

Successful Implementation of Process Improvement in Small Organizations

*NDIA Conference
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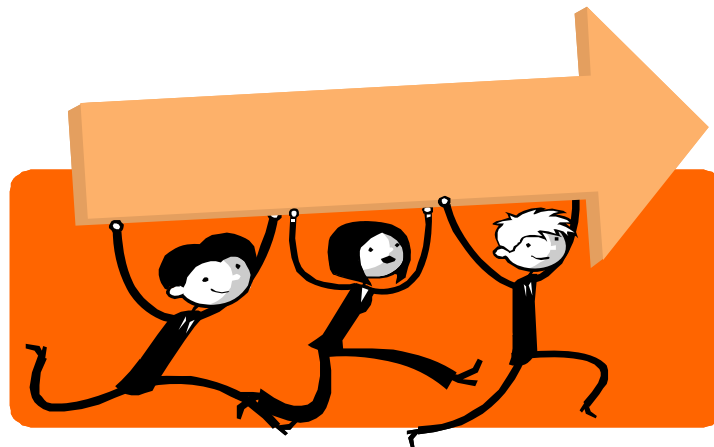
Agenda

- ▶ **Overview**
- ▶ **Background**
- ▶ **Discussion Topics**
- ▶ **Q&A**



Overview

- ▶ **This presentation will address through practical insight and experience two examples of small projects/organizations that have implemented process improvement with organizations made up of 20 or less employees.**
- ▶ **During the presentation, the following will be discussed on implementing process improvement within a small organization:**
 - Lessons Learned
 - Cultural Impacts
 - Burdens and Benefits.



Background – Mentor-Protégé

- ▶ **Mentor-Protégé Programs are emerging tools to assist the Federal Government in developing small business capabilities.**
- ▶ **Booz Allen Hamilton has been able to provide support to the Mentor-Protégé Programs by providing resources from our internal Process Improvement Organization to work directly with the small projects that are part of the Program.**



Background – Mentor-Protégé

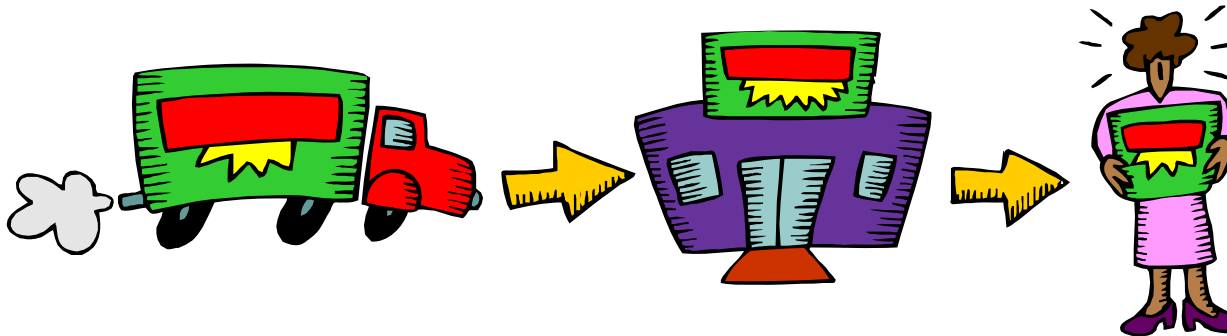
- ▶ **Booz Allen is working to increase the number and quality of small businesses that are available for teaming and subcontracting opportunities with prime contractors, and Mentor-Protégé agreements assist with this effort.**
- ▶ **There have been several protégés that Booz Allen has been able to mentor in the area of CMMI.**
- ▶ **For discussion purposes, the two Protégés highlighted in this presentation will be called Company A and Company B.**

Background – Company A

- ▶ **Booz Allen began working with Company A as part of the U.S. Air Force Mentor-Protégé program in 2004. Initially the mentoring support was in the area of Enterprise Resource Planning.**
- ▶ **Company A is a small (disadvantaged) business in the IT service market that had a corporate goal of institutionalizing a set of organizational standard software engineering processes to enable a successful SEI-CMMI level 2 appraisal in order to be a stronger competitor in the commercial and government marketplace.**
- ▶ **Company A had been unable to implement a PI program themselves due to a lack of trained staff, and had been hindered in a number of competitive bids due to a lack of an SEI-CMMI rating.**

Background – Company A (continued)

- ▶ Throughout the course of working with Company A, the team realized the importance of assisting Company A in developing a CMMI-based process improvement program in order to support their Air Force market strategy. This was a natural addition to the other work they were doing at the time.
- ▶ Company A made achieving CMMI ML2 a corporate level commitment with full sponsorship by the senior management.



Background – Company B

- ▶ **Company B is a woman-owned, 8(a) certified small business specializing in software and systems engineering professional services, dedicated to becoming an industry leader in the Federal Government Intelligence Community (IC) sector.**
- ▶ **Company B has corporate goals of maturing and broadening their technologies and capabilities, as well as maturing their processes and achieving a successful SEI-CMMI level 2 assessment.**
- ▶ **Meeting these goals will help them to become a prime contractor on moderately sized DOD projects within three years.**

Background – Company B

- ▶ **Booz Allen Hamilton and Company B have an excellent, well-established working relationship on several current contracts at DOD and as a result have a solid understanding of each other's business practices and technical services.**
- ▶ **In October 2007 Booz Allen and Company B entered into a formal mentor-protégé agreement, and resources from Booz Allen's Process Improvement Program were tasked to mentor the organization in their process improvement initiatives using the work with Company A as a template.**
- ▶ **A SCAMPI B was conducted in November 2007 to gain insight into existing processes and documentation, and an action plan was created to determine next steps.**

Background - Goals

▶ **Key objectives of the efforts included:**

- Provide ongoing gap analyses of the company's software development processes and identifying focal points for Process Improvement efforts.
- Train key personnel in the best practices of the SEI CMMI level 2 and level 3 processes areas.
- Develop, with the companies, a core set of documentation and an OSP for software engineering.
- Guide the companies towards institutionalizing managed and defined processes.
- Assist with improving accuracy of delivery schedule.
- Assist with reducing the number of deliverable defects.
- Help to ensure the customer has additional insight to project activities and work performed.

Implementation Topics

The following topics will be presented:

- 1. How the process improvement efforts were initiated within the organizations**
- 2. The initial approach for how the necessary activities were accomplished**
- 3. How the existing documentation was merged with templates and examples provided by outside resources**
- 4. The impact of few available resources on the initiative**
- 5. Challenges faced**
- 6. Benefits realized.**

Topic 1

▶ Initiating process improvement efforts within the organizations

- Initiating:
 - *Training*
 - *Process Development*
 - *Resource allocation and assignment*
- Defining and setting expectations:
 - *With the team*
 - *With the client.*



Initiating Process Improvement Efforts – Company A

- ▶ **Gauged the company's existing organizational level of process institutionalization and the organizational culture required to effectively and efficiently deploy PI**
- ▶ **Selected a project to pilot the processes**
- ▶ **Obtained support from the client, sponsor and project team**
- ▶ **Created a Process Improvement Plan, noting the milestones it would take to get to ML 2 and what would be required of the organization and project staff**
- ▶ **Ensured everyone understood what it meant to be 'CMMI Compliant'**
- ▶ **Conducted a SCAMPI B of four process areas (PP, PMC, REQM, CM) to determine what (if anything) was being implemented and what gaps existed.**

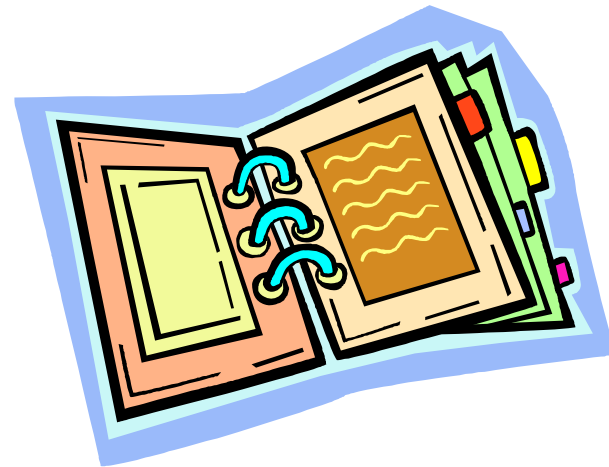
Initiating Process Improvement Efforts – Company B

- ▶ **Conducted CMMI training for the mid/high level management**
- ▶ **Conducted a SCAMPI B**
- ▶ **Began defining PIO infrastructure.**
- ▶ **The projects were determined early on prior to our involvement**
- ▶ **Began developing processes around ML 2 PAs**
- ▶ **A project sponsor was appointed**
- ▶ **The owners of the company were actively involved at the onset**

Topic 2

▶ **The initial approach for how the necessary activities were done**

- Setting up infrastructure
- Which processes to develop first
- Which training to conduct first
- Conducting planning activities before the process components were put in place.



Initial Approach – Company A

- ▶ **Began developing processes around ML 2 PAs with a focus on Project Management, Requirements and CM**
- ▶ **Provided training to all of organization's project managers on Project Management, and everyone else on Configuration Management, Measurement & Analysis, Requirements Management, and Quality Assurance**
- ▶ **Conducted another SCAMPI B six months later, still focusing on 4 PAs (PP, PMC, REQM, CM)**
- ▶ **Set the foundation for the EPG and OSP.**

Initial Approach – Company B

- ▶ **Began developing processes for ML 2 PAs**
- ▶ **Had preliminary discussions and planning to establish an EPG and MSG**
- ▶ **Already beginning to implement Agile so the intent is to make use of that effort**
- ▶ **Provided established planning templates that have been vetted to the management team (PMP – Small Tactical plan, PMP Workbook, etc.).**

Topic 3

▶ Existing documentation and artifacts

- Determining what existing processes should be kept
- Incorporating those processes into the newly developed set of processes
- Review of the processes by the organization prior to implementation.
- Changes made as a result of the review.



Existing Documentation – Company A

- ▶ Existing documentation was rudimentary and inconsistent
- ▶ Standard Operating Procedures weren't documented, and basic fundamentals of software development documentation didn't exist
- ▶ Provided a set of processes and templates based on a 'clean list'
- ▶ Helped them tailor the processes/templates that we provided, and helped them also create new templates that were more focused on their needs
- ▶ Kept in mind the end-goal of institutionalizing process across the organization, so made processes generic enough to make up the OSP
- ▶ Focused on industry best practices.

Existing Documentation - Company B

- ▶ **An Agile working group had recently been established, however no processes existed or were being implemented**
- ▶ **A web portal existed that had potential use for organizational repositories**
- ▶ **Developed a Small/Tactical Plan template to consolidate the amount of planning documentation**
 - Developed a corresponding plan workbook that housed all of the project's planning data
 - Held ongoing reviews during the development of the Small/Tactical Plan template with the relevant stakeholders.

Topic 4

▶ **The impact of few available resources on the initiative**

- How the project team was affected by the process development and implementation
- How the client was affected by the process development and implementation
- Lessons learned.



Resources – Company A

- ▶ **Project was small and utilized over half of the office's resources.**
- ▶ **Many people had to wear two hats**
- ▶ **We had to ensure objectivity with QA**
- ▶ **Worked on-site with the project staff**
- ▶ **Everyone played a part in the successful implementation of CMMI processes on this project.**

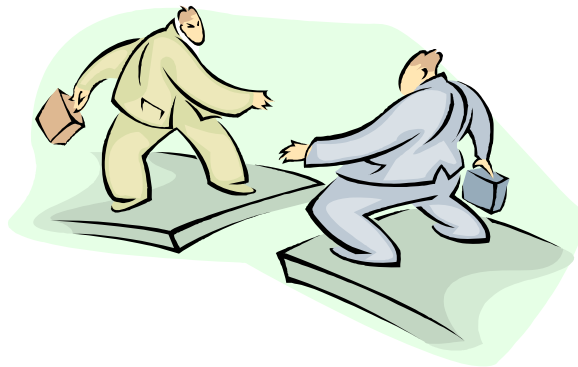
Resources – Company B

- ▶ **A project sponsor was appointed by the company owners**
- ▶ **The project selected was small and fluid**
- ▶ **A lesson learned early on was that we needed to bring more stable projects into scope**
- ▶ **Establishing MSG – management oversight for all process activities**
- ▶ **Establishing EPG – process oversight from an org perspective.**

Topic 5

▶ Additional challenges faced

- The kinds of challenges and how we dealt with them
- How the challenges were communicated to the client.



Challenges – Company A

- ▶ **Learning curve**
- ▶ **Size of the project**
- ▶ **Resource availability**
- ▶ **The Project Manager**

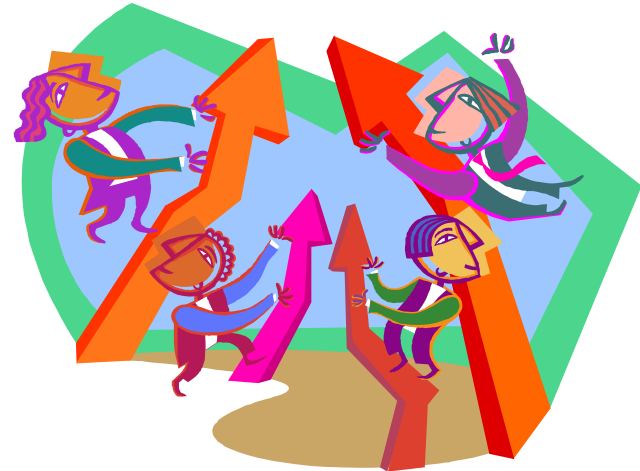
Challenges – Company B

- ▶ **Resources to support this effort**
- ▶ **Small project size**
- ▶ **Transient project team**
- ▶ **Geographically dispersed resources**
- ▶ **Personality issues**

Topic 6

▶ The benefits realized

- External benefits:
 - *Improved deliverables*
 - *Delivery on-time, within budget*
 - *Fewer defects*
- Internal benefits:
 - *Improved planning*
 - *Better communication*
 - *Culture changes.*



Benefits – Company A

▶ **Customer**

- Improved customer trust and working relationship
- Customer likes being able to have insight into the project and work to a schedule
- Program Reviews have been a big help in managing customer expectations

▶ **Deliverables**

- Code deployment greatly improved
- Code quality released into production with fewer defects

▶ **Process Improvement**

- Defined logical and practical processes help people do their job
- Team makes more effective use of time
- Team now better able to manage by data (quantitative) vice feel (qualitative)

▶ **Visibility from Senior Management**

Benefits – Company B

- ▶ **Small company allows to make adjustments/changes easily. Easy approval and communication of change.**
- ▶ **They see a benefit of having more standard consistent deliverables (fewer defects, built on organizational standards, products peer reviewed and QA'd prior to delivery).**
- ▶ **Although still in early stages of PIO implementation, the organization can see where benefits will be realized as they progress.**
 - Establishing the MSG
 - Establishing the EPG
 - Establishing organization level QA and CM functions that support all projects as a standardized approach.

Questions?



Thank You.

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- ▶ **Booz Allen Hamilton has been at the forefront of management consulting for businesses and governments for over 90 years. Booz Allen, a global strategy and technology consulting firm, works with clients to deliver results that endure.**
- ▶ **With more than 19,000 employees on six continents, the firm generates annual sales of \$4 billion. Booz Allen provides consulting services in strategy, operations, organization and change, and information technology to the world's leading corporations, government and other public agencies, emerging growth companies, and institutions.**
- ▶ **To learn more about the firm, visit the Booz Allen Web site at www.boozallen.com. To learn more about the best ideas in business, visit www.strategy-business.com, the Web site for strategy+business, a quarterly journal sponsored by Booz Allen.**

Biographies

- ▶ **Rose Clark** has been working in the Information Technology industry for over ten years as a software engineer, business analyst, project manager, and consultant in several industries including health, information systems, and military supporting commercial and government clients. More recently, she has served as a Process Engineer assisting project both internal and external to the organization in reengineering their processes to be compliant with the CMMI. She is currently employed as an Associate with Booz Allen Hamilton with responsibilities in software process improvement and process mentoring.
- ▶ **Don Collins** has been working in the Information Technology industry for over twenty years as a software engineer, business analyst, project manager, Director and consultant in several industries including finance, health insurance, distribution, telephone and pharmaceutical, supporting commercial and government clients. He is currently employed as an Associate with Booz Allen Hamilton also with responsibilities in software process improvement and process mentoring.