



Transport  
Asset Standards  
Authority

# Authorised Engineering Organisation

## Systems Engineering Requirements



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# Martin Brown

## Systems Engineering SME Asset Standards Authority



# Agenda

1. Asset Standards Authority
2. Authorised Engineering Organisations
3. Systems Engineering Requirements applicable to engineering organisations



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# Asset Standards Authority



# Overview of ASA

1. The Asset Standards Authority (ASA) is an independent body within Transport for NSW (TfNSW)
2. The ASA is responsible for engineering governance, assurance of design safety, and ensuring the integrity of transport and infrastructure assets



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# ASA functions

- ISO 9001- Quality Management
- PAS 55-1:2008 – Asset Management
- ISO 15288 – Systems and Software Engineering



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# Three new organisations

## From 1 July 2013

- Restructure of RailCorp
- Sydney Trains, NSW Trains as operator maintainers
- TfNSW as planner, procurer, Design Authority for assets
- ASA as part of TfNSW to exercise Design Authority for standards over all TfNSW heavy rail assets



Transport  
Sydney Trains



Transport  
NSW Trains

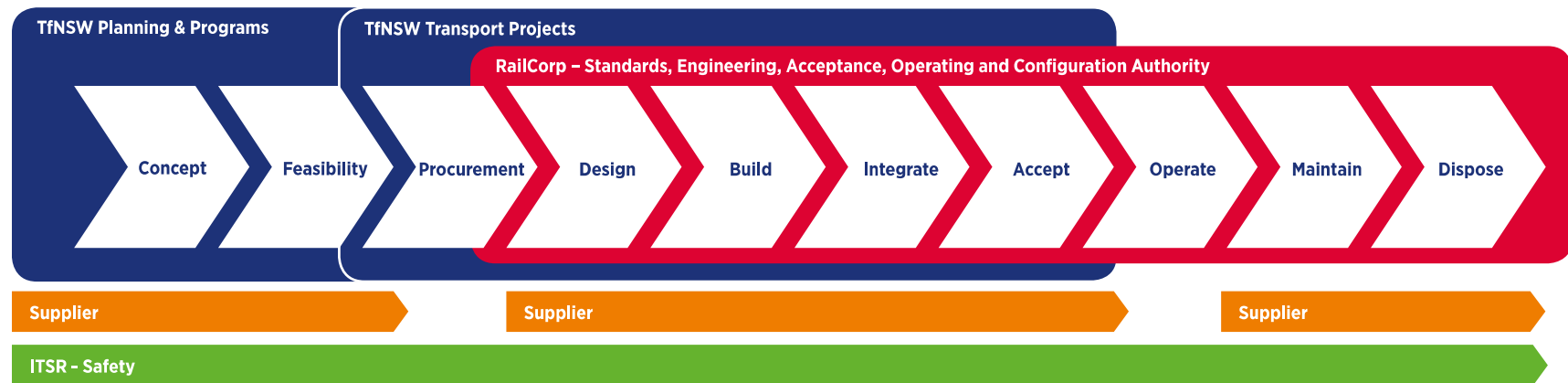


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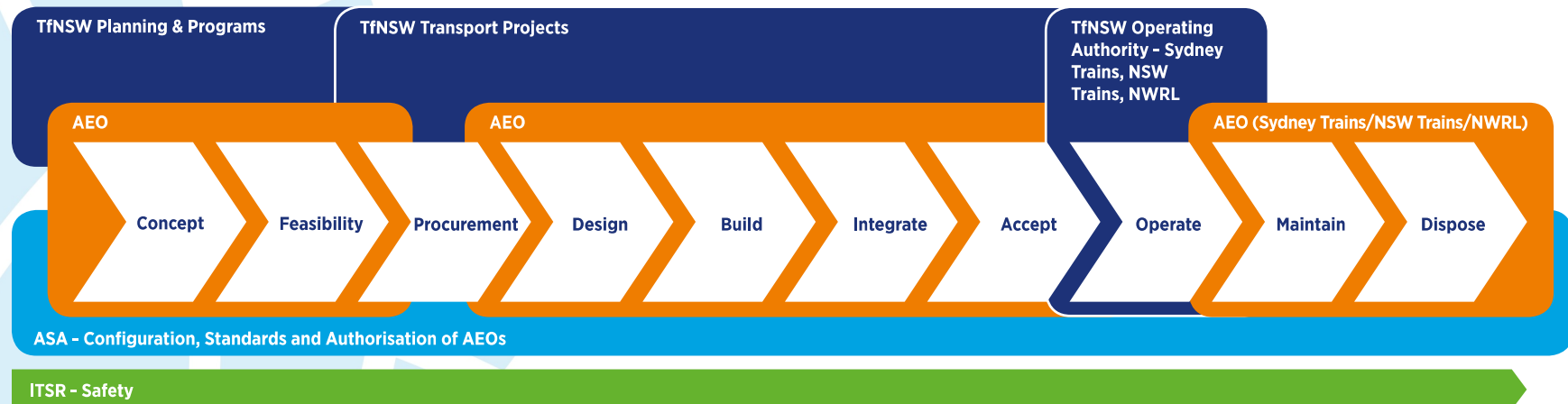


# Engineering framework

## Current framework



## Future framework







# Standards arrangements

- RailCorp engineering standards will transition to the ASA from 1 July 2013
- RailCorp standards still in force, unless changes made by the ASA
- All standards on ASA standards website
- ASA has transitional arrangements and processes in place for post 1 July 2013



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# Authorised Engineering Organisations



# New arrangements

- The ASA determines if supplier organisation can undertake engineering work on TfNSW infrastructure and assets
- Authorisation is assessment and audit process of supplier's engineering assurance arrangements
- Successful organisations will be granted Authorised Engineering Organisation (AEO) status
- AEOs can then tender for engineering work through TfNSW, Planning & Programs Division and Transport Projects Division



# AEO requirements

- Provide qualified, experienced personnel
- Manage own competence
- Manage own engineering assurance, supported by systems engineering, configuration, technical data management
- Establish and maintain continuous process and product improvement system
- Collaborate with ASA to develop best practice
- Establish and maintain quality management system complying with ISO 9001



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# AEO authorisation

**Authorisation Guide**

**Who When Where**

**Authorisation  
Governance  
Framework**

Authorisation  
Requirements

**What**

**Engineering  
Management Guide**

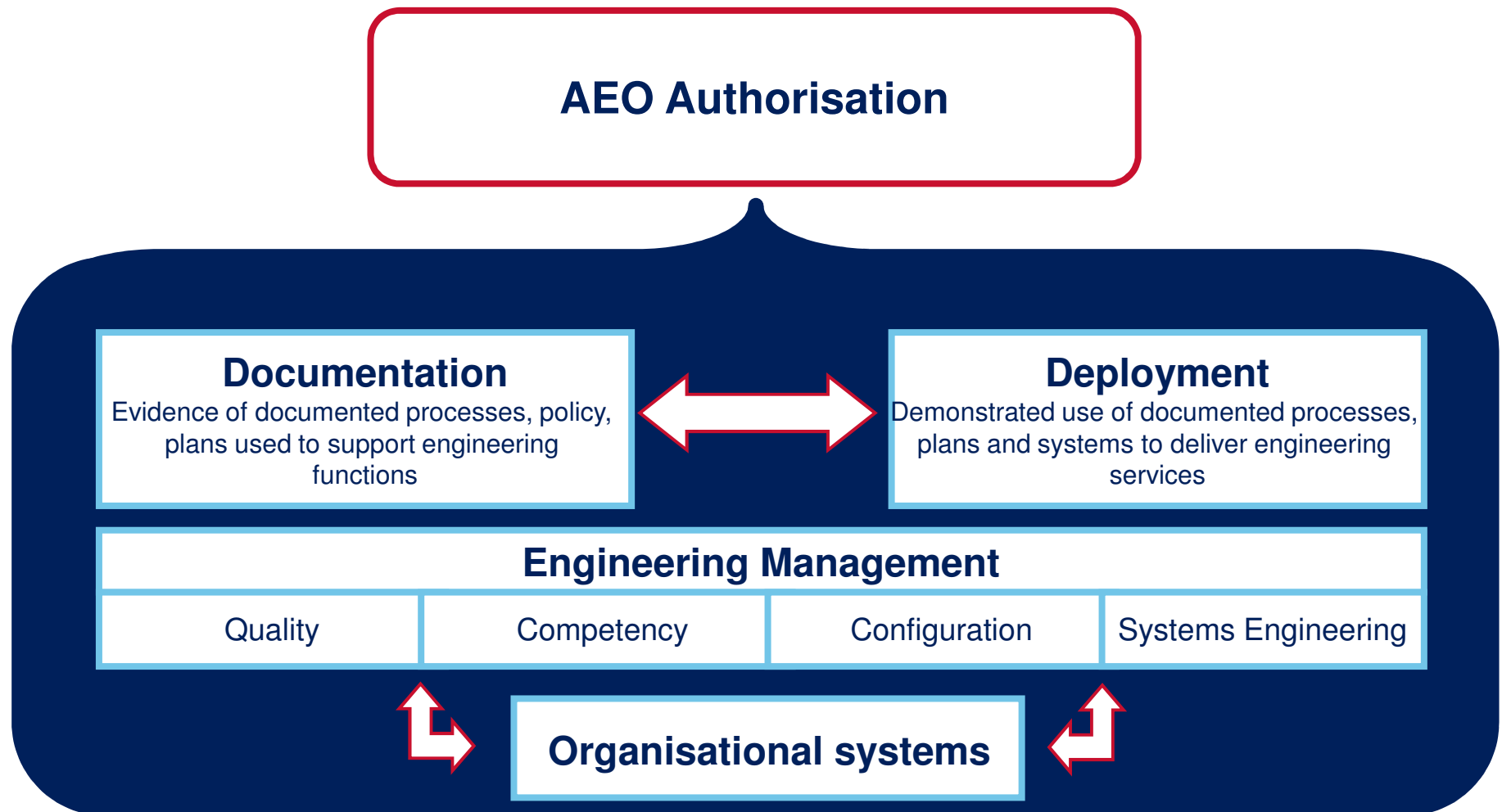
Competency  
Configuration  
Quality  
Safety  
Systems Engineering

**How**

**AEO submission requirements / authorisation evidence**

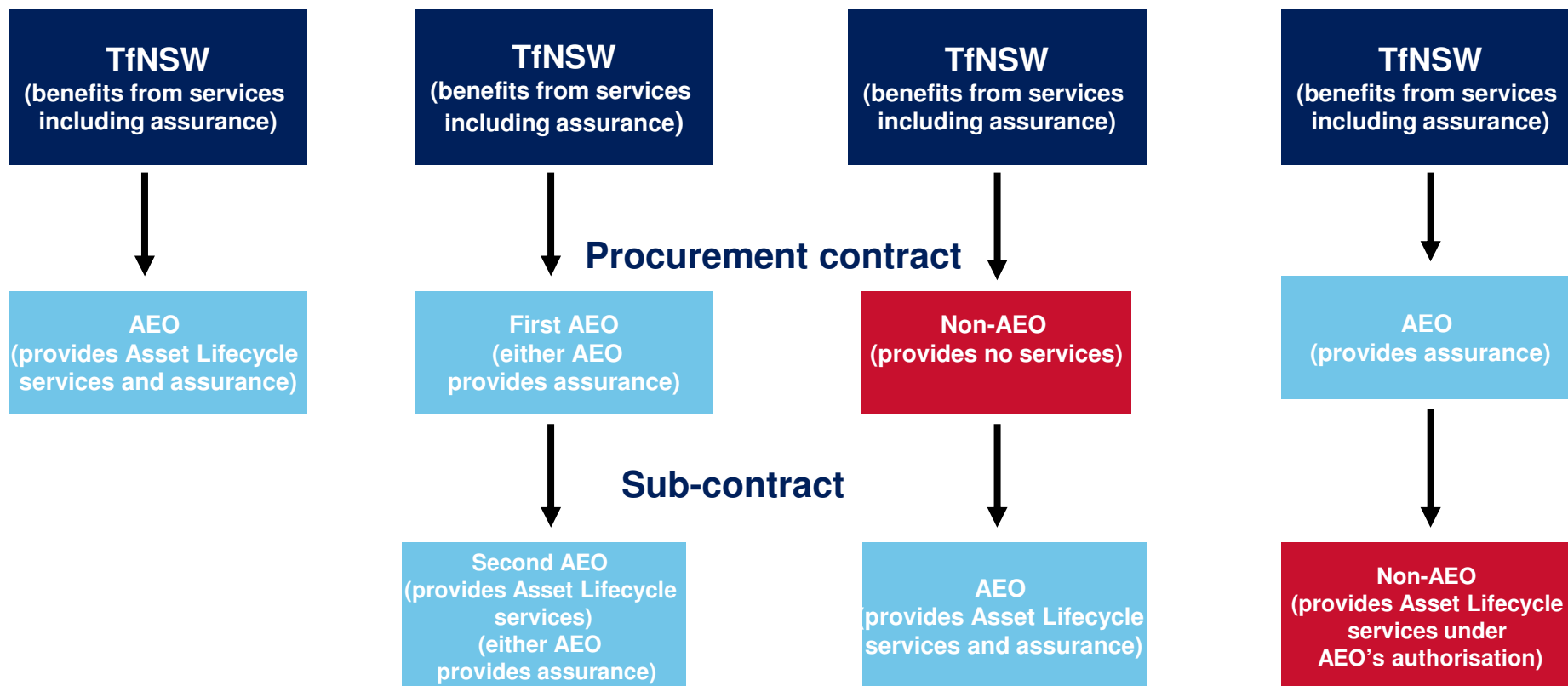


# How it works





# Possible AEO models





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# Systems Engineering Requirements

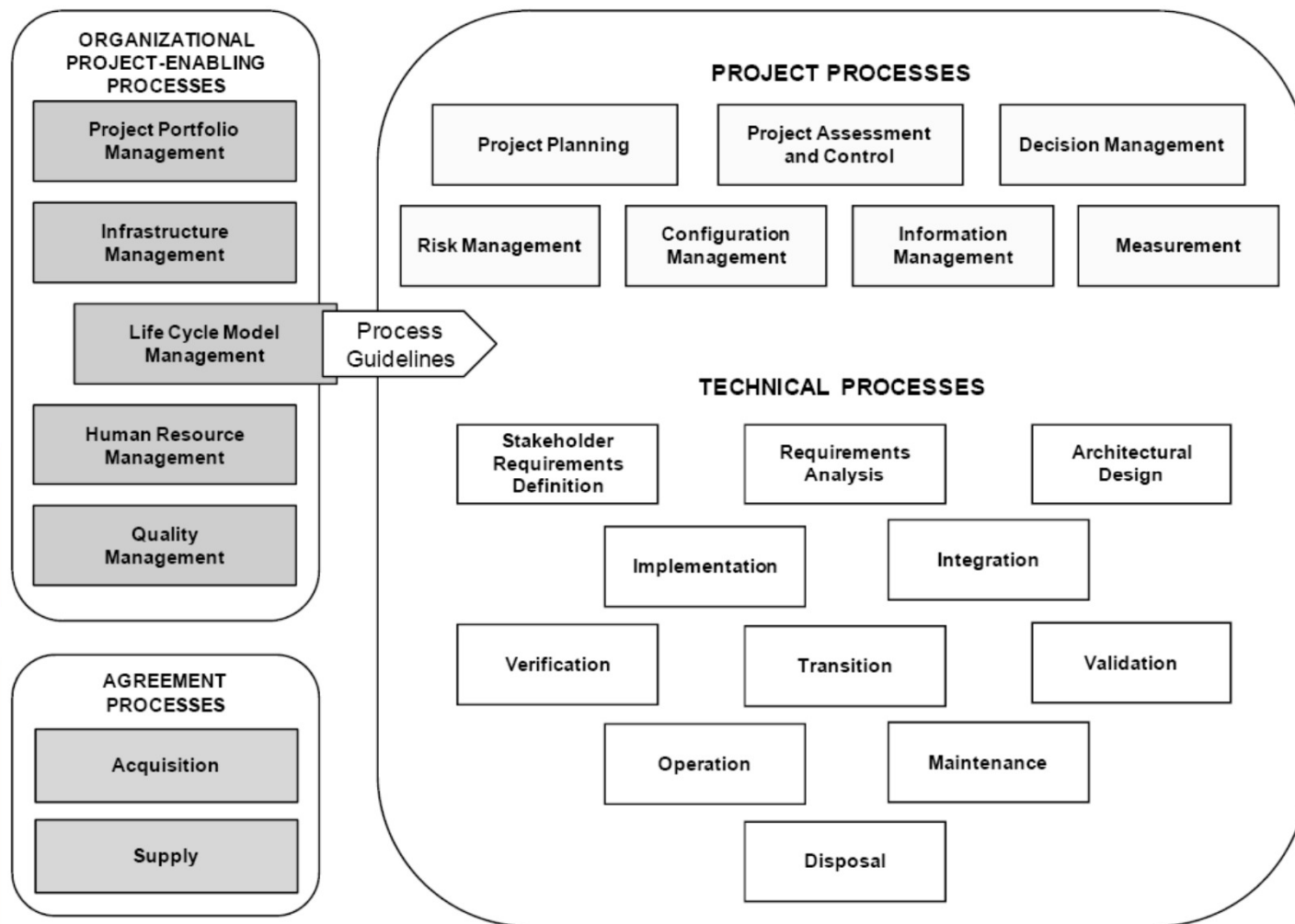




# Systems engineering

- ASA suite of engineering management guides to help industry respond to AEO requirements
- Developed based on technical processes of ISO/IEC 15288:2008
- *AEO Guide to Engineering Management* provides overall Systems Engineering guidance
- Supported by SE process specific detailed guides
- Mandatory Systems Engineering requirements are located in *ASA Authorisation Requirements*

# Life cycle processes





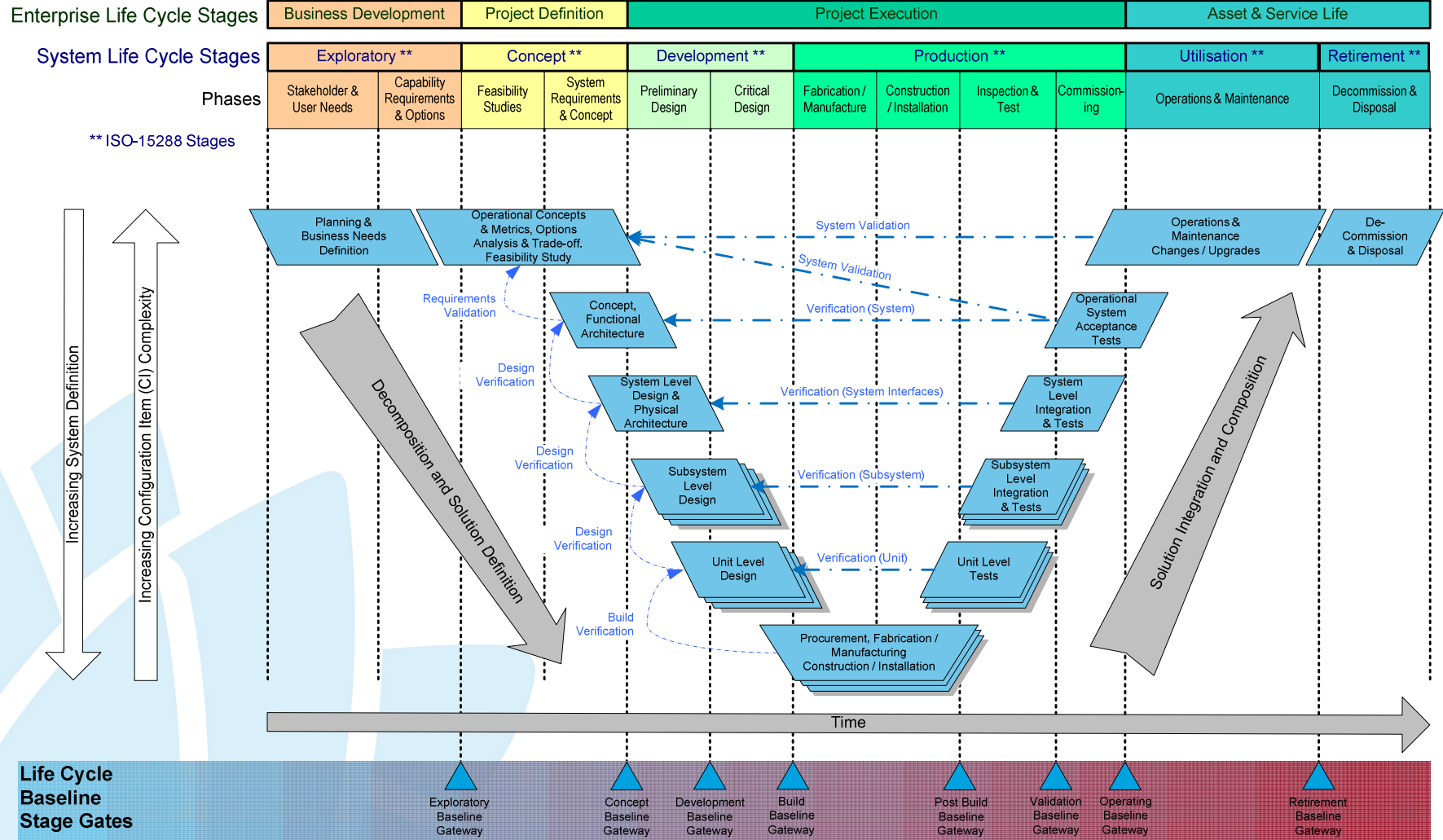
# Authorisation requirements

## From *ASA Authorisation Requirements*

Mandatory/ Guidance	Requirements
<b>Mandatory</b>	An Authorised Engineering Organisation shall have requirements management arrangements that set out process, responsibilities, structure, tools and deliverables for management of stakeholder requirements applicable to the scope of engineering services provided across the system life cycle
Guidance	Requirements management arrangements should be documented in a requirements management plan, but may be included as a section within an overall systems engineering management plan, depending on the scope and complexity of engineering services provided
Guidance	Authorised Engineering Organisations should have a process for identifying system safety requirements, which should be specifically identified and managed
<b>Mandatory</b>	An Authorised Engineering Organisation shall establish and maintain a requirements management tool that is capable of managing the categorisation, allocation, changes, traceability and verification of all requirements within its scope of control
<b>Mandatory</b>	The requirements management tool shall be able to exchange all requirements information easily using a common interchange format with other organisations
Guidance	A common requirements interchange format is the Object Management Group requirements interchange format (ReqIF), specified at <a href="http://www.omg.org">www.omg.org</a>
Guidance	It is not always necessary to implement a complex proprietary requirements management tool for simple projects. Depending on the project or system complexity, the Authorised Engineering Organisation could manage requirements using a spreadsheet tool.
Guidance	There are a number of proprietary requirements management tools currently available.
Guidance	Further guidance is provided in <i>Guide to Requirements Definition and Analysis</i>



# ASA life cycle model





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# Summary of key points



# Key points

- 9 functions including network standards and authorisation of AEOs
- 1 July 2013 Sydney Trains authorised as AEO for heavy rail engineering
- Transitional arrangements from 1 July - 30 Sept 2013 focus on priority procurement areas
- Provisional Authorisation based on project
- 1 Oct 2013 AEO framework expanded
- Information on the TfNSW ASA website  
**<http://www.transport.nsw.gov.au/asa>**



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# Thank you