

Team Aperture

PAST&E

Project Management Plan

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"This document is an annotated outline for a Project Management Plan, adapted from the PMI Project Management Body of Knowledge (PMBOK) and IEEE Standard for Project Management Plans. The Project Management Plan is considered to be a “**Best Practice**” template by the ETS Enterprise Program Management Office (EPMO). "

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Document History and Distribution

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Project Management Plan

1. Executive Summary

The Executive Summary of the Project Management Plan provides an overview of the project and the product, a list of deliverables, reference material, and agency definitions and acronyms used throughout the Life Cycle of the project.

1.1 Project Overview

The Portland After School Tennis & Education (PAST&E) requires a scheduling management system to assist the staff and volunteers in coordinating schedules and resource allocation. The system will have a website and mobile app front end, have profile pages for each volunteer, allow message sending regarding schedules, and permit staff to assign volunteers to groups on a daily basis. This system will facilitate daily volunteer organization and scheduling

Aperture (PSU Capstone Team) will develop the scheduling management system for PAST&E during the Spring/Summer 2012 Capstone session.

1.2 Scope

The delivered product will include the server-side application and database, as well as the mobile app and website front-ends. This is a new web application that will be hosted either on a server provided by the team or on PAST&E's current web servers.

1.3 Out Of Scope

Updates to the current website, hosted by GoDaddy, will not be made unless directly required to support the new scheduling system, such as linking to the new website.

1.4 Project Deliverables

Below is a list of artifacts to be delivered to the customer or delivered to the EPMO for project certification.

ARTIFACT	Yes / No
Business Functional Requirements	Yes

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ARTIFACT	Yes / No
Critical Success Factors	No
Deliverable Acceptance Criteria	No
Disaster Recovery / Business Continuity Plan	No
Hardware Procurement List	No
Issue Log	Yes
Lessons Learned	No
Maintenance & Support Plan	Yes
Project Management Plan	Yes
Project Success Measurements	No
Risk Assessment / Profile	Yes
Software User Documentation	Yes
Software Verification & Validation Plan	Yes
Work Breakdown Structure (WBS)	Yes

1.5 Project Management Plan Updates

The Project Management Plan will be created and maintained using standard version control processes. Page 2 of this document outlines the Document History, Distribution List, and Plan Approvers.

1.6 Definitions and Acronyms

A list of terms and agency acronyms used for this project are listed in the “Glossary of Terms” in Section 8 of this document.

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2. Project Organizations

PAST&E

Portland After School Tennis & Education (PAST&E) is a non-profit after-school program for at-risk children in the North Portland area. The children, in grades K-12, receive tutoring assistance and the unique opportunity to learn and play tennis. The tutoring guides the children to succeed academically (reading, writing, math and computer skills), while the tennis instruction imparts the values of good sportsmanship, fitness, and teamwork (life skills).

Aperture

Aperture is a PSU Capstone Project team, comprised of Portland State University students nearing graduation. The Capstone Project pairs a PSU team with a local non-profit or business to develop a software system. This helps the non-profit or business solve a problem that may be outside the scope of their normal business practices, and allows the PSU Students to gain experience with a 'real-world' software development project.

2.1 Organizational Structure

PAST&E

PAST&E has a staff of Certified USPTA Tennis Professionals working with the student athletes. The Executive Director is assisted by the Program and Development Director, Academy Director, Tennis Director, Tournament Director, Dance Director and Fitness Director in managing the staff. The staff includes Coach/Tutors. The directors also double as Coach/Tutors.

The staff is assisted by volunteers from the community.

Aperture

Aperture is a team of seven students at Portland State. The team has a Team Leader and is loosely divided into functional areas. See section 3.4 Staffing Plan for more information.

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2.2 Roles & Responsibilities

The Roles and Responsibilities for the PAST&E and Aperture are as follows:

PAST&E Management and Staff -

Assist Aperture in generating requirements and sign-off on final requirements plan. Assist Aperture in refining the system during the development cycles, clarifying requirements as needed. Perform user acceptance testing.

PSU Capstone Team -

Document the project requirements, design a system to resolve the requirements, test and deploy the system for PAST&E. Provide documentation of the project, from requirements to test plan. Communicate on a weekly basis with PAST&E and PSU regarding progress. Communicate with PSU and PAST&E any conflicts in the schedule or risks that may arise.

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3. Management Process

This section describes project assumptions, dependencies, and constraints, risk management techniques, staffing plan, communication plan, and escalation procedures.

3.1 Assumptions, Dependencies, and Constraints

Assumptions

- Funding will be available if the final solution requires upgrading PAST&E's current GoDaddy or Comcast accounts.
- PAST&E staff will be available for user acceptance testing and validating data migration.

Dependencies

- Support from PAST&E management and staff is necessary during all phases of the project
- Final deployment of the system will require either access to PAST&E's current system or a location to host the server provided by Aperture, depending

Constraints

- Final deployment may require an upgrade to the GoDaddy or Comcast accounts.
- If Aperture team members are not permitted to see current 'live' data, the data migration process will be done blindly.

3.2 Risk Management

A separate Risk Management Plan will be created. Risk Management will not be discussed in this document.

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3.3 Staffing Plan

The Roles and Responsibilities of the Capstone Project Team are broken into several

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broad areas. Each team member will participate in all aspects of the project, from requirements to testing, the following sub-teams are primarily responsible for any work and documentation that take place in the assigned area.

Project Requirements & Quality Assurance

Responsible for requirements generation/documentation and quality assurance planning.

Team Members: Minh Pham, Jon Trent, Yuxin Minh

System Design & Risk Management

Responsible for the architecture and design of the system, and the risk management plan for the project.

Team Members: Evan Belt, Ruvim Micsanshi, Joseph Woodruff

Systems Administrators

Responsible for managing all systems infrastructure and environments, including the GitHub repository and servers for the project.

Team Members: Joseph Woodruff, Jon Trent

Team Lead & Project Management

Responsible for all scheduling and resource allocation, reporting to PAST&E and PSU Management, and on-time project completion.

Team Member: Dan Sweet

3.4 Communication Plan

Scheduled Meetings:

The Aperture Team Lead will meet weekly with PAST&E management to apprise them of the progress made, any scheduling concerns, and to clarify any requirements, constraints, issues, or changes.

Aperture will have weekly team meetings to ensure the schedule is on-track, review the progress of the previous/current iteration in the workflow, discuss completion of any milestones, and to plan the next iteration of work.

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Team Lead meetings with PSU management will be held each week on Monday Evening. These meetings will keep PSU informed of the team's progress and of any potential problems in the schedule or the project.

Documentation:

The following documents will be generated by the Aperture team, to be provided to PSU and PAST&E management:

- Requirements
- Project Plan
- Work Breakdown Structure
- Risk Management Plan
- Design
- Quality Assurance Test Plan (VnV)

Bug Tracking and Issue Logging:

GitHub maintains an issue logging repository. All bugs and issues generated during the project will be logged in the Aperture team GitHub repository.

3.5 Escalation Procedures

Any issue or conflict should be escalated if it will negatively impact the schedule such that a milestone will be missed or the schedule slips, or if a resolution to an issue or conflict cannot be determined.

Issues should be initially reported to the Aperture Team Lead. Depending on severity, the Team Lead will the escalate to PSU management or, if appropriate, to PAST&E management.

4. Technical Process

4.1 Methods, Tools, and Techniques

Specifies the computing system, development methodology, team structure, programming language, and other notations, tools, techniques, and methods to be used to specify, design, build, test, integrate, document, deliver, modify, or maintain the project deliverables. In addition, the technical standards, policies, procedures, and guidelines governing development shall be included or by reference to other documents.

The project will be done using an Iterative Waterfall development approach. Each sprint will be approximately one week, with a milestone reached or a deliverable completed at the end.

Version control, configuration management and bug/issue tracking will be done in GitHub. All documentation will be checked into GitHub.

The primary existing website was developed using Drupal 7 CMS. It is hosted by GoDaddy, and utilizes Apache and a MySQL 5.0 database.

The new site will utilize the existing site and database, and will be built with Drupal. If a mobile app is developed instead of a (mobile version of the website), ObjectiveC will be utilized.

UML will be utilized to design the database and model the data. Prototypes of the front end will be generated with Drupal.

4.2 Requirements Documentation

The Requirements Document describe PAST&E's needs for the system.

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4.3 Design Plan

The design document specifies the architecture of the system.

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4.4 Hardware Documentation

No additional hardware is required, as it will utilize the existing system.

4.5 Security

Firewalls and other system-level security are managed by GoDaddy.

Accounts will be password-protected, requiring login to use the system. No personally identifiable information outside name and phone number will be saved by the system.

4.6 Project Support Functions

This section shall contain, either directly or by reference, plans for the supporting functions of the software project. Supporting functions include (but may not be limited to):

- *Configuration management,*
- *Software quality assurance,*
- *Verification and validation plans,*
- *Production support and operational support functions.*

To Be Determined.

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5. Schedules, Milestones and Project Success Criteria

Milestones are listed below. Each milestone is associated with a deliverable or completion of a development/test phase.

5.1 Work Breakdown Structure

The Work Breakdown Structure details the project schedule. The WBS outlines the duration, timeline, assigned resources and dependencies of all activities necessary to complete the project. This is a living document and will change during the project.

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5.2 Project Milestones

Date	Milestone
5/4	Initial Requirements Meeting
5/14	Documentation, versions 0.5
5/21	Requirements, Risk Management Plan, Project Plan and Work Breakdown Structure documentation complete, v1.0
5/28	Design and Test Plan documentation complete, v1.0
6/4	Development Environment Complete, Training Module 1
6/11	MIDTERM PRESENTATION, App prototype, Training Module 2
6/18	WEEK BREAK
6/25	Iteration 1
7/2	Iteration 2 - Initial design of core features for critical success
7/9	Iteration 3 - Alpha 1 Complete
7/16	Iteration 4
7/23	Iteration 5 - Alpha 2 Complete
7/30	Iteration 6
8/6	Iteration 7 - Gold Master Complete
8/13	Deployment and Integration Testing
8/20	User Acceptance Testing
8/27	PROJECT COMPLETE - Final Presentation

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5.3 Approval Process

The Aperture Team Lead will submit all deliverables to PAST&E (and PSU management as needed) for sign-off. Documentation will be emailed and discussed. Any prototypes or functional component of the system will be demonstrated. The discussion or demonstration will occur in the weekly PAST&E/Team Lead meeting.

Go/no-go decisions will be made as needed by PAST&E and PSU management.

5.4 Acceptance Criteria

PAST&E will accept the project dependent on the following criteria:

- All requirements met and demonstrated
- All logged issues/bugs are resolved and closed

5.5 Critical Success Factors

The following are critical success factors for the project.

- Completed on schedule, deployed by August 27, 2012. This is a hard deadline and will not shift, as the term ends on that date.
- 100% functionality - all requirements met and demonstrated
- The system must allow volunteers to check in and out, and reporting done on the total hours volunteered
- The staff must be able to manage the volunteers, assigning resources as needed, and to run the reports on hours worked.

6. Data Conversion / Data Migration

Volunteer, Staff, Group and other existing data will need to be moved into the new database. The volume of data will be relatively small. Batch scripts can be generated to load the existing data. The new website interface can then be used to manually add missing data, such as photographs of the staff and volunteers, if the data does not exist in the current system.

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7. Test Strategy

The testing strategy will involve Unit and Functional testing during development. Regression testing and data verification testing will be performed as needed. User acceptance testing occurs at the completion of the Gold milestone.

7.1 Unit Testing

Unit testing will be performed on each module as it is being developed. This will be performed by the developer of the module.

7.2 Functional Testing

Functional testing will be done at the completion of each development phase. This functional testing will focus on the usability of the application and integration testing of the components. The testing will ensure that the requirements are being met.

7.3 User Acceptance Testing

User acceptance testing will be done from 8/13 to 8/20 by PAST&E with guidance from Aperture. This testing is to validate that the system is sufficient for the needs of PAST&E and is usable after deployment.

7.4 Regression Testing

Regression testing will be done after each deployment of a new version of the system. Regression testing is focused on ensuring that new code does not cause a degradation to existing functionality.

7.5 Data Verification

Data verification will be done during all phases, when new data must be added or migrated to the system.

8. Deployment Plan

The existing environment will be used. Deployment will involve moving the completed system to the existing environment (including creating any necessary tables in the database).

9. Training Plans

Aperture will provide training to PAST&E during user acceptance testing, as needed. Training will be minimal, as the system will be relatively simple and straightforward to use.

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10. Glossary of Terms

14.1 PAST&E Glossary of Terms

Administrator – Individuals at PAST&E who oversee the staff. Administrator roles will have highest level privileges in the system.

Cheetah – Group of scholar athletes in K-3rd grades.

Chimpanzee – Group of scholar athletes in the 4th and 5th grades.

Coach – volunteers that participate in educating and teaching scholar athletes in tennis and other fields of education. All staff are also Coaches.

Elephant – Group of scholar athletes in the 6th grade.

Mentor – See Coatch

Staff – Employee of PAST&E. Staff oversee the daily operations, from organization of the groups to managing and assigning volunteers.

Tutor – See Coach

Student Athlete – A K-12th grade student receiving tutoring and tennis instruction at PAST&E.

14.2 Software Development Glossary of Terms

A

Acceptance Criteria – The list of requirements that must be satisfied prior to the customer accepting delivery of the product.

Acceptance Test – Formal user performed testing performed prior to accepting the system (sometimes called client acceptance test or user acceptance test).

Application – Generic term for a program, or system, that handles a specific business function.

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Application Software – A complete, self-contained program that can perform work for a user. This is in contrast to system software such as an operating system, server processes, and libraries that exist in support of application software.

Architecture – Imposes order and makes interconnections possible. Generally defined as an intermediate step between initial requirements and business functional specifications during which the entire complex of hardware, software, and design considerations are viewed as a whole. Refers to a blueprint for evolving a technical infrastructure.

Availability – The portion of time that a system that is scheduled to operate actually can be used as expected.

B

Baseline – A specification, or product, that has been formally agreed upon which serves as the starting point against which progress will be judged.

Bench Mark – A standard figure of merit which measurements or comparisons may be made.

C

Change Management – The formal process of recording, analyzing, estimating, tracking and reporting of changes to the project baseline business functional requirements.

Client/Server System – Primarily a relationship between processes running on separate machines. A client initiates the dialog by sending requests to the server asking for information or action.

Configuration Management – Methodical storage and recording of all software components and deliverables during development.

Critical Path – Derived from the PERT method, this term implies the set of activities that must be completed in sequence and on time if the entire project is to be completed on time. A missed task on the critical path will cause a product delivery delay. This is the longest time for the project from beginning to end.

Customer - The individual or organization that specifies and accepts the project deliverables.

D

Data – Describes the numbers, text, graphics, images, and voice stored in a form that can be used by a computer.

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Deliverable – A tangible, physical object that is the output of a software development task.

Design – The tasks associated with specifying and sketching the features and functions of a new application prior to coding.

Documentation – The printed and displayed materials that explain an application to a user.

E

Effectiveness - A measure of the quality of attainment in meeting objectives.

Environment – The set of tools and physical surroundings in which software is developed.

Exit Criteria – The set of conditions that must be met prior to completing a project phase or application.

F

Function - An activity that spans the entire duration of a software project (e.g., status reporting, quality assurance, verification and validation).

G

Gantt Chart – A method of displaying overlapped and partially concurrent activities by using horizontal lines to reflect the time required by each activity. The chart, named for Henry Lawrence Gantt, consists of a table of project task information and a bar chart that graphically displays the project schedule to be used in planning and tracking.

Graphical User Interface (GUI) – A manner of presentation that makes use of windows, icons, menus, pointers, and scroll bars.

H

Hardcode – An informal term that describes a programming technique where data or procedures are specifically written into the program instructions.

Hardware – Physical equipment used to process, store, or transmit computer program data.

I

Information – The meaningful interpretation of data.

Integration – Describes the work, or device, required to connect two different systems that were not originally designed to work together.

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Integration Test – Testing in which software components, hardware components, or both are combined and tested to evaluate the interaction between them.

Interface – A connection between two devices or systems.

Issue – A problem to be solved or a decision that has not been made.

Iteration – A cycle of work on a sub-unit of a project. Multiple iterations are performed, each focusing on a specified set of the current highest priority unresolved issues. Each iteration moves the project towards the final, completed system.

J

K

L

Local Area Network (LAN) – A communications system confined to a limited area, typically a building, occasionally a group, and linking computers together via cable.

M

Maintenance – Refers to the ongoing activity that keeps software functioning in a technical and business environment (production).

Methodology – A set of formal protocols followed when performing a task.

Middleware – Software that hides the complexity of the networked computing environment from the users and application programmers.

Milestone – A major checkpoint in the activities involved in a project. A clearly defined point in a project that summarized the completion of a related set of tasks.

Model - A way of looking at reality, usually for the purpose of abstracting and simplifying it to make it understandable in a particular context.

N

Network – Describes the physical hardware and software connections between computers allowing information to be shared and electronic communications to take place.

N-tier Architecture – Describes a method for dividing an application into a series of distinct layers to provide for ease of maintenance and flexibility.

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O

Operating System – System software that controls data storage, input and output to and from the keyboard, and the execution of applications written for it. It performs base services: prioritizing work, scheduling, memory management, etc.

P

Phases – The divisions of a software development life cycle into discrete stages (e.g., requirements, design, code, test, etc.).

Platform – The hardware and support software with which a program is intended to operate.

Process – The step-by-step sequence of activities (systematic approach) that must be carried out to complete a project.

Project Management Plan – A formal document that describes the technical and management approach to be followed for a project.

Project Sponsor – The “customer” who will authorize project initiation, and who will receive, accept, and use the software product or service.

Protocol – A set of rules and specifications that describes how a piece of software will behave and how other pieces of software must behave in order to work with the first piece of software.

Q

Quality (Product) - Conformance to business functional requirements with defect-free products. Quality reflects both the completeness of software or system features and functions, and error-free operation.

Quality (Process) – Verification and validation to established policies, standards, procedures and guidelines for software development.

R

Regression Test – Selective re-testing to detect errors or faults introduced during modification of a system.

Relational Database – A collection of data that is organized into tables so that relationships between and among data can be established.

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Requirements – The statement of needs by a user that triggers the development of a program, system, or project. May be called business functional requirements or requirement specifications.

Risk – The probability that a project will experience undesirable events, which may create, cost overruns, schedule delays, or project cancellation. The identification, mitigation, tracking, and management of those elements creating the risk situation.

Risk Analysis - An evaluation of the feasibility or probability that the outcome of a project will be the desired outcome.

S

Scalable – A term describing an architecture or software that can handle expansion in the use as the need arises without adversely impacting systems management and operations.

Scope - The magnitude of the effort required to complete a project.

Server – A computer on a network that makes applications, print services, data, and communications available.

Software – Computer programs, systems, and the associated documentation that describes them.

SDLC - Software Development Life Cycle – The period of time that begins with the decision to develop a software product and ends when the software is delivered.

Software Development Process – The process by which user needs are translated into a software product.

Project Management Plan - The controlling document for managing a software project. The PP defines the technical and managerial project functions, activities, and tasks necessary to satisfy the requirements of a software project.

Specifications – General term for the wide variety of paper-based descriptions of a program or system.

Stakeholders - People who have a personal or agency interest in the end results of a project.

Standalone – Describes a computer workstation where the computer is not connected to any other computer on a network.

System – A linked collection of programs, or components, that perform a generic business or technical function.

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System Test – The final stage of testing on a completed project (prior to client acceptance test) when all hardware and software components are put together and tested as a whole.

SDLC - System Development Life Cycle - The complex of tasks and deliverables that are organized toward developing software systems.

T

Test Plan – A document that describes the scope, approach, resources, and schedule of intended test activities.

Testing – The set of defect removal tasks that include execution of all, or part, of an application on a computer.

U

Unit Test - The testing carried out personally by individual programmers on their own code.

V

W

Work Breakdown Structure (WBS) – A formal analysis of the activities, tasks, and sub-tasks that must be accomplished to build a software project. A product or activity oriented hierarchy tree depicting the elements of work that need to be accomplished in order to deliver a product.

Workstation – Any machine with all of its installed storage, processing, and communications that can be either standalone or networked.

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X

Y

Z

* Definitions were extracted from Assessment and Control of Software Risks by Capers Jones (1994); Managing Software Development Projects (Second edition) by Neal Whitten (1995); IEEE Standards Collection: Software Engineering (1997 Edition); Best Practices in IT Architecture Planning and Implementation by Larry DeBoever; Essential Client/Server Survival Guide by Robert Orfali; and The Complete Idiot's Guide to Project Management by Sunny and Kim Baker.