

Enterprise Modeling: Improving the Analysis of Alternatives Process for IT Solutions Government Contractors

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Context

IT Solutions Government Contractors

- 100% of revenue from proposals
- 15-25 proposals a year
- 5-10 competitors per proposal

Must be efficient in time sensitive proposal development process

AoA Task Category	Percent of AoA	Variability
Labor Intensive	35.2%	Low ($\pm 22\%$)
Decision Making	19.2%	High ($\pm 55\%$)
Experience Recall	26.3%	Medium ($\pm 45\%$)
Networking	19.2%	High ($\pm 100\%$)

Analysis of Alternatives Phases and Relative Time Durations

Ranked List of Alternatives

Problem & Need

Problem

- Decreasing Federal Contract Spending
- Decreasing Contractor Revenue
- Increase in Competition to Win Proposals

Need

There is a need for Analysis of Alternatives process improvements to reduce the mean time duration by at least 33%, and the variability by 25%, while maintaining or increasing AoA proposed solution quality and keeping maximum costs below \$100,000 per AoA.

Area	Need
Mean Time	↓ by 33%
Time Variability	↓ by 25%
Quality	Maintain or ↑
Cost	< \$100,000

Method of Analysis

Monte Carlo discrete event simulation running for 1000 Replications each simulating 1 year (25 proposals)

Key Simulation Assumptions

- Solutions Architects work on one task at a time
- Only one proposal is being worked on at any given time
- The four task categories adequately capture time consumption in AoA
- All tasks are of equal importance to the quality of AoA output

Design Alternative	Target
Optimized Staffing Levels	Parallel Tasks
Sanitized Repository	Task Category Times & Output Quality
File Management System	Task Category Times
Content Management System	Task Category Times

Results

Percent Decrease In Time

Note that the alternative configurations that meet the AoA mean time duration and variability reduction need are those that include the "Optimized Staffing Levels" (A1).

A1: Optimized Staffing Levels; A2: Sanitized Repository; A3: File Management; A4: Content Management

Results

Cost Benefit Analysis

A1: Optimized Staffing Levels; A2: Sanitized Repository; A3: File Management; A4: Content Management

Conclusion

Rank	Alternative Configuration	Utility
1	A1, A2, A4	4.25
2	A1, A2	3.95
3	A1, A2, A3	3.90
4	A2, A4	3.90
5	A2	3.54
6	A1, A4	3.49
7	A2, A3	3.28
8	A4	3.18
9	A1, A3	3.14
10	A1	3.09
11	Baseline	2.50
12	A3	2.37

Based on Cost - Benefit Analysis: Recommendation is Optimized Staffing Levels and Sanitized Repository

In case of possible cost reduction of Content Management System: Recommendation is Optimized Staffing Levels, Sanitized Repository and Content Management System

Legend:
Meet The Need
Don't Meet The Need

A1: Optimized Staffing Levels
A2: Sanitized Repository
A3: File Management
A4: Content Management