Process Improvement as Service System

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Agenda

- Context
- CMMI-SVC Definitions
- CMMI-SVC interpretation for Process Improvement
- Simplified Service Model
- Summary
Why this Presentation

- In our consulting practice we are often required to help organizations to establish effective and efficient process improvement infrastructure
- With limited resources and funding most clients want lean and flexible (agile!) organization
- Over the years we fine tuned our approach using OPF and OPD process areas
- Recently we realized that applying the CMMI-SVC concepts we can achieve our clients’ objectives more rapidly and more effectively
When we design "PI Service System" (PI-SS) we are designing process improvement infrastructure which may contain delivered product (e.g., process descriptions) and services (e.g., consulting and training).

Selected Frameworks
Some “Theory”

Definition: A Service System is an integrated and interdependent combination of service system components that satisfies stakeholder requirements.

A service system encompasses *everything* required for service delivery, including work products, processes, facilities, tools, consumables, and human resources.

Note that a service system includes the people necessary to perform the service system’s processes. In contexts where end users perform some processes for service delivery to be accomplished, those end users are also part of the service system (at least for the duration of those interactions).

A complex service system may be divisible into multiple distinct delivery and support systems or subsystems. While these divisions and distinctions may be significant to the service provider organization, they may not be as meaningful to other stakeholders.
More “Theory”

Definition: Service System Component is a resource required for a service system to successfully deliver services.

Some components can remain owned by a customer, end user, or third party before service delivery begins and after service delivery ends. (See also “customer” and “end user.”)

Some components can be transient resources that are part of the service system for a limited time (e.g., items that are under repair in a maintenance shop).

Components can include processes and people.

The word “component” can be used in place of “service system component” for brevity when the context makes the meaning clear.

The word “infrastructure” can be used to refer collectively to service system components that are tangible and essentially permanent. Depending on the context and type of service, infrastructure can include human resources
Interpretations

• What is Service System in the PI context?
  – It is the whole process infrastructure - PAL, Measurement Repository, OSSP, training, consulting (service!!), etc.
  – When we design "PI Service System" (PI-SS) we are designing process improvement infrastructure which may contain delivered product (e.g., process descriptions) and services (e.g., consulting and training)

• What are the requirements for "PI-SS" (the REQM of the CMMI-SVC interpreted for PI)?
  – Gap analysis results
  – Any Lessons Learned from the use of the OSSP
  – Requests for change
  – New lines of business added to the company
Interpretations (cont’d)

• What is Service Agreement in the PI context?
  – It is an understanding for what the process team will do (e.g., consult, train, etc.). It may contain number of consulting hours, training needed, staffing required to develop and deploy new/changed processes and it is typically documented in the Process Improvement Plan.
  – Service Agreement may be between the project and the EPG

• What does it mean "Service Delivery (SD)" in the PI context?
  – Process artifacts are available and operational
  – Documentation is accessible
  – Consulting and training is available
  – Help function exists (optional)
  – There is a means (e.g., tools, repositories, web-based) for the users to provide service request, which are then addressed by the EPG.
Interpretations (cont’d)

• What is Service Delivery Approach in the PI context?
  – Scheduling process artifact delivery and corresponding training to participating projects (similar to the OPF SG 3)
  – Preparing tailoring sheets
  – Helping users to submit requests, and resolving them timely
  – Collecting, distributing, and analyzing performance data

• What is Service Request in the PI context?
  – Request for change of an artifact (process description, template, check list, training) - it may be an enhancement (e.g., adding high maturity processes)
  – Request for consulting, training, etc.
  – Request management system in most cases is some area on the PAL where the process change requests are collected and resolved
• **What is Strategic Service Management (STSM) in the PI context?**
  – It is an EPG function
  – This essentially implemented through the OPF, OPD and OT
  – In addition, STSM is more focused on services aspects (i.e. consulting and training) versus process description changes.

• **What is Service System Transition (SST) in the PI context?**
  – It is quite close to the OPF goals and practices in that context (SG 1: Determine Process Improvement Opportunities, SG 2: Plan and Implement Process Actions, and SG 3: Deploy Organizational Process Assets and Incorporate Experiences). Needless to say that this depends on configuration control and management of those new and old assets.
Interpretations (cont’d)

• **What is Capacity and Availability Management (CAM) in the PI context?**
  
  – Capacity and Availability here means the use of PI staff (e.g., EPG staff) and ensuring that participating projects have their staff available to accept and implement new and changed processes.
  
  – It is quite similar to the GP 2.3 and GP 2.8 in the OPF and OPD "on steroids" because it requires addressing strategy for CAM and use of the measurement techniques to accomplish that. The CAM SP 1.3: Establish Service System Representations may be accomplished by using quantitative techniques (but not necessarily the ones called in OPP) and may be closer to the requirements of the QWM.
  
  – MA should be involved here to provide robust measures for managing capacity and availability.
Interpretations (cont’d)

• What is Incident Resolution and Prevention (IRP) in the PI context?
  – These are the process artifact change requests and user complaints. However, some requests may originate from EPG members own analyses such as effectiveness of tailoring guidelines meeting the projects needs
  – In most cases it is associated with the PAL or similar
  – It may be implemented by using the CAR PA and the OPF SG 3: Deploy Organizational Process Assets and Incorporate Experiences
  – There is the expectation of clear criteria for prioritizing the CRs, IRs which is somewhat a weak area in OPF.

• What is Service Continuity (SCON) in the PI context?
  – The continuity may be here considered as a continuity of the PAL or SharePoint realized by backup-restore functions
Interpretations (cont’d)

• What is Service System Development (SSD) in the PI context?
  – It is really the whole life cycle - but mostly OPF and OPD
## Where is the Intersection of PI and SS

Assume a starting organization --- not an established one

<table>
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<tr>
<th>Process Improvement</th>
<th>Service System</th>
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| Need Objectives                              | STSM SP 1.1  
Strategic needs                                                                             |
| Need to know where is the Org now            | Existing capabilities  
describe and communicate to the stakeholders                                                  |
| Determine "points of pain"                   | This may be more like "requirements" in REQM or SSD                                                                                           |
| Develop PI Plan (based on the results and objectives) | STSM SP 1.2 - Plan for standard services that may be a Work Plan  
WP SP 1.1 Establish Service Strategy                                                              |
|                                              | STSM SP 2.1 - Establish Properties of standard services and service levels                                                                      |
| Resources                                    | GP 2.3                                                                                                                                         |
| Schedule                                     | GP 2.2                                                                                                                                         |
| Implement                                    | SSD  
SG 1 - Develop and analyze stakeholder requirements  
SG 2 - Develop Service System  
SG 3 - Verify and validate Service System                                                            |
People don’t buy a quarter-inch drill. They are concerned about a quarter-inch hole. You’ve got to study the hole, not the drill. The drill is just a solution for it. (Leavitt, HBR, 1960)
Summary

- The benefits of applying CMMI-SVC concepts to process improvement activities.
- Issues such as staff availability and capacity requirements, particularly in the area of consulting and training, are more visible when considering process improvement as a service system.
- Addressing strategic aspects of process improvements as articulated in the STSM PA is another potential benefit.
- Streamlining PI service delivery is more visible with the CMMI-SVC concepts than when just addressing the OPF/OPD practices.
- CMMI-SVC concepts reinforce and supplement recommendations of the OPF and OPD.
Questions?
CMMI-SVC services-specific PAs

• **Strategic Service Management (STSM):**
  – Deciding which services you should be providing, standardizing them, and letting people know about them (maintaining a service catalog)

• **Service Delivery (SD):**
  – Setting up agreements, addressing service requests, and operating the service system

• **Service System Transition (SST):**
  – Getting new systems in place, changing existing systems, retiring obsolete systems, while making sure nothing goes terribly wrong with service delivery

• **Capacity and Availability Management (CAM):**
  – Ensuring the resources needed to deliver services are in place and that they are available when needed and at an appropriate cost

• **Incident Resolution and Prevention (IRP):**
  – Handling what goes wrong and preventing it from going wrong in the first place if you can

• **Service Continuity Management (SCON):**
  – Being ready to recover from a disaster and get back to delivering your service

• **Service System Development (SSD) - Addition:**
  – Making sure you have everything you need to deliver the service, including people, processes, consumables, and equipment (combines RD, TS, PI, VER, VAL from CMMI-DEV)
Core and Shared Process Areas

• Causal Analysis and Resolution (CAR):
  − getting to the sources of selected work results and taking effective action to enable good results and prevent bad results in other work

• Configuration Management (CM)
  − controlling changes to your crucial work products

• Decision Analysis and Resolution (DAR):
  − using a formal decision making-process on the decisions that matter most in your business

• Integrated Work Management (IWM):
  − getting the most from defined processes and all participants when managing complex service

• Measurement and Analysis (MA):
  − knowing what to count and measure to manage your service
Core and Shared Process Areas

- **Organizational Performance Management (OPM):**
  - managing your improvements and innovations using a statistical understanding of your process performance

- **Organizational Process Definition (OPD):**
  - establishing standard processes and spreading them throughout your organization

- **Organizational Process Focus (OPF):**
  - figuring out your current process strengths and weaknesses, planning what to do to improve, and putting those improvements in place

- **Organizational Process Performance (OPP):**
  - making sure you understand your process performance and how it affects service quality

- **Organizational Training (OT):**
  - developing the skills and knowledge your people need to deliver superior service

- **Process and Product Quality Assurance (PPQA):**
  - checking to see that you are actually doing things the way you say you will in your policies, standards, and procedures
Core and Shared Process Areas

• **Quantitative Work Management (QWM):**
  – managing service to quantitative process and performance objectives

• **Requirements Management (REQM):**
  – keeping a clear understanding with your customers and other stakeholders about the service you provide, and adjusting when you find inconsistencies or mismatched expectations

• **Risk Management (RSKM):**
  – supporting the success of your service mission by anticipating problems and how you will handle them—before they occur

• **Supplier Agreement Management (SAM):**
  – getting what you need and what you expect from suppliers who affect your service

• **Work Monitoring and Control (WMC):**
  – making sure what’s supposed to be happening in your service delivery is happening, and fixing what isn’t going as planned

• **Work Planning (WP):**
  – estimating costs, effort, and schedules, figuring out how you’ll provide the service, and involving the right people—all while watching your risks and making sure you’ve got the resources you need
SEI IDEAL<sup>SM</sup> Approach

- **Initiating**
  - Set Context
  - Build Sponsorship
  - Charter Infrastructure

- **Diagnosing**
  - Characterize Current and Desired States
  - Develop Recommendations

- **Establishing**
  - Plan Actions
  - Develop Approach
  - Set Priorities

- **Learning**
  - Propose Future Actions
  - Analyze and Validate

- **Acting**
  - Implement Solution
  - Refine Solution
  - Pilot/Test Solution
  - Create Solution