Welcome

GSAW

AEROSPACE
Assuring Space Mission Success

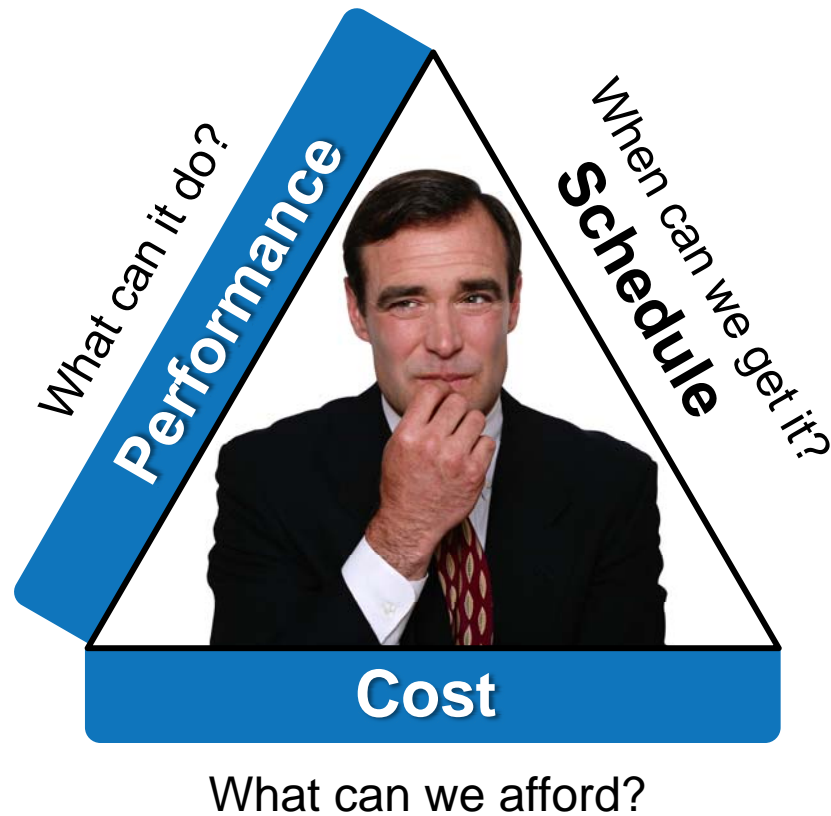# Ground System Architectures Workshop Harmonization: Challenges and Opportunities

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Harmonization is Difficult at Best

What can it do?

Performance

When can we get it?

Schedule

Cost

What can we afford?

- How do you optimize cost, schedule, and technical performance at the same time?

- A familiar picture

- Large number of stakeholders at various levels

  - *Government(s), civil, commercial, (sub)contractors, users, operators, military (branches/wings), managers, finance, taxpayer, etc.*

- With a large array of conflicting interests

  - *Requirements, conventions, standards, languages, methods, habits*

  - *Economies, laws, regulations, politics, egos, etc.*

> *Success reaches sweet spot between extremes….*

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Extreme 1: The "Built-by-Pharoah" Model

- One entity rules all major decisions
  - *Example: Howard Hughes conceived, designed, built, and flew the Spruce Goose. In the end it was impractical to field*

- Focus on one entity or aspect of program can lead to overall failure. For example:

- Cost
  - *System may be limited in function (cut out important options)*
  - *May be lower quality (parts, labor, less testing, less documentation)*

- Designers
  - *Low value bells and whistles*
  - *Longer development cycle*

- Customer(s)
  - *May not understand technical limitations*
  - *May have conflicting requirements*

- Operators
  - *May resist necessary changes*
  - *May lack vision as to what they can get*

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Extreme 2: The "Built-by-Democracy" Model

- Every stakeholder has equal say
  - *Small drivers can have excessive leverage (e.g., periodic user has same weight as full-time user)*
- Consensus …
  - *Is never reached , or*
  - *Results in something nobody wants to, or can, use, or*
  - *Anyone can say no*
- Analysis paralysis prevents completion or even start-up
- Overly complex system
- Badly fragmented, conflicting, divergent paths
- Excessive "nice-to-haves"
- Etc.

Committee-designed Horse

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GSAW Brings the Ground System Community Together

- Civil, commercial, government, international, and academic communities all have contributions to make

- Share lessons-learned on successes **AND** failures

- Introduce state-of-the-art approaches

- Address system development challenges

- Take advantage of educational opportunities

- Envision the future

  – *How do we put all the pieces together?*

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