

Life Cycle Plan (LCP)

CRCD Management System

Team 11

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4/27/12

Version History

Date	Author	Version	Changes made	Rationale
09/30/11	Project Team	1.0	Filled section 3.3	Initial draft of LCP document
10/04/11	Project Team	2.0	Filled section 1, changed the project name, updated the team skills	Complete requirements of Core FC Package
10/18/11	Project Team	3.0	Filled all the sections	Complete requirements of Draft FC Package
10/24/11	Project Team	4.0	Fix document depends on the feedback from ARB	Response to Evaluation of Draft FC Package
11/16/11	Erik	4.1	All sections completed	Fixes based on feedback from Tip
12/4/11	Muzzammil	5.0	Dates are revised and estimates were revisited	Changes based on ARB feedback
1/30/2012	Fan	6.0	Filled section 6	Draft Rebaselined Development Commitment Package
2/12/2012	Fan	6.1	Add test plan to activities, Update Cotipmo	Changes based on ARB feedback
3/25/2012	Fan	6.2	Update the document, add iteration assessment report	Changes based on RDBC feedback
4/04/2012	Fan, Jason, Kathleen	6.3	Update section 6.2	Changes based on CCD
4/27/2012	Fan	7.0	Update all sections	Changes based on the feedback and update according to the real situation.

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1 Introduction

1.1 Purpose of the LCP

Purpose of the Life Cycle Plan is to lay a foundation for the future of the project, to properly map out the work ahead, and to assign roles based on team members' abilities.

1.2 Status of the LCP

The status of the LCP is currently at Final Deliverable package. The version is 7.0.

1.3 Assumptions

- The duration of the project is 24 weeks, which are 12 weeks in Fall 2011 and 12 weeks in Spring 2012.
- Client will continue to use ADP to process their payroll and we are only responsible for automating the timesheets capture.
- We will be using an NDI/NCS to handle the timesheet reporting and a separate NDI/NCS for inventory.

2 Milestones and Products

2.1 Overall Strategy

The development of the management system for CRCD will follow the NDI intensive version of Incremental Commitment Spiral Model. From the definition of the project the team has understood at this point, the management system contains two sub-systems. One is the Inventory system, the function of the system can be covered by a single NDI. The other sub-system is Time Card System. Since the client does not have enough budget, the team will develop a database system with good user interface and connect to the time punch machine.

Exploration Phase

Duration: 8/22/11~9/28/2011

Concept: During the Exploration phase, the team was introduced to their clients, and set up a couple of meetings in order to learn about the system's initial requirements, and risks and decisions that need to be made that have already been addressed by some of the stakeholders. The team planned the time they have and the project's deliverables in order to assure that the project will be released on time.

Deliverables: Valuation Commitment Package

Milestone: Valuation Commitment Review

Strategy: Meetings-dependent

Valuation Phase

Duration: 9/28/2011~ 10/25/11

Concept: During the Valuation Phase, the team elaborated on the requirements of the system that is being made for the CRCD. As each of the requirements was being realized in the prototype, the issues that came needed to be addressed. All stakeholders were involved in finding possible options as solutions for the issues that arise, as well as to agree on an agreement, the solution to still realize the original win condition.

Deliverable: Foundations Commitment Package

Milestone: Foundations Commitment Review

Strategy: Meetings and prototype dependent

Foundations Phase

Duration: 10/25/11 – 12/06/11

Concept: Using the more complete set of system requirements, the team spent most of their effort in creating a fully functioning prototype of the system. Test and transition plans should be prepared.

Deliverable: Development Commitment Package

Milestone: Development Commitment Review

Strategy: Mostly prototype development, with necessary meetings

Rebaselined Foundations Phase**Duration:** 1/10/12 – 2/7/12**Concept:** The development team needs to rebaseline the requirements, the architecture, and the risks of the project. By going through the fundamental foundation of the project, the development and clients can be sure that they continue to understand each other's needs and available resources. If there are any changes in the requirements or situation, then they will be addressed immediately.**Deliverable:** Rebaselined Development Commitment Package**Milestone:** Rebaselined Development Commitment Review**Strategy:** Meeting-based**Development Phase (First Iteration)****Duration:** 2/7/12 – 3/23/12**Concept:** The development team needs to implement the core function of the system prototyped during the first half of the life cycle. Most, if not all issues and risks should be resolved or have plans for being controlled.**Deliverable:** Working system.**Milestone:** Core capability drive through.**Strategy:** Basic deployment, integration and testing.**Development Phase (Second Iteration)****Duration:** 3/24/12 - 4/09/12**Concept:** Development team will perform testing and complete the implementation.**Deliverable:** Fully operational system. Transition Readiness Package**Milestone:** Transition readiness review.**Strategy:** Mostly implementation, with necessary meetings**Development Phase (Third Iteration)****Duration:** 4/11/12 – 5/4/12**Concept:** The implemented system should be tested and ready for transition. CRCDD' employees and managers should be trained to use the system.**Deliverable:** Operation Commitment Package**Milestone:** Operation Commitment Review**Strategy:** Refinements and bug fixes with feedback from the client.

2.2 Project Deliverables

2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Client Interaction Report	09/21/2011	DOC/PDF	Soft Copy
Valuation Commitment Package <ul style="list-style-type: none"> • Operational Concept Description (OCD) Early Section • Life Cycle Plan (LCP) Early Section • Feasibility Evidence Description (FED) Early Section 	09/28/2011	DOC/PDF	Soft Copy
Evaluation of Valuation Commitment Package		DOC/PDF /Bugzilla	Soft copy, Bugzilla
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	MPP/PDF	Soft copy
Progress Report	Every Wednesday	XLS	Soft copy

2.2.2 Valuation Phase

Table 2: Artifacts Deliverables in Valuation Phase

Artifact	Due date	Format	Medium
Core Foundations Commitment Package <ul style="list-style-type: none"> • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) 	10/07/11	DOC/PDF	Soft Copy

<ul style="list-style-type: none"> Operational Concept Description (OCD) Supporting Information Document (SID) System and Software Architecture Description (SSAD) 			
Initial Draft of UML Model	10/12/11	DOC/PDF	Soft Copy and Hard Copy
Evaluation of Core Foundations Commitment Package	10/14/11	DOC/PDF Bugzilla	Soft copy, Bugzilla
Second Draft of UML Model	10/20/11	DOC/PDF	Soft Copy
First Draft of Prototype Foundations Commitment Package	10/20/11	Application	Computer
<ul style="list-style-type: none"> Feasibility Evidence Description (FED) Life Cycle Plan (LCP) Operational Concept Description (OCD) Supporting Information Document (SID) System and Software Architecture Description (SSAD) 	10/24/11	DOC/PDF	Soft Copy
UML Model	10/24/11	DOC/PDF	Soft Copy
Quality Management Plan	10/24/11	DOC/PDF	Soft Copy
Prototype Report	10/27/11	DOC/PDF	Soft Copy
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	MPP/PDF	Soft copy
Progress Report	Every Wednesday	XLS	Soft copy

2.2.3 Foundations Phase

Table 3: Artifact deliverable in Foundations Phase

Artifact	Due date	Format	Medium
Evaluation of	11/07/11	DOC/PDF	Soft copy, Bugzilla

Foundations Commitment Package		Bugzilla	
Second Draft Prototype	11/10/11	Application	Computer
Development Commitment Package: <ul style="list-style-type: none"> • Feasibility Evidence Description (FED) • Life Cycle Plan (LCP) • Operational Concept Description (OCD) • Supporting Information Document (SID) • System and Software Architecture Description (SSAD) 	12/05/11	DOC/PDF	Soft Copy
Quality Management Plan	12/05/11	DOC/PDF	Soft Copy
UML Model	12/05/11	DOC/PDF	Soft Copy
Prototype Report	12/05/11	DOC/PDF	Soft Copy
Evaluation of Development Commitment Package	12/05/11	DOC/PDF Bugzilla	Soft copy, Bugzilla
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	MPP/PDF	Soft copy
Progress Report	Every Wednesday	XLS	Soft copy

2.2.4 Rebaselined Foundations Phase

Table 4: Artifact deliverable in Rebaselined Foundations Phase

Artifact	Due date	Format	Medium
Rebaselined Development Commitment Package: <ul style="list-style-type: none"> • Life Cycle Plan (LCP) • Operational Concept Description (OCD) • Supporting Information 	02/15/12	DOC/PDF	Soft Copy

Document (SID) <ul style="list-style-type: none"> • System and Software Architecture Description (SSAD)+UML • Quality Management Plan(QMP) • Test Plan and Cases(TPC) • Transition Plan(TP) • Feasibility Evidence Description(FED) 			
Third Draft Prototype	02/15/12	SLN	Visual Studio Solution
Evaluation of Rebaselined Development Commitment Package	02/27/12	DOC/PDF, Bugzilla	Soft copy, Bugzilla
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	MPP/PDF	Soft copy
Progress Report	Every Wednesday	XLS	Soft copy

2.2.5 Development Phase

Table 5: Artifact deliverable in Development Phase

Artifact	Due date	Format	Medium
Initial Operational Capability Package: <ul style="list-style-type: none"> • Life Cycle Plan (LCP) • Operational Concept Description (OCD) • Supporting Information Document (SID) • System and Software Architecture Description (SSAD) • Quality Management Plan(QMP) • Test Plan and Cases(TPC) • Transition Plan(TP) • Feasibility Evidence Description(FED) • UML • Test Procedure and Results(TPR) 	03/26/12	DOC/PDF	Soft Copy
Core Capability Drive-Thru Report(CCD Report): <ul style="list-style-type: none"> • CCD • CodeCount • COCOMOII Estimation Uncertainty At CCD • COCOMO_IOC1 	04/2/12	DOC/XLS/EST/PDF	Soft Copy
Support and Transition Set Package <ul style="list-style-type: none"> • Transition Plan(TP) • User Manual(UM) • Support Plan(SP) • Training Materials(TM) • Regression Test Package(RTP) 	04/16/12	DOC/PDF	Soft Copy
Close Out Report	05/04/2012		
Project Effort	Every Monday	Text	ER system
Project Plan	Every Wednesday	MPP/PDF	Soft copy
Progress Report	Every Wednesday	XLS	Soft copy

3 Responsibilities

3.1 Project-specific stakeholder's responsibilities

CRCD's Management staff will be responsible for coordinating with the development team to elaborate requirements and negotiate alternatives. Jerry will be responsible for providing directions and feedback for the employee tracking. Shannon will be responsible for providing directions and feedback for the Inventory Management and Time Card Tracking. Erika will be responsible for feedback regarding integration between the Time Card System and ADP. The developers will be responsible for deployment, integration and testing.

3.2 Responsibilities by Phase

Table 6: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	Valuation	Foundations	Development - Construction Iteration	Development - Transition Iteration
Erik Frimodig: <ul style="list-style-type: none"> Project Manager Feasibility Analyst Development Team 	Project Management <ul style="list-style-type: none"> Plan Project Life Track Progress Feasibility Analyst <ul style="list-style-type: none"> Point out risk items Track risks throughout life 	Project Management <ul style="list-style-type: none"> Plan Project Life Track Progress Feasibility Analyst <ul style="list-style-type: none"> Point out risk items Analyze business case Track risks throughout life 	Project Management <ul style="list-style-type: none"> Plan Project Life Track Progress Feasibility Analyst <ul style="list-style-type: none"> Point out risk items Analyze business case Track risks throughout life 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Jason Loewy: <ul style="list-style-type: none"> Prototyper Life Cycle Planer Implementer 	Prototyper <ul style="list-style-type: none"> Understand system Help Operational Concept in determining 	Prototyper <ul style="list-style-type: none"> Assess prototype and components Analyze and prioritize capabilities 	Prototyper <ul style="list-style-type: none"> Assess prototype and components Analyze and prioritize 	Implementer <ul style="list-style-type: none"> Develop System Develop Glue Code Code Integration 	Implementer <ul style="list-style-type: none"> Final Project Deliverable Transition the System

	solutions Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 	<ul style="list-style-type: none"> Develop prototype Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion Choose type of life cycle model to use for project 	capabilities <ul style="list-style-type: none"> Develop prototype Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 		
Muzzammil Imam: <ul style="list-style-type: none"> System Architect Life Cycle Planer Implementer Project Management 	System Architect <ul style="list-style-type: none"> Explore technologies needed for project Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 	System Architect <ul style="list-style-type: none"> Work with prototyper to model system Explore technologies needed for project Make UML model Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion Choose type of life cycle model to use for project 	System Architect <ul style="list-style-type: none"> Work with prototyper to model system Work on UML model Assess software architectures Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 	Project Management <ul style="list-style-type: none"> Plan Project Life Track Progress Implementer <ul style="list-style-type: none"> Develop System Database Handling Database Transition Module 	Project Management <ul style="list-style-type: none"> Plan Project Life Track Progress Implementer <ul style="list-style-type: none"> Final Project Deliverable Transition the System
Fan Xu: <ul style="list-style-type: none"> Requirement Engineer Life Cycle Planner Development Team Tester Trainer 	Requirements Engineer <ul style="list-style-type: none"> Negotiate with clients Prioritize win conditions Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 	Requirements Engineer <ul style="list-style-type: none"> Assess requirements and priority Analyze if proposed system satisfies client's requirements Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for 	Requirements Engineer <ul style="list-style-type: none"> Assess requirements and priority Complete winwin negotiations Life Cycle Planner <ul style="list-style-type: none"> Draft life cycle plan Assess tasks and time needed for completion 	Development Team <ul style="list-style-type: none"> Develop System Tester <ul style="list-style-type: none"> Test System and Record Results Trainer <ul style="list-style-type: none"> Develop transition and train plan 	Development Team <ul style="list-style-type: none"> Final Project Deliverable Transition the System Trainer <ul style="list-style-type: none"> Train clients and users

		completion <ul style="list-style-type: none"> Choose type of life cycle model to use for project 			
Yazeed Alabdulkarim: <ul style="list-style-type: none"> Operational Concept Engineer Feasibility Analyst Development Team 	Operational Concept <ul style="list-style-type: none"> Analyze Current System Discover efficient solution Relay possibilities with clients Analyze time needed Relay possibilities with clients 	Operational Concept <ul style="list-style-type: none"> Explore alternatives for system Identify the constraints and risks Analyze the proposed system Feasibility Analyst <ul style="list-style-type: none"> Point out risk items Analyze business case Track risks throughout life 	Operational Concept <ul style="list-style-type: none"> Explore alternatives for system Identify the constraints and risks Analyze the prototype Feasibility Analyst <ul style="list-style-type: none"> Point out risk items Analyze business case Track risks throughout life 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Daniela Gergley: <ul style="list-style-type: none"> IIV&V Quality Focal Point 	IIV&V <ul style="list-style-type: none"> Directly interact with client to understand system Shape winwin negotiations Evaluate and identify defects in deliverables 	IIV&V <ul style="list-style-type: none"> Directly interact with client to understand system Shape winwin Evaluate and identify defects in deliverables negotiations Quality Focal Point <ul style="list-style-type: none"> Identify Quality Management plan 	IIV&V <ul style="list-style-type: none"> Directly interact with client to understand system Validate prototype is as clients requested Evaluate and identify defects in deliverables Quality Focal Point <ul style="list-style-type: none"> Assess and modify Quality Management plan 	N/A	N/A
Adarsh Khare: <ul style="list-style-type: none"> Trainer Tester Development Team 				Development Team <ul style="list-style-type: none"> Develop System Trainer	Development Team <ul style="list-style-type: none"> Final Project Deliverable Transition

				<ul style="list-style-type: none"> Develop transition and train plan Tester <ul style="list-style-type: none"> Test System and Record Results 	the System Trainer <ul style="list-style-type: none"> Train clients and users
Kathleen Barrera: <ul style="list-style-type: none"> IIV&V Quality Focal Point 				IIV&V <ul style="list-style-type: none"> Manage Issues Evaluate and identify defects in deliverables Quality Focal Point <ul style="list-style-type: none"> Manage Quality Plan Develop test plan Test the system Perform Acceptance Testing Support Plan 	IIV&V <ul style="list-style-type: none"> Manage issues

3.3 Skills

Team members	Role(577A)	Role(577b)	Skills
Jason Loewy	Prototyper, Lifecycle Planner	Implementer	Objective-C, Oracle, MySql, Java, PHP,
Muzzammi l Imam	System Architect, Lifecycle Planner	Project Manager,Implementer	UML, C, C++, Microsoft Project Mnanager, C#, Java, Oracle, MySql, UML Designing, Software Architecture course CS-578 (Grade : A), Designing UMLs, Software Architecture TA, Reasearch in Styles and Architecture optimization.
Fan Xu	Requireme nts Engineer,	Tester,Trainer,Implementer	C#, Java, Microsoft Project, Oracle, C++, Designing UML, Java, Testing skills,

	Lifecycle Planner		
Adarsh Khare		Tester,Trainer,Implementer	PHP, MySql, C, Core Java, Perl, Testing skills, Javascript.
Kathleen Barrera		Integrated Independent Verification & Validation, Quality Focal Point	Verification and Validation Skills, PHP, MySQL, Microsoft Project,

4 Approach

4.1 Monitoring and Control

Every team members' execution of the life cycle plan will be mainly monitored and controlled during the biweekly meetings. Although soft copies of everyone's individual effort and work reports are reviewed, email, verbal and textual communication will be the best method keeping track of everyone's progress. Soft copies are saved in Shared Google Docs and Version Tracking is used to keep track of the versions and progress.

4.1.1 Closed Loop Feedback Control

Every member prefers change in documentation with remarks, revision history to maintain versions, meeting minutes, email, and bug tracking in Bugzilla. These have been proven to be the most effective means of communication for the members of this team. Email is mostly used to give feedback. We also use USC's Shared Google Docs for sharing and updating the documents and version control.

4.1.2 Reviews

Reviews and suggestions will also be relayed via verbal communication, email, or Bugzilla tool. We also put it on Google Docs shared documents so everyone can see and share the reviews

4.2 Methods, Tools and Facilities

Table 7: Tools Used and Details

Tools	Usage	Provider
Google Docs	Main source of necessary documents concerning team information, and communication	Google
Email	Main source of communication and relaying messages	USC/Google
iCard	Individual Effort Records	USC
Winbook	Identifying WinWin Conditions and negotiating agreements	USC
COCOMO II	Schedule and feasibility estimation	USC
Microsoft Project	Planning and managing project plans and schedule	Microsoft

Rational Software Modeler	UML Modeling	IBM
Bugzilla	Report defects/errors	USC
COTIPMO	Schedule and feasibility estimation	IBM/USC
Team Website	Record of documentation and client meeting notes	USC

5 Resources

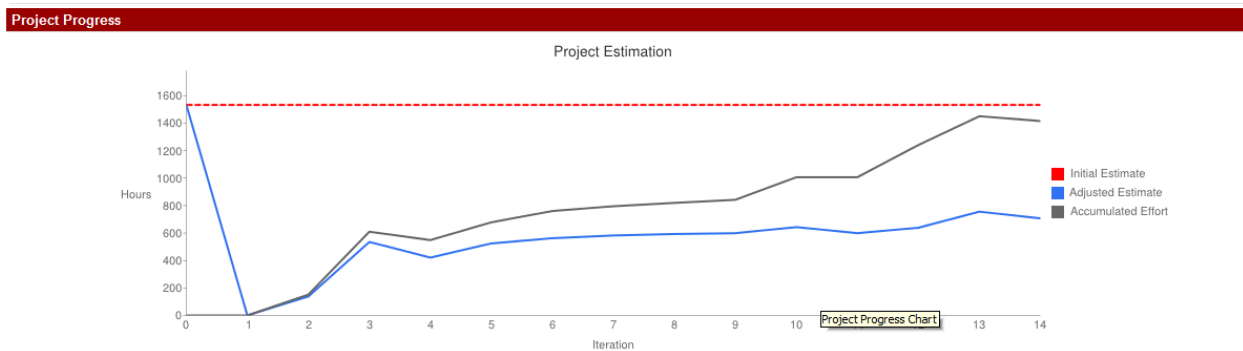
From the information that has been gathered about the team members and project the estimates are listed below. The effort estimation as calculated by COTIPMO tool is listed below the tables.

Table 8: COCOMOII Scale Factor

Estimates	Value	Rationale
% Reuse	0	We are not using any screens, reports, and 3GL modules reused from previous applications.
Developer's Experience and Capability	Nominal	The team has no past experience with the NDI's is used; however they have experience with the technologies NDI's are built on. Most of the team members have industrial experience building similar type of projects.
ICASE Maturity and Capability	Low	The NDI's we are planning to use don't have a very extensive support for customizations. These NDI's are small NDI's compared to large-scale NDI's which have a lot of supporting resources.

Initial Project Estimates Edit																			
Description:	CRCD Management system initial cost estimate																		
% Reuse:	0																		
Developer's Experience and Capability	NOM																		
ICASE Maturity and Capability	LO																		
Productivity (PROD)	13																		
New Application Point (NAP)	131																		
Person-Months (PM)	10.08 (1532 hrs)																		
NDI/NCS Details:	<table> <tr> <th>Element Type</th><th>Simple</th><th>Medium</th><th>Difficult</th></tr> <tr> <td>Screens</td><td>15</td><td>6</td><td></td></tr> <tr> <td>Reports</td><td>10</td><td>6</td><td>3</td></tr> <tr> <td>3GL Components</td><td></td><td></td><td>3</td></tr> </table>			Element Type	Simple	Medium	Difficult	Screens	15	6		Reports	10	6	3	3GL Components			3
Element Type	Simple	Medium	Difficult																
Screens	15	6																	
Reports	10	6	3																
3GL Components			3																

Iteration List											Add
	#	Start Date	End Date	Description	% Reuse	PROD	NAP Completed	PM Spent	NAP Estimated	PM Estimated	Actions
<input checked="" type="checkbox"/>	1	10/16/11	10/19/11	First estimate	0	7	0	0 (0 hrs)	0	0.00 (0 hrs)	
<input checked="" type="checkbox"/>	2	10/19/11	10/26/11	Revisiting the estimates after first iteration	0	13	13	1 (152 hrs)	11.82	0.91 (138 hrs)	
<input checked="" type="checkbox"/>	3	10/26/11	11/2/11	Improvements based on the suggestions and problems we identified in iteration 2.	0	13	52	4 (608 hrs)	45.76	3.52 (535 hrs)	
<input checked="" type="checkbox"/>	4	11/2/11	11/9/11	Cost revision based on 4th week	0	13	47	3.62 (550 hrs)	36.04	2.77 (421 hrs)	
<input checked="" type="checkbox"/>	5	11/9/11	11/16/11	5th iteration based on 5th week estimates	0	13	58	4.46 (678 hrs)	44.73	3.44 (523 hrs)	
<input checked="" type="checkbox"/>	6	11/16/11	11/23/11	This the sixth review of our estimates. Its a major milestones where we will review our estimates thoroughly.	0	13	65	5 (760 hrs)	48.12	3.70 (562 hrs)	
<input checked="" type="checkbox"/>	7	11/23/11	11/30/11	7th iteration	0	13	68	5.23 (795 hrs)	49.79	3.83 (582 hrs)	
<input checked="" type="checkbox"/>	8	11/30/11	12/7/11	8th and last iteration	0	13	70	5.39 (819 hrs)	50.74	3.90 (593 hrs)	
<input checked="" type="checkbox"/>	9	1/25/12	2/1/12	1st iteration of Spring semester	0	13	72	5.54 (842 hrs)	51.29	3.95 (600 hrs)	
<input checked="" type="checkbox"/>	10	2/1/12	2/15/12	2nd iteration	0	13	86	6.62 (1006 hrs)	54.94	4.23 (643 hrs)	
<input checked="" type="checkbox"/>	11	2/15/12	2/29/12	3rd iteration for this semester	0	13	86	6.62 (1006 hrs)	51.2	3.94 (599 hrs)	
<input checked="" type="checkbox"/>	12	2/29/12	3/21/12	4th iteration for Spring semester	0	13	106	8.15 (1239 hrs)	54.58	4.20 (638 hrs)	
<input checked="" type="checkbox"/>	13	3/22/12	4/4/12	5th iteration	0	13	124	9.54 (1450 hrs)	64.56	4.97 (755 hrs)	
<input checked="" type="checkbox"/>	14	4/4/12	4/25/12	6th iteration for second semester	0	13	121	9.31 (1415 hrs)	60.5	4.65 (707 hrs)	



The person Months estimated by COTIPMO after we updated the input values is 4.65 person months. For 577 course projects we divide this number by a constant of 1.67 and we get 2.78 persons for our team for the whole project. According to past data available, a project with expected 4.5 PM of effort can successfully be managed in one semester. This means that we have enough Human resources to handle this project.

After 8 iterations we have gone through so far, it seems (also can be seen in the above snapshot) that our team is progressing well according to estimates. We lagged a little bit in the second iteration due to some coordination issues with the stakeholders but we caught up pretty quickly. The cone of uncertainty is narrowing down.

Although we have only developed working prototypes for our system it looks that we more than half way through because these prototypes would help us in cutting the development time.

6 Iteration Plan

6.1 Plan

6.1.1 Capabilities to be implemented

The CRCD management system will be implemented and tested on the development team's hardware during the first two iterations as the team does not have access to client's server. The system will be transition to client's server and being tested after being fully developed in the third iteration.

First Iteration

Duration: 2/7/12-3/23/12

During the first iteration, the core capability of the system will be implemented on development team's server including main functions of Payroll system and Inventory management system.

Capabilities
CR-1 Users sign in and sign out.
CR-2 Interface: must pass the payroll data to ADP for payroll processing.
CR-3 Upload data to the time cards system.
CR-4 An interface for entering employee information: Name, Contact Info, Performance History/Reviews, Pay increase history.
CR-5 Track inventory as employees check them in and outreach day. Track who checked them out and the amount of materials consumed.
CR-6 Only Administrator access to the data.
CR-7 Administrator is allowed to set user permission level and change passwords.

Second Iteration

Duration: 3/24/12 - 4/01/12

The system will be completely implemented on development team's hardware and being configured and polished. The following capability goals will be implemented. And the system will also be configured to match the level of service goals.

[Single Login interface]: User will login and start to use the two subsystems with one login interface.

CR-13: Inventory Management System pulls user login and employee information from the Timetrex database. (Database Synchronization): The database of two subsystems will be synchronized.

Level of Service Goals	Priority Level
LOS-1 Response time preferably within 10 seconds, but not more than one minute.	Must have

LOS-2 Scalability: The system should be able to handle 100 employees.	Must have
LOS-3 The system should be available during working hours from 8am to 6pm (PST) under normal conditions of operation (no power failure, no server crashes, etc.)	Must have

Third Iteration

Duration: 4/02/12-4/08/12

Development team will keep configuring and polishing the system depends on the feedbacks get from CCD. Then the development team will prepare for delivering the system to CRCD technical supporter and our client will deploy the system by himself. The team will be fully support during the deployment. The system will be fully installed on client's sever and being completely transitioned in the following two weeks. The team will help configuring and testing the system in the whole progress. After the system being transitioned the team will leave some time for the unsolved problems about the system. It's depends on the progress of transition and testing.

6.1.2 Capabilities to be tested

First Iteration

Duration: 2/7/12-3/23/12

During this iteration, development team will test Payroll system and the inventory system with dummy data.

Test Identifier	Responsible person	Resources
TC-01, TC-02	Adarsh, Fan, Kathleen	Dummy user accounts
TC-08, TC-09, TC-10	Adarsh, Fan, Kathleen	Dummy Inventory data
TC-03, TC-05, TC-04	Adarsh, Fan, Kathleen	Dummy employee data
TC-06	Adarsh, Fan, Kathleen	100 employee data
TC-07	Adarsh, Fan, Kathleen	ADP sheet, export validation system

Second Iteration

Duration: 3/24/12 - 4/01/12

The whole system will be configured. The two subsystems will be integrated and the interacted functions will be tested including:

[Single Login interface]

[Database synchronization]

TC-11	Adarsh, Fan, Kathleen	Integrated system
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Third Iteration

Duration: 4/02/12-4/26/12

The system will be implemented on client's server, and the real data will be entered by our client. And CRCD managers can start test running the whole system. Development team will offer technical support and get feedbacks from our client.

TC-1 – TC-13(all test cases)	CRCD Managers	Real data
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6.1.3 Capabilities not to be tested

All the capabilities will be tested during the three iterations.

6.2 Iteration Assessment

6.2.1 Overview

6.2.1.1 Capabilities Implemented, Tested, and Results

Capability	Related Test Cases	Test Results	If fail, why?
CR-1 Users Sign in and Sign out	TC-01 User Login	Pass	
CR-2 Interface: must pass the payroll data to ADP for payroll processing.	TC-07 Publish to ADP format	Pass	
CR-3 Upload data to the time cards system	TC-04 Administrator enters time card data	Pass	
	TC-05 Administrator edits time card data	Pass	
CR-4 An interface for entering employee information: Name, Contact Info, Performance History/Reviews, Pay increase history.	TC-03 Add/Edit/Delete employee data	Pass	
CR-5 Track inventory as employees check them in and outreach day. Track who checked them out, and the amount of materials	TC-09 Check-in inventory item	Pass	

consumed.			
	TC-08 Add/Edit/Delete inventory data	Pass	
	TC-10 Check-out inventory item	Pass	
CR-6 Only Administrator access to the data	TC-01 User Login	Pass	
	TC-02 Role based Access	Pass	
CR-7 Administrator is allowed to set user permission level and change passwords.	TC-02 Role based Access	Pass	
Single Login interface	TC-11 Time Card System / Inventory system integration	Pass	
CR-13: Inventory Management System pulls user login and employee information from the Timetrex database. (Database Synchronization)	TC-11 Time Card System / Inventory system integration	Pass	

6.2.1.2 Summary of Test Results

Since we are using NDIs, the two subsystems are already mature systems and the testing is going on very smoothly. So the testing process mainly focus on the integration and the interact functions of the two subsystems including the login page and database synchronization.

Since there are some capabilities not being fully completed and there are still some bugs in the system, the development team will continue configure and test the system in the flowing iteration.

6.2.1.3 Adherence to Plan

The first and the second iteration went on very well and strictly followed the iteration plan. The development team did the work on time and followed the schedule.

For the third iteration, the team will finish configuring the system and prepare for delivering the system to our client. For the development team, the remaining work is simple and will be finished on time. For our client, they will implement the system by their selves and the team will do more communication with our client and offer technical support to make sure all the work will be done on time.

6.2.2 Core Capability Drive-through (CCD) Results

Login To Each System

Positive: Stakeholder was able to login to each system without any setbacks.

Risks: We have not yet created any custom branding for the login page and must make sure we maintain all displayed functionality once we do.

TimeTrex Scenario Results

Add an Employee

Positive: Adding a new employee worked flawlessly. Our stakeholder was able to login, navigate to the necessary page required to add a new employee and fill out all of the required fields that were necessary.

Improvements Needed/Suggested / Changes to be Considered: What fields were required during the registration process was not entirely intuitive. We needed to guide him in order to tell him which exact fields were required and which were optional. A very valuable suggestion was to incorporate the red asterisks next to all required fields like they are for the few personal information fields. This will better signify what is necessary to fill out and what is not.

Punch In and Punch Out

Positive: The client was able to navigate to the page that housed the punch in/punch out functionality. All fields that were needed to be filled out was very straight forward to the stakeholder and easy to fill out.

Improvements Needed/Suggested: Handling of pay-periods needs to be either removed or made more intuitive. There needs to be an easier method to notify the logged in user of the employees associated pay-period or how to update that associated pay-period prior to performing the punch in/punch out task.

Changes to be Considered: Some changes desired where to make the pay-period associated with each employee more visible to whoever is logged in along with making it easily accessible from the punch in/punch out page. Another wish of the stakeholder was to have the punch in/punch out page open up in the same window rather than in a new window. In his words this would save them time when it comes to entering employees punches into the TimeTrex system. Lastly, the stakeholder suggested allowing for specifying times that the employee punched in and out on the same page

rather than having to visit that page twice to perform the punch in then punch out functionality.

Mass Punch Multiple Employees

Positive: The ability to punch in/punch out multiple employees are once, as well as punch a single employee in and out for multiple days in one screen was very appealing to our stakeholder with respect to saving time and effort on his end.

Improvements Needed/Suggested: The UI needs to be more suggestive. Performing actions on a single employee was very intuitive with the employees being listed out and a check box placed next to each employee specifying that that is the employee you wish to perform the actions on. With the mass punch system by default it uses a button with an arrow set inside of it to specify adding and removing from the list of employees to be effected by the mass punch operation. This was confusing to the stakeholder as our UI is was not consistent across all pages and functionalities.

Changes to be Made: If time permits, provide a standardized format to perform the punch in and punch out functionality and essentially, a standardized method for interacting with employees through the TimeTrex system. As the TimeTrex system is a free NDI and many of the functionalities are block boxed to the team in regards to customization this is not high on our list of priorities over the next two weeks of development.

Inventory Management System Scenario Results

Add a Product & Add a Transaction

Positive: The stakeholder found adding both a product and a transaction very easy to accomplish and needed little to no help in successfully performing both tasks with little effort learning the system. The fields for each form item where descriptive enough and the stakeholder seemed to be grasping all aspects of the task at hand.

Improvements Needed/Suggested:

- Having 'add new' be the button title associated with both adding a new product and adding a new transaction was not intuitive enough for him. Our stakeholder was concerned that there would be confusion as to whether the button was to add a new product or to add a new transaction.
- During the process of adding a transaction we had a positive number be associated with taking out inventory and a negative number (prefixed with -) be associated with a transaction that returns inventory. This was a little confusing to our stakeholder and instead we discussed about involving a switch to differentiate between adding or removing product from the inventory instead of using +/- to differentiate.
- Last improvement/suggestion for these two scenarios was to default the date drop down boxes to the current day. During the CCD they were static drop down boxes always starting off on the first item but they wish that it would default to the current day.

Edit a Product

Positive: This action was very intuitive to the stakeholder and he performed it without much guidance or support. It seemed to be a very clear cut process to edit a products details.

Improvements needed/suggested: There were no improvements suggested to the process of editing product details.

Generate Product Reports

Positive: The report format was an acceptable format for the stakeholder. The fact that the format downloaded to the users computer was acceptable by the stakeholder.

Improvements needed/suggested: No improvements were suggested for generating the reports for specific products

Generate Transaction Reports

Positive: The report format was an acceptable format for the stakeholder. The fact that the format downloaded to the users computer was acceptable by the stakeholder.

Improvements needed/suggested: Selecting reports from the transaction screen was confusing for the stakeholder. They would like to have a link on the left hand menu that links to a separate reports generation page which you can chose your product and a start/end date to generate your reports between.

Changes to be considered / Possible New Risks: Incorporating the feature that the stakeholder desires in providing an entirely separate reports generation screen comes very late into the development process and due to other more critical tasks it is a risk in regards to time remaining in the project life cycle to add this functionality in.