



**26<sup>th</sup>** annual **INCOSE**  
international symposium

Edinburgh, UK  
July 18 - 21, 2016

# Integration of Specialty Engineering Activities

INCOSE IS 2016, Edinburgh

Dr. David Endler



# Introduction

- Systems Engineering Consultant – Freelancer
- Technical Director of GfSE (German Chapter of INCOSE)
- INCOSE CSEP and Certified Systems Engineer ® GfSE Level A
- Member of DIN NA 043-01-07 AA "Software und System-Engineering"



# Challenge

Systems Engineering process descriptions emphasize the importance of specialty engineering activities

- ISO 15288:2015
- INCOSE Systems Engineering Handbook
- BKCASE Systems Engineering Body of Knowledge (SEBoK)

But do not describe how to integrate specialty engineering activities



# Specialty Engineering Activities Impact



## Change VW Golf 4 headlight Australian Navy Collins Class Reliability

# Assumption



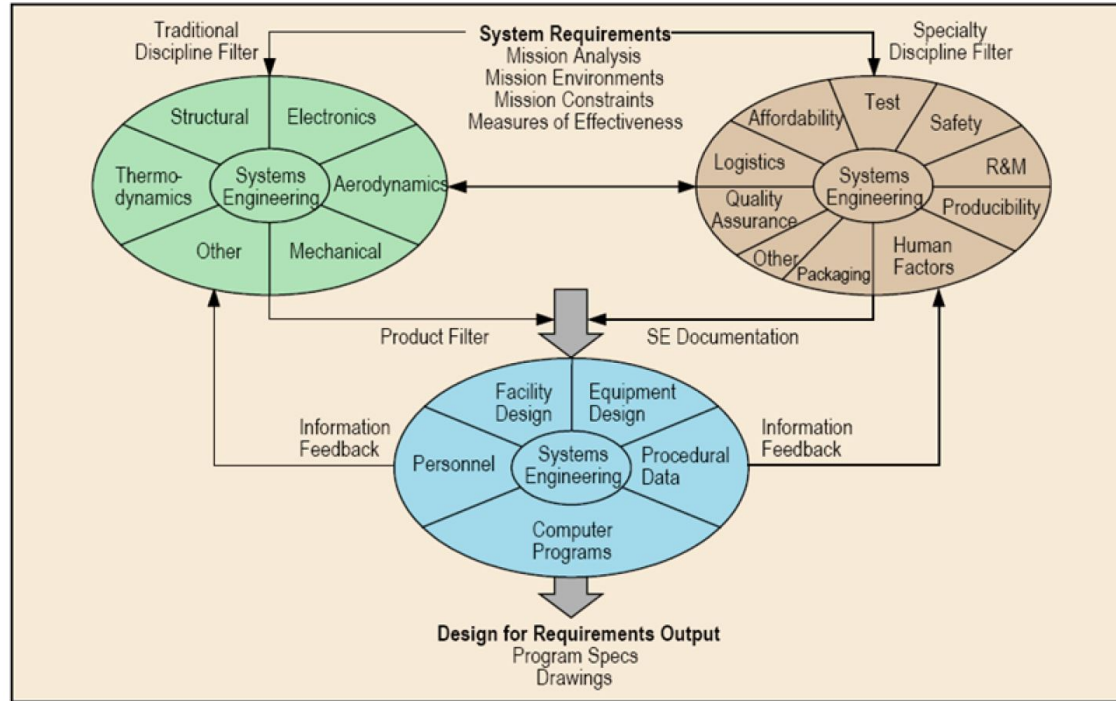
Systems Engineers  
hate  
Specialty Engineering Activities

# SEBoK



**26<sup>th</sup>** annual **INCOS**  
International symposium

Edinburgh, UK  
July 18 - 21, 2016



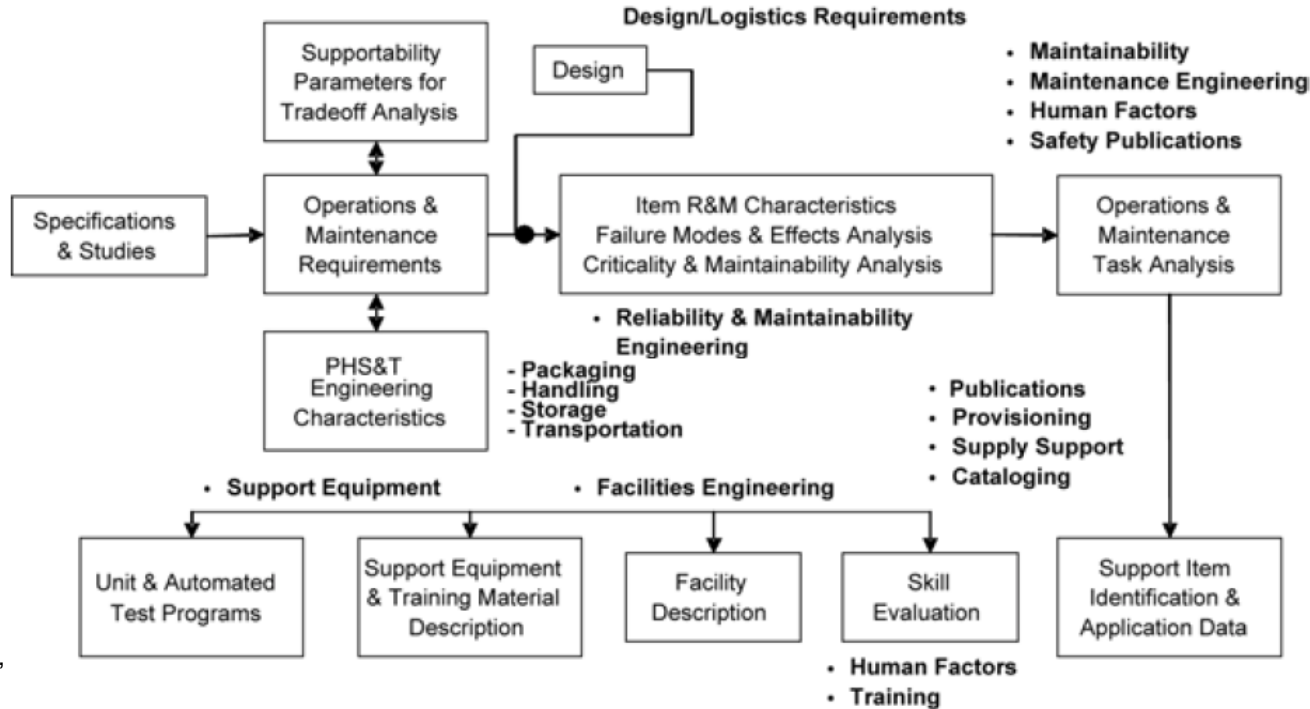
Systems Engineering  
Body of Knowledge,  
2015, Figure 1, page  
822.

# INCOSE SE Handbook v3.2.2



26<sup>th</sup> annual INCOSE  
International Symposium

Edinburgh, UK  
July 18 - 21, 2016



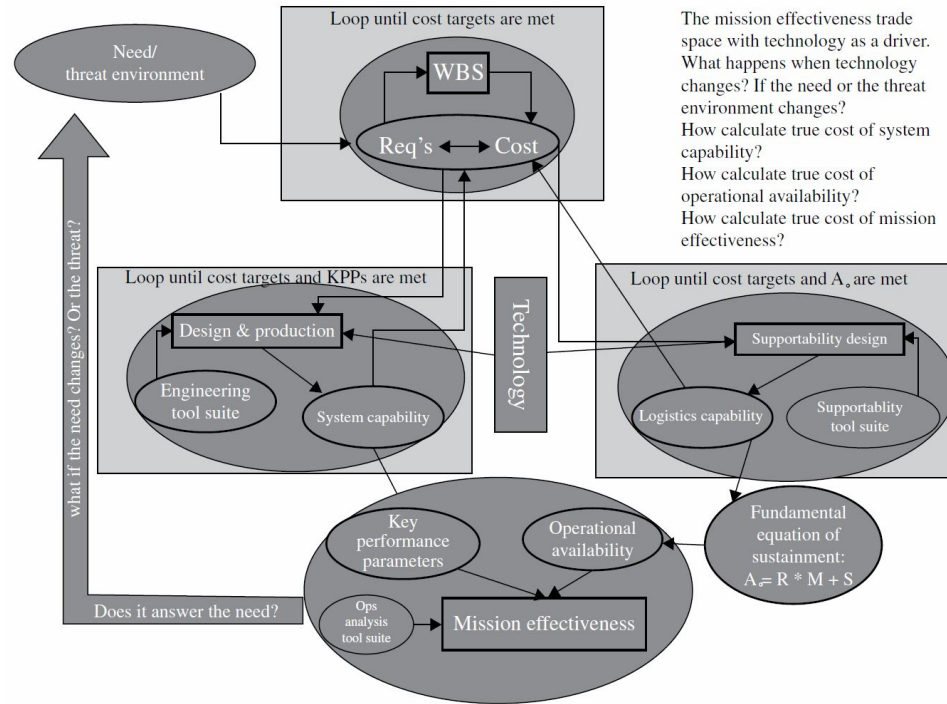
INCOSE SE Handbook,  
INCOSE, v3.2.2, figure  
9-1

# INCOSE SE Handbook v4



26<sup>th</sup> annual INCOSE  
international symposium

Edinburgh, UK  
July 18 - 21, 2016



INCOSE SE Handbook,  
INCOSE, v4, figure 10.4

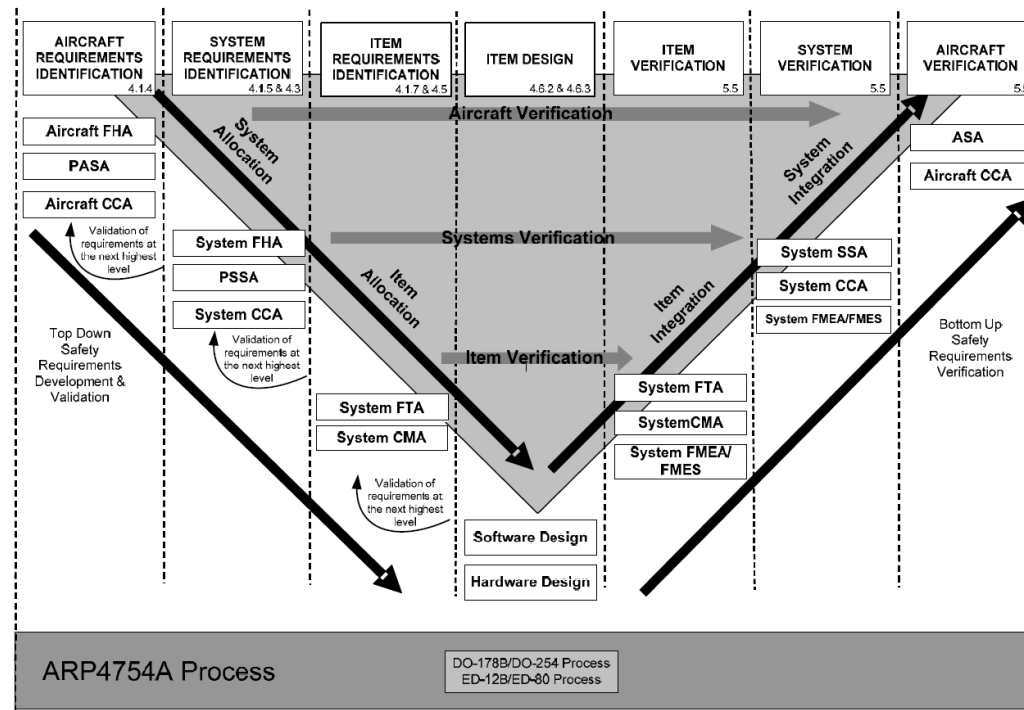


# SAE ARP 4754A



26<sup>th</sup> annual **INCOS**  
international symposium

Edinburgh, UK  
July 18 - 21, 2016



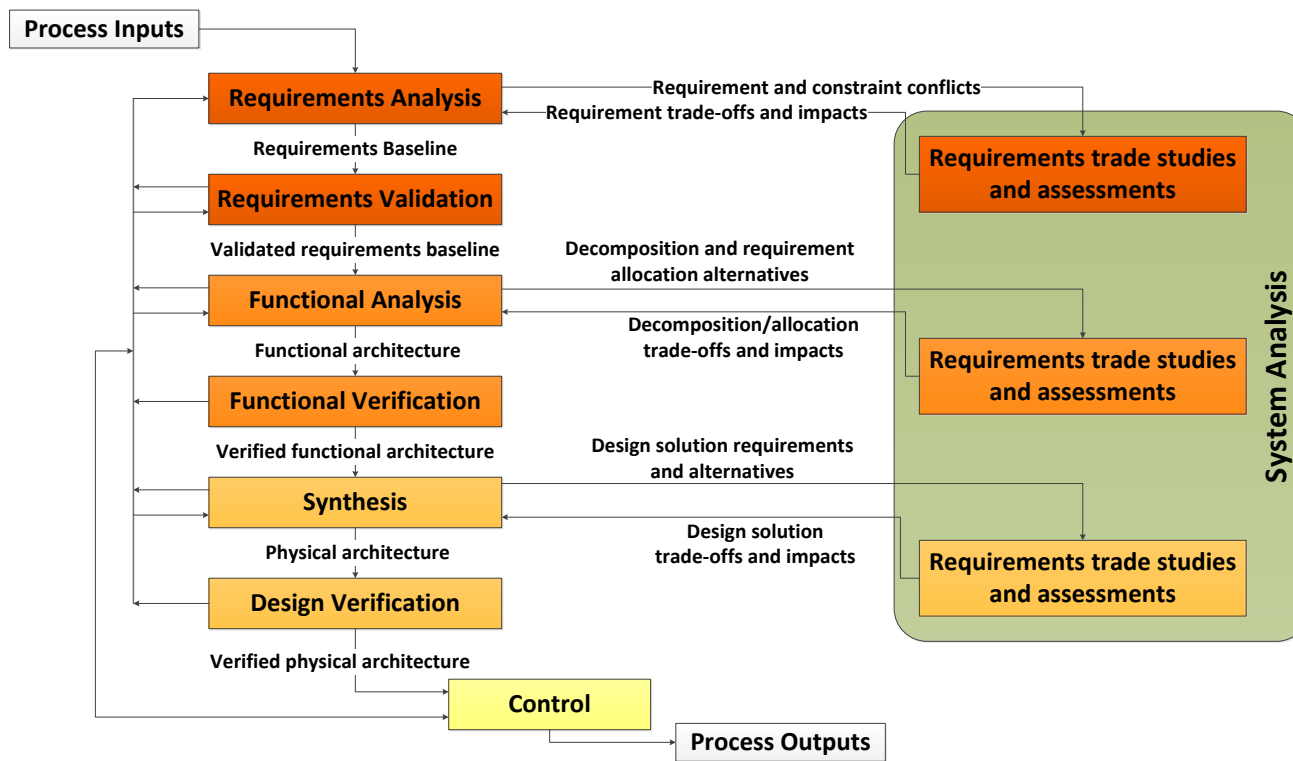
SAE ARP 4754A,  
Guidelines for  
Development of Civil  
Aircraft and Systems,  
SAE, rev. A, figure 5

# ISO 26702:2007 / IEEE 1220



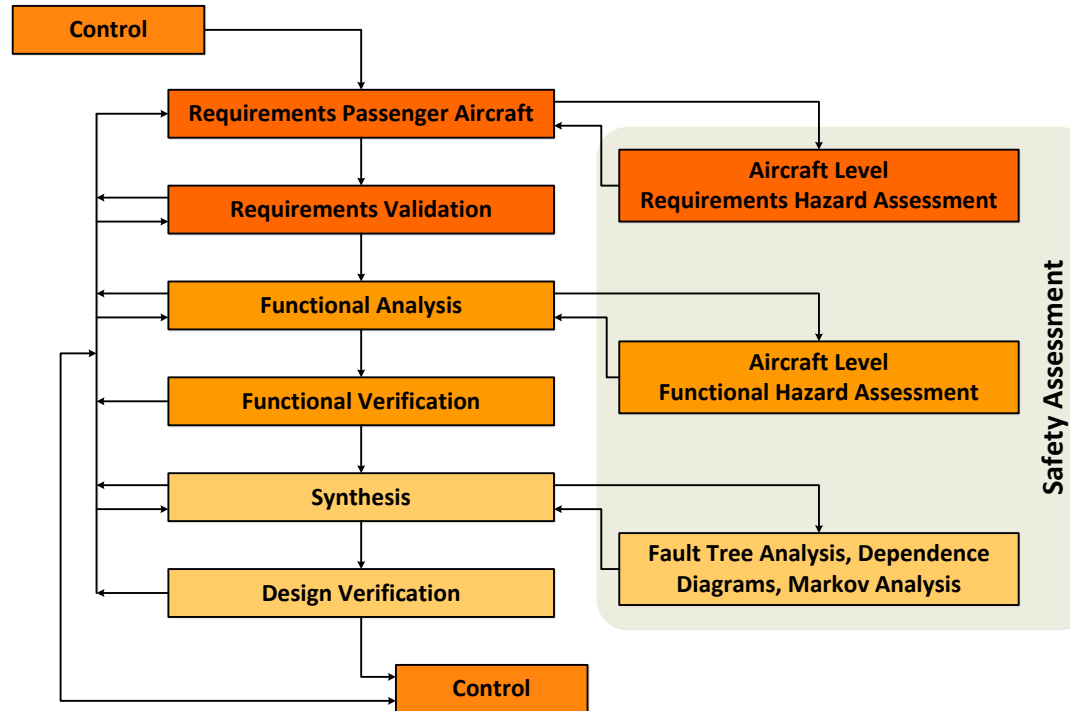
26<sup>th</sup> annual **INCOSE**  
International Symposium

Edinburgh, UK  
July 18 - 21, 2016



ISO 26702:2007  
Systems engineering –  
Application and  
management of the  
systems engineering  
Process, ISO, figure 4

# Integration

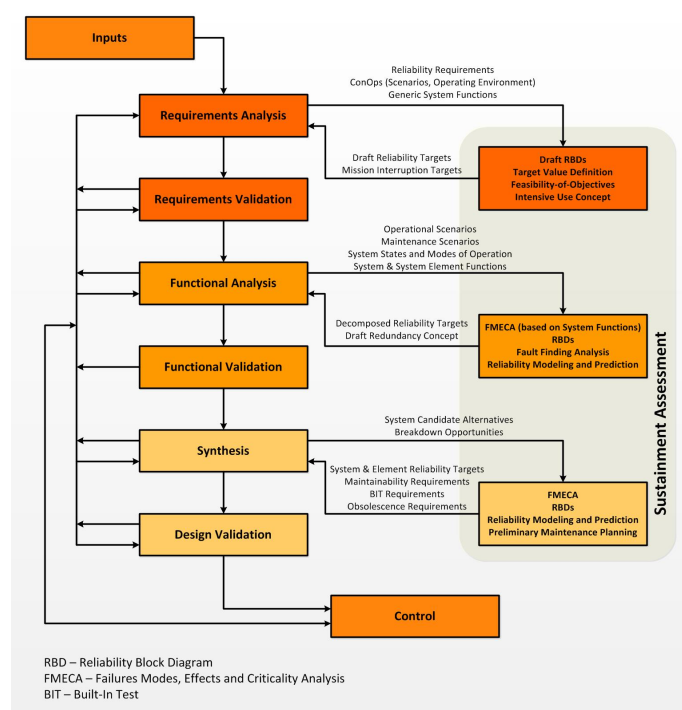


# Buy-In

- Organize workshop
- Define interfaces between systems engineering and specialty engineering activities
- Freeze interface
- Publish good practice



# Another Example



# Conclusion



Systems Engineers  
and  
Specialty Engineering Activities Engineers  
Can Be Friends!