



AA Software Process and Regulation 3.5.3

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AUSTRALIAN
AEROSPACE
EUROCOPTER, AN EADS COMPANY

Overview

- Overview of Australian Aerospace
- Software Process Background
- Development of Common Organisational Software Process
- Deploying Common Process to a Platform
- Compliance with Regulation 3.5.3
- Development of Software Management Plan

Australian Aerospace

— Military Fixed Wing Aircraft

- Multi-Role Tanker Transport (MRTT) – Design
- P-3 Orion – Deeper Maintenance
- C130J – Deeper Maintenance

— Military Helicopters – Production and Through Life Support

- Armed Reconnaissance Helicopter (ARH)
- Multi Role Helicopter (MRH 90)

— Civil Helicopters

- Sales, Technical Support, Maintenance

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— Military Helicopters – Production and Through Life Support

- Armed Reconnaissance Helicopter (ARH) – Mission System Software
- Multi Role Helicopter (MRH 90) – Mission System Software

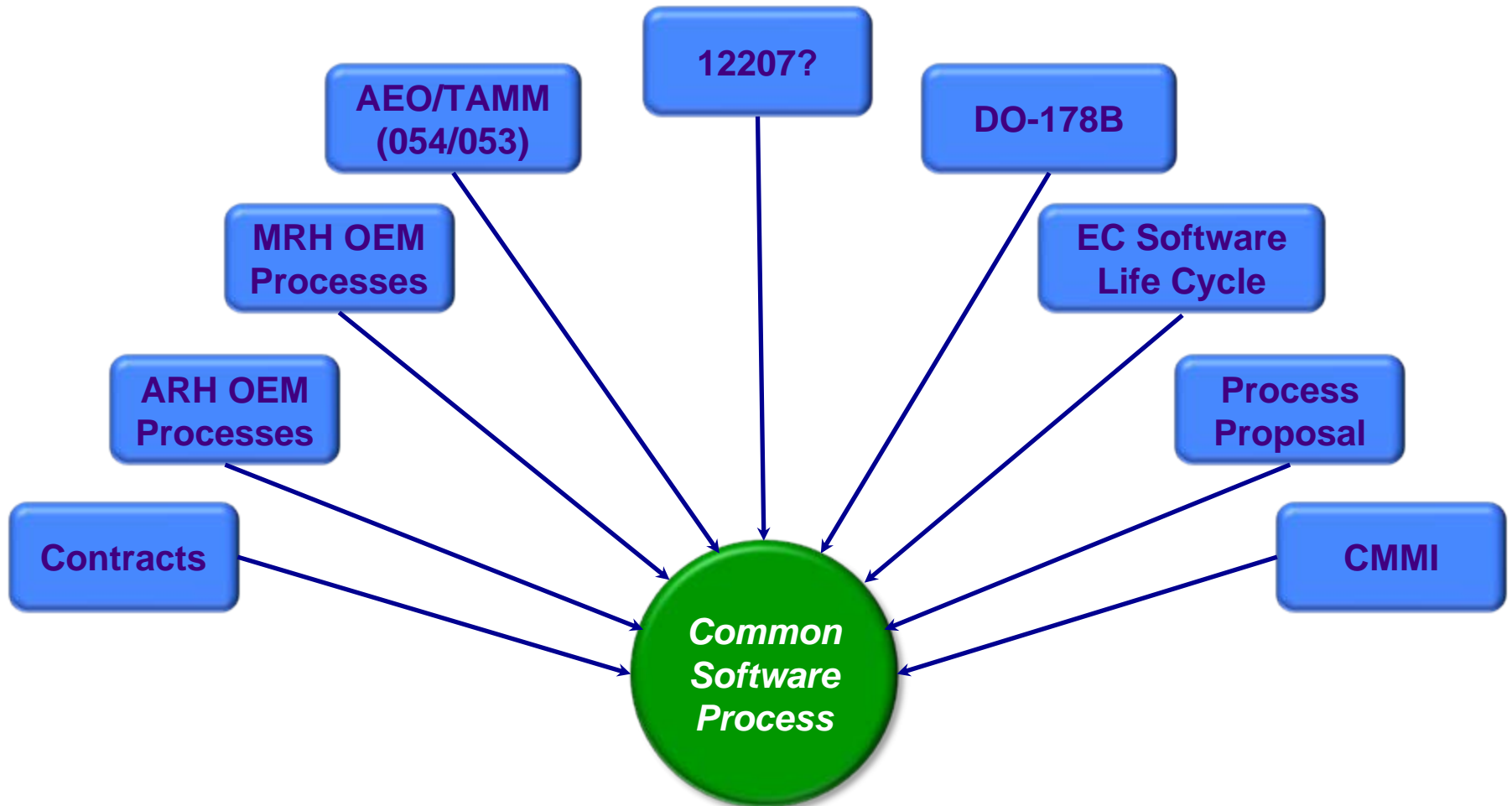
— Civil Helicopters

- Sales, Technical Support, Maintenance

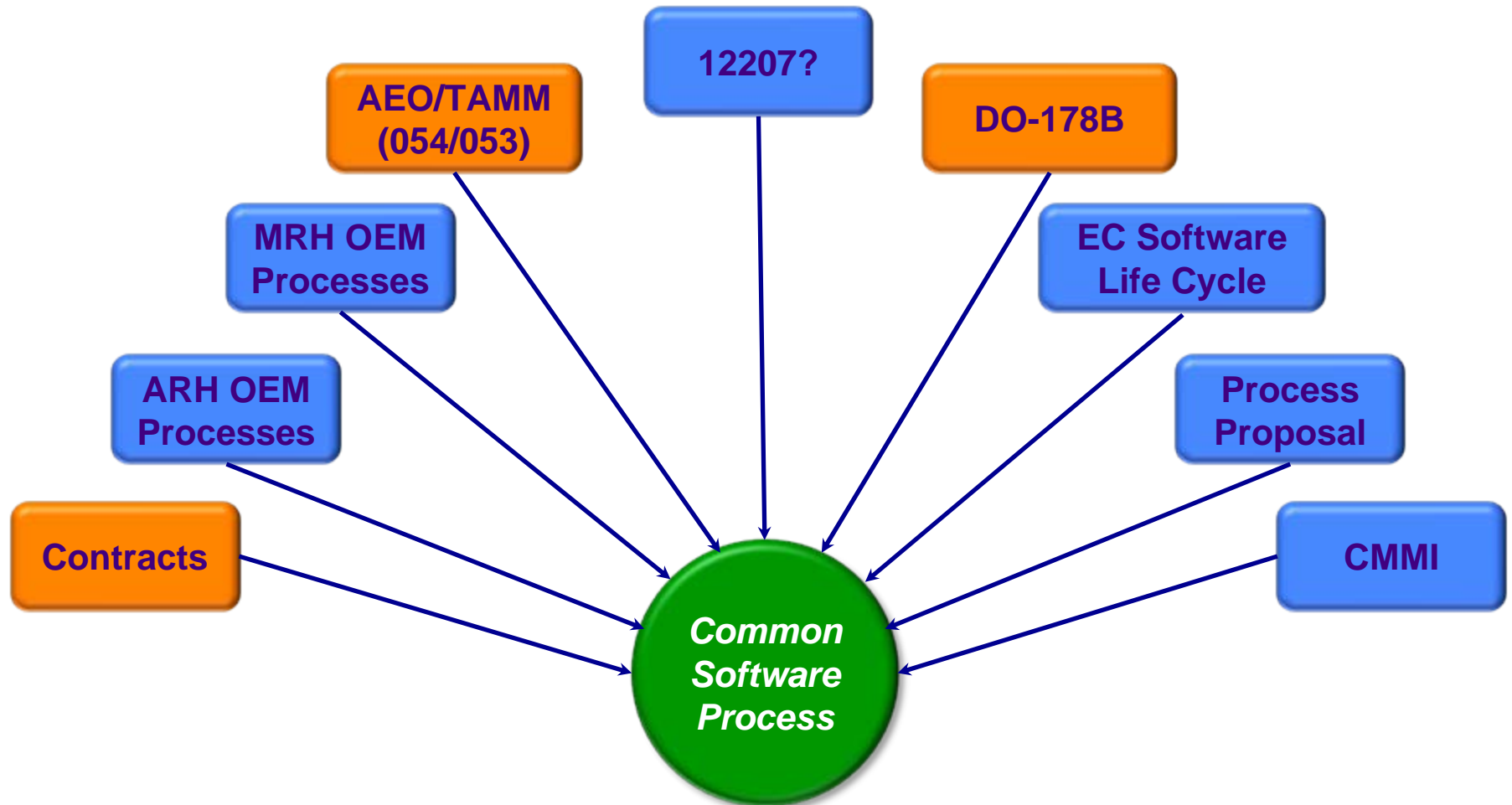
AA Software Process Background

- AA have been the Prime contractor responsible for ARH software Acquisition/Certification since 2001 and responsible for ARH TLS software Support since 2003.
- AA has successfully transitioned and adapted the OEM tools and methods from the acquisition phase to the ADF context and technical regulatory framework.
- Software Support Capability established in Brisbane
 - In acquisition phase AA Tools located at subcontractor facility in North Ryde
 - To provide improved support to end customer ARH Software Support Capability (ASSC) moved from Sydney to Brisbane and requalified
 - MRH Software Support Centre and Capability began being established
- Desire for Common or Organisational Software Process
 - Consistency across ARH and MRH platforms
 - Simplify training
 - Allow engineers to move easily between projects
 - Aim of process improvement strategies – e.g., CMMI
- Inherit from well established OEM Processes
 - Personnel with significant OEM experience
- Personnel with significant experience in aviation software maintenance
 - F-111 Weapons System Support Facility (WSSF)

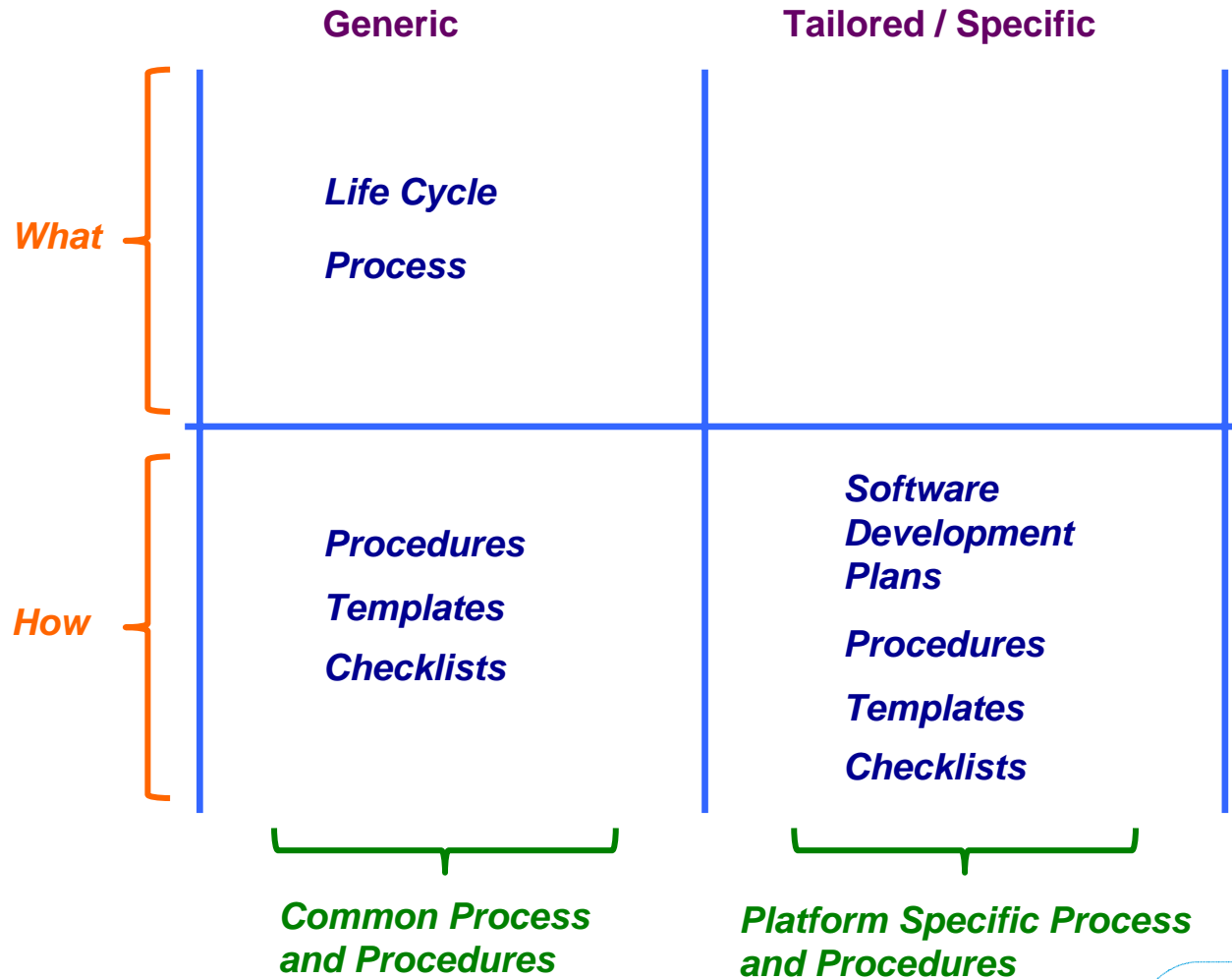
Developing a Common Process



Developing a Common Process



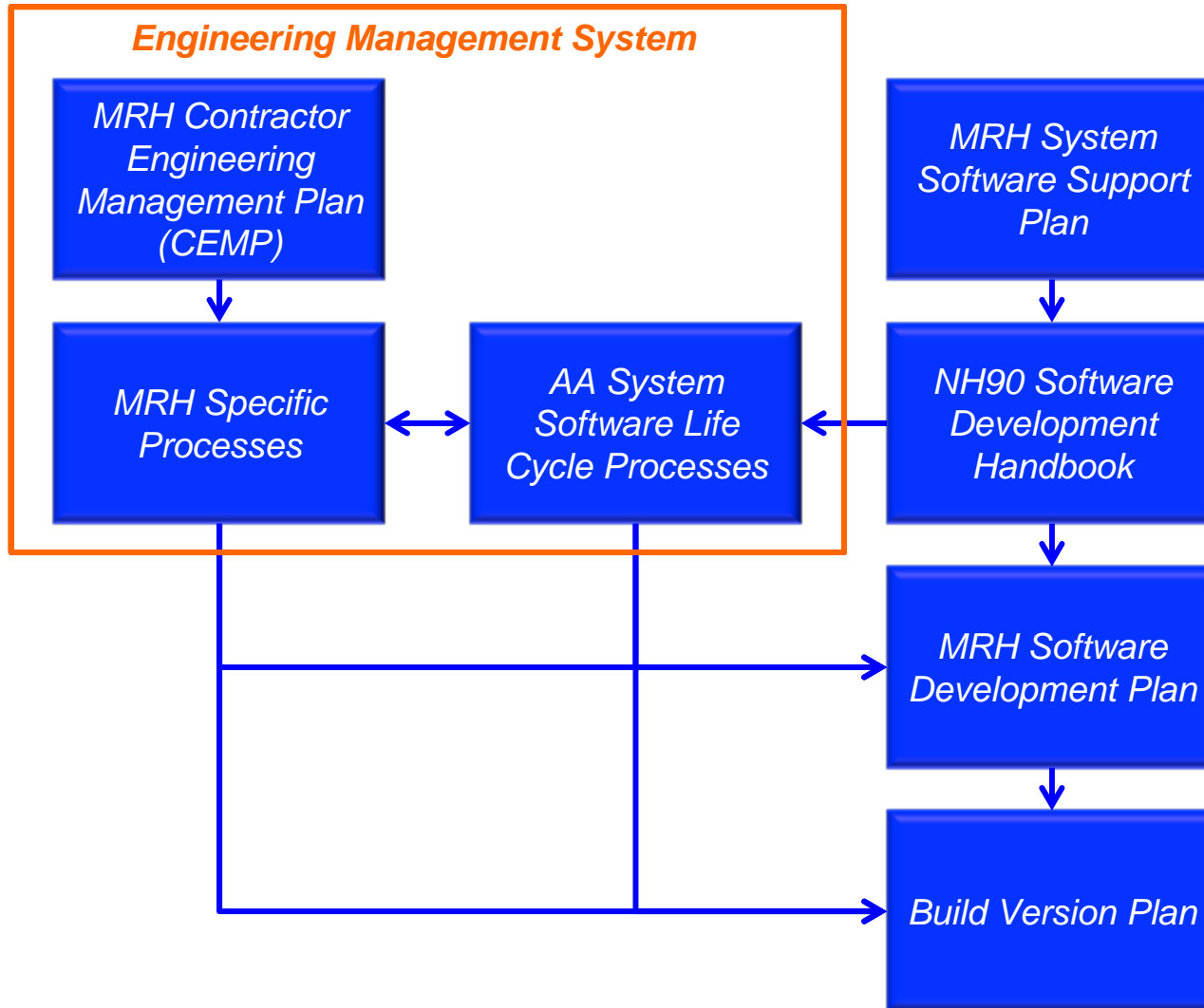
Process Architecture



System Software Life Cycle Process Objectives

- Generic Process across ARH and MRH
- Allow for deployment on other platforms
- Compliance with ARH and MRH process standards (certification basis) and contract requirements
- Compliance with TAMM
- Benchmarking to recent process standards:
 - ISO/IEC 12207:2008 (system and software)
 - IEEE/EIA 12207 (DGTA preferred standard)
 - DO-178B (DGTA preferred standard)
- Covers System and Software for Sustainment Software Maintenance
 - Software Maintenance different to Development of new product
- Covers PECP to Incorporation Approval / Service Release
 - Some standards only cover Software Life Cycle
- Extensible to broader Hardware/Software Projects
 - New capabilities
 - Larger projects
- Extensible to Ground System Projects
 - Subcontractor management

MRH Platform Process Hierarchy



Deploying Process to Platform

— Software Development Plan (SDP)

- Required by NH90 Software Development Handbook (SDHB)
- Platform-specific tailoring of process
- Details **how** process is applied to a particular platform
- Details tools used for performing engineering activities

— Develop platform-specific procedures where applicable

— For each software build develop a Version Plan (VP)

- Build-specific tailoring of process
- Project Plan for build (scope, schedule, resources....)
- Build-specific certification aspects

What does Regulation 3.5.3 require?

Software Integrity Management System

- Software Management Plan
- Process – Software Integrity
- Process – Continuing Assurance
- Software Assurance Standard
- Software Safety Program
- Software Load Control
- Plan for Software Aspects of Certification
- Software Accomplishment Summary? – Not specified but useful.

AA Plan to Meet Regulation 3.5.3

— Produce a Software Management Plan

- Being done as part of platform-specific needs - SDP
- Use Data Item Description (DID) from AAP 7001.054

— Contract Change Proposal

- Doing additional activities
- New Contract Deliverables (SMP and SAS)
- Changes to System Safety Program Plan (SSPP) to incorporate Software Safety Processes

— Assess Current Processes Against Regulation 3.5.3

- External organisation reviewed processes for compliance
 - Nothing new!
 - Consolidated what we knew into single document
 - Only minor gaps

— Update SSPP to Incorporate Software Safety Process

— Update CEMP to Incorporate new compliance

— Develop Software Accomplishment Summary for each Software Build

Software Development (Management) Plan

- Provides platform specific tailoring of the Organisational Process
- Details how activities to be done and with what tools
- Process is Problem/Change Request-centric – Software Maintenance
 - Convenient – easier to discuss with stakeholders
 - Convenient – easy parcel or work to manage
- Meets the requirements of a SMP required by Regulation 3.5.3
- Document structure in accordance with SMP DID defined in AAP 7001.054
- Software Safety Program to be defined in System Safety Program Plan (SSPP)
 - General process for system and software safety activities described

Current Situation

- Both ARH and MRH in early stages of Sustainment or Through Life Support
- Both ARH and MRH currently involved in software maintenance and minor functional enhancements
 - Major capability enhancements expected in the future
- New System Software Life Cycle Processes being applied
 - CoA has had significant insight/input during development of process
 - Learning curve
 - Improvements being identified and flowed back
- Software Safety Program mostly established
- Software Safety Specialists identified on each platform
- Specific Software Safety training has been undertaken