

**31 JULY 2023**

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## **UK SEMICONDUCTOR STRATEGY REPORT**

### **REPORT OF CARDIFF CAPITAL REGION ACTING DIRECTOR**

#### **AGENDA ITEM: 7**

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#### **Reason for this Report**

1. To provide an overview and priority actions as related to the UK Government National Semiconductor Strategy, published in May 2023.

#### **Background & Context**

2. CCR has targeted the Compound Semiconductor sector as a priority industrial cluster and has targeted efforts and resources across innovation, infrastructure and skills in the development of the cluster as a driver for inclusive economic growth in the region.
3. Semiconductors have also been identified as one of the 5 technologies of tomorrow by the Department for Science, Innovation and Technology (DSIT), and a key underpinning technology of quantum computing, Artificial Intelligence (AI), and the future of telecoms. Semiconductors are also critical for the UK's aerospace, defence, security, and space sectors.
4. The market context for semiconductors has been, to some degree, unstable. In 2022, smartphone and electronics sales were adversely impacted by general economic factors and the extended lockdowns in China. In late 2022 and into the first half of 2023, the semiconductor industry is experiencing a downturn due to reduced levels of demand and actions to reduce inventory levels.
5. The downturn is expected to last throughout the first half of 2023, with a return to growth being predicted by industry commentators in the second half of the year. This short-term disruption has not, however, impacted long-range forecasts for the sector and it remains highly competitive.
6. The UK Government National Semiconductor Strategy has suffered from significant delays in publication – dating back to mid-2022 and, in the interim, the US CHIPS and Science Act (\$280bn) and European Chips Act (£43bn) have been launched, providing policy and fiscal incentives for the research and

manufacturing of semiconductors. Both are aimed at re-shoring semiconductor production.

7. UK Government has been clear that it will not enter a 'subsidy race'. Therefore, the main thrust of the £1bn National Semiconductor Strategy is a focus on R&D, early design, prototyping and next generation compound semiconductors – for which CCR is already well known and lays claim to the world's first compound semiconductor cluster.

## **Overview of the National Semiconductor Strategy**

8. The strategy sets out **three key objectives** to secure the UK's advantage in the semiconductors sector:

### **I. Grow the Domestic Sector**

The strategy highlights the importance of the technology to the growth of the UK economy and sets out several ambitious initiatives to achieve growth in the industry. This includes investments of up to £1 billion over the next decade; increased support for sector start-ups through a dedicated incubator programme; and the development of skills and talent in related fields.

### **II. Mitigate the Risk of Supply Chain Disruptions**

The strategy recognises the need for domestic and international efforts to improve resilience of supply. There is a commitment to establish a cross-government and industry forum to help mitigate supply chain disruptions and engage with suppliers to critical industries on risks to chip supply.

### **III. Protect National Security**

The strategy highlights that semiconductors are both critical to UK national security and also give rise to several risks - particularly the acquisition of sensitive UK semiconductor companies and technologies by 'hostile, and the use of semiconductors as a vector for cyberattacks. In this area, CCR has already seen the impact of, for example, National Security and Investment Act 2021 (NSI Act) in relation to the acquisition of Newport Wafer Fab by Nexperia BV.

9. The initial funding of up to £200 million over the years 2023-25 will help deliver a new National Semiconductor Infrastructure Initiative and a specialist incubator pilot for semiconductor startups. The initial focus will be on the UK's existing strategic advantage in semiconductor design and IP; the development of compound semiconductors; and R&D ecosystem.
10. Details on financial support for the semiconductor manufacturing sector are expected in autumn 2023.
11. A new UK Semiconductor Advisory Panel (UK SAP) will oversee the strategy. This will have representatives from industry, government, and academia, and key stakeholders from the SE Wales Compound Semiconductor cluster will, almost certainly, have a place on this. It is accompanied by a new technology

partnership with Japan focused on improvising supply chain resilience, skills exchanges, and R&D cooperation.

### **Analysis: Challenges and Opportunities for CCR**

12. The **funding envelope** pales in comparison to the US and Europe. There are, however, opportunities to gain leverage internationally and even pull in funds. For example, the US CHIPS Act established the International Technology Security and Innovation Fund (ITSI), which provides the State Department with \$500 million over five years to partner with key allies and partners to ensure a more secure and resilient global semiconductor supply chain.
13. The funding is aimed at supporting **niche areas** and gaining a **competitive advantage**. The focus on compound semiconductors is welcomed as acknowledgement of the ‘advanced’ component of the broad semiconductor technology family; as well as the need to focus on boutique design, R&D and early prototyping.
14. This is not a clear **industrial strategy**, as is visible in the EU, US and elsewhere. Not only is onshoring and reshoring a key part of this, but we are also seeing Government’s willing to house industrial assets on their balance sheets and taking higher levels of risk on bigger structural interventions. We are yet to see if the previous incarnation of the Industrial Strategy and the Industrial Strategy Challenge Fund led by the now defunct BEIS, is being superseded.
15. The **skills & talent support** in the strategy still relies on existing grant support schemes, some of which are exclusive to England. The immigration environment in this regard also remains prohibitive. This is important when recognising the higher costs of STEM under- and post-graduate degrees. In addition, the absence of successful and globally unique schemes, such as Ser Cymru (the equivalent of industrial fellowships) remains a gap.
16. In relation to **tools, facilities and infrastructure**, CCR can develop a case for domestic supply chains in this area and a role for firms such as KLA that are anchored in the region and more closely linked to the manufacturing of equipment. In addition, co-ordination of procurement efforts presents an opportunity for the region. CCR must influence the National Semiconductor Infrastructure Initiative on this issue through our work with CSConnected.
17. CCR must secure strong representation from the region on the **UK Semiconductor Advisory Panel**. Key CCR cluster stakeholders across the private and public sector are coordinating efforts to influence the formation of a UK-wide trade body.
18. **‘New’ compounds** (such as, Gallium Nitride and Silicon Carbide) are critical areas of focus for the compound semiconductor cluster since both enable higher levels of power density, improved performance and financial efficiency – meaning they are the cutting edge of power electronics developments. CCR has a strong opportunity to take the lead in regard to R&D, IP and technical knowledge.

## **Proposed Response**

19. CCR will undertake the below noted priority actions in response to the publication of the strategy:
- issue a letter to the Rt Hon Chloe Smith MP (Secretary of State for Department for Science, Innovation and Technology) outlining the CCR position and putting the region to the forefront of conversation;
  - work with CSConnected to establish clear areas of focus and influence key UK Government decision-makers and establish regional priorities;
  - liaise with industrial partners in the region to understand their priorities and need for support;
  - develop international relations, particularly with the US in regard to leveraging ITSI funding in to the region.

## **Financial Implications**

20. There are no direct financial implications arising from this report.
21. Any future reports in relation to the proposed responses and actions set out and in respect of funding decisions impacting on the Cardiff Capital Region Wider Investment Fund will be brought forward to future Regional Cabinet meetings.

## **Legal Implications**

22. There are no legal implications to note. All future investment proposals that arise as a result of opportunities noted above that may leverage the Wider Investment Fund will need to be subject to a full business case that complies with the requirements of HM Treasury Green Book and legal advice sought as appropriate.

## **Well-being of Future Generations (Wales) Act 2015**

23. In considering its endorsement of this report the Regional Cabinet must have regard to, amongst other matters:
- (a) the obligations set out in the Welsh Language (Wales) Measure 2011 and the Welsh Language Standards.
  - (b) the public sector duties under the Equality Act 2010 (including specific Welsh public sector duties). Pursuant to these legal duties, when making decisions, public bodies must have due regard to the need to (1) eliminate unlawful discrimination, (2) advance equality of opportunity and (3) foster good relations on the basis of protected characteristics, which are set out in section 4 of the Equality Act 2010.
  - (c) the Well-being of Future Generations (Wales) Act 2015. The Well-being of Future Generations (Wales) Act 2015 ('the Act') is about improving the social, economic, environmental and cultural well-being of Wales. The Act places a 'well-being duty' on public bodies aimed at achieving 7 national

well-being goals for Wales - a Wales that is prosperous, resilient, healthier, more equal, has cohesive communities, a vibrant culture and thriving Welsh language and is globally responsible. In discharging their respective duties under the Act, each public body listed in the Act (which includes the Councils comprising the CCRCD) must set and published wellbeing objectives. These objectives will show how each public body will work to achieve the vision for Wales set out in the national wellbeing goals. When exercising its functions, the Regional Cabinet should consider how the proposed decision will contribute towards meeting the wellbeing objectives and in so doing achieve the national well-being goals.

24. The well-being duty also requires the CCRCD to act in accordance with a 'sustainable development principle'. This principle requires CCRCD to act in a way which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs. Put simply, this means that Regional Cabinet must take account of the impact of their decisions on people living their lives in Wales in the future. In doing so, Regional Cabinet must:

- look to the long term;
- focus on prevention by understanding the root causes of problems;
- deliver an integrated approach to achieving the 7 well-being goals;
- work in collaboration with others to find shared sustainable solutions;
- involve people from all sections of the community in the decisions which affect them.

25. Regional Cabinet must be satisfied that the proposed decision accords with the principles above. To assist Regional Cabinet to consider the duties under the Act in respect of the decision sought, an assessment has been undertaken, which is attached at Appendix 2.

### **Equality Act 2010**

26. In considering this matter, regard should be had, amongst other matters, to the Councils' duties under the Equality Act 2010. Pursuant to these legal duties the Regional Cabinet must in making decisions have due regard to the need to (1) eliminate unlawful discrimination (2) advance equality of opportunity and (3) foster good relations on the basis of protected characteristics. Protected characteristics are:

- age;
- gender reassignment;
- sex;
- race – including ethnic or national origin, colour or nationality;
- disability;
- pregnancy and maternity;
- marriage and civil partnership;
- sexual orientation;
- religion or belief – including lack of belief.

## **RECOMMENDATIONS**

27. It is recommended that the Cardiff Capital Region Joint Cabinet:

- (1) notes the analysis and priority actions related to the National Semiconductor Strategy.

**Rhys Thomas**  
**Acting Director**  
**Cardiff Capital Region**  
**31 July 2023**

**Colan Mehaffey**  
**Head of Digital & Data Innovation**

### **Appendices**

Appendix 1 National Semiconductor Strategy

Appendix 2 Well-being of Future Generations Assessment

<https://www.gov.uk/government/publications/national-semiconductor-strategy>

# Future Generations Assessment Evaluation (includes Equalities and Sustainability Impact Assessments)

<b>Name of the Officer completing the evaluation:</b>  Rhys Thomas  <b>E-mail:</b> Rhys.Thomas@cardiff.gov.uk	<b>Please give a brief description of the aims of the proposal</b> National Semiconductor Strategy Assessment
<b>Proposal:</b> National Semiconductor Strategy Assessment	<b>Date Future Generations Evaluation form completed:</b> 31 July 2023




**1. Does your proposal deliver any of the well-being goals below?** Please explain the impact (positive and negative) you expect, together with suggestions of how to mitigate negative impacts or better contribute to the goal.



<b>Well Being Goal</b>	<b>Does the proposal contribute to this goal? Describe the positive and negative impacts.</b>	<b>What actions have been/will be taken to mitigate any negative impacts or better contribute to positive impacts?</b>
<b>A prosperous Wales</b> Efficient use of resources, skilled, educated people, generates wealth, provides jobs	The report assesses how SE Wales can best align with and leverage the UK National Semiconductor Strategy (UKNSS)	Understanding how CCR can benefit for the strategy
<b>A resilient Wales</b> Maintain and enhance biodiversity and ecosystems that support resilience and can adapt to change (e.g. climate change)	The CS cluster is a component of CCR's strategy and is subject to international geopolitical pressures. The report helps to understand how we can build resilience.	
<b>A healthier Wales</b> People's physical and mental wellbeing is maximized and health impacts are understood	N/A	N/a
<b>A Wales of cohesive communities</b> Communities are attractive, viable, safe and well connected	Several CCR LAs and their associated communities benefit from the CS Cluster.	



Well Being Goal	Does the proposal contribute to this goal? Describe the positive and negative impacts.	What actions have been/will be taken to mitigate any negative impacts or better contribute to positive impacts?
<b>A globally responsible Wales</b> Taking account of impact on global well-being when considering local social, economic and environmental wellbeing	The CS Cluster is one of Wales's only world-leading clusters and the UKNSS is tightly aligned with our activity.	As the work progresses on the CS Cluster, the opportunity will be taken to draw work together with that ongoing around the REIP.
<b>A Wales of vibrant culture and thriving Welsh language</b> Culture, heritage and Welsh language are promoted and protected. People are encouraged to do sport, art and recreation		
<b>A more equal Wales</b> People can fulfil their potential no matter what their background or circumstances		

## 2. How has your proposal embedded and prioritized the sustainable governance principles in its development?

Sustainable Development Principle	Does your proposal demonstrate you have met this principle? If yes, describe how. If not explain why.	Are there any additional actions to be taken to mitigate any negative impacts or better contribute to positive impacts?
 Balancing short term need with long term and planning for the future <small>Long Term</small>	Alignment with the UKNSS is critical for the medium to long-term ambitions of the cluster in generating inclusive growth outcomes.	
 Working together with other partners to deliver objectives <small>Collaboration</small>	UKNSS will involve alignment across the three layers of Government and CCR must lead in that regard	
 Involving those with an interest and seeking their views <small>Involvement</small>	Citizen engagement will be considered in specific activities	

Sustainable Development Principle	Does your proposal demonstrate you have met this principle? If yes, describe how. If not explain why.	Are there any additional actions to be taken to mitigate any negative impacts or better contribute to positive impacts?
 <p>Putting resources into preventing problems occurring or getting worse</p> <p><small>Prevention</small></p>	The CS cluster is a critical part of regional growth plans and will target employment for citizens in areas of deprivation – the UKNSS is critical in that regard	
 <p>Considering impact on all wellbeing goals together and on other bodies</p> <p><small>Integration</small></p>	Having an overview of all areas of the UKNSS enables wellbeing goals and objectives to be considered in the round.	

**3. Are your proposals going to affect any people or groups of people with protected characteristics?** Please explain the impact, the evidence you have used and any action you are taking below.

Protected Characteristics	Describe any positive impacts your proposal has on the protected characteristic	Describe any negative impacts your proposal has on the protected characteristic	What has been/will be done to mitigate any negative impacts or better contribute to positive impacts?
Age	The proposal is an assessment of a UK Strategy and, as such, is not a direct activity at this stage.	None arising at this time.	
Disability	As above	As above	
Gender reassignment	As above	As above	
Marriage or civil partnership	As above	As above	
Pregnancy or maternity	As above		
Race	As above		
Religion or Belief	As above		
Sex	As above.		
Sexual Orientation	As above		

Protected Characteristics	Describe any positive impacts your proposal has on the protected characteristic	Describe any negative impacts your proposal has on the protected characteristic	What has been/will be done to mitigate any negative impacts or better contribute to positive impacts?
Welsh Language	As above	Not at this time but the situation will be kept under review.	

**4. Safeguarding & Corporate Parenting. Are your proposals going to affect either of these responsibilities?**

	Describe any positive impacts your proposal has on safeguarding and corporate parenting	Describe any negative impacts your proposal has on safeguarding and corporate parenting	What will you do/ have you done to mitigate any negative impacts or better contribute to positive impacts?
Safeguarding	Not directly relevant		
Corporate Parenting	Not directly relevant		

**5. What evidence and data has informed the development of your proposal?**

- UK National Semiconductor Strategy
- CCR Regional Economic & Industrial Plan

**6. SUMMARY: As a result of completing this form, what are the main positive and negative impacts of your proposal, how have they informed/changed the development of the proposal so far and what will you be doing in future?**

*The main positives are to do with a more professional approach to risk and embedding key principles of ED&I, ESG and sustainability. This will be an ongoing approach but it is clear that as the city deal transitions into a city region – the approach needs to flex and develop to be fit for future requirements.*

**7. MONITORING: The impacts of this proposal will need to be monitored and reviewed. Please specify the date at which you will evaluate the impact, and where you will report the results of the review.**

The impacts of this proposal will be evaluated on:	Q1 2023/24
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