

Presented at the:
**JMR TD Pre-Solicitation
Conference**
Williamsburg, Virginia



JMR TD: Phase 1



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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ADD / AATD

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Development, and Engineering Center





Outline



- **BAA**
 - **Scope of Work**
 - **Evaluation Criteria**
 - **Plan Forward**
- **Technology Investment Agreements (TIAs)**
- **Intellectual Property (IP)**
- **Foreign Ownership Control Influence**



FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
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Rucker/FVL Study



Scope: Design, fabricate, & test 2 vehicles

- Performance demonstration and verification
- Technology characterization
- Test predictions and correlation
- Value and readiness assessments



Scope

- Trade space description
- Prioritize critical attributes/capabilities
- Establish success metrics
- Assess value and affordability



PSR

CSR

1st flight



Scope:

- Instantiate MS architectures based on a unified modeling approach to avionics system development
- Integrate and evaluate advanced crew station technologies a relevant environ.
- Explore OPV implications



Scope

- Develop an avionics reference architecture comprising:
 - Behavior and data models
 - Acquisition and design guidance docs
 - Development / validation ecosystem



Phase 2 Spec





Phase 1 Air Vehicle Demonstration



Objective: Positively impact FVL materiel solution decision and Technology Development Strategy

Approach: Validate critical technologies and designs at aircraft system-level through ground and flight testing to demonstrate vertical lift capabilities superior to those in the current fleet

In other words:

- **Does the Model Performance Specification (MPS) represent a feasible set of capabilities?**
- **Are there affordable, technical solutions to meeting the MPS?**
- **Can risk be reduced to the point where the technical solutions can be considered for the next air vehicle development program?**



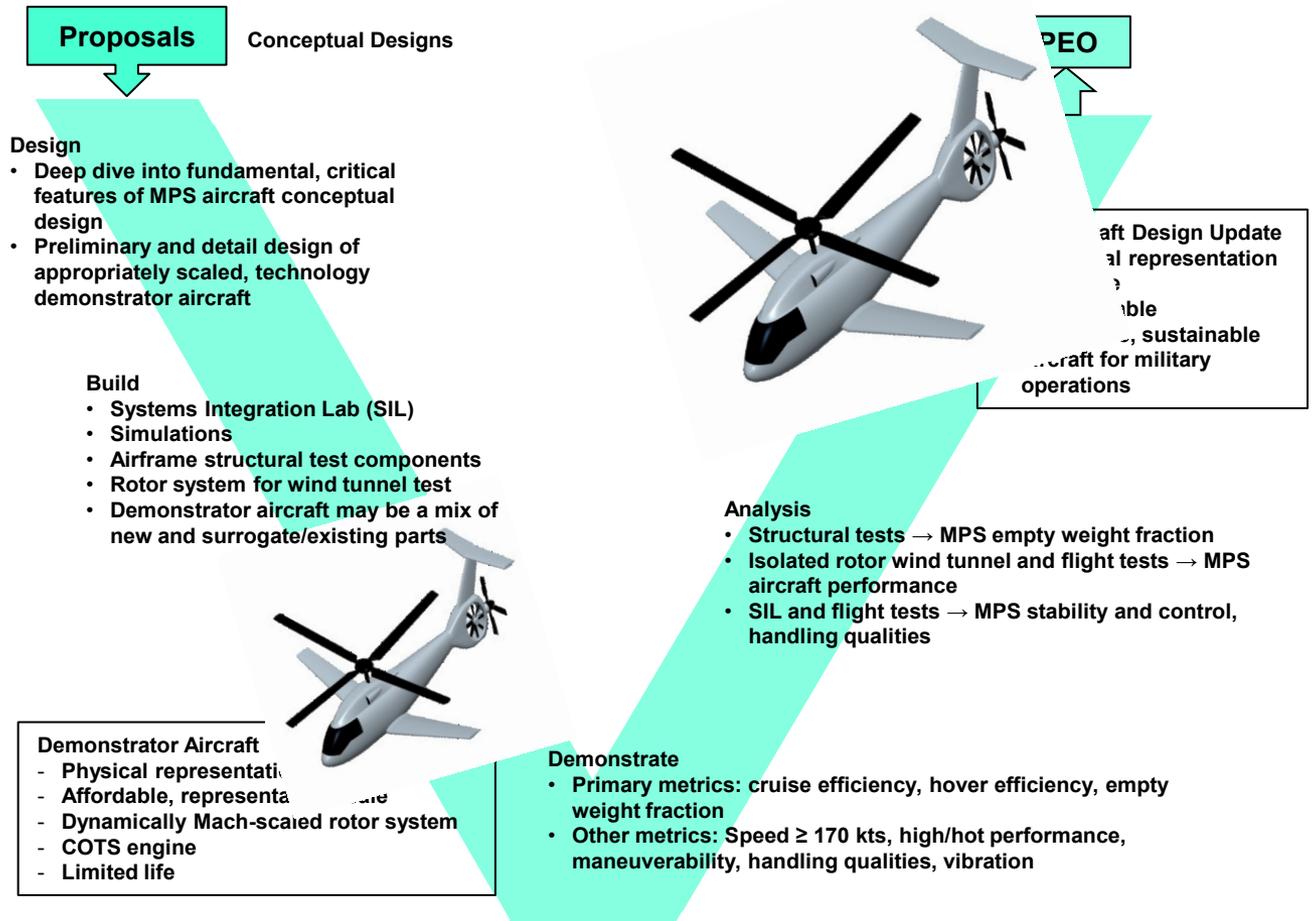
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Phase 1 Scope



- MPS aircraft, critical feature deep-dive design
- Demonstration articles and aircraft
 - Design
 - Build
 - Risk mitigation testing
 - Ground testing to reduce risk
 - Flight test what is necessary
- Demonstrations
- Calibrate models
- Update MPS aircraft





Defining a Technical Requirement



- We want to demonstrate the best aircraft.
- BAA asks for two aircraft to be described in proposals:
 - One is responsive to the MPS (MPS/Objective aircraft) - used as a benchmark for demonstrations
 - Other demonstrates the validity of the MPS aircraft design (demonstrator aircraft)

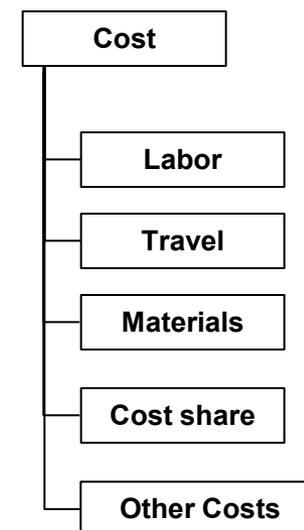
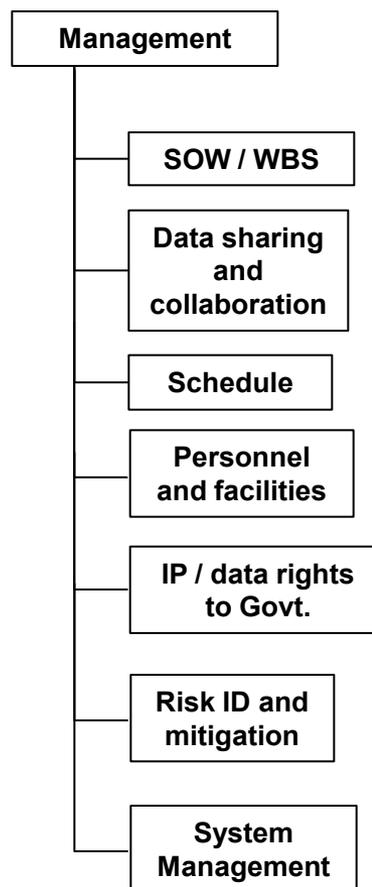
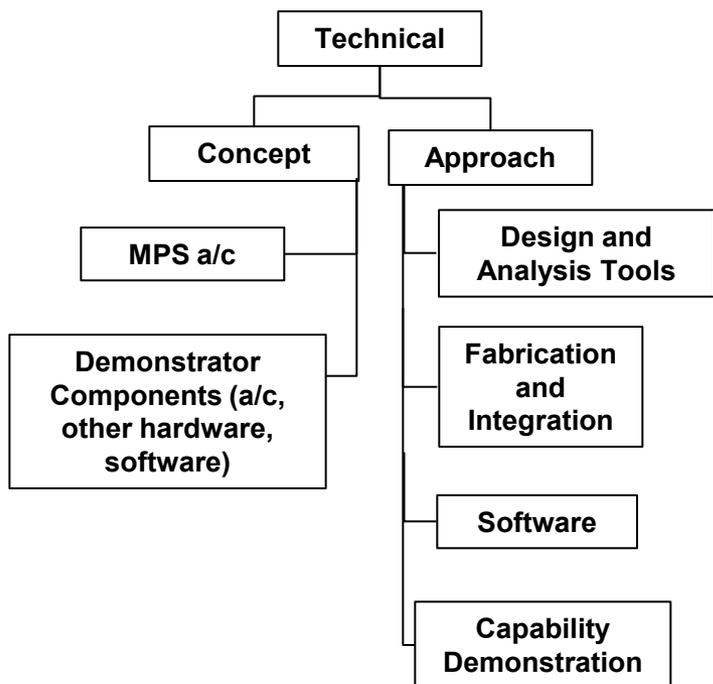


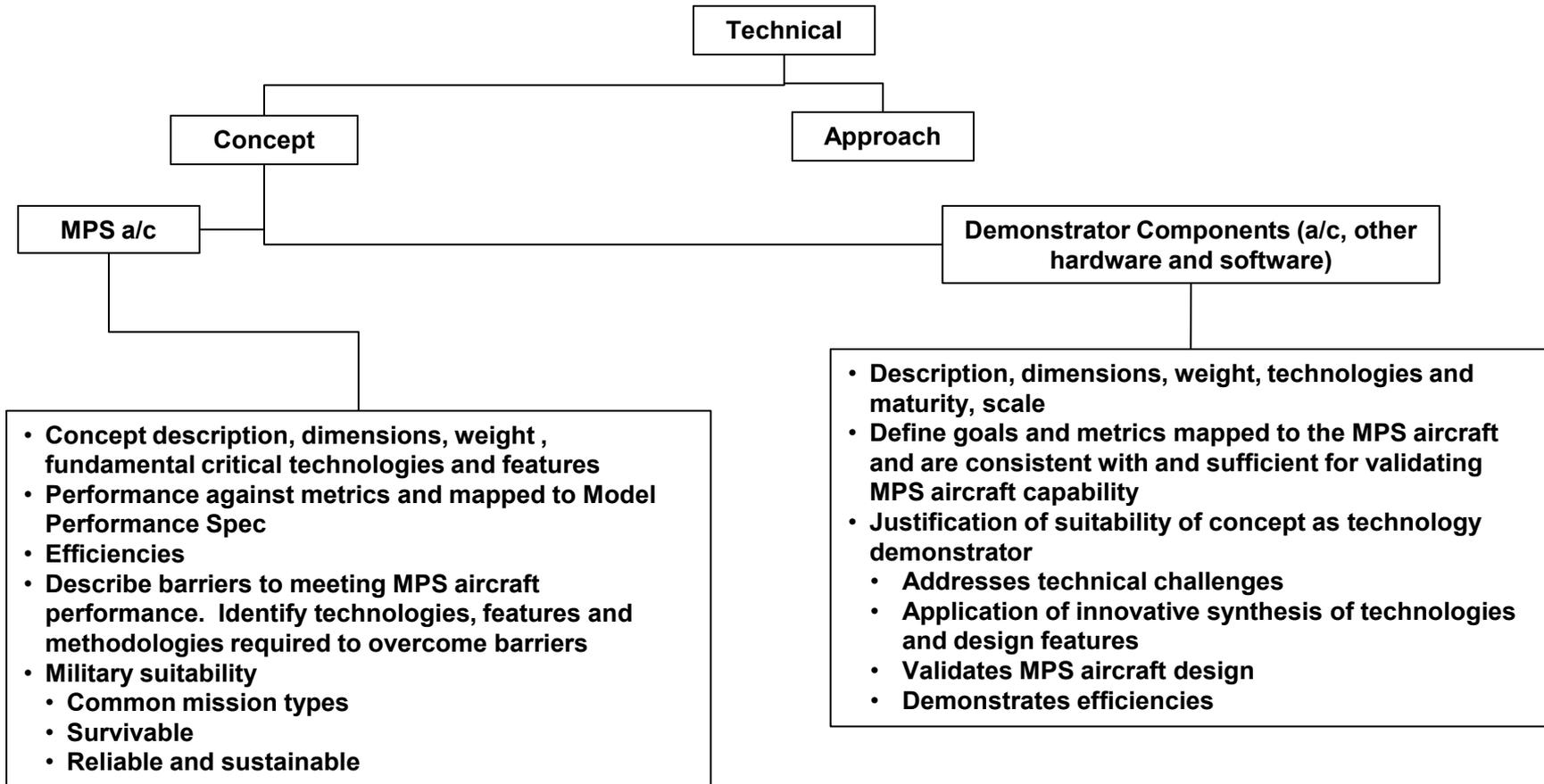


Evaluation Criteria Structure



**Technical is more important than Management is more important than Cost
(all are important)**





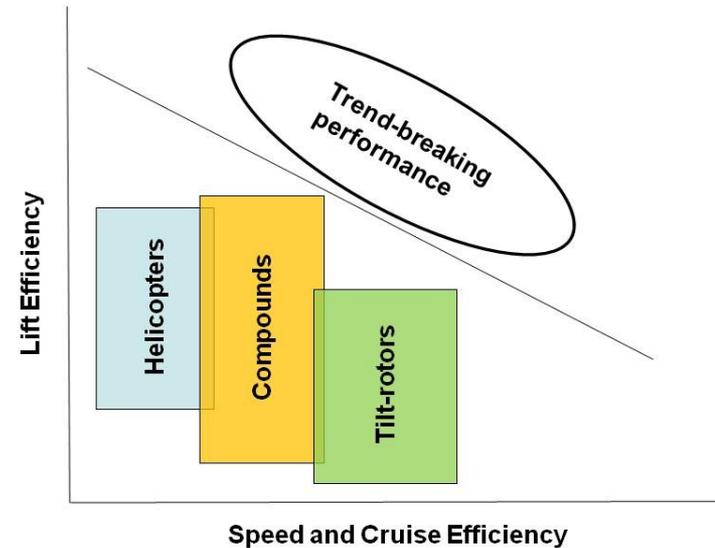


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BAA Definition of the Best Aircraft for the Technology Demonstration



1. Design is responsive to the MPS
2. MPS aircraft is efficient - Possesses aggressive hover, cruise and weight efficiencies
3. MPS aircraft is inherently survivable, reliable and sustainable.
4. Demonstration aircraft validates MPS aircraft performance
5. Demonstration aircraft is enough of a physical representation of the MPS aircraft that it mitigates risk for critical technologies and features.
6. Demonstration aircraft embody an innovative technical solution.

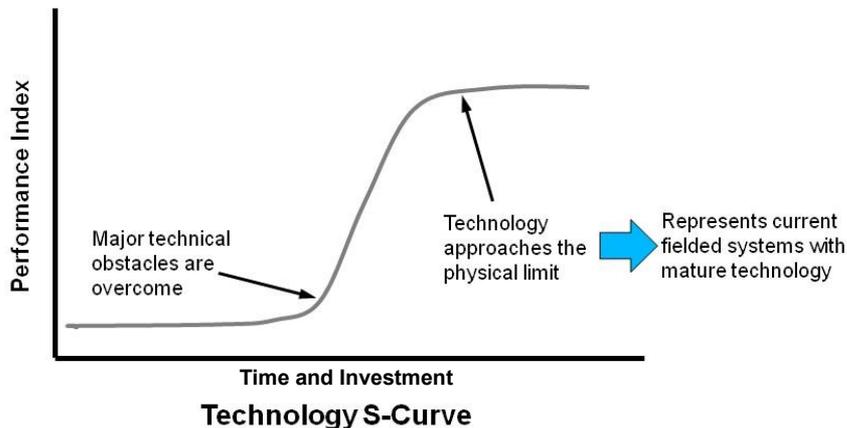


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Innovative Technical Solution

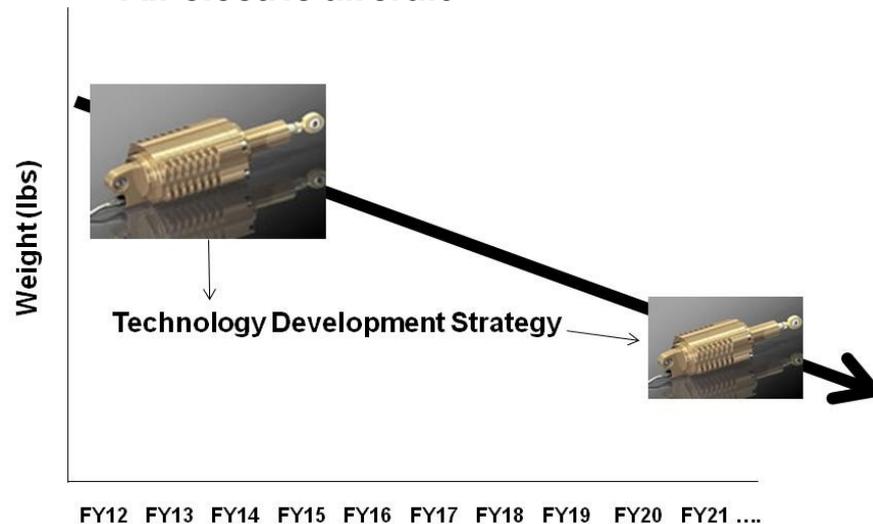


- These might not have weight pay-off now due to size of components and lack of reliability, but there may be a feasible path to significant pay-off
- Should be reflected in Technology Development Strategy

- Evaluate technologies based on expected payoff in 2025 not in 2012
- Many technologies can be expected to improve (e.g., Moore's Law) over the next 15 years due to:
 - Specific aerospace S&T investments by Government and Industry
 - Automotive industry use
 - Consumer electronics

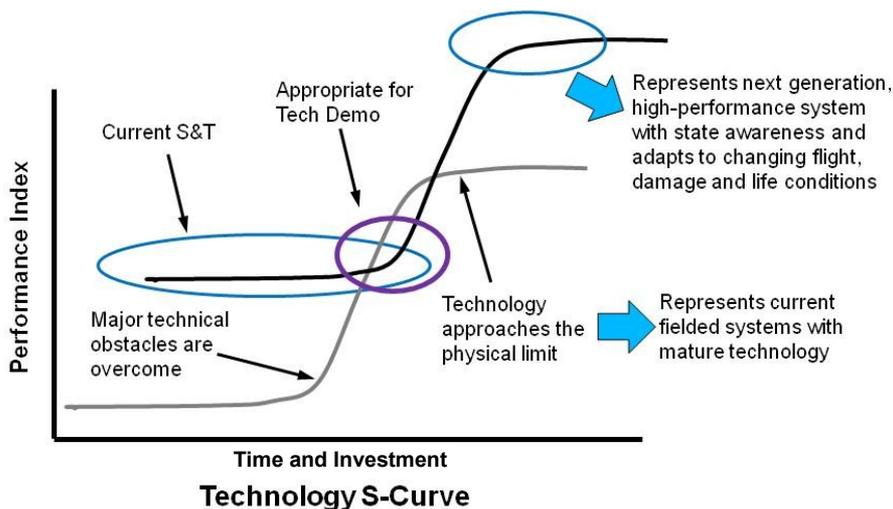
Potential examples:

- Swashplateless rotor
- All-electric aircraft





Innovative Technical Solution



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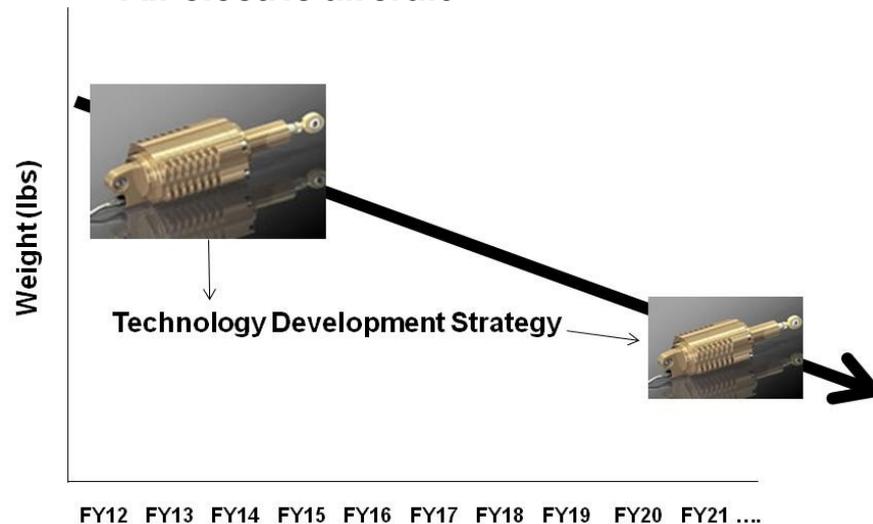
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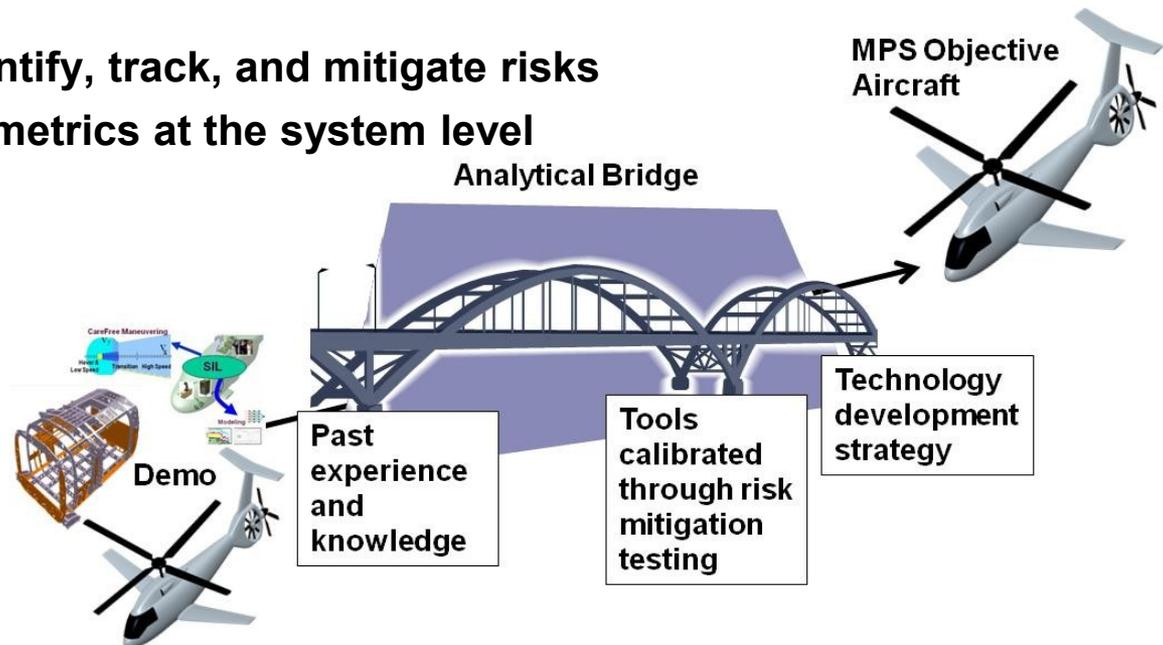


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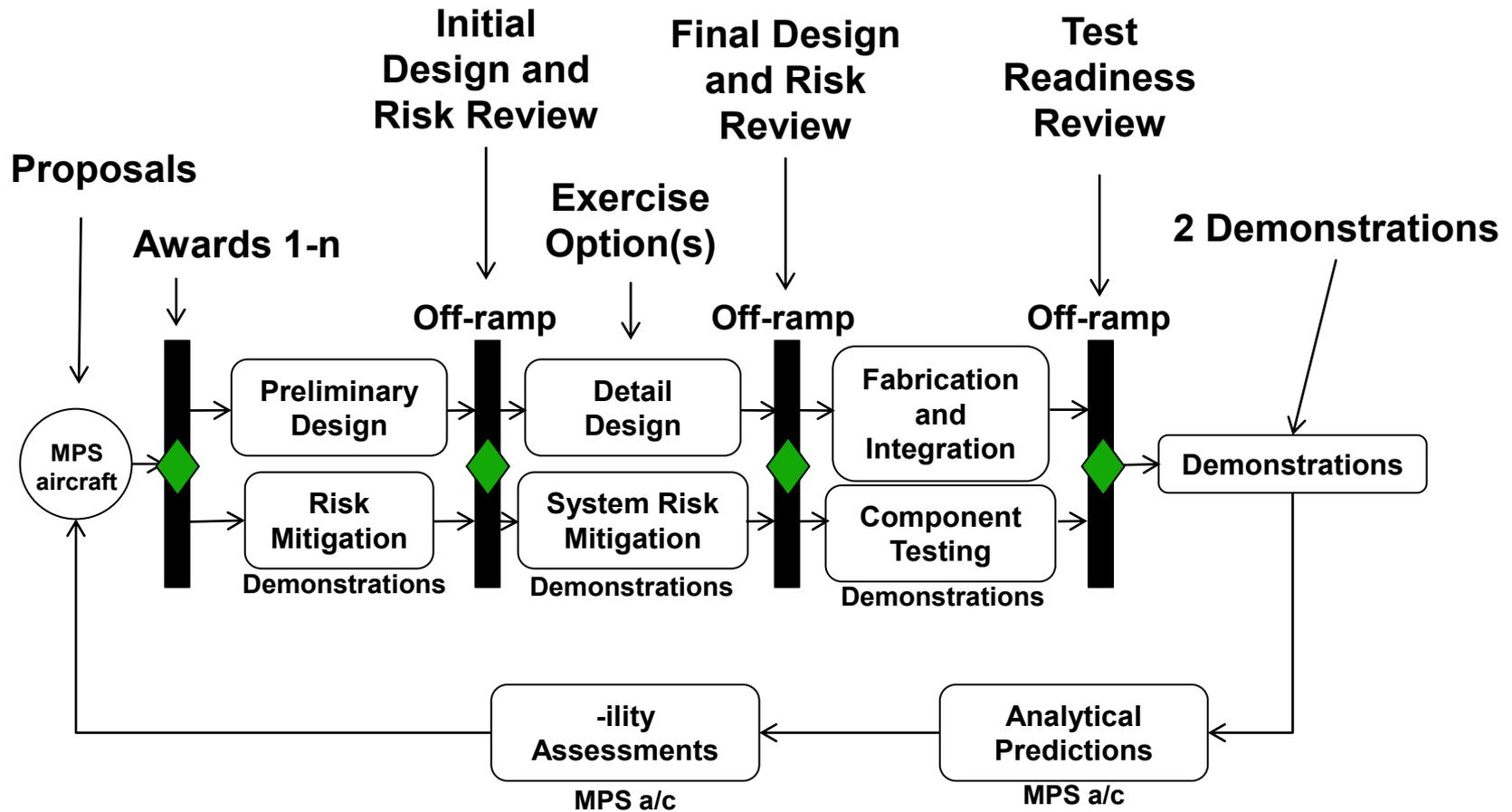
Approach

- An ideal approach for the technology demonstration
 - Uses an efficient mix of ground and flight testing and requires flight demonstration as necessary
 - Quantifies the validity of analytical tools to predict aircraft characteristics and performance
 - Maximizes data collection and understanding of air vehicle critical technologies and design features
- Good technical and management approaches will enhance the likelihood of success
- Must include method to identify, track, and mitigate risks
- Should include tracking of metrics at the system level





Project Flow





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First Off-Ramp, Initial Design and Risk Review



- There **MAY** be more than two initial awards based on:
 - Multiple meritorious proposals
 - Proposed efforts provide significant opportunity to learn new information
- **IF** there are more than two initial awards, **THEN**
 - After Initial Design and Risk Review the Government will make decisions about which agreements to execute options to continue based on:
 - Contribution to mitigating risk for the MPS solution space
 - Available funding
 - Likelihood of meeting metrics
 - Credibility of analytical predictions.
 - Identification of remaining technical risk and feasible mitigation path.
 - Alignment of planned demonstration approach with design and risk review results.
 - Cost and schedule performance to-date.
 - Degree of collaboration and data sharing (with appropriate rights) with Government team.
 - Government independent risk assessment.





Other Items of Importance



- **Award in FY13**
- **Intellectual Property**
- **Technology Investment Agreements (TIAs)**
- **No Government ownership of aircraft**
- **Airworthiness Release**





Additional Information with BAA



- **Model Technology Investment Agreement (TIA)**
- **Model Performance Specification (MPS)**
- **Security Classification Guide**
- **Future Vertical Lift – Medium (FVL-M) S&T System Metrics**
- **Operational Effectiveness Report**





Source Selection Schedule



- 7 December: Release final draft BAA**
- 2 January: Release BAA**
- 6 March: Proposals due (63 calendar days)**
- 21 May: Begin negotiations**
- 16 September: Awards**





Summary



Government's job is to clearly state what we want to demonstrate and how proposals will be evaluated and to conduct a fair evaluation.

Industry's job is to make a convincing case that the Government should invest in your proposed effort.

