# Lanna Cooking Recipe on Mobile Project Management Plan

# By

Name: Kantapong Orprayoon ID: 532115008

Name: Khomkrib Singh ID: 532115015

Department of Software Engineering
College of Arts, Media and Technology
Chiang Mai University

**Project Advisor** 

Mr. Kittitouch Suteeca

# **Document History**

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Documents						_
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	-Add					
	Infrastructure					
	-Add Monitoring					
	and Controlling					
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	-Add Quality					
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	-Add Estimated					
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	-Add					
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v.1.J.uucx	Effort and Cost		2013			
	-Add Project					
	meeting in					
	Monitoring and					
	Controlling					
	Mechanisms					

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Documents						
LCR-PMP- V.2.0.docx	2.0 -Add MySQLyog into topic 2.2	Released	6-08- 2013	KO,KS	KO,KS	KO,KS
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	version in					
	8.3 Configuration					
	table					
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V.3.0.docx	-Edit Scope of project		2013			
	-Edit Estimated					
	duration of task					
	-Update baseline					
	version					
	-Edit Schedule &					
	milestones					

KO = Kantapong Orprayoon

KS = Khomkrib Singh

Document develop by
•••••
(Kantapong Orprayoon)
•••••
(Khomkrib Singh)
(3 October 2013)

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#### **Project Management Plan**

#### 1. Introduction

Our project is the project from SE499 (Senior Project). There are 2 members in our team for working in this project. The project's topic is about cooking recipe application on mobile. The descriptions of the project plan include the project scheduling and project evaluating which help to manage to develop project. Project plan will show the related detail of the project such as scope, milestone, risks assessment, team structure and estimated duration of task. The overall of the document of the project plan will help the developer to achieve the project objective.

#### 1.1 Project Overview

Lanna Cooking Recipe on Mobile is an android application developed for android Smartphone. This application is about cooking recipe which helps users save their time to prepare food by providing features such as shopping list feature that is contain list of needed ingredient, ingredient location finding which is feature that using Google map to find where is needed ingredient store location and random menu food system by shaking.

This Project plan and Quality plan document contains project planning scheduling activities and evaluating Lanna Cooking Recipe on Mobile project.

### 1.1.1 Purpose

- To make user to get more comfortable and help to save their time by ingredient finding location feature and shopping list feature.
- To promote Lanna Foods to be famous food in Thailand by providing this application for free.

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#### **1.1.2** Scope

Main features of Lanna Cooking Recipe are listed as follows:

- Provide Lanna menu recipe such as how to cook and what is needed ingredient.
- Provide Picture and description for each ingredient of menu to make more understanding for user.
- Provide user convenience to find ingredient's store location by using Google Map API and can find direction from user to ingredient's store.
- Help users get more comfortable and save their times for finding ingredient's location that provided by admin.
- Provide shopping list function users can add menu to shopping list that store the list of ingredients in each menu and also calculate amount of needed ingredients in each menu up to 3 menus.
- Synchronize with Facebook API for using share function to share food menu on user Facebook account.
- Provide interaction with user Random Feature that user can random by shaking a device.
- Provide users can add menu to shopping list that store the list of ingredients in each menu.

#### 1.1.3 Acronyms and Definitions

#### Acronyms

LCR = Lanna Cooking Recipe

PMP = Project Management Plan

SDD = Software Design Document

SRS = Software Requirment Specification

**KO** = Kantapong Orprayoon

KS = Khomkrib Singh

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# 1.2 Work Product to be developed

# 1.2.1 Deliverables

No.	Deliverables/Release	Media	No. of Copies	Date
1.	Project Proposal	Hard Copy	3	6/3/2013
	<ul> <li>Lanna Cooking Recipe on</li> </ul>			
	Mobile proposal version 1.3			
2.	The Progress report I	Hard Copy	3	5/62013
	Project Management Plan			
	version 1.3			
	Software Requirement  Specification regards 1.2			
	Specification version 1.3			
	Software Design Document version 1.3			
	• Test Plan version 1.3			
	<ul> <li>Test Flair version 1.3</li> <li>Traceability record version 1.3</li> </ul>			
2	•	II. 1.C	2	7/0/2012
3.	The Progress report II	Hard Copy	3	7/8/2013
	Software Requirement  Specification requirement  2.0			
	Specification version 2.0			
	Software Design Document version 2.0			
	• Test Plan version 2.0			
	<ul> <li>Traceability record version 2.0</li> </ul>			
4.	The Progress report III	Hard Copy	3	11/9/2013
''	Software Requirement	rim a copy		11/9/2010
	Specification version 2.1			
	<ul> <li>Software Design Document</li> </ul>			
	version 2.1			
	<ul> <li>Test Plan version 2.1</li> </ul>			
	• Traceability record version 2.1			
5.	The final progress report	Hard Copy	3	4/10/2013
	<ul> <li>Software Requirement</li> </ul>			
	Specification version 3.0			
	Software Design Document			
	version 3.0			
	• Test Plan version 3.0			
	Traceability record version 3.0	C - C	2	2/10/2012
6.	Software Source code version	Software	3	3/10/2013
	1.0			

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#### 1.2.2 Non-Deliverables

No.	Work Products	Media
1	30 seconds video presentation	File
2	Poster presentation	Poster
3	5 minutes video presentation	File

#### 2. Infrastructure

#### 2.1 Hardware/Software Acquisition Plans

#### • Hardware

#### • Computer

Computer shall be a tool for run Eclipse IDE for Android Developing.

Minimum spec of Computer:

- 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 1 GB RAM(32-bit) or 2 GB RAM (64-bit)
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)
- DirectX 9 graphics device with WDDM 1.0 or higher driver

#### Smart phone with Android OS

Android device is necessary for test this application. The device shall be support Google map and GPS. The device is requires android OS version 2.2 or later.

#### • Software Acquisition Plans

#### Server

Server is necessary for storing database of the application and necessary file such as PHP file, picture and etc. Server runs on Apache Web Server and window operation system.

#### Internet

Internet access speed more than 100 KB/sec.

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# 2.2 Project Specific system administration support needed

#### **Software needed:**

- Gantt Chart
- Photoshop
- Drop box
- Visual Paradigm for UML
- Eclipse
- Android SDK
- Microsoft Word
- My SQL Server
- Web Server
- Web Brower
- MySQLyog
- MySQLite

# 3. Management Procedures

## 3.1 Project Team Structure

Project Team Member:

- 1. Mr. Kantapong Orprayoon 532115008
- 2. Mr. Khomkrib Singh 532115015

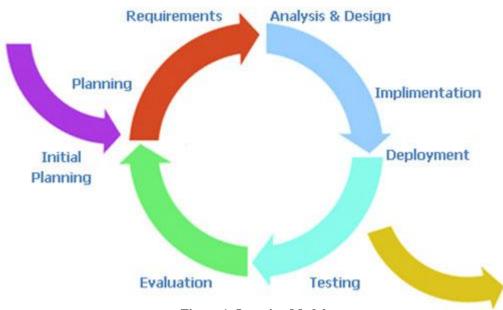
Responsibility	Owner	Reviewer
Project Proposal	KO	KS
Project Plan and Quality Plan	KO	KS
Requirement Specification	KO	KS
Design Document	KS	KO
Implementation	KO	KS
Traceability Record	KS	KO
Testing Record	KS	KO

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#### 3.2 Monitoring and Controlling Mechanisms

#### 3.2.1 Software Development Model

#### General overview of "Iteration Model"



**Figure 1: Iteration Model** 

**Iteration Model** is a popular version of the system development life cycle model for software engineering and used in software development process. The iteration model process is starting with Initial Planning, Planning, Requirement, Analysis & Design, Implementation, Deployment, Testing, and Evaluation. The advantage is reliable user feedback. When presenting sketches and blueprints of the product to users for their feedback.

The disadvantage of this model is that each phase is rigid with no overlap, costly system architecture or design issues may arise because not all requirements are gathered up front for the entire lifecycle.

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# 3.2.2 Status Reporting

No.	Progress Report	Software items	Date
1	Project Proposal Report	<ul> <li>Proposal</li> </ul>	6/3/2013
2	1 <sup>st</sup> Progress Report	<ul> <li>Project Management Plan</li> <li>Software Requirement Specification</li> <li>Software Design Document</li> <li>Implementation Progress I</li> <li>Test Plan</li> <li>Traceability record</li> </ul>	5/6/2013
3	2 <sup>nd</sup> Progress Report	<ul> <li>Software Requirement Specification</li> <li>Software Design Document</li> <li>Implementation Progress II</li> <li>Test Plan</li> <li>Traceability record</li> </ul>	7/8/2013
4	3 <sup>rd</sup> Progress Report (Show Pro)	<ul> <li>Software Requirement Specification</li> <li>Software Design Document</li> <li>Implementation Progress III</li> <li>Test Plan</li> <li>Traceability record</li> </ul>	11/9/2013
5	The final progress report	<ul> <li>Software Requirement Specification</li> <li>Software Design Document</li> <li>Software Source code</li> <li>Test Plan</li> <li>Traceability record</li> </ul>	4/10/2013

# 3.2.3 Project Meeting

Participants	Roles
Mr. Kittitouch Suteeca	Project advisor
Mr. Kantapong Oraprayoon	Development team member
Mr. Khomkrib Singh	Development team member

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#### 3.3 Change Management

Change Management manages all of the changes in the project during the development process. All of the change requests will be recording into the change management document.

We have the strategy for manage the changes by following these steps:

- 1. Analyzing the change.
- 2. Setting the change request form.
- 3. Approving the change request by project advisor.
- 4. Change the project follows by approved change request

#### 4. Quality Planning [V&V]

#### **4.1 Quality Factors**

According to McCall's factor model, the Lanna Cooking Recipe android application should meet these following factors:

#### **4.1.1 Product operation factors**

#### -Correctness

- The software should able to provide more than 80% correctness of data from user traditional request.

#### -Reliability

- The software should able to handle more than 80% of traditional activity with less than 10% of software's failure.

#### -Integrity

- The software should able identify between authorized and unauthorized person.
- The software should able to limit a group of person who can modify the data.

#### 4.1.2 Product revision factors

#### -Maintainability

- The software should have 20-30% of comment comparing with the whole LOC to support the future maintenance activity.

#### -Testability

- The software should able to be tested 100% of it defined routine and functionality.

#### 4.1.3 Product transition factors

#### -Reusability

- More than 20% part of finished software should able to be reused in future development.

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# 4.2 Reviews/Responsibility

		Stage Exit Review		
No.	Stage	Software items	Owner	Reviewer
1	The progress report 1	Project Management Plan	КО	KS
2	The progress report 1	Software Requirement Specification	КО	KS
3	The progress report 1	Software Design Document	KS	КО
4	The progress report 1	Test Plan	KS	КО
5	The progress report 1	Traceability Record	KS	КО
6	The progress report 2	Software Requirement Specification	КО	KS
7	The progress report 2	Software Design Document	KS	КО
8	The progress report 2	Test Plan	KS	КО
9	The progress report 2	Traceability Record	KS	КО
10	The progress report 3	Software Requirement Specification	КО	KS
11	The progress report 3	Software Design Document	KS	КО
12	The progress report 3	Test Plan	KS	КО
13	The progress report 3	Traceability Record	KS	КО

# 4.3 Testing

	Test Process				
No.	Test	Responsibility			
1	Unit Testing	KO,KS			
2	System Testing	KO,KS			
3	Acceptance Testing	KO,KS			

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# 4.4 Software Development Standard ISO29110 for Very Small Entity (VSE)

ISO 29110 is a guide applies to Very Small Entities (VSEs), enterprise, organization, department or project up to 25 people, dedicated to software development. The Guide provides Project Management and Software Implementation process which integrate practices based on the selection of ISO/IEC12207- Systems and Software Engineering –Software Life Cycle process – guidelines for the content of software life cycle process information products (documentation) standards elements.

#### **Project Management (PM) process**

#### PM purpose

The purpose of the Project Management process is to establish and carry out in a systematic way the tasks of the software implementation project, which allows complying with the project's objectives in the expected quality, time and costs.

#### PM objectives

**PM.O1.** The *Project Plan* for the execution of the project is developed according to the *Statement of Work* and validated with the Customer. The tasks and resources necessary to complete the work are sized and estimated

**PM.O2.** Progress of the project is monitored against the *Project Plan* and recorded in the *Progress Status Record*. Corrections to remediate problems and deviations from the plan are taken when project targets are not achieved. Appropriate treatment is taken to correct or avoid the impact of risk.

Closure of the project is performed to get the Customer acceptance documented in the *Acceptance Record*.

**PM.O3.** The *Change Requests* are addressed through their reception and analysis. Changes to software requirements are evaluated for cost, schedule and technical impact.

**PM.O4.** Review meetings with the Work Team and the Customer are held. Agreements are registered and tracked.

**PM.O5.** Risks are identified as they develop and during the conduct of the project.

**PM.O6.** A software *Version Control Strategy* is developed. Items of *Software Configuration* are identified, defined and baselined. Modifications and releases of the items are controlled and made available to the Customer and Work Team including the storage, handling and delivery of the items.

**PM.O7.** Software Quality Assurance is performed to provide assurance that work products and processes comply with the *Project Plan* and *Requirements Specification*.

#### **PM Activities**

The Project Management Process has the following activities:

- PM.1 Project Planning
- PM.2 Project Plan Execution
- PM.3 Project Assessment and Control
- PM.4 Project Closure

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#### **Software Implementation (SI) process**

#### SI purpose

The purpose of the Software Implementation process is the systematic performance of the analysis, design, construction, integration and tests activities for new or modified software products according to the specified requirements.

#### SI objectives

- **SI.O1.** Tasks of the activities are performed through the accomplishment of the current *Project Plan*.
- **SI.O2.** Software requirements are defined, analyzed for correctness and testability, approved by the Customer, baselined and communicated.
- **SI.O3.** Software architectural and detailed design is developed and baselined. It describes the software items and internal and external interfaces of them. Consistency and traceability to software requirements are established.
- **SI.O4.** Software components defined by the design are produced. Unit test are defined and performed to verify the consistency with requirements and the design. Traceability to the requirements and design are established.
- **SI.O5.** Software is produced performing integration of software components and verified using Test Cases and Test Procedures. Results are recorded at the Test Report. Defects are corrected and consistency and traceability to Software Design are established.
- **SI.O6.** A Software Configuration, that meets the Requirements Specification as agreed to with the Customer, which includes user, operation and maintenance documentations is integrated, baselined and stored at the Project Repository. Needs for changes to the Software Configuration are detected and related Change Requests are initiated.
- **SI.O7.** Verification and Validation tasks of all required work products are performed using the defined criteria to achieve consistency among output and input products in each activity. Defects are identified, and corrected; records are stored in the *Verification/Validation Results*.

#### SI activities

The Software Implementation Process has the following activities:

- SI.1 Software Implementation Initiation
- SI.2 Software Requirements Analysis
- SI.3 Software Architectural and Detailed Design
- SI.4 Software Construction
- SI.5 Software Integration and Tests
- SI.6 Product Delivery

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#### 5. Estimated Duration of Tasks

#### Server

**Feature 1:** Create database system for managing recipe detail, ingredient detail, and ingredient for each menu and cooking method.

Feature 2: Developing log-in system.

**Feature 3:** Create database system for managing store location and comment.

#### **Mobile Application**

**Feature 1:** User interface for all frame design.

**Feature 2:** Show recipe information from database to application.

**Feature 3:** Share by using Facebook.

Feature 4: Ingredient information.

Feature 5: Show map by Google map API.

Feature 6: Shopping list function.

**Feature 7:** Find direction from user to ingredient store location by using

Feature 8: Random food system by shaking.

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# Progress I

Task Name	Duration	Begin Date	End Date
Project Management Plan	5 days	9/3/2013	13/3/2013
Software Requirement	5 days	14/3/2013	18/3/2013
Specification			
Software Design	12 days	19/3/2013	30/3/2013
<ul> <li>Use Case Diagram</li> </ul>			
<ul> <li>Activity Diagram</li> </ul>			
<ul> <li>Class Diagram Progress I</li> </ul>			
<ul> <li>Sequence Diagram</li> </ul>			
ER Diagram Progress I			
UI design			
Implementation Progress I	46 days	31/3/2013	15/5/2013
Server			
• Feature 1			
• Feature 2			
Mobile Application			
• Feature 1			
Testing Document Progress I	3 days	16/5/2013	18/5/2013
<ul> <li>Test Plan</li> </ul>			
<ul> <li>Test Record</li> </ul>			
Traceability Record Progress I	1 day	23/5/2013	23/5/2013
Progress I Submission	1 day	5/6/2013	5/6/2013
Progress I Presentation	2 days	12/6/2013	13/6/2013

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# **Progress II**

Task Name	Duration	Begin Date	End Date
Software Requirement	5 days	7/6/2013	11/6/2013
Specification			
Software Design	16 days	12/6/2013	27/6/2013
<ul> <li>Use Case Diagram</li> </ul>			
<ul> <li>Activity Diagram</li> </ul>			
<ul> <li>Class Diagram Progress II</li> </ul>			
<ul> <li>Sequence Diagram</li> </ul>			
<ul> <li>ER Diagram Progress II</li> </ul>			
<ul> <li>UI design</li> </ul>			
Implementation Progress II	30 days	27/6/2013	27/7/2013
Server			
• Feature 3			
Mobile Application			
• Feature 2			
• Feature 5			
Testing Document Progress II	10 days	26/7/2013	5/8/2013
<ul> <li>Test Plan</li> </ul>			
<ul> <li>Test Record</li> </ul>			
Traceability Record Progress II	1 day	5/8/2013	5/8/2013
Progress II Submission	1 day	7/8/2013	7/8/2013
Progress II Presentation	2 days	21/8/2013	22/8/2013

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# **Progress III Show Pro**

Task Name	Duration	Begin Date	End Date
Software Requirement	3 days	23/8/2013	25/8/2013
Specification			
Software Design	10 days	26/8/2013	30/8/2013
<ul> <li>Use Case Diagram</li> </ul>			
<ul> <li>Activity Diagram</li> </ul>			
<ul> <li>Class Diagram Progress III</li> </ul>			
Sequence Diagram			
ER Diagram			
UI Design			
Implementation Progress III	7 days	31/8/2013	6/9/2013
Mobile Application			
• Feature 3			
• Feature 4			
• Feature 6			
• Feature 7			
• Feature 8			
Testing Document Progress III	2 days	7/9/2013	8/9/2013
Test Plan			
Test Record			
Traceability Record Progress III	1 day	9/9/2013	9/9/2013
Progress III Submission	1 day	11/9/2013	11/9/2013
Progress III Presentation	1 day	11/9/2013	11/9/2013

## **Final Progress**

Task Name	Duration	Begin Date	End Date
Documentation	23 days	12/9/201	24/9/2013
<ul> <li>Overall Software</li> </ul>			
Specification			
<ul> <li>Overall Software Design</li> </ul>			
Overall Traceability			
Record			
<ul> <li>Overall Testing</li> </ul>			
<ul> <li>Binding Document</li> </ul>			
Software Source Code	2 days	25/9/2013	26/9/2013
Release Software	3 days	27/9/2013	29/9/2013
Advertise Software to Media	3 days	4/10/2013	6/10/2013
Final Progress Submission	1 day	4/10/2013	4/10/2013
Final Progress Presentation	2 days	7/10/2013	8/10/2013

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# **6. Estimated Effort and Cost The estimated effort and cost are:**

Item	Approximately Cost
Android Programming textbook	1,000 bath
Print cost of software document	2,000 bath
Android Device for testing the application	5,000 bath
Poster presentation	500 bath

Software document report developer team can use the money in finance support. For about the textbook in this case, all of textbook developer team can borrow the textbook form the library. Android Device is very importance for this project because the application can be tested by android device.

# 7. Identification of Project Risks

Risk	Likelihood and	Mitigation
	impact	
Management Time	High/High	Have to follow the schedule and mile
		stone.
Group member lack skill and	High/High	Provide appropriate training.
knowledge.		Ask for assistance and support from
		experienced developer and advisor.
Deal with changes	High/High	Use software configuration management
		and follow changes management step.
Unfamiliar with testing	Medium/Medium	Study testing technique during the test
Process		design.
Computer Crash	Medium/Medium	Save file in drop box

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#### 8. Version Control Strategy

#### 8.1 Naming Conversion

For the filename format that we using for all project documents are:

"[ProjectName]-[Document Name]-[Version]-[File Type]"

#### 8.2 Project Repository

Drop Box is a free service that lets you bring your photos, documents and videos and share them easily.



Figure 2: Project Repository

#### List of related document and description

- 1. To Advisor: contain files that want to send to our advisor.
- 2. Project plan: contain project plan document files.
- 3. SRS: contain software requirement specification document files.
- 4. Design: contain design document files.
- 5. Testing: contain testing document files.
- 6. Traceability record: contain traceability record document
- 7. Proposal: contain involving proposal files.
- 8. Presentation: contain presentation files.
- 9. Source code: contain source code of project.
- 10. Others: contain kind of picture, server information, interesting web site and et

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# **8.3** Configuration Item Table

No.	Item	File Name	File Type	Owner	Path	Baseline Version
1	Project Proposal	LCR-Proposal- V.[version]-docx	.docx	KO and KS	/ LCR/Proposal	1.3
2	Project Management Plan	LCR-Projectplan- V.[version]-docx	.docx	KO and KS	/ LCR /Project Plan	3.0
3	Software Requirement Specification	LCR-SRS-V.[version]-docx	.docx	KO and KS	/ LCR /SRS	3.0
4	Traceability Record	LCR-TR-V.[version]-docx	.docx	KO and KS	/ LCR /Traceability Record	3.0
5	Software Design Document	LCR-SDD-V.[version]-docx	.docx	KO and KS	/ LCR /Design	3.0
6	Test Plan	LCR-TestPlan- V.[version]-docx	.docx	KO and KS	/ LCR /Testing	3.0
7	Test Record	LCR-TestRecord- V.[version]-docx	.docx	KO and KS	/ LCR / Testing	3.0

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#### 9. Schedule & Milestones

#### **Progress Report I**

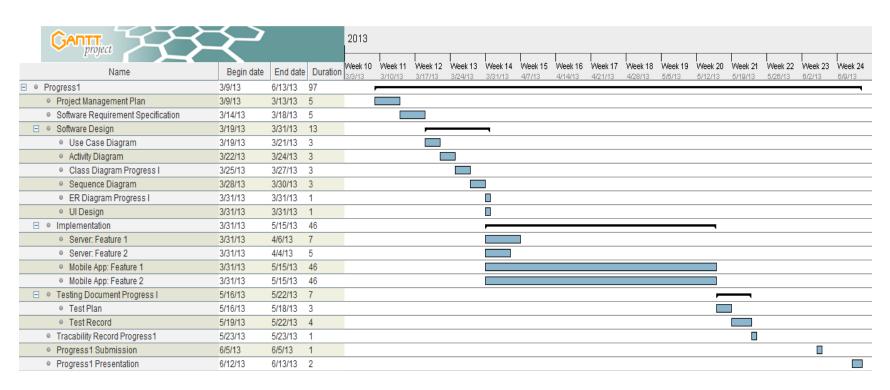


Figure 3: Progress Report I

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#### **Progress Report II**

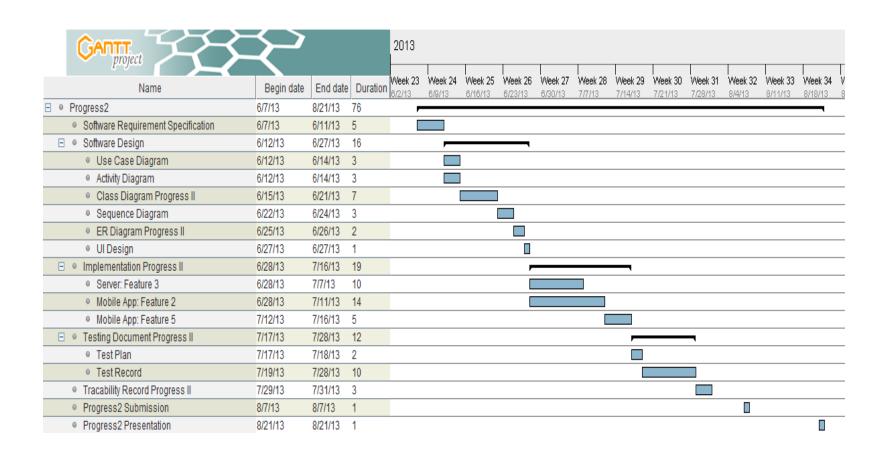


Figure 4: Progress Report II

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#### **Progress Report III**

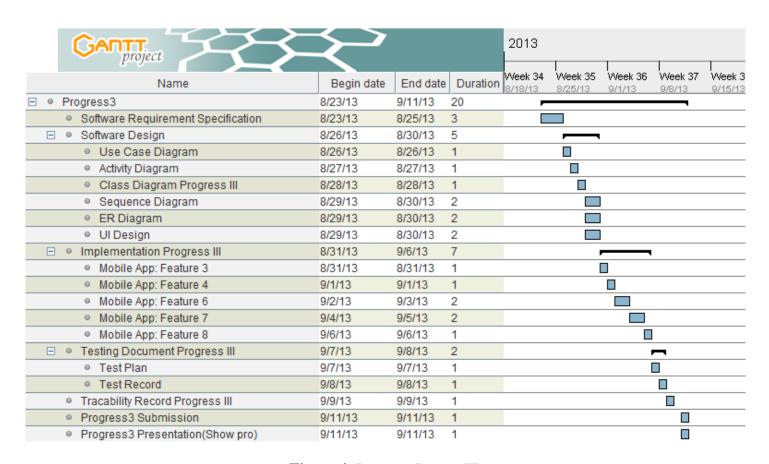


Figure 4: Progress Report III

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#### **Final Progress**

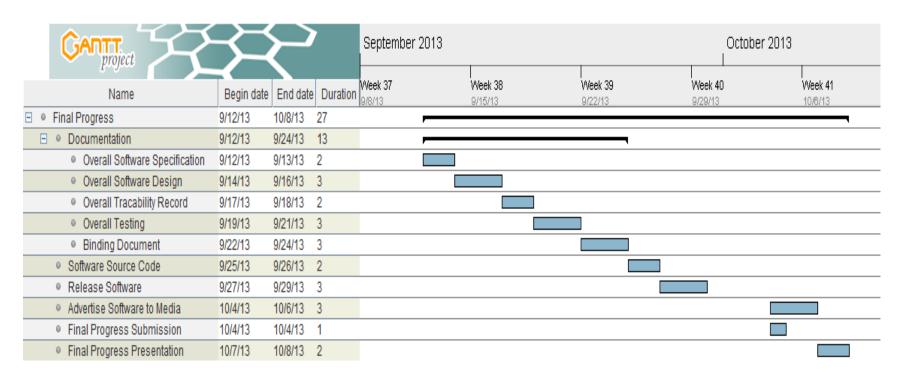


Figure 5: Final Progress

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#### 10. Appendix

#### References

ISO/IEC 29110:2009 – Process Reference Model

ISO/IEC 15504:2003-2006 - Process Assessment Model

Procedure for Process Assessment.

#### **Attribute Rating**

- Process attribute rating values: The ordinal rating scale defined below shall be used to express the levels of achievement of the process attributes.
  - N *Not achieved*: There is little or no evidence of achievement of the defined attribute in the assessed process.
  - **O** P *Partially achieved*: There is some evidence of an approach to, and some achievement of, the defined attribute in the assessed process. Some aspects of achievement of the attribute may be unpredictable.
  - L *Largely achieved*: There is evidence of a systematic approach to, and significant achievement of, the defined attribute in the assessed process. Some weakness related to this attribute may exist in the assessed process.
  - F *Fully achieved*: There is evidence of a complete and systematic approach to, and full achievement of, the defined attribute in the assessed process. No significant weaknesses related to this attribute exist in the assessed process.

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# Project Management (PM) Process PM purpose

The purpose of the Project Management process is to establish and carry out in a systematic way the tasks of the software implementation project, which allows complying with the project's objectives in the expected quality, time and costs.

#### Rating

Objective	Description	<b>Rating Result</b>
PM.O1	The Project Plan for the execution of the project is developed according to the Statement of Work and validated with the Customer. The tasks and resources necessary to complete the work are sized and estimated.	L
PM.O2	Progress of the project is monitored against the Project Plan and recorded in the Progress Status Record. Corrections to remediate problems and deviations from the plan are taken when project targets are not achieved. Appropriate treatment is taken to correct or avoid the impact of risk. Closure of the project is performed to get the Customer acceptance documented in the Acceptance Record.	L
PM.O3	The Change Requests are addressed through their reception and analysis. Changes to software requirements are evaluated for cost, schedule and technical impact.	L
PM.O4	Review meetings with the Work Team and the Customer are held. Agreements are registered and tracked.	N
PM.O5	Risks are identified as they develop and during the conduct of the project.	L
PM.O6	A software Version Control Strategy is developed. Items of Software Configuration are identified, defined and baselined. Modifications and releases of the items are controlled and made available to the Customer and Work Team including the storage, handling and delivery of the items.	L
PM.O7	Software Quality Assurance is performed to provide assurance that work products and processes comply with the Project Plan and Requirements Specification.	L

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#### Task lists for PM. Process

PM.1 Project planning, (PM.O1, PM.O5, PM.O6, PM.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
PM TL	PM.1.1 Review the Statement of Work	• LCR-ProjectPlan-V.2.1- docx/12/4.2 Reviews/ Responsibility	L
PM CUS	PM.1.2 Define with the Customer the Delivery Instructions of each one of the deliverables specified in the Statement of Work.	• LCR-ProjectPlan-V.2.1-docx/22/9. Schedule & Milestones	L
PM TL	PM.1.3 Identify the specific tasks to be performed in order to produce the deliverables and their software components identified in the Statement of Work. Include verification, validation and reviews with Customer and Work Team tasks to assure the quality of work products. Identify the tasks to perform the Delivery Instructions. Document the Tasks.		L
PM TL	PM.1.4 Establish the Estimated Duration to perform each task.	• LCR-ProjectPlan-V.2.1-docx/15/5. Estimated Duration of Tasks	L
PM TL	PM.1.5 Identify and document the resources: human, material, equipment and tools, including the required training of the Work Team to perform the project. Include in the schedule the dates when resources and training will be needed.		P

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Role	Task list	Evidence (item name/page/topic)	Rating Result
PM TL	PM.1.6 Establish the Composition of Work Team assigning roles and responsibilities according to the Resources.	• LCR-ProjectPlan-V.2.1- docx/12/4.2 Reviews/ Responsibility	P
PM TL	PM.1.7 Assign estimated start and completion dates to each one of the tasks in order to create the Schedule of the Project Tasks taking into account the assigned resources, sequence and dependency of the tasks.	<ul> <li>LCR-ProjectPlan-V.2.1- docx/15/5. Estimated Duration of Tasks</li> <li>LCR-ProjectPlan-V.2.1- docx/22/9. Schedule &amp; Milestones</li> </ul>	L
PM	PM.1.8 Calculate and document the project Estimated Effort and Cost.	LCR-ProjectPlan-V.2.1- docx/19/6. Estimated Effort and Cost	P
PM	PM.1.9 Identify and document the risks which	LCR-ProjectPlan-V.2.1-	
TL	may affect the project.	docx/19/7. Identify of Project Risks	P
PM	PM.1.10 Document the Version Control Strategy	LCR-ProjectPlan-V.2.1-	
TL	in the Project Plan.	docx/20/8. Version Control Strategy	L
PM	PM.1.11 Generate the Project Plan or update it. Furthermore, the Project Plan can be updated due to the Change Request made by the Customer or arising from the project.	LCR-ProjectPlan-V.2.1- docx/1/Document History	L
PM	PM.1.12 Include product description, scope,	LCR-ProjectPlan-V.2.1-	
TL	objectives and deliverables in the Project Plan.	docx/4/1. Introduction	L
PM	PM.1.13 Verification of the Project Plan.		
TL	Verify that all Project Plan elements are viable and consistent. The results found are documented in a Verification Results and corrections are made until the document is approved by TL.	-	N

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Role	Task list	Evidence (item name/page/topic)	Rating Result
PM	PM.1.14 Validation of the Project Plan.		
CUS	Validate that the Project Plan elements definition match with the Statement of Work. The results found are documented in a Validation Results and corrections are made until the document is approved by CUS.	-	N
PM TL	PM.1.15 Establish or prepare the project repository using the Version Control Strategy.	LCR-ProjectPlan-V.2.1- docx/20/8.2 Project Repository	L

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# PM.2 Project plan execution (PM.O2, PM.O3, PM.O4, PM.O5, PM.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
PM TL WT	PM.2.1 Review the Project Plan and record actual data in Progress Status Record.	• LCR-ProjectPlan-V.2.1-docx/10/3.2.2 Status Reporting	L
PM TL	PM.2.2 Analyze and evaluate the Change Request for cost, schedule and technical impact, and include the accepted changes in the Project Plan.  The Change Request can be initiated externally by the Customer or internally by the Work Team.  The evaluation of Change Request initiated by Customer or those which affects the Customer needs. Negotiate with Customer to obtain its acceptance (see PM.2.4).	• LCR- ProjectPlan-V.2.1- docx/11/3.3 Change Management	P
PM TL WT	PM.2.3 Conduct revision meetings with the Work Team, review risk status, record agreements and track them to closure.	LCR-ProjectPlan-V.2.1- docx/10/3.2.3 Project Meeting	P
PM CUS TL WT	PM.2.4 Conduct revision meetings with the Customer, record agreements and track them to closure.  Change Request initiated by Customer or initiated by Work Team, which affects the Customer, needs to be negotiated to reach acceptance of both parties.	LCR-ChangeRequest	L

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PM	PM.2.5 Perform backup according to the Version Control Strategy.	• LCR-ProjectPlan-V.2.1-docx/20/8. Version Control Strategy	L
PM	PM.2.6 Perform Project Repository recovery using the Project Repository Backup, if necessary.	3	L

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PM.3 Project assessment and control (PM.O2)

Role	Task list	Evidence (item name/page/topic)	Rating Result
PM	PM.3.1 Evaluate project progress with respect to the <i>Project Plan</i> , comparing:		
TL	-actual tasks against planned tasks		
WT	-actual results against established project objectives -actual resource allocation against	-	N
	planned resources -actual cost against budget estimates		
	-actual time against planned schedule		
	-actual risk against previously identified		
PM	PM.3.2 Establish actions to correct deviations or problems and identified		
TL WT	risks concerning the accomplishment of the plan, as needed, document them in <i>Correction Register</i> and track them to closure.	-	N
PM TL	PM.3.3 Identify changes to requirements and/or <i>Project Plan</i> to address major deviations, potential risks or problems	LCR-ProjectPlan-V.2.1- docx/11/3.3 Change Management	
WT	concerning the accomplishment of the plan, document them in <i>Change Request</i> and track them to closure.		P

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# PM.4 Project closure (PM.O2)

Role	Task list	Evidence (item name/page/topic)	Rating Result
PM CUS	PM.4.1. Formalize the completion of the project according to the <i>Delivery Instructions</i> established in the <i>Project Plan</i> , providing acceptance support and getting the <i>Acceptance Record</i> signed.	-	N
PM	PM.4.2 Update <i>Project Repository</i> .	<ul> <li>LCR-ProjectPlan-V.2.1- docx/1/Document History</li> <li>LCR-ProjectPlan-V.2.1- docx/20/8.2 Project Repository</li> </ul>	L

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#### **Software Implementation (SI) process**

#### SI purpose

The purpose of the Software Implementation process is the systematic performance of the analysis, design, construction, integration and tests activities for new or modified software products according to the specified requirements.

Objective	Description	Rating Result
SI.O1	Tasks of the activities are performed through the accomplishment of the current	L
	Project Plan.	
SI.O2	Software requirements are defined, analyzed for correctness and testability,	${f L}$
	approved by the Customer, baselined and communicated.	
SI.O3	Software architectural and detailed design is developed and baselined. It describes	
	the software items and internal and external interfaces of them. Consistency and	${f L}$
	traceability to software requirements are established.	
SI.O4	Software components defined by the design are produced. Unit test are defined	
	and performed to verify the consistency with requirements and the design.	${f L}$
	Traceability to the requirements and design are established.	
SI.O5	Software is produced performing integration of software components and verified	
	using Test Cases and Test Procedures. Results are recorded at the Test Report.	${f L}$
	Defects are corrected and consistency and traceability to Software Design are	
	established.	
SI.O6	A Software Configuration, that meets the Requirements Specification as agreed to	
	with the Customer, which includes user, operation and maintenance	
	documentations is integrated, baselined and stored at the Project Repository.	${f L}$
	Needs for changes to the Software Configuration are detected and related Change	
	Requests are initiated.	
SI.O7	Verification and Validation tasks of all required work products are performed	
	using the defined criteria to achieve consistency among output and input products	N
	in each activity. Defects are identified, and corrected; records are stored in the	
	Verification/Validation Results.	

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#### Task List for SI. Process

# SI.1 Software Implementation initiation (SI.O1)

Role	Task list	Evidence (item name/page/topic)	Rating Result
PM	SI.1.1 Revision of the current Project Plan		
TL	with the Work Team members in order to	-	N
WT	achieve a common understanding and get their engagement with the project.		
TL	SI.1.2 Set or update the implementation	LCR-ProjectPlan-V.2.1-	
WT	environment.	docx/10/2.4 Operation	L
		Environment	

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# SI.2 Software requirements analysis (SI.O2, SI.O6,SI.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
TL	SI.2.1 Assign tasks to the Work Team members in	LCR-ProjectPlan-V.2.1-	
WT	accordance with their role, based on the current	docx/12/4.2 Reviews/	L
W I	Project Plan.	Responsibility	
AN	SI.2.2 Document or update the Requirements		
111	Specification.		
CUS	Identify and consult information sources		
	(customer, users, previous systems, documents,		
	etc.) in order to get new requirements.	• LCR-SRS-V.2.1-docx	L
	Analyze the identified requirements to determinate		
	the scope and feasibility.		
	Generate or update the Requirements		
	Specification.		
	SI.2.3 Verification of the Requirements		
N	Specification.		
	Verify the correctness and testability of the		
	Requirements Specification and its consistency		
	with the Product Description. Additionally,		
	review that requirements are complete,	-	N
	unambiguous and not contradictory. The results		
	found are documented in a Verification Results		
	and corrections are made until the document is		
	approved by AN. If significant changes were		
	needed, initiate a Change Request.  SI.2.4 Validation of the Requirements		N
US	Specification	-	11
OB	Specification		

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N	Validate that Requirements Specification satisfies needs and agreed upon expectations, including the user interface usability. The results found are documented in a Validation Results and corrections are made until the document is approved by CUS.		
Role	Task list	Evidence (item name/page/topic)	Rating Result
AN	SI.2.5 Document the preliminary version of the Software User Documentation or update the present manual.  (optional)	-	N
AN	SI.2.6 Verification of the Software User Documentation Verify consistency of the Software User Documentation with the Requirement Specification. The results found are documented in a Verification Results and corrections are made until the document is approved by AN. If significant changes were needed, initiate a Change Request. (optional)	-	N
TL	SI.2.7 Incorporate the Requirements Specification, and *Software User Documentation to the Software Configuration in the baseline.  *(optional)	-	N

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SI.3 Software architectural and detailed design (SI.O3, SI.O6, SI.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
TL AN DES	SI.3.1 Assign tasks to the Work Team members related to their role according to the current Project Plan.	• LCR-ProjectPlan-V.2.1- docx/12/4.2 Reviews/ Responsibility	L
AN	SI.3.2 Understand Requirements Specifications.	-	N
DES			
AN	SI.3.3 Document or update the Software Design:		
DES	Analyze the Requirements Specification to generate the architectural design, its arrangement in subsystems and software components defining the internal and external interfaces. Describe in detail, the appearance and the behavior of the interface, based on the Requirements Specification in a way that resources for its implementation can be foreseen.  Provide the detail of software components and their interfaces to allow the construction in an evident way.  Generate or update the Traceability Record.	LCK DDD V.2.1 GOCK	L
AN DES	SI.3.4 Verification of the Software Design Verify correctness of Software Design documentation, its feasibility and consistency with their Requirement Specification. Verify that the Traceability Record contains the adequate relationships between requirements and the Software Design elements. The results found are documented in a Verification Results and corrections are made until the document is approved by AN. If significant changes were needed, initiate a Change Request.	-	N

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Role	Task list	Evidence (item name/page/topic)	Rating Result
DES	SI.3.5 Establish or update Test Cases and Test Procedures for integration testing based on Requirements Specification and Software Design. Customer provides testing data, if needed.		L
DES	SI.3.6 Verification of the Test Cases and Test Procedures.		
AN	Verify consistency among Requirements Specification, Software Design and Test Cases and Test Procedures. The results found are documented in a Verification Results and corrections are made until the document is approved by AN.	-	N
DES	SI.3.7 Update the Traceability Record incorporating the Test Cases and Test Procedures.	<ul> <li>LCR-TR-V.2.1-docx/18/</li> <li>1.7 Unit Testing</li> <li>LCR-TR-V.2.1-docx/21/</li> <li>1.8 System Testing</li> </ul>	L
TL	SI.3.8 Incorporate the Software Design, Test Cases, Test Procedures and Traceability Record to the Software Configuration as part of the baseline.	• LCR-ProjectPlan-V.2.1- docx/21/8.3 Configuration Item Table	L

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## SI.4 Software construction (SI.O4, SI.O6, SI.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
TL	SI.4.1 Assign tasks to the Work Team members related to their role, according to the current Project Plan.	LCR-ProjectPlan-V.2.1-     docx/12/4.2 Reviews/     Responsibility	L
PR	SI.4.2 Understand Software Design.	-	N
PR	SI.4.3 Construct or update Software Components based on the detailed part of the Software Design and define or update unit test cases.	-	N
PR	SI.4.4 Apply unit test cases to verify that functions work accordingly to the detailed part of the Software Design.	<ul> <li>LCR-Test Plan-V.2.1- docx/9/ Ch.3 Unit testing of LCR Web Application</li> <li>LCR-Test Plan-V.2.1- docx/22/ Ch.4 Unit testing of LCR Mobile Application</li> </ul>	L
PR	SI.4.5 Correct the defects found until successful unit test (reaching exit criteria) is achieved.	-	N
PR	SI.4.6 Update the Traceability Record incorporating Software Components constructed or modified.	LCR-TR-V.2.1- docx/1/Document History	L
TL	SI.4.7 Incorporate Software Components and Traceability Record to the Software Configuration as part of the baseline.	LCR-ProjectPlan-V.2.1- docx/21/ 8.3 Configuration Item Table	L

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SI.5 Software integration and tests (SI.O5, SI.O6, SI.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
TL	SI.5.1 Assign tasks to the work team members related to their role, according to the current Project Plan.	• LCR-ProjectPlan-V.2.1- docx/12/4.2 Reviews/ Responsibility	L
PR	SI.5.2 Understand Test Cases and Test Procedures. Set or update the testing environment.	LCR-Test Plan-V.2.1-docx	L
PR	SI.5.3 Integrates the Software using Software Components and defines or updates Test Cases and Test Procedures for integration.	-	N
PR CUS	SI.5.4 Perform tests using Test Cases and Test Procedures for integration and document results in Test Report.	-	L
PR	SI.5.5 Correct the defects found until successful test (reaching exit criteria) is achieved.	-	N
PR	SI.5.6 Updates the Traceability Record if appropriate.	LCR-TR-V.2.1- docx/1/Document History	L
PR	SI.5.7 Document the Product Operation Guide or update the current guide, if appropriate.	-	N
PR	SI.5.8 Verification of the Product Operation Guide, if appropriate (see SI.5.7)		
CUS	Verify consistency of the Product Operation Guide with the Software. The results found are documented in a Verification Results and corrections are made until the document is approved by PR.	-	N

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AN	SI.5.9 Document the Software User Documentation or update the current one, if appropriate.	-	N
Role	Task list	Evidence (item name/page/topic)	Rating Result
AN	SI.5.10 Verification of the Software User Documentation, if appropriate (see SI.5.9)		
CUS	Verify consistency of the Software User Documentation with the Software. The results found are documented in a Verification Results and corrections are made until the document is approved by AN.	-	N
TL	SI.5.11 Incorporate the Software, Traceability Record, Test Report, Product Operation Guide and Software User Documentation to the Software Configuration as part of the baseline.	docx/21/8.3 Configuration Item	P

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# SI.6 Product delivery (SI.O6, SI.O7)

Role	Task list	Evidence (item name/page/topic)	Rating Result
TL WT	SI.6.1 Assign tasks to the work team members related to their role, according to the current Project Plan.		L
DES	SI.6.2 Understand Software Configuration.	• LCR-ProjectPlan-V.2.1-docx/21/8.3 Configuration Item Table	L
DES	SI.6.3 Document the Maintenance Documentation or update the current one.	-	N
DES	SI.6.4 Verification of the Maintenance Documentation.  Verify consistency of Maintenance Documentation with Software Configuration. The results found are documented in a Verification Results and corrections are made until the document is approved by DES.		N
TL	SI.6.5 Incorporate the Maintenance Documentation as baseline for the Software Configuration.		N
TL	SI.6.6 Perform delivery according to Delivery Instructions.	LCR-ProjectPlan-V.2.1-docx/6/ 1.2  Work Product to be Developd	L

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