UK Semiconductor Strategy

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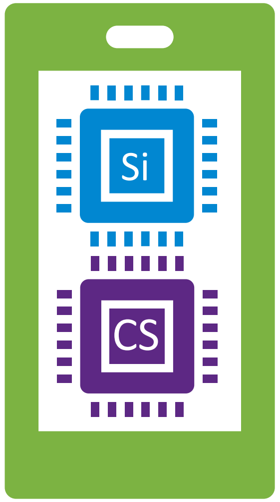
Why do we need a strategy?

What problem(s) are we trying to solve?

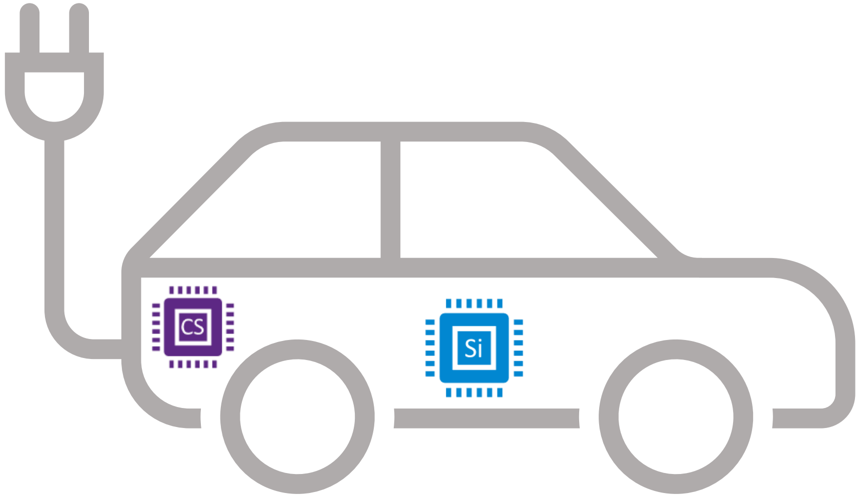
What are other countries doing?

What assets and capabilities can the UK bring to the problem?

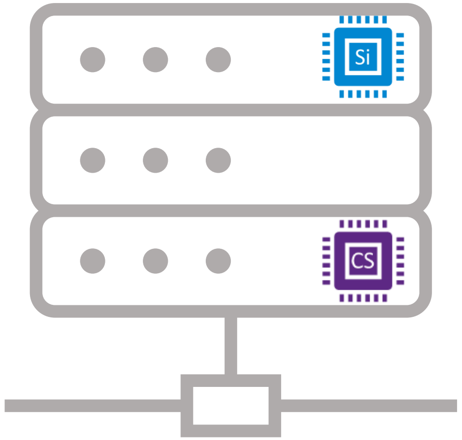
Access to semiconductors for economic growth & security



Smart phone: $350
Silicon (Si) 80%
Compound (CS) 10%
Emerging 10%



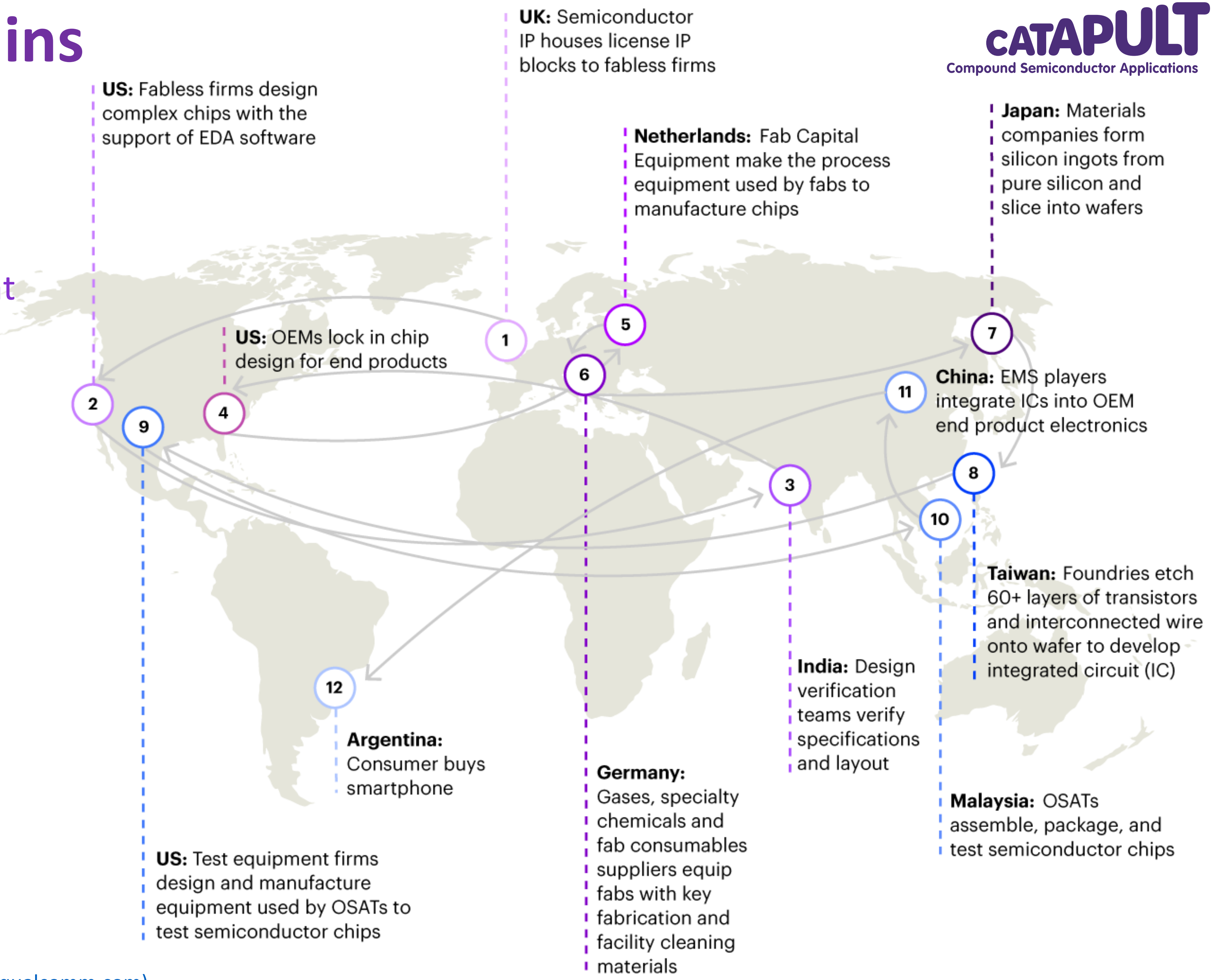
Electric powertrain: $1,950
Silicon (Si) 20%
Compound (CS) 65%
Emerging 5%



Data centre: $5,600
Silicon (Si) 90%
Compound (CS) >5%
Emerging <5%

Complex supply chains

- Globalisation encouraged countries to specialise
- Specialisation has driven up productivity, driven down costs at the expense of complex supply chains
- Supply chain disruption causes economic shocks and risks to national security



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Compound Semiconductor Applications

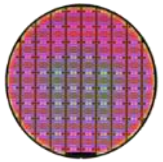
[How to harness the power of the Semiconductor Value Chain (qualcomm.com)]

Global semiconductor initiatives

Compound Semiconductor Applications

UK capability

Wafer | Die | Module (chip) | System | Applications

Raw materials →  → Etching →  → Packaging →  → Sub-assembly →  → Final assembly →

£ | ££ | £££ | ££££

25 UK fabs

20 UK packaging companies

5,000 UK companies design and manufacture electronic **systems**

Automotive

Telecoms

Space / Quantum Defence £££££

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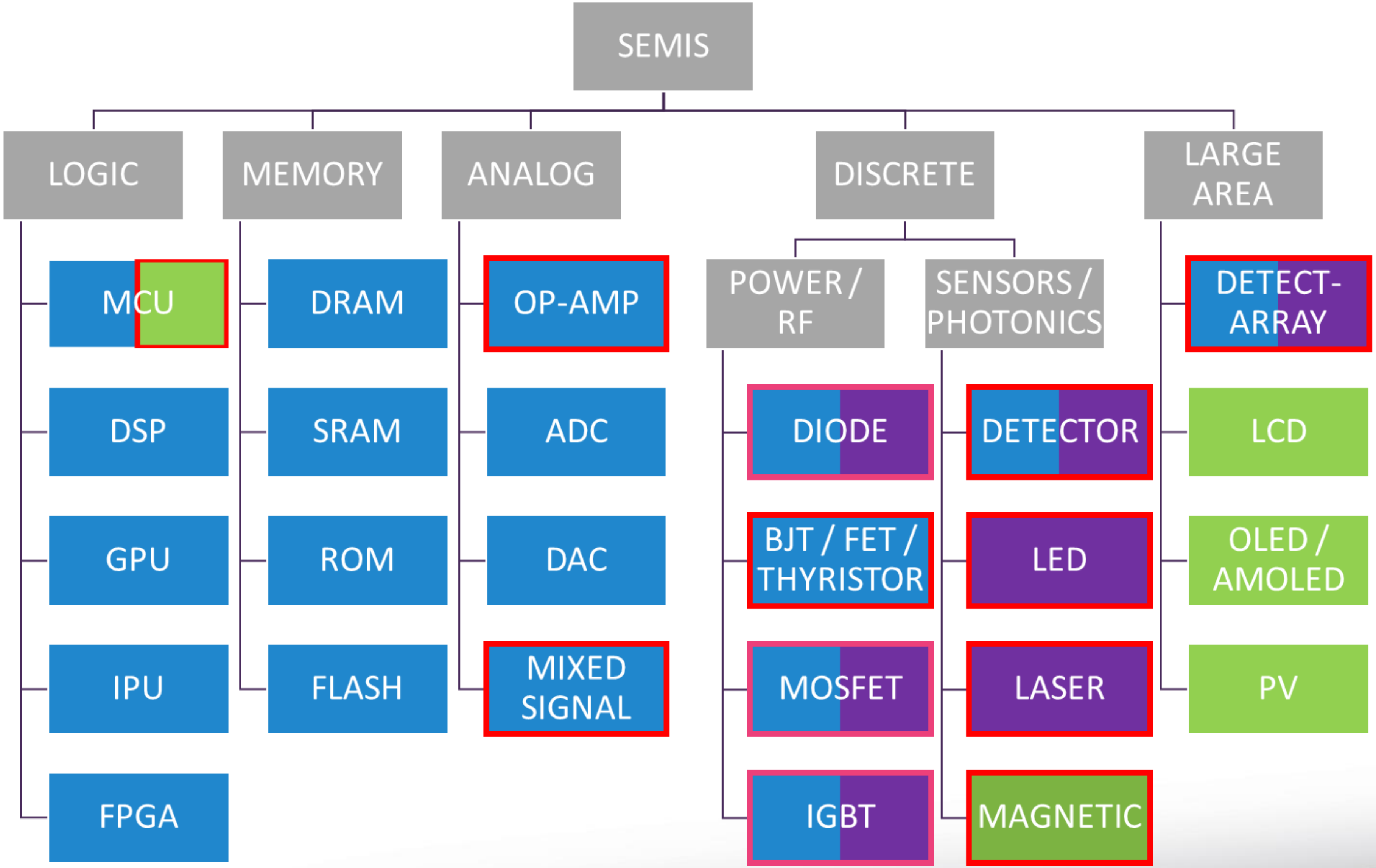
UK strengths in design and compound semiconductors

Key
- Silicon (Si)
- Compound (CS)
- Emerging



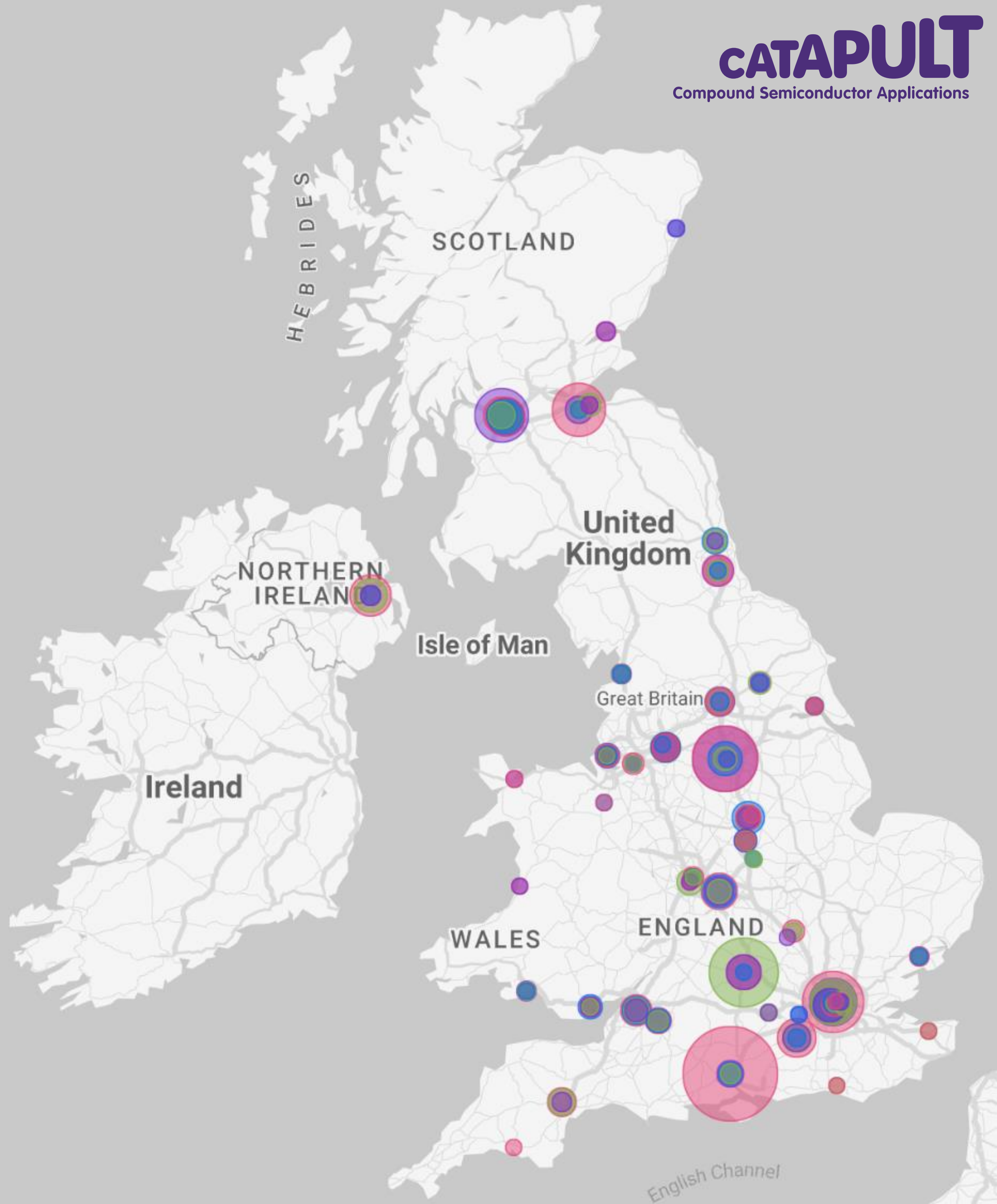
UK FABRICATION

R&D investments

£1bn invested by EPSRC 2006 – 2018

Key

- Power electronics
- RF / microwave
- Photonics
- Compound semiconductor materials



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UK clusters

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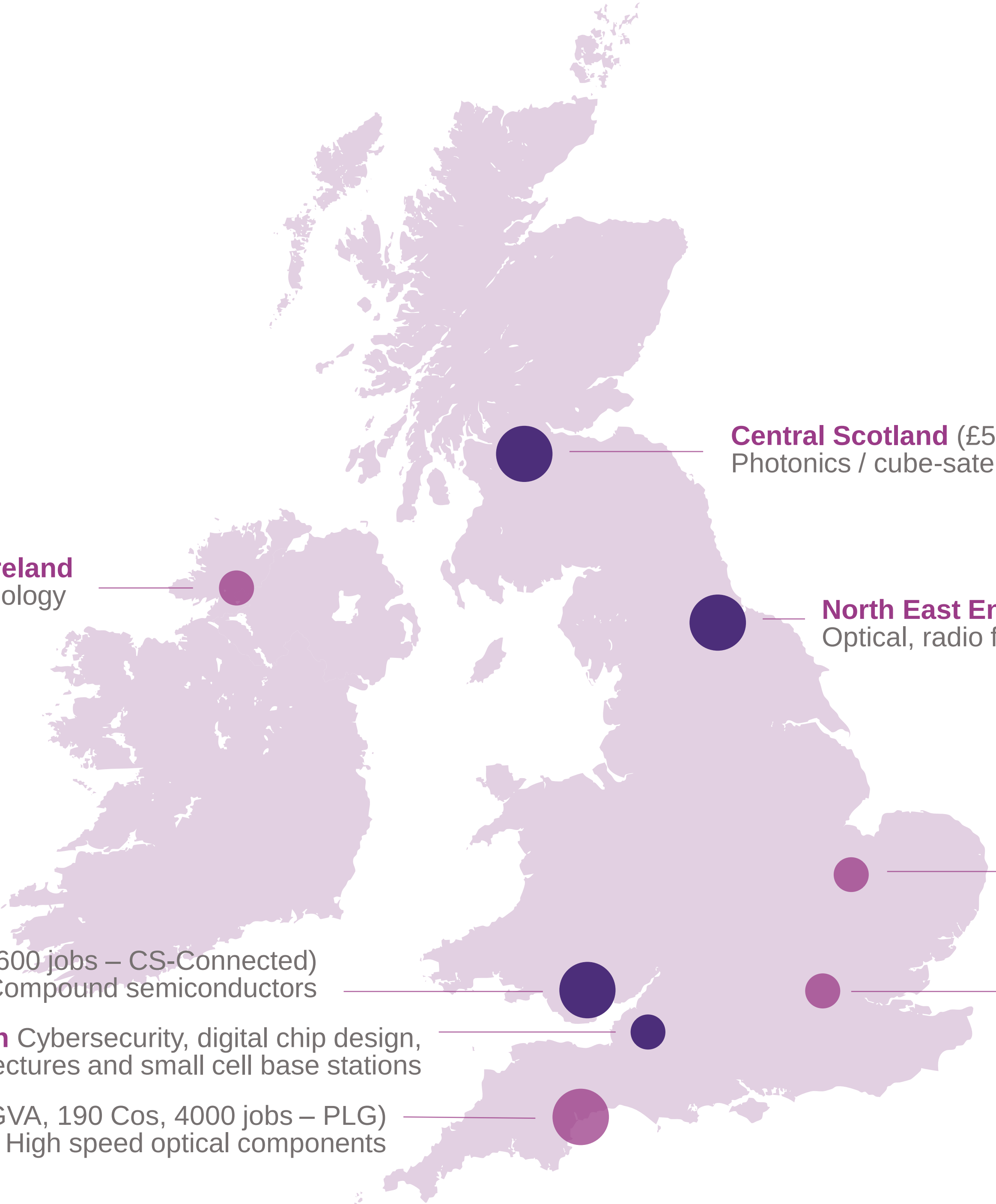

UK Semiconductor Infrastructure Initiative

Funded by UK Government

WP5
Semiconductor Institute

IfM Engage
Part of the Institute for Manufacturing

- **WP1** Si prototyping
- **WP2** Advanced packaging
- **WP3** CS open foundry
- **WP4** Design IP

cambridge econometrics
clarity from complexity

CATAPULT Compound Semiconductor Applications · FutureHorizons The Global Semiconductor Industry Analysts · Imperial College London · PHOTONICS LEADERSHIP GROUP · SEMIWISE · Si SILICON CATALYST · TechWorks · nmi · UNIVERSITY OF LEEDS

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The CSA Catapult is a member of CS-Connected – the South Wales compound semiconductor cluster

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