



Project Controls

E X P O

Project Controls Expo – 13th Nov 2013

Twickenham Stadium, London

**Risk and Planning, how to use the QSRA
process to intelligently apply risk to planning
without affecting Earned Value
Management.**



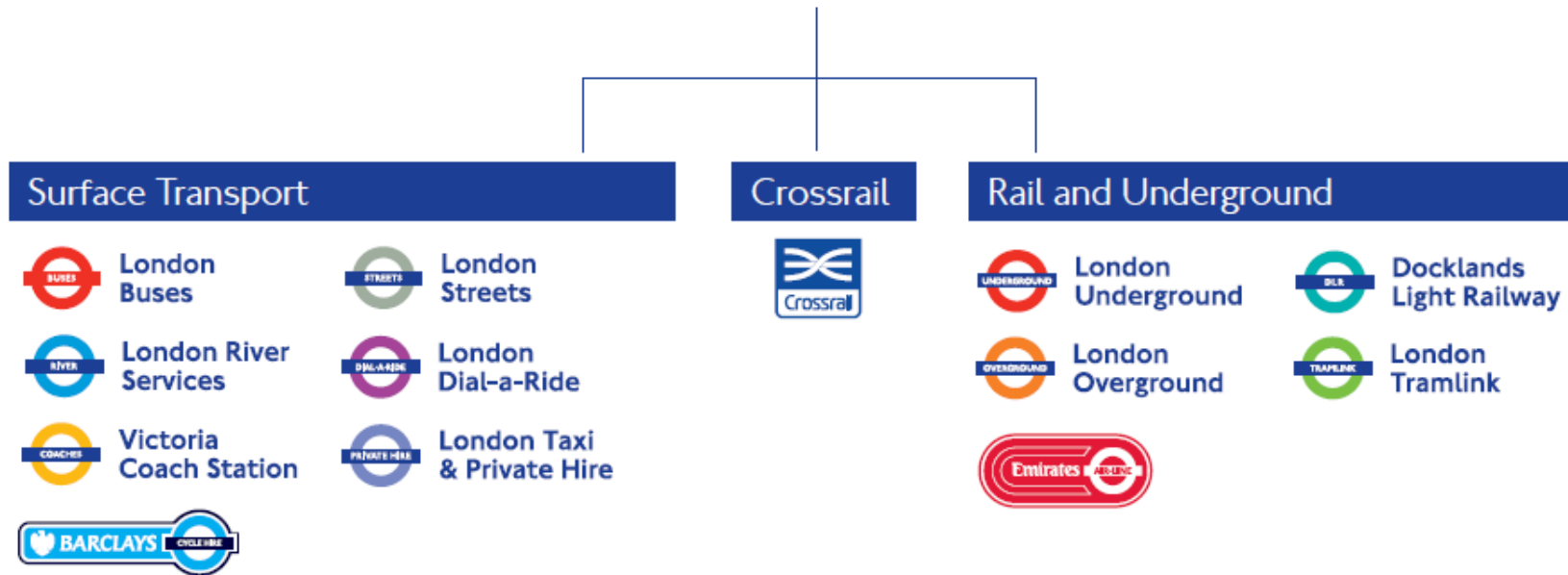
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Up next

- What is Transport for London? and how do we manage our capital programmes?
- TfL's vision for Integrated Project Controls
- Integrating risk and planning
- What are our challenges?

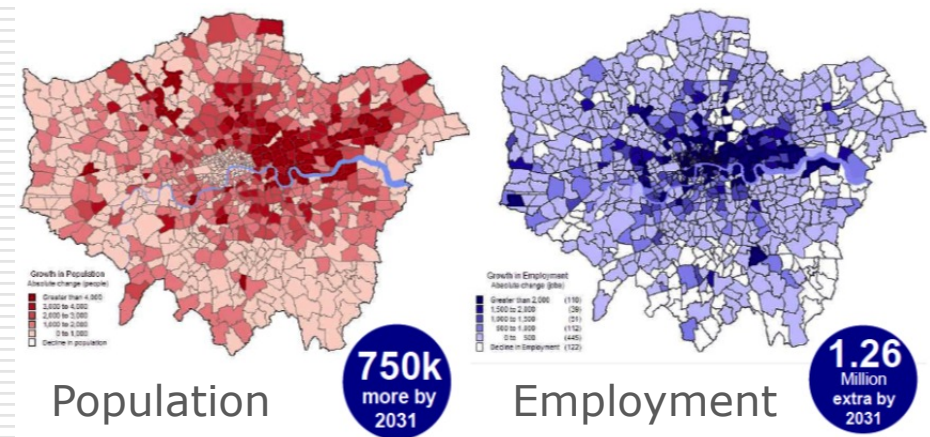
What is TfL?



The scale of our challenge

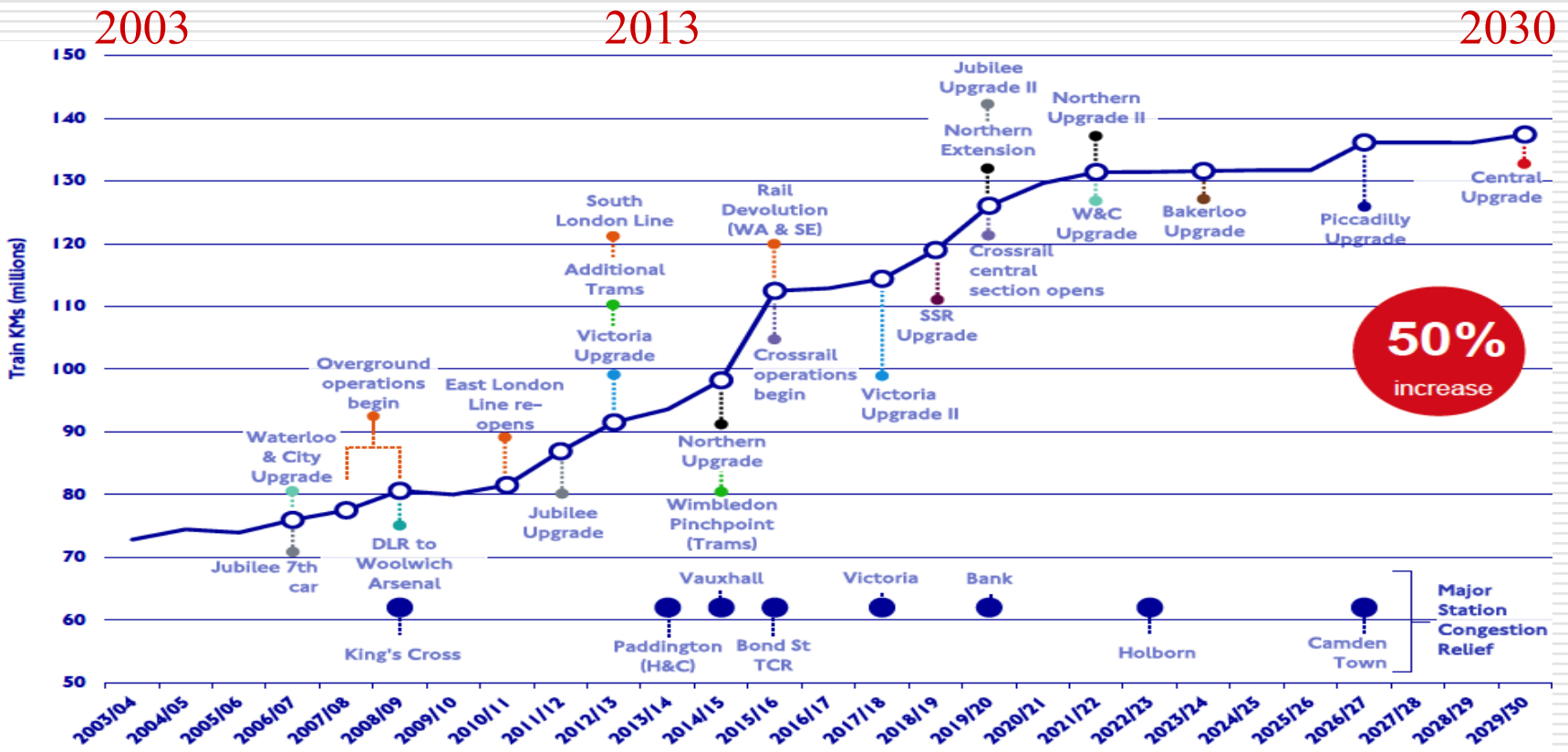
- London's growing all the time, at a rate equivalent to a tube train full of people added every week
- Economy demands more for less
- Embracing new technology
- Ageing infrastructure

London is an old and very brown field site in which to undertake project work

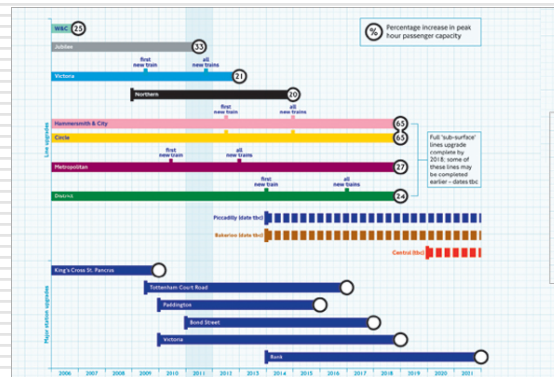


TfL's Capital Delivery Programme

- Circa £2.6 billion budget per year
- Heavy Engineering & Construction
- Tunnels
- Rail & Signalling
- Vehicles
- Power & Comms
- Cooling
- Waterways
- Safety Critical Software



Meeting demand



Some of what we have already delivered



Electric Cars



1300 Charging stations delivered

Victoria line upgrade



Upgrade complete with full fleet replaced

SSR upgrade



Full S8 fleet now in service

New Bus for London


















8 new buses in service, 1st Route converted for fleet

ELL extension



Record demand on Overground services

Some of what's left to do..

<p>2013 – Contactless Bank Card Technology</p> 	<p>2014 – Northern line Upgrade Completion</p> 	<p>2014 – Wimbledon Pinchpoint (4 new trams)</p> 	<p>Cycle Super Highways – 6 further routes to deliver</p> 	<p>2015/16 – Overground Additional Cars</p> 
<p>2016 – TCR New Facilities Open</p> 	<p>2017 – Congestion Relief at Bond Street Complete</p> 	<p>2018 – SSR Signalling Upgrade Complete</p> 	<p>2018 – Victoria Station Upgrade Complete</p> 	<p>New bus for London – 600 buses to deliver</p> 
<p>2016-2020 – Jubilee and Vic line up to 36 TPH</p> 	<p>2020 – Battersea Extension Complete</p> 	<p>2021 – Bank Congestion Relief Complete</p> 	<p>2022 – Northern Line Upgrade 2 Complete</p> 	<p>2024 – Bakerloo + W&C Line Upgrades Complete</p> 

Delivering within 'The Zone'



Integrated Project Controls

Our vision for achieving better project delivery



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Integrated Project Controls

- ❑ Consolidated, common WBS & CBS
- ❑ Implementing Repeatable Work Items to assist estimating and enable benchmarking
- ❑ Full alignment of controls functions at a business process level
- ❑ Analysing cost and time alignment in order to inform robust financial forecasting at Enterprise level
- ❑ System agnostic, TfL wide methodology



Active



Accountable



Fair &
Consistent

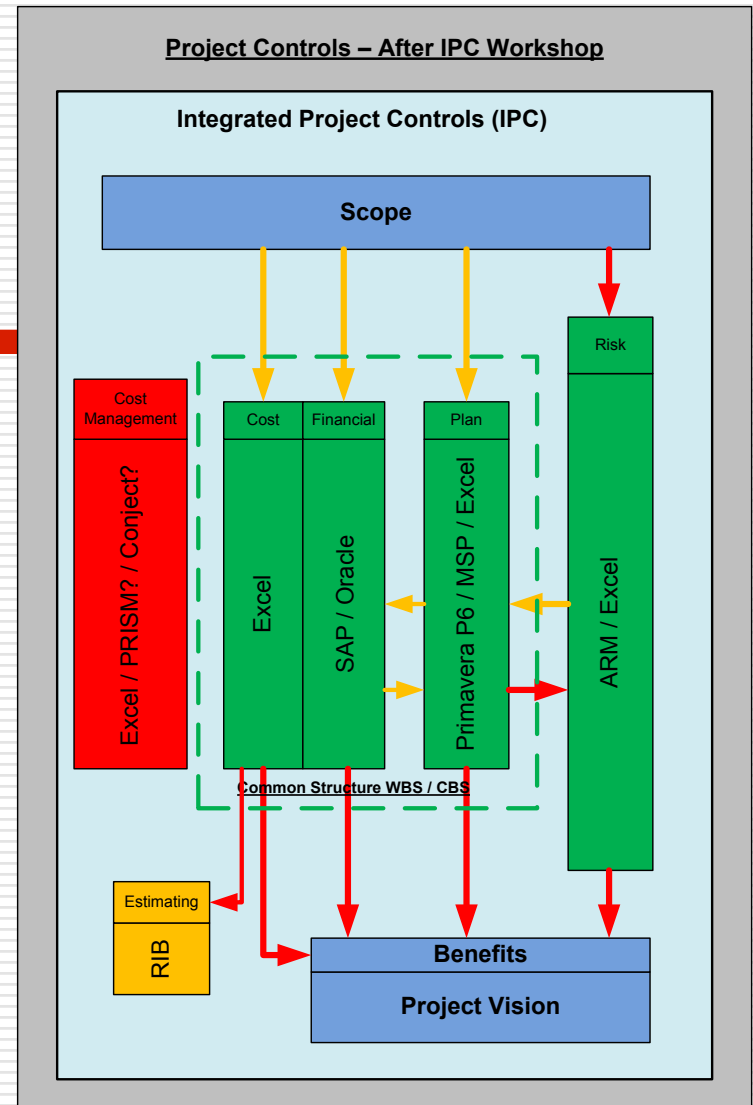
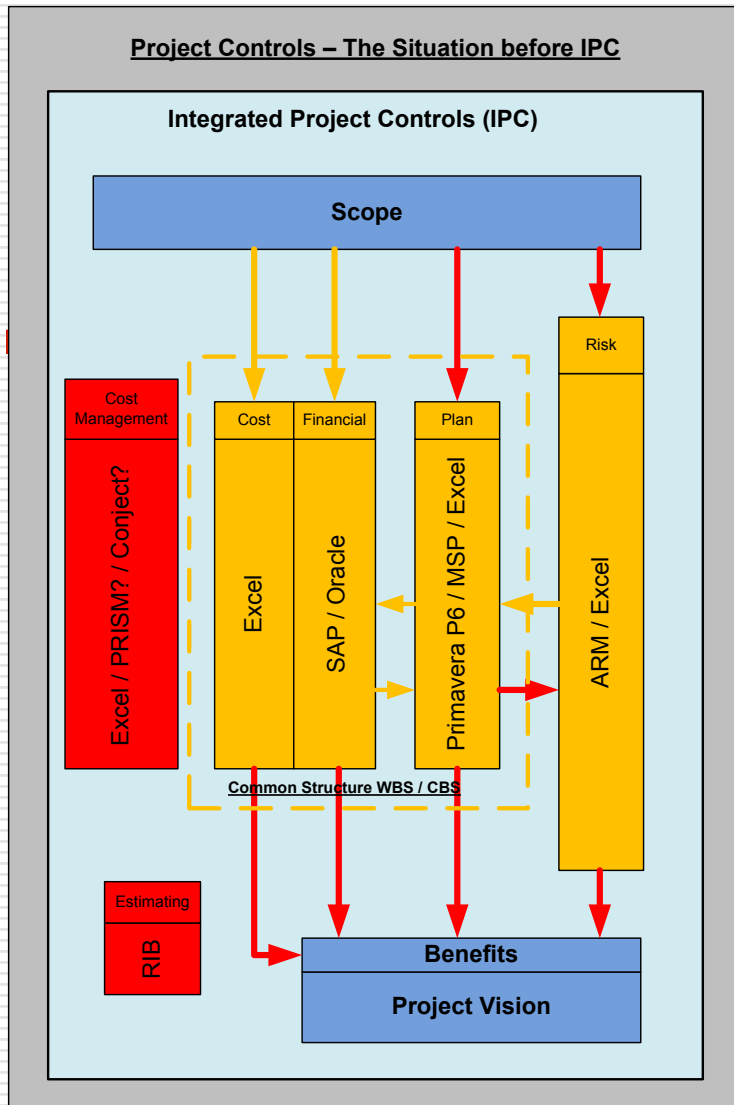


Direct



Collaborative

Integrated Project Controls

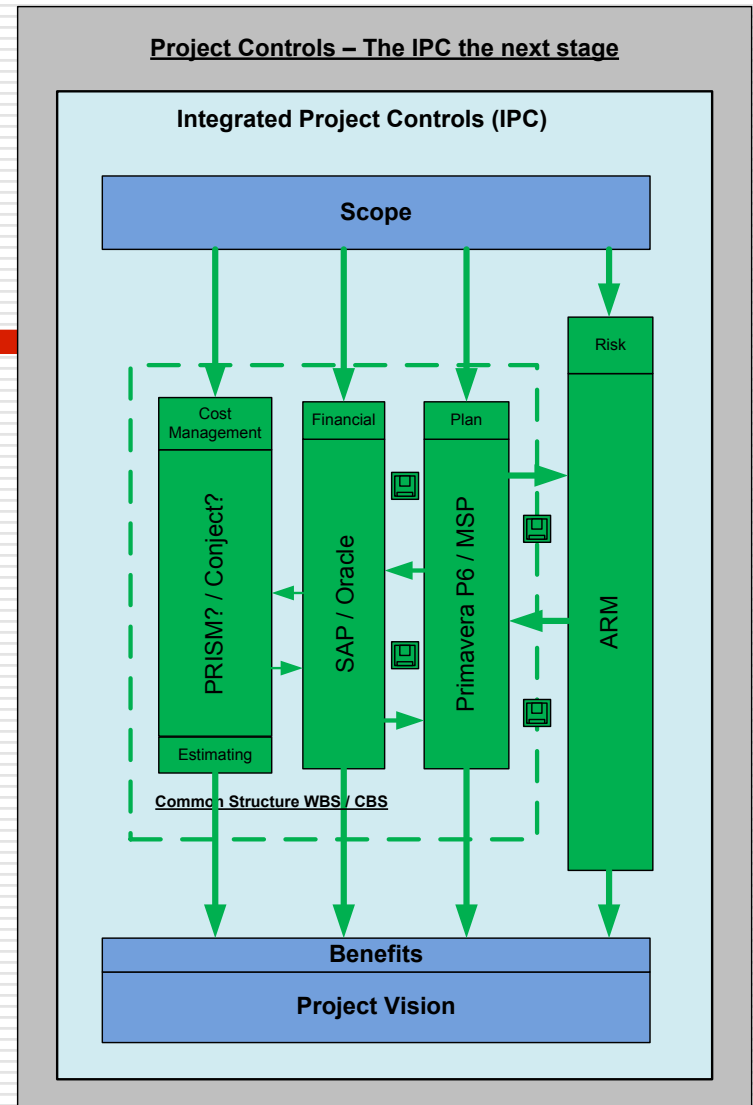
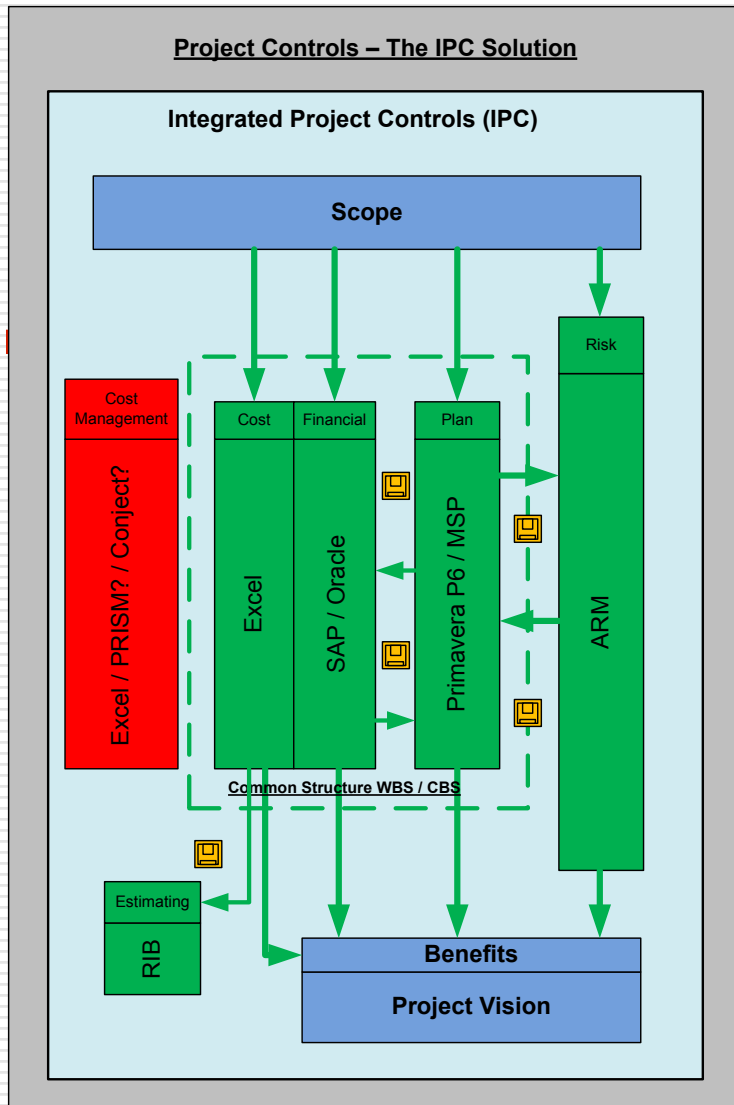


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Integrated Project Controls



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Integrating Risk & Planning

How to improve risk management through integration with the schedule



Risk identification process

- Getting the right people in the room
- Learning from the past
- Adding key planning assumptions to the risk register
- Linking risks to the relevant schedule activity
- Understanding when your risks may impact
- Ensuring that risk mitigation tasks exist in the schedule

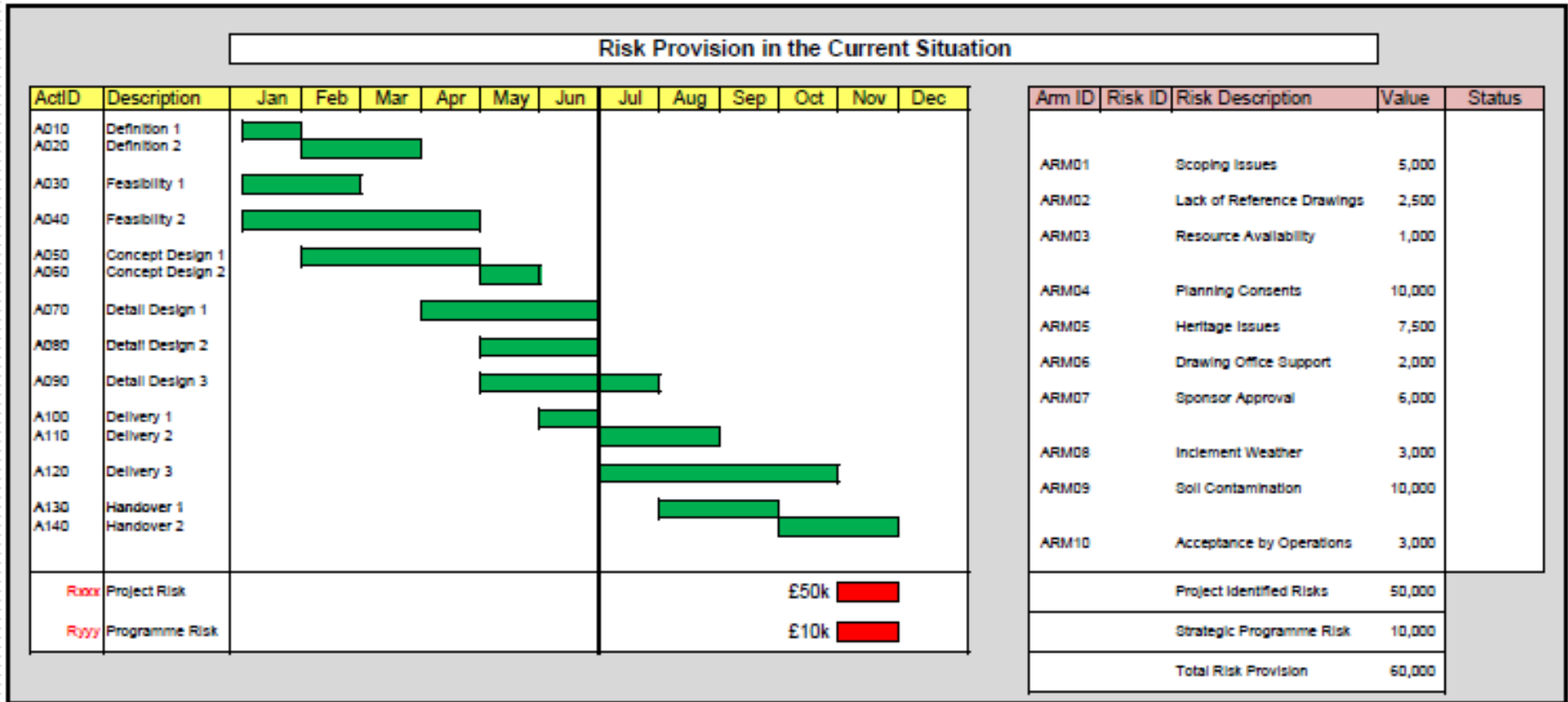
QSRA

- ❑ Robust schedule technical quality
- ❑ 3 point estimates to drive deterministic output
- ❑ Linking with risk register delivers probabilistic data to complete the holistic risk process
- ❑ Derive P50 and P80 deltas for use as time risk buffers against key project deliverables

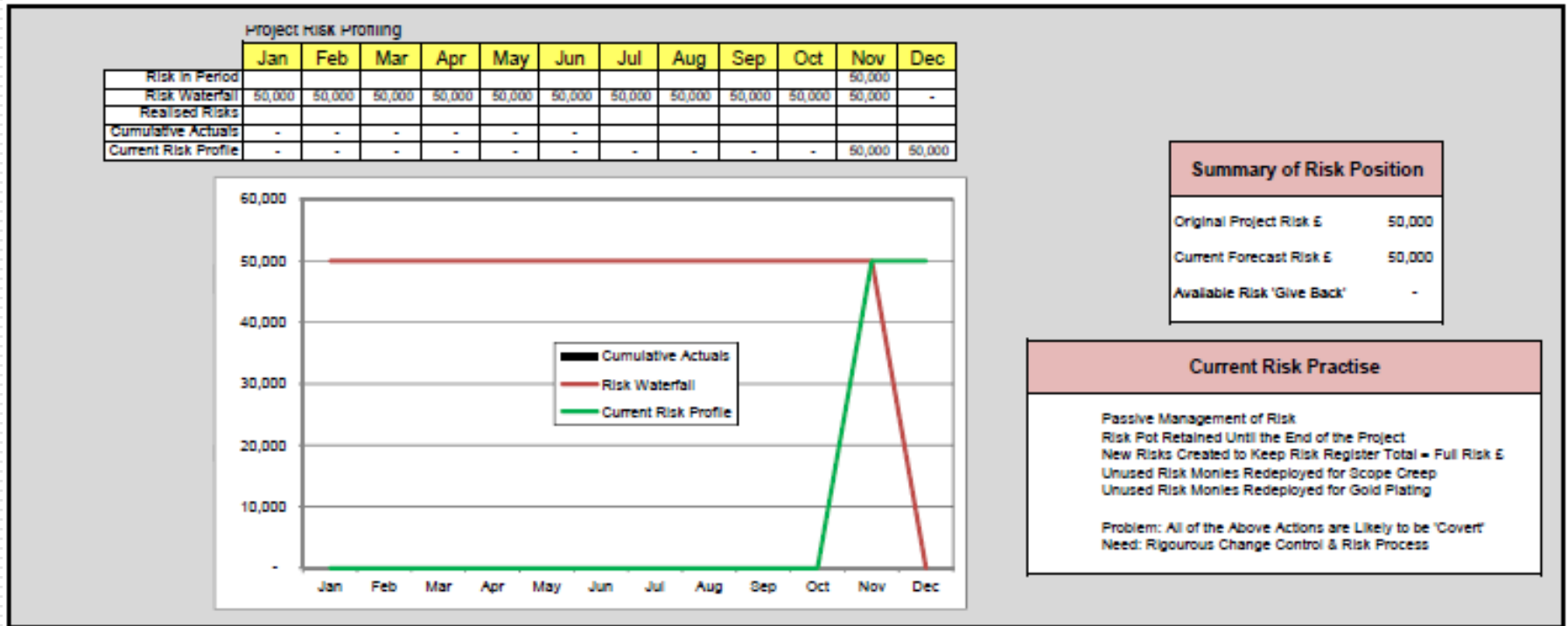
Integrating time phased risk data & P6 (Risk £)

- ❑ Risk activities have common IDs aligned in P6 & ARM
- ❑ Single day activities with budget allocated in the current plan against work packages
- ❑ Risk activities not included in baseline so they don't negatively impact EVM
- ❑ If and when risk matures costs are 'Re-profiled' into relevant work package in order to maintain robust EVM by retaining project performance

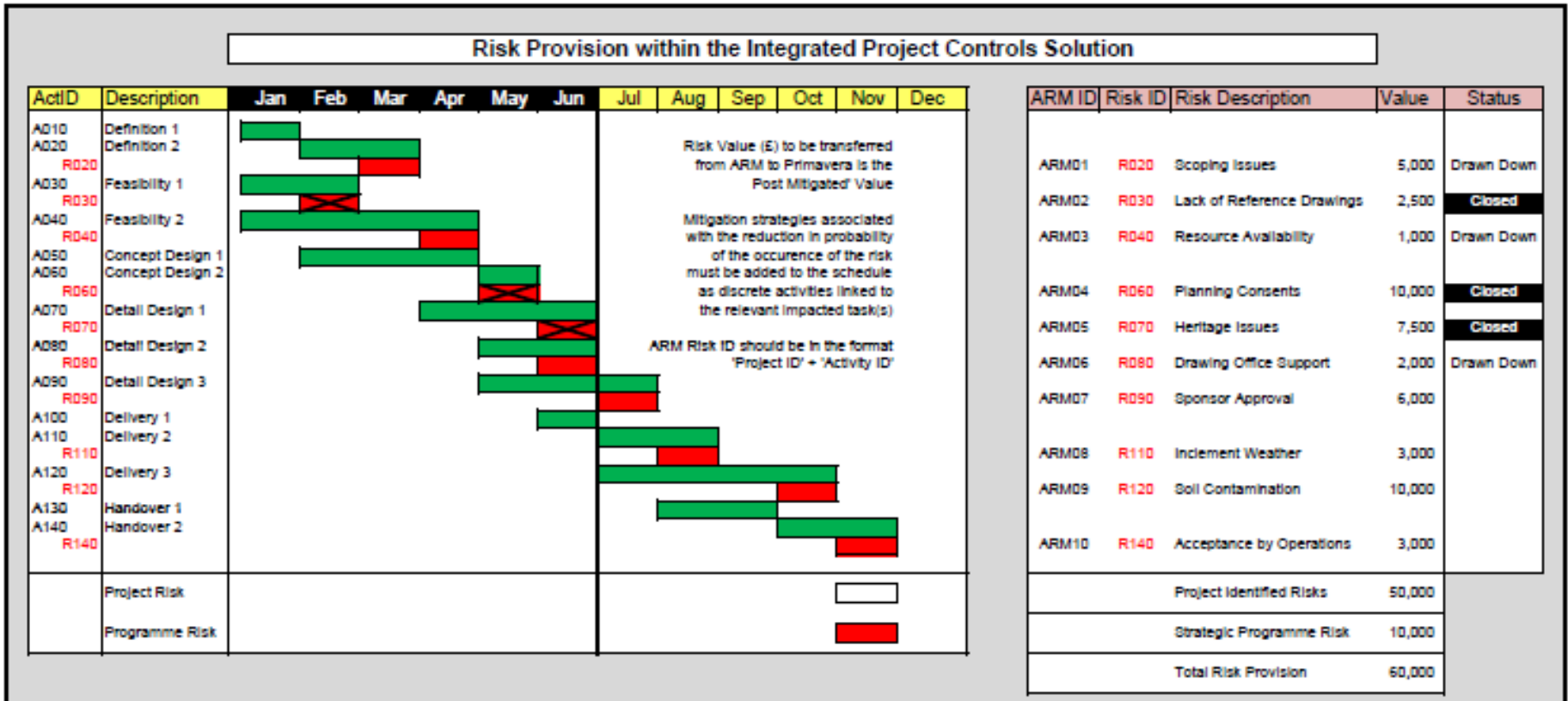
What did the existing situation look like?



And the problems this gives us ...

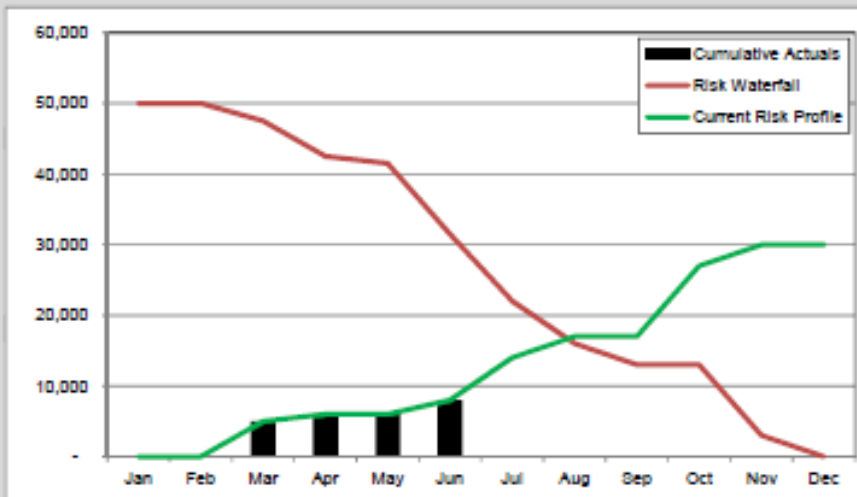


What does the IPC solution look like?



And the benefit this gives us ...

Project Risk Profiling												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Risk in Period		2,500	5,000	1,000	10,000	9,500	8,000	3,000		10,000	3,000	
Risk Waterfall	50,000	50,000	47,500	42,500	41,500	31,500	22,000	18,000	13,000	13,000	3,000	-
Realised Risks			5,000	1,000		2,000						
Cumulative Actuals	-	-	5,000	6,000	6,000	8,000						
Current Risk Profile	-	-	5,000	6,000	6,000	8,000	14,000	17,000	17,000	27,000	30,000	30,000



Summary of Risk Position

Original Project Risk £	50,000
Current Forecast Risk £	30,000
Available Risk 'Give Back'	20,000

Risk Provision Options

Option 1 - Pessimistic

Give Back £15k, Retain £5k, Increases Programme Risk to £15k

Option 2 - Neutral

Give Back £20k, Programme Risk stays at £10k

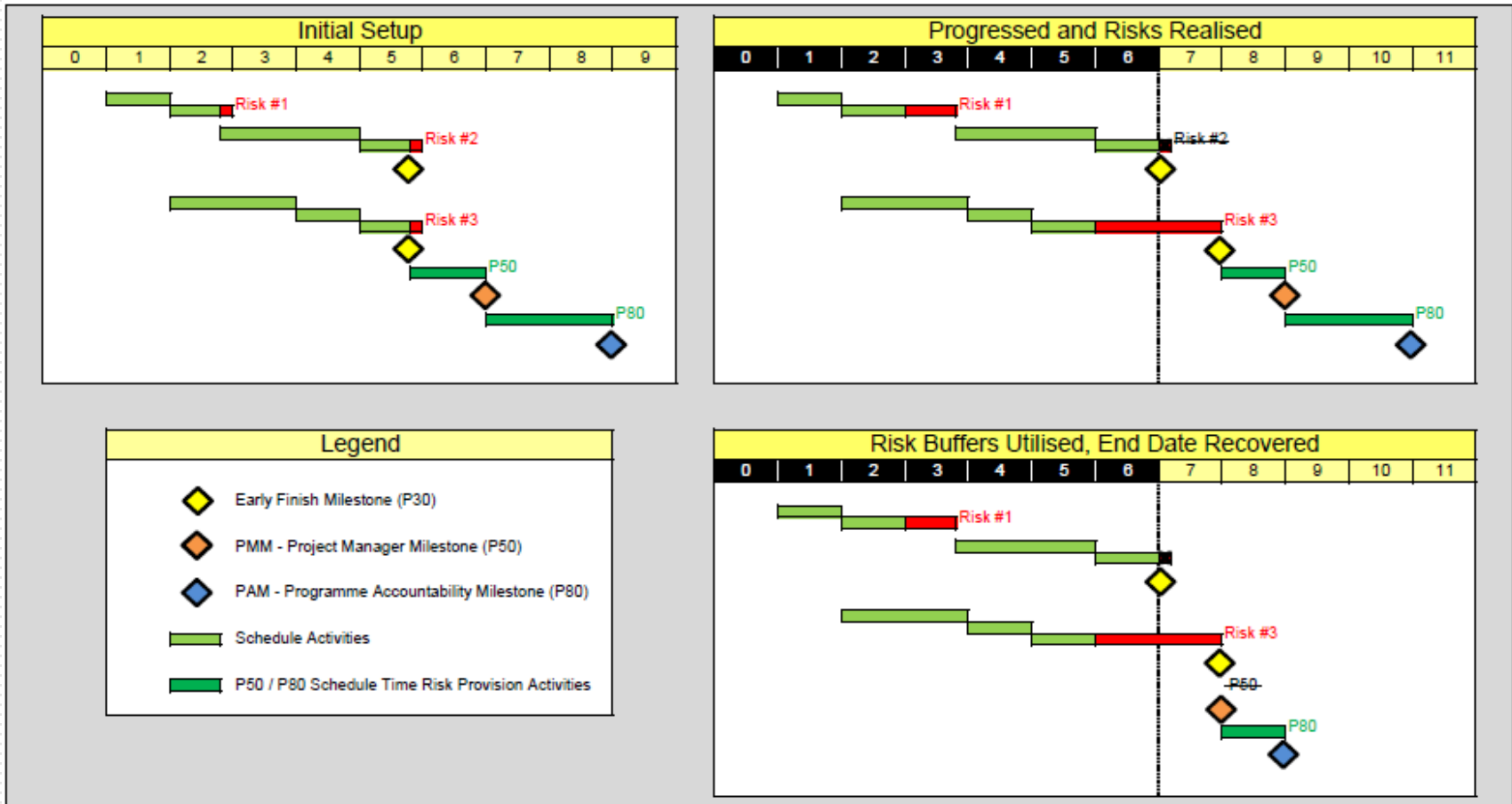
Option 3 - Optimistic

Give Back £25k, Reduces Programme Risk to £5k

Integrating time phased risk data & P6 (Time risk)

- ❑ QSRA delivers P50 & P80 dates against key milestones (PAMs)
- ❑ Deltas become time risk buffers that are logic linked to the schedule off the critical path
- ❑ TfL standard contingency timescales are applied outside of P6
- ❑ Time buffers used if and when risks mature during project execution
- ❑ Scientific method to apply time risk to schedule
- ❑ Outside of NEC contractor owned process

What does this look like?



What may get in our way?

- Funding process is long and arduous
- Embedment on 'Live' projects may interfere with BAU
- Project managers sometimes view risk as their contingency!
- Ability to QSRA hindered by awareness, knowledge and capability
- Potential reluctance to hand back risk monies, when the any given risk does not mature
- Misuse of unused risk monies to cover scope creep / gold plating
- Potentially no incentivisation to encourage change of behaviours towards risk provision by the Project Managers

Any Questions?
