BowTie
Pro

The modern, fast and easy to use risk analysis tool

Advanced Features
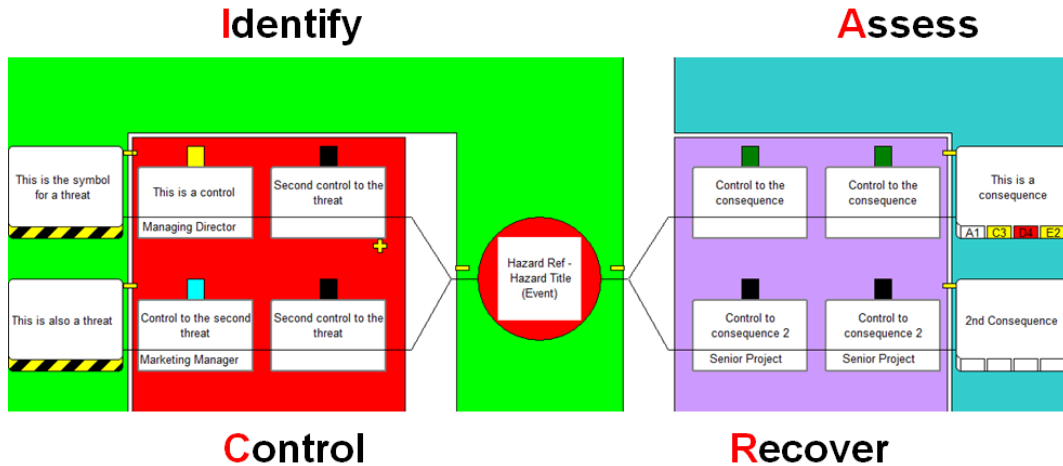
Applying Human Factors
To a BowTie Diagram

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Introduction

Human Factors is a vital part of a risk analysis. The centre of the bow-tie risk analysis is the event, on the left are the Threats and on the right are the Consequences but between these items are the Controls or Barriers.

A Barrier might be a physical barrier such as mechanical valve, a wall or an electronic alarm system and these tend to be "Strong" barriers because they are not prone to human error. Barriers could also be actions that should be performed by a person such as a procedure and these are inherently less safe.
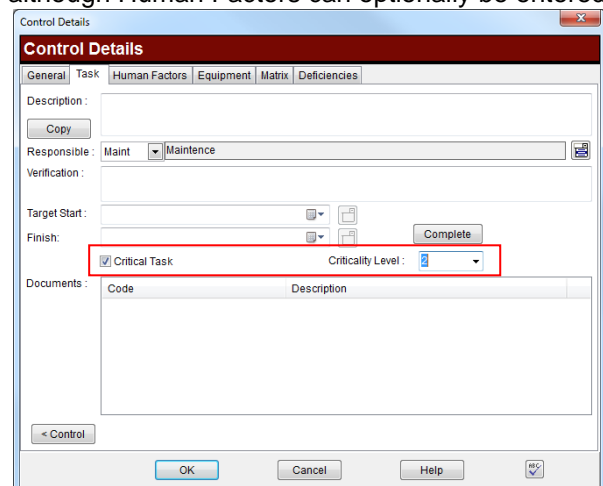
Governing bodies around the world such as the UK HSE have been requiring organisations to take the human factors issues into account in their risk analysis. In the UK it is advised that a full Human Factor review should be applied to any safety critical task that is controlling the Barrier and BowTie Pro™ has a full Human Factors Analysis capabilities.
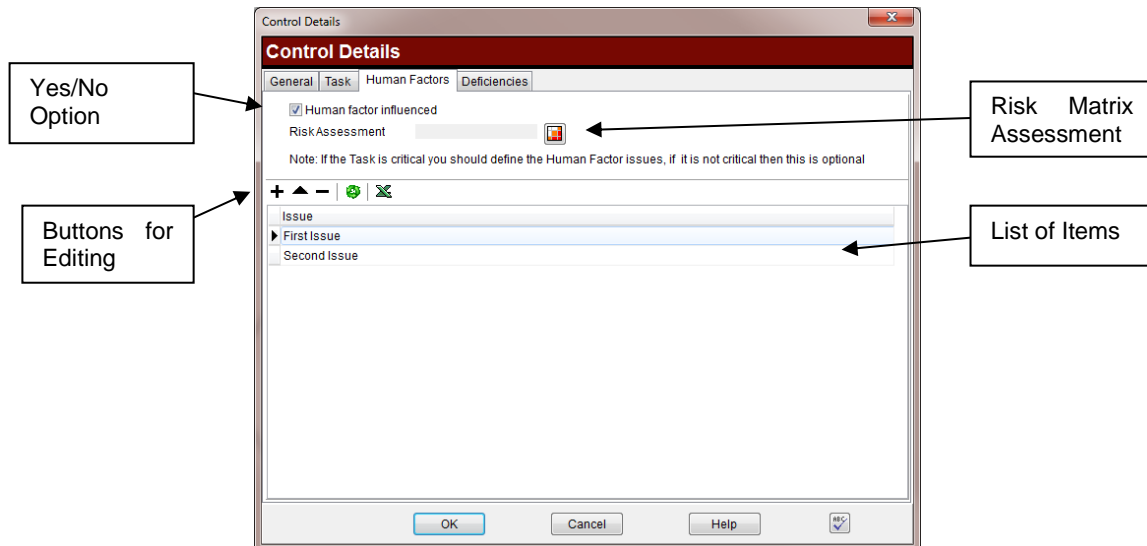
How to enter human factor issues

Human Factors should be completed if the task is critical, although Human Factors can optionally be entered on any task.

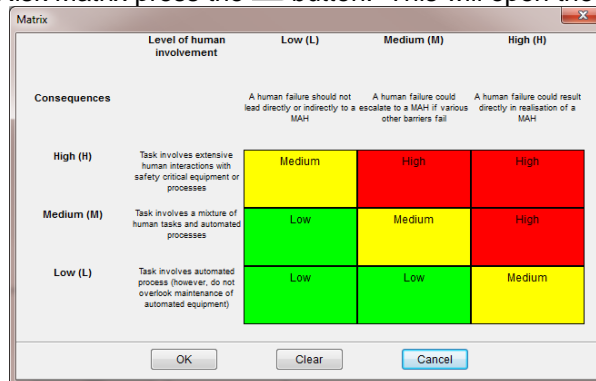To determine if a task if critical:
1. Open up the control
2. Switch to the task tab
3. Tick/Untick the "Critical Task" box
4. If ticked there is the ability to set the "Criticality level".

On the "Human Factor" tab there is a Yes/No check box. If this is clicked to indicate that there are Human Factor issues then the list on the bottom half of the screen will be enabled.
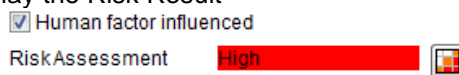
There is the ability to define a Risk Matrix for the Human Factors. This is a different Risk Matrix to the standard one. To open the Risk Matrix press the ▦ button. This will open the Risk Matrix Screen below
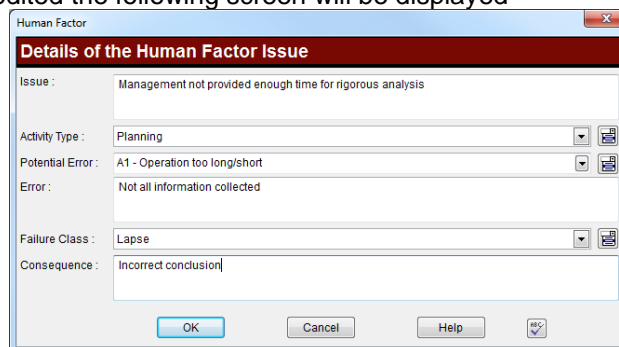

As with the matrix on the Consequences pressing the box will highlight the selected item. Once this is done press the OK button.

This will change the screen to display the Risk Result

Below the Risk Matrix there are buttons that will enable adding, modifying and deleting each of the line items.

When an item is added or edited the following screen will be displayed

When the details have been entered pressing OK will close the screen and the item will be added to the list of Human Factor issues
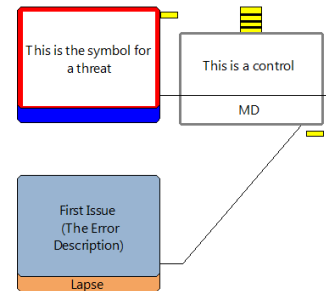
How are Human Factor displayed on the bow-tie?

Just as Human Factor issues are similar to Escalation Factors (Threats to the Control) in that they cause the control to fail they are displayed in a similar way on the bowtie diagram.

To Show/Hide the Human Factors press the ☃ button on the toolbar.

When the ☃ button is selected and the Control is under the influence of Human Factors the top of the Control box on the diagram will appear stripped.
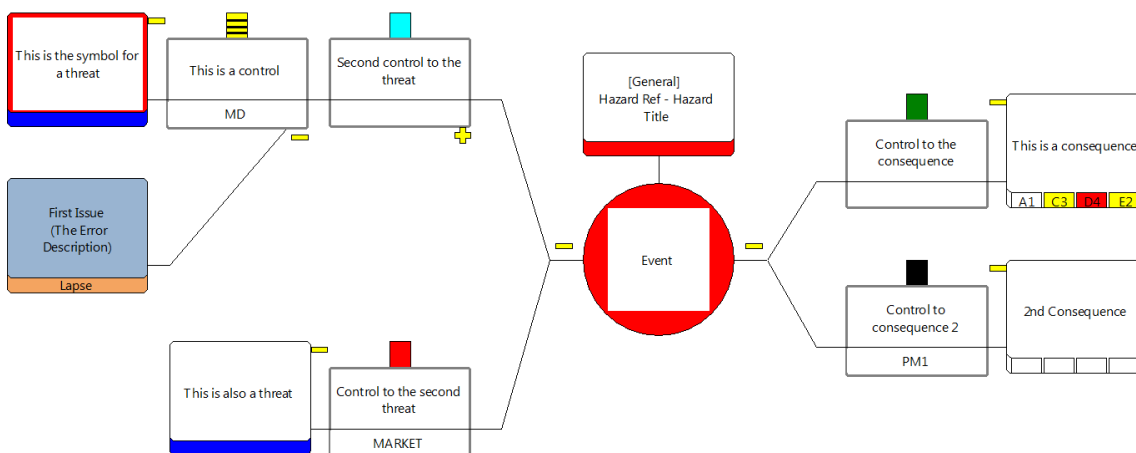

If there has been Human Factors details entered these will display with the Threats to the Controls. The Human Factor details can be edited or deleted directly from the diagram screen and clicking the ➕ ➖ buttons will allow these items selectively be expanded and contracted.

The items are displayed with a coloured background to differentiate them from Threats to the controls.

The full diagram looks as follows

How to Export the Human Factors to Excel

There is the ability to export the Human Factors for
- ✓ A specific control
- ✓ All Human Factors for a Hazard

To Export the Human Factors for a control
1. Open up the Control
2. Switch to the Human Factors tab
3. Press the ✗ button

For all Hazard Human Factors
1. Open the Hazard Diagram
2. Press the Diagram Excel screen which is opened up by pressing the "Export All Human Factors" button
3. Press the "Export Human Factors"