IEEE Software Project Management Plans

Date: September 22, 2003

By: Becky Hodge

AGENDA

- Acronyms
- IEEE
- IEEE's Software Project Management Plan
- IEEE Software Project Management Plan In Action
- Summary
- References

Acronyms

IEEE – The Institute for Electrical and Electronics Engineering

SPMP – Software Project Management Plan

IEEE Vision & Mission

VISION

- To advance global prosperity by fostering technological innovation, enabling members' careers and promoting community world-wide.

MISSION

- The IEEE promotes the engineering process of creating, developing, integrating, sharing, and applying knowledge about electro and information technologies and sciences for the benefit of humanity and the profession.

IEEE Organization

- Website: http://www.ieee.org
- Non-profit, technical professional association
- 380 000+ members in 150 countries
- Holds 300+ major conferences annually
- Nearly 900 active standards with 700 under development

IEEE Standards

- Developed within Technical Committees of the IEEE Societies and Standards Coordinating Committees of the IEEE Standards Board
- Volunteer without compensation
- Use of Standard is voluntary
- Standards are subject to review every 5 years

IEEE Std. 1058.1-1987

- IEEE Std. 1058.1-1987 is for Software Project Management Plans
- Specifies format and contents of SPMP
- DOES NOT specify technique to be used or examples
- Applies to all types of software projects
- Applies to software projects of all sizes

IEEE Std. 1058.1-1987

- Audience
- Evolution of Plans
- History
- Contributors

SPMP Overview

- Overview
  1. Scope and References
  2. Definitions
  3. Software Project Management Plans

SPMP Case

- What's Next?

- Case Background
  - Software Development Organizaton
  - Client: Waterloo Art Dealers (WAD)
  - Project

SPMP Outline

1. Introduction
2. Project Organization
3. Managerial Process
4. Technical Process
   - Work Packages, Schedule, and Budget
   - Additional Sections

SPMP – Section 1

1. Introduction
    - 1.1 Project Overview
    - 1.2 Project Deliverables
    - 1.3 Evolution of SPMP
    - 1.4 References
    - 1.5 Definitions and Acronyms

SPMP – Section 1

1.1 Project Overview (Page 1 of 2)

Objective: develop a software product that will assist art dealer track paintings purchased, displayed and sold in the gallery

Product will perform record keeping on paintings & produce reports listing paintings bought & sold.

SPMP – Section 1

1.1 Project Overview (Page 2 of 2)

Time, budget & personnel requirements:

Phase	Weeks	# Team	Budget
Requirements	1	2	$ 1 690
Analysis	1	2	$ 1 690
Planning	1	2	$ 1 690
Design	2	2	$ 3 380
Implementation	3	3	$ 7 605
Integration	2	3	$ 5 070
TOTAL	**10**	**n/a**	**$ 21 125**

SPMP – Section 1

1.2 Project Deliverables

Complete source code & user and operations manuals will be delivered 10 weeks after the project commences.

Client will be responsible for acquiring the recommended hardware and software by the time the product is delivered.

SPMP – Section 1

1.3 Evolution of the SPMP

All changes must be agreed to by Pat before they are implemented. All changes must be documented in order to keep the SPMP correct and up to date.

SPMP – Section 1

1.4 References

Refer to our company coding, documentation and testing standards.

1.5 Definitions and Acronyms

WAD – Waterloo Art Dealers – our client

SPMP – software project management plan

SPMP – Section 2

2. Project Organization
   - 2.1 Process Model
   - 2.2 Organizational Structure
   - 2.3 Organizational Boundaries
   - 2.4 Project Responsibilities

SPMP – Section 2

2.1 Process Model

Software life-cycle model to be used is the waterfall model with rapid prototyping.

Specification were written by Rob & Mary & verified at meetings with client by Pat

Design task will be shared between Rob & Mary while Pat will check overall design

Coding will be performed by Rob & Mary. Rob & Mary will test each other's code while Pat will perform integration testing.

SPMP – Section 2

2.2 Organizational Structure

Development team consists of Pat (owner), Rob and Mary (software engineers).

SPMP – Section 2

2.3 Organizational Boundaries and Interfaces

All work for this project will be performed by Pat, Rob and Mary.

Pat will meet weekly with the client to report progress and discuss possible changes and modifications.

Major changes that will affect milestones or budget will have to be approved by Pat and documented.

SPMP – Section 2

2.4 Project Responsibilities

Each member is responsible for the quality fo the module he/she codes.

Rob: code modules to handle bought paintings

Mary: code modules to handle sold paintings

Pat: handle class definitions and report modules, oversee module integration and overall quality of the product and will liaise with the client

SPMP – Section 3

3. Managerial Process
   - 3.1 Management Objectives & Priorities
   - 3.2 Assumptions, Dependencies & Constraints
   - 3.3 Risk Management
   - 3.4 Monitoring and Controlling Mechanisms
   - 3.5 Staffing Plan

SPMP – Section 3

3.1 Managerial Objectives and Priorities

Overall Objective: to deliver a fault-free product on time and within budget

If this cannot be achieved, priority is given to completing the routines needed to buy paintings; reports have the lowest priority.

Team members will meet at the end of each day to discuss problems and progress.

Formal meetings with client will be held at end of each week to report progress and determine if any changes need to be made.

SPMP – Section 3

3.2 Assumptions, Dependencies & Constraints

- Deadline & budget constraint must be met
- Product must be reliable
- Architecture must be open so that additional modules may be added later
- Product must conform to hardware specifications documented
- Product must be user friendly

SPMP – Section 3

3.3 Risk Management

Risk factors & tracking mechanisms include:

- Client is assumed to be inexperienced with computers. Therefore, special attention should be paid to the specification phase and communication with the client. The product has to be as user-friendly as possible.
- Slim chance of hardware failure, in which case another machine will be leased.

SPMP – Section 3

3.4 Monitoring & Controlling Mechanisms

- Pat will be responsible for all review and auditing
- At daily meeting, Rob & Mary will present progress and problems
- Pat will determine whether they are progressing as expected and confirm they are following the specifications and SPMP
- Any major problems faced by the team will immediately be reported to Pat

SPMP – Section 3

3.5 Staffing Plan

- Pat is needed for the entire 10 week, for the first 5 weeks only in a managerial capacity and in the second 5 weeks as both manager and programmer
- Rob & Mary are needed for the entire 10 weeks in development and testing

SPMP – Section 4

4. Technical Process
   - 4.1 Methods, Tools and Techniques
   - 4.2 Software Documentation
   - 4.3 Project Support Functions

SPMP – Section 4

4.1 Methods, Tools & Techniques

- Waterfall method with rapid prototyping
- Object-oriented design will be used
- Source code will be written in C++ and run under UNIX on a personal computer
- Documentation and coding will be performed in accordance with the company standards

SPMP – Section 4

4.2 Software Documentation

- Software documentation will follow company standards
- Reviews of documentation will be conducted by Pat at the completion of each phase of the process model
- This will ensure that all the documentation for a particular phase has been completed by the time the next phase is started

SPMP – Section 4

4.3 Project Support Function

- Quality assurance will be performed as documented in 2.1

SPMP – Section 5

5. Work Packages, Schedule, and Budget
   - 5.1 Work Packages
   - 5.2 Dependencies
   - 5.3 Resource Requirements
   - 5.4 Budget and Resource Allocation
   - 5.5 Schedule

SPMP – Section 5

5.1 Work Packages

- Routines are required to store information about bought and sold paintings while assisting the client in arriving at a maximum purchase price and target selling price for each type of painting
- Reports listing bought paintings, sold paintings and fashion trends are required
- Methods for each of these classes will be created independently

SPMP – Section 5

5.2 Dependencies

- As specified in the process model
- No phase will be started until the work products of the previous phase have been approved by Pat

5.3 Resource Requirements

- 3 personal computers running under UNIX with standard UNIX tools

SPMP – Section 5

5.4 Budget

Phase	Budget
Requirements	$ 1 690
Analysis	$ 1 690
Planning	$ 1 690
Design	$ 3 380
Implementation	$ 7 605
Integration	$ 5 070
TOTAL	**$ 21 125**

SPMP – Section 5

5.5 Schedule

Weeks	Task Description
Week 1	Met with client, determined requirements. Produced rapid prototype. Client & users approved rapid prototype.
Week 2	Wrote specification document. Specification document approved by client.
Week 3	Produced SPMP. Reviewed SPMP.
Weeks 4 & 5	Design document, design review. Create detailed design document. Review detailed design document.
Weeks 6, 7 & 8	Implementation and inspection of each module. Module testing and documentation.
Weeks 9 & 10	Integration of each module, inspection of individual modules, product testing, documentation check.

SPMP – Section 6

6. Additional Components
   - 6.1 Index
   - 6.2 Appendices

SPMP – Section 6

6. Additional Components

Security: password will be needed to use the product

Training: training will be performed by Pat at time of delivery. Pat will provide 1 year of support (questions by phone) for the first year of use.

Product Maintenance: Corrective maintenance will be performed by the team at no cost for a period of 12 months. A separate contract will be drawn up regarding enhancements.

Summary

Advantages

- Standard that incorporates experience of members of both academia and industry
- Designed for use with all types of software projects, irrespective of size
- Advantages of industry-wide standardization will accrue (save expense of training new team members)

References

Websites:

- http://www.scs.carleton.ca/~beau/PM/T10E-SPMP.html
- http://www.ieee.org

Books:

Schach, Stephen R., Classical and Object-Oriented Software Engineering, ISBN 0-07-290168-3, 1999