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EVTOL AEROSPACE SYSTEMS DEVELOPMENT CRASH COURSE

Students will gain an understanding of the complexity of Aerospace Systems Development and the driving regulation framework established worldwide with specific focus on EU/EASA. Throughout the course series a complete explanation of all the relevant certification specifications and standards will be given with some practical examples. Workshops and group activities will reassert the knowledge and help understand its practical use.

COURSES

- Introduction to Aerospace Development, Regulation
- Product Certification Specification
- Overview of development and verification processes, ARP-4754A Intro
- Electronic Hardware Development per DO-254, DO-160 Intro
- Software Development per DO-178C
- Safety process per ARP-4761A
- Configuration Management Process and Quality Assurance
- Introduction to EASA Part 21, Part 21 Light, DOA and POA
- Introduction to Cybersecurity in Aerospace

9 COURSES, 40h

TRAINING MATERIALS IN PAPER AND DIGITAL FORM

GROUP ACTIVITIES

KEY PRINCIPLES REASSERTED, DECOMPOSED

WORLDWIDE APPLICABILITY FOCUS ON EU/EASA

FINAL QUIZ

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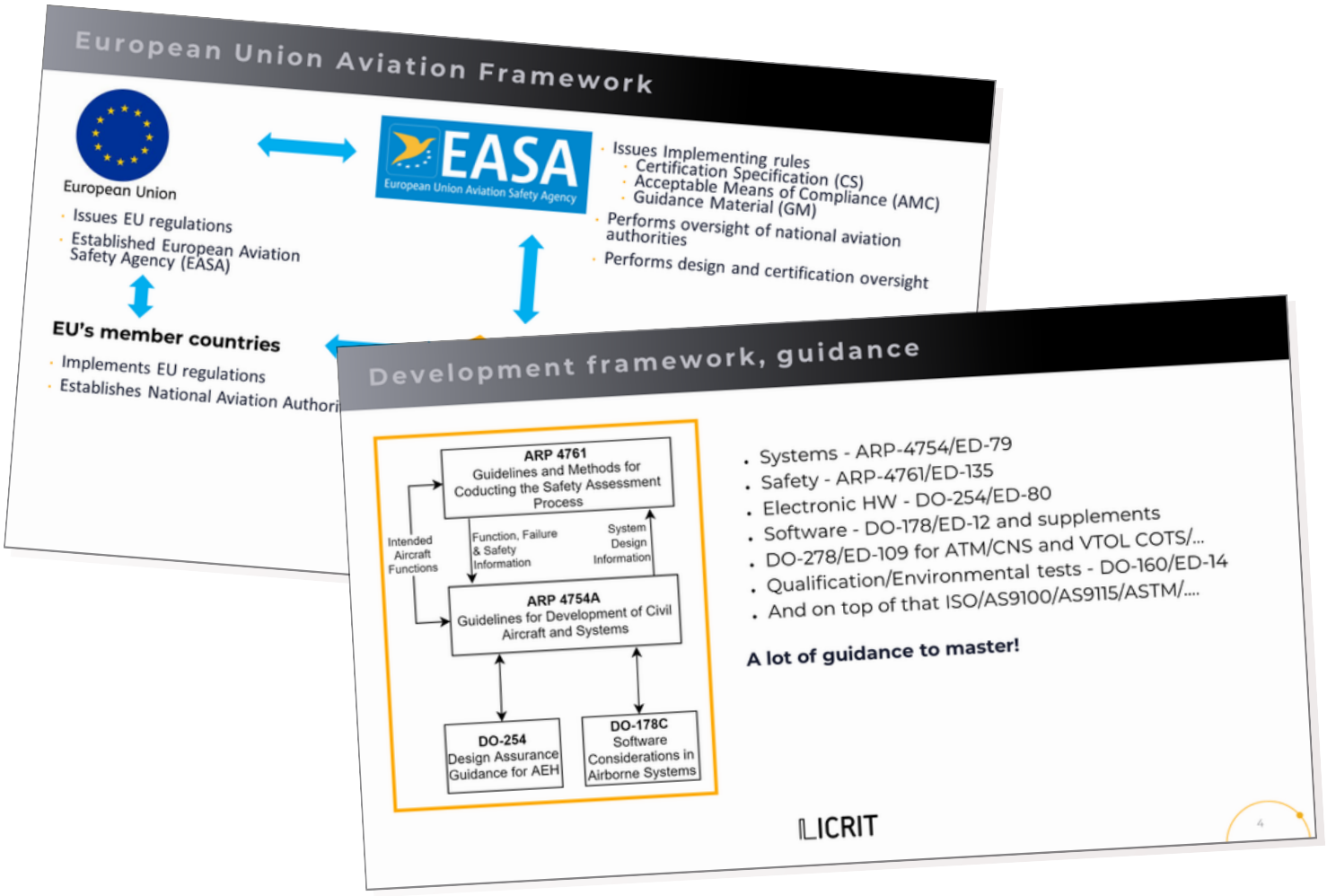
INTRODUCTION TO AEROSPACE DEVELOPMENT, REGULATIONS

This course (2 parts) will give an overview of the worldwide Aviation regulation framework (from ICAO Annexes down to CAA's Guidance Material), industry standards and what is the difference between Aerospace product development and consumer product development from the cost/BOM and development time point of view.



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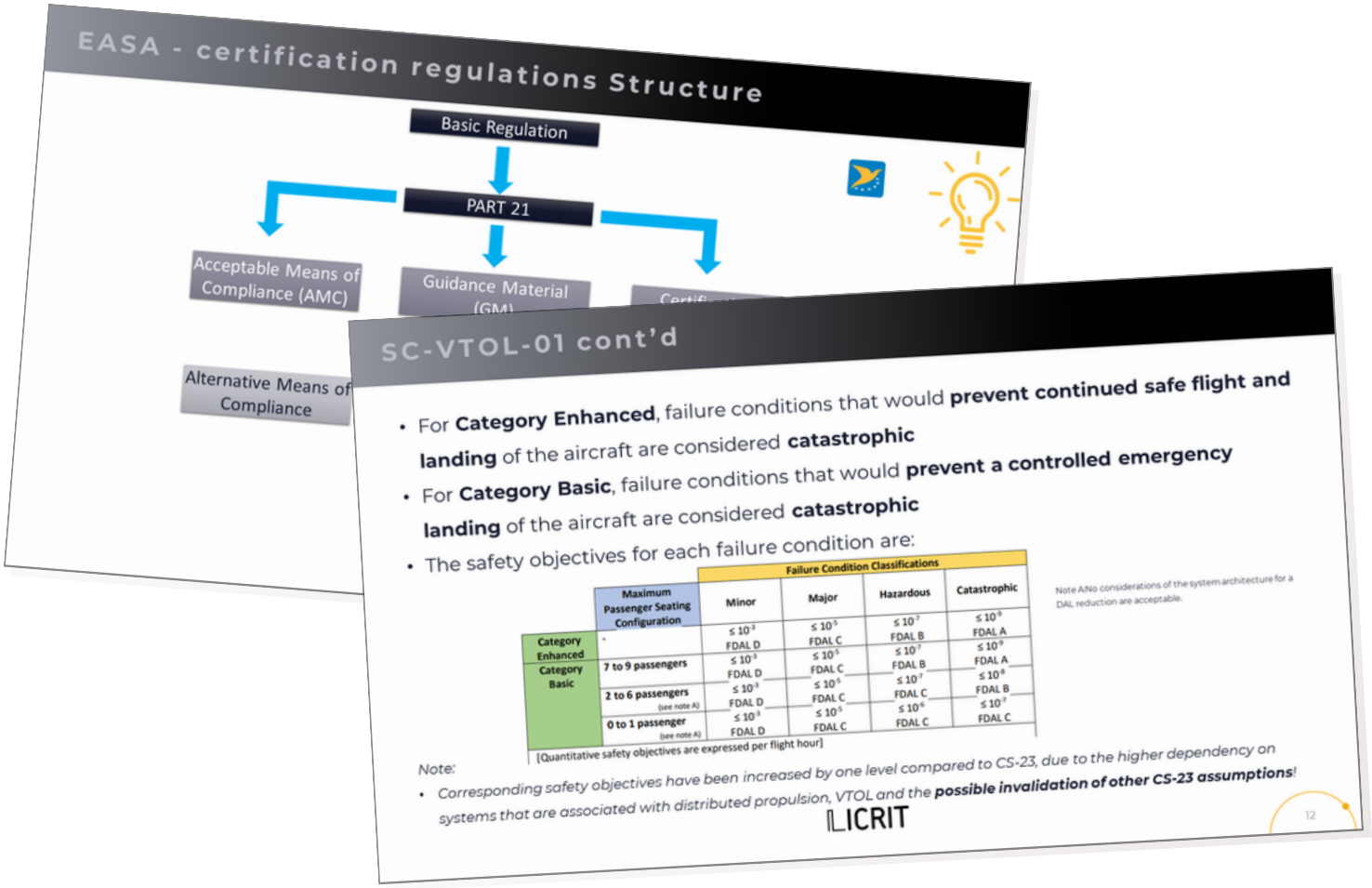
PRODUCT CERTIFICATION SPECIFICATION

This course provides an overview of eVTOL and electric/hybrid propulsion system relevant Certification Specifications and requirements (SC-VTOL, SC E-19 and a note on SC E-18). Comparison with CS-23 for Normal Category airplanes is included to highlight differences and explain changes in quantitative and qualitative safety objectives. Known Means of Compliance are outlined and discussed.



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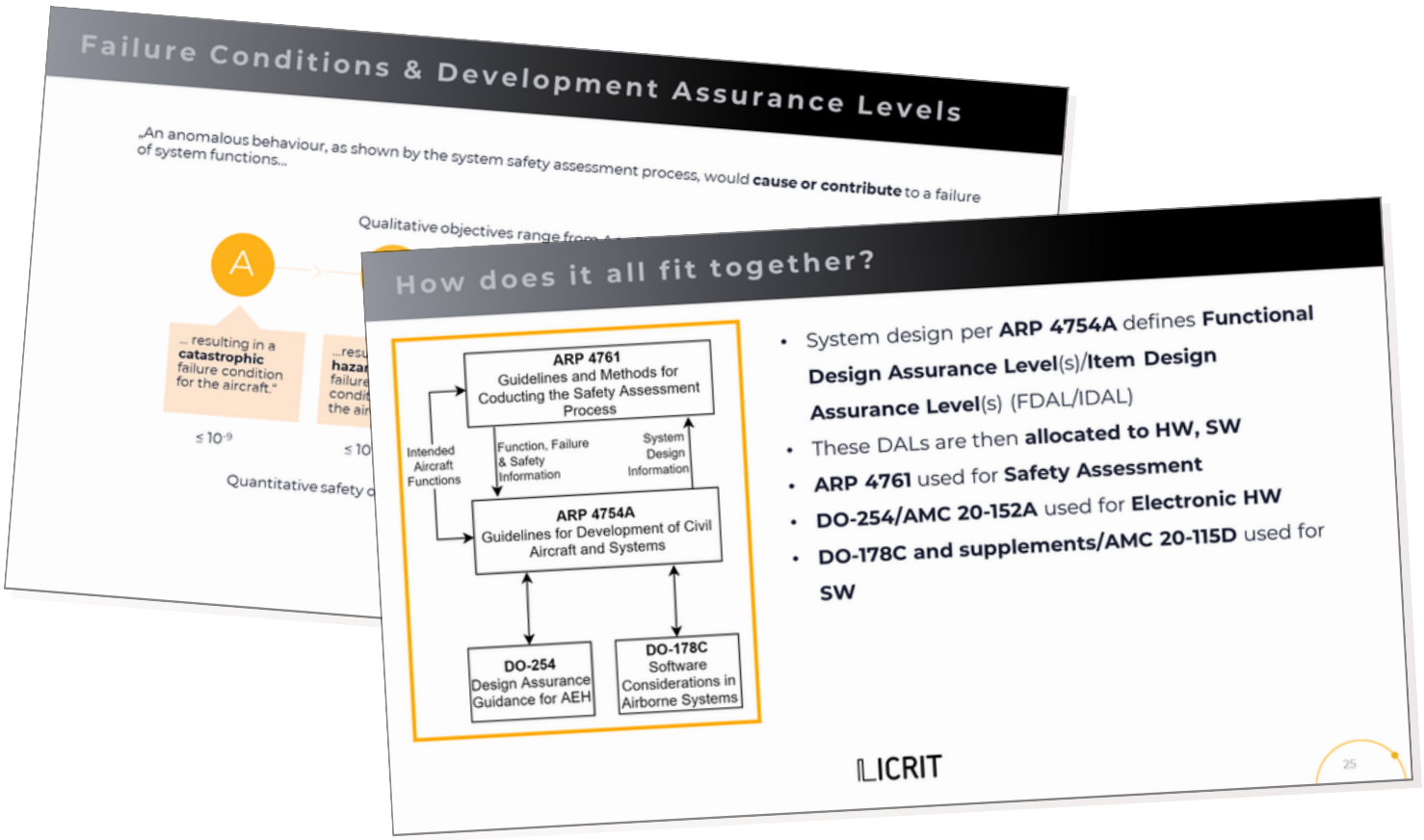
OVERVIEW OF DEVELOPMENT AND VERIFICATION PROCESSES, ARP-4754A INTRO

This course provides an overview of standard Aerospace development approach used when developing safety-critical products. Once the basics are explained the standards for System, Electronic Hardware, Safety assessment and Software are introduced with specific focus on ARP-4754A. An explanation of what does it take to write good requirements for the product is given with some requirement standard recommendation. Finally, a requirement workshop puts all this together and helps understand practical use.



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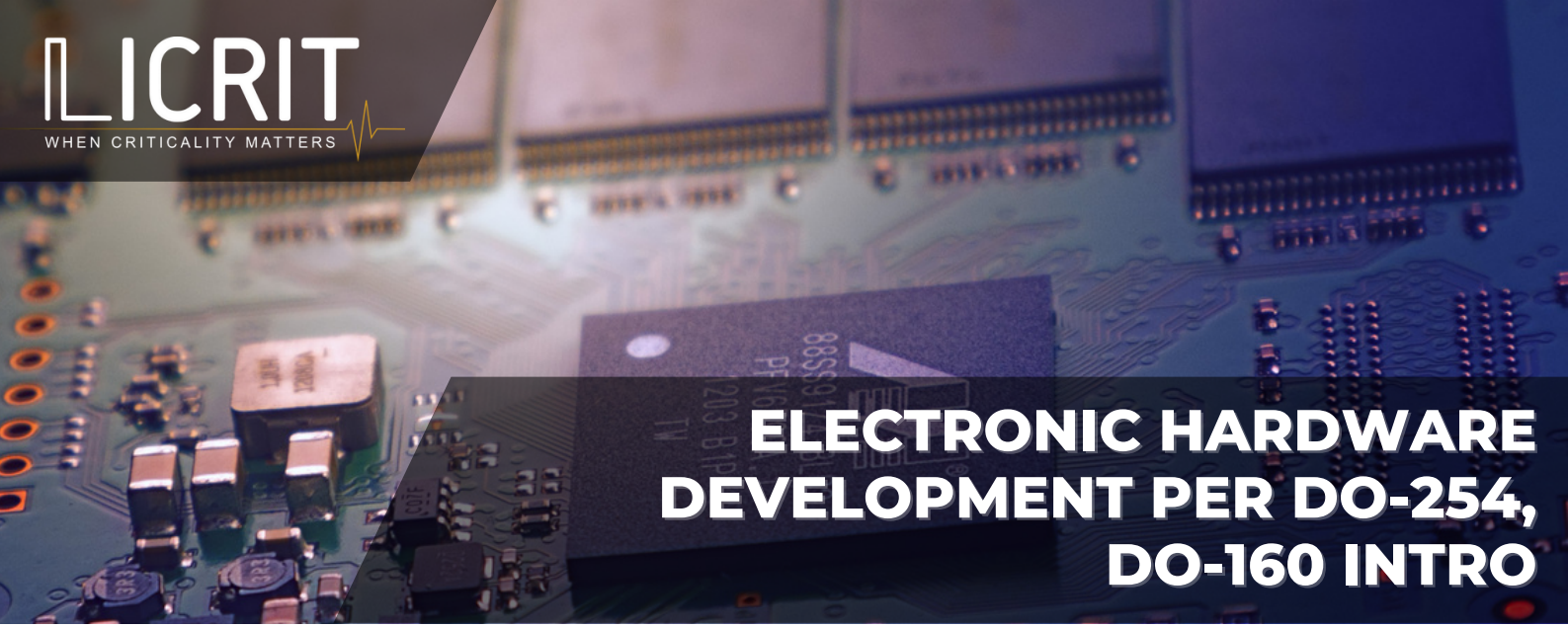
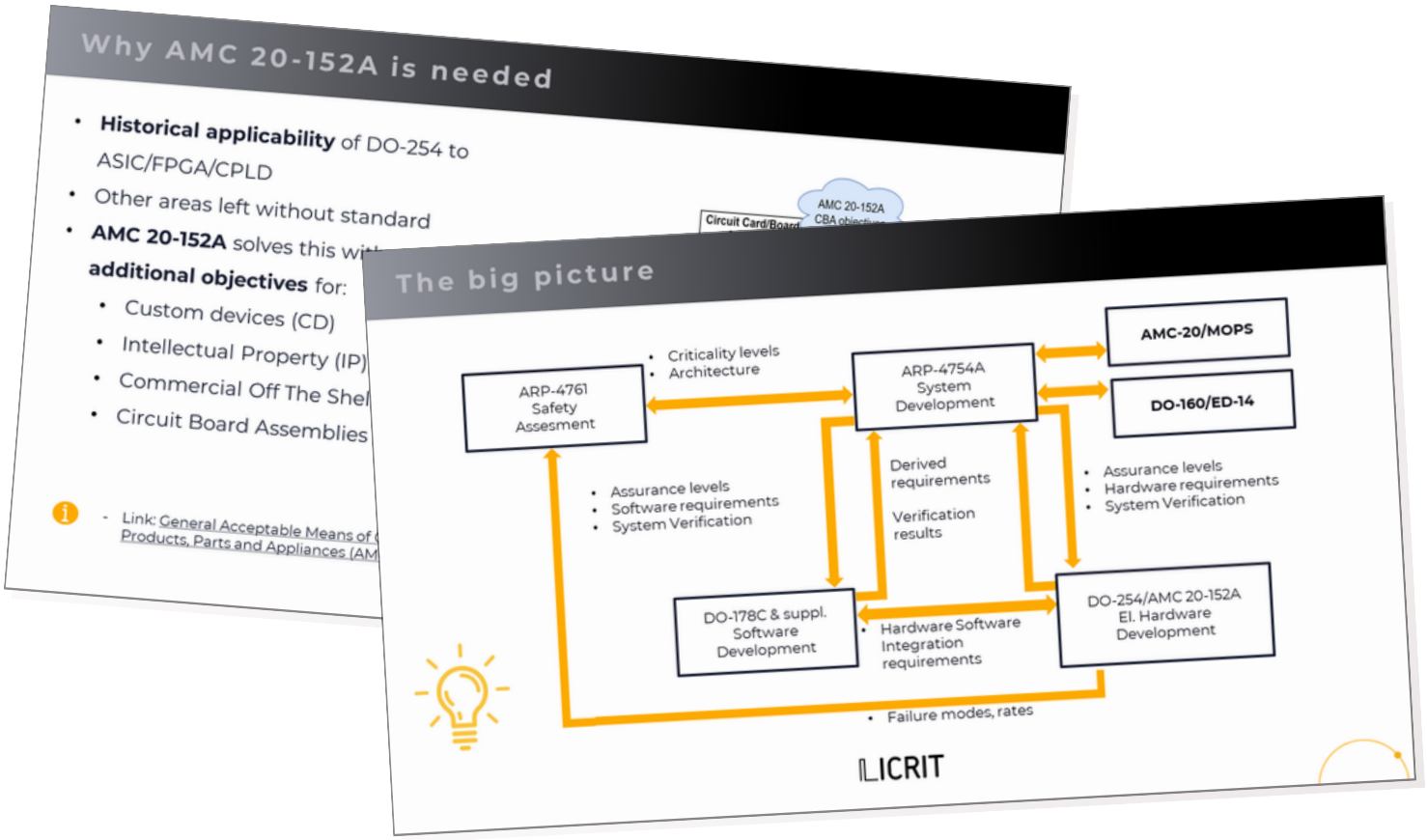


ELECTRONIC HARDWARE DEVELOPMENT PER DO-254, DO-160 INTRO

This course (2 parts) will explain how to develop DO-254 and AMC 20-152A compliant Airborne Electronic Hardware including the design of Programmable devices. The whole product development lifecycle and objectives are introduced with some specific examples ranging from requirement creation to verification procedures. The first part covers adjacent areas like Electronic Component Management and Single Event Effects too. The second part of the course will introduce the topic of Environmental Qualification per DO-160G.



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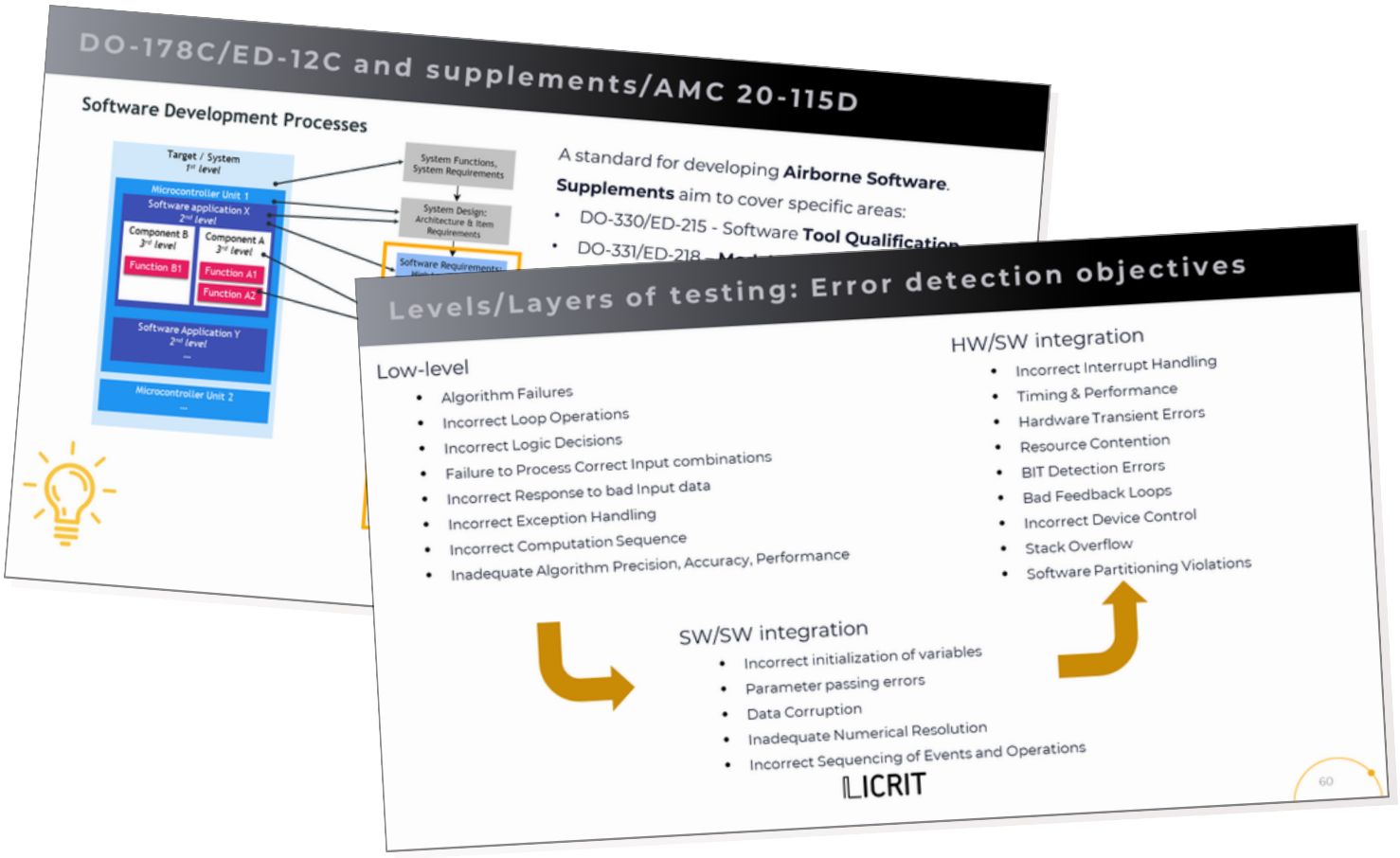
SOFTWARE DEVELOPMENT PER DO-178C

This course will provide a comprehensive overview of Airborne Software development per DO-178C and AMC 20-115D with objectives and guidance listed. The whole product development lifecycle and objectives are introduced with some specific examples ranging from requirement creation to verification procedures. Supplements DO-330, DO-331, DO-332 and DO-333 are introduced as well as DO-278 for ground based software. Some hints related to SW tool use to improve quality (and productivity) are provided.



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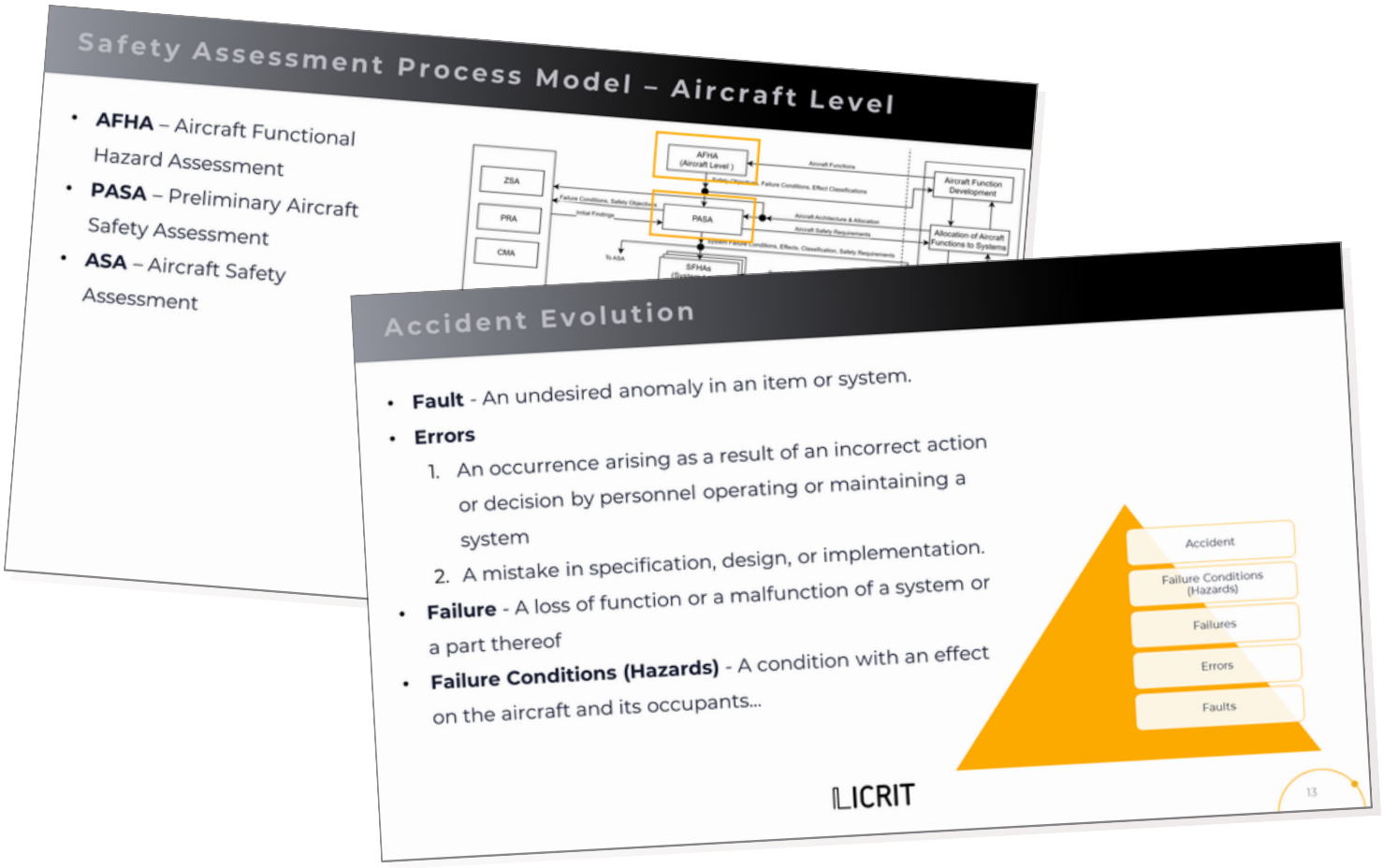
SAFETY PROCESS PER ARP-4761A

This course introduces the concept of Safety Assessment per ARP-4761A. The importance of an early inclusion of safety approach/philosophy during concept and architecture design phases to guarantee that the designed product will be safe/have high integrity and reliability is highlighted. Methods used for safety assessments and their interaction/relationship with other domains through the product's development lifecycle are explained.



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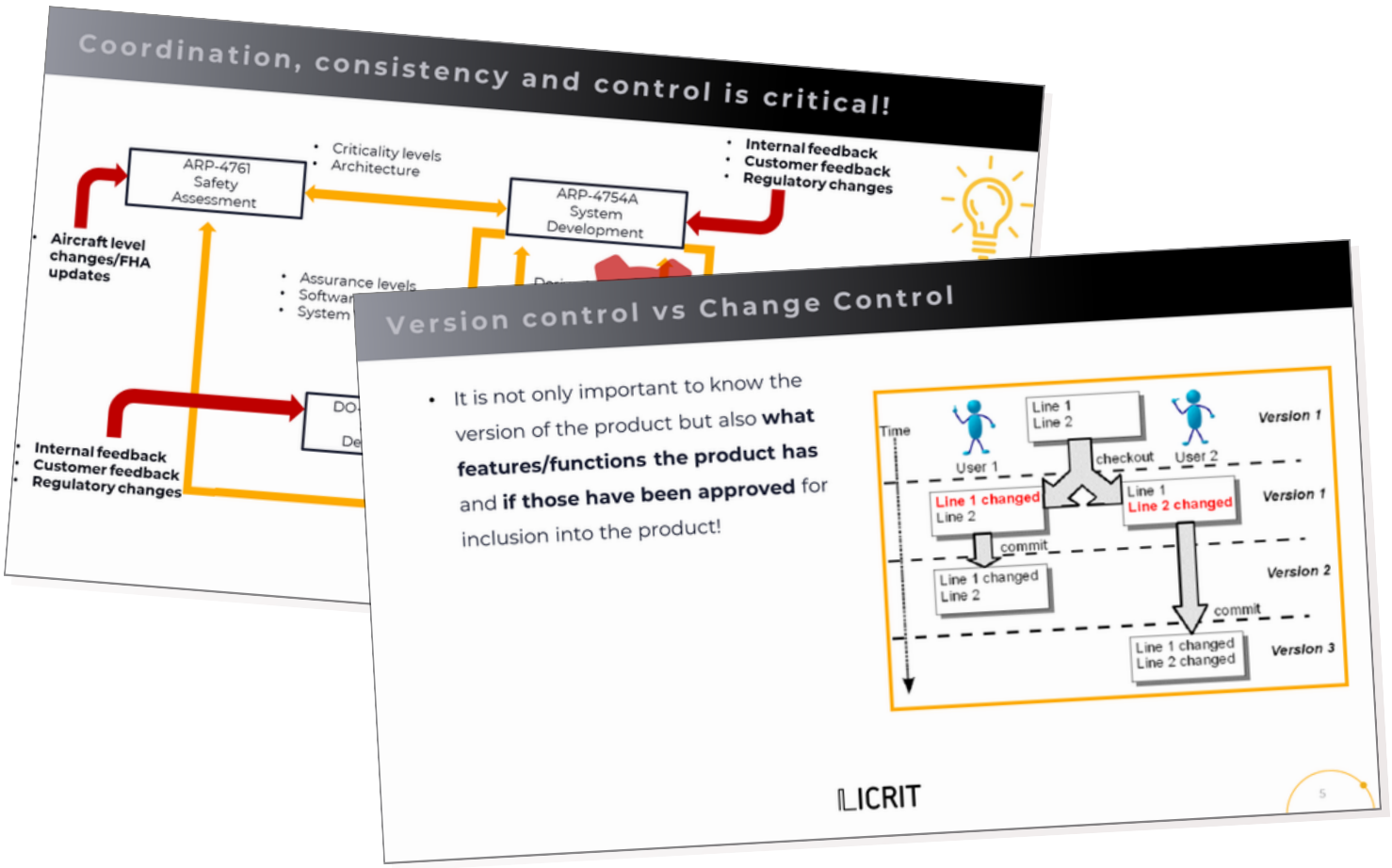
CONFIGURATION MANAGEMENT PROCESS AND QUALITY ASSURANCE

This course explains the critical integral component of Aerospace product development – Configuration Management. Having a good understanding of this is mandatory even if nowadays most of the activities are guided by advanced SW tools that implement complex workflows/enforce rules, roles and responsibilities that meet the CM objectives as defined in ARP-4754A, DO-254 and DO-178C. The other integral part of the development and its role – Quality Assurance - is explained as well.



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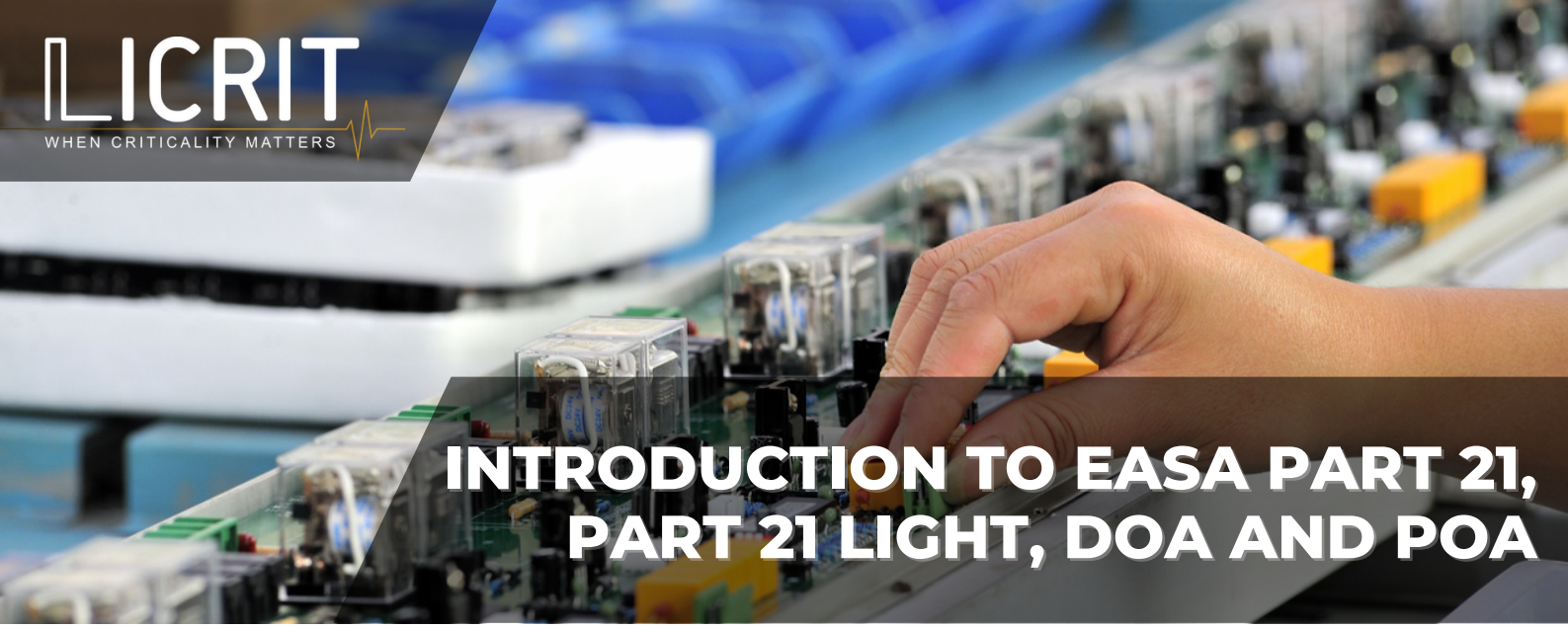
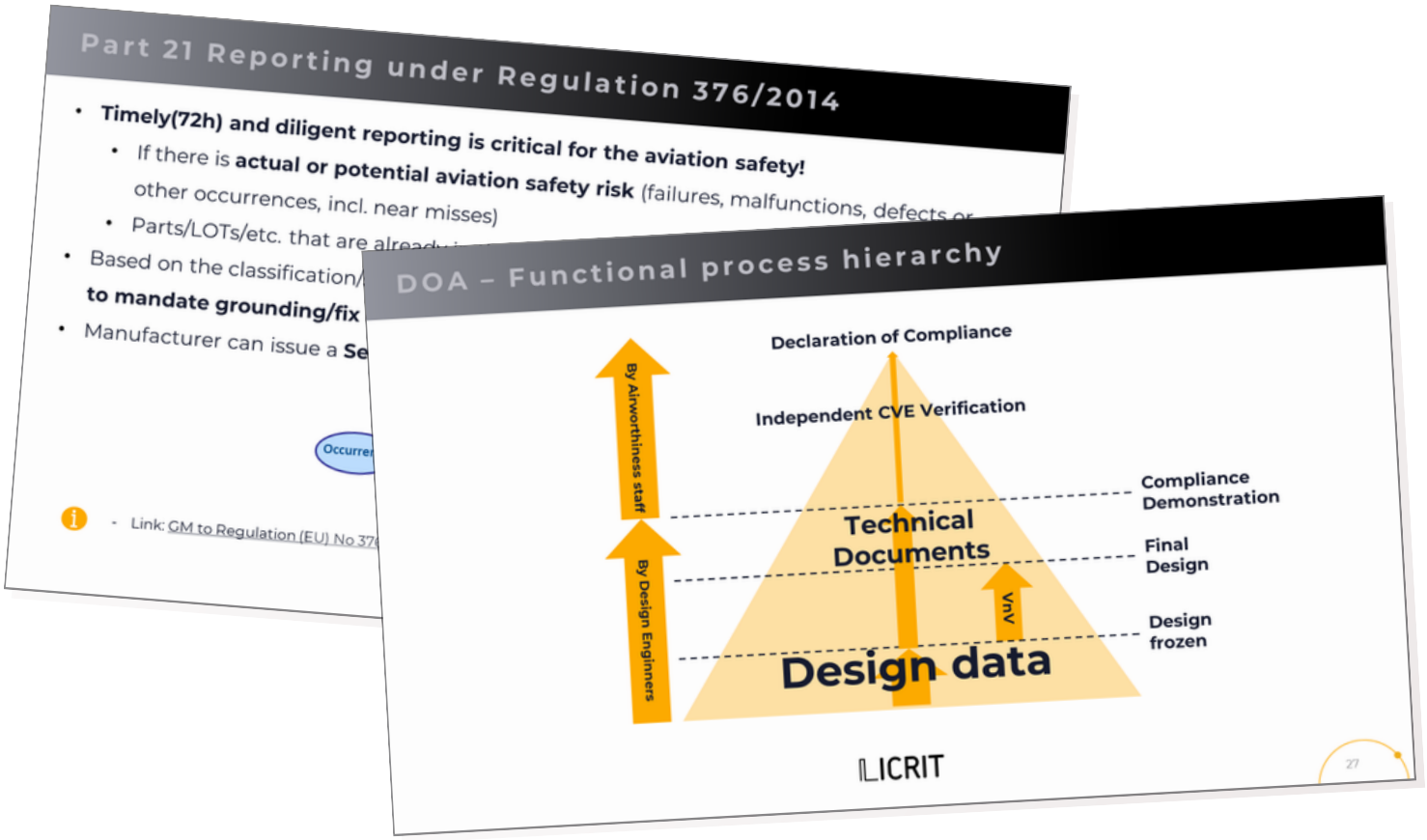


INTRODUCTION TO EASA PART 21, PART 21 LIGHT, DOA AND POA

This course explains the Management System concept in conjunction with Production Organization Approval(POA) and Design Organization Approval(DOA) as defined in Part 21 that defines rules for airworthiness and environmental certification as well. Some practical hints and details are provided including an explanation of Annex A.139/239 requirements. The upcoming lightweight Part 21 Light is introduced with an explanation of its scope and limitations. Other Part 21 subparts are presented to give a complete understanding of the framework.



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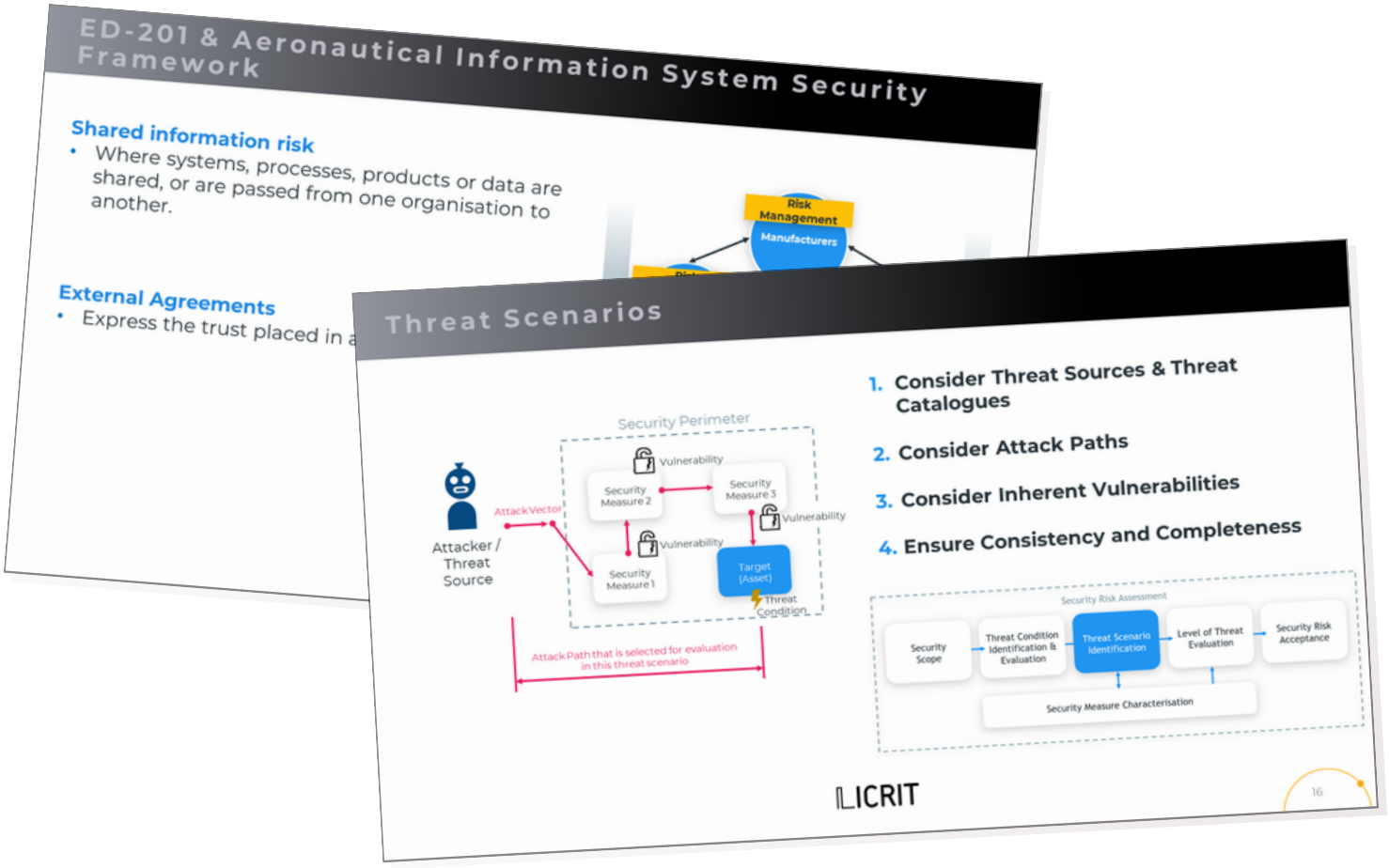
INTRODUCTION TO CYBERSECURITY IN AEROSPACE

This course introduces the historically overlooked and neglected area of cybersecurity in aviation. The complex approach devised to address the whole cybersecurity chain from ground personnel/domain to product's development requirements and objectives is explained. An introduction of standards that drive these activities necessary not only for successful certification but also for safe operation through the products lifecycle is provided.



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