# CENTRE ™ (Common Enterprise Resource)

## Systems and Software Engineering Platform designed for CMMI compliance

**Capability Maturity Model Integration (CMMI)** is a process improvement approach that provides organizations with the essential elements of effective processes. **CMMI** helps integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide a point of reference for appraising current processes. (Software Engineering Institute, **SEI** web-site, www.sei.cmu.edu/cmmi/general/ )

**CENTRE** is a software product designed, authored and produced by **Integration Technologies Group Inc. CENTRE** is composed of configurable modules intended to provide compliance with **CMMI** process areas and **ISO** clauses while increasing organizational efficiency, effectiveness and continual improvement.

**Integration Technologies Group Inc. (ITG),** www.itgonline.com, is a systems and software engineering company founded in 1984 and headquartered in Falls Church, Virginia, USA. ITG is ISO 20000-1:2005, ISO 9001:2008 and ISO 27001:2005 registered. As well, the company is an SEI member and partner and has been externally appraised twice at CMMI Level 3.

This document contains brief descriptions of **CENTRE CMMI** Software features which cover specific and generic evidence of compliance for practices required by **CMMI for Development Version 1.2** process areas. As with all process improvement methodologies and industry best practices, management commitment, quality record collection, analysis and processing are required to achieve improvement objectives and successful appraisals and registrations.

**CENTRE** was developed to facilitate today's Best Practices Certifications and process improvement methodologies. By using **CENTRE**, businesses can increase efficiencies across key business processes and satisfy many of the requirements stipulated by the **SEI** and international standards boards. Some of the benefits that may be derived by implementing compliance with **CMMI** process areas are:

- Improved Quality of Output
- Increased Accuracy of Estimates
- Earlier Identification of Defects
- Accurate Measurements of Processes
- Higher Operational Efficiency
- Cost Reduction and Integration with Industry Standards

As a result, an organization using **CENTRE** will be recognized as delivering successful service to its clients and constituents with dependably high-quality and consistent methods and practices. The **CENTRE CMMI** Software 1.2 implementation includes 'CENTRE ISO 9001:2008' Quality Management System elements which are:

> **CENTRE - Document Control System (DCS)**
> **CENTRE - Records Control System (RCS)**
> **CENTRE - Human Resources**
> **CENTRE - Meeting Management**
> **CENTRE - Customer Satisfaction Surveys**
> **CENTRE - Supply Chain Management**
> **CENTRE - Ad-Hoc Report Writer**

These elements are described in more detail in the **CENTRE ISO 9001:2008** Compliance Package - White Paper.

**Disclaimer**

Use of CENTRE modules or similar software alone does not result in organizational CMMI conformance. Documented procedures, defined processes and work instructions, staff training and internal audits of Process Areas compliance are needed to prepare an organization for a CMMI appraisal. The ITG CENTRE Document Control System (DCS) contains documentation that describes the ITG Quality Management System and consists principally of the following documents:

> • Business Quality Manual (BQM) in conformance with ISO 9001:2008,
> • Information Technology Services Management manual (ITSM) in conformance with ISO 20000-1:2005,
> • Information Security Management System manual (ISMS) in conformance with ISO 27001:2005,
> • Corporate process workflow, Quality Procedures and Quality Work Instructions.

# CENTRE CMMI 1.2 Artifacts for Process Improvement

## CENTRE CMMI Specific & Generic Evidence Elements:

## CENTRE – Project Planning

SP1.1 *Establish a top-level work breakdown structure (WBS) to estimate the scope of the project.*

**CENTRE Evidence**: The **CENTRE** Projects Module provides for the generation of a Work Breakdown Structure inclusive of Resource Allocation/Hours, Risk Management and Work Estimates. The CENTRE Project Module may be interfaced to MS Project.



Task Under Project



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# CENTRE CMMI 1.2 Artifacts for Process Improvement

SP 1.2 *Establish and maintain estimates of the attributes of the work products and tasks.*

**CENTRE Evidence**: CENTRE contains statistically managed sub processes that permit user defined work products and estimation methodologies:



Estimate for Requirement

The Estimate Detail seen in the screen shot above presents the user with the following work products:

**VIEW ESTIMATE DETAIL FOR REQUIREMENT [ 1198 ]**

Work Description: Convert the current PCS system to .NET
- Stakeholders: Executive Management, BDM
- Read-only Permission: Executive Management, BDM
- Write Permission: Admin, PCS Admin

| Estimate Detail ID | Work Product Name | Work Product Description | WP Estimate Minimum Hours | WP Estimate Likely Hours | WP Estimate Maximum Hours | Quantity | Custom Modifier | Complexity Level | Proficiency Level | Assigned Developer WP Average Estimate Refresh | Total Minimum Hours | Total Likely Hours | Total Maximum Hours | Estimated Hours | Quantity Completed | Actual Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2252 | Modded ASP & Help | Modded ASP & Help | 1.64 | 2.07 | 2.50 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 2.07 (D) | 1.64 | 2.07 | 2.50 | 2.07 | 0 | 0.00 |
| 2253 | Design and Estimate | Work includes: design and estimate and their entry into the record | 0.50 | 0.75 | 1.00 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.75 (D) | 0.50 | 0.75 | 1.00 | 0.75 | 0 | 0.00 |
| 2254 | Verification Testing | Work includes: verification deployment and testing | 0.25 | 0.50 | 0.75 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 1.50 (D) | 0.25 | 0.50 | 0.75 | 0.50 | 0 | 0.00 |
| 2255 | Post Release Verification | Work includes: post release verification testing | 0.25 | 0.50 | 0.75 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.44 (D) | 0.25 | 0.50 | 0.75 | 0.50 | 0 | 0.00 |
| 2256 | Release and Publishing | Work includes: release preparation and publishing | 0.25 | 0.50 | 0.75 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.47 (D) | 0.25 | 0.50 | 0.75 | 0.50 | 0 | 0.00 |
| 2257 | 508 Compliance Testing | Work includes: 508 compliance testing | 0.33 | 0.67 | 1.00 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.60 (D) | 0.33 | 0.67 | 1.00 | 0.67 | 0 | 0.00 |
| 2258 | Web Forms and Help in ASP.Net | Web Forms and Help in ASP.Net | 3.00 | 4.00 | 5.00 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 4.57 (D) | 3.00 | 4.00 | 5.00 | 4.00 | 0 | 0.00 |
| 2259 | New COM in VB.net | New COM in VB.net | 1.50 | 2.00 | 3.00 | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 2.00 (D) | 1.50 | 2.00 | 3.00 | 2.08 | 0 | 0.00 |
| 2260 | COM Modification in ASP.net | COM Modification in ASP.net | 1.00 | 1.50 | 2.00 | 10 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 2.07 (D) | 10.00 | 15.00 | 20.00 | 15.00 | 0 | 24.00 |
| 2261 | Web Forms and Help Modification in ASP.net | Web Forms and Help Modification in ASP.net | 1.00 | 1.50 | 2.00 | 25 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.23 (D) | 25.00 | 37.50 | 50.00 | 37.50 | 0 | 48.00 |
| | | | | | | | | | | **TOTALS:** | 42.72 | 63.49 | 84.75 | 63.57 | | 72.00 |

Each Requirement Estimate may be recalculated for a different resource:

Currently Assigned To: Srikanth K

| | |
|---|---|
| Minimum Estimate: | 42.72 |
| Likely Estimate: | 63.49 |
| Maximum Estimate: | 84.75 |

Alternate Assigned To: Select

| | |
|---|---|
| Minimum Estimate: | 0.00 |
| Likely Estimate: | 0.00 |
| Maximum Estimate: | 0.00 |

**CALCULATE**

Work Products may be redefined to allow for variance in complexity:

**ESTIMATION MODEL FOR REQUIREMENT [ 1198 ]**

| Estimate Detail ID | Work Product Name | Work Product Quantity | Custom Modifier | Complexity | Proficiency | Assigned Developer Work Product Average Estimate | Alternate Developer Work Product Average Estimate | Total Minimum Hours | Total Likely Hours | Total Maximum Hours | Assigned Developer Estimated Hours | Alternate Developer Estimated Hours |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2252 | (14) - Modded ASP & Help | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 1.64 | 2.07 | 2.50 | 2.07 | 0.00 |
| 2253 | (20) - Design and Estimate | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 0.50 | 0.75 | 1.00 | 0.75 | 0.00 |
| 2254 | (21) - Verification Testing | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 0.25 | 0.50 | 0.75 | 0.50 | 0.00 |
| 2255 | (22) - Post Release Verification | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 0.25 | 0.50 | 0.75 | 0.50 | 0.00 |
| 2256 | (23) - Release and Publishing | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 0.25 | 0.50 | 0.75 | 0.50 | 0.00 |
| 2257 | (24) - 508 Compliance Testing | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 0.33 | 0.67 | 1.00 | 0.67 | 0.00 |
| 2258 | (25) - Web Forms and Help in ASP.Net | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 3.00 | 4.00 | 5.00 | 4.00 | 0.00 |
| 2259 | (26) - New COM in VB.net | 1 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 1.50 | 2.00 | 3.00 | 2.08 | 0.00 |
| 2260 | (28) - COM Modification in ASP.net | 10 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 10.00 | 15.00 | 20.00 | 15.00 | 0.00 |
| 2261 | (27) - Web Forms and Help Modification in ASP.net | 25 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 0.00 () | 25.00 | 37.50 | 50.00 | 37.50 | 0.00 |
| | | | | | | | **TOTALS:** | 42.72 | 63.49 | 84.75 | 63.57 | 0.00 |

## SP 1.3 *Define the project lifecycle phases on which to scope the planning effort.*

# CENTRE CMMI 1.2 Artifacts for Process Improvement

**CENTRE Evidence**: Project Lifecycle phases are defined in the CENTRE Projects Module as seen above.

## SP 1.4 *Estimate the project effort and cost for the work products and tasks based on estimation rationale*

**CENTRE Evidence:** CENTRE provides direct evidence for Effort in labor hours, Cost in time & material and work product definitions which are integral components of CENTRE Projects and Requirements Management:

Project Data:                                      Task Data:



Other Task Costs:



Task Resources Allocated:



Resource Labor Code Allocation

# CENTRE CMMI 1.2 Artifacts for Process Improvement

Estimation Rationale:

| Estimate Detail ID | Work Product Name | Work Product Description | WP Estimate Minimum Hours | WP Estimate Likely Hours | WP Estimate Maximum Hours | Quantity | Custom Modifier | Complexity Level | Proficiency Level | Assigned Developer WP Average Estimate (Refresh) | Total Minimum Hours | Total Likely Hours | Total Maximum Hours | Estimated Hours | Quantity Completed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **VIEW ESTIMATE DETAIL FOR TASK [ Albuquerque ]** | | | | | | | | | | | | | |
| | Work Description: | Scheduled 14 desktop installations | | | | | | | | | | | | | |
| 2170 | 5 desktop/laptop migrations | Migration of 5 desktops/laptops at a staging area. This takes approximately 9 man hours. (3 hours per man X 3 men) | 6.00 | 9.00 | 12.00 | 2 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 12.00 | 18.00 | 24.00 | 18.00 | 0 |
| 2171 | 1 Desktop/laptop migration | Migration of 1 laptop/desktop. | 0.50 | 1.00 | 1.50 | 4 | 1.00 | 1.00 (Low) | 1.00 (Proficient) | 0.00 () | 2.00 | 4.00 | 6.00 | 4.00 | 0 |
| | | | | | | | | | | **TOTALS:** | 14.00 | 22.00 | 30.00 | 22.00 | |

## SP 2.1 *Establish and maintain the project's budget and schedule.*

**CENTRE Evidence:** The direct evidence provided is the data collected by the detail presented above, processed and appended to an overall Financial Reporting and Budgeting schedule:

Project Financials by Category



Earned Value Data is calculated against the Budget and Schedule:



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SP 2.2 *Identify and analyze project risks.*

**CENTRE Evidence:** The direct evidence consists of Risk Assessments and relevant data at the Contract, Project and Task levels:

Risks Identified

| | | SELECT RISK UNDER PROJECT [ CLIN V Desktop Refresh ] | | | |
|---|---|---|---|---|
| Project Risk ID | Risk Name | Risk Assessment | Risk Level | Risk Mitigation |
| ○ 409 | Budget and Scheduling | Budget & Schedule | 0 | If the schedule should slip due to any circumstances, the sol keep the original team moving as planned an bring in somed that site that fell behind schedule. (Crashing the schedule) |
| ○ 410 | Logistical disparities & scope creep | Financial | 3 | Examples include equipment not being delivered, wrong equ being delivered, inadequate &/or verbal work instructions, ir non existent staging area. Insufficient IP addresses are also Mitigation for logistical errors- adjust sc |

Risk detail Data:

**VIEW RISK FOR PROJECT**
**[ CLIN V Desktop Refresh ]**

Risk Name: Budget and Scheduling
Risk Assessment: Budget & Schedule
Risk Level: 0
Risk Mitigation: If the schedule should slip due to any circumstances, the solution is to keep the original team moving as planned an bring in someone to finish that site that fell behind schedule. (Crashing the schedule)

Risk Materialized: ☑
Outcome Comments: The schedule had been placed on hold and moved out 2 weeks while LMCO did a logistical realignment. Crashing the schedule wasn't an issue but what is an issue is:
1.) The days onsite have been rescheduled and extended to the point where ITG stands a good chance of losing money on this project. For example- L.A. was rescheduled (by LMCO) for 9 days to do 68 desktops and 41 laptops. This is 1 day longer than should be needed, even if you include 1 full day for the exit sign-off day.
2.) Users continue to reset their passwords (St. Louis on 08/11 is an example) which cause our teams to have to take time out of the day and reset them again.

Date Created:8/13/2008 1:38:51 PM          Created By: Dudley, Jason (n)
Date Last Updated:10/9/2008 12:42:32 PM    Last Updated By: Dudley, Jason (n)

SP 2.3 *Plan for the management of project data.*

**CENTRE Evidence:** The Management of the Project Data is conducted by CENTRE.

SP 2.4 *Plan for necessary resources to perform the project.*

**CENTRE Evidence:** Direct evidence for this specific practice as seen throughout the compliance description of this process area.

SP 2.5 *Plan for knowledge and skills needed to perform the project.*

**CENTRE Evidence:** The direct evidence offered consist of data that **CENTRE** stores for Project Resources and are parsed across the Labor Resources and Subcontractor Management Modules:

Labor Resources Profile Attributes:



Collected by this subsystem:

# CENTRE CMMI 1.2 Artifacts for Process Improvement

Subcontractor Profile Attributes:



Inclusive of user definable field with the following definitions:



| Item List | Assign Contracts | Certifications | Performance | Documents | OEMs | Class |

**SUBCONTRACTOR [ American Systems Consultants (ASC) ] PROFILE – SERVICE ITEM**

| Item Type | Manufacturer | Subcomponent Type | Description |
|---|---|---|---|
| Blindness Hardware | None | None | Blindness Hardware |
| External Storage Drive | None | None | External Storage Drive |
| Laptop | None | None | Laptop |
| Monitor | None | None | Monitor |
| Monitor | None | None | Monitors Graphic |
| MS Office S/W Support | MICROSOFT | None | MS Office S/W Support |
| Networking Devices | None | None | Cisco Equipment |

**SUBCONTRACTOR : [ American Systems Consultants (ASC) ] PROFILE – BUSINESS CLASS**

| BUSINESS CLASS | Select |
|---|---|
| 8A | ☐ |
| Alaskan Native Corporation | ☐ |
| Hub Zone Small Business | ☐ |
| Large Business | ☐ |
| Minority Owned | ☑ |
| Native American Owned | ☐ |
| OTSB - Other than small business | ☐ |
| S-Sheltered workshop | ☐ |
| Small Business | ☐ |
| Small Disadvantaged Business | ☑ |
| Veteran Disabled Owned | ☐ |
| Veteran Owned | ☑ |
| Woman Owned | ☐ |

**SUBCONTRACTOR [ American Systems Consultants (ASC) ] PROFILE – CERTIFICATIONS**

| Delete | Certifications |
|---|---|
| - | A+ |
| - | DEC |
| - | HUD HITS |
| - | Network+ |

**SUBCONTRACTOR : [ American Systems Consultants (ASC) ] PROFILE – PERFORMANCE**

| PERFORMANCE PARAMETER | Select |
|---|---|
| Meets Response Time | ☐ |
| Returns Parts on time | ☐ |
| SSA Install Qualified | ☐ |
| Submits ARs in timely manner | ☐ |
| Submits Invoices in timely manner | ☐ |

**SUBCONTRACTOR : [ American Systems Consultants (ASC) ] PROFILE – OEMS**

| OEM | RESELLER |
|---|---|
| Reseller for ACER | ☐ |
| Reseller for Apple | ☐ |
| Reseller for Brother | ☐ |
| Reseller for Canon | ☐ |
| Reseller for Cisco | ☐ |
| Reseller for Compaq | ☐ |
| Reseller for Dell | ☐ |
| Reseller for HP | |

**SUBCONTRACTOR : [ American Systems Consultants (ASC) ] PROFILE – DOCUMENT CHECK LIST**

| DOCUMENT NAME | RECEIVED |
|---|---|
| Affidavit | ☐ |
| Company to Subcontractor Agreement | ☑ |
| D&B | ☑ |
| Insurance Certificate | ☐ |
| NDA - Company | ☐ |
| Subcontractor Profile Forms | ☑ |
| W9 | ☑ |

SP 2.6 *Plan the involvement of identified stakeholders.*

**CENTRE Evidence:** Direct evidence of stakeholder involvement exists throughout **CENTRE** modules:

Within Projects:

Stakeholders:

Within Tasks:

Within Contracts:

SP 2.7 *Establish and maintain the overall project plan content.*

**CENTRE Evidence:** Direct evidence for this specific practice as seen throughout the compliance description of this process area.

SP 3.1 *Review all plans that affect the project to understand project commitments.*

# CENTRE CMMI 1.2 Artifacts for Process Improvement

**CENTRE Evidence:** Direct evidence of Project Reviews can be collected in the Meeting Minutes module of CENTRE:



Select Desired Meeting:

View Action Items

Select Specific Meeting Date

View Minutes

Meeting Action Items

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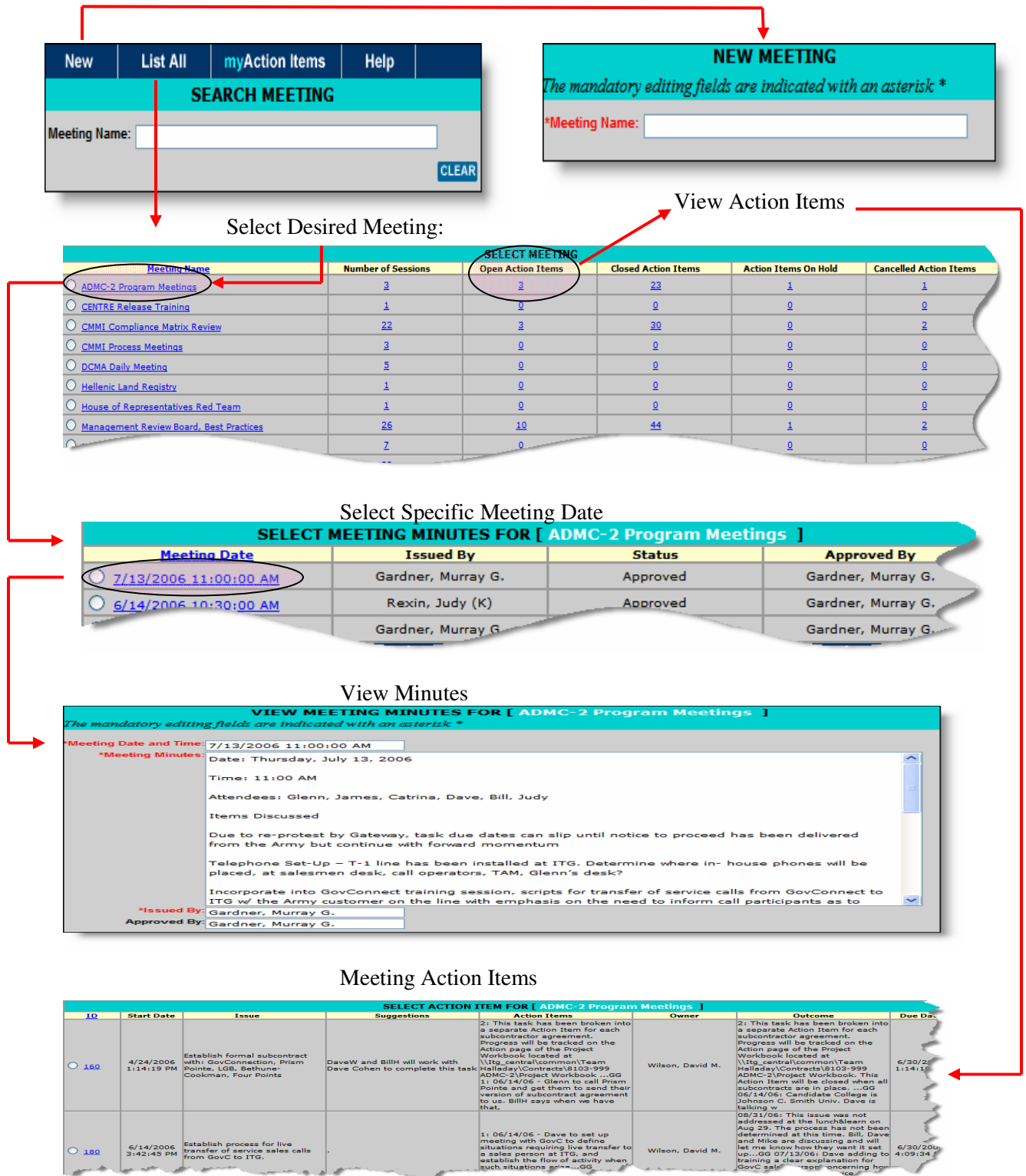
SP 3.2 *Reconcile the project plan to reflect available and estimated resources.*

**CENTRE Evidence:** Reconciliation direct evidence is present throughout the Project, Task, and Financial modules of CENTRE.

SP 3.3 *Obtain commitments from relevant stakeholders responsible for performing and supporting plan execution.*

**CENTRE Evidence:** Where commitments are in electronic or paper document format, they are stored in the relevant "Project Documents" depository:

Project:

Project Document Search

Document List:

Attachments to Document:

Document: