



Welsh Economy  
Research Unit

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Yr Uned Ymchwil  
i Economi Cymru

CSconnected

**Annual Report: Compound Semiconductor Cluster in South  
Wales 2025**

**March 20<sup>th</sup> 2026**

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## Summary

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This report provides the 2025 annual update of the Compound Semiconductor Cluster in South Wales initiative. The report considers the economic activity supported in Wales and the UK by the cluster of firms and institutions that form part of CSconnected activity funded by the *Strength in Places Fund*, which is managed by UK Research and Innovation (UKRI).

The outlook for the global semiconductor industry for 2026 remains positive in terms of sales revenue. Nevertheless, continued trade tensions are likely to make the global context increasingly complex, with the US dominating the industry, but with other countries like China also exercising significant impact on trade conditions. The October 2025 agreement between the US and China to develop trade talks over the coming months may have reduced tensions, including it seemingly having a knock-on effect for EU-China trade relations, but the underlying agendas driving these tensions remain.

The greatest risks facing the global semiconductor industry continue to relate to skills supply, lower than forecast demand for semiconductor products, geopolitics, and growing obstacles to trade. The potential for a wider economic downturn affecting end-product demand is also notable. Lower than forecast demand for semiconductor products has been a particularly prevalent risk factor discussed by analysts during 2025, with some fearing growth expectations of AI demand, which is driving much of the industry's growth, may be overly optimistic. Nevertheless, skills shortages remain the most critical risk.

It is estimated that total sales of the CS cluster in 2025 were around £531m, this being an increase of approximately 5% on the figure of £507m reported in 2024. For 2024 it was estimated that the CS cluster employed 1,806 people; for 2025 it is estimated that the cluster employed 1,914 people, an increase of approximately 6% on the year, with this occurring at a time when employment in key parts of the wider sector has been under some pressure.

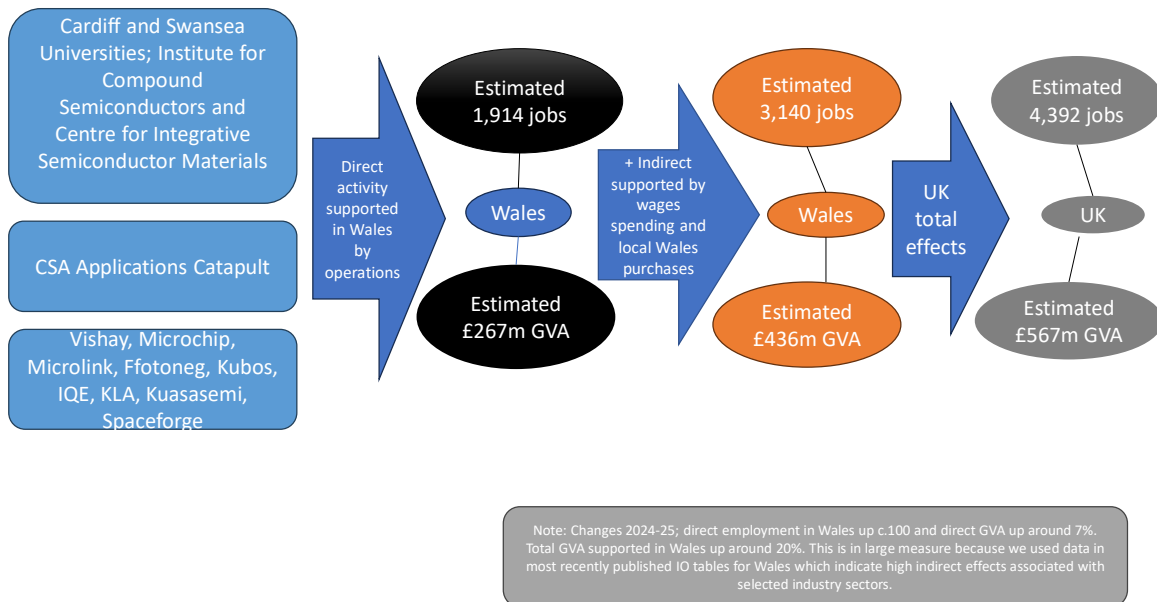
The overall CS cluster is projected to have a GVA per employee of £139,516 in 2025, but this figure includes a range of organisations that do not engage in manufacturing. When higher education and R&D activities are excluded, the private sector manufacturing part of the cluster in 2025 is expected to generate £247 million in GVA with 1,646 employees, resulting in an estimated GVA per employee of £150,061.

The CS cluster made an important contribution to Welsh exports in 2025. The proportion of output exported by the industrial parts of the cluster is in excess of 90% and has been for a number of years. The total value of exports from the cluster in 2025 is estimated at £480m (an increase of 3% on the estimated figure of £466m in 2024).

Using the Welsh Input-Output framework it is estimated that the cluster, through its purchasing of regional goods and services and its payment of wage incomes, supports a further £169m of GVA in the Welsh economy. Therefore, in 2025 it is estimated that each £1m of GVA directly generated in the CS cluster supports an additional £0.63m of GVA elsewhere in the Welsh economy. Overall, this results in the cluster supporting directly and indirectly an estimated £436m of Welsh GVA. This is around 19% higher than the estimate for 2024 (£366m).

Similarly, while the cluster directly supports around 1,914 jobs, it supports an estimated further 1,226 jobs through its purchasing and payment of wages and salaries i.e. every employee in the cluster is connected to an estimated 0.64 of employment elsewhere in the Welsh economy. In total, therefore, the cluster in 2025 is associated with as many as 3,140 jobs in Wales.

**Figure: CS Cluster Impact summary**



The analysis in this report also shows that the CS cluster in Wales:

- Supports a total of £567m of GVA in the whole UK economy in 2025, up from £434m in 2024.
- That 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 (i.e. a total of 4,392 UK employees).

The analysis of the CS cluster in the annual report series and case studies leads to a conclusion that outcomes from the CS cluster linked to grant and other public funding are still nascent, with the future expected to see:

- More significant embedding of the outputs of the CS cluster in UK value chains (import displacement) rather than being sold to export markets.
- Additional outcomes from new investment in both large firms and the new smaller organisations investment in the cluster. Strategic investment by KLA and Vishay are still in development and with prospects for significant further employment and value-added creation.
- Further local skills development to support the cluster.

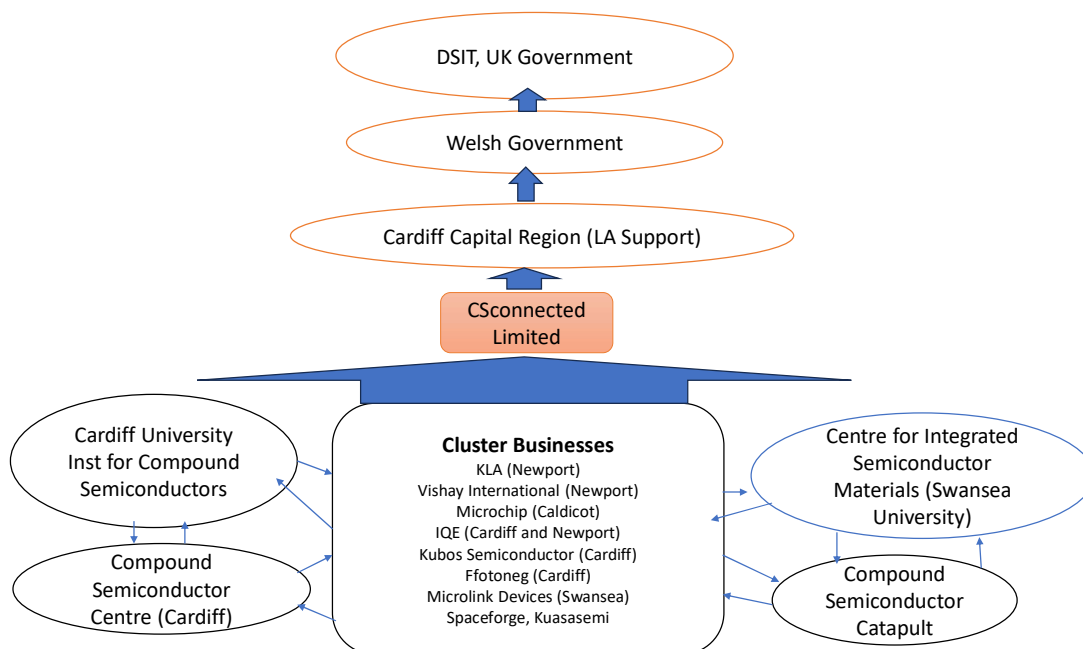
As the CS cluster develops it will be valuable to continue the collection of survey data in respect of the sales, spending and employment of cluster members, but also to collect information from businesses in the local supply chain. Moreover, as the CSconnected research and technical projects funded by UKRI mature, it will be important to track the extent of longer-term commercial outcomes to run aside the historical time series of data from the annual reports.

# 1. Introduction

This report provides the 2025 annual update of the Compound Semiconductor Cluster in South Wales initiative. The report considers the economic activity supported in Wales and the UK by the cluster of firms and institutions that form part of CSconnected activity funded by the *Strength in Places Fund*, which is managed by UK Research and Innovation (UKRI).

The consortium consists of partners including: Cardiff University (lead), Swansea University (Centre for Integrative Semiconductor Materials), Vishay International, IQE, KLA, Microchip, MicroLink Devices, the Compound Semiconductor Centre, the Compound Semiconductor Applications Catapult, the Cardiff Capital Region (CCR) City Deal, and Welsh Government. In examining economic impact, the whole of the CS cluster is considered. Figure 1.1 summarises the CS cluster in Wales and reveals institutional links and pathways to Welsh Government and UK Government.

Figure 1.1 The CS Cluster in South Wales



An important element of the CSconnected activity is to explore the changing economic contribution of the CS cluster in Wales over time, particularly the way in which the activities of the firms and institutions supported by the UKRI funding contribute in terms of meeting place-based needs in the Welsh economy.

This report estimates the economic activity supported by the CS cluster in 2025 and includes contextual information through which to better understand the economic contribution of the cluster.

Various data have been used to develop this report. During each year of the UKRI funded research it has been possible to administer a survey questionnaire to cluster members. The latest survey was issued during the Autumn of 2025 and was used to collect information in respect of the output, employment, wages and salaries, expenditure and exports of the private sector elements of the cluster and the independent research entities. The information collected from this survey allows the analysis of the amount of employment and output supported by the cluster and facilitates an analysis in terms of the comparative economic significance of the sector. The survey also collects data in respect of the spending patterns of cluster members in the Welsh economy. This supports the research team in estimating both the direct and indirect impacts of the cluster on the Welsh economy (see below).

In developing the annual report series, published company accounts data from the Bureau van Dijk FAME database are also used alongside the survey data, with this providing additional insights into the spending and performance of the cluster firms. Finally, extensive use is made of published statistics from organisations such as the Office for National Statistics. This is largely in terms of regional economic data with respect to industry employment and gross value added (GVA).

The report presents estimates of the Welsh economic activity supported by the CS cluster. It is important to stress that this is an estimate up to the final quarter of the 2025 calendar year, as the companies involved in the cluster have different financial reporting year end dates. In addition, the analytical process requires assumptions to be made about the GVA directly and indirectly supported by CS cluster operations.

Part of the analysis comprises an economic modelling exercise to examine how the CS cluster supports activities in other parts of the Welsh and UK economy. This report makes use of the latest series of Input-Output tables<sup>1</sup> produced by Welsh Government in coming to conclusions on the multiplier effects of cluster spending in the local economy.

The annual review of economic activity supported by the cluster also serves to inform a series of KPIs for the UKRI funded Strength in Places CSconnected project. These KPIs include:

- KPI 1 Direct employment in core cluster firms and new inward investors.
- KPI 2 Exports of cluster firms.
- KPI 4 Total GVA supported by cluster activity directly and indirectly.

The next section provides an update on the international semiconductor industry context in 2025. The third section reviews the UK and regional economic context surrounding the cluster. The fourth section focuses on the economic contribution of the CS cluster in Wales, with the fifth section considering the wider economic impact of the cluster on the Welsh and UK economy. The sixth section provides some additional analysis in respect of the economic characteristics of parts of the semiconductor sector in the UK. The final section provides some conclusions. This is the last in a series of reports examining the Welsh economy effects of the cluster. Hence in the conclusions, changes in the cluster in terms of economic impact since the inception of the CSconnected project in 2019-20 are reviewed.

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<sup>1</sup> [Supply and use tables and input-output tables | GOV.WALES](#)

# 2. Global semiconductor industry conditions

## 2.1. Introduction

During 2025, global trading relations were dominated by uncertainties, largely resulting from the US approach to tariffs. Along with ensuing trade negotiations, this has contributed to considerable volatility in global market environments. Although various exclusions have been carved out, and various agreements have been reached between the US and its trading partners, global trading conditions have become more unpredictable. Although trade and geopolitical tensions have increased worldwide, they are especially intense in the ongoing rivalry between the US and China.

A wide range of sectors such as telecommunications and the automotive industry have been affected but, given their highly globalised structure, the semiconductor industry is particularly exposed to growing trade barriers and uncertainties. At the end of October 2025, however, Donald Trump and Chinese leader Xi Jinping agreed to delay export controls on rare earths and chips for one year while trade negotiations between the two countries continue. These initial discussions did not appear to include any agreement on the most advanced microelectronics, where the US has a significant advantage.<sup>2</sup>

Trends in the PHLX Semiconductor Sector Index (SOX – a market capitalisation weighted index of firms involved in the design, distribution, manufacturing and sale of semiconductors) from March 2025 are shown in Figure 2.1. This reveals that, despite the market condition uncertainties, there has been sustained growth since April. The adaptability of multinational enterprises continues to be a significant dynamic in the resilience of the global semiconductor industry, and it continues to power the growth experienced during 2025. Given the growing trade insecurities, however, such resilience is being increasingly put under pressure.

Figure 2.1: March 2025-Feb 2026 PHLX Semiconductor Index



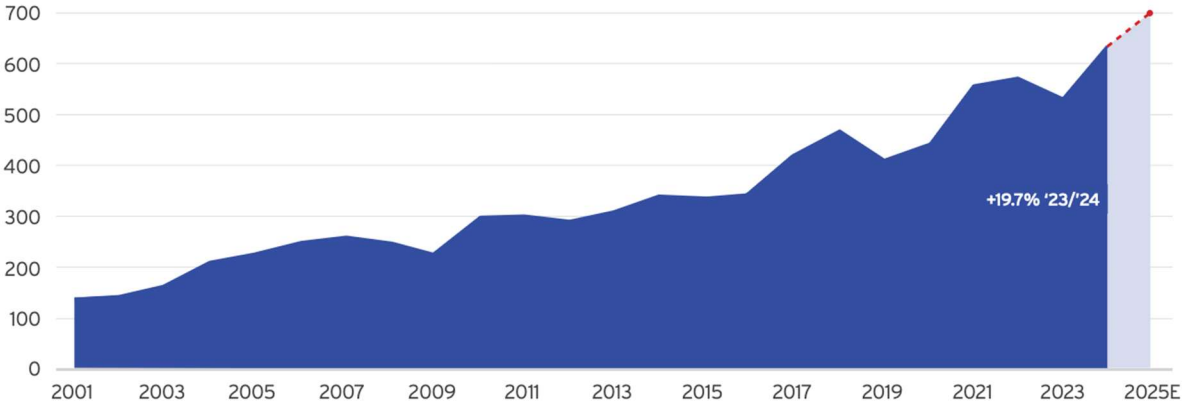
Source: [Overview for SOX](#)

Combined demand from AI, electrical and automotive vehicles, and advanced manufacturing are forecast to drive the overall growth of the global semiconductor industry through the next decade. AI alone is expected to contribute \$15 trillion to the global economy. Figure 2.2 shows global

<sup>2</sup> Financial Times (30.10.25). US and China agree 1-year trade truce after Donald Trump-Xi Jinping talks. Accessed November 2025: [www.ft.com/content/ceb9d271-09b4-4066-87a7-1e93b6908640](http://www.ft.com/content/ceb9d271-09b4-4066-87a7-1e93b6908640)

semiconductor sales since 2001. Estimates for 2025 indicate that global semiconductor industry sales will have increased by 11.2 percent compared with 2024 (nominal with no inflation adjustment). In 2024, US headquartered companies accounted for 50.4 percent of total global sales revenue, whilst South Korea accounted for 21.1 percent, Europe 9.2 percent, Japan 8.2 percent, Taiwan 6.5 percent, and China 4.5 percent.<sup>3</sup>

**Figure 2.2: Global Semiconductor Sales, 2001-2025 (Est.) (USD Billions)**



Source: Reproduced from SIA (2025) State of the US Semiconductor Industry.

Large-scale state investments in semiconductors, such as the US Chips Act 2022, the EU Chips Act 2023, and China's Integrated Circuit Industry Investment Fund (over three phases), have been complemented by substantial private sector investment. Research has indicated that around \$2.3 trillion in private sector investment in wafer fabrication will be achieved between 2024 and 2032.<sup>4</sup> These investments are leading to greater geographical distribution of semiconductor manufacturing across the globe, which is, in turn, leading to greater resilience in the industry's product chain. This is significant, particularly given the major geopolitical tensions that have continued throughout 2025.

## 2.2. Global Overview

### The USA

Productive capacity in the US continued to expand throughout 2025. Intel officially commenced operations at 'Fab 52' in Arizona, which produces some of the world's most advanced semiconductor chips. Meanwhile, TSMC is progressing with the construction of its second facility in Arizona and intends to begin equipment installation in 2026. Construction of a third facility began in 2025, and additional investments are planned. Overall, TSMC has committed approximately \$165 billion toward its investments in the US.

<sup>3</sup> SIA (2025). State of the US Semiconductor Industry. Accessed November 2025: [www.semiconductors.org/wp-content/uploads/2025/07/SIA-State-of-the-Industry-Report-2025.pdf](http://www.semiconductors.org/wp-content/uploads/2025/07/SIA-State-of-the-Industry-Report-2025.pdf)

<sup>4</sup> BCG/SIA (2024). Emerging Resilience in the Semiconductor Supply Chain. Accessed November 2024: [www.bcg.com/publications/2024/emerging-resilience-in-semiconductor-supply-chain](http://www.bcg.com/publications/2024/emerging-resilience-in-semiconductor-supply-chain)

Investment in US chip manufacturing is projected to grow substantially in the next few years from \$21 billion in 2025 and 2026, to \$33 billion in 2027, reaching \$43 billion in 2028. The combined total investment from 2027 to 2030 is estimated at \$158 billion. This significant rise perhaps reflects the influence of US policies such as the Biden-era Chips Act and the Trump administration's tariffs regime designed to promote domestic chip production, as well as the anticipated increase in demand for AI computing, where the US semiconductor industry remains at the forefront.<sup>5</sup>

Despite repeated criticism of the US Chips Act, at the end of March the Trump administration created a new government entity (the United States Investment Accelerator) to oversee the implementation of the Act.<sup>6</sup> Notwithstanding positive investment predictions and the October summit between US and Chinese leaders, uncertainty persists within the US semiconductor industry and elsewhere regarding the effects of the Trump administration's tariff policies.<sup>7</sup> The success of the US semiconductor industry is largely dependent on international trade, as approximately 70 percent of its revenue is generated through sales to global customers.<sup>8</sup> Any disruption to this trade is likely to have negative consequences for the US industry.

Ongoing worries remain about the higher production costs of making chips in the US, along with significant concerns regarding a serious shortage of skilled workers.<sup>9</sup> Research has found that the US semiconductor industry faces significant shortages of technicians, computer scientists, and engineers.<sup>10</sup> With the anticipation of growing investment in the US, greater pressure will likely be placed on these expected talent shortfalls, particularly when situated within the Trump administration's negative stance on the recruitment of foreign talent to the US semiconductor industry.<sup>11</sup>

## China

Throughout 2025, the Chinese semiconductor industry faced major challenges, but it continued to evolve. This was characterised by consolidation efforts, increased production capacity, and a continued attempt to move away from dependence on foreign suppliers.

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<sup>5</sup> SEMI (5.9.25). 300mm Fab Outlook Report Q3 2025. Accessed November 2025: [www.semi.org/en/products-services/market-data/300mm-fab-outlook](http://www.semi.org/en/products-services/market-data/300mm-fab-outlook)

<sup>6</sup> The Guardian (1.4.25). Trump signs order to set up new entity to take over Biden's Chips Act program. Accessed November 2025: [www.theguardian.com/us-news/2025/mar/31/trump-order-chips-act](http://www.theguardian.com/us-news/2025/mar/31/trump-order-chips-act)

<sup>7</sup> Financial Times (7.8.25). TSMC's trade secrets and Trump's chip tariffs. Accessed November 2025: [www.ft.com/content/d82687e2-703e-4507-9a10-1c70ef00955d](http://www.ft.com/content/d82687e2-703e-4507-9a10-1c70ef00955d)

<sup>8</sup> SIA (2025). State of the US Semiconductor Industry 2025. Accessed November 2025: [www.semiconductors.org/wp-content/uploads/2025/07/SIA-State-of-the-Industry-Report-2025.pdf](http://www.semiconductors.org/wp-content/uploads/2025/07/SIA-State-of-the-Industry-Report-2025.pdf)

<sup>9</sup> Financial Times (10.10.25). China's wafer shake-up and the rise of 'Silicon Desert'. Accessed November 2025: [www.ft.com/content/f4366d39-906f-45bb-9c50-f5d4dba0336e](http://www.ft.com/content/f4366d39-906f-45bb-9c50-f5d4dba0336e)

<sup>10</sup> SIA and Oxford Economics (2023). Chipping away: Assessing and addressing the labour market gap facing the US semiconductor industry. Accessed November 2025: [www.semiconductors.org/chipping-away-assessing-and-addressing-the-labor-market-gap-facing-the-u-s-semiconductor-industry](http://www.semiconductors.org/chipping-away-assessing-and-addressing-the-labor-market-gap-facing-the-u-s-semiconductor-industry)

<sup>11</sup> Time (23.9.25). How Trump's H-1B Reform Could Harm American Tech Innovation. Accessed November 2025: <https://time.com/7319507/h1b-trump-tech-innovation-ai/>

The Chinese leadership's efforts to consolidate the country's fragmented semiconductor industry into a smaller number of 'national champions' firms capable of competing internationally, and allowing more targeted investment strategies, continued throughout 2025. Although there have been some high-profile achievements in this objective, such as the merger of Hygon and Sugon, many other potential mergers have experienced difficulties related to agreements over ownership structures and valuations.<sup>12</sup>

China has also sought to overcome its weaknesses in advanced chip production, seeking to triple domestic production over the next year, to support its AI ambitions. One fab dedicated to producing Huawei's AI processors is due to start operating in the coming months, with two further plants planned to come on line during 2026.<sup>13</sup> The race to secure Chinese domestic production of these advanced chips has been given added impetus since the US government's ban on exports by global leader Nvidia, which continues to produce the world's most advanced chips. It is anticipated the combined output from these three new fabs will exceed the current production capacity of China's current leading fab operated by SMIC, which is itself seeking to significantly increase its production. China has also been seeking to produce more memory chips that have also been subject to US export bans.<sup>14</sup>

For its part, China extended rare earths export restrictions during 2025 and, notwithstanding the October meeting between Donald Trump and Xi Jinping, China's dominance of rare earths represents a significant part of global semiconductor supply chains. China controls around 70 percent of rare earth mining, 90 percent of separation and processing, and 93 percent of magnet manufacturing. The US and other G7 economies are exploring alternative non-China supply chains in this crucial part of the semiconductor supply chain, but doing so is likely to be complex and take time given China's overwhelming dominance of current supply.<sup>15</sup>

### **Taiwan and South Korea**

Taiwan's dominance in the global chip manufacturing segment appears stronger than ever, as already record chips exports during 2024 roughly doubled again in 2025. Much of this growth is accounted for by TSMC, which manufactures around 90 percent of the world's most advanced chips. The company, which supplies firms such as Nvidia, Broadcom and Apple, has experienced significant sustained growth resulting from strong AI demand. Given its global dominance of this segment of the global semiconductor supply chain, however, Taiwan's geopolitical vulnerabilities remain a significant issue for the industry.<sup>16</sup>

The South Korean semiconductor industry is dominated by two major firms – SK Hynix and Samsung Electronics. During 2025 SK Hynix, which accounts for more than half of the global market share of the high-bandwidth memory chip market, has experienced continue growth as a result of strong AI demand for its products, and presold its total production output for 2026.<sup>17</sup> The

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<sup>12</sup> Financial Times (6.8.25). China hits roadblock in drive for 'national champions' in chip industry. Accessed November 2025: [www.ft.com/content/579fbffe-9add-466a-8d72-31d12151c040](http://www.ft.com/content/579fbffe-9add-466a-8d72-31d12151c040)

<sup>13</sup> Financial Times (27.8.25). China seeks to triple output of AI chips in race with the US. Accessed November 2025: [www.ft.com/content/64caeab8-a326-4626-98fb-e1bf665827d3](http://www.ft.com/content/64caeab8-a326-4626-98fb-e1bf665827d3)

<sup>14</sup> Financial Times (27.8.25). *ibid.*

<sup>15</sup> Financial Times (9.10.25). China unveils sweeping rare-earth export controls to protect 'national security'. Accessed November 2025: [www.ft.com/content/c4b2c5d9-c82f-401e-b763-bc9581019cb7](http://www.ft.com/content/c4b2c5d9-c82f-401e-b763-bc9581019cb7)

<sup>16</sup> Financial Times (14.10.25). TSMC's stock market rally is a triumph of need over fear. Accessed November 2025: [www.ft.com/content/c5ac9203-f800-42a2-8f53-1d2cdd8c3b03](http://www.ft.com/content/c5ac9203-f800-42a2-8f53-1d2cdd8c3b03)

<sup>17</sup> Financial Times (29.10.2024). Nvidia supplier SK Hynix has already sold next year's chips on AI boom. Accessed November 2025: [www.ft.com/content/64e7dfb0-b32c-417e-b411-efc9098e1e3a](http://www.ft.com/content/64e7dfb0-b32c-417e-b411-efc9098e1e3a)

performance of Samsung Electronics has been more mixed during 2025, but an agreement to produce Tesla's next generation AI6 chip by the end of 2033 in Texas, where it will invest \$37 billion over the coming years, was a major boost to the company's fortunes.<sup>18</sup>

## Europe

The European Commission has begun reviewing the EU's Chips Act to strengthen its position in the global semiconductor industry.<sup>19</sup> In September 2025, the EU published a joint declaration to strengthen the Chips Act and reduce Europe's supply chain vulnerabilities<sup>20</sup>. This perhaps signifies a shift in the EU's tone toward becoming more concerned with its economic security, and away from its assumptions that complex interdependencies force countries controlling different parts of the supply chain to cooperate.<sup>21</sup>

In October 2025, the Dutch government took control of Netherlands-based Chinese-owned chip manufacturer Nexperia. In retaliation for the move against Nexperia, which manufactures basic chips used in cars, consumer goods, and industrial application, the Chinese government banned the export of some of Nexperia's products that are packaged and tested in China.

Dutch-owned and global-leading advanced chip manufacturing equipment maker ASML, which has a more significant position in the global semiconductor ecosystem than Nexperia, has already determined not to export its leading machines to China.<sup>22</sup> The European car industry would have been particularly impacted by these tensions. Following the Donald Trump and Xi Jinping meeting in October 2025, however, there appeared to be softening of the Chinese government's stance toward the export ban on Nexperia products designed for civilian use, including the European motor industry.

## The UK

The UK government has sought to move forward with the implementation of the National Semiconductor Strategy during 2025. In June 2025, the UK government published its Industrial Strategy digital and technologies plan<sup>23</sup>, which highlighted the semiconductor industry as one of six 'frontier technologies'.

The plan identified four interventions with, by international standards, modest sums attached to each intervention, which appear to remain consistent with the National Semiconductor Strategy's emphasis on design and IP. Responsibility for these interventions are nested within UK Government DSIT, and they include:

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<sup>18</sup> Financial Times (31.7.25). South Korean's chip push and dark days for Japan Display. Accessed November 2025: [www.ft.com/content/ceadb6ac-970a-4cac-8ca5-b4ce341be0f6](https://www.ft.com/content/ceadb6ac-970a-4cac-8ca5-b4ce341be0f6)

<sup>19</sup> European Commission (5.12.2025). Commission launches public consultation and call for evidence on the evaluation and review of the Chips Act. Accessed November 2025: <https://digital-strategy.ec.europa.eu/en/news/commission-launches-public-consultation-and-call-evidence-evaluation-and-review-chips-act>

<sup>20</sup> European Council (29.9.25). Semicon Coalition calls for reinforced Chips Act. Accessed November 2025: <https://digital-strategy.ec.europa.eu/en/news/semicon-coalition-calls-reinforced-chips-act>

<sup>21</sup> Financial times (14.10.25). Europe needs a better Chips strategy. Accessed November 2025: [www.ft.com/content/4e62c3d7-00b7-4b8f-b942-a96e52bab62f](https://www.ft.com/content/4e62c3d7-00b7-4b8f-b942-a96e52bab62f)

<sup>22</sup> Financial Times (18.10.25). Europe slowly awakens to its entry into US-China wars. Accessed November 2025: [www.ft.com/content/f03d5f8b-08fe-4294-baab-ccce4b4f99b3](https://www.ft.com/content/f03d5f8b-08fe-4294-baab-ccce4b4f99b3)

<sup>23</sup> UK Government (2025). Industrial Strategy Digital and Technologies Sector Plan. Accessed November 2025: [https://assets.publishing.service.gov.uk/media/685862e5b328f1ba50f3cea4/industrial\\_strategy\\_digital\\_and\\_technologies\\_sector\\_plan.pdf](https://assets.publishing.service.gov.uk/media/685862e5b328f1ba50f3cea4/industrial_strategy_digital_and_technologies_sector_plan.pdf)

- Establishing a new UK Semiconductor Centre with the aim of improving cross-sectoral leadership in semiconductors and guiding future investment decisions (£19m).
- Funding for Innovation and Knowledge Centres to help bring chip technologies to the market (£25m).
- A new Chip Design Enablement Programme that will seek to boost the UK's chip design capability (£5m).
- A UK-wide skills programme to improve the semiconductor talent pipeline (£35m).

June 2025 saw the launch of the UK's Semiconductor Centre. Although the Semiconductor Centre announcement came with £10m of funding, it remains unclear whether the UK will provide any additional funding to support the growth of its semiconductor industry over and above the £1 billion investment over ten years announced by the previous government, or whether there will be any revisions to the National Semiconductor Strategy. Given the UK's fiscal weaknesses, it seems unlikely any significant additional funding will be announced in the foreseeable future.

### **2.3. Looking Forward**

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The outlook for the global semiconductor industry for 2026 remains positive in terms of sales revenue. Nevertheless, continued trade tensions are likely to make the global context increasingly complex, with the US dominating the industry, but with other countries like China also exercising significant impact on trade conditions. The October 2025 agreement between the US and China to develop trade talks over the coming months may have reduced tensions, including seemingly having a knock-on effect for EU-China trade relations, but the underlying agendas driving these tensions remain.

The US, China, the EU, and other countries will continue to invest heavily in their own industries during 2026 and will seek to further reduce their trade vulnerabilities and supply chain weaknesses. Overall, however, the successful and long-established global supply chains that have driven the three-decade long growth in the semiconductor industry continue to appear threatened, and the resilience of multinational enterprises appears to be more important than ever.

### **2.4. Risks Impacting Cluster Development**

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Figure 2.3 provides a risk register for the semiconductor industry. This is an indication of the risks facing the wider global semiconductor industry rather than any risks particularly faced by the CS cluster. The risk score is generated by multiplying the likelihood of a risk occurring by the potential impact of the risk on the semiconductor industry. These are based on the judgment of the authors having considered the material developed in the review here.

**Figure 2.3: Global Semiconductor Industry Risk Register**

Risk	Risk Description	Likelihood	Impact	Risk Score	Mitigation Measures
R1	Increased geopolitical tensions (supply chain and raw material disruption).	3	4	12	Diversifying supply chains, stockpiling, growth of regional clusters, investment in domestic production.
R2	Increased export controls, tariffs, and blacklisting.	4	3	12	Diversifying supply chains, stockpiling, political/policy advocacy.
R3	Reduced financial and other investment (state and industry)	2	4	8	Focus on innovation, international collaboration, political/policy advocacy.
R4	Wider economic downturn (affecting end markets).	2	5	10	Diversifying products, increased manufacturing responsiveness.
R5	Lower than forecast downstream demand for semiconductors.	4	4	16	Diversifying products, market expansion, customer engagement.
R6	Insufficient labour/skills supply (including replacement skills).	4	5	20	Investment in future/replacement skills provision, political/policy advocacy.
R7	Environmental impact (regulatory compliance requirements).	2	3	6	Adoption of green manufacturing processes, investment in R&D, employee training.

*Key: Likelihood (probability of the risk occurring 1 [not very] – 5 [very]); Impact (consequences should risk occur 1 [minimal] - 5 [severe]); Risk Score (likelihood score x impact score).*

The greatest risks facing the global semiconductor industry appear to continue to relate to skills supply, lower than forecast demand for semiconductor products, geopolitics, and growing obstacles to trade. The potential of a wider economic downturn affecting end-product demand are also notable. Lower than forecast demand for semiconductor products has been a particularly prevalent risk factor discussed by analysts during 2025, with some fearing overly optimistic growth expectations of AI demand, which is driving much of the industry’s growth, may be overstated. Nevertheless, as this matrix indicates, skills shortages remain the most critical risk.

## 3. UK and Local Economic conditions impacting the CS cluster

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### 3.1. Introduction

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This section presents a summary of the national and local economic and business environment within which the CSconnected cluster of businesses operate. While the activities of the CSconnected cluster of businesses have a global outlook, with much of the outputs produced for export markets, economic conditions in the UK and Wales are still important in terms of the strength of labour markets and more general conditions for business investment.

During 2025 the global economy has been characterised by subdued conditions. For example, the International Monetary Fund's (IMF) World Economic Outlook<sup>24</sup> revealed expected global growth of 3.2% in 2025 and 3.1% in 2026. The semiconductor industry, in particular, is operating in global conditions of uncertainty and with concerns over protectionist actions from the major global trading blocs.

### 3.2. UK production conditions

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While the semiconductor sector in Wales is a strong export sector, UK production conditions are important for sector competitiveness. For the UK economy, the average of new forecasts for UK GDP growth in 2025 was 1.4%.<sup>25</sup> In the domestic economy, key concerns in 2025 have been the trend in inflation. The twelve-month UK Consumer Price Index (CPI) inflation was 3.2% in November 2025, down from 3.6% in the twelve months to October.<sup>26</sup> While movements in inflation rates in 2025 reveal some easing in the headline rate, price pressures remain more persistent in some parts of the economy. For the year to November 2025, the annual rate of producer output (factory gate) prices increased by 3.4%.

There was some positive news for UK manufacturing as a whole with the decision of the Bank of England to cut the interest rate to 3.75% in December 2025<sup>27</sup> with the prospect that interest rates will fall further in 2026. However UK growth has continued to be sluggish with, for example, UK real GDP estimated to have fallen by 0.1% in the three months to October 2025.<sup>28</sup> Underlying these figures was a poorer performance in UK production sectors where output fell by an estimated 0.5% in the three months to October 2025, with manufacturing being a major contributor here.

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<sup>24</sup> <https://www.imf.org/en/publications/weo/issues/2025/10/14/world-economic-outlook-october-2025>

<sup>25</sup> <https://www.gov.uk/government/statistics/forecasts-for-the-uk-economy-november-2025>

<sup>26</sup> <https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/november2025>

<sup>27</sup> <https://www.bankofengland.co.uk/monetary-policy-summary-and-minutes/2025/december-2025>

<sup>28</sup> <https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/gdpmonthlyestimateuk/october2025>

### 3.3. Business investment and labour markets

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UK business investment increased by 1.5% in 2025Q3<sup>29</sup> but the growth of UK business investment has been reported to be uneven across different industries.

UK labour markets have lost some of their strength in 2025.<sup>30</sup> For example, in the period September to November 2025, total vacancies were down by 77,000 from the level of the previous year, and the year to November 2025 saw a 0.6% reduction in the number of payrolled employees.<sup>31</sup> This reduction was also reflected in figures for the Welsh economy where the number of payrolled employees fell by 0.9% in the year to November 2025. In this respect, the employment growth in the semiconductor cluster in Wales (sections 4 and 5 of this report) was running counter to that occurring in many parts of the regional economy.

### 3.4. Recent trade trends

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The importance of the exports supported by the CS cluster has been thrown into sharp relief because of pressures on Welsh exports in general. For the majority of UK regions the year to the third quarter of 2025 revealed a decrease in the value of exports.<sup>32</sup> The value of goods exported from Wales decreased by 7.3% to £16.9bn in the twelve months ending September 2025.

In Wales goods export values decreased in most product categories over the year to September 2025.<sup>33</sup> The value of manufactured goods exported from Wales fell to £2.28bn in the year ending 2025Q3. However, the export value of machinery and transport equipment increased to £9.24bn in the year ending 2025Q3, an increase of 6.4%, and with selected cluster firms in the electrical machinery sector playing a role here.

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<sup>29</sup>

<https://www.ons.gov.uk/economy/grossdomesticproductgdp/bulletins/businessinvestment/julytoseptember2025revisedresults>

<sup>30</sup>

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/jobsandvacanciesintheuk/december2025>

<sup>31</sup>

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/earningsandemploymentfrompayasyouearnrealtimeinformationuk/december2025>

<sup>32</sup> <https://www.uktradeinfo.com/trade-data/regional/2025/uk-regional-trade-in-goods-statistics-third-quarter-2025/>

<sup>33</sup> <https://www.gov.wales/international-goods-trade-interactive-dashboard>

### 3.5. Business confidence

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Business conditions in Wales showed some improvements during 2025. The Business Confidence Monitor (BCM) of the Institute of Chartered Accountants in England and Wales (ICAEW) for 2025Q3 revealed a reduction in overall UK business confidence. Wales, however, was alone amongst UK regions in having a positive confidence reading, with an estimated 5% of Welsh businesses reporting increased profits growth during 2025Q3. This confidence improvement was also echoed in the ONS Business Impacts and Conditions Survey (BICS) for October 2025<sup>34</sup> which revealed that close to one third of Welsh businesses experienced increased turnover in October 2025, and with 22% of surveyed businesses expecting turnover to increase in December 2025.<sup>35</sup>

### 3.6. Conclusions

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Overall, the domestic economic climate surrounding the compound semiconductor cluster remains fragile. The broad survey of UK and regional economic statistics in this section shows that 2026 will see uncertain conditions characterised by labour market weakening, rising unemployment and falling vacancies. At international level a series of threats to economic growth remain, not least the geopolitical tensions associated with US announcements/actions in respect of the security and sovereignty, and with continued uncertainty on tariffs on European countries.

For Wales specifically, there has been welcome news in terms of the announcement of two AI zones and an expectation that a new nuclear power station will be developed in North Wales. Wales is also expected to benefit from £16bn of new investment from a 5G rollout by Vodafone, an increase in investment at the GE aero engine facility near Caerphilly, new port investment at ABP and significant new investment by Vantage Data Centers at Bridgend. Wales will also benefit in the coming 3-4 years from a steep increase in capital spending by Welsh-based water utilities (an uplift of around £4bn).

Moving into 2026-27, the poor record of productivity growth will continue, but a series of upcoming investments could work to address some of the gaps. In this overall context of economic conditions and productivity improvement needs, the contribution of the compound semiconductor cluster to employment and Welsh value added remains important.

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<sup>34</sup>

[www.ons.gov.uk/economy/economicoutputandproductivity/output/datasets/businessinsightsandimpactontheukconomy](https://www.ons.gov.uk/economy/economicoutputandproductivity/output/datasets/businessinsightsandimpactontheukconomy)

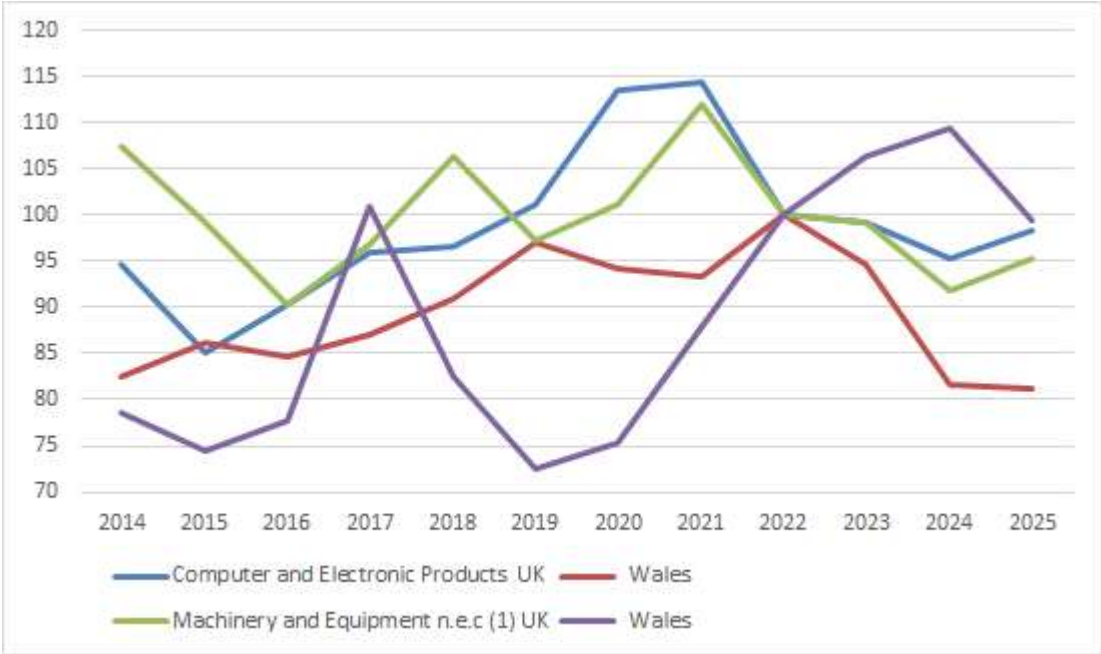
# 4. The economic role of the CS cluster

## 4.1. CS cluster and Welsh output

Total sales of the CS cluster in 2025 were approximately £531m, which is an increase of around 5% on the figure of £507m reported in 2024. There remains a strong expectation of further sales growth in the sector for 2026 and 2027 in line with new investments made by Vishay and KLA.

The CS cluster sits within the broad computer and electronics products sector, and the machinery sector. Figure 4.1 reveals recent trends in the index of output for these sectors for Wales and the UK. Note here that figures are for the period to end 2025Q2. For Wales, output in the Computer and Electronics Products sector as a whole fell by an estimated 8% in the year to 2025Q2. As also reported in the 2024 annual report, output levels as a whole in the CS cluster have been more sustained than in the Computing and Electronics products sector as a whole since 2022-2023. It is important to note here that these are estimated figures with 2025 values based on numbers available for the first two quarters. Part of the compound semiconductor cluster in Wales is situated in the Machinery and equipment sector. In this sector Welsh output fell by an estimated 8.7% in the year to 2025Q2; it is estimated that output in the CS cluster associated with this sector grew by 7% between 2024 and 2025. Once again this reveals that activity in the CS cluster seems to be bucking output trends in the wider sector.

Figure 4.1 Index of Computer and Electronic Products & Machinery and Equipment Output Wales 2014-2025Q2 (2022=100)



Source: Statswales

## 4.2. CS cluster employment

Much of the employment in the CS cluster sits within SIC 26, which is the Manufacture of computer, electronic and optical products. Figure 4.2 reveals movements in the number of employees in this sector as a whole in Wales and in the constituent parts of the sector for the period 2019-2024. It is important to stress here that these employment numbers are rounded estimates from the ONS Business Register of Employment Survey. Total sector employment in Wales in recent times peaked at 7,745 in 2023 before falling to 6,895 in 2024 (or an 11% reduction). In the period since 2019 employment has fallen sharply in Manufacture of communication equipment. In Manufacture of electronic components employment has been quite steady (excepting 2023) at around 1,250, while in Manufacture of electronic instruments, total employment has grown by around 750 people since 2021.

In 2024 CS cluster employment was an estimated 1,806 people; for 2025 cluster employment is estimated at 1,914 people, an increase of around 6% on the year. This growth has occurred at a time when employment in key parts of the wider sector has been under some pressure given the employment numbers found in Figure 4.2. It is accepted that some of this cluster employment is outside the SIC 26 Manufacture of computer, electronic and optical products sector i.e. in sectors such as higher education, R&D and machinery, but much of the private sector employment in the cluster sits within SIC 26.

**Figure 4.2 Employment in SIC 26 Manufacture of Computer, Electronic and Optical Products 2019-2024**

Industry	2019	2020	2021	2022	2023	2024
26110 : Manufacture of electronic components	1,250	1,250	1,250	1,250	1,500	1,250
26120 : Manufacture of loaded electronic boards	800	800	800	600	600	600
26200 : Manufacture of computers and peripheral equipment	300	300	100	175	125	125
26301 : Manufacture of telephone apparatus and equipment	400	450	400	350	450	400
26309 : Manufacture of communication equipment	1,500	1,250	1,500	1,000	1,250	700
26400 : Manufacture of consumer electronics	50	45	45	30	75	50
26511 : Manufacture of electronic instruments and appliances	1,750	2,000	1,500	1,750	2,000	2,250
26512 : Manufacture of electronic industrial process control equipment	150	125	500	400	75	75
26513 : Manufacture of non-electronic instruments	175	175	200	125	300	150
26514 : Manufacture of non-electronic industrial process control	125	125	175	175	250	175
26520 : Manufacture of watches and clocks	10	10	15	15	20	20
26600 : Manufacture of irradiation, electromedical equipment	500	500	500	400	500	500

26701 : Manufacture of optical precision instruments	600	700	700	600	600	600
Total	7,610	7,730	7,685	6,870	7,745	6,895

Source: Derived from BRES, Open Access, Nomisweb

The conclusions in this 2025 annual report remain similar to those in 2024. CS cluster sales and employment has been sustained despite pressures on the larger reference sector in Wales. For wider reference it is estimated that cluster employment in 2025 made up an estimated 1.4% of Welsh manufacturing employment.

### 4.3. CS cluster and Welsh productivity

An important element of the economic contribution of the private sector businesses in the CS cluster relates to their productivity. Figure 4.3 reveals the estimated GVA in Wales supported in SIC 26 - Manufacture of computer, electronic and optical products, and SIC 27 - Manufacture of electrical equipment.

**Figure 4.3 Estimates of Welsh Gross Value Added (£m) in SIC 26 and SIC 27**

	2021	2022	2023
SIC 26 Manufacture of computer, electronic and optical products	921	914	1,015
SIC 27 Manufacture of electrical equipment	399	374	367
Total	1,320	1,288	1,382

Source: ONS ITL1 UK Current Price Estimates of Gross Value Added

Figure 4.3 reveals that GVA in these two Welsh sectors was close to £1.4bn in 2023 (latest data available). Figure 4.4 uses estimates of 2023 GVA for SIC 26 and SIC 27 together with estimates of employment to calculate GVA per employee in these sectors. Figure 4.4 reveals that for SIC 26 Computer, electronic and optical products GVA per employee is an estimated £146,872, which is significantly higher than that for SIC 27 Manufacture of electrical equipment (£57,659 per employee). Note these figures are for 2023 (the latest currently available official GVA statistics). For the CS cluster as a whole in 2025, GVA per employee was an estimated £139,516, but this includes a number of organisations that are not involved in manufacturing. The private sector manufacturing and R&D elements of the cluster in 2025 accounted for £247m of GVA and 1,646 employees giving an estimated £150,061 of GVA per employee. For Welsh manufacturing as a whole, GVA per employee averages an estimated £90,764. This reveals the relatively high productivity characteristics in parts of the CS cluster. Indeed, in selected parts of the CS cluster GVA per employee is estimated to exceed £250,000.

Readers are directed to the 2024 annual report<sup>36</sup> for a discussion of the methods for estimating GVA per employee and why the authors consider the approach adopted in the annual report series for CSconnected is conservative.

**Figure 4.4 Estimates of GVA for CS cluster (2025) and SIC 26 and SIC 27 (2023)**

	Gross value added estimated	Employees estimate	Estimated GVA per employee
CS Cluster 2025	£267m	1,914	£139,516
CS Cluster 2025 excluding Higher education, CSA Catapult and CSconnected	£247m	1,646	£150,061
SIC 26 Computer, electronic and optical products 2023	£1,015m	7,755	£146,872
SIC 27 Electrical equipment 2023	£367m	6,365	£57,659
All Welsh manufacturing 2023	£12,707m	140,000	£90,764

Source: Final 3 rows estimated for 2023 from ONS Regional Accounts GVA at Current Prices by Industry and BRES (from Nomisweb).

In respect of the broad economic characteristics of the CS cluster, the 2025 survey returns and associated analysis of secondary data reveal that:

- Average sales per employee in the private sector cluster manufacturing firms was around £324,400 in 2025.
- The total payroll for the CS cluster (based on 9 entities in the cluster but excluding Higher Education elements) was an estimated £109.6m, with an average gross salary per full-time employee in the relevant entities of £66,235.
- An estimated 19% of employees in the non-higher education parts of the cluster were involved in R&D activity i.e. close to 320 full time equivalent employees.
- In private sector firms employing more than 10 people in the CS cluster, the proportion of employees qualified to undergraduate degree level ranged from 43% to 85%.

In summary the analysis of the CS cluster for 2025 reveals an estimated £267m GVA was directly supported, representing approximately £139,500 per full-time employee.

<sup>36</sup> See [Report](https://csconnected.com/media/t52dosq5/weru-csconnected-sipf-2024-annual-report.pdf) https://csconnected.com/media/t52dosq5/weru-csconnected-sipf-2024-annual-report.pdf

#### **4.4. CS cluster and Welsh trade**

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The CS cluster made an important contribution to Welsh exports in 2025. The survey revealed that the proportion of output exported overseas by the industrial parts of the cluster is in excess of 90%, as has been the case for a number of years. The total value of exports from the cluster in 2025 is estimated at £480m (an increase of 3% on the estimated figure of £466m in 2024). For comparative purposes, the total value of goods exported from Wales for the year to September 2025 was £16.9 billion (see section 3) meaning that exports from the CS cluster accounted for an estimated 2.8% of Welsh exports in 2025.

#### **4.5. Other information for the 2025 Survey**

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The 2025 survey of the compound semiconductor sector also identified other information that points to the contribution of the sector in Wales. For example, the surveyed firms reported total capital spending for 2025 of around £57m. Details on the nature of this spending are not requested as part of the survey, but it is important to note that any direct and indirect economic impacts in Wales supported by capital development are not included in the analysis in Section 5 of this report. For example, if there were elements of this spending on construction, then this can be expected to have more significant direct and indirect economic effects in Wales, compared to where spending is focused on machinery. In this latter case, machinery and plant for the sector is more likely to come from outside of Wales, and possibly outside of the UK.

Another theme from previous annual reports on the cluster is the ability of cluster firms to directly support local employment. This was confirmed in the 2025 survey returns. For example, in survey returns the range of local employment to total employment ranges from zero (i.e. no local employment) to 92% with a median figure of 77%. Critically, amongst the larger employers, employment is overwhelmingly locally based. Finally, most employment provided is full-time as opposed to part-time (i.e. over 95%).

## 5. CS Cluster – Wider economic impact in Wales and the UK 2025

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### 5.1. Introduction

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This section of the report updates the analyses undertaken for 2019-2024 and develops a current estimate of the economic activity in Wales and the UK supported by the CS cluster. As in each of the annual reports, the GVA supported results are estimates. While data was available from some of the industrial partners in respect of employment and output, direct GVA associated with this employment and output is estimated using a variety of sources including the ONS *Annual Business Survey*, ONS *Regional gross value added (balanced) by industry*<sup>37</sup> and the *Business Register and Employment Survey* (accessed through NOMIS) as well as Company Accounts information. The derived estimates take into account that GVA per employee in the CS cluster consortium will vary by industry with, for example, developed GVA per employee estimates varying between SIC 26 and 27 (SIC 26 Manufacture of computer, electronic and optical products, and SIC 27 - Manufacture of electrical equipment), and varying again in the case of any activity supported in the higher education sector.

This part of the report also estimates how the purchasing behaviour of the cluster firms and organisations supports activity in the Welsh supply chain. As part of the annual survey the CS cluster, firms and organisations provide information on their local purchasing of goods and services. Moreover, the annual survey provides information relating to the wages and salary spending of the firms. Importantly, a large proportion of the CS cluster employees live in Wales and then purchase goods and services within the Welsh economy.

To estimate the indirect (or multiplier) impacts of the compound semiconductor cluster activity it is necessary to have a picture of the local economy that specifies how various industry sectors ‘fit together’ in terms of their trading relationships. This allows the effects of activity in one sector to be traced through the entire local economy. The most comprehensive picture available of the Welsh economy is an Input-Output table. Further description of the Welsh Input-Output project, its strengths and limitations, can be found in Jones (2022).<sup>38</sup> This iteration of the annual report uses the Input-Output tables produced by Welsh Government for 2019<sup>39</sup>. These are the most recent tables available, and have different multiplier estimates compared to those tables previously used for analysis.

The approach adopted here involves estimating direct employment, output and gross value added connected with current cluster operations. The indirect (supply chain) and induced (household spending) effects connected with this activity are estimated using employment and GVA multipliers derived from the Welsh Input-Output framework. The multipliers used are adjusted to take account of features of the specific firms in the cluster with the analysis also incorporating information from the firms showing their local purchasing linkages (and the direction of their sales).

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<sup>37</sup> See [Regional gross value added \(balanced\) by industry: all ITL regions - Office for National Statistics](#)

<sup>38</sup> [Project Report Input Output Tables Wales 2019.pdf \(cardiff.ac.uk\)](#)

<sup>39</sup> See [Supply and use tables and input-output tables | GOV.WALES](#)

## 5.2. Impact headlines: Direct effects

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In 2025 the compound semiconductor cluster directly supported an estimated 1,914 employees. As highlighted earlier in this report, the 2025 employment estimate marks a 6% increase on 2024 estimates.

The GVA directly supported by the cluster of firms and institutions in 2025 is estimated at **£267.0m**. This represents a 4.7% increase on the figure for direct GVA reported in 2024 (£255.0m). This means that comparing 2024 and 2025 estimates, GVA growth has kept pace with employment growth in the cluster.

Based on the above numbers, **the estimated direct GVA per employee in the whole cluster is £139,516.**

## 5.3. Impact headlines: Indirect effects in Wales

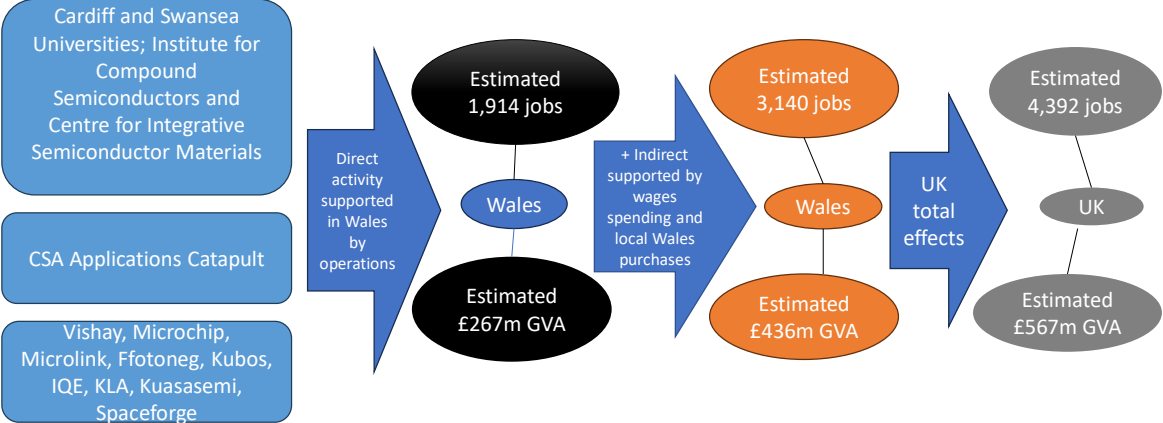
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While the Welsh economy marks the strictly regional context for the cluster firms and organisations, the purchasing behaviour of the cluster firms also supports businesses in the wider UK economy (see below). However, much of the indirect impact of the cluster will occur in Wales due to the spending of wages and salaries.

As the above analysis suggests, CS cluster members directly support around £267m of GVA and 1,914 employees. Using the Welsh Input-Output framework it is estimated that the cluster, through its purchasing of regional goods and services, and its payment of wage incomes, supports a further £169m of GVA in the Welsh economy. Therefore, in 2024 it is estimated that each £1m of GVA directly generated in the CS cluster supports an additional £0.63m of GVA elsewhere in the Welsh economy. Overall, this results in the cluster supporting directly and indirectly an estimated £436m of Welsh GVA. This is around 19% higher than the estimate for 2024 (£366m).

Similarly, while the cluster directly supports around 1,914 jobs, it supports an estimated further 1,226 jobs through its purchasing and payment of wages and salaries i.e. every employment in the cluster is connected to an estimated 0.64 of employment elsewhere in the Welsh economy. In total, therefore, the cluster in 2025 could be associated with as many as 3,140 jobs in Wales (an increase of 392 jobs compared to the 2024 figure).

Figure 5.1 Impact summary



Note: Changes 2024-25; direct employment in Wales up c.100 and direct GVA up around 7%. Total GVA supported in Wales up around 20%. This is in large measure because we used data in most recently published IO tables for Wales which indicate high indirect effects associated with selected industry sectors.

Note: Activities of the main manufacturing firms and other CS Connected members are combined for commercial confidentiality reasons. While direct employment and turnover information was provided by cluster firms, the estimates of GVA/employee were also informed by Regional Accounts Current Price estimates of Industry GVA for Wales (SIC 26, 27) and overall Welsh employment estimates in these same industries, and data from Company Accounts derived from the FAME database. Indirect and household effects were estimated using multipliers developed from the Welsh Input–Output tables. It is noted that the firms mentioned in this figure do not share all the characteristics of the wider sector – particularly in the case of SIC 26. Multiplier estimates are therefore indicative. For the cluster firms, multiplier effects through supply chains in Wales are currently limited because of low local purchasing. However, the multiplier effects through wage spending are higher because of the relatively high wages and salaries paid in firms in the cluster. Type 2 UK multipliers for GVA and Employment are estimated from UK Type 1 multipliers based on the relationship between Type 2 and Type 1 effects in sectors in other parts of the UK.

## 5.4. UK-wide effects

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As reported above, the focus of the annual report series has been upon impacts in the Welsh economy. However, in what follows the procedure adopted in the 2023 and 2024 annual reports is followed to estimate the UK-wide effects linked to the activities of firms and organisations in the CS cluster. This exercise was challenging because of the limited information in respect of multiplier effects from UK Input-Output tables.<sup>40</sup> The exercise also assumes that the firms and organisations within the CS cluster share the broad characteristics of the larger industry group in the UK; for example, the whole of SIC 26 (Computer, electronic and optical products) and SIC 27 (electrical equipment). Note that the UK-wide effects embrace the Welsh effects.

The estimates here are that the CS cluster in Wales:

- Supports a total of £567m of GVA in the UK economy in 2025, up from £434m in 2024.
- That 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 (i.e. a total of 4,392 UK employees).
- In both the GVA and employment impact cases, comparison with the earlier analysis in this section reveals that around 77% of the total UK GVA impact would be in Wales, and 71% of the employment effects.

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<sup>40</sup> See [UK input-output analytical tables, industry by industry - Swyddfa Ystadegau Gwladol \(ons.gov.uk\)](#) These analytical tables provide information on Type 1 GVA multipliers. However, this does not include the impacts of induced household spending i.e. Type 2 effects. The approach here was to use the UK Type 1 GVA multipliers as a baseline to estimate Type 2 GVA effects (i.e. including household spending) and with use made of the relationship between Type 1 and Type 2 GVA multipliers in the Scotland 2021 Input-Output tables case. There were no employment multipliers available for the UK for 2019. So Type 1 employment multiplier estimates are based on 2015 data for the UK (see [Type 1 UK employment multipliers and effects, reference year 2015 - Office for National Statistics \(ons.gov.uk\)](#)) and with Type 2 employment multipliers estimated in a similar way to GVA multipliers above.

## 6. UK Semiconductor industry characteristics

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### 6.1. Introduction

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In much of the analysis within the time-series of annual reports it can be difficult to examine differences across the private sector firms in the semiconductor industry that may reflect where firms are situated in global value chains. The UK National Semiconductor Strategy<sup>41</sup> in 2023 pointed to UK strengths in R&D, design/IP and compound semiconductors. However, there have been some concerns that an overemphasis of policy interventions around design might lose focus on the important contribution of businesses in other stages of producing semiconductor devices. This includes firms involved in including manufacturing, assembly, test and packaging, but also crucially private sector firms involved in producing equipment to support different stages of making a semiconductor device.

In this brief section of the report, a high-level analysis of some of the UK's semiconductor businesses in different parts of the value chain is provided, using information derived from Companies House. The information in the figures which follow relate to the latest year of annual reports available. The search of the FAME database of Companies House records was undertaken in January 2026. The latest year usually accounts for a calendar year ending either 2023 or 2024 or a financial year ending in either 2024 or 2025.

Inevitably there are a series of caveats that need to be understood when examining the results and tables which follow. First, the amount of data available for firms in the UK semiconductor varies considerably. So, for example, it can be difficult using Companies House accounts data to identify the accounts of businesses which are engaged in semiconductor manufacturing. Here in searching for information, there is typically a reliance on Standard Industrial Classifications (i.e. SIC 26 and SIC 27) but businesses in the semiconductor value chain can be found in various other SICs. Second, even where more complete accounts are available for semiconductor businesses in the Companies House data, there can be an issue that some businesses are involved in more than one part of the value chain. Third, smaller businesses in the semiconductor industry in the UK will typically file modified accounts such that information on sales and profits is absent.

In developing the tables that follow firms are classified in terms of broad sectors of activity.

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<sup>41</sup> [National Semiconductor Strategy - CP 838](#)

## 6.2. Sales, exports and employment

Figure 6.1 reveals the relatively large size of ARM Holdings in terms of sales and employment. The business accounts for over £3bn of sales. It is important to note here that in the case of ARM that only a proportion of the total employment is within the UK. Although no export figure is separately reported, this sales figure largely relates to exports. Key overseas customers are Apple and Qualcomm. The ARM case signals an interesting issue with Standard Industrial Classifications. In the UK ARM, is classified under SIC 64209 i.e. as a holding company; however, in the USA it is classified under US SIC 3674 Semiconductors and related devices.

Figure 6.1 also reveals significant levels of employment supported in selected equipment makers i.e. over 11,300 people within the selected businesses. In general, firms classified as specialist component makers employ fewer people, although it is accepted the sample of firms identified in Figure 6.1 is small.

**Figure 6.1 Major UK-Based Semiconductor Firms: Reported sales, exports and employment (latest financial year).**

Company	UK SIC Code & Sector as suggested by trade description	Sales £000s	Exports £000s	Employment
ARM holdings plc	64209 Design	3,093,253	na	7,676
Edwards Limited	28131 Equipment and instruments	936,659	na	1,341
Renishaw P L C	26512 Equipment and instruments	691,301	653,345	5,213
Oxford Instruments Plc	70100 Equipment and instruments	500,600	480,200	2,334
KLA Corporation UK Limited	27900 Equipment and instruments	358,830	314,692	612
Malvern Panalytical Limited	26511 Equipment and instruments	169,582	149,914	540
Seagate Technology (Ireland)	(26511) Equipment and instruments	157,065	na	1,310
IQE Plc	70100 Specialised components	118,034	105,392	517
Lumentum Technology UK	26701 Specialised components	89,371	87,291	444
Diodes Semiconductors GB	26110 Specialised components	66,206	na	289
Vishay Newport Limited	26110 Specialised components	62,630	na	594
Plessey Semiconductors Limited	27900 Specialised components	56,006	55,991	280
Microchip Technology	26110 Specialised components	41,708	39,927	104
Clas-Sic Wafer Fab Limited	26110 Specialised components	9,797	na	78
Semefab Limited	26110 Specialised components	9,332	7,714	109
Sivers Photonics Limited	26110 Specialised components	6,323	na	80

Inex Microtechnology	26110 Specialised components	na	na	18
Icemos Technology Limited	26110 Specialised components	na	na	75
Graphcore Limited	62090 Fabless	3,132	na	433

Source: Derived from the FAME database

### 6.3. Analysis of key financial relationships

Figure 6.2 moves to a further stage of analysis and estimates some key financial relationships from the accounting information. Sales per employee is a high-level productivity measure but which tends to indicate the capital intensity of business operations. Within the businesses identified in Figure 6.2, there is a very wide variation in sales per employee from close to £700,000 in the case of Edwards, an equipment maker, to less than £100,000 in the case of Sivers Photonics a specialist component maker. There is a relationship between sales per employee and wage share (i.e. total remuneration over total sales). In the more capital intensive businesses, the wage share in total sales tends to be lower. For example, KLA in South Wales and Edwards Vacuum, identified as equipment makers, both feature relatively high levels of sales per employee but with wage shares of close to 10% in both cases. ARM has slightly lower levels of sales per employee (just over £400,000) but with a wage share of 34% reflecting the greater labour intensity of their operations compared to equipment makers. Direct wage share tends to be greater in design/services companies. In general it also important to reflect that manufacturing companies catalyse higher levels of labour intensity in upstream supply chains- which is more difficult to track, but is likely to result in more diversification in job roles, and wider support for a larger number of companies.

The final two columns of Figure 6.2 report the ratio of profit before tax to sales, and average remuneration. Profits can vary considerably from year to year with general business conditions and can be influenced by corporate treasury policies. However, equipment makers KLA and Edwards stand out here as well as Microchip at Caldicot.

Finally, Figure 6.2 shows variation in average remuneration. Again, some care is required here and median averages would be a better indicator of central tendency in salaries in selected of these firms. For example, some firms are likely to have a small number of very high earners that lift mean averages. In Figure 6.2 ARM stands out, but this is a mean average reflecting relatively high pay for principal and staff engineers, set against lower levels of pay for software engineers. Glassdoor for example reports staff engineer salaries at ARM of between £80,000 and £134,000, and Principal Engineers with salaries of between £95,000 and £188,000.<sup>42</sup> In the ARM case, salaries may also inflated due to the location of facilities in the Greater South East of England.

<sup>42</sup> [How Much Does Arm Pay in 2026? \(3,228 Salaries\) | Glassdoor](#)

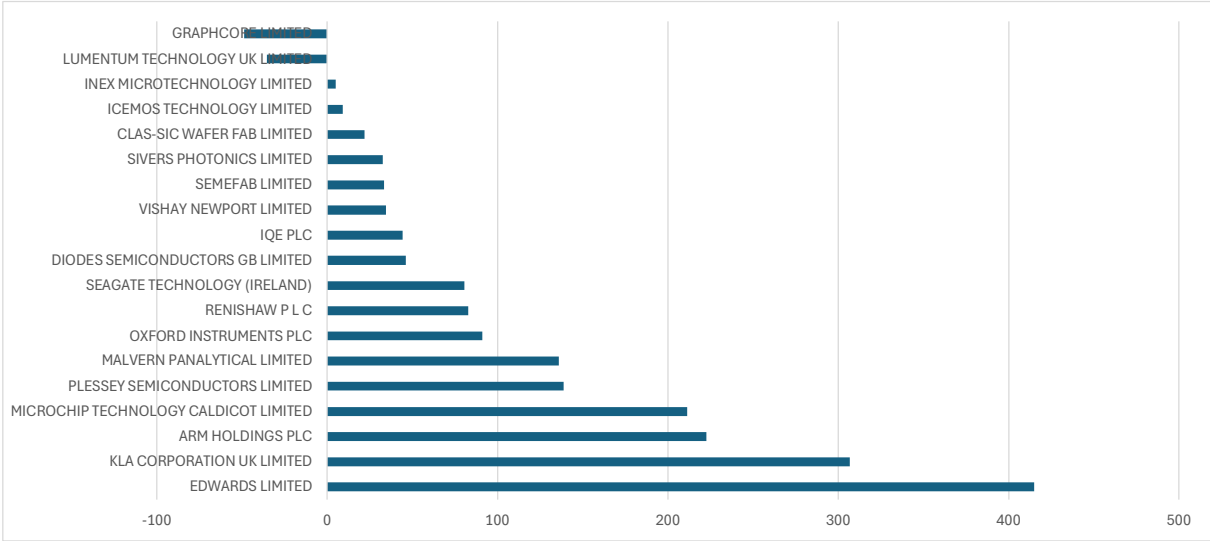
**Figure 6.2 Major semiconductor firms: key relationships for latest reporting year**

Company	Sales/empl	Wage share of sales	Profit/Sales	Average remun. £000s
ARM Holdings Plc	402,977	0.34	0.19	138.18
Edwards Limited	698,478	0.10	0.49	72.34
Renishaw P L C	132,611	0.42	0.18	55.52
Oxford Instruments	214,482	0.33	0.08	71.38
KLA Corporation Uk Limited	586,323	0.12	0.39	72.81
Malvern Panalytical Limited	314,041	0.19	0.24	58.47
Seagate Technology (Ireland)	119,897	0.40	0.13	47.95
IQE Plc	228,306	0.33	-	74.75
Lumentum Technology UK Limited	201,286	0.38	-	76.60
Diodes Semiconductors GB Limited	229,085	0.25	0.11	58.20
Vishay Newport Limited	105,438	0.54	-	56.53
Plessey Semiconductors Limited	200,021	0.32	0.19	64.81
Microchip Technology Caldicot (note)	401,042	0.11	0.40	43.19
Clas-Sic Wafer Fab Limited	125,606	0.38	-	48.19
Semefab Limited	85,612	0.54	-	46.49
Sivers Photonics Limited	79,038	0.62	-	49.21

Note: Figures for Microchip only include Caldicot operation, but with the firm having other activities and sites in the UK.

Finally, an estimate of GVA per employee can be provided using accounts data. The estimates here are based on a calculation involving profits, depreciation and payments to labour to gain an estimate of business gross value-added. Again, this calculation is fraught with difficulties given the variability of annual profits. Moreover, we accept here that some of the employment in these firms is not in the UK. This noted, Figure 6.3 reveals significant differences in GVA per employee. Once again some of these differences reflect the relative capital intensities of the businesses. Figure 6.3 reveals Edwards and KLA to have a GVA per employee in excess of £300,000; in the case of ARM it is around £220,000, close to that of the estimate for Microchip in the South Wales CS cluster. For comparison the UK Government Semiconductor Sector Study (2024) estimated that average GVA per employee (2022) among dedicated UK semiconductors companies was estimated to be £460,000 when Arm is included (£305,000 per employee excluding Arm).<sup>43</sup>

**Figure 6.3 Estimates of gross value added per employee (£000s based on latest reporting year)**



Note: Negative values here reflect businesses making losses in the reporting year.

<sup>43</sup> [Semiconductor sector study - GOV.UK](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/118888/Semiconductor_sector_study_-_GOV.UK.pdf)

## 6.4. Concluding remarks

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The material in this section of the report contains a high-level analysis. It does reveal some of the issues in comparing the productivity of businesses in different parts of the semiconductor value chain. The material in Figure 6.2 and Figure 6.3 reveals the strong productivity characteristics of a series of semiconductor equipment makers. This might suggest that in policy development terms, the UK has expertise in sectors other than just design and IP, with some of these manufacturing firms employing large numbers of people. It is also important to reflect that businesses in the semiconductor value chain in the UK which are focused on manufacturing activity are often associated with higher multiplier effects simply because they can buy more in the host economy. For example, UK Input-Output tables suggest that Type 1 GVA multipliers for manufacturing firms in electronic components (SIC 26) and electrical equipment (SIC 27) are 1.33 and 1.84 respectively.<sup>44</sup> This multiplier effect relates only to indirect GVA effects associated with supply chain spending and not household spending. While these figures are estimates for all activity in these SIC classes it reveals that semiconductor equipment makers could be especially linked to positive local economic development effects due to their local supply chain spending.

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<sup>44</sup> [UK input-output analytical tables: industry by industry - Office for National Statistics](#)

## 7. Conclusions

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### 7.1. Reflection

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This is the final scheduled annual report for CSconnected under the Strength in Places Fund (SIPF) programme and provides an opportunity to present some overarching reflections on the progress of the cluster, and the role of SIPF in the development of the cluster. The cluster development in the Welsh economy since 2015 has been aided by a series of public interventions, not least investments made by Cardiff Capital Region in the IQE Foundry (c. £37m), but also with activity stimulated by a number of research grants, often involving the private sector firms working in collaboration with Cardiff and Swansea Universities.

### 7.2. Economic conditions and global challenges

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The development of CS cluster activity needs to be understood in the context of local and global economic conditions. There are factors that have impinged upon cluster development which neither the private sector funders nor UKRI could have fully foreseen.

Each of the CSconnected annual reports have highlighted the large proportion of industry output that is exported. A corollary is that the industry development has been impacted by conditions in overseas markets. For example, when Cardiff Capital Region invested in the IQE Foundry in 2018-2019, the consequences of Covid-19 could not have been foreseen. Similarly, the Strength in Places funding bid was developed at a time of strong uncertainty for UK manufacturing as a result of BREXIT. Moreover, even after the worst of the Covid-19 pandemic ended in 2022-2023 there were a series of events that hit industry prospects, not least the Russian invasion of Ukraine leading to an energy crisis in Europe, with this quickly followed by strong inflation and then a tightening of global monetary and financial conditions with higher real interest rates. In this respect, the IMF in 2022 was able to point to poor global demand conditions (including demand for devices using semiconductors), with the effects of the Zero-Covid policy in China working to damage global supply chains and restrict trade activity.

Also, a key context for the development of the CS cluster in Wales was the impact of the August 2022 US CHIPS and Science Act. This led to structured responses in a number of the US' main trade partners such that industry uncertainty in the period 2023-2026 has been heightened in an environment of either real or expected export controls and tariffs.

Any growth in employment, value-added and output in the CS cluster has been achieved in a period of difficult global economic and industry trading conditions. Furthermore, growth in the cluster has been achieved while many sectors of Welsh manufacturing have been under severe pressure. For example, between 2020-2023 Welsh manufacturing value-added grew from an estimated £10.45bn to £12.71bn. This is an increase 21.6% following a sharp decline in value-added in 2020 mostly as a consequence of the pandemic. By comparison gross value added in the CS cluster grew from an estimated £121.3m in 2020 to £265.2m in 2023 and increase of 119%.

### 7.3. Economic activity growth under the Strength in Places Project

The emphasis of the CS connected annual reports has been on economic KPIs. Figure 7.1 shows the estimated full time equivalent employment supported in the CS cluster (this relates to organisations surveyed and/or contacted as part of the CSconnected Annual Surveys undertaken by Cardiff Business School). Figure 7.1 also reveals the modelled estimates of the indirect employment supported in Wales by cluster organisation spending of goods and services, and on wages and salaries.

Figure 7.1 Direct and indirect employment in the CS cluster in Wales (FTE)

Year	Direct employment	Indirect employment	Total employment
2019	1,259	692	1,951
2020	1,407	678	2,085
2021	1,602	785	2,387
2022	1,737	878	2,615
2023	1,773	888	2,661
2024	1,806	942	2,748
2025	1,914	1,226	3,140

Source: CSconnected Annual Survey Series and related analysis.

Figure 7.1 further indicates that in the period 2019-2025 the cluster has seen a 52% increase in direct employment supported and a 61% increase in total employment supported in Wales. It is worth noting that over the period 2019-2024 the ONS Business Register and Employment Survey revealed that Welsh manufacturing employment fell from 142,000 to 133,000. It is accepted that a proportion of employment directly linked to the cluster is non-manufacturing in higher education and research. However, this proportion is around 14%, and with much of the growth stemming full-time manufacturing jobs.

While the focus in Figure 7.1 is on employment growth, it is important to recognise that the last 6 years has also seen some diversification in cluster membership. For example, after 2018-19 there have been a series of new starts in the cluster. These include Kubos (LED technology), Ffotoneg (design to device services) and Microlink Devices (lightweight solar cells). In addition, to this Siemens employs 5-6 people within the CSA Catapult at Imperial Park in an innovation centre. Finally, in 2025, Cadence Design Systems announced its joint venture with Welsh Government and the CSA Catapult in semiconductor design services. There has also been new investment by Kuasasemi. It is also important here to recognise Welsh companies that have benefitted from the CSconnected supply chain programme such as Pegasus, RAM Innovations and J2P, as well as a large number of businesses that have been connected to CSconnected outreach programmes. Finally here it is necessary to recognise locally based firms that have benefitted from co-located infrastructure connected to the cluster such as Spaceforge and Novomorphic.

Figure 7.2 highlights further information in respect of the performance of the CS cluster since 2019-2020. Where possible findings from the CSconnected annual survey series are compared to wider economy numbers, although noting that this exercise is sometimes complicated by the different time series of available information.

**Figure 7.2 CS cluster performance summary**

Outcome	Activity
Growth in turnover of businesses assisted	Annual report series: CS cluster sales in 2019 estimated £464m, £562m in 2023 and £507m in 2024 and £531m in 2025. Survey evidence and company accounts data reveals some variation in sales performance between larger private sector parts of the CS cluster differences. Where strong growth has occurred in private sector elements of the cluster it has been supported by export demand.
Growth in employment	Annual survey returns: Employment in 2019 around 1,259 growing to 1,602 by 2021 and 1,806 by 2024 and 1,914 by 2025. Annual Survey series shows quality of employment is strong. Average salaries per FTE in 2024 estimated at £67,765 and with 18% of non-University elements of the cluster workforce involved in R&D. In 4 private sector members of the cluster the proportion of employees qualified to UG level ranged 40-85%. Average payroll per FTE across 8 private sector elements of the cluster in 2025 varied between £46,230 and £86,581.
Increase in exports	Annual survey returns: In 2021 export value estimated in private sector elements of the CS cluster at £438m and at 2023 £514m and 2024 at £466m, 2025, £480m. Markets well established in US and Asia but with few exports to EU.
Net additional financial returns on public sector investment	<p>Analysis for CCR (2024) in respect of Gateway Review of Wider Investment Fund revealed estimated Corporation Tax paid by SPTS/KLA, Nexperia, IQE, Microchip and CSA Catapult in 2019 £18.32m increasing to £19.05m in 2023 (Companies House data - FAME). Corporation Tax returns over period 2019-23 exceed public sector investment, but with some cluster companies in selected years having 'negative' tax receipts due to carried forward losses. Note there are also significant income tax returns linked to cluster employment.</p> <p>Annual survey returns reveal estimated Business Rates paid by NPWF (Nexperia), Microchip, SPTS and IQE in 2020 £1.29m. In 2023-24 estimated Business rates paid by CSAC, Microchip, IQE, SPTS, Microlink Devices was £1.03m (total excludes business rates paid by Vishay (who took over Nexperia)).</p>
Improved productivity of firms in the Cluster	<p>Annual Survey series: Estimated GVA per FTE worker in CScluster: 2020: £86,186; 2021: £120,831; 2022: £122,140; 2023: £149,575; 2024: £141,217, 2025: £139,516.</p> <p>No direct comparison available but annual output per hour worked in UK manufacturing (current price) increased by around 10.5% 2020-2024, whereas increase in GVA per FTE in CS cluster 63.9% over same period. <a href="#">Output per hour worked, UK - Office for National Statistics</a></p>

Information from Figure 7.2 can be employed to show the wider economic effects of activity linked to Strength in Places Funding. In this respect:

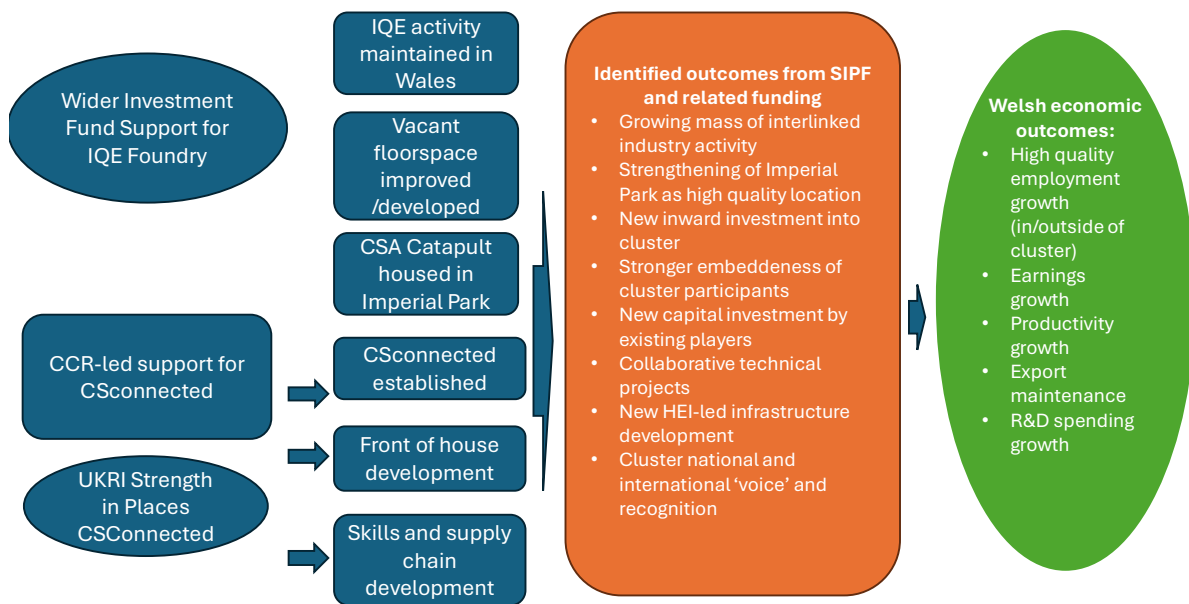
- The CSconnected Strength in Places Fund project was initially worth around £43m including £25m of UKRI funding.
- Direct GVA supported by the CS cluster in Wales was £121m in 2020 growing to £267m in 2025. Over the period 2020-2025 the information in the CSconnected annual reports would suggest that the cluster has directly supported around £1.3bn of GVA in Wales.
- Cluster productivity growth has been over 60% in the period 2020-24, which is higher than the estimated UK average over the period of closer to 10%.

- Cluster activity between 2020-2025 has directly supported over 10,200 job years of employment. Note this excludes indirect employment supported in Wales.
- Capital investment in the CS cluster 2021-25 was an estimated £183m (this excludes the £51m capital investment announced by Vishay in November 2024.)
- Estimated Corporation tax paid by the CS cluster is £18-19m pa.

## 7.4. Other outcomes

Figure 7.3 seeks to show that the SIFP UKRI funding has worked in tandem with other public resources, notably from Cardiff Capital Region, to achieve outcomes from the CS cluster. Figure 7.3 illustrates the outcomes that have been identified through the CS connected annual reports and the case studies developed by Cardiff Business School to support CSconnected activity.

**Figure 7.3 Summary of wider outcomes connected to UKRI funding of CSconnected**



While the CSconnected annual reports have tended to focus on elements in the green oval, it is clear that there are a series of factors that have led to identified economic outcomes in the orange rectangle, which are more difficult to assess in strictly quantitative terms.

Moreover, in terms of the public funding support it is important to recognise that the South Wales CS cluster has evolved through three phases that have built upon one another and which make it quite difficult to examine the contribution of any individual funding stream to the outcomes identified in Figure 7.3:

- Phase 1 (pre-2020): Focused on infrastructure, including IQE’s foundry and related physical assets underpinned by Cardiff Capital Region support.
- Phase 2 (2020–2023): Development of collaborative culture and governance structures, underpinned by SIFP support and CCR support for CSconnected.

- Phase 3 (2024 and ongoing): Emphasis on ‘soft’ ecosystem elements - skills, shared talent strategies, and supply chain integration - with a shift in leadership from CCR to key private sector actors, but also CCR support for CSconnected.

The time-series of annual reports and associated case evidence have revealed the evolution of a growing mass of related semiconductor manufacturing and research activity, the development of Imperial Park as an industrial location, growing levels of inward investment and importantly the growing embeddedness of private sector elements of the cluster. While embeddedness in the local economy is typically considered as links to higher levels of local purchasing, elements of the case studies developed over the last 6 years also show that selected Welsh subsidiaries of international semiconductor firms have become better embedded in their international corporate structures, with this being linked to CSconnected activity in promoting the South Wales area to these same multinational firms. The period since the UKRI investment has seen the branding and reputation of the cluster strengthened both in the UK and overseas, with this aided by parallel infrastructure developments in both Cardiff and Swansea Universities. Moreover, the sense from the case studies and related evaluation work is that had the SIFP project not occurred then it is likely that the private sector cluster firms would have continued to work discretely rather than together.

## 7.5. Future prospects and research

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The analysis of the CS cluster in the annual reports, case studies and linked evaluations for Cardiff Capital Region and the CSA Catapult leads to a conclusion that outcomes from the CS cluster linked to grant and other public funding are still nascent and with the future expected to see:

- The better embedding of the outputs of the CS cluster in UK value chains (import displacement) rather than being sold to export markets.
- Additional outcomes from new investment in both large firms and the new smaller organisations investing in the cluster. Strategic investment by KLA and Vishay are still in development with prospects for significant further employment and value-added creation.
- Local skills development to support the cluster.

As the CS cluster develops it will be valuable to continue the collection of survey data in respect of the sales, spending and employment of cluster members, but also to collect information from businesses in the local supply chain. Currently in the economic modelling of the indirect effects of CS cluster activity, the analysis has been reliant on data from the Welsh input-output tables to estimate indirect effects. With more information from the local supply chain these estimates can be better refined. Moreover, as the CSconnected research and technical projects funded by UKRI mature, it will be important to track the extent of longer-term commercial outcomes to run aside the historical time series of data from the annual reports. This will assist in connecting longer-term economic outcomes to public sector inputs.



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