

Wales Automotive Forum

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27th March 2019



“Delivering a sustainable value proposition for the UK by accelerating the adoption of compound semiconductor applications in key markets”

CATAPULTS: FOSTERING INNOVATION

Regional Centres

Satellite Applications

- North East
- Scotland
- South West
- South Coast
- East Midlands

Digital

- North East and Tees Valley
- Yorkshire
- Brighton
- Northern Ireland



Innovate UK

CSA CATAPULT VISION

The background of the slide is a dark purple world map. Concentric white circles are centered on the United Kingdom, expanding outwards across the map to represent global reach.

OUR VISION IS FOR THE UK TO
BECOME A GLOBAL LEADER IN
DEVELOPING AND
COMMERCIALISING NEW
APPLICATIONS FOR
COMPOUND
SEMICONDUCTORS

MEETING INDUSTRIAL AND TECHNOLOGICAL CHALLENGES



IN ELECTRIC
VEHICLES



IN CLEAN ENERGY



5G



IN WEARABLES

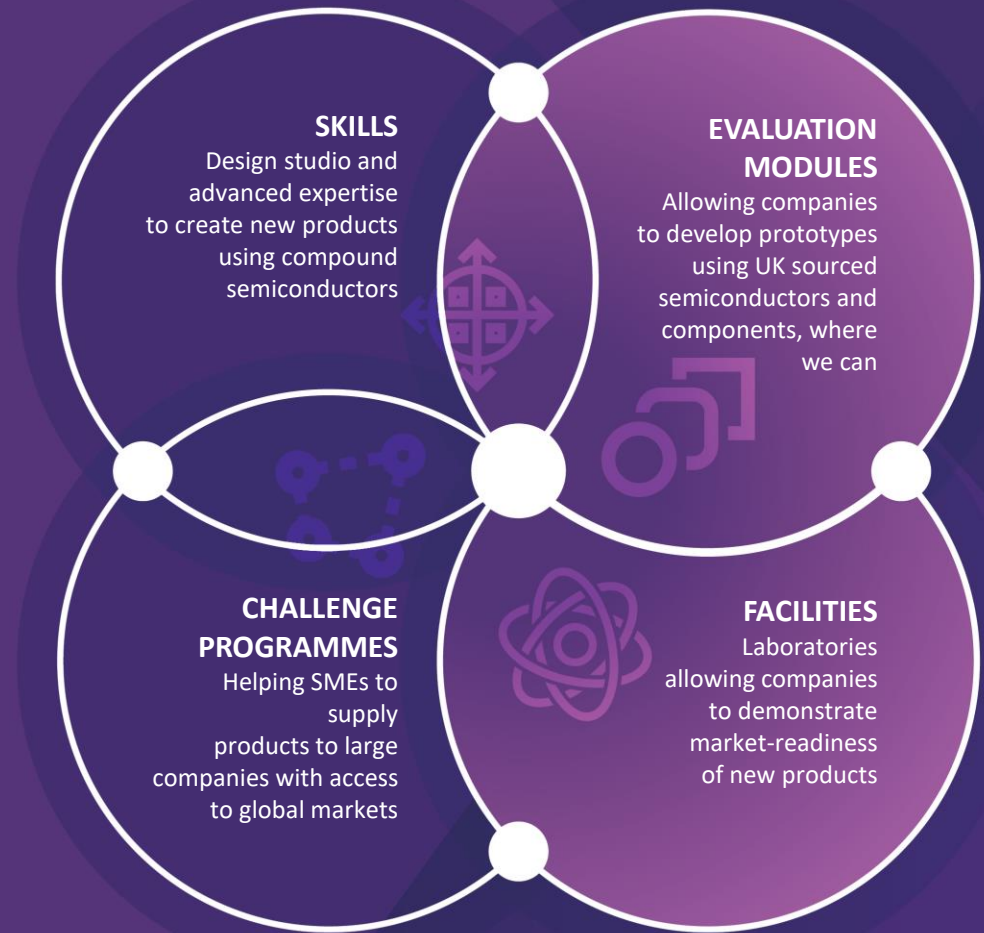


FUTURE MEDICAL



STRATEGY

- We will open an impressive innovation centre within the world's premier compound semiconductor cluster in South Wales.
- Evaluation modules will allow companies to more rapidly prototype systems using UK sourced semiconductors and components, where we can.
- We will run a series of challenge programmes, identifying how compound semiconductors can address global challenges.



Open access facility from 2019



design studio

- industry collaboration
- design expertise, simulation tools
- supply chain relationships
- reliability and failure analysis

class 10K advanced packaging lab

- materials characterisation
- precision engineering
- die preparation & hybrid integration

power electronics laboratory

- 100kV test & verification capability
- access to 0.5MW of power
- EMC screened

RF/microwave laboratory

- device characterisation
- harsh environment analysis

photonics & sensors laboratory

- advanced metrology
- RF modulated photonics
- dark room

Technology Team

Experience

~400 years of Research and Engineering Experience

- Average Engineering Experience 16 years
- 15 PhDs specialising in Photonics, Power, RF, Packaging & Prototyping
- 8 Market Focussed - Solution Architects

Application

Photonics, Power, RF Application Knowledge

- High Power Modules: Automotive and Aerospace
- LiDAR with Low Cost VCSELs & Swept Beam Source: Sensors & High Bandwidth Communications
- Beam Steering: 5G Communications & Radar

Prototyping

Design, Analysis, Characterisation, Modelling , Assembly, Test

- Electronics, Package Design, Mechanical, Materials, Process, ESW, CAD.
- Package, PCB, & System Level Integrated Performance Optimisation.
- Wafer, Die, Device, Module, PCB, & System Test & Characterisation.

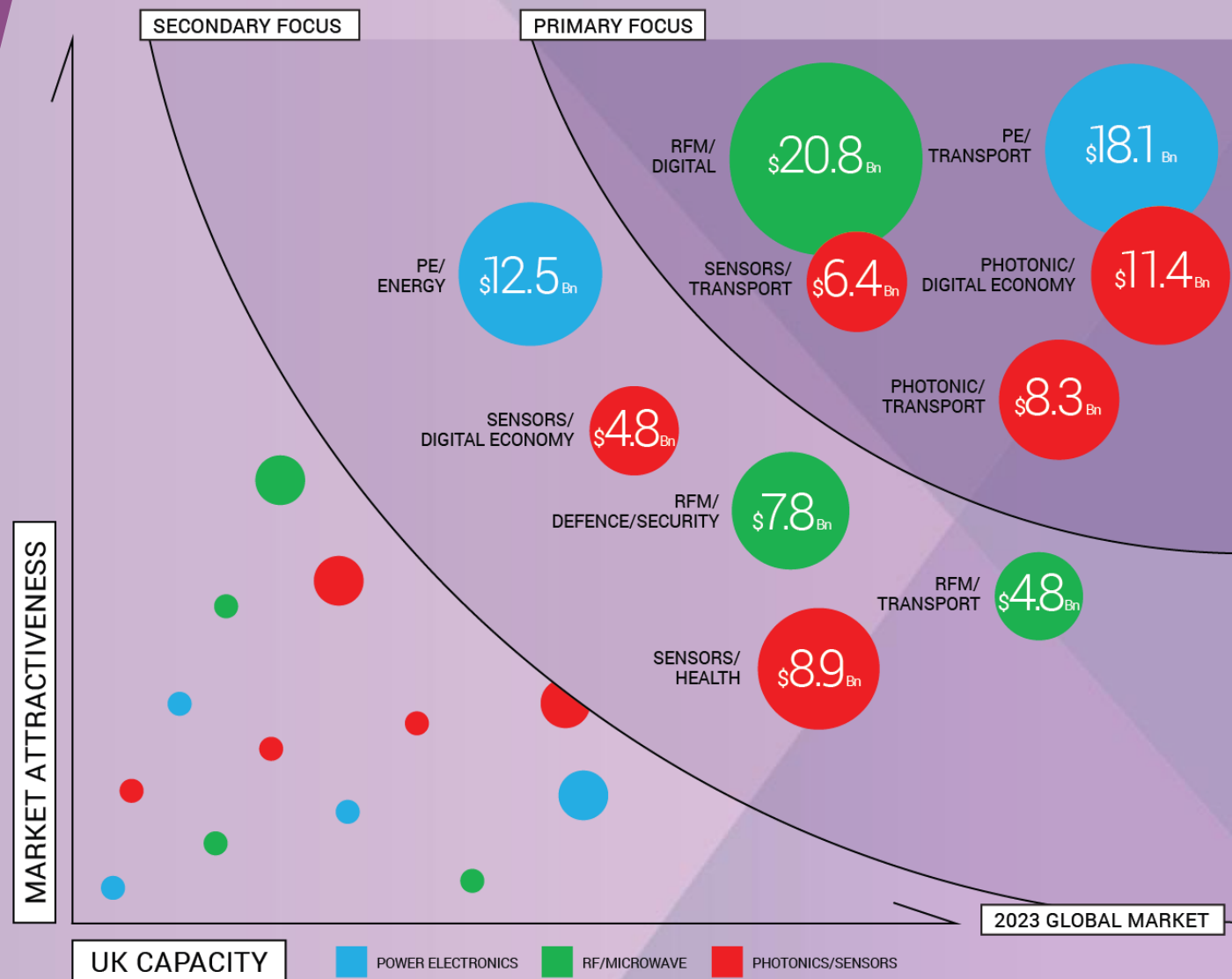
Priority Focus Areas

Our focussed priorities are:

- Transport
- Digital Economy

Underpinned by technology developments in:

- Power Electronics
- RF & Microwave
- Photonics



Driving the Electric Revolution

- Importance and opportunity of the Electrification Agenda for the PEMD Supply Chain to transition from:
 - 2.5m combustion engines manufactured today
 - Supporting £8.5bn in exports and 30,000 jobs
- Our *OPPORTUNITY & CHALLENGE* is to develop new scale up electrification solutions that support highly integrated and complex systems
- This means.....
 - Bringing together our diverse capabilities
 - Collaborating across the full supply chain
 - Collectively solving technical and material problems
 -for the benefit of the UK supply chain and end markets
 - Already convened industry leaders and financial support

Thank you for listening

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

www.csconnected.com