Aircraft Systems Integration from EMBRAER Perspective

João Paulo Marques Reginato – Systems Integration Manager

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Main Topics

- Introduction
- Systems Integration evolution on EMBRAER programs
- Next Steps


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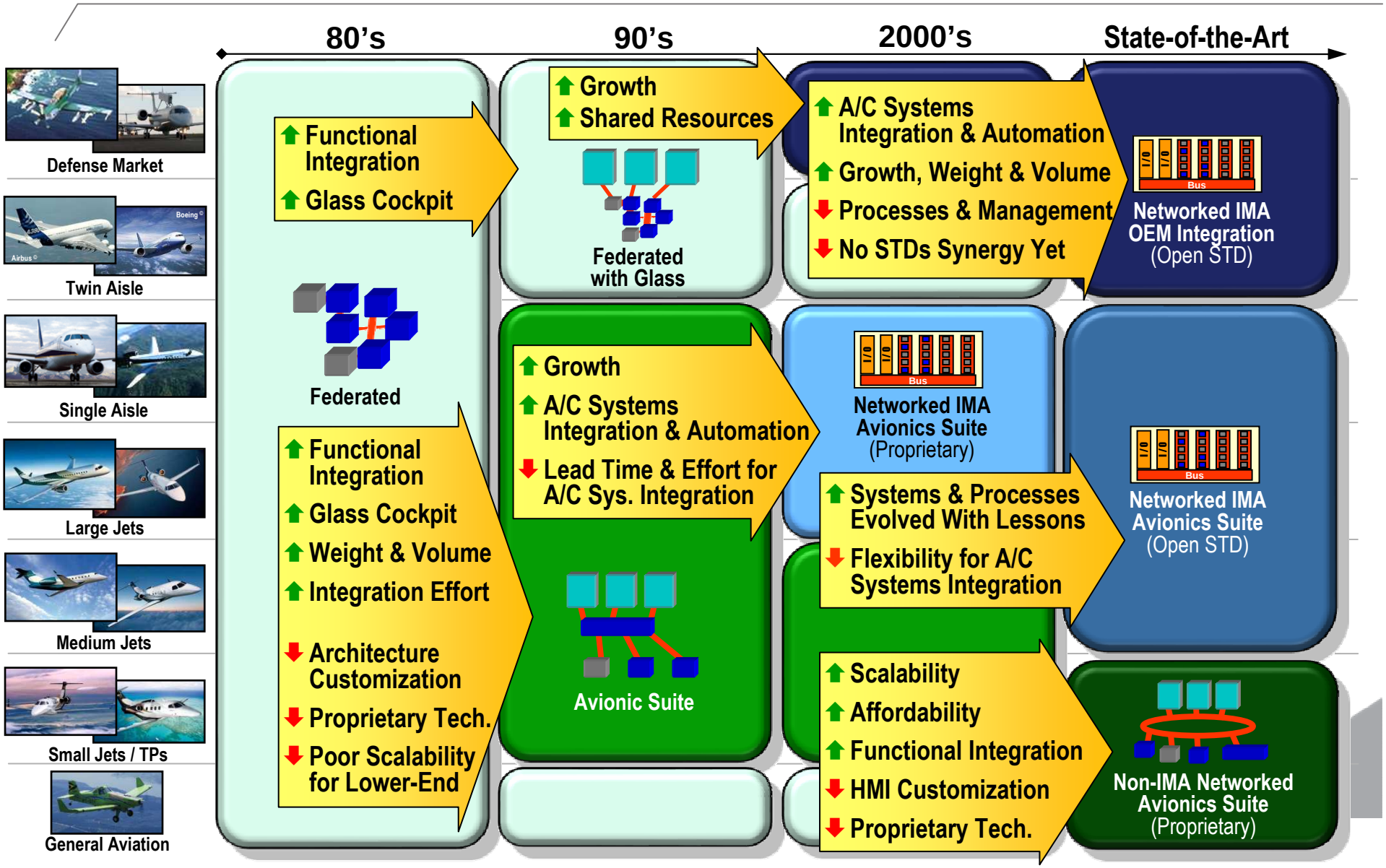
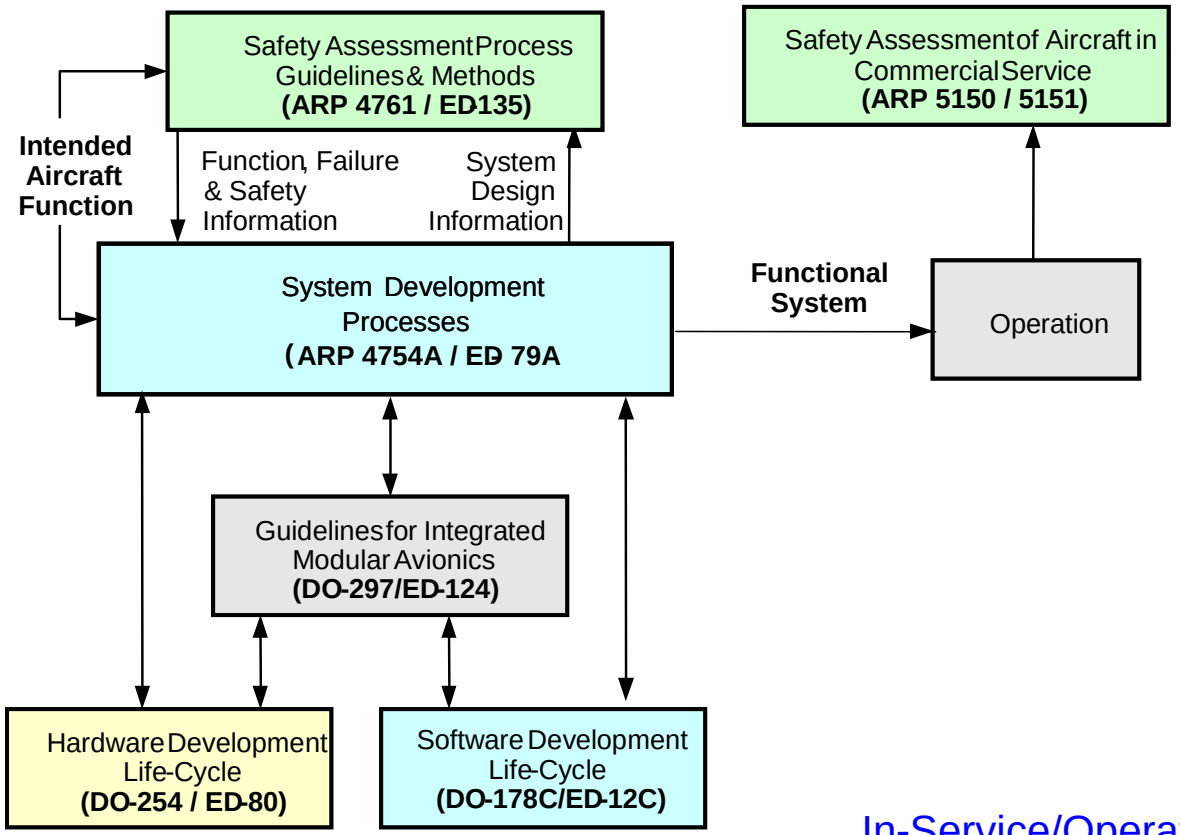
Introduction

Introduction



This chart is notional and does not refer to any industry milestones such as aircraft launch, certification or entry into service dates. It's only intended to provide a big picture of the avionics evolution.

Introduction



Development Phase

In-Service/Operational Phase

Certification Authorities focus: Safety

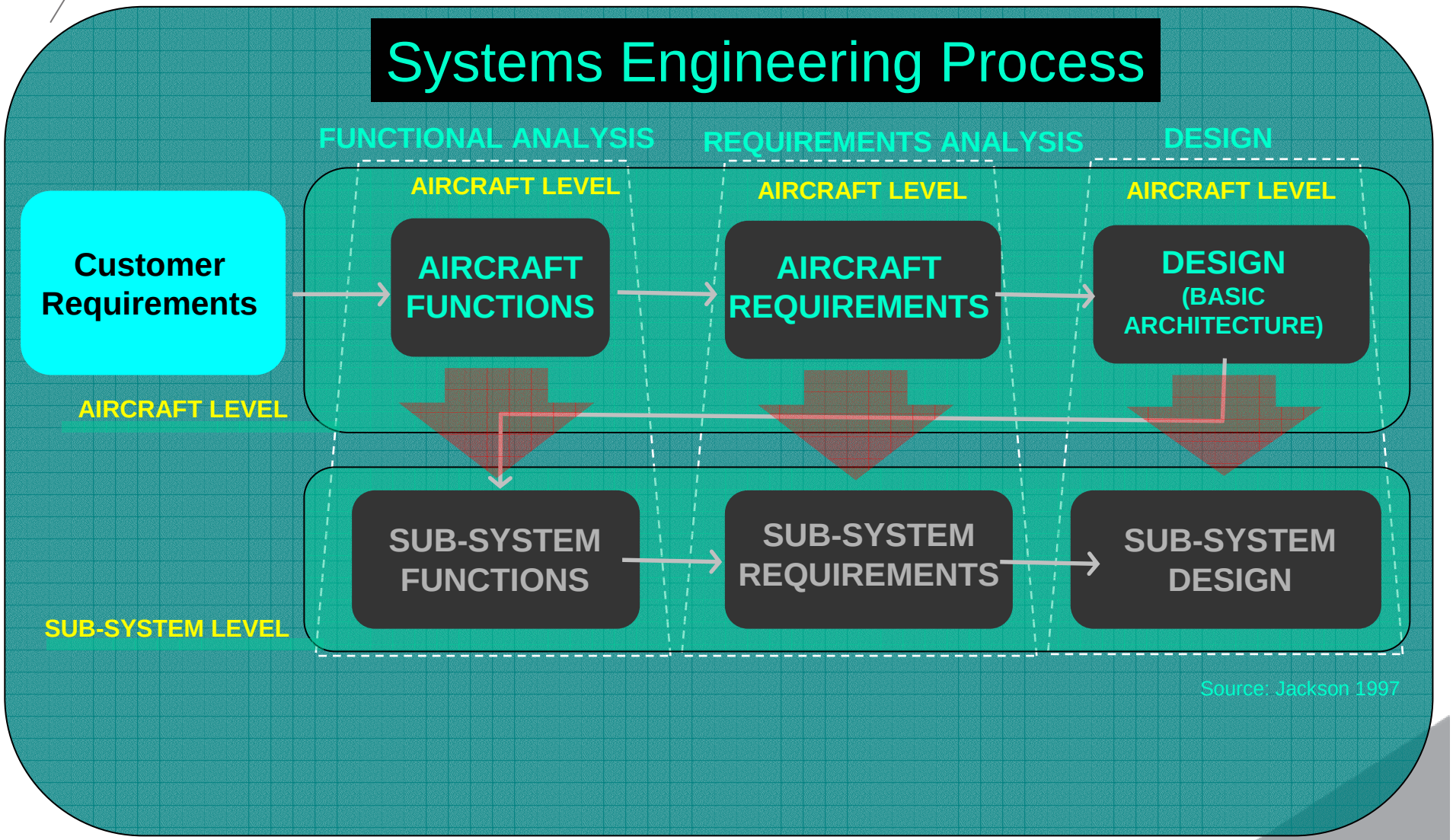
Introduction

- According to SAE ARP-4754A:

The current trend in system design is an increasing level of integration between aircraft functions and the systems that implement them. While there can be considerable value gained when integrating systems with other systems, the increased complexity yields increased possibilities for errors, particularly with functions that are performed jointly across multiple systems.

Aircraft/System integration is the task of ensuring all the aircraft systems operate correctly individually and together as installed on the aircraft. This provides the means to show that intersystem requirements, taken as a group, have been satisfied. It also provides an opportunity to discover and eliminate undesired unintended functions.

Introduction

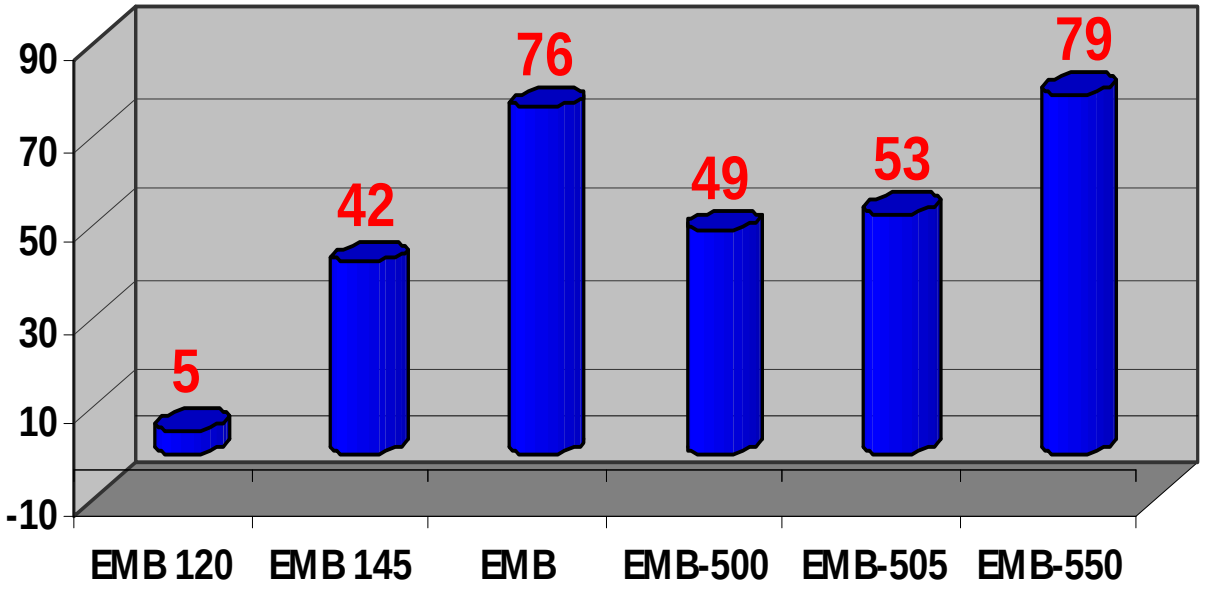



EMBRAER
Systems Integration evolution
on EMBRAER programs

Evolution

EMBRAER Civilian Programs

Number of embedded systems that uses software



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Evolution

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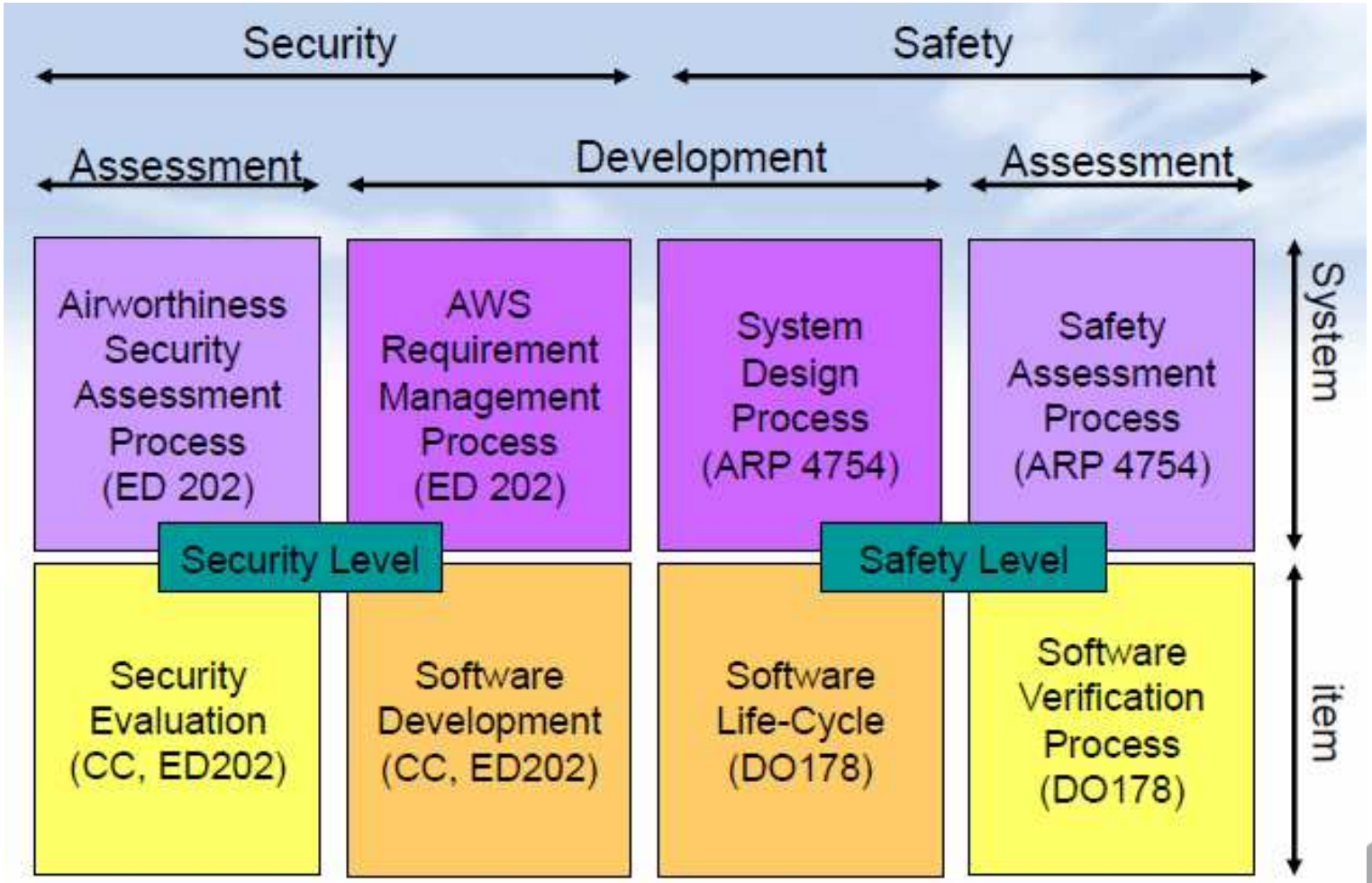
EMBRAER
Next Steps

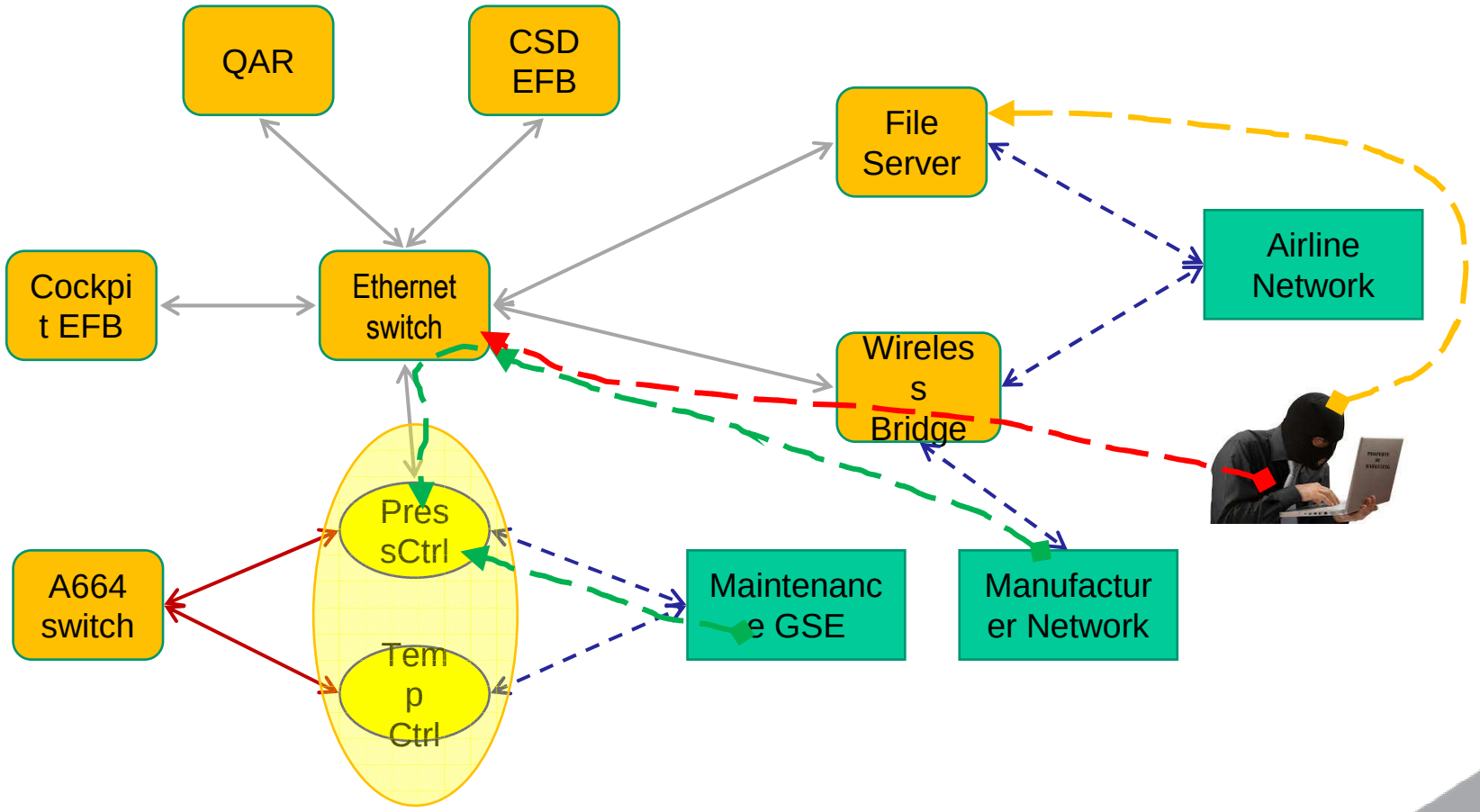
Next Steps

CyberSecurity

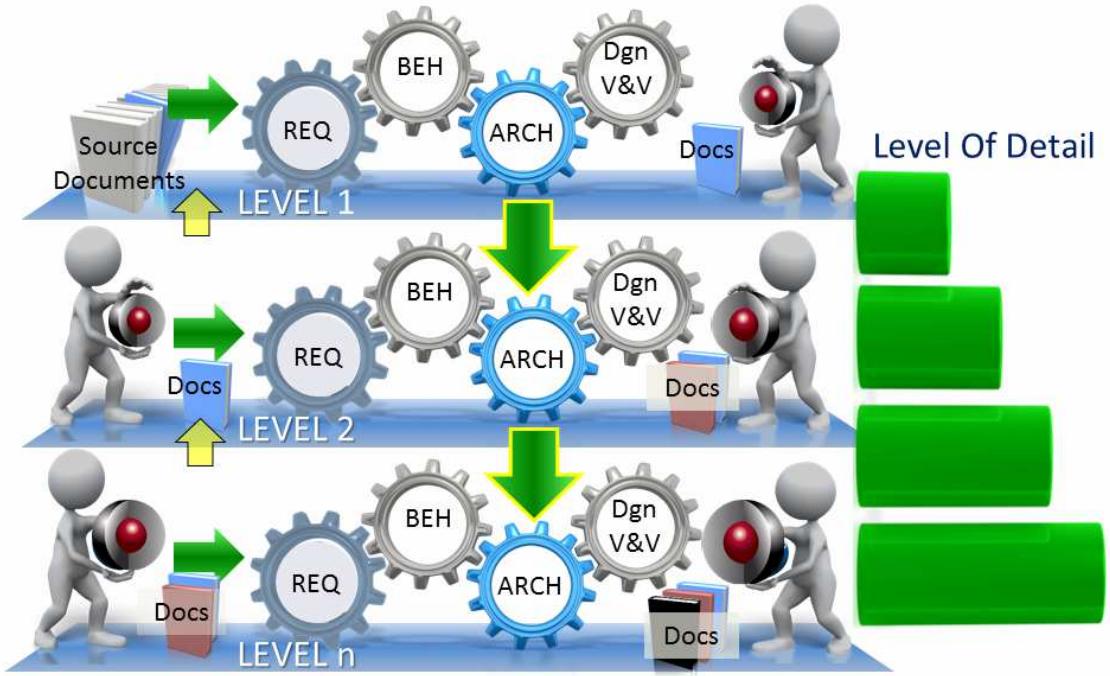


Next Steps

CyberSecurity



Next Steps



Model-Based Systems Engineering Process http://aticourses.com/

Model-based systems engineering (MBSE) is the formalized application of modelling to support system requirements, design, analysis, verification and validation activities beginning in the conceptual design phase and continuing throughout development and later life cycle phases (INCOSE-TP-2004-004-02, Version 2.03, September 2007).

Next Steps

STAMP - Systems-Theoretic Accident Model and Processes

STAMP is a new accident causality model based on systems theory and systems thinking described in Nancy Leveson's new book "Engineering a Safer World." STAMP accounts for the new causal factors associated with software, human-decision making, new technology, social and organizational design, and increasing complexity. (http://psas.scripts.mit.edu/).

Summary

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- Systems Integration evolution on EMBRAER programs
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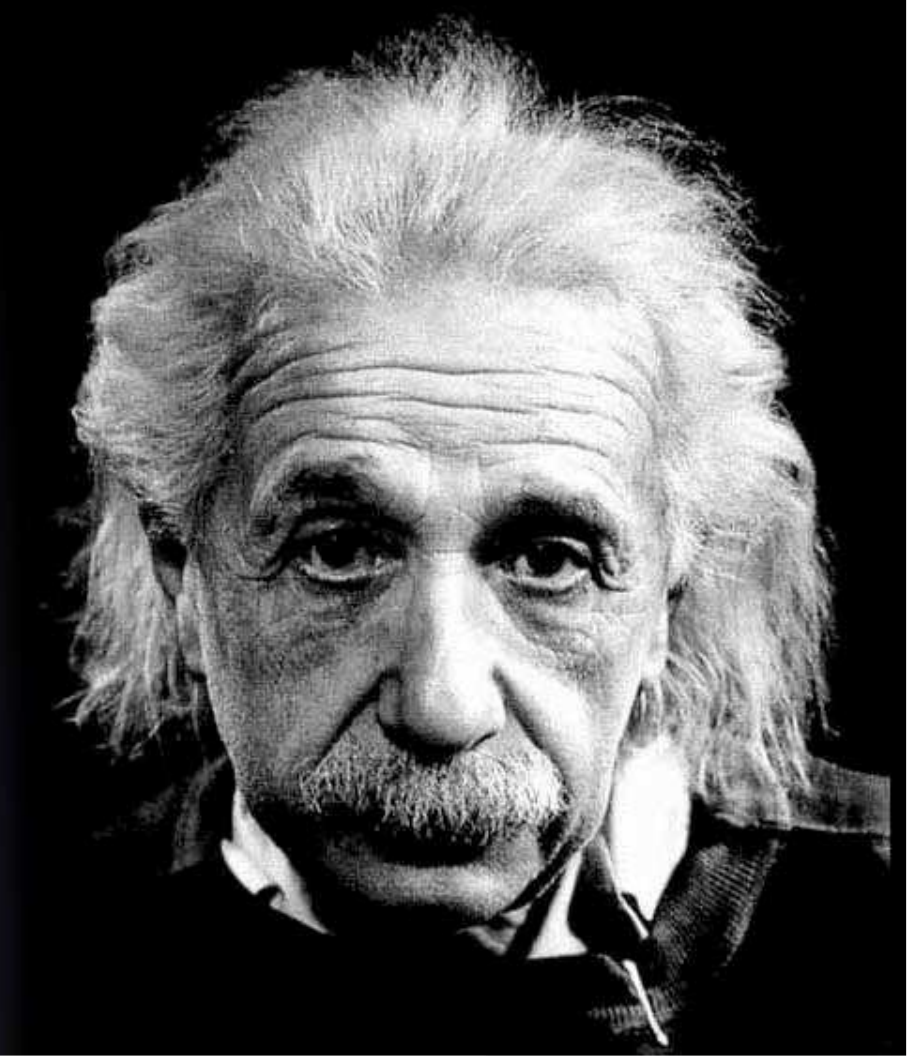
“Everything should be made as simple as possible, but not simpler.”

Albert Einstein



João Paulo Marques Reginato
joao.reginato@embraer.com.br

Questions?