

15 - 16 November, Wembley Stadium, UK

# The New Currency of Project Controls:

*Cost & Carbon Estimating & Governance on  
Capital Projects*



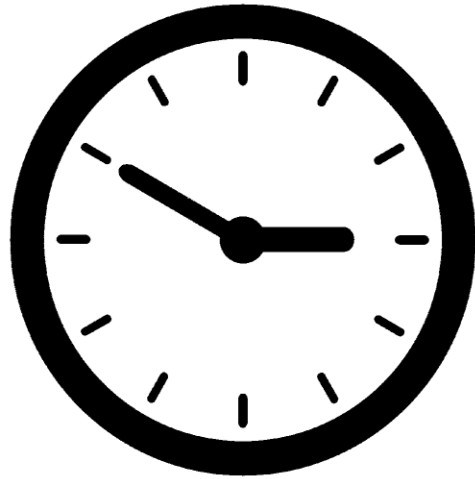
 **Project Controls**  
**EXPO**  
London, UK



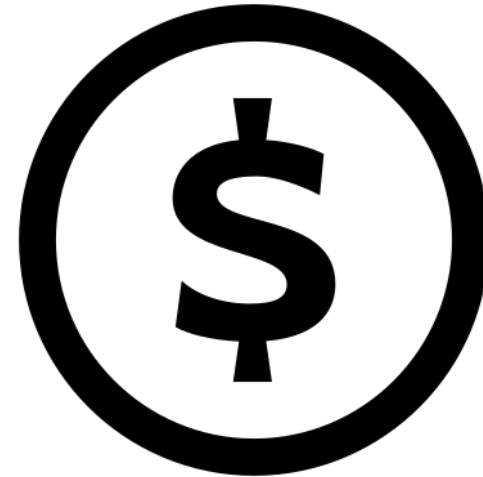
**Andrew Langridge**

Director of Business Development  
ARES PRISM Software  
[alangridge@aresprism.com](mailto:alangridge@aresprism.com)  
Visiting Professor University of Bath

# Measures of Project Success



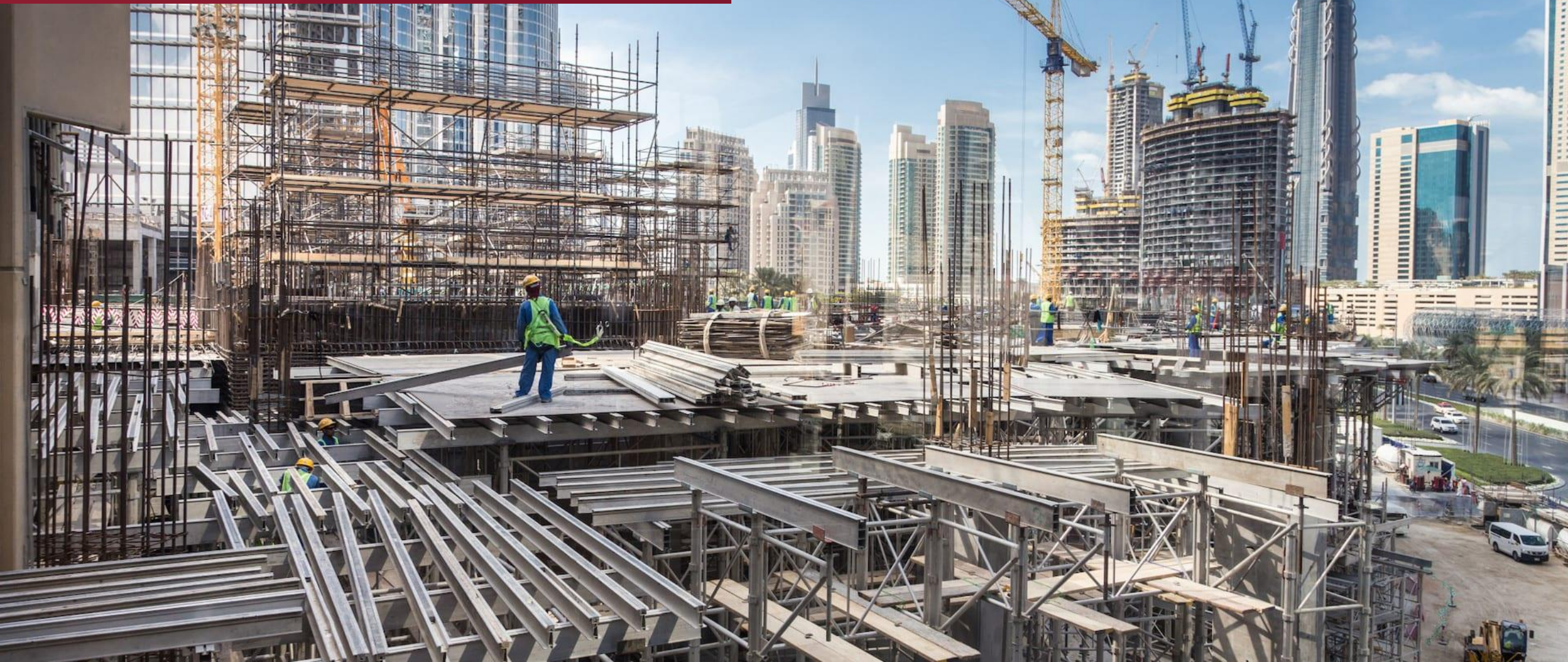
**Time**



**Cost**

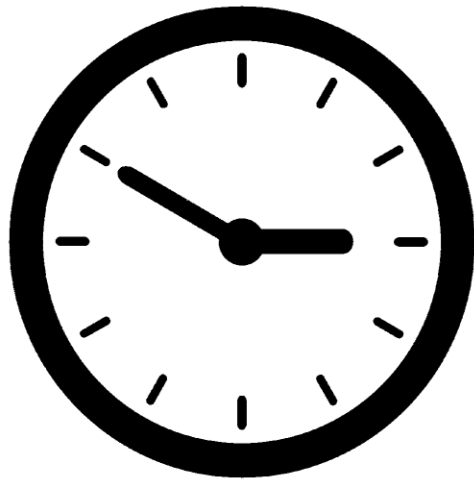


# Construction – Cost & Schedule





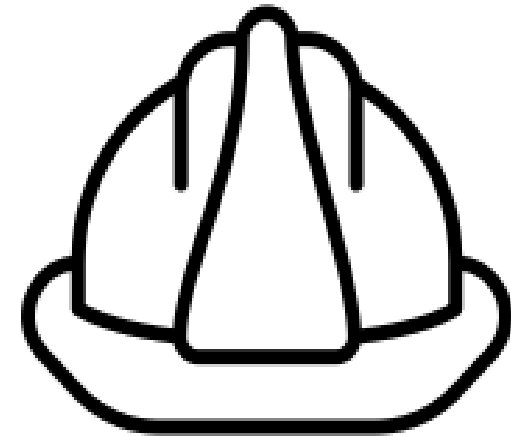
# Measures of Project Success



**Time**



**Cost**



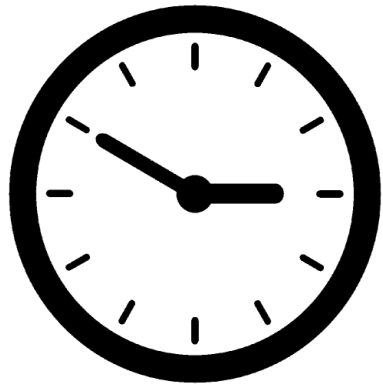
**Safety**

# Pyramids – Time Not Safety

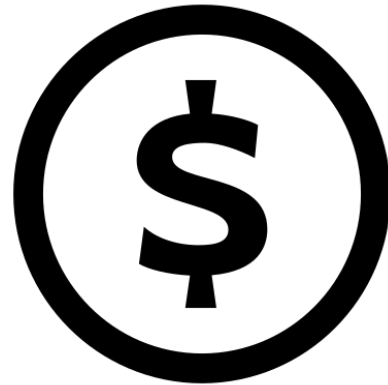




# Measures of Project Success



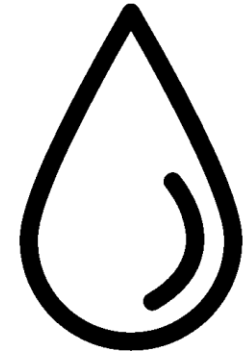
**Time**



**Cost**

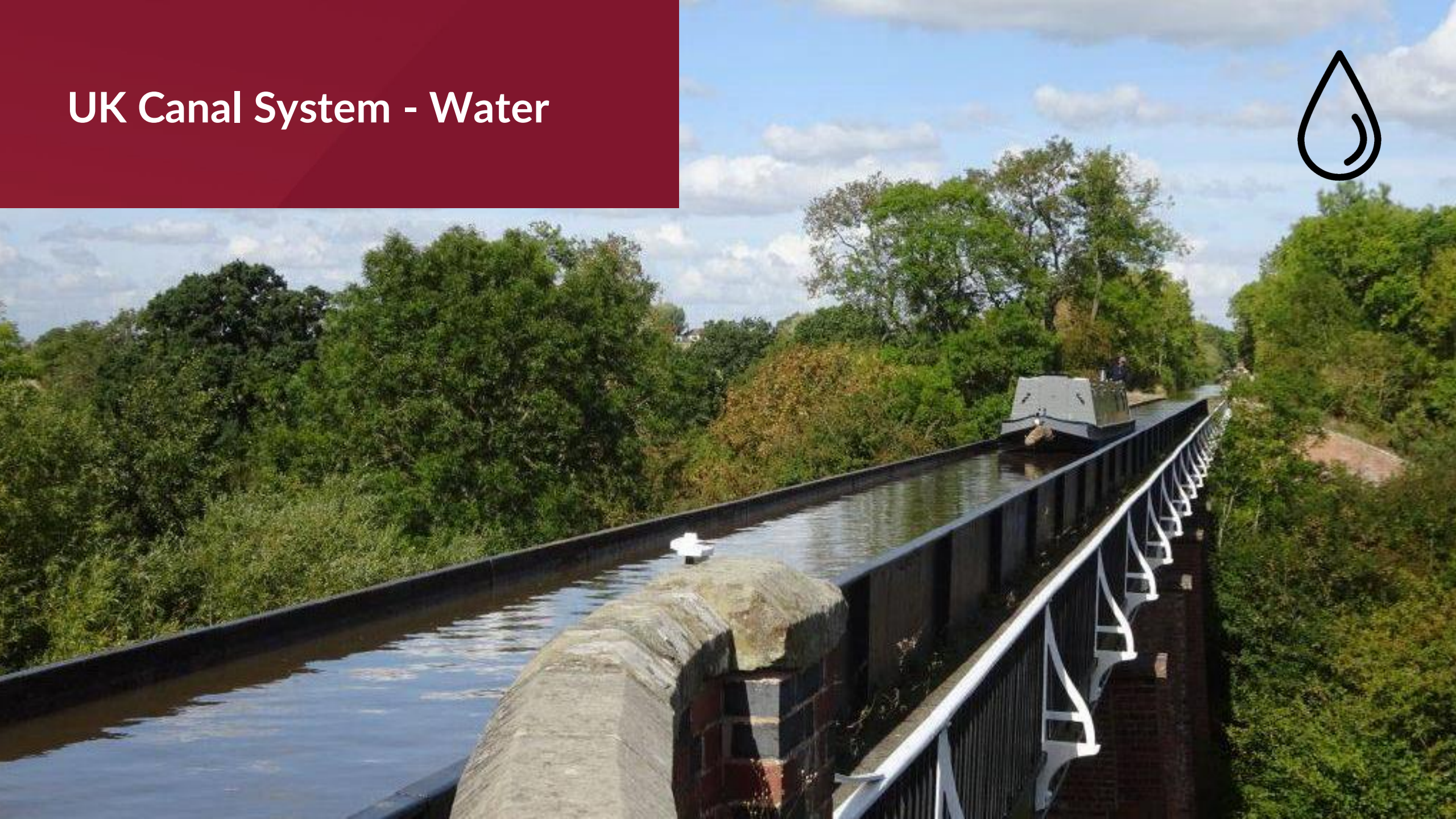


**Safety**



**Water**

# UK Canal System - Water

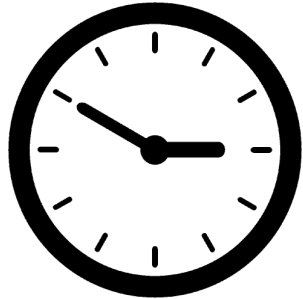




# Measures of Project Success



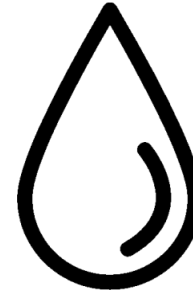
**Cost**



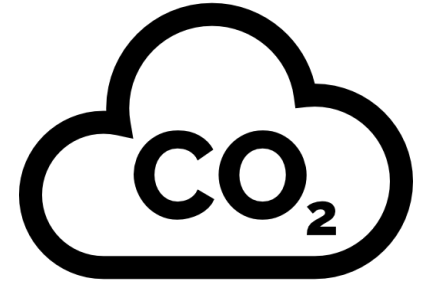
**Time**



**Safety**

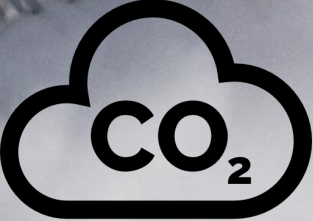


**Water**




**Sustainability**

# Construction - Sustainability





A construction site at sunset. A large crane is in the foreground, with its hook and cables visible. In the background, there are several vertical rebar structures for a building. The sky is a mix of orange, red, and purple. Silhouettes of construction workers are visible at the bottom of the frame.

**THERE IS AS MUCH CARBON IN  
THE BUILDING PHASE AS THE  
FIRST 30 YEARS OF OPERATION.**

**CONCRETE IS SECOND MOST  
USED SUBSTANCE ON THE  
PLANET, SECOND ONLY TO  
WATER, WITH THE EQUIVALENT  
OF 19k BATHTUBS OF MATERIAL  
POURED EVERY 10 SECONDS**

**BUILDING AND INFRASTRUCTURE  
PROJECTS ACCOUNT FOR 38% OF  
TOTAL GLOBAL EMISSIONS.**

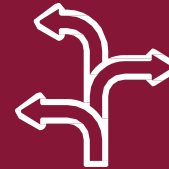
# Ideal Business Outcomes for Large Projects



**Optimized  
Project  
Spend &  
Performance**



**Effective  
Change  
Management &  
Efficiency**



**Improved  
Visibility For  
Informed  
Decisions**



**Contract  
Management &  
Progress  
From Vendors**



# Optimize Project Spend & Performance

Visualize project status, health indicators, data trends and forecasts

One step drilldown to identify the poorly performing project

Reduce annual spending due to better forecasting & fewer overruns

Average annual reduction in project spending

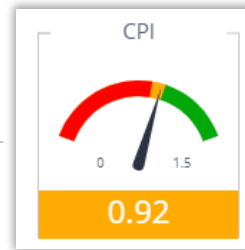
**2%**

Annual Benefit:

**\$20,000,000**

Per \$1 Billion in Annual Project Spend

Track your cost efficiency



PRISM Data Analytics Pulse Admin

\_drill\_ProjectPerformance SDW\_V6 Aug 15, 2022 11:21:18 AM + Widget

Project Cost

Portfolio	Project	Budget Period	Earned Period	Actual Period	Budget To Date	Earned To Date	Actual To Date	SV	CV	SPI	CPI	% Compl.	% Spent	BAC	EAC	VAC
Expo Infrastructure Setup Portfolio	Expo Infrastructure Setup Phase I	979.7K	898.0K	1.27M	2.89M	2.83M	3.36M	-62.58K	-532.9K	0.98	0.84	18.61%	21.79%	15.2M	15.43M	-227.5K
	Expo Infrastructure Setup Phase II	654.6K	619.4K	1M	1.55M	2.55M	2.88M	1M	-331.2K	1.65	0.89	18.64%	20.99%	13.69M	13.80M	-112.5K
Expo Infrastructure Setup Portfolio Total		1.63M	1.52M	2.27M	4.44M	5.38M	6.25M	941.4K	-864.1K	1.21	0.86	18.63%	21.37%	28.89M	29.23M	-340K
Robotic Mining Portfolio	Robotic Mining	696.1K	625.6K	510K	2.04M	2.18M	2.01M	133.2K	166.4K	1.07	1.08	21.73%	20.1%	10.01M	10.01M	3.5K
SK Oil&Gas Expansion Portfolio	Cooling Tower	174.0K	188.6K	50.18K	590K	807.8K	854.5K	217.7K	-46.76K	1.37	0.95	28.79%	30.3%	2.8M	2.82M	-14.5K
	Offshore Drilling	875.5K	808.9K	886.7K	2.15M	2.01M	2.25M	-135.3K	-237K	0.94	0.89	15.21%	17.01%	13.23M	13.21M	12.5K
	PL Pipeline Project	654.6K	619.4K	790.5K	1.55M	2.55M	2.66M	1M	-111.2K	1.65	0.96	22.22%	22.99%	11.49M	11.58M	-94.5K
SK Oil&Gas Expansion Portfolio Total		1.7M	1.62M	1.72M	4.28M	5.37M	5.77M	1.09M	-395.0K	1.25	0.93	19.52%	20.9%	27.52M	27.62M	-96.5K
TD Rail Portfolio	Railway Construction	696.1K	625.6K	510K	2.04M	2.18M	2.01M	133.2K	166.4K	1.07	1.08	18.69%	17.27%	11.64M	11.64M	3.5K
	Train Stations	654.6K	619.4K	658.5K	1.55M	2.55M	2.54M	1M	10.82K	1.65	1	21.74%	21.65%	11.74M	11.74M	500
TD Rail Portfolio Total		1.35M	1.24M	1.17M	3.59M	4.73M	4.55M	1.14M	177.2K	1.32	1.04	20.2%	19.47%	23.38M	23.37M	4K
Grand Total		5.39M	5M	5.67M	14.36M	17.66M	18.57M	3.30M	-915.5K	1.23	0.95	19.66%	20.6%	89.8M	90.23M	-429K

Milestones Description	Approved	Current	Variance	Time Interval	Budget	Earned	Actual	SV	CV	SPI	CPI
Area A1 Completion	12-May-2023	12-May-2023	0	1 - PREVIOUS	2,580,217	3,753,804	4,048,200	1,173,587	-294,396	1.45	0.93
Area A2 Completion	1-Jul-2023	1-Jul-2023	0	2 - CURRENT	1,764,025	1,616,839	1,717,410	-87,186	-100,572	0.95	0.94
Notice to Proceed	2-Apr-2022	2-Apr-2022	0	3 - TO DATE	4,284,242	5,370,643	5,765,610	1,086,967	-394,967	1.25	0.93
				4 - AT COMPLETION	27,518,603	27,518,603	27,615,103	96,500	-96,500	1.00	1.00

Project	Progress	Forecast	Miscellaneous	Safety
Cooling Tower	Project is currently ahead of schedule	TBD	Not Applicable	Zero Lost Time Incidents (LTIs) reported this month
Offshore Drilling	Project is currently behind schedule despite this...	Forecasting project schedule delay due to dela...	Not Applicable	Zero Lost Time Incidents (LTIs) reported this month
PL Pipeline Project	Project is currently ahead of schedule	TBD	Not Applicable	Zero Lost Time Incidents (LTIs) reported this month

Accurately account for cost across projects

# Account for Change & Maximize Efficiency

Proactively manage contract spending with a robust change management engine

Reduce contract overspending due to improper change management

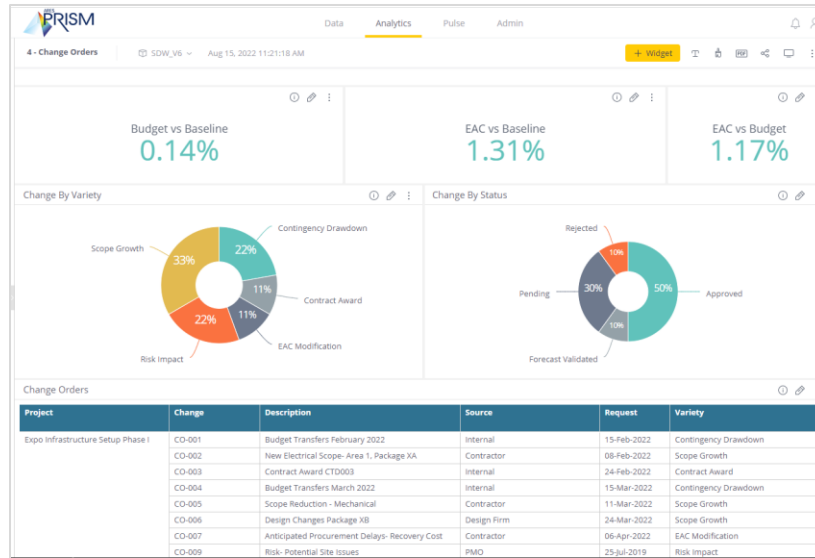
Average annual reduction in contract overspend

**4%**

Annual Benefit:

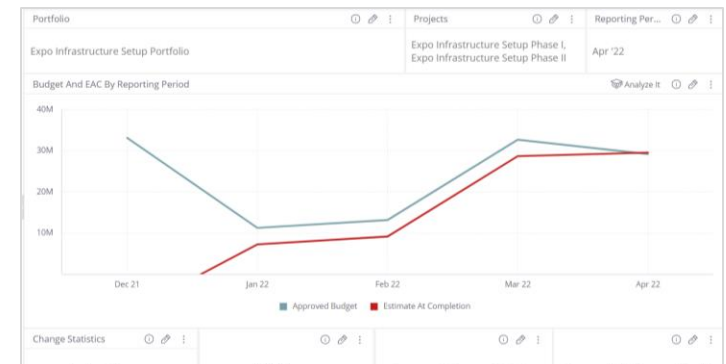
**\$40,000,000**

Per \$1 Billion in Annual Contract Overspend



Advanced change management with workflows for an in-program user notification, action items, review and approval

Auto-generate the list of approvers based on PRE-configured delegation of authority policies



Ability to graphically represent the changes to the budget and project the EAC.

Milestone Description	Approved	Current	Variance	Time Interval	Budget	Earned	Actual	SV	CV	SPI	CPI
Area A1 Completion	12-May-2023	12-May-2023	0	1- PREVIOUS	2,580,217	3,753,804	4,048,200	1,173,587	-294,396	1.45	0.93
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# Improve Visibility to Make Informed Decisions

Increase project deliverability and cost-efficiency to stay within budget

Reduce time spent on data collection, entry, and validation

Average annual reduction in FTE labor hours

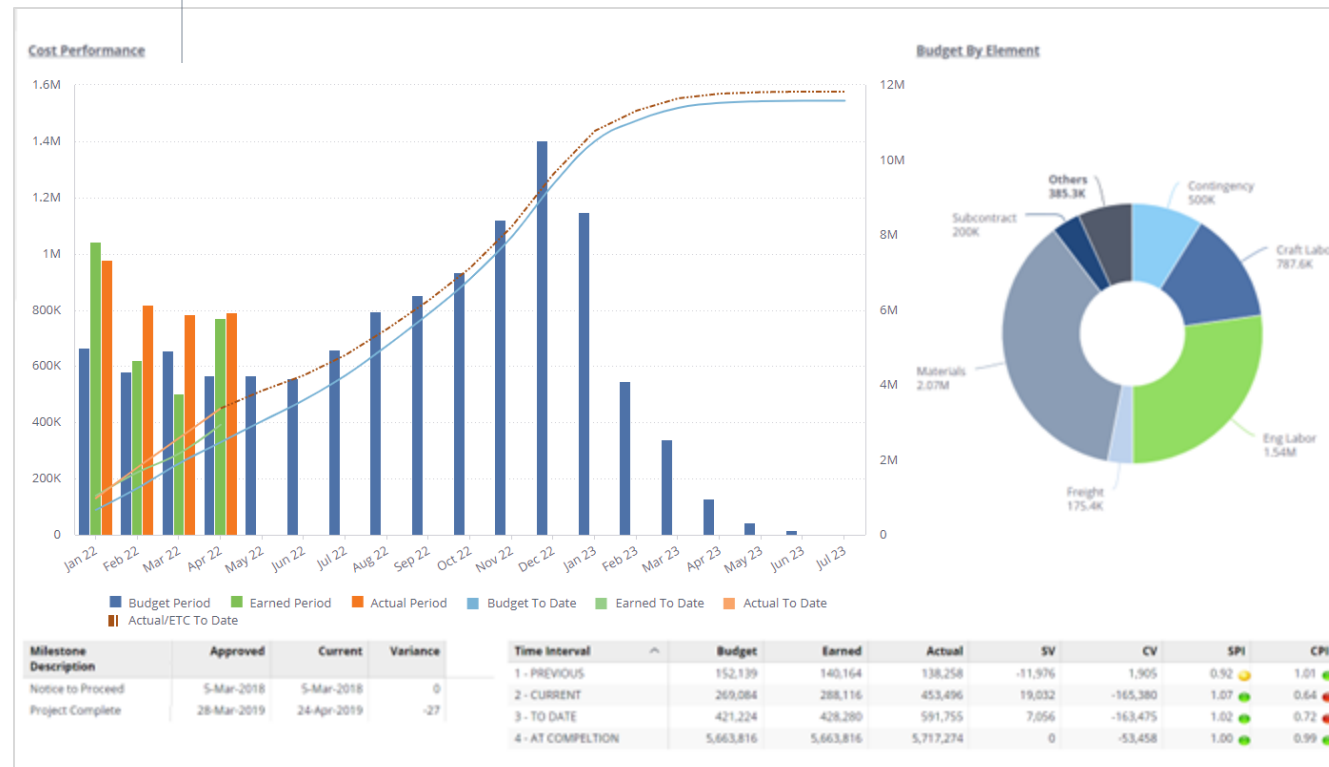
**80%**

Annual Benefit:

**\$952,000**

Per 10 Project Controls FTEs

Determine if project / contract is ahead or behind



Visibility into progress and performance indicators

# Manage Contracts & Contractor Activity

Organize contract milestones, utilize pre-built reports and track contract-level progress

Reduce time spent on contract administration

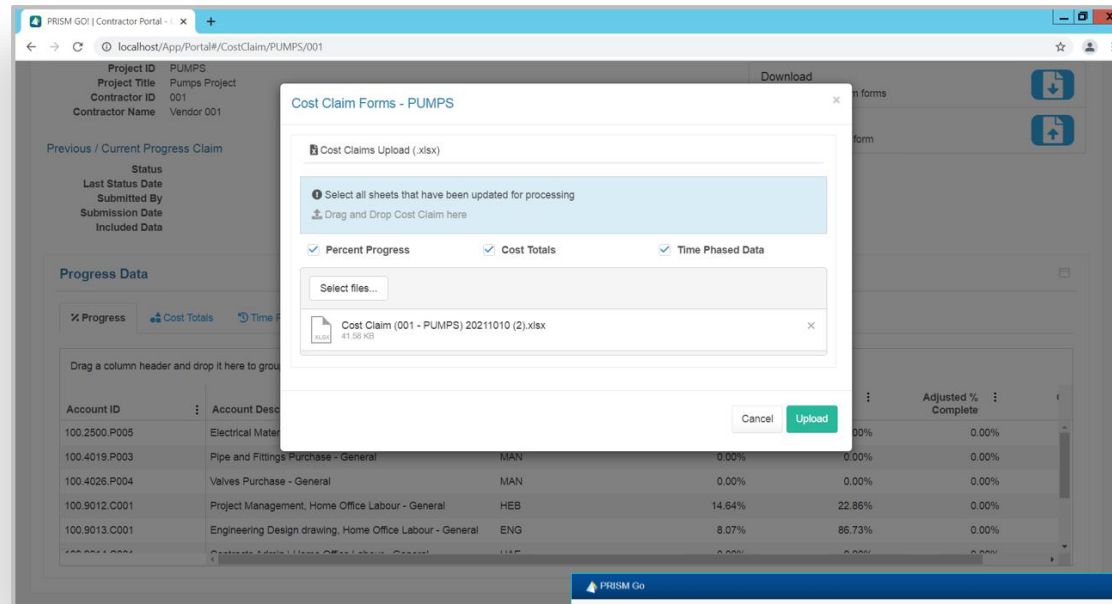
% reduction in time spent on contract administration

50%

Annual Benefit:

\$178,000

Per \$1 Billion in Annual Project Spend



Gated contractor access for data viewing, template downloads and uploads

Contractor Portal provides visibility into the progression of contractor claims, allowing you to track progress

Item	Description	Price Unit	Unit Price	Quantity Unit	Original Quantity	Approved Change Quantity	Approved Quantity	Proposed Quantity Installed To Date	Adjusted Quantity Installed To Date	Quantity Installed Previous	Quantity Installed This Period	Quantity Remain...	Original Hours	Approved Change Hours	Approved Hours	Proposed Hours Worked To Date	Adjusted Hours Worked To Date	Hours Worked Previous	Hours Worked This Period	H	Rema
001	Surveying Work - Potable Water Area	LOT		1.00	1.00		1.00						65.00		65.00						
002	Surveying Work - Fuel Storage Area	H	219.00	LOT	1.00		1.00						90.00		90.00	50.00	50.00				



# The New Currency of Project Controls

(W) [www.aresprism.com](http://www.aresprism.com)

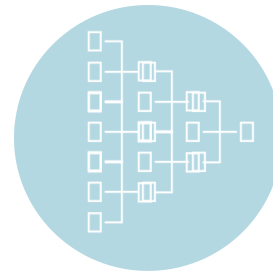
(E) [prisminfo@aresprism.com](mailto:prisminfo@aresprism.com)

2022

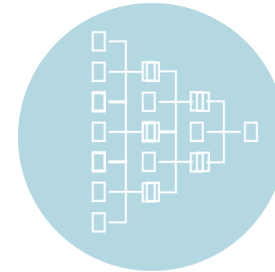


# New Currency of Project Controls

Traditionally,  
focused on  
integration of  
cost and  
schedule



**Cost**



**& Carbon**

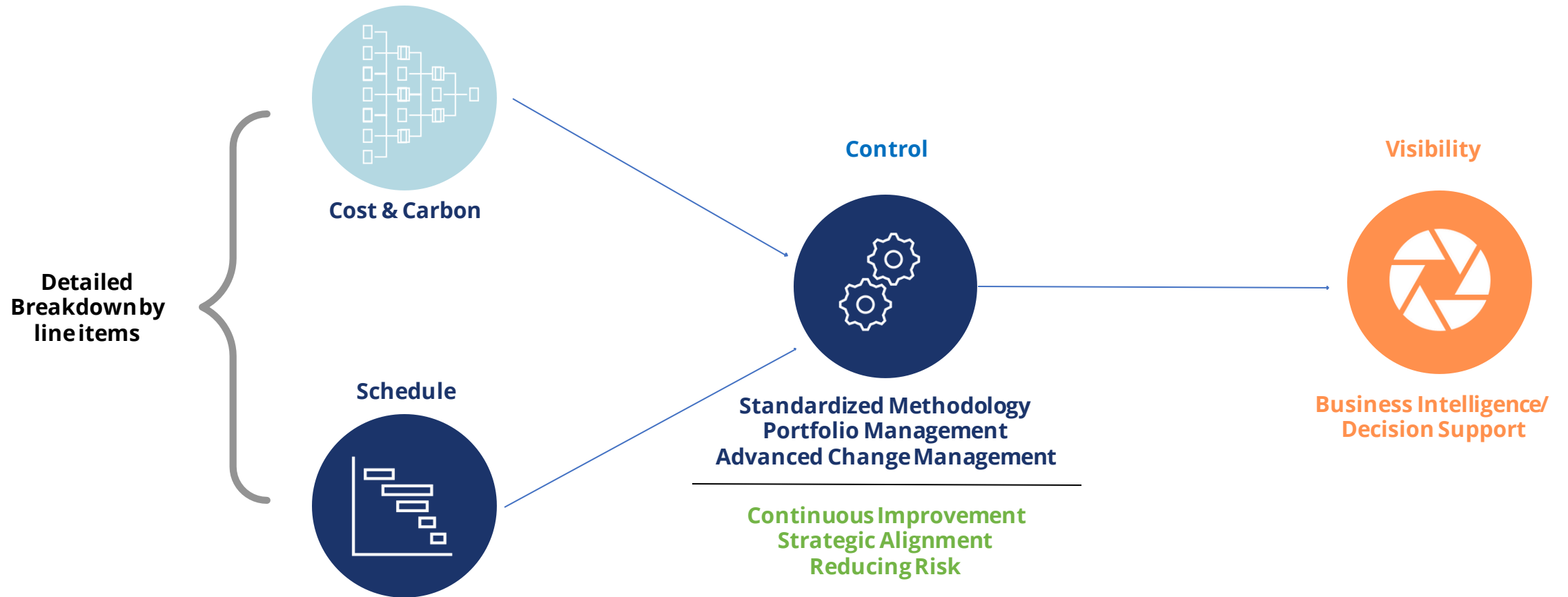
Now adding a  
third element  
- CARBON!

**Schedule**



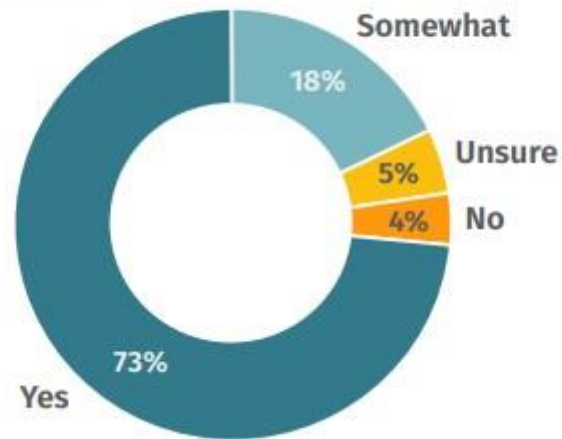


# New Currency of Project Controls

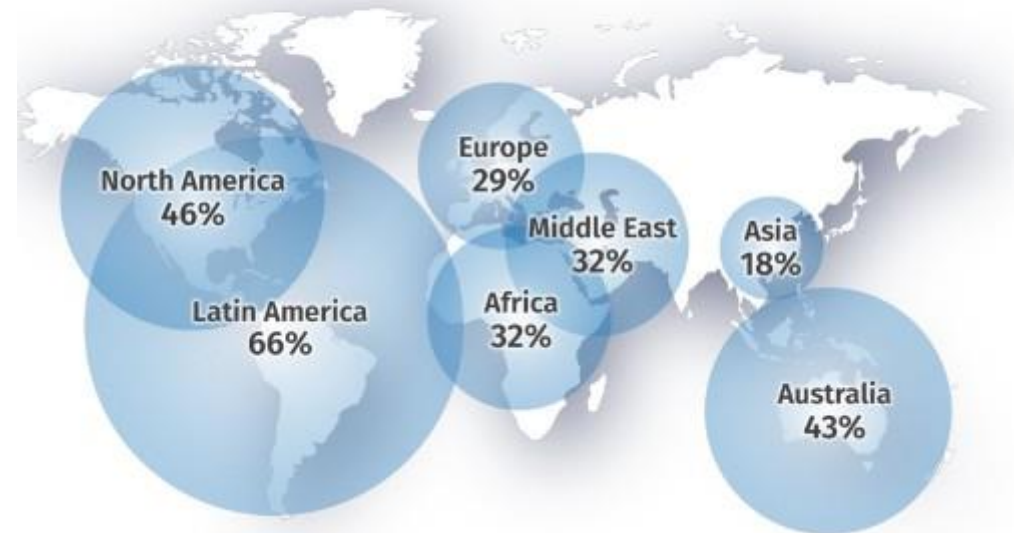


# Sustainability Impacts on Project Management

## Does sustainability Create or Add Value?



## Percentage Not Currently Tracking Sustainability or Unsure



## Does Project Management Have a Role in Sustainability Programs?



94% of survey respondents think their organizations will take sustainability efforts into account to some extent going forward.



# Regulations & Industry Standards



## THE COMPANIES ACT 2006

### THE COMPANIES ACT 2006 (DISTRIBUTIONS OF INSURANCE COMPANIES) REGULATIONS 2016

2016 No. 1194

#### 1. Introduction

1.1 This explanatory memorandum has been prepared by HM Treasury and is laid before Parliament by Command of Her Majesty.

#### 2. Purpose of the instrument

2.1 This Statutory Instrument amends Part 23 of the Companies Act 2006 ("Companies Act"). Part 23 restricts the amount of assets which a company may distribute to its shareholders, and the provisions which apply to life insurance companies need updating as a result of the coming into force of Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) ("the Solvency 2 Directive"). This Statutory Instrument updates Part 23 by inserting a new section for life insurance companies authorised in accordance with that directive whilst maintaining existing provision for other life insurance companies.

#### 3. Matters of special interest to Parliament

##### Matters of interest to the Joint Committee on Statutory Instruments

3.1 None.

##### Other matters of interest to the House of Commons

3.2 As this instrument is subject to negative resolution procedure and has not been prayed against, consideration as to whether there are other matters of interest to the House of Commons does not arise at this stage.

#### 4. Legislative Context

4.1 The Solvency 2 Directive establishes the framework for the prudential supervision of insurance undertakings and reinsurance undertakings in the European Union. It is implemented in the United Kingdom by the Financial Services and Markets Act 2000, secondary legislation made under that Act, rules made by the Prudential Regulation Authority and the Solvency 2 Regulations 2015 (S.I.2015/575).

4.2 The Solvency 2 Directive has been amended on a number of occasions, in particular by Directive 2014/51/EU (the Omnibus II Directive). Both the Solvency 2 Directive and the delegated act made under it by the European Commission were subject to the following scrutiny:

- (a) EM 11978/08 on the Commission draft Directive of the European Parliament and the Council on the taking-up and pursuit of insurance and reinsurance: Solvency II was submitted by HM Treasury on 7th August 2007. It was cleared by the House of Commons European Scrutiny Committee on 23rd May 2008 as politically important. It was cleared by the House of Lords EU Select Committee on 25th November 2008;

TN&M/10-2015, 1

1

## PAS 2080 Carbon Management in Infrastructure Verification



## ICMS

INTERNATIONAL  
COST  
MANAGEMENT  
STANDARD

### ICMS: Global Consistency in Presenting Construction Life Cycle Costs and Carbon Emissions

3rd edition, November 2021

ICMS Coalition



# Multi-Dimensional Project Controls

## Traditional Cost Performance S-Curve



## Carbon Target vs Actual S-Curve





# Generate Integrated Whole Life Cost & Carbon Estimates



## CAPEX (PAS 2080 A1 – A5)

- At element level allow cost and carbon visibility at element / component level support
  - Material substitution to see effect on cost and carbon
  - Impact of transport for
    - Material, Labor and Equipment
  - Site fuel costs
  - Support full estimate life cycle
    - Early day / budget setting
    - Optioneering and design
    - Target cost and negotiation

## OPEX and End of Life (PAS 2080 B, C & D)

- At asset level forecast cost and carbon for:
  - Operation
  - Repair and replace
  - Demolition
  - Residual carbon
- Also look at
  - Circular economy
  - Repurposing
  - Links to asset management
  - Condition based monitoring and maintenance





# BENEFITS

**01**

IMPROVE COMPETITIVE  
ADVANTAGE

INCREASE PRODUCTIVITY  
AND REDUCE PROJECT  
COSTS

**02**

**03**

INCREASE REGULATION  
/ MANDATE  
COMPLIANCE

ATTRACT EMPLOYEES  
AND INVESTORS

**04**

**05**

REDUCE WASTE

**06**

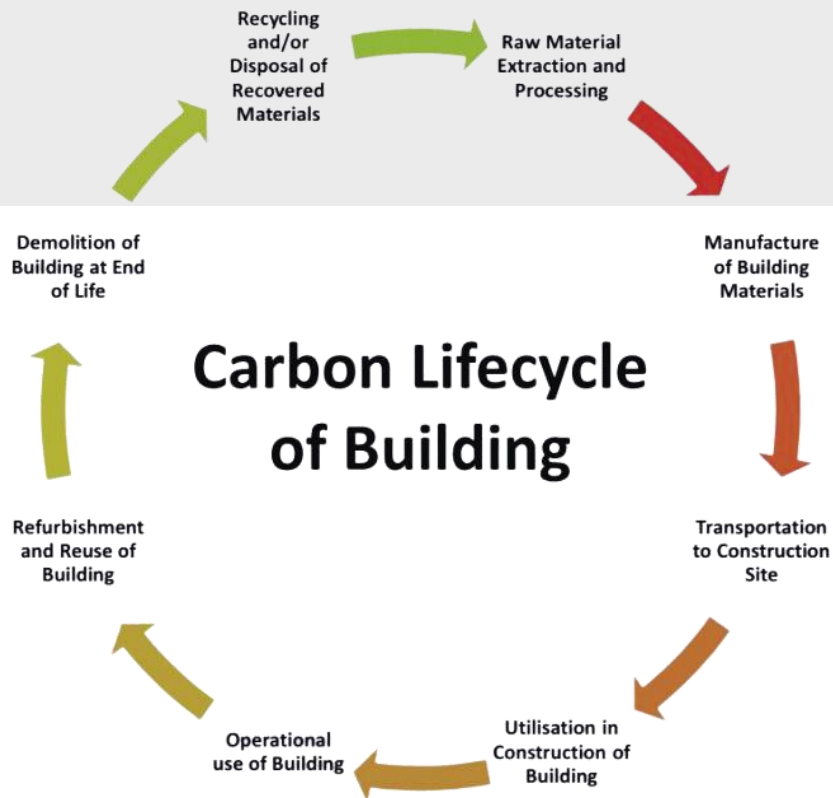
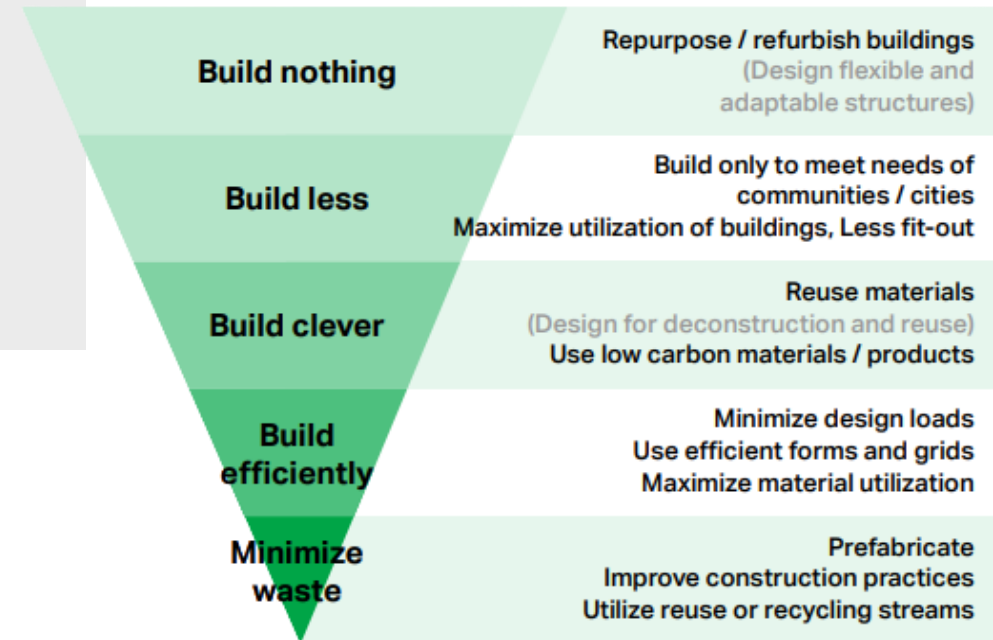
PLEASE  
SHAREHOLDERS



Term	Importance
Environmental	Trade off for sustainability verses cost Equal weighting between environment costs and monetarily costs Capex, Opex and end of life need to balance Circular Economy considerations
Social	Sustainable investments for shareholders Sustainable asset design Aesthetic vs utilitarian Wider social benefits
Governance	Publish what you are going to do Measure your progress and resource consumption Control change and productivity Report your achievements

# MULTIPLE CLIMATE CHANGE INITIATIVES

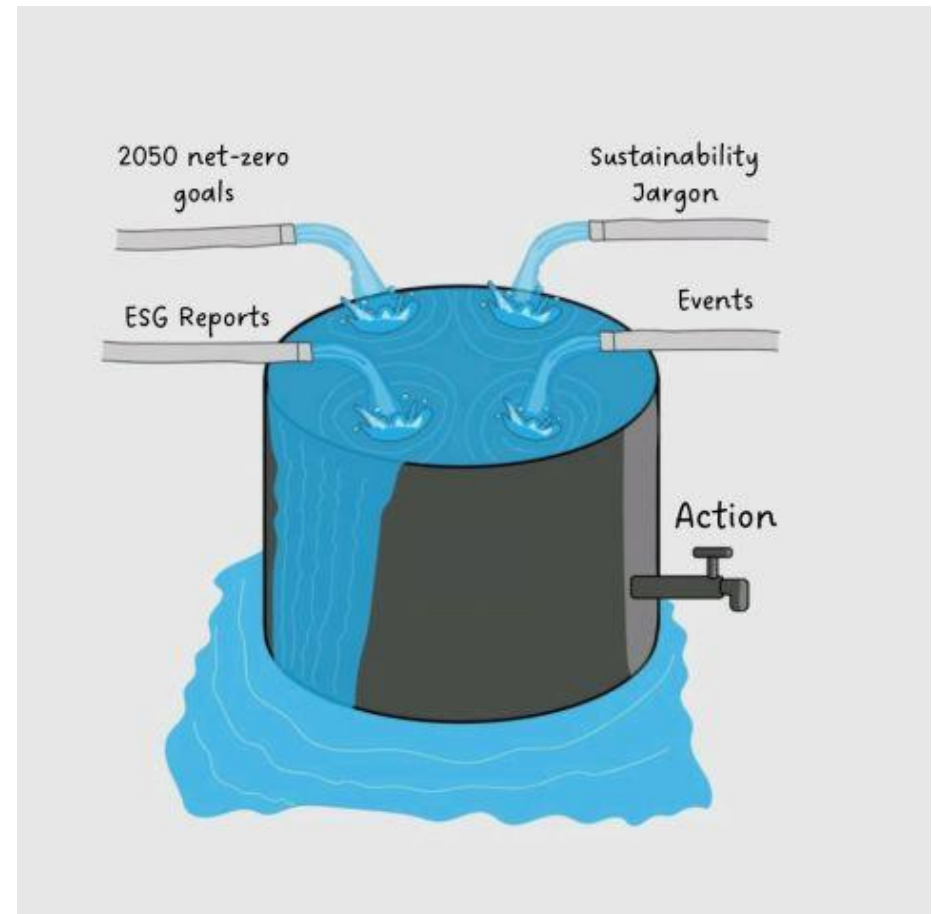
## EMBODIED CARBON REDUCTION STRATEGY



# What We Are Seeing Across the Industry

- Pockets of excellence
  - Great work in the definition of material embodied carbon
- Strong community buy-in
  - Zero Construct
  - Zero Next Gen
- Good sharing of knowledge and experience
  - Professional bodies
  - Leading consultancies

Take action by measuring what matters...





# ENVIRONMENT AGENCY

**In order to meet Net Zero ambitions by 2030, the Environment Agency is rolling out ARES PRISM's Cost & Carbon across its construction projects as the organization's solution.**

*"This process is now 12 times quicker in parts, freeing up that time to engage earlier in collaboration and assess suitable options. The platform [lets] us standardise processes and data across regions. We [are] able to develop estimates using master rate libraries and pre-built templates called 'assemblies' to speed up estimating of commonly built assets/components."*



**- Alex Jones**

Cost and Carbon Project Manager  
Environment Agency

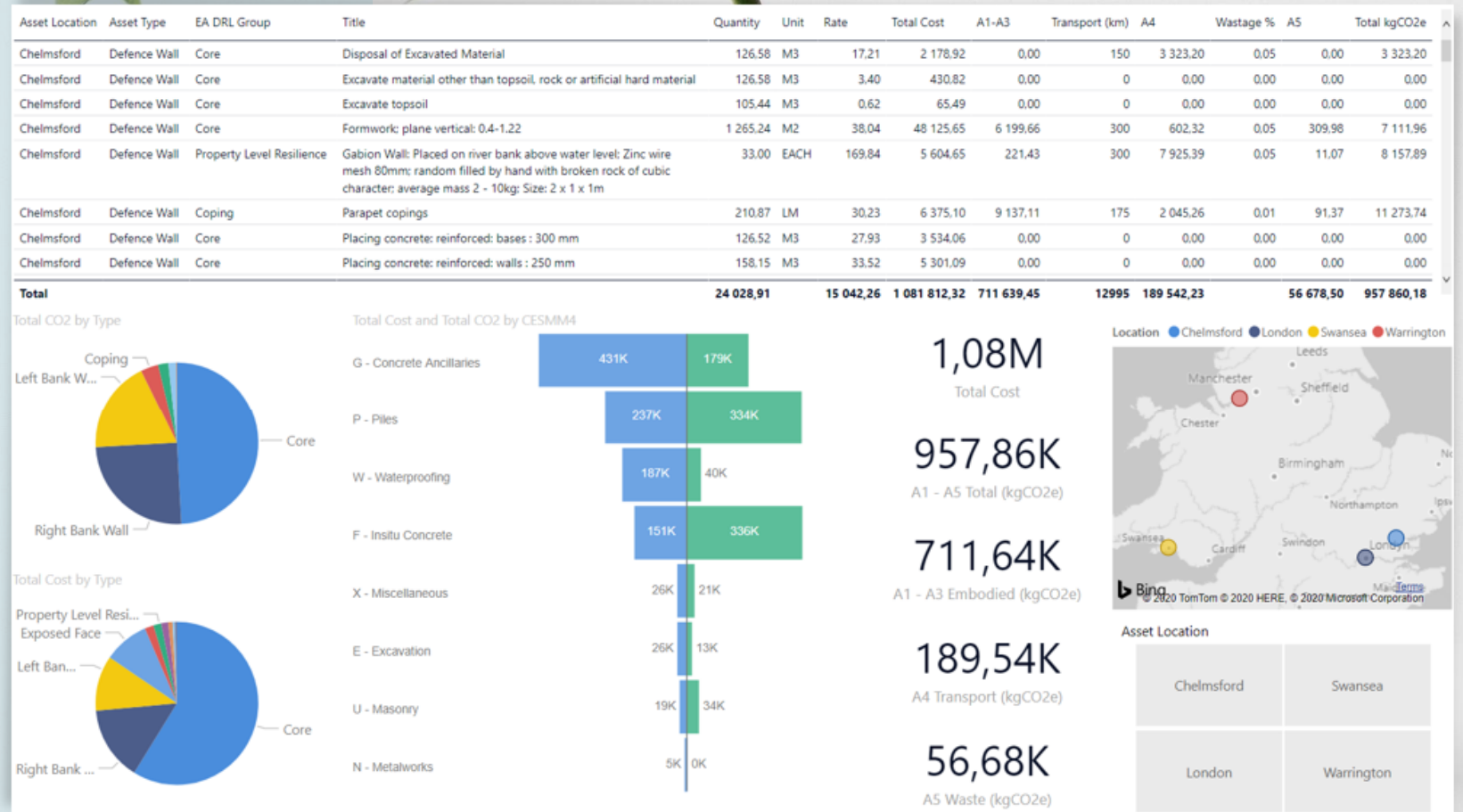
## **ARES PRISM Provides:**

- Built-in carbon rates supported by BCIS CESMM4
- Alignment with PAS2080 offering a framework for calculating carbon in all aspects of the asset lifecycle
- Faster project estimates developed using master rate libraries and pre-built templates
- Mitigation of carbon impacts and the budgetary costs associated with them
- A single platform for the estimation of cost and carbon providing carbon transparency for capital build projects
- Improvement in consistency, governance, and integrity of estimates

# Carbon Reporting



- Measure and monitor your project's emissions with our carbon reporting dashboards.
- Estimate project carbon, track and monitor project emissions, and visualize and understand where your project and emissions originate from.





# Carbon Reporting





A nighttime cityscape with a multi-lane highway in the foreground. The highway shows light trails from cars, with white and yellow streaks on the left side and orange and red streaks on the right side. In the background, several tall skyscrapers are illuminated with lights, and the sky is dark. The overall scene is a vibrant, modern urban environment.

ARES PRISM Software is

# Faster to Deliver

- ✓ Accuracy
- ✓ Implementation
- ✓ Integration
- ✓ Compliance
- ✓ ROI

**Come by the  
ARES PRISM  
Stand 05**



**THANK YOU**