

Future Highways Research Group

# FHRG Waypoint Meeting: 19 May 2022

**ADEPT / Proving Research Partnership**



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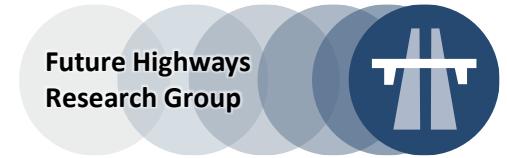
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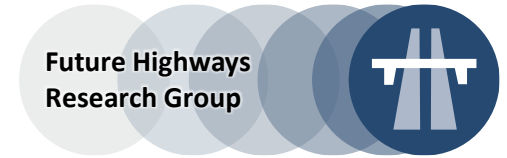
# Agenda



- **Welcome & Introductions (Hannah Bartram)**
- **Sector News (Dominic Browne, Editor, Highways Magazine)**
- **FHRG Members Updates (Open Discussion)**
  - Individual Members News & Announcements
  - Issues & Challenges for Highways Authorities In 2022
- **VfM Benchmarking Club**
  - 2022 Update
  - *Andy Perrin (Benchmarking Leader)*
- **Human Capital Survey Update**
  - Update & Early Indicators
  - *Karen Farquharson (Research Theme Lead)*
- **National Highways: Research & Innovation Briefing**
  - The National Highways Innovation & Research Strategy
  - Research & Innovation Projects
  - M&R Working in a Mixed Economy: Transition from MACs to AD
  - Productivity to Support Net Zero Challenge
  - *Phil Proctor (Head of Research), Dr Annette Pass (Head of Innovation), Martin Perks (Commercial Director)*

# Agenda

Continued...



- **National Forum for Highways Research: Future Research Sharing**
  - Objectives & Proposed Structure
  - *Simon Wilson (FHRG Research Programme Director)*
- **Calculating Social Value for Highways Services & Schemes**
  - Research Proposal
  - *Dr Elizabeth Newman-Earl (e50k)*
- **Scope 3: Research Programme**
  - Update & Open Discussion
  - *Simon Wilson (FHRG Research Programme Director)*
- **Beyond Scope 3: Future Programme Stages**
  - ECI, Carbon Initiatives & Carbon Footprint Benchmarking
  - *Simon Wilson (FHRG Research Programme Director)*
- **Proposed Roundtables**
  - Topics Review
  - *Andy Perrin, Karen Farquharson (Proving)*
- **A.O.B. & Next Meeting**
  - *Andy Perrin (Proving)*



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# Sector News

Dominic Browne, Highways Magazine





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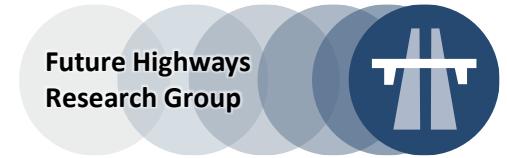
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# Member Updates: Open Discussion

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# Discussion Points



- **9% - 11% Inflation.**
  - Costs of supply chain materials and services?
  - Pressure on sector salaries?
- **Post COVID road usage patterns.**
  - Have traffic / commuter patterns changed?
- **Climate change.**
  - Is there strong evidence of impact on networks?
- **Electric vehicle infrastructure.**
  - “...significant barrier to electric vehicle adoption.” (Telegraph)



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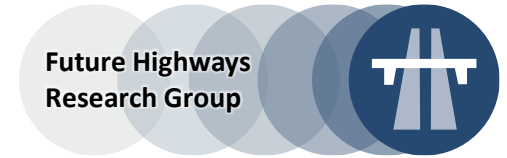
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# VfM Benchmarking Club: Updates

**Andy Perrin, Benchmarking Club Leader**

# Update



- **19 VFM assessments now undertaken or scheduled across the FHRG membership since January 2021.**
- **A number of trends emerging, most notably**
  - Regardless of current performance, recruitment and retention is an ever increasing challenge for all members
  - The best performers all exhibit a strong client/commissioning function.
  - The trend towards mixed economy solutions continues.
- **Full update on outcomes and emerging trends will again be taken to the autumn FHRG meeting.**





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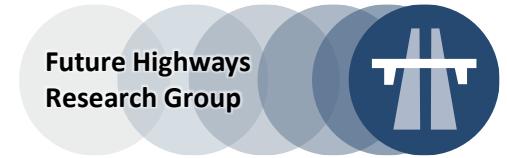
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# Human Capital Management: Survey Update

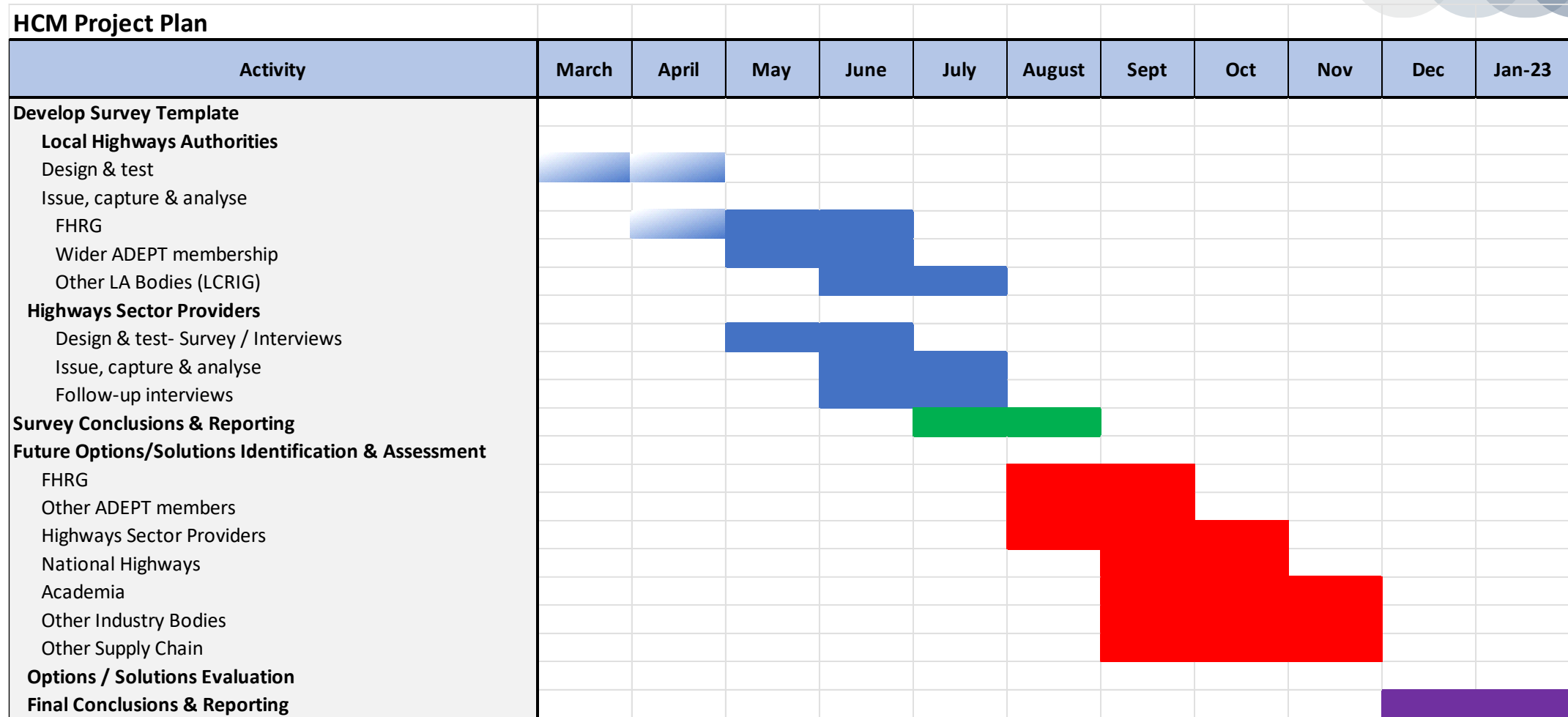
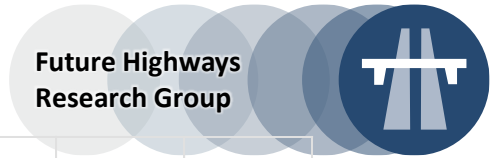
Karen Farquharson, Research Leader

# HCM Research Project- Progress & Next Steps

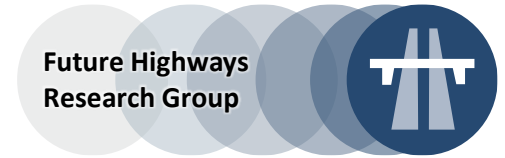


- 1. 20 FHRG Members have submitted their surveys.**
  - Ask all members to respond.
- 2. Through ADEPT, survey will be sent to all non-FHRG Highways Authorities.**
- 3. Currently tailoring the survey to be sent to Private Sector providers (ADEPT partners).**
  - To be issued June 2022.
- 4. Survey findings to be published July 2022.**
- 5. FHRG roundtable discussions to identify, share and debate possible solutions to commence July 2022.**
- 6. ADEPT Leadership Team agreed to act as a conduit to wider sector and DfT.**
  - ADEPT Autumn conference used as a platform to propose, debate, develop and agree proposed solutions.

# HCM Project Plan



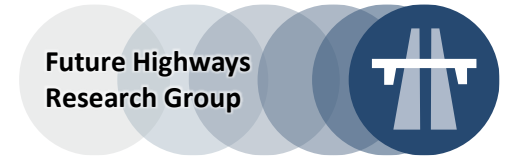
# HCM Survey – Interim Findings



Role	Vacancies %	Agency / Outside IR 35%
Engineer/ Technician/ Specialist	27%	18%
Service/Function Manager	28%	13%
Services Commissioner/Asset Manager/Planner	15%	5%
Professional/Design/Contract Support/Project Managers	14%	16%
Customer Services/Community Engagement/Communications	12%	1%
Graduate Trainees	10%	-
Apprenticeships	12%	-

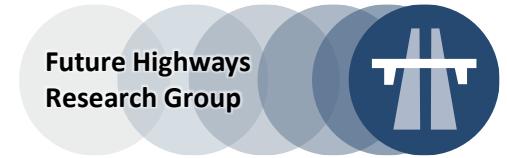


# HCM Survey – Interim Findings (cont..)



- **76% of workforce are men.**
- **84% (if provided) are White - British, European or other.**
- **Age profile**
  1. 12% - 30 and Under
  2. 23% - between 31 and 40
  3. 29% - between 41 and 55
  4. 36% - 56 and over
- **Top 3 reasons it is difficult to recruit:**
  1. Pay and conditions (90%)
  2. Fewer people choosing a career in the public sector (90%)
  3. Competing opportunities within the sector (70%)

# HCM Survey – Interim Findings (cont..)



- **Future skills required: (all responders)**

1. Design/repurposing highways (modes of transport/EV infrastructure)
2. Digital (e.g. smart highways)
3. Environmental/sustainability
4. Carbon reduction/zero carbon
5. New materials and recycled materials
6. Communications and community liaison specialists

- **Accessing future skills:**

1. Permanent recruitment (100%)
  - Cost / attractiveness?
2. Specialist consultancies (70%)
3. Through frameworks (60%)
4. Through private sector partner or agency (50%)
5. Shared resource with other authority (20%)



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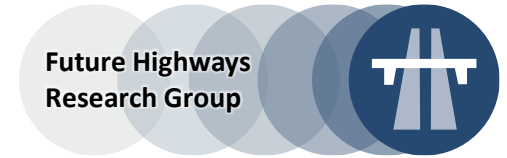
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# National Highways: Research & Innovation Briefing

Future Highway Research Group

# National Highways: Research Collaboration



- **Understand the research being undertaken on the strategic route network.**
  - And how this work could benefit local roads.
- **Share FHRG research outputs with National Highways.**
- **Establish bi-lateral communications between FHRG members and National Highways.**
- **Explore joint research activities.**
  - *See National Forum for Highways Research.*





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# National Highways: Research & Innovation

Phillip Proctor, Annette Pass, Martin Perks



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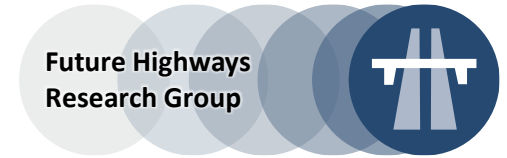
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# National Forum for Highways Research: Research Sharing

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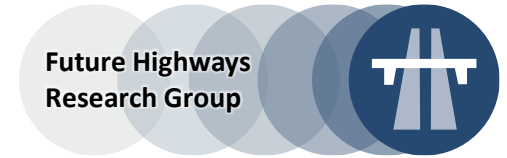
# Proposed Participants



- National Highways
- Future Highways Research Group (FHRG)
- Association of Directors of Environment, Economy, Planning and Transport (ADEPT)
- Chartered Institution of Highways and Transportation (CIHT)
- Civil Engineering Contractors Association (CECA)
- Local Government Technical Advisers Group (LGTAG)
- Local Council Roads Innovation Group (LCRIG)
- Academic Partners (UCL / Imperial / Exeter)
- Highways Magazine & Highways UK (As Publishing & Events Partners)
  
- **Next steps: agree terms of reference, scope and goals.**
- **Bi-annual meetings at Cranfield School of Management**
- **Co-ordinate and share research insights; accelerating research and finding real-world applications.**
- **Access learning and expertise.**

# Unified Research Themes

## A Strategically Aligned Programme



Revised Research Themes & Options	
1	<b>Value for Money Benchmarking &amp; “Big Picture” Analytics</b> ◆ ■
2	<b>Financial Resilience</b> (Income Generation, Cost Saving & Costs Offsetting) ■
3	<b>Private Sector Engagement, Procurement &amp; Mutuality</b> ■
4	<b>Climate Change, Clean Air &amp; Carbon Reduction</b> ■
5	<b>Connected Economy, People, Assets &amp; Smart Places</b> ■
6	<b>Human Capital Management</b> (Sector Skills & Resources Development) ◆
7	<b>New &amp; Recycled Materials, Equipment &amp; Methods</b> ◆
8	<b>Optimum Operating &amp; Services Delivery Models</b> (Strategic Goals Realisation) ◆
9	<b>Network Resilience &amp; Load / Demand Management</b> ◆
10	<b>Creating &amp; Measuring Social Value &amp; Local Economy Benefits</b> ■
11	<b>Effective Stakeholder Engagement, Intelligence Gathering &amp; Communications</b> ■
12	<b>Intelligent Mobility &amp; Integrated Transport Systems Planning &amp; Optimisation</b> ◆

◆ New Research Theme ■ Enhanced Research Theme

Template Business Case Development	
A	Option definition (description and scope).
B	Structural changes and enablers.
C	People, processes and systems changes.
D	Strategic and political rationale.
E	Whole life costs (including impact costs*).
F	Cashable business benefits.
G	Non-cashable business benefits.
H	Dis-benefits.
I	Implementation and operational risks.
J	Impacts on stakeholders and communities.
K	Sector readiness and barriers to success.
L	Retreat options.

\*Environmental, social, reputational and political costs.



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# 10 Minute Break

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# Calculating Social Value

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# e50K

CONSULTANCY

e50K Ppl, Place and Space Creative Agency -  
making connections driving innovations

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23



e50K



# The e50K Research Team



**Dr. Elizabeth Newman-Earl**  
Partner  
Research Director



**Dr. Sinead Sibley**  
Director  
Research Director



**Quincey Ankrett**  
Director  
Delivery & Impact  
Analysis

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**Ella Cartwright Terry**  
Senior Associate  
Research



**Nikki Kemp**  
Senior Associate  
Community  
Engagement



**Rachael Ladd**  
Director  
Design & Procurement



# Creating and Sustaining Social Value for Highways



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25



# The UK Government's definition of Social Value

“Social value is defined through the Public Services (Social Value) Act (2013) which requires all public sector organisations and their suppliers to look beyond the financial cost of a contract to consider how the services they commission and procure can improve the economic, social and environmental wellbeing of an area.”

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<https://www.local.gov.uk/our-support/financial-resilience-and-economic-recovery/procurement/achieving-community-benefits>

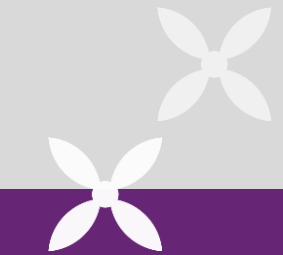
# What is Social Value?



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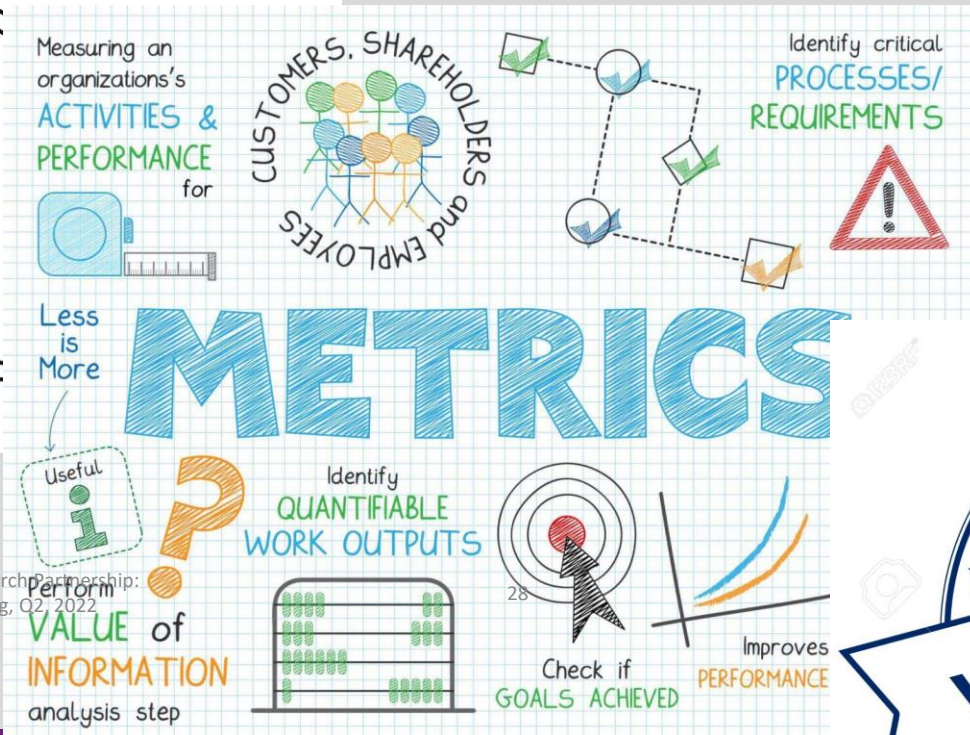
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# How to Value Social Value



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# Research Proposal

How is Social Value currently viewed, valued and implemented?

What does the collective sector want to achieve?

How do we realise these ambitions and how do we measure Social Value to see if we are achieving them?



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# Outputs & Benefits

Industry benchmark of the relevant valuation of Social Value

Industry wide agreement on the value of Social Value

A metrics system that works for all:

- Local Authorities
- Local and national communities
- Local enterprise partnerships
- Sub-national transport bodies
- Corporate partners

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# Highways Specific Outcomes



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# Final Thoughts

This programme of work must have an outcome that is accepted by all – it cannot work in isolation

Partners have to be engaged from the beginning of the process, e50K is not here to solution on the industry's behalf. It is here to work with the industry to create a viable metrics that can be sustained

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**For further discussion please contact me on**

**[elizabeth.newmanearl@e50k.org.uk](mailto:elizabeth.newmanearl@e50k.org.uk)**

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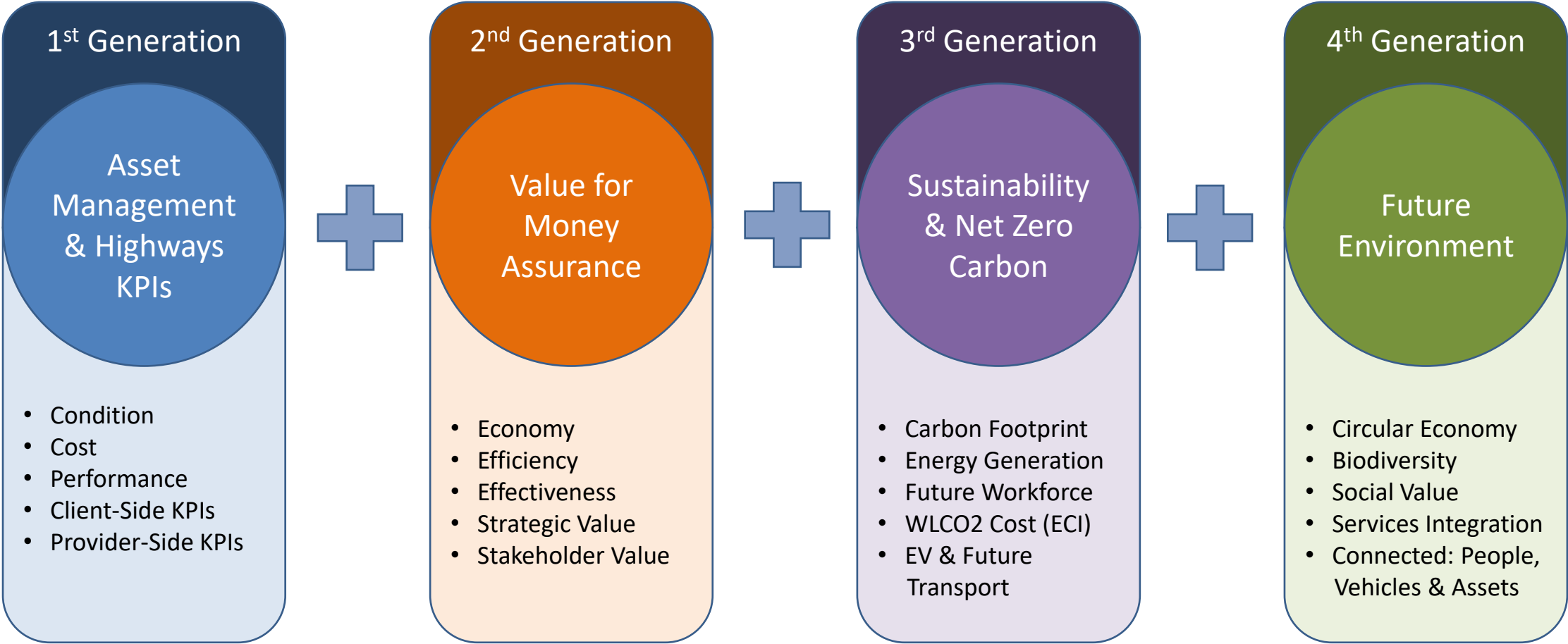
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# Scope 3: Progress Update

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# Supporting Future Decisions





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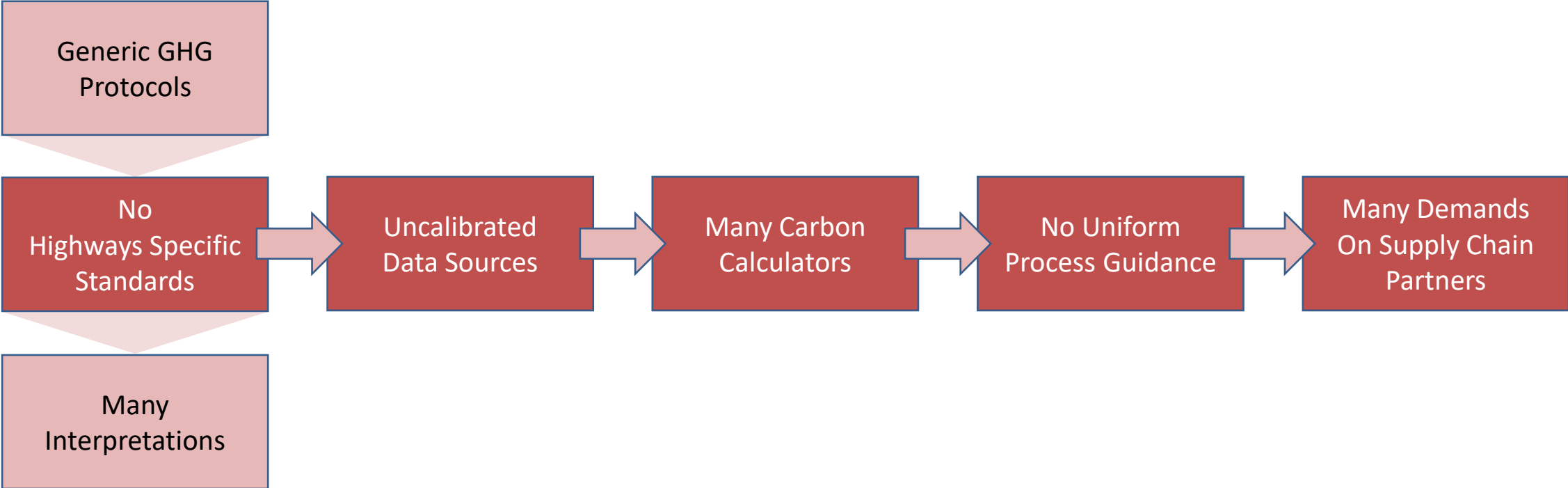
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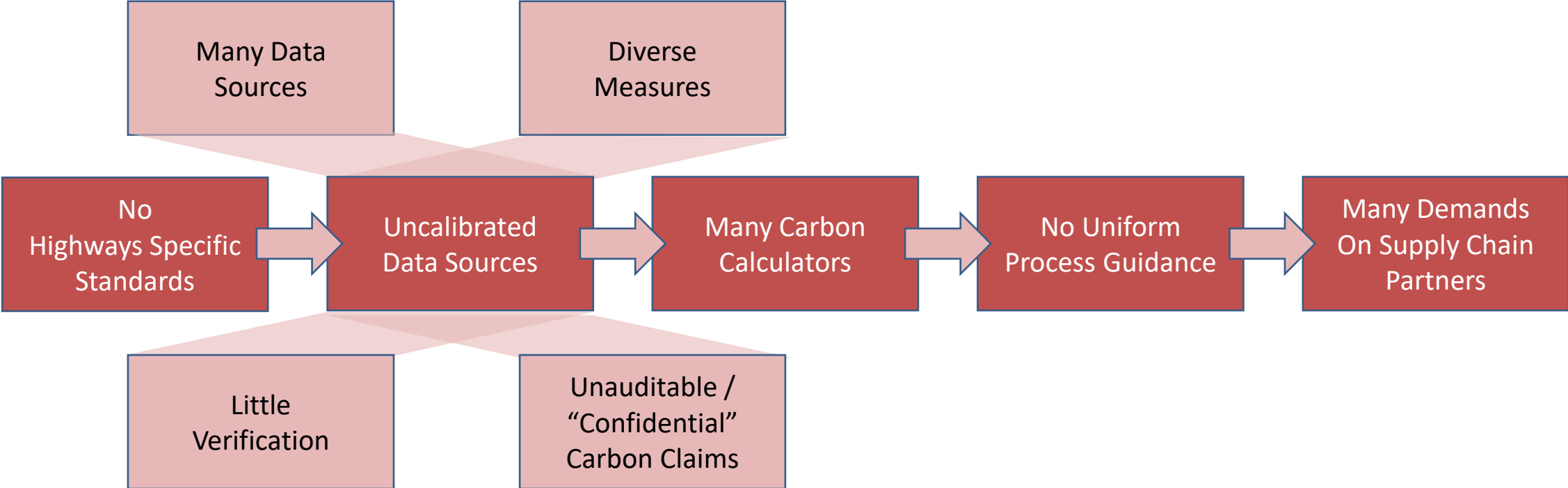
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# GHG Scope 3: Findings To-Date

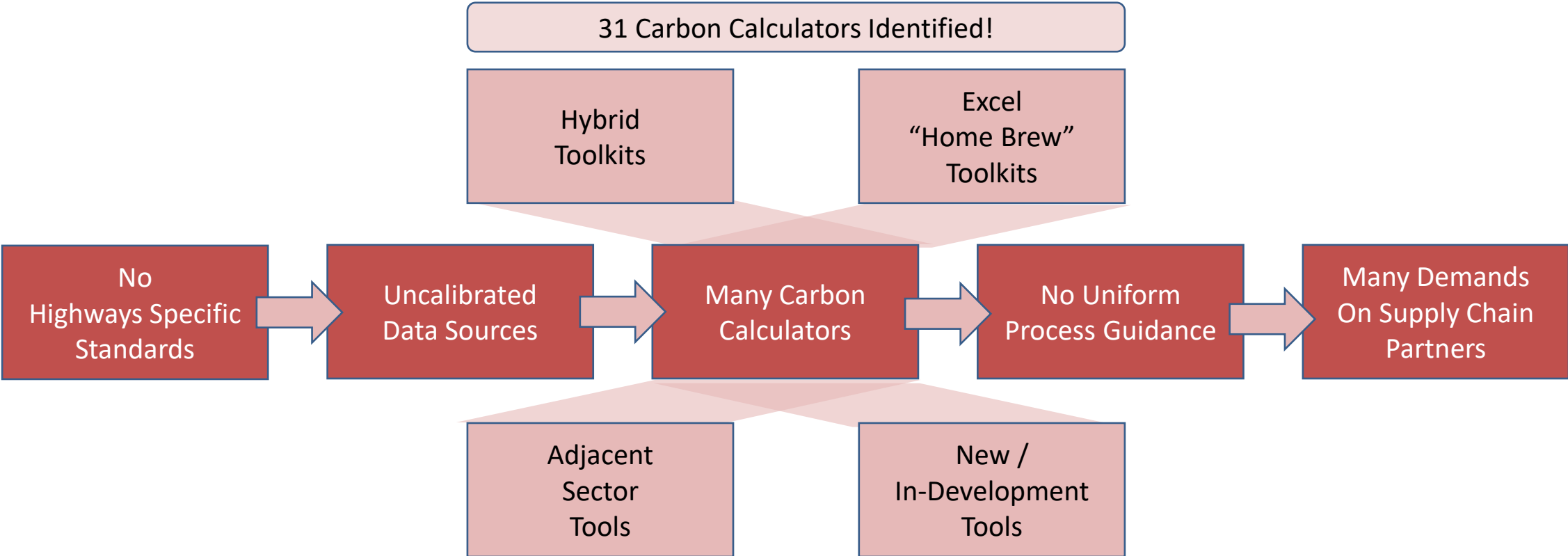
# Scope 3 is complicated...



# Scope 3 is complicated...

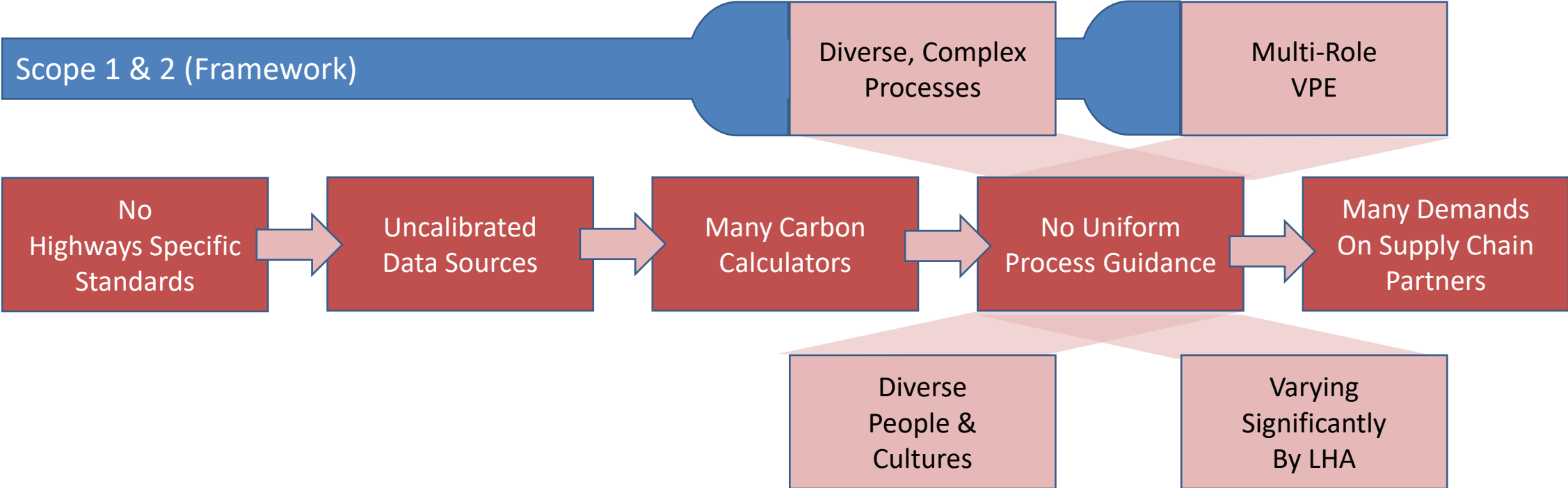


# Scope 3 is complicated...

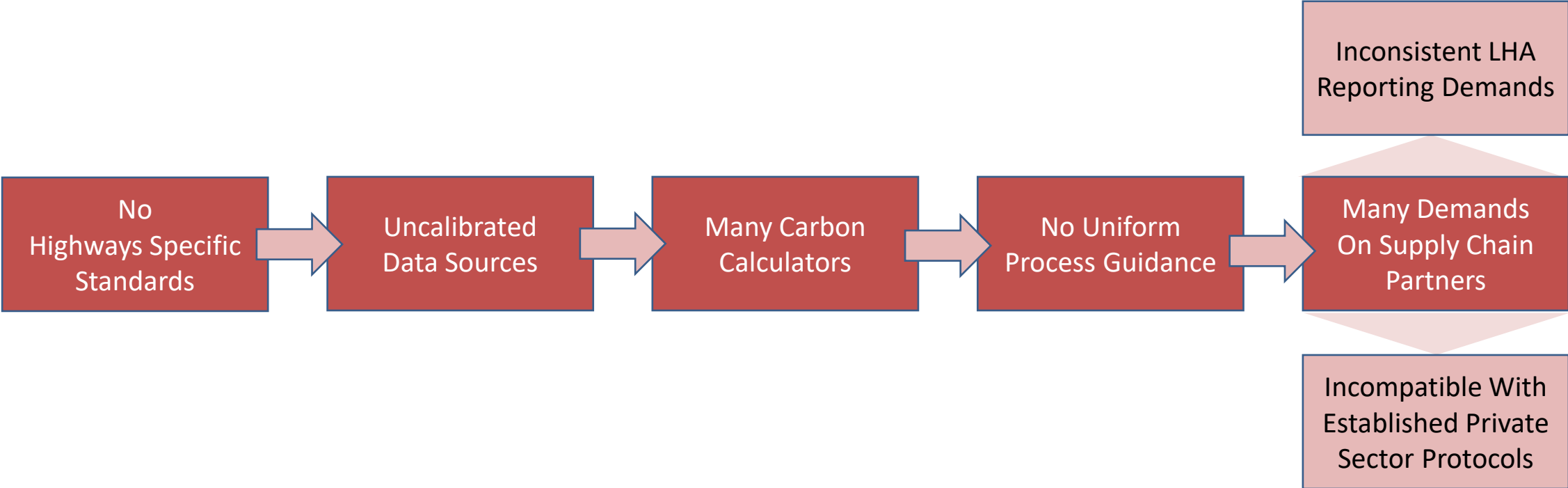




# Scope 3 is complicated...



# Scope 3 is complicated...





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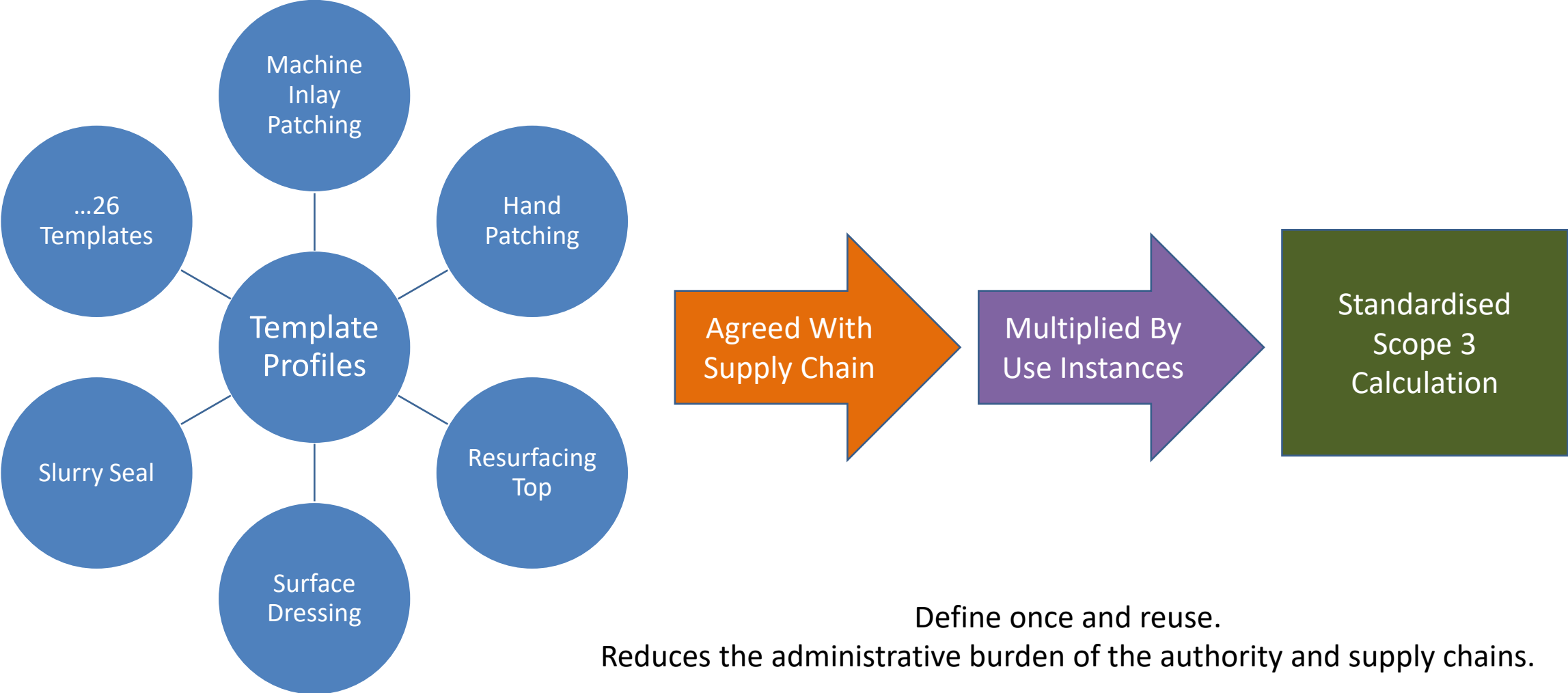
# Scope 3: Proposed Approach

# Simplifying A complex Process

- **Purchased Services: Office-Based Design & Consultancy**
  - Supply Chain Scope 1, 2 & 3
- **Materials Use (Virgin / Recycled)**
  - Inventory & Classification (What & Where Data?)
  - Use (Job Specific)
  - Transport of Materials
- **Vehicles, Plant & Equipment Use**
  - Inventory & Classification (What & Where Data?)
    - There is no current shared data source for EF for plant / equipment.
  - Embodied Carbon? (VW/DL)
  - Use (Job Specific)
  - Transport (Plant & Equipment Only)
- **Operatives**
  - Transport (People Only, Commuting & Activity Specific)
- **Waste**
  - Garden / Soil (Landfill), Wood (Landfill), Hazardous Waste, General Waste

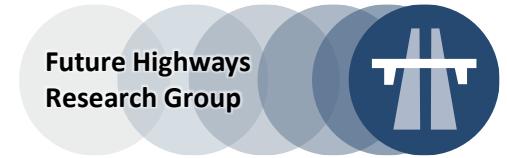


# Scope 3: Effective Analysis / Low Overhead



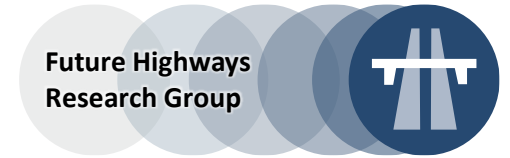
Define once and reuse.  
Reduces the administrative burden of the authority and supply chains.

# Sample Template (Devon / Exeter Model)



<b>Slurry Seal</b>								
<b>INPUTS AND OVERRIDES</b>								
<b>Parameter</b>	<b>Default</b>	<b>Override</b>	<b>Value to Use</b>					
Asphalt type		Asphalt, 5% binder content	Asphalt, 5% binder content					
Asphalt type		"Hot" asph	"Hot" asph	1				
Depth (mm)	10	0	10					
Material travel distance (km or miles)	64.37376	0	64.37376					
Override International Delivery Route for Surface Material (if applicable)		Not	1 note: this applies a multiplier to the materials transport emissions					
% of asphalt reused from local sources		0%	0%					
Reused asphalt travel distance (km)	64.37376	0	64.37376					
Cost (£/m2)	4.5	0	4.5					
Lifetime of Job (years)	8	0	8					
Benchmark Area covered in a shift (m2)		750						
Size of job (m2)		750	750	750				
Number of shifts		1						
<b>CALCULATION</b>								
<b>Category</b>	<b>Item</b>	<b>Value</b>	<b>Units per m2 of job</b>	<b>Carbon Factor</b>	<b>Carbon Factor Units</b>	<b>kgCO2e/m2</b>	<b>% of Total</b>	<b>Comments</b>
Materials Use	Asphalt	0.1	Fraction of	12.895357	kgCO2e/1 m2, per 100mm depth surf	1.290	70%	1msq or 0.001 KG/M Layer thickness of 6-10mm (nominally 10mm) Aggregate 6mm size (85% of the mix) 'Asphalt
Materials Use	Emulsion	1.667	kg	0.221666	kgCO2e/kg	0.369	20%	Polymer-Modified binder - Bitumen Emulsion 'Mineral Oil' (emulsion is modified with styrene-butadiene).10% binder
Materials Transport	Virgin Asphalt delivery	1.530808	tonne.km	0.09824	kgCO2e/tonne.km	0.150	8%	Weight based on material use calculation, assume freight emission factor, distance from global settings - contract
Materials Transport	Reused Asphalt delivery	0	tonne.km	0.09824	kgCO2e/tonne.km	0.000	0%	Weight based on material use calculation, assume freight emission factor, distance from global settings
Plant Use	Pedestrianised bell mixer	0.002667	litres	2.76146	kgCO2e/litre	0.007	0%	2 litres petrol for 500-1000 m2 job (assume negligible plant travel emissions - included in back of van of operative
Operative Travel	3.5T TM truck	0.10729	km	0.3373	kgCO2e/km	0.036	2%	Estimate based on 1 x 3.5 t truck and global travel distances
Waste Transport and Disposal	Waste transport off site	0	tonne.km	0.09824	kgCO2e/tonne.km	0.000	0%	20T lorry (waste), assume freight emission factor, distance from global settings
Waste Transport and Disposal	Waste Disposal	0	tonnes	0	kgCO2e/tonne	0.000	0%	Kiely state waste is negligible
<b>TOTAL</b>						<b>1.9</b>	<b>100%</b>	

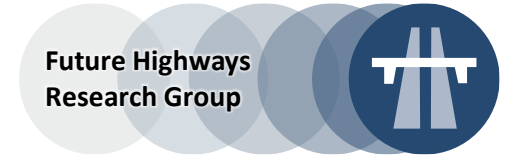
# Approach Discussion



- **Does this “template multiplier” approach work for FHRG members?**
- **Scope of Scope 3 guidance:**
  - Investments, Leased Assets & Franchising
  - Use of sold goods and services.
- **Testbeds**
  - Call for volunteers for concepts testing.
  - High-level discussions (see proposed roundtables).

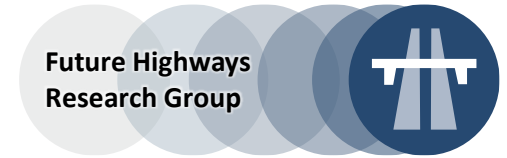
# Agreed Work Packages

## Aligned With Sector Disciplines



- **Work Package #1: FHRG Engagement (Owen Jenkins)**
  - Sector requirements and progress to-date.
  - Define FHRG members' roles.
- **Work Package #2: Standards: Calculators, Algorithms & Data Sources (Simon Wilson)**
  - Review Exeter / Devon and NH carbon calculators.
  - Identify other accounting tools and processes (requiring review).
- **Work Package #3: International & Adjacent Sector Best Practice (Mark Saunders / David Ogden)**
  - Identify International Best Practice.
- **Work Package #4: LHA Carbon Accounting Processes (Victoria Walsh / Daniel Lash, Devon CC & University of Exeter)**
  - Map key processes as process templates.
  - Test with other partners and FHRG members.
- **Work Package #5: Design & Consultancy (Jason Russell / David Lennox, Atkins)**
  - Design and propose a scope 3 framework for design and consultancy services.
- **Work Package #6: Construction & Maintenance (Phil Skegg, Ringway)**
  - Design and propose a scope 3 framework for construction and maintenance.
- **Work Package #7: Materials Management (Mark Saunders, Colas & Phil Skegg, Ringway)**
  - Design and propose a scope 3 framework for materials management.
- **Work Package #8: Training & Cultural Change (Andrew Hugill, CIHT)**

# Proposed LCRIG Collaboration



- **FHRG: Create the standard for LHAs.**
  - Devon / Exeter Model
- **LCRIG produce a carbon calculator to that standard.**
  - LCRIG has built a prototype carbon comparison tool.
  - Ambition is to build a web-based carbon accounting toolkit.





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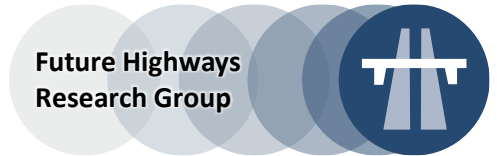
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# Beyond Scope 3

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# Full Programme Overview



Research Project Element	FHRG & Partner Funded	Live Labs II Funded
<b>Carbon Calculation &amp; Accounting Standards &amp; Performance Reporting Framework</b>		
Core Calculation Standards (Scope 3 Carbon Accounting Framework)	✓	✓
Comprehensive Standards (Including Data Sources Calibration)	✗	✓
Scope 3 Standards Compliance Assessment (Core Standards)	✓	✓
Scope 3 Standards Compliance Assessment (Comprehensive Standards)	✗	✓
<b>Scope 3 Guidance (Template Processes for Carbon Accounting &amp; Management)</b>		
Standards & Processes Guidance for LHAs	✓	✓
Extended Guidance for LHAs & Supply Chain Partners	✗	✓
<b>Carbon Calculators</b>		
Core Specification (Devon / Exeter Baseline – Covering 85% of Emissions)	✓	✓
Comprehensive Standards (Covering All Emissions)	✗	✓
Market Review (Assessment of Available Products)	✗	✓
<b>On-Line Library of Carbon Reduction Initiatives</b>		
Free to Access / Use Initiatives Repository	✗	Expanded
Curated, Independently Assessed Initiatives Library	✗	Expanded
<b>Environmental Cost Indicators (ECI)</b>		
ECI Calculation Framework & Applications Guide for Highways Services	✗	Expanded
<b>Carbon Footprint Benchmarking Toolkit</b>		
Benchmarking Assessment Factor Set Development & Calibration	✗	Expanded
Value Analyser™ Assessment Toolkit Development	✗	Expanded
Live Labs II Projects: Carbon Footprint Assessments	✗	Expanded



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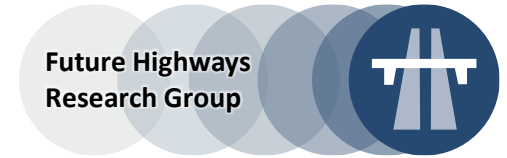
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# Future Roundtables

## Future Highway Research Group

# Proposed Roundtables



- **Scope 3: Standards & Guidance Design Workshops**
  - Supply Chain Partners (Construction & Maintenance / Design & Consultancy)
- **Social Value: Framework Discussions**
- **Human capital.**
  - Exploring options.
- **Using frameworks and alliances (supporting mixed economy).**
  - Future use and benefits.
- **Member Led Roundtables**
  - Suggestions?





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# Next Meeting: Agree Date & Location

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# End of Document

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