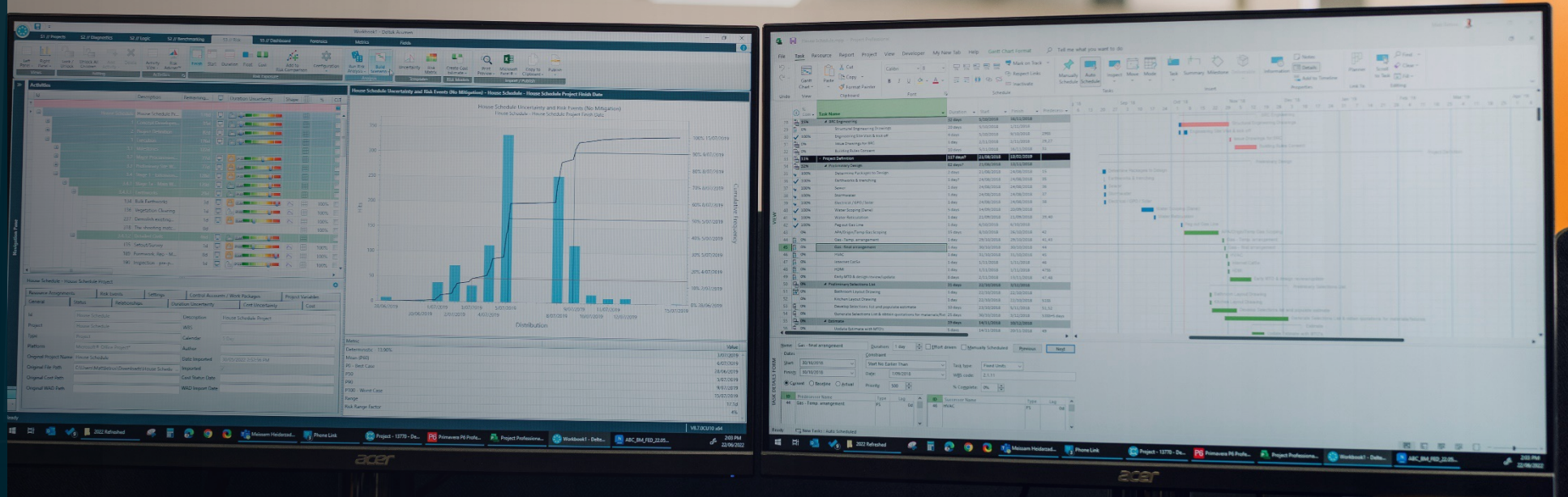


ProjectChat 24 Knowledge Hub

You're Ready for a Schedule Risk Assessment, but is your Culture?

Matt Betros



GBA PROJECTS

About Me

Matt Betros

Managing Director GBA Projects

- 20 years as a planner / scheduler
- Project Controller (cost + schedule)
- Risk Facilitator
- Forensic delay analyst

Knowledge Hub

Today's Topic

You're Ready for a Schedule Risk Assessment, but is your Culture?

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Today's Topic

- Defining risk culture
- Understand what a Schedule Range Analysis is
- See one in action

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But first...

What does a good risk culture look like?

Elements of a good risk culture include:

- Top-down support from management
- Leadership & Ownership
- Employee awareness, attitude & behaviours are aligned with risk practices & procedures
- Regular risk reviews
- Aims to continuously improve on risk management
- Risk training & awareness
- Use of PM software to manage risk (not just Excel!)
- Organisations have a defined risk appetite
- Organisations have a clear understanding of what 'good risk performance' looks like.
- Practical and fit-for-purpose approach & not bureaucratic

Roadblocks for organisations:

- Lack of understanding
- Poor communication
- Lack of systems and workflows
- Lack of resources
- Lack of ongoing monitoring & capturing emerging risks
- Risk strategy and objectives not well defined or communicated (top-down)
- External factors (black swan events)

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Standards & Guidelines

Multiple standards & guidelines available to support an organisation or project.



Contingency Determination

The base schedule must:

- Contain all elements of the project including approved changes.
- Represent the current assumptions and strategy for delivery.
- Be accompanied by a basis of schedule.
- Have inputs supported by relevant data, when possible.



Contingency Determination

Methods:

- **Deterministic:**
 - Pre-defined Factor Based Percentage
 - Expert Judgement Percentage (SME)
- **Probabilistic Simulation:**
 - 3-point estimation as inputs
 - Risk Factor and Correlation
 - Monte Carlo method to calculate contingency (Schedule Risk Analysis “SRA”)

The probabilistic method uses inputs and a bit of science to provide a firm foundation for contingency determination!



Contingency Determination

Factors to consider during the process of determining contingency:

- The overall process should support effective decision making and **be repeated regularly**.
- Explicitly **identify all risks**, threats, uncertainties, treatments and responses.
- Identify **opportunity**.
- Contemplate an organisation's culture, strategies, "**cognitive and deliberative biases**"
- Consider the unique nature of projects in general. Not a one-size-fits-all approach!
- Cost and schedule trade offs are understood. Consider an **integrated Cost and Schedule Range Analysis!**

Schedule Range Analysis

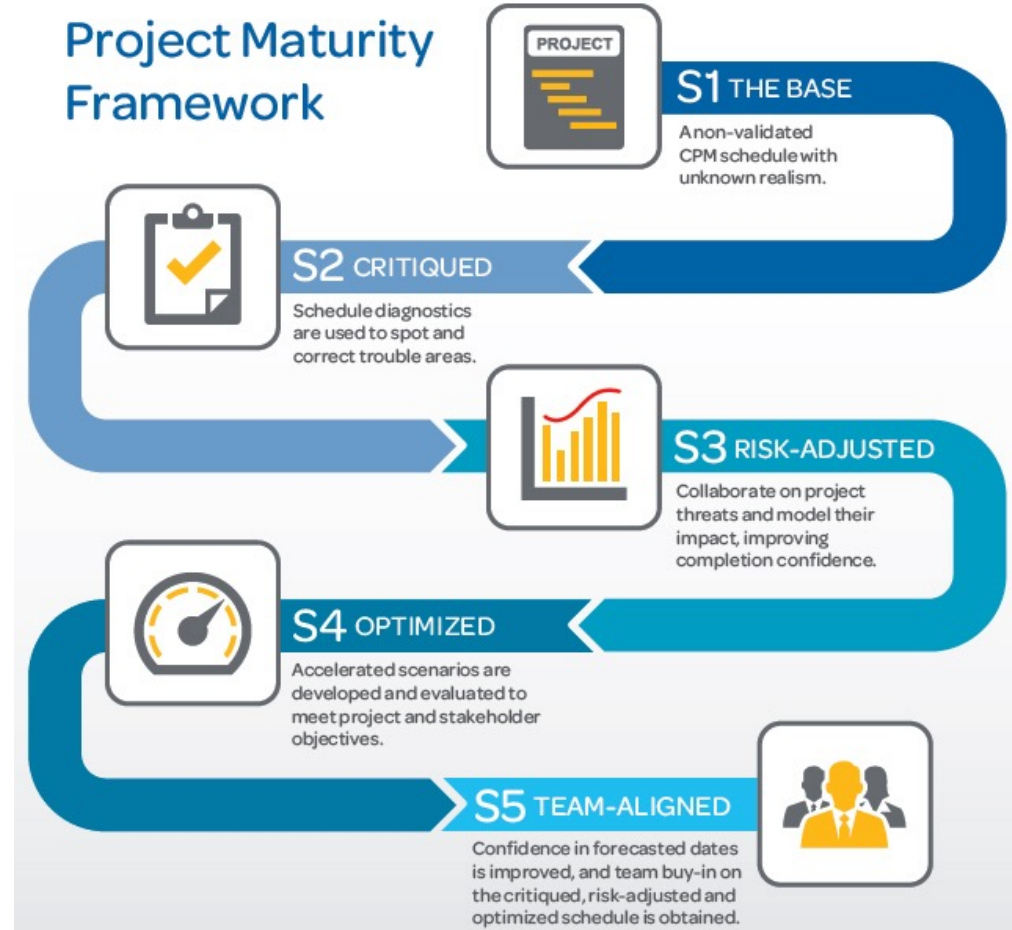
Let's look at a simple risk model and see if we're culturally ready for it...

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Acumen

Delttek Acumen Project Maturity Framework:

- Aim to establish validated schedules.
- Improve schedule quality.
- Account for risk.
- Optimised and mitigated to achieve target dates.
- Obtain team buy-in.



Our Schedule Quality



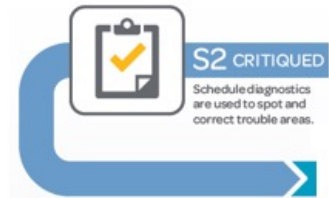
Risk Workbook - Deltek Acumen

S1 // Projects | S2 // Diagnostics | S2 // Logic | S2 // Benchmarking | S3 // Risk | S5 // Dashboard | Forensics | Metrics | Fields

Start: 1/01/2020 | Finish: 2/06/2021 | Interval: Quarters

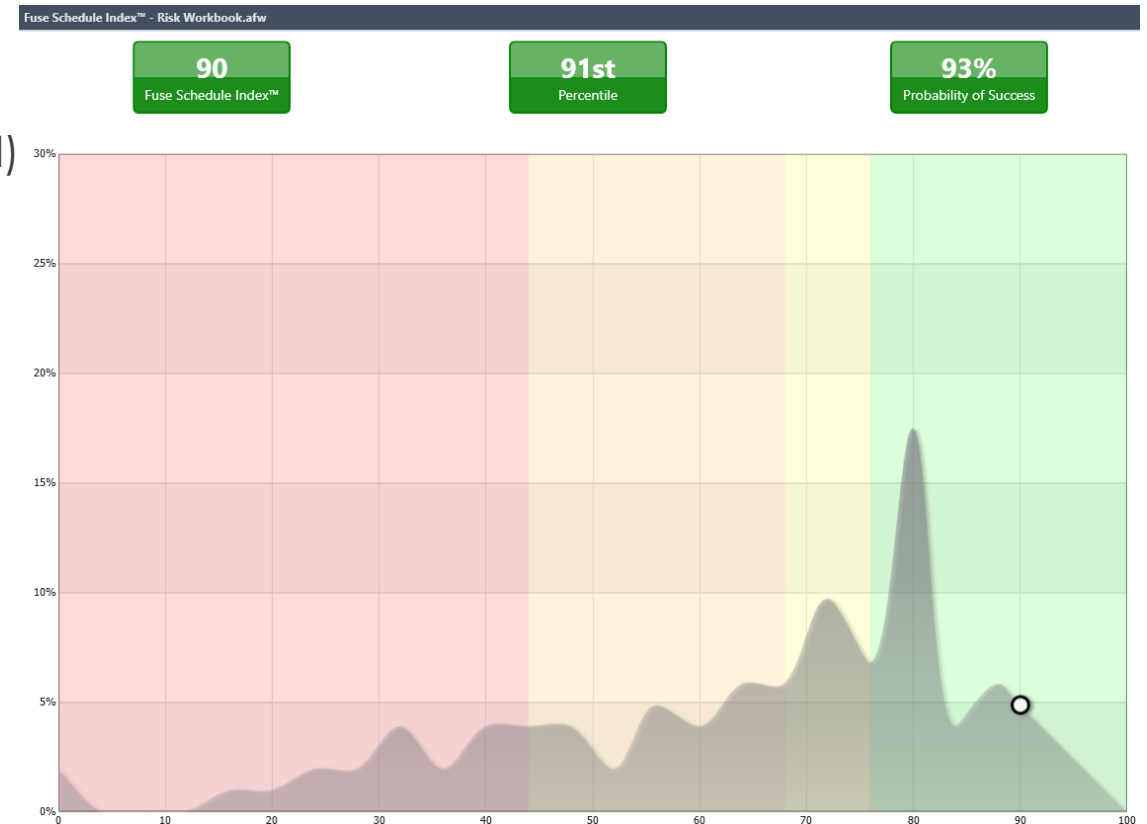
Project / Snapshot	Timeline						Ribbon Analyzer									
	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Missing Logic	Logic Density™	Critical	Hard Constraints	Negative Float	Insufficient Detail™	Number of Lags	Number of Leads	Merge Hotspot	Score
DEVELOP	[Gantt Bar]						25 (54%)	2.02	21 (46%)	0 (0%)	0 (0%)	3 (7%)	2 (4%)	0 (0%)	4 (9%)	46%
Missing Logic	12 (57%)	9 (56%)	3 (43%)	0 (0%)	0 (N/A)	1 (25%)										
Logic Density™	1.76	1.63	2.71	3.17	3.00	3.00										
Critical	10 (48%)	3 (19%)	4 (57%)	6 (100%)	3 (100%)	4 (100%)										
Hard Constraints	0 (0%)	0 (0%)	0 (0%)	0 (0%)	N/A (N/A)	0 (0%)										
Negative Float	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (N/A)	0 (0%)										
Insufficient Detail™	0 (0%)	0 (0%)	0 (0%)	0 (0%)	N/A (N/A)	0 (0%)										
Number of Lags	0 (0%)	0 (0%)	0 (0%)	2 (40%)	0 (N/A)	0 (0%)										
Number of Leads	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (N/A)	0 (0%)										
Merge Hotspot	1 (5%)	0 (0%)	1 (25%)	1 (20%)	N/A (N/A)	1 (100%)										
Score	52%	61%	64%	57%	25%	80%										

Our Schedule Quality



Adjusted Schedule Model:

- Missing Logic & Open Ends
- Long durations (insufficient detail)
- Links on Summaries
- Constraints
- Redundant Logic



Risk Identification



Risk Identification:

- Qualitative analysis.
- Uses Risk Matrix to Rank and Prioritise.
- Matrix configuration according to corporate definition and ranking.

Risk Matrix

Template

File: Open, Save | Impact Types: Add, Delete | Probability Ranges: 3, 10 | Impact Ranges: 3, 10 | Color Thresholds: 2, 5 | Calibrate: Auto Score, Auto Range

Event Impact Template

Name	% Based	Prefix	Suffix	Very Low	Low	Medium	High	Very High
Schedule	<input type="checkbox"/>		d	<20d	<40d	<60d	<80d	<100d
Cost	<input type="checkbox"/>	\$		<\$5,000	<\$10,000	<\$15,000	<\$20,000	<\$25,000

Probability / Scoring Template

Name	Min Value	Very Low	Low	Medium	High	Very High
Very High	>75%	5	10	15	20	25
High	>50%	4	8	12	16	20
Medium	>25%	3	6	9	12	15
Low	>10%	2	4	6	8	10
Very Low	<=10%	1	2	3	4	5

Risk Register Color Thresholds

Color	Value
Green	<=8
Yellow	<=16
Red	>16

Risk Register Custom Fields

Name	Is Enabled
Owner Email	<input checked="" type="checkbox"/>
Custom Field 1	<input type="checkbox"/>
Custom Field 2	<input type="checkbox"/>
Custom Field 3	<input type="checkbox"/>
Custom Field 4	<input type="checkbox"/>
Custom Field 5	<input type="checkbox"/>

OK Cancel

Duration Uncertainty



23	Design User Interfa...	70d		
24	Select infrastrucur...	32d		
30	Prepare test plan	25d		
32	Develop unit test p...	30d		
35	Develop integratio...	45d		
(Empty)	(Empty)	362d		
14	Manage product d...	362d		
29	Architecture Desig...	0d		
49	Completed produc...	0d		
51	Product initial prot...	40d		
56	Increment prototy...	30d		
60	Construction	120d		
70	Test	120d		

relationships	Duration Uncertainty	Cost Uncertainty	Cost	Resource Assignments	Ris
	Description	Construction			
	WBS				
	Calendar	< Default >			

Uncertainty Factor™ Editor

Template ?

Open Save Apply Manually Add a Risk Distribution

Size

Name	Type	Min	Most Likely	Max	Mean	Standard Deviation	Lower Pct.	Upper Pct.
▶ Very Conservative	Triangle	50%	100%	100%				
Conservative	Triangle	75%	100%	105%				
Realistic	Triangle	90%	100%	110%				
Aggressive	Triangle	95%	100%	125%				
Very Aggressive	Triangle	100%	100%	150%				

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Risk Identification



Risk Register																	
Drag a column header here to group by that column																	
Risk						Current				Mitigation				Mitigated			
Enabled	Absolut...	ID ▲	Type	Name	Shape	Probability	Schedule	Cost	Score	Enabled	Description	Duration	Cost	Probability	Schedule	Cost	Score
<input type="checkbox"/>	<input type="checkbox"/>									<input type="checkbox"/>							
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R1	👎	Change in platform version	⬆️	Low	Low	Very Low	4	<input type="checkbox"/>		0d	\$0	Low	Low	Very Low	4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R2	👎	Loss of key software engineer	⬆️	Medium	Medium	High	12	<input type="checkbox"/>		0d	\$0	Medium	Medium	High	12
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R3	👎	Unclear requirements or change in scope by the cl...	⬆️	High	Medium	Very High	20	<input type="checkbox"/>		0d	\$0	High	Medium	Very High	20
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R4	👎	Dependency integration on Legacy system	⬆️	Low	Very High	Very High	10	<input checked="" type="checkbox"/>	Test environme...	20d	\$2,500	Very Low	Very Low	Low	2
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R5	👎	Regulation change requires functional changes	⬆️	Low	High	Very High	10	<input type="checkbox"/>		0d	\$0	Low	High	Very High	10
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R6	👍	Accelerate build with spare resource	⬆️	Low	Low	High	8	<input type="checkbox"/>		0d	\$0	Low	Low	High	8

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Risk Mapping



Risk Register

Drag a column header here to group by that column

Risk					Current			Mitigation			
Enabled	Absolu...	ID	Type	Name	Shape	Probability	Schedule	Cost	Score	Enabled	Description
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R1		Change in platform version		Low	Low	Very Low	4	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R2		Loss of key software engineer		Medium	Medium	High	12	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R3		Unclear requirements or change i...		High	Medium	Very High	20	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R4		Dependency integration on Legac...		Low	Very High	Very High	10	<input checked="" type="checkbox"/>	Test environme...
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R5		Regulation change requires functi...		Low	High	Very High	10	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	R6		Accelerate build with spare resour...		High	Low	High	16	<input type="checkbox"/>	

Accelerate build with spare resource

Details Mappings Mitigation Steps

Mapping		Current									
R...	Activity	Min Proba...	Max Proba...	Min Durati...	Most Likel...	Max Durat...	Lower Dur...	Upper Dur...	Min Cost	Most Likel...	N
<input checked="" type="checkbox"/>	60: Construction	50%	75%	30d	40d	50d			\$15,000	\$17,500	

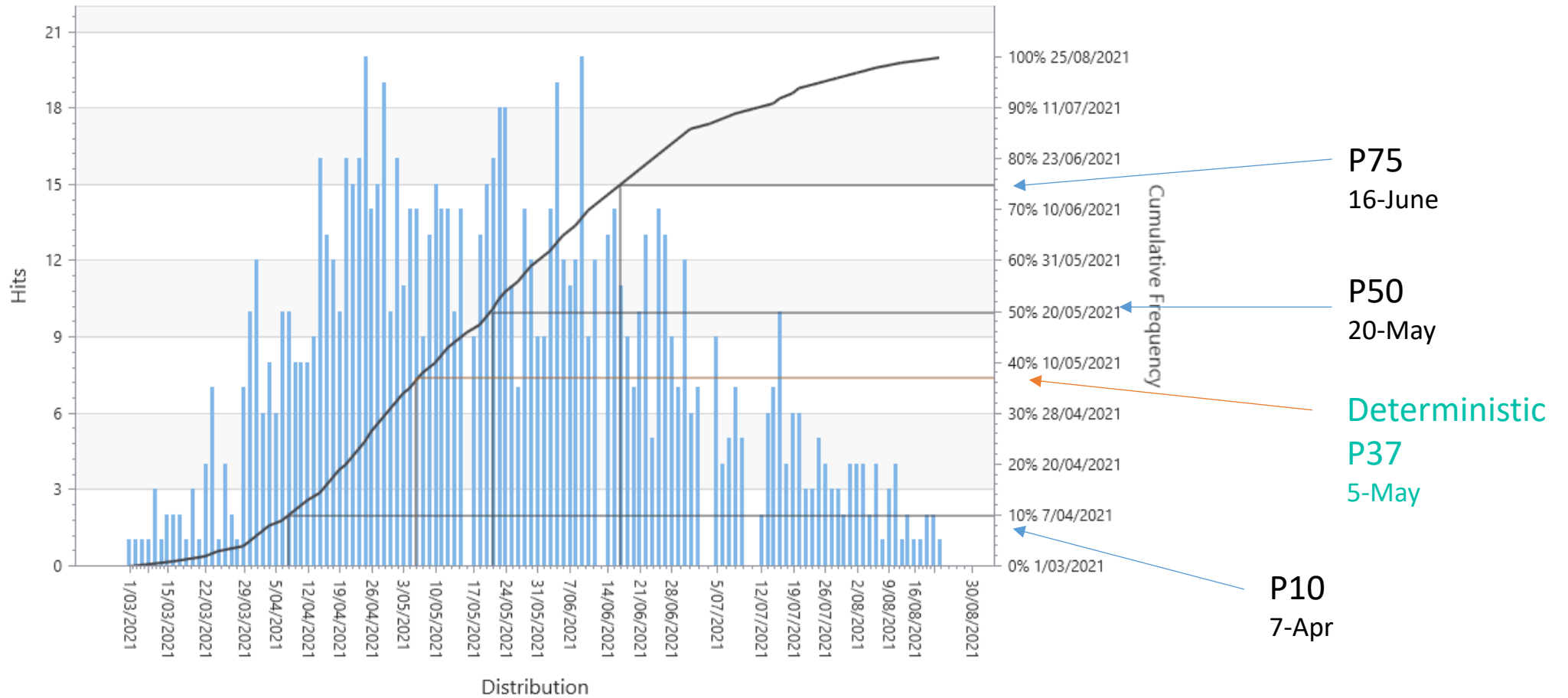
Activities

Mapped	Id	Description	Remaining...	Duration Uncertainty	Shape	%	Min Duration	Most Likely...	Mi
<input type="checkbox"/>	DEVELOP	DEVELOP Project	371d						
<input type="checkbox"/>	10	Initiate design	9d						
<input type="checkbox"/>	12	Establish product design	25d						
<input type="checkbox"/>	21	Design application logic	95d						
<input type="checkbox"/>	21.10	Define the tasks	25d			100%	12d	25d	
<input type="checkbox"/>	21.20	Specify external interfaces	16d			100%			
<input type="checkbox"/>	21.30	Design module specifications	40d			100%	20d	40d	
<input type="checkbox"/>	21.40	Design program architecture	30d			100%	15d	30d	
<input type="checkbox"/>	22	Design database	60d						
<input type="checkbox"/>	23	Design User Interface	70d						
<input type="checkbox"/>	24	Select infrastructure components	32d						
<input type="checkbox"/>	24.10	Evaluation implementation alter...	17d			100%			
<input type="checkbox"/>	24.20	Select components	15d			100%			
<input type="checkbox"/>	24.30	Define security requirements	6d			100%			
<input type="checkbox"/>	24.40	Define systems management re...	9d			100%			
<input type="checkbox"/>	30	Prepare test plan	25d						
<input type="checkbox"/>	32	Develop unit test plan	30d						
<input type="checkbox"/>	35	Develop integration test plan	45d						
<input type="checkbox"/>	(Empty)	(Empty)	362d						
<input type="checkbox"/>	14	Manage product design	362d			100%			
<input type="checkbox"/>	29	Architecture Design Review	0d			100%			
<input type="checkbox"/>	49	Completed product design	0d			100%			
<input type="checkbox"/>	51	Product initial prototype	40d			100%	35d		
<input type="checkbox"/>	56	Increment prototype function	30d			100%	25d	30d	
<input checked="" type="checkbox"/>	60	Construction	120d			100%	90d	120d	
<input type="checkbox"/>	70	Test	120d			100%	60d	120d	
<input type="checkbox"/>	80	Documentation	120d			100%	90d	120d	
<input type="checkbox"/>	90	Release management	10d			100%	5d	10d	

Exposure Analysis



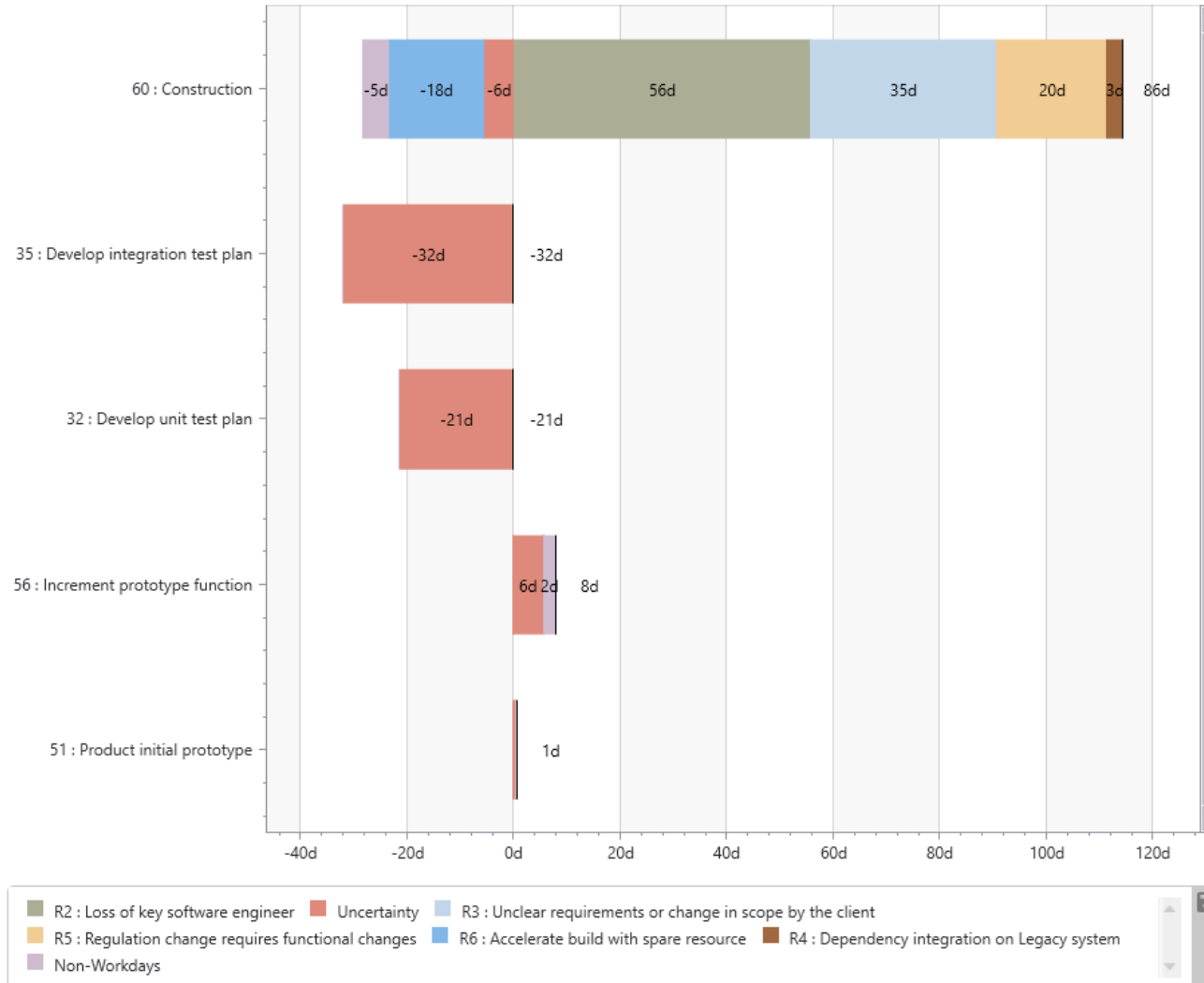
DEVELOP Uncertainty and Risk Events (Mitigated, Excluding Overhead)
60 - Construction Finish Date



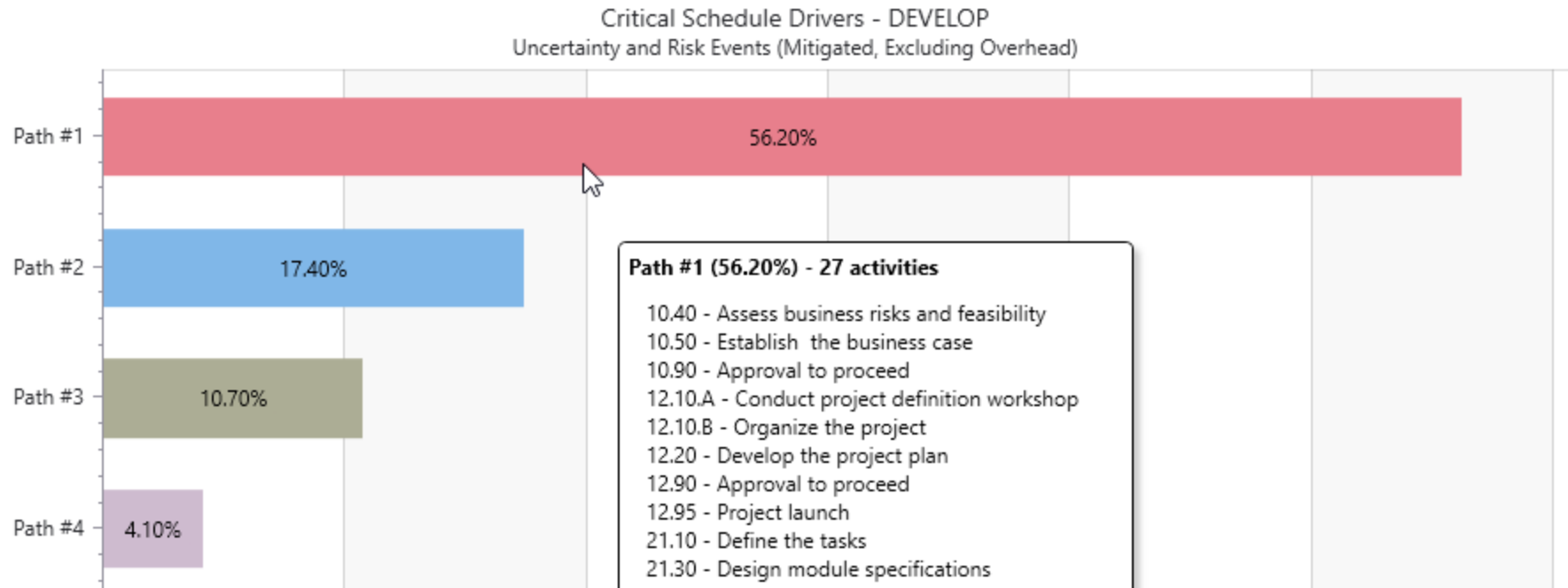
Exposure Analysis - Risk



DEVELOP Uncertainty and Risk Events (Mitigated, Excluding Overhead)
Schedule Contribution™ (Predecessors) for 60 - Construction
Risk Exposure at P75: 42d



Critical Schedule Drivers



Advanced Concepts

Cover off things like CLT and other things

Further Functions

- Comparisons
- Cost Overlay & Probabilistic Cash Flow
- Scenario Planning
- Scenario Outputs

Theory

- Cognitive and deliberative biases
- Central Limit Theorem – simpler models vs detailed
- Joint Confidence Level
- Correlation
- Garbage in is Garbage Out. Inputs need careful thought

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Demonstrations

Learn more about Risk Analysis :

[GBA Projects: Risk – YouTube](#)

Get the Risk Engineering Society (RES) Contingency Guideline from Engineers Australia.

Thank you

Is your organization ready for
SRA?

Questions?

The logo for gba PROJECTS features the lowercase letters 'gba' in a large, bold, orange sans-serif font. Below 'gba', the word 'PROJECTS' is written in a smaller, bold, dark blue sans-serif font. The background of the slide is a light blue, abstract geometric pattern of overlapping rectangular shapes, resembling a modern architectural facade or a grid of glass panels.

gba
PROJECTS