The North East Automotive Alliance

Supporting the sustainable economic growth and competitiveness of the NE automotive sector

Paul Butler, CEO, NEAA

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European Union
European Regional Development Fund

AGENDA:

- The UK automotive sector
  - Economic importance
  - Key drivers
    - Sector growth
    - Localisation
    - Technology revolution
    - Sector deal
- The NE automotive sector
  - Contribution to the NE economy
  - Areas of specialism in the NE
  - Significant recent investments & sector growth
  - Challenges the sector faces
  - Future developments in the sector, particularly the opportunities for the NE

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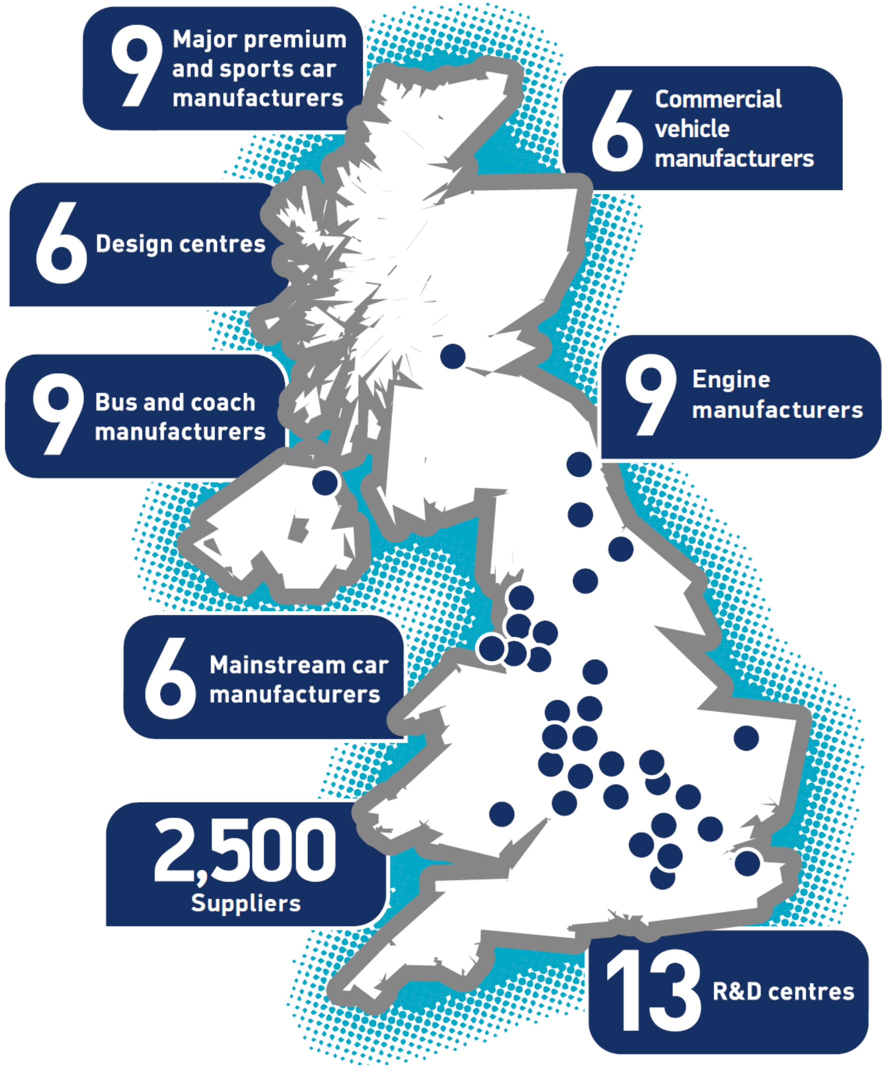
The UK automotive sector



£77.5 billion
UK automotive turnover

2,692,237
New cars registered in 2016

160
Countries importing UK-built vehicles

1,354,216
Vehicles exported in 2016

814,000
People employed across UK Auto

Over 34.4 million
Cars currently on UK roads

1,722,698
Cars built in 2016

93,924
Commercial vehicles built in 2016

2,545,608
Engines built in 2016

Government support for the sector is strong

automotive council UK

Innovate UK

INDUSTRIAL STRATEGY

ADVANCED PROPULSION CENTRE UK

KTN the Knowledge Transfer Network

Department for International Trade

CATAPULT High Value Manufacturing

The Faraday Institution Battery Technology Research

NICHE Vehicle Network

EPSRC

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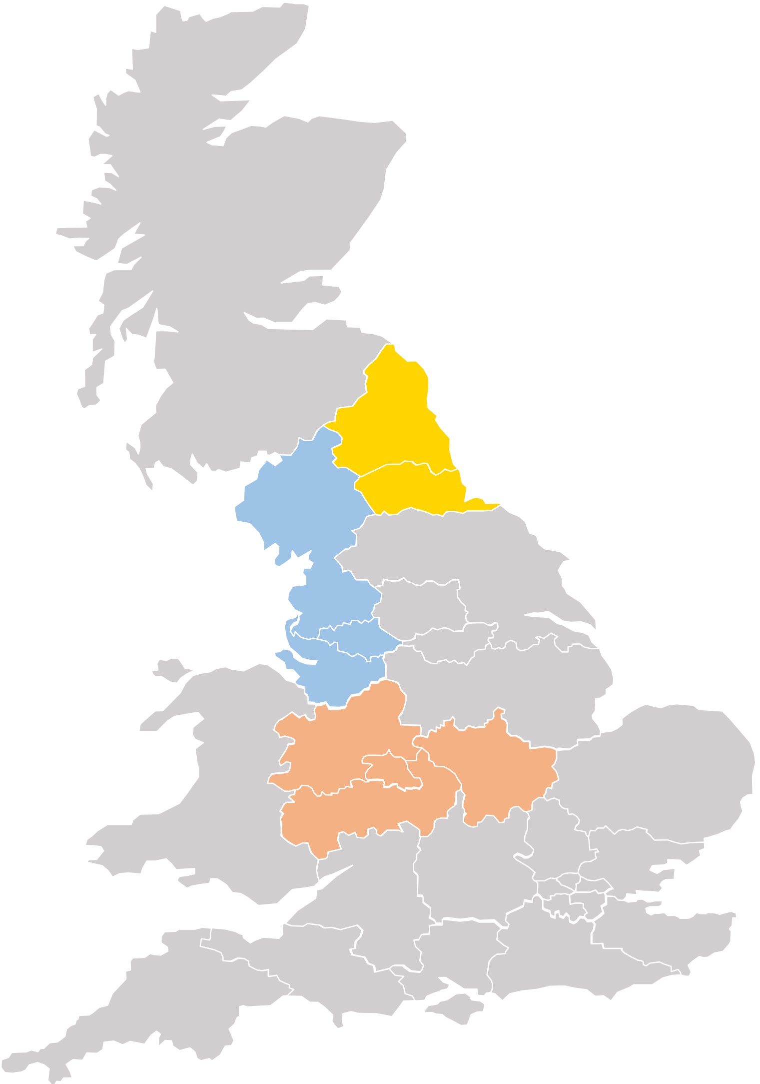
Passenger vehicle production



	Manufacturer	Location	Production 2014	Production 2015	Production 2016	Current Production Models
1	JAGUAR LAND ROVER	Halewood, Solihull, Castle Bromwich, Coventry	393,000	505,000	544,000	All
2	NISSAN	Sunderland	500,000	477,000	507,000	Qashqai, Juke, Leaf Infiniti Q30 & QX30
3	BMW	Oxford	179,000	201,000	211,000	All Mini except Countryman
4		Burnaston	172,000	190,000	180,000	Avensis, Auris, Auris Hybrid
5		Swindon	122,000	119,000	134,000	5-door Civic
6	GM	Ellesmere Port	78,000	85,000	118,000	Astra
7	BENTLEY	Crewe	10,600	10,700	11,700	All
8	ROLLS ROYCE	Goodwood	4,400	3,700	4,100	All
9	ASTON MARTIN	Gaydon	4,000	3,200	3,700	New factory in Wales
10	LOTUS	Hethel	1,500	1,700	1,300	All
11	McLaren AUTOMOTIVE	Woking	1,800	1,400	3,200	All
12		Coventry	1,400	1,200	1,300	New £300m factory
			1.5m	1.6m	1.7m	

Midlands - 35%

North East - 30%

North West – 16%

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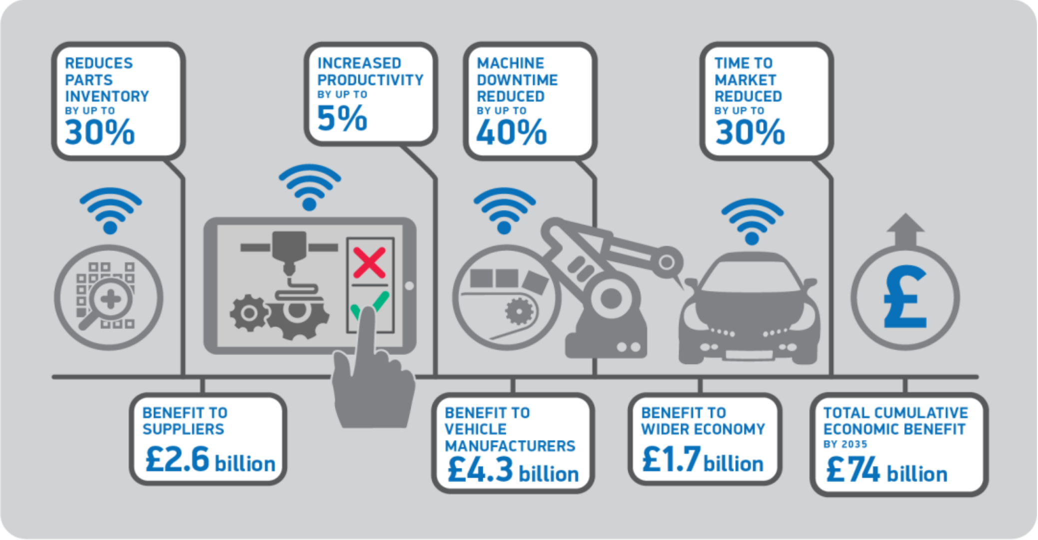
Component	Opportunity value (£m)	Component	Opportunity value (£m)
Engine castings	550	12V Lead/Acid Battery	90
Steering systems	330	Cast aluminium sub-frames	90
Trim	255	Brakes	80
Engine forgings	255	Drive shafts	80
Pressings and hot stampings	240	Fuel tanks	75
Seat components	225	Engine accessories	75
Alloy wheels	210	HVAC assemblies	75
Lighting	210	Misc. (pedals, mirrors etc.)	60
Electronics	170	Shock absorbers	60
Plastic mouldings	150	Oil pans	30
Entertainment & navigation	135	Premium finish	50
Bearings	120	Weather strips	50
Instrument Clusters	120	Switchgear	30
Glass	110	Other	520
Hinges	105		

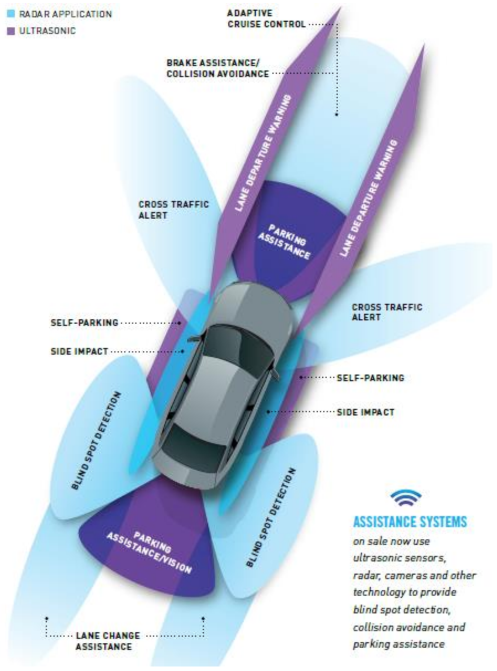
£6bn UK Tier 1 & 2 supply chain opportunity

Technology revolution



Manufacturing Processes

- Mass customisation
- Shorter lead times
- Automation
- 4iR



On Vehicle

- Light weighting & advanced materials
- Driver assists
- Advanced propulsion – EV & hydrogen
- Connected and autonomous vehicles,
- Infotainment
- Codaholics
- Integrated mobility

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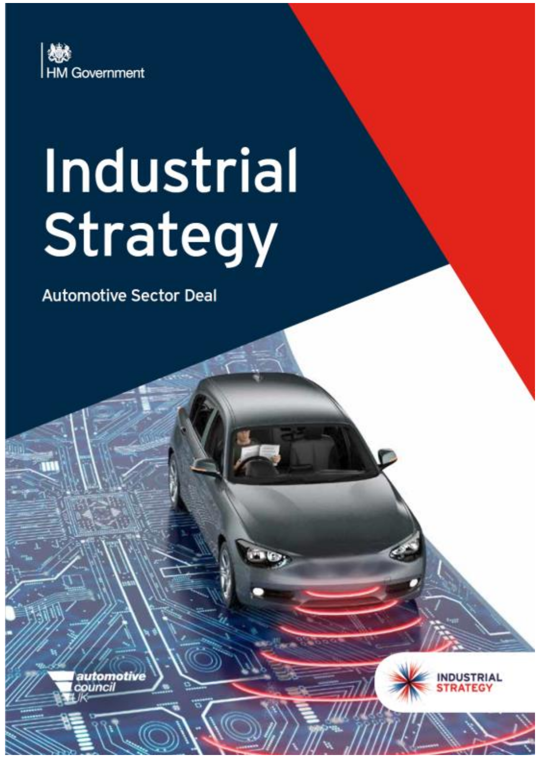
Sector deal – the 1st of several



- Demonstrates sectors strategic importance to UK PLC
  - Sets clear priorities and complements work activities of the AC
  - Building on test facilities in the UK
  - Supply chain competitiveness programme
  - Funding announced
    - £1bn - Advanced Propulsion Centre
    - £450m - Automotive R&D (2023 onwards)
    - £400m - EV Charging Infrastructure
    - £250m - CAV
    - £246m - Faraday Challenge
    - £100m - Plug In Car Grants
    - £40m - NPIF R&D on-street wireless charging
    - £16m - NMCL Supply Chain programme

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The North East Automotive Sector

The North East automotive sector

A globally significant region

- Nissan, Sunderland – the UK's largest and most productive car plant
  - 30% of all UK passenger vehicles
  - 20% of all EV production across Europe
- Other OEMs - Komatsu, Caterpillar, Cummins & Erwin Hymer
- World-class supply chain - 28 Tier 1's and over 200 tier 2 and below
- Europe's largest battery facility
- Regional strengths in
  - Manufacturing
  - Injection Moulding
  - Emerging technologies EV (inc battery), CAV, PE and EM (APC Spoke)
- Home to the UK's largest automotive cluster, the NEAA.

- £11bn sales and 30,000 direct employees

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NE Investment

NMUK

Calsonic Kansei

Unipres

Vantec

Lear

Expert

TRW

Gestamp R&D

Nifco

ElringKlinger

Novares

Future growth and expansion

- Turnover exceeding £14bn
- Employment exceeding 33,000

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Challenges

- Skills
- Brexit
- Step change in production volumes & transition to LCV
- Increased complexity and high levels of customisation
- Industrial digitalisation
- New technology and market entrants
- Regional competitiveness is being eroded due to global best practice sharing
- Limited access to the UK manufacturing innovation eco system
- Overcoming barriers to innovation
  - Increased competition for company investment
  - Proving to industry standards
- Changing public sector framework – IS, ISCF, Sector Deal, LIS

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Launched in 27th March 2015

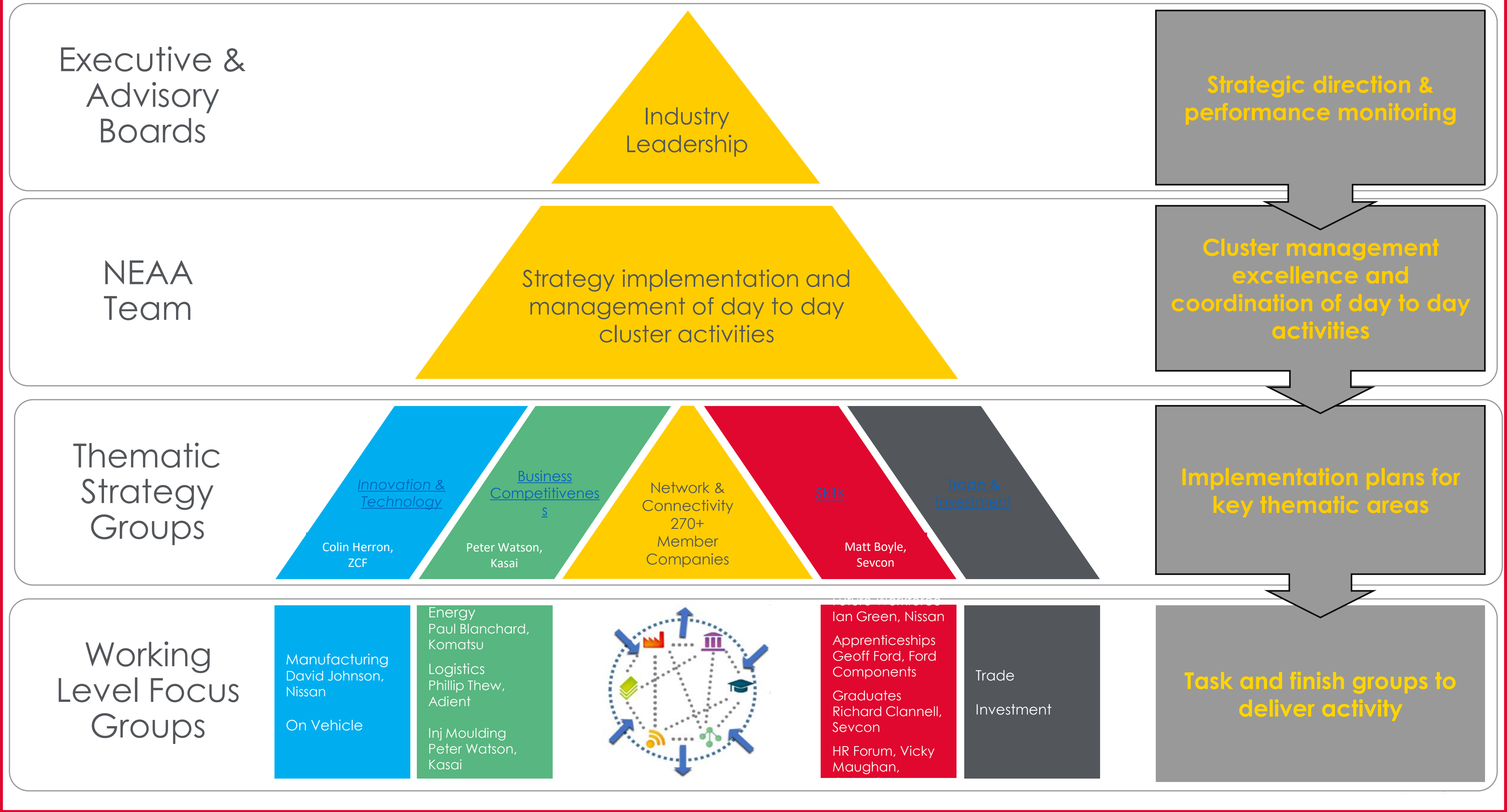
Not-for-profit industry led cluster

Industry Leadership

Executive Board

Kevin Fitzpatrick	Nissan & NEAA Chair
Mike Mathews	Nifco & NEAA Vice Chair
Paul Butler	NEAA CEO
Martin Porton	RTC & NEAA Comp Sec
Matt Boyle	Chair of Skills WG
Peter Watson	Kasai, Chair of BEG
Stephen Irish	Hyperdrive
Peter Howe	Komatsu
Irene Lucas	Sunderland City Council

Advisory Board


Executive & Advisory Boards
Industry Leadership
Strategic direction & performance monitoring
NEAA Team
Strategy implementation and management of day to day cluster activities
Cluster management excellence and coordination of day to day activities
Thematic Strategy Groups
Innovation & Technology
Colin Herron, ZCF
Business Competitiveness
Peter Watson, Kasai
Network & Connectivity 270+ Member Companies
Skills
Matt Boyle, Sevcon
Trade & Investment
Implementation plans for key thematic areas
Working Level Focus Groups
Manufacturing David Johnson, Nissan
On Vehicle
Energy Paul Blanchard, Komatsu
Logistics Phillip Thew, Adient
Inj Moulding Peter Watson, Kasai
Ian Green, Nissan
Apprenticeships Geoff Ford, Ford Components
Graduates Richard Clannell, Sevcon
HR Forum, Vicky Maughan,
Trade
Investment
Task and finish groups to deliver activity

The Largest Automotive Cluster in the UK

UNIPRES · NISSAN · Gestamp · ADIENT · KOMATSU · MECAPLAST GROUP · Kasai · elringklinger · Calsonic Kansei

ALTEC ENGINEERING GROUP · FALTEC · icon plastics · Arlington Automotive · Cummins · EXPERT · NIFCO · SEWS-E · HYPERDRIVE · LEAR CORPORATION · RTC inspiring growth · snop

TOMLINSON HALL · A.V. DAWSON ROAD • RAIL • LAND • SEA · ThreeBond · AVID technology · DS Smith · ACTIVE COMPOSITES LTD · Dontyne Systems · Lectra · FORD · MAKE it Sunderland

DYER ENGINEERING · GATE 7 GROUP · CALDAN CONVEYOR A/S · signalplastics · FESTO · Desoutter · ZERO CARBON FUTURES · KATMEX LTD · SigmaAS

TVS Cramlington Precision Forge Ltd · SEV · VISUAL · FEG Clarity through simplicity · D&S Services · avon group · SR Technology Innovations · South Tyneside College Dedicated to your success · COMAU · PEAK PERFORMANCE PARTNERSHIP · STÄUBLI

nrg integrating talent · Armagrip · Kawasaki Powering your potential · PARAGON Rapid Technologies · GATESHEAD COLLEGE · zenithpeople · CW APPLIED TECHNOLOGY · AMF ADVANCED MANUFACTURING FORUM · AMTECH

e-max systems · Metromold · QuickHydraulics fluid power centre · fs design · PORT of TYNE · Arlington Automotive · SMMT DRIVING THE MOTOR INDUSTRY · SPEARHEAD · SMC

EDM ZONE · Grorud engineering · MICC LTD · PEGASUS MATERIAL HANDLING LTD Tel 0191 419 0003 · IOH INDUSTRIAL ORGANISATIONAL HEALTH · na-group plc · ISM institute for supply management · Hall & Angus · Teescraft ENGINEERING · FLOWSTORE

HTA REAL ESTATE · Reprotec UK Limited THE surface protection specialists · middlesbrough college · animmersion · MSSPeople.com · NORTH EAST BRIDGE · sora GROUP · FM COATINGS LTD · A1 Scales · AstleySigns · WEEK 2 WEEK APARTMENTS · Infinite · w@terstons

LOCKTON · Teesside University · ARK ASSOCIATES · OPEN MIND · northumbria UNIVERSITY NEWCASTLE · Jigsaw Group Solutions that fit · SLALEY HALL · Express Managed Services · Business Durham · K.HARTWALL Logistics Efficiency through Innovation

SQUAREONELAW · Sunderland College · South Tyneside Council · Industrial Workwear · evolution · BRADLEY O'MAHONEY · necc North East Chamber of Commerce · baltic · NAYLORS · syncronology · lornamichaels RECRUITMENT · NORTHSTAR Coatings

INFINITI · University of Sunderland · Department for International Trade · HOLLAND PR & MARKETING · seta · horizonworks your marketing team · BAKER • MALLETT · TDJ · invisible systems · SDS

Opportunities

- Build upon the regional strength as a global CofE for automotive manufacturing
  - IAMP – once in a lifetime opportunity
    - Increased UK content & further supply chain opportunities (localisation)
    - Increased exports
  - Capitalise upon the industrial digitalisation opportunity to put the NE at the forefront of manufacturing technology – supporting the sector and building cluster strength and broadening capability
  - Build upon NE strengths in battery, PE, EM, CAV and infotainment - attract more R&D and new companies into the sector
  - Develop our NE testing infrastructure
    - NMUK test track
    - 5G
    - Attract national assets – Millbrook/Mira
- Supply chain development – broaden and strengthen regional capability

(The above would develop the NE into a globally significant automotive region)

- Improve productivity in other manufacturing sectors through transfer of automotive manufacturing methodologies

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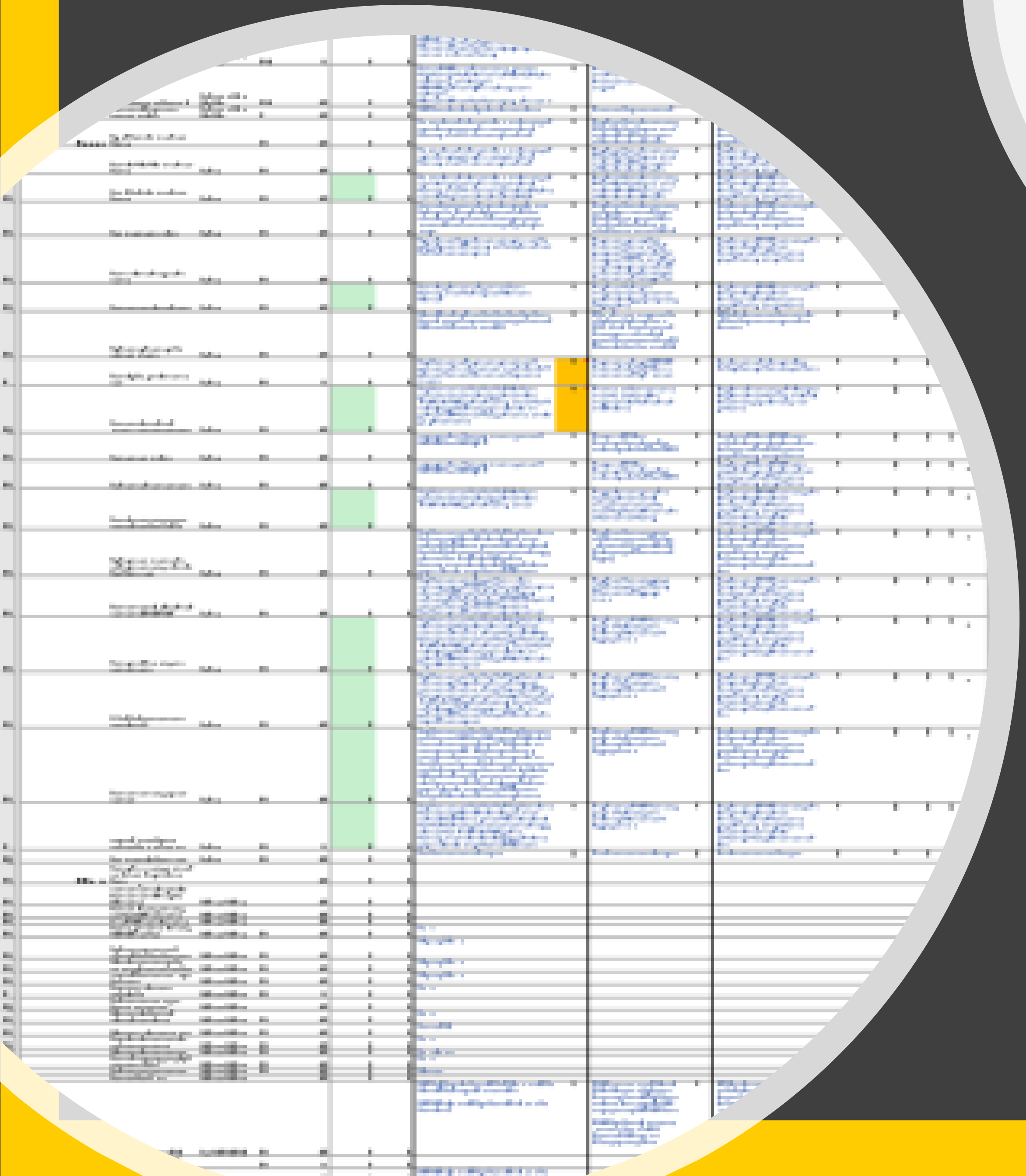

Innovation studies

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The Centre of Excellence for Sustainable Advanced Manufacturing (CESAM)

What is CESAM?

An advanced manufacturing innovation centre that provides a framework for manufacturing innovation in the NE which:

- Provides a regional hub to link NE companies to national Centres of Excellence and leading edge research – short, medium and long-term
- Enables companies to innovate at lower TRL's
- Provides economies of scale which is attractive to both public and private sector funding
- Filtering innovative opportunities/ideas/solutions
- Industrialising innovative techniques and technologies ensuring they are tested and demonstrated to industry standards in real production facility
- Provides cross-sector dissemination to accelerate adoption and maximise competitive advantage
- Supporting scale up of new the automotive supply chain
- Provides sustainable competitive advantage for NE companies which is difficult for competing plants to replicate
- Builds on the NEAA cluster by attracting new solution providers to establish NE operations to support CESAM activities

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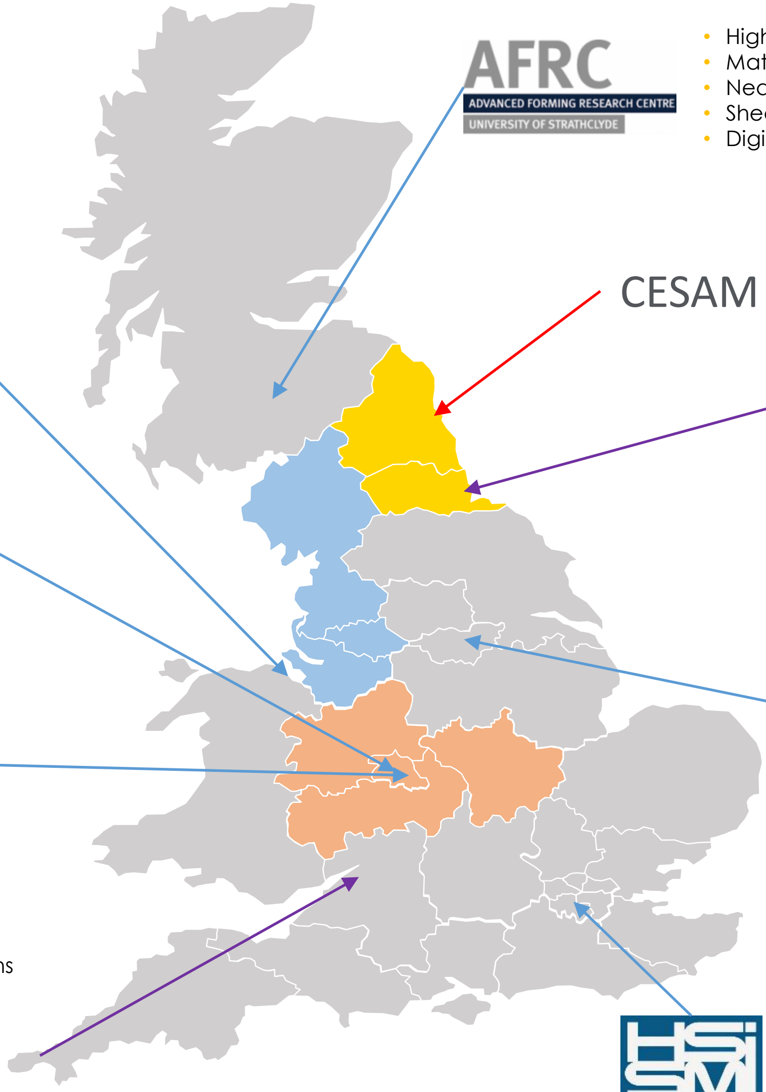
Linking to the UK Manufacturing Innovation Eco System



CESAM

AFRC – Advanced Forming Research Centre, University of Strathclyde

- High integrity forging and thermal processing
- Materials evolution, component resilience and residual stress
- Near net shape design and make
- Sheet processing technology
- Digitalisation, technology planning of process and supply chains

cpi

- Printable Electronics
- Formulation
- Graphene

WMG – The University of Warwick

- Connected and autonomous systems
- Efficient use of materials
- Energy innovation
- Advanced propulsion systems

mtc – Manufacturing Technology Centre

- Additive Manufacturing
- High Integrity Fabrication
- Non Conventional Machining
- Advanced Tooling and Fixturing
- Electronics Manufacturing
- Robotics and Autonomous Systems
- Special Purpose Machines
- Manufacturing Simulation
- Manufacturing Informatics
- Metrology and NDT

AMRC – Advanced Manufacturing Research Centre, The University Of Sheffield

- Additive Manufacturing
- Automation
- Castings
- Composite Manufacturing
- Design and Prototyping
- Digitally Assisted assembly
- Manufacturing Informatics
- Machining
- Manufacturing Intelligence
- Metrology
- Microscopy
- Robotics
- Structural Testing
- Virtual Reality

National Composites Centre

- Design, analysis and simulation of advanced composites applications
- Product and process development and optimisation
- Materials through intermediates and preforming to end product
- Extensive range of deposition and curing technologies
- Application of digital technology to composites manufacturing
- Prototyping and validation
- Manufacturing, inspection and testing
- Collaborative and confidential working environments

HSSMI – High Speed Sustainable Manufacturing Institute

North East Automotive Alliance

European Union
European Regional Development Fund

Industry Support

Nifco UK Limited.
Durham Lane
Eaglescliffe
Stockton-on-Tees
TS16 0PS
United Kingdom
Tel: +44 (0) 1642 672299
VAT No. GB602 1240 12
Company Number 1392769

Paul Butler
North East Automotive Alliance
Loftus House
Colima Avenue
Sunderland
SR5 3XB

23rd January 2017

Offer of Support

Dear Paul

I am writing to offer our support for a North East Centre of …

NISSAN EUROPE S.A.S.

Nissan Motor Manufacturing (UK) Limited
Washington Road
Sunderland
Tyne & Wear
SR5 3NS
Telephone : (0191) 415 0000

20 December 2016

Support for a North East Centre of Excellence for Sustainable Advanced Manufacturing (CESAM)

Nissan Motor Manufacturing (UK) Limited ("NMUK") has a proven track record of innovation and £3.7bn investment in the UK over the past 30 years. NMUK's Sunderland plant has been the largest car production site in the UK since 1998, making almost 500,000 cars per year over the past 5 years, representing 1 in 3 of all new cars produced in the UK. NMUK directly employs 7,000 people and supports a further 20,000 jobs in the regional supply chain.

Competing for new model allocations within the Renault Nissan Alliance means there is a critical need for continual improvement on manufacturing and logistics productivity, especially in high cost countries such as UK. We believe a Centre of Excellence, closely aligned to Nissan Sunderland plant both in its focus and its geography, will help us innovate faster so we can stay ahead of our competitors in the Alliance and secure the future of the plant, its supply chain and the jobs and prosperity it brings.

The benefits from CESAM would not be restricted to Nissan; we believe that the Centre would boost the automotive sector in the UK by building stronger links between academic research and industrial development. The speed at which the UK automotive sector is able to innovate will be crucial in maintaining the UK's position as a great place to make cars in a more globalised environment. **We therefore support the project to establish a local Centre of Excellence for Sustainable Advanced Manufacturing (CESAM).**

Regards

Kevin O'Neil
Deputy Managing Director

KOMATSU

Komatsu UK Ltd.
Durham Road, Birtley
Chester-le-Street
Co. Durham DH3 2QX
Telephone: 0191 410 3155
Fax: 0191 492 4242

Paul Butler
North East Automotive Alliance
Loftus House
Colima Avenue
Sunderland
SR5 3XB

23/1/2017

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snop GROUPE FSD

SNOP UK Ltd,
Rainhill Road,
Washington,
NE37 3HP.

23rd January 2017.

Subject: CESAM

Sunderland City Council

Paul Butler
North East Automotive Alliance
Loftus House
Colima Avenue

CATAPULT High Value Manufacturing

Tony Ikwue
Director
The University of Sunderland

CESAM

Dear Tony,

The HVM Catapult works with UK industry to accelerate the impact and commercialisation of research. The HVMC works with industry to mature, demonstrate and derisk technology before introduction into the manufacturing base to deliver productivity improvements and new business opportunities. We work cross sectors working closely with sector groups with representation on Aerospace Growth Partnership and Auto Council boards.

HVMC fully supports the CESAM proposal and recognises the opportunity to build a world leading automate cluster in Sunderland centred around IAMP. The HVMC has demonstrated across its seven centres the value of having manufacturing innovation centres anchoring industrial investment and creating strong innovation ecosystems. The Innovation District around the AMRC in Sheffield and Rotherham with recent investments from Boeing and Mclaren is a notable example of this.
The HVMC and Digital Catapult will work in partnership with CESAM to provide underpinning capability and align projects in the areas of automation, industrial digitalisation, visualisation, fixturing and tooling and light weighting where we have already developed a strong national capability. The opportunity to build upon capability across the HVM Catapult and Digital Catapult and target production scale deployment for the North East Automotive cluster is an exciting one for the UK and has the opportunity to maximise impact from existing investments.

HVMC recognises industrial digitalisation to be a national priority and we are working on the project team of the Industrial Digitalisation Review (IDR) led by Juergen Maier. I also chair the D4I, Digital for Industry leadership group which works on UK strategy for transformation of the UK manufacturing base through digital technology. CESAM would be a strong addition to the evolving national landscape in Industrial Digitalisation providing potential demonstrator sites for the proposed 'Made Smarter' commission.

The HVM Catapult will align matched project funding to underpin CESAM R&D programmes and make its project teams and technology fora available to support locally.

Yours sincerely,

Professor Sam Turner
CTO of the High Value Manufacturing Catapult Centre
Sam.turner@hvm.catapult.org.uk

High Value Manufacturing Catapult
The Oracle Building | Blythe Valley Business Park
Shirley | Solihull | West Midlands | England | B90 8AD
t: +44 (0) 121 506 9780 e: info@hvm.catapult.org.uk

ZERO CARBON FUTURES

Dr Colin Herron
Zero Carbon Futures
Future Technology Centre
Barmston Court
Sunderland
SR5 3NY

Dear Paul,

Lear Corporation UK Ltd
Unit 2 Phoenix Way
Rainton Bridge Industrial Estate
Houghton Le Spring
Tyne & Wear DH4 5SA

ADIENT

Paul Butler
North East Automotive Alliance
Loftus House
Colima Avenue
Sunderland
SR5 3XB

Dear Paul,

I am writing to offer our support for a North East Centre of Excellence for Sustainable Advanced Manufacturing (CESAM).

Here at Adient Automotive in Sunderland, Tyne and Wear where we Design and Manufacture Car Seats for Nissan UK we are very supportive of the CESAM initiative to help us sustain our Competitiveness and Nissan's whilst addressing our challenges for the future in support of our Growth opportunities in the north East of England.

The latest news of Nissan Committing to produce 2 new Vehicle Models in Sunderland is great news for the region, however manufacturing Excellence, technology and innovation will be key to their success and ours.

The North East is a global centre of excellence for automotive manufacturing. Today it is home to over 240 companies in the direct supply chain of the sector. These companies employ over 30,000 people directly and generate over £11 billion of sales for the region. Growth within the UK automotive sector is significant and the recent announcement by Nissan to build the latest Qashqai and X-Trail models further strengthens the regions global reputation.

The formation of the North East Automotive Alliance (NEAA) has established a cohesive network which supports the sustainable economic growth and competitiveness of the regions automotive sector. Thematic working groups identified by the industry advisory board provide a platform for industry to collaborate to address challenges and maximise growth opportunities. Manufacturing innovation is one such thematic focus and we believe it will help us innovate faster and provide a catalyst for manufacturing innovation which will not only support the growth of our company but that of the North East and UK automotive sector.

CESAM will provide an open innovation platform to address manufacturing challenges, minimise cost and risk, whilst maximising the impact by industrialising innovative techniques and technologies. The benefits will not be restricted to automotive as there is substantial opportunity to dissemination of automotive manufacturing know-how and methodology to the wider advanced manufacturing sector thus supporting the UK's productivity drive.

We therefore support the project to establish a local Centre of Excellence for Sustainable Advanced Manufacturing (CESAM).

MECAPLAST GROUP

Paul Butler
North East Automotive Alliance
Loftus House
Colima Avenue
Sunderland
SR5 3XB

20th Jan 2017

Dear Paul,

I am writing to offer our support for a North East Centre of Excellence for Sustainable Advanced Manufacturing (CESAM).

Mecaplast UK has doubled its size and turnover in the past two years and is positioned to expand its site in Peterlee, County Durham, even further.
We are currently studying the feasibility of introducing body coloured painting facilities into our injection moulding shop to support our strategy of supporting our clients with in-demand and breakthrough technologies.
We also are strategically investing in lightweighting technologies as the market shifts in this direction through the needs of lower emission regulations and the growth of the electric vehicle market.

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We therefore support the project to establish a local Centre of Excellence for Sustainable Advanced Manufacturing (CESAM).

Yours sincerely,

David Cann
General Manager UK
Mecaplast Group

MECAPLAST PETERLEE LIMITED

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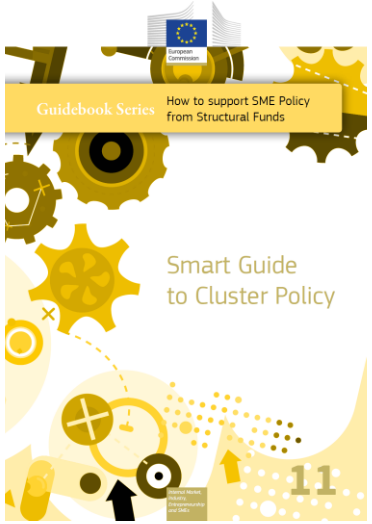
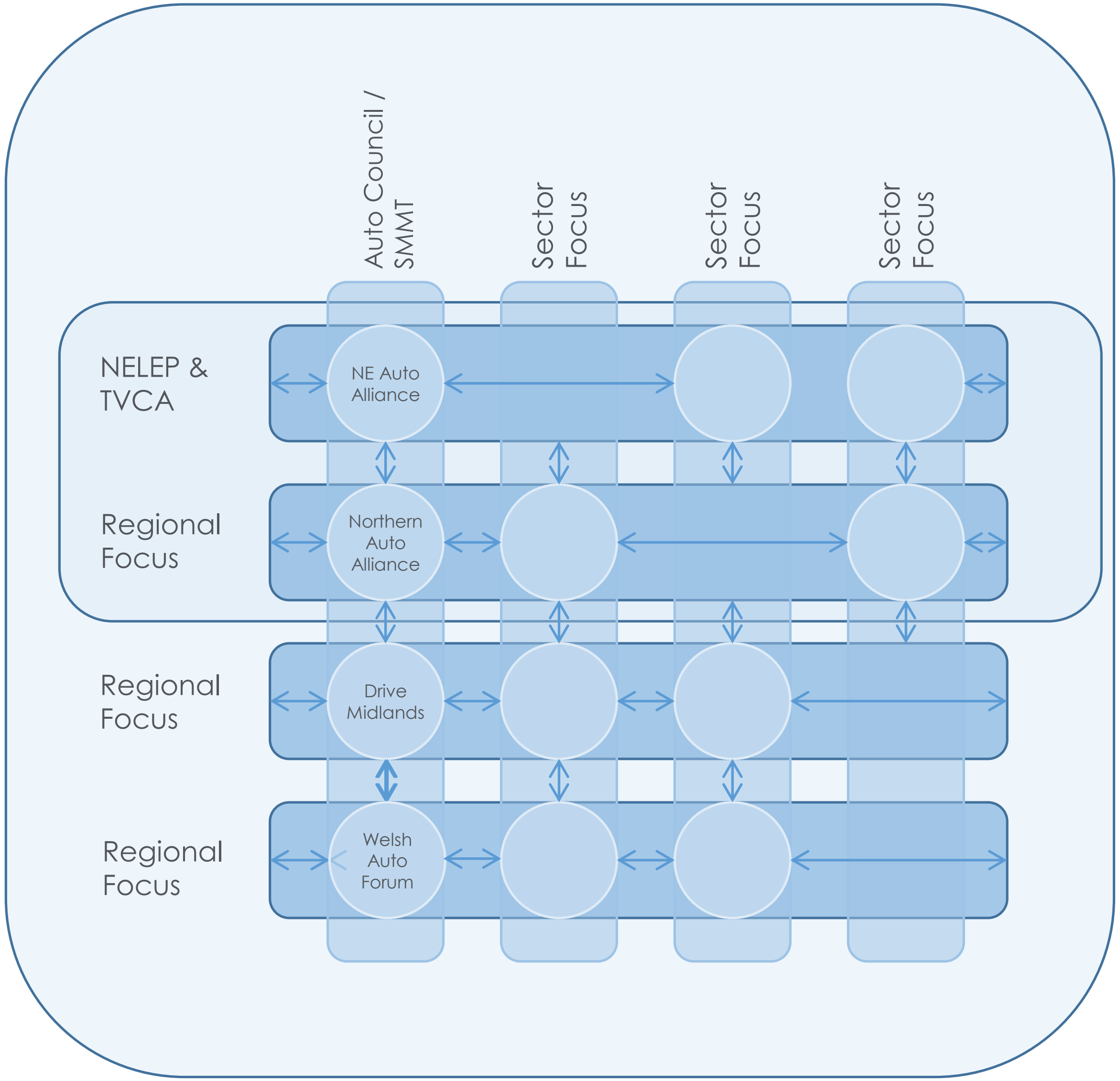
EU Support

- Cluster Collaboration
- Cluster Excellence
- Policy



How Clusters Support the UK Eco System



National Government / Industrial Strategy
- National framework
- Addressing national strategic issues and opportunities
- Improve living standards and economic growth

Sector Deals & National Sector Bodies
- Setting out national sector strategies to deliver against Industrial Strategy
- Addressing key strategic issues facing specific industrial sectors at a national level

Northern Powerhouse
- Delivering the Northern Powerhouse strategy to unleash the full potential of the North

Local Industrial Strategy – LEPs
- Developed locally and agreed with the government
- Identify priorities to improve skills, increase innovation and enhance infrastructure and business growth
- Will guide the use of local funding streams and any spending from national schemes

Cluster Focus – Regional Industrial Clusters
- Developing and delivering cluster strategy against the above
- Prioritising what against industry needs
- Linking national sector and regional activities to provide more co-ordinated support for companies

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European Regional Development Fund

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