



# AI platform for maximising the efficiency and outcome of construction projects

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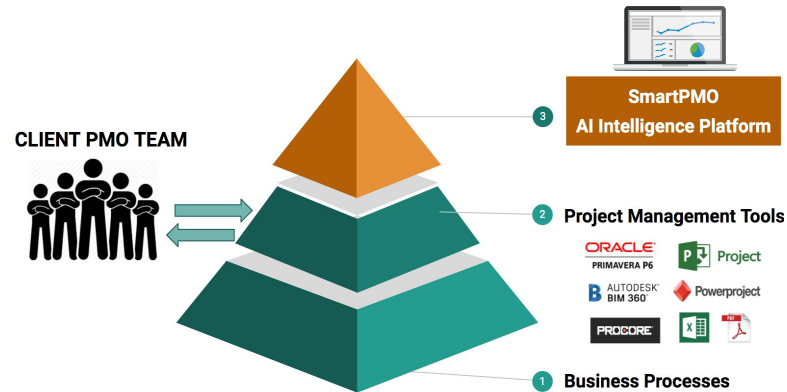
CitA **TECHLIVE**  
2022 Challenge, Change, Learn

Welcome to  
TechLive 2022

by CitA, Ireland's premier  
multidisciplinary construction  
network.

# WHAT WE DO

- Smart PMO Ltd is an **AI firm** based in Dublin (Ireland) with global operations.
- We solve complex industrial problems using **AI and data science** and state-of-the art **business processes**.
- We specialise in building advanced AI software to **de-risk and optimise complex capital project planning and control**.





# CONSTRUCTION PRODUCTIVITY - THE PROBLEM

**75%**

Projects delayed more than 10% vs planned

**20**

Months Average delay

**59%**

Projects more than 10% over budget

Poor Change Control

Inaccurate estimations

Poor project management

Project team changes

**Increased Project Complexity**

Inadequate Risk Management

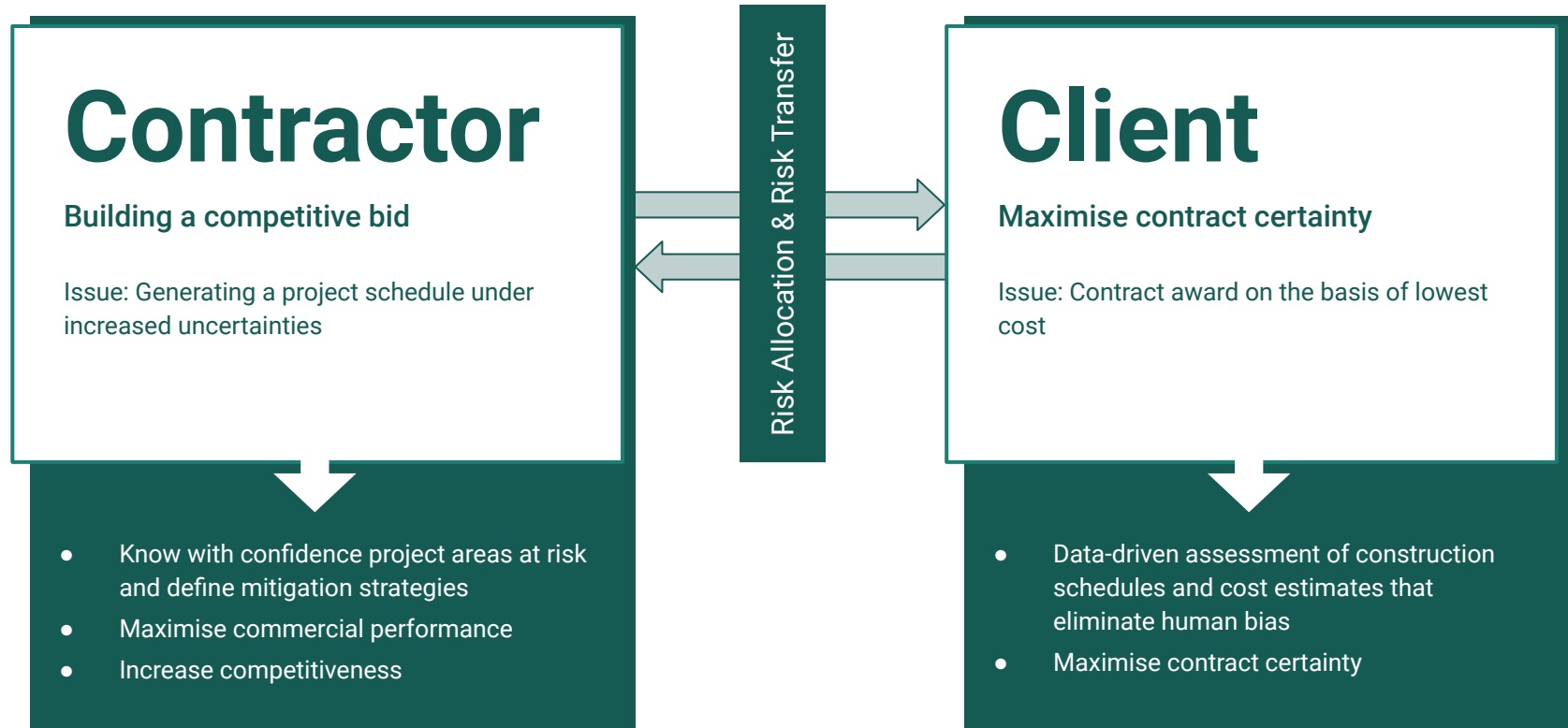
Unforeseen Risks

Information gap

Supply Chain

\* Climbing the Curve, KPMG Global Construction Project Owner's Survey

# CONSTRUCTION PROCUREMENT - THE CHANGE IMPERATIVE



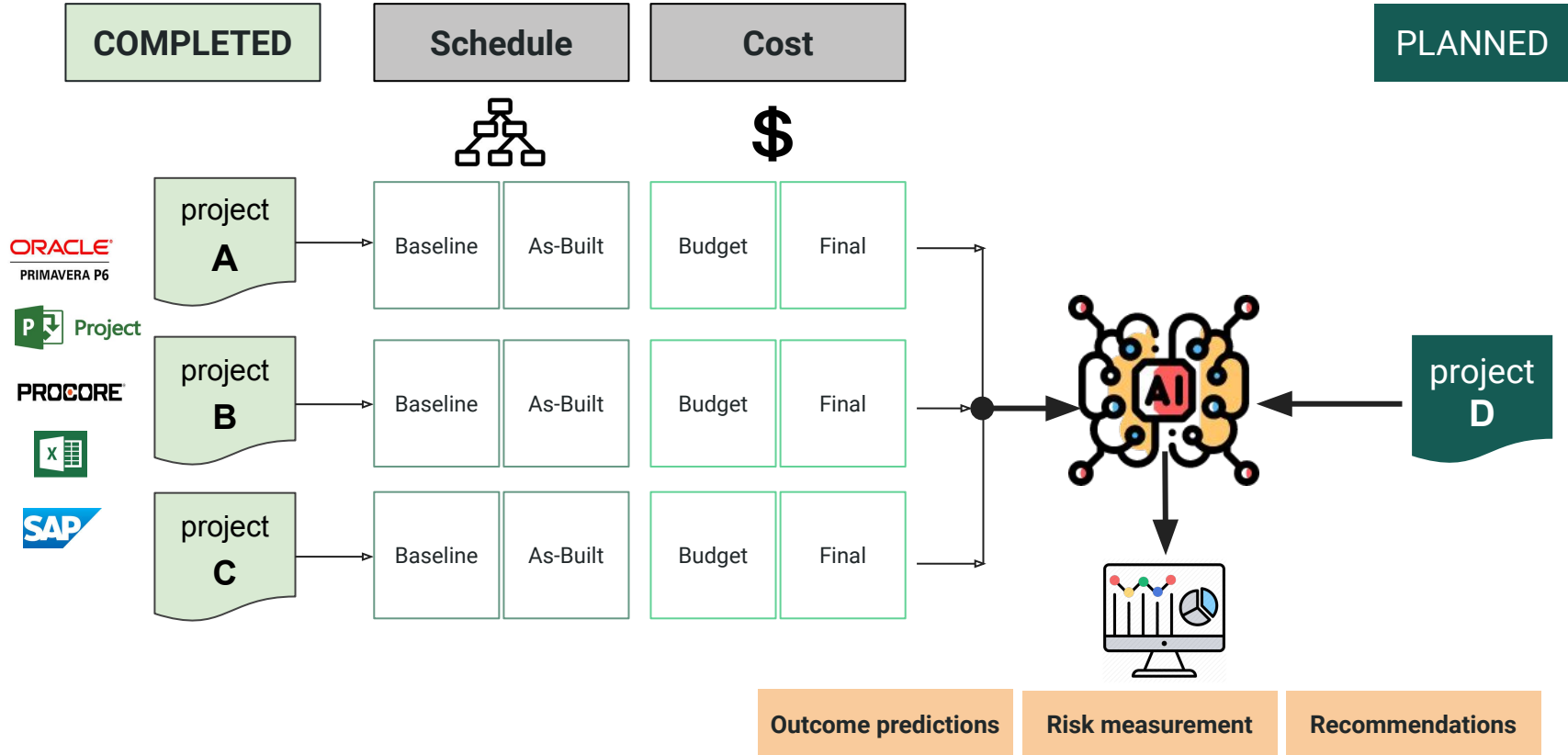
# AI-POWERED PROJECT PLANNING & CONTROL



We enable customers through AI to **learn lessons from past projects** to provide **assurance and predictive power** for **new projects** throughout their lifecycle



# PROJECT MANAGEMENT INTELLIGENCE



# SmartPMO AI Platform

**When?**

Planning

Construction

Post-Construction

**Who?**



Executive Management & Project Teams

**What?**

- Schedule risk assessment
- Cost benchmarking
- Project Portfolio optimisation
- Benchmarking (sub)contractors
- Predict project/activity outcome
- Predict & quantify schedule risks
- Recommend plans to mitigate risks
- Data-driven Post investment review
- Project ROI and scoring

## Planning (Contractor)

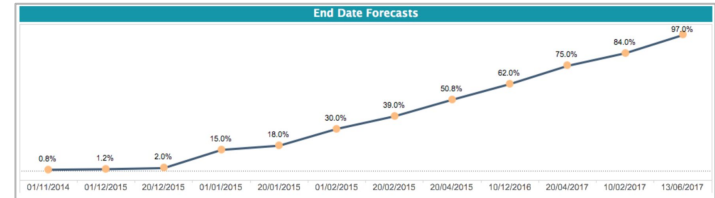
### Programme Integrity

Provide the planning team with an overview of schedule quality, predicted outcome & risk look-ahead.

Uncertainty	AI End	Planned End	Schedule Quality
4.0%	11/11/2016	12/02/2014	78.6%
	Cost Variance	Predicted Cost	
	\$17.1M	41M	

### Unbiased forecast of End date

Shows the range of most likely end dates for the project.



### Unlock high-risk Activities

Know with confidence areas of the project that are most at risk with specific mitigation plans. AI methods that outperform QSRA / Monte Carlo analysis.

Activity	Activity	WBS Level 2	WBS Level 3	WBS Level	Start Date	End Date	At end	Variance	Duration	Likelihood of Co.	Budget	Cost AI
0000	RECEIVE THE PROJECT RIGHT OF WAY	Milestones	Null	Null	Null	Null	Null					
0000	FINISH OF BRIDGES WORKS (FINISH M)	Milestones	Null	Null	Null	Null	Null					
0000	SUBMIT SUBCONTRACTOR FOR PILES	ENGINEERING	SUBCONTRACTORS	Subtotal	04/12/2012	12/12/2012	07/01/2013	26	28.2%	73,300	254,400	
0000	EARTH WORKS MATERIALS	ENGINEERING	MATERIALS	Subtotal	10/12/2012	18/12/2012	09/01/2013	16	12.0%	56,800	342,800	
0000	LIGHTING AND ELECTRICAL MATERIALS	ENGINEERING	MATERIALS	Subtotal	03/12/2012	05/12/2012	14/12/2012	8	3.8%	8,800	11,600	
0000	WATER PIPE LINE MATERIALS	ENGINEERING	MATERIALS	Approval	08/12/2012	18/12/2012	23/12/2012	4	2.4%	36,000	480,000	
0000	MECHANICALLY ENHANCED EARTH W.	ENGINEERING	MATERIALS	Approval	02/12/2012	09/12/2012	05/01/2013	27	21.5%	18,300	23,800	
0000	STRUCTURES SHOP DRAWINGS	ENGINEERING	SHOP DRAWINGS ICB	Subtotal	10/12/2012	18/12/2012	28/12/2012	16	16.0%	8,400	64,000	
0000	ROADS & UTILITIES AS-BUILT DRAWN	ENGINEERING	AS-BUILT DRAWINGS	Approval	05/12/2012	10/12/2012	13/01/2013	29	22.0%	36,000	450,000	
0000	PROC. MATERIAL FOR WATERPROOF	PROCUREMENT	CIVIL MATERIALS	Subtotal	08/12/2012	11/12/2012	09/01/2013	22	23.2%	19,000	25,000	
0000	PROC. MATERIAL FOR WATERPROOF	PROCUREMENT	CIVIL MATERIALS	Approval	03/12/2012	11/12/2012	28/12/2012	17	17.2%	15,000	210,000	
0000	PROC. MATERIAL FOR WATERPROOF	PROCUREMENT	CIVIL MATERIALS	Finalized	08/12/2012	11/12/2012	26/01/2013	25	25.5%	13,000	130,000	

## Planning (Client)

### Portfolio Risk Assessment

Accurately and objectively assess projects schedule and cost risks and predict projects outcome.

### Portfolio Analysis & Prioritisation

Identify projects to be prioritised to maximise assurance, financial and economics KPIs based on predicted outcomes and risks.

### Contractor Benchmarking & Scoring

Benchmark contractors based on time and cost performance vs other contractors

Portfolio - Planning							
Projects							
Name	Start Date	Duration (months)	Likelihood of Completion %	Schedule Variance	Budget	Schedule Quality Index	RIS
	15/05/2010	20	1.1%	91%	\$17,300	84.3%	
	30/03/2010	15	1.2%	22%	\$38,790	58.6%	
	23/07/2012	39	2.9%	97%	\$34,090	31.6%	
	28/03/2009	40	3.8%	68%	\$23,290	56.3%	
	25/04/2010	68	4.0%	56%	\$28,090	96.6%	
	15/04/2010	42	4.2%	22%	\$42,290	96.6%	
	01/03/2007	32	5.4%	39%	\$51,790	73.3%	
	18/05/2008	33	5.5%	89%	\$15,490	88.4%	
	18/03/2011	47	5.6%	88%	\$22,390	80.2%	
	18/04/2008	75	6.2%	53%	\$7,490	65.3%	
	05/04/2011	43	6.5%	79%	\$20,290	29.7%	
	25/04/2010	68	6.5%	56%	\$23,790	48.2%	



## Post Investment Review

- **Get an external view of the project, validated with data**
- AI-based **retrospective analysis** to understand **What happened, What went wrong and Why?**
- Summarise time and cost variances from the initial scope.
- Identify scope changes, changes that impacted key dates/milestones.
- What went wrong? Risk evaluation.
- Understand Why? Find reasons that impacted the project outcome.
- Lessons learned: Indication of how loss and risks could be avoided in future.



# Get involved

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