



# Schedule Compliance Risk Assessment Methodology (SCRAM)

Introduction Course: SEI February 9-10, 2015

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# scram™

SCHEDULE COMPLIANCE RISK  
ASSESSMENT METHODOLOGY

- ▶ The SCRAM course uses the Queen's English (and spelling)
- ▶ For the purposes of this course , project = program



# Course Outline

Participant Introductions

SCRAM History, Context

Overview of SCRAM Process

Overview of the Root Cause Analysis of Schedule Slippage (RCASS) Model

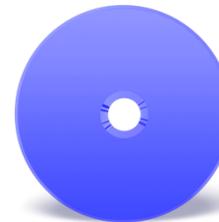
Overview of the SCRAM Process Reference/Assessment Model

RCASS Categories and Processes (with exercises)

Supporting Methods (SRA and Parametric Modelling)

Wrap Up

# Logistics & Materials



# Introductions

- ▶ Introductions
- ▶ Your Background and Course Expectations
- ▶ Our Assumptions
  - Basic Knowledge of
    - Systems and Software Engineering Life Cycles
    - Project Management and Scheduling
    - Risk Management

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# SCRAM

- ▶ SCRAM is an assessment methodology that has evolved from reviews of Projects of Interest and Concern

**Schedule is almost always the primary concern of project stakeholders**



# What does SCRAM mean?

▶ Go away!



▶ Secure Continuous Remote Alcohol Monitoring

— As modelled here by Lindsay Lohan

▶ Schedule Compliance Risk Assessment Methodology



SplashNewsOnline.com/Hollywood.tv

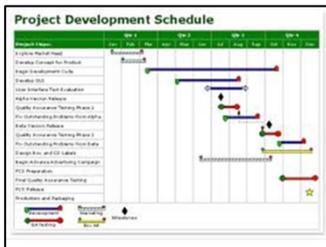
# SCRAM has been developed



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



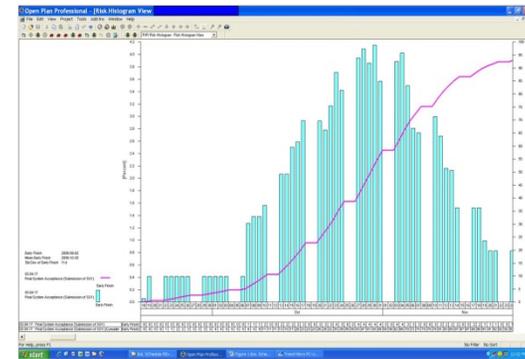
by providing a methodology that  
assists experienced engineers and  
subject matter experts...



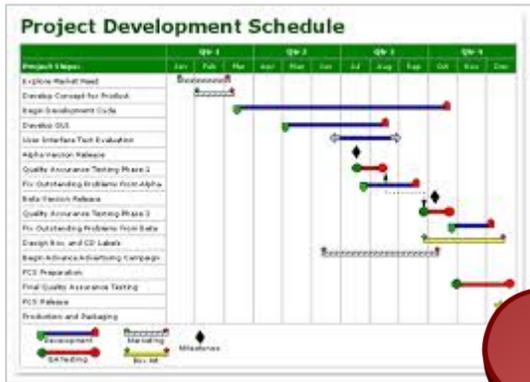
to consistently identify root causes  
of schedule slippage and  
recommend remedial action.

# What is SCRAM?

- ▶ An independent assessment used to identify issues and risks to schedule compliance
  - quantifies the schedule impact of issues and risks using scientific analysis techniques
    - Schedule Monte Carlo Simulation
    - Software Parametric Modelling
- ▶ Embodies best practices from
  - systems and software engineering
  - schedule development and project execution
- ▶ Facilitates improved business practices based on feedback from assessments, (i.e. identification of systemic root causes / issues)

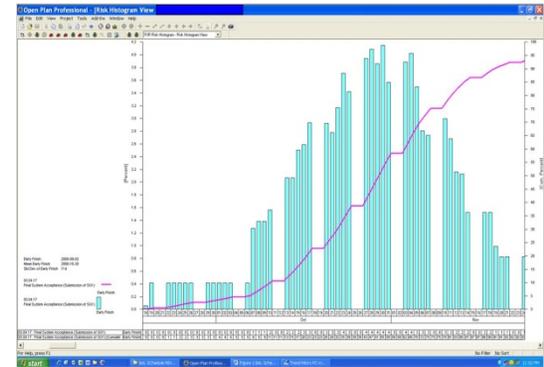
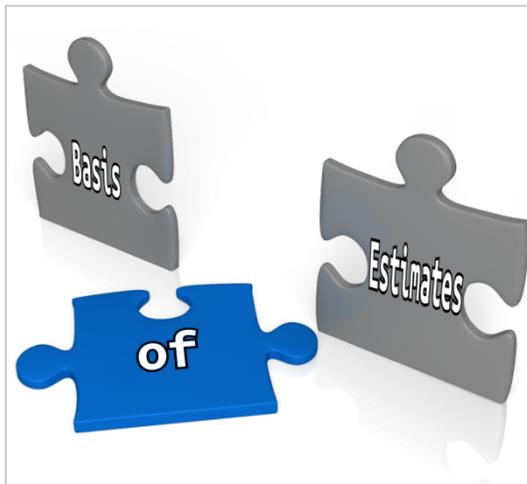


# What SCRAME can do for You



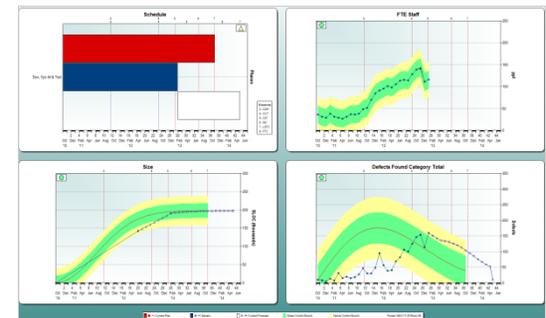
Logic Sound?

Right Scope?



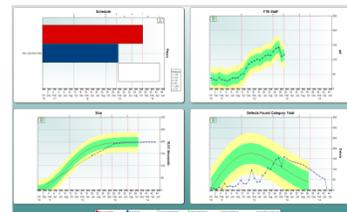
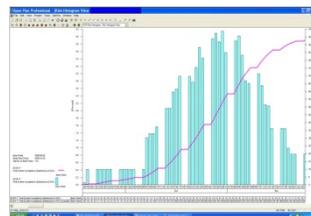
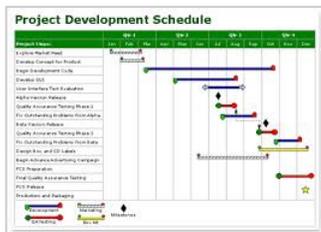
Issues & Risks Impacts / Confidence?

What Ifs?



# 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 (issues, risks and impacts)
  - Monte Carlo Analysis Results
  - Parametric modeling forecast results
  - Recommendations



# SCRAM Usage

- ▶ SCRAM has been sponsored by the Australian Defence Materiel Organisation (DMO)
  - To improve Project Schedule Performance in response to Government concern as identified by the Australian National Audit Office (ANAO)
- ▶ SCRAM has subsequently been acknowledged by the ANAO and is recognised in recent ANAO Defence Major Project Reports
- ▶ SCRAM has successfully been applied to the F-35 JSF Program in the USA and is now being used to monitor software development performance on the program (web search “F-35 Australian SCRAM”)

# Diversity of SCRAM Assessments

- ▶ SCRAM has been proven in a number of technology domains with projects of varying size and complexity. To date, assessments have been diagnostic in nature; generally initiated during System Integration and Test when problems typically manifest
- ▶ SCRAM delivery modes:
  - Pre-emptive (prior to contract award and/or EVM-IBR)
  - Assurance (at any point in the project lifecycle)
  - Diagnostic (when a project is of interest or concern)
- ▶ The DMO SCRAM Team has completed assessments on DMO major acquisition projects:

Aerospace	Maritime
Enterprise Resource Planning	Training
Command and Control	Satellite Ground Station
Communications / Telecommunications	

# SCRAM Recognition



- ▶ Referenced in the ANAO Major Program and Audit Reports
- ▶ Used to inform JSF Program Executive Officer (PEO) prior to US Defense Acquisition Board reporting
- ▶ Led to DMO participation on US Congressional Software Review Team for the JSF
- ▶ Published in the Journal of Cyber Security and Information Systems October 2013
- ▶ Presented as part of the 2014 Distinguished Speakers series at the US Defense Acquisition University, Washington DC
- ▶ Multiple conference and seminar presentations in Australia and the USA

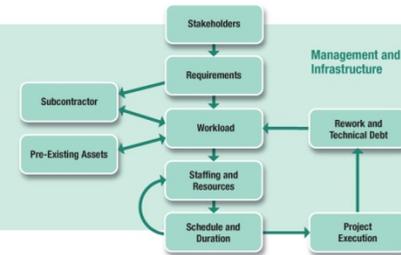
# What SCRAM is NOT

- ▶ 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



# SCRAM Product Suite

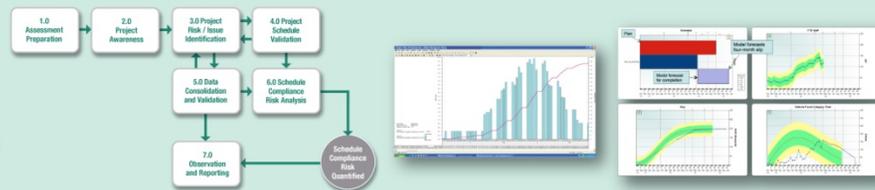
## Root Cause Analysis of Schedule Slippage (RCASS) Model



## SCRAM Process Reference/Assessment Model (PR/AM)

### Assessment Process and Techniques

- Schedule Monte Carlo Simulation
- Software Parametric Modelling (Forecasting)



## SCRAM Introduction and Assessor Training Courses



## SCRAM Assessor Guide Book



# SCRAM Intellectual Property

- ▶ To protect the integrity and quality of the method, DMO is applying for trademark registration of SCRAM
- ▶ Copyright allows the SCRAM model to be downloaded for non-commercial, organisational internal use
- ▶ The SCRAM methodology can only be delivered by authorised and licensed organisations



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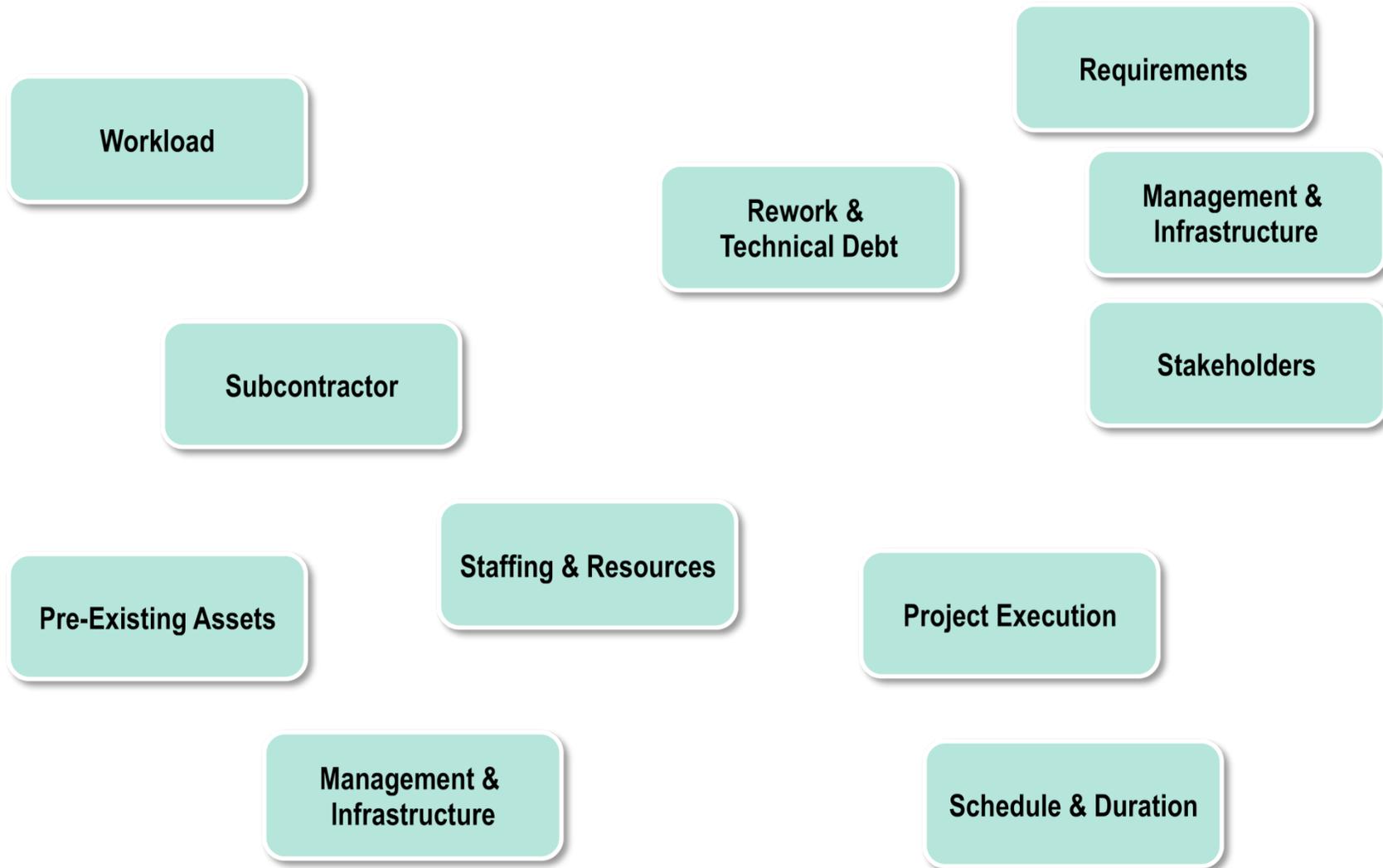
Wrap Up

# 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

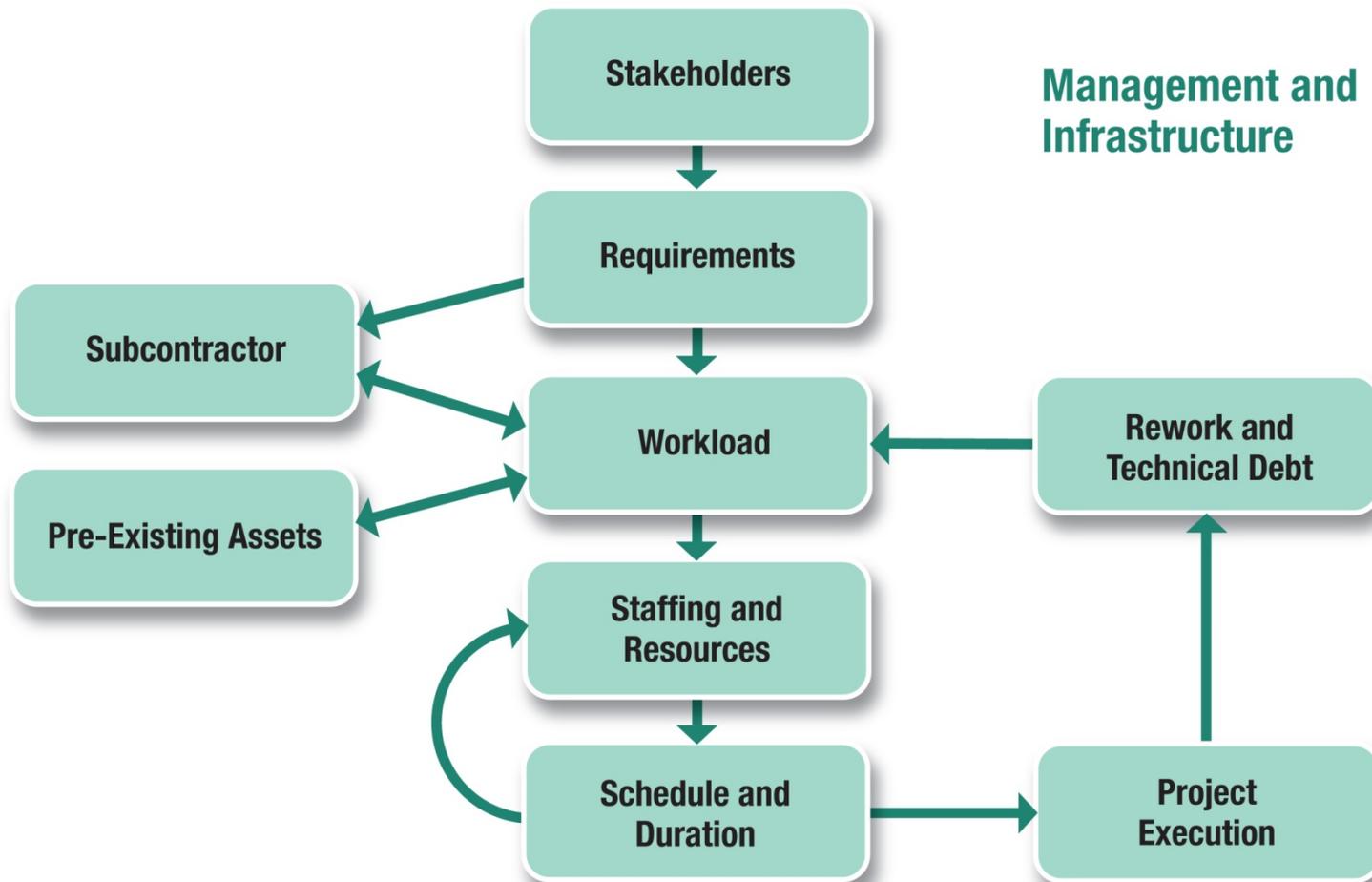


## Root Cause Analysis of Schedule Slippage (RCASS)



## Categories of Information

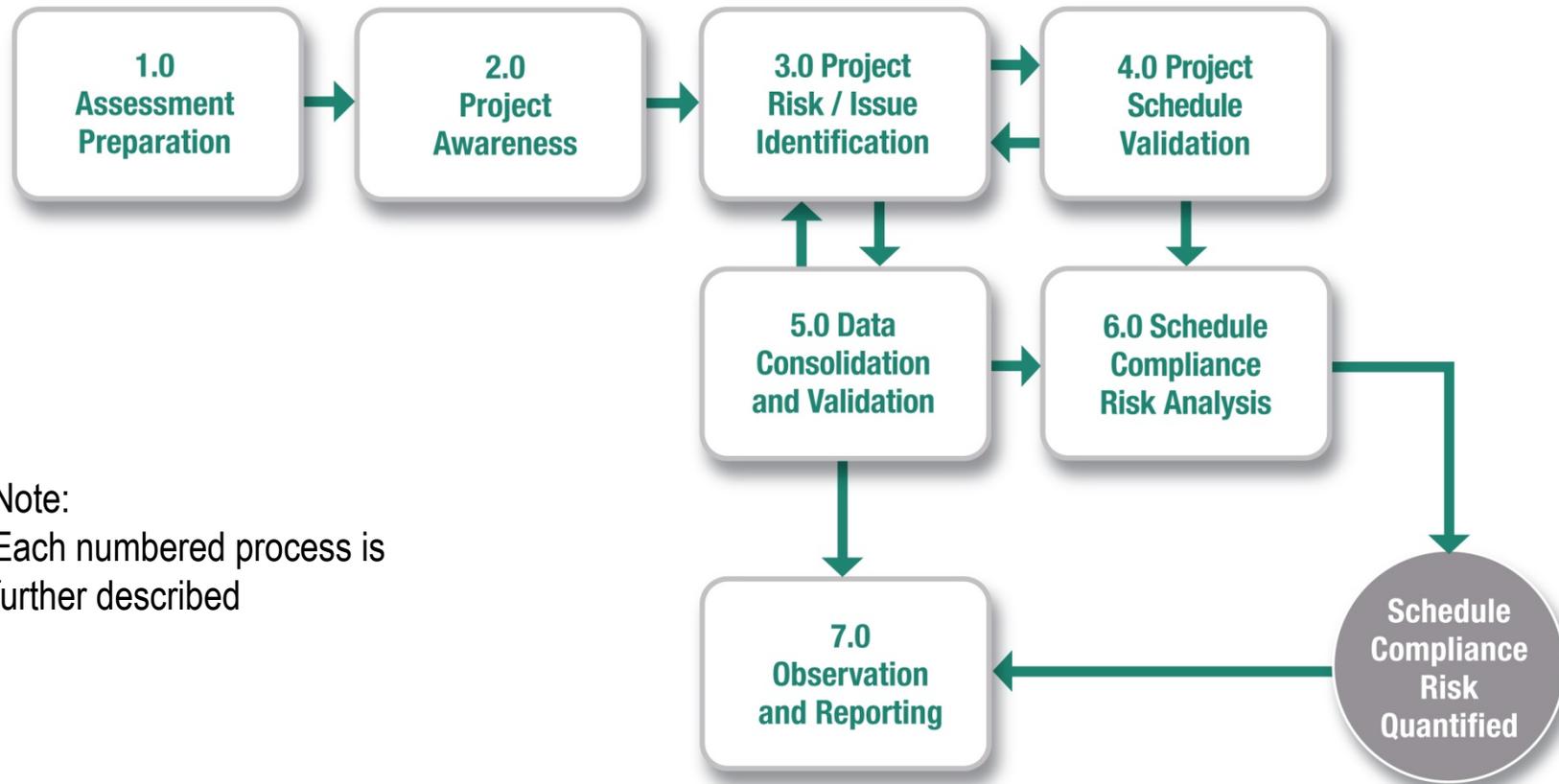
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# SCRAM Evaluation Process

- ▶ Used in conjunction with RCASS, the SCRAM Evaluation Process guides the SCRAM Evaluation Team through
  - Assessment Preparation
  - Project Awareness
  - Project Risk/Issue Identification
  - Project Schedule Validation
  - Data Consolidation and Validation
  - Schedule Compliance Risk Analysis
  - Observation and Reporting
  
- ▶ Supported by templates for Planning, In-Briefs, Out-Briefs and Reporting

# SCRAM Evaluation Process



Note:  
Each numbered process is further described

# SCRAM Evaluation 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
  - Evaluation 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).