SOFTWARE MEASUREMENT PLAN
Version 1.0[1]
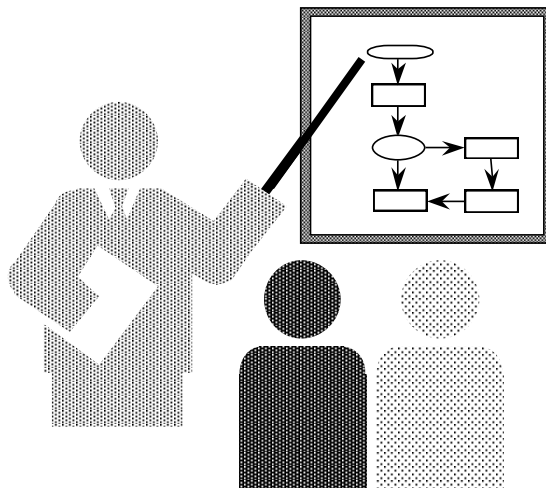
SMP V1.0

APRIL 7, 2009

Team Members**:**

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[1] This document follows the <u>SMP template</u> TM-SPTO-03 v1.0

Preface

The objective of this document is to assist projects in collecting, analyzing and reporting measurement data. A software measurement plan is needed to: 1) improve the project planning; 2) maintain insight into the status of a project and to inform the sponsor and senior management; 3) increase the visibility on the developers working practices; 4) control the quality of the developed artifacts. The model, defined herein, provides guidelines on the data collection, analysis, and reporting to support the goals of the management and developers, and coordinate the functional activities necessary to deliver quality products and participate in data sharing at the organization level.

Revision History

Date	Rev.	Description	Author(s)	Contributor(s)
	1.0	First Draft	AA	The Team

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SECTION 1. Introduction

This section can be a summary of the impact measurement results are expected to make on other efforts such as project planning, project management, process improvement, etc.

1.1 Purpose

Guidance

This section should address the importance of the Software Measurement Plan (SMP) to the success of the project and/or organization in the conduct of both current and future efforts. This section is a summary of the expected benefits from the use of the measurement results and should be a summary of the reasons for the efforts. Specifically, it may be helpful to note that integrating measurement activities into project processes supports the following:

- Objective planning and estimating; - Tracking actual performance against established plans, objectives, and baselines; - Identifying personal software process (PSP) related issues.

Example language appears below

The purpose of the Software Measurement Plan (SMP) is to specify the core measurements to be used by all production life cycle support projects within the Division. The goal is to develop a set of metrics that will improve the management of risks and provide a database of information to be used in estimating future work effort.

1.2 Organizational Description

Guidance

This section should define the organizational scope affected by the SMP. The nature of the organization's work should be described in brief.

Example language appears below:

The Division is the Space and Naval Warfare (SPAWAR) Software Support Activity (SSA) for computer-based Command, Control, Communication, Computers and Intelligence (C4I) Systems. Tasking includes system analysis, systems engineering, design integration, test and evaluation, installation, training, and life cycle support for these systems. In addition to its life cycle support functions, the Division maintains an active role in the support of the SPAWAR Systems Center (SSC) San Diego Systems Engineering Process Office (SEPO).

The Division is expected to continue systems support at the present level for several years. As older systems are removed from service and new ones are developed to replace them, the newer systems will then continue under the Division's cognizance.

1.3   References

1.   SOEN390 Software Project Plan V1.1
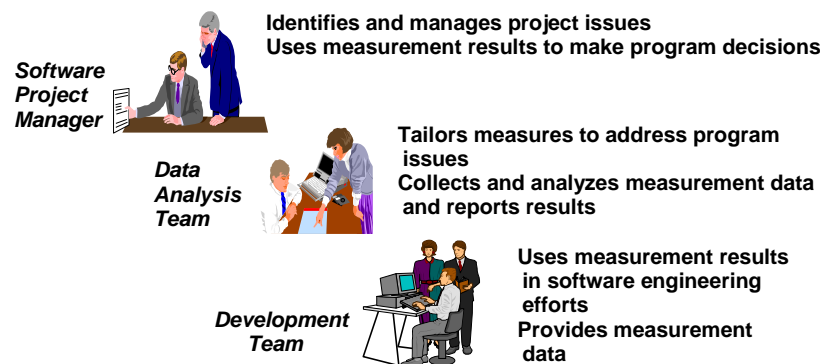
2.   SOEN390 PSP Report V1.0

3.   …

SECTION 2. Organizational Measurement Roles and Responsibilities

2.1　Software Project Manager's Measurement Responsibility

The Software Project Manager is responsible for the successful completion of the assigned software projects. The SMP generates key decision making information the Software Project Manager requires to ensure a successful project. To that end, the Software Project Manager will be responsible for directing and organizing the required formal reviews and will be responsible for the overall conduct of this SMP. The details of execution of the SMP are delegated to the Data Analysis Team Leader.

2.2　Data Analysis Team Assignment and Responsibility

> *projects, this activity can be a collateral duty for one of the functional groups such as the Software Configuration Management (SCM) team or the Software Quality Assurance (SQA) team.*
>
> *This section should define the staff positions filling this role.*
>
> *Example language appears below:*

The Data Analysis Team provides direct support to the Software Project Manager on the conduct of the SMP. The data collection, database activities, presentation preparation, MS Project Plan maintenance, and preliminary analysis of project status are the team's responsibility. The members of the Data Analysis Team are listed below:

    a. Data Analysis Team Leader - The SQA Manager will serve as the Data Analysis Team Leader. His responsibilities include directing the Data Analysis Team in performing their duties in data collection, analysis, and presentation.

    b. Data Analysis Team - The Data Analysis Team includes the Software Development Branch Heads, the Test Branch Head, the SCM Manager and the SQA group. The Branch Heads and the SCM Manager are responsible for data collection, and review of presentation materials. The SQA group, under the direction of the SQA Manager, will perform data analysis, development of presentation materials, and the maintenance of the Project History Files and MS Project plans.

SECTION 3. Software Project Measurement Specifications

3.1 Measurement Information Needs and Objectives

Guidance

The first step in selecting measures is to identify and document the Information Needs that are driving the measurement effort. Information is typically needed to gain required insight and/or to enhance decision-making. This section provides the opportunity to document those information needs and the source for each information need.

Use the GQM technique to identify and clarify the information needs. Sources of information needs may be issues, goals, objectives, etc. They may come from the Organization, Business unit, Project, or Technical personnel. The selected information needs may need to be refined and clarified. Initial information needs may lack the clarity necessary to proceed with identifying the indicators. It is the clarified and prioritized information needs that are to be summarized here. Provide the rational for selecting which information needs are going to be satisfied.

Concentrate on:

A) the measurement goals discussed in Lectures 2 & 10 (RE: NASA sample software organization goals to increase understanding, section 2.1 – see the handout distributed in class on February 5; make sure to choose those goals which are applicable to SOEN390/490);

B) the measurement goals of the PSP process; see for more ideas the provided on the course web page sample PSP goals analysis (there is no guarantee of correctness for this document!!!); make sure to choose those PSP goals which are applicable to SOEN390/490.

3.2   Measurement Information Models

Guidance

Measurement needs and objectives are refined into precise indicators and quantifiable measures. Use the ISO15939 template to specify the Measurement Information Model for each Information Need identified above (see Lecture 6 for more details). The analysis procedures are specified in section 3.2 for each measurement information model (use sub, which would   ensure that appropriate analysis will be conducted and reported to address the documented measurement objectives (and thereby the information needs and objectives on which they are based)

3.3   Indicator to Base Measure Matrix

Guidance

This section provides an opportunity to map the Indicators identified in   section 3.2 to Derived Measures, as documented in 3.2. This section shall be consistent with 3.2

Example:

SECTION 4. Measurement Process

This section outlines the strategy for Executing the Measurement Plan

4.1   Data Collection and Storage Procedures

Explicit specification of collection methods helps ensure the reliability of the collected data (see Lecture 9 for definition of reliability of measurement data). Proper attention to storage and retrieval procedures helps ensure that data are available and accessible for future reference.

4.2 Schedule

This section contains work breakdown for the main measurement activities Extract, Evaluate, Execute by Milestone.

In "Extract" activity specification, list the base measures to be collected for the information needs of the Milestone. In "Evaluate" activity specification, list the Indicator Development and Presentation to be performed.   the documents which will be used to report the results of the measurement data analysis and to record the related decision-making, or provide templates for capturing this data.

SECTION 5. Glossary of Terms

This section defines the terms used in the measurement program. The definitions provided here are from the terms used in this measurement plan template.

1. **Base Measure:** "A distinct property or characteristic of an entity and the method for quantifying it"
2. **Derived Measure:** "Data resulting from the mathematical function of two or more base measures"
3. **Indicator:** A Derived Measure or Measures in a visual format designed to answer the information need.

4. …