### Welcome to



**CHALLENGE 3 – ROAD FREIGHT ALTERNATIVES** 





#### 14:00 - 14:15

### INTRODUCTION TO THE VLRNIC & THE CLEAN FUTURES ACCELERATOR



#### Name:

Naomi Arblaster

#### *Job Title:*

• Head of SME Development

#### Organisation:

• Black Country Innovative Manufacturing Organisation

#### Contact Details:

- www.bcimo.co.uk
- Naomi.Arblaster@bcimo.co.uk
- 07780 510695







## INTRODUCTION TO THE VLRNIC & THE CLEAN FUTURES ACCELERATOR HOUSEKEEPING

- No fire alarm planned / in the event of a fire:
  - Turn right out of room and right again through the double doors take the stairs to Level 0 (lifts will be out of action)
  - Take your nearest exit and make your way to the Upper Car Park
- Location of toilets
  - Turn right out of room and right again through the double doors toilets are on the landing







## INTRODUCTION TO THE VLRNIC & THE CLEAN FUTURES ACCELERATOR AGENDA

- 13:00 14:00 Lunch & Networking
- 14:00 14:15 Introduction to the VLRNIC & the Clean Futures Accelerator
- 14:15 14:30 Railway Industry Architecture
- 14:30 14:45 Introduction to Challenge Theme 3
- 14:45 15:15 Guest Speaker
  - Phil Read Managing Director, Varamis Rail
- 15:15 16:30 BCIMO Facilities Tour
- 16:30 17:00 Wrap up & Close







## The History of Rail



## THE CASE FOR VERY LIGHT RAIL

As we saw in the opening video...

- Rail has played a key role in the transportation of people since 1807, when the Swansea and Mumbles Railway became the UK's first fee-paying passenger railway service
- The railway industry went through its biggest period of innovation and growth between the 1840's and the 1890's
- By the mid-1950's the railways had fallen into significant decline, coinciding with the start of the phase of mass motorisation
- Despite government interventions, including the Modernisation Plan, Beeching Cuts, privatisation and the subsequent formation of Network Rail, this decline continued until 2008, when, due to the challenges of climate change, the need for a shift from cars back to public transport was identified







## THE CASE FOR VLR – POLITICAL, ENVIROMENTAL & LEGAL DRIVERS

Since 2019, when the Climate Change Act was amended to legislate net zero emissions by 2050, there has been a major push from the UK government towards the *decarbonisation* of transport, achieved in part through the provision of *better-connected*, *rail-based*, public transport solutions:

#### Clean Air Strategy 2019

Reducing air pollution, including particulate and plastic pollution from brakes, tyres, and road wear

### Call for Evidence 2019

Reviewing ways to integrate Light Rail, and other rapid transit solutions, into future transport networks

### Future Mobility: Urban Strategy 2019

Maximising the benefits from transport innovation (emerging transport technologies and business models) in cities and towns

### Future of Transport Programme 2019

Stimulating innovation in the transport sector - creating new markets, ensuring a 21st-century transport system, and securing the UK's position as a world-leading innovator

### Transport Decarbonisation Plan 2021

Decarbonising the entire transport system

#### Great British Railways: Williams-Shapps Plan for Rail - 2021

Making the railways the backbone of a cleaner, more environmentally friendly, and modern public transport system

### Future of Transport: Rural Strategy Due 2022

Delivering the benefits from transport innovation in rural areas – tackling mobility issues, improving connectivity and accessibility, increasing low carbon travel options and providing more integrated transport services



## THE SOLUTION VLR

In summary, while the rail industry continues to innovate, there is a strong case for a new mode of rail-based public transport, that addresses these drivers...

#### That mode is called Very Light Rail (VLR)!

VLR can be used to supplement existing rail networks, delivering the following key benefits:

- Low or zero emissions
- Lower-cost (to build, operate & maintain)
- Fewer disruptions
- No unsightly overhead lines or concrete guideways
- Safety engineering appropriate to use case
- Improved urban and rural connectivity
- User-centred design
- Digital DNA
- Future autonomy



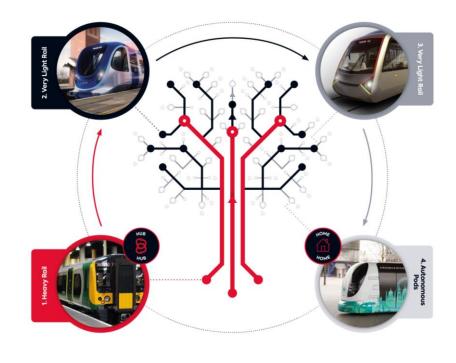




### HUB-TO-HOME JOURNEYS

VLR is being developed with the wider journey in mind, allowing passengers to take an integrated, seamless, and personalised journey from a central hub direct to their front door, using multimodal public transport solutions

BCIMO uses the analogy of a tree to represent the UK's public transport network and a potential **Hub-to-Home** journey, as shown in this next video...









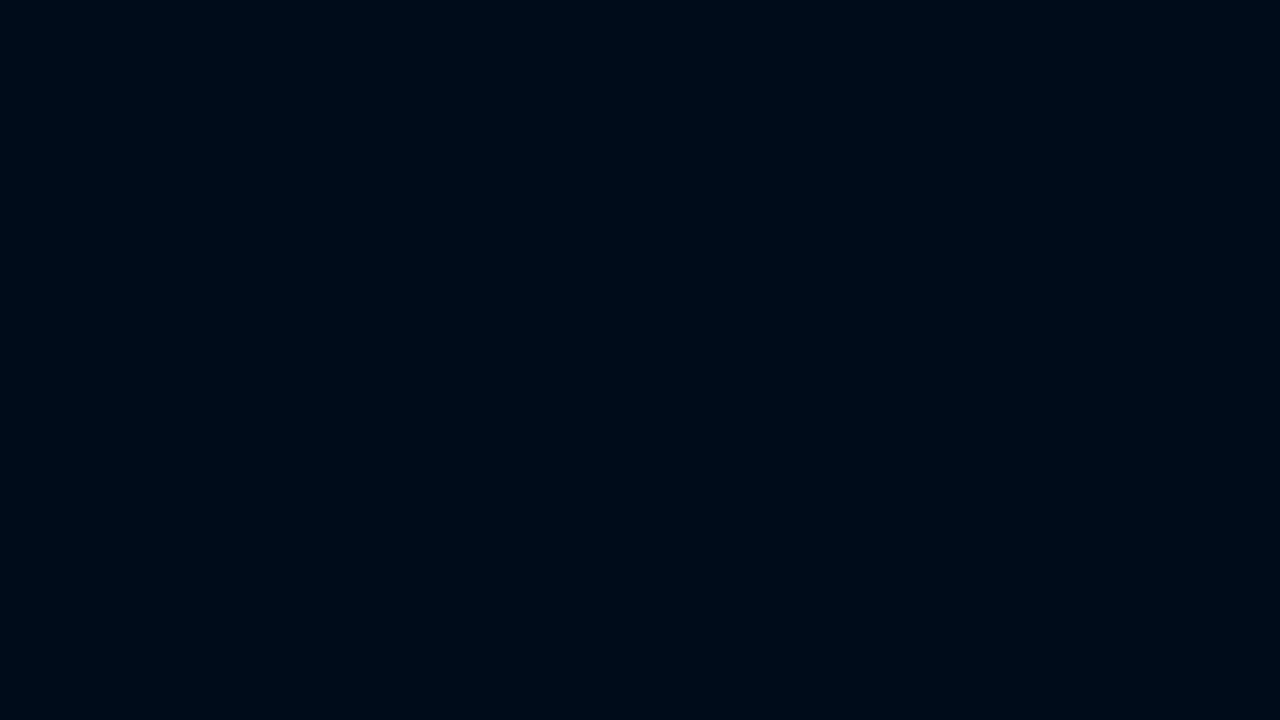
### INTRODUCTION TO BCIMO THE VLRNIC IS BORN











## INTRODUCTION TO BCIMO PURPOSE OF THE ORGANISATION

The Black Country Innovative Manufacturing Organisation (BCIMO) is a not-for-profit company limited by guarantee and the driving force behind the Very Light Rail National Innovation Centre, a brand new, state-of-the-art R&D facility based in Dudley in the West Midlands

This £32m multi-purpose centre, situated at the heart of the Black Country, offers a host of unique facilities including:

- A Rail Development and Test Site
- Serviced Office Spaces
- An Events Suite
- Engineering Laboratories *to be fitted out over the next 12 to 24 months*

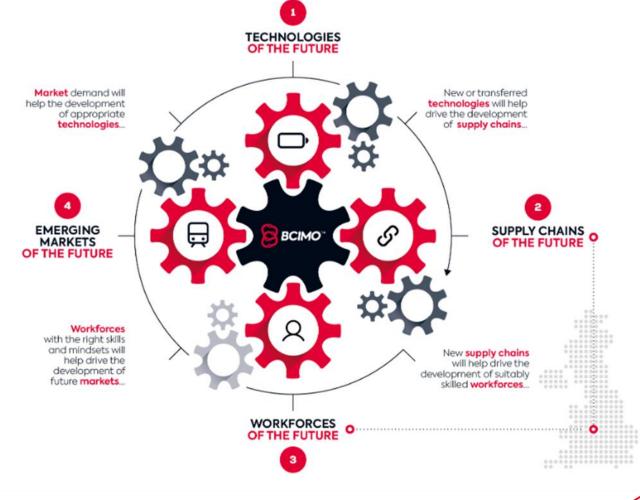






## INTRODUCTION TO BCIMO AREAS OF FOCUS

BCIMO is the central cog in this wheel of development activity, helping to *shape* and *accelerate* future industries, supporting government policy relating to *net zero*, *the future of transport* and *regional levelling up* 

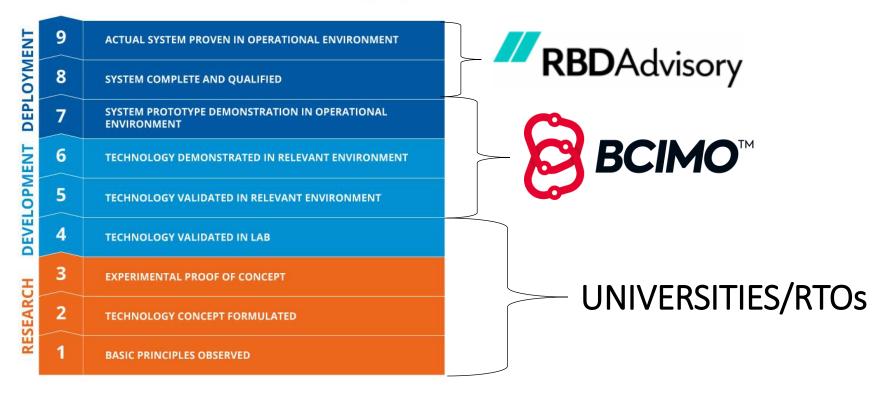






## TECHNOLOGIES OF THE FUTURE TESTING, DEMONSTRATION & COMMERCIALISATION OFFER

#### **TECHNOLOGY READINESS LEVEL (TRL)**













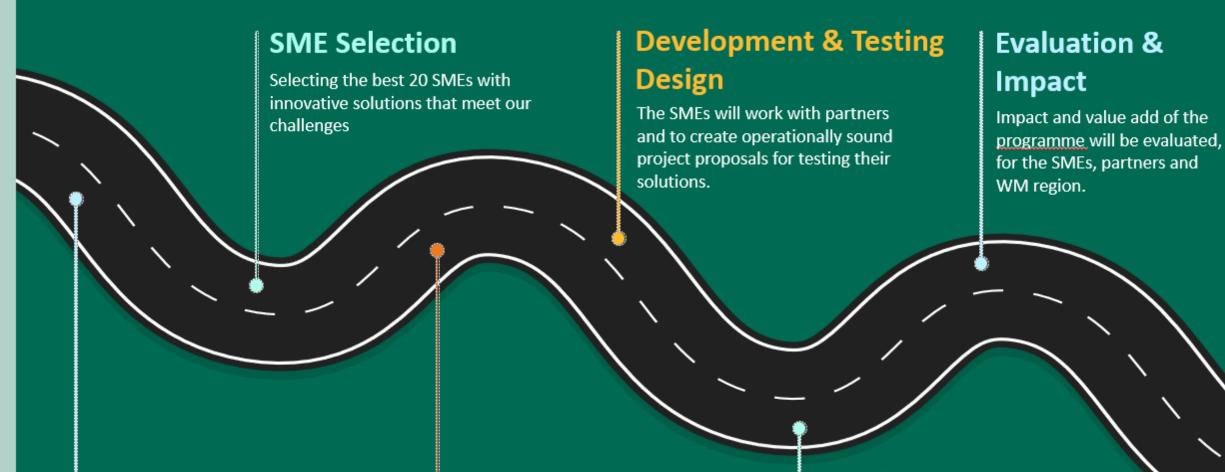


# **G** CLEAN FUTURES

Supporting the West Midlands to be at the heart of the Green Industrial Revolution



## **ROAD MAP**



**Challenge Setting** 

Working with our ecosystem to select addressable market challenges that will achieve maximum impact **Catalyst Launch** 

Introducing our community that will foster collaboration and unearth opportunities and create our legacy.

Development & Testing Delivery

SMEs will carry out their development and testing projects in collaboration with partners. Commercial support will be delivered.

## **BENEFITS**

#### We're excited to work with you!

Gain access to front line innovation and industry insight that will accelerate your business.

 Up to £50k cash contribution for development and testing

- Use of world leading test facilities from BCIMO and Coventry University
- Join a community to forge new collaborations

- Commercial support to help your business grow
- Opportunity to showcase solutions to key industry stakeholders
- Increase investment readiness

- Insights from buyers and supply chain
- Access to cutting edge research
- Respond to real world challenges from industry leaders



## CLEAN FUTURES ACCELERATOR BCIMO WINNERS SUPPORT PACKAGE

#### Commercialisation Support Package (up to 10 days of support)

- Up to 10 days of specialist rail support focused on commercialising your product into the rail sector
- Facilitated client & partner introductions on site
- A profile-raising advert / feature in Rail Business Daily
- A video demonstrating the SMEs technology and journey at the centre

#### Engineering Support Package (10 days of trial & demonstration support)

- Access to the Rail Development and Test Site facilities for trial & testing
- Bespoke support to develop a trial & demonstration plan
- Engineering support to trial & demonstrate your technology solution on site

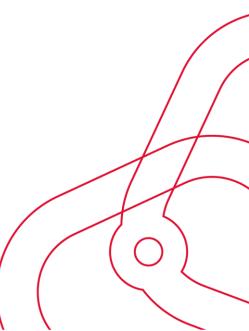
#### Additional Services & Support (over the project lifetime)

- Free access to the Commercial & Investor Hub
- Free access to hotdesking facilities in the Clean Futures SME collaboration space
- Access to support with an allocated SME Development Manager
- Discounted access to our wider Meeting, Conference and Event spaces









#### 14:15 - 14:30

### RAILWAY INDUSTRY ARCHITECTURE



#### Name:

Alec Gillham

#### *Job Title:*

Strategic Development Manager

#### Organisation:

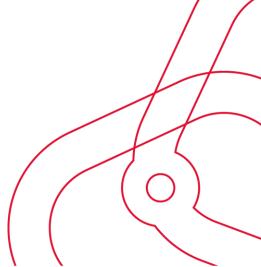
Black Country Innovative Manufacturing Organisation

#### Contact Details:

- www.bcimo.co.uk
- Alec.Gillham@bcimo.co.uk
- 07928 778175

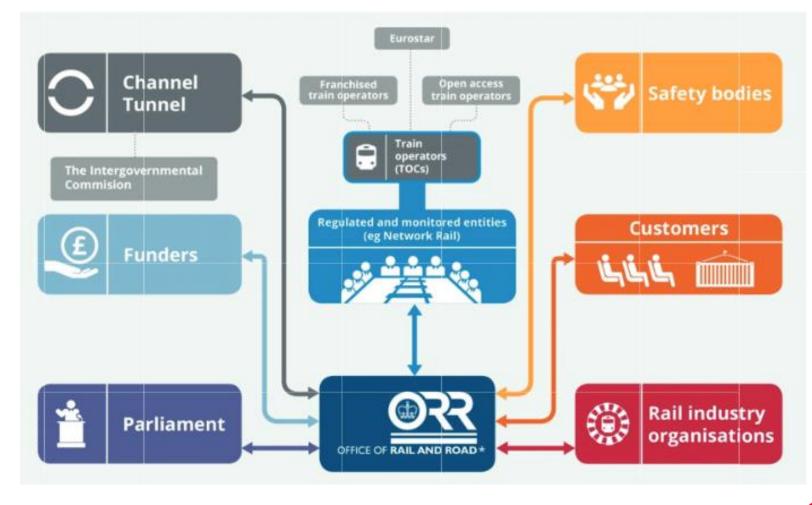






### RAILWAY INDUSTRY ARCHITECTURE

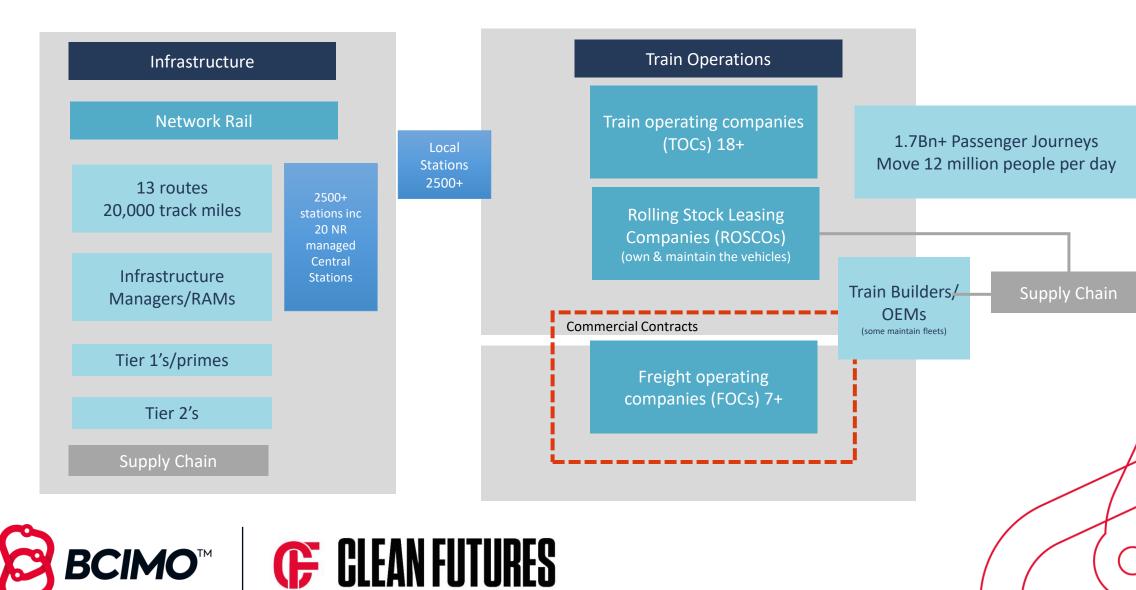
**UK RAILWAY ECOSYSTEM** 







### RAILWAY INDUSTRY ARCHITECTURE



#### RAILWAY INDUSTRY ARCHITECTURE UK Railways - Regulation **HM** Treasury **Dept for Transport** Welsh Government Scottish Government Transport Scotland **Transport for Wales** Office of Rail & Road – Economic Legislation Network Rail HQ Office of Rail & Road – Safety Legislation NR Infrastructure NR Regions: Train Operators: Projects: Signalling Eastern Franchised Track Thameslink London North- Western Freight Scotland & NE Open Access Scotland **NR Telecoms** Central Southern Southern Western & Wales West & Wales **NR Property** Framework Contracts Works Delivery Contracts: Framework Contracts Framework Contracts Facilities Management Planned Tendered Works **Tendered Works Tendered Works** Tier 2 + SME Supply Chain Opportunities





## RAILWAY INDUSTRY ARCHITECTURE CONTROL PERIOD 7

- Decentralised management of 5 regions £44Billion
- Each now has a regional MD
- Regions support the respective routes, 13 nationally
- 'A number' of NR services will be decentralised
- Product Acceptance remains a central function, led by the needs of routes / regions ( x no. Engineering leads > 13 RAMs)
- Greater agility in delivering NR's technical strategy
- More responsive to 'bottom up' innovation
- Better suited to local suppliers
- Lowers risk of 'fatigue'
- Closer to customers; better service for passengers
- N.B. detail subject to confirmation restructuring 'problematic'





(CP7): 2024-2029



#### 14:30 - 14:45

### INTRODUCTION TO CHALLENGE THEME 3



#### Name:

Alec Gillham

#### *Job Title:*

Strategic Development Manager

#### Organisation:

Black Country Innovative Manufacturing Organisation

#### Contact Details:

- www.bcimo.co.uk
- Alec.Gillham@bcimo.co.uk
- 07928 778175







## INTRODUCTION TO CHALLENGE THEME 3 CHALLENGE STATEMENT

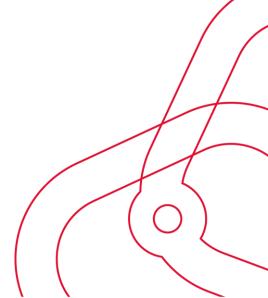


### Challenge Theme 3 – Road Freight Alternatives

Design or produce systems or sub-systems enabling alternatives to traditional road freight, including using existing infrastructure, facilitating multi-modal freight transportation and exploring shared transport solutions.









### Description

We aim to reduce road-based freight movements which are some of the largest sources of emissions today. To do this, we wish to develop alternative, cleaner modes of freight. This can be achieved through leveraging existing infrastructure such as rail, as well as leveraging multi-modal transportation. Finally, we aim to optimize capacity utilisation of infrastructure and assets through shared transport solutions combining freight and passenger transport.







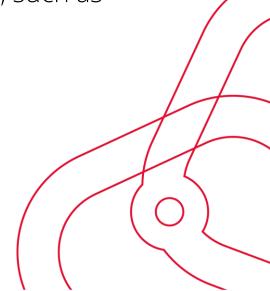


#### Solutions include:

- Innovations contributing to rail-based freight planning to improve the planning infrastructure of heavy rail to encourage the use of freight, without negatively impacting passengers
- Solutions to use people transportation for freight, especially when capacity is available
- End-to-end tracking of freight across multi-modal transportation
- Enablers of multi-modal transportation by connecting the modes for freight, such as parcel transfers from a train to a tram or a bus
- Micro-mobility for last-mile freight deliveries









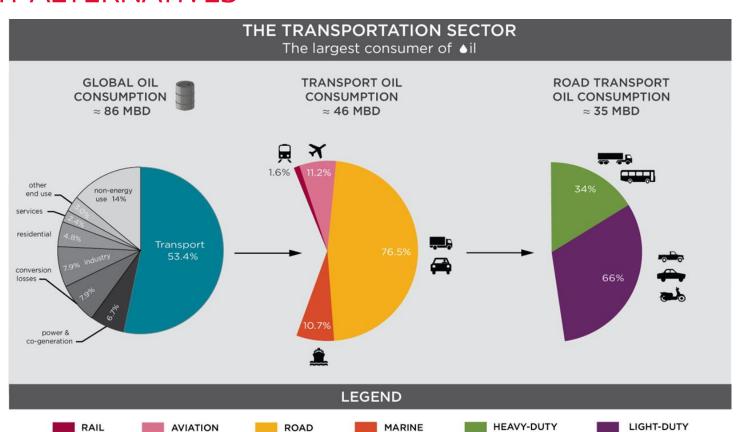
#### Solutions also include:

- · Local manufacturers producing components for traditional infrastructure rail/road
- Use of alternative materials which are more sustainable or cost effective
- Lightweighting solutions or components i.e., reduce manual handling, embodied carbon
- SMEs solving challenges through innovation i.e., express logistics, last mile delivery
- Manufacturers of solutions to improve utilisation of existing transportation infrastructure
- Collaborative business involved in consortia to address the challenge theme
- · Disruptive technologies aimed that utilise of digitalisation and big data









**VEHICLES** 

**VEHICLES** 

Data Source: 2011, International Energy Agency - www.iea.org/etp



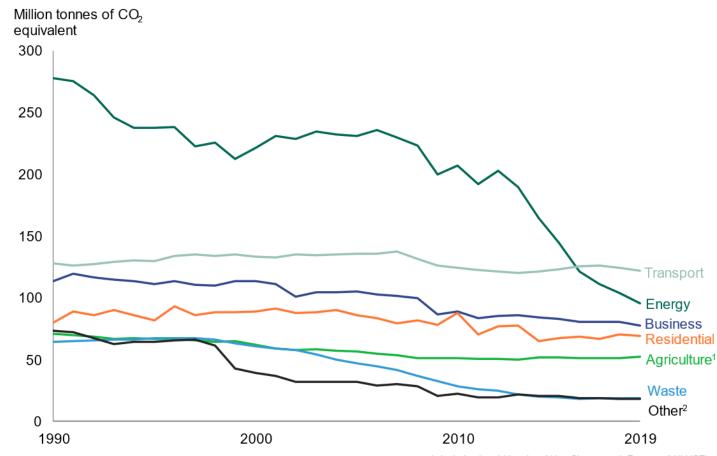






### INTRODUCTION TO CHALLENGE THEME 3

### ROAD FREIGHT ALTERNATIVES





<sup>2.</sup> Includes emissions from Public and Industrial Processes





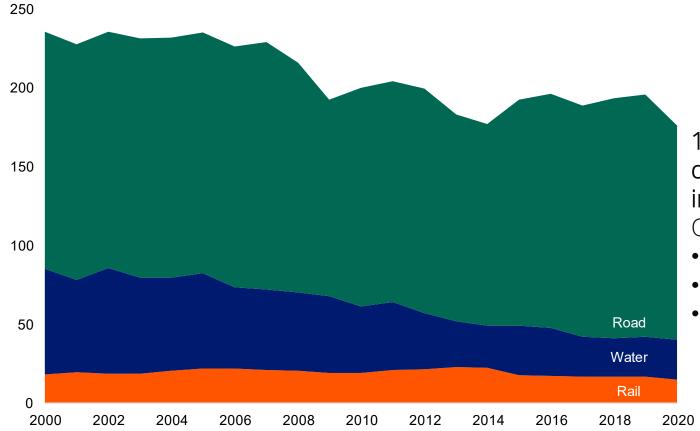


### INTRODUCTION TO CHALLENGE THEME 3

### ROAD FREIGHT ALTERNATIVES







176 billion tonne-kilometres of domestic freight were moved in the UK in 2020.

#### Of which:

- 77% was moved by road
- 14% was moved by water
- 9% was moved by rail









#### A greener future with rail freight:

To hit national decarbonisation targets and achieve net-zero, we must all invest in rail freight. That's why the government is backing the shift of freight from road to rail – even offering funding for businesses to make the switch through Mode Shift grants2. It's been well publicised that each freight train removes 76 lorries from our roads, which could result in around 1 billion fewer Heavy Good Vehicles (HGV) miles every year3

#### But it's not a case of road vs rail:

The greenest supply chains use the best transport option for each stage. On land, rail is the most sustainable option for doing more of the long distance, heavy lifting, while lorries and vans – ideally, electric vehicles – are best placed to cover the last mile (or even the last 10 or 20 miles)







### INTRODUCTION TO CHALLENGE THEME 3 THE VITAL ROLE OF BRITAIN'S RAIL FREIGHT









### 14:45 – 15:15

### INDUSTRIAL PRESENTATION ON THE CHALLENGES & OPPORTUNITIES



#### Name:

Phil Read

#### *Job Title:*

Managing Director

#### Organisation:

Varamis Rail

#### Contact Details:

- www.varamis.co.uk
- Phil.Read@@varamis.co.uk
- 07584 505021







## Varamis Rail

### Phil Read

**Managing Director** 

"The UKs Newest Rail Freight Operator"



## **Our Vision**

To deliver a fully-electric high-speed rail logistics service moving parcels & light goods around the UKs electrified rail network, whether this is linking purpose-built rail hubs or directly into towns/cities.

Varamis Rail is promoting the 'trunk' mileage of parcels/goods distribution with a fully-electric train supported by a network of regionalised sustainable transportation solutions.

# Our Train

Before.....



After.....



# **Our Locations**

Mossend Down Yard - Glasgow



Birmingham International



Utilising infrastructure and facilities already in place......

# Challenges and Opportunities

### Challenges

- Regulatory process
- Perception that rail is slow, unreliable and costly our PoC has proved the opposite
- Large companies are not agile enough to respond quickly to change SME's are more responsive
- Logistics sector traditionally uses pallets to move products; a solution created for road haulage
- Education and mindset.

#### **Opportunities**

- All companies have sustainability targets Varamis Rail is the only fully-electric, high speed parcel delivery service in the UK offering an immediate co2 reduction to any current logistics operation
- Varamis Rail can expand its service across the railway infrastructure and increase the sustainability benefits we offer - the service is incredibly scalable
- Looking to supplement the train service with last-mile sustainable delivery solutions; cargo bikes, Evs etc.

#### Routes to Market

Target Market: The smaller logistics companies and parcel carriers who move packages and light goods around the country; lightweight, high-volume is our service offering.

## Our approach includes;

- 1. Stakeholder engagement
- 2. Direct Sales
- 3. Publications
- 4. Social Media
- 5. Website
- 6. Strategic Partnerships with Urb-it, Carousel and XPO

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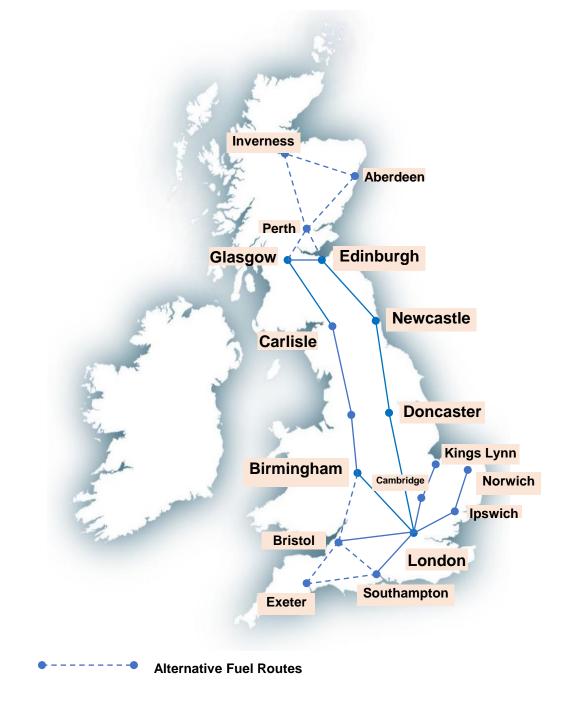
# Commercialisation

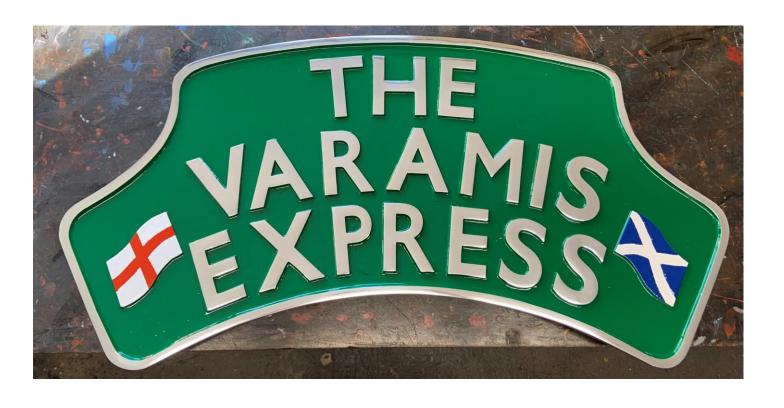




### The Future

- To serve more towns & cities
- Sustainable first & last mile deliveries
- New high-speed freight trains
- Fresh produce, ie milk, dairy etc
- Other clean train power solutions
- High-Speed parcel trains into EUROPE!!





Thank you.

M: 07584 505021

E: phil.read@varamis.co.uk

T: @RailVaramis www.varamis.co.uk

# 15:15 – 16:30

# **BCIMO FACILITIES TOUR**



#### Name:

Tony Joy

### *Job Title:*

Head of Engineering

# Organisation:

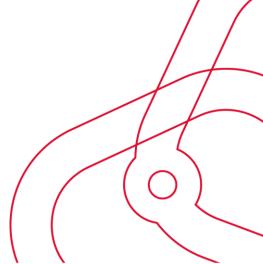
Black Country Innovative Manufacturing Organisation

#### **Contact Details:**

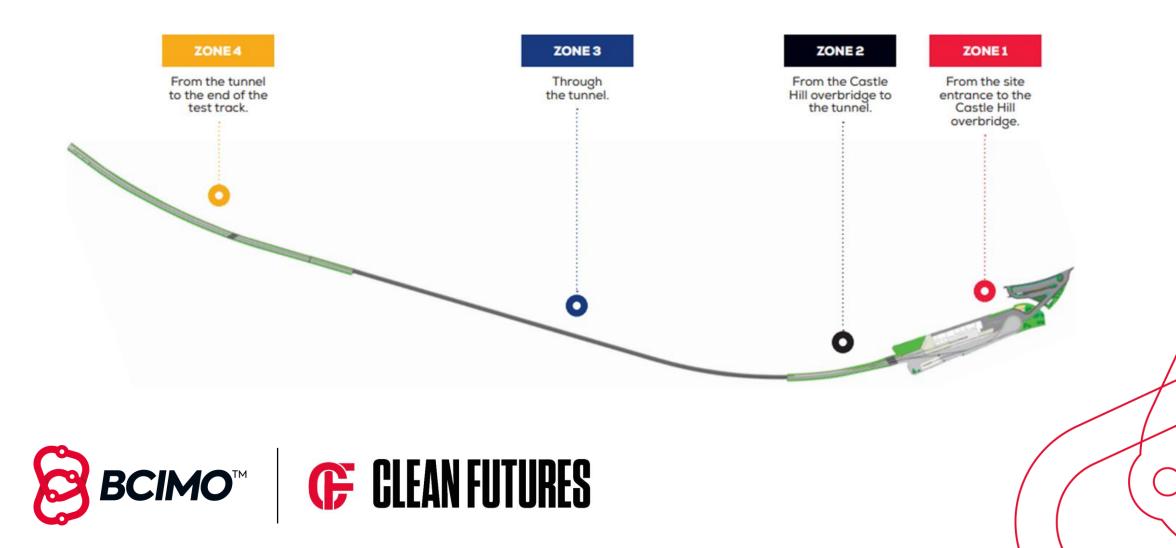
- www.bcimo.co.uk
- Tony.Joy@bcimo.co.uk
- 07771 428902





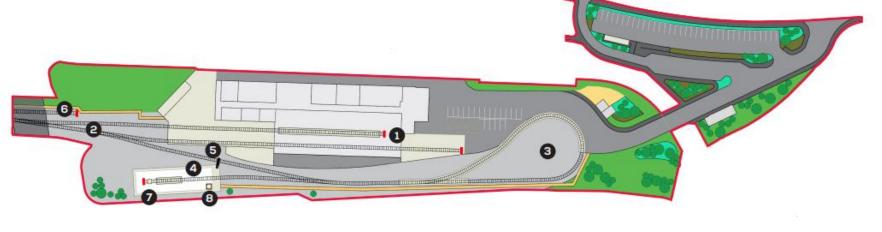


# BCIMO FACILITIES TOUR INTRODUCTION TO THE RAIL DEVELOPMENT & TEST SITE (RDTS)



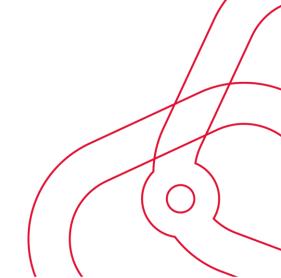
# BCIMO FACILITIES TOUR RDTS SAFETY INDUCTION (WORKSHOP & TEST TRACK)

# **ZONE 1** Engineering Hall & Test Labs Test Track 1 Test Loop Workshop Rapid Charger Siding Shunter Lifting Jacks

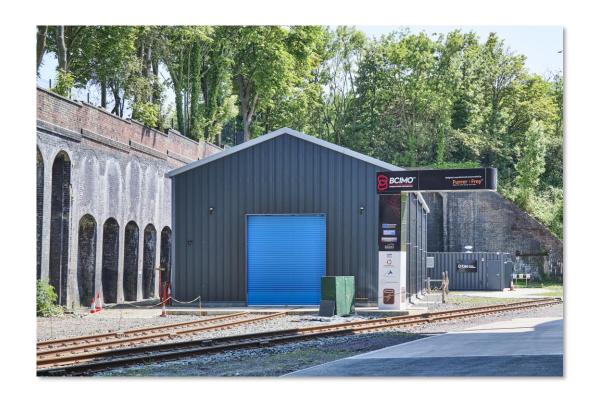








# BCIMO FACILITIES TOUR RDTS SAFETY INDUCTION (WORKSHOP & TEST TRACK)









# BCIMO FACILITIES TOUR RDTS SAFETY INDUCTION (WORKSHOP & TEST TRACK)

- A hi-vis vest needs to be worn when walking from the VLRNIC to the Workshop via the safe walking route.
- You must take special precautions when crossing the track using the level crossing. There will be occasions when there are rail vehicle movements along the Test Track and the level crossing.
- Pay attention to all barriers and warning signs. If there is a barrier, stop and look for vehicle movements.
- If there is a vehicle moving you must wait for the driver to sound the horn, raise your hand so that he knows you are there and wait for the vehicle to pass before you proceed to walk across the level crossing.
- After entering the Workshop sign into the visitors' book.
- The fire alarm is tested on Mondays at 11.30am. This will sound for less than 1 minute.
- Fire exits are clearly marked and located around the Workshop.







# BCIMO FACILITIES TOUR RDTS SAFETY INDUCTION

- On hearing the fire alarm, make your way to the emergency muster point, located in the Upper Car Park. There are two safe walking routes to the Upper Car Park, one behind the building beside the Tipton Road wall and one in front of the Workshop using the level crossing. Use the safest route.
- If you discover a fire, break the glass at the nearest call point to sound the alarm and make your way to the emergency muster point.
- At the emergency muster point the allocated fire warden will take a register to ensure 100% attendance.
- The allocated first aider will also administer first aid where required.
- If an accident occurs in the Workshop or on the Test Track this must be entered into the accident book in the Workshop.
- No unauthorised photographs are to be taken in the Workshop.
- When working in the Workshop appropriate PPE should be worn for the task being undertaken. For example. When entering the pitted area, minimum PPE requirements are hi-vis vest/top, safety boots, hard hat/bump cap and safety glasses.







# BCIMO FACILITIES TOUR RDTS SAFETY INDUCTION

- Before using any chemicals on site, you should read the COSHH sheet and wear the appropriate PPE required.
- Care is to be taken when moving around the Workshop and Test Track as vehicle movements are to be expected.
- All vehicle movements will be carried out by authorised personnel ONLY.
- Vehicle movements will be coordinated by the Site Supervisor.
- The Site Supervisor will brief visitors on any planned train movements on the day of arrival.
- Directional points on the Test Track are to be operated, locked/unlocked by authorised persons ONLY.
- When accessing the Test Track use Safe Walking routes when available, minimum PPE requirements are hi-vis vest/top, safety boots and hard hat/bump cap.
- You must take special precautions when crossing the track. Anyone who does NOT hold a personal track safety (PTS) certificate or have not been authorised by the Site Supervisor must be escorted by someone with PTS certification.







# 16:30 - 17:00 WRAP UP AND CLOSE



#### Name:

Naomi Arblaster

## *Job Title:*

Head of SME Development

## Organisation:

Black Country Innovative Manufacturing Organisation

#### **Contact Details:**

- www.bcimo.co.uk
- Naomi.Arblaster@bcimo.co.uk
- 07780 510695











