Australian Government
Department of Defence
Capability Acquisition and Sustainment Group

scram
SCHEDULE COMPLIANCE RISK ASSESSMENT METHODOLOGY

SCRAM Presentation

Schedule Compliance Risk Assessment Methodology

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Defending Australia and its National Interests
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SCRAM

- SCRAM is a methodology that has evolved from reviews of CASG Projects of Interest and Concern

Schedule is almost always the primary concern of our project stakeholders

- SCRAM is a key component of CASG's initiatives to improve schedule performance

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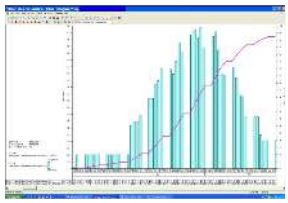
What is SCRAM?

- A proven approach to conduct Project reviews and provide assurance
- An independent assessment method to identify:
  - root causes of Project schedule slippage
  - probability of milestone achievement
- Provides recommendations to get the Project back on track
- Captures lessons learned
- Embodies best practices from
  - systems and software engineering
  - schedule development and project management



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Independent Assurance

- Comprehensively investigates all aspects of Projects that may cause problems including:
  - Technical and engineering factors
  - Stakeholder relationships
  - Schedule construction and use
  - Governance and management arrangements
- SCRAM Reviews are conducted by qualified assessors with deep experience in the domain

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SCRAM Product Suite

Root Cause Analysis of Schedule Slippage (RCASS) Model	
SCRAM Manufacturing and Production Extension	
SCRAM Schedule Risk Management and Assessment Guide (SR/MAG)	
Review Process and Techniques • Schedule Monte Carlo Simulation • Software Parametric Modelling (Forecasting)	
SCRAM Training Courses	
SCRAM Assessor Guidebook	

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Organising Information on Complex Projects

- The dynamics of complex projects makes it difficult to distinguish between symptoms and root causes of schedule slippage

- Understanding those dynamics requires “drinking from a fire hose” of information
- To de-clutter and organise the massive amounts of information, SCRAM assessors utilise a thought model
  - Root Cause Analysis of Schedule Slippage (RCASS)

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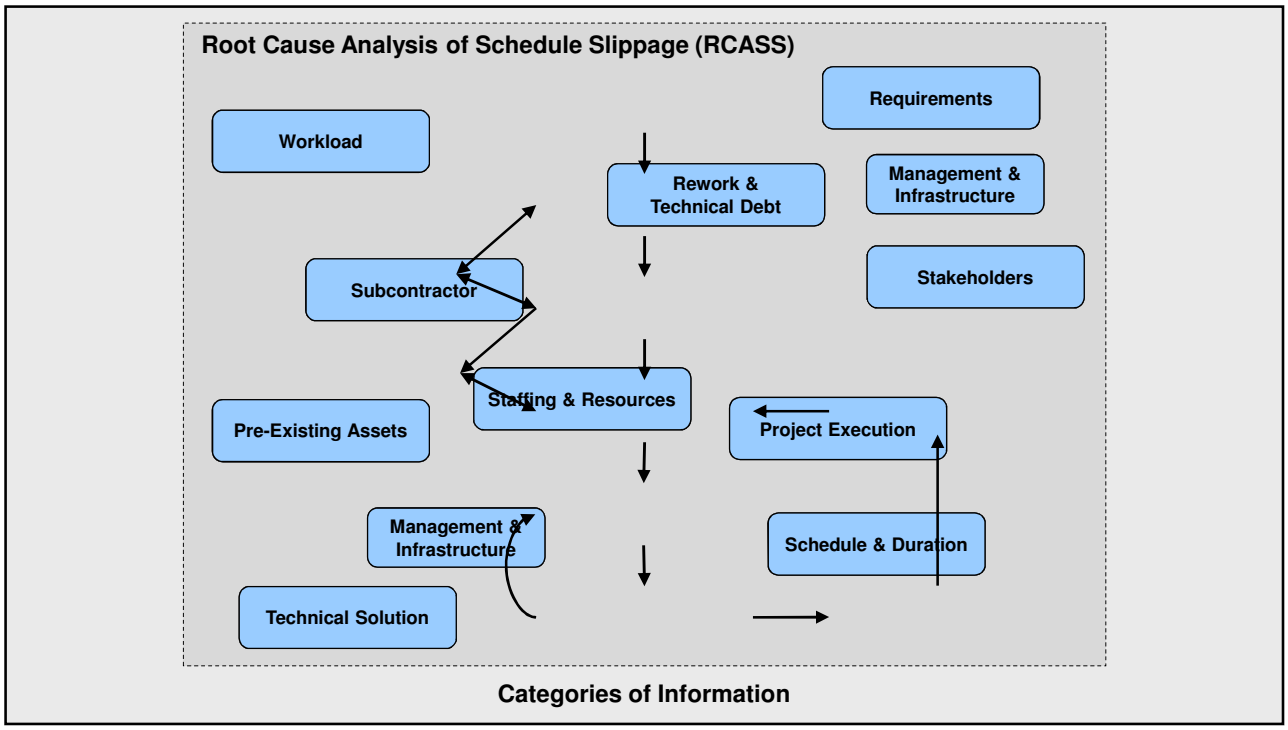
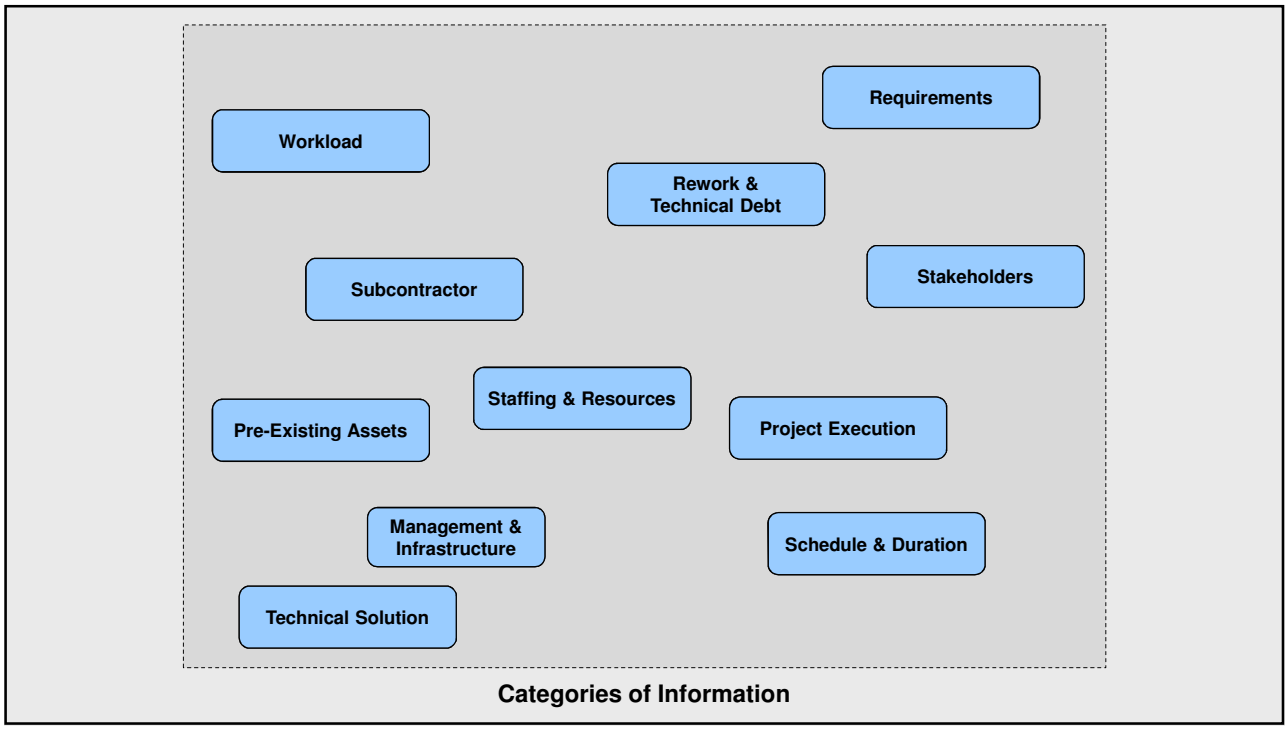

Root Cause Analysis of Schedule Slippage (RCASS)
Requirements
Workload
Rework & Technical Debt
Management & Infrastructure
Subcontractor
Stakeholders
Staffing & Resources
Pre-Existing Assets
Project Execution
Management & Infrastructure
Schedule & Duration
Technical Solution
Categories of Information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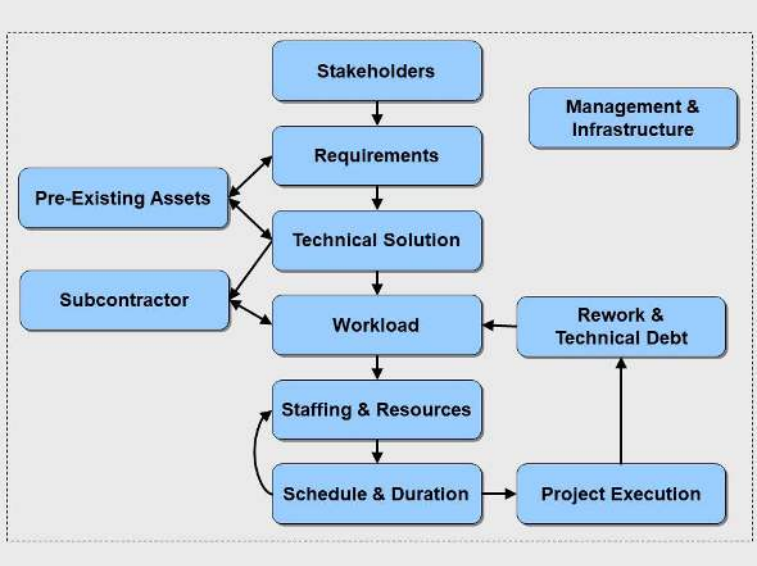
Root Cause Analysis of Schedule Slippage (RCASS) Model



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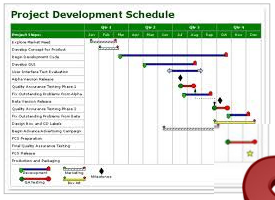
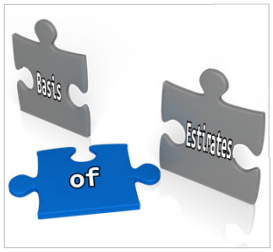
What SCRAM can do for You

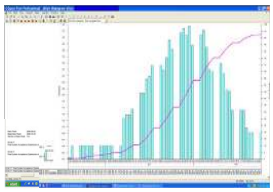


Logic Sound?

Right Scope?

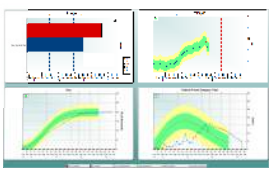


Validate Contractor Estimates



Issues & Risks Impacts / Confidence Level?

What Ifs?



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SCRAM Testimonial

- SCRAM has been applied successfully to the F-35 Joint Strike Fighter Program in the USA (web search "F-35 Australian SCRAM")
  - Six SCRAM reviews were conducted from 2011 to 2015 (on-board and ground software)

"The SCRAM reviews on the F-35 Program were extremely helpful to us. SCRAM gave us new techniques that allowed us to better understand the complexities of our software development. Within two weeks of coming in, the SCRAM reviews were able to point out areas where we were going to have problems. SCRAM also gave us new techniques for measuring the progress of software development and for predicting how long the software development was going to take. In 2014, I briefed the SCRAM results to the Defense Acquisition Board. Of all the organizations that were making estimates, the SCRAM estimates, in hindsight, were the most accurate."

Lt. Gen. Chris Bogdan, Program Executive Officer, F-35 Program (24 Mar 2017)

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Diversity of SCRAM Reviews

- SCRAM has been proven in a number of technology domains with projects of varying size and complexity.
- SCRAM delivery modes:
  - Pre-emptive
    - prior to contract award and/or EVM-IBR
  - Assurance
    - at any point in the capability lifecycle
  - Diagnostic
    - when a project is of 'interest' or 'concern'
- The Australian SCRAM Team has completed reviews on nearly 40 major projects. Some examples follow:

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Anzac Class Frigate

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Airborne Early Warning & Control

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Pilot Training System (PTS)

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Tactical Communications

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F-35 Joint Strike Fighter - 6 SCRAM Reviews

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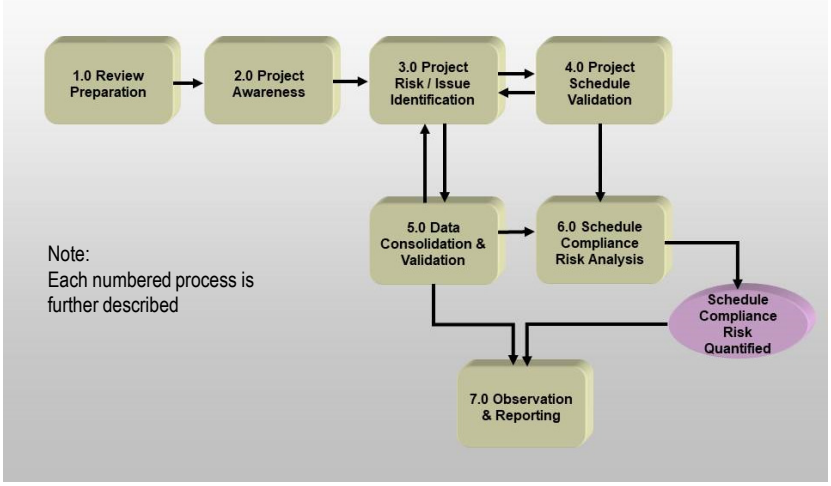
SCRAM Review Process



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SCRAM Review Key Principles

- Minimal Disruption
  - Artefact Review (plans, procedures, model evidence) conducted offline
  - Information is collected one person at a time
  - Interviews typically last an hour
- Independent
  - Review team members are organisationally independent of the program under review
    - Some SCRAM reviews have been joint contractor/customer team – facilitates joint commitment to resolve review outcomes
- Non-advocate
  - All significant issues and concerns are considered and reported regardless of origin or source (Customer and/or Contractor).

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SCRAM Review Key Principles

- Non-attribution
  - Information obtained is not attributed to any individual
  - Focus is on identifying and mitigating the issues/risk
- Corroboration of Evidence
  - Significant Findings and Observations based on at least two independent sources of corroboration
- Rapid turn-around
  - One to two weeks spent on-site
  - Executive out-briefing presented at end of second week
  - Written report two weeks later

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SCRAM Review Key Principles

- Sharing Results, Openness and Transparency
  - For the parametric modelling component of a SCRAM Review, organisation under review may witness data analysis and challenge results
  - Preliminary out brief of findings is delivered prior to departure from review site
  - Builds cooperation and trust
  - Builds confidence in the schedule forecast
  - SCRAM Team is the final arbiter

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The SCRAM Review Team

- Review is conducted by a small team including:
  - Engineers (to validate engineering related BoEs, work load estimates, identify project issues and risks, and provide inputs for schedule risk assessment)
    - Supplemented by domain specific subject matter experts as necessary
    - For software intensive development projects, at least one team member should be proficient in software parametric modelling
  - Project Controller / Scheduler experienced in the Project schedule tool
    - Validates schedule
      - conducts schedule health checks
    - Performs Monte Carlo risk modelling with inputs from engineering team members

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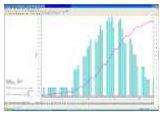
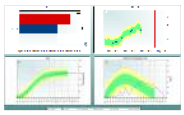
Typical SCRAM Outputs

- Executive Out Brief and Evaluation Report containing
  - Executive level Bottom Line Up Front (BLUF) statement(s)
    - Identifying the most significant issues and risks and their impacts
  - Detailed findings (addresses issues, risks Technical Debt and quantifies the impacts)
  - Schedule Monte Carlo Analysis Results
  - Parametric modeling forecast results
    - where applicable
  - Recommendations

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SCRAM Assessor Qualification Framework

- Three levels of SCRAM Assessors
  - Provisional SCRAM Assessor
    - Completed SCRAM training and passed exam
  - Certified SCRAM Assessor
    - Participated in SCRAM Reviews
  - SCRAM Lead Assessor
    - Lead SCRAM Reviews
- SCRAM Principal
  - Lead SCRAM Reviews
  - SCRAM Instructors
  - SCRAM Model Developers

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How to get involved

- Learn more about SCRAM
  - Managing Schedule Risk courses available for Defence personnel through Professionalisation
  - Public courses available through RedBay Consulting
- Become a SCRAM Assessor
  - Take the training (4 days) and pass the exam
    - Participate on SCRAM Reviews
- Have a SCRAM Review
  - Who are you going to call?

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