

CSA Catapult outlines steps to create UK semiconductor ‘super cluster’ and drive long term growth and exports

Recommendations include a National Semiconductor Institute, a Semiconductor Challenge Fund, prioritizing UK semiconductors in public contracts, and skills plans.

The UK semiconductor industry is at a critical stage in its evolution, according to Martin McHugh, CEO at Compound Semiconductor Applications (CSA) Catapult (a not-for-profit center of excellence established in 2018 by government agency Innovate UK that specializes in the measurement, characterization, integration and validation of compound semiconductor technology spanning power electronics, advanced packaging, radio frequency and microwave, and photonics applications). As Europe, the USA, China, Japan and South Korea invest, there is a significant risk of the UK being left behind, he adds.

In early November, the European Union (EU) invested €170m in 27 Chips Competence Centers to improve technical expertise and boost skills. In the USA, the government is fast-tracking \$39bn-worth of subsidies to support its semiconductor industry. The UK cannot compete financially with these countries, notes McHugh.

“The UK industrial strategy provides an opportunity to capitalize on our strengths and chart a new course for the industry. These strengths include chip design, R&D, IP and compound semiconductors,” McHugh says. “Semiconductors are essential to delivering the industrial strategy. They are everywhere in modern life and underpin several key industries, including automotive, defence, aerospace, health, telecoms and manufacturing.”

In response to the UK government’s new industrial strategy, CSA Catapult has published eight recommendations to address industry challenges and to support existing areas of strength and deliver growth:

1. elevate the importance of the semiconductor sector by recognising semiconductors as a subsector of the industrial strategy;
2. create a National Semiconductor Institute to strengthen, lead and co-ordinate targeted activity across the UK;

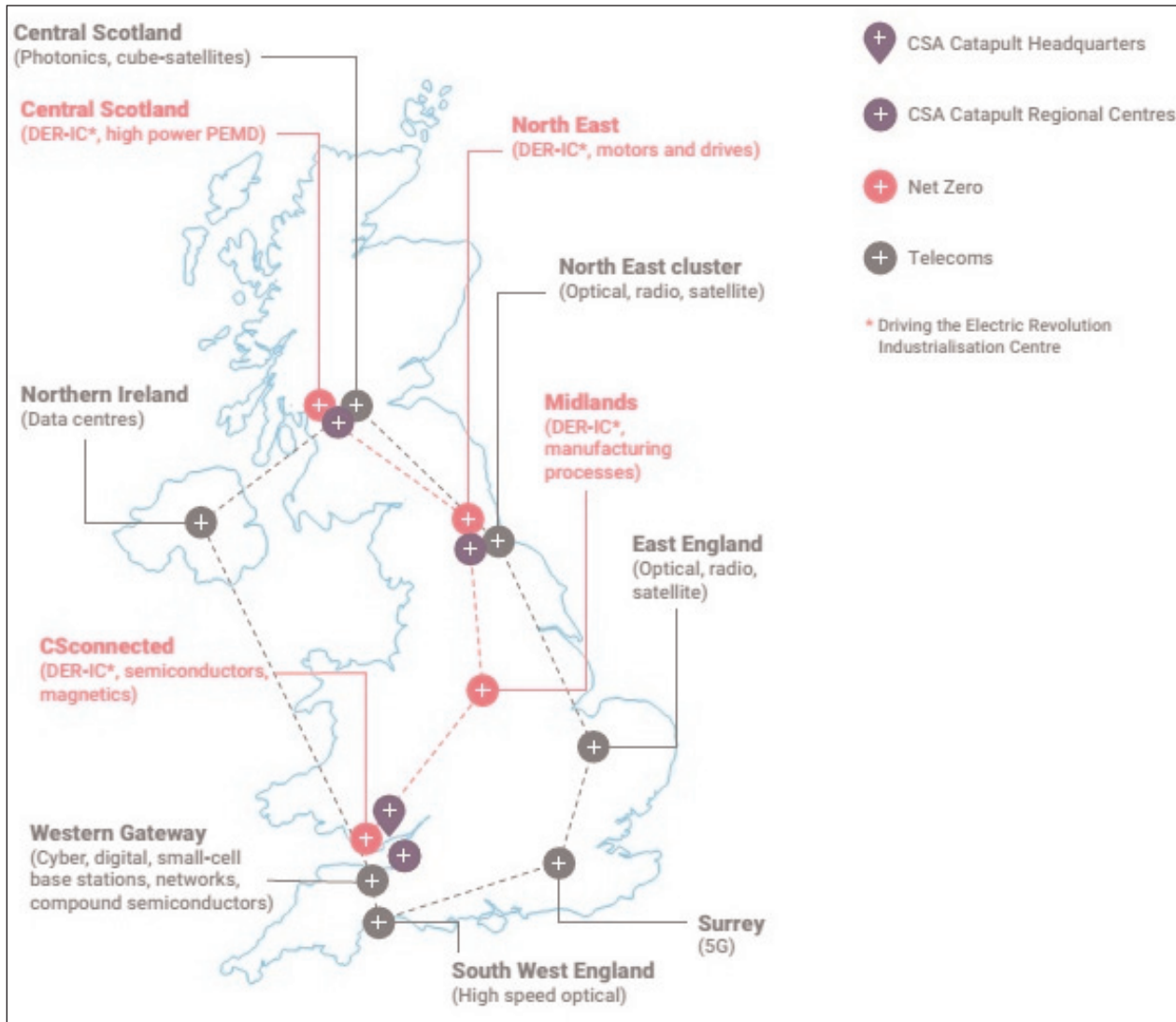
3. coordinate long-term skills plans for semiconductors across UK and devolved governments to maintain and grow talent pools;
4. position the UK as a ‘semiconductor super cluster’ to drive UK growth and exports for the long term by establishing a £305m Semiconductor Challenge Fund;
5. grow existing semiconductor clusters to develop regional capability and support regional growth;
6. invest in compound semiconductor manufacturing and infrastructure;
7. prioritize UK semiconductors in public contracts for digital infrastructure and defence;
8. increase access to funding, improve regulation and strengthen IP.

Making semiconductors a national priority

Specifically, CSA Catapult recommends that semiconductors are recognized as a subsector of the industrial strategy. “Semiconductors underpin the UK’s economy, national security and everyday technology. Without them, we would not have smartphones, electric cars, solar panels, satellites, medical scanners and much more,” notes McHugh. “Semiconductors are being used to build green technologies and help tackle climate change. The industry must be given the attention and investment it deserves.”

Strengthen and co-ordinate activity

There are over 200 dedicated semiconductor companies in the UK, which collectively generate £9.6bn in revenues and employ 15,000 people. Clusters of expertise are in South Wales, the South West, Cambridge, the North East, Northern Ireland, and Scotland. However, the industry lacks a single, independent, unified voice to bring these clusters together, promote the sector and attract international investment. “That is why we’re calling for the creation of a National Semiconductor Institute to strengthen, lead and co-ordinate targeted



Creating a talent pipeline

"The UK's semiconductor sector can only grow if we have the right people with the right skills driving it forward. There is currently a shortage of skilled engineers with the knowledge and experience to work on the next generation of semiconductor technologies," notes McHugh.

"The role of a National Semiconductor Institute will be to coordinate policy

activity across the UK," says McHugh. "A key role of the Institute will be to grow existing semiconductor clusters in the UK and unleash the full potential of our cities and regions."

Investing in infrastructure to build a UK semiconductor super cluster

"To grow our clusters, we need investment," notes McHugh. CSA Catapult has laid out a £305m Semiconductor Challenge Fund to provide UK clusters with critical infrastructure. This would include a £150m investment in regional projects such as a UK Centre of Excellence for quantum photonic integrated circuits (PICs) and a world-first center for AI-powered electronics, photonics, quantum and design automation (AI.EPQDA).

The recommendations also include investment in compound semiconductor manufacturing and infrastructure, specifically open-access fabrication plants specializing in silicon carbide (SiC), gallium nitride (GaN) and gallium arsenide (GaAs) to remove commercialization and scale-up barriers for start-ups and SMEs and to allow them to grow quickly and efficiently.

development across the UK and close this skills gap," he adds. "We also recommend the UK and devolved governments invest in long-term skills plans to create programs and pathways that attract a greater and more diverse talent pool into the industry."

Removing barriers

"To grow the UK semiconductor industry, we must also provide opportunities for the sector to support national interests, such as prioritizing UK companies for defence and digital infrastructure contracts," says McHugh.

"We must also remove barriers by increasing access to funding, improving regulation and strengthening IP. It is encouraging to see the government make progress on the National Wealth Fund and unlocking UK pension funds to increase access to both public and private funds.

"The UK semiconductor industry has enormous potential. It is growing fast and is estimated to be worth £13–17bn by 2030. Our recommendations will build on existing strengths, support regional clusters and drive growth in this critical sector across the UK," McHugh concludes. ■

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