



COSTAIN

RDP Conference 2022

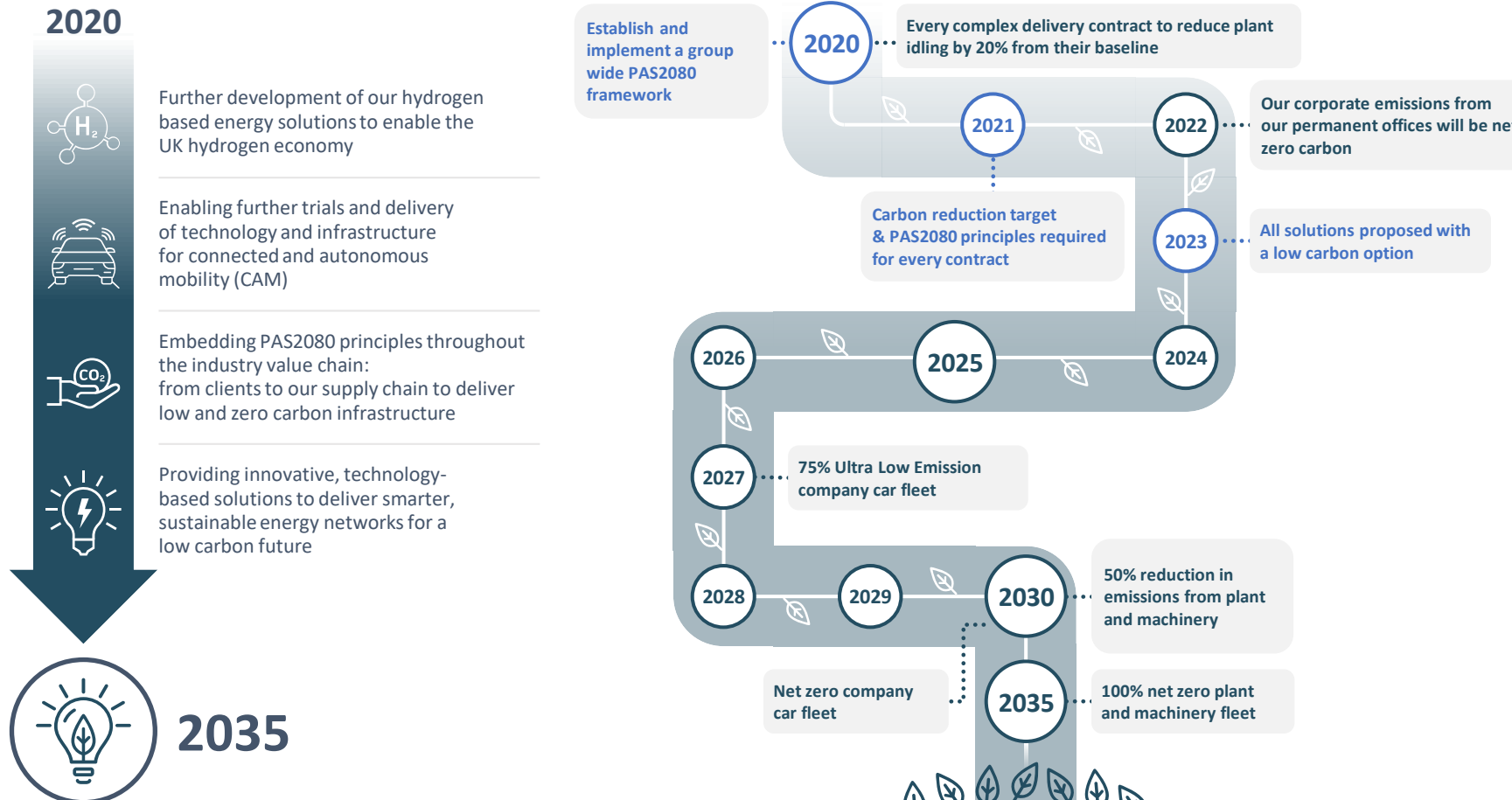
Costain Design for Net Zero Workshop

Paula Gough – Key Account Director for National Highway
Costain Leadership & Strategy for Carbon Reduction

Martin Kelley – Managing Consultant
D4NZ Methodology

Improving people's lives.

Our strategy to achieve whole life net zero



Bringing our strategy to life

Resource Efficiency Matrix



Create a Better Environment

Resource Efficiency Matrix: Complex Delivery



COSTAIN	BRONZE Compliance with Costain Standard procedures & processes for each focus area.	SILVER Strategic targeting of carbon hotspots.	GOLD Industry leading performance building on the foundations established by Silver.
	*Level only relevant for the few consultancy contracts where they are not working under the Costain Way but under a Client Management System.	All relevant data collated to establish a baseline footprint of relevant focus areas (carbon, materials, biodiversity, etc). Largest hotspots identified through data insight & reduction plan(s) established. Positive proposals made to clients or designs modified to enhance biodiversity & natural capital.	Demonstrable evidence of reduction & enhancement plans being implemented & progressed. Case studies produced including quantified carbon & cost reductions & where applicable biodiversity & natural capital enhancements.
PERMANENT & TEMPORARY ACCOMMODATION (includes offices & site setups)	<ul style="list-style-type: none"> Utilities procured on 100% renewable REGO tariffs Renewable & low carbon power sources in use (electric, hydrogen, hybrid, etc) Contracts for accommodation incorporate renewable & low carbon requirements 	<ul style="list-style-type: none"> Energy data regularly (as a minimum monthly) collated, baseline established & hotspots identified Cost benefit analysis undertaken on all energy management interventions Energy reduction plan established, including behaviour change initiatives 	<ul style="list-style-type: none"> Demonstrable progress of action plan(s) being implemented & reviewed Quantified energy, carbon & cost reductions
PLANT & MACHINERY FLEETS & FUELS	<ul style="list-style-type: none"> Renewable & energy efficient plant & machinery are in use (electric, hydrogen, hybrid, HVO fuel, etc) Contracts for plant & machinery incorporate telematics & low carbon requirements 	<ul style="list-style-type: none"> <u>Telematics</u> data from direct hire & subcontracts regularly (as a minimum monthly) collated Idling & utilisation baselines established & hotspots identified Idling reduction & utilisation improvement plan(s) established, including Behaviour Improvement Plans (BIPs) 	<ul style="list-style-type: none"> Demonstrable progress of action(s) plan being implemented & reviewed Quantified idling, carbon & cost reductions achieved
BIODIVERSITY & NATURAL CAPITAL	<ul style="list-style-type: none"> A Biodiversity Action Plan or equivalent in place New relevant contracts measuring Biodiversity & Natural Capital Impact 	<ul style="list-style-type: none"> Biodiversity &/or natural capital options have been proposed to the client Contract forecast demonstration of no net loss in biodiversity &/or natural capital 	<ul style="list-style-type: none"> All new, relevant contracts forecast / have delivered an increase in biodiversity &/or natural capital. Where this is expected through planning, the contract is to demonstrate additional efforts have been made to enhance this impact
RESOURCE & WASTE	<ul style="list-style-type: none"> Materials, water & waste management plans in place & regularly reviewed Materials & waste contracts to include provision of key information: quantity/tonnage, carbon footprint, low carbon alternatives Water conservation has been considered & usage monitored. 	<ul style="list-style-type: none"> Materials, waste & water data regularly (as a minimum monthly) collated, baseline established & hotspots identified Whole life cost benefit analysis undertaken on all significant materials & waste management interventions Materials & waste & water reduction plans established, including behaviour change initiatives 	<ul style="list-style-type: none"> Demonstrable progress of action plans being implemented & reviewed Sustainable temporary materials considered, with whole life costs & carbon analysis Quantified waste, material, water, carbon & cost reductions achieved
WHOLE LIFE CARBON & COSTS	<ul style="list-style-type: none"> Method & tool for collating whole life carbon & cost data in place Carbon & cost savings from significant design & construction interventions captured 	<ul style="list-style-type: none"> Whole life carbon & cost data regularly (as a minimum monthly) collated, baseline established, hotspots identified & targets set Carbon reduction plan established in accordance with PAS2080 	<ul style="list-style-type: none"> Demonstrable progress of action plan & PAS2080 principals being implemented & reviewed Quantified whole life carbon & cost reductions achieved
LEADERSHIP	<ul style="list-style-type: none"> Clear resource efficiency roles & responsibilities assigned to all disciplines Resource efficiency section of the HASEMP or EMP developed. 	<ul style="list-style-type: none"> Resource Efficiency Matrix progress reviewed at all levels of contract performance Named resource efficiency owners for all disciplines 	<ul style="list-style-type: none"> Performance & results achieved are communicated to contract & Group Carbon & cost case studies issued with quantified savings

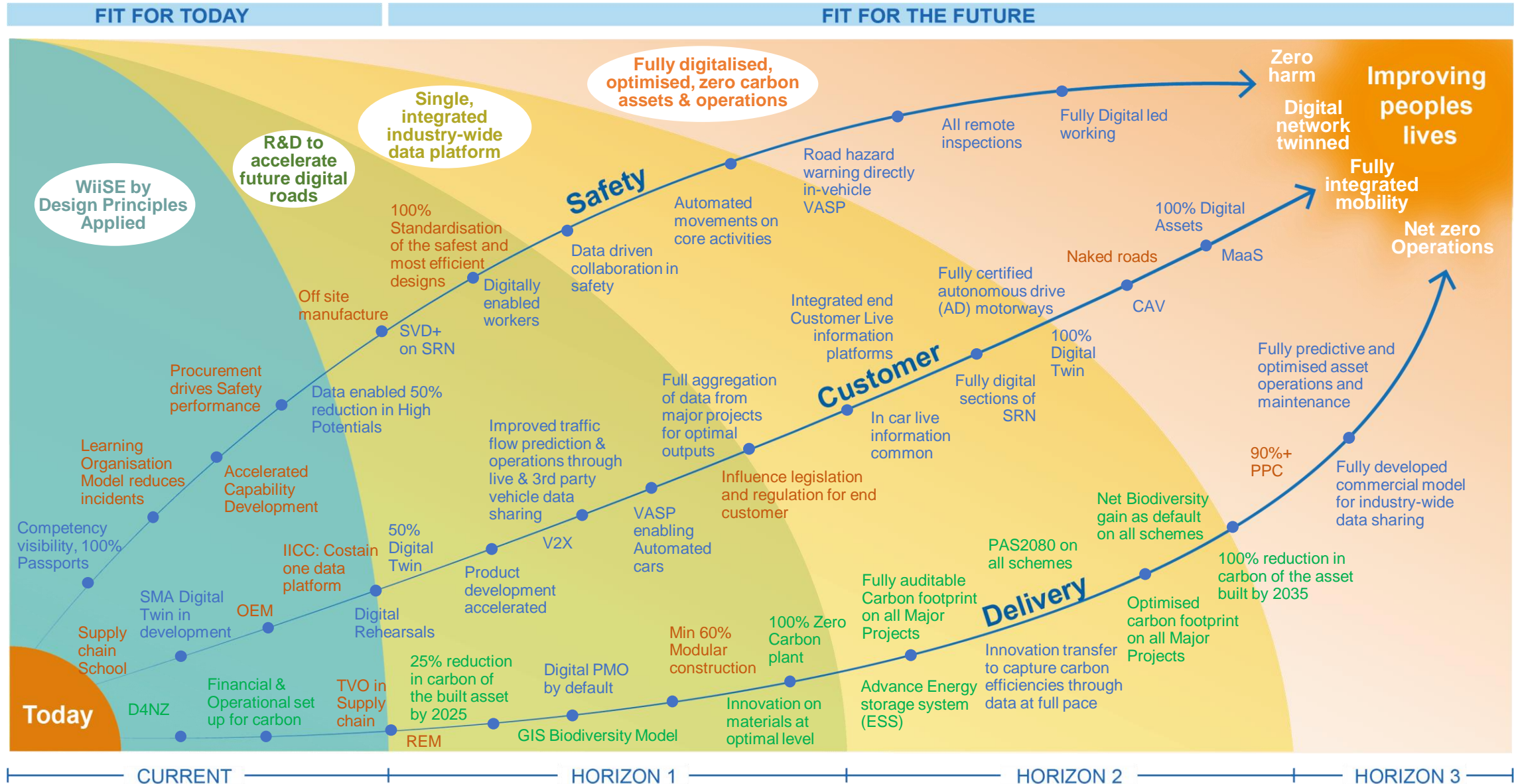
Reference Documents:
 • [How to Set Up a Resource Efficient Site SHE-H-308](#)
 • [How to manage utilities on a contract CPR-H-023](#)

• [Environmental Briefing- Air Quality Plant Requirements 2018](#)
 • [Water Monitoring Tool SHE-T-370](#)

• [New Utilities Set Up Form SHE-T-396](#)
 • [Carbon Emissions Dashboard SHE-T-369](#)
 • [Resource Efficiency Guidance](#)

• [Good Practice Examples](#)
 • [Delivering Sustainable Procurement - Guidance](#)
 • [Sustainable Site Solutions - Procurement portal](#)

Our Strategic Roadmap – Carbon, Digital, & Productivity



Leadership Focus Areas & Progress 1 of 3



Our Drivers	Focus Areas / Progress / Achievement	Costain ask to our supply chain
<p>Change culture initiated and embedded by organisational leadership</p> <p>Ensure own alignment with climate change critical Paris Agreement</p>	<ul style="list-style-type: none"> • Overall Net Zero targets needs focus at all tiers but specially communicated to projects where biggest difference can be made • Incentivisation to bring forward ideas own monthly reporting on carbon on every project • The UK is not on track to meet the sixth carbon budget or the UK's 2030 Paris Agreement – Costain's target setting enables us to do so and we are so far on the right trajectory and would like to support our supply chain to align 	<ul style="list-style-type: none"> • Engagement with our ambition for culture change and disrupt the way we work at project level including monthly carbon reporting
<p>Identify Blockers to Net zero for maintenance and construction activities by 2040</p>	<p>What's stopping you?</p> <ul style="list-style-type: none"> • Industry wide collaboration and early engagement with the supply chain? • Long-term partnerships vs transactional relationships as a catalyst to better collaboration? • Collective risk sharing as part of collaborative working? • Procurement models? • Standards and attitudes to risk adopted by clients? • Better definition of role and responsibilities? • Public or private sector a bigger catalyst for change? • Making time and resources available to research / product development and challenging the market ? rigorously test and trial new products etc to meet our Net Zero ambitions? • Reinforcing and clarifying the need for urgency and highlights thing the consequences? 	<ul style="list-style-type: none"> • Ask the right questions and challenge the norm: How long do we need gantries? These now have a finite life so do we keep designing them for 120yrs?

Leadership Focus Areas & Progress 2 of 3



Our Drivers	Focus Areas / Progress / Achievement	Costain ask to our supply chain
<p>The carbon management process PAS2080</p>	<ul style="list-style-type: none"> • Costain group level certified & Contributed to 2022 review • Contracts certified & more schemes in pipeline A12, A30 • Identified issue of inconsistency of use and requirement for knowledge share and training with lower level supply chain • Requirement for a systemic approach to increase early intervention • PAS2080 lead us to ask more questions on the carbon footprint and the impact of materials, operation and construction - pursuing to explore solutions • Leadership focus on clarity of roles and responsibilities • Maximalising leverage & remit of procurement • Addressing the cost and carbon tipping point • Create a carbon collaboration academy and training package for our supply chain (to be launched on major projects) 	<ul style="list-style-type: none"> • Collaboration academy on major projects, engagement to take our supply chain with us to unleash full power of PAS2080 • Share and embrace ideas, share successes and failures • Consider PAS2080 Accreditation – seek support from us for set up and audit • As individuals and at a minimum all should complete the Carbon Literacy e-Learning via the Sustainability Supply Chain School
<p>Baselining, Consistent Quantification, KPIs</p>	<ul style="list-style-type: none"> • All road schemes Carbon benchmarked • Review and Audit (PAS2080 does not mandate audit) 	<ul style="list-style-type: none"> • Share ideas and innovation needed to set and meet collective targets
<p>Systemic application: E2E assessment, review and intervention on carbon</p>	<ul style="list-style-type: none"> • Baseline, set scheme-specific targets, clarify accountability – example A66, follow NH PCF reporting consistently • Systems enable focus on greatest reduction opportunities • Data banks are too weak to unleash full potential 	<ul style="list-style-type: none"> • Help us with creating our low carbon best practice catalogue (D4NZ) • Help us with urgency to demonstrate tangible action in your area of expertise
<p>Tackle whole life carbon</p>	<ul style="list-style-type: none"> • Industry immature and Management and leadership needs to be integrated into how we make decisions 	<ul style="list-style-type: none"> • Think about your answer to: What to do when reducing carbon requires investment but does not lead to cost avoidance and comes at a cost.

Leadership Focus Areas & Progress 3 of 3



Our Drivers	Focus Areas / Progress / Achievement	Costain ask to our supply chain
Thought leadership and influencing the industry to make bolder choices	Schemes are stalling due to low BCRs Being aware and working with clients to make bolder choices Increase capacity through digital interventions rather than build new roads	<ul style="list-style-type: none"> Share ideas and thought leadership
Think RIS3 Readiness	<ul style="list-style-type: none"> Say goodbye to “that’s how we’ve always done it” mentality and embrace ethos of Don’t build, build less, build different. Set up investment plan to increase low carbon capacity & capability Consider and action Scope 1,2,3 emissions for your organisation Power supply on sites and lessen the demand on fuel Accelerate electric plant use and solve challenges to launching this, i.e Smart Motorways Incentivising all suppliers to make savings and report data Steel/Asphalt/Concrete – bring ideas, resolve standards challenge and safety/risk ownership Learn from other sectors and globally 	<ul style="list-style-type: none"> As per Costain areas
Supply chain maturity and enablement:	Think about what further support does our supply chain need to be confident in helping us meet the 2040 target	<ul style="list-style-type: none"> In the next 5 years the construction works from a standard, material, fuel, plant point of view will look very different: Engage with this revolution and evolution Contribute in the interim as this period is very important to explore ideas and accelerate R&D into industry: example RRA

Example: Supporting Development of Supplier Maturity

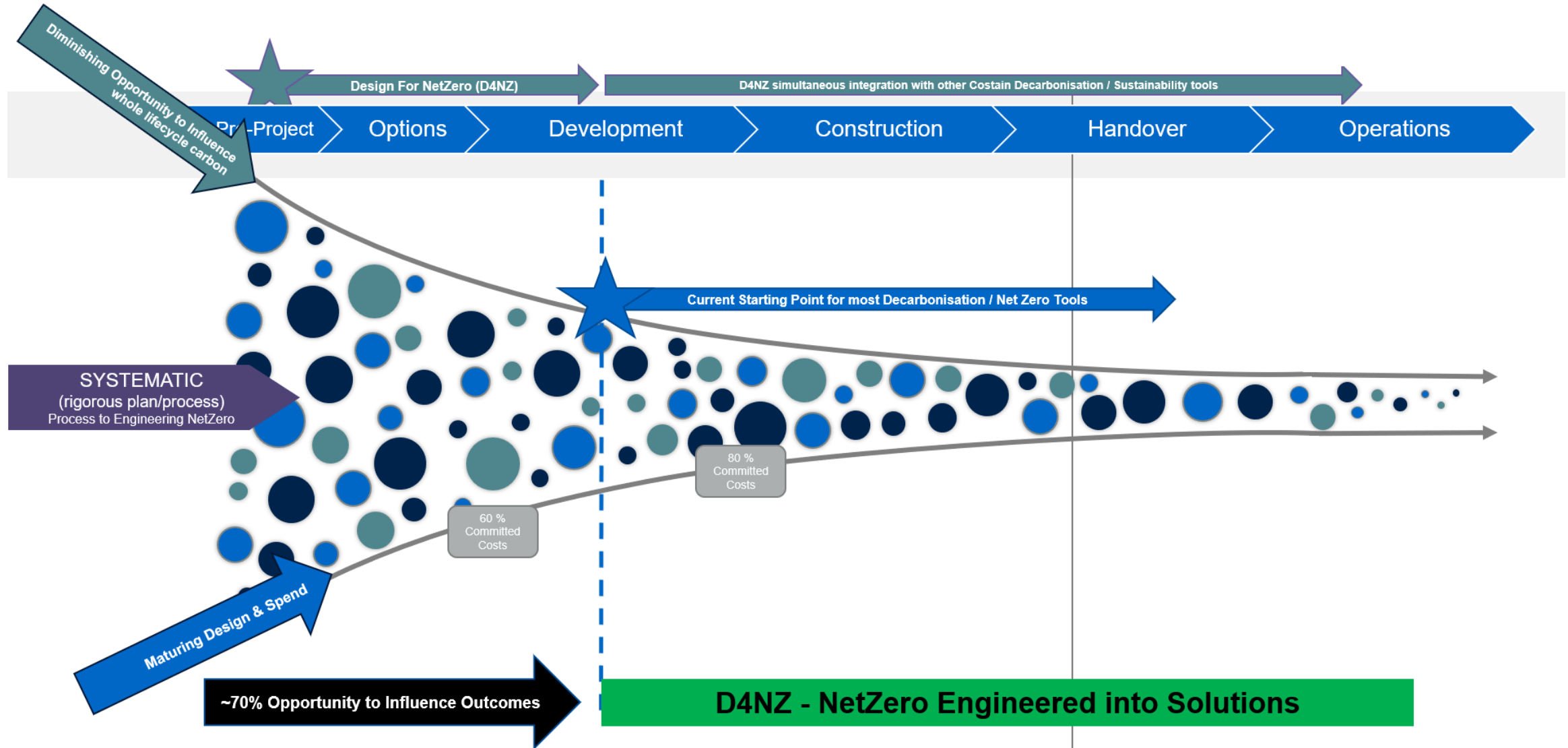


Our Objectives : We have set our SMPA example as “good practice guide” as part of SDS we are aligning our supply chain to national highways through to create a coherent “one approach” with consistent KPIs and reporting structures. This will contribute to creation of fruitful interventions and bank of best practice examples:

1. Supplier Performance Management: Standardise supplier performance around our ambitions including CPF metrics particularly new Carbon metric and cascade to our supply chain (Trial Stage through strategic B2Bs with SC)
2. Strategic partner selection review; We will review and change key suppliers to align to our strategy, e.g. focus on Carbon reduction
3. Costain will create collaboration hubs on major projects to provide training, upskilling of our supplying and bring supply chain closer to strategy as well as NH
4. Live system with evidence and case-studies loaded onto the system and visible immediately: Data is used to inform trends can be considered amongst suppliers in different areas
5. Supplier self-scoring with evidence given
6. Addition of new questions: on carbon, social value, collaboration
7. Route to Net Zero: Requesting carbon baseline, action plans for reduction and review on quarterly basis,
8. Setting expectations on efficiency through defined target
9. Further develop the Smart Delivery Platform on digital for information sharing on market conditions: Working with Source Dogg to create a mechanism for sharing information once with all parties
10. Transferring approach down further tiers of supply chain: We hold workshops with strategic supply chain to learn from other examples on visibility through the tiers
11. Focus on other categories for improvement for example “logistics” in supply chain: Working with National Highways to explore good practice, assess best performance and related KPIs to build into our strategy
12. Reviewed Source dog and change supplier selection criteria

D4NZ Overview

Why are we developing D4NZ

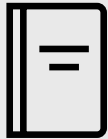
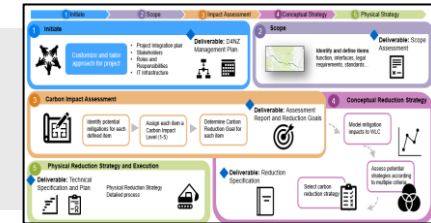


Design For Net Zero

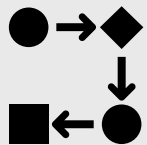
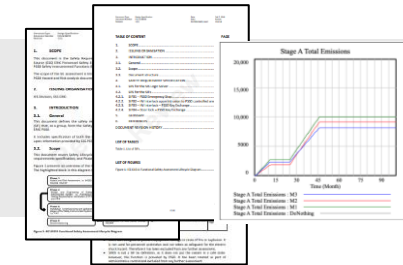
Design for Net Zero is a systemic approach that uses engineering and analysis techniques to realize carbon reduction opportunities early in the lifecycle



- 5 Step iterative process aligned to ISO Standards



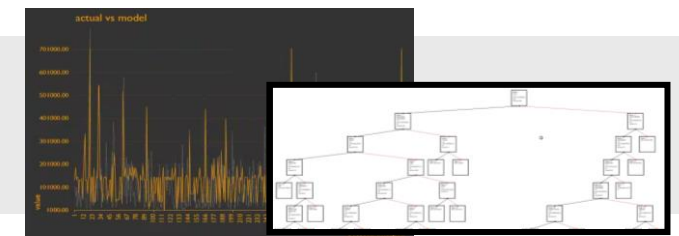
- Culminates in a fully traceable Carbon Reduction Specification



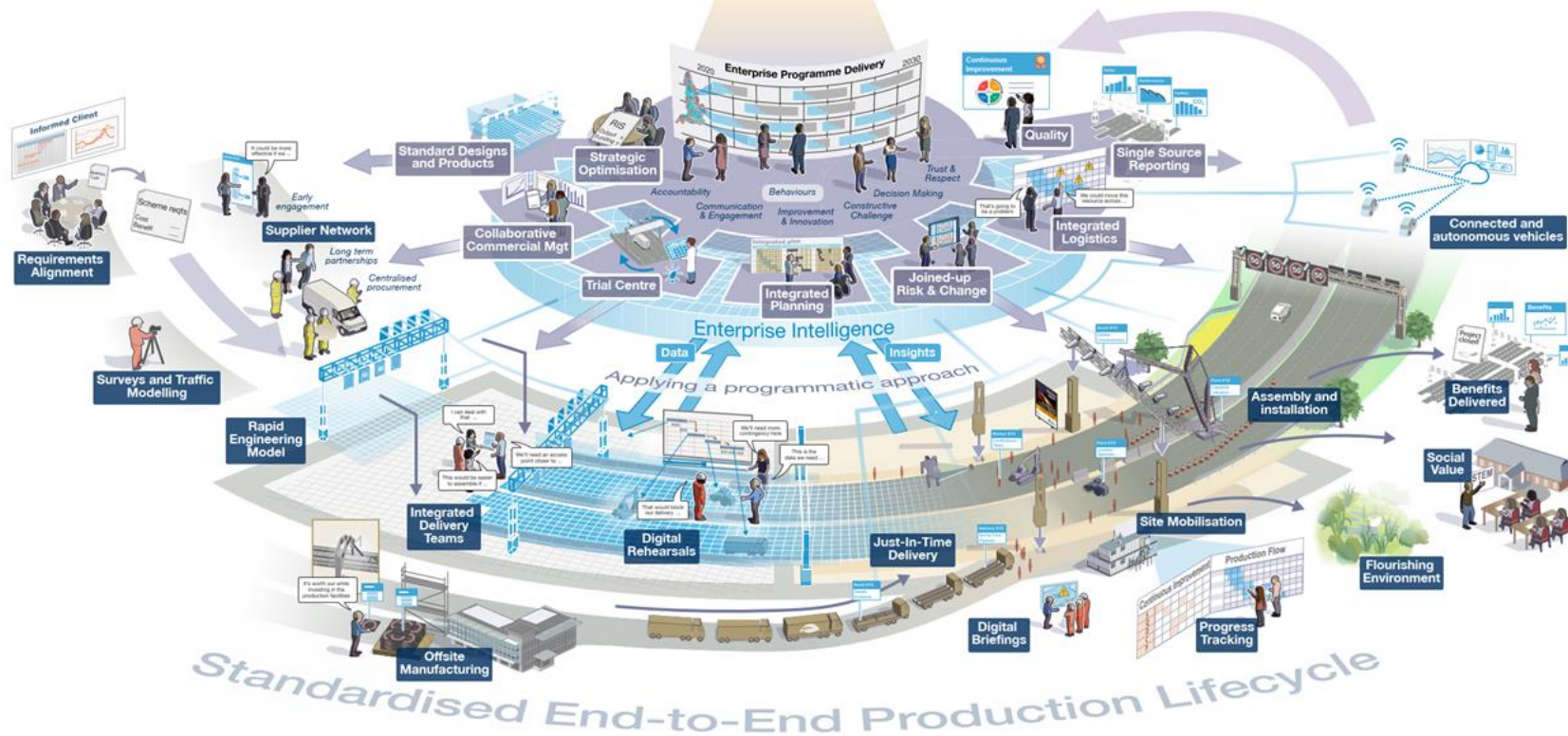
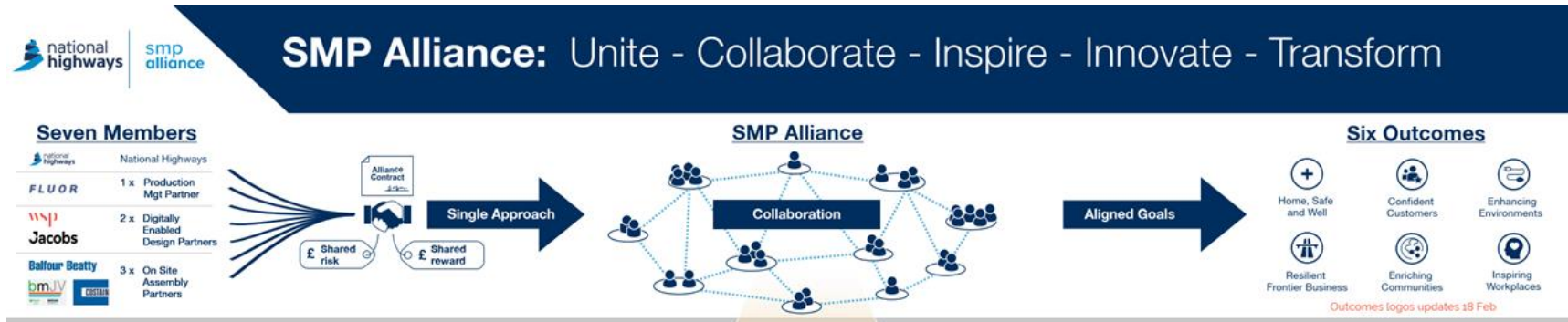
- Tasks, work products, and processes managed in a web based process modelling tool



- Historical data analysed with AI algorithm to improve decision making for future projects



SMP Alliance Production System – Systemic Approach



Key highlights:

- Left shift EAs x5 quicker
- Innovation & Trial Centre
- SVD 92% PPC
- 100% 2Yr KPIs achieved
- 2% below ABPM