Software Product Description

PRODUCT NAME: VAX Software Project Manager, Version 1.2 **SPD 27.52.03**

DESCRIPTION

The VAX Software Project Manager is a project management system that is designed to facilitate estimating, planning, and controlling software development projects.

The estimation activity provides a projection of the total effort, development time, and staff levels required to do a software project. Planning provides task-level schedules to which projects ''commit.'' Both estimation and planning provide the software project manager and project leader with information to do ''what if'' analysis at differing levels of detail and increasing levels of confidence.

Control is a process of comparing, measuring and reporting progress against plan at the project and individual contributor levels. It provides the information to track project status, determine progress trends, and to take corrective action if necessary.

In providing these capabilities, the VAX Software Project Manager employs two fundamental styles of interaction: a menu-oriented mode and a DCL-style command line mode. The menu-oriented mode promotes ease of learning and ease of use through highly graphical interaction. The product visually presents software project data in the form of trees, nodes, graphs, and charts. In turn, the user specifies actions through pointing at objects and selecting features through menus. The DCL-style command line mode permits succinct expression for the experienced user and the ability to perform all functions in ''batch'' mode. During a single session, the user can move readily between the two modes and all actions performed on the software project database, in either mode, are immediately reflected.

Using either of the two styles of interaction, the user can input, manipulate and view variable amounts of data based on the needs of a software project and the amount of subsequent control and reporting information desired. The capabilities provided by the VAX Software Project Manager can be divided into four groups of tools:

- Planning
- Control
- Estimation
- Environment

The Planning Tools

The planning of a software project involves the manipulation and analysis of large amounts of data, including information about the project as a whole, individual tasks to be performed, milestones (critical points in time), and resources to perform tasks. Using a Work Breakdown Structure (WBS) composer tool, the user constructs a graphical, hierarchical representation of project tasks. A WBS is an enumeration of everything that needs to be done on a project.

Visually, it is tree-structured with each ''leaf'' of the tree representing an activity to be performed during the project. Tasks that are at the lowest level in each branch (hence leaf nodes) are activities that the user may want to explicitly schedule.

The second major planning tool is the Scheduler tool. While the WBS shows the structure of a project or what needs to be done, the scheduler tool allows the user to show the dependencies among tasks and milestones or the order in which tasks must be done. By connecting the graphical representations of tasks defined in the Work Breakdown Structure, a precedence network is defined which visually shows which task must be completed before another task may begin. In addition, the scheduler tool allows the user to produce a project schedule. Depending on the scheduling algorithm selected, the scheduling tool takes into account:

- The precedence of the tasks.
- The efforts associated with the tasks.
- The work/non-work dates occuring in the underlying project calendar.
- The resources assigned to the tasks.
- The percent of time these resources are available.
- The availability of these resources as reflected in their individual calendars.

In addition to the WBS composer and the scheduling tool, the planning tools include:

- Loading Chart Tool - Bar chart view of resources, their assigned activities, and schedule data for those activities.

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- Calendar Tool - Allow specification of calendar data (work/non-work day specification).
- Gantt Tool - Bar chart view of project activities and their schedule data.

The Control Tools

Control is a process of comparing, measuring and reporting progress against plan at the project and individual contributor levels. It provides the information to track project status, determine progress trends, and to take corrective action if necessary. Such project control involves maintaining data pertaining to actual efforts expended and extracting project data into a variety of formats, such as Gantt charts and precedence diagrams, to track project status and view actual versus planned progress.

VAX Software Project Manager provides capabilities for comparing, accessing, and measuring progress against plan at both the project and the individual contributor levels. Specific controlling tools include:

- Status Updating - Allows viewing and entering of data pertaining to actual efforts expended.
- Rate Charting - Provides viewing of progress - planned vs. actual.
- Reporting - Generates a variety of textual displays and hardcopy reports of project data. The User Formatted Report allows you to define reports choosing from information in the project database, which can then be saved and used in future reporting cycles.

The Estimation Tool

The VAX Software Project Manager provides a detailed implementation of COCOMO, a widely accepted method for estimating the total effort, development time, and staff levels required to do a software project. COCOMO (COnstructive COst MOdel) is a cost (effort and time) estimation technique first presented in 1981 by Dr. Barry Boehm in his book ''Software Engineering Economics'' (Prentice-Hall,1981). Since that time the model has received widespread acceptance in government and industry as a reliable predictor of schedule and cost for software projects given only a size estimate (in lines of code) and salient project characteristics.

Projections for effort, time, and staff levels are made using the estimated size of the project and ''cost drivers,'' such as programmer capability, product complexity, and the programming environment. The accuracy of the model can be enhanced through modification of the cost drivers to more closely reflect recent historical data specific to a user's environment.

The user inputs to the estimation tool:

- An estimation hierarchy
- Cost driver values
- Estimates of lines of code
- Cost per phase

The estimation tool provides the following for the the development phases of the project:

- Effort
- Schedule
- Cost
- Staffing levels

Summaries are provided for each phase.

Setting The Environment

The user must set the environment in which the VAX Software Project Manager operates, such as what project database is to be used and who the resources are on a project, capabilities, associated costs, and availability at various points in time.

Specific tools that help you define the environment include:

- Resources Tool - Allowing specification of the resources to be employed in performing the work and their attributes (e.g., cost).
- User Preferences Tool - Providing the capability to tailor the operation of the product.
- Projects Tool - Enabling management of project databases as files in the VMS environment.

Additional Features of the VAX Software Project Manager

The VAX Project Manager further provides:

- A single database per project that allows a uniform view of the project from all tools. It is possible to view and edit data from any tool where the data is visible on the screen in selectable form.
- Multiple concurrent users per project database with consistent views of the project for all users.
- Capability to create a new project database from an existing project database.
- Database Integrity and Reliability.
- Limited cost accounting either through manually specified estimated cost or automatically calculated actual cost based on resource units times the resource unit cost.
- Roll-up ability; statistics available at the element level, such as costs, can be rolled up to higher level group nodes of the WBS.
- A variety of graphical reports and printouts including:
  - — Work Breakdown Structure (WBS)
  - — Precedence Diagram
  - — Project Calendar
  - — Gantt Chart
  - — Loading Chart

— Rate Chart

— User Formatted Reports

— Schedule Report

— Cost Report

— Precedence Report

— Estimation Project Hierarchy

— Resource List

— Current contents of entire screen

HARDWARE REQUIREMENTS

VAX, MicroVAX or VAXstation configuration as specified in the System Support Addendum (SSA 27.52.03-x).

SOFTWARE REQUIREMENTS*

For systems using terminals: (No VMS DECwindows interface)

- VMS Operating System

For Workstations running VMS Workstation Software:

- VMS Operating System
- VMS Workstation Software

For workstations running VMS DECwindows:

- VMS Operating System (and the necessary components of VMS DECwindows)

VAX Software Project Manager runs on a DECwindows VMS workstation using the DECwindows terminal emulator, not as a fully-compliant DECwindows application.

* Refer to the System Support Addendum for availability and required versions of optional/prerequisite software (SSA 27.52.03-x).

ORDERING INFORMATION

Software Licenses: QL-A82A*-**
Software Media: QA-A82A*-**
Software Documentation: QA-A82AA-GZ
Software Product Services: QT-A82A*-**

* Denotes variant fields. For additional information on available licenses, services and media, refer to the appropriate price book.

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