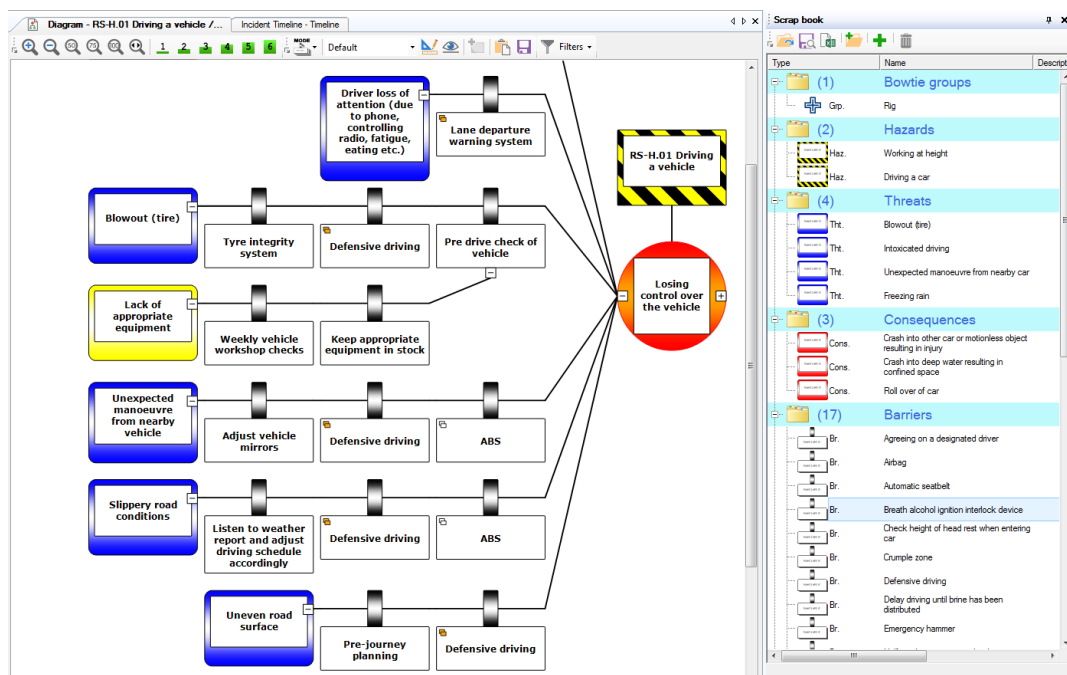# BowTie XP

visual risk assessment

Advanced

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.
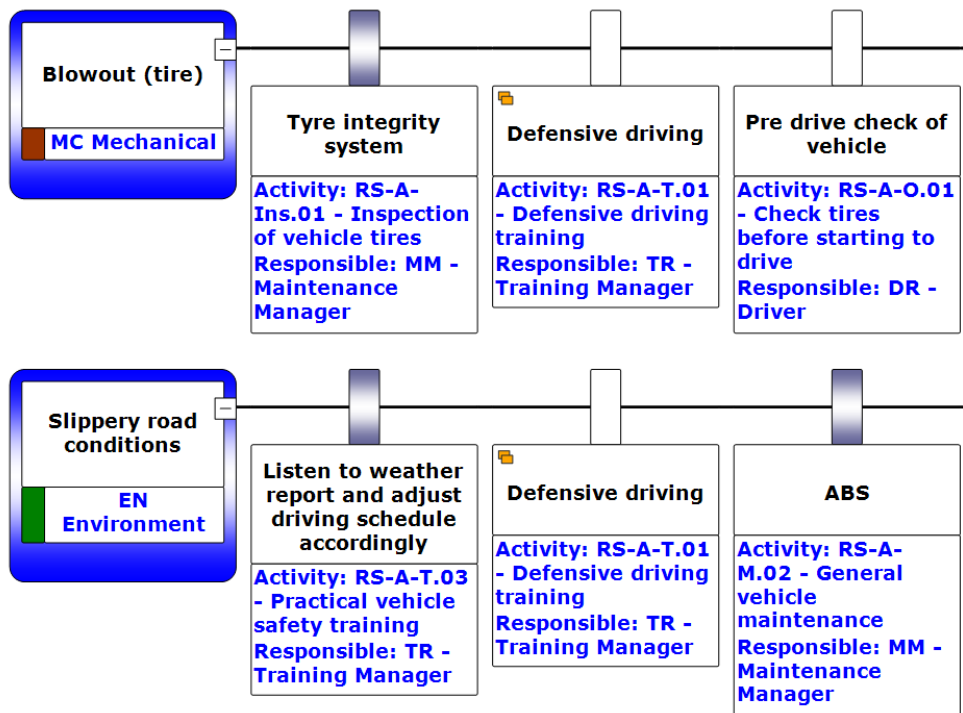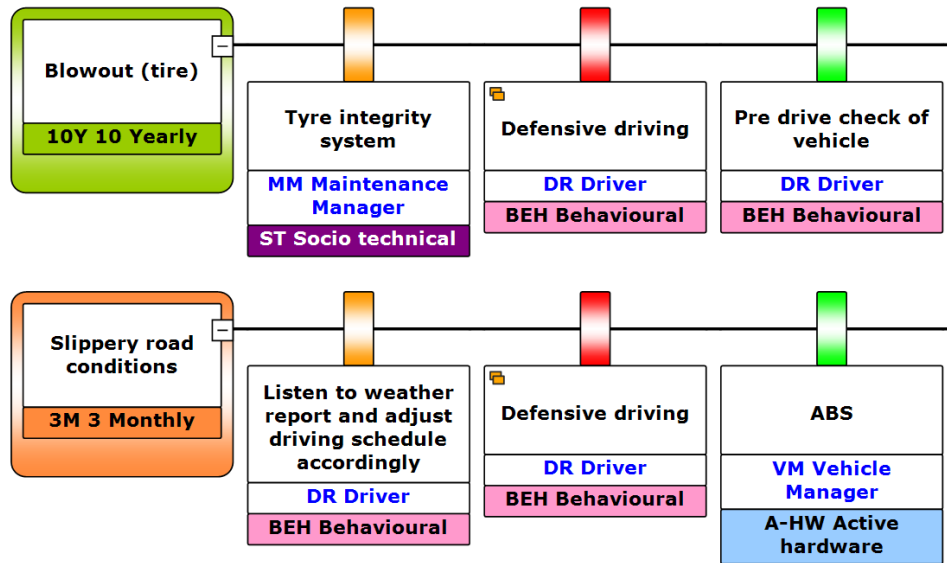

2 Advanced filter

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.

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3 Diagram display profiles

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

Profile 1

Blowout (tire)
10Y 10 Yearly

Tyre integrity system	Defensive driving	Pre drive check of vehicle
MM Maintenance Manager	**DR Driver**	**DR Driver**
ST Socio technical	BEH Behavioural	BEH Behavioural

Slippery road conditions
3M 3 Monthly

Listen to weather report and adjust driving schedule accordingly	Defensive driving	ABS
DR Driver	**DR Driver**	**VM Vehicle Manager**
BEH Behavioural	BEH Behavioural	A-HW Active hardware

Profile 2

Blowout (tire)
MC Mechanical

Tyre integrity system	Defensive driving	Pre drive check of vehicle
Activity: RS-A-Ins.01 – Inspection of vehicle tires Responsible: MM - Maintenance Manager	**Activity: RS-A-T.01 - Defensive driving training Responsible: TR - Training Manager**	**Activity: RS-A-O.01 - Check tires before starting to drive Responsible: DR - Driver**

Slippery road conditions
EN Environment

Listen to weather report and adjust driving schedule accordingly	Defensive driving	ABS
Activity: RS-A-T.03 - Practical vehicle safety training Responsible: TR - Training Manager	**Activity: RS-A-T.01 - Defensive driving training Responsible: TR - Training Manager**	**Activity: RS-A-M.02 - General vehicle maintenance Responsible: MM - Maintenance Manager**

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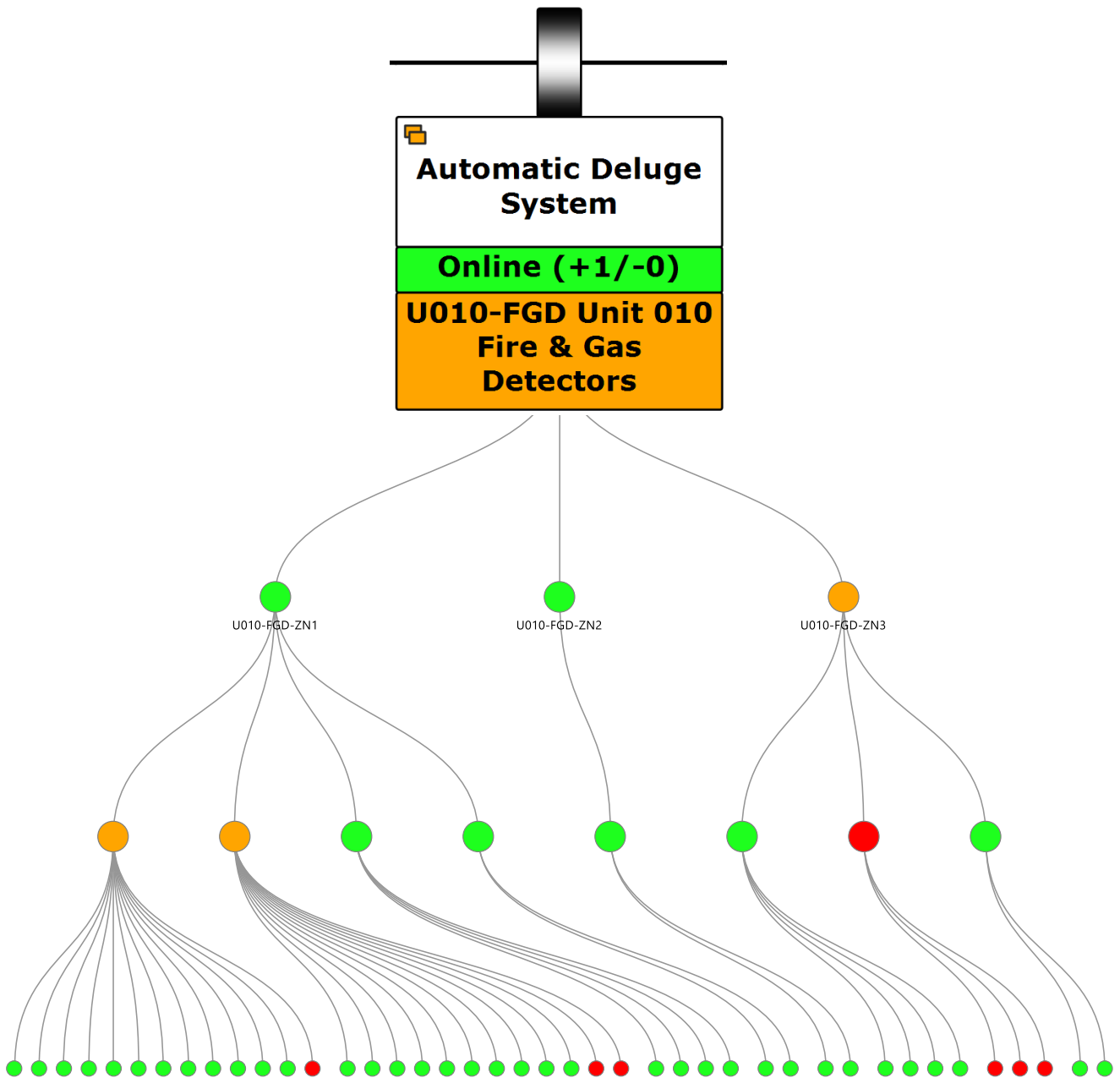
This feature introduces an extra variable on your barrier: barrier families. Barrier families can be used as independent barrier name, while the 'normal' barriers can be used as more specific (not independent) barrier elements. This improves communication of bowties to different stakeholders.
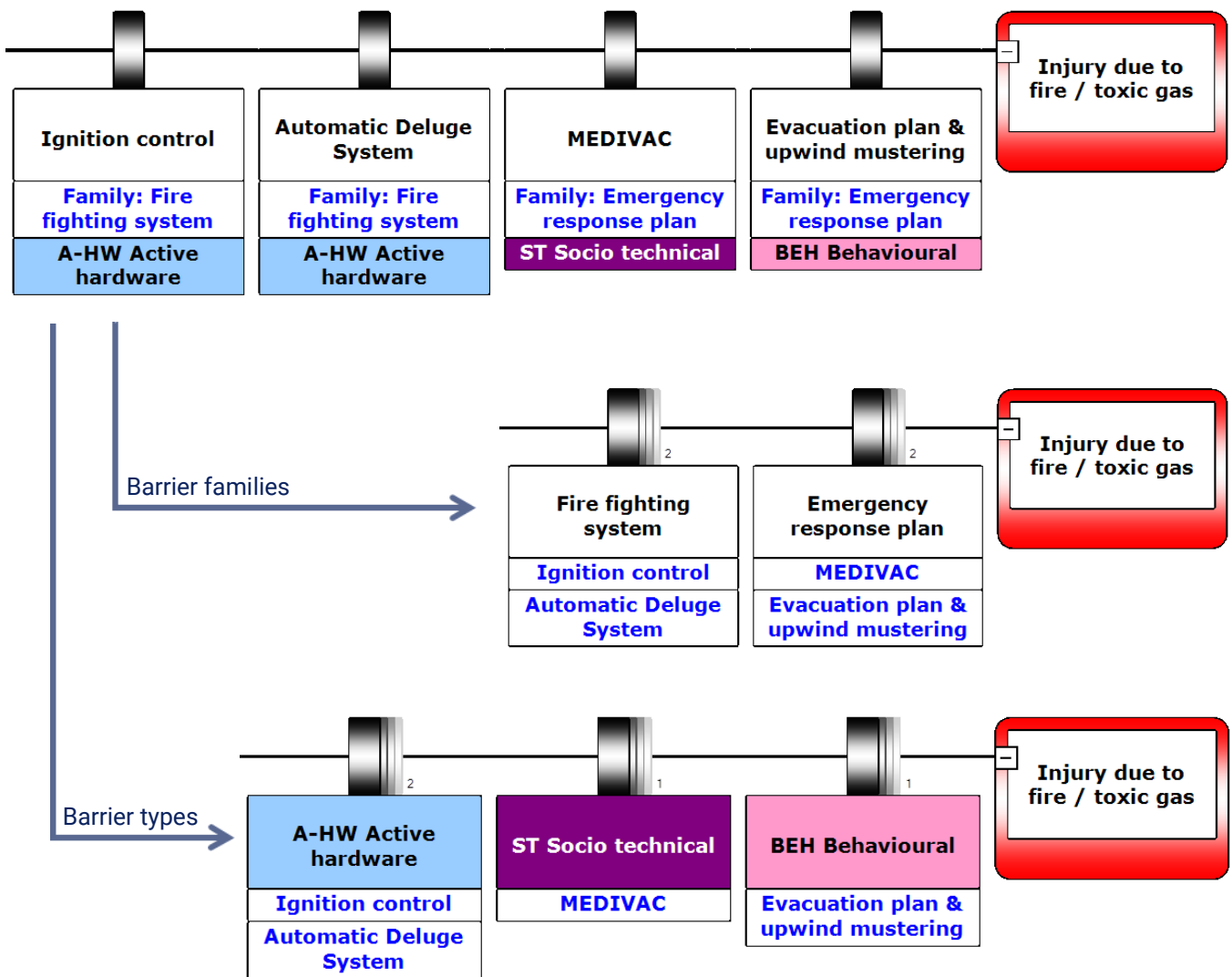
5 Link barriers to your maintenance data

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.

Automatic Deluge System

Online (+1/-0)

U010-FGD Unit 010 Fire & Gas Detectors

U010-FGD-ZN1   U010-FGD-ZN2   U010-FGD-ZN3

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.

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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.
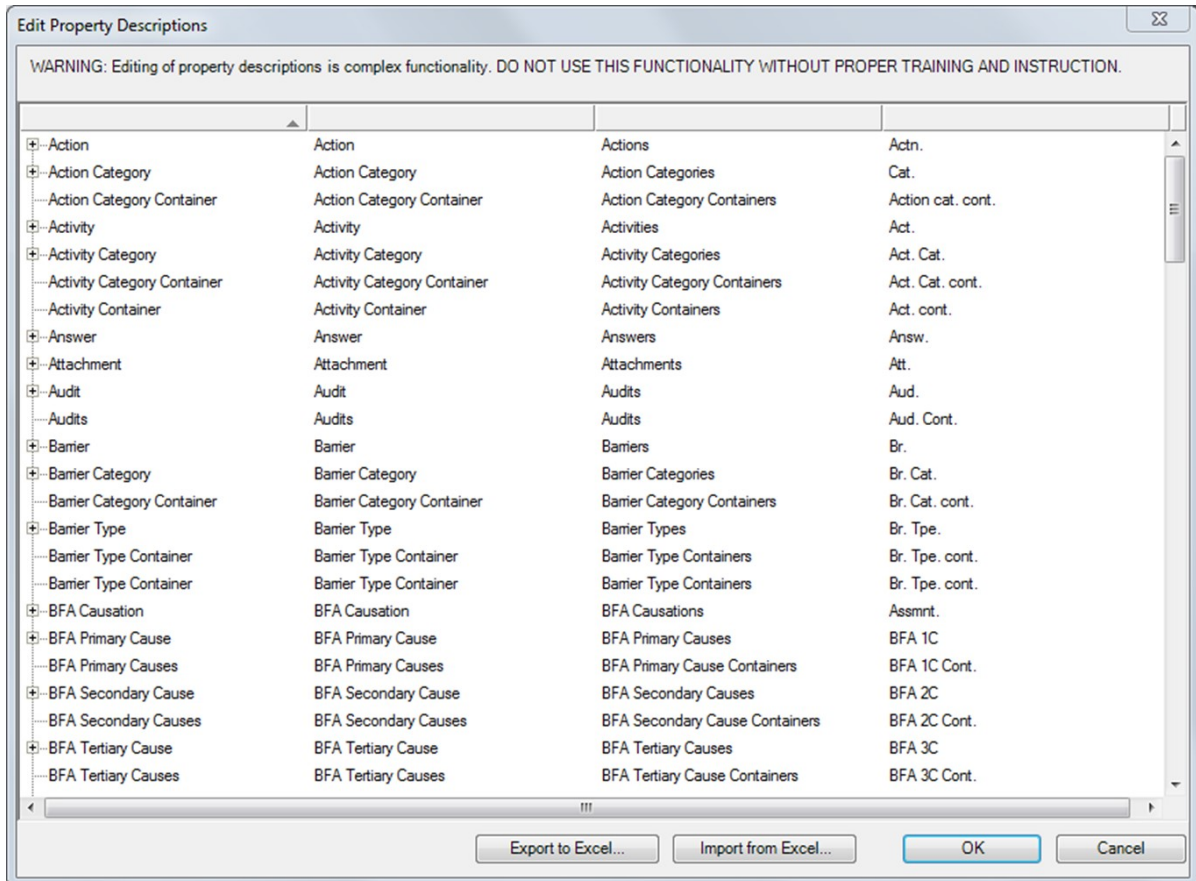
8 Custom terminology

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.

9 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.

Enhancements in editing your data

10 Full import from other BowTieXP case files

BowTieXP Standard edition is limited to importing the diagrams only, and cannot import other details such as assigned responsibilities and activities. The advanced edition allows you to import everything from a case file, including linked information such as activities on barriers and assigned responsibilities.

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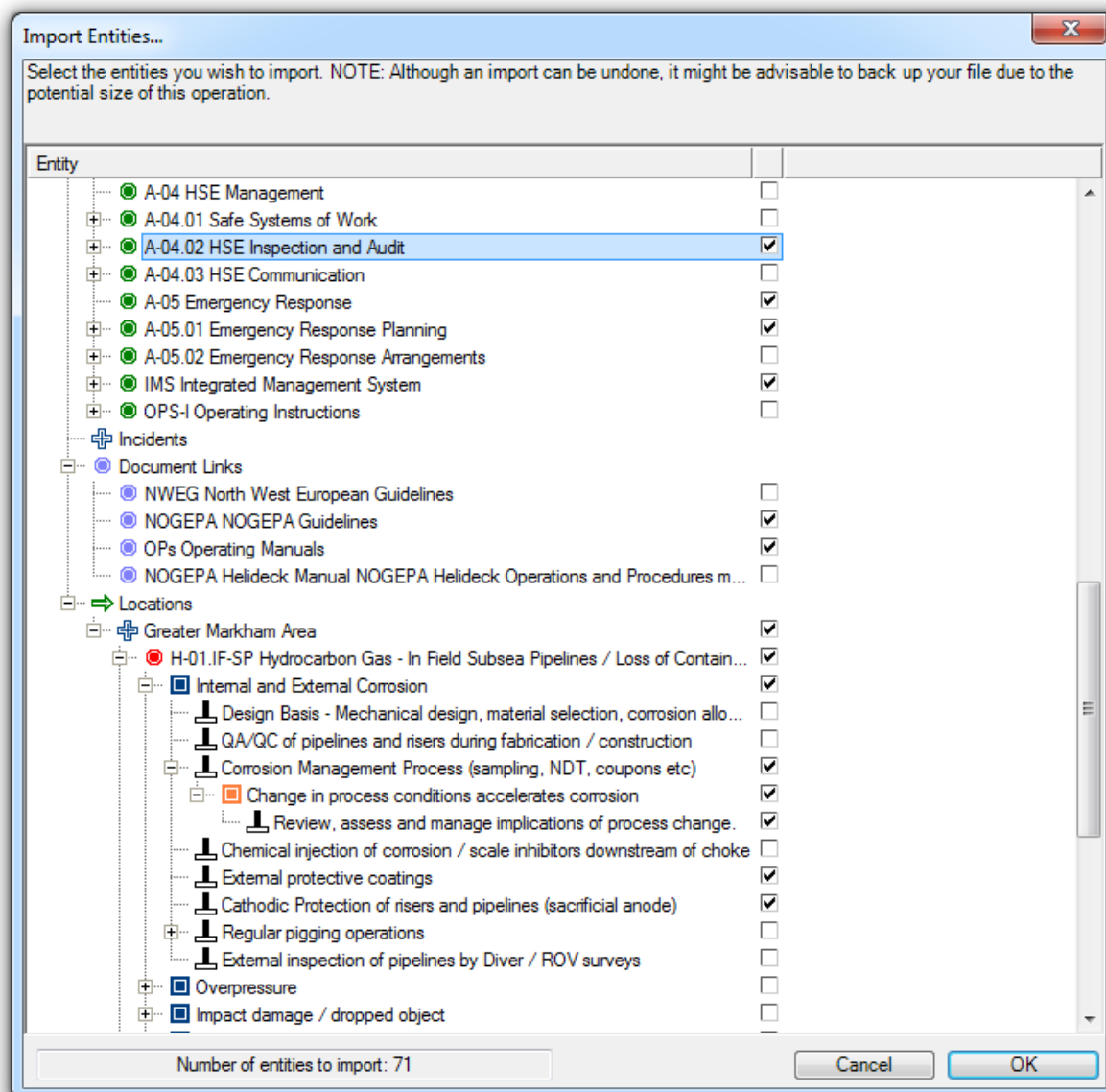
11 Import from Excel files

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.

Job Titles
- CA Captain
- DE Design Manager
- DIS Distribution Manager
- DO Doctor
- DR Driver
- EMM Emergency Manager
- EN Engineer
- EM Engineering Manager
- EX Explosives Authority
- FC Flight crew
- GM General Manager
- GSM Geological Services Manager
- HSE HSE Manager
- ITM IT Manager
- LO Logistic Manager
- MM Maintenance Manager
- METEO Meteorological Services Manager
- NU Nurse
- OP Operations Manager
- PH Permit Holder
- PM Production Manager
- PR Public Relations Manager
- QM Quality Manager
- SEC Security
- TR Training Manager
- UVO Underground ventilation officer
- VM Vehicle Manager
- WM Watchman
- 3rd Third Party

Activities
- RS-A Road Safety
  - RS-A-M Maintenance
    - RS-A-M.01 Maintain internal vehicle safety devices
    - RS-A-M.02 General vehicle maintenance
  - RS-A-T Training
    - RS-A-T.01 Defensive driving training
    - RS-A-T.02 Confined space training
    - RS-A-T.03 Practical vehicle safety training
  - RS-A-Ins Inspection
    - RS-A-Ins.01 Inspection of vehicle tires
    - RS-A-Ins.02 Tyre pressure check
  - RS-A-Inv Inventory
    - RS-A-Inv.01 Lane departure system present in car
    - RS-A-Inv.02 Forward collision warning system present in car
    - RS-A-Inv.03 ABS present in car
    - RS-A-Inv.04 Airbag present in car
    - RS-A-Inv.05 Spare lights present in car
    - RS-A-Inv.06 Seatbelt present in car
    - RS-A-Inv.07 AED present in car
  - RS-A-P Planning
    - RS-A-P.01 Schedule driving breaks
    - RS-A-P.02 Pre-journey planning
  - RS-A-O Operation
    - RS-A-O.01 Check tires before starting to drive
    - RS-A-O.02 Turn vehicle lights on
    - RS-A-O.03 Wear seatbelt before starting to drive
    - RS-A-O.04 Perform regular driving break

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# Improvements to get extra insight into your case files

12 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

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13 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
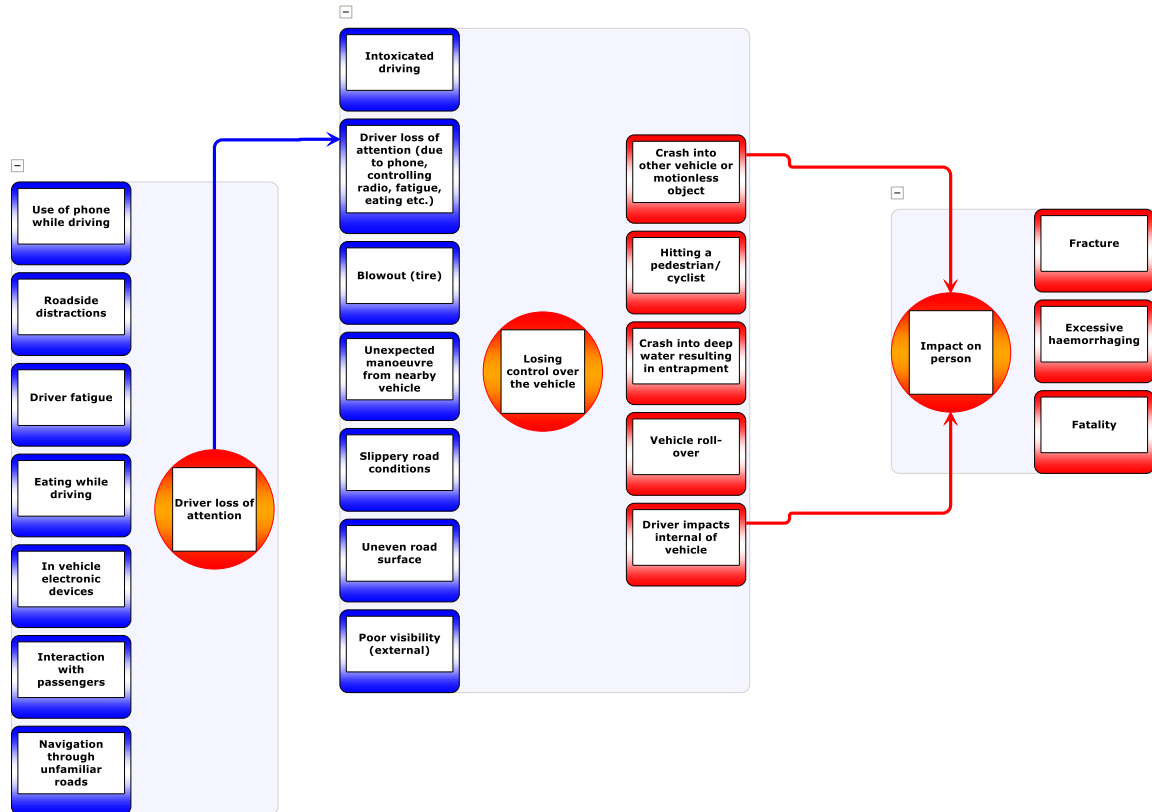
14 Case File Overview Extras

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.

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