



# BowTie XP

# Advanced

visual risk assessment



**CGE**

**Risk Management Solutions**

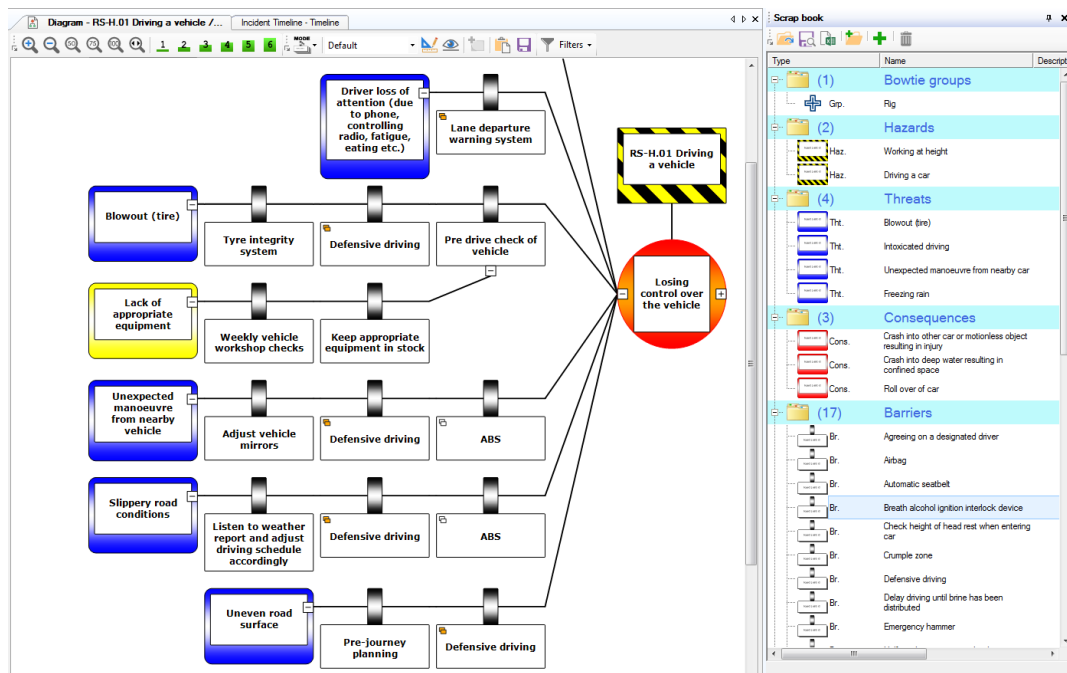
Making risk understandable



# Extra Features

## 1 Scrapbook

The scrapbook allows bowtie items to be collected for quickly building or expanding a bowtie. From single barriers to complete threat lines and even hazards with all associated information. Pieces of bowtie can be dragged to quickly create a new diagram. The information is gathered from a variety of places, such as Excel or manual input. From there it can be saved into a file, separate from the case file, in order to build bowtie registers.



## 2 Advanced filter

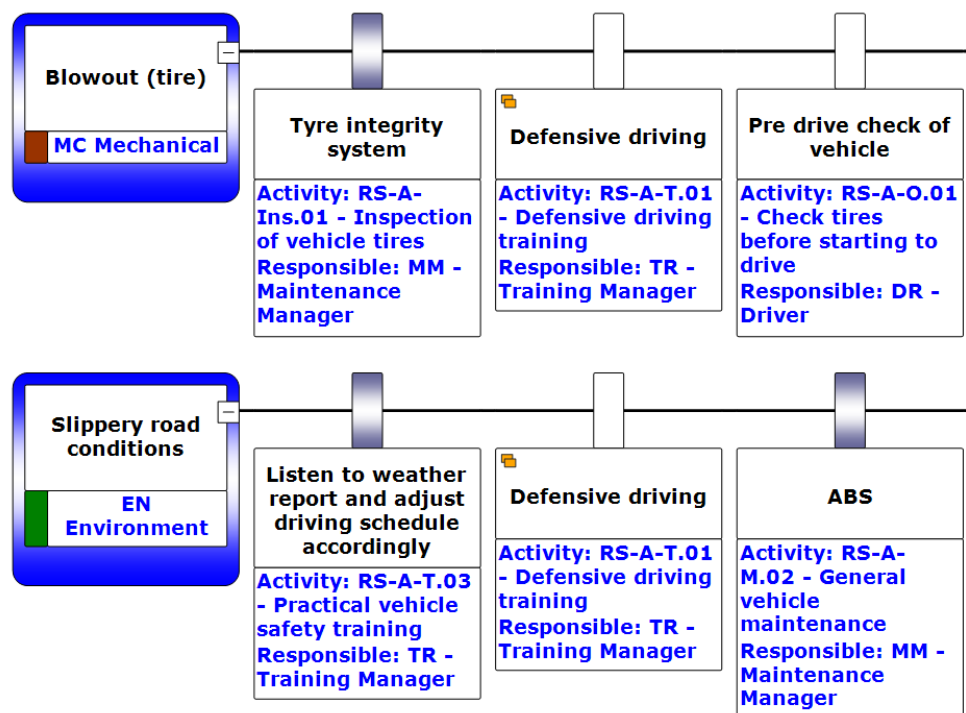
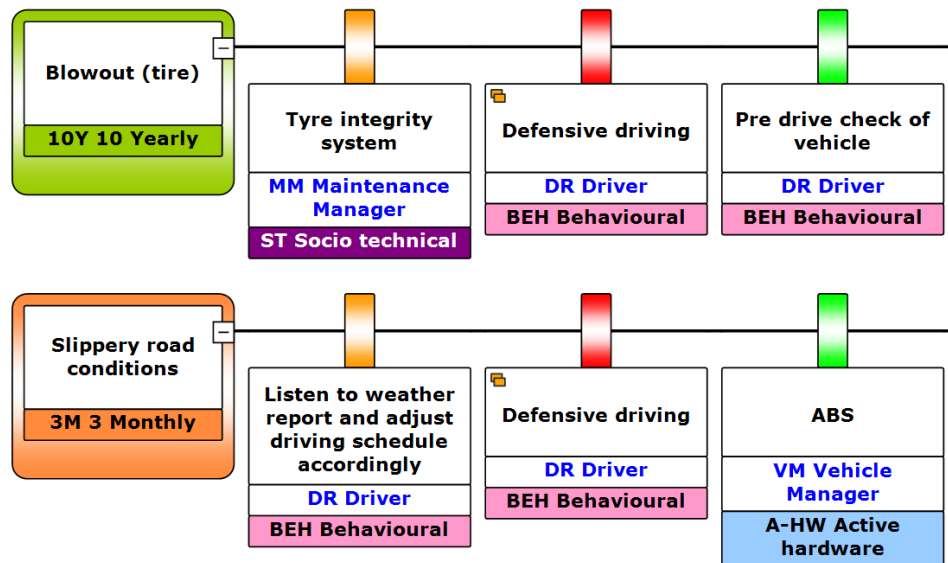
Filtering a bowtie on multiple criteria is possible with the advanced filter. So whether you would like to find out how many barriers belong to a certain job title, or to visualize only those critical improvement actions that belong to hardware barriers, it can be done using BowTieXP Advanced.





### 3 Diagram display profiles

Diagram display profiles can now be saved and used to quickly change the layout of the bowtie diagram.



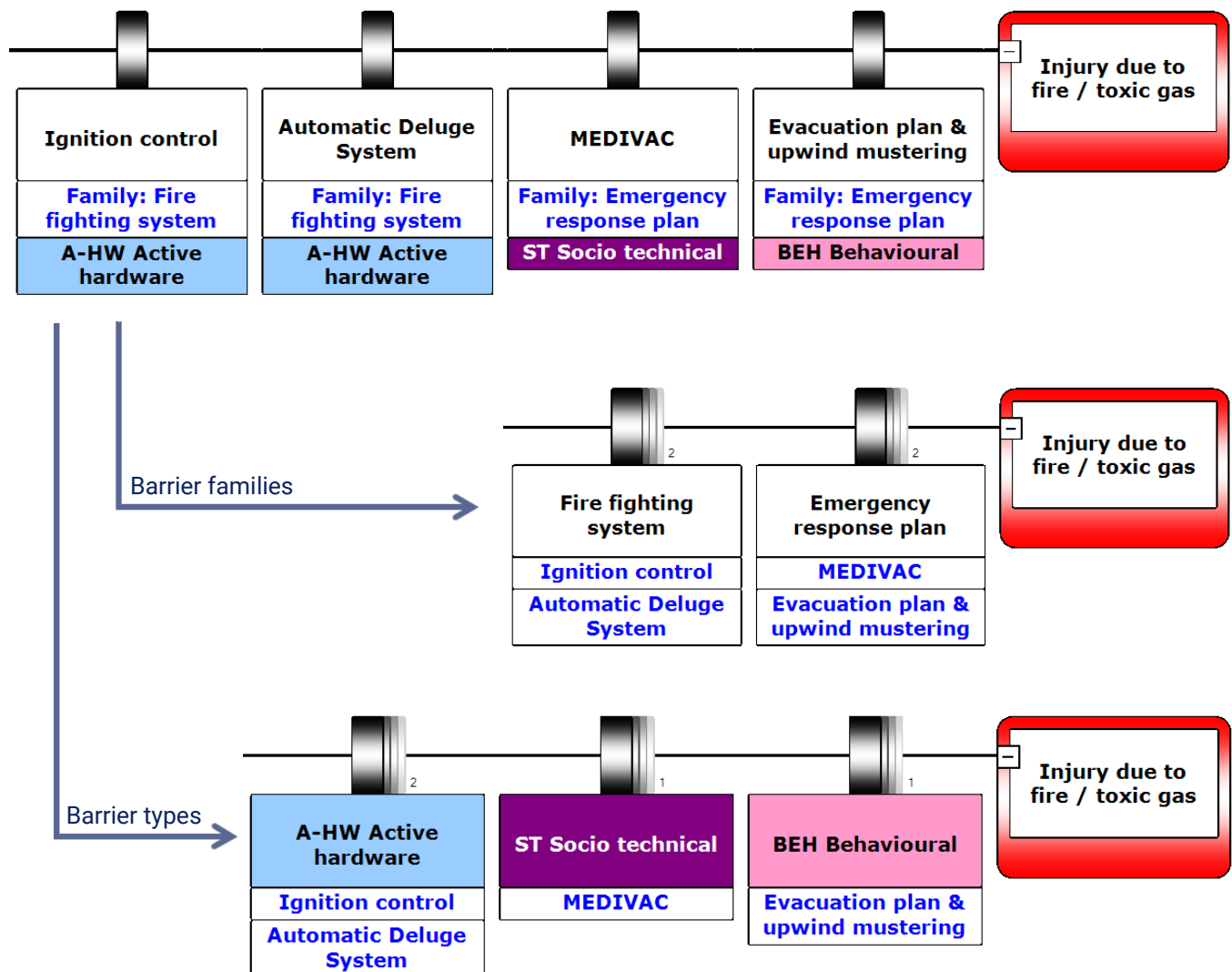


# Extra Features

## 4 Barrier families

This feature allows you to group barriers per threat or consequence line based on their common values. Do you quickly want to see whether at least two different persons are accountable for barriers on a threat line? Or do you want to focus on the distribution of your barrier types?

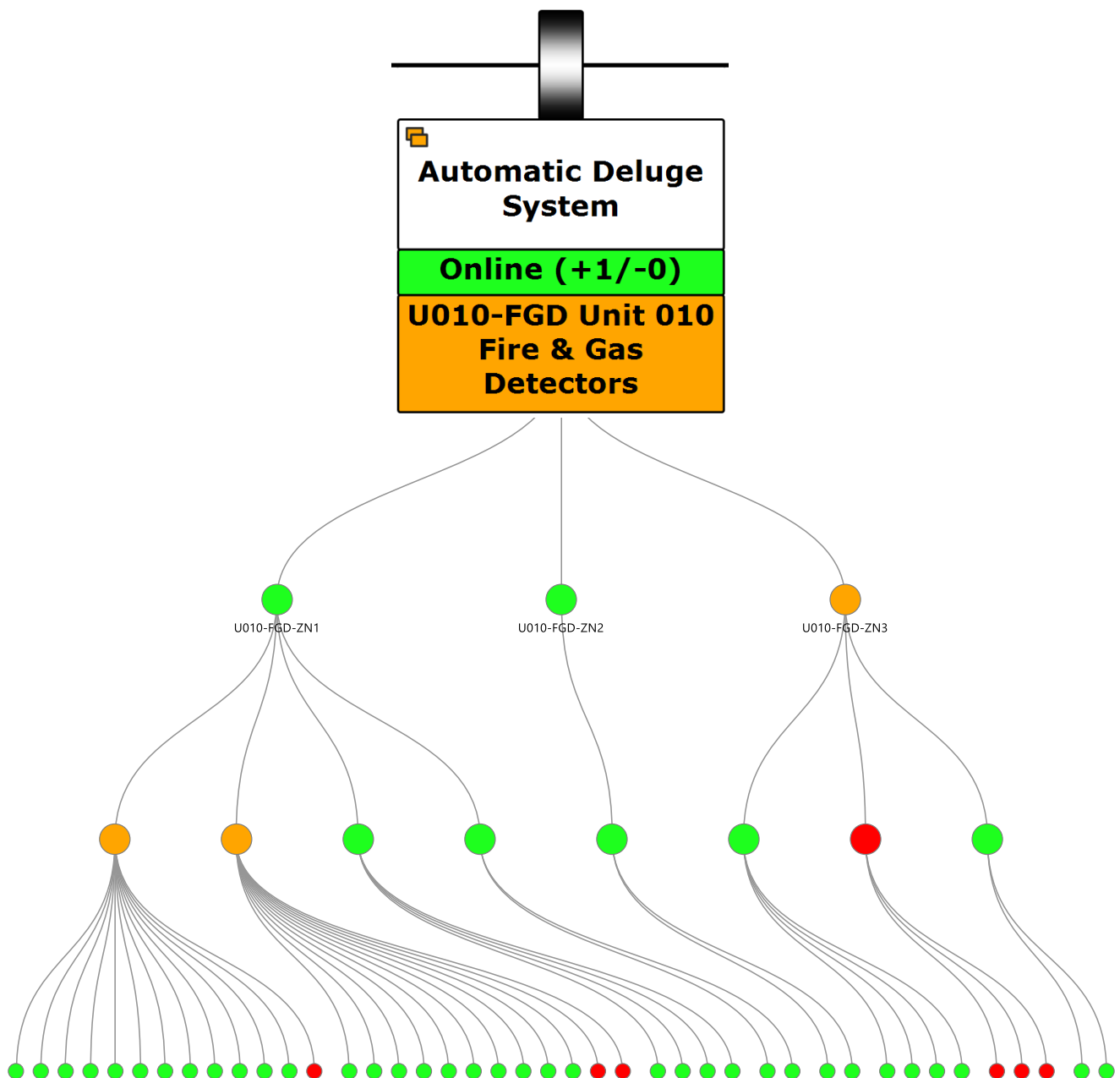
This feature introduces an extra variable on your barrier: barrier families. Barrier families can be used as independent barrier name, while the 'normal' barriers can be used as more specific (not independent) barrier elements. This improves communication of bowties to different stakeholders.





## 5 Link barriers to your maintenance data

The maintenance status of your equipment / parts can now be linked to your barriers. Barriers will automatically switch from online to offline (or visa versa) when the online / offline status of the parts is changed. Via self-defined online criteria you can make decisions how many parts may be offline to keep the "parent-element" online.

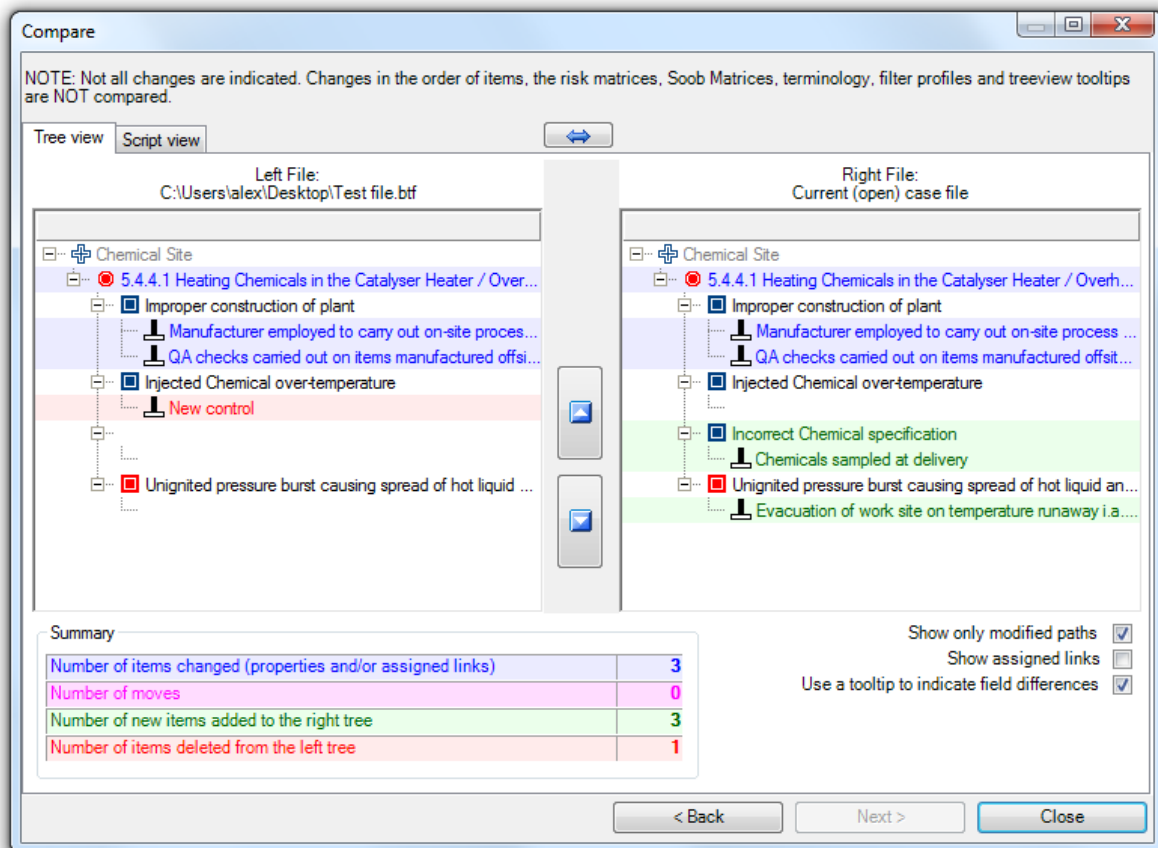




# Extra Features

## 6 File and tree comparison

On many occasions you want to find out what your colleague changed in the latest revision of the case file. Do you need to see what the differences are between two versions of the same case file in your document management system? Then compare the files side by side, see the differences visually or generate a report of these changes. You can do it all with the file compare function in BowTieXP Advanced.







## 7 SOOB Matrices

The Summary of Operation Boundaries Matrix is a record of operations used to determine under which circumstances extra caution should be taken or work should no longer be allowed to proceed. This is to help the decision process of whether to proceed with operations when encountering suboptimal conditions. The matrix gives you three different overviews:

- The first tells you which operations can be performed simultaneously.
- The second tells you which operations you can perform, with a control under reduced effectiveness.
- The third provides an overview of which operations you can perform given that there are certain operational risk factors, such as heavy wind or rain.

These three views can be combined or isolated, and both give you an operational map of what you can and cannot do under certain conditions.

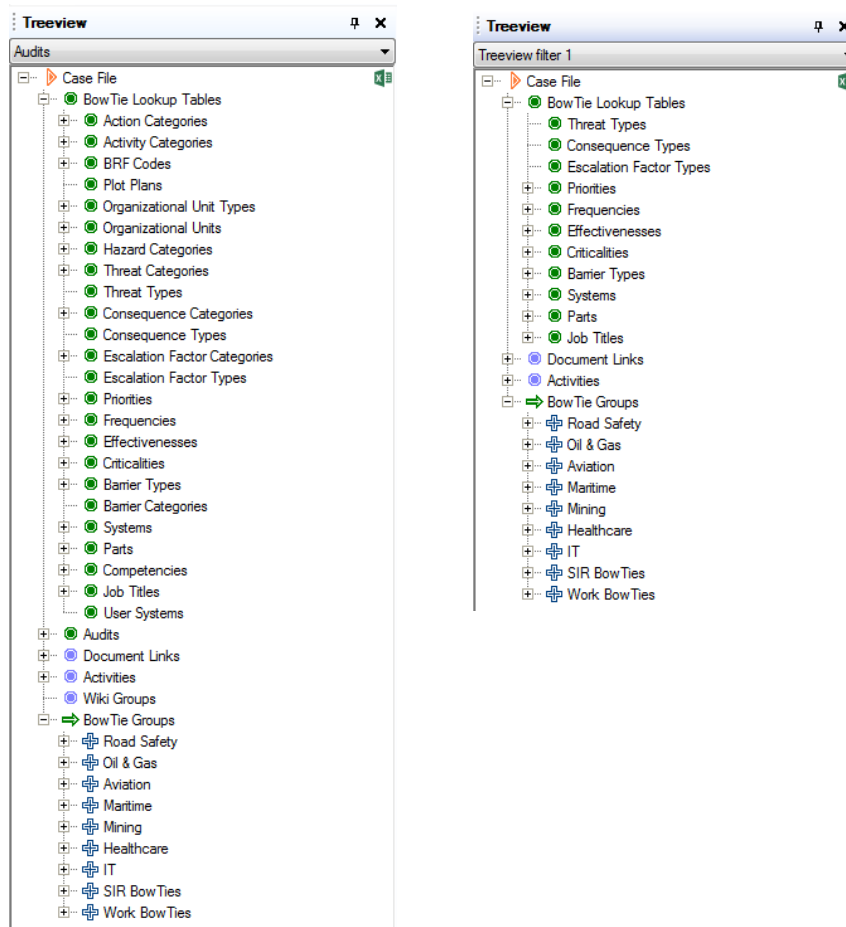
	Operation A	Operation B	Operation C	Operation D
<b>Matrix One One</b>				
<b>Operations</b>				
Op. Operation A	Do n...			Autho...
Op. Operation B	Do n...			Autho...
Op. Operation C				Autho...
Op. Operation D	Autho...	Autho...	Autho...	
<b>Controls Under Reduced Effectiveness</b>				
<b>Loc. Chemical Site</b>				
<b>Haz. 5.4.4.1 Heating Chemicals in the...</b>				
<b>Th. Inadequate design of plant</b>				
Ctl. Main elements of plant designed by...	Autho...			
Ctl. Design (including Company aspects...	Autho...			
Ctl. Design subjected to HAZOP review	Autho...			
Ctl. System materials appropriate for ch...	Autho...			
<b>Th. Improper construction of plant</b>				
Ctl. Manufacturer employed to carry out...	Do n...			
Ctl. No high pressure on-site pipe weldi...	Do n...			
Ctl. QA checks carried out on items ma...	Do n...			
Ctl. On-site welds (on Company provide...	Do n...			
<b>Th. Improper operation of plant</b>				
Ctl. Plant operating and training manual...	Proce...			
Ctl. Reactor operated to Operating Man...	Proce...			
<b>Esc. Training material and Compete...</b>				
Ctl. Training material being produ...				
Ctl. Competency to be assessed ...				



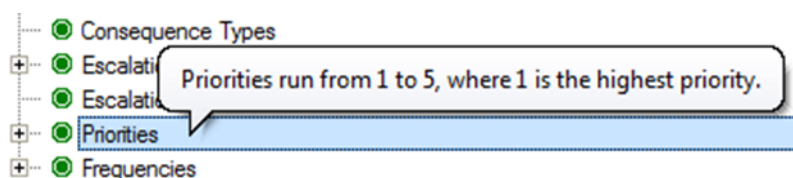
# Extra Features

## 8 Treeview Filtering & Tooltips

The treeview contains every available option for adding data into BowTieXP, some of which you will never use and some which you will only use during certain phases of bowtie building. You can make the treeview a lot more compact by temporarily hiding these collections and objects by means of the Treeview filter profiles.



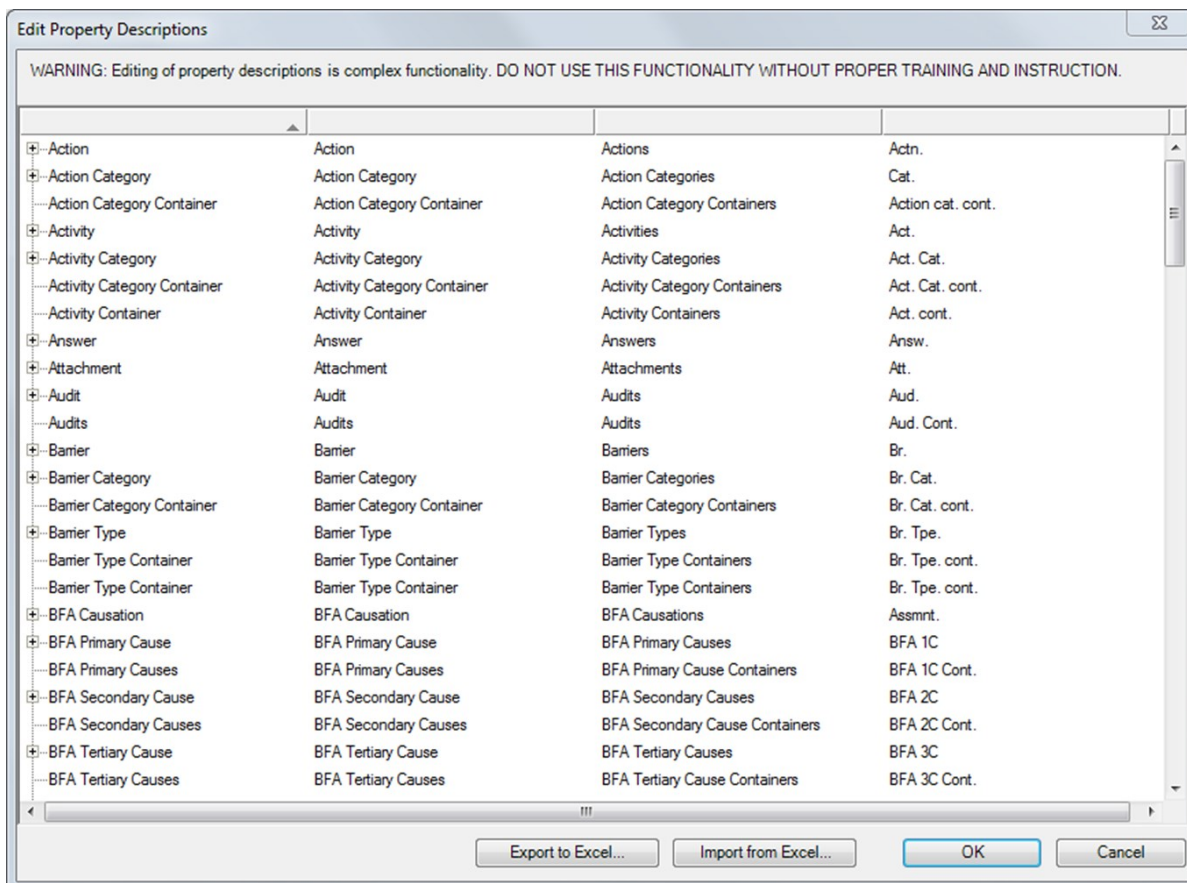
Tooltips can be used to explain what an item in the treeview is supposed to be used for.





## 9 Custom terminology

Each case file contains a large table containing the names of all object types and their properties present within BowTieXP. This allows customers to make adjustments to terminology and allows them to tailor-fit the software to their organization. For example, you could rename controls to barriers.





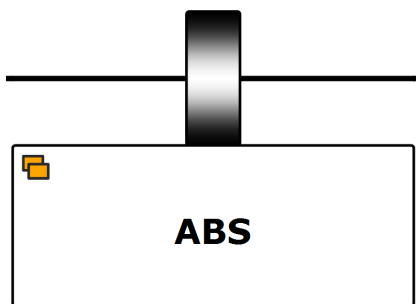
# Enhancements in editing your data

## 10 Copy and paste between multiple files

Similar to importing data from a case file, there is also another way of copying data. You can simply use copy and paste to import all kinds of entities between bowtie files.

## 11 Automatic grouping

You can now edit every bowtie element with the same name at the same time instead of going through all of them individually. Elements will be automatically grouped by name and/or code. Click on the group edit button on any barrier (or any other element) that appears more than once, and you'll be able to change values for all of them simultaneously.



A screenshot of the 'Edit 2 Barriers' dialog box in the BowTie XP software. The dialog box has a title bar 'Edit 2 Barriers' and a close button. It contains several tabs: General, Online Criteria, Performance, User Data, Lopa, Systems, Activities, User Systems, Questions, Document Links, and Aud. The 'General' tab is selected. The fields are as follows:

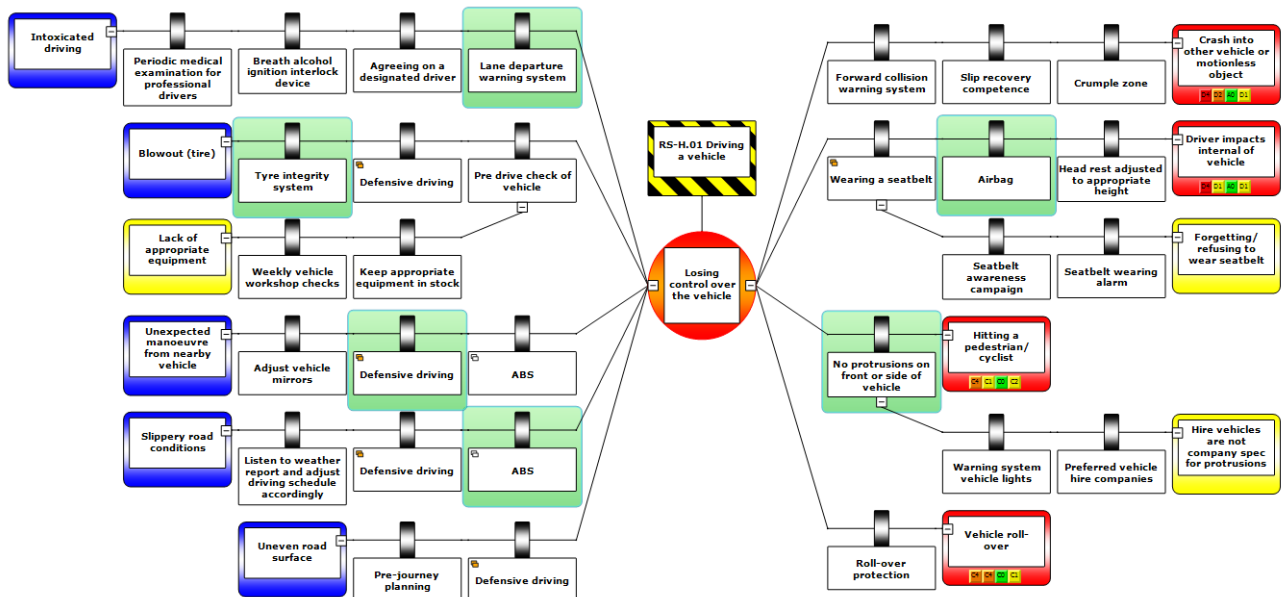
- Code: (empty)
- Name: ABS
- Description: Anti-lock Braking System
- Family: (empty)
- Barrier Category: <No Value Assigned>
- Barrier type: Active hardware
- Effectiveness: Good
- Accountable: Vehicle Manager
- BRF code: <No Value Assigned>
- Criticality: Highly Critical
- Equivalent Top Event: <NULL> /

At the bottom, there is a checkbox 'Acceptance criteria have been met' and a 'View Criteria...' button. A status bar at the bottom indicates '2 Barriers group selected'.



## 12 Multi select

You can select multiple bowtie elements (Ctrl + click). This allows you to change values for all of them simultaneously.



Edit 6 Barriers

General Online Criteria Performance User Data Lopa Systems Activities User Systems Questions Document Links Aud 1

Code:

Name:

Description:

[\(edit in popup\)](#)

Family:

Barrier Category:

Barrier type:

Effectiveness:

Accountable:

BRF code:

Criticality:

Equivalent Top Event:

☐ Acceptance criteria have been met

6 Barriers selected

Edit list

Grp. Road Safety		Name
Haz. RS-H.01 Driving a vehicle / Losing control over the vehi...		
Threat	Slippery road conditions	
Barrier	Br. ABS	ABS
Threat	Unexpected manoeuvre from nearby vehicle	
Barrier	Br. Defensive driving	Defensive driving
Threat	Blowout (tire)	
Barrier	Br. Tyre integrity system	Tyre integrity system
Threat	Intoxicated driving	
Barrier	Br. Lane departure warning system	Lane departure warning system
Consequence	Driver impacts internal of vehicle	
Barrier	Br. Airbag	Airbag
Consequence	Hitting a pedestrian/ cyclist	
Barrier	Br. No protrusions on front or side of vehicle	No protrusions on front or side of vehicle

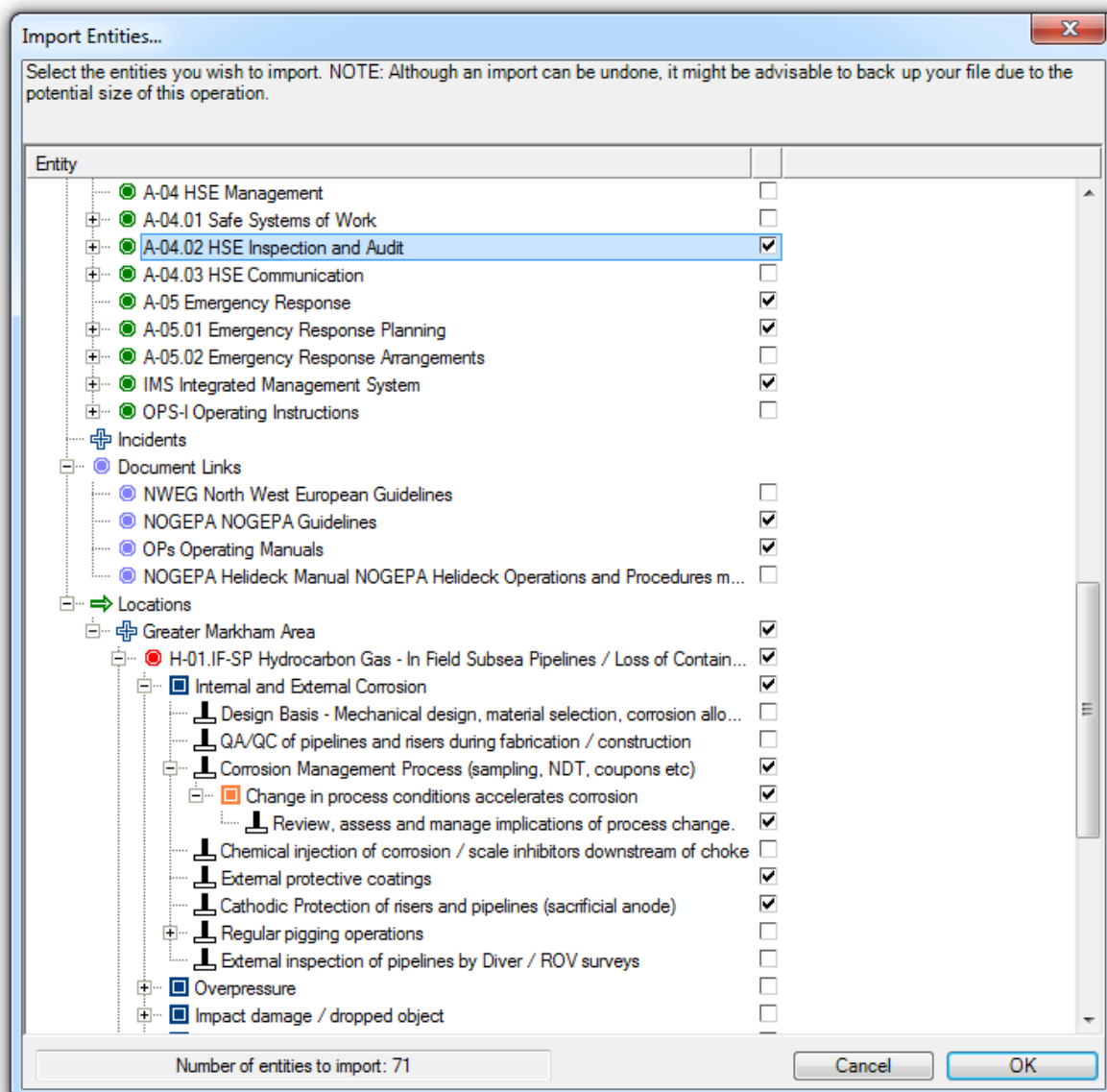
Close



# Enhancements in editing your data

## 13 Full import from other BowTieXP case files

BowTieXP Standard edition is limited to importing the diagrams only, and cannot import

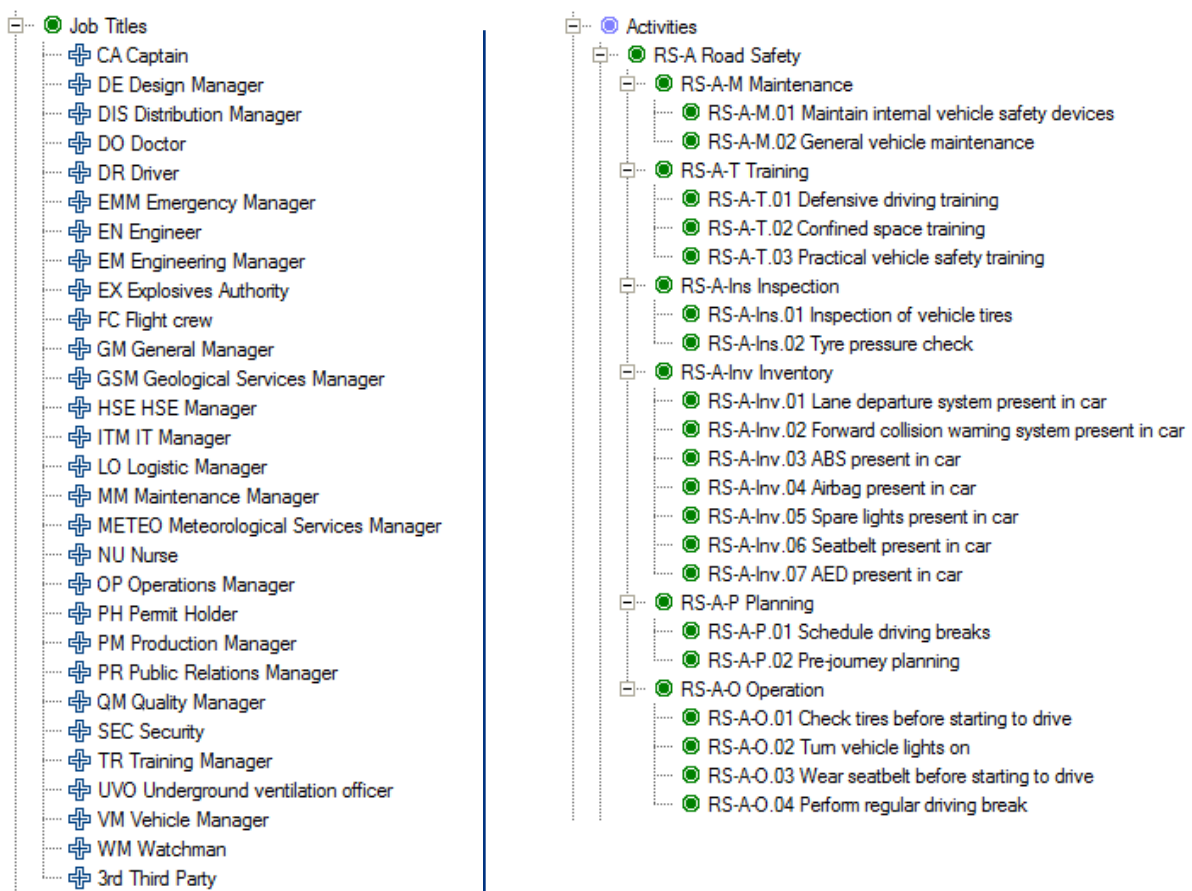






## 14 Import from Excel files

Having to enter your whole management system one activity at a time can be a time consuming effort. BowTieXP Advanced allows you to import Excel sheets to be able to copy in entire lookup tables and quickly populate your case file.





# Improvements to get extra insight into your case files

## 15 Extra Reports

To accommodate the extra information you can input in Advanced, and to gain some more complex insights into your data, the Advanced edition has a number of extra reports: twelve extra reports:

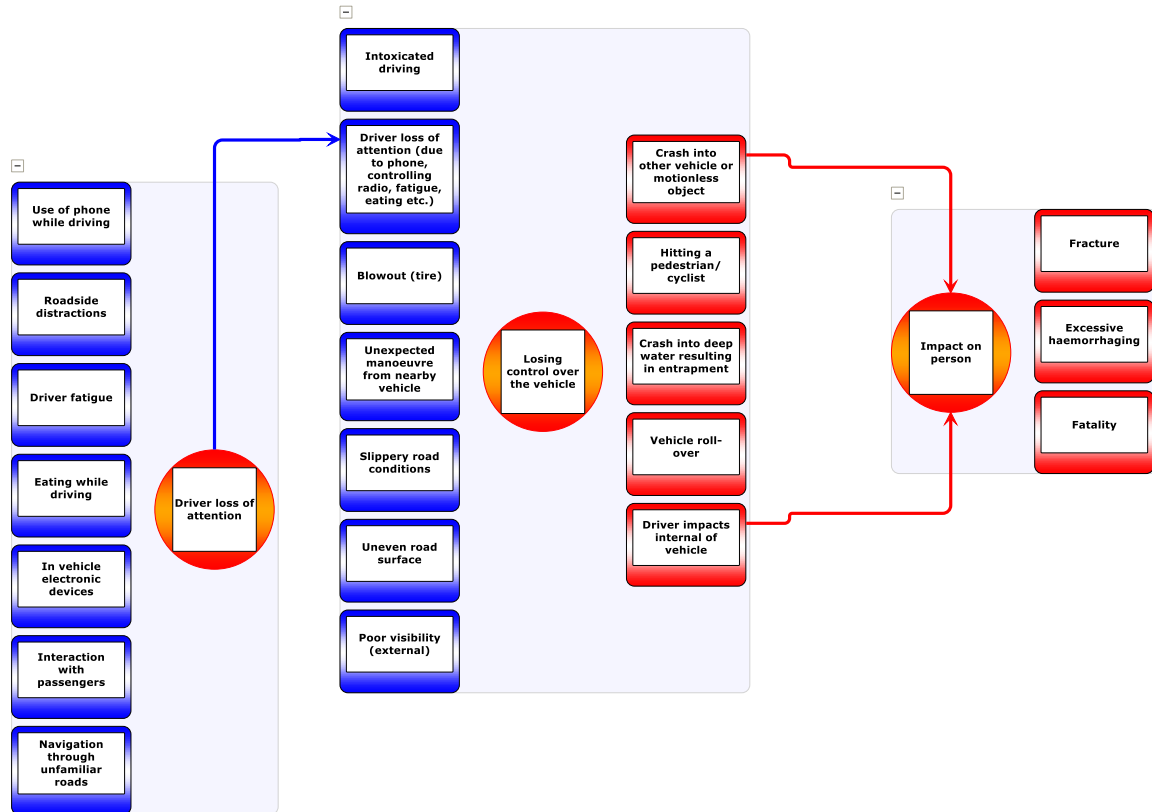
- Activities linked to controls as hierarchical list
- Activities linked to controls as hierarchical list - filtered
- Activities of a specific operation grouped by activity. Responsible (short version)
- Activities of a specific operation grouped by activity. Responsible (long version)
- Required competencies for a specific operation, grouped by activity. Responsible
- Hazard register complete
- Traditional hazard register
- Hazard register without activities
- Bowtie register report for data export
- Operations overview
- Bowtie report from template
- Systems linked to barriers

	A	B	C	D	E	F	G	H	I
2	Hazard	RS-H.01 Driving a vehicle							
3	Top event	Losing control over the vehicle							
4	Inherent	Residual							
5	[D4]	B4	People						
6	[D2]	D2	Assets						
7	[A0]	A0	Environment						
8	[D1]	C1	Reputation						
9									
10	Intoxicated driving								HF Human Factors
11	Barriers & Escalation Factors		Crit.	Barrier type	Eff.	Br. Cat.	Family	Accountable	Activities
12	Periodic medical examination for professional drivers		Medium Critical	BEH Behavioural	Good			Doctor	
13	Breath alcohol ignition interlock device		Highly Critical	A-HW Active hardware	Very Good			Engineer	• RS-A-M.02 General vehicle maintenance
14	Agreeing on a designated driver		Medium Critical	BEH Behavioural	Unknown			Driver	• RS-A-T.03 Practical vehicle safety training
15	Lane departure warning system		Medium Critical	A-HW Active hardware	Good			Engineer	• RS-A-Inv.01 Lane departure system present in car
16									
17	Driver loss of attention (due to phone, controlling radio, fatigue, eating etc.)								HF Human Factors
18	Barriers & Escalation Factors		Crit.	Barrier type	Eff.	Br. Cat.	Family	Accountable	Activities
19	Lane departure warning system		Highly Critical	A-HW Active hardware	Good			Engineer	• RS-A-Inv.01 Lane departure system present in car



## 16 Relationship models

The relationship diagram can draw many different diagrams based in the data you have entered into your case file, visualizing the relationships between the data. For example, controls can be assigned activities, and activities have responsible persons. How do the responsible persons relate to the different hazards via the controls and activities defined? Or how are different bowtie diagrams linked to each other?



## 17 Case File Overview Extras

The Case File Overview has two extra perspectives:

- "Operations". The operations overview shows all operations which exist and where they are referenced.
- "Management System (activities, controls, hazard categories)". This overview shows a powerful alternate view of all defined activities, which allows you to drill down and see to which controls they are assigned, and to drill down into the controls' parents all the way up to the hazard. A cumulative overview of the hazard categories is also shown.



# Contact

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