

Life Cycle Plan (LCP)



Team 02

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10/15/2016

Version History

Date	Author	Version	Changes made	Rationale
10/12/16	Rajat	1.0	Estimated Project Efforts and Schedule Completed Resources Section, Milestones and products	Initial draft for use with FCR ARB package for VYMA
10/15/16	Rajat	1.1	Completed Responsibilities and Approach Section	Completed for final submission of FC Package
11/19/16	Ankit	1.2	Completed Iteration Plan Section	Initial draft for As-Built Package
12/4/16	Preksha	1.3	Added the Transition Plan and Support Plan Section	Completed for final submission for As-Built Package

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1. Introduction

1.1 Purpose of the LCP

- Making *plans, projections, and decisions* based upon the life cycle theory.
- Helps with *resource allocation* when considering how much to allot to various projects.

1.2 Status of the LCP

The status of this LCP is currently at the version number *1.1*, which will be submitted along with *Foundations Commitment Package*. This version will be reviewed with the necessary stakeholders and if there are no changes to be made, the latest version of this document will be delivered to the client.

1.3 Assumptions

- The duration of the project is *one semester or 12 weeks* in Fall 2016
- The team consists of six on-campus students and one DEN student.
- All team members are taking only CSCI 577A for Fall 2016.
- The team adheres to Incremental Commitment Spiral Model (ICSM) and follows the guidelines defined for same.

2. Milestones and Products

2.1 Overall Strategy

NDI/NCS Intensive Process: All the capabilities (functions) of our system are delivered by COTS/ services like Squarespace, MailChimp and Stripe.

Exploration phase

Duration: 09/09/16-09/18/16

Concept: Identify operational concept, system and software requirements along with their architecture, and life cycle plan.

Deliverables: Client Interaction Report

Milestone: Valuation Commitment Review

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

Valuation phase

Duration: 09/19/16-10/07/16

Concept: Perform win-win negotiations with Client, Develop operational concept, Identify main objectives, Constraints and Priorities, Assess and plans to mitigate risks, Explore Alternatives, Gather data on project feasibility evidence, Prototype the top risk items, Plan and manage project, 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: 10/08/16-10/21/16

Concept: Assess Project Status, Plan and Manage Project, Manage Project Quality, Develop the Prototypes with additional details and required features, Fix Defects, Develop Software Architecture.

Deliverables: Development Commitment Package, Draft Transition Readiness Review Package

Milestone: Development Commitment Review

Strategy: One Incremental Commitment Cycle, Risk assessment analysis.

Development phase

Duration: 10/22/16-12/05/16

Concept: Core Capability Drive, Developing and implementing the full system with required features. Performing unit, integration and regression testing. Project plan, recording project progress, Training the maintainer after developing the system about how to use the same, Transition Readiness Review

Deliverables: Core Capability Drive-Through Report, Transition Readiness Review Package, Project Archive

Milestone: Core Capability Drive, Transition Readiness Review

Strategy: Development, Testing, Training, Deployment

2.2 Project Deliverables

This section consists of project deliverables in each phase for VYMA project and its due date, format, and medium.

2.2.1 Exploration Phase

Table 1: Artifacts Deliverables in *Exploration Phase*

Artifact	Due date	Format	Medium
Client Interaction Report	09/16/2016	.pdf	Soft copy
Win Conditions Report	09/26/2016	.pdf	Soft copy
Jira	Weekly Monday	Jira Ticket	Jira Website
Risk and Defect Report	Bi-weekly Wednesday	.xls	Soft copy
Project Plan	Bi-weekly Wednesday	.mpp	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy

2.2.2 Valuation Phase

Table 2: Artifact deliverable in Valuation Phase

Artifact	Due date	Format	Medium
Top Risk Prototype Presentation	09/30/2016	.pptx	Soft copy
Draft Foundations Commitment Package <ul style="list-style-type: none"> • Operational Concept Description (OCD) • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED) • Prototype (PRO) • System and Software Architecture Description (SSAD) 	10/14/2016	.doc .pdf	Soft copy
Jira	Weekly Monday	Jira Ticket	Jira Website
Risk and Defect Report	Bi-weekly Wednesday	.xls	Soft copy
Project Plan	Bi-weekly Wednesday	.mpp	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy

2.2.3 Foundations Phase

Table 3: Artifact deliverable in Foundations Phase

Artifact	Due date	Format	Medium
Jira	Weekly Monday	Jira Ticket	Jira Website
Risk and Defect Report	Bi-weekly Wednesday	.xls	Soft copy
Project Plan	Bi-weekly Wednesday	.mpp	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Development Commitment Review Presentation	10/14/2016	.pptx	Soft copy

Development Commitment Package <ul style="list-style-type: none"> • Operational Concept Description (OCD) • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED) • Prototype (PRO) • System and Software Architecture Description (SSAD) 	10/17/2016	.doc .pdf	Soft copy
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2.2.4 Development Phase

Table 4: Artifact deliverable in Development Phase

Artifact	Due date	Format	Medium
Jira	Weekly Monday	Jira Ticket	Jira Website
Risk and Defect Report	Bi-weekly Wednesday	.xls	Soft copy
Project Plan	Bi-weekly Wednesday	.mpp	Soft copy
Progress Report	Bi-weekly Wednesday	.xls	Soft copy
Draft Transition Readiness Review Package <ul style="list-style-type: none"> • Operational Concept Description (OCD) • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED) • Prototype (PRO) • System and Software Architecture Description (SSAD) 	11/28/2016-12/02/2016	.doc .pdf	Soft copy
Transition Readiness Review Presentation	11/28/2016-12/02/2016	.pptx	Soft copy
Transition Readiness Review Package <ul style="list-style-type: none"> • Operational Concept Description (OCD) • Life Cycle Plan (LCP) • Feasibility Evidence Description (FED) • Prototype (PRO) • System and Software Architecture Description (SSAD) 	12/05/2016	.doc .pdf	Soft copy

3. Responsibilities

3.1 Project-specific stakeholder's responsibilities

Other than typical stakeholders of CSCI577ab which are client, user, maintainer, developer and IIV&V, we do not have any project specific stakeholder.

3.2 Responsibilities by Phase

Table 5: Stakeholder's Responsibilities in each phase

Team Member / Role	Primary / Secondary Responsibility				
	Exploration	Valuation	Foundations	Development-Construction Iteration	Development-Transition Iteration
Name: Lindsey Hansen Role: Client, Maintainer, Program Coordinator, VYMA	Primary Responsibility Explain the current system to team Secondary Responsibility Provide details with regards to goals that VYMA wants to accomplish	Primary Responsibility Articulate win conditions and negotiate them with the development team	Primary Responsibility Provide feedback on the prototypes developed and participate in Architecture Review Board presentations. Secondary Responsibility Buy payment plans necessary for COTS integration and for establishing development and operational environment required before actual implementation	Primary Responsibility Review the final implemented product and provide feedback on same.	Primary Responsibility Receive training for the new system. Secondary Responsibility Understand how to maintain the same

Name: Rajat Verma Role : Project Manager, Lifecycle Planner, Dev	Primary Responsibility -Create and follow up action items. -Detail Project Plan -Schedule weekly meetings Secondary Responsibility -Record project progress bi-weekly -Assign issues to team on JIRA and track progress on same. -Identify responsibilities and skills	Primary Responsibility -Create and follow up action items. -Facilitate client interactions and follow up after win win sessions -Schedule weekly meetings Secondary Responsibility -Record project progress bi-weekly - Identify Life Cycle Management Approach -Estimation on project effort and schedule. -Assign issues to team on JIRA and track progress on same.	Primary Responsibility -Create and follow up action items. - Facilitate review of prototype presentation with client -Schedule weekly meetings Secondary Responsibility -Record project progress bi-weekly. -Plan for mitigating risks and debt - Provide Process Feasibility Evidence - Identify Development Iteration -Assign issues to team on JIRA and track progress on same.	Primary Responsibility -Create and follow up action items. - Facilitate review of implemented product with client -Schedule weekly meetings Secondary Responsibility -Develop and implement certain features for VYMA website. -Review the development iteration -Record project progress bi-weekly. - Develop Transition Plan -Assign issues to team on JIRA and track progress on same.	Primary Responsibility -Create and follow up action items. - Facilitate handover sessions with client -Schedule weekly meetings Secondary Responsibility -Record project progress bi-weekly. -Review the transition iterations - Develop Support Plan -Assign issues to team on JIRA and track progress on same.
Name: Preksha Gupta Role : Software Architect, Operational Concept Engineer	Primary Responsibility -Analyze the current system Secondary Responsibility Identify Shared Vision	Primary Responsibility - Analyze NDI Interoperability for NDI / NCS project - Assess and evaluate NDI and NCS components Candidates Secondary Responsibility - Explore Alternatives - Identify Objectives, Constraints and Priorities	Primary Responsibility - Assess System Architecture -Review Feasibility evidence for NDI NCS project Secondary Responsibility - Establish New Operational Concept	Primary Responsibility - Specify Architecture Styles, Patterns and Frameworks - Develop and implement certain features for VYMA website. -Code Review for implemented features Secondary Responsibility - Assess Operational Concept	Primary Responsibility - Review the implemented features. Secondary Responsibility - Verify whether the implemented system satisfies the operational concept.

Name: Mangalore Rakesh Shenoy Role : Software Developer, Prototyper	Primary Responsibility -Understand the current system	Primary Responsibility - Analyze and understand NDI/NCS required for feature implementation - Explore alternatives for developing features. Secondary Responsibility - Analyze and Prioritize Capabilities to Prototype	Primary Responsibility - Develop Prototype -Make changes as per feedback	Primary Responsibility - Develop and implement the features in detail. -Fix Defects after review - Integrate Components	Primary Responsibility - Fix defects if any - Transition The System
Name: Ankit Gupta Role : Requirements Engineer, Tester	Primary Responsibility - Understand the features of current system	Primary Responsibility - Capture and Score MMF and Win-conditions - Capture progress of win-win negotiation	Primary Responsibility - Verify whether the prototype developed is a top risk one. Secondary Responsibility - Test the prototype.	Primary Responsibility - Verify whether the implemented features addresses all the win conditions and all the requirements are satisfied. Secondary Responsibility - Perform unit, integration and regression testing for implemented features.	Primary Responsibility - Final Review of implemented features to match with requirements Secondary Responsibility - Verify the fixed defects. -Final round of regression testing.
Name: Heidi Negron-Arroyo Role : IIV and V, Feasibility Analyst	Primary Responsibility -Analyze the current system Secondary Responsibility Acquire NDI or NCS components	Primary Responsibility - Analyze Business Case - Explore Alternatives -Assess and Plan to Mitigate Risks Secondary Responsibility Assess and evaluate NDI and NCS components Candidates - Provide recommendation about NDI /NCS components	Primary Responsibility - Provide Feasibility Evidence for NDI NCS project Secondary Responsibility - Verify and validate the prototype.	Primary Responsibility - Verify and Validate Work Products	Primary Responsibility - Verify and Validate all the implemented features of the website

Name: Snehal Surendra Desai Role : Prototyper, Software Developer	Primary Responsibility -Understand the current system	Primary Responsibility - Analyze and Prioritize Capabilities to Prototype - Analyze and understand NDI/NCS required for feature implementation Secondary Responsibility -Explore alternatives for developing features.	Primary Responsibility - Develop Prototype -Make changes as per feedback	Primary Responsibility - Develop and implement the features in detail. - Tailor Components -Fix Defects after review - Integrate Components	Primary Responsibility - Fix defects if any - Transition The System
Name: Lu Wu Role : Quality Focal Point, Tester	Primary Responsibility - Understand the features of current system	Primary Responsibility - Identify Quality Management Strategy -Identify Configuration Management -Construct Traceability Matrix	Primary Responsibility - Assess Quality Management Strategy Secondary Responsibility - Test the prototype.	Primary Responsibility - Perform unit, integration and regression testing for implemented features.	Primary Responsibility - Final round of regression testing.

3.3 Skills

Team members	Role	Skills
Rajat Verma	Project Manager, Lifecycle Planner, Dev	<i>Current Skills :</i> Project management, configuration management, COCOMO and MS project Java, HTML5, CSS, PHP, JavaScript, Spring and Hibernate Frameworks, MySQL <i>Required Skills:</i> Content Management Builder(<i>Squarespace</i>) Knowledge

Preksha Gupta	Software Architect, Operational Concept Engineer	<i>Current Skills</i> : Java, HTML5, CSS, PHP, JavaScript, Spring and Hibernate Frameworks, MySQL <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge
Mangalore Rakesh Shenoy	Software Developer, Prototyper	<i>Current Skills</i> : C/C++, Python, SQL, HTML, CSS, JavaScript, PHP, Node.js, jQuery <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge
Ankit Gupta	Requirements Engineer, Tester	<i>Current Skills</i> : Winbook, QoS, Java, Python, C/C++, IP/ MPLS, Routing and Switching, Automation Testing, Shell scripting <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge
Snehal Surendra Desai	Prototyper, Software Developer	<i>Current Skills</i> : Java, HTML5, CSS, PHP, JavaScript, Spring and Hibernate Frameworks, MySQL <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge
Lu Wu	Quality Focal Point, Tester	<i>Current Skills</i> : Quality Management HTML, CSS, JavaScript, Linux, Automation Testing, Unit Testing <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge
Heidi Negron-Arroyo	IIV and V, Feasibility Analyst	<i>Current Skills</i> : Java, Python, MySQL, HTML ,CSS, JavaScript <i>Required Skills</i> : Content Management Builder(<i>Squarespace</i>) Knowledge

4. Approach

4.1 Monitoring and Control

- **Bi-Weekly reports:**
 - Project Plan: Plan for the next 2 weeks work and assign jobs to team members.
 - Progress Report: Track the progress of the project, list third-party components, and SLOC.
 - Risk and Defect Report: Analyses top risks, defects, problems and concerns about project.
- **Jira:** Tracking issue, and project progress.
- **Win Book:** Catch requirements and their priority. Make sure about design consistency.
- **Team Meetings:** Have team meetings at least once a week, discuss about project progress, risks and their mitigation strategy.
- **Client Meeting:** Collect feedback from client often, check requirements consistency.

4.1.1 Closed Loop Feedback Control

- **Slack:** We have created a team group in Slack for team members to discuss project, check schedule, assign work and share documents.
- **Jira:** Assign tasks to team members, check progress of each task, and log the work.
- **Team meetings:** We have team meetings at least once a week.
- **Email:** Email important notifications among team members.

4.1.2 Reviews

- **Peer Review:** Teammates do review for each other with respect to feature implementation.
- **Client Review:** Collect feedback from client often with respect to functionalities of website.
- **ARB:** Collect feedback from clients and reviewers. Check if we are on the right track, and check if there are any change in feature requirements and win conditions.

4.2 Methods, Tools and Facilities

Tools	Usage	Provider
MS Office	Bi-weekly reports and project documents	Microsoft, USC
Winbook	Capture win conditions and prioritize them	USC
Slack	Discuss project related issue, schedule team meeting and share documents	Slack
Project Website	Store main information about project, and keep all the documents.	USC
Lucidchart	UML Diagram, Work Flow	Lucidchart
Squarespace	Platform where we build the new website	Squarespace
Stripe	Implement the online payment feature	Stripe
MailChimp	Implement notification feature	MailChimp
COINCOMOII	Estimate the project resources	USC
JIRA	To log time and effort spent on each task of the project by different members of the team	USC

5. Resources

Below is the required information in order to estimate the software cost:

- Estimated CSCI577a Effort: 7 team members at 18 hrs/week for 12 weeks
- Total estimated effort: 18 hrs/week x 7 members x 12 weeks = 1512 hours
- Budget information: \$ 0
- Project duration: 12 weeks
- Component modules in your development project: Registration System, Payment System, Announcement, Migration, Event Calendar
- Programming language/ Tools used: Squarespace, MailChimp, Stripe, HTML, CSS

Table 6: COCOMOII Scale Driver

Scale Driver	Value	Rationale
Precedentedness (PREC)	Low	Lack of Domain knowledge: Team members do not have prior knowledge about Squarespace and its integration with MailChimp and Stripe.
Development Flexibility (FLEX)	Nominal	Client is flexible with the requirements and open to team's suggestions if they help in achieving better system.
Risk Resolutions (RESL)	High	Major Risks are Lack of Domain knowledge and COTS integration which can be mitigated by Buying Information and Prototyping.
Team Cohesion (TEAM)	Very High	Team has good coordination on Slack. Also, team has regular meetings for discussions about risks and their mitigation.
Process Maturity (PMAT)	Nominal	Team conforms to ICSM guidelines which is consistent with CMM.

Scale Factors

	base	Incr%
Precedentedness	LO	0%
Development Flexibility	NOM	0%
Architecture / risk resolution	HI	0%
Team cohesion	VHI	0%
Process maturity	NOM	0%

Scale Factor : 16.61

OK Cancel Help

Figure 1: Scale Factors

Table 7: COCOMOII Cost Driver – Registration System

Cost Driver	Value	Rationale
RELY	High	This module is a MVP and is required for the whole system to be successful.
DATA	Nominal	This module requires good testing, as there are separate forms for each course.
DOCU	High	As this is completely new module and different from client's previous system, client does not have any previous knowledge on this, it requires documentation in detail.
CPLX	Low	This module is not complex to develop, as it requires basic form designing.
RUSE	High	It has high reusability, as form basic template remains the same.
TIME	Nominal	Since it is not hard to develop but there are many forms to develop, time is kept nominal
STOR	High	It requires good amount of storage as it maintains all the registration details
PVOL	Low	No complex hardware/software is required.
ACAP	High	Team have good understanding about the customer's requirements and priorities.
PCAP	High	Developers have good experience in web development platforms
PCON	Nominal	Maintainer needs to keep updating the information as and when required.

APEX	Low	Not everyone in team have experience in web development
LTEX	Low	Team has not worked on Squarespace before.
PLEX	Nominal	Not much advance platforms are required to develop this module.
TOOL	High	This module needs to be integrated with Payment Module
SITE	High	One member is remote who is in same city. We use Slack, join.me, phone when remote. In addition, we plan to have regular meeting in person once or twice every week.

base + Incr % = rating

Product: RELY DATA DOCU CPLX RUSE

base HI NOM HI LO HI

Incr% 0% 0% 0% 0% 0%

Platform: TIME STOR PVOL

base NOM HI LO

Incr% 0% 0% 0%

Personnel: ACAP PCAP PCON APEX LTEX PLEX

base HI HI NOM LO LO NOM

Incr% 0% 0% 0% 0% 0%

Project: TOOL SITE

base HI HI

Incr% 0% 0%

User: USR1 USR2

base NOM NOM

Incr% 0% 0%

EAF is also affected by Schedule

EAF: 0.78

OK Cancel Help

Figure 2: EAF- Registration

Table 8: COCOMOII Cost Driver – Payment System

Cost Driver	Value	Rationale
RELY	High	Payment module involves user's money and very critical. If this module does not work then users will not be able to make fees payment, donation or buy DVDs online which are "Must Have" features
DATA	Nominal	This module will be using Stripe, so it needs good amount of integration testing with Squarespace
DOCU	Nominal	Client currently uses PayPal. This module will be using Stripe, which is completely new to client. Therefore, it needs documentation.
CPLX	Nominal	This is not complex to develop as team has prototyped this feature.
RUSE	High	It is used for three different processes, fees payment, making donations & purchasing online DVDs.
TIME	High	It includes COTS integration i.e. Squarespace & Stripe
STOR	Nominal	It stores information of all the orders.
PVOL	Nominal	No complex hardware/software is required.
ACAP	High	Team have good understanding about the customer's requirements and priorities.
PCAP	Very High	Developers have good experience in web development platforms
PCON	Low	Not much changes required in this module after full development.
APEX	Low	Dependency on developers as not everyone in team have experience in web development
LTEX	Nominal	Team has not worked on Squarespace and Stripe before.
PLEX	Nominal	Not much advance platforms are required to develop this module.
TOOL	High	This module needs to be integrated with Registration Module
SITE	High	One member is remote who is in same city. We use Slack, join.me, phone when remote. In addition, we plan to have regular meeting in person once or twice every week.

EAF - Payment System

base + Incr % = rating

Product: RELY DATA DOCU CPLX RUSE

base HI NOM NOM NOM HI

Incr% 0% 0% 0% 0% 0%

Platform: TIME STOR PVOL

base HI NOM NOM

Incr% 0% 0% 0%

Personnel: ACAP PCAP PCON APEX LTEX PLEX

base HI VHI LO LO NOM NOM

Incr% 0% 0% 0% 0% 0%

Project: TOOL SITE

base HI HI

Incr% 0% 0%

User: USR1 USR2

base NOM NOM

Incr% 0% 0%

EAF is also affected by Schedule

EAF: 0.87

OK Cancel Help

Figure 3: EAF- Payment System

Table 9: COCOMOII Cost Driver – Migration

Cost Driver	Value	Rationale
RELY	High	This module is a MVP and is required for the whole system to be successful. Currently, client has three websites to maintain which needs to be migrated to a single website.
DATA	Low	This module does not requires much testing as it will content static web pages.
DOCU	Low	This module is migration of static pages and does not require documentation.
CPLX	Nominal	This is not complex module, only requires migration of contents.
RUSE	Nominal	This module will be used multiple times for migrating contents from three different websites.
TIME	Nominal	It requires nominal time as this is not a complex module
STOR	Nominal	It requires nominal storage as it contains few static pages.
PVOL	Low	No complex hardware/software is required.

ACAP	High	Team have good understanding about the customer's requirements and priorities.
PCAP	High	Developers have good experience in web development platforms
PCON	High	Not much changes required in this module after full development as these are static web pages.
APEX	Nominal	It does not require any complex operations. Everyone in team can contribute.
LTEX	Nominal	Team has not worked on Squarespace before.
PLEX	Nominal	Not much advance platforms are required to develop this module.
TOOL	Low	This module requires simple steps like copy and paste from other websites to new website.
SITE	High	One member is remote who is in same city. We use Slack, join.me, phone when remote. In addition, we plan to have regular meeting in person once or twice every week.

EAF - Migration

base + Incr % = rating

Product: RELY DATA DOCU CPLX RUSE

base HI LO LO NOM NOM

Incr% 0% 0% 0% 0% 0%

Platform: TIME STOR PVOL

base NOM NOM LO

Incr% 0% 0% 0%

Personnel: ACAP PCAP PCON APEX LTEX PLEX

base HI HI HI NOM NOM NOM

Incr% 0% 0% 0% 0% 0% 0%

Project: TOOL SITE

base LO HI

Incr% 0% 0%

User: USR1 USR2

base NOM NOM

Incr% 0% 0%

EAF is also affected by Schedule

EAF: 0.53

OK Cancel Help

Figure 4: EAF- Migration

Table 10: COCOMOII Cost Driver – Announcement

Cost Driver	Value	Rationale
RELY	Low	The failure of this module will not have much impact on overall system.
DATA	Nominal	This module will be using MailChimp so good amount of testing is required.
DOCU	Nominal	This module requires good documentation for maintainer, as they will use on day-to-day basis.
CPLX	Nominal	This is not complex module to develop but requires COTS integration i.e. MailChimp and Squarespace.
RUSE	Nominal	This module will be used multiple times to update website for new events and announcements.
TIME	Nominal	This is not complex module to develop but requires COTS integration i.e. MailChimp and Squarespace.
STOR	Nominal	It will be using nominal storage, as Announcement will be increased day by day.
PVOL	Nominal	It requires COTS integration i.e. MailChimp and Squarespace.
ACAP	High	Team have good understanding about the customer's requirements and priorities.
PCAP	Very High	Developers have good experience in web development platforms
PCON	Nominal	Maintainer needs to keep updating the information as and when required.
APEX	Nominal	Team has not worked on MailChimp before.
LTEX	Nominal	Team has not worked on Squarespace before.
PLEX	Nominal	Not much advance platforms are required to develop this module.
TOOL	Nominal	MailChimp and Squarespace is used for this module
SITE	High	One member is remote who is in same city. We use Slack, join.me, phone when remote. In addition, we plan to have regular meeting in person once or twice every week.

base + Incr % = rating

Product: RELY DATA DOCU CPLX RUSE

base LO NOM NOM NOM NOM

Incr% 0% 0% 0% 0% 0%

Platform: TIME STOR PVOL

base NOM NOM NOM

Incr% 0% 0% 0%

Personnel: ACAP PCAP PCON APEX LTEX PLEX

base HI VHI NOM NOM NOM NOM

Incr% 0% 0% 0% 0% 0%

Project: TOOL SITE

base NOM HI

Incr% 0% 0%

User: USR1 USR2

base NOM NOM

Incr% 0% 0%

EAF is also affected by Schedule

EAF: 0.55

OK Cancel Help

Figure 5: EAF- Announcement

Table 11: COCOMOII Cost Driver – Event Calendar

Cost Driver	Value	Rationale
RELY	Very Low	It is not MVP and other critical modules are not related to this module
DATA	Low	This module is straight forward to test as it is not integrated with any other module and does not require much testing
DOCU	Low	This module is straightforward to understand and does not requires much documentation.
CPLX	Low	This is not complex module to develop.
RUSE	Nominal	This module will at multiple places in the system
TIME	Nominal	This is not complex module to develop.
STOR	Nominal	It requires nominal storage as new events will be added each time.
PVOL	Low	No complex hardware/software is required.
ACAP	High	Team have good understanding about the customer's requirements and priorities.

PCAP	High	Developers have good experience in web development platforms
PCON	High	Maintainer needs to keep updating the information as and when required.
APEX	Nominal	No complex application is required for this module
LTEX	Nominal	Team has not worked on Squarespace before.
PLEX	Nominal	Not much advance platforms are required to develop this module.
TOOL	Low	This module is only using a feature of Squarespace, which is simple frontend feature.
SITE	High	One member is remote who is in same city. We use Slack, join.me, phone when remote. In addition, we plan to have regular meeting in person once or twice every week.

EAF - Event Calendar

base + Incr % = rating

Product: RELY DATA DOCU CPLX RUSE

base VLO LO LO LO NOM

Incr% 0% 0% 0% 0% 0%

Platform: TIME STOR PVOL

base NOM NOM LO

Incr% 0% 0% 0%

Personnel: ACAP PCAP PCON APEX LTEX PLEX

base HI HI HI NOM NOM NOM

Incr% 0% 0% 0% 0% 0%

Project: TOOL SITE

base LO HI

Incr% 0% 0%

User: USR1 USR2

base NOM NOM

Incr% 0% 0%

EAF is also affected by Schedule

EAF: 0.35

OK Cancel Help

Figure 6: EAF- Event Calendar

Project Name: **YMA** Scale Factor: 16.61

Development Model: **Post Architecture**

X	Module Name	Module Size	LABOR Rate (\$/month)	EF	Language	NCM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	RISK
	Registration	S:900	0.00	0.78	Non-Specified	2.9	2.3	394.6	0.00	0.0	0.3	0.0
	Payment System	S:750	0.00	0.87	Non-Specified	2.4	2.1	353.4	0.00	0.0	0.3	0.0
	Migration	S:1200	0.00	0.53	Non-Specified	3.9	2.1	575.1	0.00	0.0	0.3	0.0
	Announcements	S:550	0.00	0.55	Non-Specified	1.8	1.0	556.5	0.00	0.0	0.1	0.0
	Event Calender	S:350	0.00	0.35	Non-Specified	1.1	0.4	886.7	0.00	0.0	0.1	0.0

	Estimated	Effort	Sched	PROD	COST	INST	Staff	RISK
Optimistic		6.3	6.5	595.4	0.00	0.0	1.0	
Most Likely		7.9	7.0	476.3	0.00	0.0	1.1	0.0
Pessimistic		9.8	7.5	381.1	0.00	0.0	1.3	

Total Lines of Code: 3750
Hours/PM: 152.00

Ready

Figure 7: COCOMO Estimation

Estimation:

- ❖ **Efforts (Pessimistic):** 9.8 Person-Month
- ❖ **Per Person Efforts:** 18 hours per week
- ❖ **Total Time Per Person:**
 - ❖ **Monthly Efforts:** 18 hours per week × 7 members × 4 weeks = **504 hrs/month**
 - ❖ **Total Efforts:** 18 hours per week × 7 members × 12 weeks = **1512 total hours**
- ❖ **Time required as per Pessimistic Value:**
 - ❖ **Total time(in Months):** (9.8 person-month × 152 hours per person-month) ÷ 504 = **2.9 months**
 - ❖ **Total time(in hours):** 9.8 person-month × 152 hours per person-month = **1490 hours**

6. Iteration Plan

This section describes the strategy for each iteration in development phase. In each iteration, capabilities are implemented and tested.

6.1 Plan

The development phase consists of two construction phases. In first construction phase, must have features of the system are implemented and tested thoroughly. First construction is followed by Core Capability Drive-through in which User Acceptance Testing is done with client to verify that all the User expectations are met for the implemented functionalities. In second construction phase, other remaining features of the system are implemented and tested. This phase is also followed by Core Capability Drive-through (Milestone) where full system is tested by the client. After this,

during system transition, training is provided to the client to manage and maintain the system. Finally, fully functional system will be delivered to the client.

6.1.1 Capabilities to be implemented

Table 12: Construction iteration capabilities to be implemented

ID	Capability	Description	Priority	Iteration
1	OC-1	Online Registration and Payment System: Students/Parents can register and pay for music courses online.	Must Have	1
2	OC-2	Consolidate three websites: User can view all the content on one website instead of three.	Must Have	1
3	OC-3	Announcement Section: User can view all the updates and announcements in announcement section and also receives an email notification for the same.	Must Have	1
4	OC-4	Donations: Donors can make donations to support VYMA through online payment system	Must have	2
5	OC-5	Event Calendar: User can view schedule of all the classes and events in event calendar.	Must have	1
6	OC-6	Maintain Registration Process: Client/Maintainer can check his email and Google Drive for new applicants and their information.	Must have	1
7	OC-7	Download Music Notes: User can download music notes from password protected page for rehearsals.	Must Have	1
8	OC-8	Roster: Parents can view other student's parent's details on a password protected page.	Mid Priority	2
9	OC-9	Buy DVD: User can buy DVD of rehearsals and events online.	Low Priority	2
10	OC-10	Contact Us Page: User can contact VYMA administration for feedbacks and concerns.	Low Priority	2
11	OC-11	Yearbook: User can view yearbook through a link on VYMA website.	Low Priority	2
12	OC-12	Subscribe to Newsletter: User can subscribe to VYMA to receive weekly newsletter in his mail.	Low Priority	2

6.1.2 Capabilities to be tested

Table 13: Construction iteration capabilities to be tested

ID	Capability	Description	Priority	Iteration
1	OC-1	Online Registration and Payment System: Students/Parents can register and pay for music courses online.	Must Have	1
2	OC-2	Consolidate three websites: User can view all the content on one website instead of three.	Must Have	1
3	OC-3	Announcement Section: User can view all the updates and announcements in announcement section and also receives an email notification for the same.	Must Have	1
4	OC-4	Donations: Donors can make donations to support VYMA through online payment system	Must have	2
5	OC-5	Event Calendar: User can view schedule of all the classes and events in event calendar.	Must have	1
6	OC-6	Maintain Registration Process: Client/Maintainer can check his email and Google Drive for new applicants and their information.	Must have	1
7	OC-7	Download Music Notes: User can download music notes from password protected page for rehearsals.	Must Have	1
8	OC-8	Roster: Parents can view other student's parent's details on a password protected page.	Mid Priority	2
9	OC-9	Buy DVD: User can buy DVD of rehearsals and events online.	Low Priority	2
10	OC-10	Contact Us Page: User can contact VYMA administration for feedbacks and concerns.	Low Priority	2
11	OC-11	Yearbook: User can view yearbook through a link on VYMA website.	Low Priority	2
12	OC-12	Subscribe to Newsletter: User can subscribe to VYMA to receive weekly newsletter in his mail.	Low Priority	2

6.1.3 Capabilities not to be tested

All capabilities will be tested

6.1.4 CCD Preparation Plans

Developers will develop new VYMA website which will be tested by the stakeholders on November 16, 2016. Stakeholder joining the CCD are Admin and Director of VYMA. They will use the website to make sure if all the features are implemented and functioning as agreed. They will test by registering and making payment for music courses online, make donation etc. based on our test plan. Also, Order section of Squarespace will be updated with test orders made during testing so that admin can test the order section as well. Test results & feedback from stakeholders will be documented and team will follow up and address all concerns if any.

To make CCD a good experience for all, we will ensure that below points are performed before CCD:

- 1) Team will make sure that all the required requirements and functionalities are implemented and tested thoroughly.
- 2) Team will try to use the website and its features putting themselves in stakeholder's shoes.
- 3) Make sure all team members are available during CCD.

6.2 Iteration Assessment

6.2.1 Capabilities Implemented, Tested, and Results

The below capabilities are developed and all modules passed the test cases. For more detailed test scenarios please refer Test Suites related to each capability.

- 1) Online Registration & Payment Process
- 2) Consolidate three websites
- 3) Announcement Section
- 4) Donations
- 5) Event Calendar
- 6) Maintain Registration Process
- 7) Download Music Notes
- 8) Roaster Section
- 9) Contact Us Form
- 10) Subscribe to Newsletter
- 11) Buy DVD section
- 12) Year Book Section

Table 14: Capabilities implemented, tested, and results

ID	Capability	Test Case	Test Results	If fail, why?
1	OC-1	TC-01	Pass	
2	OC-2	TC-08	Pass	
3	OC-3	TC-02	Pass	
4	OC-4	TC-03	Pass	
5	OC-5	TC-04	Pass	
6	OC-6	TC-01	Pass	
7	OC-7	TC-05	Pass	
8	OC-8	TC-09	Pass	
9	OC-9	TC-10	Pass	
10	OC-10	TC-06	Pass	
11	OC-11	TC-11	Pass	
12	OC-12	TC-07	Pass	

6.2.2 Core Capabilities Drive-Through Results

Use Cases that were tested by client:

1. **Online Registration of music courses & Payment Process:**

Client tested this feature by registering and making an online payment. Client was able to successfully register and pay for the course. This feature worked as expected by the client.

2. **Online Donation:**

Client tested the online donation feature by making a test donation and tested all the related feature like donor receiving 'Thank You' email from VYMA and admin getting email about the new donation made by donor. Client confirmed that it is working as expected.

3. **View Announcements:**

Client tested this by browsing to Announcement page under Members section using member password as this is password protected page. Also, client tested by making test announcement at announcement section of the new VYMA website and verified if current members can view the announcement over website and also they received the announcement via email as well. Client confirmed that it is working as expected.

4. **View Event Calendar:**

Client tested this by browsing to calendar page using member password as this is password protected page and verified if the events are listed as required. Client confirmed that it is getting displayed as required.

5. **Download Music Notes:**

All music notes were required to be migrated to new VYMA website and Client tested this by browsing to Music notes under Members section using member password as this is password protected page, by verifying if the music notes have been migrated and also tested

if the links are working as expected by randomly downloading few music notes. Client confirmed that music notes were migrated as required.

6. Feedback & Contact Us form:

Client tested this feature by filling and submitting the Contact Us form and tested that if Admin is receiving the email with User's inquiry for the same. Client confirmed that it is working as expected.

7. Subscribe to VYMA News Letter:

Client tried the subscription option at Homepage to sign up for VYMA newsletter and verified that if the subscription request is received my Admin. Also, confirmed that user receives an email to confirm the subscription. Client verified by both subscribing and unsubscribing feature. Client was satisfied with implemented feature.

8. View Roaster Page:

Client tested this by browsing to Roaster page under Members section using member password as this is password protected page. Client confirmed that it is displaying the information as expected. This page is linked to Google Drive and automatically reflects the changes which are made on Google Drive. Client modified the Google Drive and verified that changes are reflected on Roster Page.

9. View Video Trailers:

Client tested this by browsing to Shop section of the webpage which displays all the DVDs available and provides the link to video trailer on YouTube. Client confirmed that it is displaying as expected.

10. Buy DVD:

Client browsed to Shop section of the webpage which displays all the DVDs available for purchase. Client tested this by purchasing one of the listed DVD and confirmed that this feature is working as expected.

11. View all Content at single websites:

Client tested this by browsing to different section of the new VYMA website to check if all the contents from their old three websites have been migrated. Client confirm that all content is migrated as required.

12. View Yearbook:

Client tested this by browsing to Yearbook page under Members section using member password as this is password protected page. Client verified if the link to the Year Book redirects the user to Shutterfly. Client confirmed it is working as required

13. Manage Registration:

Client tested by accessing the new VYMA website as maintainer and verified the order section to view all the orders made in the past, verified if all the required fields to maintain the orders are available and also verified if refund can be issued in case of cancelation of registration.

Feedback from Client:

Positive Feedback: Client was fully satisfied with all the implemented features. Client also presented the new VYMA website to VYMA Board members. They all are really happy with the new system and excited to use it. Specifically, they mentioned that the idea about running the Video in the background at the Homepage conveys the message about VYMA at one glance.

Improvements/ Suggestions: Client suggested minor changes to modify few labels on website. She suggested to change the following labels:

- 'Music Notes' to 'Sheet Music'.
- 'Members' to 'My VYMA'

Changes to be considered: None as Client is fully satisfied with the new VYMA website and all the implemented features.

Risks: No new risks were introduced as all of the risks are already prototyped and mitigated.

Snapshot of client feedback:

Core Capability Drive-through (CCD)		Team: <u>2 (VYMA)</u>
Category (areas of concern)	Score	Comments
Team's preparation for the CCD <ul style="list-style-type: none"> • Did the team communicate with you on the capabilities that you will drive through today? • Are the expected capabilities ready to you to drive through? • Does the team prepare all software or hardware required for the drive through? • Do they prepare sample data or test data for you to test on? • Do they take notes on your suggestions or software defects? 	6/6	This is a great team and my board is very satisfied with this new website. Everything that we were hoping for is there
Work Progress <ul style="list-style-type: none"> • Are you satisfied with the progress? • Is the team developing the software on the right direction? 	12/12	and it seems easy enough to modify in the future. Most of all, it solves our problem of too many websites.
Quality of the core capabilities <ul style="list-style-type: none"> • Are your previous comments being incorporated? • Are the capabilities working as expected? • If there are any defects or issues, are they in an acceptable level? • Is the performance (such as speed, usability) of the capabilities acceptable? 	12/12	

Other comments:

6.3 Adherence to Plan

Iteration was successful completely as all the feature are implemented and tested as planned. Client is fully satisfied with the final system. Also, team was able to design and develop all the features within the provided budget meeting all the MVPs as agreed with client.

7. Transition Plan:

This section provides the transition plan for VYMA.

7.1 Transition Objectives

- ❖ Beta test to *validate* that user expectations are met.
- ❖ Provide *training* to Client for future maintenance of VYMA website.
- ❖ *Transition* the fully functional operable system to client.

7.2 Transition Strategy

Transition will be done in following steps:

- ❖ Beta Testing:
 - *Verify* that operational capabilities for all Win-Conditions are *implemented* and *tested*.
- ❖ Provide Training:
 - Provide basic *training* of *Squarespace* to Client.
 - Provide *technical manual* with clear instructions to maintain and modify the website in future.
 - Provide training to use *third party services* like MailChimp and Stripe with Squarespace.
- ❖ Transition the System:
 - *Host* the Squarespace website on current (vyoma.org) domain.
 - *Connect* the Client's *Stripe account* with the Squarespace and test the same with live orders.
 - *Connect* the Client's *MailChimp account* with the Squarespace and test the same with Announcement Section and Subscription functionality.

7.3 Software and Site Preparation:

- ❖ Software:
 - Squarespace
 - MailChimp
 - Stripe
- ❖ Preparation:

- Configure *client's MailChimp* account with Squarespace.
- Configure *client's Stripe* account with Squarespace.
- *Host* the Squarespace website on current (vyma.org) domain

7.4 Stakeholders and Responsibilities:

Roles	Responsibilities	Date
Team	<ul style="list-style-type: none"> ✓ Connect client's MailChimp account to Squarespace. ✓ Connect client's Stripe account to Squarespace. ✓ Host the website on vyma.org Domain. 	December 2, 2016
Team, Client	<ul style="list-style-type: none"> ❖ Provide Training to <i>Client</i> for maintaining the website in future for the following features : <ul style="list-style-type: none"> ✓ Basic understanding of <i>Squarespace</i>. ✓ Managing <i>Registration and Payment System</i>. ✓ Managing <i>Announcement and Event Calendar</i>. ✓ Managing <i>Donation Section</i>. 	December 3- December 7, 2016

Roles	Responsibilities	Date
Team	✓ Finish all support documents including Technical and User Manual.	December 5, 2016
Team	✓ Deliver the complete system. (<i>Milestone</i>)	December 7, 2016

7.5 Required Resources:

- ❖ Technical Manual:
 - Guide to use Basic features of *Squarespace*.
 - Guide to manage *Registration* and *Payment System*.
 - Guide to manage *Announcement Section* and *Event Calendar*.
 - Guide to manage *Donation Section*.
- ❖ User Manual:
 - Guide for basic *navigational flow* and *functionalities* of website.

8. Support Plan:

8.1 Support Strategy

- ❖ Squarespace Customer Support:
 - Squarespace provides *24*7 customer support* as part of its Annual Billing Plan.
 - *Online Guide* and *Video Tutorials* are available for all the implemented features of VYMA.
 - *Live Chat* Support is available.