical content to online in 2025.

Courses in development

Introduction to etching for semiconductor manufacturing

This two-day in-person course will introduce the theory of wet and dry (or plasma) etching and provide a foundational knowledge and understanding of this part of the wafer fabrication process. We hope to be able to convert this in-person course to online and anticipate this to be available from early 2026.

Risk, resilience, and sustainability in the semiconductor supply chain

This one-day in-person course will explore the fundamental challenges facing contemporary semiconductor supply chains. It will examine risk management tools and techniques, while providing an understanding of the sustainability challenges faced by the sector and the strategies businesses are employing to address them.

Understanding the semiconductor supply chain - from materials to applications

This three-hour online course will increase overall awareness of the different stages of the semiconductor/compound semiconductor supply chain, helping staff to make better decisions within their own roles.

Fast-Track integration programme for engineers

This week-long programme will be developed from summer 2025 and launched in 2026. Designed to attract talent, it will be aimed at those with engineering experience who are considering a career move into the CS sector. The programme will consist of various CPD activities (including elements of the courses referenced above) as well as some lab/industry visits and networking opportunities. It will be free to attend, via an application process.

Expanding our footprint: Centre 7 and CS²

We've worked hard over the last few years to establish a wide presence across the cluster, operating from different facilities for different purposes.

Centre 7: a new hub for new businesses and partners in the compound semiconductor industry in South Wales

Centre 7, a new hub acquired by the Welsh Government in 2024, has been designed to support innovation, collaboration, and expansion across the sector. CSconnected are now operating from the hub, alongside cluster partners MicroLink Devices UK (MLD UK), with Cadence Design Systems planning to join the centre in 2025.

The building, based in Cardiff, is 51,000 square feet and will serve as a flexible space for inward investors of semiconductor sector supply chain companies.

Facilities include lab space, high quality office accommodation with the potential for manufacturing of semiconductor technologies, small conference facilities, training rooms, meeting rooms, breakout areas and collaborative spaces. This will serve as much-needed space for cluster SMEs and other organisations establishing activities within the compound semiconductor cluster, offering an easy path for companies to come to Wales and collaborate with companies and institutions which are critical to their operations.

Based in Cardiff, with excellent access to the M4 motorway and the numerous other cluster companies involved in semiconductors in the area, the centre provides a prime location for collaboration across the cluster.

CS² : Compound Semiconductor Community Space

CS² in Newport opened at the beginning of 2024, marking a new chapter of collaboration and innovation in the CSconnected community. The site will help us strengthen the local ecosystem, develop regional skills, and support the local supply chain. It signified a big step forward for the CSconnected cluster, reinforcing our position as a national and international community for compound semiconductor innovation. With the UK's industrial strategy taking shape and the CCR Investment Zone bringing vital support to Wales' semiconductor industry, CS² will be a key hub driving collaboration, research, local skills development, supply chain growth, and international engagement at a crucial time for the sector. Co-located with our partner, the CSA Catapult, CS² in Newport officially opened at the beginning of 2025.

Forward look: Building momentum in 2025

Dr. Wyn Meredith
Chair, CSconnected Ltd

In 2024, a year where many industries faced headwinds, the compound semiconductor sector in South Wales showed remarkable tenacity and progress. CSconnected continued to lead by example, demonstrating that collaborative, mission-driven innovation can fuel regional prosperity, along with national and global ambition.

Compound semiconductors are no longer a future concept—they are central to the technology shaping our world today. From energy-efficient vehicles to 6G networks and the infrastructure powering artificial intelligence, CSCs are the foundation of many of the transformative tools we rely on every day. The technologies of tomorrow—cleaner energy systems, smarter transport, faster connectivity—are being built today by the companies and researchers within our ecosystem.

We have experienced a year of landmark private investment from Vishay Intertechnology's £250 million commitment in Newport and the continued expansion of KLA's global engineering support site in South Wales, highlight growing international confidence in our capabilities. These investments are a powerful endorsement of the region's talent, infrastructure, and global potential to lead the next wave of high-tech innovation.

Alongside this, we have seen tangible growth in our skills development infrastructure. Our partnerships with universities, colleges, and training providers have strengthened, opening new career pathways and upskilling opportunities that are essential to sustaining long-term industry growth. This investment in people is laying the groundwork for a more inclusive and future-ready workforce across the region which in turn will improve the economic outlook for both South Wales and the UK.

As we look towards the year ahead, our focus continues in deepening the skills pipeline and reinforcing our supply chain resilience. The success of the cluster relies on a steady flow of skilled professionals and a well-integrated ecosystem of suppliers and innovators.

To unlock this next phase of growth, continued public investment remains vital. Strategic government support will enable CSconnected to expand its world-class offering, accelerate innovation, and attracting even greater private investment—delivering a strong return for the UK economy and securing a leadership position on the global tech stage.