

CSRA Interest Group Meeting July 19, 2018 Agenda



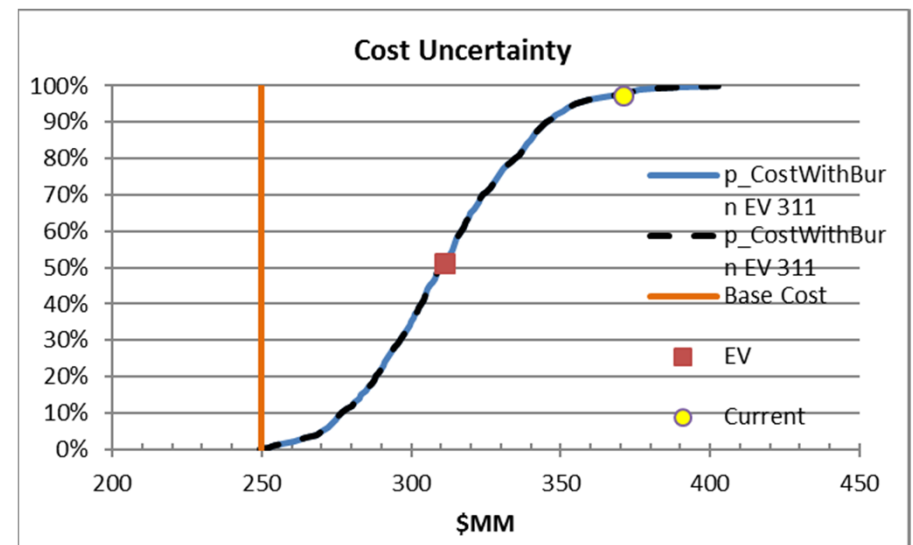
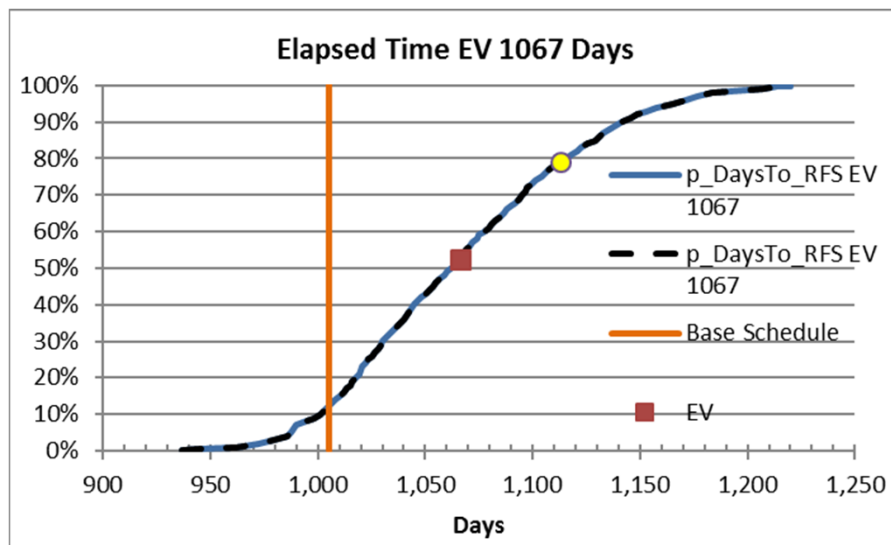
- Round robin of who is on the webinar
- Ground rules for webinar
- Discussion Lead by Brian Putt and Quinton van Eeden
 - Types of CSRAs
 - What sorts of projects justify a CSRA
 - When should a CSRA be conducted
- Discussion of next webinar date & topics
- Adjourn

Objective is to understand the uncertainty in Cost and Schedule



For many reasons, estimates often underestimate

- Time required
- Cost required

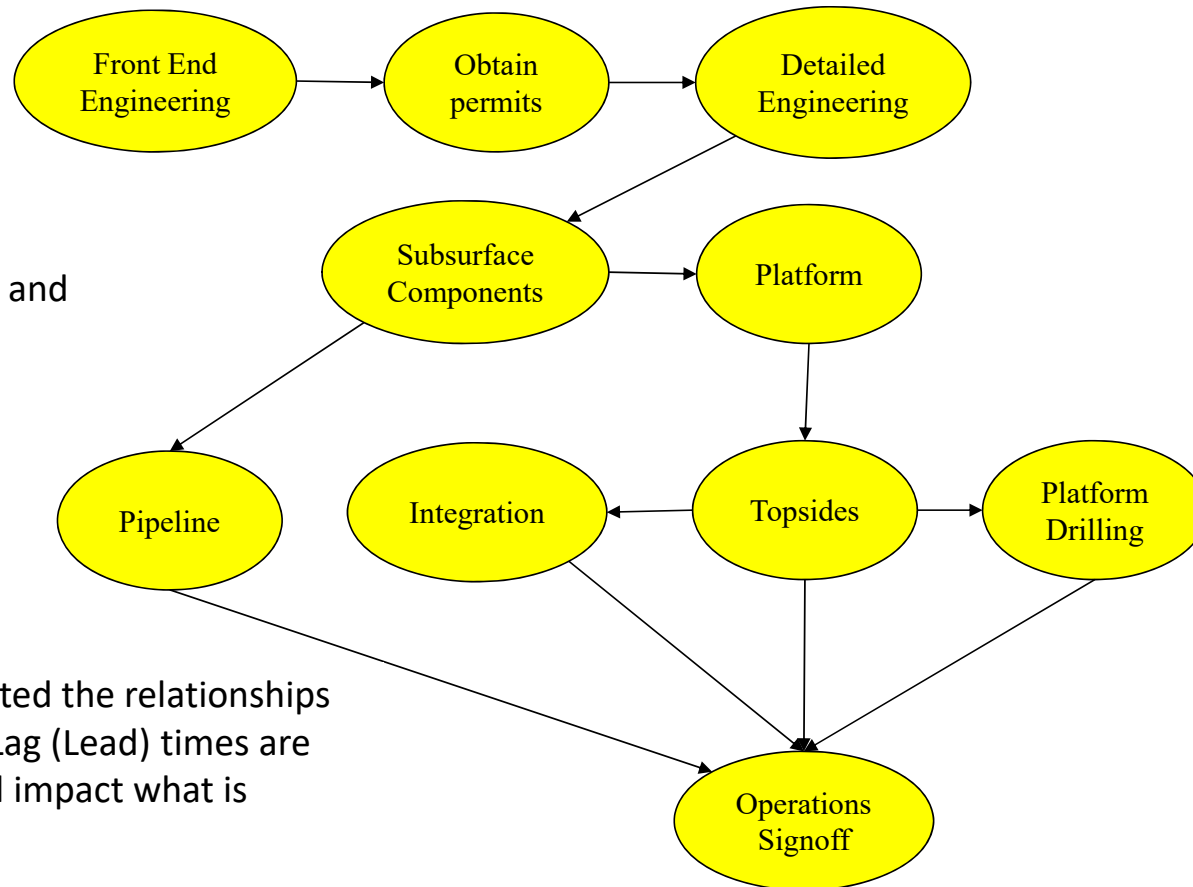


Types of CSRAs

- PERT (Program Evaluation & Review Technique)
 - Expert Judgement
- Friedman (Economist)
 - 30% Probability of unplanned event
- Quantify Everything
- JCL-PC (Joint Confidence Level – Probabilistic Calculator)
 - <https://www.youtube.com/watch?v=bWnepq8vPJ8> (see ~ 20 minutes)
- Adjust estimates based on historical experience



Schedule Relationships Reflected in PERT Diagram



PERT = Project Execution and Review Technique

Unless otherwise stated the relationships are Finish to Start. Lag (Lead) times are not shown and could impact what is critical.

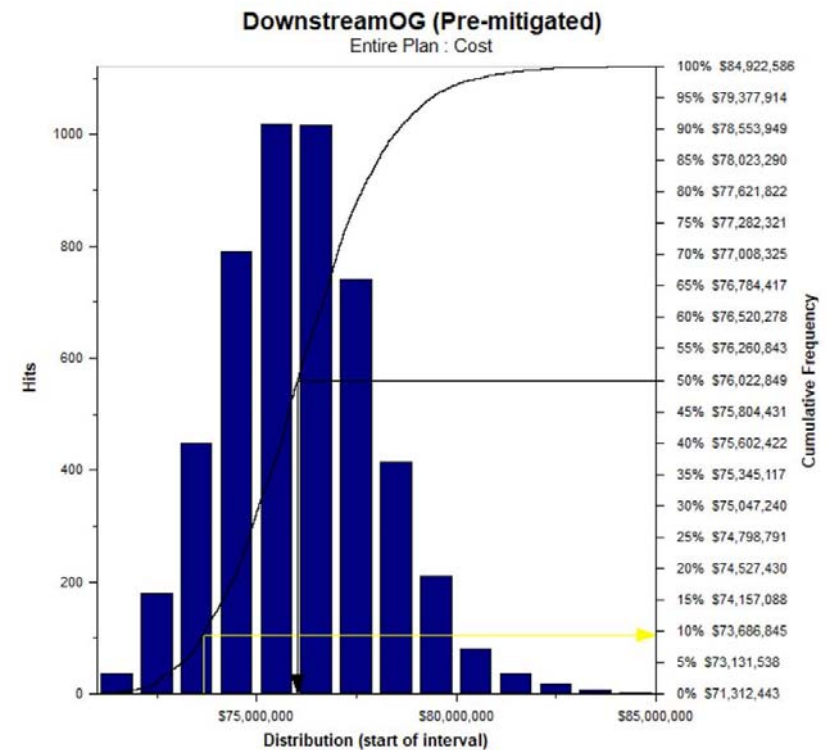
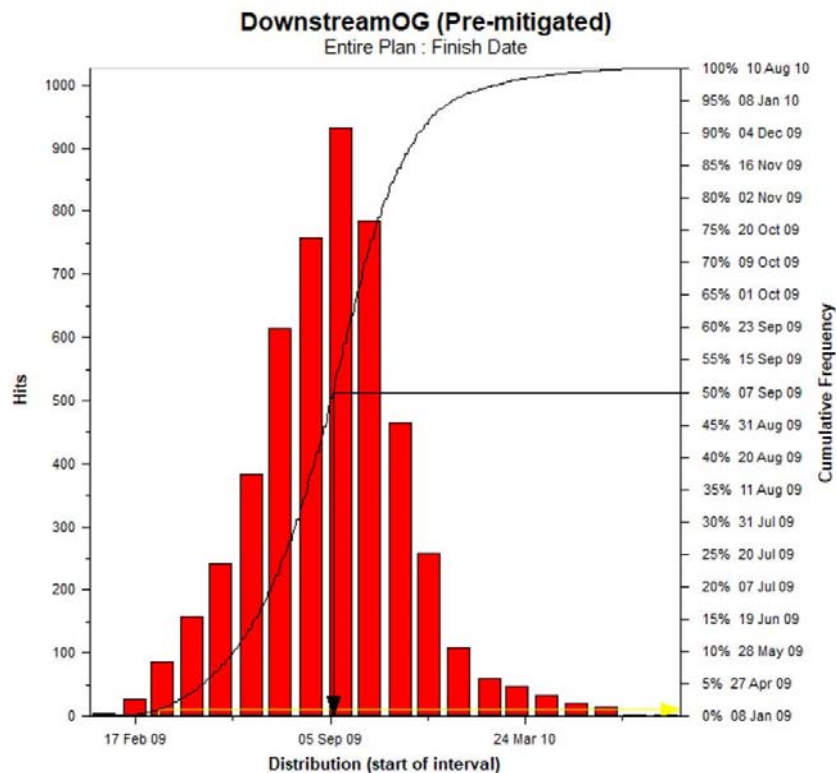
JCL



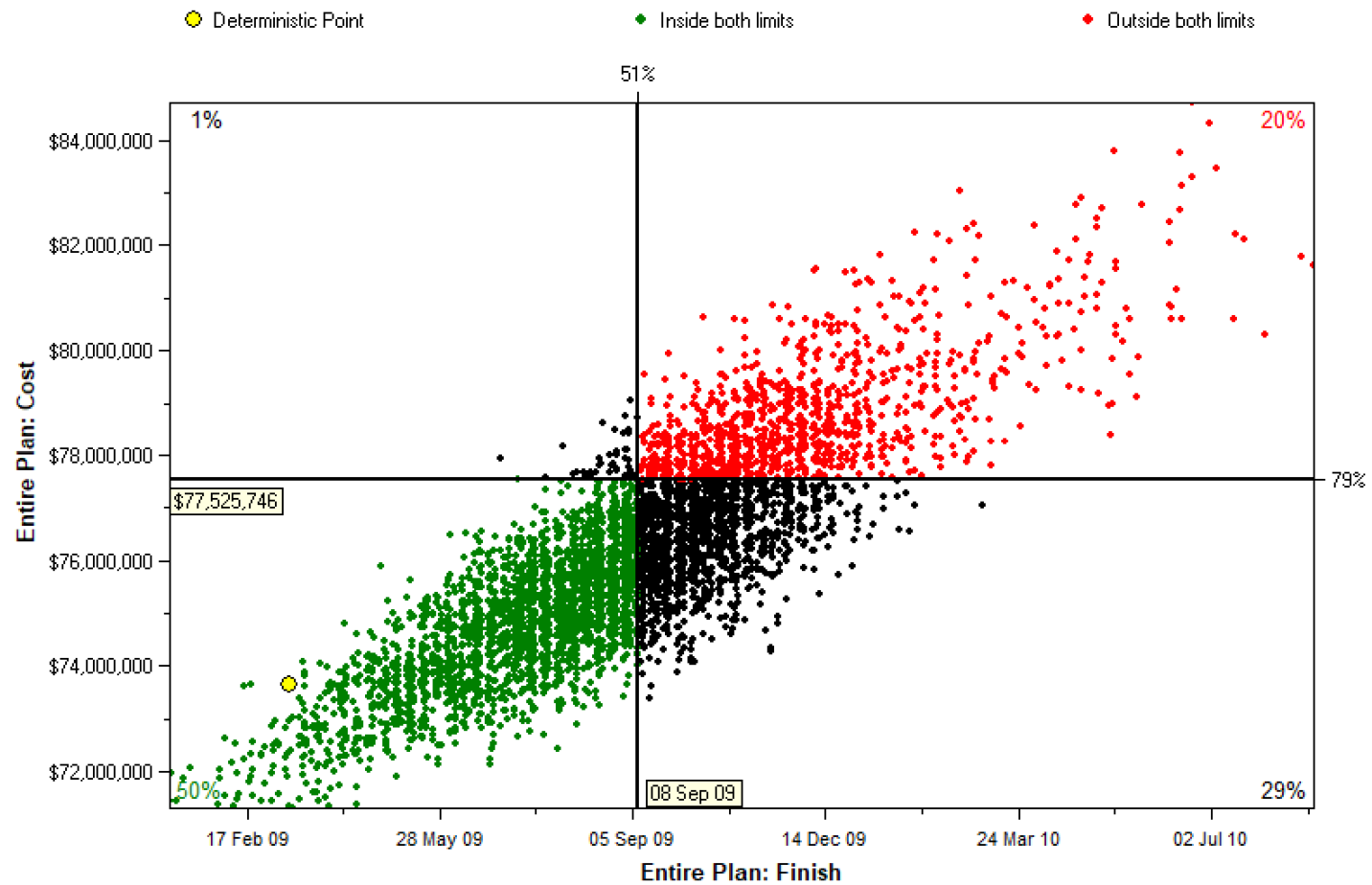
- **Joint Confidence Level**

- A joint probability distribution of a projects' cost & schedule.
- Derived by means of a Monte Carlo simulation of a projects' cost-loaded schedule.
- Identified risk which could have an impact on the cost & schedule objectives of the project, is “mapped” / attributed to the affected schedule activities.
- The summary output is shown in the form of a JCL chart.

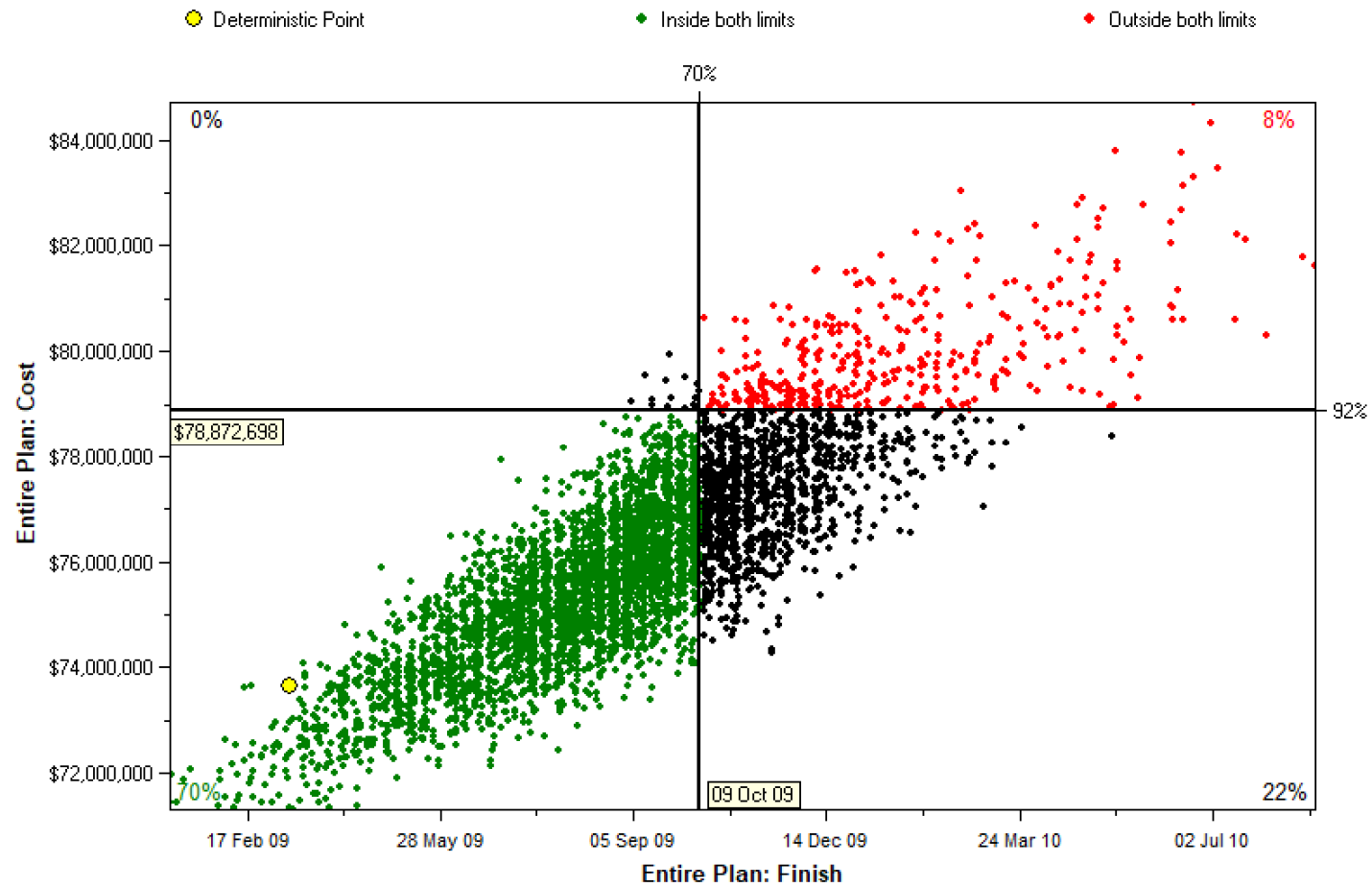
Cost and Schedule Analysis Results are Combined in the JCL



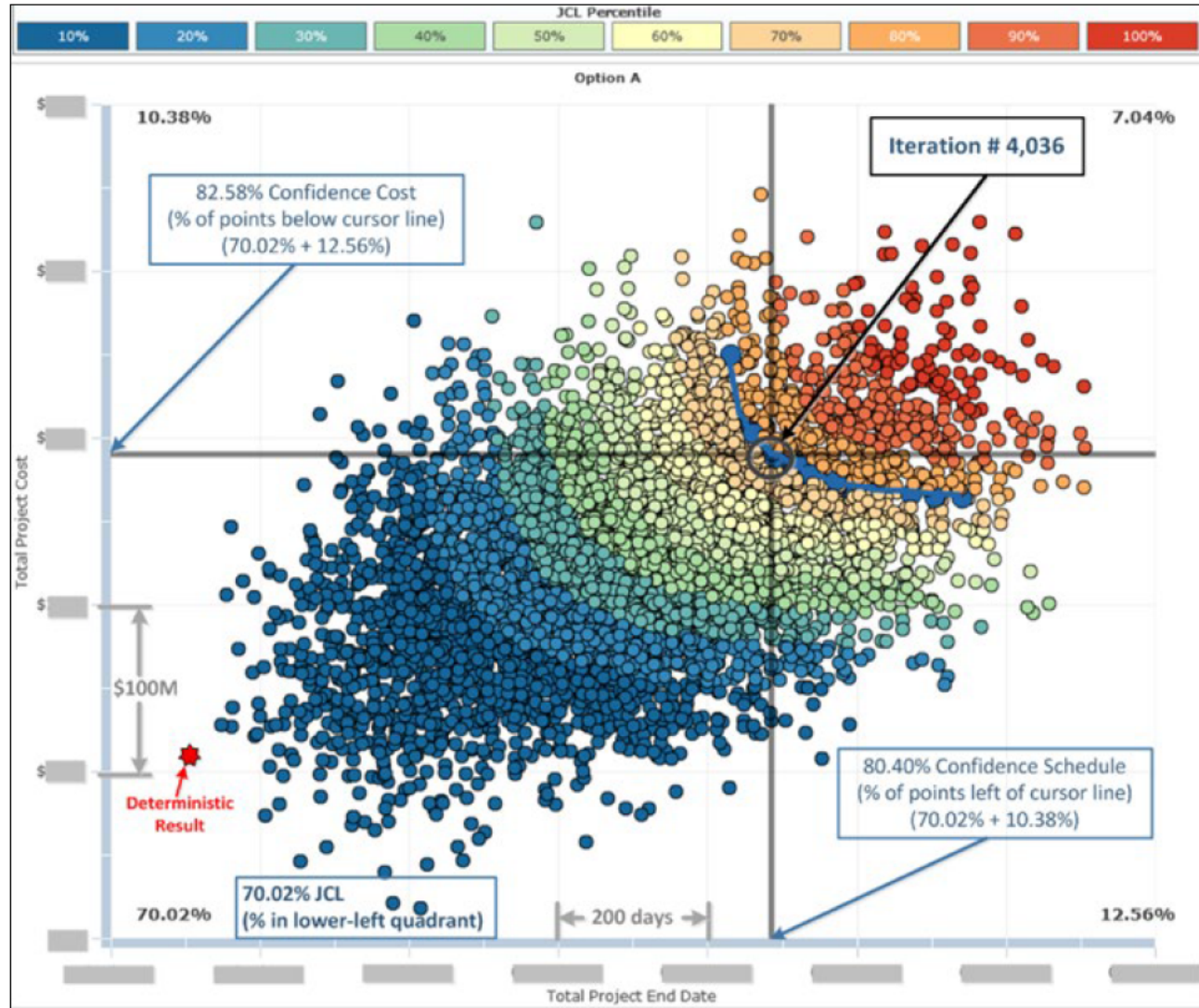
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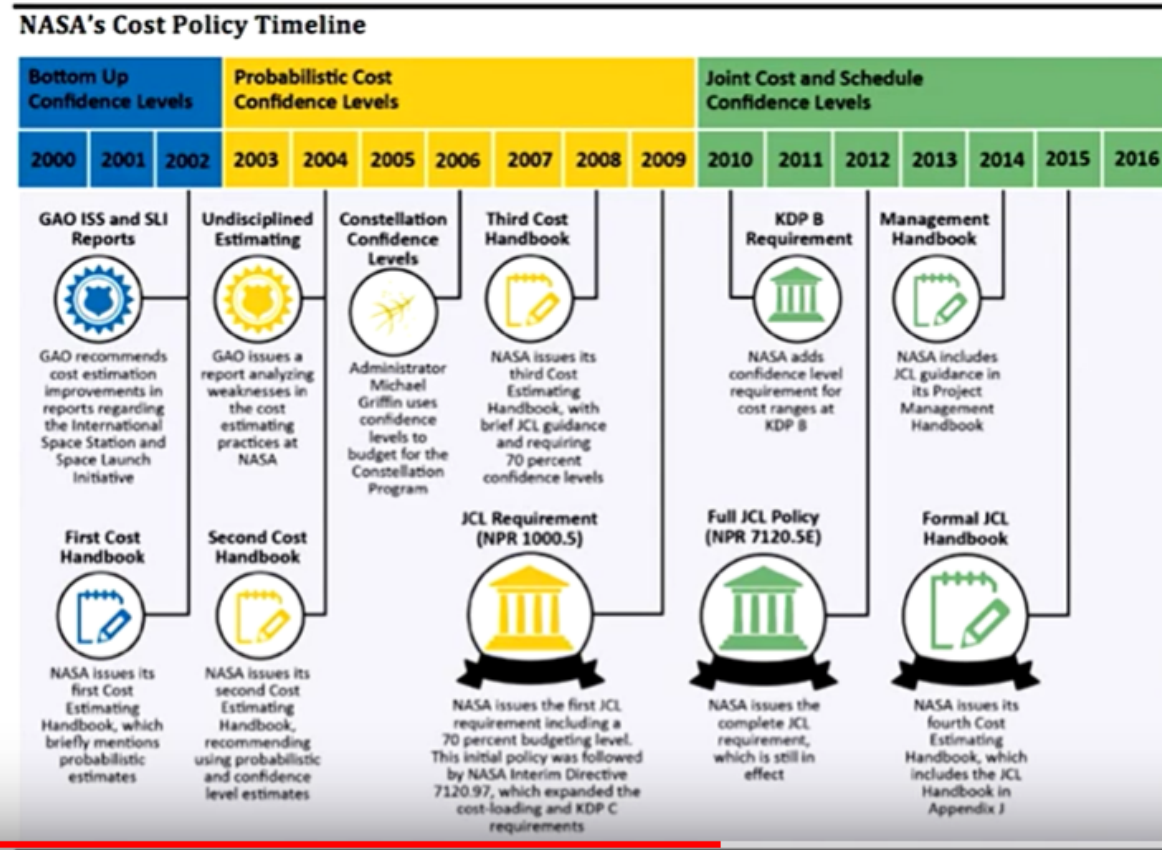
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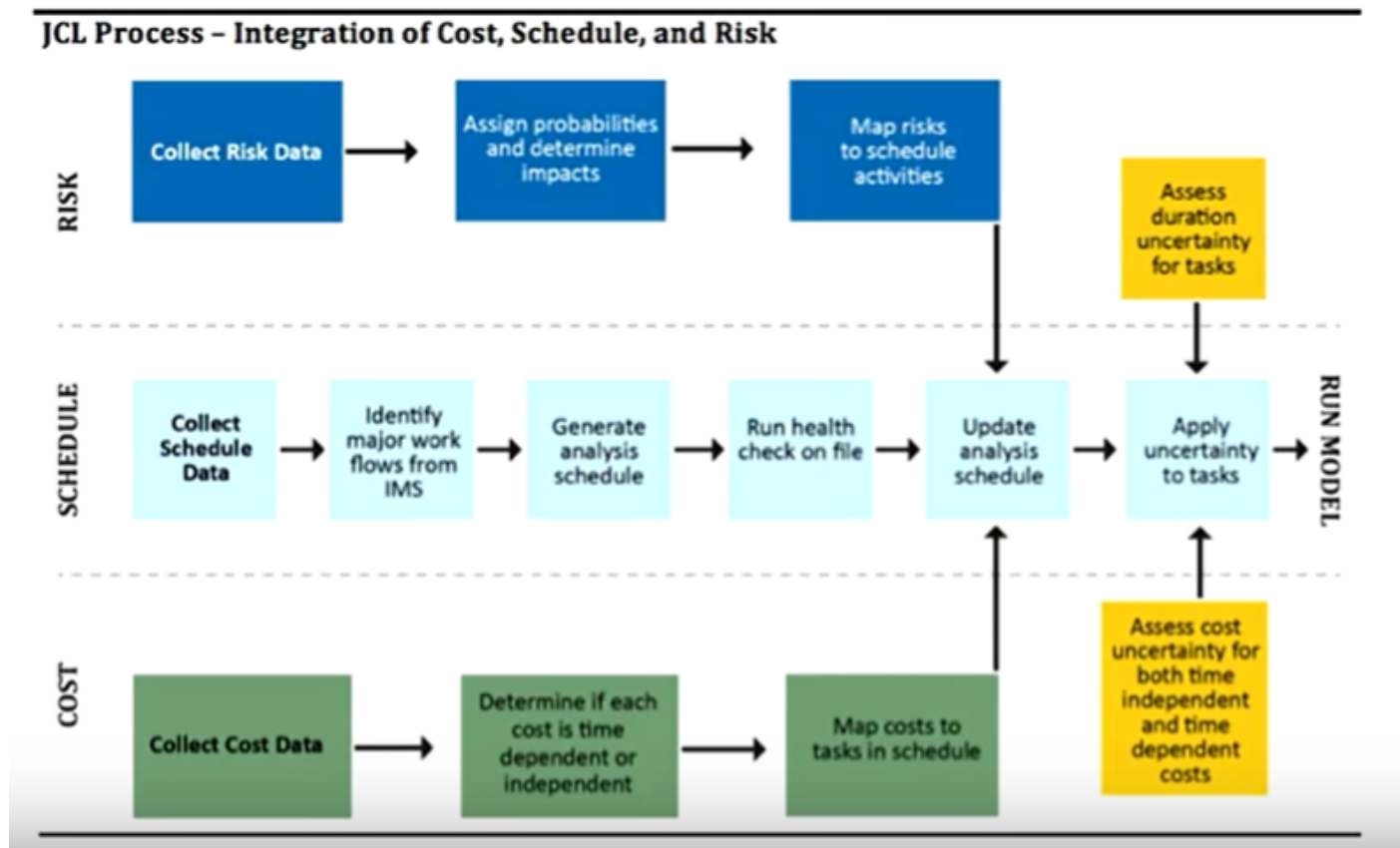
JCL



JCL-PC Process



JCL-PC Process



JCL



- A JCL analysis generates a representation of the likelihood a project will achieve its objectives within budget and on time.
- The process uses software tools and models that combine cost, schedule and risk to evaluate and illustrate how expected threats and unexpected events affect a project's cost and schedule.
- JCL is **NOT** a method to yield more accurate/optimal cost & schedule estimates.

JCL



- It is a summary indication of the effect of risk given the fundamental interdependent nature of the cost and schedule objectives in a project.
- Cannot use the JCL to do time/cost trade-offs - but it does inform the typical “cost- or schedule-driven” debate - you typically cannot have both.
- A JCL analysis not only establishes the basis for proposing project and program budgets, but may improve project planning and provide stakeholders the rigor and documentation to better justify funding requests.

JCL



- NASA OIG (2015) ***Audit of NASA's Joint Cost and Schedule Confidence Level Process.***
- Rippe A (2011) ***Joint Cost Schedule Model(JCSM) - Recent AFCAA Efforts to Assess Integrated Cost and Schedule Analysis.***
- **AACE** (2011) ***57R-09: Integrated Cost and Schedule Analysis using Monte Carlo Simulation of a CPM Model.***
- US Govt (2014) ***Joint Agency Cost Schedule Risk and Uncertainty Handbook.***
- **Steinman S & Donovan M** (2018) ***Integrated Cost/Schedule Risk Analysis for Pre-Concept Alternatives Analysis/ Technology Selection.*** Cost Engineering (August).

Next Meeting?



- Feedback on today's Meeting Time
- Topics for next meeting
 - How to organize and conduct a CSRA?
 - ????
- Possible Dates for the next meeting