WHAT IS SCRAM?
A SHORT INTRODUCTION.

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CASG SCRAM Principals
Schedule Compliance Risk Assessment Methodology: 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 project stakeholders

- SCRAM is a key component of CASG’s initiatives to improve schedule performance
Setting The Scene

- In the following video, these Defense Contractors promised to delivered two months ahead of the competitive bid.
Setting the Scene
What does SCRAM mean?

- Go away!
- Secure Continuous Remote Alcohol Monitoring
  - As modelled here by Lindsay Lohan

Schedule_compliance_risk_assessment_methodology
SCRAM has been developed

To benefit decision makers, program managers and the acquisition community...

by providing a methodology that assists programs / projects...

to consistently identify root causes of schedule slippage and recommend remedial action.

SCRAM
SCHEDULE COMPLIANCE RISK ASSESSMENT METHODOLOGY
What is SCRAM?

An independent review to identify issues and risks to schedule
- Quantifies the schedule impact of issues and risks using scientific analysis techniques
  - Schedule Monte Carlo Simulation
  - Software Parametric Modelling

Embodies best practices
- Systems and software engineering
- Schedule development and project execution

Facilitates improved business practices
- Based on feedback from reviews
- Identification of systemic root causes / issues
SCRAM Usage

Sponsored by the Australian Department of Defence

- To improve Project Schedule Performance in response to Government concern as identified by the Australian National Audit Office (ANAO)
- Successfully applied to the F-35 JSF Program in the USA and was used to monitor software development performance on the program
Diversity of SCRAM Reviews

Aerospace
(F-35, MRTT, Hawk, Wedgetail)

Satellite
Ground Stations
(JP2008)

Maritime
(Anzac, AWD)

Enterprise Resource
Planning
(MILIS)

Telecommunications
(HFMOD, LAND2072)

Training Systems
(F-35 ALIS, HATS, PTS)
SCRAM Delivery Modes:

- **Pre-emptive**
  - Prior to contract award and/or EVM-HBR

- **Assurance**
  - At any point in the project lifecycle

- **Diagnostic**
  - When a project is of interest or concern
What SCRAM is NOT

An Audit
• It does not focus on identifying non-conformance

A Process Assessment
• Like Capability Maturity Model Integration (CMMI)
• But SCRAM does identify and treat poor process performance as an issue if process is driving schedule slippage
Organising Project Information

Program Managers are flooded with information, making it difficult to distinguish between symptoms and root causes of schedule slippage.

To de-clutter and organise the massive amounts of information, SCRAM Assessors utilise a thought model.

Root Cause Analysis of Schedule Slippage (RCASS)
Categories of Information

- Workload
- Subcontractor
- Pre-Existing Assets
- Management & Infrastructure
- Requirements
- Rework & Technical Debt
- Management & Infrastructure
- Stakeholders
- Staffing & Resources
- Project Execution
- Schedule & Duration
- Technical Solution
SCRAM Review Process

1.0 Review Preparation → 2.0 Project Awareness → 3.0 Project Risk / Issue Identification → 4.0 Project Schedule Validation

3.0 Project Risk / Issue Identification → 5.0 Data Consolidation & Validation → 6.0 Schedule Compliance Risk Analysis

5.0 Data Consolidation & Validation → 6.0 Schedule Compliance Risk Analysis

6.0 Schedule Compliance Risk Analysis → 7.0 Observation & Reporting

7.0 Observation & Reporting → Schedule Compliance Risk Quantified
# 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
- SCRAM 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).
## 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 turnaround
- One to two weeks spent on-site
- Executive out-briefing presented at end of second week
- Written report two weeks later
SCRAM Review Key Principles

Sharing Results

- Openness and Transparency
- For the parametric modelling component of a SCRAM Review, the organisation 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
- However, the SCRAM Team is the final arbiter
Two Methods of Quantifying Schedule Risk

<table>
<thead>
<tr>
<th>Schedule Risk Analysis (SRA)</th>
<th>Parametric Software Modelling</th>
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<tbody>
<tr>
<td>• Provides a detailed view</td>
<td>• Provides a high-level view</td>
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<tr>
<td>• Risks to schedule compliance are performed at the level of specific risks and specific</td>
<td>• Forecast completion date can be determined based on</td>
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<tr>
<td>tasks in the Project Schedule using a Monte Carlo simulation</td>
<td>product size (SLOC), historical data and achieved</td>
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<td>productivity</td>
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The two techniques provide independent estimates of schedule compliance probability.
Schedule Risk Analysis/Monte Carlo
Parametric Software Modelling Forecast

- Schedule
  - Phases
- FTE Staff
  - Plan
  - Forecast 4 month slip

- Size
- Defects (SPARs) Found - Severities 1 to 3

SCHEDULE COMPLIANCE RISK ASSESSMENT METHODOLOGY
Putting All Together

Causes of Project Slippage and Potential Risk Delays

Most Likely Planned Completion

Unplanned Rework (Defects)

Technical Debt Impact

Impact of Issues

Schedule Recovery

Potential Delays Due to Risk

70% Confidence Level

Realised Schedule Slippage Cannot be mitigated

Possible slippage due to risks

Monte Carlo Simulation

scram. SCHEDULE COMPLIANCE RISK ASSESSMENT METHODOLOGY
THANKyou!