

A horizontal banner with a dark background and glowing orange and yellow light trails. The words 'Test & Eval' are written in large, white, sans-serif font across the center.

Weapon Systems Acquisition at a Cross Roads: *How The T&E Community Can Help*

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An All Too Familiar Story.....

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The outcome can be determined before the program begins:

- Program schedule will stretch out**
- Costs will dramatically increase**
- Product content will be compromised**

In other words, the program will be late, over budget, and the weapon system will fall short of the warfighter's requirements or expectations.....

.....despite DoD's and the contractor's best efforts to the contrary.

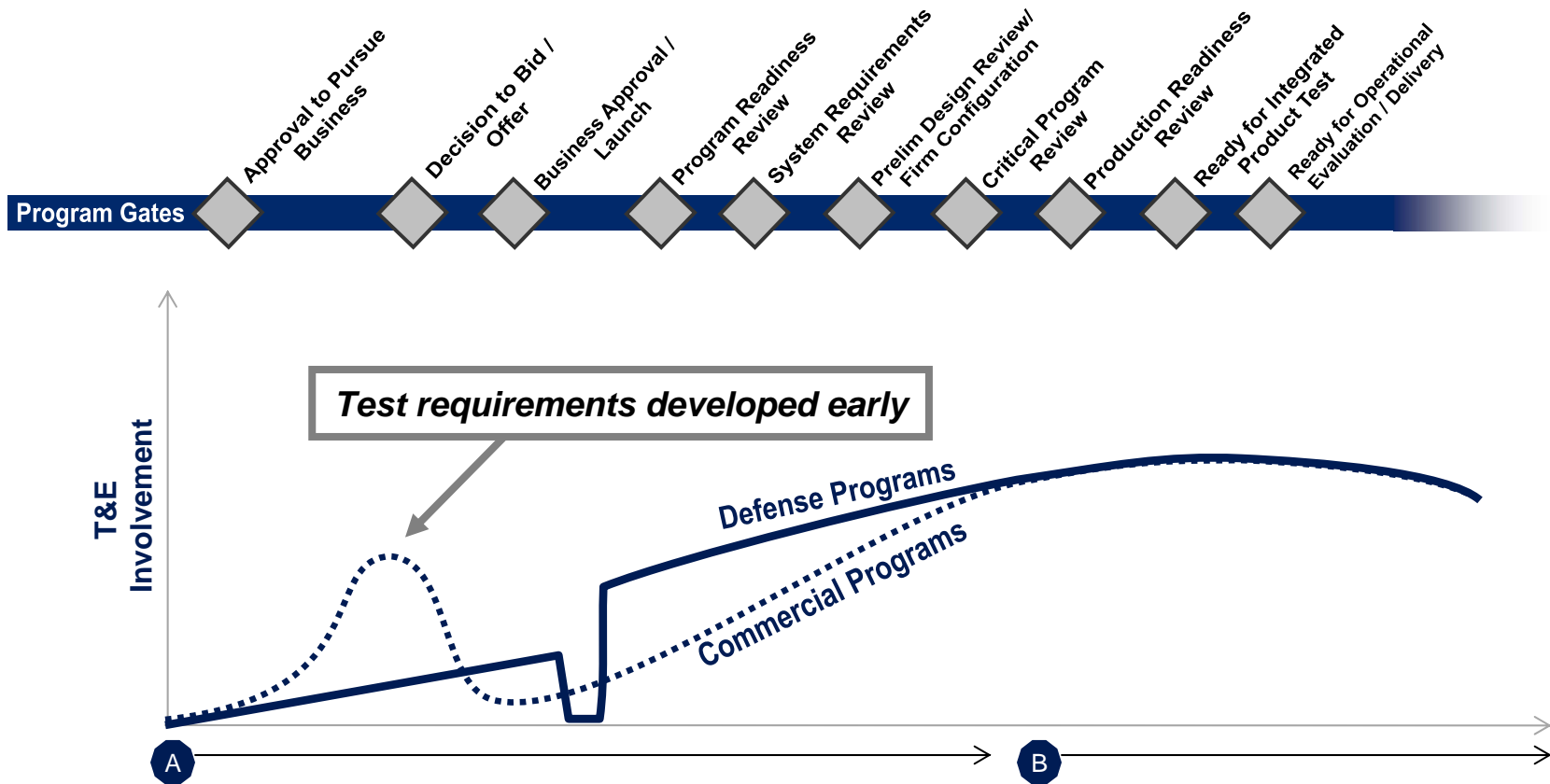
Why???

- **The problem is “structural”**
- **Business Results = Resources + Behaviors**
- **The structure of the business system drives the behavior of the system**
- **Structure includes:**
 - Processes/Procedures
 - Policy
 - Culture
 - Incentives

If we want better results, we must change the structure of the system!

Test Requirements and Program Lifecycles

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Test Requirements development effort and influence varies between Commercial and Military programs.

Recommendation #1 : Realign the Incentives

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- **People respond to incentives**
- **Contractors are not incentivized to develop detailed test requirements early in the program**
- **The lack of detail test requirements drives risk downstream into the test phase of programs, resulting in delays, rework and changing requirements**
- **DoD T&E leaders should advocate for funding to develop detailed test requirements prior to proposal submittal**
- **Higher fidelity test requirements will give program managers a more realistic assessment of T&E cost and schedule**

Test Requirements: The Importance of Getting it Right the First Time

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“Late is ugly until you launch. Wrong is ugly forever!”

- Dr. Michael Griffin, former NASA Administrator

Test Validation and Verification in the Product Lifecycle

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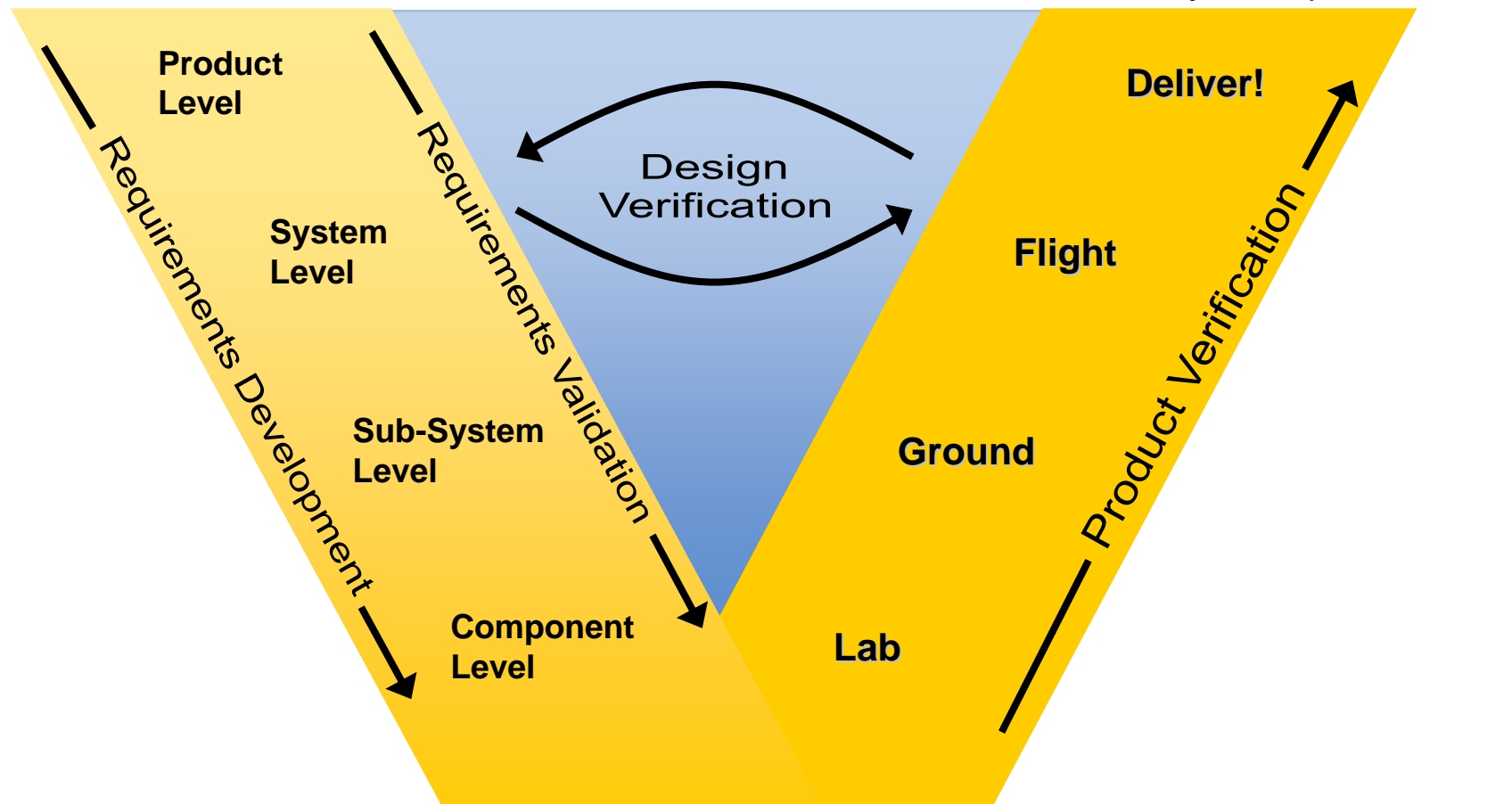
**DEFINE THE
"RIGHT PRODUCT"**

**DESIGN THE
"PRODUCT RIGHT"**

**BUILD THE
"PRODUCT RIGHT"**

Value / Cost

Tests, Analysis, Inspections...



Recommendation #2: Reinvigorate Systems Engineering (SE)

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- **T&E engineers must work more closely with Systems Engineers to develop and validate test requirements.**
- **Early collaboration between SE and T&E can lead to tighter integration of program schedules and improve “critical path” and Earned Value management, thereby improving the probability of program completion on time and on budget.**

Changing the T&E Culture

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- **We must think of ourselves as more than just evaluators**
- **We should think of ourselves as program partners who are invested in the outcome – a weapon systems delivered on time, on budget and meeting our warfighter's expectations**
- **Effecting the cultural shift will require courage, tenacity, and a tolerance for failure. Moreover, it will require sponsorship (persistent and consistent messaging through words and actions) at the highest levels of DoD T&E.**

Recommendation #3: Redefine our Relationship with the Acquisition Community

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- **The DoD T&E Community must make it clear to our program partners that we are invested in the outcome. We should learn to collaborate like business partners.**
- **It starts with the leadership at the top, but the cultural shift must permeate every layer of the DoD T&E community.**
- **Effecting the cultural shift will take vision and courage. Leaders must stay on message and never wavier.**

Recommendation #4: Consolidate DoD T&E

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- **Every acquisition program acts like its own empire. Program managers rarely look beyond the needs of their own program.**
- **Programs often procure (sometimes at considerable expense) test assets that already exist in other parts of the DoD infrastructure.**
- **There is significant duplication of test infrastructure, leading to underutilization of DoD T&E capabilities and inefficient use of limited acquisition funding.**
- **The Test Resources Management Center (TRMC) is a step in the right direction.....**

BT&E - Boeing's Experience with a Consolidated Test Organization

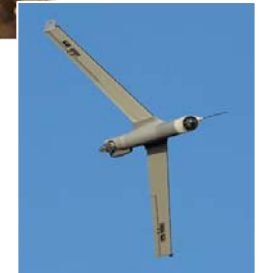
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Strategic Focus:

- Execute our commitments while integrating Test & Evaluation across the enterprise to dramatically improve the cost effectiveness of BT&E operations and yielding improved competitiveness of Boeing's products and services

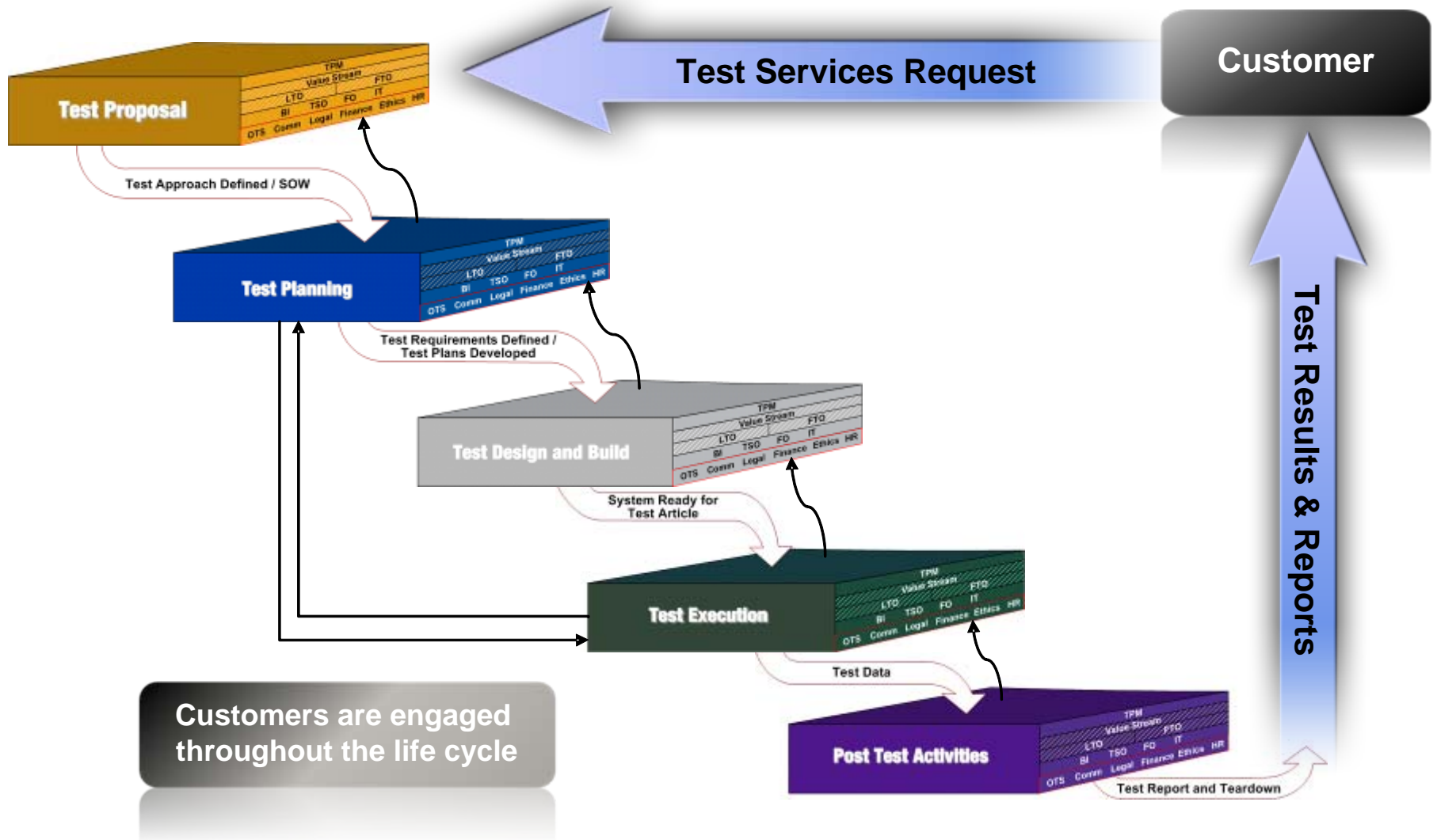
Strategic Objectives:

- Execute on our commitments
- Institute operational excellence through functional discipline
- Integrate Test & Evaluation operations across the enterprise
- Dramatically improve our competitiveness
- Engaged, diverse, and highly capable workforce



BT&E Product Test Life Cycle - Top Level Test & Evaluation Process

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BT&E – The Results

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- **Saved hundreds of millions (\$M) in operations and facilities costs (2009 to Sept 2011)**
- **Achieved record levels of productivity:**
 - Completed two major aircraft development programs simultaneously over the last 18 months, logging over 8000 flight hours, 5000 ground test hours with as many as 15 wide-body aircraft in the test fleet, all while supporting P-8A, AEW&C, F-15, F-18, CH-47, AH-6, AH-64, A-160, BTCM and GMD and space systems T&E programs
 - Flew 7500 test and test support flights in 2010 and over 5000 flights to date in 2011
- **Supported over 600 contract proposals**

Summary

Circumstances have conspired to give DoD T&E a unique opportunity to drive meaningful and transformative change into the test and evaluation of complex weapon systems.

Realizing dramatic improvement in productivity (cost, schedule, quality) of T&E operations will require a restructuring of the T&E system, including how the T&E community integrates with the Acquisition community and how DoD manages test assets across multiple programs.

DoD should give serious consideration to:

- 1) Realigning incentives for programs/OEMs**
- 2) Reinvigorating Systems Engineering**
- 3) Redefining T&E Relationship with the Acquisition Community**
- 4) Consolidating DoD T&E assets and operations**

A Final Thought.....

