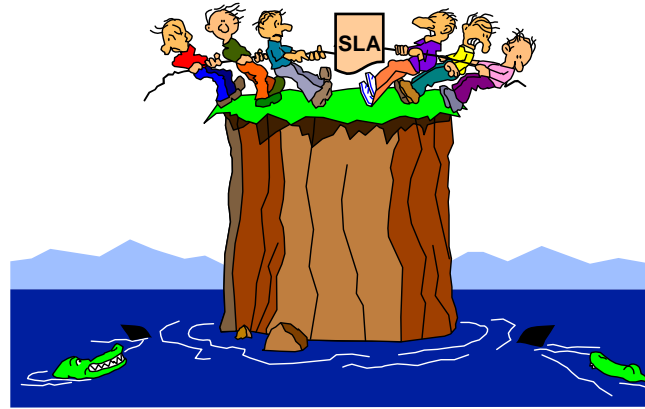


# Outcome-Driven Service Provider Performance under Conditions of Complexity and Uncertainty



*6<sup>th</sup> Annual Acquisition Research Symposium  
The Graduate School of Business & Public Policy, Naval Postgraduate School  
May 13-14, 2009 (Monterey, California)*

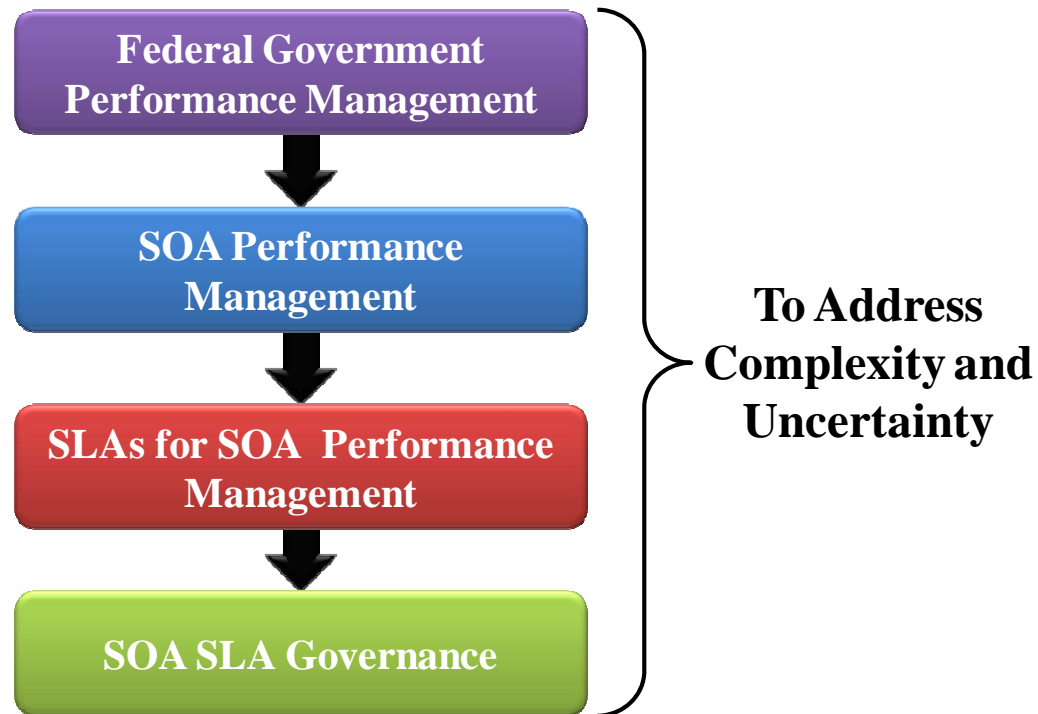
Stakeholder-Driven Performance Management  
Mission-Oriented Investigation and Experimentation (MOIE)

Kevin S. Buck, E523 ([kbuck@mitre.org](mailto:kbuck@mitre.org)), 443-636-5380

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# Agenda

- n Purpose and Context
- n Key Discussion Topics:



- n Conclusions
- n Questions?



# Purpose and Context

## □ Purpose

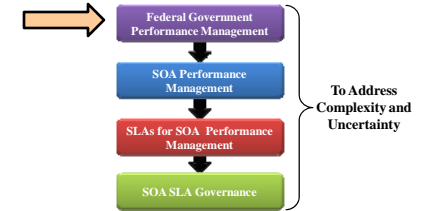
- Describe application of Return-on-Investment (ROI) analysis for SOA performance management
- Discuss use of SLAs to articulate agreements between the Government and external service providers in SOA environments
- Recommend an SLA Management governance framework

## □ Context

**Summarizes results-to-date of MITRE Corporation (MITRE) research efforts:**

- Stakeholder-Driven Performance Management
  - **K. Buck, L. Oakley-Bogdewic**
- SOA Performance Measures Expression in Performance-Based Acquisition (PBA) Vehicles
  - **D. Hanf, K. Buck**

# Performance Management – Federal Focus



## ❑ Objectives must be outcome-driven

- Complying with performance reporting is insufficient
- Derive outcomes from stakeholder-articulated statements
  - **Mission, vision, and strategic/transition**

## ❑ Use a shared responsibility model

- Program/portfolio/contract managers all have vested interest

## ❑ Federal government has a lackluster performance management track record

- Clearest evidence: failed programs (failure to deliver or significant over-budget/over-schedule delivery)

## ❑ Performance management is challenging for the federal government

- Challenges became greater with dependencies on non-controlled resources, e.g., networks
- Service-Oriented Architecture (SOA) significantly increases dependencies
  - **Uncertainty and/or complexity increase**
  - **Data and functions now added to the non-controlled resource pool**



□ Key hypotheses

<i>If</i>	<i>Then</i>	<i>So,</i>
<p><b>Complexity</b>      ↑</p>	<p><b># of moving parts and relationships</b>      ↑</p>	<p><b>Focus more on interdependencies</b></p>
<p><b>Uncertainty about the future</b>      ↑</p>	<p><b>Chances of reducing uncertainty over time</b>      ↑</p>	<p><b>Plan for contingencies and garner flexibility</b></p>
<p><b>% of DoD IT spending contracted out</b> <sup>[1]</sup> = 79.3%</p>	<p><b>Contract performance impact on IT performance</b> = <i>significant</i></p>	<p><b>Manage IT delivery as a tight linkage between contract and overall performance</b></p>

<sup>[1]</sup> Paul A. Strassmann, *Budgeting DoD Information Technologies*, 11 September 2008

# SOA Performance Management

## SOA definition

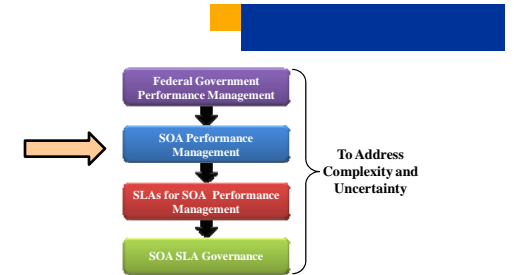
- An architectural approach used to build solutions
- Consists of a set of services, service consumers, service producers and mechanisms for discovery and establishing contracts

## SOA helps organizations share resources, and it increases:

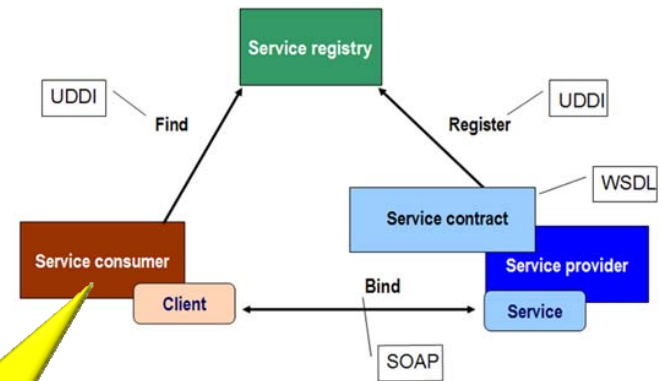
- Acquisition complexity: multiple relationships to manage
- Uncertainty regarding when resource needs change

## SOA performance management challenges:

- Expecting savings without analysis
- Understanding the SOA lifecycle
- Measuring non-fiscal returns
- Managing expectations
- Effectively managing SOA is resource-intensive
- Integrating multiple perspectives
- Establishing stakeholder targets



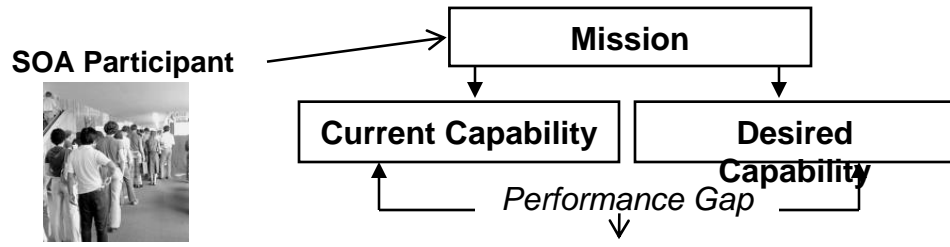
## SOA Construct



Many more with Differing needs

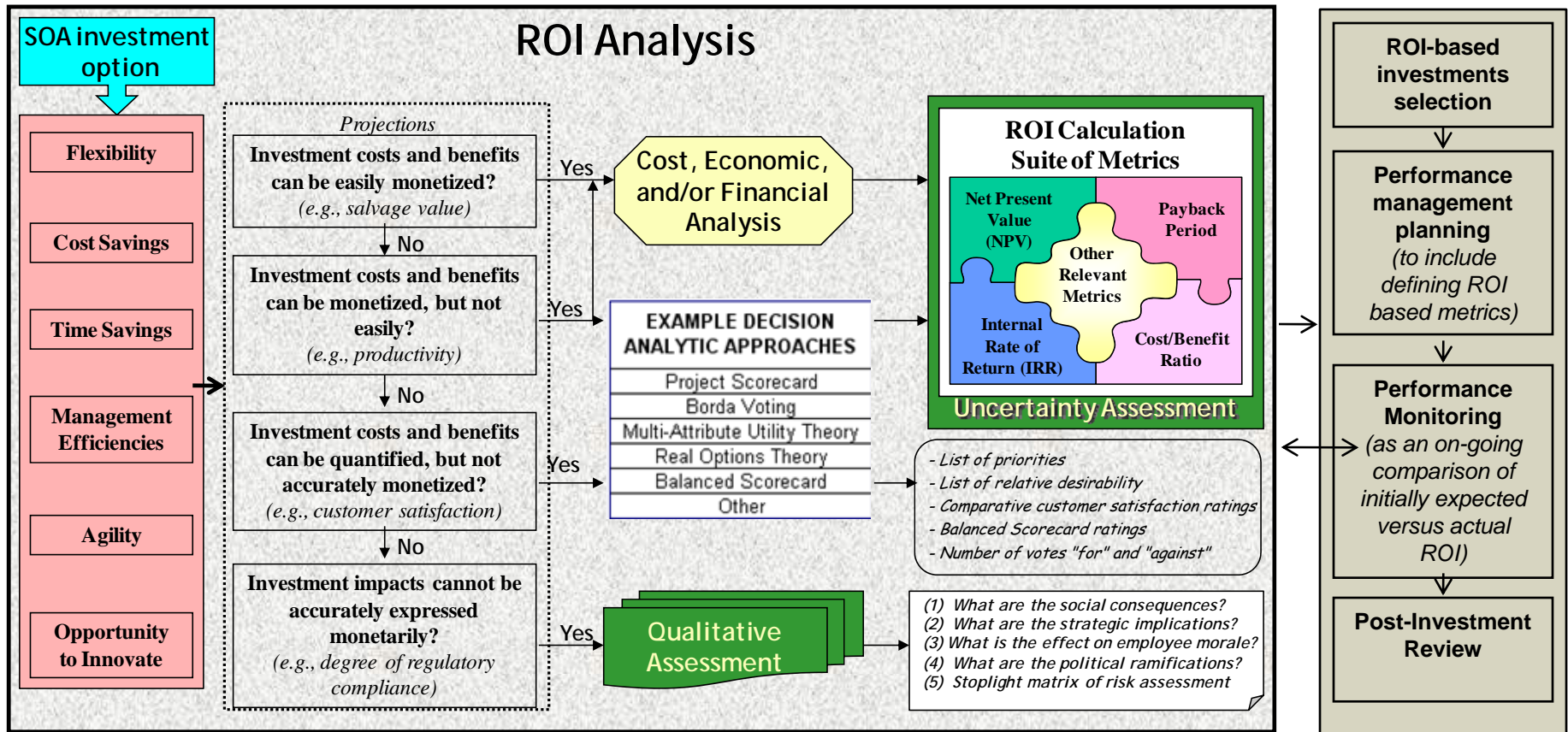
SOAP = Simple Object Access Protocol  
 UDDI = Universal Description, Discovery, and Integration  
 WSDL = Web Services Description Language

Without credible and relevant benchmarks for what performance can be expected from your SOA participation, how will you assess SOA performance?



*ROI calculation = what we learned in finance class*

*ROI analysis = ROI calculation + assessment of intangibles*





# Applying SLAs to Manage SOA Service Provisioning



- SLAs are a means to establish performance-related agreements between service providers and consumers
- An SLA is a formal negotiated agreement between two parties
  - A “contract” between customers and their service providers
  - Records the common understanding about service features
- **Government experiences in applying SLAs:**
  - Results have been mixed, often depending on whether the SLAs were:
    - n **Consistently applied, maintained and updated**
    - n **Managed with awareness of interdependent SLAs’ performance needs**
    - n **Computer transaction-based vice an accurate vehicle for consumer-provider communication**
  - “Losing the forest for the trees”
    - n **SLA administration focus vice continuous assessment as to whether desired outcomes are being achieved**





# Applying SLAs to Manage SOA Service Provisioning

## □ Transactional versus Relational SLAs

- Transactional
  - Measures moment-in-time performance indicators (e.g., throughput), typically in an automated fashion
- Relational
  - Why performance levels are needed
  - Parties' agreement about performance standards
  - Rationale for thresholds
  - Recourse for performance lapses

<b>Relational SLA Elements</b>	
<b>CONTEXT</b>	
Purpose/Background	
Stakeholders and how this SLA supports their needs	
Service Interdependencies	
<b>SCOPE OVERVIEW</b>	
Business Scope and Objectives	
<b>SERVICE DESCRIPTIONS</b>	
<b>KEY PERFORMANCE INDICATORS</b>	
Service Levels/Performance Metrics	
Data Requirements	
Security Management	
Workload Constraints	
Severity and Priority Levels	
<b>ROLES AND RESPONSIBILITIES</b>	
<b>RECOURSE/REWARD SCHEME</b>	
Excused Performance	
Escalation Procedures	
Service Level Bonuses/Penalties	
<b>REPORTING GUIDELINES AND REQUIREMENTS</b>	
Required Performance Reports	
Update Procedures	
Issues Management Procedures	
<b>GLOSSARY OF TERMS</b>	

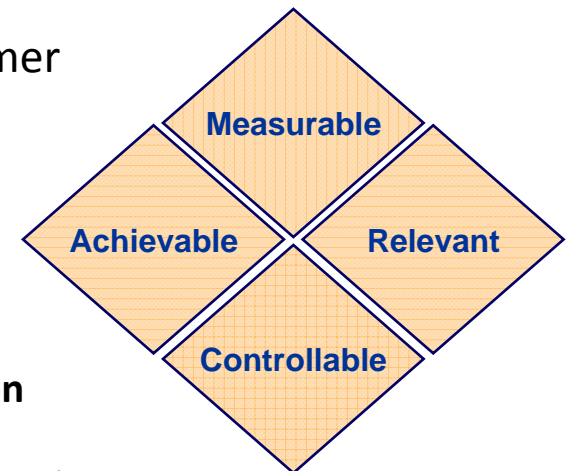
# Applying SLAs to Manage SOA Service Provisioning



- **SLAs are most effective if stated in measurable terms and include**
  - Stated expectations of outcomes
  - Derived Key Performance Indicators (KPIs) with outcome-supported service levels
  - Defined measurement mechanisms and what determines “success”
  - Parties involved and their responsibilities
  - Reporting guidelines and requirements
  - Service provider incentives for meeting agreed-upon levels of quality

- **Checklist for determining if SLAs are effectively supporting objectives:**

- SLAs articulate a definitive performance provider-consumer agreement
- SLAs clearly align with overall enterprise performance objectives
  - **Align decision frameworks, documents, and contract artifacts**
  - **Involves diligent configuration control and communication**
- SLAs allow for re-negotiation if future conditions significantly change





# Applying SLAs to Manage SOA Service Provisioning

## □ Key reasons for SLA failure:

- Lack of well-defined requirements at the time of RFP issuance
- When performance interdependencies exist, each party must have solid data on its own performance to counter challenges

## □ Key SLA lessons learned [1] :

[1] "The Outsourcing Revolution, 2004: Protecting Critical Business Functions", J. Delaney

- Agree to pre-existing service levels
  - n **Some Government agencies agree that the required service levels will be set at pre-existing performance levels. By doing so, they preserve the current service that the new contract was designed to improve**
- Agree to service levels before contract award
  - n **There is little incentive to uphold post-contract award agreements**
- Do not agree to fix service levels at initial provider performance
  - n **This reduces flexibility and incentive to get better performance if future needs are not known**
- State incentives appropriately
  - n **Ensure incentives reinforce positive behavior expectations**
- Don't ask for the moon
  - n **Performance should be critically examined and consider cost drivers**



# Applying SLAs to Manage SOA Service Provisioning

## □ More key lessons learned

- Less is more—make SLAs simple and familiar
- Make SLAs measurable and actionable
  - n **Collect data to be acted on**
  - n **Predetermine actions to be undertaken when metrics fall short**
- Detail the unusual areas and boiler plate the rest
  - n **“Must haves” should be articulated in the contract itself**
- Describe methods for withholding/reducing fee
  - n **Loss of business/productivity is rarely compensated directly**
    - Typically, a rebate proportional to the shortfall is used
  - n **SLAs typically include escalation procedures and conditions under which they are invoked**
- Incorporate contract language that allows SLAs to be changed
  - n **This language should tie to milestones as SLA changes may impact cost/schedule**



## SOA SLA Governance



- **SLA governance is the ongoing process of reviewing performance measures against stated goals and targets and reassessing SLA value**
  
- **The ultimate objectives of an SLA governance framework are to ensure:**
  - Performance standards are established to meet overall contract goals
  - SLAs continue to describe performance deemed critical to overall outcomes
  - SLAs and performance measures are prioritized
  - All activities and surveillance are undertaken as effectively as possible
  
- **What we are trying to avoid with an SLA Governance Framework?**

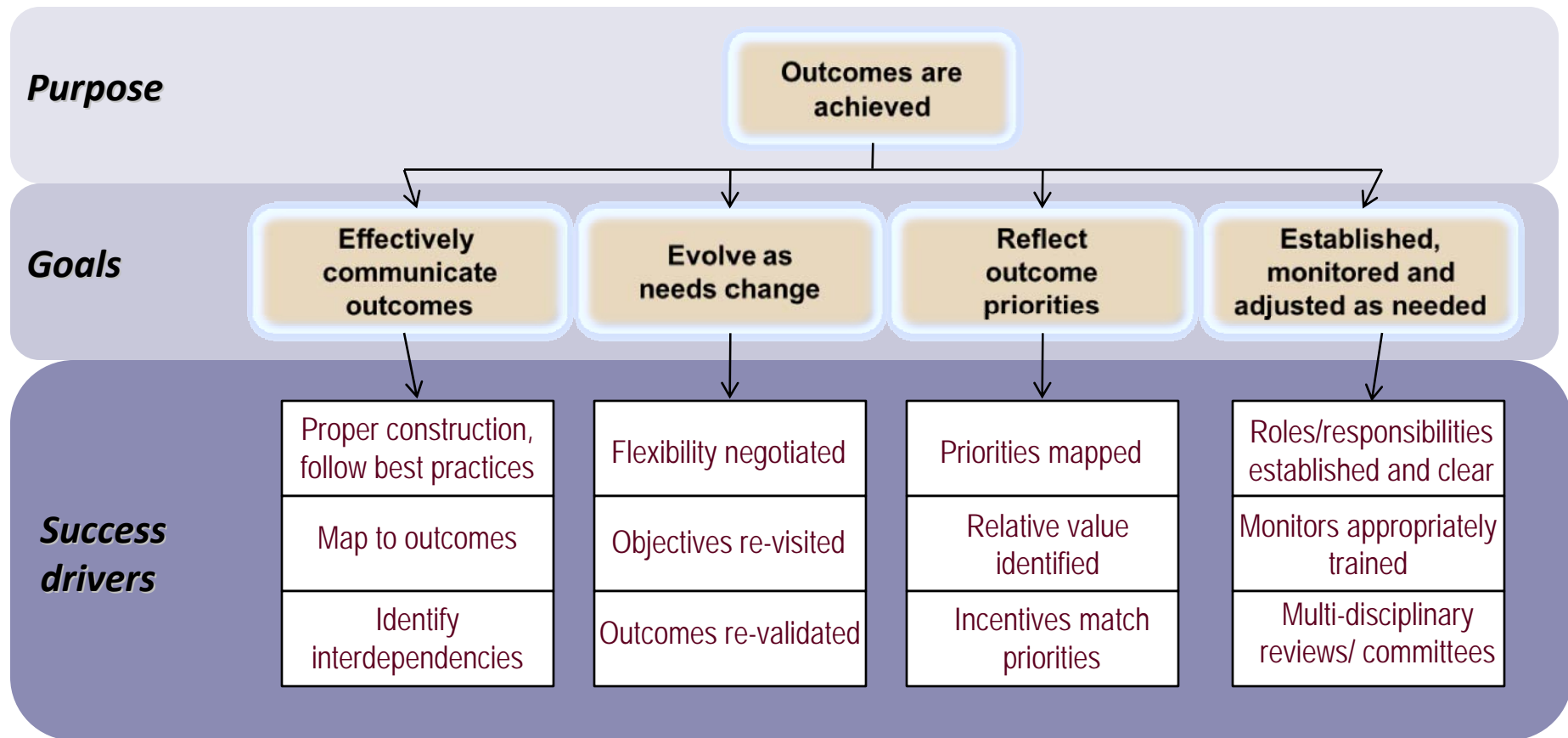
**Per the Government Accountability Office (GAO) in reviewing Navy-Marine Corps Intranet (NMCI) performance: “The Navy defined strategic goals for its NMCI program and developed a plan for measuring and reporting on achievement of these goals. However, the Navy did not implement this plan, choosing instead to focus on defining and measuring contractually specified SLAs. Program officials did not have performance data to demonstrate progress in relation to strategic goals. Without effective performance management, the Navy is increasing the risk that the program will continue to fall short of its goals and expected results.”**

*GAO-07-51, December 2006, pp. 18-19.*



SOA SLA governance goals and success drivers

## SLA Governance Framework



# SOA SLA Governance

- GAO report [1] on NMCI effort strongly suggests that downside risk associated with SLAs is “getting lost in the trees for the forest”

[1] GAO Report GAO-07-51. “DOD Needs to Ensure That Navy Marine Corps Intranet Program Is Meeting Goals and Satisfying Customers”

- Suggested SLA Governance Framework to ensure SLAs are effectively managed and align with expected outcomes:

