



RESUME

This tool builds on statistical analysis based on 3-points estimations or statistical distributions and can give an answer to the question “With which possibility can we guarantee the project will be delivered at deadline”. It can optimize in relation to resources, cost, and find the most realistic critical path of activities in the project.

Jørn Johansen & Ole Thomsen
Whitebox MagicForce LCC

VISUALPROJECT

A unique project management analyze tool which gives insight and enables optimization of projects in relation to resources and cost

Indholdsfortegnelse

Introduktion.....	Fejl! Bogmærke er ikke defineret.
Analysis Methods	2
Managing Activities	3
Managing Resources	3
Advanced Project Copy and Paste – WBS chart	3
Advanced Pool Copy and Paste – OBS Chart.....	3
Paste a Project onto an Activity	3
Displaying Results	4
Using Baselines	4
Activity Types.....	4
Resource Types.....	5
Activity Table	5
Resource Table	5
Activity Assignment Table	5
Resource Assignment Table	6
Calendars	6

Introduction

VisualProject is a high-performance tool for Managing Projects. It allows you to create a Work Break down Structure (WBS) and an Organizational Break down Structure (OBS).

The WBS contains all your Projects and Activities, and the OBS contains all your Pools and Resources.

You create the very first project by clicking the WBS icon. You create the very first pool by clicking the OBS icon.

Each Project contains a set of activities. You create the activities on the PERT chart by double-clicking the chart. Each Pool contains a set of resources. You create the resources on the Pool Catalog by double-clicking the catalog. Every activity and resource can be turned into a sub-project and a sub-pool.

You traverse the Project hierarchy by double-clicking a sub-project on the PERT chart, or by selecting a project on the WBS. You traverse the Pool hierarchy by double-clicking a sub-pool on the Pool Catalog, or by selecting a pool on the OBS. You traverse up in the Project hierarchy by pressing ESC when on the PERT chart, Bar Chart, or Linked Bar Chart. You traverse up in the Pool hierarchy by pressing ESC when on the Pool Catalog.

Analysis Methods

VisualProject have 5 analysis methods: Time Analysis, Statistical Time Analysis, Resource Leveling, Limited Resources scheduling and Limited Costs scheduling. All analysis methods operate in a true multi-project manor.

Time Analysis is the simplest analysis method. This is done without resource requirements, and as such result in the shortest timeline.

Statistic Time Analysis uses Monte-Carlo simulations to analyze the project hierarchy in a true statistical manor. The duration used per activity consist of Optimistic, Most Likely, and Pessimistic duration. Statistic Time Analysis is based on Time Analysis.

Statistic Time Analysis offers 4 different Statistical Distributions, Normal, Lognormal, Rectangular, and Beta. The Normal, Lognormal and Rectangular distribution uses Optimistic and Pessimistic duration to calculate the mean duration. The Beta distribution uses Optimistic, Most Likely, and Pessimistic duration to calculate the mean duration. The 3 duration parameters determine the shape of the beta curve.

PERT Computations can be "Three Times Estimates", indicating Optimistic, Most Likely and Pessimistic duration used are the user entered activity durations. Any other PERT Computations means Optimistic and Pessimistic durations are automatic calculated, based on the user entered Most Likely Duration. If PERT Computations is 50%, this results in the classic known PERT system of 3-time estimates.

Statistic Time Analysis results in a Criticality Index, that is how many times a certain activity was on the critical path during the calculations.

Resource Leveling reschedule activities withing their slack span, in order to minimize resource load. The final project date is not extended, and some resources may still be overloaded. Resource Leveling can be based on Time Analysis or Statistic Time Analysis.

Limited Resources schedules activities with respect to their relevant resource loads, such that no resource is overloaded. The final project date will be extended. Limited Resources scheduling can be based on Time Analysis or Statistic Time Analysis.

Limited Costs schedules activities with respect to their relevant costs, such that no activity will have costs higher than the project's Cost Limit. The final project date will be extended. Limited Cost scheduling can be based on Time Analysis or Statistic Time Analysis.

Managing Activities

On the PERT chart you can move an activity box around by grabbing it with the mouse. You can also use a rubber rectangle to select multiple activities. This is useful if you want to move/cut/copy.

You can create a binding between two activities by pressing the Alt key while pressing the mouse left key. Then drag the line to the destination activity and release the mouse button. Make sure you create the binding from a predecessor activity to a successor activity.

A binding between two activities can be selected by double-clicking the middle of the binding. This will bring up the Bindings dialog. In this dialog you can enter data for the binding or remove it.

You can assign resources to an activity on the PERT chart, by right clicking the mouse on an activity. Select the Assign Resources and this will bring up the Assign Resources dialog.

Managing Resources

On the Pool Catalog you can use a rubber rectangle to select multiple resources. This is useful if you want to do cut/copy.

Advanced Project Copy and Paste – WBS chart

On the WBS chart, select the project you want to copy. Right-Click on it and select Copy. On the WBS Chart, select the project you want to copy to. Now select the Pert Chart View. In this, select and/or Right-Click the activity you want to paste to. Select Paste Activity. You now have a 2nd replica of the initial project you selected.

And all your assigned resource allocations are maintained in the 2nd replica.

Advanced Pool Copy and Paste – OBS Chart

On the OBS chart, select the pool you want to copy. Right-Click on it and select Copy. On the OBS Chart, select the pool you want to copy to. Now select the Pool Catalog View. In this, select and/or Right-Click the resource you want to paste to. Select Paste Resource. You now have a 2nd replica of the initial pool you selected.

Paste a Project onto an Activity

When pasting a Project onto an Activity, you want to check if the Project contains a fixed start or finish date. Your pasted Project may not want those fixed dates.

Displaying Results

The Option Bar allows you to change what is displayed on the various charts. You can choose between "Show EF & LS" on Pert and Bar Chart, "Show Criticality Index and Variance" on the Pert Chart and "Show Percent Complete" on Pert, Bar and WBS Charts.

If you select "Show Criticality Index and Variance", the Criticality Index will be displayed in the lower right corner, and the Variance will be displayed in the upper right corner. If you select "Show Percent Complete" on Pert, Bar and WBS Charts, the Percent Complete will be displayed on the upper right corner on these charts. The project Percent Complete will be the average of the Percent Complete of the activities in that project.

The WBS chart will display a cost Criticality Index in its lower left corner if a Cost Limit has been entered on the Project dialog. This Criticality Index indicates if greater than 1.0, that cost has been expended.

The Pool Catalog will display a resource Criticality Index in its lower left corner. If greater than 1.0, this indicates that the resource is expended, and that the final project date very likely will be extended.

Using Baselines

The Baselines dialog in the View menu allows you to create baselines. A baseline is a snapshot of your current project's activity data and cost data. Before you create a baseline make sure you have conducted an analysis first, since it is the results from this analysis that will be stored in the baseline.

If a baseline has been selected, this will be displayed on the Bar Charts as a horizontal black line, with two small diamonds in each end. This will allow you to visually compare the actual activity with the baseline.

If you bring up the Baseline dialog, and do not select a baseline, when clicking OK, you have essentially deselected the current baseline. The Bar Charts will now just display the activity data.

The Project Cost Table will display the cost data in the current plan, but if a baseline has been selected, the Project Cost Table will show the cost data for that baseline. By selecting/deselecting a baseline using the Baselines dialog you can easily control what data is shown in the Project Cost Table.

If you select an existing baseline, you can rename this by entering the new name in the Name field, followed by clicking the Rename button.

Activity Types

The Activity Types dialog in the View menu allows you to create activity types. If an activity type has been created, this will be available as an activity type in the Activity dialog. If some activities across the WBS projects has been given this activity type, the Bar Chart view will now only list those activities having this activity type across the WBS projects.

If you bring up the Activity Types dialog, and do not select an activity type, when clicking OK, you have essentially deselected the current activity type. The various views will now just display the normal view of the current selected project.

If you select an existing activity type, you can rename this by entering the new name in the Name field, followed by clicking the Rename button.

Resource Types

The Resource Types dialog in the View menu allows you to create resource types. If a resource type has been created, this will be available as a resource type in the Resource dialog. If some resources across the OBS pools has been given this resource type, the Resource Bar Chart view, the Resource Profile view and the Cumulative Resource Profile view will now only list those resources having this resource type across the OBS pools.

If you bring up the Resource Types dialog, and do not select a resource type, when clicking OK, you have essentially deselected the current resource type. The various views will now just display the normal view of the current selected pool.

If you select an existing resource type, you can rename this by entering the new name in the Name field, followed by clicking the Rename button.

Activity Table

The Activity Table allows for fast column wise editing of activity data. Double click on the cell you want to edit, and the cell will now become editable. The text in the cell will be selected, and you can start typing the new text, followed with Return. This will advance the selected row to the next row, and this cell will now be editable. By clicking the column header, the Activity Table will be sorted according to the clicked column. By clicking the second time on the same column header, the Activity table will be reversed sorted according to the clicked column.

The keyboard shortcuts to Analysis Parameters is disabled while displaying the Activity table. The Name column cannot be edited.

Resource Table

The Resource Table allows for fast column wise editing of activity data. Double click on the cell you want to edit, and the cell will now become editable. The text in the cell will be selected, and you can start typing the new text, followed with Return. This will advance the selected row to the next row, and this cell will now be editable. By clicking the column header, the Resource Table will be sorted according to the clicked column. By clicking the second time on the same column header, the Resource table will be reversed sorted according to the clicked column.

The keyboard shortcuts to Analysis Parameters is disabled while displaying the Activity table. The Name column cannot be edited.

Activity Assignment Table

The Activity Assignment Table allows for fast column wise editing of assignment data. Double click on the cell you want to edit, and the cell will now become editable. The text in the cell will be selected, and you can start typing the new text, followed with Return. This will advance the selected row to the next row, and this cell will now be editable. By clicking the column header, the Activity Assignment Table will be sorted according to the clicked column. By clicking the second time on the same column header, the Activity Assignment Table will be reversed sorted according to the clicked column.

Any assignment value greater than the number of units for the corresponding resource is flagged red. You can only change the Unit column and the Assigned column.

The keyboard shortcuts to Analysis Parameters is disabled while displaying the Activity Assignment table.

Resource Assignment Table

The Resource Assignment Table allows for fast column wise editing of assignment data. Double click on the cell you want to edit, and the cell will now become editable. The text in the cell will be selected, and you can start typing the new text, followed with Return. This will advance the selected row to the next row, and this cell will now be editable. By clicking the column header, the Resource Assignment Table will be sorted according to the clicked column. By clicking the second time on the same column header, the Resource Assignment Table will be reversed sorted according to the clicked column.

Any assignment value greater than the number of units for the corresponding resource is flagged red. You can only change the Unit column and the Assigned column.

The keyboard shortcuts to Analysis Parameters is disabled while displaying the Resource Assignment table.

Calendars

The Analysis Parameters dialog has an option for scheduling with respect to Calendars. Only scheduling with the Day or Week Input Layout uses this option.

Currently 5 calendar files exist, US, Canada, England, Germany, and Denmark. These national calendar files are composed based on information from wikipedia.org.