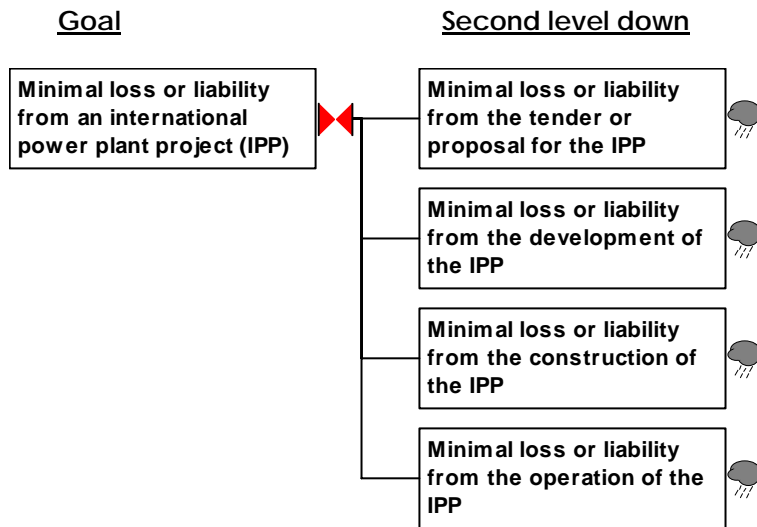


### Pre-course Questionnaire

The questions below are to help us understand how you may approach problems and give you a taster of dependency modelling. You need not have any particular background to answer these questions and for some there is no wrong or right answer. The best approach is just to have a go.

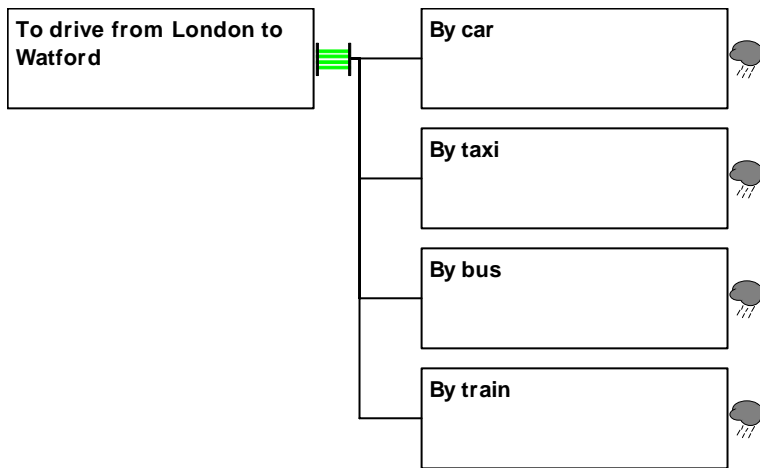
- Below is the higher level structure of a dependency model from the perspective of a sponsor of an international power plant project. The goal of this model for the sponsor is that it suffers minimal unplanned loss or liability arising in connection with an international power plant project. The red 'bow tie' represents an AND relationship. This indicates that in order for the goal to succeed, all of the dependencies must succeed. Rain clouds represent uncontrollable factors and umbrellas represent measures that can be put in place to mitigate the uncontrollable factors.



At the second level down, do you think there is a box missing?

If so, what do you think that box would say?

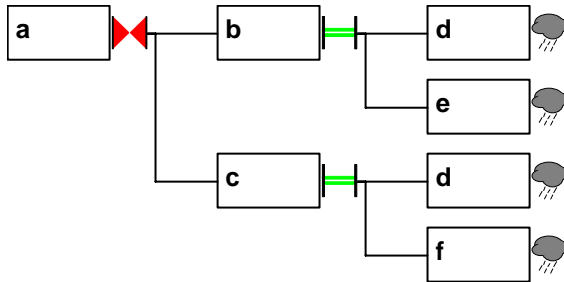
2. Below is a simple example of a dependency model. The green lines represent an OR relationship. That means that the success of the goal, 'to drive from London to Watford', depends on any one of the dependencies succeeding.



Does anything appear wrong with this model at first glance?

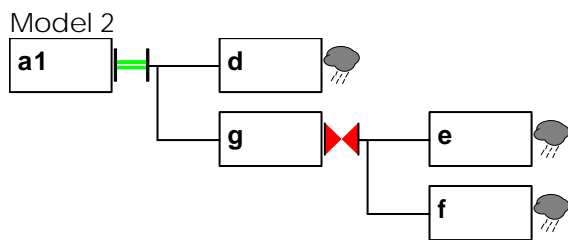
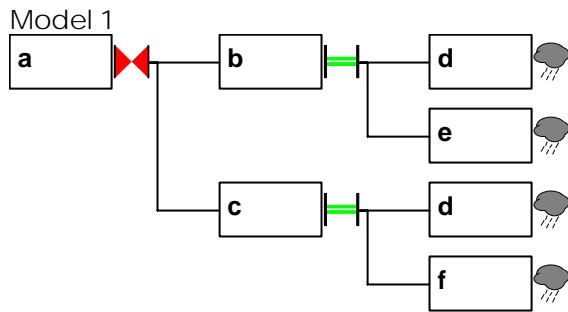
Can you think of common dependencies for any two or more of the methods of transport? For example, a car, taxi and bus may depend on fuel being available, but a mechanical breakdown of the car would not necessarily be common to any of the others. Name a few common dependencies and indicate to which methods of transport they relate.

3. Consider the following model. Remember AND relationships are indicated by a 'red bow tie'. All the boxes to the right of an AND relationship must succeed if the box to the left of the relationship is to succeed. OR relationships are indicated by green lines. Only one of the boxes to the right of an OR relationship must succeed if the box to the left of the relationship is to succeed.



If we assume that d, e and f all have the same failure rates, will 'a' be more sensitive to the failure of d, e or f? Explain your reasoning.

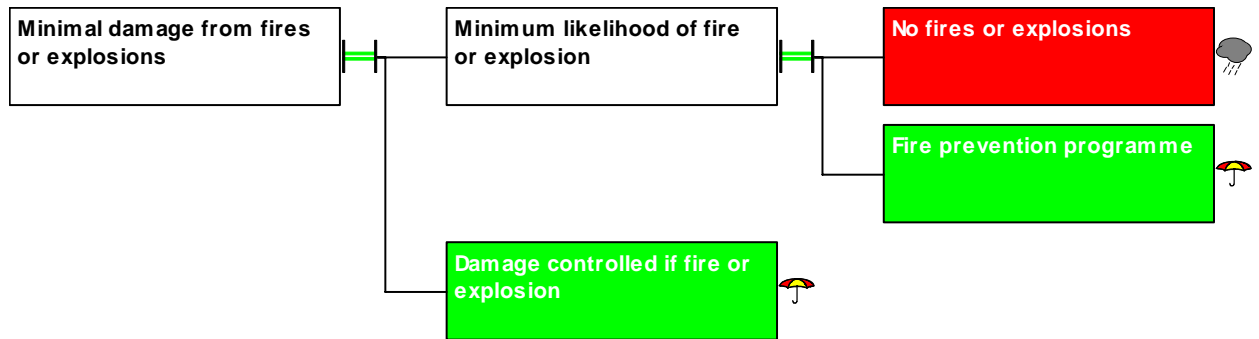
4. Consider the 2 models below. The d, e and f are the same in each model.



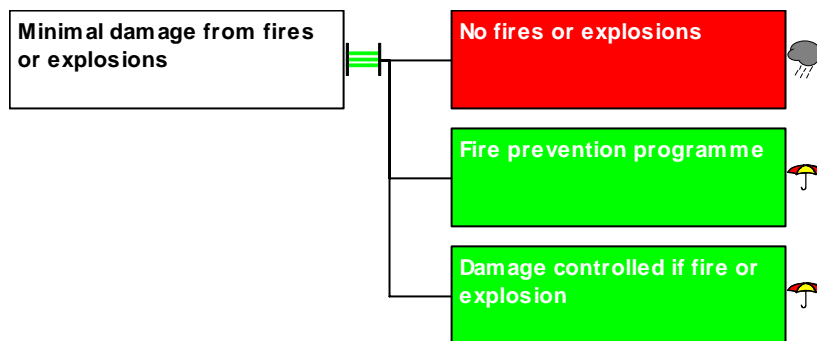
Which is more likely to fail, 1 or 2? Explain your reasoning.  
Which structure appeals more to you? If either does, why?

5. Consider the 2 models below. The factors in green with umbrellas represent discretionary measures that can be used to mitigate against the uncontrollable factors in red.

Model 1



Model 2



Which is more likely to fail, model 1 or 2? Explain your reasoning. Why do you think the model 1 is structured as it is? Do you think it is more helpful than model 2? Why?