

# **ARRISCA for PROJECT**

## **(short guide)**

### **Version 4**

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**For detailed guidance refer to “Full” manual**

## Installation Guide and System Requirements

Arrisca Version 4 : FlexProfessional™ is provided on an installation CD.  
If you have access to network installation, please contact your network administrator for installation instructions.

### System requirements

Operating System: Microsoft Windows 7.  
Microsoft Excel®: Office 2010 and 2013.

FlexProfessional™ requires about 100MB of free hard disk space.  
There are no other specific hardware requirements.

### Installation

Insert the installation CD in your CD drive.

Run file [CD]:\Setup.exe

Follow the on screen instructions.

The Licence key code can be found in licence agreement supplied with the CD or via email.

Microsoft .Net© may need be installed to ensure full functionality

You must restart your PC after installation to complete the process.

The installer places an application icon onto the desktop which you will see after installation. This icon is used to start the application and load the workbook.



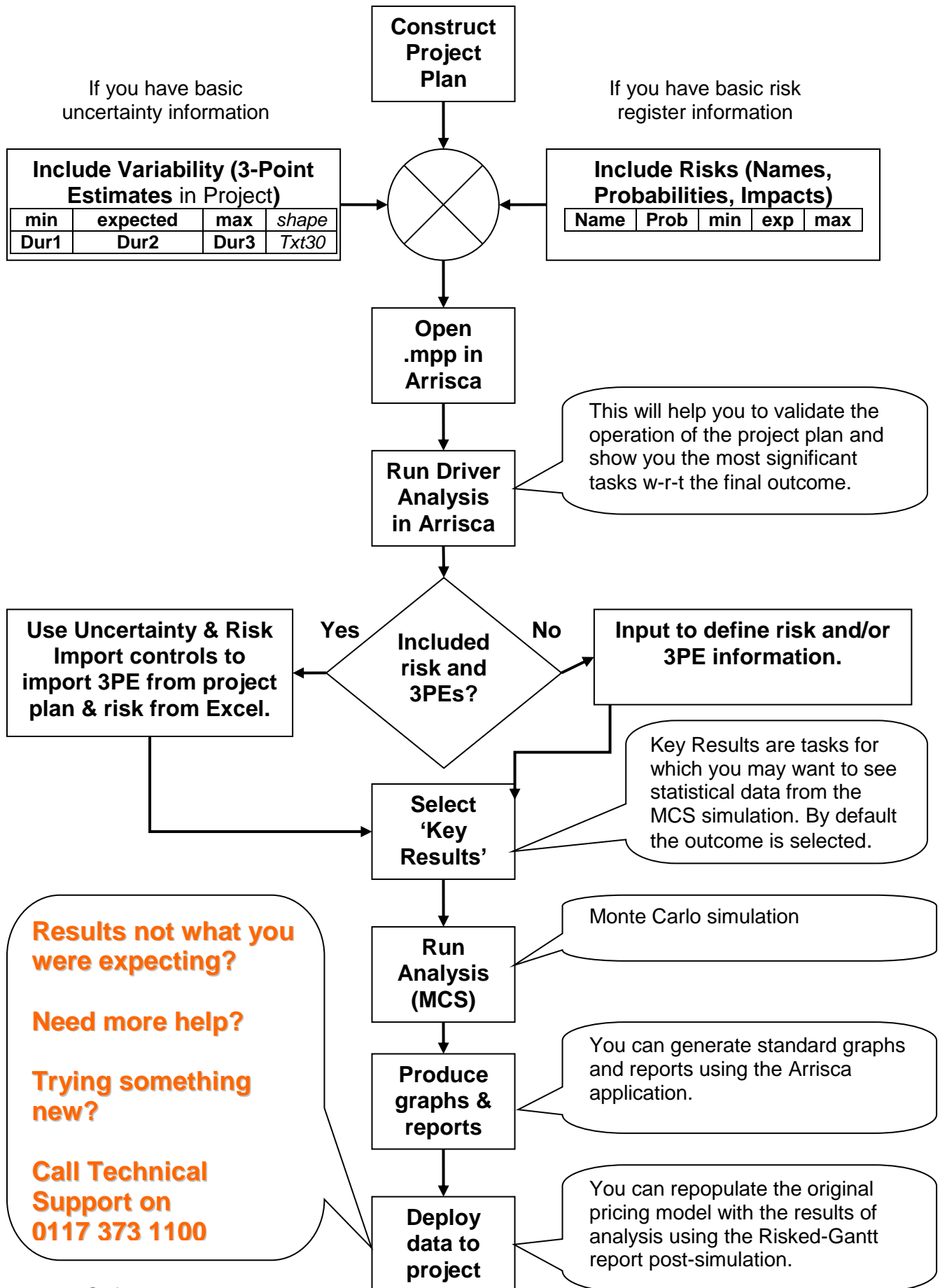
The software includes “factory set” terminology that relates to a ISO 15-288 organisation such as the MoD, it also has pre-set ‘risk category’s’ for risk identification/classification, you are advised to check your organisation procedures and policy’s to ensure that the terminology is appropriate.

All of the pre-settings can be ‘User’ adjusted to meet your requirements see section 9



: There are NO adjustments required for Arrisca to interact with MS Project.

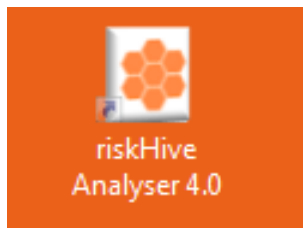
## 1 Quick-start Flowchart



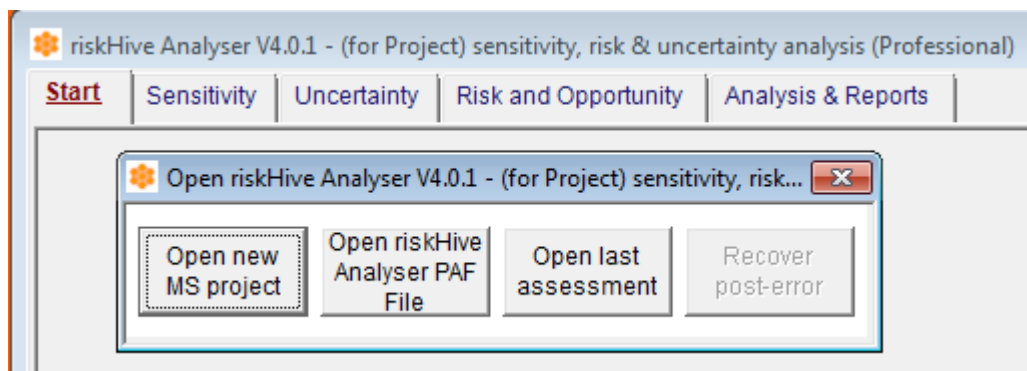
## 2 Launch the application & attach a Project Plan

The application is launched from an icon on the desktop, or if a .paf (project assessment file) has been created, by double-clicking the .paf file itself.

### 2.1.1 Click once on the 'Arrisca 4' application icon on the desktop.



### 2.1.2 The application start screen will be displayed.



#### 2.1.2.1 Select the option you require:

- **Open new MS Project** - Browse for a project file to perform an analysis
- **Open Arrisca PAF file** - Load a previous analysis as a complete package
- **Open last assessment** - Return to the last activity-state of the application
- **Recover post-error** - for use in case of an undesired application failure

#### 2.1.2.2 Select the project file you wish to analyse and click Open.

- The project will automatically open in its own window in addition to the Arrisca Analyser application

*You are now ready to perform Sensitivity, Uncertainty and Risk & Opportunity analysis to APM compliant standards.*

### 3 Application Navigation

The FlexPro application is controlled using an intuitive combination of View Panes, Menus, Function Tabs, Feature Bars and Control Buttons.

**Main Menu** contains high level commands and access to parameters and settings that apply globally to the application.

**Function Tabs** provide easy instant access to the major functional areas of the application. Function Tabs feature context-sensitive menus and Feature Bars.

**Command Buttons** are simple controls that execute specific functions or features.

**Feature Bars** contain Function-specific commands that allow the user to interact with the application. All Feature Bar controls, text, commands and layouts are user-configurable.

**View Panels** are dynamic panes that contain lists and control windows. Both the main application window and all panels are resizable and have a 'size-memory'.

The screenshot shows the 'riskHive Analyser V4' application window. The title bar reads 'riskHive Analyser V4 (for Project) sensitivity, risk & uncertainty analysis (Professional)'. The menu bar includes 'File', 'Edit', 'Tools', and 'Help'. The 'Start' tab is selected, showing a 'Project Information' panel with fields for 'Director', 'File name', and 'Key Contact'. A 'GO' button is visible in the top right. Below this is a 'Tasks' panel with a table of tasks. The table has columns: 'Order', 'uid', 'Task Na', 'Duration', 'Start', 'Finish', '%Complete', 'Summary', 'Critical', 'Milestone', 'Total slac', and 'Successors'. The table lists several tasks, including 'Project Hk 444', 'Concept F 67', 'Set the bui 7', 'Find & pur 25', 'Draw-up & 35', 'Assessm 50', and 'Identify & c 30'. A 'GO' button is also present in the bottom right of the 'Tasks' panel.

Order	uid	Task Na	Duration	Start	Finish	%Complete	Summary	Critical	Milestone	Total slac	Successors
77		Project Hk 444	19 Oct 2009	30 Jun 2011	0					0	
34		Concept F 67	19 Oct 2009	19 Jan 2010	0						
35		Set the bui 7	19 Oct 2009	27 Oct 2009	0						
36		Find & pur 25	28 Oct 2009	01 Dec 2009	0						
37		Draw-up & 35	02 Dec 2009	19 Jan 2010	0						
39		Assessm 50	20 Jan 2010	30 Mar 2010	0						
40		Identify & c 30	20 Jan 2010	02 Mar 2010	0						



## 4 Start Control function tab

The Start Analysis Function Tab displays and manages controls related to the driver analysis itself. It can be accessed at any time from its Function Tab.

### 4.1 Feature Bar - Analysis Control

The Feature Bar contains function-specific controls and information pertaining to the attached workbook and Driver Analysis Control:

The screenshot shows the 'Start' tab's Feature Bar. It has a 'Select Tasks' dropdown and an 'Options' dropdown. Below these is the 'Project Information' section, which contains a small icon, a 'Directory' field with the path 'C:\Users\riskHive\Documents\riskhive\data\trainingfiles\' and a 'Change' button, a 'File name' field with 'Project House Build.mpp', a 'Key Output' field with '<Project Duration>', and a table with 'Start' (19 Oct 2009), 'Finish' (30 Jun 2011), and 'Duration' (444.00). To the right of this table is a green 'GO' button. At the bottom, there are two yellow input fields for 'Target Duration:' and 'Target Finish:'.

#### 4.1.1 Select Task

The screenshot shows the 'Start' tab with the 'Select Tasks' dropdown menu open. The menu options are: 'All Tasks', 'Summary Tasks', 'Non-Summary Tasks', '> zero duration', and 'None'.

- All Tasks- will be included in analysis
- Summary Tasks- Will only include summary tasks in analysis
- Non Summary Tasks-
- Zero duration - Use only tasks that has a duration above zero
- None- use no tasks

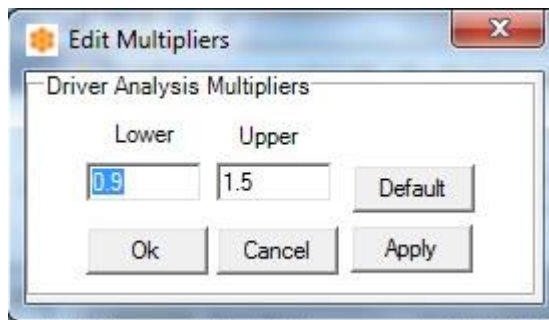
#### 4.1.2 Options

The screenshot shows the 'Start' tab with the 'Options' dropdown menu open. The menu options are: 'Change Sensitivity Multiplier values', 'Show project during analysis', and 'Change Target Values'. The 'Change Target Values' option is highlighted, and a sub-menu is open showing 'Target Duration' and 'Target Finish Date'.

#### 4.1.2.1 Change Sensitivity multiplier values

This command allows you to select Driver Analysis utility options:

- Change Sensitivity Multiplier values - allows modification of the upper and lower multiplier limits that are used during the sensitivity analysis itself. This will display a pop-up window that will allow you to enter new flex limits. The default values are -10% & +50% of each task



*: The actual effect of each input, or Driver, is calculated from the Cumulative Effect of both the increase and reduction in the value of the finish date during analysis, measured in days. The resulting effect may often appear to be greater than expected due to weekend time in MSP.*

#### 4.1.2.2 Show Project during analysis

- Show Project during analysis - select this option to display the workbook during the Driver Analysis so you can see the data being flexed.

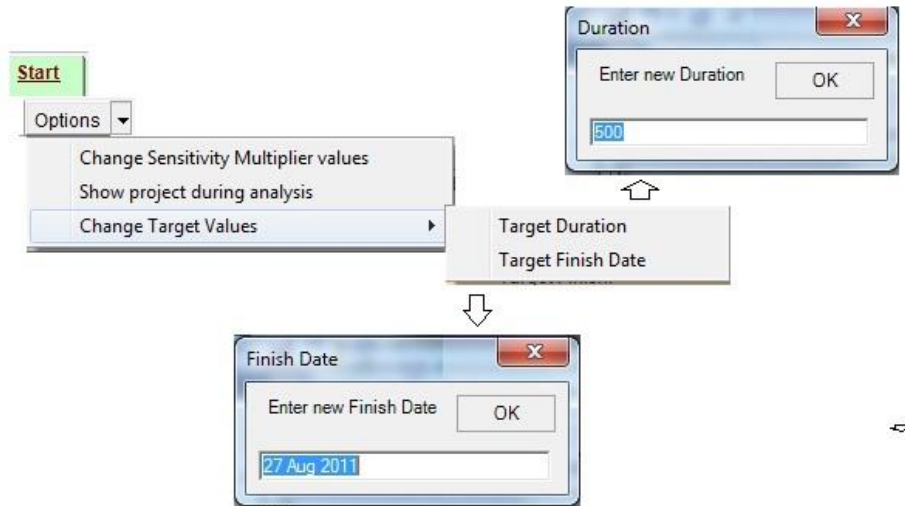


*The project plan is normally hidden during the Driver Analysis - visibility of the plan slows the analysis down considerably. This function also facilitates the ability to view the project during Monte Carlo Simulation of risks, opportunities and uncertainty if it is selected prior to running an analysis from the Analysis & Reports tab.*

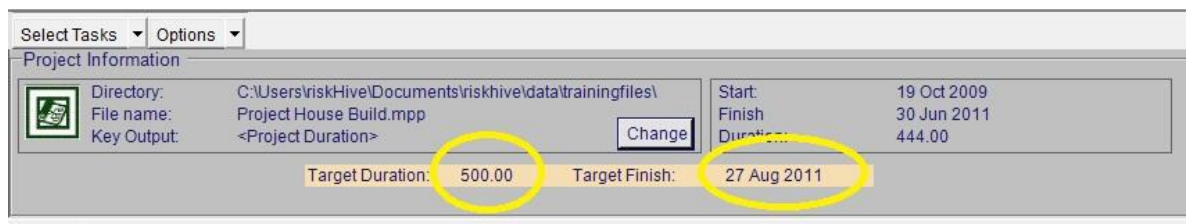
## Change Target Values

Change Target Values - provides the facility to present additional bars on the S-curve reports to represent the desired outcome, which may be different from the deterministic or other confidence-related values.

Click on the salmon pink fields that display the data on the Driver Analysis tab.



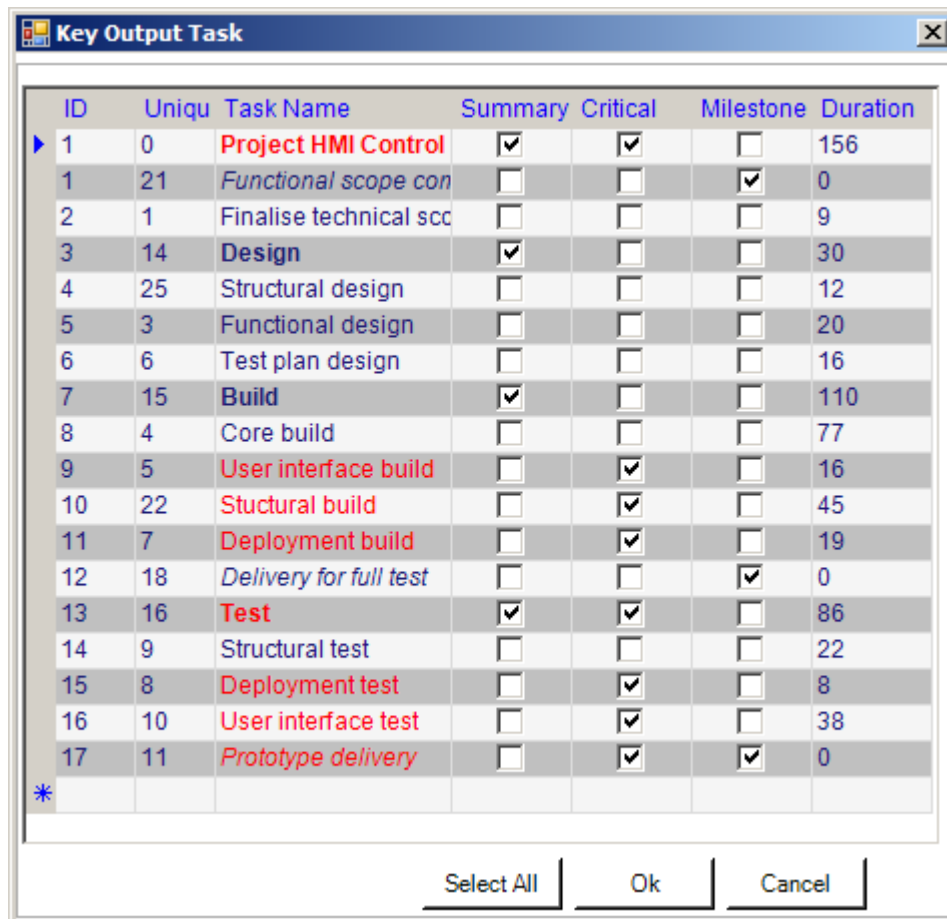
New target **Finish Date** and **duration time** can change via the popup menu results are displayed in the project information panel



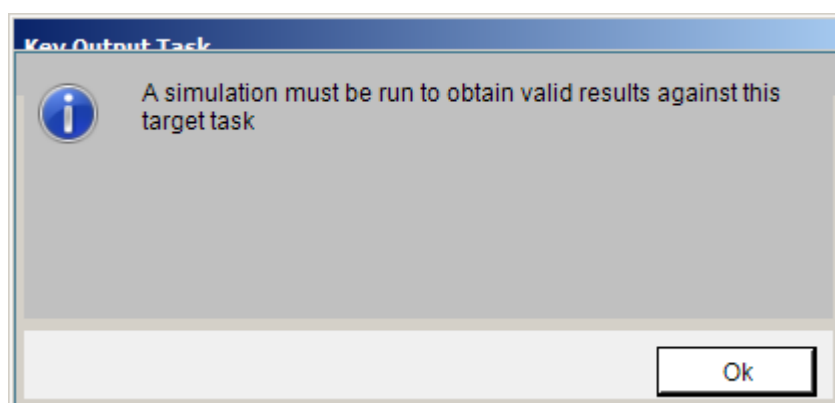
### 4.1.3 Select Key Outputs function

This function is embedded in project Information panel as **Change**.

If the task displayed in the Main Project Information Panel (above) is not the task you want to analyse for sensitivity or to measure risk against, click the **Change key output task** button in project information panel. A window will appear with a full list of the project's tasks which will allow you to reselect your **Key Output Task**.



**Note:** If you have previously run an analysis of any sort in the Arrisca application against the original Key Output Task you will be prompted to re-run the analysis as the Key Output Task has changed and all current analysis results are invalid.



#### 4.1.4 This prominent green GO button in the Project Information Panel starts the Driver Analysis.



To start the Driver analysis:

1. Click once on the green **GO** button. The Project is hidden from view (unless the option to 'show project during analysis' option was selected) and a progress indicator is displayed to show the status.
2. During analysis the button changes to a red Stop button. Click this to cancel.
3. When the analysis is complete the **Sensitivity Function Tab** changes colour to green.



*: The Driver Analysis is completely unconnected to the Monte Carlo Simulation and Analysis function of the Arrisca software. It is a much faster method of ascertaining key tasks to the project prior to any stochastic process.*

## 5 Sensitivity Panel

**View Panels** are dynamic panes that contain lists and control windows. Both the main application window and all panels are

The screenshot displays the riskHive Analyser V3 Sensitivity Panel. The main window shows a table of drivers with columns for no., Rank, Task, Uid, Duration, Outcome Effect, Effect@Min 0.9, Effect@Max 1.5, % Change, New Value, Category, and Comments. Below the table are three panels: Driver Details, Input Control Slider, and Watch Output Tasks. Callouts point to these panels with descriptive text.

no.	Rank	Task	Uid	Duration	Outcome Effect	Effect@Min 0.9	Effect@Max 1.5	% Change	New Value	Category	Comments
1	1	Applanning permission	47	40	32.00	-4	28	-0	+40		
2	2	Dr & Agree conceptual plans	37	35	29.00	-3.21	25.79	-0	+35		
3	3	Idy & obtain contractors quotes	40	30	24.00	-3	21	-0	+30		
4	4	Produce Architects design	45	28	22.30	-2.31	20	-0	+28		
5	5	Find & purchase a site	36	25	21.00	-2.21	18.79	-0	+25		
6	6	Revise budget & secure finance	41	20	16.00	-2	14	-0	+20		
7	6	Produce Building plans	46	20	16.00	-2	14	-0	+20		
8	8	Appoint a contractor	51	10	8.00	-1	7	-0	+10		
9	9	Set the budget	35	7	6.06	-0.28	5.79	-0	+7		
10	10	Initial Gate secured	42	0	0.00	0	0	-0	+0		
11	10	Approval to proceed obtained	48	0	0.00	0	0	-0	+0		
12	10	Order materials for delivery	52	15	0.00	0	0	-0	+15		

**Driver Details**

Save

Name

Comment

Category

Input Control Slider - select row(s) from above

% Delta

Apply

Watch Output Tasks: target 0, delta 0

Task	uid	Original Value	New Value	Change	% Change
Appoint a contractor	51	10	10	0	0

**Input Control Panel** enables selected drivers to be flexed

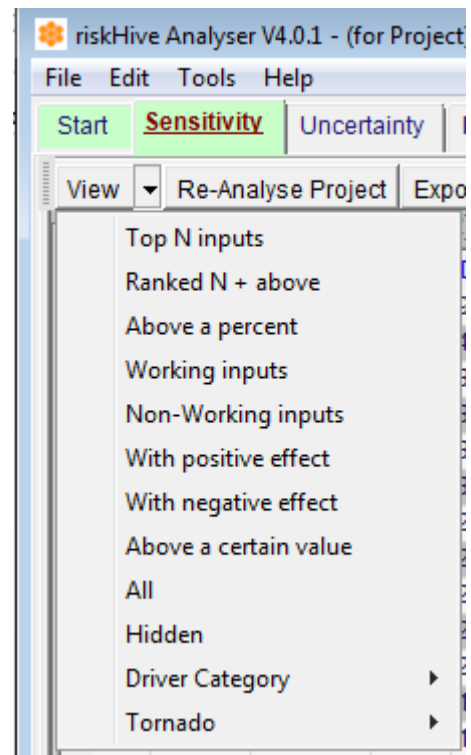
**Driver Details Panels** enables comments be added and classify the item with corporate terms

**Watch Panel** by default the target cell selected for the analyse is displayed

## 5.1 Sensitivity Function Tabs

### 5.1.1 View

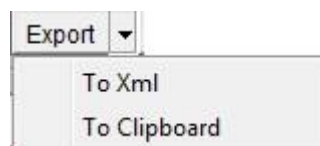
- Top 'N' inputs
- Above a Percentage
- Working inputs
- Non- working inputs
- With Positive effect
- With Negative effect
- Above a certain value
- All
- Hidden
- Driver category
  - o Filter
  - o Remove Filter
- Tornado
  - o Relative
  - o Absolute



### 5.1.2 Re-analyse Project

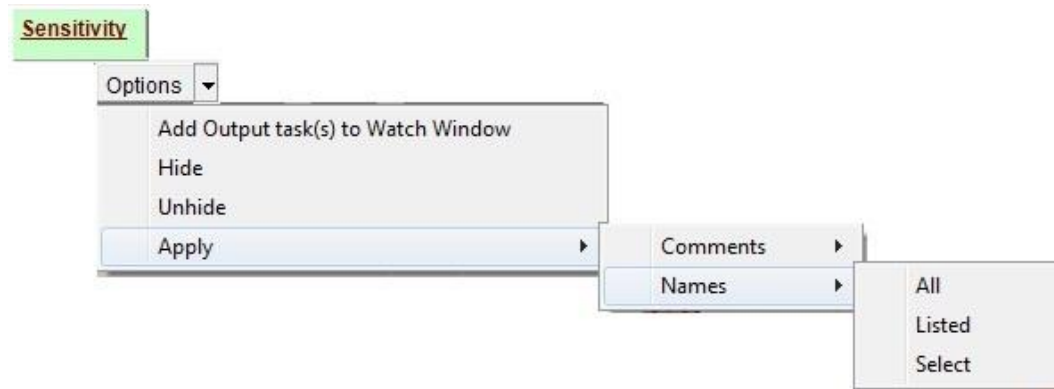
This function allows to view the results of any “flexing” in MS Project

### 5.1.3 Export Command



This allows the sensitivity analyse to be exported to the desired MS tool

## 5.2 Options command



As default the watch panel contains the “target cell”, additional cells can be added via the ‘**Add Output cell(s) to watch window**’ command.

The **Hide** command enable single or multiple driver rows to be removed from the viewing pane; their effect on the sensitivity analyse is not affected.

To bring hidden rows into view select the **View** tab, **Hidden** option, chose the rows then either select **Unhide** from the **Options** tab or right click the mouse and select “unhide” from the “Driver Actions” option

The **Apply** command allows you to decide where **comments** and or **Names** that are entered in the **Drivers Details Panel** are displayed after they are **Saved** via the Driver Details panel

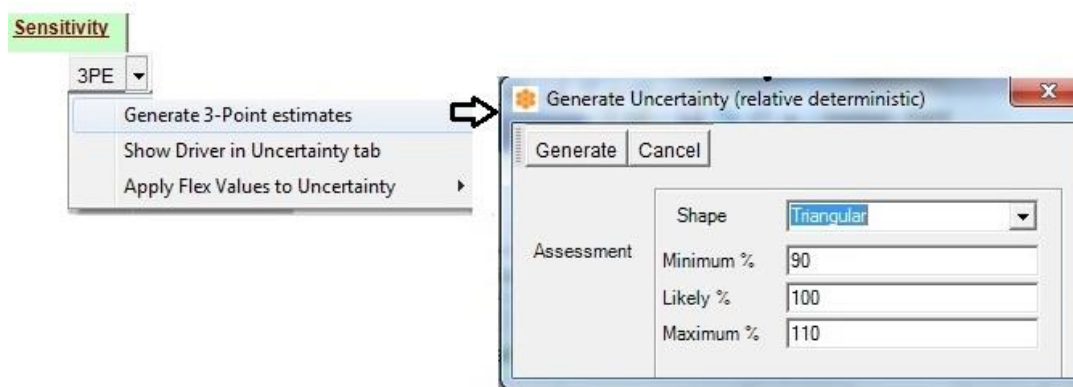
Options:

- All Change every row
- Listed Change listed rows
- Select Change selected rows

### 5.2.1 3 PE (Point Estimating)

### 5.2.2 Generate 3 Point estimates

This command will allow you adjust the driver set by generating 3 point estimates, results can be viewed in the Uncertainty section.



. Method:

- Select rows to be adjusted, use ctrl+Click to select several rows



- Select **3PE Generate 3 Point Estimate**, chose **distribution** shape and required values for **Min, Most Likey & Max**,
- press **Generate** button

### 5.2.3 Show drivers in Uncertainty

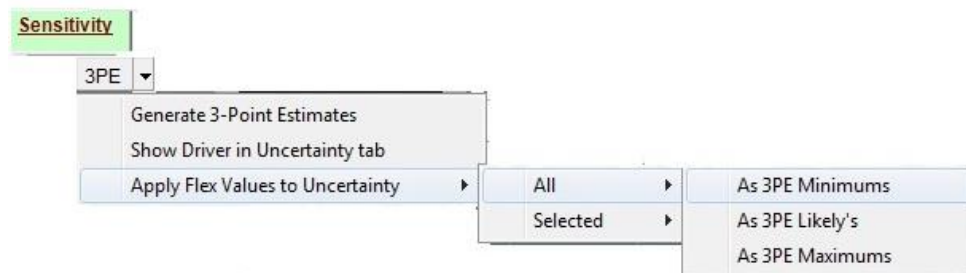
This command allows you transfer selected drivers to the **Uncertainty Register** such that they may have Uncertainty Assessments made on them.

To transfer cells to the Uncertainty Register:

- Select the Drivers you want to transfer to the Uncertainty Register
- Click on the **3 PE** tab > select **Show Drivers in Uncertainty Tab** command.
- A confirmation message is displayed. Click **OK** to finish operation.

The selected cells are displayed in the **Uncertainty Drivers List** on the **Uncertainty Function Tab**. Their shapes are highlighted in red to indicate no assessment has yet been made

### 5.2.4 Apply Flex Values to Uncertainty



Uncertainty may be added by recording the manipulation of the Sensitivity Drivers on the **Sensitivity 3 PE** Function Tab.

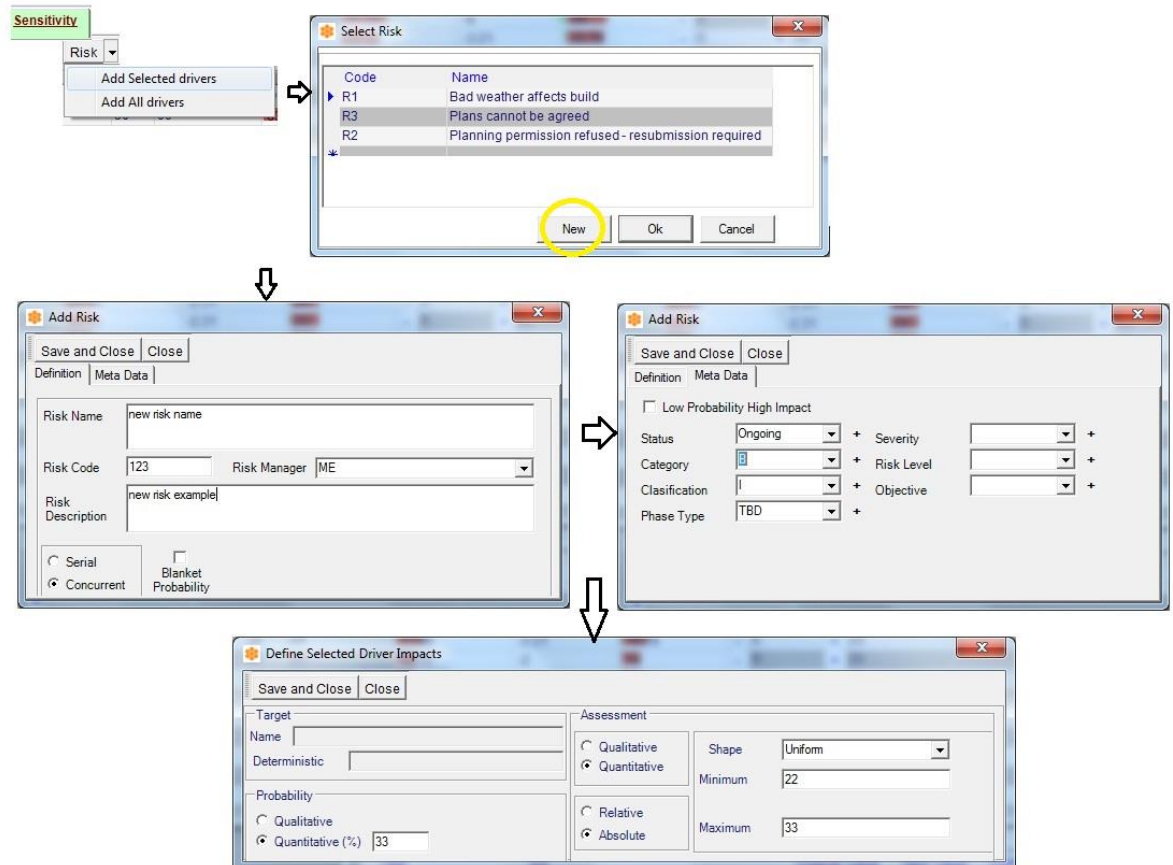
To add Uncertainty from manipulation of the Sensitivity Drivers:

1. Select the **Drivers** (cells displayed) to be flexed and added to the Uncertainty List
2. Set **Likely** values:
  - i. Use either the **Input Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Likely** Uncertainty values
  - ii. **Right click** the mouse select **Apply to Cost model (cell ref)>** select **As 3PE Likely**
  - iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.
  - iv. The Driver cells have been added to the Uncertainty Drivers List on the Uncertainty Function Tab with a Constant shape of the value set by the flex manipulation
3. Set **Minimum** values:
  - i. Use either the **Input Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Minimum** Uncertainty values
  - ii. **Right click** the mouse select **Apply to Cost model (cell ref)>** select **As 3PE Minimum**

- iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.
  - iv. The Minimum values have been added to the parameters on the Uncertainty Drivers List on the Uncertainty Function Tab. The shape is now indeterminate and is highlighted in red.
4. Set **Maximum** values:
- i. Use either the **Input Flex Control Slider** or the **+ or - Flex Buttons** to manipulate the selected drivers to a desired state which represents a set of **Maximum** Uncertainty values
  - ii. **Right click** the mouse select **Apply to Cost model (cell ref)> select As 3PE Maximum**
  - iii. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete.
  - iv. The Maximum values have been added to the parameters on the Uncertainty Drivers List on the Uncertainty Function Tab. The shape is now Triangular and the assessment is complete.

### 5.3 Risk

This command enables either the inclusion of pre-defined risks or the ability to create new risks, both risk details and metadata can be captured, the metadata elements can be user defined allowing user selection from a dropdown menu. Once the risk detail is saved via the **save and close** button, you will be prompted to select the drivers that are affected by the risk.



Add to selected drivers method:

1. Select **Driver(s)** using **ctrl** for multiple choice **select Risk>Add to selected drivers** from the sensitivity function tab.
2. A popup **“Select Risk”** menu will appear either selected a listed risk or press **New**.
3. If **New** was selected a Popup form appears, this is in two parts:
  - a. **Definition** - You are required to **name** and **describe** the risk and state the **Risk Code** and **Risk manager**. If **Blanket Probability** is chosen you must input a **probability factor**.
  - b. **Meta Data** - will require you to fill the relative metadata via dropdown menus. These dropdown menus can be update by the user to reflect your Organisations policy see 12.1 for details. Alternatively menu can be change using the **“+”** alongside the dropdown menu box.
4. Press **Save and Close** a new popup form will appear that requires you to **Define selected Driver Impacts**
5. The affected driver is displayed in **“target”** area of the popup form.

6. **Set Probability:**
  - a. Select either of the **Qualitative** or **Quantitative** options in probability sub panel.
    - i. **Qualitative:** Select the desired **Probability Level** from the drop-down list that appears to the right of the option;
    - ii. **Quantitative:** Type in the desired **Probability** value ( an integer between 0 and 100) in the field that appears to the right of the option.
7. **Set Impact** (*the impact of the risk not to be confused with the uncertainty estimate*):
  - a. Select either of the **Qualitative** or **Quantitative** options in the Assessment sun panel.
    - i. **Qualitative:**
      1. Select either **Relative** or **Absolute** levels;
      2. the desired **Impact Level** from the drop-down list that appears to the right of the option;
    - ii. **Quantitative:**
      1. Select the desired **Shape** from the drop-down list that appears to the right of the option;
    - iii. Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.
8. Click **Save** a popup message will appear to give progress press **OK**.

#### Add to All

1. Select **Risk>Add to ALL** from the sensitivity function tab.
2. A popup "**Select Risk**" menu will appear either selected a **listed risk** or press **New**.
3. If New was selected a Popup form appears, this is in two parts:
  - a. **Definition** - You are required to **name** and **describe** the risk and state the **Risk Code** and **Risk manager**. If **Blanket Probability** is chosen you must input a **probability factor**.
  - b. **Meta Data** - will require you to fill the relative metadata via dropdown menus. These dropdown menus can be update by the user to reflect your Organisations policy see 9.1.2.8 for details.
4. Press **Save and Close** a new popup form will appear that requires you to **Define selected Driver Impacts**
5. The affected driver is displayed as **blank as all drivers are affected** in the "target" area of the popup form.
6. **Set Probability:**
  - a. Select either of the **Qualitative** or **Quantitative** options in probability sub panel.
    - i. **Qualitative:** Select the desired **Probability Level** from the drop-down list that appears to the right of the option;
    - ii. **Quantitative:** Type in the desired **Probability** value ( an integer between 0 and 100) in the field that appears to the right of the option.
7. **Set Impact** (*the impact of the risk not to be confused with the uncertainty estimate*):

- a. Select either of the **Qualitative** or **Quantitative** options in the Assessment sun panel.
  - i. **Qualitative:**
    1. Select either **Relative** or **Absolute** levels;
    2. the desired **Impact Level** from the drop-down list that appears to the right of the option;
  - ii. **Quantitative:**
    1. Select the desired **Shape** from the drop-down list that appears to the right of the option;
  - iii. Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.
8. Click **Save** a popup message will appear to give progress press **OK**.



***Blanket Probability** will take precedence over individual risk settings if two or more risks have an impact on a selected cell*



- ***Relative** will produce values for min. most likely and max (3PE) based on the deterministic value used in the model.*
- ***Absolute** option will add the deterministic value to the pre-determined 3 PE defined by “User”. This option is best suited to “Design to cost” modelling when detailed risk impact information is limited.*

### 5.3.1 Reset all drivers command

This command allows you reset any changes that have been made to Driver cells.

To reset Driver cells to their original (deterministic Excel) values:

1. Click once on the **Reset all drivers** command.
2. All Drivers will be returned to their original values.



***Comments and Names** cannot be reset*

## 5.4 Sensitivity drivers panel

Drivers (20) Top 20 inputs (of 22)

no.	Rank	Task	Uid	Duration	Outcome Effect	Effect@Min 0.9	Effect@Max 1.5	% Change	New Value	Category	Comments
1	1	Find & purchase a site	36	25	21.00	-2.21	18.79	-0	+25		
2	2	Revise budget & secure finance	41	20	16.00	-2	14	-0	+20		
3	2	Produce Building plans	46	20	16.00	-2	14	-0	+20		
4	4	Materials for delivery	52	15	13.00	-1.21	11.79	-0	+15		
5	5	building site	53	12	9.06	-1.07	7.99	-0	+12		
6	6	Appoint a contractor	10	8	8.00	-1	7	-0	+8		
7	7	Quality buyer	8	7	6.30	-0.31	5.99	-0	+7		
8	8	Set the	7	7	6.06	-0.28	5.78	-0	+7		
9	9	Build to	56	99	4.76	-1.08	3.71	-0	+99		Outcome Volatility
10	10	Exchange	74	74	4.13	-0.13	4	-0	+4		
11	11	Apply for planning permission	47	7	1.04	-0.21	0.83	-0	+40		Outcome Volatility
12	12	Draw-up & Agree conceptual plans	37	37	10.91	-0.15	10.77	-0	+35		Outcome Volatility
13	13	Furnish & Occupy pro	69	33	10.91	-0.14	10.76	-0	+33		Outcome Volatility
14	14	Identify & obtain contr	40	30	10.87	-0.13	10.75	-0	+30		Outcome Volatility
15	14	Market property	72	30	10.87	-0.13	10.75	-0	+30		Outcome Volatility
16	16	Produce Architects design	45	28	10.85	-0.12	10.74	-0	+28		Outcome Volatility
17	16	Complete Sale	75	28	10.85	-0.12	10.74	-0	+28		Outcome Volatility
18	18	Initial Gate secured	42	0	0.00	0	0	-0	+0		
19	18	Approval to proceed obtained	48	0	0.00	0	0	-0	+0		

The columns are used to summarise the analysis results and subsequent flexing. To sort the data by a column in descending order click on the column title bar text. A second click on the column title bar text will sort in ascending order.

### 5.4.1 Analysis Results columns

These columns are used to display deterministic (original) workbook input data and the results of the sensitivity analysis once completed.

**A No.**

Displays the unique line number of the driver list.

**B Rank**

Displays the Driver ranking sorted by decreasing effect. The most influential Driver is ranked number 1. All drivers below this have less effect for a given amount of flex than this driver.

**C Task Description**

Information taken from **Project workbook Format**

**D UDI**

Task unique identification

**E Duration**

Task duration

**F Outcome Effect**

Displays the amount the Key Output Cell is affected by the sensitivity analysis at the settings defined in the Analysis Multipliers control. The column heading displays the cumulative sensitivity value used in analysis.

*Note: If the analysis was executed at the default of  $\pm 10\%$  then the column heading will read 'Effect @ 10%'.*

**G Effect at 90 and 110% / Tornado Bars**

Displays the effect of the cell at the given flex value as a percentage of the Key Output Cell value. i.e. If the KOC value is 1000 and the 'Sensitivity @ 10%' is 100 (from the previous column) then the Effect% will be 10. The background displays a graphical representation of the effect of the

Drivers list on the Key Output Cell. The tornado bar is coloured to indicate polarity of effect:

Red = Direct: KOC value increases as Driver cell value increases.

Green = Inverse: KOC value decreases as Driver cell value increases.

The scale view of the Tornado bars can be changed from Relative to Absolute by using the Tornado command on the Feature Bar.

#### 5.4.2 Flex Control columns

These columns are used to dynamically flex and manipulate the workbook input data and display the flexed data values. During manipulation the Project workbook is manipulated and is updated with the flexed input values so you can see the effects of the manipulation on the workbook. These changes are not automatically saved but this can be done by using the **Save** as menu item in MS Project.

##### **H- (minus character) increment control**

This control is used to reduce the Driver input value by 1% increments

Click on the minus character to reduce the input cell value by 1% per click. The control is coloured to indicate the polarity of the resulting effect on the Key Output Cell as follows:

Red = KOC value increased as a result of the input cell decrease (denoting an inverse relationship).

Green = The KOC value decreased as a result of the input cell decrease (denoting a direct relationship).

##### **I Delta**

Displays the percentage delta value in percentage terms of the Driver input cell if manipulated. If the cell has not been manipulated the field displays zero value.

##### **J + (plus character) increment control**

This control is used to increase the Driver input value by 1% increments

Click on the plus character to increase the input cell value by 1% per click. The control is coloured to indicate the polarity of the resulting effect on the Key Output Cell as follows:

Red = KOC value decreased as a result of the input cell increase (denoting an inverse relationship).

Green = The KOC value increased as a result of the input cell increase (denoting a direct relationship).

##### **K Flexed value**

Displays the new (flexed) value of the Driver input cell if manipulated. If the cell has not been manipulated the field displays the original cell value.



*: If you want to set the Driver input value to a specific*

*value rather than use the plus / minus incremental controls you can select this field and type in the desired value. Press the Enter key on your keyboard to update the value.*

### 5.4.3 Information Columns

#### **L Category**

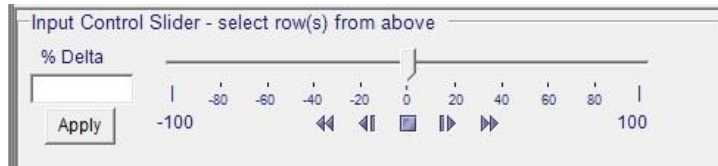
Displays the assigned identification; this should align with your organisations process or policy on identifying risk and uncertainty.

#### **M Comments**

Displays the user input comments



## 5.5 Input Control Slider Panel



This panel allows you to flex multiple rows so that the change the “Key Output Cell” (**KOC**) can be calculated.

Use the ‘shift’ or ‘Ctrl’ keys to select multiple Drivers on the Sensitivity Drivers panel and then drag the Flex Control Slider to manipulate the inputs as a group. The inputs will be manipulated by the same percentage of their original values. The resulting effect on the **KOC** is displayed in the **Watch Output Cells** panel. Subsequent groups of inputs may then be selected and flexed to build-up a scenario.

For example, a group of durations may be selected and manipulated using the slider to simulate an overall increase in the time required to perform tasks. Once this effect has been applied, a group of rates or overheads may be adjusted downward to reflect the changes possible as a result of more hours and the overall effect will be displayed in the **Watch Output Cells** panel.



*: The Project workbook will be dynamically updated with the flexed input data. You can save your scenarios either by saving the workbook as a different filename or by over-writing the original workbook.*

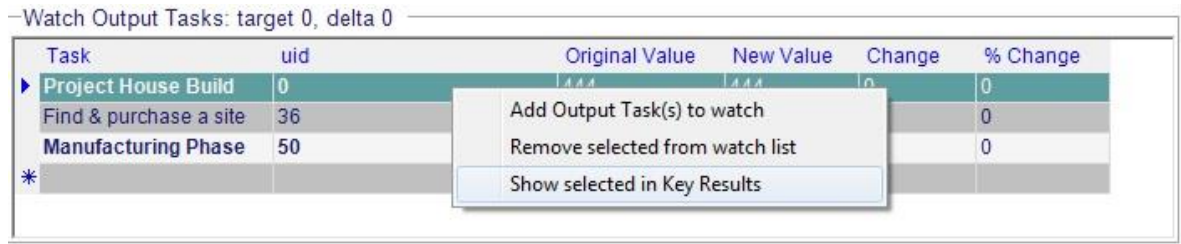


*: The application has already made a backup of the original workbook in the source folder with a time and date extension that can be kept or deleted on close.*

The slider control allows the flexure of multiple Driver inputs simultaneously.

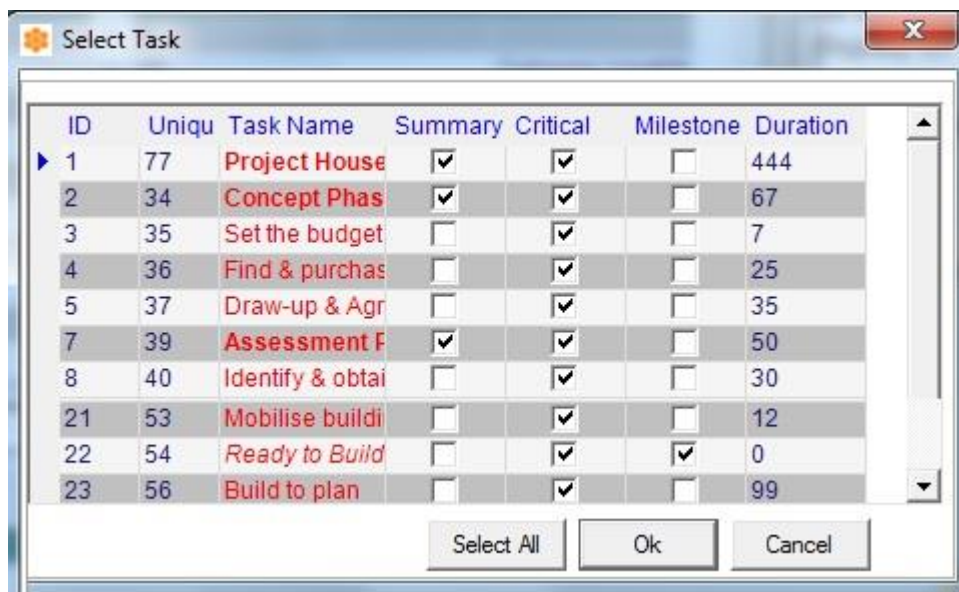
## 5.6 Watch Output Cells

The Watch Output Cells panel allows the monitoring of multiple workbook outputs simultaneously as the Driver Inputs are manipulated. Initially, only the **Key Output Cell** is loaded as the first entry to this control and can be identified by the title of the output response window (for example [key output cell = 'abc']). As the inputs are manipulated and the KOC is affected the background colour will change to Red or Green as the KOC increases or decreases in value respectively.



### 5.6.1 Add Output to watch list

Selecting the “Add” option will display a popup menu listing all the task from the Project, either select a single task by clicking the row multiple additions can be selected by **ctrl+click** to select rows



## 5.7 Sensitivity Driver panel contextual menu (right-click)



### 5.7.1 Driver selected

**Reset** - returns this cell to its original *Project* values comments and names added *are not affected*.

### 5.7.2 Apply selected value to

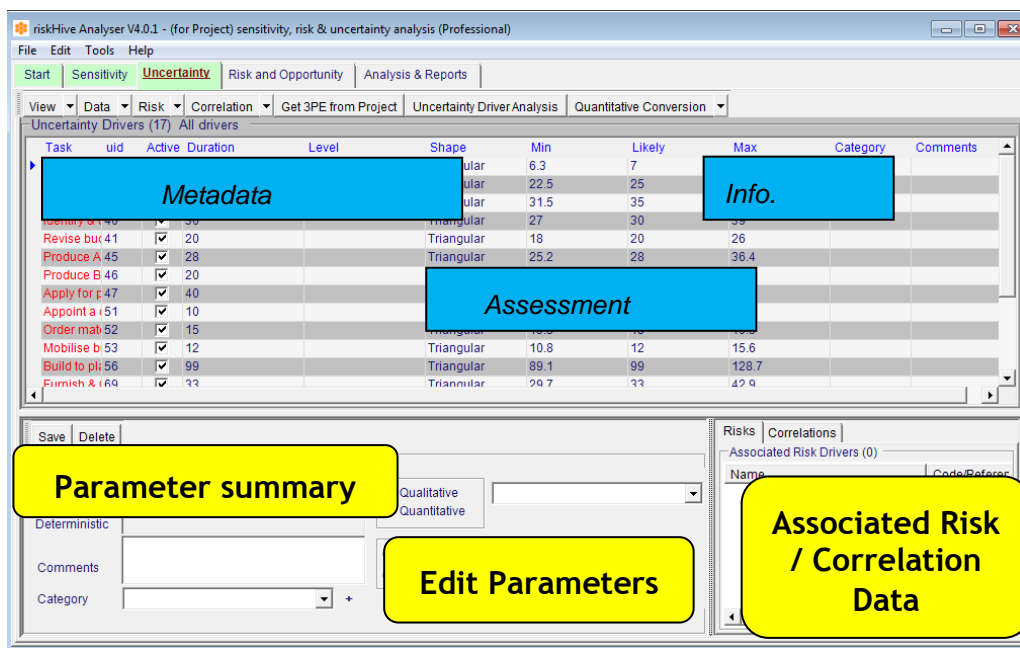
*This command transfers the current cell value to the Uncertainty assessment, full flex instruction are detailed in 5.1.5.1; options are available:*

- *Minimum - applies current flex value to Uncertainty minimum value*
- *Likely - applies current flex value to Uncertainty likely value*
- *Maximum - applies current flex value to Uncertainty maximum value*

### 5.7.3 Show selected in uncertainty

This command provides a shortcut method that bypasses the Risk feature covered in 5.1.6 that is it enables you to transfers the current cell to the Uncertainty Drivers list Add selected drivers to Risk

## 6 Uncertainty Tab



The main window on the Uncertainty tab displays a summary of the Uncertainty parameters beneath the Features Bar with its Uncertainty-related controls. Each row in the list of Uncertainty Drivers pertains to one input cell in the attached Excel workbook and summarises the applied Uncertainty assessment.

Each column contains a parameter pertaining specifically to the cell selected. The Uncertainty Drivers list may be sorted by any column alphanumerically ascending or descending by clicking on the column header description title.

Column headings are:

- **Metadata:**
  - Name of Input Task: If there is a Task name in MS Project
  - Worksheet: Location of the Task in the Project Workbook
  - Task: Location of the Task in the project Worksheet
  - Input Task Value: Single-point (constant) value from MS Project
- **Assessment Parameters:**
  - Level: Qualitative level assessment (H, M, L, etc.)
  - Shape: Quantitative distribution type (Uniform, Triangular, etc)
  - Min: Quantitative lowest possible value for 3PE
  - Likely: Quantitative most likely value for 3PE
  - Max: Quantitative highest possible value for 3PE
- **Comments:** Text field for capturing notes and assumptions re. Task

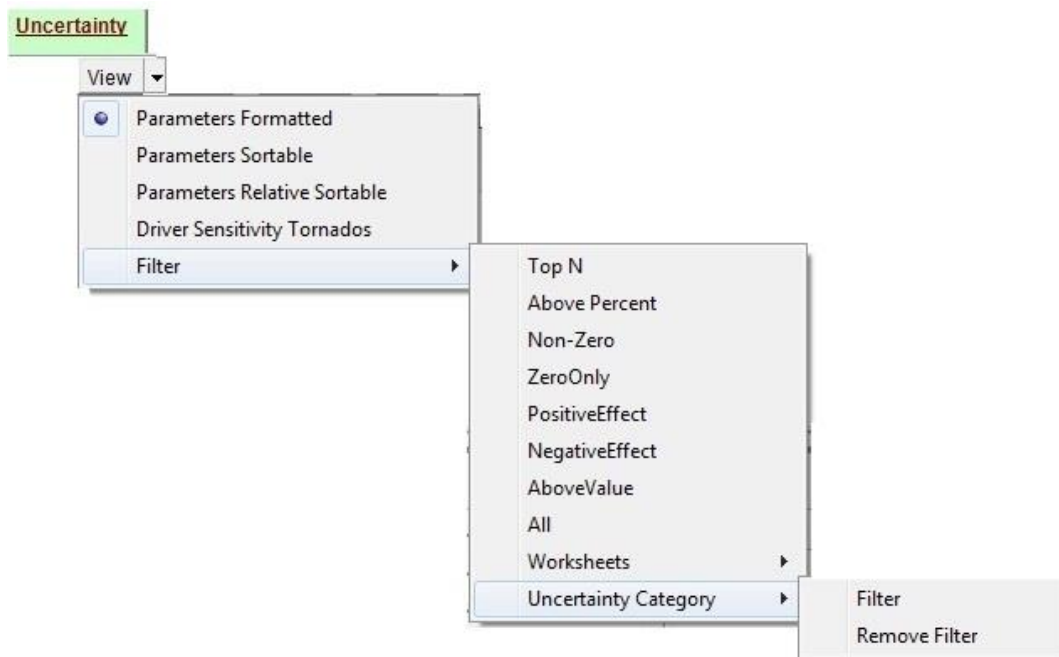


*Uncertainty may be added in one of three ways:*

- *Add by manual entry*
- *Import from Tasks in the attached Project workbook*
- *Import from a separate Uncertainty Register*

- *Generate Uncertainty by Sensitivity Driver manipulation*

## 6.1 View Function



## 6.2 Add Uncertainty by manual entry

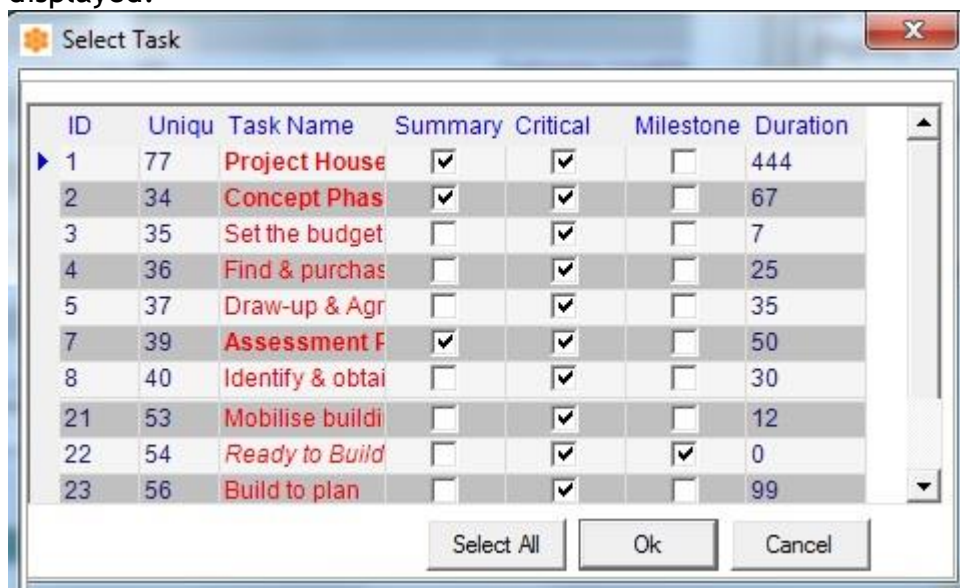
To add uncertainty by manually selecting cells from the attached Project workbook:

1. Add cells to be assessed to the Uncertainty Drivers List
2. Edit Uncertainty assessment parameters

### 6.2.1 Add cells to be assessed to Uncertainty Drivers List

To add uncertainty by manually selecting cells from the attached workbook:

1. Click once on the **Data** tab on the **Uncertainty Feature Bar**
2. Select **Add Tasks** from the drop-down list. The Task-selector will be displayed:



3. Select the tasks to which you want to add uncertainty parameters. Use the Ctrl or Shift keys to select multiple tasks at the same time.
4. Click **OK**. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.

The tasks are now displayed in the main Uncertainty Drivers pane with their names, deterministic values. Note that the shape column is highlighted in red denoting that although the cell is available for uncertainty assessment it currently has no parameters assigned to it. The tasks are now ready for parameterisation and assessment as described later in this section.

### 6.3 Apply or edit QUALitative Assessment Parameters

The application provides a unique ability to assign Uncertainty by applying a qualitative level to the task. Qualitative assessment parameters are described in detail in **Section 7**. When the qualitative level is applied to a task the quantitative parameters, such as a three-point estimate, are automatically and dynamically calculated relative to the cell's deterministic duration.

To apply a qualitative Uncertainty assessment to a single task:

- Select the task row to which you wish to apply the assessment level
- In the Uncertainty parameter pane, select the **Qualitative** button
- In the type selector box, select either **Relative** or **Absolute** levels
- Select the level you wish to apply from the **level** drop-down box
- Click **Save**. The assessment is applied and the Level is displayed in the main Uncertainty Drivers list.

To apply a qualitative level to **multiple tasks** at the same time:

- Hold down the Ctrl key and click once on each row you want to select
- Repeat the qualitative level selection process above and click **Save**.

The assessment level is applied to each of the selected cells and the Level is displayed for each selected cell in the main Uncertainty Drivers list.

### 6.4 Apply or edit QUANTitative Assessment Parameters

Quantitative Uncertainty assessments may be made using several standard input distributions that are listed and described fully in **Section 8**.

To apply a quantitative Uncertainty assessment to a single task:

- Select the task row to which you wish to apply the assessment level
- In the Uncertainty parameter pane, select the **Quantitative** button
- Select the distribution **Shape** you wish to apply from the **Shape** drop-down



- Type in the Minimum, Likely and Maximum values you wish to apply (the
- Click **Save**. The assessment is applied and the parameters are displayed in the main Uncertainty Drivers list.

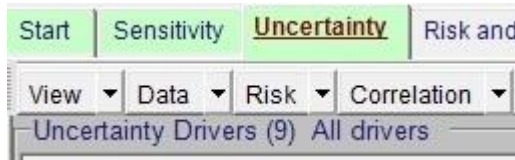
To apply quantitative parameters to **multiple tasks** at the same time:

- Hold down the Ctrl key and click once on each row you want to select
- Repeat the qualitative level selection process above and click **Save**.

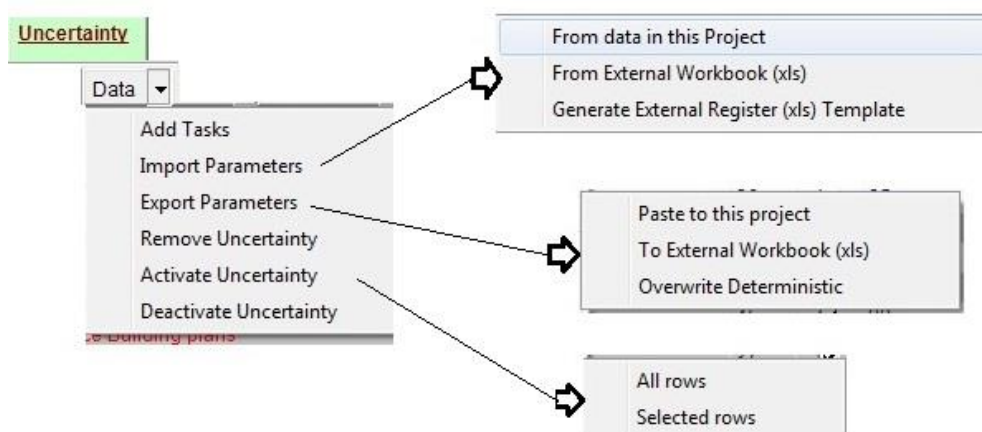
The assessment parameters are applied to each of the selected tasks and are displayed for each selected task in the main Uncertainty Drivers list.



*: The total number of Uncertainty Driver cells is displayed above the summary pane underneath the Feature Bar:*



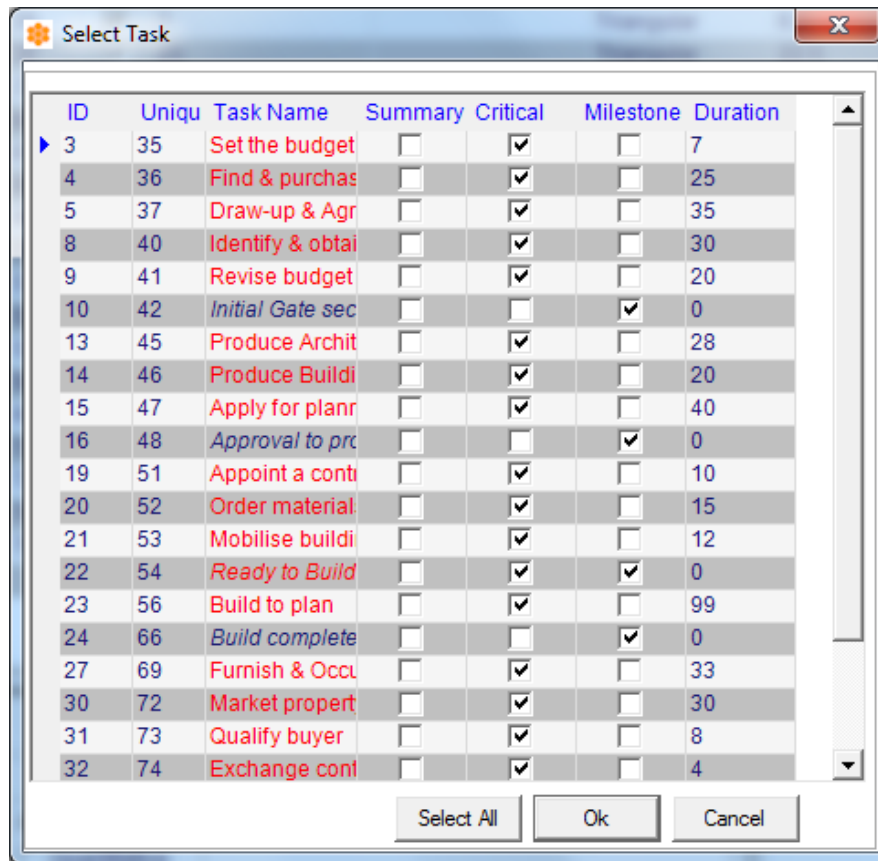
## 6.5 Data



### 6.5.1 Add Tasks

To add uncertainty by manually selecting cells from the attached workbook:

- Click once on the **Data** tab on the **Uncertainty Feature Bar**
- Select **Add Tasks** from the displayed cell-selector.:



- Select the cells to which you want to add uncertainty parameters. The cell locations or ranges will be displayed in the cell-selector window. Click **OK**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.
- The cells are now displayed in the main Uncertainty Drivers pane with their names, locations and deterministic values. Note that the shape column is highlighted in red denoting that although the cell is available for uncertainty assessment it currently has no parameters assigned to it.

### 6.5.2 Import parameters

From data in this Project
From External Workbook (xls)
Generate External Register (xls) Template



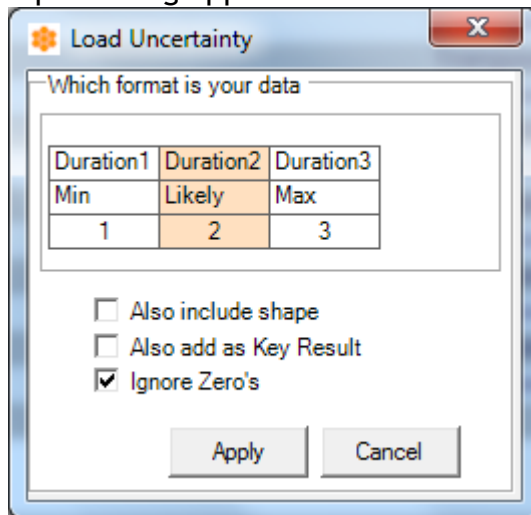
### 6.5.3 From data in this project



: First ensure that the Project workbook has 4 columns headed Duration 1,2 & 3 with Duration 1 = Minimum estimate, Duration 2 = Most Likely, Duration 3= Max estimate and Text 30= Shape in accordance with APM guidance.

To grab 3-point estimate uncertainty input data from the attached workbook:

- Click once on the **Data** control on the **Uncertainty Tab > Feature Bar**
- Select the **Import parameters > From data in this Project** option. The input dialog appears:



The dialog box titled "Load Uncertainty" contains a section "Which format is your data" with a table. The table has three columns: Duration1, Duration2, and Duration3. The first row contains the labels Min, Likely, and Max. The second row contains the numbers 1, 2, and 3. Below the table are three checkboxes: "Also include shape" (unchecked), "Also add as Key Result" (unchecked), and "Ignore Zero's" (checked). At the bottom are "Apply" and "Cancel" buttons.

Duration1	Duration2	Duration3
Min	Likely	Max
1	2	3

☐ Also include shape  
☐ Also add as Key Result  
☒ Ignore Zero's

Apply Cancel

- Only one format for the **Columns..** If you have defined the distribution shape by typing its initial to the left of the max value select the **Include Shape** box.
- Once you have selected your options click **Apply**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation. The selected cells are added to the Uncertainty list, the 3PE parameters are applied and the new selections are displayed in the main Uncertainty Drivers list.

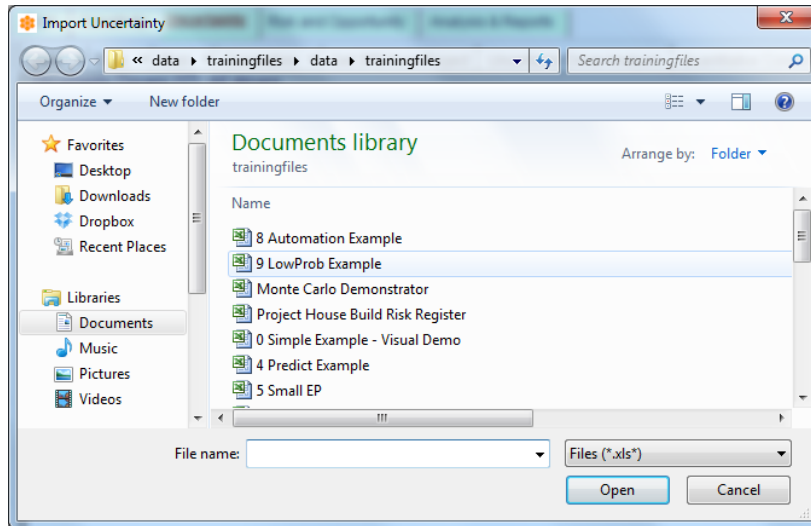
### 6.5.4 From external workbook (.xls)



: Excel workbook must be in the template format, please check before proceeding.

To grab 3-point estimate uncertainty input data from an Excel *workbook*:

- Click once on the **Data** control on the **Uncertainty Tab** > **Feature Bar**
- Select **Import Parameters**>**From external workbook** option. The file manager will appear



*The application expects the min and max values to be adjacent to the task ID so you don't have to select them all, as shown in the graphic below.*

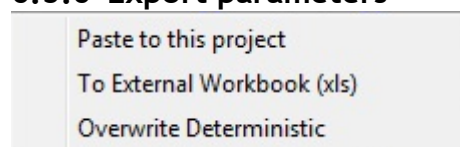
## 6.5.5 Generate an Uncertainty Register import template

The application contains a function to generate for the user a new workbook with a pre-configured risk register import template for easy population.

To generate the risk register import template in new workbook:

- Click once on the **Data** control on the **Uncertainty Tab** **Feature Bar**
- Select **Import Parameters** then **Generate external register (.xls) template** option.
- A new Excel workbook will be created which contains the pre-configured template layout. Populate the template with your data and be sure to save the file.

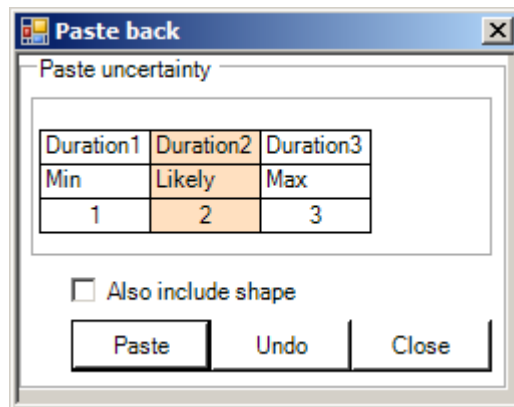
## 6.5.6 Export parameters



### 6.5.7 Paste to this Project

The ability to export the uncertainty parameters to the attached project using a paste function provides the ability to populate the project file with data values with minimal effort. To export Uncertainty to the attached project:

- Click once on **Uncertainty > Export Parameters > Paste to this Project**  
The **Paste back** control box is presented, as below:



- If required select **Also include shape** (will paste back the distribution shape into Text30)
- Click **Paste** to complete the operation.



using the Duration 1,2 & 3 columns with Duration 1 = Minimum estimate, Duration 2 = Most Likely, Duration 3= Max estimate and Text 30= Shape

### 6.5.8 Export To External Workbook as an uncertainty register

To export Uncertainty to an external register in a new Excel workbook:

- Click once on the **Data** control on the **Uncertainty Tab Feature Bar**
- Select **Export Parameters** then **To external register (.xls)** option.
- Select the file name and location in the displayed file-browser window
- Click **Save**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.

The Uncertainty parameters are exported in the following format:

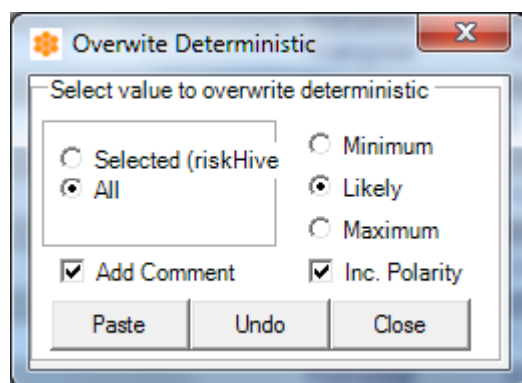
	A	B	C	D	E	F	G	H	I
1	Unique ID	Task Name	Level	Minimum	Likely	Maximum	Shape	Whole	Active
2	35	Set the budget		6.3	7	10.33	Triangular	FALSE	TRUE
3	36	Find & purchase a site		22.5	25	32.5	Triangular	FALSE	TRUE
4	37	Draw-up & Agree conceptual plans		31.5	35	45.5	Triangular	FALSE	TRUE
5	40	Identify & obtain contractors quotes		27	30	39	Triangular	FALSE	TRUE
6	41	Revise budget & secure finance		18	20	26	Triangular	FALSE	TRUE
7	45	Produce Architects design		25.2	28	36.4	Triangular	FALSE	TRUE
8	46	Produce Building plans		18	20	26	Triangular	FALSE	TRUE
9	47	Apply for planning permission		36	40	52	Triangular	FALSE	TRUE
10	51	Appoint a contractor		9	10	13	Triangular	FALSE	TRUE
11	52	Order materials for delivery		13.5	15	19.5	Triangular	FALSE	TRUE
12	53	Mobilise building site		10.8	12	15.6	Triangular	FALSE	TRUE
13	56	Build to plan		89.1	99	128.7	Triangular	FALSE	TRUE

The parameters may be edited, extended or reduced as required in Excel and then re-imported into the application using the **Uncertainty Tab Feature Bar Data > Import Parameters > From external register (.xls)** control described in Section 6.5.3

### 6.5.9 Over write Deterministic

This will allow you to over write existing values with adjusted values. There are two main options that is **All** or **Selected**

- If you have decided to use **Selected** it necessary to select those item first using the **ctrl key** and **left click**.
- Click once on the **Data** control on the **Uncertainty Tab Feature Bar**
- Select **Export Parameters** then **Overwrite deterministic** option.
- Using the popup Overwrite deterministic options, select the values you wish replace.
- Chose to include comments by ticking **Add Comment** tick box
- Chose to include **Polarity** (the impact of the uncertainty) by ticking the tick box.
- Press **Paste** to complete
- Popup message box will inform of progress.



### 6.5.10 Remove Uncertainty

Uncertainty may be removed by one of two methods:

- All
- Selected rows only

To remove **All** uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Remove uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Remove uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished.

#### 6.5.11 Activate Uncertainty

To deactivate uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Activate uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View “**Active**” column to confirm operation.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Activate uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View “**Active**” column to confirm operation.

#### 6.5.12 Deactivate Uncertainty

To deactivate uncertainty assessments and clear the Uncertainty Driver list:

- Click once on the **Data** on the Uncertainty Tab Feature Bar then select **Deactivate uncertainty**
- Select the **All** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View “**Active**” column to confirm operation.

To remove **selected** uncertainty assessments and remove them from the Uncertainty Driver list:

- Select the rows representing the cells you want to remove from the Uncertainty Drivers list
- Click once on the **Data** on the Uncertainty Tab Feature Bar
- Select the **Deactivate uncertainty** then **Selected rows** option
- A progress indicator appears and a confirmation message is displayed once the task is finished. View “**Active**” column to confirm operation.

## 7 Correlation

Correlation between any uncertainty inputs can easily be applied from the Uncertainty Drivers List and managed from the Associated Correlations box.



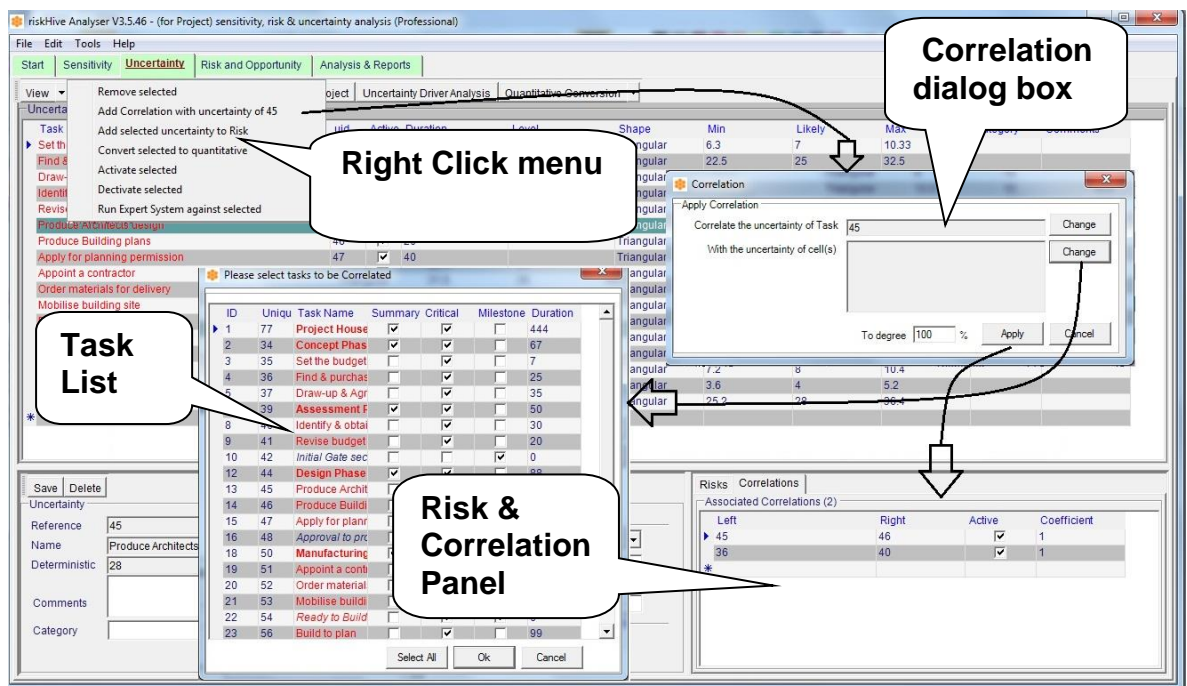
Correlation is the expression of interaction between variables.

- Correlation is used to describe the derivative effect of the variation of nominated 'lead' elements on 'dependent' elements during analysis.
- Correlation can be used to make variables 'follow' or 'repel' each other to a degree specified by what is called the Coefficient of Correlation.
- The relationship between the variables may be described as either Direct or Inverse depending on the nature of effect.

### 7.1 Add correlation to Uncertainty Driver cells

In the Uncertainty Drivers list on the Uncertainty Function Tab:

- Select the Uncertainty Driver rows you wish to correlate using the Ctrl key
- Right-click once on one of the selected cells and a menu appears
- Select the **Add Correlation with uncertainty of 'Cell x'** option



- The Correlation dialog box will appear. From here you can change either the cells to be correlated or the degree of correlation to be applied.

- Using the **Change button** select the desired cells and degree of correlation selected, click once on the **Apply button** to commit the correlation to the simulation.

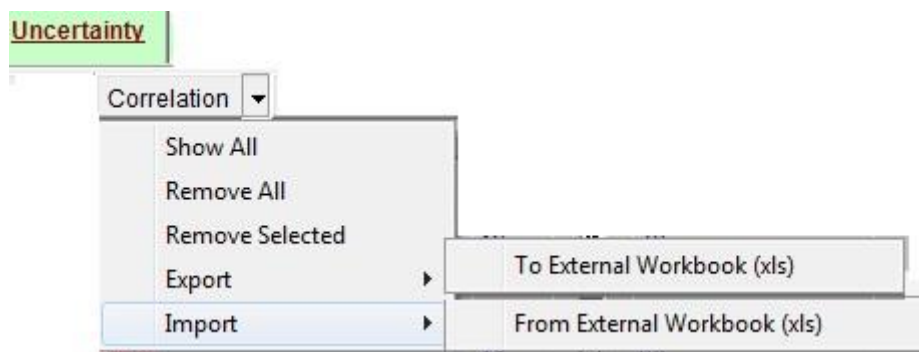
The Associated **Correlations panel** will be populated.



Parameter Inputs:

- Lead variable
- Tracking variable (s)
- Correlation coefficient (value = -100% through 100%)
- Any degree of Direct or Inverse correlation can be specified, with the greatest effects at the +100%/-100% limits.

## 7.2 Correlation Tab



### 7.2.1 Show All

This function control what is displayed in Risk/Correlation panel (btm. right hand of screen)

- Select **Correlation** from **Uncertainty** function tab
- Select **Show All** to display all the items that are correlated.

### 7.2.2 Remove All

This function control what is displayed in Risk/Correlation panel (btm. right hand of screen).

- Select **Correlation** from **Uncertainty** function tab
- Select **Remove All** to remove correlated items from display.

### 7.2.3 Remove Selected

This function removes selected items from view.

- Using **Ctrl** key and **left click** select items to be removed.
- Select **Correlation** from **Uncertainty** function tab
- Select **Remove Selected** to remove correlated items from display.

### 7.2.4 Export

Will export the correlation data to an Excel workbook

- Select **Correlation** from **Uncertainty** function tab

- Select **Export**, you be asked to **Name** the file then press **Save**, this will create a new workbook in the format shown below. Remember to fill in Excel with metadata and **Save**.

	A	B	C	D	E	F	G
1	FlexPro Project Correlation						
2							
3	Contract:						
4	Date:						
5							
6	Correlation:					Correlation Matrix:	
7	Left Reference	Right Reference	Coefficient	Active		Sum of Coefficient	Left Reference ▾
8	36	41	1	TRUE		Right Reference ▾	36
9						41	1
10							

## 7.2.5 Import

Will Import Correlation data from an Excel workbook

- Select **Correlation** from **Uncertainty** function tab
- Select **Import**> select **file** from Import manager.



: file must be in the format shown above.



### 7.3 Get 3PE from data in the project

#### Uncertainty

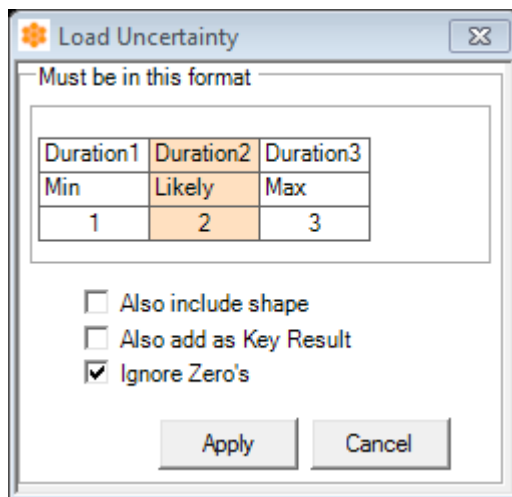
Get 3PE from Project

3-Point Estimates can be held in the MS Project file in accordance with APM guidelines. The data is held in the following fields:

- **Duration 1:** Minimum (Optimistic) value
- **Duration 2:** Most Likely (Expected) value
- **Duration 3:** Maximum (Pessimistic) value

To import 3-point estimate uncertainty input data from the attached project:

- From the **Uncertainty** control click **Get 3PE from project**. The input dialog appears:



The dialog box titled "Load Uncertainty" contains a table with the following data:

Duration1	Duration2	Duration3
Min	Likely	Max
1	2	3

Below the table are three checkboxes:

- ☐ Also include shape
- ☐ Also add as Key Result
- ☒ Ignore Zero's

At the bottom are "Apply" and "Cancel" buttons.

- Select the **Also Include Shape** option if the distribution shape has been defined. This is held in the MSP field **Text 30**.
  - Select the **Also add as Key Result** option if you want to automatically add the task to the list of Key Results available for statistical reporting.
  - Select the **Ignore Zeros** option if you want to automatically reject all tasks which have zero duration - this keeps the Uncertainty list cleaner.
- Click **Apply**. The application imports the min, expected and max values from the MSP file with no further user intervention. A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation. The selected Tasks are added to the Uncertainty list and the 3PE parameters are displayed.

## 7.4 Uncertainty Driver Analysis

Uncertainty

Uncertainty Driver Analysis

Click once on the **Uncertainty Driver Analysis** Feature Bar control. The attached project will be minimised and the application will apply the Uncertainty 3PE assessments into the project and record the effects on the Key Output Task.

***Prerequisite:** please ensure there is at least one Uncertainty assessment in the Uncertainty Drivers list or the application will have no data to analyse.*

## 7.5 Quantitative Conversion

Uncertainty

Quantitative Conversion

All

Selected

If you have used any form of **Qualitative** assessment it will necessary to covert **Qualitative** to a **Quantitative** value

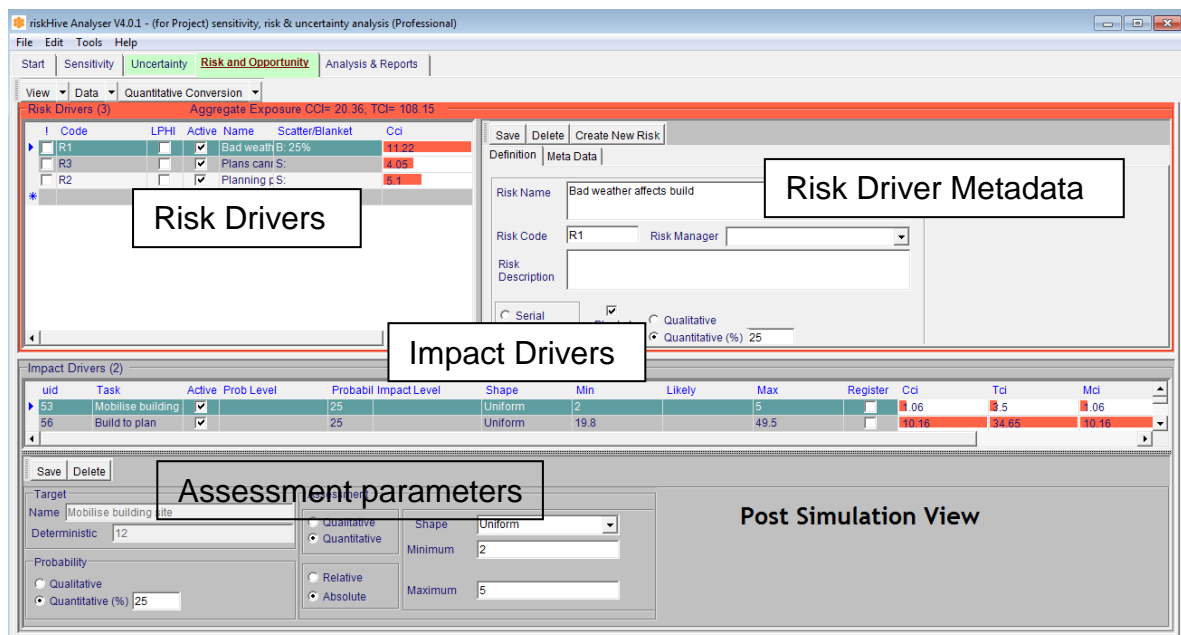
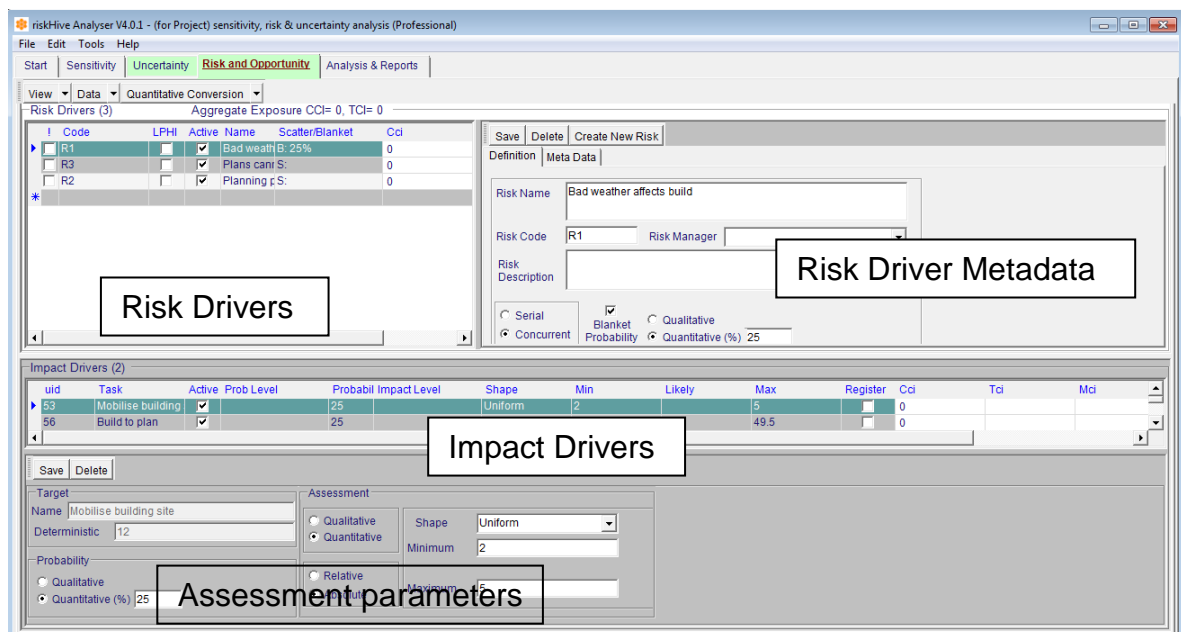
- Select Quantitative Conversion from the Uncertainty function
- Select All or pre select a row(s) from the viewing panel, use Ctrl+Click to select more than one row.

## 8 Risk and Opportunity

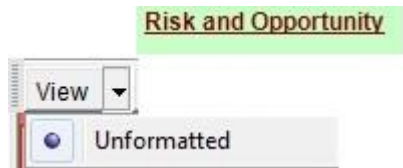
As far as the term Risk is used you may consider the word Opportunity to be exchangeable where the effect of the impact is of the opposite polarity.

The differentiator between Risk (and Opportunity) and Uncertainty is the Probabilistic element - also known as Likelihood.

In risk, for there to be a Likelihood of occurrence, recorded as Probability on a scale of 0% - 100%, there must be an associated event or root-cause for the impact to manifest

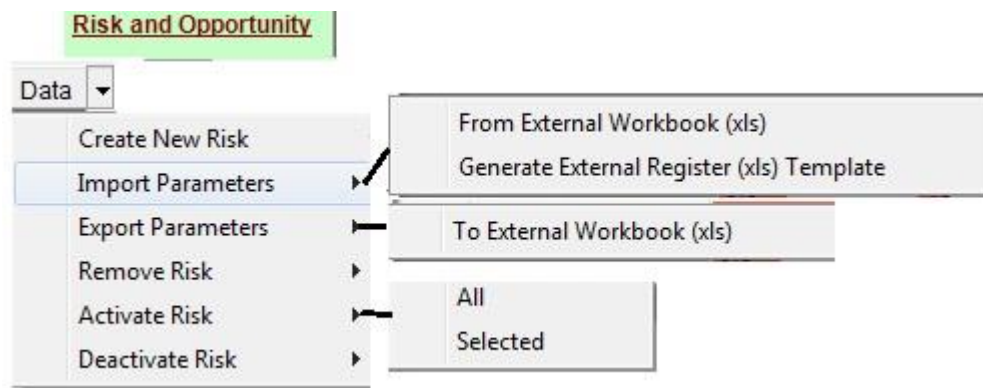


## 8.1 View



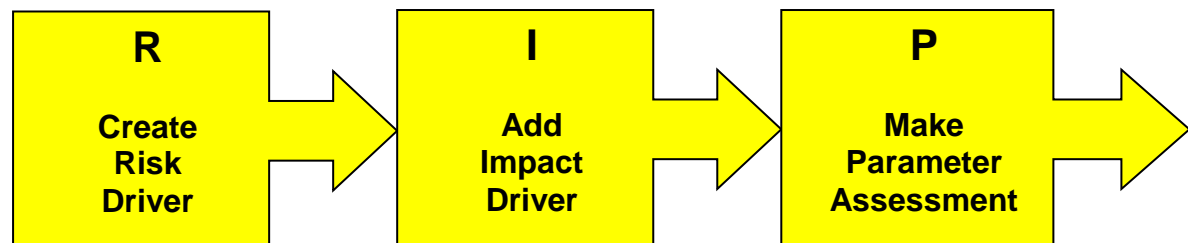
Tool is Factory set at **Unformatted** view only

## 8.2 Data



### 8.2.1 Create a new risk

To add a Risk Driver by manual entry, follow the following 3-point procedure:



## 8.3 Create Risk Driver

1. Click once on the Risk > Create New Risk control on the Risk and Opportunity Tab > Feature Bar. The Add Risk pop-up appears:

**Add Risk**

Save and Close Close

Definition Meta Data

Risk Name: Design changes affect build strategy

Risk Code: R001 Risk Manager: user2

Risk Description: A change of design after sign off will introduce a delay

☐ Serial ☒ Concurrent ☐ Blanket Probability

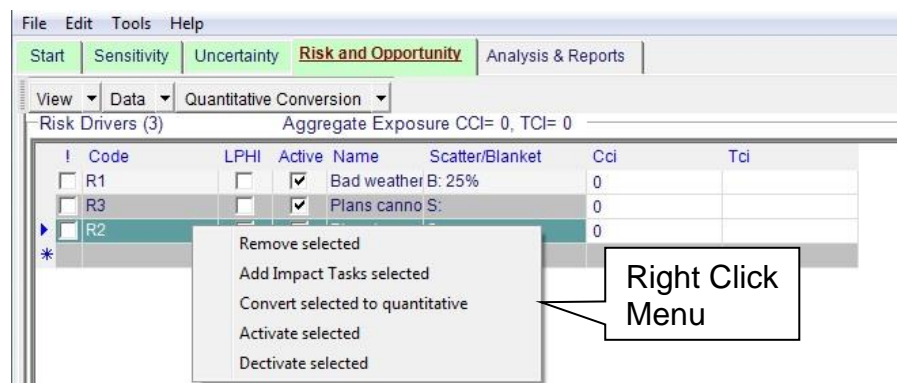
- Type the **Risk Name** (mandatory),
- Enter the **Risk Code**, if applicable (optional)
- Select the **Risk Manager** (optional)
- Enter a high-level **Description** of the risk (Optional)

Click **Save and Close**. The Risk Driver is displayed in Risk Drivers List.

### 8.3.1 Add an Impact to a Risk Driver

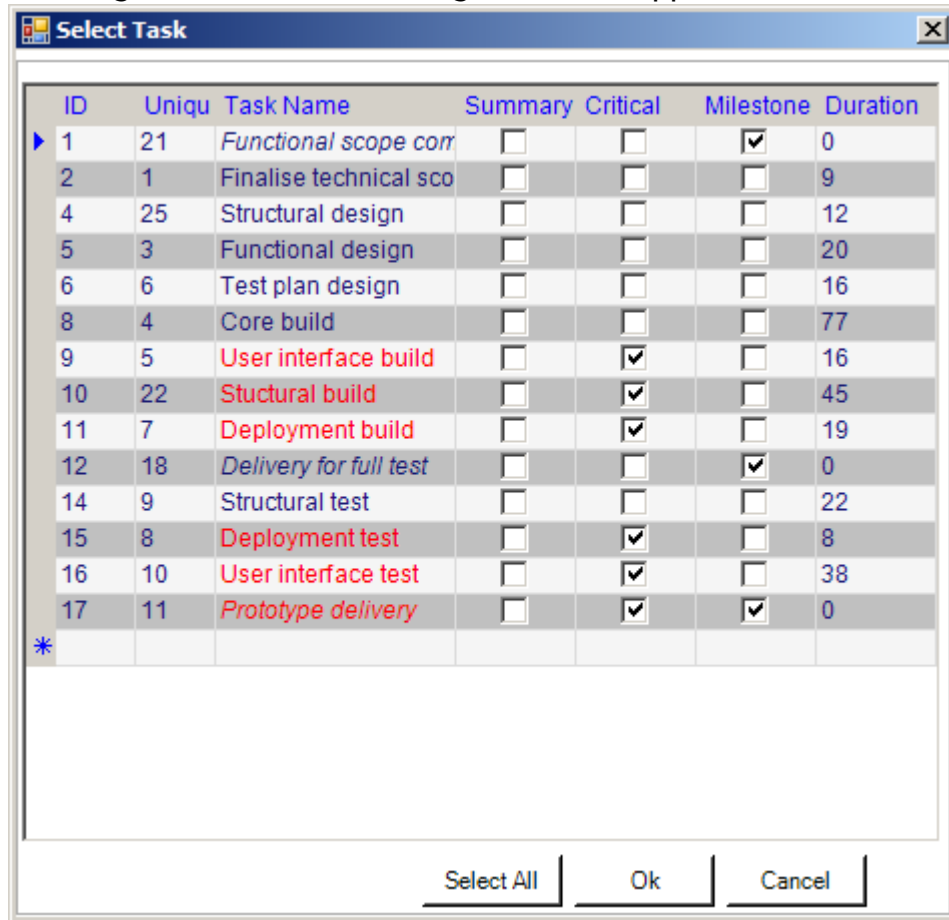
On its own a Risk Driver has no effect on the analysis. It requires the application of at least one **Impact Driver** to describe its effect on the project model. Each Risk Driver may have an unlimited amount of Impact Drivers, each affecting a different task in the attached project. In this way it is possible to build-up complex effects of risk and opportunity and then measure their aggregate effect.

To add an **Impact Driver** by manual entry:



- In the Risk Drivers list pane select the **Risk Driver** row to which the Impact Driver is to be added by clicking once on the desired row.
- Right-click once on the selected row and click on the **Add Impact TASK selected** control on the context menu that appears.

- The target Task selection dialogue box will appear:



- If you want to add a named range, select that option, click Select and then choose the named range that contains the cells to add as impacts.
  - Select the task (or tasks) to which you want to add an impact.

A confirmation message is displayed once the Impact is added is finished. Click **OK** to complete the operation. The impact is displayed in the **Impact Drivers List** pane. The Shape column is coloured red denoting an incomplete or incorrect parameter set.

#### 8.4 Make a Parameter Assessment on an Impact Driver

To have an effect on the project during analysis an **Impact Driver** needs a Parameter Assessment to describe its effect on the project model. Each Impact Driver has one impact assessment that pertains to an individual project task.

To add an assessment to an **Impact Driver** by manual entry:

- In the **Impact Drivers** list pane select the **Impact Driver** row to which the Impact Assessment is to be added by clicking once on the desired row.
- The Impact Assessment Parameters pane at the base of the Risk & Opportunity Function Tab now relates to the selected Impact Driver.
- Set **Probability**:
  - Select either of the **Qualitative** or **Quantitative** options.
    - Qualitative**: Select the desired **Probability Level** from the drop-down list that appears to the right of the option;

- .1.2. **Quantitative:** Type in the desired **Probability** value ( an integer between 0 and 100) in the field that appears to the right of the option.
- **Set Impact:**
  - .1. Select either of the **Qualitative** or **Quantitative** options.
    - .1.1. **Qualitative:**
      - .1.1.1. Select either **Relative** or **Absolute** levels;
      - .1.1.2. the desired **Impact Level** from the drop-down list that appears to the right of the option;
    - .1.2. **Quantitative:**
      - .1.2.1. Select the desired **Shape** from the drop-down list that appears to the right of the option;
    - .1.3. Type in the desired Impact Values (min, likely, max, etc) in the fields that appear underneath the shape drop-down.
  - .1. Click **Save**. The Impact Driver Assessment parameters are displayed in the Impact Drivers List pane in their respective fields.



: Any blank, inappropriate or illegal field values are highlighted in red.



*Relative will produce values for min. most likely and max (3PE) based on the deterministic value used in the model.*

*Absolute option will add the deterministic value to the pre-determined 3 PE defined by “User”. This option is best suited to “Design to cost” modelling when detailed risk impact information is limited.*

## ***8.5 Import risks from an external risk register***

To import risk data from an external risk register in an Excel workbook:

- Ensure the external register is prepared and saved in the format shown on the following page. The red box denotes the mandatory name range RISKS:
- Click once on the **Risk and Opportunity Tab > Data > Import Parameters**
- Select the **From external register (.xls)** option.
- Select the file name and location from the displayed file-browser window
- Click **Open**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation. The imported information is added to the **Risk Drivers** list and displayed in the main list.

**Notes:** the task name is optional

- **Scatter or Blanket** - scatter means all impacts of a risk instance are probabilistically independent - blanket means they are probabilistically linked.
- Use either **Probability Level** (Qualitative) OR **Probability** (Quantitative)- not both.
- Use either **Impact Level** (Qualitative) OR **Min, Likely, Max** (Quantitative)- not both.
- **Serial or concurrent** defines risk interaction in modelling.
- **Include\_Risk** and **Include\_Impact** can be used to switch-off whole risks or individual impacts during Monte Carlo simulation and analysis.

**LPHI** has the same effect as **Include\_Risk** but tags the risk so it can be treated separately in Monte Carlo Simulation, reporting and MIS.

## ***8.6 Export risks to an external risk register***

To export Risk data to an external register to a new Excel project:

- Click once on the **Risk and Opportunity Tab > Data > Export Parameters**
- Select the **To external register (.xls)** option.
- Select the file name and location in the displayed file-browser window
- Click **Save**.
- A progress indicator appears and a confirmation message is displayed once the task is finished. Click **OK** to complete the operation.

The Risk data parameters are exported in the format described in **Section 6.3**:

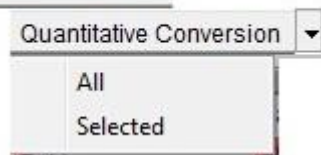
The parameters may be edited, extended or reduced as required in Excel and then re-imported into the application using the control:

**Risk and Opportunity Tab > Risk > Import Parameters > From external register (.xls)** control.



## 8.7 Quantitative Conversion

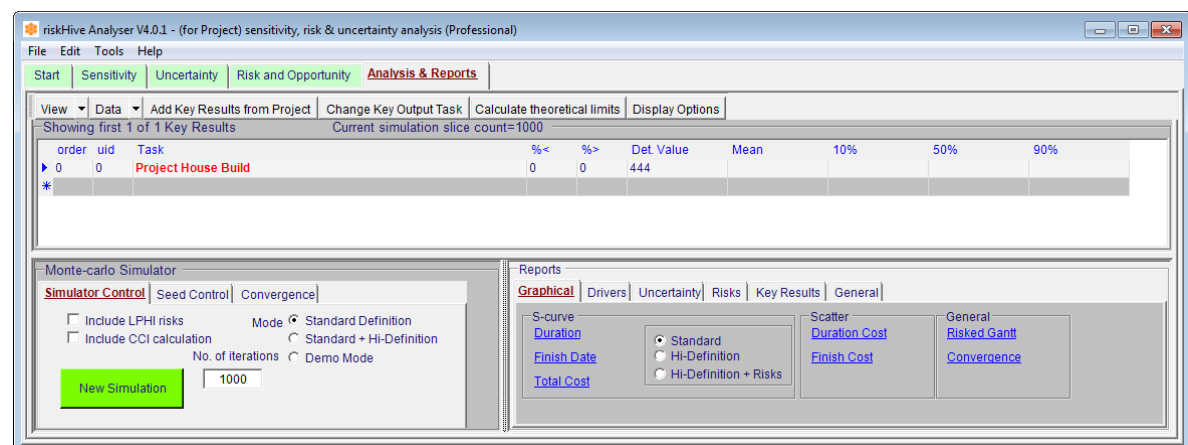
### Analysis & Reports



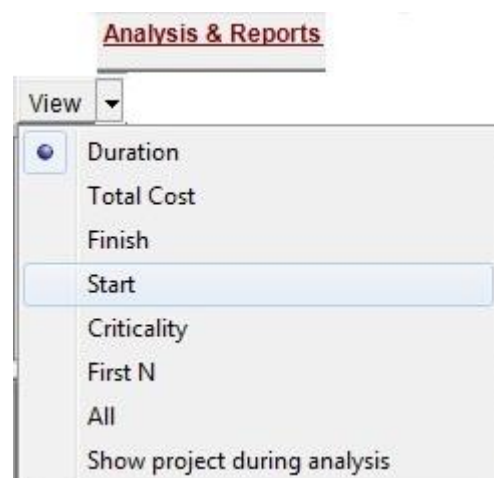
If you have used any form of **Qualitative** assessment it will necessary to covert **Qualitative** to a **Quantitative** value

- Select Quantitative Conversion from the Uncertainty function
- Select All or pre select a row(s) from the viewing panel, use Ctrl+Click to select more than one row.

## 9 Analyse and Reports



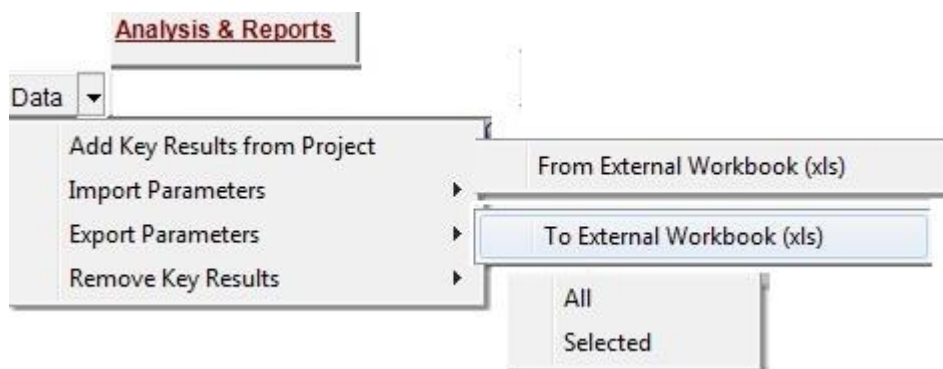
### 9.1 View



The view function allows you select what is displayed in the key results viewing panel.

- **Duration** **Det. Value** column will display Duration days
- **Total Cost** **Det. Value** column will display **Total Cost**.
- **Finish** **Det. Value** column will display **Finish date**
- **Start** **Det. Value** column will display **Start Date**.
- **Criticality** **Det. Value** column will display **Criticality Index number**
- **First N** A popup will ask you how many of the key results you would like to be displayed.
- **All** Will display All key results
- **Show project during Analysis** will update MS Project will changes. This will increase the time taken for each simulation.

## 9.2 Data



### 9.2.1 Add key results from Project

Adding Key Results to the task list is done by selecting tasks from the attached project.

- On the **Feature Bar** click once on the **Data** button.
- Select **Add key results from project** the '**Select Task**' dialog box will open and presents selection list

ID	Uniqu	Task Name	Summary	Critical	Milestone	Duration
1	21	Functional scope cor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
2	1	Finalise technical sc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
3	14	Design	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30
4	25	Structural design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
5	3	Functional design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20
6	6	Test plan design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16
7	15	Build	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	110
8	4	Core build	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	77
9	5	User interface build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16
10	22	Structural build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	45
11	7	Deployment build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19
12	18	Delivery for full test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
13	16	Test	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	86
14	9	Structural test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22
15	8	Deployment test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8
16	10	User interface test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	38
17	11	Prototype delivery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0

- Select the tasks you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

*Tip: You may select an individual cell, multiple cells, contiguous groups of cells or non-contiguous cells (using the Ctrl key).*



*: You may reduce the number of nugatory cells added to the Key Results list by checking this option before adding the selected cells. This can help make the subsequent simulation faster and the reports cleaner and less cluttered.*

### 9.3 Import Key Results to list

The ability to import a list of Task references from an external excel workbook provides the ability to add desired Key Results negating the need to repeat the selection process where a list of Key Result cell references is known and saved. To import a list of Key Result cell references to Excel:

- On the **Feature Bar** click once on the **Data** control
- Select **Import Parameters**
- Select **From External Workbook (.xls)**
- Select file from popup dialog screen then **Open**

- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

### 9.3.1 Export Key Results

The ability to export the list of cell references to an external excel workbook provides the ability to edit, maintain and subsequently import the whole list of selected Key Results, thus negating the need to repeat the selection process.

To export the list of Key Result cell references to Excel:

- On the Feature Bar click once on the **Data** control
- Select **Export Parameters** then **To External Workbook (xls)**
- Name the **file** from popup dialog screen then **press Save**
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.
- File format:

	A	B	C
1	FlexPro Project KeyResult		
2			
3	Contract:		
4	Date:		
5			
6	KeyResult:		
7	Unique ID	Task Name	Active
8		0 Project House Build	TRUE
9			

### 9.3.2 Remove tasks from the key results list

There are two options for removing Key Results directly from the list:

- All
- Selected

#### 9.3.2.1 To remove all Key Results from the list

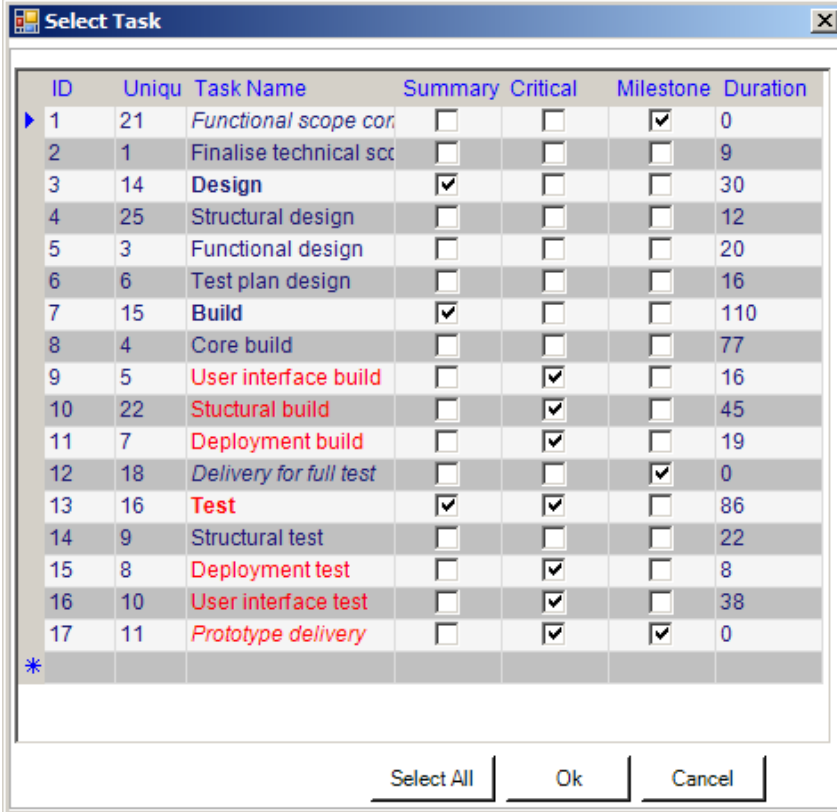
- On the Analysis and Reports Feature Bar, click once on the **Remove** control and select the **All** option from the drop-down list.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

#### 9.3.2.2 To remove selected Key Results from the list

- In the **Key Results** pane, first select the Key Result rows you want to remove from the list by clicking on each one.
- You can use the shift or Ctrl keys to select ranges or non-contiguous rows.
- On the Analysis and Reports Feature Bar, click once on the **Remove** control and select the **Selected** option from the drop-down list.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

### 9.3.3 Add Key Results from Project

- Although part the **Data** options this function tab has been added to improve your effectiveness by saving key strokes. On the **Feature Bar** click once on the **Add key results from project** tab, the ‘**Select Task**’ dialog box will open and presents selection list



ID	Uniqueness	Task Name	Summary	Critical	Milestone	Duration
1	21	Functional scope cor	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
2	1	Finalise technical sc	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
3	14	<b>Design</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30
4	25	Structural design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
5	3	Functional design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20
6	6	Test plan design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16
7	15	<b>Build</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	110
8	4	Core build	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	77
9	5	User interface build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	16
10	22	Structural build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	45
11	7	Deployment build	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19
12	18	Delivery for full test	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
13	16	<b>Test</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	86
14	9	Structural test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22
15	8	Deployment test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8
16	10	User interface test	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	38
17	11	Prototype delivery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
*						

Select All    Ok    Cancel

- Select the tasks you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation.

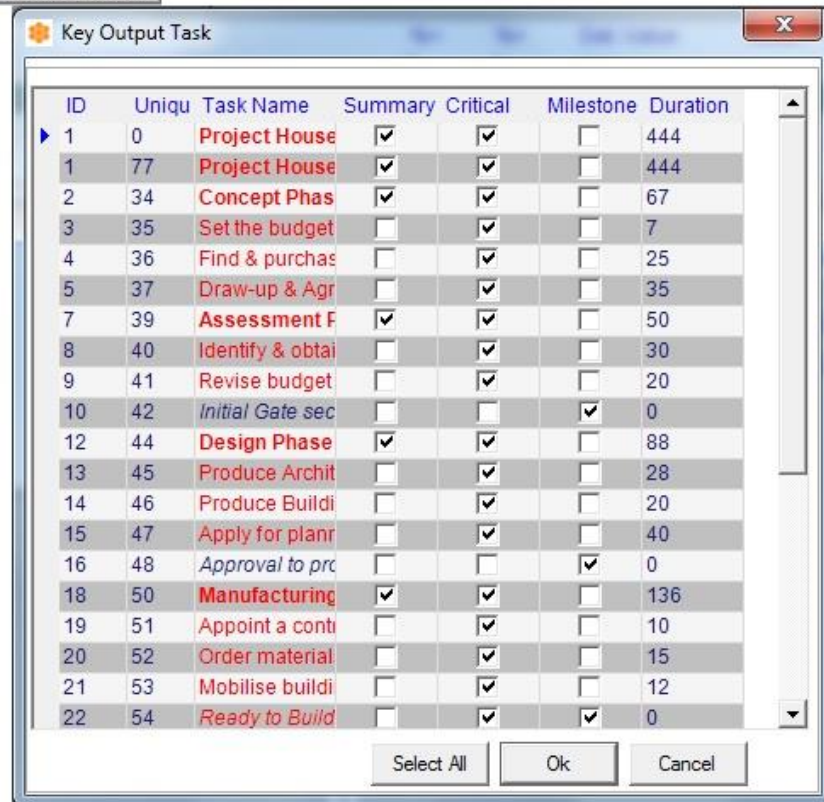


: You may select an individual cell, multiple cells, contiguous groups of cells or non-contiguous cells (using the Ctrl key).

### 9.3.4 Change key Output task

#### Analysis & Reports

#### Change Key Output Task



- From analysis and reports section select the Change key Output Task tab.
- Select the tasks from popup list you want to add to the Key Results list.
- Click **OK**. Tasks that are selected will be added to the list of Key Results.
- A progress indicator appears and a confirmation message is displayed once the task is finished.
- Click **OK** to complete the operation

### 9.3.5 Build at Min/Exp/Max

The MS Project workbook is constructed using deterministic estimates, this function replaces the deterministic values with the 3 point estimates that fed the Hullograms with data so that the extreme values can be displayed on the graph.

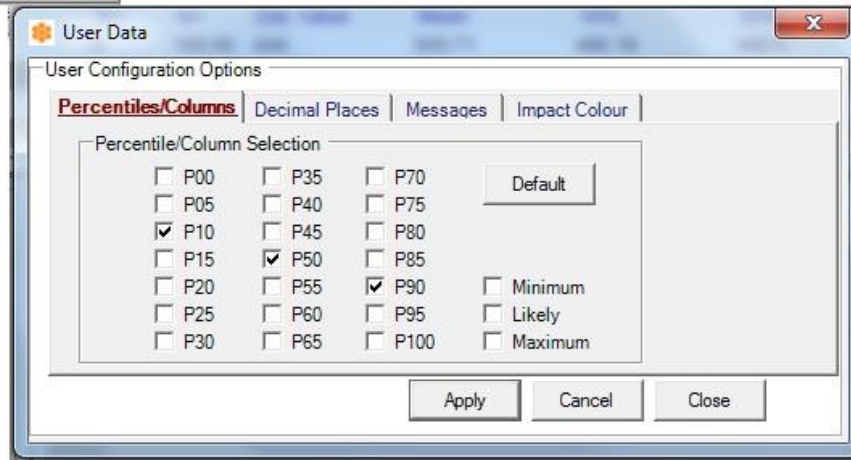


: *It is important that this run before hullograms are prepared.*

### 9.3.6 Display Options

Analysis & Reports

Display Options

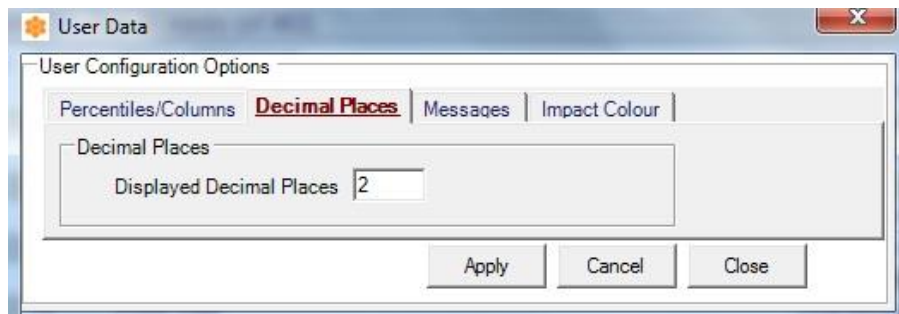


- The Analysis results display can be changed to suit your requirements
- Select the required percentage values and press **Apply** then **Close**.
- By selecting **Default** you can reset to “Factory settings”



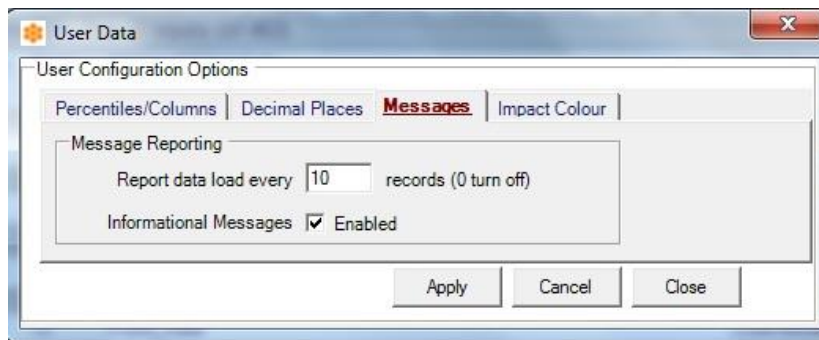
: *Early version of the software show two P90's however second P90 will display P95*

### 9.3.7 Decimal Places



- The decimal places shown in the result displayed can be adjusted to level you require, this is useful when working in £k.
- Input required value and press **Apply** then **Close**.

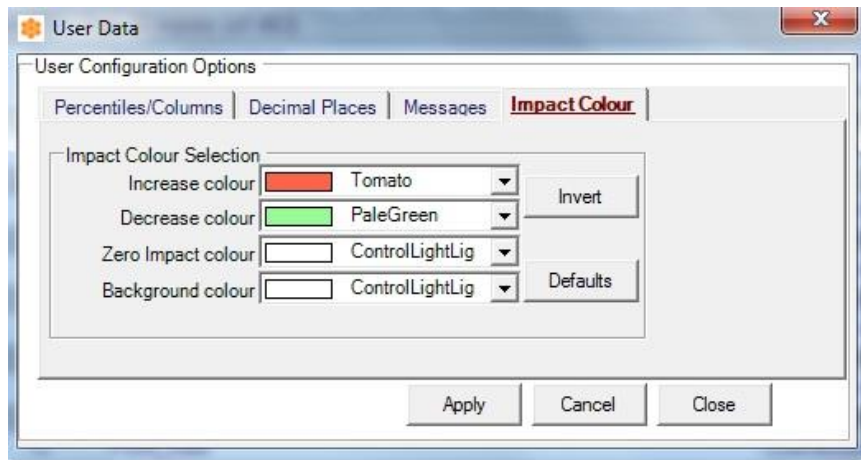
### 9.3.8 Messages



- Messages are useful to track progress or warn you of error, but they do slightly increase process time, this options allow you to change the frequency or turn then off completely.
- Input record refresh rate
- Un-tick box to switch off information messages then press **Apply** and **Close**.



### 9.3.9 Impact Colour

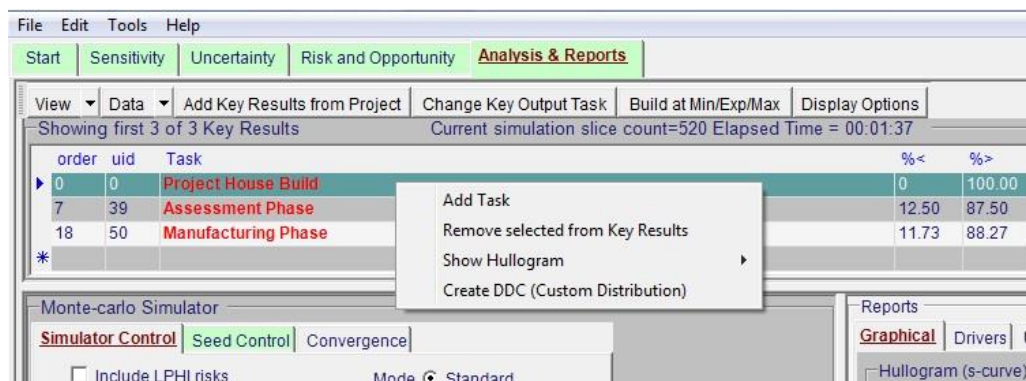


- This options allows you to change the 'Impact colour' used .
- Select required colour setting and press **Apply** then **Close**
- The **invert** button will swop the "increase" and "decrease" selections press **Apply** then **Close**
- **Default** resets to "factory Settings"

### 9.4 Analysis & Reports contextual menu

(Right Click menu)

This menu is assessed from the Key results viewing panel, from anywhere within the panel right click and the options menu will appear.

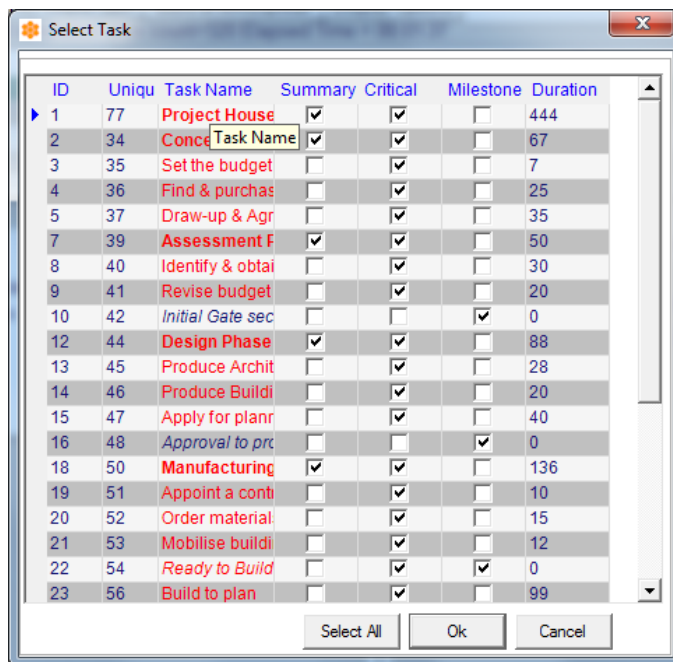


#### 9.4.1 Add Task

This function is allows you to add a task via the "Select Task" menu.

- From the popup menu select **Add Task**.
- This will open the **Select Task** menu

- Select task then press OK; for multiply choice use **ctrl key+ click** then **OK**



## 9.4.2 Remove selected from key Results

- Select the row you wish to remove.
- Right click and Select **Remove selected from key results**

## 9.4.3 Show Hullogram for selected

- Select the Key results you wish to create a Hullogram.
- Right click and select show Hullogram

## 9.4.4 Create DDC (Custom Distribution)

Create DDC (Custom Distribution): Will create a .ddc file describing a custom distribution based on the 0%-100% statistical output of the task's duration. This may be used as an input distribution to other tasks or in the Excel version of the Arrisca application as a 'Custom Distribution' input.

- Select **Key result** row.
- Right click and select **create DDC**.
- **Name file** and press **OK**.

## 9.5 Simulation

The application enables the user to run a meta modelling technique to simulate the effects of the stochastic variables, risk and uncertainty, on the workbook. The modelling technique used is called Monte Carlo simulation. The results of this simulation can be analysed to generate statistical information regarding the ranges of outturn of the workbook to inform the decision-making process.

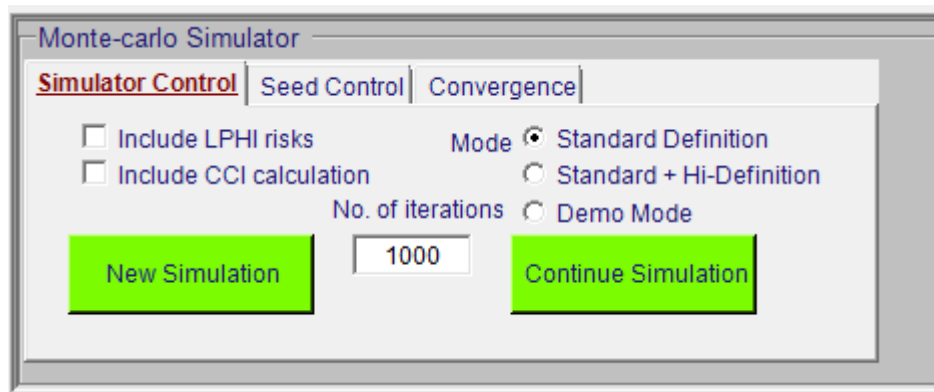
Whilst the simulation itself is a complex computing exercise the controls presented to the user are simple and straightforward. They are located in the bottom left of the Analysis & Reports Function Tab.



*: To be able to run a Monte Carlo simulation the model must contain at least one element of either uncertainty or risk or there will be nothing to analyse.*

### 9.5.1 Run a new simulation set

If the system has not yet run a simulation there is only one option available, the **New Simulation** button.

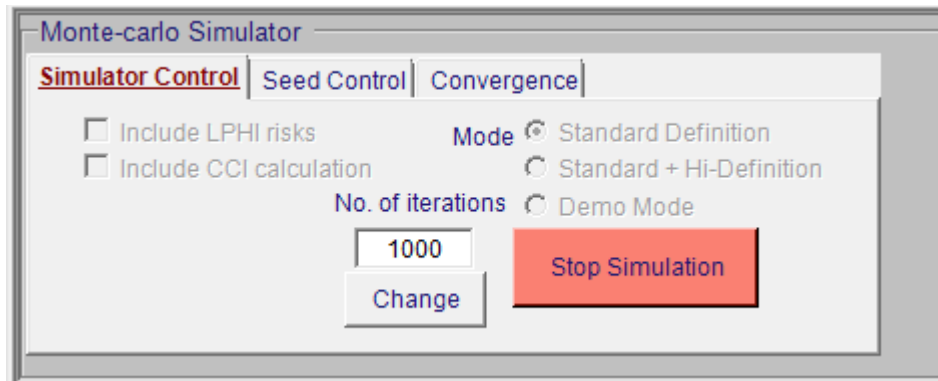


To initiate a Monte Carlo simulation:

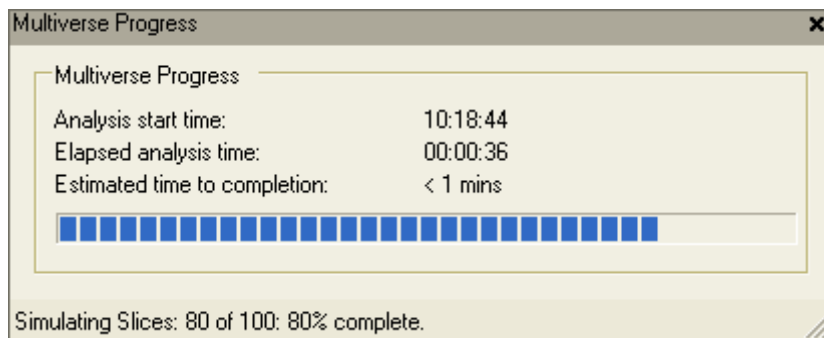
- Type in the number of simulation iterations required in the **No. of iterations** data entry field to the right of the button.
- Chose if you require to include or exclude low probability high impact (LPHI) risks
- Chose **Mode** - **Standard** will produce data suitable for good quality graphical and output data. Whereas **Standard+ Hi Definition** will provide data that will enable high quality graphs to be produced also the data for each simulation is available that records which risk are active and any given point.
- Chose to include exclude **CCI calculations**.
- Click once on the green **New Simulation** button.

- The workbook will be hidden and the simulation will begin.
- 

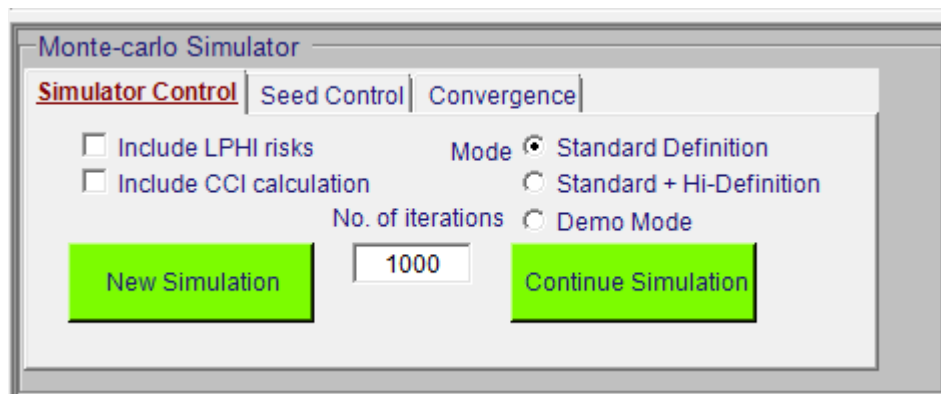
The **Stop Simulation** button is displayed- this will abort the process



- During simulation a progress indicator is displayed to track the simulation iterations as they are completed. An estimated time to complete is also displayed along with the current elapsed simulation time.



- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The simulator controls now display the green **New Simulation** and **Continue Simulation** buttons.



### 9.5.2 Continue a simulation set

If the system has run a simulation you may want to continue the simulation from where it ended to generate more iteration data and improve the quality of the results. To continue a simulation set:

- Type in the new number of simulation iterations required in the **No. of iterations** data entry field to the right of the button.
- Click once on the green **Continue Simulation** button.
- The workbook will be hidden and the simulation will continue.
- The simulation will run until either the **Stop Simulation** button is clicked or the new **No. of iterations** limit is reached.

### 9.5.3 Stop a simulation set

If the system has run a simulation you may want to continue the simulation from

- Click once on the green **Stop Simulation** button.
- At the end of the next set of slices the simulation will end.
- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The simulator controls will now display the green **New Simulation** and **Continue Simulation** buttons again.

### 9.5.4 SEED option

Monte-carlo Simulator

Simulator Control **Seed Control** Convergence

☒ Random Seed
 ☐ Fixed Seed
 Generate new seed
Guidance?

Seed (upto 6 digits)

The seed option allows you to use either a **Random** number or a **Fix Seed**.



*:Use fixed if wish to repeat a simulation that will give identical results each time it is run.*

### 9.5.5 Convergence

Monte-carlo Simulator

Simulator Control Seed Control **Convergence**

☐ Stop on convergence
 Guidance?

Stop at  % error  
 Check every  iterations  
 Current Percent **0.10**

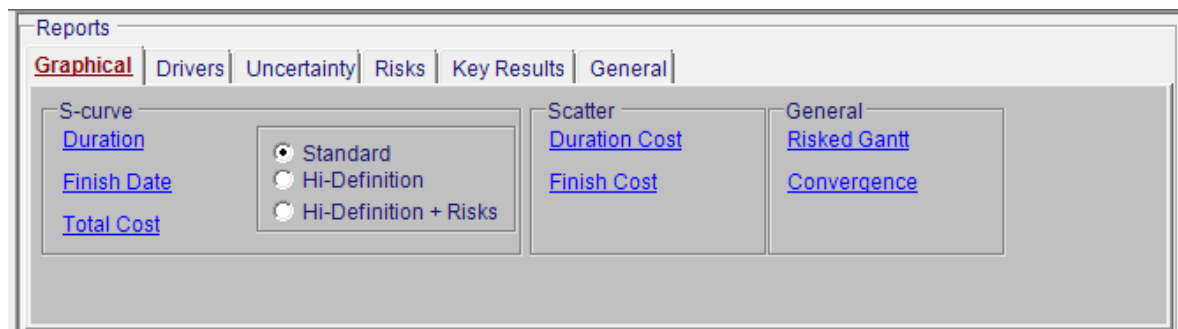
With any statistical simulation technique you reach a point when more simulations runs will not improve the output results, this option allows you set the point at which you consider the simulation should stop.

### 9.5.6 Stop a simulation set

If the system has run a simulation you may want to continue the simulation from

- Click once on the red **Stop Simulation** button.
- At the end of the next set of slices the simulation will end.
- The workbook is redisplayed once the simulation is finished and the statistical outcome values are displayed in the Key Results pane. The simulator controls will now display the green **New Simulation** and **Continue Simulation** buttons again.

## 10 Reports

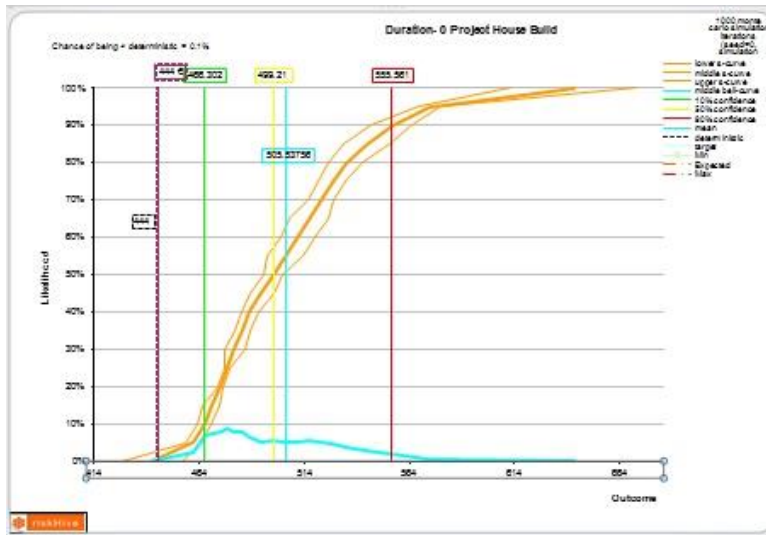


### 10.1 Graphical

#### 10.1.1 Hullogram

Hullogram will produce a s-curve graph in Excel based on either: duration, finish date or Total Cost

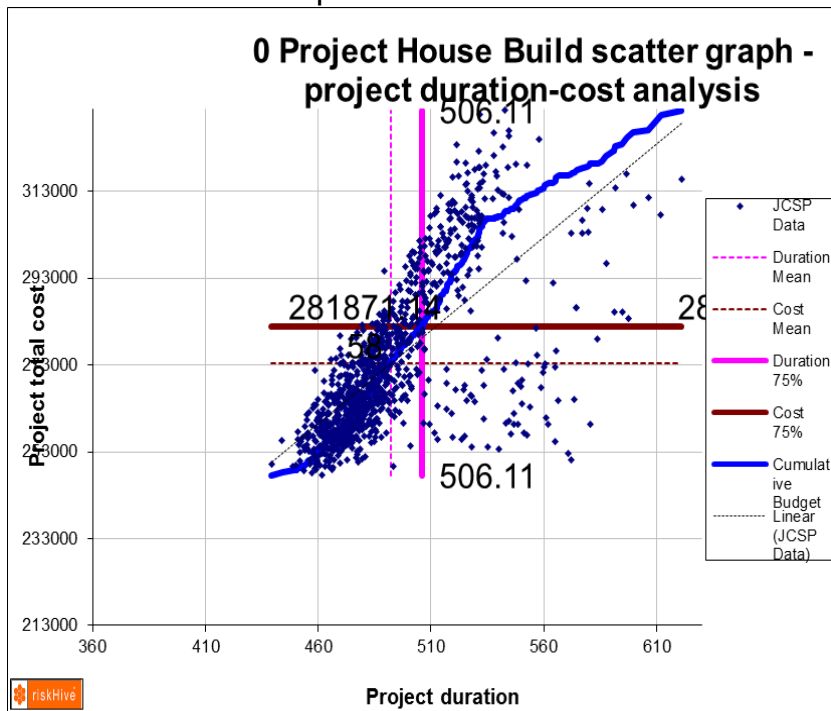
- Select graph option
- A process message box will indicate when task is complete
- Use Excel to view output.



### 10.1.2 Scatter

Will produce a plot of Duration vs Cost or Finish Date vs Cost

- In the Scatter section select graph option
- A process message box will indicate when task is complete
- Use Excel to view output.



### 10.1.3 General

A risk-adjusted view of the project plan may be easily produced (post simulation) for the Key Output Task, by selecting the Risked Gantt report:

- Risked-Gantt of the original project plan
- Convergence: Will produce a convergence graph at the 10%, 50% & 90%

## **10.2 Drivers**

A sensitivity report in Excel can be produced from the Drivers section of the reports.



### **10.3 Uncertainty**

A Uncertainty report in Excel can be produced from the Uncertainty section of the reports.

### **10.4 Risks**

A Risks report in Excel can be produced from the Risk section of the reports.

### **10.5 Key results**

A key report in Excel can be produced from the **Key results** section of the reports.

There are 4 options in the general section:

#### **Full Report**

This feature can be used to package and export the primary assessment data and output results to an Excel workbook.

The workbook contains:

- The description of the Project workbook and its primary attributes
- The complete range of outcomes of the analysis as described by an S-curve in 5% confidence level increments
- The complete graphical outputs
- The complete collection of:
  - sensitivities,
  - uncertainty,
  - risks, opportunities
  - associated Input Parameters and resulting Impact data
  - associated categorisation and classification information
  - Risk ownership information

#### **LPHI**

This will produce an Excel workbook that lists all the elements that you have selected as low probability High Impact risks.

#### **Browse Existing Reports**

Will open an existing Excel report

#### **Browse Existing Graphs**

Will open an existing Excel workbook with graphical outputs



The browse functions have been included to save you leaving the Arrisca program to establish what report names have been used.

Field	Format	Required/Optional
TaskUnique ID	number	Required
Task Name	Text	Optional
Code	Text	Optional
Risk Name	Text	Required
Risk notes	Text	Optional
Scatter_or_blanket	S OR B	Required
Probability Level	Text	Optional
Probability	Number 1-100	Required
Impact Level	Text	Optional
Minimum	Number	Required
Likely	Number	Required
Maximum	Number	Required
Shape	Text	Optional
Whole	True\False	Optional
Serial_or_concurrent	S OR C	Required
Include_risk	True\False	Required
Include_impact	True\False	Required
Impact notes	Text	Optional
Register	True\False	Optional
LPHI	True\False	Optional
Manager	Text	Optional
Status	Text	Optional
Severity	Text	Optional
Category	Text	Optional
Level	Text	Optional
Classification	Text	Optional
Objective	Text	Optional
Phase	Text	Optional

## 12 Support

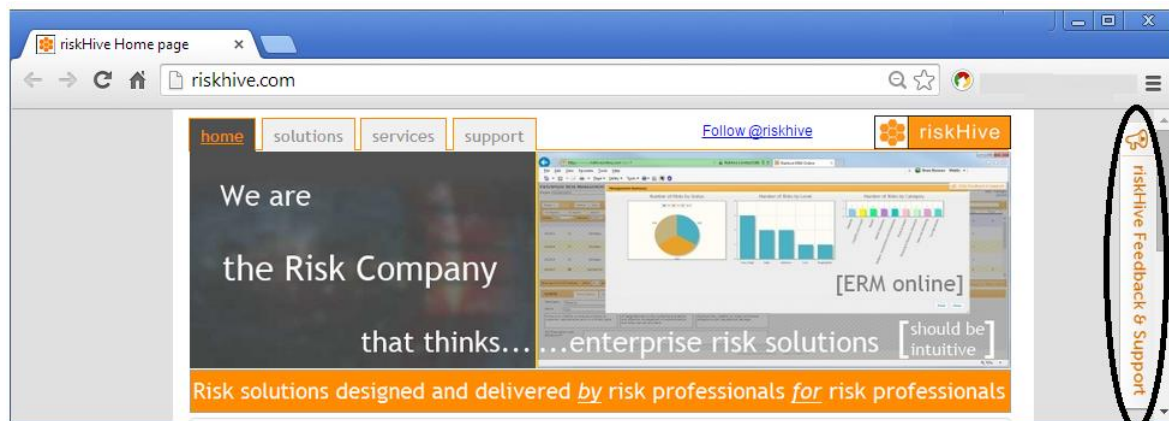
**Your appointed reseller is:**

riskHive Ltd.  
Dilkush  
Farlers End  
BS48 4PG

Tel: +44 (0)117 373 1100  
Fax: +44 (0)117 373 1103  
[www.riskHive.com](http://www.riskHive.com)

### Support

Support service: Via the 'feedback & support' online service. It will keep you posted on the progress of your enquiry



Alternatively

email: [support@riskhive.com](mailto:support@riskhive.com)

Phone +44(0)117 373 1100

Support lines are open from 09:00 to 17:30 (GMT) Monday to Friday.

General enquiries email: [info@riskhive.com](mailto:info@riskhive.com)