Operations and Maintenance – Not Just a Scaling Issue
Laurence Gill
Operations and Maintenance Environment
Challenges Facing O&M Projects - 1

- Supported applications are already developed and fielded
- Real time environment
  - Releases are typically added to a live system
- Typically part of multi-contractor team
  - May need to acquire some of the original developers
- 24-7 operation (actual or virtual)
- Responsible for overall system performance via Service Level Agreements
- High variability in workload
  - Help Desk Functions
  - Preventative Maintenance
  - Testing
  - Development
  - Release Management
Challenges Facing O&M Projects - 2

- There are few, if any, recognizable development activities that the organization controls that map to all of the engineering practices in the CMMI model

- Customer owns process
  - Contractors may be able to influence the process
  - Customer controls changes to the process
  - Customer owns tools that support the process
Breakthroughs

- Classic engineering is not a prime focus
  - Tier 1 help desk tickets are often administrative or training
  - System problems get fixed immediately
  - Content of releases is less critical than implementation into live environment

- Most O&M contracts are Level of Effort (LOE)
  - Changes to the customer system operate differently
  - Work force is pre-determined; requirements are based on size of team
  - Schedule needs to adjust to the world of the application or network

- Many processes are performed at two levels
  - Project management exists for the O&M contract and the specific customer application
  - Support processes support the contract artifacts and the application environment

- Two projects exist – ours and the one we perform for the customer
Framework for Implementing CMMI

Program Execution through:
- Skilled Resource Utilization (SRU)

Operations
- Analysis
- Other

Maintenance

SW Development
- Legacy
- New
- Single changes

Recruiting
Planning & Forecasting

Contracts

Process Control
Contractor

Customer

Process Management
Project Management
Support Processes
Engineering

Project Management
Engineering
Framework for Implementing CMMI - Below the Line

- Operations and Maintenance activities occur below the line
- Work performed at customer direction performs similar processes but for different purposes
- Validation determines whether the work we perform below the line meets customer expectations
The products being provided are resources capable of performing the work below the line.

All of the CMMI Process Areas are applicable above the line:
- People are products; Systems are the resources we provide (staff and supporting non-staff)
- Verification is against the requirements of the contract – not the verification activities performed for the customer

Processes above the lines are under our control.
# Above the Line Processes

<table>
<thead>
<tr>
<th>SRU Process</th>
<th>Process Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define the Work (DTW)</td>
<td>Identify customer needs and expectations and define project requirements.</td>
</tr>
<tr>
<td>Design the Staffing (DTS)</td>
<td>Develop a resource solution that will address the requirements of the contract and the expectations of the customer – with an understanding of a real-time variable-workload environment using LOE resources.</td>
</tr>
<tr>
<td>Define Project Approach (DPA)</td>
<td>Develop plans and processes to be used to manage the resources provided to the customer.</td>
</tr>
<tr>
<td>Fill the Position (FTP)</td>
<td>Acquire the staff and non-staff supporting resources to perform the services.</td>
</tr>
<tr>
<td>Monitor the Project (MP)</td>
<td>Manage the requirements of the project.</td>
</tr>
</tbody>
</table>
Implications to the Business

- Create breadth versus depth in staffing solution – virtual workforce
- Have to know best practices for below the line – influence
- Leading indicators to performance
  - Key performance indicators for staffing
  - Cannot ignore leading indicators for SLAs
- Develop multiple alternatives to provide services and select the one that best addresses the contract and environment
- Understanding what is required below the line is key to success above the line
Summary

- With our business-tailored interpretation of the CMMI we were able to apply best practices to the entire project, not just small bundled releases.
- We were able to identify the O&M environmental challenges and develop a business solution that can be applied to our entire enterprise:
  - Organizational standardization of processes
  - Project’s defined process
- By separating the tasks we control from those that we don’t, we were able to develop a better framework for implementing the best practices using the CMMI.
- The processes developed mirror our business.
- For more information about the implementation of the engineering process areas, join Kathy King tomorrow for the Engineering in a Non-Development Environment presentation.
Contact Information

- Laurence Gill – BAE Systems Information Technology  
  – larry.gill@baesystems.com
- Thomas Zience - BAE Systems Information Technology  
  – thomas.zience@baesystems.com