

Composite Safety & Certification Initiatives

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- Background
 - Technical thrust areas
 - FAA JAMS COE
- FAA Needs
- Business relations
 - New AMTAS Partners?
 - Off-setting costs
- Summary



Ongoing Composite Safety & Certification Initiatives*

Objectives

- 1) Work with industry, other government agencies, and academia to ensure safe and efficient deployment of composite technologies used in existing and future aircraft
- 2) Update policies, advisory circulars, training, and detailed background used to support standardized composite engineering practices

** CS&CI efforts started in 1999 to address issues associated with increasing composite applications*



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CS&CI Technical Thrust Areas

Advancements depend on close integration between areas

Material Control, Standardization
and Shared Databases

Structural Substantiation

- Advances in analysis & test building blocks
- Environmental effects
- Manufacturing integration

Bonded Joint
Processing Issues

FAA and NASA
R&D is currently
active in most
of these areas



NASA

Advanced Material
Forms and
Processes

Damage Tolerance and Maintenance Practices

- Critical defects (impact & mfg.)
- Bonded structure & repair issues
- Fatigue & damage considerations
- Life assessment (tests & analyses)
- Quantitative NDE/Service POD
- Equivalent levels of safety

Flammability &
Crashworthiness

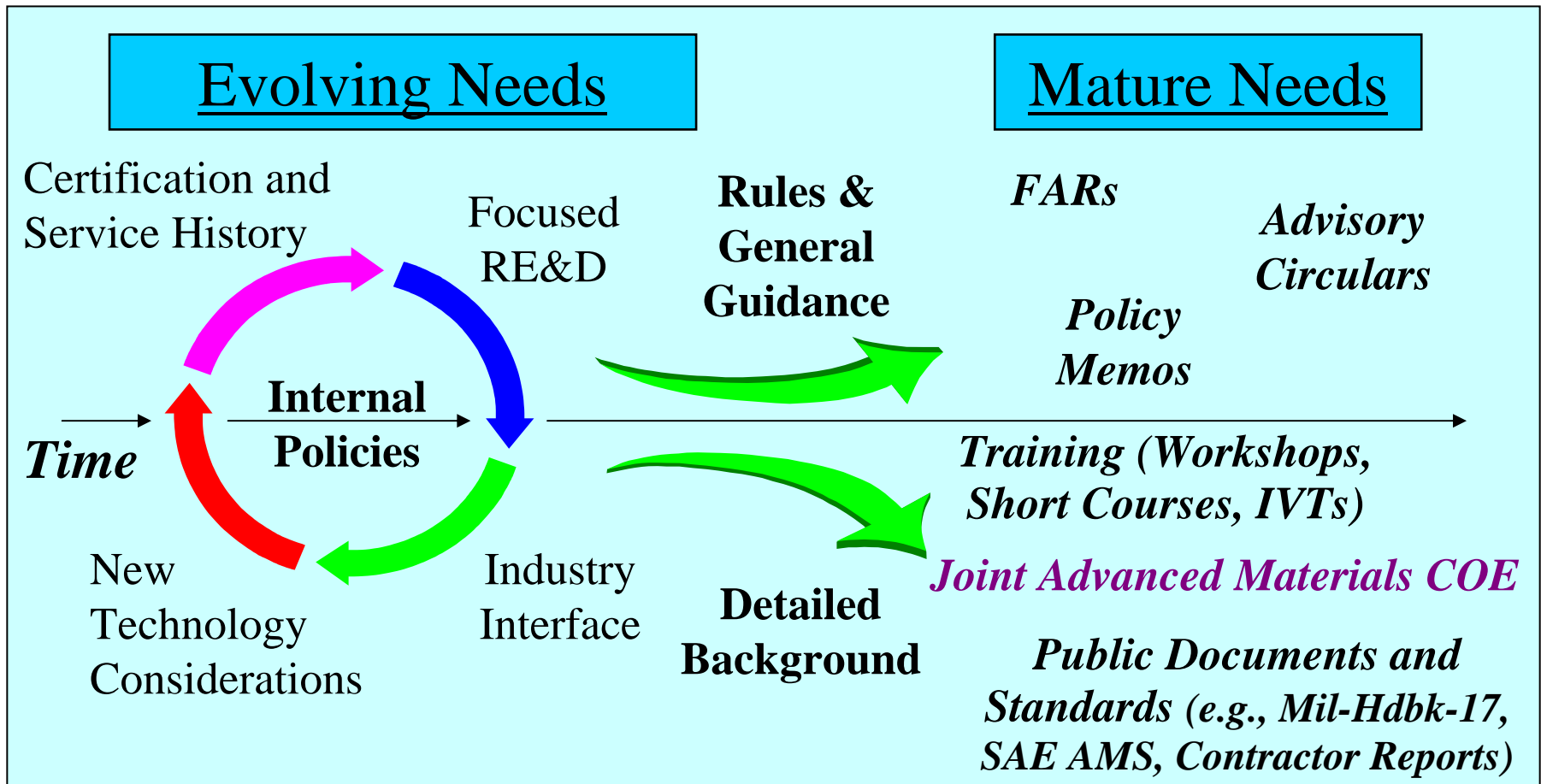
*Support from cabin
safety research groups*

Significant progress, which has relevance to all aircraft products, has been gained to date



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FAA Approach to CS&CI





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FAA Joint Advanced Materials and Structures (JAMS) Centers of Excellence

New FAA JAMS Centers of Excellence to provide research and training in support of expanding composite applications



Wichita State University

Northwestern University

Purdue University

Tuskegee University

University of California at Los Angeles

University of Delaware



University of Washington

Edmonds Community College

Oregon State University

Washington State University



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Role of JAMS COE in Research and Training that Supports FAA Needs

1) Research Project

JAMS COE Research

- » Research is one part of a process to evolve internal policies to mature needs
- » Research funded through Stage 2
(light yellow boxes)
- » In order for the research to have the greatest benefit, it should be adequately linked to:
 - 1) FAA needs,
 - 2) FAA groups establishing rules, policy or guidance
 - 3) Certification projects,
 - 4) Industry interface and, if appropriate,
 - 5) New technology considerations

2) Detailed Documentation

and Background

3) Rules, Policy and Guidance

4) Training

JAMS COE Training

- » Essential final product to train the workforce
- » Research may be needed to develop courses suitable for practitioners
- » **Each school in JAMS COE should play a role (subjects TBD)**

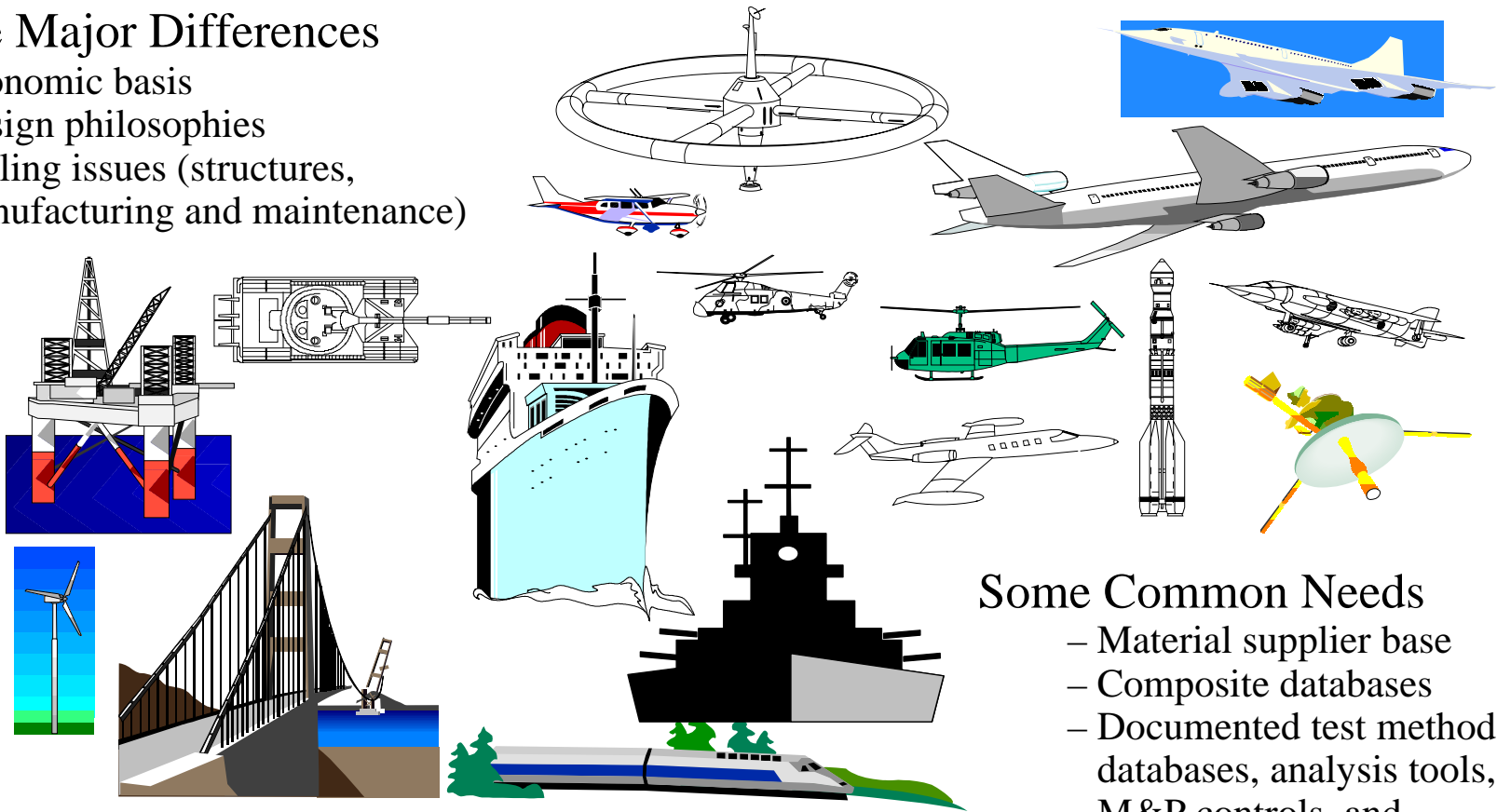


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Expanding Composite Product Space

Some Major Differences

- Economic basis
- Design philosophies
- Scaling issues (structures, manufacturing and maintenance)



Some Common Needs

- Material supplier base
- Composite databases
- Documented test methods, databases, analysis tools, M&P controls, and maintenance practices



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Expanding Composite Applications in Aeronautic and Aerospace Products

Some Major Differences

- Mission
- Economic basis
- Design philosophies
- Scaling issues



Some Common Needs

- Material supplier base
- Composite databases
- Standard test methods, databases, analysis tools, M&P controls, and maintenance practices





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FAA Perspectives on AMTAS Business Relations*

- Non-FAA research performed by AMTAS (proprietary or otherwise) is a plus but must be properly accounted
 - Proprietary contracts or research performed for non-FAA purposes must have book-keeping and a paper trail that is well understood
 - Helps reduce overhead costs to FAA Grants
(e.g., desire to eliminate current FAA administrative grant to AMTAS in time)
 - Advances the AMTAS resources and skills available to FAA Grants
- Anything cost shared for an FAA Grant can be used for “Government Purposes”
 - Problems may arise when something comes up that is questionable as to whether or not the FAA grant helped to fund (**again: good book-keeping!**)
 - It is possible to delineate proprietary contracts and intellectual property rights of one project from a similar project that becomes an FAA Grant
- All cost match must appear at a reasonable rate/allowable cost
- * *Government rules & documents exist to avoid jail*



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Summary

- The FAA research prioritization process depends on needs for standards in policy, guidance & training
- FAA JAMS COE schools will be expected to participate in both research and training tasks
 - Some research may be used to develop training
- FAA encourages AMTAS to seek business relations with industry partners (both aerospace and other industries interested in composite technology)
 - Keep good books to delineate proprietary contracts from FAA grants
 - Cost match can be used for “Government Purposes”