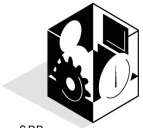




**Software
Productivity
Research, LLC**



SPR
KnowledgePLAN

“Frequently Asked Questions About KnowledgePLAN”

Version 4.1

Copyright © 2005 Software Productivity Research LLC. All international rights reserved.

SPR KnowledgePLAN is a trademark of Software Productivity Research. Microsoft, Microsoft Project, and Microsoft Access are registered trademarks of Microsoft Corporation. Windows, when used in this manual, refers to the Microsoft Windows operating system. Crystal Reports for Windows is a trademark of Business Objects SA. All other product names referenced are trademarks or registered trademarks of their respective owners.

Software Estimation Using SPR KnowledgePLAN® 4.1

Frequently Asked Questions about KnowledgePLAN

What are the key steps to follow in using KnowledgePLAN to estimate a project?.....	4
How do I begin an estimate?.....	4
What is “Classification” and how do I do it?.....	4
Do I have to enter a size for the project? How do I do this?	5
What method of sizing should I use?.....	5
How do I use the Project Sizing Wizard for Estimating by Component Types?.....	5
What is a Secondary Database, and why do I need one?.....	6
What are custom-built templates, and when should I use them?.....	6
What should I do to review initial results from an estimate?	7
What is Calibration and how do I do it?	7
How do I remove WBS tasks from the estimate?	9
How do I manually override a calculated value in an estimate?	9
Why did my overridden values get reset when I ran the model (selected Calculate All)?.....	9
How do I prevent the model from estimating a particular task?.....	9
How do I redistribute work among WBS tasks?.....	10
How do I combine WBS tasks in the estimate?.....	10
How do I prepare an estimate for MS Project?	10

How do I send an estimate from KnowledgePLAN to MS Project? 11

Why would I want to import a project from MS Project to KnowledgePLAN? 11

How do I import a project from MS Project to KnowledgePLAN? 11

How do I store “actual” values (as built) for a project in KnowledgePLAN? 11

How do I reflect changes in MS Project in KnowledgePLAN? 12

How do I show the use of multiple source code languages for the project estimate?..... 12

How do I add Function Point counted applications/projects to the domain? 12

How do I store project estimates/domains/templates to the Secondary database? 12

When closing a project estimate/domain/template, when should I opt to “Lock the project in the Working and Secondary databases”?..... 12

How do I unlock a project estimate/domain/template that was not created on the user ID/workstation that I have access to? 13

What are the key steps to follow in using KnowledgePLAN to estimate a project?

Classify and enter size.

Review initial results.

Calibrate.

How do I begin an estimate?

The following outlines the basic steps for creating a new project estimate:

- **Start KnowledgePLAN**
- **Create new project estimate: FILE | NEW, then press OK**
- **Enter a Project Name and select an appropriate template to use, and then press OK. This launches the New Project Wizard.**
- **Classify and size the project**

What is “Classification” and how do I do it?

Classification is the first step in the New Project Wizard. It specifies major estimation parameters and high-level information that will be drawn from the SPR Knowledge Base (historical project information) that is used to estimate project effort, duration, staffing, and others.

There are five separate categories of Classification. Each describes an aspect of the software effort that you are trying to estimate. Generally, the further down each list an item is, the greater the level of effort, complexity, scope, or cost.

Select an item from each of the five Classification lists, and press NEXT to move ahead after each:

- **Nature**
- **Scope**
- **Topology**
- **Class category / Class**
- **Type category / Type**

Do I have to enter a size for the project? How do I do this?

Size is the most significant determining factor for the estimate. You cannot run the KnowledgePLAN estimation model without entering a size.

There are three ways to enter a size for a Project Estimate:

- **By Metric**
- **By Components**
- **By Analogy**

What method of sizing should I use?

The sizing method depends on the information that you have available. Often this corresponds to the life cycle phase that the project is in.

Use Sizing by Metric if you have a count of Function Points or lines-of-code.

If the project is similar to one that is in the list of Function Point-counted applications, use Sizing by Analogy and select a comparable application from the list that most closely corresponds to what you are trying to estimate.

Use Sizing by Components if you have limited or incomplete information on the extent of the project.

Enhancement Project Estimates should use Sizing by Components unless a Function Point count has been developed from user requirement specifications. The pre-existing “Base” for an enhancement should be sized by selecting an appropriate application from the list of Analogies.

How do I use the Project Sizing Wizard for Estimating by Component Types?

Begin by becoming familiar with the descriptions of Component Types found in the Help screens.

STEP ONE – Component Type count specification

Specify the number of components of various types that you know, or can at least approximate. If you know that there are no components of a specific type, specify that the count is zero.

For sizing New Development projects, you must specify **AT LEAST ONE** of the component type counts (under “Added components created during this project”).

For sizing other than New Development projects (e.g., Enhancement projects) you must specify the number of AT LEAST one of the “Added components created during this project” AND AT LEAST one of the “Modified components relating to this project” counts.

If you cannot make a reasonable assumption about relative, average complexity of the component counts that you specify, leave the setting at the default (“Low”).

KnowledgePLAN will extrapolate the sizes of the components you choose not to specify and estimate an overall project size.

STEP TWO – Distribution of Components

For a New Development project estimate, review the default distributions for code, and adjust accordingly:

- Reused
- Leveraged
- New

Unless a Disposable (i.e., non-evolving) prototype is used, ensure that the “Prototype (% of Added)” value is set to zero.

For sizing other than New Development projects (e.g., Enhancement projects), also specify the distribution of Modified components (% split between Changed and Deleted functions expected for the project.)

What is a Secondary Database, and why do I need one?

The Secondary Database is a physical storage location that can mirror the Working Database. The Secondary Database provides sharing and backup/undo capability within KnowledgePLAN in a multi-user environment. If your organization plans to use a single machine and license for KnowledgePLAN, there is no need to use a Secondary database. You can disconnect from the Secondary Database if you inadvertently find yourself connected to one. Close all open projects, and use the FILE | DISCONNECT option from the menu.

What are custom-built templates, and when should I use them?

Typical examples of templates that can be built by users of KnowledgePLAN include:

- Mainframe enhancement, high experience team
- Web new development

- **Web enhancement**
- **Client Server enhancement**
- **Outsourced project**
- **Ongoing support maintenance to existing legacy system**
- **Customizing purchased software**

Templates are constructed based on typical projects and have Capability and Complexity default scores based on internal projects. In addition, work breakdown processes were specified for “typical” internal projects.

Because of the small sample sizes that are often used to establish customized templates, estimates should be carefully monitored and reviewed to ensure that the parameters are appropriate.

What should I do to review initial results from an estimate?

After the model runs (when the first estimate is completed), review the following for accuracy, reasonableness, and completeness:

- **Total project effort and cost (Project Profile screen)**
- **Distribution of effort across major phases (Gantt chart and table)**
- **FTE estimate (Project Profile screen)**
- **Project duration (Project Profile screen)**
- **Project quality (Project Profile screen)**
- **Strengths and Weaknesses (Project Attributes report)**
- **Sensitivity Analysis (Goals Wizard dialog)**

What is Calibration and how do I do it?

Calibration is used to adjust (refine) the initial estimate to tailor items that are not appropriately set by the selected Project Template. This is done for either or both of the key estimate parameters:

- **Resources**
- **Tasks**

Resources can be calibrated in terms of:

- **Standard calendar selection.** Calendars are maintained in the Domain associated with the Project Estimate.
- **Overtime estimation can be switched on or off.** If on, the Overtime Percent of Plan Work must be specified. This affects the project duration and cost (if overtime rates are specified in the Domain associated with the Project Estimate.)
- **Global Resource Adjustment.** This is used as a multiplier against the FTE staffing normally determined by the model (which is in turn based on the Knowledge Base expectations for assignment scope.)
- **Maximum Resource Units can be switched on or off.** If on, the values specified in the Domain associated with the Project Estimate are used to constrain staffing (by resource category.) **BEWARE:** if the Maximum Resource Units value is left at the default of 1 and Maximum Resource Units is enabled, the duration for a large or complex project may extend beyond the year 2036. This will cause an error to occur in the calculations. A warning message will be displayed if this happens.

Tasks can be calibrated in terms of:

- **Automatically add tasks.** This is OFF by default. When on, the model will add tasks to the WBS as determined by the Knowledge Base inclusion rules during calculation. This provides an easy way to recover the default WBS if line items are inadvertently removed (deleted). Note that tasks that are automatically added appear at the BOTTOM of the hierarchy, not in their original location. They can be dragged to the correct location with the mouse.
- **Automatically delete tasks.** This is OFF by default. Tasks excluded from the WBS as determined by the Knowledge Base inclusion rules are removed (deleted) during calculation. This is more permanent than using the “Show Included” mask button on the icon bar.
- **Estimate excluded tasks.** This is OFF by default. When on, calculation removes the constraints of classification (nature, scope, topology, class, type) from the estimation criteria, and provides an estimate of effort/cost, duration, deliverables, resources, defects, etc. for ALL tasks that have not been deleted. This is used to force “on” estimation of activity that would not normally be expected, given the project selections that you have made.
- **Estimate dependencies.** This is ON by default. Turn it off if you want to manually change the task dependency relationships, or are creating a WBS from scratch.

How do I remove WBS tasks from the estimate?

Line items can be deleted from the WBS one at a time, by selecting multiple adjacent tasks, or by selecting a parent task. Simply select the task and press the DELETE key (or select EDIT | DELETE from the menu).

When the estimate calculation is run, deleted tasks with active task categories will automatically reappear at the bottom of the hierarchy tree UNLESS the proper setting has been made in the Calibration (tasks) dialog. See the FAQ item entitled, “What is Calibration and how do I do it” for details.

How do I manually override a calculated value in an estimate?

In the task information dialog (access this by double-clicking on any task in the WBS), you can override virtually any value by selecting it and typing over it. Note that while black text can be manually overwritten in the Gantt and other tables, blue text cannot. This is because blue text represents a (computed) summary task value, not an actual value. Make changes to the detail in the child tasks.

Why did my overridden values get reset when I ran the model (selected Calculate All)?

If you insert a manual value (override calculated values) for a task’s duration, effort/cost, staffing, dependencies, defects, etc. you must disable estimation for the (parent) task category. If you do not, the values will be reset to the knowledge base estimation value when the model is run.

How do I prevent the model from estimating a particular task?

It is possible to disable estimation (calculation) against the Knowledge Base for any task category. When this is done, all TASKS associated with (“mapped to”) the task category will not recalculate. Estimation can be disabled (or enabled) for:

- Effort (and cost)
- Resources
- Deliverables
- Defects (only for defect removal task categories)

How do I redistribute work among WBS tasks?

When a task is removed (deleted) from the WBS, the associated effort/cost, deliverables, resources, and defects (for defect removal tasks) are automatically redistributed among the other tasks that shared the same task category. If there are no other tasks for the task category, the total effort/cost, deliverables, resources, and defects will disappear from the project.

When two or more tasks share a task category, the effort/cost, deliverables, resources, and defects are distributed evenly (by default, though this can be adjusted manually) across all tasks upon recalculation of the estimate. As additional tasks with the same task category are added or removed, the distribution of these factors is automatically adjusted.

How do I combine WBS tasks in the estimate?

It is not possible to combine effort/cost, deliverables, resources, and defects for tasks that do not share the same task category. For example, the calculated results for System Testing Preparation, System Testing Execution, and System Testing Defect Repair cannot be computed under a single task.

However, a Summary Task (parent) can be used to accumulate totals for any tasks (regardless of task category) that fall below it (physically indented) in the hierarchy. This relationship will persist when the estimate is exported to Microsoft Project.

How do I prepare an estimate for MS Project?

Any estimate can be exported directly to MS Project without special preparation. It may be beneficial, however, to use the Task Calibration and Resource Calibration functions to delete line items that are nonessential.

For example, if there are excluded testing tasks (greyed-out, or excluded from the estimate) that you do not want to import to MS Project, use CALIBRATE | TASKS | Automatically Delete Tasks (Yes) to remove the extraneous line items.

Similarly, if there are resources that are not used (estimated) in the default project, you can use CALIBRATE | RESOURCES | Delete Non-Estimated Resource Assignments (Yes) to avoid sending nonessential information to MS Project.

How do I send an estimate from KnowledgePLAN to MS Project?

There are two ways to do this:

- Use the FILE | EXPORT | .MPD or .MPX format to create a file that can be opened in MS Project.
- Use the TOOLS | TO MS PROJECT function to create an .MPP and using OLE open MS Project automatically.

Why would I want to import a project from MS Project to KnowledgePLAN?

This is done to perform an update (re-estimate), usually after a major phase or significant change in project classification, size, or environment.

How do I import a project from MS Project to KnowledgePLAN?

There are two ways to do this. First, save the MS Project plan as an .MPX, .MPD, or .MPP (simple save) file.

- Use the FILE | IMPORT | .MPD or .MPX format to import the file that can be opened in MS Project.
- Use the TOOLS | FROM MS PROJECT function to import the .MPP directly using OLE open MS Project automatically.

IMPORTANT NOTE: if you have a KnowledgePLAN project open at the time that you invoke the import, the data (plan, effort/cost, resources, schedule, etc.) will be merged with the existing KnowledgePLAN data. If you want to avoid this, create a blank KnowledgePLAN schedule and import the MS Project data into that.

How do I store “actual” values (as built) for a project in KnowledgePLAN?

Values for duration, effort/cost, resources, etc. can be stored in either KnowledgePLAN or in MS Project. Imports/Exports between the two products will carry the corresponding data along with them.

Note that this is not the same thing as creating a Knowledge Base, which must be done outside KnowledgePLAN and crafted using the Knowledge Base Builder Module, available from Software Productivity Research as a separate product.

How do I reflect changes in MS Project in KnowledgePLAN?

Changes made to an MS Project plan automatically make corresponding changes in the KnowledgePLAN estimate into which they are imported. Deletes and adds of tasks are always synchronized with persistence from the “importer” overriding the “importee” data.

How do I show the use of multiple source code languages for the project estimate?

The Source Code Language dialog is found on the Sizing Summary screen. Up to five different languages can be selected for each code class (New, Changed, Base, etc.). The total number of Function Points for the code class must be distributed between the selected languages. Although it is often most convenient to do this on a percentage basis, the Function Point values must be manually entered.

How do I add Function Point counted applications/projects to the domain?

The KnowledgePLAN administrator (librarian) can add or modify the list of “analogies” that are stored in the root Domain (associated with the Template(s) and Project Estimate(s)). Open the Domain with Read/Write access. Select the INPUT | PRODUCTS menu item and enter the application name, Function Point Count, and other requested values. The product(s) you enter will show up as Analogies in the Sizing by Analogy dialog for Project Estimates using this domain.

How do I store project estimates/domains/templates to the Secondary database?

1. Connect to a Secondary database.
2. Open the desired element (project estimate/domain/template) from the Working database.
3. Close the project estimate/domain/template.
4. Answer, “Yes” to the question, “Do you want to save changes to the project in the Secondary database?”

When closing a project estimate/domain/template, when should I opt to “Lock the project in the Working and Secondary databases”?

There is currently no reason to lock any of these entities. Locking them makes them editable only on the same user ID/workstation and may prove inconvenient. Moreover, this provides only rudimentary security. Do not opt to lock anything.

How do I unlock a project estimate/domain/template that was not created on the user ID/workstation that I have access to?

The KnowledgePLAN administrator (librarian) can use MS Access 2000 to clear the appropriate field in the Working or Secondary database. Look for the “WhoHas” field in the Header, Header1, Domain, and Domain1 tables. Use caution when manipulating this data, and make frequent backups to preserve database integrity.