

Innovate for Business Growth

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Welcoming and Opening Comments

Oli Wignall

Chair of Ideas and Innovation Strategy Group

Delivering Results through Innovation

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Innovation for Business Growth

David Moss

Head of Digital Innovation

Siemens Research & Innovation Ecosystems UK

Presentation Topics

- Introduction to Siemens
- Case Studies - Siemens Manufacturing
- “Living Labs” and the potential benefit. – “If you build it they will come(!)”.

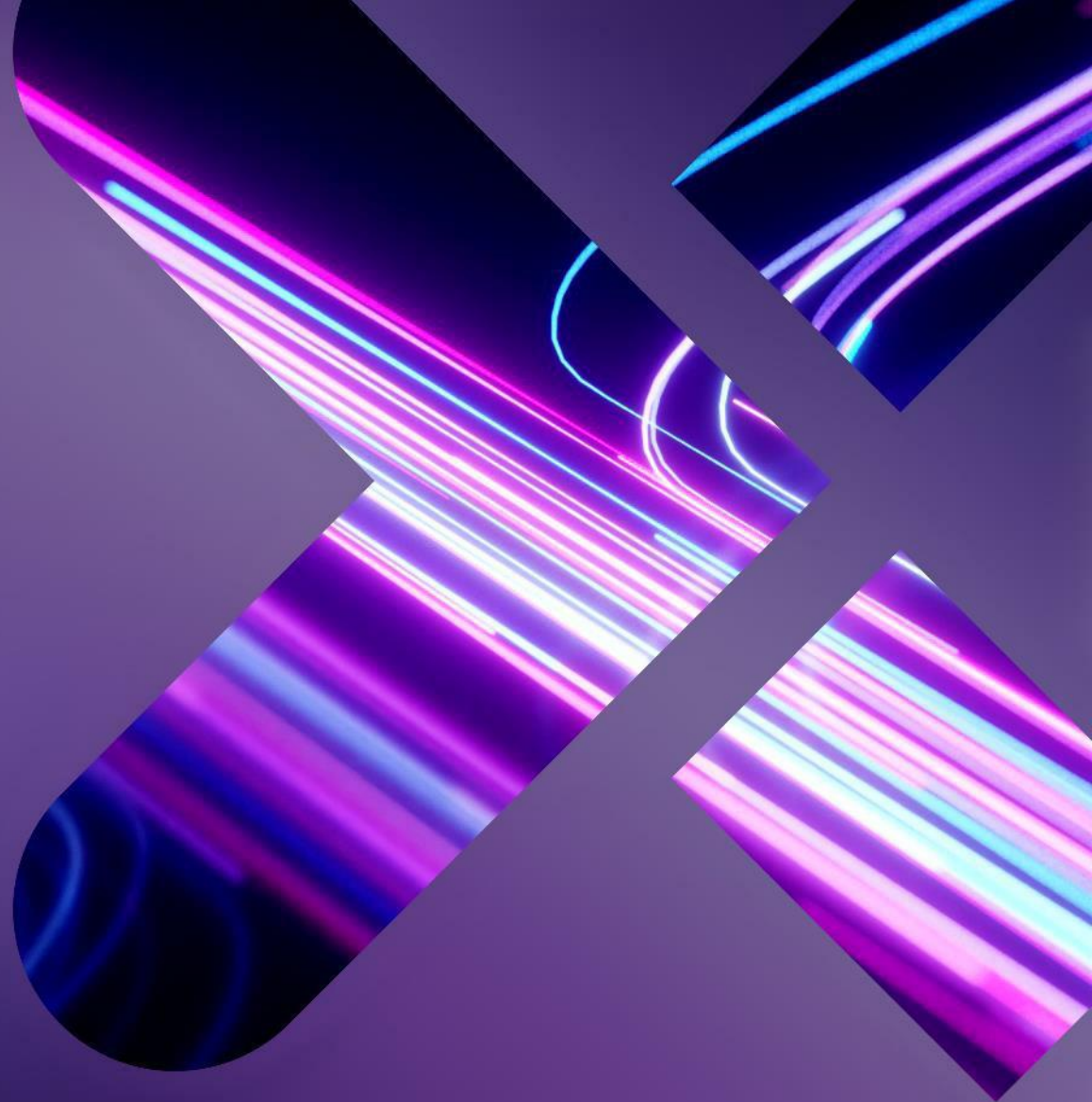
What this presentation isn't:

A solution to any or all of the challenges that Cumbria faces

What this presentation is:

Some insight into our challenges and how we've overcome them (or not)

What does Siemens do?



SIEMENS

Examples from Siemens AG fr



We commute in cars designed with **Siemens software** ...

... built in factories running on **Siemens automation** ...



... and charged by a Siemens **smart grid**.

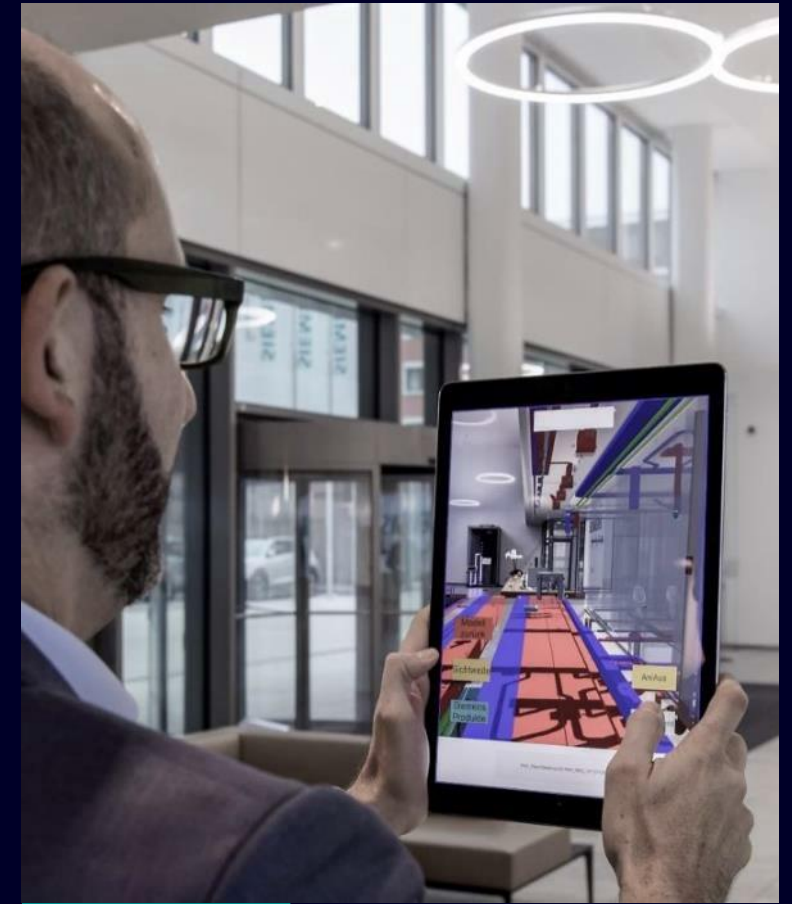
Examples from Siemens AG fr



We work in smart buildings that
promote our **health** and **safety**

...

... that use energy
with **maximum efficiency** ...



... and connect the **physical**
and the **digital** workplace.

Examples from Siemens AG for



We book our train tickets
with **Siemens software** ...

... to travel on **trains**
made by Siemens ...



... operated with Siemens
infrastructure technology.

Examples from Siemens AG fr



We rely on **life-saving** drugs and treatments ...

... as well as **accurate** medical diagnoses, ...



... all of which are made possible by **Siemens solutions.**

Siemens Technology

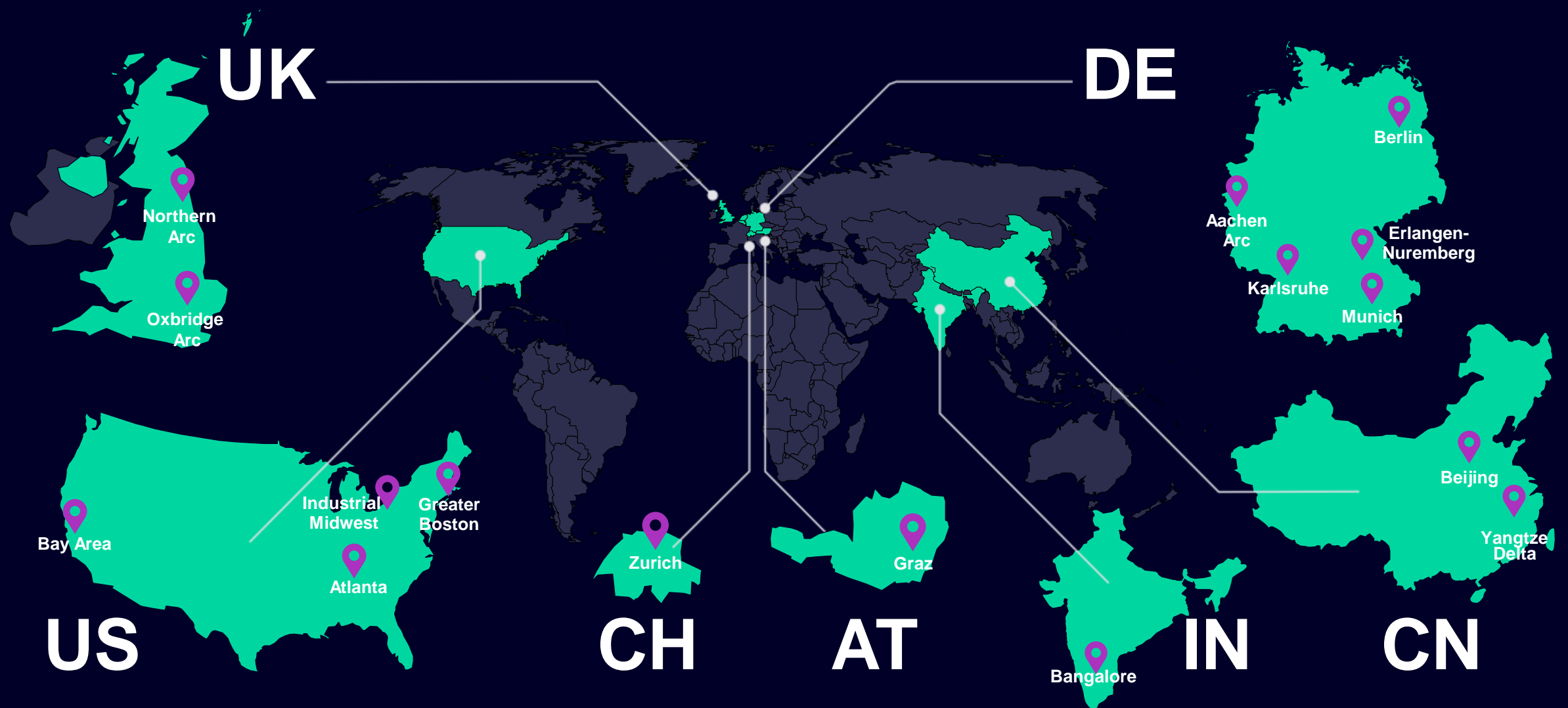
Keeping a 175 year-old company fit for the next 175 years.

SIEMENS



16 world-class Siemens Research and Innovation Ecosystems

Globally connected and locally anchored



Innovation Case Studies & some recurring themes




GLOBAL COMPETITION
(WITH OURSELVES)



LOCATION



RECRUITMENT

An aerial photograph of the Siemens Congleton factory, a large industrial complex with multiple buildings and a parking lot. The image is overlaid with a semi-transparent blue digital grid and glowing lines, suggesting a smart factory or Industry 4.0 theme. The background shows a suburban area with houses and trees under a clear sky.

Siemens Congleton (Electric Drives and Power Electronics)

The Challenge

- The first Siemens factory in the UK
- Global intra-country competition within Siemens – 2013
- Threat of closure
- 400 staff producing 50,000 units per annum (1990s)

The Solution

- Embrace the challenge
- A move towards adopting digitalisation practices
- Doing it better than anybody else
- Driving innovation within Siemens – seen as the exemplar

The Outcome

- Seen as world-leading and always innovating
- Senior staff were promoted throughout the national structure
- Our first carbon-neutral factory globally
- 1 million units per annum with the same amount of staff

An aerial photograph of a lush, green forested valley. In the background, there are large, rugged mountains under a cloudy sky. A small cluster of buildings, including a large industrial-style building with a grey roof, is visible in the lower center of the image, partially obscured by the dense trees.

Siemens Llanberis – Medical Diagnostics

The Challenge

- Location!
- Global intra-country competition within Siemens
- Recruitment
- No natural hubs to recruit from
- The “local” university closed its Chemistry dept

The Solution

- A move towards adopting digitalisation practices
- Doing it better than anybody else
- Working with regional stakeholders e.g. Welsh Gov’t
- Sell the excellence
- Sell the location!

The Outcome

- New investment
- Job security
- Seen as a prestigious role – people want to work for Siemens Healthineers
- Relocation of some staff from California to Llanberis!



Siemens Goole (Trains)

The Challenge

- Our newest factory
- Location!
- Skills
- Extremely ambitious plans

The Solution

- Work with key partners and stakeholders
- Diversity & Inclusion from Day 1
- Recruit locally (not exclusively)

The Outcome

- Rejuvenating a typically-deprived area
- 700 jobs created in the local economy, 250 in initial construction, 1,700 in the supply chain
- Creating an advanced R&D network
- The first orders are in!

Siemens Energy (Ulverston) – Subsea electrification



The Challenge

- Location!
- Skills
- Salaries

The Solution

- Family feel / Excellent work/life balance
- Local candidates are given priority
- Embrace and promote the location for external candidates
- Advertising in mountain-biking magazines!
- Super-flexible working hours
- Work closely with local schools

The Outcome

- Always innovating
- A positive place to work
- Lots of recruitment through referrals
- Staff do return

Summary

1

Embrace the location – be proud

2

Work with key stakeholders

3

Don't be afraid to innovate

4

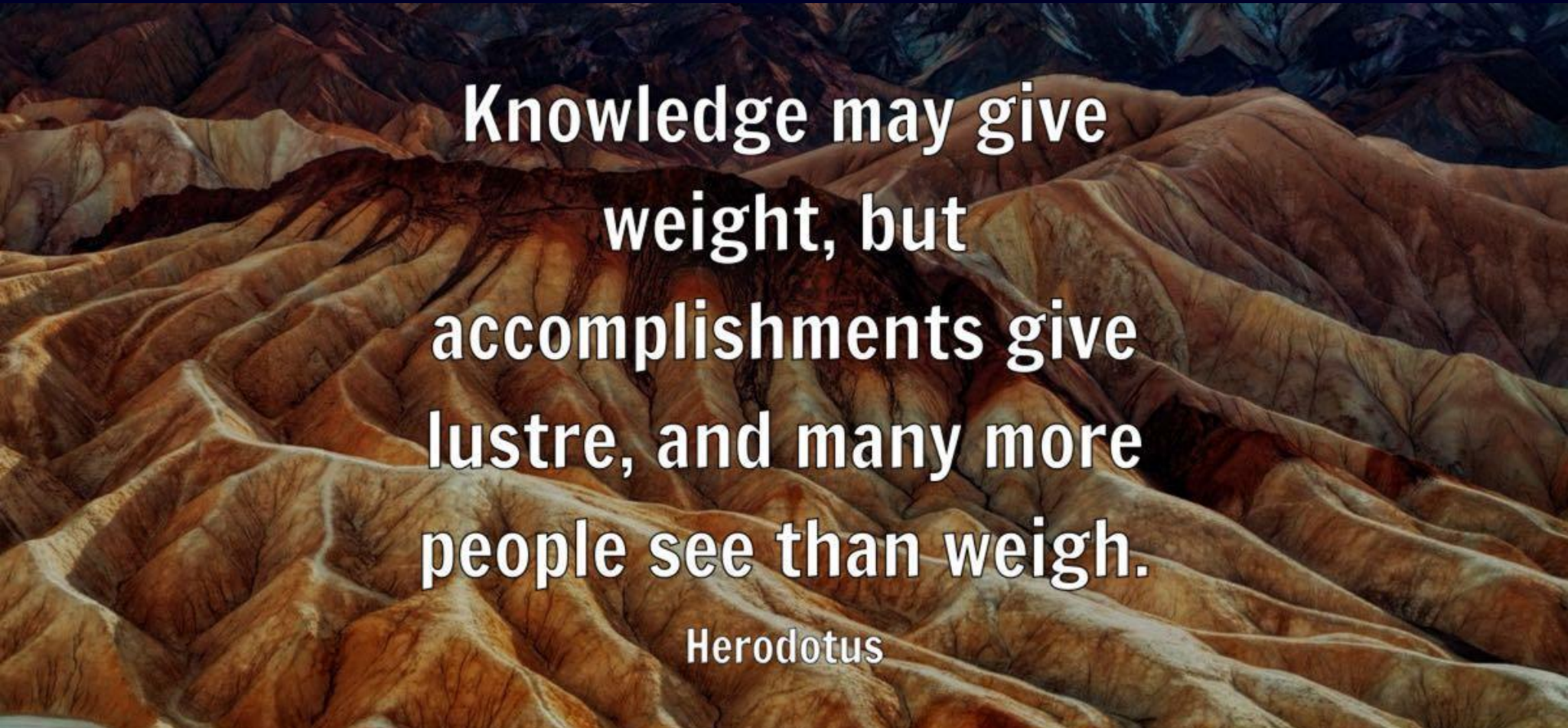
Push the boundaries

Living Labs



Innovation as an enabler

Nothing says 21st Century Innovation like a quote from a dead Greek philosopher



Knowledge may give
weight, but
accomplishments give
lustre, and many more
people see than weigh.

Herodotus

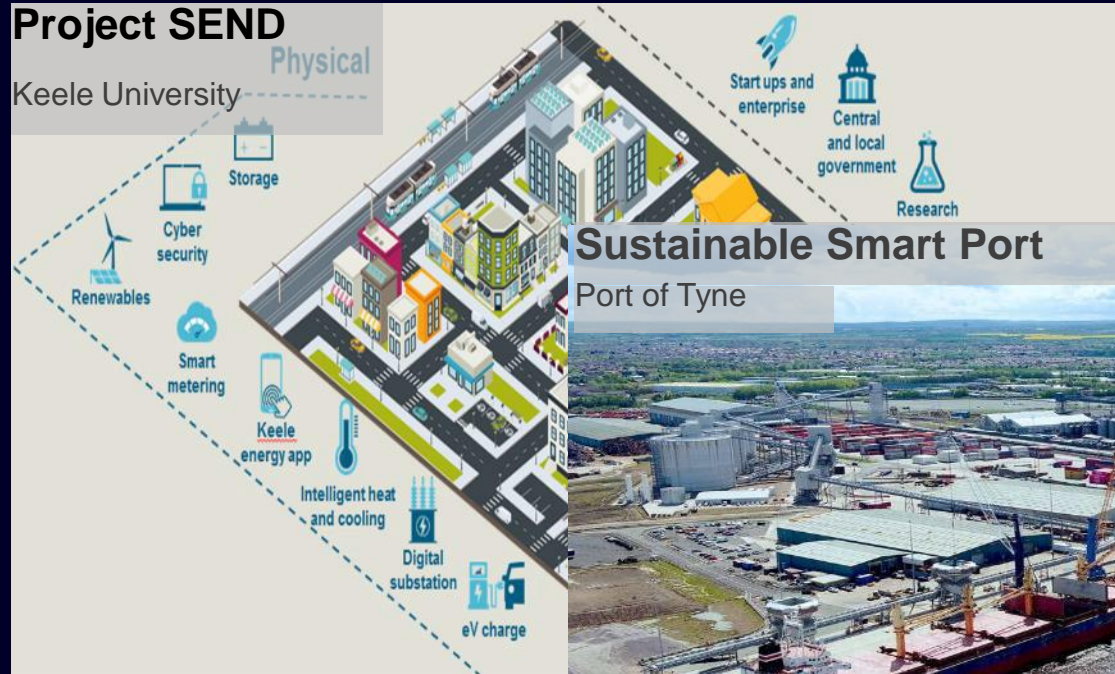
Growth of UK Living Labs

Establishing Innovation Ecosystems for Siemens, Universities, Customers and Start-ups

Project SEND

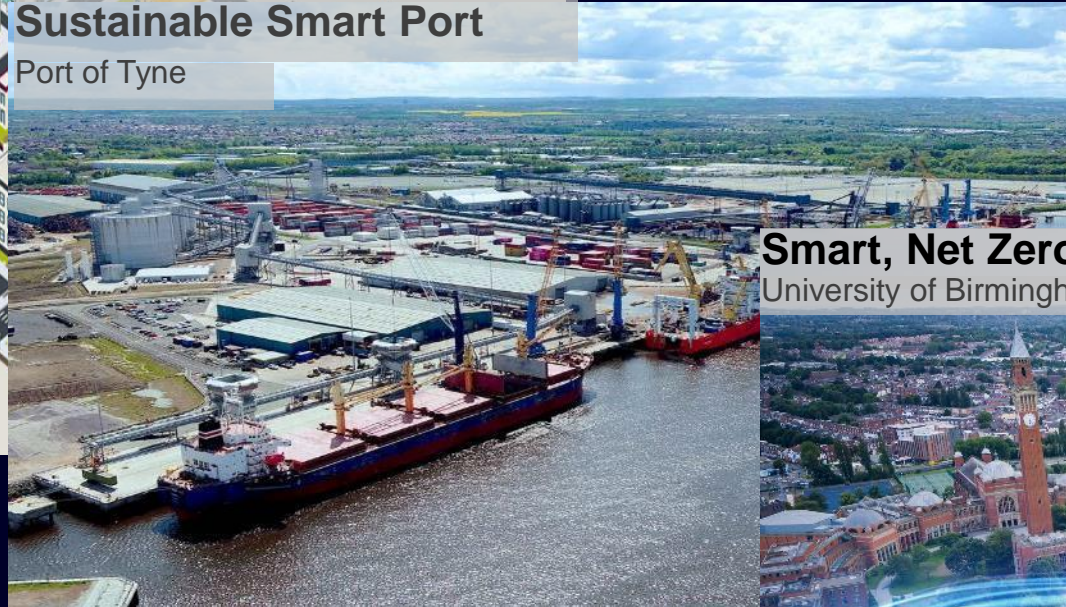
Keele University

Physical



Sustainable Smart Port

Port of Tyne



Smart, Net Zero Campus

University of Birmingham



SIEMENS

An individual perspective

Creating a Connected Campus demonstrator





Government
Office for Science



The Internet of Things: making the most of the Second Digital Revolution

A report by the UK Government Chief Scientific Adviser

Foreword



It is clear that we live in a world of permanent technological revolution. Countries like the UK will only succeed if we show a relentless drive for leadership and innovation.

At the CeBIT trade fair in March 2014, I restated my ambition to make the UK the most digital nation in the G8. Part of achieving that goal is making the very best of today's digital technology. But it also means being ahead of the curve for tomorrow's.

That is why I asked Sir Mark Walport, the Government's Chief Scientific Adviser, to write this review.

The Internet of Things is a transformative development. Technologies that could allow literally billions of everyday objects to communicate with each other over the Internet have enormous potential to change all of our lives.

These technologies are a way of boosting productivity, of keeping us healthier, making transport more efficient, reducing energy needs and making our homes more comfortable.

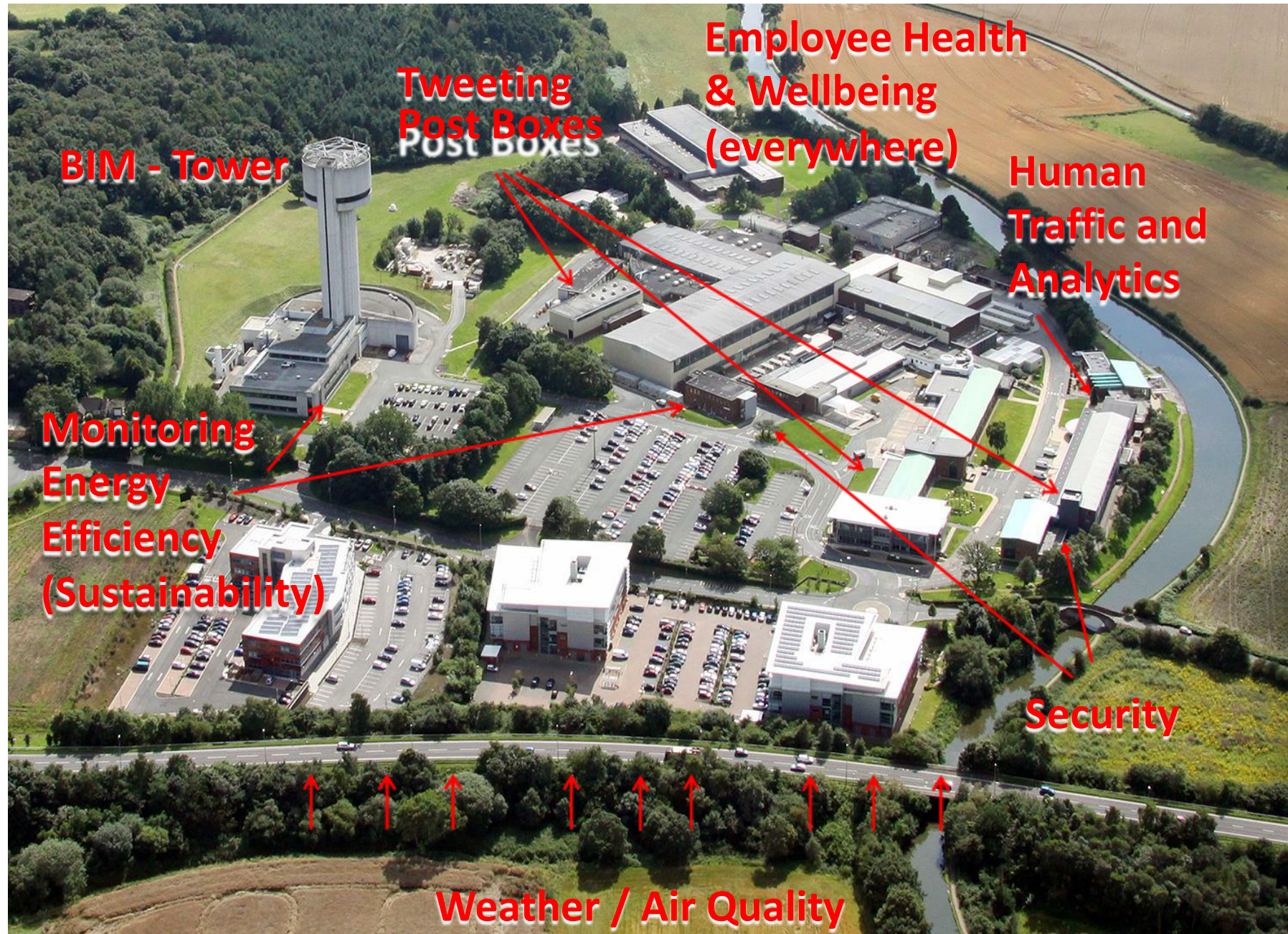
Electricity meters that talk to the grid to get you the best deals. Health monitors that keep an eye on your heart rate. Cars that avoid congestion further up the motorway.

As this review rightly makes clear, this is not the time to get carried away with potential. Delivering on this opportunity will require a lot more hard work, creativity and leadership. The UK government, working with business, the research community and the public, stands ready to provide it.

We are on the brink of a new industrial revolution. I want the UK to lead it.

Rt. Hon David Cameron MP

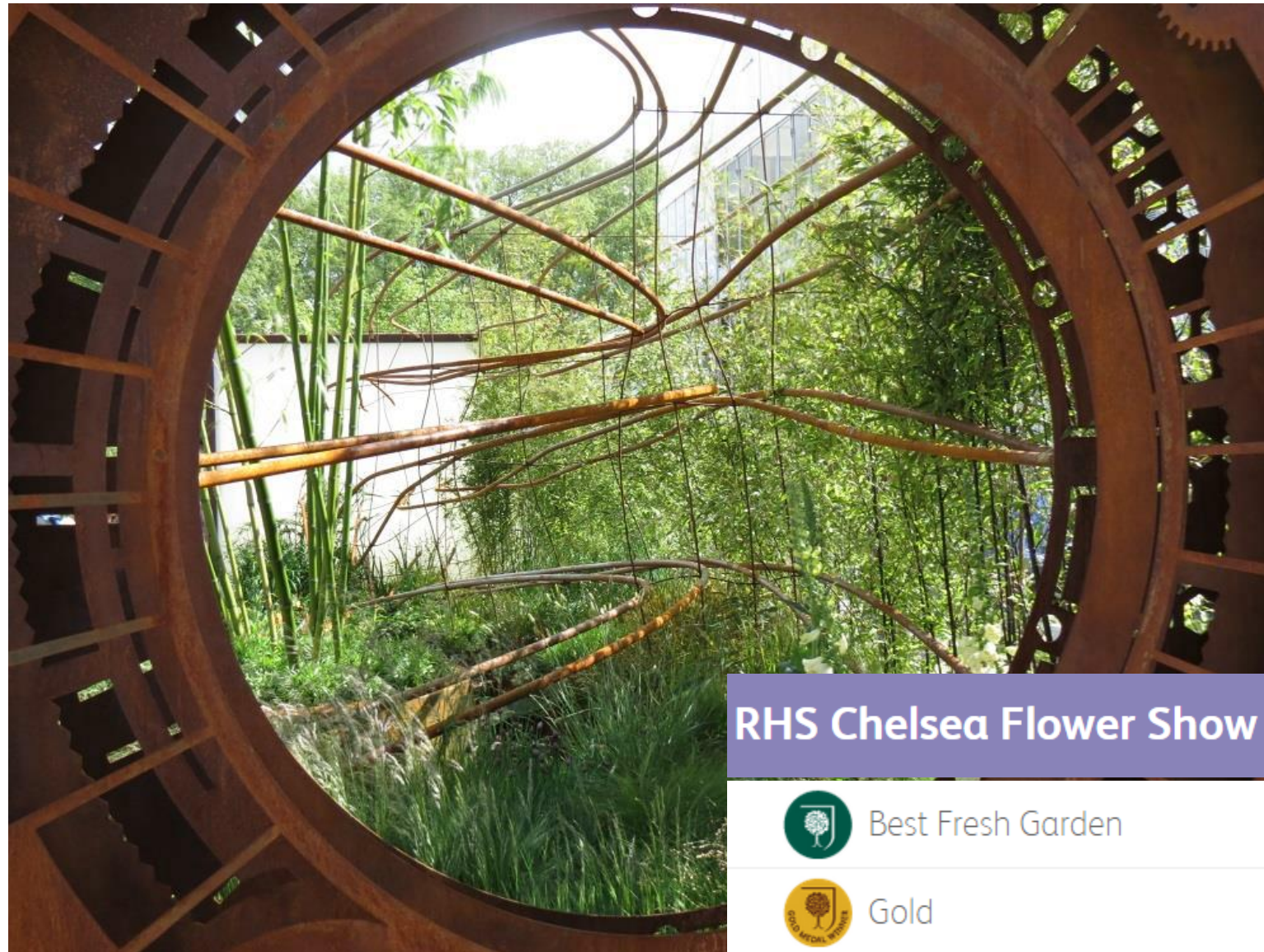
What Does A Connected Campus Look Like?



Our Award Winning Dark Matter Garden



Hartree Centre
Science & Technology Facilities Council



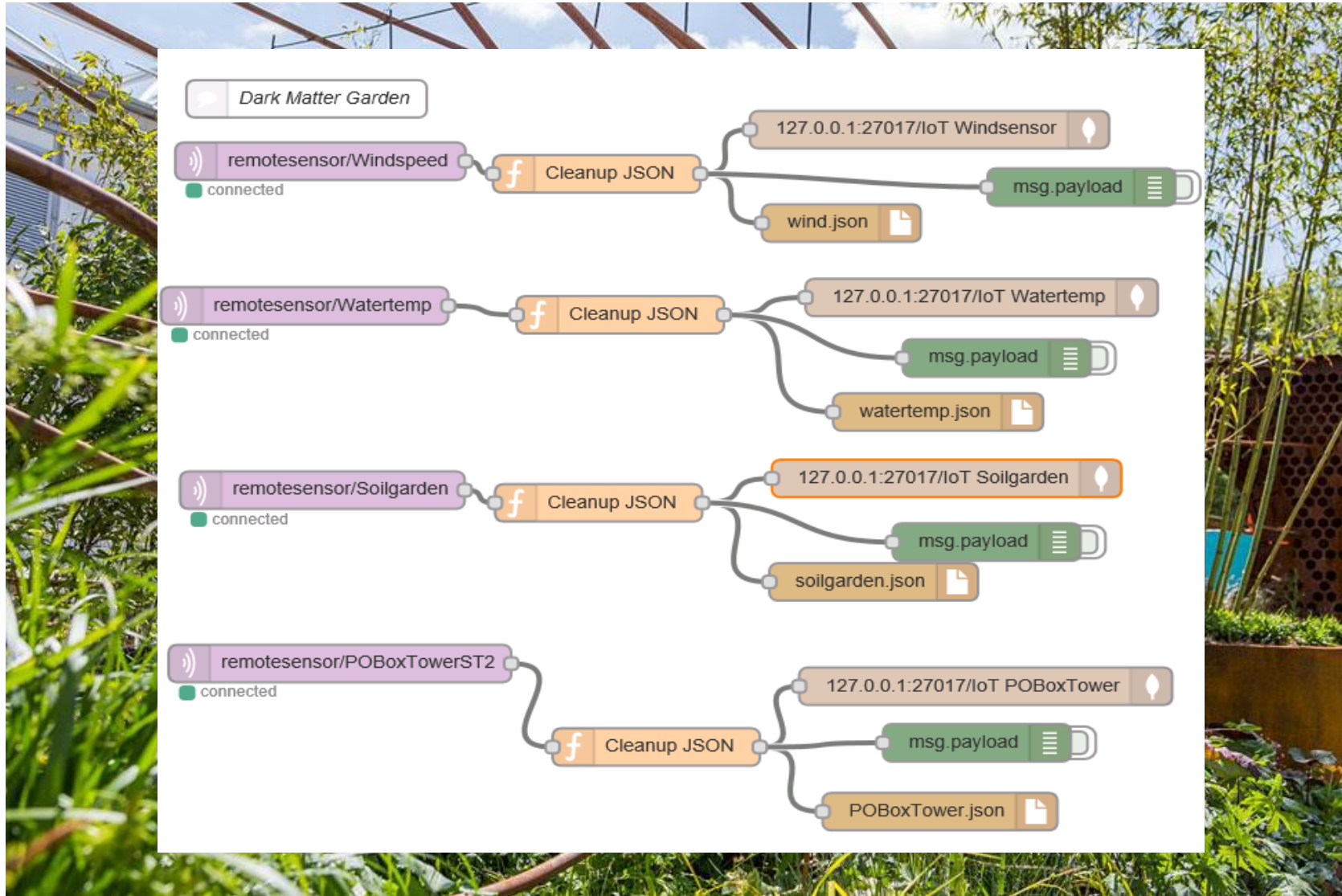
RHS Chelsea Flower Show



Best Fresh Garden



Gold



Hartree Centre

Weather



Partly cloudy throughout the day.

Building Management



Logistics



System Health

Good Signal



6/6 sending data

Under the hood

```
API: https://api.hartree.ac.uk/v1/
Location: "Computational Science"
SensorID: "Temperature", "Humidity", "AirQuality"
SensorData: [{"time": "2014-07-15T10:00:00Z", "value": 10.5, "unit": "C"}, {"time": "2014-07-15T10:05:00Z", "value": 10.8, "unit": "C"}, {"time": "2014-07-15T10:10:00Z", "value": 11.2, "unit": "C"}, {"time": "2014-07-15T10:15:00Z", "value": 11.5, "unit": "C"}, {"time": "2014-07-15T10:20:00Z", "value": 11.8, "unit": "C"}, {"time": "2014-07-15T10:25:00Z", "value": 12.0, "unit": "C"}, {"time": "2014-07-15T10:30:00Z", "value": 12.2, "unit": "C"}, {"time": "2014-07-15T10:35:00Z", "value": 12.5, "unit": "C"}, {"time": "2014-07-15T10:40:00Z", "value": 12.8, "unit": "C"}, {"time": "2014-07-15T10:45:00Z", "value": 13.0, "unit": "C"}]
```

Social Media



Connected Campus

Security

From: McCabe, Jimmy (STFC,DL,CSD)
Sent: 02 October 2015 12:37
To: Security (DL)
Cc: [Livesey-Booth, Carol](#) (STFC,DL,CSD); [Henshall, Suzanne](#) (STFC,DL,CSD); Davies, Gareth (STFC,DL,CSD); Hill, Andrew (STFC,DL,TECH); Williams, Jon (STFC,DL,CSD)
Subject: Post box Mail Monitoring, B Block Reception

Dear All,

Some of you may have noticed a piece of equipment stuck to the side of the post box in the reception area that has a wire going into the letter box.

Security have quite rightly reported it to me as part of their postal bomb awareness training because it looks rather suspicious.

I wasn't aware of this but I have been told by Jon Williams that it's a software device that is being tested to record how many letters are being put into the mail box.

Please do not tamper with the device, if there are any problems contact David Moss.

Thanks for bringing this to my attention.

Jim

[Jim McCabe](#)
Security & Logistics Manager
[Science and Technology Facilities Council](#)



Make great use of
your existing assets

Thank you!

David Moss
Head of Digital Innovation
Siemens Research & Innovation Ecosystems UK

Achieving Productivity Performance

**Simon Lee, Supply Chain Director
BAE Systems Submarines**

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Question and Answer Session

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Comfort Break

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Cumbria's Innovation Landscape

Jo Lappin

Chief Executive, Cumbria LEP

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Cumbria's 'Trilemma'

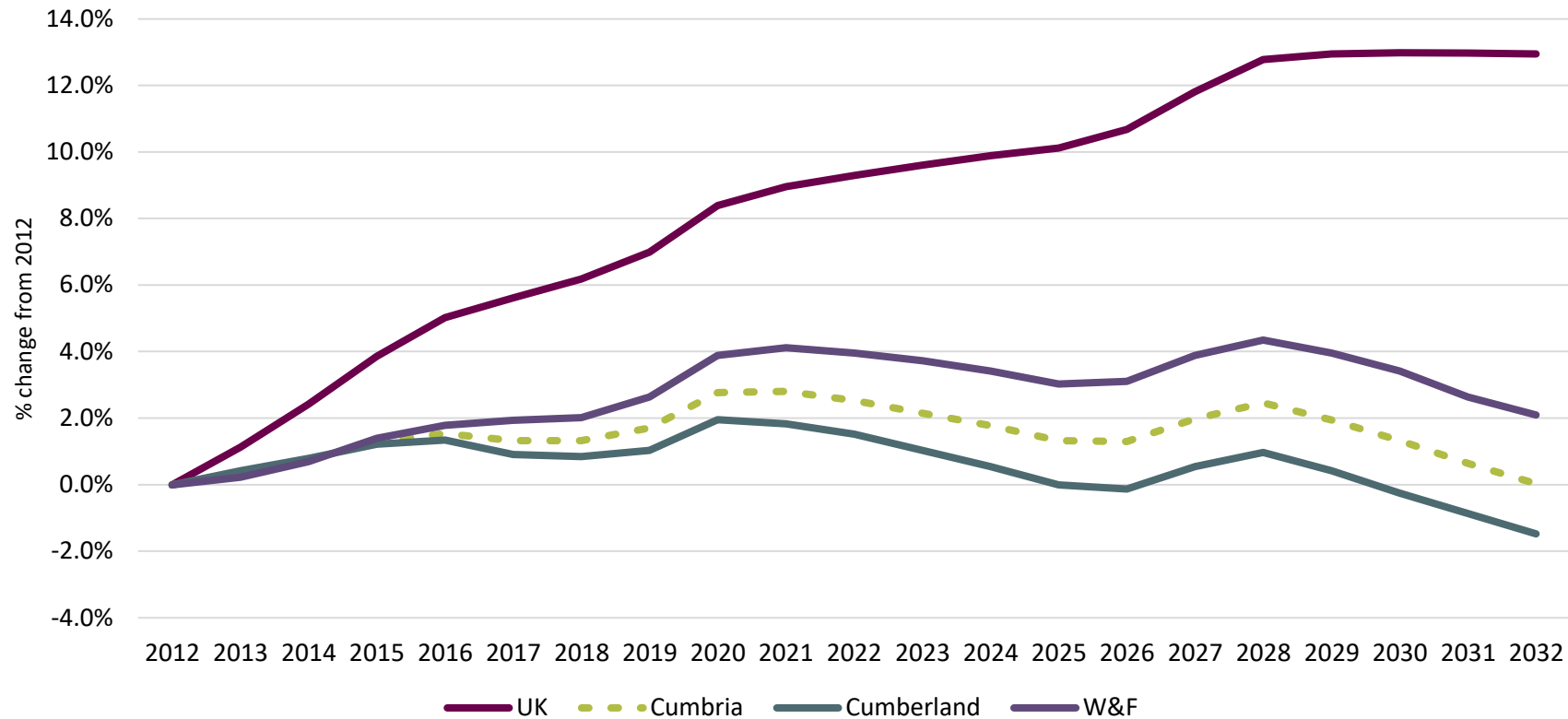
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Working Age Population

Working age population growth (% chg from 2012 base)
(adjusted to take into account rising State Retirement Age)

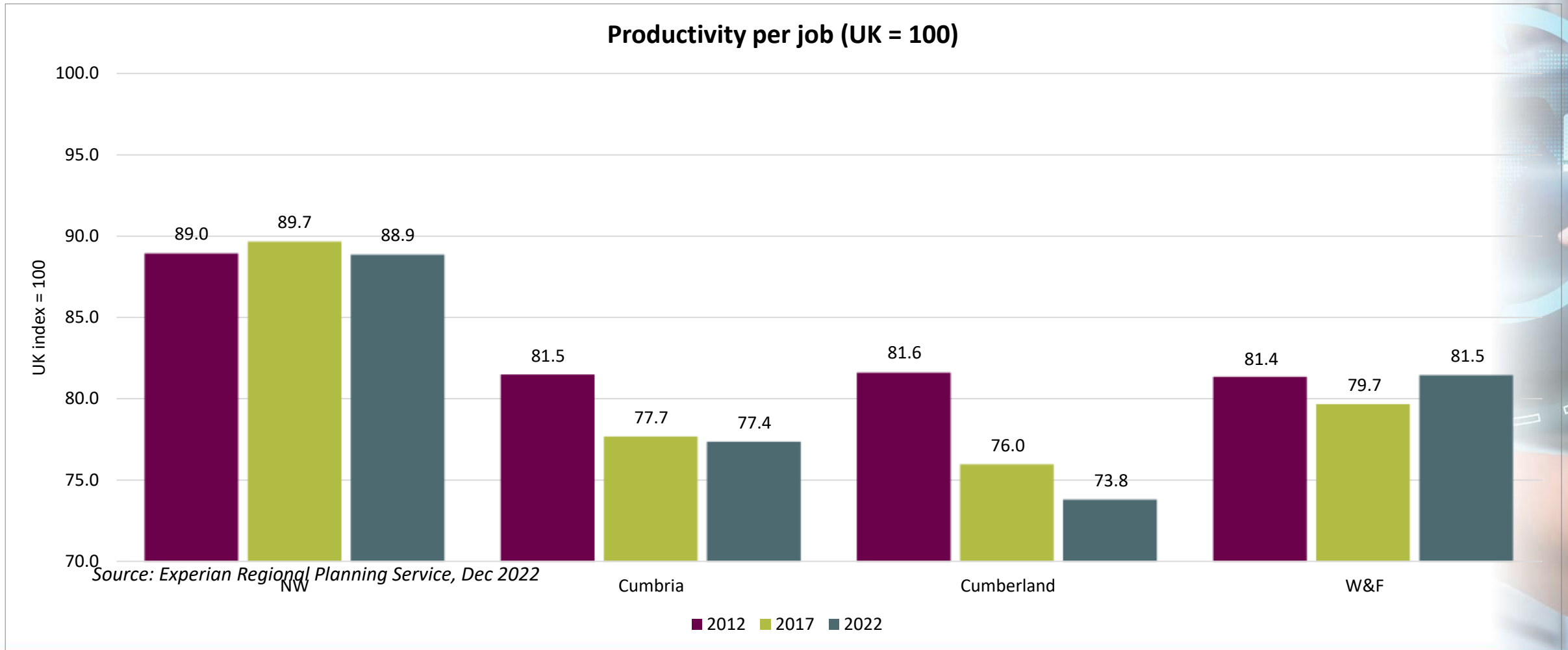


Source: Experian Regional Planning Service, Dec 2022

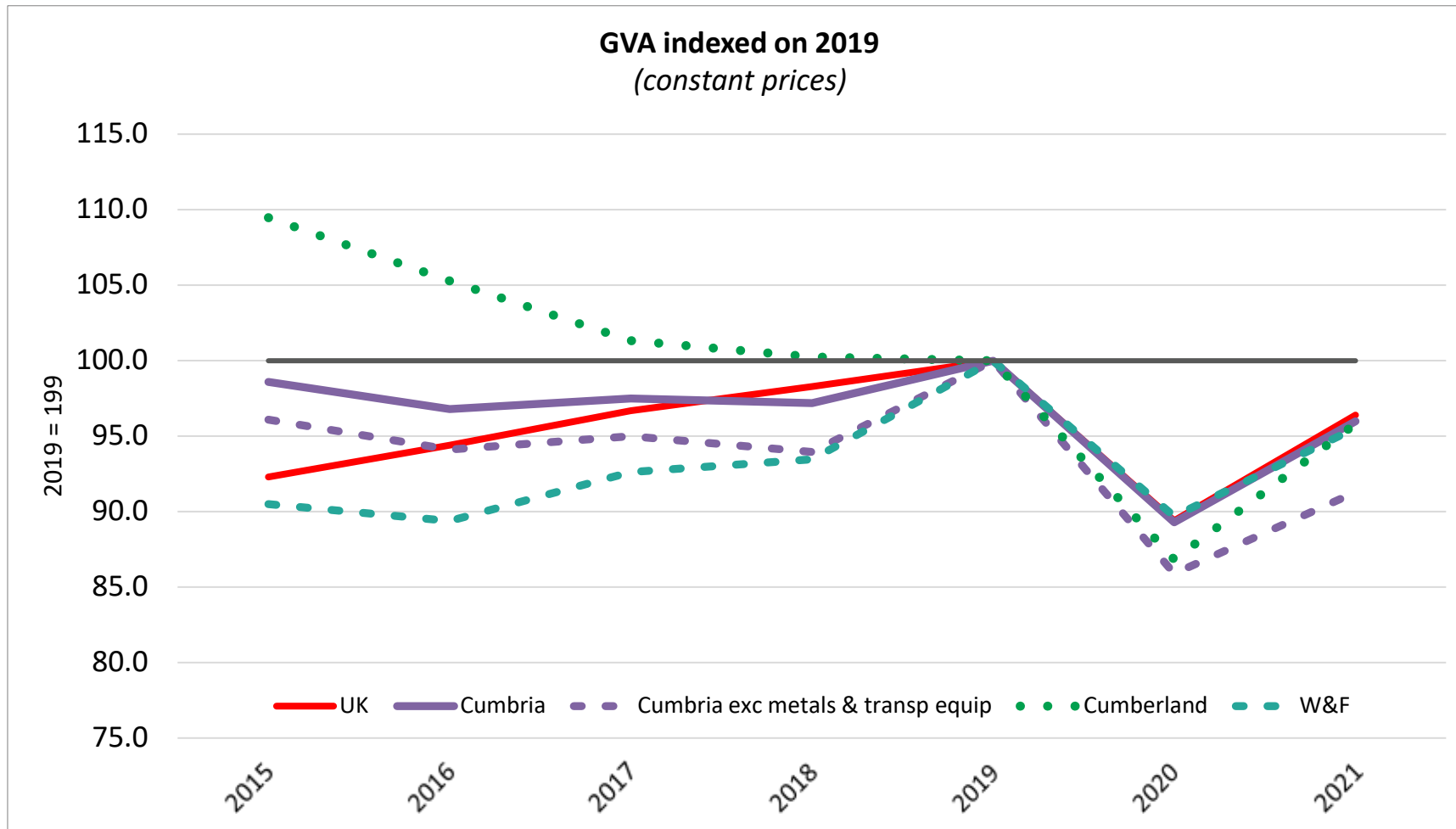
Data adjusted to take into account rising State Retirement Age

- Cumbria's number one growth challenge
- Between 2012 and 2022 the working age population in Cumbria grew by 7,300 (+2.5%) v 9.3% growth for the UK (Cumberland +1.5%, W&F +4.0%).
- Between 2022 and 2032 the working age population is projected to fall by 7,300 (-2.4%) v 3.3% growth for the UK (Cumberland -3.0%, W&F -1.8%).

Productivity



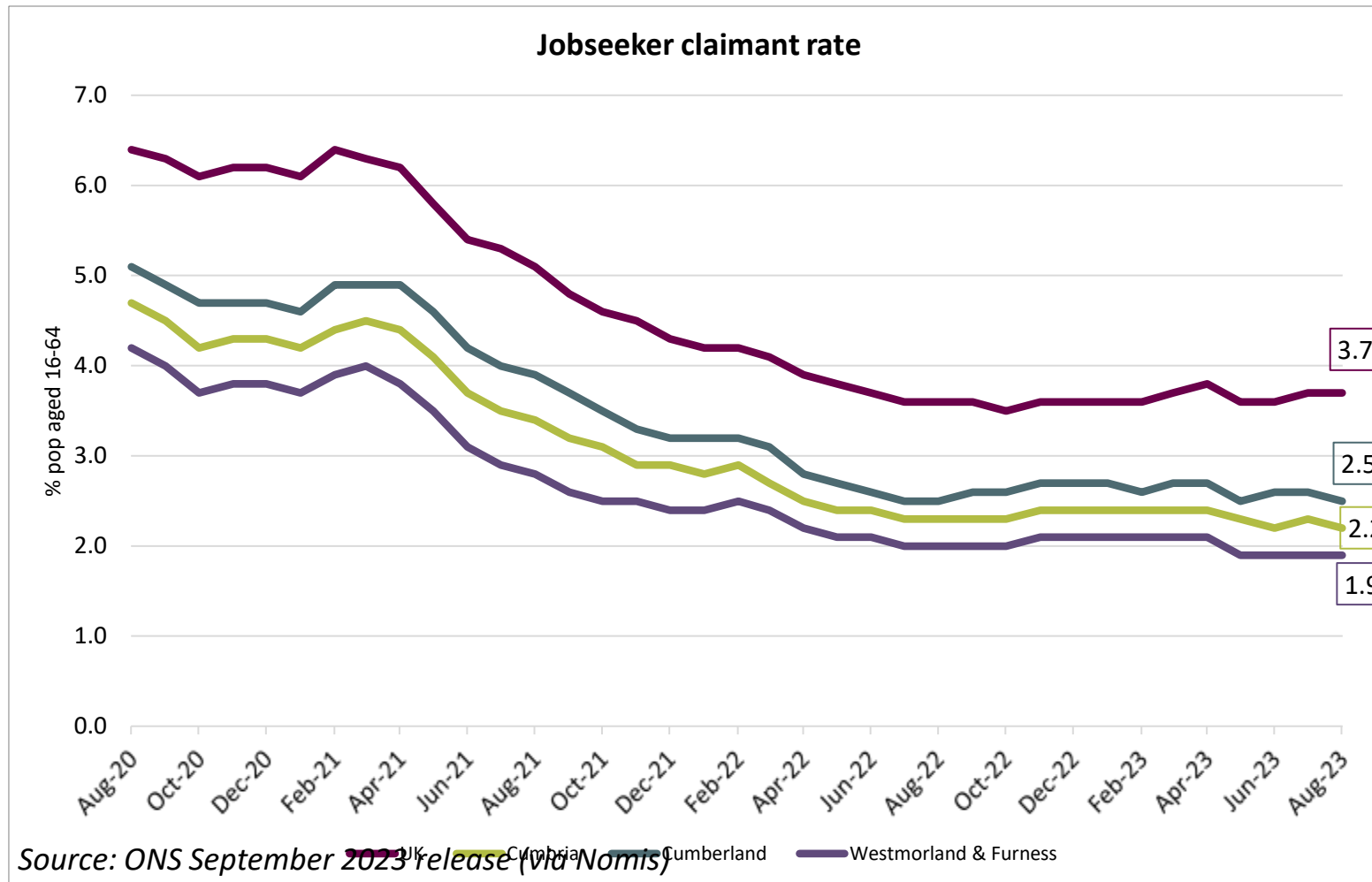
Cumbria's Economic Output – Pre/Post Pandemic



Source: ONS Sub-regional productivity 2021

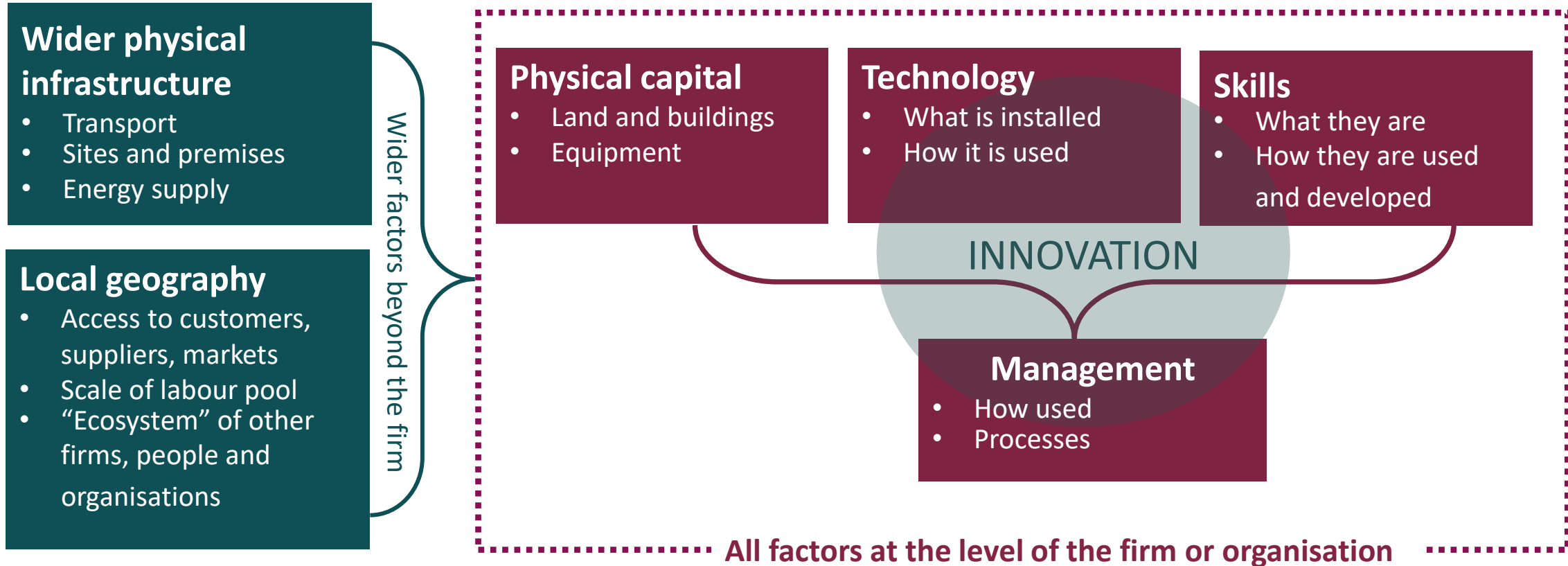
- UK growing steadily going into the pandemic –2% per annum.
- Cumbria flatter but varied between unitary areas.
- Cumberland already declining pre-pandemic and shrank more than nationally in 2020.
- Westmorland & Furness growing steadily pre-pandemic and shrank less than nationally.
- Cumbria and both unitaries were just under 96% of 2019 levels in 2021 (UK just over 96%)
- BUT if shipbuilding and nuclear are removed, Cumbria was only 91% of 2019 levels.

Cumbria – Claimant Unemployment



- Labour supply continues to be very tight with claimant rates low across Cumbria compared to the UK.
- Seasonal factors may explain some of that at present but the key factor is the very tight labour market locally.
- Rates are especially low in more rural areas – just 1.6% among residents in Eden and 1.3% in South Lakeland.
- But young adult rates still high, especially in Barrow where under 25s are more than twice as likely to be unemployed as over 25s.

Factors Explaining Productivity Performance



Improving Productivity Performance – Focusing Our Efforts

Wider explanatory factor	Likely scale of impact on productivity	Cumbria's position and performance?		Scope to change to impact productivity
Physical infrastructure	Some issues	Physical access issues and access to digital in parts		MODEST (except digital connectivity)
Physical capital (sites, buildings, equipment etc)	Some issues, but not highlighted	Not identified as a major constraint		MODEST
Human capital (skills)	VERY LARGE	UNDER PERFORMER (in some respects)		LARGER
Management	LARGE	Not clear, some evidence of lifestyle business and challenges in SMEs [the long tail]		LARGER
Exporting	LARGE: linked to stronger performance	Stronger in manufacturing, less so in services		LARGE
Innovation and technology (inc R&D)	VERY LARGE	Patchy in much of the economy	Strong in nuclear and related	LARGER
Agglomeration/ geography	Contested - access to markets and collaborators an issue in some sectors	Challenges of large, sparsely populated location		LIMITED

Study Work

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Innovation Performance

Below average overall levels of innovation across Cumbria's economy

- A deep but narrow innovation ecosystem around the nuclear sector and nuclear engineering especially linked to decommissioning (covering robotics, technical forms of clean-up technology, AI and visualizations etc). This ecosystem involves large organisations such as NDA, NNL and Sellafield along with specialist firms and academic institutions in Cumbria and further afield. Some of this technology is and has been transferred to the offshore oil and gas sector. This eco system is both local, but also part of a wider ecosystem that extends regionally and beyond in the sector.



Innovation Performance

- Some strong islands of innovation built around single firms who are globally competitive and specialist in their fields (such as Innovia, Futamura, James Cropper etc) where there are significant links to the research base and universities across the UK that relate to their specific technology areas. However, there are limited interconnections between these islands of innovation in Cumbria (and with the nuclear sector).
- Individuals and firms, who have and are developing excellent innovative ideas but operate largely in isolation (and often struggle to have to time to link to or find out who else is involved in innovation locally).



Drivers of Innovation

Importance of factors in decision to innovate
(weighted score)



Cumbria's Innovators

- **One-off** – firms who introduced and designed new products in the past but are content to produce and sell these products.
- **Revolutionary** – where entirely new products, services or ideas have been produced or are being produced. This is a feature of new tech start-ups of which there are some in Cumbria. The products and services can be small scale and have limited applications or much wider applications.
- **Willing but struggling** – small or medium sized firms which see the need to innovate to diversify their business and move into new markets but are being held back by a variety of factors (usually time and cost). Their main business is selling to and servicing clients based on existing technologies and products, but they see the need to enhance and improve the range of products and technologies and markets and services.

Cumbria's Innovators

- **Core** –innovation is way of life because of the nature of their business (constantly having to address complex situations with innovative solutions). Often, this innovation is built into the delivery of services, but with a separate stream aimed at anticipating future clients' needs and diversifying market opportunities.
- **Strategic** – larger firms that rely heavily on technological innovation to remain at the cutting edge of their markets – which are often global in nature. Tend to have significant R&D/innovation departments and relatively long time horizons on their products and market places.

Barriers to Increasing Innovation

Factors which act as a barrier to increasing the level of innovation



Barriers Working with HEIs/Research Bodies

Research has demonstrated clear barriers to innovation, including:

- ❑ Limited time to progress
- ❑ Concerns about the cost of innovation.
- ❑ Understanding of what support, opportunities and information is there and how to access it.
- ❑ Lack of alignment of:
 - ❑ time horizons in engaging with academic partners
 - ❑ the relevance of the research to the innovation needs of businesses, especially in the ICT sector



Lancaster

Georgia

Cumbria

Newcastle

York

Strathclyde

Bournemouth

NPI

Manchester

Leeds

Glasgow

Iowa

LSBU

Bristol

Northumbria

Cambridge

Glasgow

AerospaceCatapult

Southfield

Warwick

Strathclyde



CLEP's Response

- ❑ **Supporting Catalytic Opportunities** – Fusion, Civil and Defence nuclear, CCUS, Hydrogen Future of Food etc.
- ❑ **Funding** – Innovating for Success Programme and Westmorland and Furness Shared Prosperity Fund
- ❑ **Advice and Support** – Cumbria Accelerator signposting to wide range of investment and advisory organisations
- ❑ **Skills** – Apprenticeship Strategy, Skills Bootcamps; Labour Supply Action Plan, Careers Hub; Resilience and Employability Action Plan; Leadership Development Programme



Exploring Barriers to Innovation

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FIS 360

INNOVATION | TECHNOLOGY | BUSINESS

Exploring barriers to innovation

Jo Tunney, Frank Allison and Lauren Povey

Roll the dice. Depending on the number you roll, answer the following corresponding question:

- 1. Which actor would play you if they made a movie of your life and why?**
- 2. Imagine you no longer have to work. How would you spend a Monday?**
- 3. What is an easy item on your bucket list that you haven't done yet?**
- 4. How would you describe your job to a five year old?**
- 5. Which trap in Home Alone was the best?**
- 6. What is your favourite kitchen gadget?**



Task one

- **Take two Post-It notes**
- **On each one, write down something that you consider to be a barrier to innovation in your organisation**



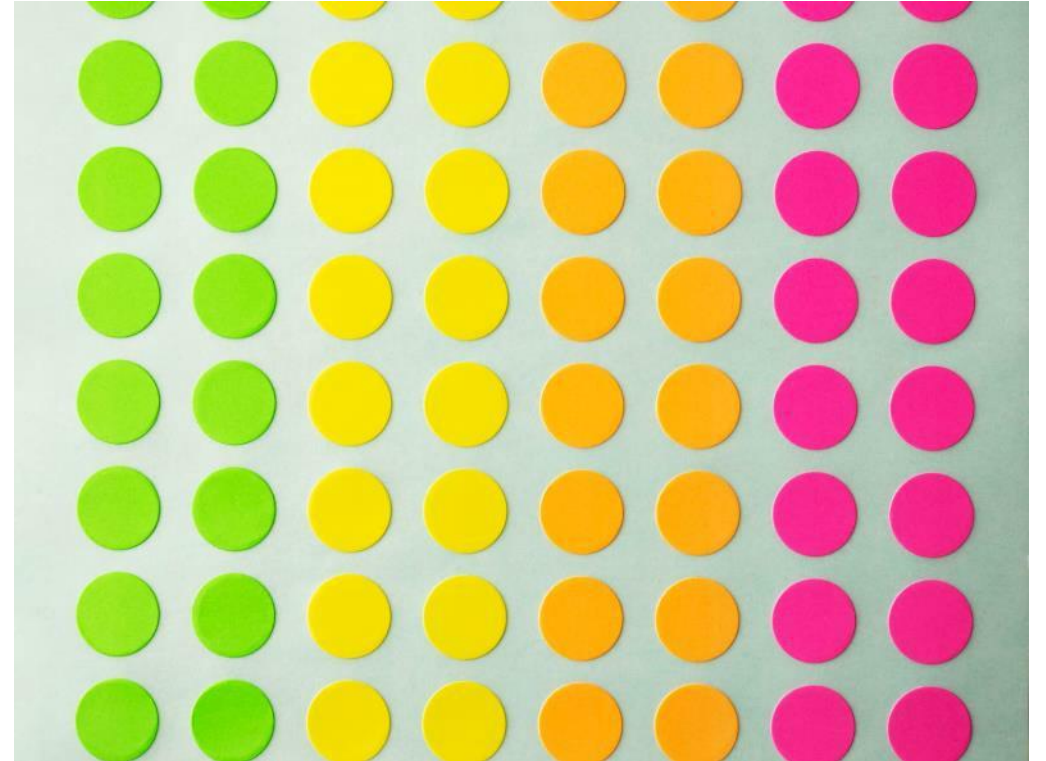
Task two

- **Take it in turns to share your barriers with everyone else on your table**



Task three

- Take a sticky dot and use it to vote for the barrier you'd be most interested in exploring further
- One dot per person



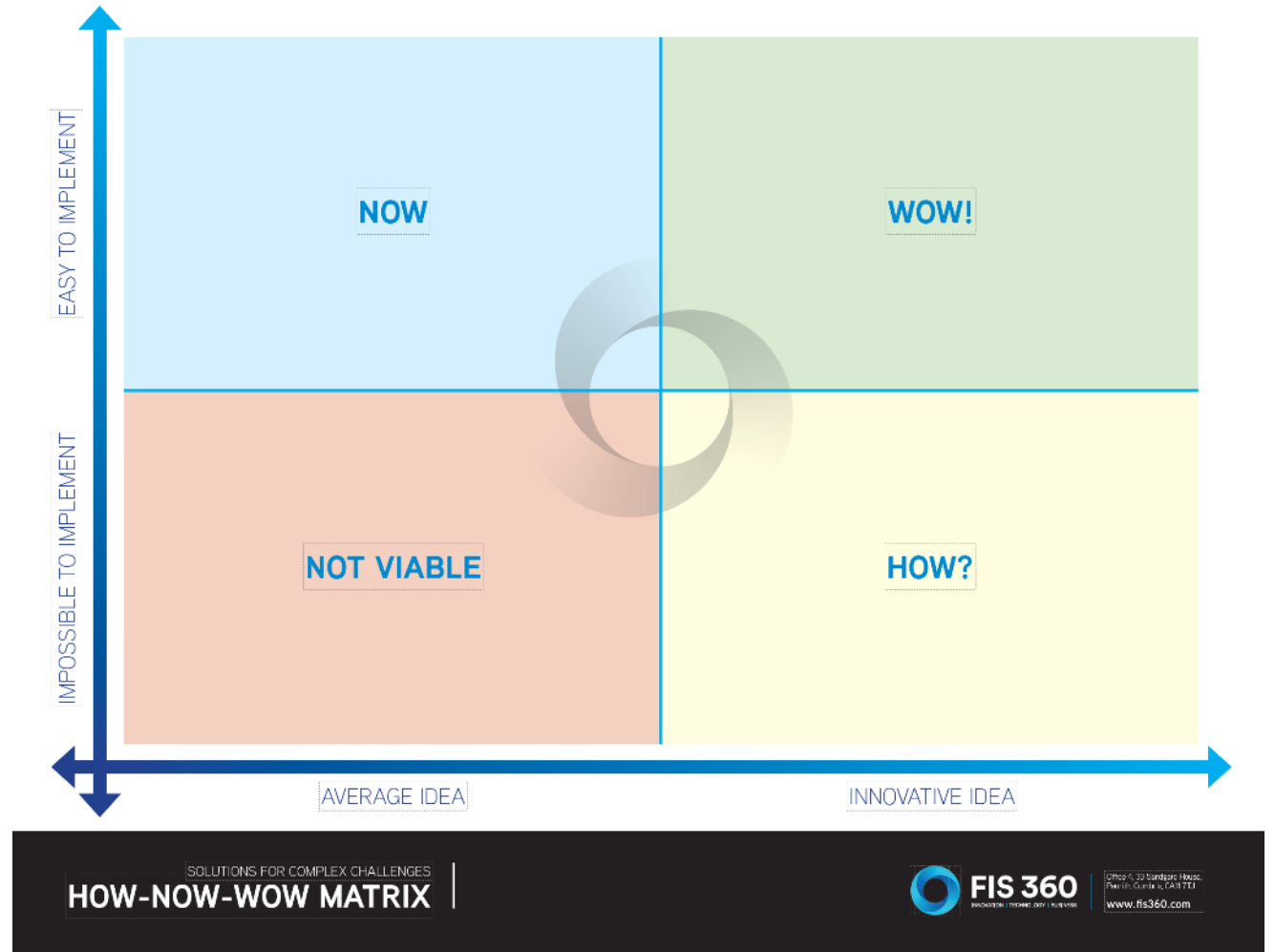
Task four

- **Take two more Post-It notes**
- **On each one, write down a potential solution to the barrier**



Task five

- Place the Post-It notes on the HOW-NOW-WOW matrix



Task six

- **One representative of each group to share your barrier and your WOW solutions**



Networking Lunch

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Supply Chain Innovation Opportunities

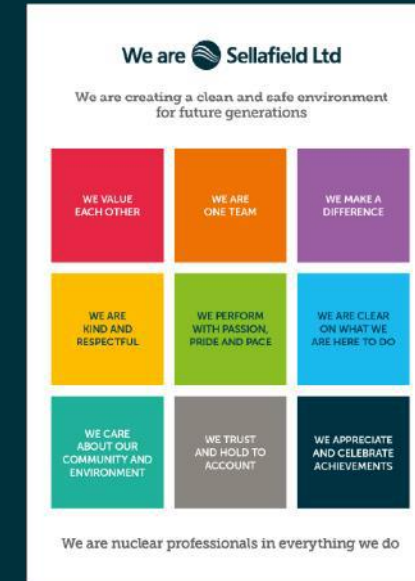
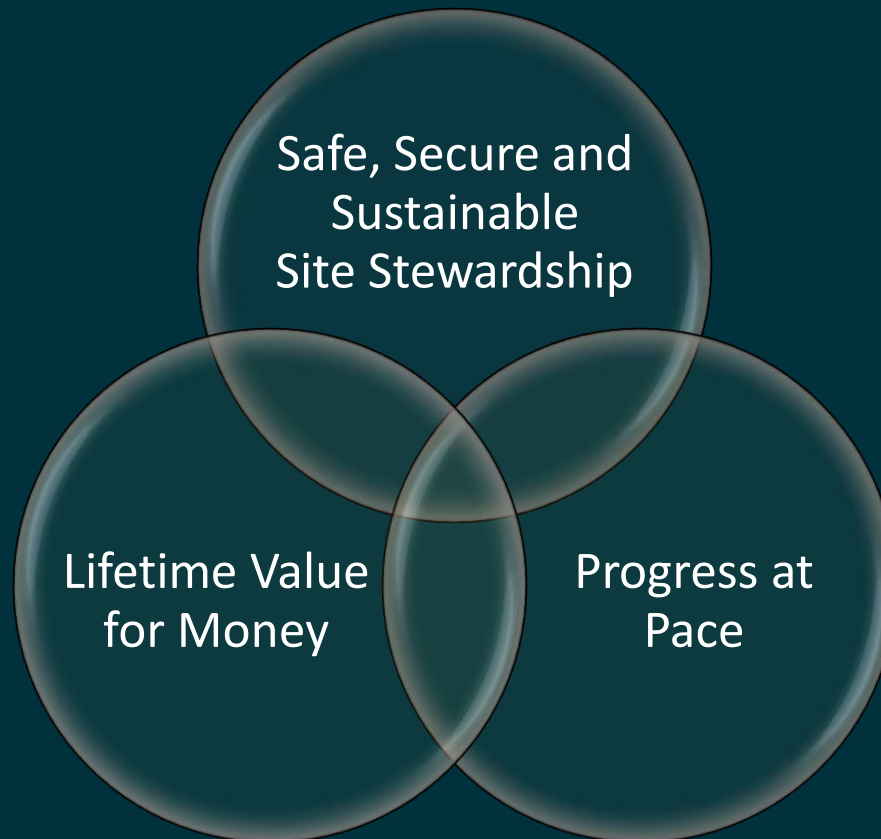
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Our strategic aim



Our purpose is to create a clean and safe environment for future generations

Sellafield by numbers

Budget

£2bn+

We manage an annual budget of more than £2bn every year

Projects

£7.5bn

We have a £7.5bn capital programme over the next 20 years

£50m

~25 projects over £50m

Our people

11,000+

We have 11,033 employees (full-time equivalents)

40 YEARS

We have had our current dedicated training centre at Sellafield for nearly 40 years

10,500+

We have trained more than 10,500 apprentices over the last 67 years

~42,800

We have approximately 42,800 supply chain people supporting us

Infrastructure

70+

More than 70 substations on site

120km

120km of high voltage cable

40km

40km of road and tracks on site

1,000

1,000 shipments in/out of site each year

100km

100km of pipework for water supplies, on/off site

19km

19km of steam mains

1,750m³

1,750m³ of sewage effluent processed every day

2,500m³

2,500m³ domestic water supplied per day

Supply Chain

£1.26bn

We spend approx. £1.26bn each year, 64% of our total budget in our supply chain

£15.25bn

Value of our Contract Portfolio: £15.25bn

953

Current vendors: 953

~£300m

We spend £300m each year with small and medium enterprises (SMEs)

£350m

We spend more than £350 million every year on major projects, constructing the buildings that we need in order to empty and demolish old facilities

General

2 square miles

Size of the Sellafield site: 2 square miles

200+

200+ of the buildings are nuclear facilities and Sellafield is home to 4 of the biggest nuclear risks and hazards in Europe

1,300

Number of buildings on site: 1,300

Locations

Sellafield and Warrington are our two main locations

70+ years

the site has been operating for 70+ years and has 100+ years of work ahead of it

Supplier Journey Document



Our new reference tool which is available to inform suppliers of the different stages of a supplier journey within Sellafield Ltd. The tool provides useful information for new and existing suppliers to understand what to expect when working with us.



ATAMIS



Atamis is our new procurement planning, tender management and contract management tool.

For suppliers, Atamis is the tool that allows you to find and access procurement opportunities with Sellafield Ltd directly. No pre-requisites are required before registering for Atamis – any organisation can sign up.



How to Register

Visit <https://one-nda.force.com/s/Welcome> or scan the QR code to view our tender notices, user guides and business alerts!

Procuring Innovation

Sellafield Ltd are reliant on our supply chain to bring innovation into the organisation to help us solve some of our most complex and challenging problems. Our procurement routes for innovation outline number of ways in which we may bring solutions into the business.



LINC with Sellafield



Engineering &
Technology Solutions
Dynamic Purchasing
System



Gamechangers

LINC



LINC is a dynamic purchasing system that encourages SME's to work together and deliver innovative solutions to help deliver Sellafield's mission.



LINC opportunities can be valued up to £180,000 in line with Public Contract Regulations.



How to Qualify to LINC

To qualify to LINC, first create an ATAMIS account and navigate to C11968 (or scan this QR code) to answer our qualification questions.



DPS

The Engineering and Technology Solutions Marketplace Dynamic Purchasing System (DPS) for SMEs and non-SMEs:



Asset
Maintenance



Engineering
Services



Digital



Manufactured
Products

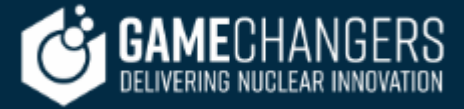
To join the DPS, scan the QR code and sign up to ATAMIS and locate the opportunity using 'Find Opportunities' - C12362 Engineering and Technology Solutions Marketplace DPS Qualification.



Gamechangers

Game Changers is an innovation programme which finds solutions for complex nuclear industry challenges.

They work with organisations of all sizes, across all sectors, to identify and develop the most promising technologies.



Main Category Opportunities

Construction & Asset Care

c. £250 M spend p.a.

- Civils Below Ground
- Civils Above Ground
- Demolition & Decommissioning
- Mechanical Asset Care
- Plant & Equipment Asset Care
- Electrical & Instrumentation Asset Care

Design Engineering

c. £120M spend p.a. (£c. £30M @ Tier 3)

- Major Project Design
- Infrastructure Design
- Asset Care Design
- Categorised Project Design
- Technology Development & Prototyping
- Safety Case Services
- Manufacture Design

Technical (Research and Development)

c. £45M spend p.a. (£c. £20M @ Tier 3)

- Waste Treatment
- Measurement and Analysis
- Robotics and Artificial Intelligence
- Digital Technologies
- Underpinning Science

Manufactured Products

c. £20M spend p.a. (£c. £8M @ Tier 3)

- Proprietary products/materials
- Product & Waste Containers
- Pond Furniture & Mass Storage
- Bespoke Manufactured Products
- Plant & Operational Spares

Corporate Services

c. £180M spend p.a.

- Networks and Telecoms
- Data Centre Infrastructure
- Consultancy
- Contingent Labour
- Legal services
- Travel
- Employee Services
- Records Mgmt.
- Quality Assurance
- Environmental Services, a.o.

Site Operations

c. £250 M spend p.a.

- Operation, Maintenance & Management of CHPP & Boiler Park
- Civilian Guard Force
- Logistics Service
- Engineering Consumables & Janitorial
- Bus services
- Maintenance
- Gases, Chemicals & Feedstocks



How to do Business with Sellafield Ltd

1

Visit the How to do Business section of the Sellafield Ltd website and follow the advice provided:

[How to do Business with Sellafield Ltd](#)

2

Email the Supply Chain Development and Innovation team directly with enquiries and to sign up to receive our supply chain bulletin and event invites:

supply.chain.enquiries@sellafieldsites.com



3

For guidance on all stages of our contract lifecycle, please consult our [new Supplier Journey guidance document](#).



4

Research sub contract opportunities by viewing our Prime Contract list available on our website, scan the QR code to view.



5

Register on our new tendering portal, ATAMIS, for direct opportunities:

<https://one-nda.force.com/s/Welcome>

6

SMEs can qualify to our LINC Dynamic Purchasing System to view opportunities up to the value of £180k. Contact linc@sellafieldsites.com for more information or search record ref C11968 on ATAMIS to qualify.



7

Follow us on our LinkedIn Page for business opportunities and updates.

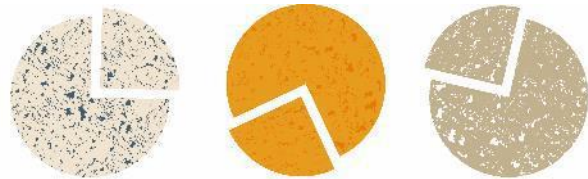


Innovating for Success Case Studies

CLEP
CUMBRIA
LOCAL
ENTERPRISE
PARTNERSHIP

IN CONJUNCTION WITH





The Cheese Larder
Suppliers of specialist cheeses to the catering trade



Introduction to Lakes Speciality Foods

- Chris Gray – Managing Director
- Andy Todd - Operations Manager
- Established in 2004
- Award winning Catering Butcher
- Pinks
- Proud to supply top hotels and restaurants
- Cheese Larder
- Ulverston
- Company Ethos



CLEP – Project Introduction

- New sausage and burger production factory
- Gas flushed production – burger and sausage
- Variovac Rotarius Tray Sealer
- Enable further investment
- Expert analysis and support



Business Opportunities

- Market leader
- Shelf-life extensions
- Product Improvements
- Fully recyclable packaging
- Other Environmental impacts
- Growth



Business Challenges

- No packaging technology that meets key requirements
- Environmental impacts of food production
- Customer demands changing
- Research and development costs are high
- High production costs
- Scarce labour force
- Teething problems



The story so far

- January 2023 – Burger transfer
- Delays with equipment
- Delays with Gas
- Recruitment – skilled labour
- June 2023– part sausage transfer
- August 2023 – packaging equipment in place
- September 2023 full production



Next Steps

- Perfect current product range
- Widen variety of products
- Develop new products
- Rebrand – Lake District Sausage and Bacon Company
- Increase Sales + delivery area
- Grow



Thank you for Listening



Any Questions?



Innovating for Success Case Studies

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IAN CLEASBY

AGRICULTURAL

Scrapenset



My agricultural background

Working on my families mixed dairy farm, on the edge of the lake district



How much help was there for innovation in the 1990's

- No Tax relief
- R&D wasn't allowable as an expense!
- No Patent Box
- Difficult to search for help - no internet
- I was told that the government policy was "if my idea was good enough it would succeed"
- How much has the innovation help progressed since 1990?

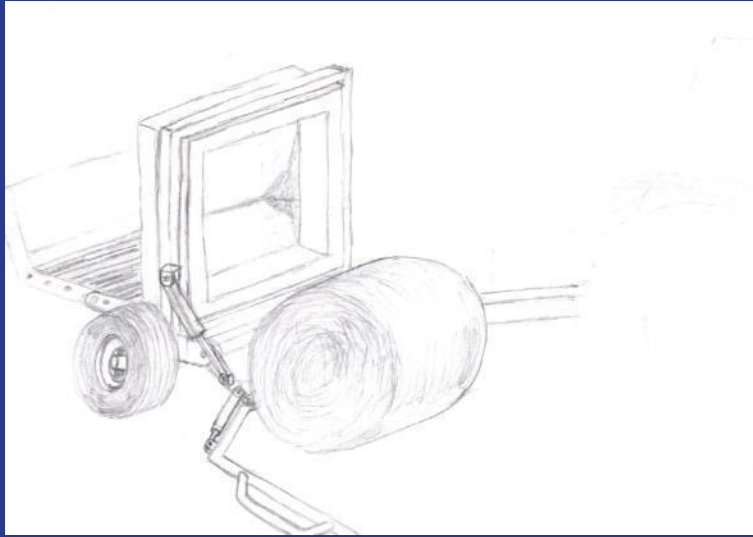


My First Innovations

- Early 1990's
- Limited budget from savings
- No design software
- No mobile phones
- No internet
- No training
- No Experience
- Tried all sources of help
- ADAS (Defra) had no suggestions



Silage bale sealer Mid 1990's

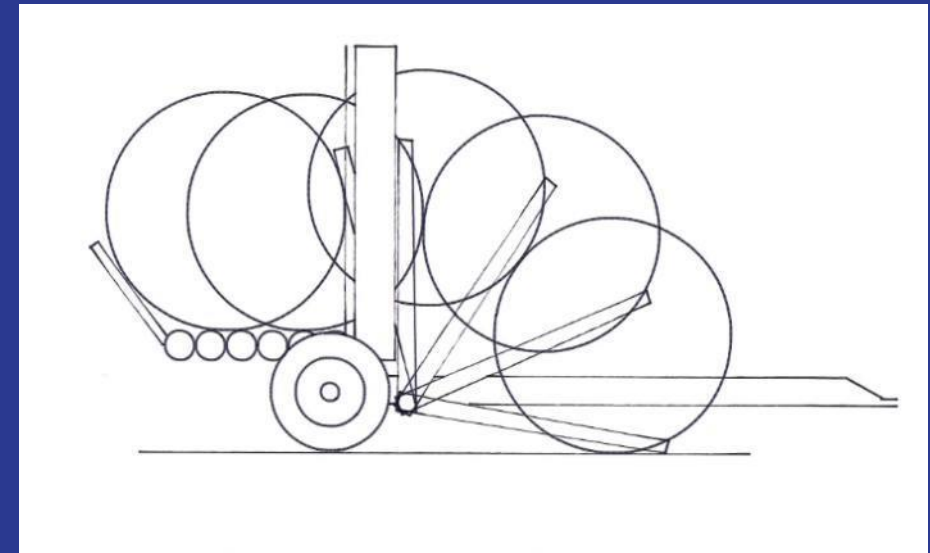
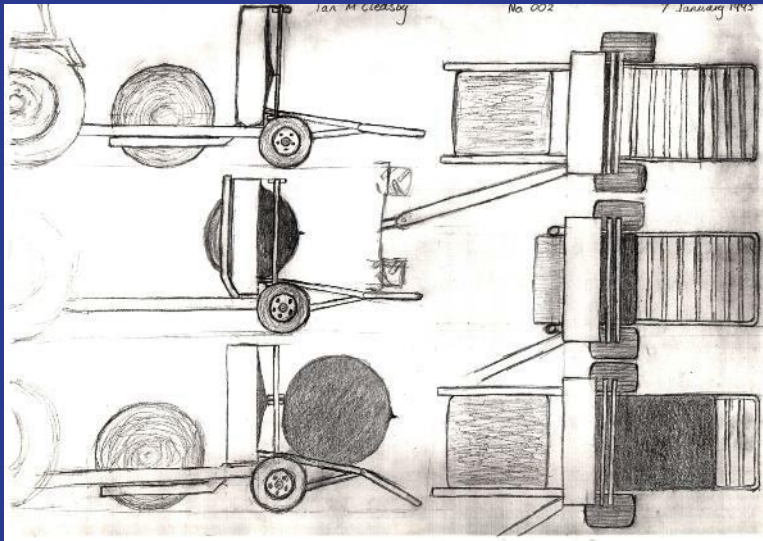
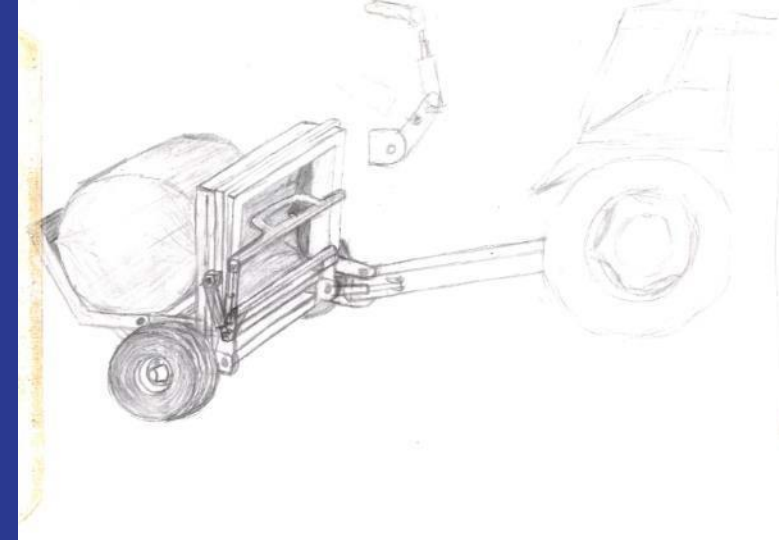


Much faster than existing machines

First sketches on a split envelope

And even on AutoCAD 12
While doing an evening CAD course

Construction drawings were prepared on a drawing board (not shown)



Working Prototype

Mid 1990's
Emails and internet, still
slow and expensive



Prototype made by me in my sister's shed, during evenings

Minimal equipment, welder angle grinder

Patent applied for with patent agent

Heat sealing bars and Hydraulics by sub-contractors

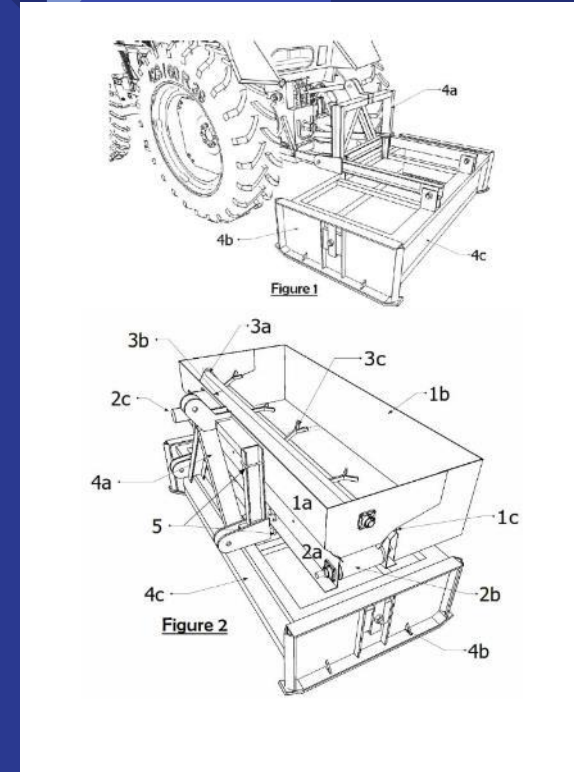
Licensed out to Dowdeswell Ltd, but never commercially available

R & D could not be set against tax, accountant advised me to go bankrupt!



Scrapenser - combined sawdust dispenser and slurry scraper

- First drawings in 2003 - no savings to make prototype = delay
- Patent applied for, written by myself and granted after some patent agent help
- 2018 Prototype made by local firm, worked perfectly and was sold to my brother
- 3D CAD software makes it possible for digital twin
- Internet, mobile phones, experience, savings, but didn't find help



Our First Innovation to Market - 2020

Two models
National Dealer network
Demonstrations and Expos
Exporting to Ireland
Constant innovation to improve
Improved CAD design speeding
changes
Social media marketing



Next Innovation 2022

I saw a need in the market for an animal slurry spreading system which improved absorption of nutrients into the soil - but -Is not complicated to manufacture and maintain



Splash Plate Spreading
Losing up to 80% of Nutrients to the air



Dribble Booms
Complicated and Expensive

Level of Help Available Now

Assistance has increased dramatically since 1990:

R & D tax relief

Patent Box - 10% tax on patented products

Easy access grants - **CLEP, RAEng, Innovate UK, FIS
360**

Accelerator programs

Internet access, mobile phones, social media

Free Training & Advice - **Cumbria Chamber of Commerce**

Cumbria Local Enterprise Partnership

Innovating for Success Program

My experience:

Easy application process

High success rate

Suits a huge variety of applications

Straightforward 3 monthly claim system

Prompt payment

Great execution and backup



IAN CLEASBY

AGRICULTURAL

Huge Thank you to all organisations mentioned for helping me
achieve my dreams

Ian Cleasby
Penrith
Cumbria

01768892027
07866775858

iancleasbyagri.co.uk
info@iancleasbyagri.co.uk



Question and Answer Session

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Supporting Innovation – Funding Opportunities

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FIS 360

INNOVATION | TECHNOLOGY | BUSINESS

Supporting Innovation- Finding Funding

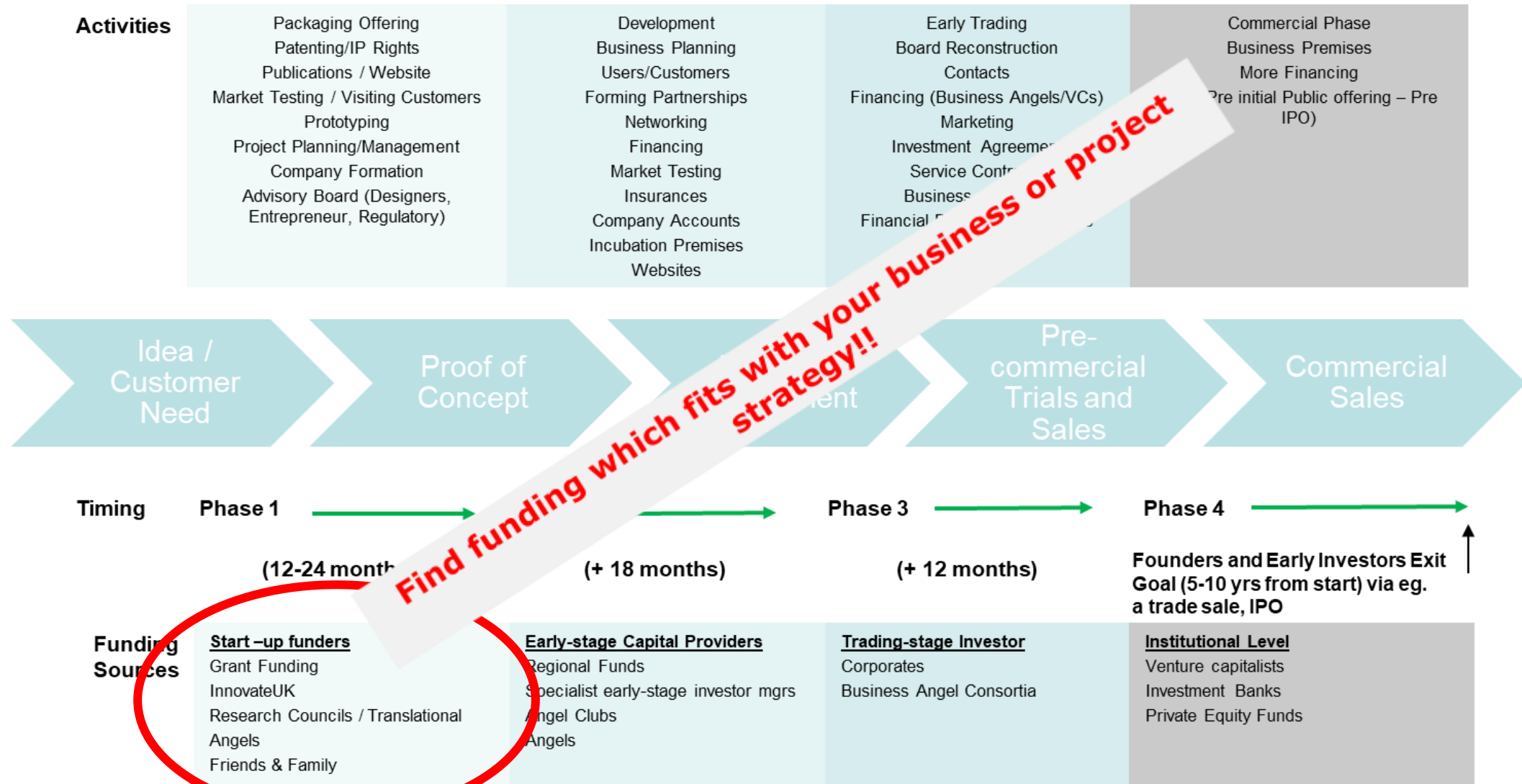
[Dr. Frank Allison](#)
frank@fis360.com

Overview

1. National Funding Grants and Research Contracts
2. Corporate Funding
3. EU Funding
4. Alternative Funding Routes



Non-Dilutive funding (aka Grants & Contracts)



National funding calls

- UK Research & Innovation (UKRI)

Our main funds

Learn more about the key areas we're currently investing in.

www.ukri.org/what-we-offer/our-main-funds/



Industrial Strategy Challenge Fund

Tackling the big societal challenges of the government's industrial strategy



Global Fund

A £1.5bn opportunity



Strength In Places Fund

Using research and innovation to drive regional economic growth in the UK



Future Leaders Fellowships

Developing the next generation of world-class research and innovation leaders

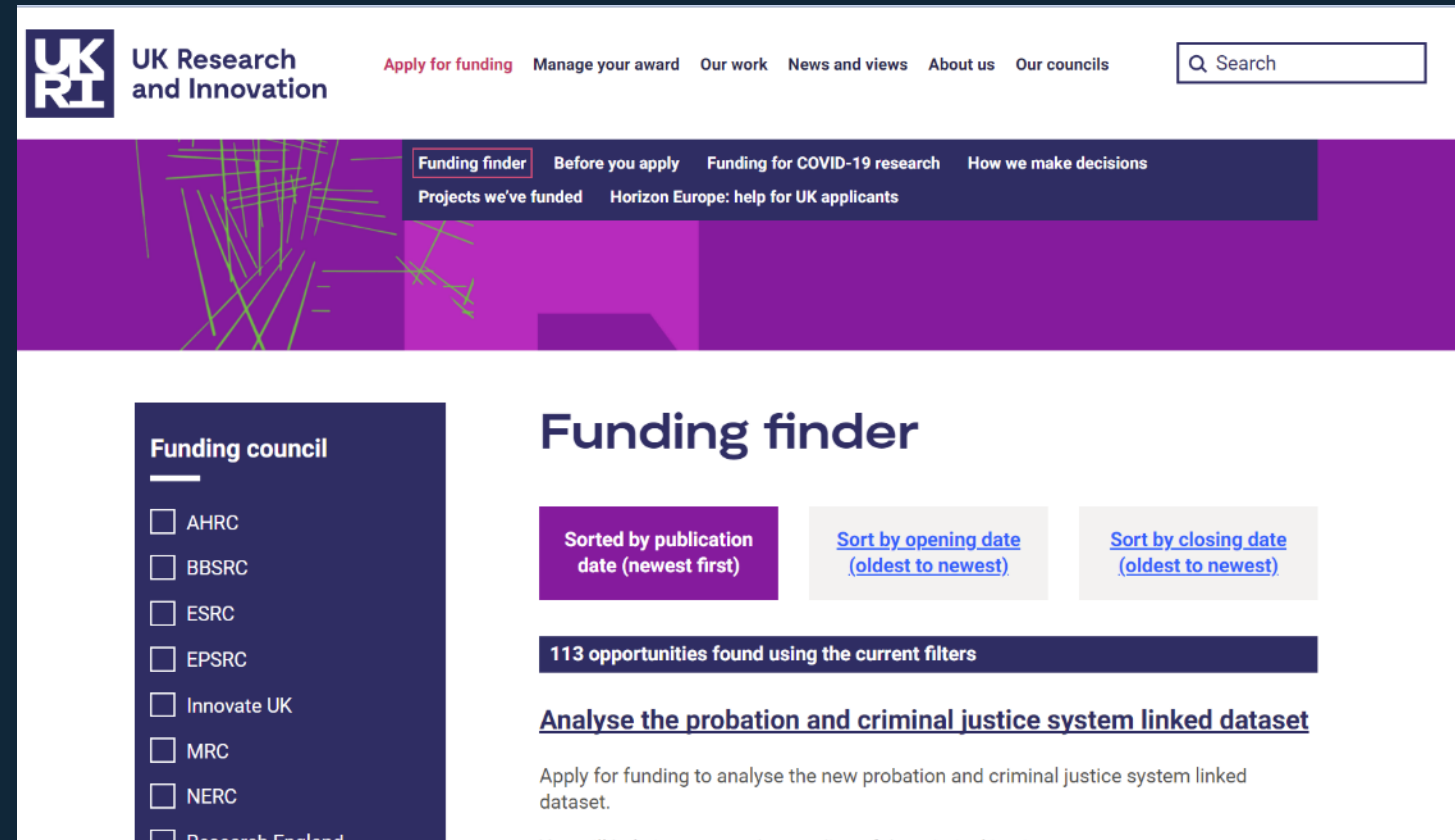


Fund for International Collaboration

A £160m fund strengthening global partnerships with research and innovation leaders



National funding calls



The screenshot shows the UKRI website's 'Funding finder' section. The header includes the UKRI logo and navigation links: 'Apply for funding', 'Manage your award', 'Our work', 'News and views', 'About us', and 'Our councils'. A search bar is located on the right. Below the header, a purple banner contains the 'Funding finder' link, which is highlighted, along with other links: 'Before you apply', 'Funding for COVID-19 research', 'How we make decisions', 'Projects we've funded', and 'Horizon Europe: help for UK applicants'. The main content area features a sidebar for 'Funding council' with checkboxes for AHRC, BBSRC, ESRC, EPSRC, Innovate UK, MRC, NERC, and Research England. The main panel is titled 'Funding finder' and shows sorting options: 'Sorted by publication date (newest first)', 'Sort by opening date (oldest to newest)', and 'Sort by closing date (oldest to newest)'. It also displays '113 opportunities found using the current filters' and a featured opportunity titled 'Analyse the probation and criminal justice system linked dataset' with a brief description.

UKRI UK Research and Innovation

Apply for funding Manage your award Our work News and views About us Our councils

Search

Funding finder Before you apply Funding for COVID-19 research How we make decisions

Projects we've funded Horizon Europe: help for UK applicants

Funding council

- ☐ AHRC
- ☐ BBSRC
- ☐ ESRC
- ☐ EPSRC
- ☐ Innovate UK
- ☐ MRC
- ☐ NERC
- ☐ Research England

Funding finder

Sorted by publication date (newest first)

Sort by opening date (oldest to newest)

Sort by closing date (oldest to newest)

113 opportunities found using the current filters

Analyse the probation and criminal justice system linked dataset

Apply for funding to analyse the new probation and criminal justice system linked dataset.

<https://www.ukri.org/opportunity/>



National funding calls

Innovation competitions

Filter competitions

Keywords

Innovation area

Any ▼

Update results

34 competitions

[UK-US Offshore Wind Collaborative R&D](#)

UK registered organisations can apply for a share of up to £2 million for offshore wind R&D projects. UK projects must work in collaboration with separately funded US projects. This funding is from Innovate UK and for UK projects only.

Eligibility

This competition is open to UK organisations working in collaboration with US projects.

To lead a project your organisation must:

- be a UK registered business of any size or a research and technology organisation (RTO)
- be or involve at least one grant claiming UK registered [micro, small or medium-sized enterprise](#) (SME)
- work with a US project which intends to apply or has already applied for funding from the US National Offshore Wind Research and Development Consortium (NOWRDC)

Opening soon

Opens: 16 October 2023

<https://apply-for-innovation-funding.service.gov.uk/competition/search>



National funding calls

Finance and support for your business

[Apply for a Start Up Loan for your business](#)
[Find coronavirus financial support for your business](#)

From: [Department for Business, Energy & Industrial Strategy](#)

Search

173 schemes ☒ Get emails ☐ Subscribe to feed

^ Type of support

- ☐ Finance
- ☐ Equity
- ☐ Grant
- ☐ Loan
- ☐ Foundation and advice

✓ Business stage

✓ Industry

✓ Number of employees

Access to finance - Greater Manchester and Lancashire
Access to finance is a scheme for businesses who need help raising finance for growth.

AD:VENTURE - Leeds City Region
Provides free business development support and guidance.

Advisory, Conciliation and Arbitration Service (Acas) - UK
Advice on good practice in employment and employment relations.

Agri-tech Cornwall - Cornwall and the Isles of Scilly
Grants and support to increase research, development and innovation in agritech.

ART Business Loans - West Midlands
Loans for new and existing small businesses to create and safeguard jobs in the West Midlands

www.gov.uk/business-finance-support

Discover how to grow your manufacturing through technology at the Made in Greater Manchester event: 22 Mar 2022 - [Find out more](#)

SEARCH Already Registered? [SIGN IN](#)

MADE SMARTER

ADOPTION INNOVATION SKILLS ABOUT INSIGHTS [START YOUR JOURNEY →](#)

Current Opportunities

Support and opportunities to drive a leading-edge, sustainable, and effective UK manufacturing landscape

www.madesmarter.uk/made-smarter-innovation/current-opportunities/



National funding calls

KTP Programmes (*technical & **management***)

- <https://www.ktp-uk.org/business/>

Impact Accelerator

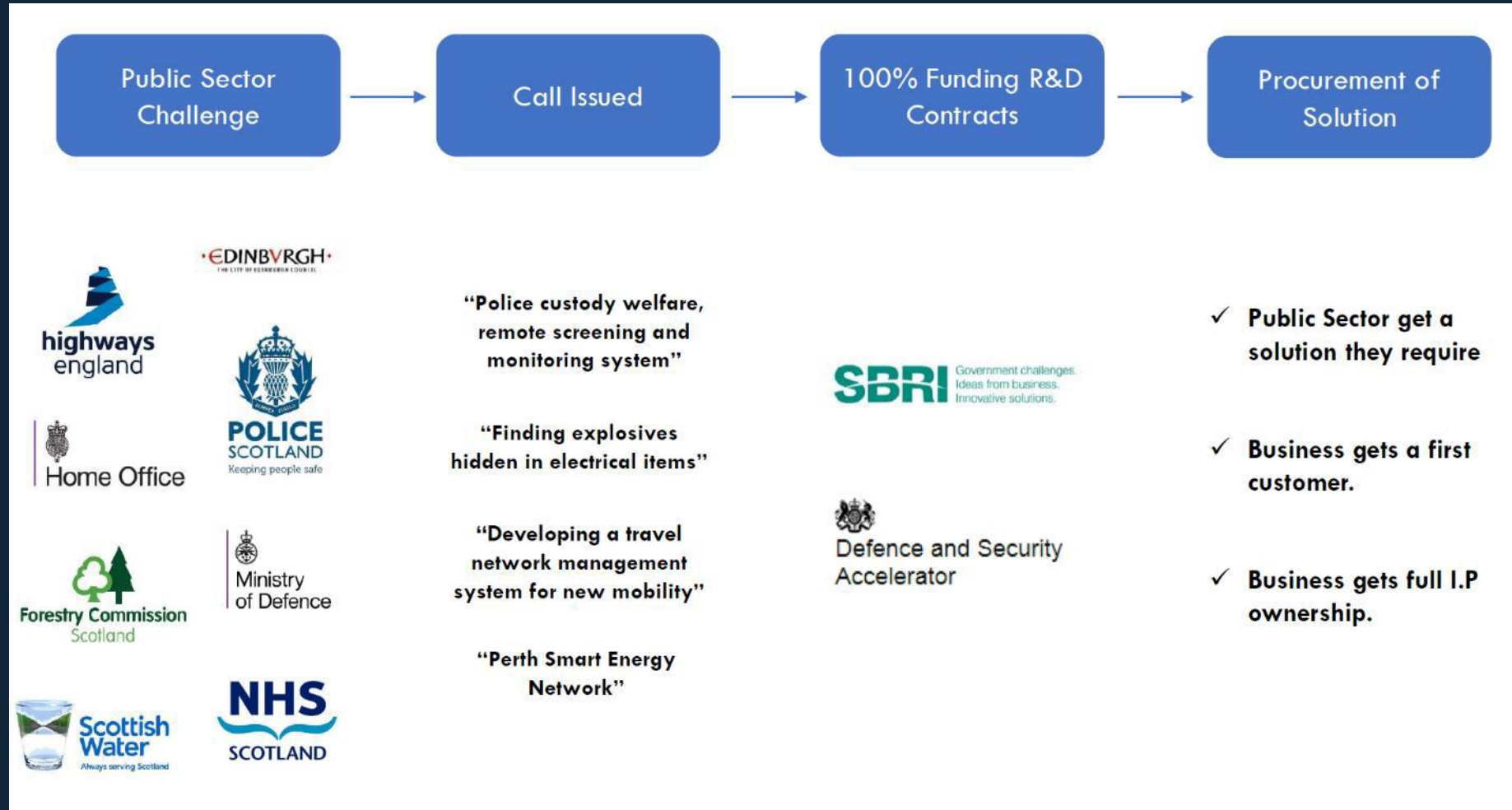
- <https://epsrc.ukri.org/innovation/fundingforimpact/impact-acceleration-accounts/>

Fellowship Schemes

- <https://www.rse.org.uk/awards/enterprise-fellowships/>
- <https://www.raeng.org.uk/grants-prizes/grants/support-for-research/raeng-research-fellowship>



Research contracts



Funding with Corporate Pull (examples)

EIC

Collaborate to innovate

www.ukaic.com/

nationalgrid

www.nationalgrid.com/

Ofwat

<https://waterinnovation.challenges.org/>



GAMECHANGERS
DELIVERING NUCLEAR INNOVATION

www.gamechangers.technology/



Other funding options

Grant Finder

<https://www.grantfinder.co.uk/>

Grants Online

<https://www.grantsonline.org.uk/>

- Annual subscription
- Good level of detail across all grant funding industry sector

Social Enterprise Funding

<https://www.unltd.org.uk>

School of Social Entrepreneurs

<https://www.the-sse.org/resources/starting/what-funding-is-available-for-social-entrepreneurs/#1>

Crowd Funding

<http://crowdfunding.com/>

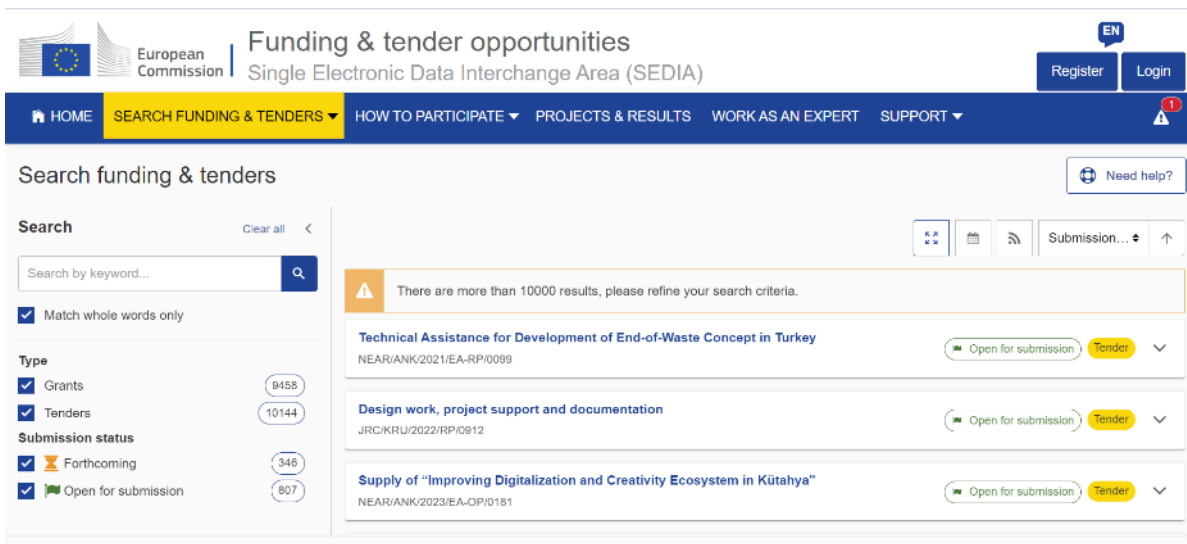
KTN Funding

<https://ktn-uk.co.uk/funding>



**The list is endless and an ever
changing landscape**

EU funding options



European Commission | Funding & tender opportunities
Single Electronic Data Interchange Area (SEDIA)

Register Login

HOME SEARCH FUNDING & TENDERS HOW TO PARTICIPATE PROJECTS & RESULTS WORK AS AN EXPERT SUPPORT

Search funding & tenders

Search

Search by keyword...

Match whole words only

Type

- Grants (9458)
- Tenders (10144)

Submission status

- Forthcoming (346)
- Open for submission (807)

There are more than 10000 results, please refine your search criteria.

Technical Assistance for Development of End-of-Waste Concept in Turkey
NEAR/ANK/2021/EA-RP/0099

Open for submission Tender

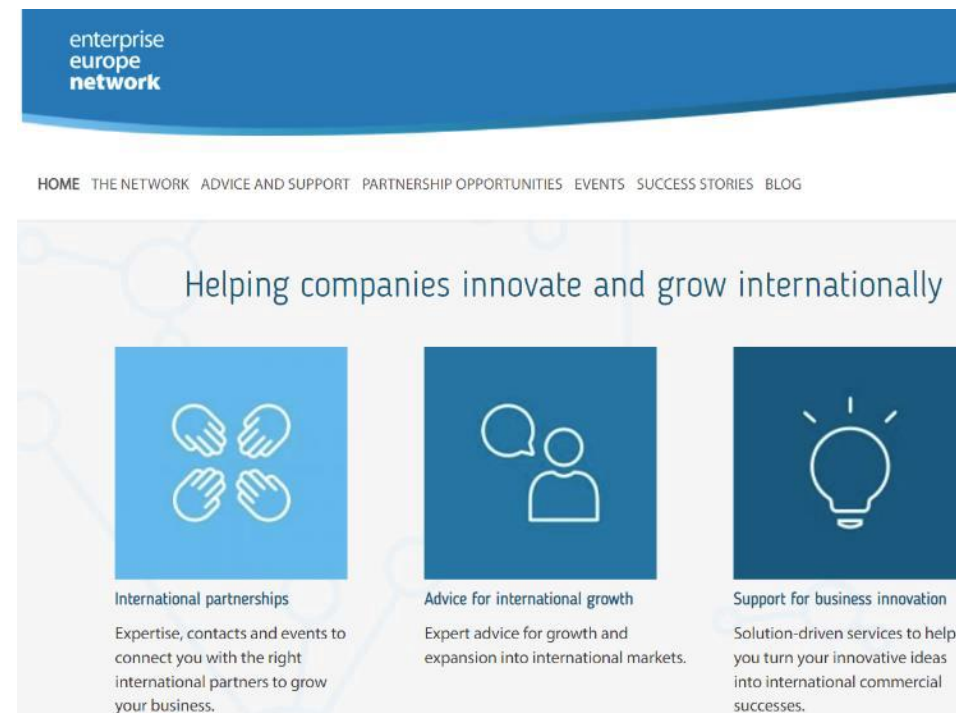
Design work, project support and documentation
JRC/KRU/2022/RP/0912

Open for submission Tender

Supply of "Improving Digitalization and Creativity Ecosystem in Kütahya"
NEAR/ANK/2023/EA-OP/0181

Open for submission Tender

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search>



enterprise europe network

HOME THE NETWORK ADVICE AND SUPPORT PARTNERSHIP OPPORTUNITIES EVENTS SUCCESS STORIES BLOG

Helping companies innovate and grow internationally

International partnerships
Expertise, contacts and events to connect you with the right international partners to grow your business.

Advice for international growth
Expert advice for growth and expansion into international markets.

Support for business innovation
Solution-driven services to help you turn your innovative ideas into international commercial successes.

<https://een.ec.europa.eu/>



EU funding options

Eurostars is a European funding programme dedicated to supporting R&D performing SMEs in innovative R&D projects



European Criteria	UK –Specific Criteria
**SME applicants must be "R&D-performing" **	Only SMEs eligible to receive funding
There must be at least two eligible organisations from two Eurostars countries in a consortium.	Company must be VAT registered and trading for 12 months at time of application
Participant SMEs must be responsible for at least 50% of the total project costs.	All work by that SME must be carried out in the UK
No single participant or country should undertake more than 75% of the total work.	All project funds by the SME must be spent in the UK
Projects must be no more than 3 years.	Subcontracting is capped at 20% of total project costs and subcontractors must be in the UK
Market Introduction is foreseen within 2 years of project end.	Project management cannot be subcontracted

UK Contact

Ben Morris

ben.morris@innovateuk.ukri.org

Desk: +44 (0) 1793 361 220

Mobile: +44 (0) 7795 641 229

Funding for UK

Up to €360k per
SME Partner

60% of eligible
costs

Next call

Spring 2021 (2 PA)

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search>





FIS 360

INNOVATION | TECHNOLOGY | BUSINESS

Thank you

www.fis360.com

REMEMBER:

Apply for funding which fits with your business or project strategy!!

Comfort Break

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PARTNERSHIP

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Innovation Lightning Talks

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The beating heart of the UK entrepreneurial ecosystem



At Barclays Eagle Labs our mission is to connect the UK's entrepreneurial ecosystem through a network of business incubators, expertise and support.

We have created a community of top innovators, industry experts and mentors designed to support ambitious entrepreneurs and startups looking to scale as well as helping transform organisations and empower future skills.

The impact of Eagle Labs

34

Locations supported

15,455

Event attendees YTD

8,462

Businesses supported

(volume of members, programme participants, alumni as well engaged ecosystem businesses)

6

Growth Programmes due to be delivered in 2022

>£1.9b

Funding raised by members, programme participants and alumni

+86

Net Promoter Score

(Data accurate as of 8 August 2022, unless stated otherwise)

Eagle Labs supports:



Dedicated Growth Programmes

We partner with specialists to design programmes to help founders accelerate their growth, with themes that include fundraising, international connectivity and founder diversity.

Relevant for:

- Startups
- Scaleups



Industry Specialisms

Bringing together key industry players and startups, giving them a facilitated environment to collaborate and innovate.

- Corporates
- Startups
- Scaleups



Investor Connectivity

Creating opportunities for high potential businesses to connect and showcase their businesses to investors.

- Private investors
- Scaleups



Events and Workshops

A series of events, networking opportunities and workshops designed to help educate and inspire ambitious businesses.

- Startups



Engineers

Access to our engineers and dedicated Maker Spaces who help bring ideas and prototypes to life.

- Startups



Ecosystem Expertise

Our team understand their local and national ecosystems, and are able to connect startups and scaleups with specialists, corporates and investors.

Relevant for:

- Startups
- Scaleups



Access to Business Mentoring

Dedicated one-to-one coaching and support for founders from mentors with backgrounds in business, growth and academia.

- Startups
- Scaleups



National Network of Incubators

Eagle Labs operate the UK's largest network of business incubators. Founders are able to work from, and connect with, our locations and spaces.

- Local authorities and government
- Startups



Learning and Insights

Videos, reports and articles; we publish content that covers a wide range of topics to help founders run their business and for everyone to gain insights into our ecosystem.

- Startups



Deals & Offers

Specially curated offers from third parties that are designed to help businesses run more smoothly.

- Startups



MAKER SPACE

Eagle Labs Cumbria

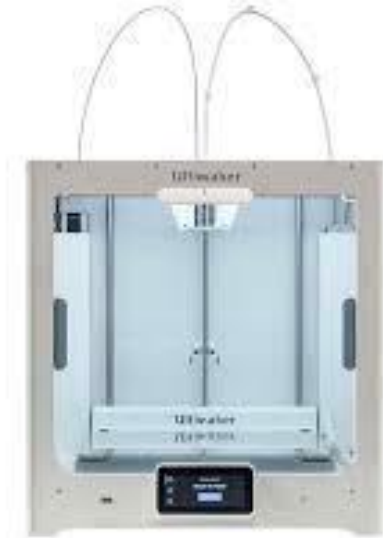
Zoe Crossan
Eagle Labs Lab Engineer





MAKER SPACE in the Bus Station, Whitehaven

FDM PRINTERS (3 ULTIMAKER 2+, 3 ULTIMAKER 3, ULTIMAKER 2+CONNECT, ULTIMAKER S3)



- Dual Print Heads
- 2 Extended versions - build height up to 300mm
- S3 Build plate (largest) – 190 x 200mm
- Compatible with over 110 materials



- Applications – Rapid prototyping & product development
- Metal expansion kit available for S3

MJP PRINTER (PROJET 2550)



- Material – Gypsum based powder and ink binder
- Colour - full CMYK
- Generous build volume: 254 x 381 x 203mm

- Applications – Concept modelling, validation prototyping, biocompatible medical devices, jigs, tools

MJP PRINTER (PROJET 2550)



- Material – Gypsum based powder and ink binder
- Colour - full CMYK
- Generous build volume: 254 x 381 x 203mm



- Applications – Architectural models, educational models, industrial design validation.

LASER CUTTERS (TROTEC SPEEDY 100 & TROTEC SPEEDY 100 FLEX)



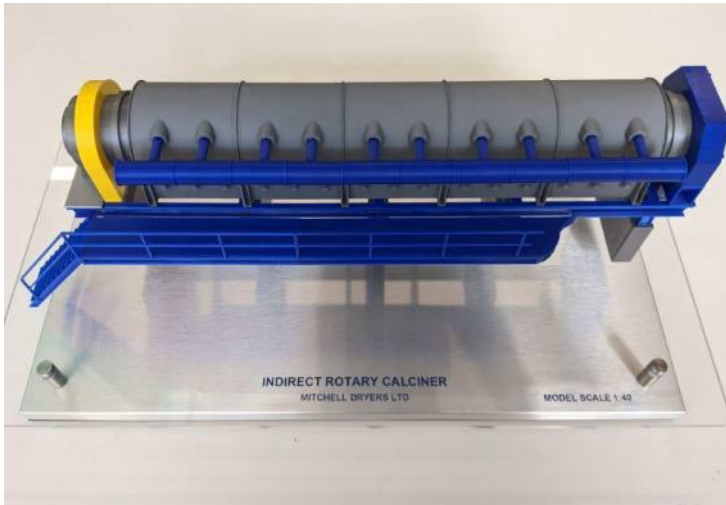
- Cutting bed size – Max. 740mm by 440mm
- Material choices CO2 laser – laserable plywood, acrylic, polypropylene, rubber up to 10mm thick
- Material choices Fibre laser – stainless steel, aluminium, bronze etc (marking only – doesn't cut)



- Accuracy - High resolution engraving and precision cutting
- Rotary axis – for engraving glasses, trophies etc
- Applications – rapid prototyping, point of sale and bespoke signage/branding.

OTHER KIT (VINYL CUTTER ROLAND GS-24, CNC MILLING ROLAND SRM-20, SLA PRUSA SL1)

Combining the technology with CAD skills opens-up lots of exciting innovation possibilities...



- Exhibition & consultation models



- Apprentice style workshops



- Room hire for members



Thank you



Innovation Lightning Talks

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ENTERPRISE
PARTNERSHIP

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Defence and Security
Accelerator

DEFENCE AND SECURITY ACCELERATOR (DASA)

INNOVATION FOR A SAFER FUTURE

What we do

DASA finds and funds exploitable innovation to support UK defence and security quickly and effectively.

We help small and medium-sized enterprises to reach the marketplace quicker and help larger companies to enhance their offerings. We unlock innovation potential by offering a unique set of benefits to innovators:

- We do not take any of the Innovators' Intellectual Property or equity
- We provide **100%** funding for most open and themed competitions
- We can provide access to unparalleled expert government advice

Applying for funding

We fund innovation through four main mechanisms:

Open Call for Innovation – Any innovation relevant to defence and innovation focus areas for security.

Themed Calls – Innovation that meets the needs of specific government areas of interest.

Defence Technology Exploitation Programme – For UK SME projects aligned to MOD Enduring Capability Challenges. 50% match funding. Higher Tier Supplier contributes time and resources to work with Lower Tier Supplier.

Defence Innovation Loans – Encourages UK SMEs to move towards commercialisation through later stage R&D.

Contact a DASA Innovation Partner

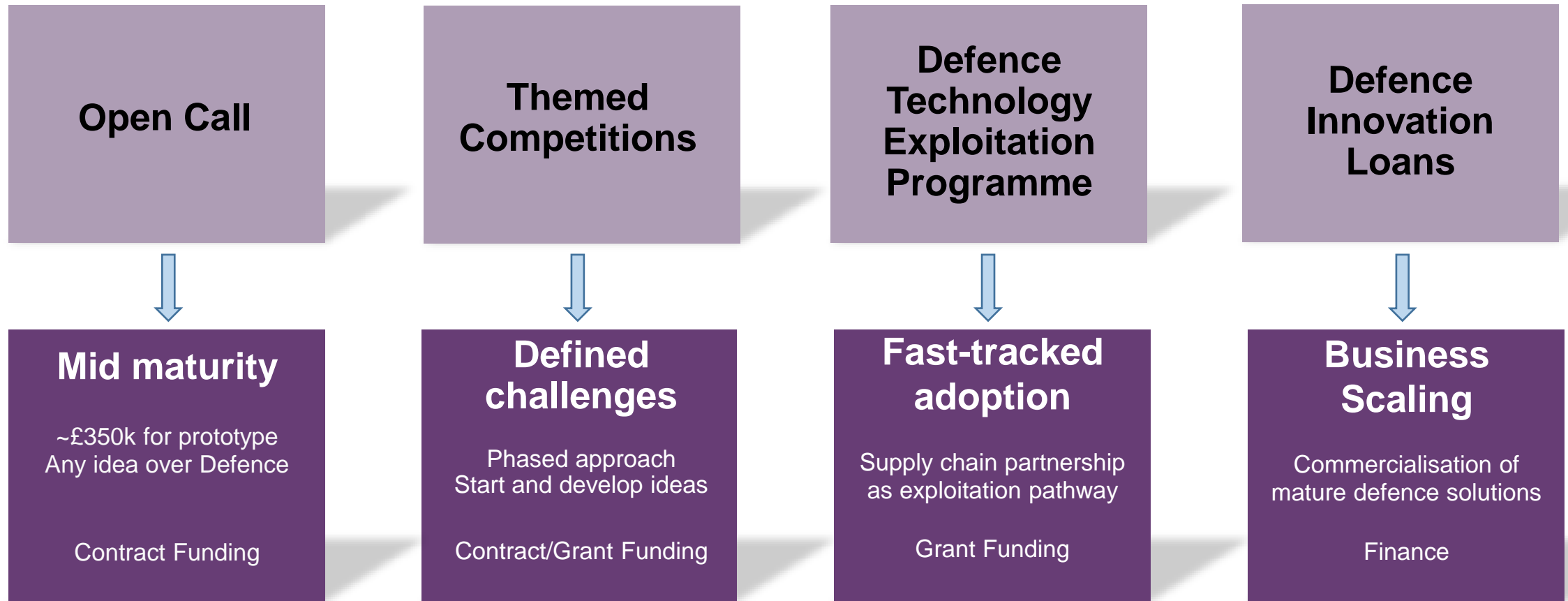
Innovation Partners are available to give advice to suppliers about their ideas and how they can best engage with DASA.

Engagement with DASA helps you

- Understand the viability of an innovative idea
- Discover the potential wider government application
- Investigate commercial exploitation opportunities
- Explore collaboration prospects
- Access front line users and decision makers across government



Funding Innovation



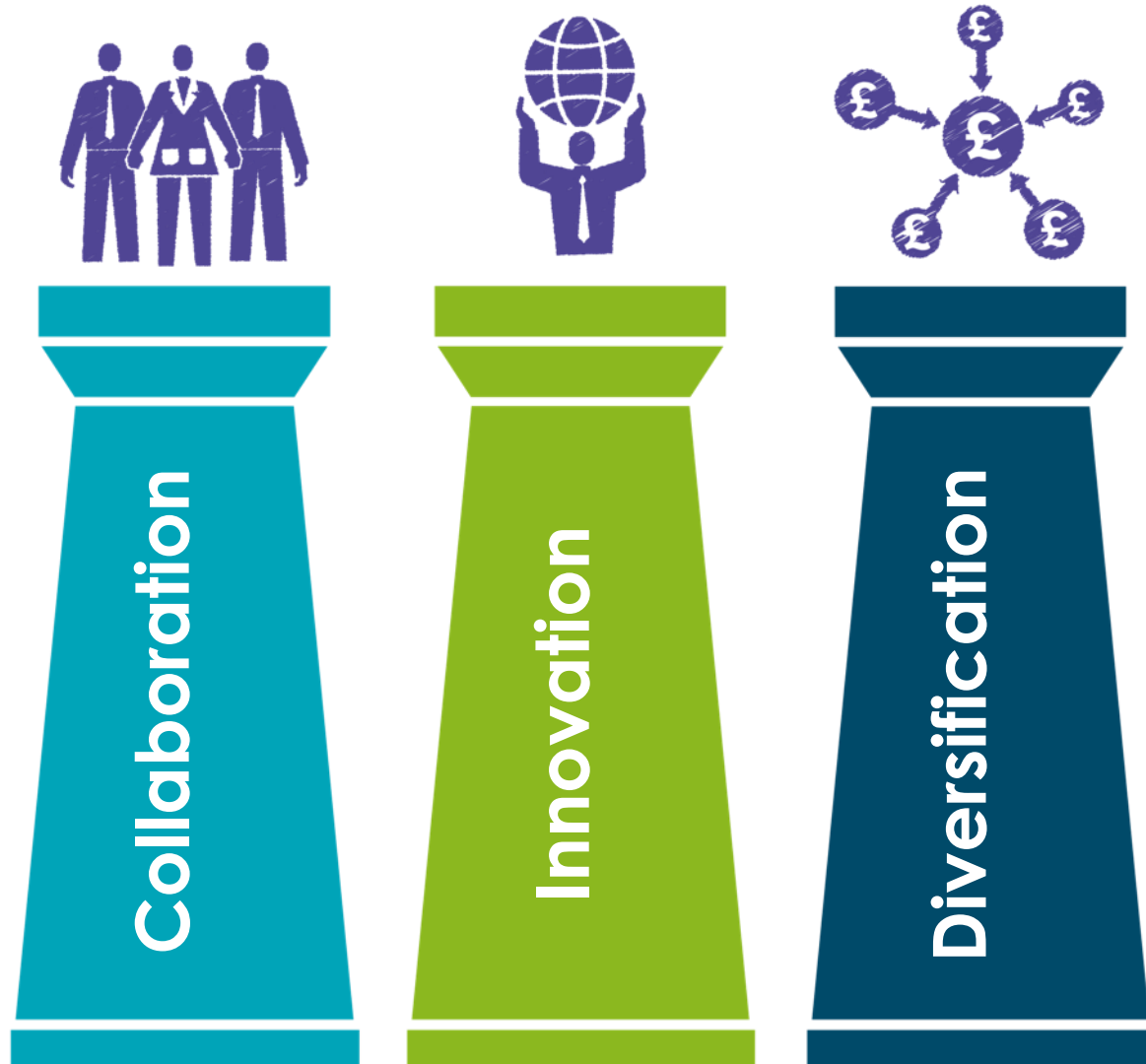
Innovation Lightning Talks

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A Growth Economy Needs



The Hub – Indicative Visuals



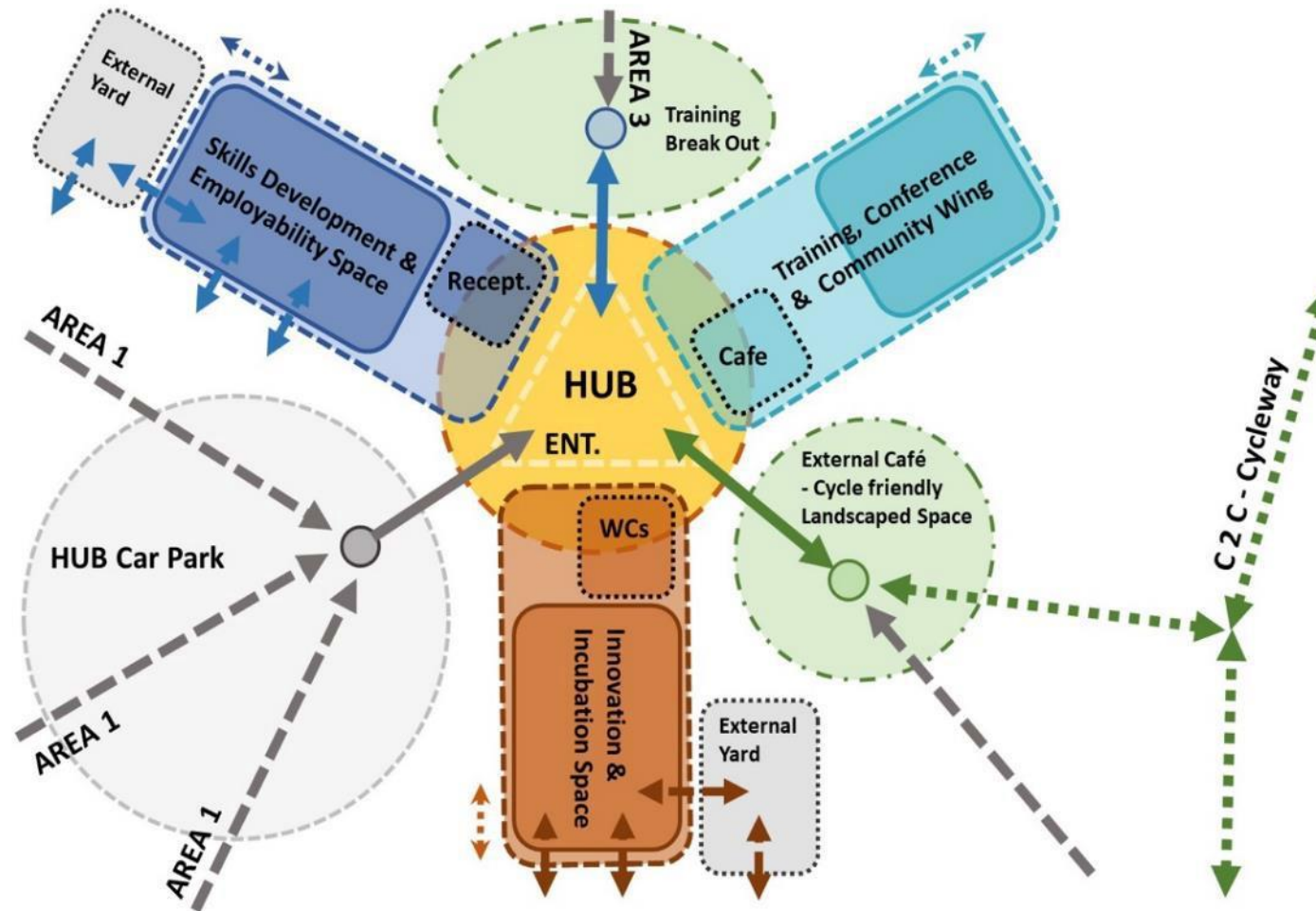
iSH
Making ideas Work

Hub Design

- Design a building that will help support existing and new business.
- Fits into local context as well as suitable within shadow of the lake district national park.



The Hub – Spark of Innovation, Incubation, and Education



iSH
Making ideas Work

HUB

- 3 main elements
- Innovation and Incubation Space
- Skills, Development and Employability and
- Training, conference and community.



john.maddison@ishco.co.uk

iSH
Making ideas Work

Innovation Lightning Talks

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Financial and Additional Support

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ENTERPRISE
PARTNERSHIP

IN CONJUNCTION WITH



NPIF Funding

[BUSINESSFINANCE.GROWTHCO.UK](https://businessfinance.growthco.uk)

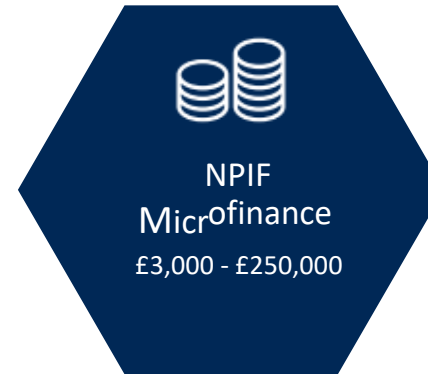


Core Lending Products

We offer a viable, publicly backed alternative to mainstream finance with solutions from £500 to £2m for growing businesses across the North West.



The Start Up Loans programme, delivered by GCBF on behalf of the British Business Bank, can provide loans of £500 - £25,000.



Northern Powerhouse Investment Fund microfinance, delivered by GCBF on behalf of the British Business Bank, provides loans of between £25,001 and £100,000.



GCBF – Track Record

40

COMBINED SKILLED STAFF
ACROSS A NUMBER OF FUNDS

20

YEARS FUNDING BUSINESSES

5,500

SME LOANS ACROSS A BROAD
RANGE OF SECTORS

£75m

OF DEBT FUNDING INVESTED IN
NORTH WEST

12,000

NORTH WEST JOBS CREATED AND
PROTECTED



NPIF Microfinance

- Part of £500m Northern Powerhouse Investment Fund (NPIF) launched by the British Business Bank.
- Amount: £25,000 to £100,000
- Term: up to 60 months
- Cost: 2% arrangement fee, 1% annual monitoring fee
- Interest rates typically from 9% to 12%.
- Security: Recovery Loan Scheme and Personal Guarantee.



Department for
Business, Energy
& Industrial Strategy



**NORTHERN
POWERHOUSE**
Investment Fund



Delivered by British Business Bank



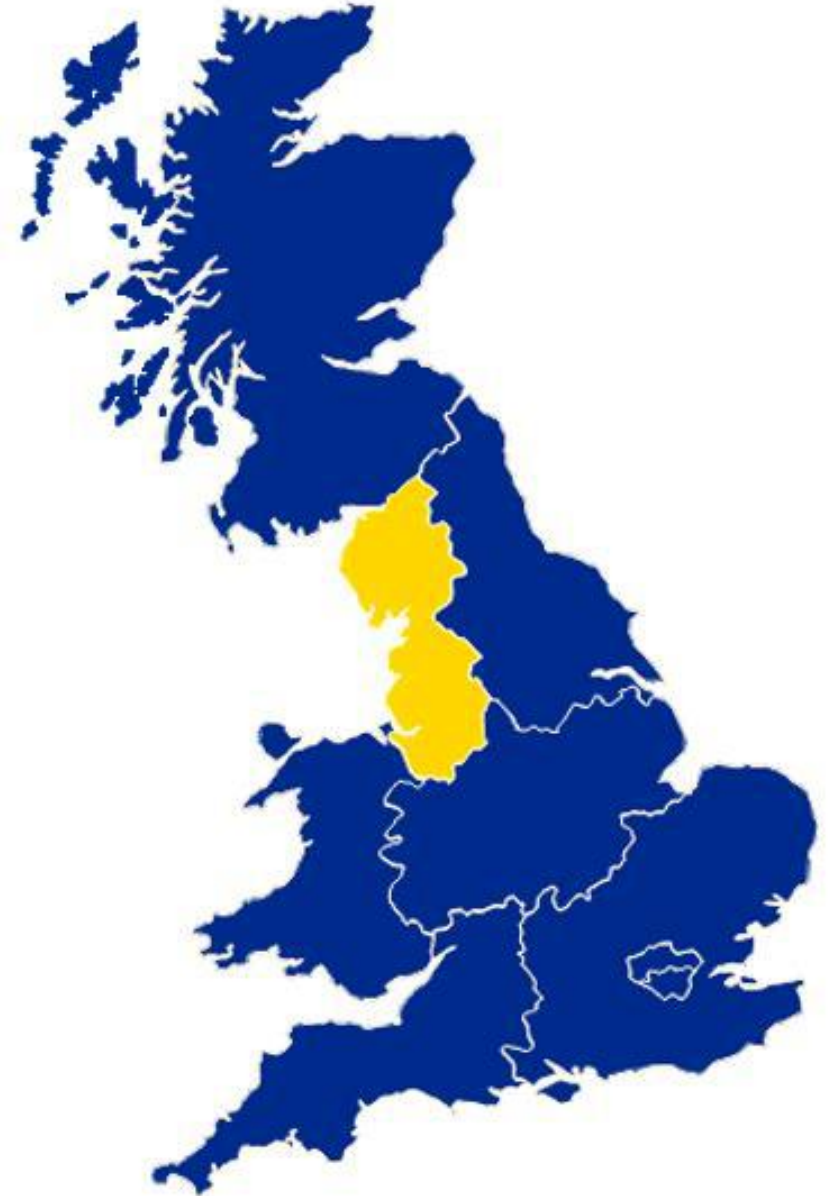
European Union

European Regional
Development Fund



Our Criteria

- Based in the Northwest i.e., Lancashire, Cumbria, Greater Manchester or Cheshire & Warrington.
- Funding required for business growth and development.
-
- Sector agnostic (except property)
- Trading B2B or B2C.
- Creating or safeguarding jobs.
- Bank decline or self-certification.



What We're Looking For

- A thorough business plan.
- Filed accounts
- Profit & loss and balance sheet covering trade since year end.
- A cashflow forecast with details around the assumptions.
- 3 months of bank statements.
- Specifics on any projects or contracts including the terms.
- Aged debtors and creditors.
- Details of any other debt or credit agreements.



Summary

Examples of previous deals

- £50,000 to a hotel looking to update furnishings etc
- £50,000 to a cleaning company taking on new contracts and staff
- £40,000 to a web design company diversifying into ecommerce
- £45,000 to an aesthetics company
- £30,000 to a retail store increasing their product lines



FOR MORE INFORMATION, PLEASE CONTACT US:

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Financial and Additional Support

CLEP
CUMBRIA
LOCAL
ENTERPRISE
PARTNERSHIP

IN CONJUNCTION WITH





Sarah Woodhams –
Technology Adoption Specialist
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**MADE
SMARTER**



Made Smarter is a programme backed by world-renowned businesses and UK government.

We connect makers to digital tools that will transform the way you work that make an everyday difference to their business.

Who do we work with?

-
- Manufacturers, makers and creators
 - SMEs with operations or facilities in Cheshire & Warrington, Cumbria, Greater Manchester, Lancashire & Liverpool City Region
 - Businesses with less than 250 employees
 - Those at any stage of digital journey from first-time adopters to experts

What do we do?

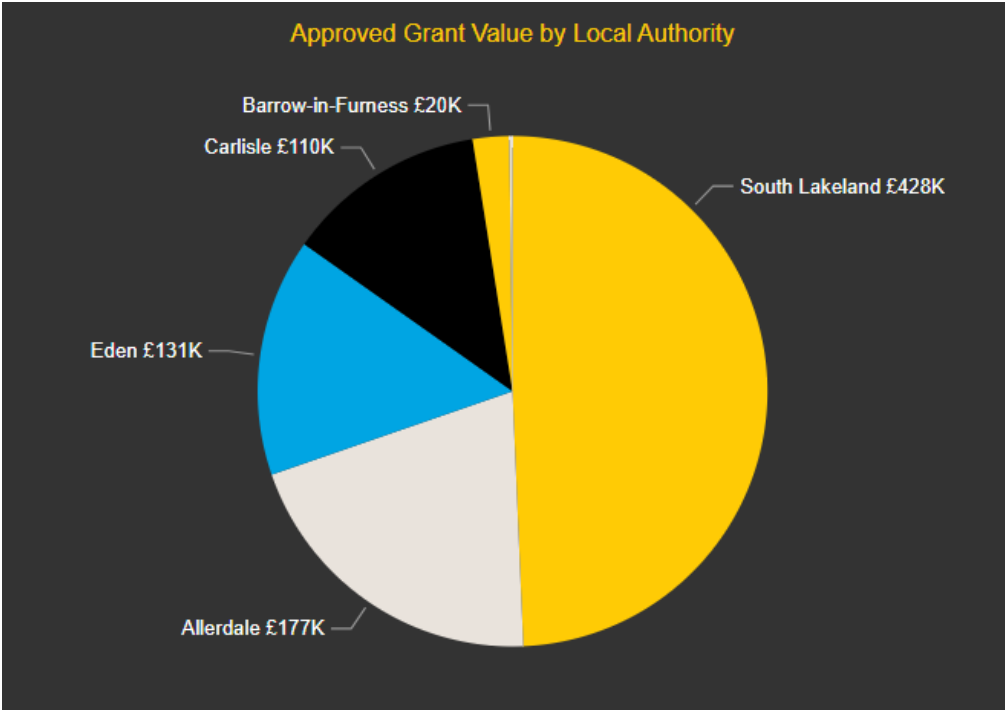
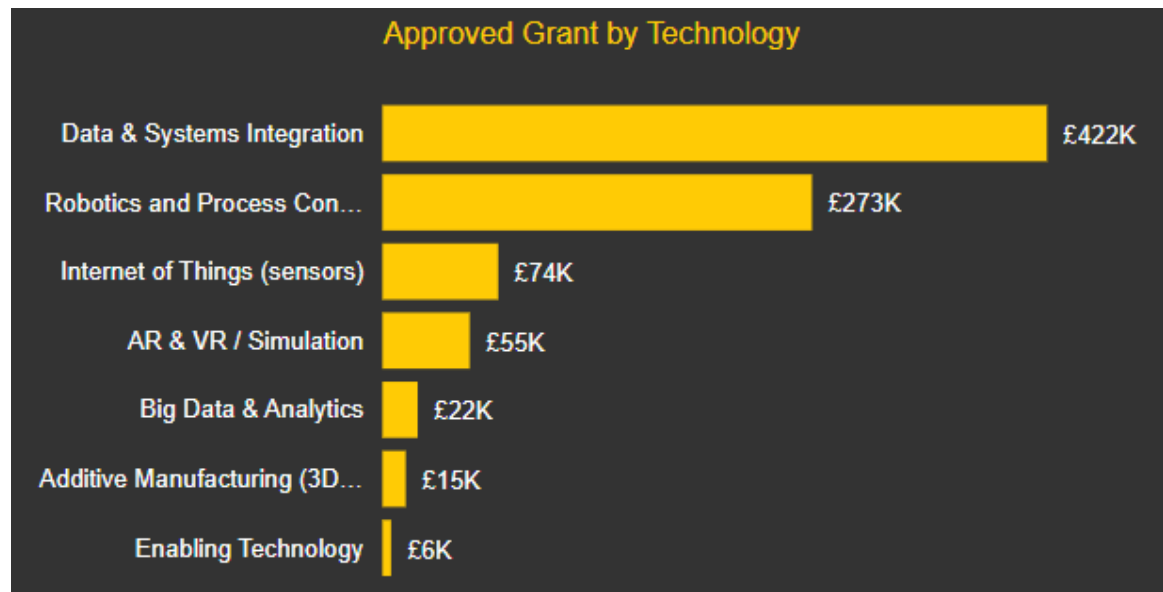
- Advice from specialist technology experts
- Create a digital transformation strategy and roadmap
- Organisation and workforce development to support technology projects
- Leading Digital Transformation and Leading Change for Digital Champions programmes
- Grant funding for implementation of projects (currently match funded up to 50% with £20k cap)

What Technologies do
our Made Smarter
projects support?



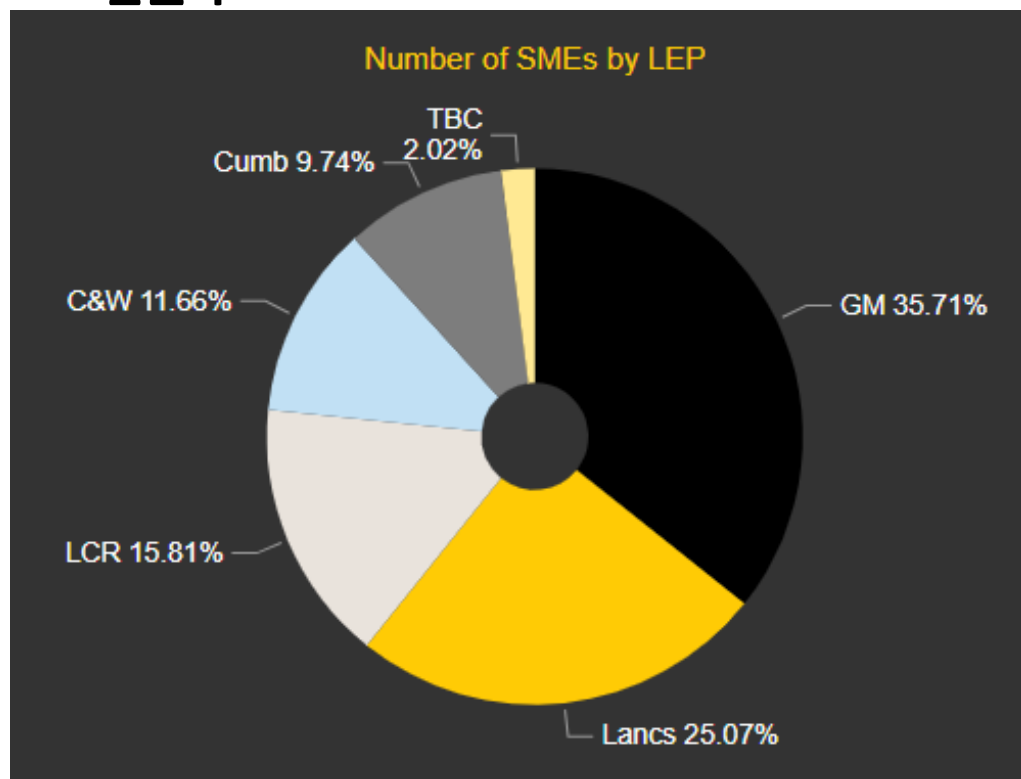
Made Smarter in Cumbria

Grant Recipients	Grants Awarded	Grant Value
42	47	£867K

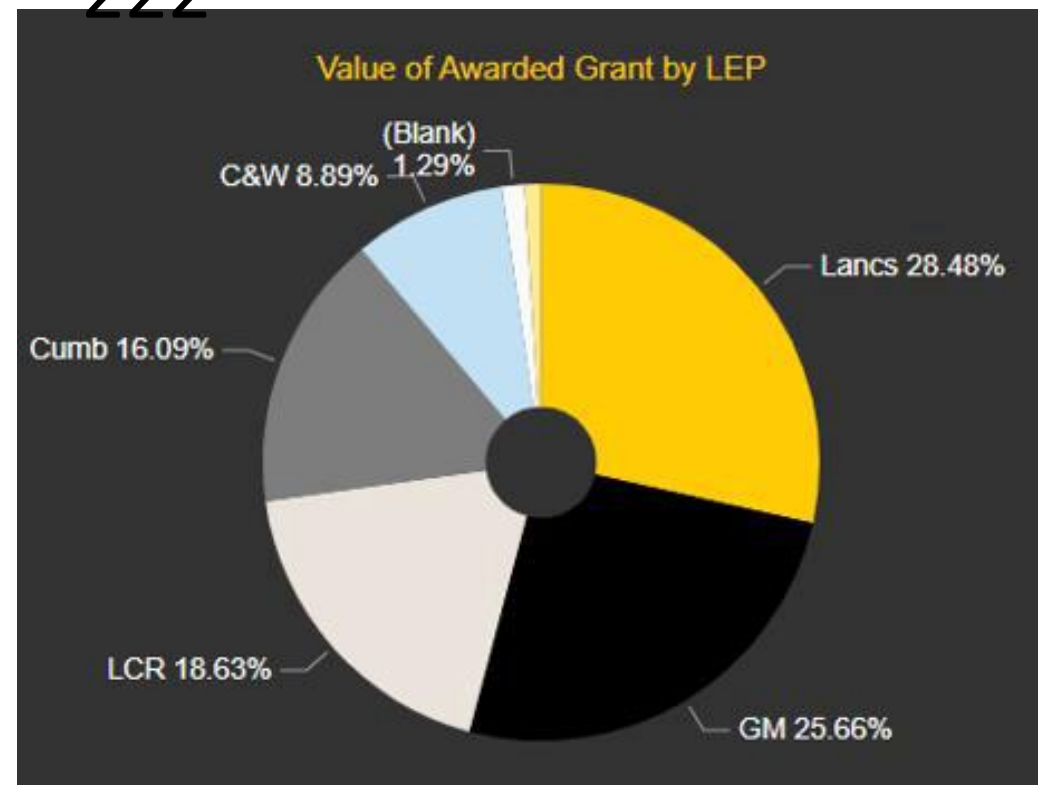


Made Smarter in Cumbria

Jobs created in Cumbria
- 124



Jobs upskilled in Cumbria -
222



“

Ratio's brand is built around disrupting the current planned obsolescence ethos in the bike industry

”



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Ratio Technology Tech helps bike component maker move up a gear

A manufacturer of bike components is unlocking innovation and growth with backing from Made Smarter.

A manufacturer of bike components is unlocking innovation and growth with backing from Made Smarter.

Ratio Technology, based in Kendal in the Lake District, was founded in 2018 by engineers and cycling enthusiasts Tom Simpson and Felix Barker.

It specialises in drivetrain products including chainrings and derailleur cages, and has a growing customer base around the world.

The business has now invested in 3-axis CNC machining technology, bringing its production in-house, increasing opportunities for customisation and innovation, and reducing costly delays and mistakes due to subcontract manufacturing.

The Challenge

Ratio Technology was launched from the research Tom and Felix performed as part of their engineering studies at Cambridge University.

Since the business was launched in 2018, the pair have been driven to progress the design and manufacture of components which are made to work alongside existing parts made by larger companies.

However, as a start up with limited resources, Ratio previously needed to use subcontractors to deliver their orders.

Tom explained: "Our experience of using subcontractors for manufacturing was mixed, and we particularly wanted to begin our own CNC machining in order to reduce development time and improve quality control."

The Solution

With support and guidance from Made Smarter, Ratio were able to invest in a Brother R450X2 3-axis CNC machine.

The key feature of the solution is a twin pallet setup which allows one part to be machined while another is loaded. This allows for non-stop machining.

The Benefits

Housing design and production in one location means Ratio can now digitalise the entire workflow from concept to prototyping to production.

Tom said: "This has transformed our efficiency. We can take concepts to production far faster than we could with a subcontractor. Integration of the full production process means we can design with manufacturing in mind, making the entire process more efficient - whether that's material consumption, tool use, or fixture design."

Bringing manufacturing capability in-house has also meant that Ratio can produce its first fully 'Made in the Lakes' components.

The new capability is supporting Ratio's growth plans and intentions to almost double its current team of four. This includes recruiting one more machine operator/assembly role, another engineer to help launch new products and another to support with inventory, shipping and day-to-day admin tasks.

Tom said the investment has been game-changing for the business.

"Made Smarter's grant has accelerated our adoption of this vital technology by a year or more and broadened the scope of the investment," he said.

The Future

The new in-house capability and incoming staff will support Ratio's focus on its own new bicycle drivetrain technology.

If successful, Tom and the team are predicting the need to expand manufacturing and sales capability.

Tom said: "Ratio's brand is built around disrupting the current planned obsolescence ethos in the bike industry. This is an approach that has earned us a great deal of respect amongst our customers, and one we will continue to keep at the centre of the business."



"Home-grown technology has been Ratio's focus since the business was founded. While we launched through seed funding we have been able to organically fund the majority of our continued R&D work."

"We hope to be able to continue this organic growth through to launch, at which point our new products will fund their continued development."

Ratio

“The application of immersive technology will be a value-added service, offering our customers something no one else is.”



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Forth Engineering Immersed in digitalisation

A Cumbrian engineering firm is riding the wave of digitalisation. Smarter, is using immersive technologies to drive global growth and innovation.

The Opportunity

Forth Engineering, based in Flimby, are dedicated to engineering excellence and specialise in manufacturing bespoke robotics that can be used in harsh environments for nuclear, oil and gas, marine, and renewables sectors. They work closely with industry leaders in a wide range of sectors to help them deliver cutting-edge and ground-breaking solutions to complex problems.

The Solution

With the support of Made Smarter, Forth is investing in a hardware and software solution which will allow a client to step into a virtual room and interrogate a 3D model of their asset.

They are adapting office space to create a mixed reality studio to enable customer demonstrations.

3D data of assets will be converted into a model using 3D visualisation software. This will allow the asset to be viewed within virtual/mixed reality environments in a true to life scale.

Forth will use a leading Extended reality (XR) headset to project a clear and precise visual representation of the asset into a room at their facility. Meanwhile, mixed reality smart glasses are

sent to the customer to access a virtual face to face meeting or inspect a product from the safety and comfort of their own place. What is more, the smart glasses will create a hologram of the customer in the studio where they can interact and interrogate the asset, which can be animated and exploded into parts.

Mark explained: “We are creating a platform where two fantastic technologies meet. By taking the best of the headset’s ability to project a high intensity AR image and the smart glasses ability to import a hologram of a person, we can show clients their assets in staggering precision.

“We hope that more customers will come to us with dreams of realising their prototype dreams through the use of mixed and virtual reality.

“We also hope to be able to open up the scope of work to clients from around the world and include them in an engineering decision making process wherever they are whilst feeling like they are interacting with us and the project in person.”

The Benefits

Through digitalisation, immersion, and presentation technologies will mean that Forth’s customers will now be able to interrogate a digital model of their assets from

Cadscan’s recent focus is bespoke orthoses and is embarking on a trial to create 3D-printed insoles for NHS patients to help prevent diabetic foot ulceration, a major complication of diabetes which in serious cases

A new service will be to design and manufacture a 3D scanner to capture the foot shape and then produce a patient-specific, 3D-printed orthosis. The design is automatically generated. It is a 3D printer for manufacturing thermoplastic urethane (TPU), a flexible, abrasion resistant material.

anywhere in the world; opening up new markets and increasing services offered to customers.

The project will be at the forefront of immersive technology and will also help to upskill staff, reduce cost and travel, and create a safe inspection environment.

This groundbreaking technology will allow Forth to deliver innovative and novel solutions to complex problems globally. Moreover, the team of thirty-eight full time employees believe the value-added service will give it a competitive advantage as it is forecast to increase GVA by at least £500,000 over the next five years and in the process create five new, highly skilled jobs.

The Future

Forth believes this service will rise its profile in the global, harsh environment market and support its growth strategy to double turnover by £2m each year and help to upskill the team, secure jobs and increase job satisfaction.



Around 176 people undergo diabetes-related amputation each week, a loss for our customers which Made Smarter has enabled a fuller and faster adoption of the new technologies and training, accelerating implementation by years, reduce costs and improve patient outcomes.

Mark Telford, Managing Director is proud of the transformations taking place, stating: “Our engineering solutions are giving customers new and accurate insights into the state of their assets, without risking their workforce, and ultimately saving them a considerable amount of money.

“The application of immersive technology will be a value-added service, offering our customers something no one else is.

“We hope that we can create a place of technological brilliance

for the whole community around us, not just our customers.”

Made Smarter has enabled a fuller and faster adoption of the new technologies and training, accelerating implementation by years, reduce costs and improve patient outcomes.

FORTH
Ally-Jair Buchannan
MD, Cadscan

English Lakes Ice Cream Tasting the sweet success of digitalisation blend

“Lakes Ice Cream is already investing in new machinery. It's automated packing machine will be four times quicker than the current manual process.”



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An ice cream manufacturer is transforming its operations by using data and system integration tools, with the support of Made Smarter.

English Lakes Ice Cream (Lakes Ice Cream), based in Kendal, has deployed a bespoke field service management solution that links key business operations: order processing, manufacturing, stock control, sales, distribution and accounting.

The technology has replaced traditional manual, time-consuming and paper-based processes, sped up communications within the business, and freed the small team of 15 employees to focus on more high-value and skilled tasks.

Crucially, the investment has futureproofed Lakes Ice Cream plans to scale up the business.

James Stephens, Managing Director, said: “We are delighted with our experience of Made Smarter. From the start Sarah Woodhams and the team have supported our digital transformation, offering their expertise and giving us that confidence in starting this journey.”

“While we are only part way through the project, the technology has had an incredible impact, making everything easier. It has made us excited for the next stage.”

The Challenge

After 25 years as a family-owned business, growing organically through sales in shops, supermarkets, hotels and food service wholesalers, Lakes Ice Cream began a new era under new ownership in 2019.

While a rebrand and new sales strategy has seen a rapid increase in business, it has exposed challenges with its manufacturing capacity and IT infrastructure. It currently manufactures 1.2m

litres of ice cream per year and distributes all over the UK.

Lakes Ice Cream realised it needed to do things smarter.

Made Smarter helped identify a raft of challenges and potential solutions during a digital transformation workshop.

James explained: “Our growth has exposed an IT system not capable of handling the increasing complexity of our operation, too many manual and duplicated processes, no operational integration, no oversight of the valuable data within the organisation, and ultimately slow decision making.”

“For instance, customer orders from hotels would typically come in on the answering machine overnight or over the phone during the day. Someone would then need to capture that order, add it to a stock card, then to a spreadsheet, and then manually pick the order, before adjusting the stock records. At the end of the process, an invoice would be manually produced.”

“Stock control was also time consuming using the old system.”

The Solution

Lakes Ice Cream has worked with a specialist system integrator with expertise in the foodservice and ice cream distribution industries to create a bespoke modular solution using its “Tract” software.

The first stage, which is now complete, has focussed on linking order processing, stock control, and accounting.

Orders are now plugged into the system which automatically

creates a picking list. This then automatically subtracts elements like ingredients and packaging from stock.

The system keeps track of manufacturing and sales data and when stock reaches certain levels it automatically alerts the team to create an order which is then emailed to the supplier.

The latest module to be activated is for distribution management via the DeliveryWeb tool. This introduces an integrated app for mobile devices with a digital signature, removing the need for paper, and includes GPS tracking of vehicles to optimise delivery routing.

The next stage is to replace the manual ordering process with an online ordering system, ColdWeb. This will enable our clients to order at any time via the website or an app, giving them visibility of historical order information to enable quick reordering of repeat orders.

Other modules expected over the coming months include credit control, product traceability, key product information storage and temperature control logging.

The Benefits

Lakes Ice Cream is already experiencing faster and more streamlined internal communication and efficiency gains.

For example, time spent managing stock has reduced from eight hours a week to two, while the savings on time spent processing orders will be “highly significant”, according to James.

“What we have achieved so far really demonstrates the substantial benefits that integration achieves,” James said.



“When you have such a small team, time is extremely precious, so to squeeze more productivity wherever you can is fantastic. What's more, there is real buy-in from the team who can see these benefits and how that allows them to learn new skills and enjoy their work more.”

When all the modules are integrated, management will have access to live and accurate data enabling them to make much quicker decisions about schedules and plan production accurately.

Improved data flow across the production process will improve batch efficiency, give the business reliable quality control and traceability, making compliance with food standards easier.

The digitalisation of its operation is accelerating Lakes Ice Cream's carbon footprint. Distribution tools will eliminate the need to use paper and route optimisation will reduce fuel use.

The new software will enable Lakes Ice Cream to free up time to develop new recipes, flavours

and products. It will also enable trend prediction and volumes more accurately to enable the business to plan expansion or changes when needed.

The Future

While plans for a new factory are two years away, Lakes Ice Cream is already investing in new machinery. It's automated packing machine will be four times quicker than the current manual process.

Now armed with a digital roadmap, James is confident of taking the next step.

James said: “Lakes Ice Cream has a great reputation for quality products and service. We want to take the business to the next level. That means a new factory and cold store, new automated machinery and new vehicles. At the heart of those changes will be a software system that integrates all aspects of our business and lays the foundations for scale.”



“At our heart we are conservationists finding engineering solutions to keep some of the UK's most precious clocks running.”



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The Cumbria Clock Company Keeping up with the times

A Cumbrian clock repair and restoration specialist is bringing conservation and horology into the 21st century using digital technology adopted with Made Smarter advice and support.

The Cumbria Clock Company (CCC) is responsible for the maintenance of more than 1,000 church and public clocks in the UK including prestigious timepieces at Salisbury Cathedral, Hampton Court Palace and Westminster Clock, better known as Big Ben.

But the company has long outgrown its out-dated, paper-based maintenance monitoring system.

Now with expert guidance from Made Smarter, CCC has embarked on a digital transformation journey which will introduce a bespoke digital management system to give the business complete oversight of its operation.

The solution will increase productivity and efficiency, cut costs and reduce its carbon footprint.

Keith Scobie-Youngs, director, said: "As a business we've always kept in stride with technology, but to take this next step would have meant saving for two or three years. Made Smarter has not only accelerated that to now, but opened our eyes to so many possibilities which could transform our business from reactive and regular service and repair to a proactive data-driven service provider."

The Challenge

Established by Keith and Lynn Scobie-Youngs 30 years ago, CCC's team of 18 includes engineers who travel 260,000

miles per year on a maintenance schedule, and conservators who carry out repairs from the Penrith workshop.

The work schedule is managed using a mixture of paper files, spreadsheets and magnetic whiteboards.

"Over the last 30 years our system has evolved to cope with our increase of clients," Keith said. "But it is becoming too unwieldy for an analogue system and we need to find a better way to do things."

"Our lack of overview of the location of all our clocks and our engineers means that opportunities to be more efficient with our service routes are missed. That means driving past a problem clock by mistake and then having to return. That's extra time, cost and mileage."

"We've also had problems with communicating the full and correct information to our engineers, which have led to errors, unnecessary delays and wasted journeys."

The Solution

A bespoke digital management system with desktop and mobile app will give the business access to a complete history of each clock, parts and costings, maintenance schedule, technical documents and photographs.

Engineers will access the app on a tablet to view their schedule of jobs and routes, contact details and any health and safety concerns they need to be aware of. They can then capture

and upload information and photographs in real-time, and order new parts.

Meanwhile, a dashboard and interactive map will give management an overview of all clocks, job types and status, and engineer schedules.

The Benefits

CCC believes the solution will significantly improve its efficiency to plan routes and combine service visits with call backs and inspections, and reduce its annual mileage by 30,000.

This would not only save a significant sum of money, but reduce its emissions by 11%, the equivalent to 12 tonnes of carbon.

Keith said: "My vision of the system is to be able to see an interactive digital map giving us a complete overview of all our clocks and engineers, which will enable us to plan our work more efficiently."

"This system will vastly improve how we do things, increase profit, give us more scope to create new jobs, and reduce our carbon footprint, which is something very important to Lynn and I."

The app will allow the engineer to capture, store and upload vital data, which will save time and reduce the number of visits they need to make to the site.

"This solution will give engineers all the correct information about the clock, its location and its history, at their fingertips," Keith added. "Instead of us waiting until the end of the day for an engineer to send us some paperwork or an email,



the information is in the system immediately, so we can act."

At the end of the process CCC can produce a comprehensive conservation report for the customer, at the touch of a button.

The Future

CCC is also exploring a digital chip tracking system which will enable the business to remotely monitor clock functions, such as time keeping, strike and chime sequence, and power outages, to better understand problems before the engineer attends onsite.

Data captured from these clocks could then be used to create a

digital twin, a virtual replica of the clock, for the purpose of writing operations and maintenance manuals.

"At our heart we are conservationists finding engineering solutions to keep some of the UK's most precious clocks running," Keith said. "What we try and do is combine the old mechanical world with modern technology. We need to embrace the opportunities it offers our business."





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Closing Comments

Oli Wignall

Chair of Ideas and Innovation Strategy Group

