

Life Cycle Plan (LCP)

PicShare

Team 02

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• Version History

Date	Author	Version	Changes made	Rationale
10/18/15	Sultan Alsarra	1.0	Added Introduction and diagrams	Initial draft for the LCP package.
10/25/15	Sultan Alsarra	1.1	Added estimates scales and updated diagrams	New updates needed
11/27/15	Sultan Alsarra	1.2	Updated Dates to phases, roles and added iteration plan	Updates for DC
12/5/15	Sultan Alsarra	1.3	Updated Iteration Plan	Numbers were out of order

12/7/15

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1. Introduction

1.1 Purpose of the LCP

The purpose of a development project's LCP is to:

- Serve as a basis for monitoring and controlling the project's progress
- Help make the best use of people and resources throughout the system's life cycle
- Provide evidence to other key stakeholders that the developers have thought through the major life cycle issues in advance

1.2 Status of the LCP

The status of the LCP is currently at the Foundation Commitment Package version number 1.1 where got feedback from the client, and updated the document accordingly from the draft version.

1.3 Assumptions

- The duration of the project is 24 weeks. We have 12 weeks in the fall of 2015 and 12 weeks in the spring of 2016
- All team members are planning to continue with the project till it's completion in spring 2015

2. Milestones and Products

2.1 Overall Strategy

The PicShare app is following Architected Agile process because theory says this the best way to develop the software, compared to other methods such as RUP. The reasons behind this is that the AA process builds on the strengths of current process models: early verification and validation concepts in the V-model, concurrency concepts in the Concurrent Engineering model, lighter-weight concepts in the Agile and Lean models, risk-driven concepts in the spiral model, the phases and anchor points in the RUP and recent extensions to address SoS acquisition. In comparison to the software-intensive RUP, the AA also addresses hardware and human factors integration.

Exploration phase

Duration: 9/02/15-9/20/15

Concept: Identify operational concept, system and software requirements and architecture, and life-cycle plan.

Deliverables: Client Interaction Report

Milestone: N/A

Strategy: One Incremental Commitment Cycle, Risk assessment analysis, Win-Win Negotiation Sessions.

Valuation phase

Duration: 9/21/15-10/26/15

Concept: Identify Objectives, Constraints and Priorities, Develop operation concept, Explore alternatives, Provide project feasibility evidence, Prototyping, Assess and plans to mitigate risks, Plan and manage project, Perform win-win negotiation, Define quality and configuration policy.

Deliverables: Draft Foundations Commitment Package

Milestone: Foundations Commitment Review

Strategy: One Incremental Commitment Cycle, Risk assessment analysis, Win-Win Negotiation Sessions, Planning Poker.

Foundations phase

Duration: 10/27/15-12/07/15

Concept: Assess Project Status, Plan and Manage Project, Manage Project Quality, Prototyping, Develop Software Architecture.

Deliverables: Foundations Commitment Package, Draft Development Commitment Package, Development Commitment Package.

Milestone: Re-baselined Development Commitment Review

Strategy: One Incremental Commitment Cycle, Risk assessment analysis.

Re-baselined Foundations phase**Duration:** 1/15/16 to 2/19/16**Concept:** Rebased line Project Status, Prepare for Development Phase, Plan for Testing, Plan and Manage Project.**Deliverables:** Valuation Commitment Package**Milestone:** Development Commitment Review**Strategy:** One Incremental Commitment Cycle, Risk assessment analysis.**Development phase****Duration:** 1/26/16 to 5/2/16**Concept:** Construction Iteration 1 and 2, System Transition**Deliverables:** Operation Commitment Package**Milestone:** Core Capability Drivethrough, Transition Readiness Review, Operation Commitment Review**Strategy:** Two development cycles, Risk assessment analysis.

2.2 Project Deliverables

2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in Exploration Phase

Artifact	Due date	Format	Medium
Jira	Every Monday	website	Jira
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Client Interaction Report	09/28/2015	.doc, .pdf	Soft copy
Win Conditions Report (AA)	09/28/2014	.doc, .pdf	Soft copy

2.2.2 Valuation Phase

Table 2: Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Jira	Every Monday	website	Jira
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Team Prototype Presentation Slides	10/02/2015	.pdf	Soft copy
Foundations Commitment Presentation	10/19/2015	.ppt,.pdf	Soft copy
Foundations Commitment Package	10/26/2015	.doc, .pdf	Soft copy

2.2.3 Foundations Phase

Table 3: Artifact deliverable in Foundations Phase

Artifact	Due date	Format	Medium
Jira	Every Monday	website	Jira
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Progress on Prototype Presentation Slides	11/06/2015	.pdf	Soft copy
Development Commitment Presentation Slides	11/30/2015	.ppt,.pdf	Soft copy
Development Commitment Package	12/07/2015	.doc, .pdf	Soft copy

2.2.4 Re-baselined Foundations Phase

Table 2: Artifact deliverable in Re-baselined Foundations Phase

Artifact	Due date	Format	Medium
Jira	Every Monday	website	Jira
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Re-Baselined Development Commitment Presentation	2/12/2016	.ppt,.pdf	Soft copy
Re-Baselined Development Commitment Package	2/19/2016	.pdf	Soft copy

2.2.5 Development Phase

Table 3: Artifact deliverable in Development Phase

Artifact	Due date	Format	Medium
Jira	Every Monday	website	Jira
Progress Report	Biweekly	.xls	Soft copy
Project Plan	Biweekly	.mpp	Soft copy
Core Capability Drivethrough Presentation	3/25/2016	.ppt, .pdf	Soft copy
Transition Readiness Review Presentation	4/8/2016	.ppt, .pdf	Soft copy
Installation and Transition	4/18/2016	.ipa, .pdf	Software, Softcopy

Operation Commitment Review Presentation	4/25/2016	.ppt,pdf	Softcopy
Operation Commitment Package	5/2/2016	.pdf	Softcopy

3. Responsibilities

3.1 Project-specific stakeholder's responsibilities

The owner of the project is Rigo Garcia and we have eight project team members.

Table 6: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	Valuation	Foundations	Development-Construction Iteration 1 & 2	Development - System Transition
Sultan Alsarra Project Manager, Life-cycle planner	Primary Responsibility Create and follow up action items. Record project progress. Secondary Responsibility Detail Project Plan. Identify responsibilities and skills.	Primary Responsibility Create and follow up action items. Record project progress. Secondary Responsibility Identify milestones and products. Estimate project effort and schedule.	Primary Responsibility Create and follow up action items. Record project progress. Secondary Responsibility Provide Process Feasibility Evidence. Develop Iteration Plan.	Primary Responsibility Create and follow up action items. Record project progress. Secondary Responsibility Assess development iteration. Develop Transition Plan.	Primary Responsibility Create and follow up action items. Record project progress. Secondary Responsibility Assess development iteration. Develop Support Plan.
Andrea Brown Feasibility Analyst,	Primary Responsibility Gather risks. Assess and plan to mitigate risks.	Primary Responsibility Provide evidence of feasibility of architecture. Analyze Business Case.	Primary Responsibility Assess Feasibility Evidence. Provide conclusion and recommendation	Primary Responsibility Build software	Primary Responsibility Build software
Aref Shafaeibejstan System Architect,	Primary Responsibility Evaluate system	Primary Responsibility Define high-level architecture. Document architecture feasibility.	Primary Responsibility Define platform-dependent architecture. Document architecture.	Primary Responsibility Assess system architecture. Build software.	Primary Responsibility Assess system architecture. Build software.
Adil Cem Albayrak Requirements	Primary Responsibility Gather win-conditions from	Primary Responsibility Document most significant	Primary Responsibility Document detailed	Primary Responsibility Update requirements.	Primary Responsibility Build software.

Engineer, UML Modeler	stakeholders. Capture win-conditions in win-win session. Secondary Responsibility Perform feasibility evidence for the requirements	requirements. Prioritize the requirements. Secondary Responsibility Develop the respective UML diagrams	requirements. Secondary Responsibility Familiarize with the NDI/NCS and COTS	Build software. Secondary Responsibility Check whether requirements or being developed as per the negotiations	Secondary Responsibility Perform Feasibility evidence
Julapat Julnual Prototyper, Developer	Primary Responsibility Assess Prototype and Components, Develop Prototype	Primary Responsibility Develop prototype. Get prototype feedback.	Primary Responsibility Tailor components.	Primary Responsibility Build software.	Primary Responsibility Build software.
Charles Reitz Prototyper, Developer	Primary Responsibility Assess Prototype and Components, Develop Prototype	Primary Responsibility Develop prototype. Get prototype feedback.	Primary Responsibility Tailor components.	Primary Responsibility Build software.	Primary Responsibility Build software.
Mohammad Almune Operational Concept Engineer,	Primary Responsibility Identify shared vision.	Primary Responsibility Develop new operational concept.	Primary Responsibility Assess operational concept.	Primary Responsibility Identify organizational and operational transformation. Build software.	Primary Responsibility Verified whether the developed project is satisfied operational concepts. Build software.
Travis Weaver IIV&V, Quality Focal Point	Primary Responsibility Verify and validate work products. Secondary Responsibility remind team to use Jira	Primary Responsibility Verify and validate work products. Construct traceability matrix. Secondary Responsibility remind team to use Jira	Primary Responsibility Verify and validate work products. Assess quality management strategy. Identify configuration management strategy. Secondary Responsibility remind team to use Jira	Primary Responsibility Verify and validate work products. Secondary Responsibility remind team to use Jira Test software bugs.	Primary Responsibility Verify and validate work products. Secondary Responsibility remind team to use Jira
Rigo Garcia Owner	Primary Responsibility - Convey project ideas to USC team	Primary Responsibility - Win-win Negotiation	Primary Responsibility - Verify Work Products Using Issue Tracking	Primary Responsibility - Verify Work Products Using Issue Tracking	Primary Responsibility - Verify Work Products Using Issue Tracking

			System	System	System
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3.2 Skills

Table 6: Member Skills

Team members	Role	Skills
Sultan Alsarra	Project Manager/Life Cycle Planner,	Current skills : HTML, CSS, , Java, MySQL, Management, Presentation Skill, Cost Estimation, Resources Management, MS Project, Quality Assurance Required skills : Server Side scripting, App development
Andrea Brown	Feasibility Analyst,	Current Skills : HTML,CSS MySQL, Java, Presentation Skill Required Skills : Server Side Scripting, App development
Charles Reitz	Prototyper/Developer	Current Skills : HTML, CSS, JavaScript, Java, Android Java, App Development, MySQL, Php, Presentation Skills Required skills : Server Side Scripting,
Mohammad Almuneia	Operational Concept Manager,	Current Skills : Java, MySQL, Databases, SQL, , Required Skills : HTML,CSS, App Development, Server Side Scripting
Travis Weaver	IIV & V Quality Focal Point	Current Skills : Software Configuration Management (Version Control Systems, Bug Tracking Systems, Build Automation)

		Required Skills : App development, PHP, HTML, CSS, Server Side Scripting
Adil Cem Albayrak	Requirements Engineer,	Current skills : C++, Java, HTML, CSS, JAVASCRIPT, MySQL,.NET development Required skills : App Development, Server Side Scripting, Presentation Skills
Aref Shafaeibejestan	Software Architecture,	Current skills : Java, Python, PHP, Javascript, MySQL, CSS, PHP, Server Side Scripting Required skills: Presentation Skill, App Development.
Jul Julnual	Prototyper/ Developer	Current skills: HTML, CSS, JavsScript, Java, Android Java, App Development, MySQL, Php. Required skills: Server Side Scripting, Presentation Skills.

4. Approach

4.1 Monitoring and Control

The project is monitored with a bi-weekly progress report and project plan. The progress report includes the top project risks, number of SLOC, COTS software and defects/concerns. Also the project team meets every Monday, Wednesday and Friday after class for team updates

4.1.1 Closed Loop Feedback Control

Using google drive to review work of project team and giving input. Also having peer review meeting every couple of weeks to discuss certain issues and give feedback to each other on work.

4.1.2 Reviews

- Team meetings; we have a group meeting every Monday, Wednesday and Friday after class to discuss projects updates and what we should do and what are some issues we need to mitigate
- Win-win negotiation; the negotiation helps us and the client to be on the same page and share the same understanding.
- Feedback from instructors: the comments from instructors are a great help.

4.2 Methods, Tools and Facilities

Table 7: Methods and Tools

Tools	Usage	Provider
Github	A repository version control system to store our code.	Github
Google drive	Contain all documents created by our team so we can review and modify	Google
Visual paradigm	A tool to create the UML diagrams used in the project	Visual paradigm
Microsoft office	MS office was used to create many of our documents and project plan	Microsoft
WhatsApp (Group/Chat)	A group on WhatsApp for communications and setting up meetings	WhatsApp
Skype	Video Chat with den students	Microsoft
Jira	A tool to create, track and identify effort used in each task	USC
COINCOMO	A tool for resource estimation	USC
Winbook	A tool to identify win conditions of all stakeholders and prioritize them	USC

5. Resources

Identify the following information in order to estimate the software cost:

- Estimated CSCI577a Effort : 8 team members at 12 hrs/week for 12 weeks
- Estimated CSCI577b Effort : 8 team members at 18 hrs/week for 12 weeks
- Total estimated effort for development: 18 hrs/wk x 8 members x 12 weeks = 1728 total hours
- Project duration: 24 weeks

Table 8: Modules SLOC

No	Module	Description	SLOC (estimation)	REVL (estimation)
1	Picture Module	The system will provide the user the ability to share pics to locations or event. Also allows to add picture to hashtag and write a caption for it. This has most features of the system which explains the large number of SLOC	2,468	10%
2	Browse Module	This module provides the user the ability to browse pictures in events or locations and sort them. Has some location and distance algorithms but less features than picture module	1,943	10%
3	Profile Module	The system that allow users to register with their email and password and login	630	10%

Table 9: COCOMOII Scale Driver

Scale Driver	Value	Rationale
Precedentedness (PREC)	Low	Most of the team is not familiar with mobile app development. Only two of the eight members have developed mobile apps before.
Development Flexibility (FLEX)	High	Owner is flexible and open to input and suggestions from team members and wishes general conformity with his requirements.
Risk		Risk Elimination is feasible for project and most can be

Resolutions (RESL)	High	mitigated by buying information and prototyping such as the Facebook API.
Team Cohesion (TEAM)	Very High	Team chemistry is very good with seamless interactions and communications between members. Members also are highly cooperative and have a good understanding of the project.
Process Maturity (PMAT)	NOM	Team has an okay understanding of CMM Maturity but has no expertise.

Table 10: COCOMOII Cost Driver

Cost Driver	Value	Rationale
RELY	Nominal	This model reliability is not critical. It's not a risk to human life if it crashes.
DATA	HI	We have some Large data requirements on product development. We will have to test different types of images with different specs. Also test limits of image uploading and event image cap limit. Therefore the effort required to generate the test data that will be used to exercise the program will be hi
CPLX	Nominal	There is some complexity when it comes to distance calculations but it's only nominal and won't cause any serious issues to figure out.
RUSE	LO	The modules for system will be developed specifically for this project, and each module is different, so reusability will be low in project.
DOCU	Nominal	There will be documentation developed for each phase of development, but nothing too much to handle, so it's nominal
TIME	Nominal	The system is expected to have a normal executions time, according to size of code, so it's nominal
STOR	Nominal	It will take a normal amount of storage for a mobile app, nothing too high, but will be normal around 10mb we estimate
PVOL	LO	The platform volatility for this project is low and we expect major change every 12 mo.; minor change every 1 mo
ACAP	HI	The team collaborations and communications is very good and we have no issues in gathering requirements and high level design of the system.
PCAP	HI	We have very well rounded members who are capable of accomplishing the tasks required from them.
PCON	Very HI	There is no personnel turnover. Everyone is in the same

		field and will continue on project for full duration/
APEX	Nominal	The team had developed many software systems before but only two members have experience in mobile app development, so it's nominal.
PLEX	Nominal	We have a mix of members familiar and unfamiliar with the platforms
LTEX	Nominal	No all members of the team are experts in mobile app development languages.
TOOL	Nominal	Basic life-cycle and progress tools will be used.
SITE	Nominal	The clients and the DEN students are proactive and usually available in person for meetings
SCED	Nominal	The schedule is fixed for 24 weeks.

X	Name	Size	Labor Rate (\$/Month)	EAF	Language	NOM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	Risk
	Picture Module	2,468	0.0	0.57	Non-specified	8.07	4.61	53...	0.00	0.00	0.6	0.0
	Browse Module	1,943	0.0	0.58	Non-specified	6.36	3.66	53...	0.00	0.00	0.5	0.0
	Profile Module	630	0.0	0.33	Non-specified	2.06	0.67	93...	0.00	0.00	0.1	0.0

Estimation

Total Lines Of Code: 5,041 Hours/PM: 152.0

Estimated	Effort	Schedule	PROD	COST	INST	Staff	Risk
Optimistic	7.16	6.77	704.28	0.00	0.00	1.1	
Most Likely	8.95	7.26	563.42	0.00	0.00	1.2	0.0
Pessimistic	11.18	7.78	450.74	0.00	0.00	1.4	

Estimation:

Number of SLOC: 5041

Effort needed (Pessimistic): 11.18 person-month

Each Member Works: 18hrs/week for 12 weeks of development

Total Time Spent by Members:

A: 18 hrs/wk × 8 members × 4 weeks = 576 hrs/month

B: 18 hrs/wk x 8 members x 12 weeks = 1728 total hours

Number of time Needed:

A: (11.18 person-month × 152 hrs/person-month) ÷ 576 = 2.9 months

B: 11.18 person-month x 152 hrs/person-month = 1699 total hours

Is it possible: Yes, for one application, since it will take us 2.9 months or 12 weeks to finish (1728 hrs > 1699 hrs) and that's the worst case scenario.

6. Iteration Plan

6.1 Plan

The construction iteration of the Development phase will be divided into two cycles; first cycle where the core capabilities of the system are developed and second cycle for completing the full functionality of the system. The first cycle is done to make sure the most important features are correct and ready for the Core Capability Drivethrough. The second cycle will build on the core capability to implement other desired features. System Transition will take place after construction iteration 2 is done and will focus on training the clients on how to use and manage the system.

6.1.1 Construction Iteration 1: Core Capabilities to be Developed & Tested

Table 11: Construction iteration 1 core capabilities to be implemented & tested

To Be Developed	Developer	Tester
OC-1 Use Hashtag: User can post pictures with a hashtag that indicates a public event	Charles, Aref	Andrea
OC-2 Login with Facebook: User can login using Facebook	Jul, Mohammad	Andrea
OC-3 Use Location: User can post pictures to the nearby location	Charles, Jul, Mohammad	Andrea
OC-4 Search Events: User can search events by their name (hashtag).	Charles, Jul, Adil	Travis
OC-5 Browse Event's Pictures: User can browse pictures associated with an event and sort them by like or date.	Charles, Jul, Aref	Travis
OC-6 Administrator: Admin can control and supervise user's content.	Aref, Adil	Sultan
OC-7 Delete Picture: Users can delete pictures that they posted. Users can also delete pictures of their private events.	Charles, Jul, Adil	Sultan
OC-8 Create/Delete Private Event: User can create/delete a private event that only people with password has access to it.	Charles,Jul, Mohammad	Sultan
OC-12 Take Picture or Choose from Gallery: Users can decide whether to take a photo or choose it from gallery when adding a picture.	Charles,Jul	Travis

6.1.2 Construction Iteration 2 Full Capabilities to be Developed and Tested

Table 12: Construction iteration 2 full capabilities to be developed & tested

To Be Developed	Developer	Tester
OC-9 Like/unlike Picture: Users are able to like/unlike a picture	Charles,Jul,Aref	Andrea
OC-10 Report Picture: Users are able to report inappropriate pictures.	Charles,Jul,Mohammad	Travis
OC-11 Choose Add Picture Type: When user create a private event they can choose if users can upload pictures, or only post pictures captured live.	Charles,Jul,Adil	Sultan
OC-13 Save picture to Device: User can save the picture to his/her own device.	Charles,Jul,Mohammad	Sultan

6.1.3 Capabilities not to be developed and tested

All capabilities will be developed and tested.