Defense Acquisition in Transition

6TH ANNUAL ACQUISITION RESEARCH SYMPOSIUM

The Logistics Support Resource Strategy Map: A Design and Assessment Tool

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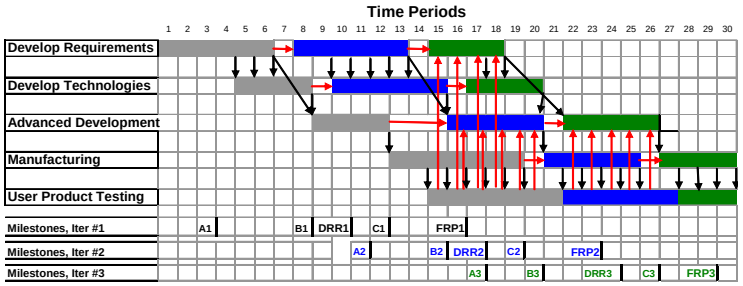
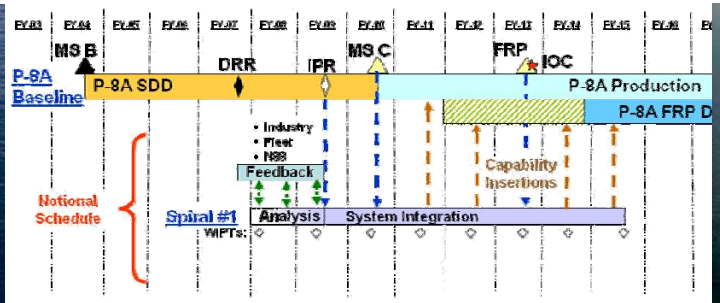
Our Past Work



- **2006: CSIS NASA Study on Spiral Development**
- **2007: Modeling Evolutionary Acquisition and Project Risk**
- **2008: Modeling the Integration of Open Systems and Evolutionary Acquisition (P-8A MM Aircraft)**
- **2009: Modeling Open Architecture & Spiral Development in ARCI with Applications to CGX (PEO IWS)**



P-8 Logistics Strategy Decision

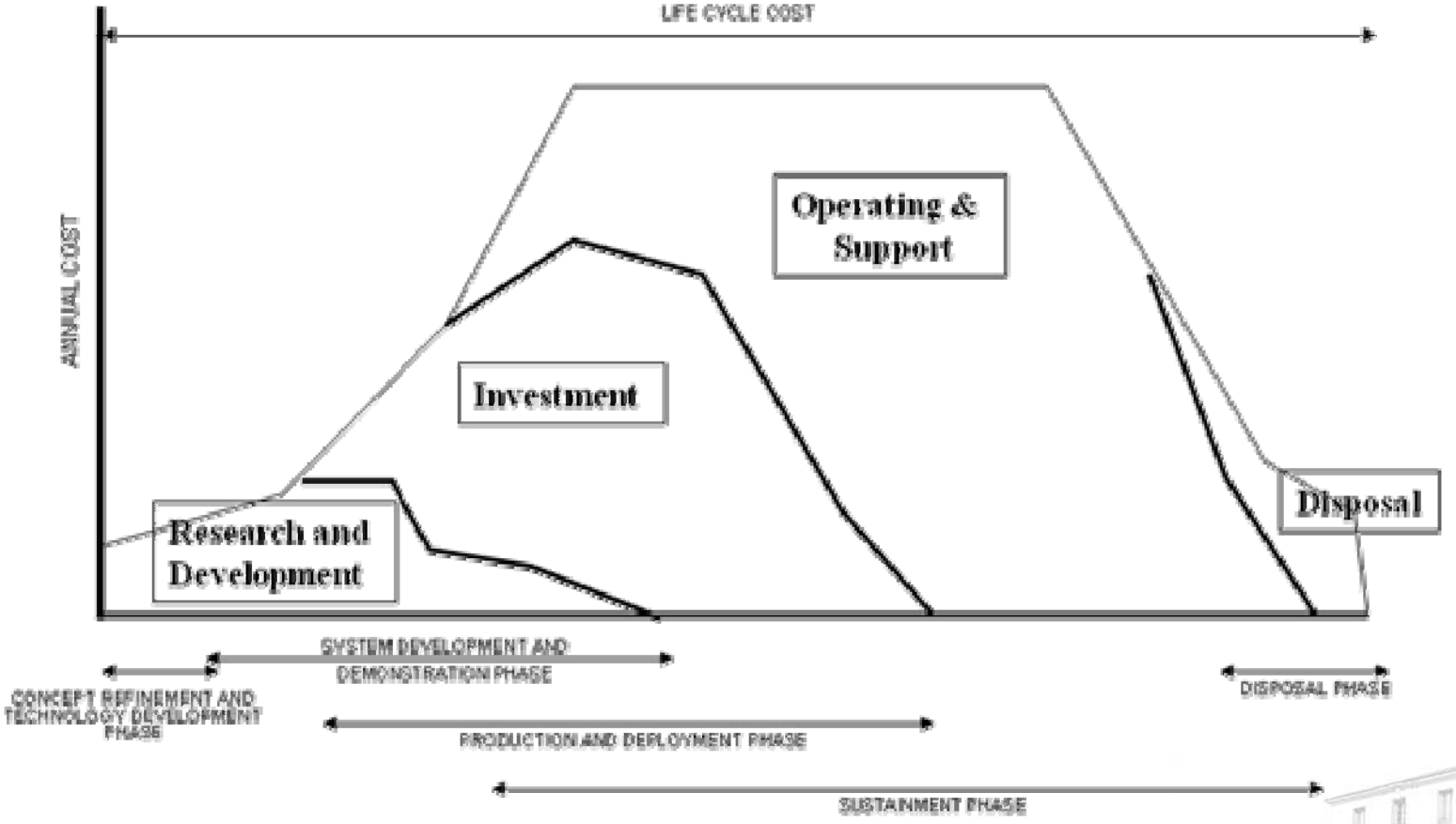
- **Thesis work by NPS Students (Tallant, Hedrick, Martin)**

  - Organic?

  - Contractor?

  - Blended?

The Ongoing Program Cost Paradigm



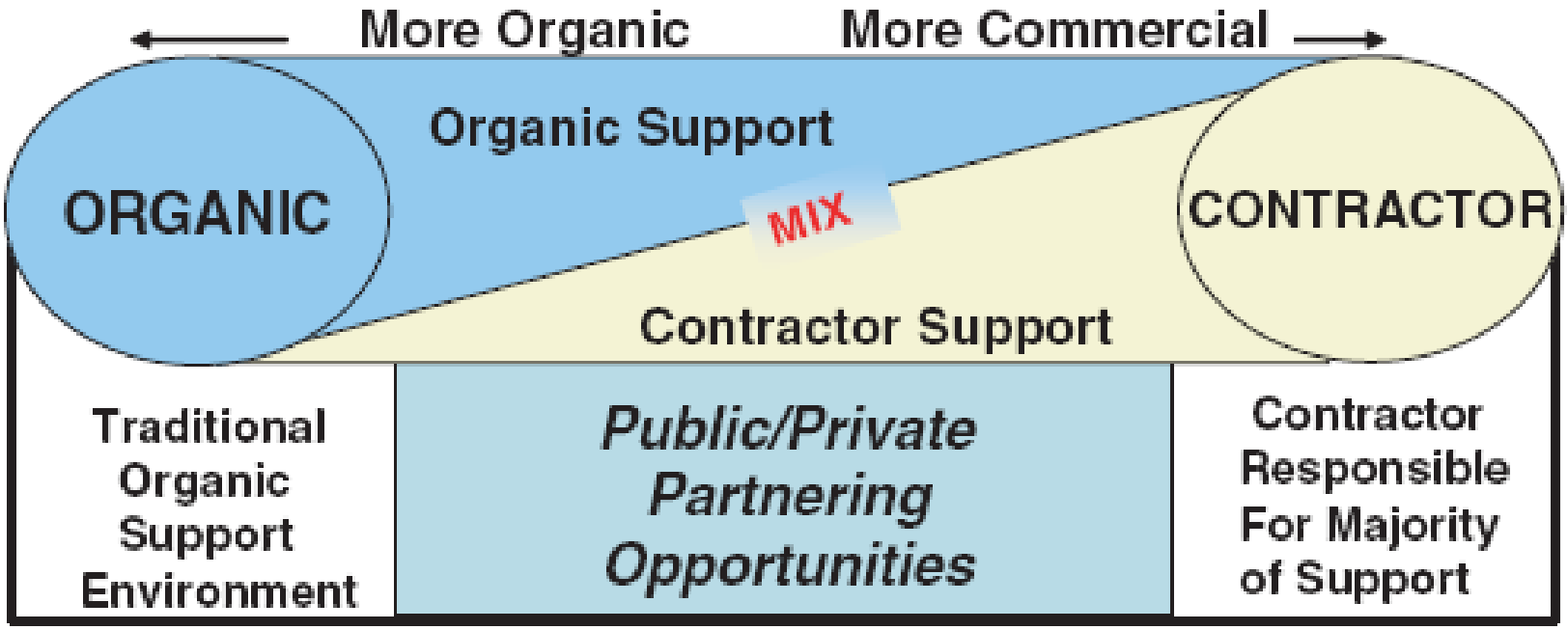
Notional Depiction of Costs relative to Life-Cycle Phase, from Defense Acquisition Guidebook, USD (AT&L). November 2004.

Strategic Questions for Programs

Goal: Maximum Readiness at Least Cost

- **Effectiveness and Efficiency**
  - **Performance-Based Logistics to implement in Ks**
- **Logistics Strategy**
  - **Who performs what?**

Spectrum of Strategy Options



Defense Acquisition University (DAU). (2005, March). *Performance based logistics: A program manager's product support guide.* Fort Belvoir, VA.

Logistics Strategy Costs and Benefits

- **CLS - Significant contracting efforts/expertise**
  - **Reduced Government organizational burden**
  - **Reduced Government control**
- **OLS - Develop and retain skills, infrastructure**
  - **Bear the risk in resource allocation & distribution**
  - **Bear direct and indirect costs**
- **Blended - Disaggregation of same functions & requirements**
  - **Interdependent allocation of differing resource types**
  - **Challenges of interface & performance measurement**

Forecasting and Designing Strategies is Difficult

Strategy Analysis Clusters

- **System**
  - **Environment**
  - **CONOPS**
  - **Support Levels**
  - **Features**
- **Support Resources**
  - **Technical Knowledge**
  - **Technical Capability**
  - **Workforce Characteristics**
  - **Legal/Intellectual Property**

Trade-Off Study Comparison Criteria

Supportability Constraints:

- O&M staffing
- Skill levels
- O&S Costs
- System Failures/Level
- Mean Down time
- Turn-around Time
- Standardization
- Built-in Fault Diagnostics
- Transportability

Design Characteristics:

- Lifecycle cost
- Diagnostics
- Energy
- Battle Damage repair
- Transportability
- Facilities

Army Stryker Case Study

- Coryell (2004)
- Implementation of PBL
- Non-cost Factors Drive Strategy Shift
- Contracted to Blended for more flexibility and faster response time

Building a Logistics Support Resource Strategy Map

- **Any asset allocation model will depend upon a myriad of criteria, factors, variables**
- **Many unknowns in each functional area**
- **Decision analysis requires weighting each**
- **Literature reveals over 50 considerations that can be arrayed as a mapping tool/decision aid**

No ONE Best Strategy for ALL Programs

Logistics Support Resource Strategy Map

Importance of Criteria	Logistic Support Resource Strategy Criteria	Criteria Type	Logistic Support Requirement	Organic Logistic Support 0	1	2	3	4	Blended Logistic Support: 5	6	7	8	9	Contracted Logistic Support 10	Reasoning behind assessment	Locations of supporting information	Level of Support for CLS (range: 0-10)	Priority-weighted level of Support for CLS (range: 0-10)	Cumulative level of Support for CLS (range: 0 - no. of criteria used)
99	lack of attractiveness to contractors of providing logistic support	Business relations	all	Very High					--Balanced--					Very Low	Lack could be caused by low expected profit, high risk, little strategic value added to collector, etc.		0	0.00	0.00
99	legal and related vulnerability of CLS personnel	Program environment	all	Very High					--Balanced--					Very Low			0	0.00	
99	Difficulty of measuring logistic support performance	Business relations	all	Very High					--Balanced--					Very Low			0	0.00	
99	Risks associated with a new CLS contractor	Business relations	all	Very High					--Balanced--					Very Low	"Very High" may suggest using a known contractor as well as CLS		0	0.00	
99	CLS unit cost to provide logistic support operations	Cost	all	Very High					--Balanced--					Very Low	Consider relative workforce sizes, deployment lengths, impacts of competition		0	0.00	
99	CLS unit cost to supervise logistic support	Cost	all	Very High					--Balanced--					Very Low	Consider relative workforce sizes, deployment lengths, impacts of competition		0	0.00	
99	CLS unit cost to manage logistic support	Cost	all	Very High					--Balanced--					Very Low	Consider relative workforce sizes, deployment lengths, impacts of competition		0	0.00	
99	Cost of protecting non-military logistic support personnel	Cost	all	Very High					--Balanced--					Very Low	May change over time. Consider specifying "when" assumed in assessment.		0	0.00	
99	Difficulty of CLS asset transfer/support to other profitable uses	Cost	all	Very High					--Balanced--					Very Low			0	0.00	
99	few potential CLS suppliers / potential for gouging / size of profits paid to CLS	Cost	all	Very High					--Balanced--					Very Low			0	0.00	
99	DLS economies of scale (inverse of large economies of scale)	Cost	all	Very High					--Balanced--					Very Low	Suggested impact of assessment assumes CLS can better take advantage of economies of scale.		0	0.00	
99	Cost of contracting (bidding, contract setup, contract enforcement)	Cost	all	Very High					--Balanced--					Very Low			0	0.00	
99	Min. (fleet size & replacement rate) required to maintain continuous logistic support / (fleet size & replacement rate)	Cost	all	Very High					--Balanced--					Very Low	DLS with fleet size below min. can result in slack resources that increase costs over logistic needs. Assumes CLS can reallocate slack resources.		0	0.00	
99	Cost of monitoring and managing CLS relative to same for OLS	Cost	all	Very High					--Balanced--					Very Low			0	0.00	
99	Potential need for to shift government funds in response to changing conditions	Funding	all	Very High					--Balanced--					Very Low			0	0.00	
99	CLS access to improved technologies, business practices, commercial transportation, etc. relative to OLS	Information and technology	all	Very High					--Balanced--					Very Low			0	0.00	
99	Availability/affordability of reliability and/or maintainability data to DoD	Information and technology	all	Very High					--Balanced--					Very Low			0	0.00	
99	Availability/affordability of technical data to DoD	Information and technology	all	Very High					--Balanced--					Very Low			0	0.00	
99	DLS speed of deployment relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	DLS availability of cross-trained personnel	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quantity of DLS logistic support operations labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quality of DLS logistic support operations labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Flexibility of DLS logistic support operations labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quantity of DLS logistic support supervisory labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quality of DLS logistic support supervisory labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Flexibility of DLS logistic support supervisory labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quantity of DLS logistic support management labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Quality of DLS logistic support management labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Flexibility of DLS logistic support management labor pool relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	Maximum allowed DLS deployment duration relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low			0	0.00	
99	DLS ability to provide supply and support locations relative to CLS ability	Labor resources	all	Very High					--Balanced--					Very High			0	0.00	
99	Availability of logistic support operations resources by DLS relative to CLS	Labor resources	all	Very High					--Balanced--					Very Low	Consider flexibility in compensation, max possible deployment duration,		0	0.00	

<-- Sum of priority-weighted levels of support for CLS. Useful for comparing different logistic support resource strategies

LOGMAP.xls File is available at the ARP website

Examples of Criteria

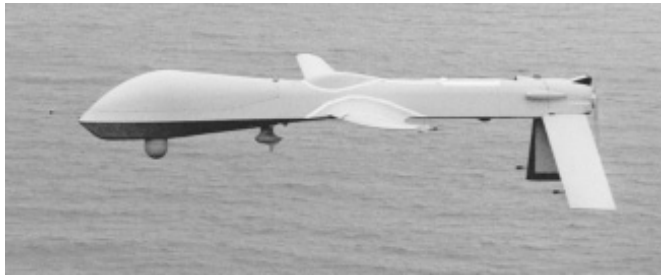
- Product simplicity (inverse of product complexity)
- Product immaturity (inverse of product maturity)
- Sensitivity of product information
- Risks associated with a new CLS contractor
- Cost of protecting non-military logistic support personnel
- Difficulty of CLS to transfer support to other profitable uses
- Dis-economies of scale (inverse of large economies of scale)
- Cost of contracting (bidding, contract setup, contract enforcement)
- Min. (fleet size & replacement rate) required to maintain continuous logistic support / (fleet size & replacement rate)
- Availability/affordability of technical data to DoD
- OLS speed of deployment relative to CLS
- OLS ability to provide supply and support locations relative to CLS ability
- OLS ability to provide required skills relative to CLS
- Risk of labor disputes

Criteria Assessment Weighting Factors

- Importance of Criterion
- Logistic Support Resource Strategy Criterion
- Criterion Type
- Logistic Support Requirement
- Degree of Program & Strategy Support
- Reasoning behind Assessment
- Locations of Supporting Information
- Degree of Support for Contracted Logistics Support
- Priority-weighted Degree of Support for Contracted Logistic Support
- Cumulative Degree of Support for Contracted Logistics Support

Application of the Tool

- **Phase I: Create Criterion/Requirements Sets for Assessment**
- **Phase II: Assess Criterion/Requirement Set Needs in Logistics Support Resources**
- **Phase III: Review, Discuss, and Revise Assessments from Different Perspectives**



Predator Case Study Provided as Detailed Example

(See ARP website, and)

http://www.rand.org/pubs/monographs/MG350/

Implications for Practice

- **Provides a framework for strategy assessment**
- **Provides support for improved assessment criteria identification**
- **Provides support for improved assessment quality**
- **Adaptable to many different types of programs**
- **High ease of use - widely used Excel® spreadsheet application**
- **High ease of understanding**
- **Provides documentation of assessments and rationale for decisions**

- **Caveats:**
  - **Illusion of objectivity**
  - **Lack of internal checks and balances**

    (User omissions and inaccuracies still possible)