

Why Project Execution Doesn't Cause Project Failure

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Projects. On time. Every time.

PMFocus Introductions

Legacy & Background

- ◀ 20 years experience
- ◀ Founder of
 - Pertmaster NA (Primavera)
 - Acumen (Deltek)
- ◀ Inventor of
 - Acumen Fuse/Risk/360
 - Schedule Index™
- ◀ Facilitated
 - 100's of CAPEX risk workshops
 - EPC, Owner, JV

Focus & our DNA

- ◀ Confidence management
- ◀ Project forecast certainty
- ◀ Project intelligence
- ◀ Deltek partner



- Major construction projects are renowned for **running late and over budget**. What if we did a better job of creating **more realistic, achievable plans** that account for potential delays and risks?
- This paper examines the importance of building **sound, risk-adjusted schedules** as well as techniques and diagnostics that should be part and parcel of every schedule developed. It's time we **set ourselves up for success** and not failure on our projects!

The Root Cause of Project Overruns

Drivers

- Poorly defined scope
- Scope changes
- Execution variations
- Unexpected events
- Overly ambitious plans
- CPM scheduling is naturally optimistic – it really gives you the ‘best case scenario’

Why Do we not properly plan for this?

- Traditional scheduling is deterministic
- Too much focus on trying to get earliest/cheapest rather than most realistic
- The chance of hitting an exact finish date is always going to be low...

- Structurally sound
 - Accounts for risk/uncertainty
 - Is the team bought into it?
- Wouldn't it be great if we could rank or benchmark the achievability of a schedule...

Project Schedule Key Ingredients

➤ Project execution involves:

- Executing work, converting remaining scope into project asset(s)...

➤ Work is Defined through

- Durations
- Relationships/logic
- Availability of resources to execute the work

➤ Ancillary information

- Working calendars
- Contractual constraints

Types of Schedule Metrics

Schedule	Cost	Performance	Characteristics	Earned Value	Risk
<ul style="list-style-type: none">• Logic• Float• Duration	<ul style="list-style-type: none">• Overrun• Capacity• Burn rates	<ul style="list-style-type: none">• Status• Completed• Delayed	<ul style="list-style-type: none">• Level of detail• Constrained• Riding Data Date	<ul style="list-style-type: none">• CPI/SPI• Trending• Earned schedule	<ul style="list-style-type: none">• Exposure• Hot spots• Hidden paths

- Project management best practices
- Industry/corporate standards: PMI, AACE, NDIA
- Fuse-specific: Logic Density™, Hotspot, Redundancy
- Compliance: DCMA 14 Point, DoD

Logic/Duration Metrics

Finish Compliance™

- Accurate measure of performance

Insufficient Detail™

- Activity V project duration

Logic Density™

- Measure of complexity/completeness

Logic Hotspot™

- Timely start?

Milestone Ratio™

- Detail V reporting

Broad Risk Range

- Check for erroneous risk input

Float Ratio™

- Degree of flexibility per day of work

Redundancy Index™

- Non-needed logic



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Fuse Schedule Index™
Fuse Logic Index™
Cloud-based Metric Libraries

Characteristics
Civil Works / Infrastructure

Copy to Clipboard Refresh Libraries Refresh Analysis Edit

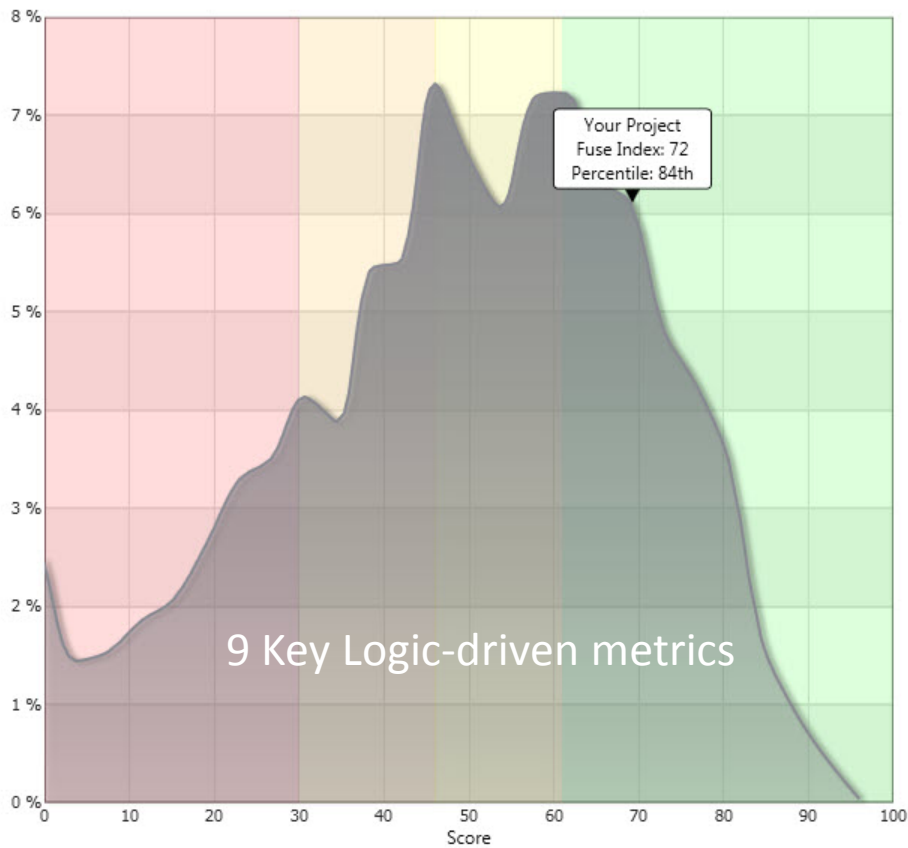
- Projects
- Workbook1 (206)
 - Current Schedule (76)
 - Initial Plan (54)
 - Current Schedule2 (76)

Fuse Schedule Index™ - Current Schedule

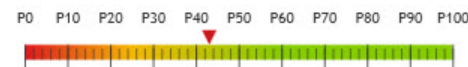
72
Fuse Schedule Index™

84th
Percentile

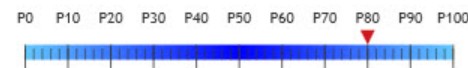
73%
Probability of Success



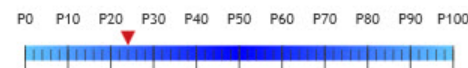
Missing Logic - 14%



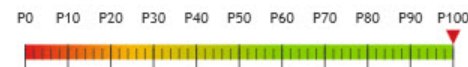
Logic Density™ - 2.08



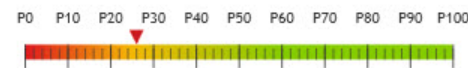
Critical - 36%



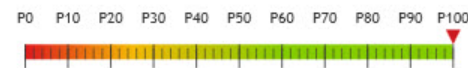
Hard Constraints - 0%



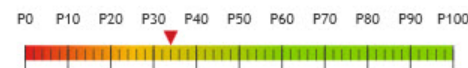
Negative Float - 2%



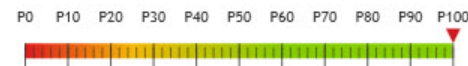
Insufficient Detail™ - 0%



Number of Lags - 14%



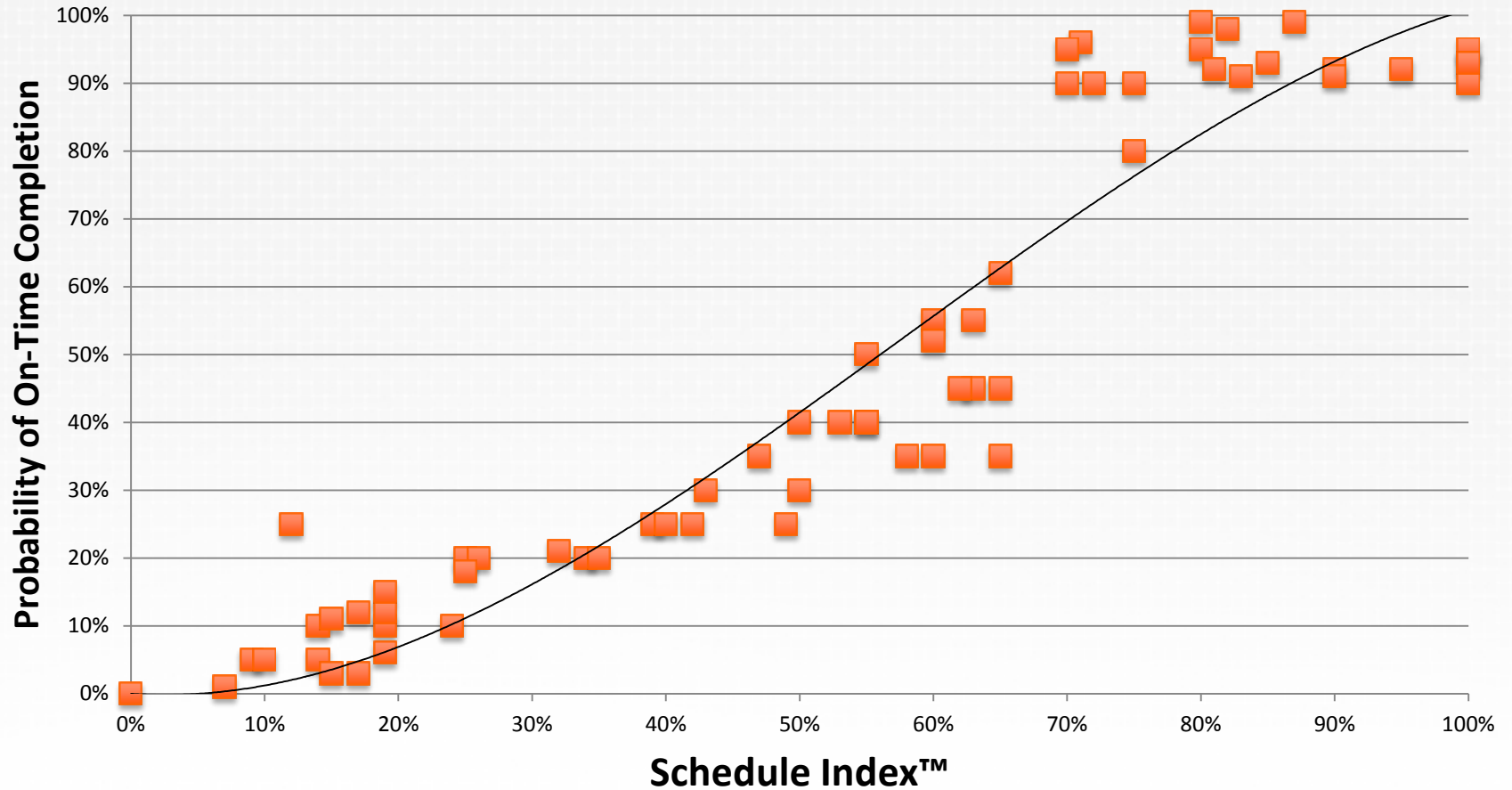
Number of Leads - 0%



Merge Hotspot™ - 1%



Better Planning = Project Success



Fuse Schedule Index™
Fuse Logic Index™
Cloud-based Metric Libraries

Characteristics
Civil Works / Infrastructure

Copy to Clipboard Refresh Libraries Refresh Analysis Edit

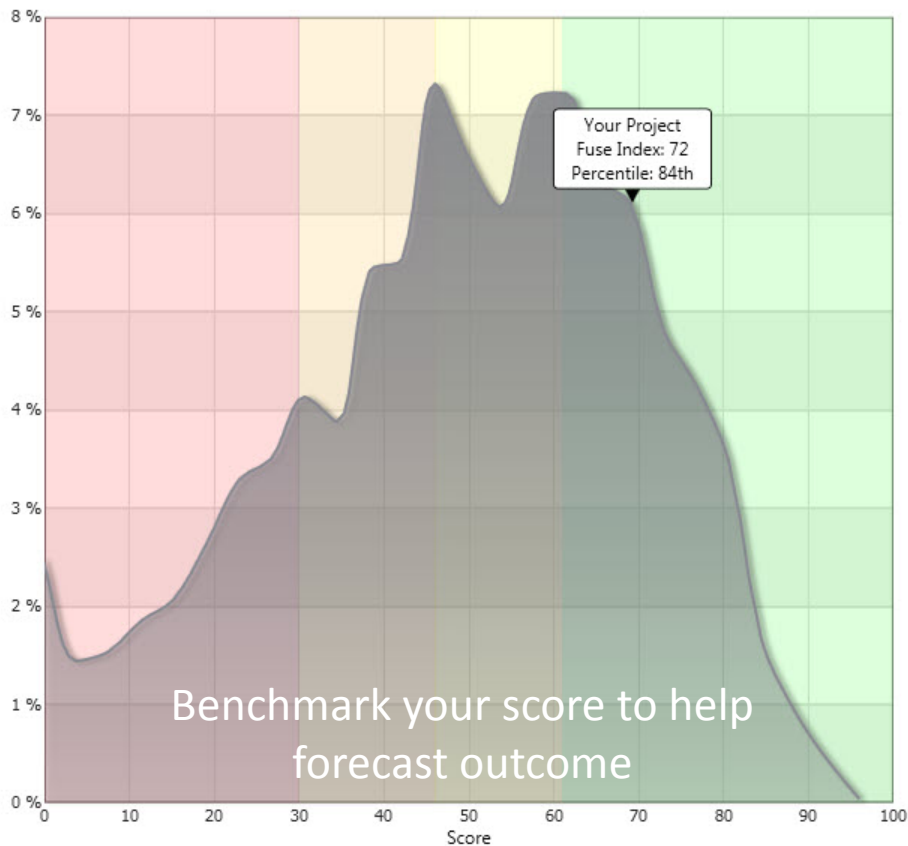
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Fuse Schedule Index™ - Current Schedule

72
Fuse Schedule Index™

84th
Percentile

73%
Probability of Success



Missing Logic - 14%

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Logic Density™ - 2.08

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Critical - 36%

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Hard Constraints - 0%

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Negative Float - 2%

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Insufficient Detail™ - 0%

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Number of Lags - 14%

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Number of Leads - 0%

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Merge Hotspot™ - 1%

P0 P10 P20 P30 P40 P50 P60 P70 P80 P90 P100

Capturing Duration Realism

Background

- ⚡ Uncertainty
 - variability regarding durations/costs
- ⚡ Is the duration realistic?
 - Scope definition
 - Complexity of work
 - Past performance
 - Just plain wrong!
- ⚡ Not dates!
 - Dates are the results of durations & logic
- ⚡ Old school approach
 - Min, most likely, max & distribution type

Uncertainty Factor™

The screenshot shows the 'Uncertainty Factor™' software interface. At the top, there is a 'Template' tab and a toolbar with icons for 'Open', 'Save', 'Apply', and 'Manually Add a Risk Distribution'. A slider control is set to '5' with a range from 1 to 7. Below the toolbar is a table with columns for 'Name', 'Type', 'Min', 'Most Likely', and 'Max'. The table contains several rows of data representing different risk scenarios.

Name	Type	Min	Most Likely	Max
Always finishes early	Triangle	50	100	100
Sometimes finishes early	Triangle	75%	100%	105%
Realistic	Triangle	90%	100%	110%
Often delays	Triangle	95%	100%	125%
Historically poor perfor...	Triangle	100%	100%	150%

Capturing Risk Events – Risk Register

Risk Events

- Discrete event
- 2 key attributes
 - Probability
 - Impact(s)
- Threats & opportunities
- Multiple states
 - Current
 - Mitigated
- Weather modeling

Project Risk Register

Risk			Current				Mitigation	
Mapped	ID	Name	Probability	Schedule	Cost	Score	Enabled	Description
<input type="checkbox"/>	R7	Risk of airport not being complete...	Very High	Very High	High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R42	Risk of inability to hire craft to mai...	Very High	High	Very High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R14	Risk of limited in country infrastru...	Very High	Very High	High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R9	Risk of delay due to fab yard cons...	Very High	Very High	High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R3	Risk of insufficient in country skille...	Very High	Low	Very High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R1	Risk of delay post transportation...	Very High	Very High	Very High	25	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	R37	Risks of major dredging equipment...	Very High	Very High	High	25	<input type="checkbox"/>	
<input type="checkbox"/>	R39	Risk of work stoppage due to cora...	Very High	Medium	High	20	<input type="checkbox"/>	
<input type="checkbox"/>	R36	Risks of theft of materials (especial...	High	Very High	High	20	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	R38	Risk of change in law impacting c...	High	Very High	Very High	20	<input type="checkbox"/>	
<input type="checkbox"/>	R41	Risk of delay in approvals of visas	High	Low	Very High	20	<input type="checkbox"/>	
<input type="checkbox"/>	R46	Risk of plane crash with project cr...	High	Very High	Negligible	20	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	R34	Risk of actual required resources e...	Very High	High	Medium	20	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	R43	Risk of delays in establishing pion...	High	High	Medium	16	<input type="checkbox"/>	
<input type="checkbox"/>	R2	Risk of customs delays	High	High	High	16	<input type="checkbox"/>	
<input type="checkbox"/>	R5	Risk of pirates during FPSO sail fro...	High	High	Medium	16	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	R44	Risk of Governmental agency dire...	Very High	Medium	Low	15	<input type="checkbox"/>	
<input type="checkbox"/>	R23	Risk of weather event	High	Medium	Low	12	<input checked="" type="checkbox"/>	
<input type="checkbox"/>	R21	Risk of insufficient Commissioning...	High	Low	Medium	12	<input type="checkbox"/>	
<input type="checkbox"/>	R45	Risk of delays in releasing equipm...	Low	Very High	High	10	<input type="checkbox"/>	
<input type="checkbox"/>	R20	Risk of rejection and/or late appro...	Low	Very High	High	10	<input type="checkbox"/>	

Drag a column header here to group by that column

Link		Current		Mitigation		Mitiga	
R...	Activity	Event	Duration	Cost	Duration	Cost	Duratic
<input checked="" type="checkbox"/>	0140: Requirements Defi...	New Event	0d	\$0	0d	\$0	
<input checked="" type="checkbox"/>	0190: Commerical review	New Event	0d	\$0	0d	\$0	

Tying it All Together

⚡ Risk-adjusted schedule

- Sound structural basis
- Accounts for scope (un)certainty
- Accounts for external risk events
- Something that the team believe in

⚡ Needs to become the de-facto basis of planning

⚡ Can be used as a feedback cycle to constantly improve our ability to plan more accurately

Q & A



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