

Air Force Institute of Technology



U.S. AIR FORCE

Exploring Performance in Science and Technology (S&T) Programs

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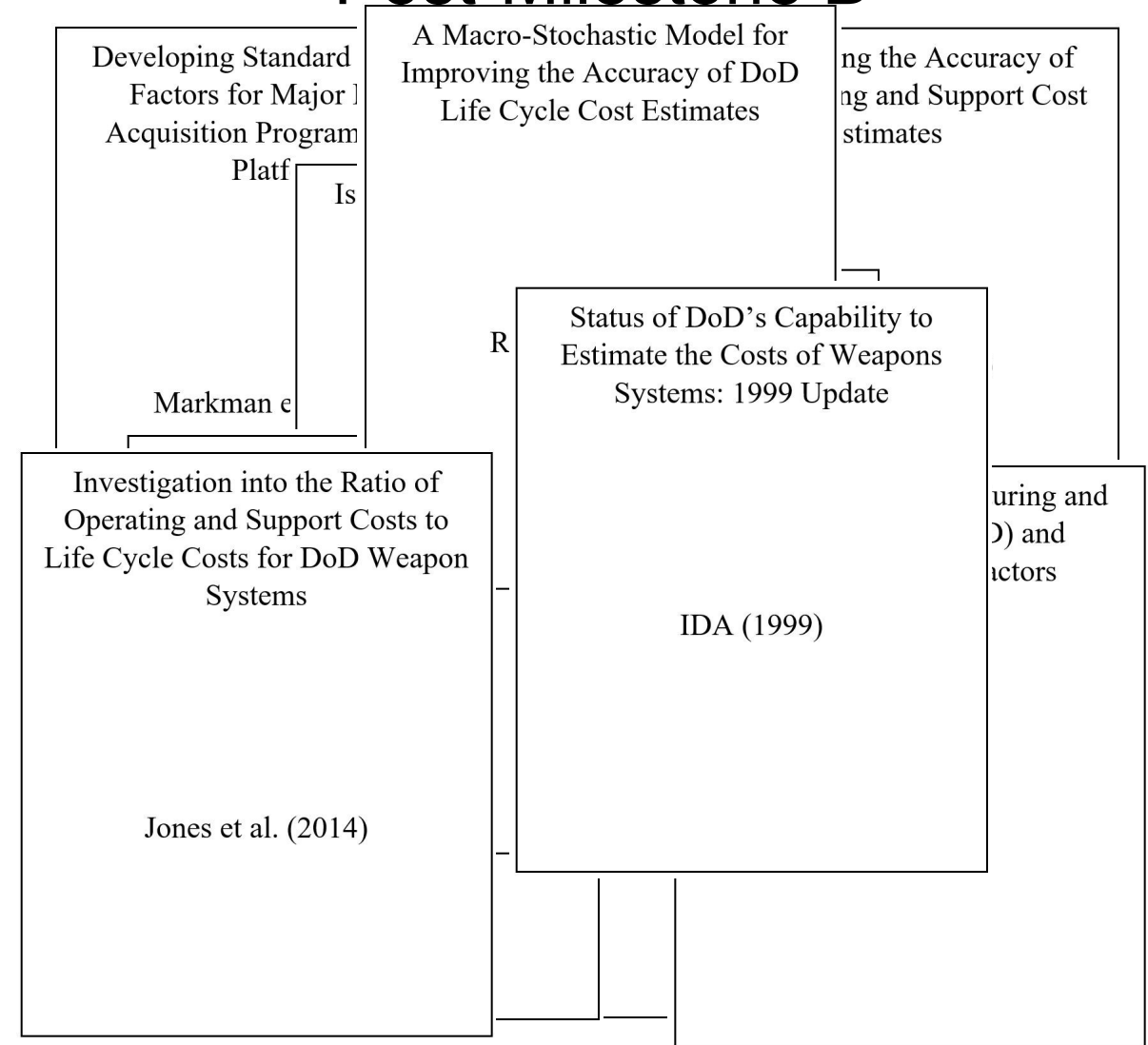
12 May 2021



Pre-Milestone B Cost Estimating Research

- Little to no research

Post-Milestone B





■ Funds and Man-hour Expenditure Reports (FMER)

	Program Analysis
Report Type	FMER
Mean Contract Value	\$5M
Median Contract Value	\$1.5M
Contract Value Range	\$0.1M - \$50M
Lead Technical Directorates	Human Performance, Aerospace
Performance Types	RDT&E, SBIR
Mode(s) of Last Known TRL	3 & 4

Category	Number Removed	Remaining Programs
Programs Obtained from AFRL		165
No Usable Cost Elements	64	101
Inadequate TD Sample Size	10	91
Less Than 92.5% Complete	48	43
Final Dataset for Analysis		43

■ Contingency Table Analysis

- Examines relationships between variable combinations

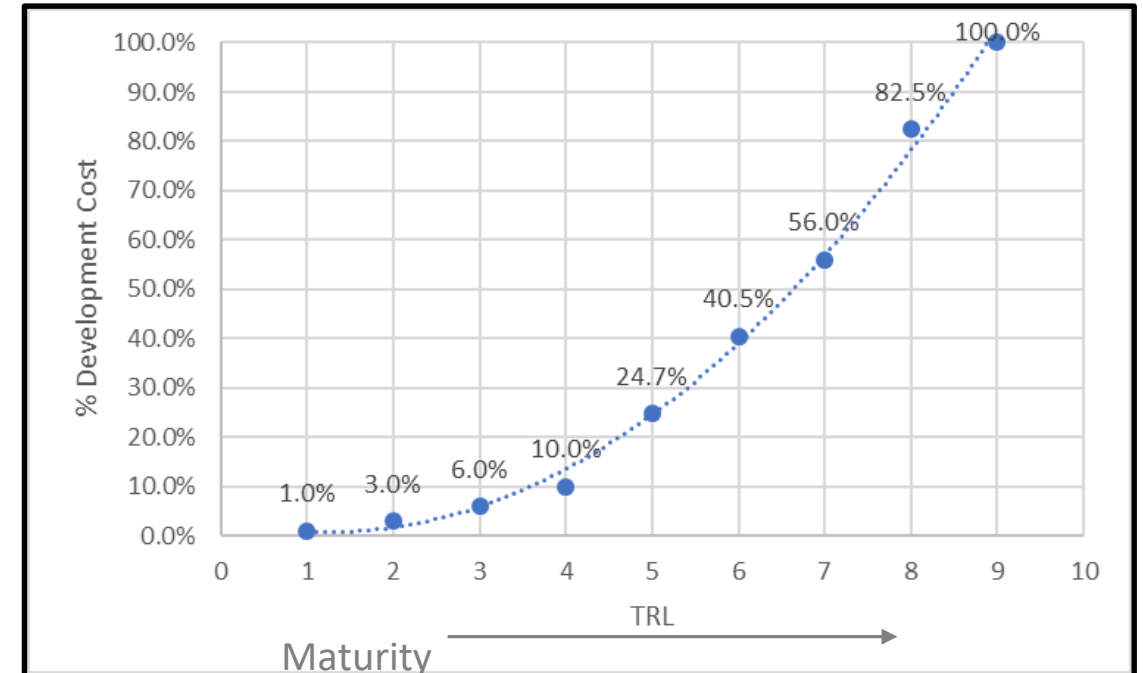


Program Analysis



■ Technology Readiness Level (TRL)

- TRL 6 – 7 more likely to:
 - Experience cost growth (> 68%)
- TRL ≥ 6 more likely to:
 - Have large contract values (> \$3M)
- TRL ≥ 6 *less* likely to:
 - Experience schedule growth
- TRL 1 – 3 *less* likely to:
 - Have large contract values (> \$1M)



Percent Development Cost vs. TRL Average (Linick, 2017)



■ AFRL Technical Directorate

- Aerospace Systems more likely to:
 - Technologically mature
 - Experience cost growth
 - Experience schedule growth

■ Performance Type

- RDT&E programs more likely to:
 - Obtain a TRL ≥ 6
 - Have large contract values ($> \$3M$)
- SBIR programs more likely to:
 - Experience schedule growth



- **Growth Relationships (Cost/Schedule/Contract Value)**
 - Programs with *larger* contract values experience cost growth
 - Programs with *smaller* contract values are less likely to experience schedule growth
 - Programs with schedule growth are more likely to have cost growth as well
 - The schedule/cost growth relationship is found in those programs with immature technologies



Take Away & Way Forward



■ Take Away

- Explored S&T Program Behavior
 - Provided insight into the relationships between various variables
 - Found evidence of AFRL S&T programs behavior consistent with literature findings

■ Way Forward

- Future S&T research and discoveries can increase the odds for successful programs