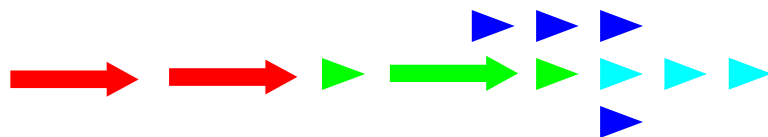


Applied CMMI-SVC: Identifying Service Systems and Improving Service System Capability

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Importance of Service Systems

- A significant majority of the world's economy is based upon service delivery
- Design, development, and manufacturing product quality are all highly influenced by the quality of supporting service systems (e.g., management services)
- Basically, the overall success of any mission, company, organization, or agency is a direct function of the success of its internal services

Service Systems in Software and Technology Organizations

- Help desk and client support services
- Information technology support services (network support, etc.)
- Independent verification and validation services
- Program and project management services
- Systems integration services
- Education and training services
- Documentation, editing, and publishing services

Service Systems in Software and Technology Organizations

- Human resources services
- Purchasing and acquisition services
- Subcontract management services
- Business development services
- Opportunity capture services
- Sales and marketing services
- Client relationship management services

Challenges in Improving Service Systems

- Clearly identifying and defining service system boundaries
- Clarifying service system interfaces
- Managing service system operations and service delivery
- Implementing new or dramatically enhanced service systems
- Measuring service system performance

Overview of CMMI-SVC

- Purpose: To define and describe a set of best practices for improving the likelihood of success in service-intensive organizations
- Based on the legacy CMMI-DEV (Capability Maturity Model Integration -- Development), which in turn was based (in part) on the Software CMM (Software Capability Maturity Model)
- Relatively recent addition to the CMMI family (v1.3 released November, 2010)

CMMI-SVC Maturity Level 2

- Requirements Management
- Work Planning
- Work Monitoring and Control
- *Service Delivery*
- Supplier Agreement Management
- Configuration Management
- Process and Product Quality Assurance
- Measurement and Analysis

CMMI-SVC Maturity Level 3

- *Capacity and Availability Management*
- Decision Analysis and Resolution
- *Incident Resolution and Prevention*
- Integrated Work Management
- Organizational Process Definition
- Organizational Process Focus

CMMI-SVC

Maturity Level 3 (cont.)

- Organizational Training
- Risk Management
- *Service Continuity*
- *Service System Development*
- *Service System Transition*
- *Strategic Service Management*



Service Delivery

- Purpose: The purpose is Service Delivery is to deliver services in accordance with service agreements

Service Delivery (cont.)

- SG1: Service agreements are established and maintained
- SG2: Preparation for service delivery is conducted
- SG3: Services are delivered in accordance with service agreements

Service System Development

- Purpose: The purpose of Service System Development is to analyze, design, develop, integrate, verify, and validate service systems, including service system components, to satisfy existing or anticipated service agreements

Service System Development (cont.)

- SG1: Stakeholder needs, expectations, constraints, and interfaces are collected, analyzed, and transformed into validated system requirements
- SG2: Service system components are selected, designed, implemented, and integrated
- SG3: Selected service system components and services are verified and validated to ensure correct service delivery

Incident

Resolution and Prevention

- Purpose: The purpose of Incident Resolution and Prevention is to ensure timely and effective resolution of service incidents and prevention of service incidents as appropriate

Incident

Resolution and Prevention (cont.)

- SG1: Preparation for incident resolution and prevention is conducted
- SG2: Individual incidents are identified, controlled, and addressed
- SG3: Causes and impacts of selected incidents are analyzed and addressed



Service Continuity

- Purpose: The purpose of Service Continuity is to establish and maintain plans to ensure continuity of services during and following any significant disruption of normal operations

Service Continuity (cont.)

- SG1: The essential functions and resources on which services depend are identified and documented
- SG2: Preparations are made for service continuity
- SG3: The service continuity plan is verified and validated

Capacity and Availability Management

- Purpose: The purpose of Capacity and Availability Management is to ensure effective service system performance and ensure that resources are provided and used effectively to support service requirements

Capacity and Availability Management (cont.)

- SG1: Preparation for capacity and availability management is conducted
- SG2: Capacity and availability are monitored and analyzed to manage resources and demand

Strategic Service Management

- Purpose: The purpose of strategic service management is to establish and maintain standard services in concert with strategic needs and plans

Strategic Service Management (cont.)

- SG1: Strategic needs and plans for standard services are established and maintained
- SG2: A set of standard services is established and maintained

Service System Transition

- Purpose: The purpose of Service System Transition is to deploy new or significantly changed service system components while managing their effect on ongoing service delivery

Service System Transition (cont.)

- SG1: Preparation for service system transition is conducted
- SG2: The service system is deployed to the delivery environment

Essentials of Mission/Business Success

- Understand requirements and constraints
- Plan for intended and unintended events
- Deliver value (cost effectively)
- Pay attention objectively
- Manage incidents responsively
- Identify and manage risks
- Ensure quality of services and products

Solutions for Improving Service Systems

- *Challenge:* Clearly identifying and defining service system boundaries
- *Challenge:* Clarifying service system interfaces
- *Challenge:* Managing service system operations and service delivery
- *Challenge:* Implementing new or dramatically enhanced service systems
- *Challenge:* Measuring service system performance

Solutions for Improving Service Systems

- *Challenge:* Clearly identifying and defining service system boundaries
 - A service system is ultimately a mental model and, hence, it is exactly what you define it to be
 - “Service system” boundaries are always a function/interpretation of the viewer
 - Find at least 3 people who “should” have consistent views and ask each to individually define/describe the system

Solutions for Improving Service Systems

- *Challenge:* Clearly identifying and defining service system boundaries (cont.)
 - The boundaries of a service system can be defined in terms of
 - Actors and clients (who is inside / outside the service system?)
 - Achieving discrete product states, such as product design, completion, delivery, transformation, or enhancement
 - Physical boundaries (e.g., “the entire fourth floor”)

Solutions for Improving Service Systems

- *Challenge:* Clearly identifying and defining service system boundaries (cont.)
 - Key issue: *It is extremely difficult to improve what you can't see*
 - Use any methods or techniques you like, but it is critical to "establish and maintain" your view of your service system(s)
 - Wireframe diagrams?
 - Storyboards?
 - PowerPoint-ware?

Solutions for Improving Service Systems

- *Challenge:* Clarifying service system interfaces
 - Unless the service system(s) are defined and documented it is nearly impossible to successfully identify all service system interfaces
 - Service system interfaces are highly subject to interpretation—hence, try to identify and include a variety of perspectives/personnel

Solutions for Improving Service Systems

- *Challenge:* Clarifying service system interfaces (cont.)
 - Criteria for successful interface management include:
 - Clear and common understanding of service system requirements (actors and clients)
 - No gaps in coverage or ownership between interacting service systems

Solutions for Improving Service Systems

- *Challenge:* Clarifying service system interfaces (cont.)
 - Criteria for successful interface management include (cont.):
 - No conflicting or competing actions between interacting service systems
 - Preemptive actions for identifying changes in external and internal system to system interfaces

Solutions for Improving Service Systems

- *Challenge:* Managing service system operations and service delivery
 - Services, by definition, are intangible
 - Managing services is almost entirely about managing “people quality” vs. “product quality”
 - Management without measurements or evidence is extensively influenced by subjectivity and impulsiveness

Solutions for Improving Service Systems

- *Challenge:* Managing service system operations and service delivery (cont.)
 - Measuring the performance of people is extremely challenging--and sometimes dangerous to the organization due to unintended consequences
 - Consider measurements that focus on the client experience, but keep in mind these are trailing indicators (and leading indicators are always preferred)

Solutions for Improving Service Systems

- *Challenge:* Implementing new or dramatically enhanced service systems
 - Pilot new service systems in an obscure corner of your client community
 - Ensure your “beta-test” clients are receptive to participating in an experiment
 - Truly listen to feedback

Solutions for Improving Service Systems

- *Challenge:* Implementing new or dramatically enhanced service systems (cont.)
 - Do not release the pilot service system without
 - A clearly identified limited scope of impact (client perspective)
 - A defined transition strategy
 - A defined evaluation period
 - Documented criteria for success (of the pilot)

Solutions for Improving Service Systems

- *Challenge:* Measuring service system performance
 - Possibly one of the most powerful (and unrecognized) strategies for improving service systems is the use of measurements
 - Strive to ensure that measurements are sanitized—ultimately, it is your service system you are trying to measure, not the service providers

Solutions for Improving Service Systems

- *Challenge:* Measuring service system performance (cont.)
 - Focus on measuring consistently
 - Frequency of service requests (by category)
 - Timeliness of service responses (by provider category)
 - Effectiveness of service responses (from your perspective)
 - Perception of service responses (from the client perspective)

Solutions for Improving Service Systems

- *Challenge:* Measuring service system performance (cont.)
 - Also, as with most measurements, the current level of any of the above is likely not nearly as important as how it is trending
 - When designing a new potential measure, always put yourself in the role of the service providers—what would you think, and how would you feel, about this new measurement?

Summary of Key Points

- Virtually any organization is actually a “system of systems” organization
- You decide and define the scope, boundaries, and interfaces between your service systems
- Individual improvements within a given service system are certainly beneficial
- Nevertheless, it is essential to periodically take a multi-system perspective and seek multi-system improvements
- CMMI-SVC provides you with a source of best practices, but your view of, and strategy towards, service system improvement is likely best approached with a system-of-systems mindset



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Biographical Highlights

Dr. Bechtold is a senior consultant for Abridge Technology, a Virginia-based company he founded in 1996. **Abridge Technology is an SEI Partner** and is authorized to provide SEI licensed training and appraisal services. Dr. Bechtold is an SEI Certified Lead Appraiser for both CMMI-DEV and CMMI-SVC. He is also a Certified Instructor for both. Dr. Bechtold provides consulting, training, and support services in the areas of project management, process improvement, process definition, measurement, and risk management. Dr. Bechtold has assisted government and industry with implementing the Software CMM since 1992, the Acquisition CMM since 1996, and the CMMI since 2000. Dr. Bechtold's expertise spans organizations of all types and sizes, from multi-billion dollar companies and agencies to organizations with less than 20 personnel.