



**The modern, fast and easy to use risk analysis tool**

## **Features List For Version 4.2**

**BowTie Pro™**  
Westhill Business Centre  
Arnhall Business Park  
Westhill, Aberdeenshire,  
AB32 6UF, UK

Tel: +44 (0) 1224 51 50 94

[enquiries@BowTiePro.com](mailto:enquiries@BowTiePro.com)  
[www.BowTiePro.com](http://www.BowTiePro.com)

## Introduction

BowTie Pro™ is a technically advanced yet easy to use tool to facilitate the creation of risk assessments. The bowtie diagram is a powerful visual presentation of the risk assessment process that is readily understood by the non-specialist.

The tool has been built to allow use in a wide range of hazard analysis scenarios such as HAZOPS and for any type of risk in any type of industry, e.g. environmental, safety, business, political, security etc.

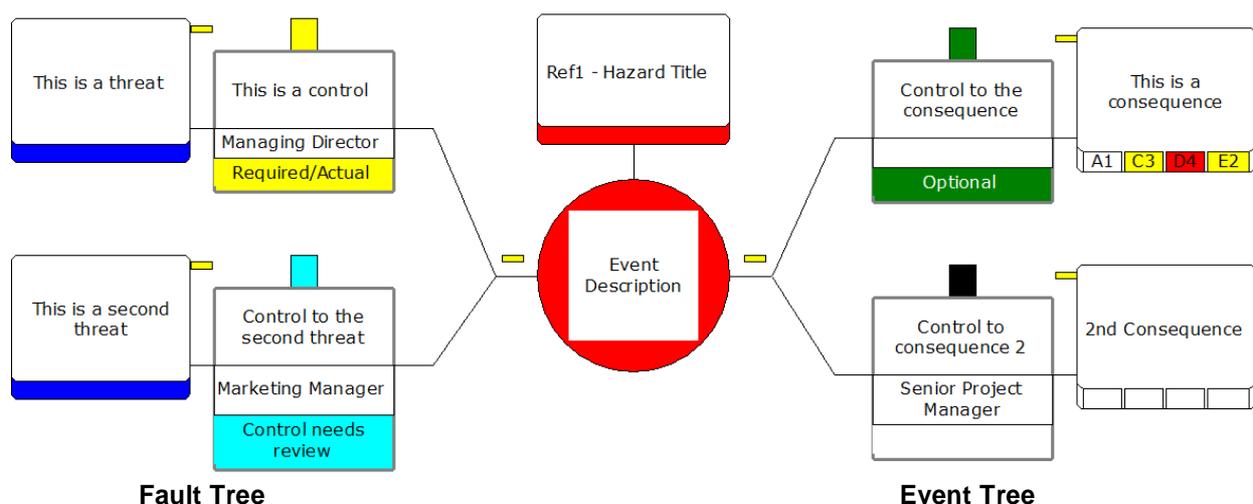
The benefits of using BowTie Pro™ are:

- Creation of a systematic and consistent yet flexible analysis of business risks
- BowTie Pro™ produces reports that can be used for risk assessments
- It is a fast, cost effect way of analysing the hazards and controls for any aspect of your business
- The system creates a safer working environment by its ability to communicate hazards and controls visually
- BowTie Pro™ will enhance productivity and efficiency
- Allows facilities and companies to quickly build up an analysis that is specific to their environment

Using BowTie Pro™ means that the information can be easily and quickly entered into a bowtie diagram. A diagram also helps in the review process by clearly showing each element and how they fit into the whole. The final diagram is printed off, it brings speed, ease and clarity when communicating with others. BowTie Pro™ has a wide range of output formats that enable integration into other software tools and communication with others.

## What is a bowtie diagram?

The bowtie has become popular as a structured method to assess risk where a qualitative approach is not possible or desirable. The success of the diagram is that it is simple and easy for the non- specialist to understand. The idea is a straightforward one of combining the cause (fault tree) and the consequence (event tree). When the fault tree is drawn on the left hand side and the event tree is drawn on the right hand side with the hazard drawn as a "knot" in the middle the diagram looks a bit like a bowtie as shown.



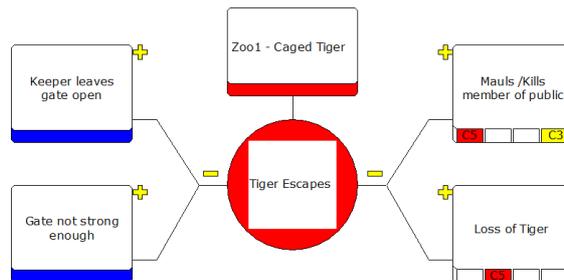
## The Bowtie Process

To produce a bowtie diagram, simply define the:

- **Event** to be prevented
- **Threats** that could cause the event to occur
- **Consequences** of the event occurring
- **Controls** to prevent the event occurring
- **Controls** to mitigate against the consequences

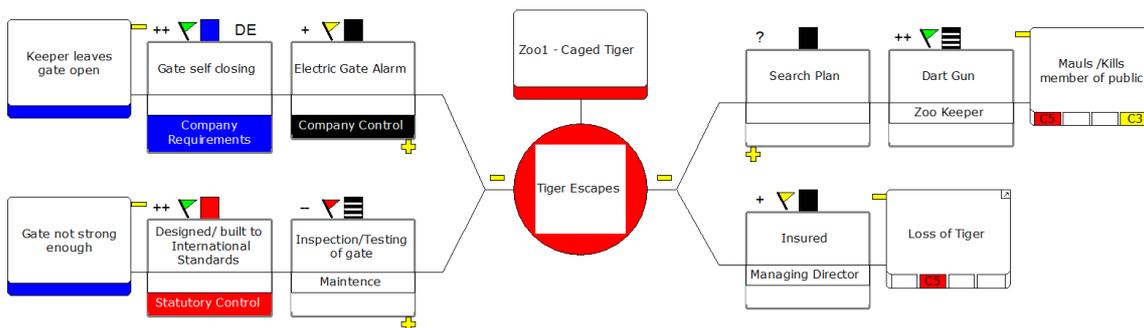
This is shown in the example below where we have a tiger escaping from a cage.

The threats that will cause the tiger to escape are identified and listed to the left, i.e. it could escape if the cage is not strong enough or the gate is left open.



The consequences of the tiger escaping have been identified and displayed to the right, i.e. it could maul/kill a member of the public or could itself be killed.

Now that the hazard has been defined, we can put threat controls in place which will stop the hazard from occurring and consequence controls which will prevent the outcome.



This information is generally obtained through structured brainstorming sessions with small groups. The ease of use of BowTie Pro™ permits the bowtie to be created and edited during the session with the group. The visual presentation permits both effective communication and review by others not involved in the original assessments. Assessments can be readily reviewed and updated at any time.

BowTie Pro™ has its own customisable risk assessment matrices which allows assessment of the consequences. It also has the facility to record key management information on each control e.g.

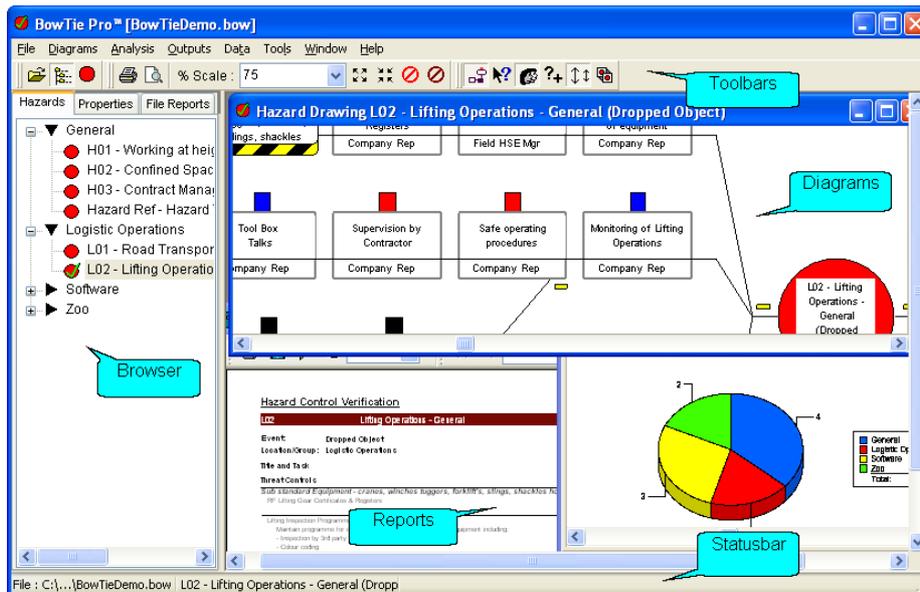
- ✓ Effectiveness
- ✓ Type
- ✓ the task
- ✓ Who is responsible
- ✓ Reference documents
- ✓ Verification of control integrity etc
- ✓ Criticality Level
- ✓ Human Factors

Once entered, this information is retrievable either on screen, or through user friendly standard reports. The information is used for communicating and demonstrating how risks are being managed. They can also be used as key reference checklists by auditors.

## User Interface Features

BowTie Pro™ has a clean, modern, easy to use interface allowing fast development of the bow-ties. This gives it the advantages of:

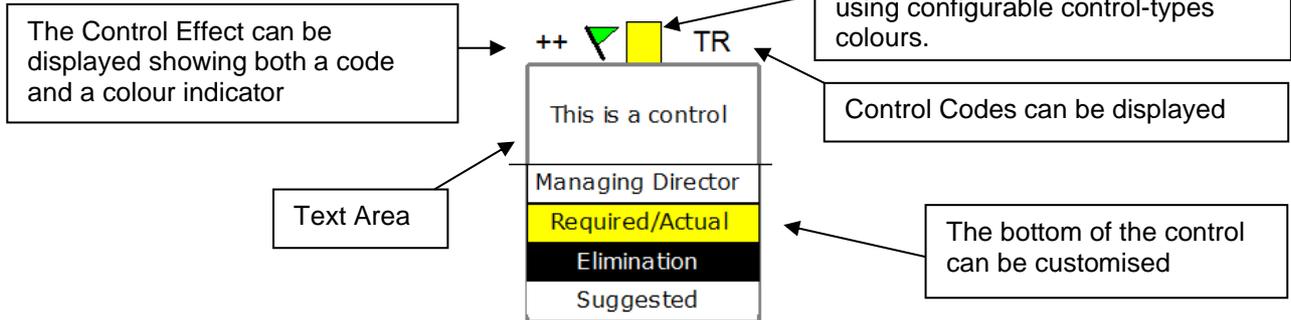
- A powerful visual graphical user interface
- Fast, friendly and easy to use
- Items can be edited visually
- Complete with standard reports, analysis reports and visual outputs required to perform a rigorous analysis



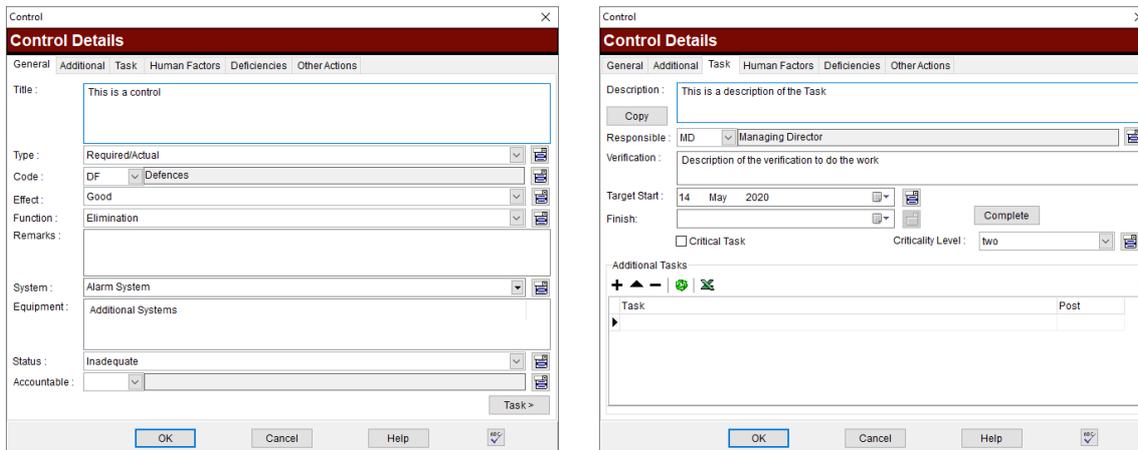
- It can have up to 6 diagrams open at any one time. This is useful in comparison and allowing copy and paste between diagrams.
- Copy/paste functionality.
- Auto-complete available in text fields.
- Built-in spell checker with a large number of languages.
- Dual-Language. A bowtie can be simultaneously developed in two different languages.
- Fully configurable dockable toolbars.
- Context sensitive pop-up menus used throughout. Right-click anywhere and see what the available options are.
- Fully configurable risk matrices for risk assessments. Change the dimensions, colours and labels to fit your needs.
- Hazards can be grouped to allow easy navigation.
- Summary Information about the BowTie Pro™ file started can be entered. This can then be displayed in the diagram outputs.
- BowTie Pro™ can automatically check for updates to ensure that you always have the latest version of the program.
- BowTie Pro™ files can be opened just by double clicking on them.
- Ability to add BRF's and SIL levels to a control.

## Diagram Features

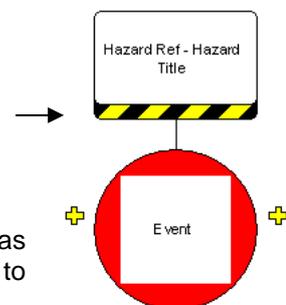
- Real time diagramming: the diagram is central in creating a risk register.
- The size of the diagrams is unlimited.
- Branches of the bow-tie can be expanded and collapsed.
- Risk assessments can be viewed on the diagrams
- The font used on the diagram can be customised to suit.
- The diagram background can be any colour
- The controls are used to tell a story :



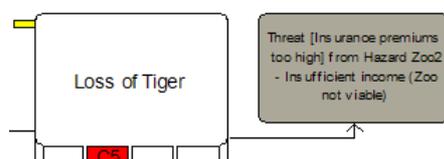
- Controls and tasks can be fully defined easily and quickly:



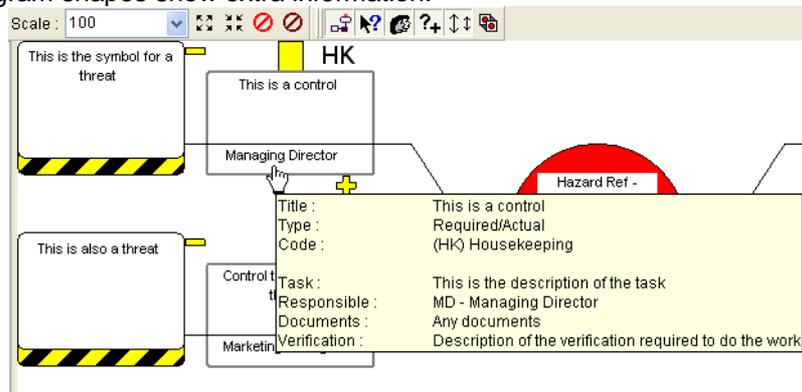
- Items can expand to the height of the text so that you can see all the full details.
- Reorder your items using drag and drop.
- The objects can all have a unique code
- Hazard and Events can be shown together or separately (as shown)



- Cascading bowties can be displayed allowing a consequence to be identified as the cause of a treat in another bowtie. By clicking on the link it is possible to navigate to the item on the other bowtie.



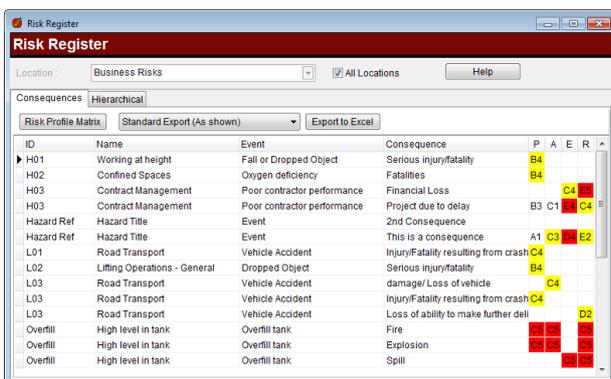
- The overview screen shows a scaled down version of the entire diagram with the visible section highlighted.
- Tool tips on diagram shapes show extra information.



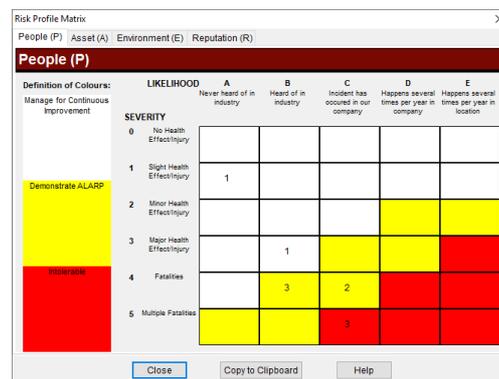
- There's an option to collapse all threats to the control to quickly remove clutter from the diagram and see the main structure more clearly.

## Analysis using BowTie Pro™

- Risk Profiling allows an interactive version of the hazard register to be analysed and modified on the screen.
- Risk Profiling Matrix allows the user to see how the risks have been assessed and how many times each item has been used.

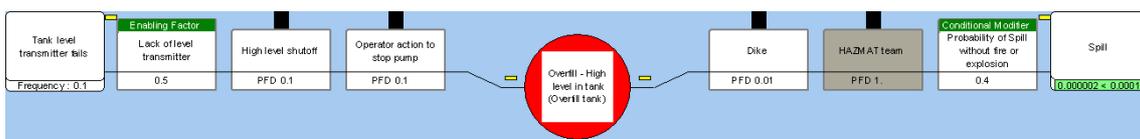


ID	Name	Event	Consequence	P	A	E	R
H01	Working at height	Fall or Dropped Object	Serious injury/fatality	B4			
H02	Confined Spaces	Oxygen deficiency	Fatalities	B4			
H03	Contract Management	Poor contractor performance	Financial Loss		C4	E3	
H03	Contract Management	Poor contractor performance	Project due to delay	B3	C1		C4
Hazard Ref	Hazard Title	Event	2nd Consequence				
Hazard Ref	Hazard Title	Event	This is a consequence	A1	C3	E2	
L01	Road Transport	Vehicle Accident	Injury/Fatality resulting from crash		C4		
L02	Lifting Operations - General	Dropped Object	Serious injury/fatality		B4		
L03	Road Transport	Vehicle Accident	damage/ Loss of vehicle		C4		
L03	Road Transport	Vehicle Accident	Injury/Fatality resulting from crash		C4		
L03	Road Transport	Vehicle Accident	Loss of ability to make further deli				D2
Overfill	High level in tank	Overfill tank	Fire		C3	C3	
Overfill	High level in tank	Overfill tank	Explosion		C3	C3	
Overfill	High level in tank	Overfill tank	Spill				C3



LIKELIHOOD	A	B	C	D	E
0 No Health Effect/Injury					
1 Slight Health Effect/Injury	1				
2 Minor Health Effect/Injury					
3 Major Health Effect/Injury		1			
4 Fatalities		3	2		
5 Multiple Fatalities			3		

- Critical Task Listings allows the visibility, filtering and use of tasks in an easy to use screen across a BowTie Pro™ file.
- The People Matrix displays responsibilities for items across a BowTie Pro™ file.
- Deficiency Analysis allows a range of functions to analyse any deficiencies identified when creating a diagram.
- The Quality Check module ensures that the data is relevant based on various criteria
- The Layers of Protection allow a numerical analysis of each strand of a BowTie Pro™ diagram.
- The layers of protection can have their own diagrams



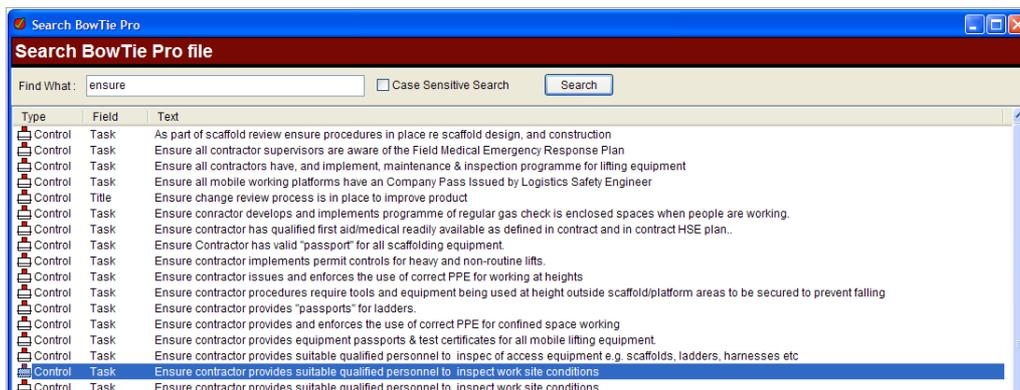
- The Document Matrix shows where a reference document is used within a BowTie Pro™ file.



- The Permitted Operations and Permitted boundary operations modules allows the creation of a matrix based on various criteria similar. This allows the creation of the Manual of Permitted Operation (MOPO).



- File Searching searches for all instances of a word within the current BowTie Pro™ file. These can easily be edited by double clicking on the item. There is also Report Searching where you search for the text within a report.



## Outputs from BowTie Pro™

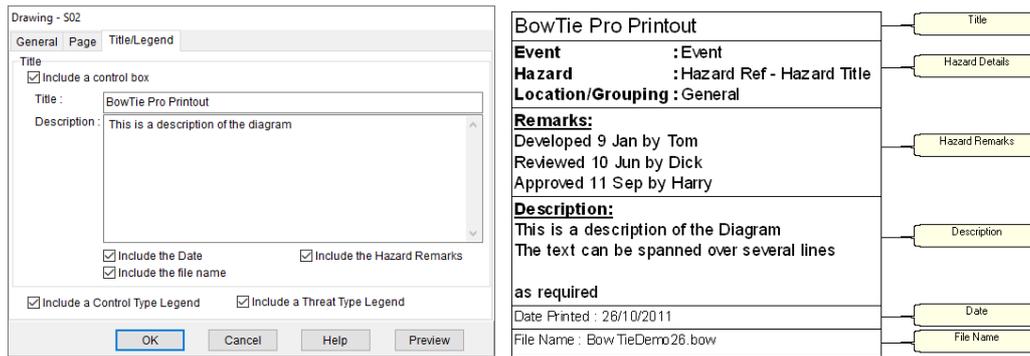
Complete with over 150 different standard reports.

The diagram can be output to multiple formats. These include:

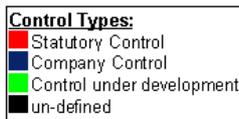
- ✓ Printer and plotters
- ✓ Graphics file in one of many formats i.e. jpg, gif, bmp, png, emf and tiff.
- ✓ Copied to the clipboard as an image.

Options to allow you to fit to one or many pages and centre the diagram both horizontally and/or vertically on the page when you print the diagram.

Titles and Legends allow a control box to be added to the diagrams. The control box allows many configurable options about the current file



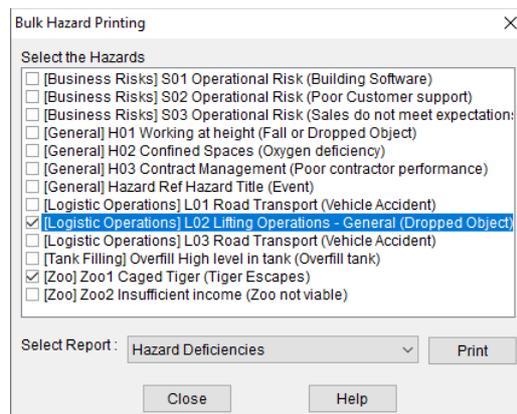
Ability to add a threat types and control types legend to the bottom of the diagram. This gives definition to the colours used on the output.



Reports. There is a wide range of reports in BowTie Pro™ eg

- ✓ Hazard, Deficiency and usage reports such as the critical task listing report.
- ✓ Quality checks: check the completeness of the case file.
- ✓ Export to a wide range of formats including PDF, Excel and Word compatible formats

Bulk Hazard Printing allows a report to be output for many hazards at a time. This is particularly useful at the end of a project.



There are various export options allowing the export of both diagrams and the data behind the diagrams to a range of formats, such as:

- HTML
- Excel
- Microsoft Word
- PowerPoint

Data can be transferred in and out of BowTie Pro™ by various mean including:

- Combine different BowTie Pro™ files together by importing bowties and other data

BowTie Pro™ has an easy to use install for further details contact us at [enquiries@BowTiePro.com](mailto:enquiries@BowTiePro.com)