BMC Software Consulting Services

Fermilab Computing Division

Continual Service Improvement Process & Procedures Document

Client:	Fermilab
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Version :	1.0

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❖ Fermilab

GENERAL	
Description	This document establishes the Continual Service Improvement Plan policies, processes and procedures.
Purpose	This document provides the necessary steps and details for the procedures by which the appropriate FNAL personnel can monitor and determine the effectiveness, efficiency and economy of each of the services provided to customers.
Applicable to	*CSIP ISO20000 Project – Phase 1*
Supersedes	*N/A*

Document Owner	*Service Level Manager*	**Owner Org**	*FNAL Computer Division*
		Revision Date	*07-07-2009*

VERSION HISTORY			
Version	**Date**	**Author(s)**	**Change Summary**
1.0	07/07/2009	David Cole – Plexent	Initial Approved Version
1.1	7/21/2010	Rob Kennedy	Add Document Schedule to this page.

DOCUMENT SCHEDULE			
Version	**Effective Date**	**Expiry Date**	**Approved By**
1.0	07/07/2009	07/06/2010	Vicky White
1.1	07/07/2010	07/06/2011	Renewal without objection (Svc Mgmt Ops)

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1. Introduction

This document is intended to provide guidance to the FNAL Computing Division for a program which will provide a framework for evaluating the effectiveness of the services it provides to its customer set, for identifying opportunities for improving those services, and then for executing the activities to realize the improvements.

Continual Service Improvement Process (CSIP) can be summed up as aligning and realigning the IT services to changing business needs, because standstill implies decline.

CSIP is based on the **Deming Cycle** of continuous improvement, the elements of which are **P**lan, **D**o, **C**heck and **A**ct. That cycle is reflected in the procedures of this document: **Plan** – Validate Objectives (Procedure 1), Determine Appropriate Measures (Procedure 2), Evaluate Current Measurement Capability (Procedure 3), **Do** - Gather Data (Procedure 4), **Check** – Analyze Data (Procedure 4), **Act** – Implement Change (Procedure 5). This is an iterative set of activities, intended to be executed regularly, usually according to a pre-determined schedule. It must become an integral component of all services being offered by the Computing Division, because it provides the primary vehicle by which Service Level Management is managed.

The goal of Continual Service Improvement is to align and realign IT Services to changing business needs by identifying and implementing improvements to the IT services that support the Business Processes. The perspective of CSI on improvement is the business perspective of service quality, even though CSI aims to improve process effectiveness, efficiency and cost effectiveness of the IT processes. In order to manage improvement, CSI should clearly define what should be controlled and measured.

CSI must be treated just like any other service practice. Up-front planning, training and awareness, ongoing scheduling, roles creation, ownership assignment, and activities identified in order to be successful are required. CSI must be planned and scheduled as a process with defined activities, inputs, outputs, roles and reporting.

The process is typically overseen by the Service Level Manager, and executed by individual Service Owners or designated representatives.

This process, once deployed and executed, becomes a primary enabler for Service Level Management. Since Service Level Management is one of the processes being deployed in Phase 2 of the ISO2000 project, the adoption of this process, along with the Service Catalog, provides much of the process enablement for SLM.

It is important to note that the process and procedures which follow in this document are to be executed for **each service** for which management and control are important to the Computing Division

1.1   *Document Organization*

The major sections of this document are:

❖   Introduction

❖   CSIP Process Context Diagram Interfacing Process Flow
❖   CSIP Policy

❖   Fermilab CSIP Process

- CSIP Process Flow

- CSIP Process Roles and Responsibilities

- CSIP Measurements

2. CSIP Process Context Diagram Interfacing Process Flow

3. Fermilab CSIP Policies

CSIP POLICIES

Policies are used as a guide when creating or modifying any component of a service. The policies for the Continual Service Improvement process are closely linked to the Service level Management process and procedures.

The policies for the CSIP are as follows:

- Formal processes, procedures, and guidelines will be documented, consistently followed, and enforced for the CSIP process.

- The Services will be monitored with Management Reports created as agreed-upon and reported to the full range of business and IT stakeholders.

- The Service Improvement Procedures will be invoked either on a pre-defined schedule or when otherwise appropriate.

4. Fermilab Continual Service Improvement Process

4.1 Continual Service Improvement Process Flow

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                                    │   Validate Objectives   │
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                                    │ Appropriate Measurements│
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                                    │    Evaluate Current     │
                                    │  Measurement Gathering  │
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                                    │   Gather & Analyze Data │
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                                    │    Report on Service    │
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     │ Availability Management    │        ╱ Change╲
     │ Service Continuity Mgmt    │       ╱ Required ╲───── No ─────┐
     │ Capacity Management        │       ╲& Approved?╱             │
     │ Security Management        │        ╲         ╱              │
     │ Change Management          │         ╲       ╱               │
     │ Problem Management         │           Yes                   │
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                  └──────────────────┘ │ Implement Change │        │
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4.2   CSIP Roles and Responsibilities

Roles	Responsibilities
Service Level Manager	• Submits requests for new service offerings • Manages relationship between Customer and IT • Acquires all customer requirements for services • Prepares and presents Service Commitment to Customer • Facilitates initiation of services according to terms laid out in the service commitment • Conducts pre-reviews of customer reports against SLAs • Initiates investigation when SLAs are not compliant • Collects subjective customer satisfaction feedback to determine if SLAs accurately measure service • Authorizes additions, revisions or retirement of services in the service catalog • Analyzes process performance data • Reviews service commitments • Communicates additions, revisions or retirement of services and service offerings • Authorizes service level agreements (SLAs) • Negotiates operational level agreements (OLAs) • Authorizes all OLAs with service providers • Documents all OLAs with service providers • Investigates violation of OLAs • Reviews all OLAs to ensure Service Level Objectives can be met
CD Contract Managers	• Negotiate Underpinning Contracts (UCs) • Signatory parties to UCs
External Vendors	• Signatory parties to UCs
Infrastructure Leads	• Consulted in the negotiation of UCs • Negotiate OLAs • Signatory parties to OLAs
Process Owners	• Gather process performance data • Consulted in the invocation of Service Improvement Procedure
Service Owners	• Ultimately responsible for the overall quality of the service, • Maintain the processes by which the service is deployed and maintained, • Monitor the service and coordinate efforts to improve it, • Monitor incidents related to the service, • Act as the central point of contact for customers and users of the service, • Define, negotiate and manage OLA's, and UC's associated with the service. • Oversees the activities of the Infrastructure Team.
Customers	• Submit Business Requirements • Negotiate SLAs • Signatory parties to SLAs • Maintain customer responsibilities as agreed upon in the SLAs

4.3   CSIP Process Measurements

Key Performance Indicators	Frequency	Upper/Lower Control Limits	Objectives	Data Captures
Critical SLA's are being monitored and reports are produced	Monthly	>10% SLAs Reviewed > 10% of SLA reviews trigger Service Improvement Procedure	A decrease in corrective actions after Critical SLAs are reviewed is indicative of increased customer service satisfaction.	**TBD**
Documentary evidence of issues raised at review meetings	Monthly	>10% SLAs Reviewed	A reduction in Service Improvement Procedure activations provides evidence that monthly reviews have validated the attainment of meeting critical SLAs.	**TBD**
% of SLAs Breached	Monthly		A reduction in Service Breaches indicates improvement on the processes.	**TBD**

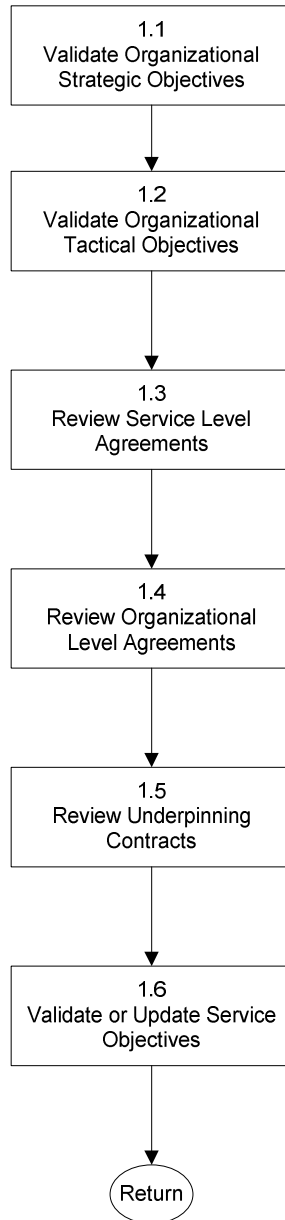## 4.4   CSIP Process Integration Points

Process		Process	Information
CSIP	to	Incident Management	• Prescribes agreed service level response times and resolution for incidents based on incident severity level.
Incident Management	to	CSIP	• Provides Incident management reports regarding incident response times and resolution times. • Documents any identified SLA breaches occurring as a result of an incident. • Requests for service Improvement as a result of reported incidents.
Problem Management	to	CSIP	• Provides details on current escalation procedures that are in place to support current service level targets. • Provides details around escalation SLA breaches that might occur. • Provides details around Major Problems. • Performs Major Problem reviews to understand what went well and what could have gone better. • Requests for service Improvement as a result of problems.
CSIP	to	Change Management	• Service improvement initiative approved change details.
Change Management	to	CSIP	• Schedule of changes so CSIP will understand the potential impact of changes to current service levels. • Confirmation that deployed changes have had the expected results. • Requests for service Improvement as a result of deployed changes.

4.4 CSIP Process Integration Points

Process		Process	Information
Capacity Management	to	CSIP	• Capacity plan, solutions and technology to assist in meeting current service level requirements (SLRs). • Requests for service Improvement as a result of identified capacity issues.
Availability Management	to	CSIP	• Reports based on planned .vs. actual availability. • Requests for service Improvement as a result of identified availability issues.
Configuration Management	to	CSIP	• CMDB providing details of all CIs and relationships that support the identified services agreed upon through Service Level Management.
Financial Management	to	CSIP	• Provides costing models to determine cost of providing services detailed in the service catalog and pricing options available for different service offerings. • Requests for service Improvement as a result of financial issues.

5. 1.0 - Validate Objectives Procedure

5.1   *Validate Objectives Procedure Flow*

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                    │ Validate Organizational │
                    │ Strategic Objectives │
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                    │         1.2         │
                    │ Validate Organizational │
                    │ Tactical Objectives │
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                    │         1.3         │
                    │ Review Service Level │
                    │ Agreements          │
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                    │         1.4         │
                    │ Review Organizational │
                    │ Level Agreements    │
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                    │         1.5         │
                    │ Review Underpinning │
                    │ Contracts           │
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                    │         1.6         │
                    │ Validate or Update Service │
                    │ Objectives          │
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5.2   *Validate Objectives Procedure Rules*

Triggers	• An incident which requires a review of a specific service OR • The pre-determined time for a specific service review
Inputs	• Incident details if appropriate **OR** • Report details for the last service period.
Outputs	• Validation that the currently defined business, strategic and tactical objectives are still valid, **OR** • An updated statement of the objectives for the current review period
General Comments	The purpose of this procedure is to ensure that services remain aligned with both the goals of Fermilab, and with the specific objectives of the Computing Division.

5.3   *Validate Objectives Procedure Narrative*

Step	Responsible Role	Action
1.1	Service Owner, Service Level Manager	• Reference any Fermilab and CD documents which state the strategic directions for the organizations. • Ensure that the objectives for this specific service do not conflict with the strategic directions. • **Note 1:** Typically, strategic objectives remain relatively static. • **Note 2:** Good sources for strategic direction are the Mission Statements of the organizations. For example, the current Mission Statement for Fermilab is, "Fermi National Accelerator Laboratory advances the understanding of the fundamental nature of matter and energy by providing leadership and resources for qualified researchers to conduct basic research at the frontiers of high energy physics and related disciplines.", and the current Mission Statement for the Computing Division is, "To play a full part in the mission of the laboratory and in particular to proudly develop, innovate, and support excellent and forefront computing solutions and services, recognizing the essential role of cooperation and respect in all interactions between ourselves and with the people and organizations that we work with and serve."
1.2	Service Owner, Service Level Manager	• Reference any Fermilab and CD documents which state the tactical directions for the organizations. • Ensure that the objectives for this specific service do not conflict with the tactical directions. • **Note:** Tactical direction changes more frequently than strategic ones, usually because of new influences from outside the organization. Some examples of factors which can impact tactical direction are resource availability, new financial constraints, or legislation changes.
1.3	Service Owner, Service Level Manager	• Review existing SLA's particularly ones which involve service components which have changed since the last review cycle. • Determine whether the changes will have an impact on currently agreed-upon service levels.

5.3   Validate Objectives Procedure Narrative

Step	Responsible Role	Action
		• **Note:** This activity should not consume an inordinate amount of time, particularly after the SLA/OLA process has become more mature, and where most of the CD's SLA's consist of references to the "Standard Service", with details of those areas which fall outside that standard.
1.4	Service Owner	• Review existing OLA's particularly ones which involve service components which have changed since the last review cycle. • Determine whether the changes will have an impact on currently agreed-upon service levels. • **Note:** As with 1.3, above, this activity should be relatively brief, particularly after the SLA/OLA process has become more mature, and the various infrastructure groups are well-briefed on their relationships and dependencies with other infrastructure groups.
1.5	Service Level Manager	• Review existing UC's particularly ones which have changed since the last review cycle. • Determine whether the changes will have an impact on currently agreed-upon service levels. • Note: In many cases, this only becomes an issue where there has been an upgrade to a Commercial off the Shelf (COTS) package.
1.6	Service Owner, Service Level Manager	• Either document that existing service objectives remain valid for the upcoming review cycle, or note which service objectives have changed, along with an explanation for the changes.

6. 2.0 - Determine or Validate Appropriate Measurements

6.1   Determine or Validate Appropriate Measurements Procedure Flow

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              │ Review Current  │
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6.2   Determine or Validate Appropriate Measurements Rules

Triggers	• A notification that the review cycle has begun, and a request to review the current measurements for the selected service.
Inputs	• A request for a review of the current service measurements **AND** a validation that the current service objectives are the same as in the last cycle, or a statement of the changes to the service objectives.
Outputs	• A validation that the measurements currently being recorded for the service are appropriate for this review cycle, OR • Documentation of the new infrastructure components for which measurements will be gathered during this review cycle.
General Comments	The purpose of this procedure is to ensure that the measurements which are being gathered for the service are useful and appropriate. It allows the opportunity to enhance the measurements for each service as the processes for delivering it become more mature.

6.3   Determine or Validate Appropriate Measurements Narrative

Step	Responsible Role	Action
2.1	Service Owner, Infrastructure Team	• Review the current measurements being applied against the selected service. • Review the results of the last few service review cycles. • Review any corrective actions which have been initiated as a result of the past review cycles for the selected service. • Determine the utility of the measurements currently being collected.
2.2	Service Owner	• Are the current measurements for the service effective, in terms of identifying strong or weak areas in the service delivery chain? • If YES, return from this procedure to the calling process. • If No, proceed to 2.3 – Document Appropriate Measurements.
2.3	Service Owner	• With input from the Infrastructure Team, determine which measurements will be more useful for evaluating the effectiveness, the efficiency, and the economy of the selected service. • Document the new measurements which could be applied to the service. • **Note:** Appropriate measurements will vary greatly by service, depending on what is considered important by the customer set. For example, in some case, response speed is the standard by which customers judge the service. In other cases, it could well be that support and issue resolution are what are most important.

7. 3.0 - Evaluate Current Measurement Gathering Capability

7.1 Evaluate Current Measurement Gathering Capability Procedure Flow
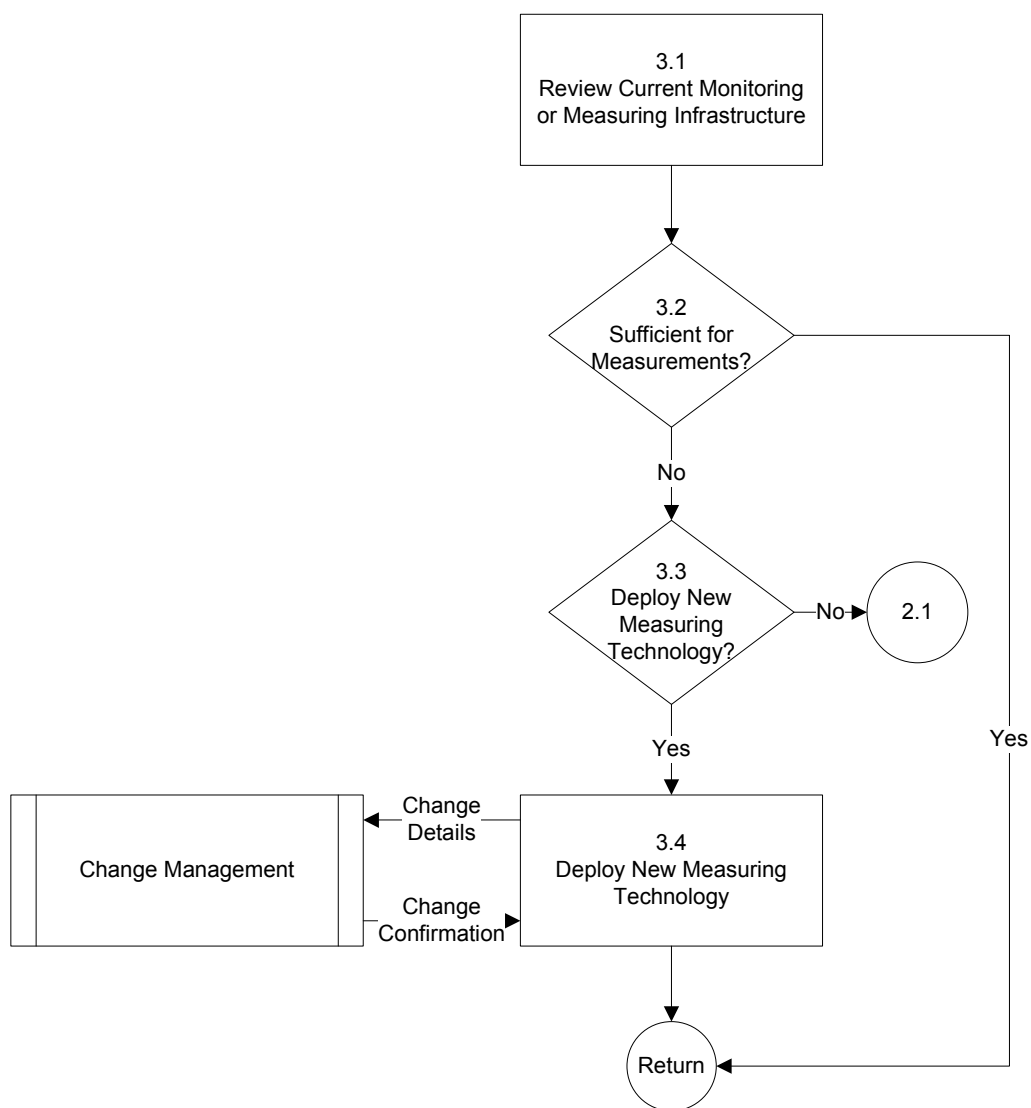
7.2 *Evaluate Current Measurement Gathering Capability Rules*

Triggers	• A notification that the review cycle has begun, and a request to review the current capability of the current monitoring and measuring technology for the various infrastructure components for the selected service.
Inputs	• A request for a review of the current service measurement capabilities for the selected service. • If appropriate, a statement of the measurements which, if applied against the service, would allow for more informed decisions about future service changes.
Outputs	• A validation that the current measurement capabilities for the service are sufficient to allow for informed analysis of the performance of the service against the agreed service levels, OR • Documentation of the new measurements which would enhance the analysis of the service performance.
General Comments	The purpose of this procedure is to ensure that the desired measurements for the service are within the current technical capabilities of the teams and tools involved in the service delivery. In other words, now that what **should** be measured is known, this procedure evaluates what **can** be measured.

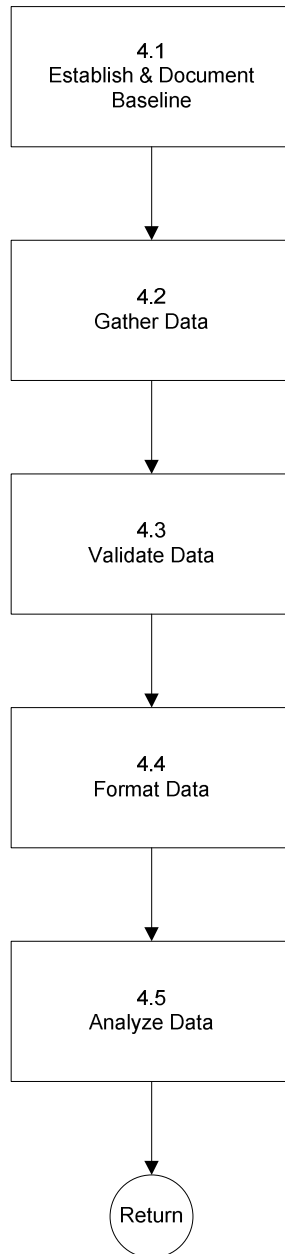## 7.3 *Evaluate Current Measurement Gathering Capability Narrative*

Step	Responsible Role	Action
3.1	Service Owner, Infrastructure Teams	• For each of the infrastructure components which are currently being monitored, analyze its capabilities, both as currently deployed, and in terms of features not yet being utilized. • Note: This activity is required to allow for greater granularity and utility of service measurements as the service delivery processes become more mature.

3.2	Service Owner	• Are the capabilities of the current monitoring suite sufficient to produce the desired measurements for this review cycle?
		   • If YES, return from this procedure to the calling process.
		   • If NO, proceed to Decision, 3.3 - Deploy new Measuring Technology?

3.3	Service Owner, Infrastructure Team	• Is it possible **and practica**l to deploy new measuring technology into the infrastructure?
		   • If YES, proceed to Activity 3.4 – Deploy New measuring Technology.
		   • If NO, return to 2.1 – Review Current Measurements to re-evaluate the measurements being collected.
		• **Note 1:** As with any other decision which the CD makes, there is a value judgment involved. With any decision or activity which is undertaken as part of a process and service improvement initiative, the three governing criteria are (1) Effectiveness, (2) Efficiency, and (3) Economy, and unless all three criteria are met, it does not always make sense to proceed with a specific course of action.

7.3   Evaluate Current Measurement Gathering Capability Narrative

Step	Responsible Role	Action
		• **Note 2:** Although the Service Owner will make the final decision, the various members of the Infrastructure Team will be consulted, as they possess the technical expertise to ensure that the three governing criteria are met, particularly with regards potential risks to the service levels, of deploying new technology.
3.4	Service Owner, Infrastructure Team	• Under Change Management, procure, test and deploy the new measuring technology into the infrastructure. • **Note:** Ensure that confirmation is received back from Change Management that the change has been successful. • Instead of, or accompanying the confirmation could be a request for a service improvement.

8. 4.0 – Gather & Analyze Data

8.1   Gather & Analyze Data Procedure Flow

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        ┌─────────────────────┐
        │         4.1          │
        │ Establish & Document │
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        │         4.2          │
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8.2   Gather & Analyze Data Rules

Triggers	• A request to initialize the baseline and begin recording measurements for a selected service.
Inputs	• A completed Service Request to begin the data gathering for a selected service for the current review cycle.
Outputs	• Measurements for the selected service for the review cycle, AND • The results of the analysis performed on the data collected
General Comments	The purpose of this procedure is to ensure that the methods of data gathering and analysis are standardized. It is only with this standardized approach that the knowledge gathered during the various service review cycles can be interpreted correctly.

8.3   Gather & Analyze Data Narrative

Step	Responsible Role	Action
4.1	Service Owner, Infrastructure Team	• Establish the baseline for the data gathering at the component level for the selected service for this service review cycle. • Document the newly-developed baseline. • **Note:** Since the primary purpose of the review cycles is to identify improvement opportunities in the service delivery, a new baseline must be established at the beginning of each cycle.
4.2	Infrastructure Team	• Gather the appropriate data for the period of the review cycle. • When the service review period is complete ensure that the Service Owner and the Service Level have access to the selected data.
4.3	Service Owner, Service Level Manager	• Ensure the integrity of the collected data • Evaluate whether this data is indeed "fit for purpose". Is this data appropriate for the type of information desired during the review? • **Note:** This step assumes greater importance in situations where this is the first cycle during which this data is being collected.
4.4	Service Owner, Service Level Manager	• Because the data on which the service is being measured comes from a number of different sources and in various formats, massage it so that a comprehensive end-to-end analysis can be conducted. • **Note:** Again, considering the perspective of the customer on services, the performance of individual infrastructure components is of less importance than the end-to-end service delivery. If there is an interruption or degradation in the service, customers are typically not interested in the details which led to the issue than they are in the fact their service did not deliver according to the service levels they expect.
4.5	Service Owner, Service Level Manager,	• Once the data has been collated and formatted, perform the various analyses by which the health of the service is evaluated. • Some of the more common types of analysis which are performed

8.3   Gather & Analyze Data Narrative

Step	Responsible Role	Action

	Infrastructure Team	here include:
		• Performance against SLA's. This includes service breaches, near breaches, and situations where all service levels were maintained.
		• Analysis of service areas where there is potential for improvement. Even in areas where there are no problems, a small improvement can have downstream impacts on the entire service offering.
		• Analysis of those areas which fall within the responsibility of an external vendor or service provider.
		• **Note 1:** Even in the absence of formal SLA's and OLA's, there are tacit understandings between groups, both internal to the Computing Division, and between CD service groups and customers. Thus, early on in the improvement cycle, prior to the definition and deployment of SLA's and OLA's, an analysis of a sort against service levels can be performed.
		• **Note 2:** It is important to remember during the analysis not to focus entirely on weaknesses and failures, but to note as well, the strengths in the service delivery. There are a number of reasons for this:
		    • The strengths may be replicated across other services so that the benefits of them are realized in a greater context.
		    • From an expectations management perspective, presenting both sides of the delivery of the service, rather than focusing only on exceptions, level- sets the customer set, and helps maintain satisfaction.

9.   5.0 – Report on Service Performance

9.1   Report on Service Performance Procedure Flow
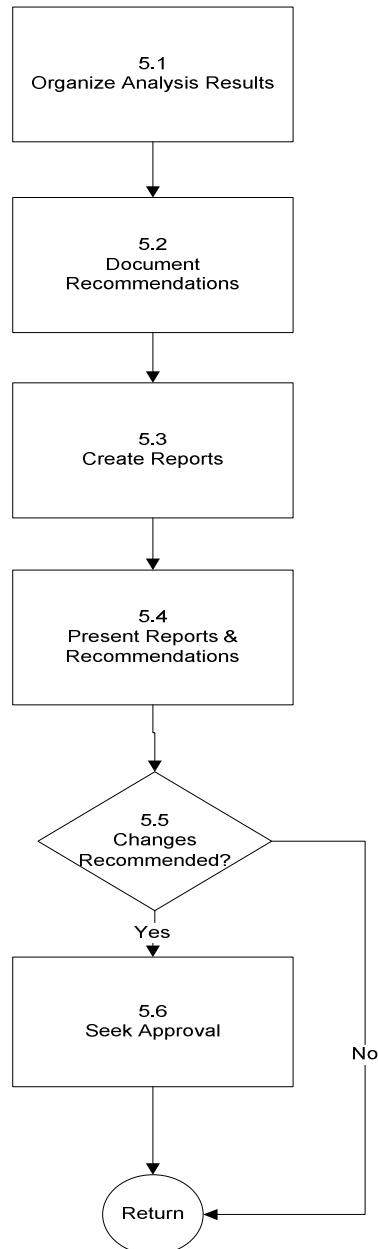
9.2   Report on Service Performance Rules

Triggers	• Notification that the service analysis on the service is complete.
Inputs	• A note that the analysis is complete, AND • The results of the analyses on the data collected for the service
Outputs	• Reports, AND • Recommendations
General Comments	The purpose of this procedure is to ensure that the reports are created with specific audiences in mind, and that they are created following standard procedures and methods. In addition to this, the procedure ensures that approved changes are deployed into the environment following Computing Division's standard Change Process.

9.3   Report on Service Performance Narrative

Step	Responsible Role	Action
5.1	Service Owner, Service level Manager	• Bearing in mind the various audiences for which the reports are intended, select the pertinent data for each, and arrange it for the report creation. • **Note:** The different audiences for reports typically require and want different levels of detail. A target audience composed of the members of the technical groups involved in the delivery of the service is interested in the technical details of the service, since it may help them identify areas for further improvement; members of the customer community, on the other hand, is typically interested in a higher-level view, focused on the overall performance of the service as compared to the agreed-upon service levels.
5.2	Service Owner, Service level Manager	• Review the analysis results in detail, including any recommendations which may have been presented during Procedure 4. • After prioritizing the recommendations, document those to be adopted at this time. • Ensure that other recommendations are documented as well, so that they can be considered during the next service review cycle.
5.3	Service Level Manager, Communications Manager	• With the help of the Communications Manager, create the various reports in the media being chosen for distribution.
5.4	Service Level Manager	• Present the reports and the recommendations, if any, to the selected groups. • **Note:** In the interest of efficient use of time, the presentations could be arranged to coincide with the Monthly Computing Division Status Meeting. This would allow the opportunity for the Service Level

9.3   Report on Service Performance Narrative

Step	Responsible Role	Action
		Manager to collate the various Service Reports and to present a more comprehensive view of the health of the Computing Division Services.
5.5	Service Owner, Service level Manager	• Have changes to the service(s) been recommended during this service review cycle? • If NO, return from this procedure to the calling process. • If YES, proceed to 5.6 – Seek Approval.
5.6	Service Owner, Service level Manager	• Seek approval from the appropriate governing group to deploy the recommended changes. • Note: If the presentation were made during the Monthly VD Status Meeting, the management chain of the Division would already be present, and the approval process could be streamlined.

10. 6.00 - Implement Change Procedure

❖ This procedure is not detailed in this document, because it is a separate and independent process, Fermilab will have a standard Change Process, and that process will govern the planning and management of all changes within the Division.

❖ The Change Process will, in turn, execute the Release Process, which manages the actual deployment preparation and execution activities.

❖ It is important to note in this document though, that one of the activities of the Change Management Process is to report back to the CSI process on the results of the change. It is this vehicle by which the CSI process can measure the effectiveness of all changes which it recommends and plans. The results of the change will be considerations during the next review cycle, particularly in terms of establishing the baseline.

❖ As a result of issues uncovered during the change, the Change Process could issue a request for a service Improvement, and the request will be recorded as a requirement, and then managed in the same way as other requirements received.

Appendix A – RACI Matrices

The RACI diagram splits tasks into four participatory responsibility types, which are then assigned to different roles in the project or process. These responsibilities types make up the acronym *RACI*.

- **R**esponsible - Those who do work to achieve the task. The role of Responsible includes Support, which is to provide resources to complete the task.
- **A**ccountable - (Also Approver or final Approving authority) those who are ultimately accountable to the correct and thorough completion of the task. Accountable is the one to whom "R(s)" are accountable. In other words, A must sign off (Approve) on work that R provides. There must be only one **A** specified for each task. The role of Accountable may include Responsible. In other words, it is not unusual that the one who is Accountable for a task is also Responsible to do the work to achieve the task.
- **C**onsulted - Those whose opinions are sought. Two-way communication.
- **I**nformed - Those who are kept up-to-date on progress. One-way communication.

Very often the role specified as "accountable" is also specified "responsible." Outside of this exception, it is generally recommended that each role in the project or process for each task receive at most one of the participatory role types. Although some companies and organizations do allow, for example, double participatory types, this generally implies that the roles have not yet been truly resolved and so impedes the value of the RACI approach in clarifying each role on each task.

Primary Roles in Process
Primary Interactions
Secondary Roles

CSIP RACI Chart

Activity	Service Owner	Service Level Manager	Infrastructure Team	Comm. Manager
1.0 - Validate Objectives				
1.1 – Validate Organizational Strategic Objectives	R	A	I	
1.2 – Validate Organizational Tactical Objectives	R	A	I	
1.3 – Review Service Level Agreements	A	R	I	
1.4 – Review Operational Level Agreements	A	R	R	
1.5 – Review Underpinning Contracts	R	A	I	
1.6 – Validate or Update Service Objectives	R	A	C	
2.0 – Determine or Validate Appropriate Measurements				
2.1 – Review Current Measurements	A	I	R	
2.2 – Measurements Appropriate? (Decision)	R	A	I	
2.3 – Document Appropriate Measurements	C	A	R	
3.0 – Evaluate Current Measurement Gathering Capability				
3.1 – Review Current Monitoring or Measuring Infrastructure	A	I	R	
3.2 – Sufficient for Measurements? (Decision)	A	C	C	

Activity	Service Owner	Service Level Manager	Infrastructure Team	Comm. Manager
3.3 – Deploy New Measuring Technology? (Decision)	A	I	R	
3.4 – Deploy New Measuring Technology	A	C	R	
4.0 – Gather & Analyze Data				
4.1 – Establish & Document Baseline	A	I	R	
4.2 – Gather Data	A	I	R	
4.3 – Validate Data	A	I	R	
4.4 – Format Data	A	I	R	
4.5 - Analyze Data	A	C	R	
5,0 – Report on Service Performance				
5.1 – Organize Analysis Results	A	R	I	
5.2 – Document Recommendations	A	R	I	
5.3 – Create Reports	C	A		C
5.4 – Present Reports & Recommendations	C	A	I	C
5.5 - Changes Recommended? (Decision)	R	A		
5.6 – Seek Approval	R	A		

Appendix B – Tools

The technology details will vary greatly according to nature of the service for which these procedures are adapted. For ease of reference, there are sections for the monitoring and the reporting toolsets. List the details in this section, as appropriate to the service.

Monitoring Tools

- Tool 1
- Tool 2
- Tool 3
- Tool 4
- Tool 5

Reporting Tools

- Tool 1
- Tool 2
- Tool 3
- Tool 4
- Tool 5

Appendix c - Repositories

As with Appendix B, the repositories will reflect the service components. Complete the following table, or eliminate this section.

Repository Identification	Data Description
Repository 1	Description 1
Repository 2	Description 2
Repository 3	Description 3
Repository 4	Description 4
Repository 5	Description 5