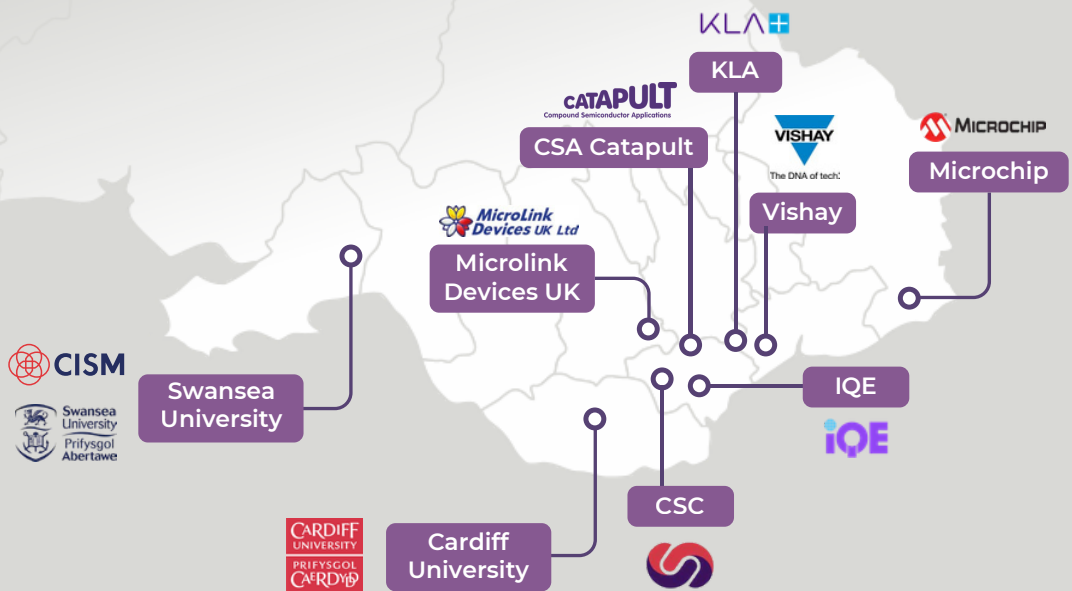


Convening the South Wales compound semiconductor cluster

Made in Wales.

Powering advanced technologies globally.



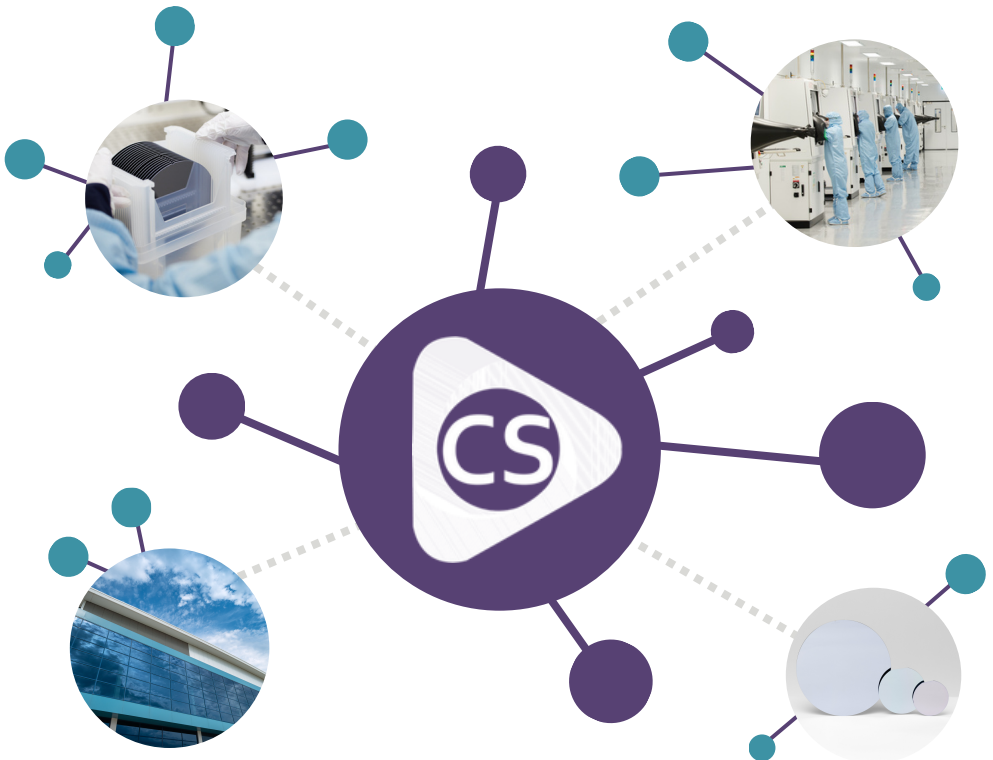
What is CSconnected?

Supporting the world's first compound semiconductor cluster

South Wales hosts a concentrated, end-to-end compound semiconductor capability spanning epitaxy, wafer fabrication, device design, advanced packaging and systems integration.

CSconnected is the cluster body convening this ecosystem, aligning industry, academia and government to scale manufacturing, accelerate commercialisation and strengthen UK sovereign capability in strategically critical semiconductor technologies.

With every major stage of the supply chain present in-region, companies can move from material growth to qualified, production-ready devices within a single, coordinated environment, reducing technical risk, compressing development timelines and improving supply-chain resilience.

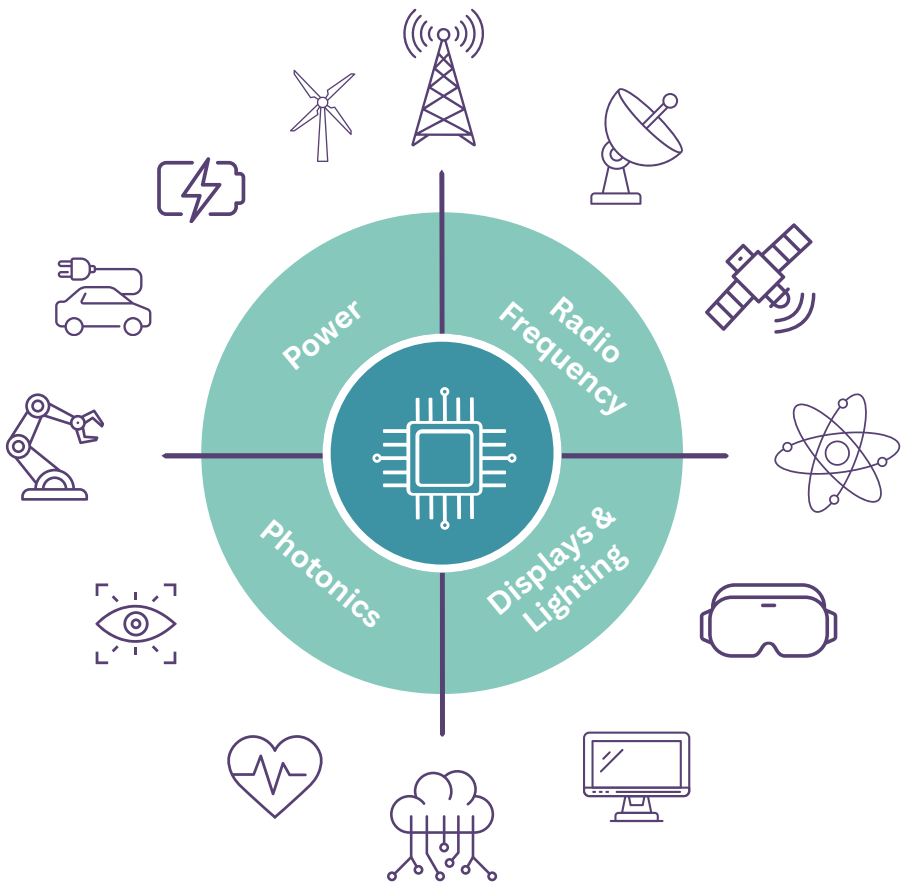


Why it matters

CSconnected represents the compound semiconductor cluster that distributes 90% of output internationally. The cluster can provide you with manufacturing capability, R&D strength, exceptional talent, and a growing supplier base, helping you move faster with less risk.

It currently contributes to many important and growing industries:

The global semiconductor market is \$600bn (exc. equipment)



Providing a fully integrated compound semiconductor supply chain

South Wales hosts a broad range of the compound semiconductor value chain, from advanced material growth through to integrated modules and end systems, a concentration of capability rarely replicated anywhere in the world.

The organisations within the cluster enable device development and manufacturing, reducing risk, shortening development cycles and strengthening UK sovereign capability.

Stages

Stage 1: Epitaxy & substrate materials

- Growth of compound semiconductor epitaxial layers on advanced substrate wafers
- Anchored by IQE, a global leader in epitaxial wafer production, and the Compound Semiconductor Centre.

Cluster organisations working in this stage



Stage 2: Wafer fabrication

- Fabrication of epitaxial wafers into active semiconductor devices
- Anchored by Vishay Intertechnology and open-access fabrication at Swansea University's Centre for Integrative Semiconductor Materials and Cardiff University's Institute for Compound Semiconductors.

Cluster organisations working in this stage



Cluster organisations
working in this stage

Stage 3: Etch & deposition

- Precision plasma etch and thin-film deposition processes are critical to device geometry and electrical or optical performance
- Anchored by KLA Corporation's precision etch and deposition systems



Cluster organisations
working in this stage

Stage 4: Device design, characterisation & test

- Device modelling, simulation, performance validation and qualification
- Expertise across Power Electronics, RF/Microwave, Photonics and Quantum applications

Anchored by:

- Cardiff University's Institute for Compound Semiconductors
- Swansea University's Centre for Integrative Semiconductor Materials
- Compound Semiconductor Applications Catapult



Cluster organisations
working in this stage

Stage 5: Advanced packaging module integration & systems

- Assembly of fabricated dies into protected, connectable, thermally managed packages
- Integration of packaged devices into modules, subsystems and finished technologies
- Demonstrated across RF front ends, photonics platforms, power electronics, and quantum
- Anchored by packaging and integration capability at Microchip Technology and the Compound Semiconductor Applications Catapult.



Innovation and R&D

CSconnected represents the organisations directly involved in the research, development, innovation and advanced manufacturing of compound semiconductor technologies. The cluster brings together:

- Universities and research institutes
- Materials and epitaxy
- Wafer fabrication
- Device design and testing
- Packaging and advanced manufacturing assembly
- Systems integration and end users

Power



Platforms
SiC GaN

Architectures
MOSFET HEMT

Photonics



Platforms
InP GaAs GaN

Architectures
VCSEL PIC EEL LED PV

RF & Microwave



Platforms
GaN SiC

Architectures
HEMT MMIC PA

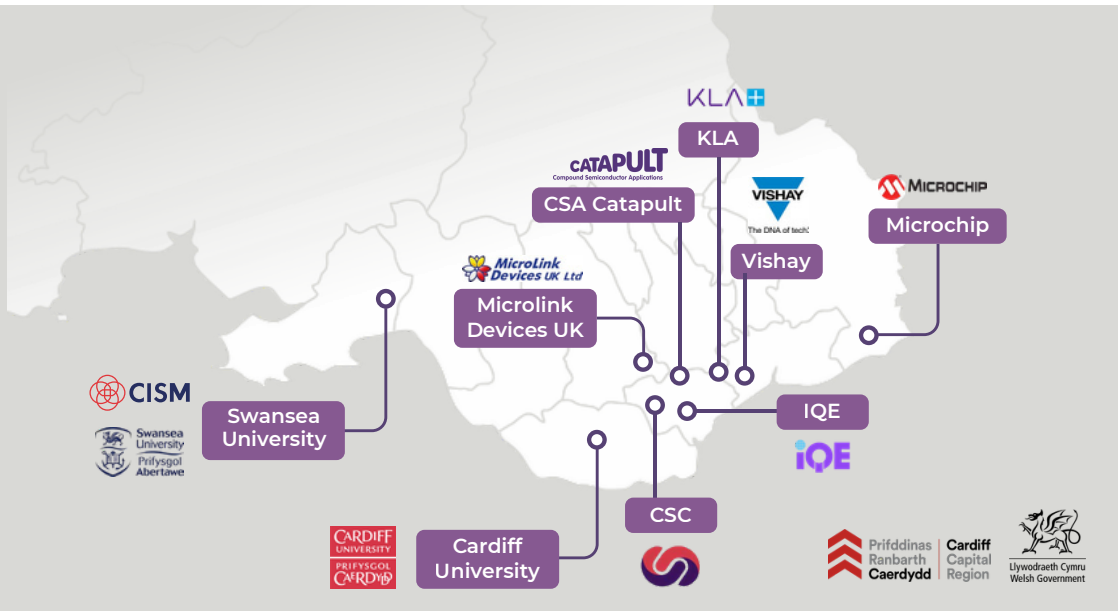
Quantum



Platforms
InP GaAs AlN Diamond

Architectures
VCSEL SPAD NV QD

Compound semiconductor organisations in the cluster



Global leader in epitaxial wafer production, enabling high-performance devices across wireless, photonics, power and sensing markets.



Designing and manufacturing advanced wafer processing equipment from Newport, serving global semiconductor customers across power, photonics, packaging and RF markets



Specialist advanced semiconductor packaging services based in Caldicot, with over 30 years of expertise supporting cutting-edge design, reducing development costs and accelerating time to market.



The UK's largest semiconductor manufacturing facility, providing a secure and reliable source of advanced chips, ensuring supply chain stability while growing compound semiconductor power conversion capability.



Producing high-performance GaAs-based multi-junction solar cells and high-energy battery packs, enabling ultra-lightweight integrated solar-electric power systems for UAV and aerospace applications

Compound semiconductor organisations in the cluster continued

CATAPULT
Compound Semiconductor Applications

Specialist facility helping UK businesses commercialise compound semiconductor technologies, providing state-of-the-art equipment, specialist expertise and practical know-how to accelerate routes to market and strengthen UK competitiveness

CARDIFF
UNIVERSITY
PRIFYSGOL
CAERDYDD

Leading research university delivering world-leading compound semiconductor research through the ICS, its Institute for Compound Semiconductors, driving the next generation of materials and devices.

 **Swansea**
University
Prifysgol
Abertawe

Leading research university advancing compound semiconductor materials and devices, including silicon carbide and gallium nitride, through its Centre for Integrative Semiconductor Materials (CISM).

Organisation descriptions are for illustrative purposes only



Economic impact and workforce

South Wales: a national asset for semiconductor growth

The compound semiconductor cluster delivers exceptional economic value, combining high productivity, strong exports and well-paid jobs.

Economic contribution



£567m GVA contribution to the UK economy (2025)

£140,000 GVA per employee

£480m in exports (2025)

High value careers



£66,000 average salary

95% full-time employment

A growing community



3,140 total employed

6,000 jobs projected by 2030

Every full-time equivalent job in the CS cluster in Wales (1,914 employees) supports a further **1.29** jobs in the wider UK economy (a total of **4,392** UK employees)

Strengthening the semiconductor talent pipeline

Building the workforce of the future.

South Wales is developing a nationally unique talent pipeline, from school outreach to advanced qualifications and CPD.

Education & outreach (2025 - 2026):



23,000+ primary and secondary students engaged

700+ teachers engaged

400+ events delivered

380+ school projects

49% of student participants female

Wales offers the world's only mapped semiconductor progression route from age 14 to PhD, including:

WJEC Level 2 & 4 qualifications

Degree apprenticeships and MScs

PHD or CPD

South Wales is home to the UK's largest compound semiconductor fab and a globally recognised manufacturing base.

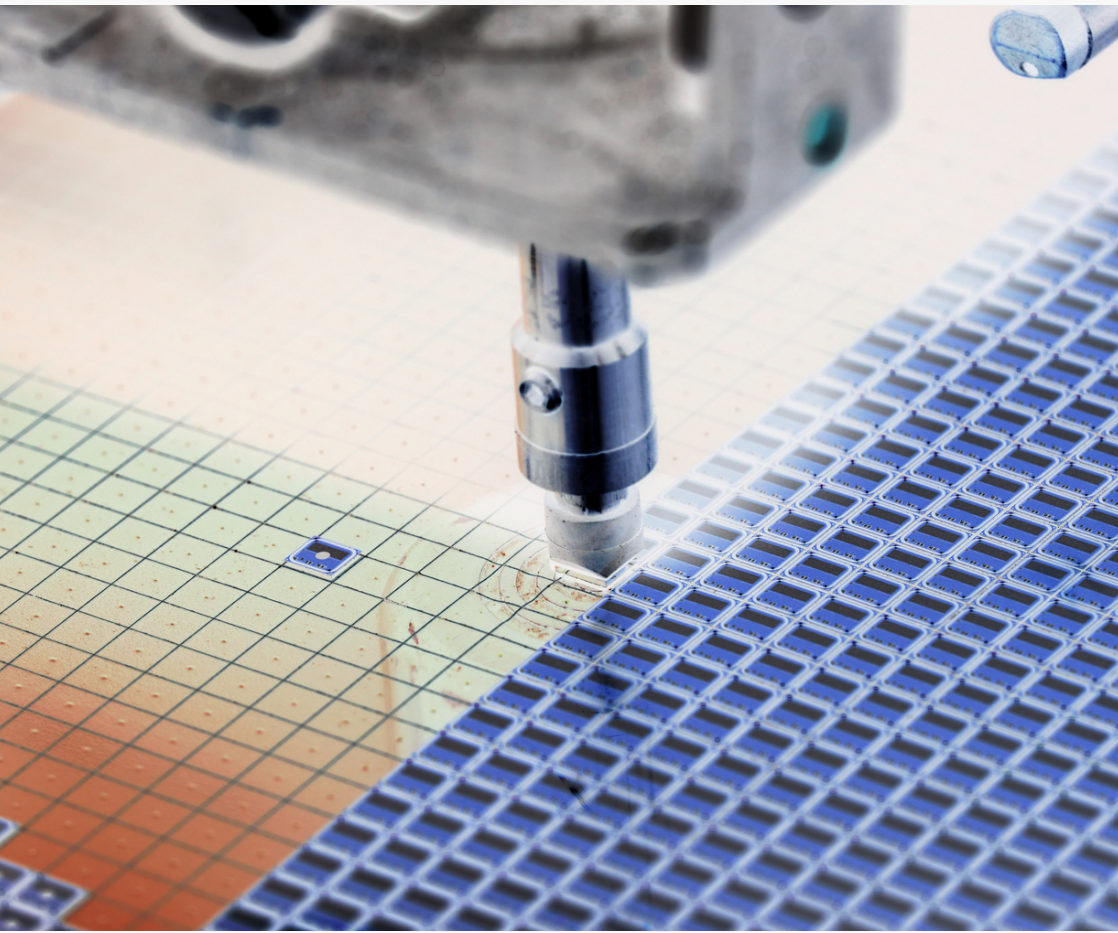
£250M

**Vishay Intertechnology,
Government backed**

\$138M

**KLA R&D and
manufacturing centre**

This anchored manufacturing base provides sovereign capability in critical technologies such as SiC, GaN, RF and photonics.





The South Wales compound semiconductor cluster

Made in Wales.

Powering advanced technologies globally

Visit: csconnected.com

CSconnected SIPF is funded by UKRI



**UK Research
and Innovation**

