CERCOM

Circular Economy in Road COnstruction and Maintenance

Aims and Results

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Research Driven Solutions

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CERCOM - Circular Economy in Road Construction and Maintenance

Best practice

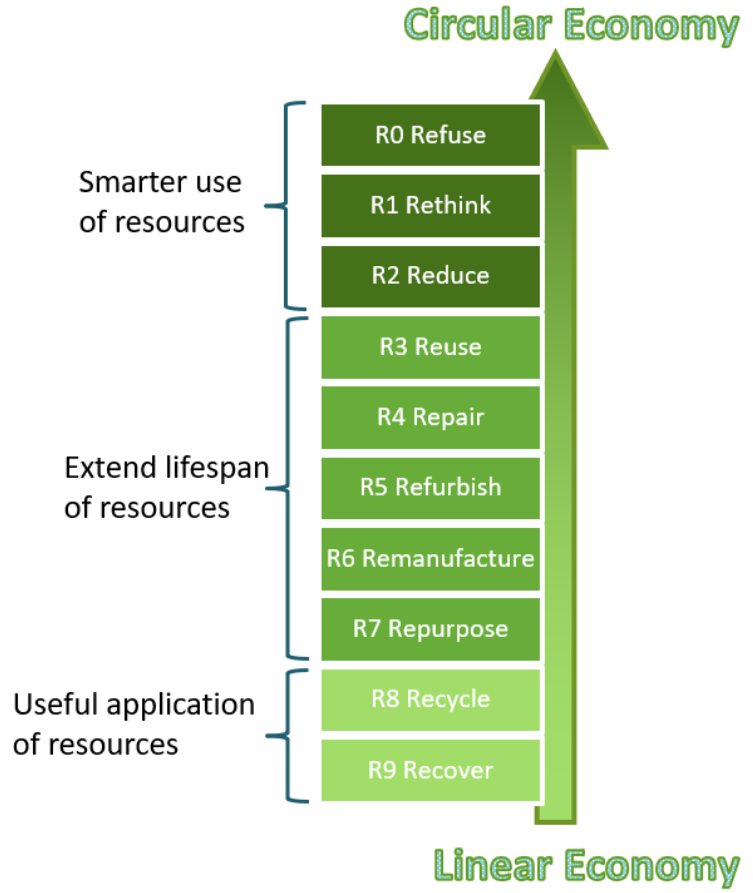
An inventory of the systems / approaches appropriate at different stages of the journey towards circularity

Risk based analysis framework

A framework and suitable KPIs supporting the lifecycle assessment of resource use and impacts

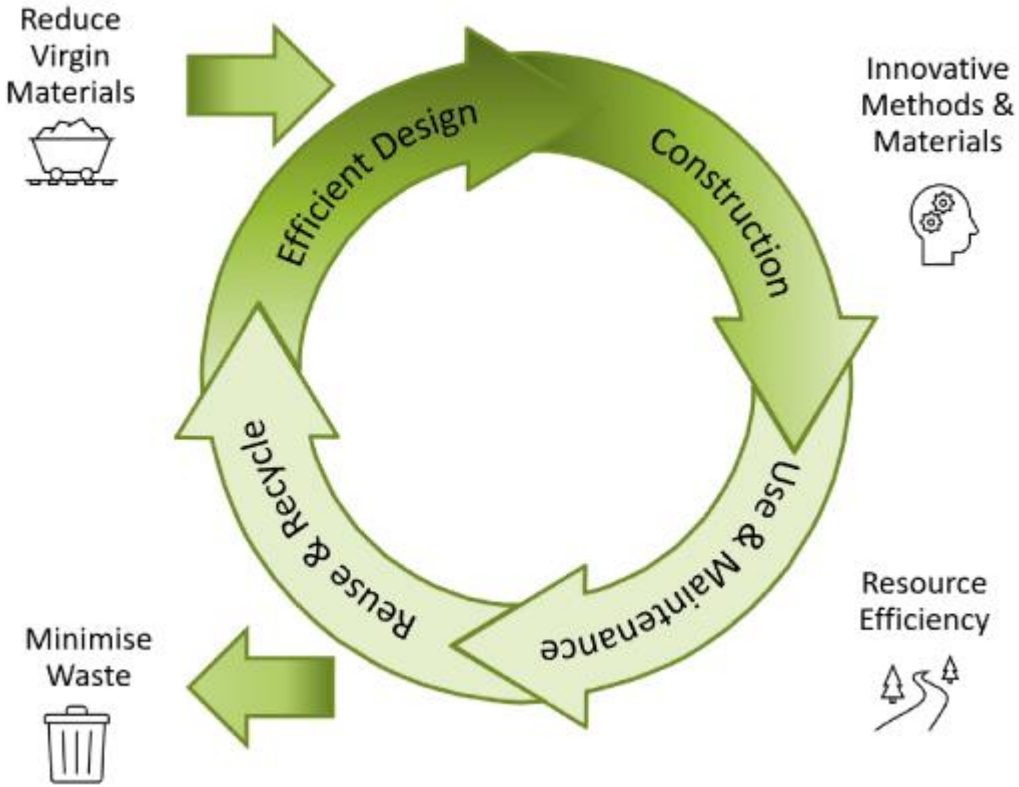
Resource and training

Guidance, training seminars and on-line materials for managers and practitioners



Circular Economy and Resource Efficiency means, by design:

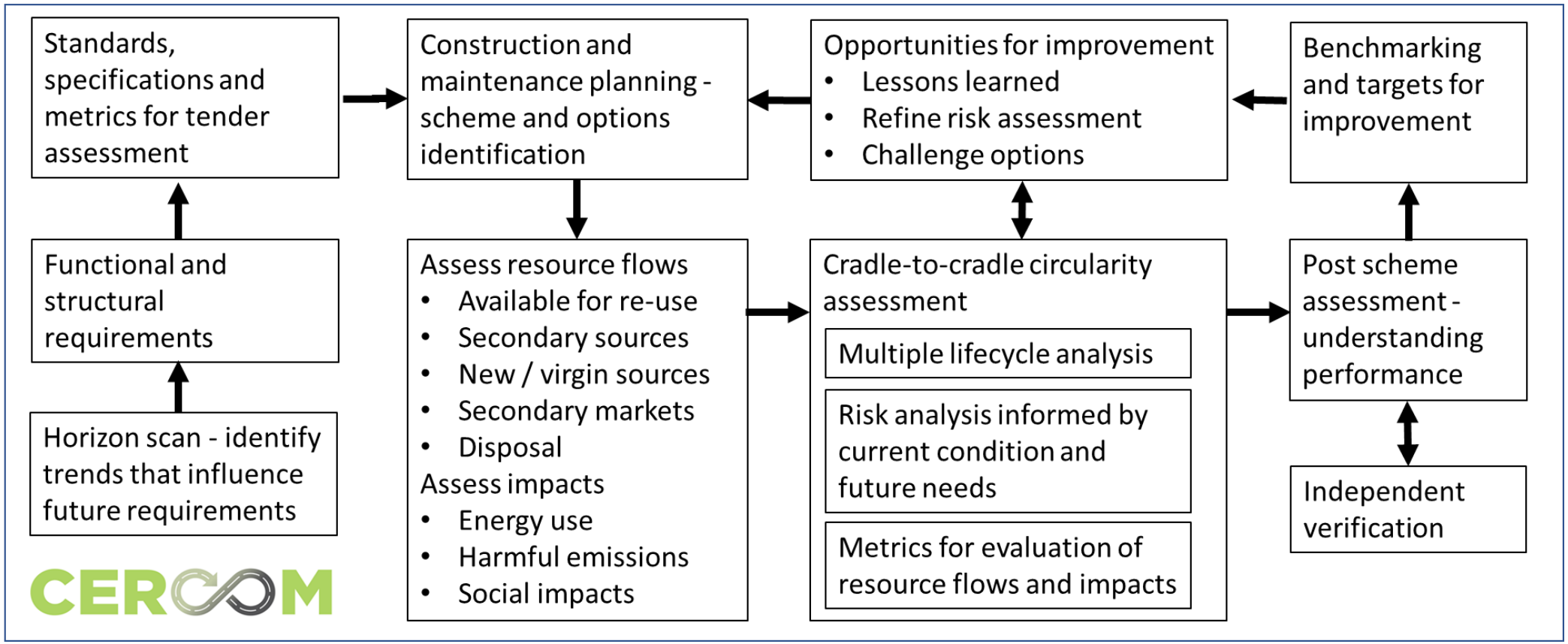
- *Minimising consumption of natural resources*
- *Designing out waste and keeping resources in use and at their highest level of utility*
- *Optimising the value obtained within each lifecycle*
- *Improving environmental performance and contributing to societal development*



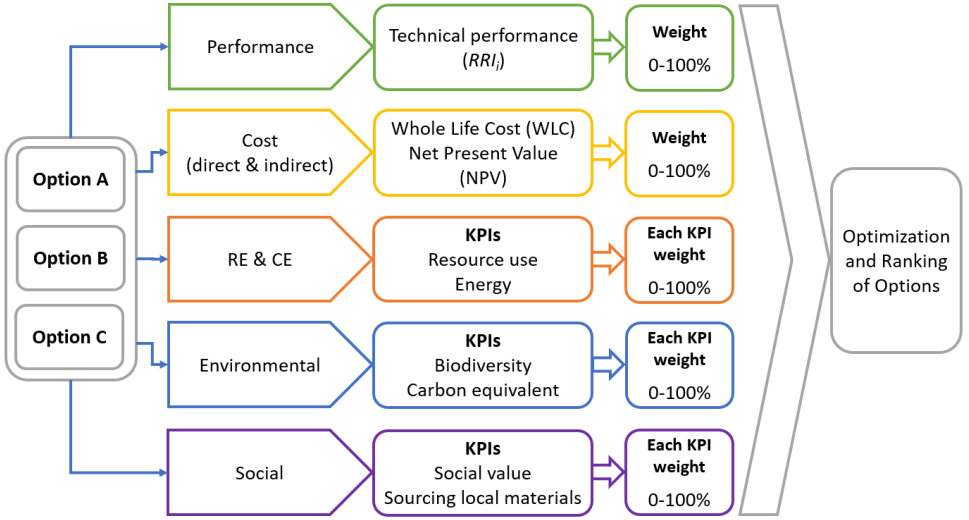
Maturity Matrix

Maturity level	Engaging in transition to RECE (Stage 3 extract)	Early stages of practising RECE (Stage 6 extract)	Active deployment of RECE (Stage 9 extract)
CE ambition	NRA has committed to a transition to CE and a definition for what CE means in practice is in place	Policy to transition to CE has been published. Targets for RE and CE elements, some developed & others under development	Strategic plan for transition & route map with timeline in place and embedded in the NRA. Targets for RE and CE, monitoring systems to track progress are developed.
Embedding CE	Moderate staff awareness of CE and how it affects their roles. Ad-hoc initiatives to support innovation to deliver CE.	Clear communication, internally & externally, on commitment to CE. Corporate commitment to innovation initiatives to deliver CE. Champions in project teams are beginning to drive through change. Supporting instruments, tools and staff training are being developed and implemented.	Staff are fully engaged with CE. Significant investment in innovation in RE and CE with forward plan to continue commitment. Visible leadership at senior level, with accountability assigned to key leadership roles, supported by champions. Supporting instruments, tools and staff training are fully developed, implemented, and embedded. Business and personal objectives are set for delivery of RE and CE. CE principles are embedded in process as 'business as usual', and subject to continuous improvement.

Process framework for circularity in highway construction and maintenance	• Minimising consumption of natural resources • Designing out waste and keeping resources in use and at their highest level of utility • Optimising the value obtained within each lifecycle • Minimising negative environmental and social impacts



Risk Based Analysis Framework and Software Tool



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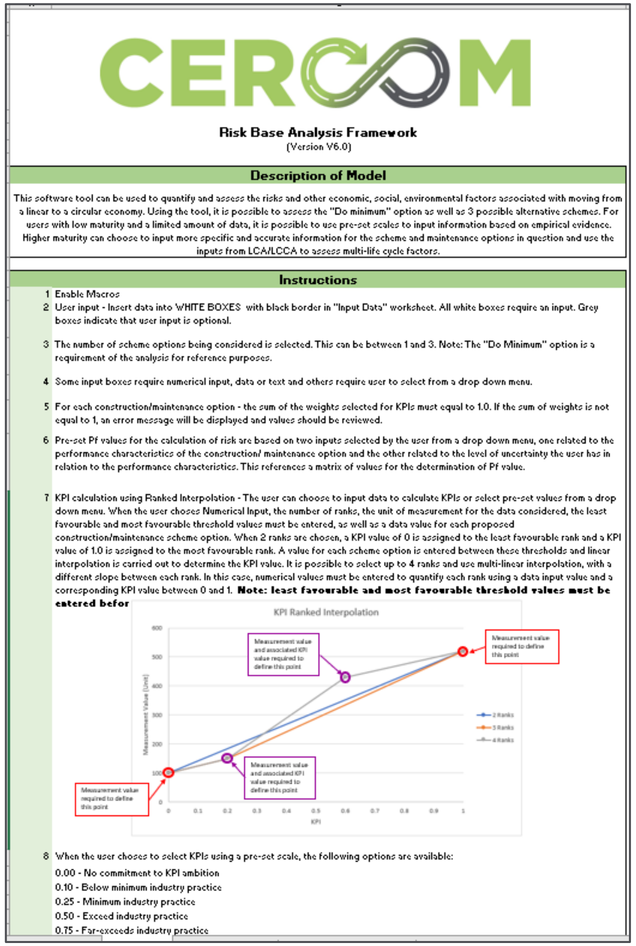
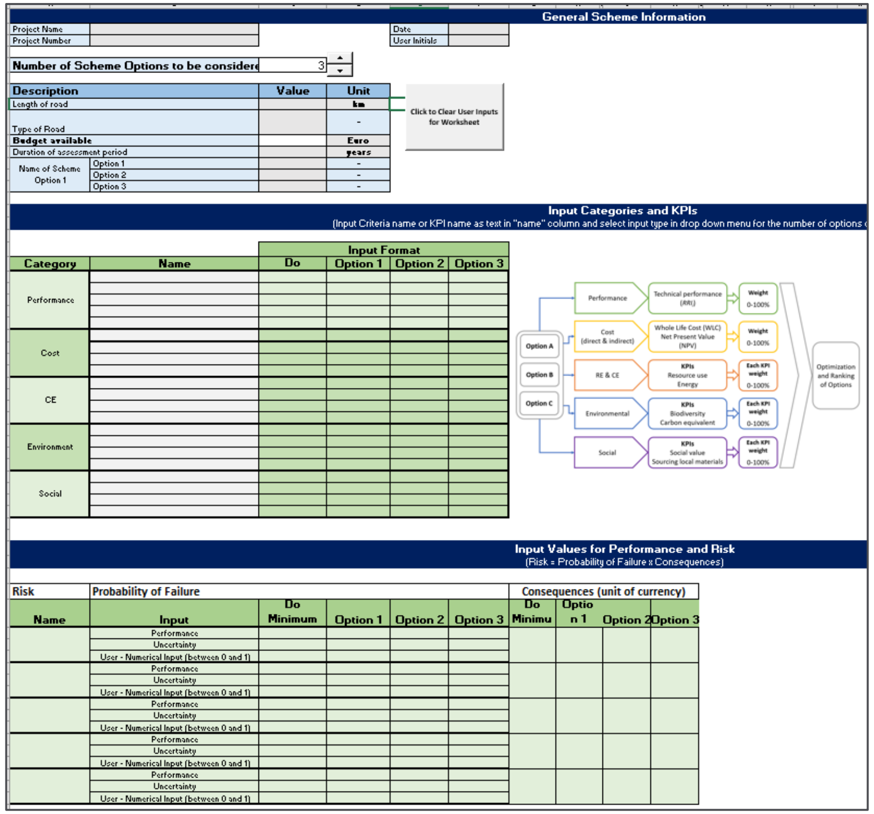
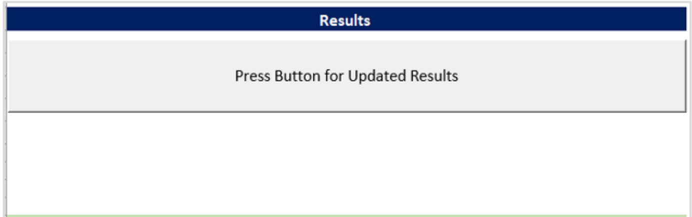
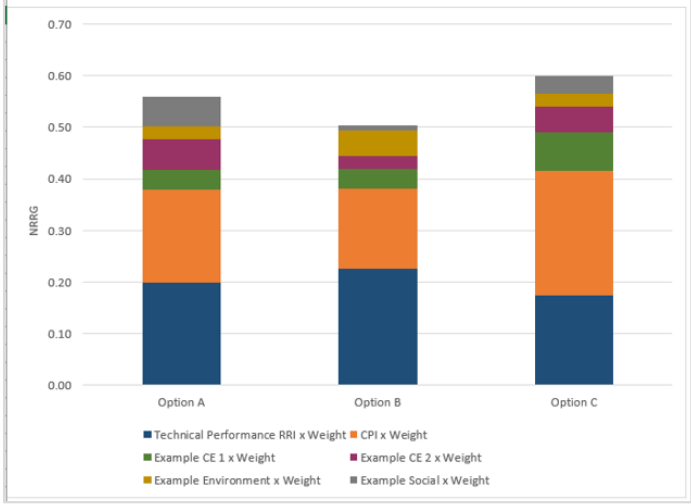


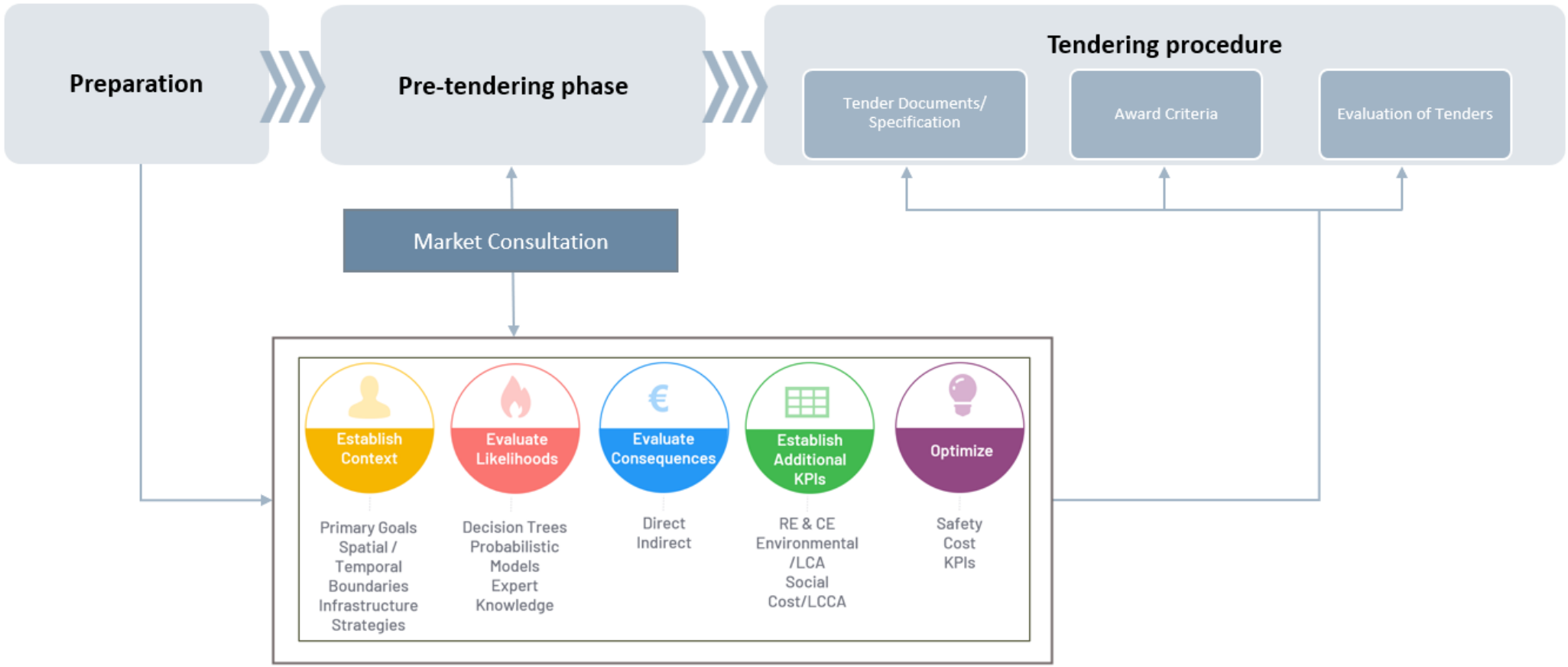




Category	Name	Option A	Option B	Option C
Performance	Technical Performance RRI x Weight	0.20	0.23	0.18
Cost	CPI x Weight	0.18	0.16	0.24
CE	Example CE 1 x Weight	0.04	0.04	0.08
	Example CE 2 x Weight	0.06	0.03	0.05
Environment	Example Environment x Weight	0.03	0.05	0.03
Social	Example Social x Weight	0.06	0.01	0.04
Net Risk Reduction Gain (NRRG)		0.56	0.50	0.60



Integration into Procurement Practices



Validation – Case Studies

Case study	Type of application	Project	Country	Circularity level
Maintenance options for asphalt pavements	Asphalt	In-situ rejuvenation of ZOAB	Netherlands (NL)	Extend lifespan of pavements (R4)
		Refurbishing milled asphalt into new bound layers - BSM technology	Denmark (DK)	Reuse existing pavement to create new pavement with addition of limited materials (R5 or R6)
Recycling concrete technologies	Concrete	Processing technologies for aggregate recycling	Netherlands (NL)	Recycle (R8)

Resources and Training

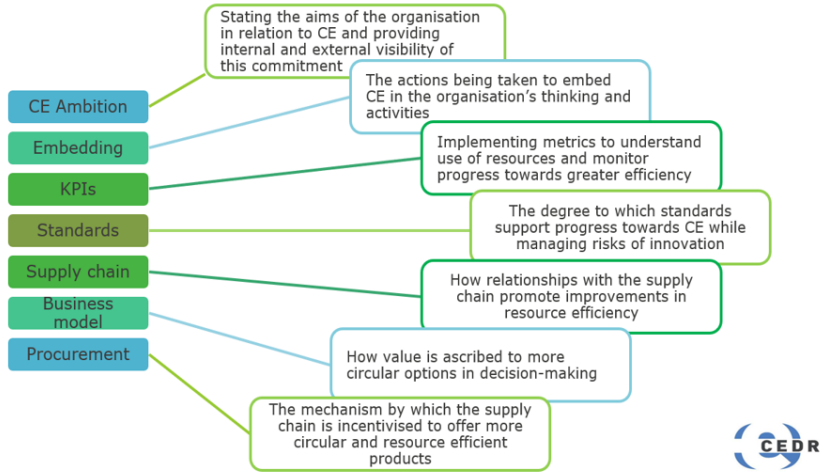
Resources for road authorities

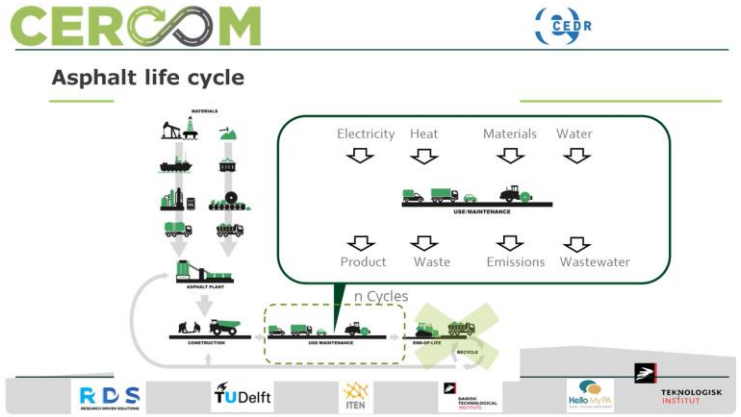
The following information resources have been developed during the CERCOM project to help road authorities identify and adopt strategies that lead to greater resource efficiency. Watch our introduction to circularity and resource efficiency for road authorities here >

Developing organisational capability

- Good practice and case studies in improving circularity and resource efficiency. Download PDF here >
- Framework for assessing progress in transitioning to circular economy. Watch our presentation here >
- Interactive framework for assessing progress in transitioning to circular economy. Download here >

Introduction to KPIs and data for monitoring resource efficiency





Resources and Training

https://cercom.project.cedr.eu