Perspectives on Acquisition, Test, and Early Fielding of UAV Systems

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Perspectives

- **ACTD legacy:** Departure from the intent of ACTD process in most UAS programs set stage for numerous negative consequences affecting the systems' performance and pace of maturity.

- **Dual-program problem:** Development of the intended program continued concurrent with early fielding of immature systems. This created a dual-program problem (a deployed system and an intended system, both under development).

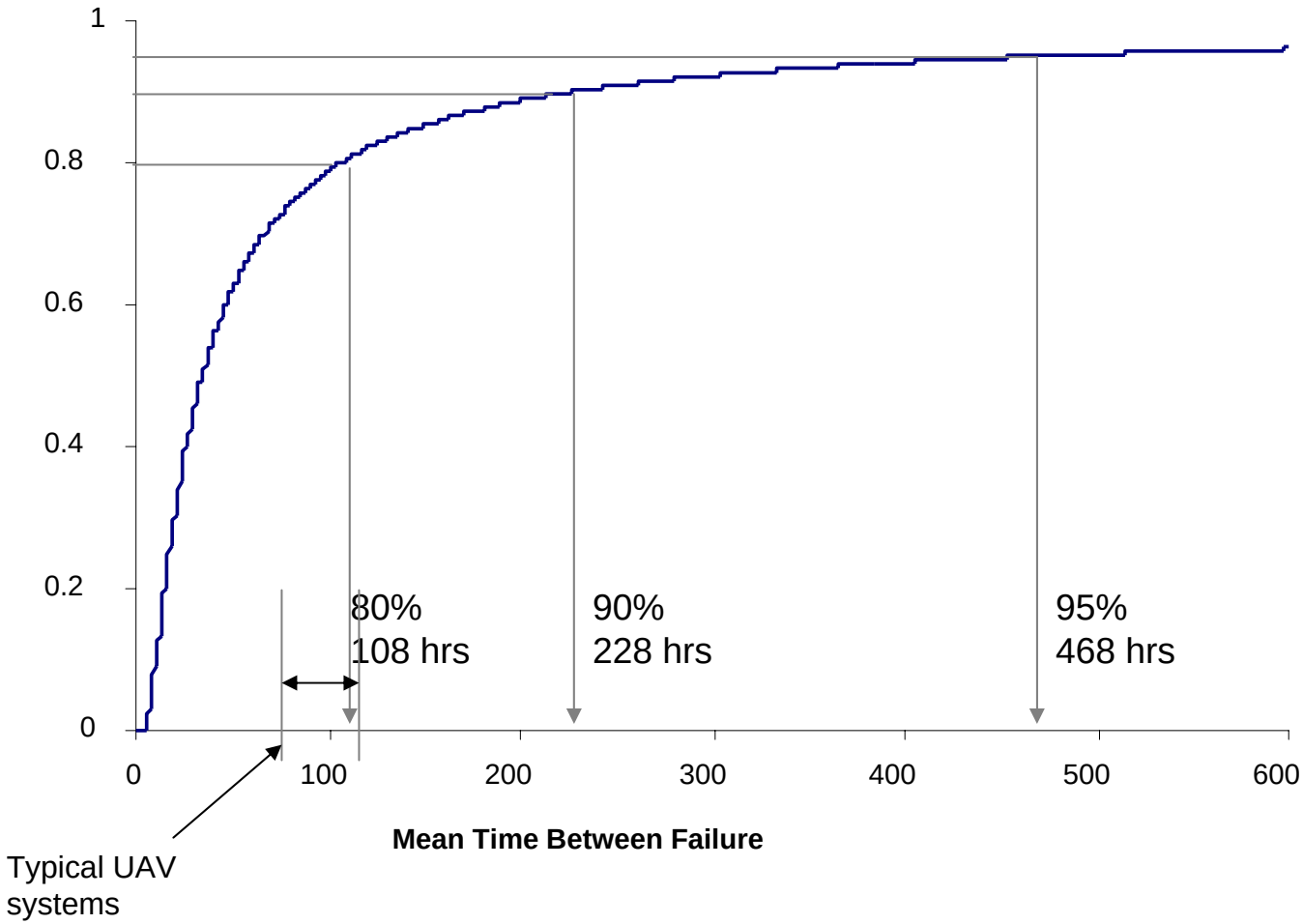
- **Limited meaningful testing:** As acquisition programs of the intended system took shape, service acquisition leadership and program management demonstrated an aversion to end-to-end, mission level OT&E (excepting few programs).

- **Performance:** The single most important performance characteristic for unmanned systems should have been high reliability--this has not been the case.

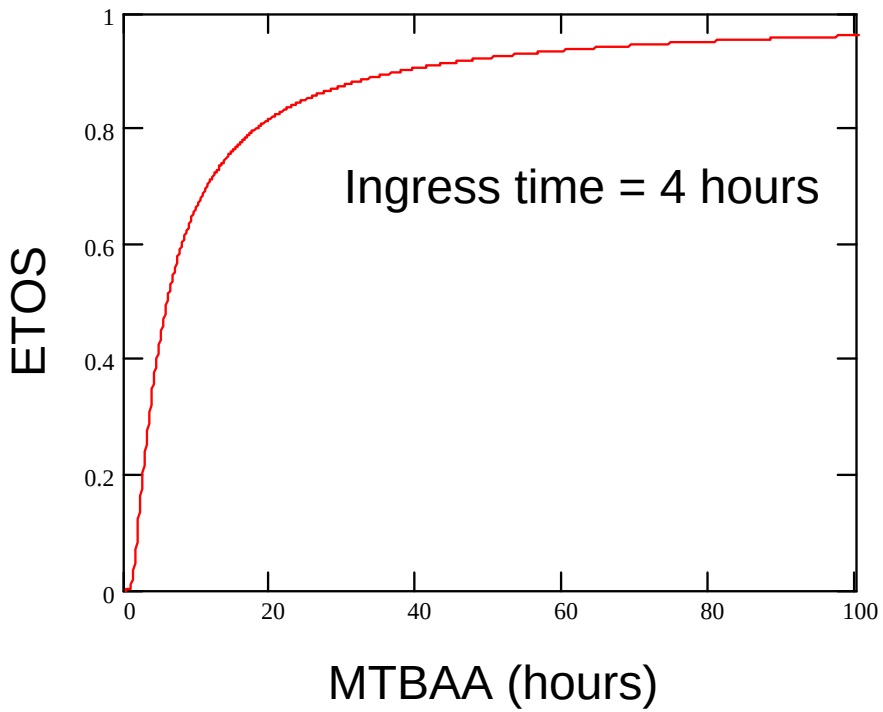
What should be done now?

1. Fielded systems: Invest in reliability growth and improvements to suitability.
   - Any other performance improvements must positively contribute to improved reliability and availability of the overall system.
   - Defend costs for spares, maintainability improvements, and deployability of systems.
   - Improve initial CONOPS: Document and spread the word on what worked, what didn't work, and what needs to be fixed in the integration of UASs with ground and air combat units.
2. Systems under development: Accomplish the fundamentals necessary for a successful program:
   - Ensure sufficient requirements traceability
   - Re-evaluate requirements for reliability and maintainability
   - Complete and validate concept of operations and support
   - Plan, resource and complete adequate developmental and operational testing

Probability of Completing a 24 Hour Mission Without a Failure



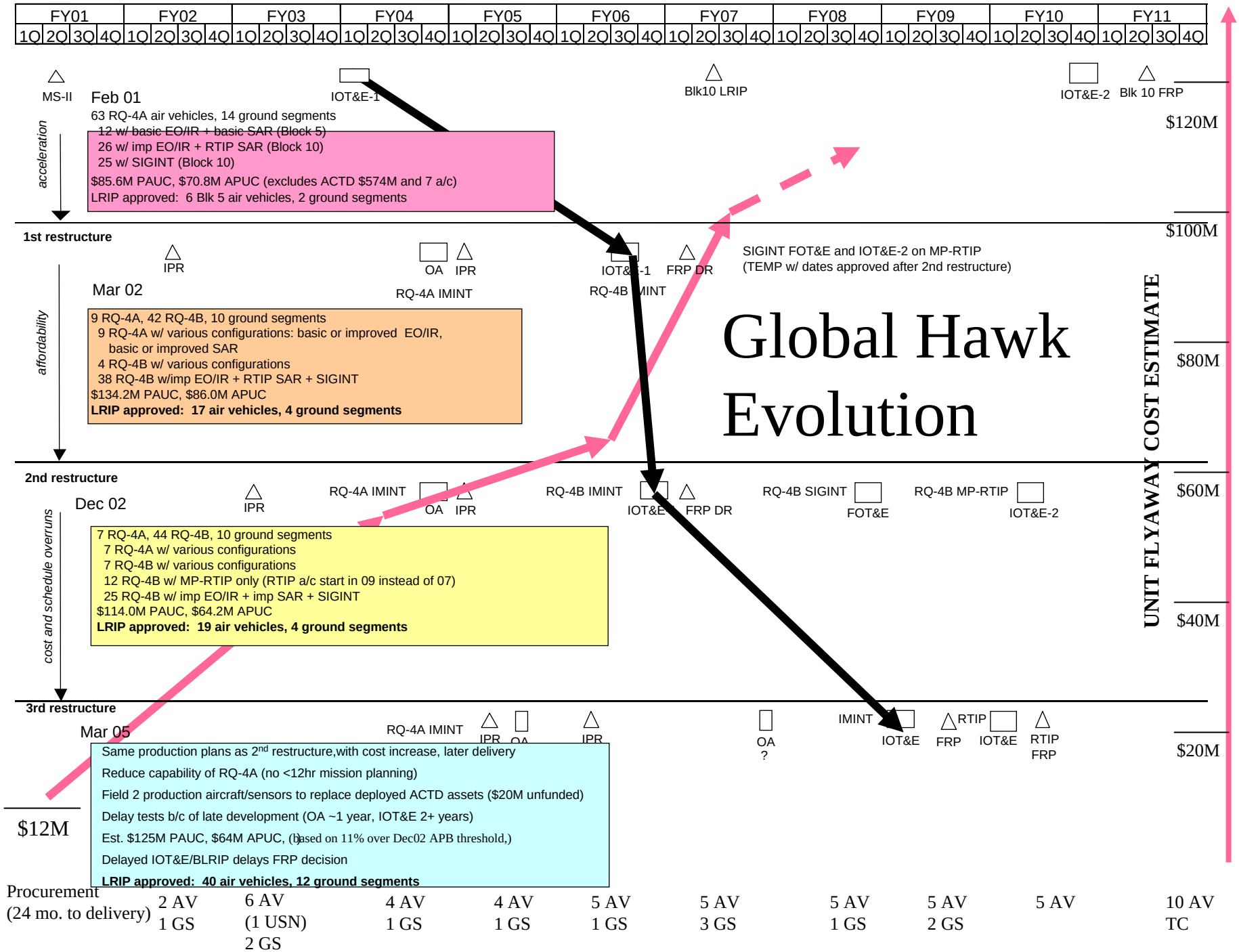
Effect of Air Aborts on Effective Time On Station



Assumes:

- 100 percent availability
- Relief on Station (unlimited aircraft simultaneously airborne)
- Instantaneous launch on request (no start up time)
- No ground aborts
- Exponential air abort distribution

Shows upper bound on ETOS imposed by air aborts


FY01 FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10 FY11
1Q 2Q 3Q 4Q
MS-II
Feb 01
63 RQ-4A air vehicles, 14 ground segments
12 w/ basic EO/IR + basic SAR (Block 5)
26 w/ imp EO/IR + RTIP SAR (Block 10)
25 w/ SIGINT (Block 10)
$85.6M PAUC, $70.8M APUC (excludes ACTD $574M and 7 a/c)
LRIP approved: 6 Blk 5 air vehicles, 2 ground segments
IOT&E-1
Blk10 LRIP
IOT&E-2
Blk 10 FRP
acceleration
$120M
1st restructure
IPR
OA
IPR
Mar 02
RQ-4A IMINT
IOT&E-1
RQ-4B IMINT
FRP DR
SIGINT FOT&E and IOT&E-2 on MP-RTIP
(TEMP w/ dates approved after 2nd restructure)
9 RQ-4A, 42 RQ-4B, 10 ground segments
9 RQ-4A w/ various configurations: basic or improved EO/IR, basic or improved SAR
4 RQ-4B w/ various configurations
38 RQ-4B w/imp EO/IR + RTIP SAR + SIGINT
$134.2M PAUC, $86.0M APUC
LRIP approved: 17 air vehicles, 4 ground segments
affordability
$100M
Global Hawk Evolution
$80M
2nd restructure
Dec 02
IPR
RQ-4A IMINT
OA
IPR
RQ-4B IMINT
IOT&E
FRP DR
RQ-4B SIGINT
FOT&E
RQ-4B MP-RTIP
IOT&E-2
7 RQ-4A, 44 RQ-4B, 10 ground segments
7 RQ-4A w/ various configurations
7 RQ-4B w/ various configurations
12 RQ-4B w/ MP-RTIP only (RTIP a/c start in 09 instead of 07)
25 RQ-4B w/ imp EO/IR + imp SAR + SIGINT
$114.0M PAUC, $64.2M APUC
LRIP approved: 19 air vehicles, 4 ground segments
cost and schedule overruns
$60M
UNIT FLYAWAY COST ESTIMATE
$40M
3rd restructure
Mar 05
RQ-4A IMINT
IPR
OA
IPR
OA
?
IMINT
IOT&E
FRP
RTIP
IOT&E
RTIP
FRP
Same production plans as 2nd restructure,with cost increase, later delivery
Reduce capability of RQ-4A (no <12hr mission planning)
Field 2 production aircraft/sensors to replace deployed ACTD assets ($20M unfunded)
Delay tests b/c of late development (OA ~1 year, IOT&E 2+ years)
Est. $125M PAUC, $64M APUC, (based on 11% over Dec02 APB threshold,)
Delayed IOT&E/BLRIP delays FRP decision
LRIP approved: 40 air vehicles, 12 ground segments
$20M
$12M
Procurement
(24 mo. to delivery)
2 AV
1 GS
6 AV
(1 USN)
2 GS
4 AV
1 GS
4 AV
1 GS
5 AV
1 GS
5 AV
3 GS
5 AV
1 GS
5 AV
2 GS
5 AV
10 AV
TC