

Who should investigate railway incidents?

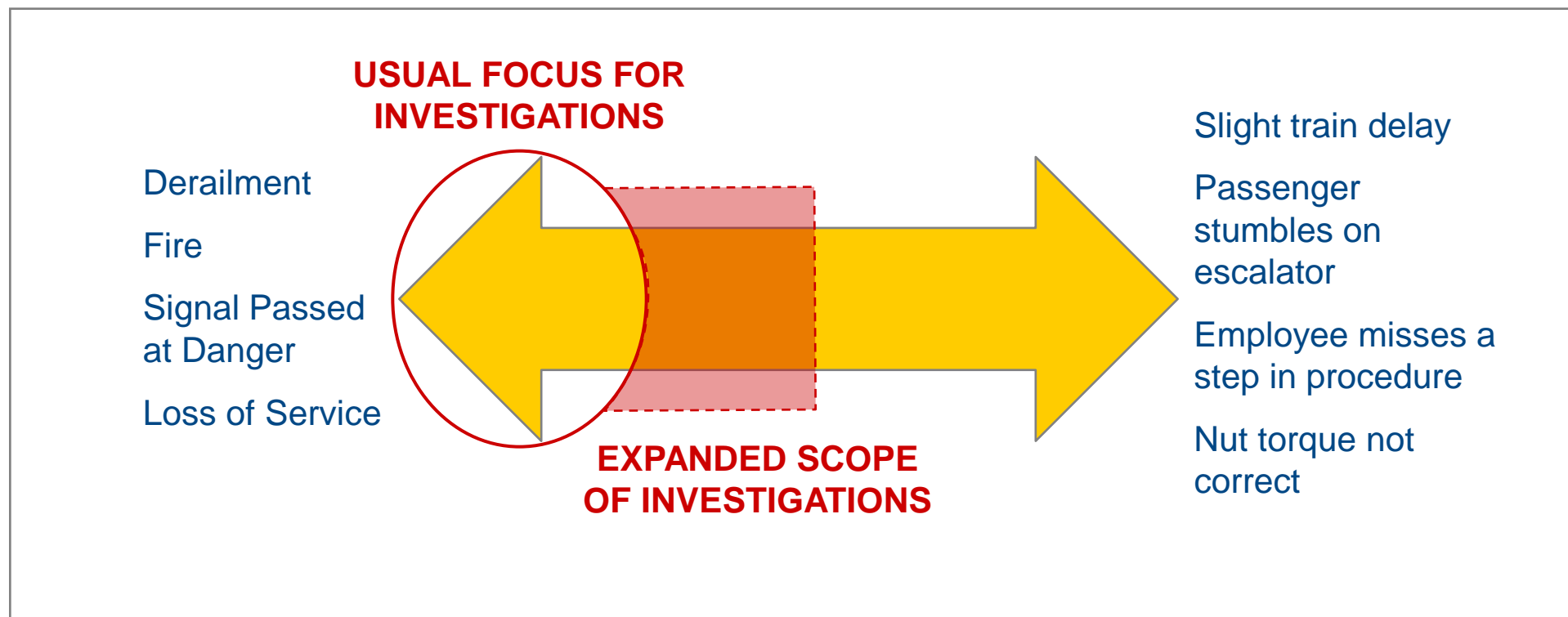
October 2010

Presentation to
IRSC 2010



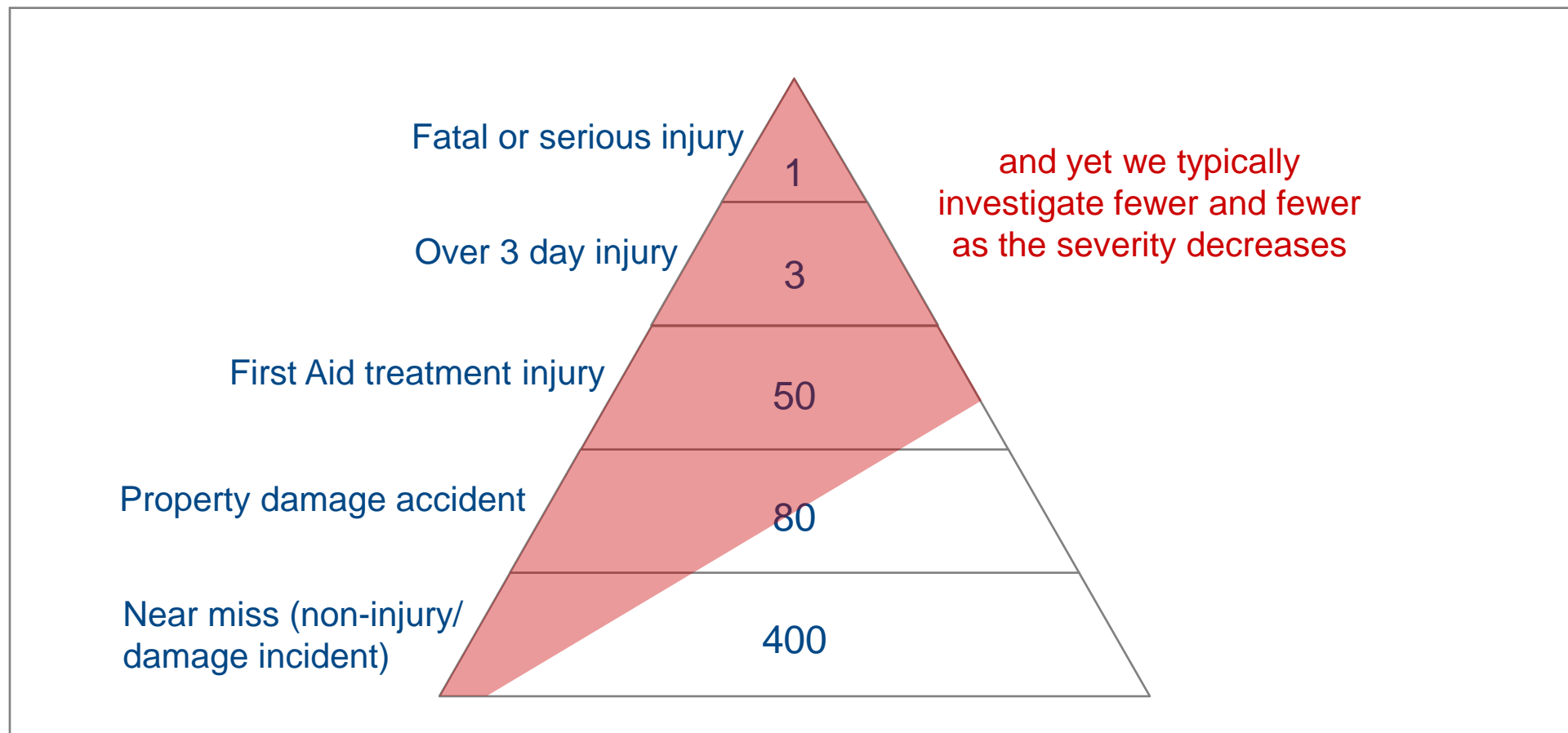
Arthur D. Little Limited
Science Park, Milton Road
Cambridge CB4 0XL
United Kingdom
www.adlittle.uk.com
watson.stephen@adlittle.com

Historically railway investigations have focused on those with the highest consequences – even selection based on risk or potential consequences still misses incidents



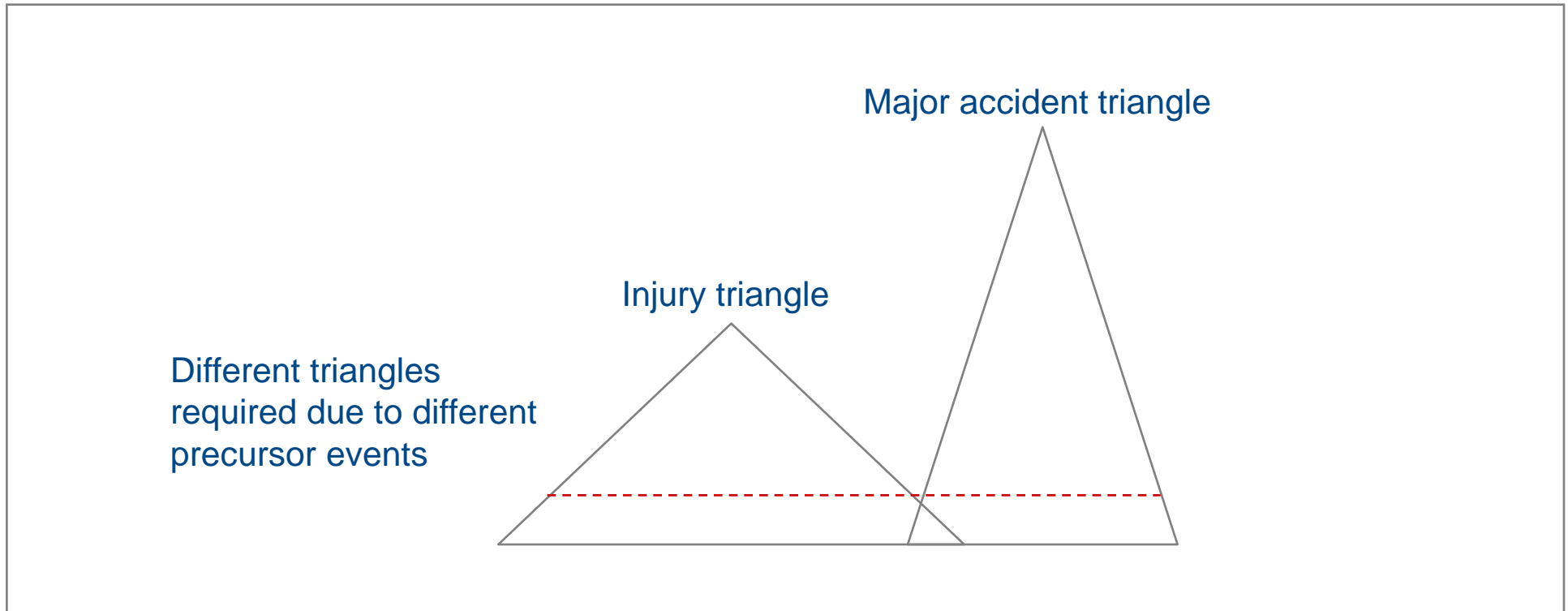
▶ Do we exclude the right-hand end because there is nothing to learn from these incidents?

We know from loss control theory (and actual experience) as we go down the accident triangle with decreasing severity the numbers increase



Source: Tye/Pearson

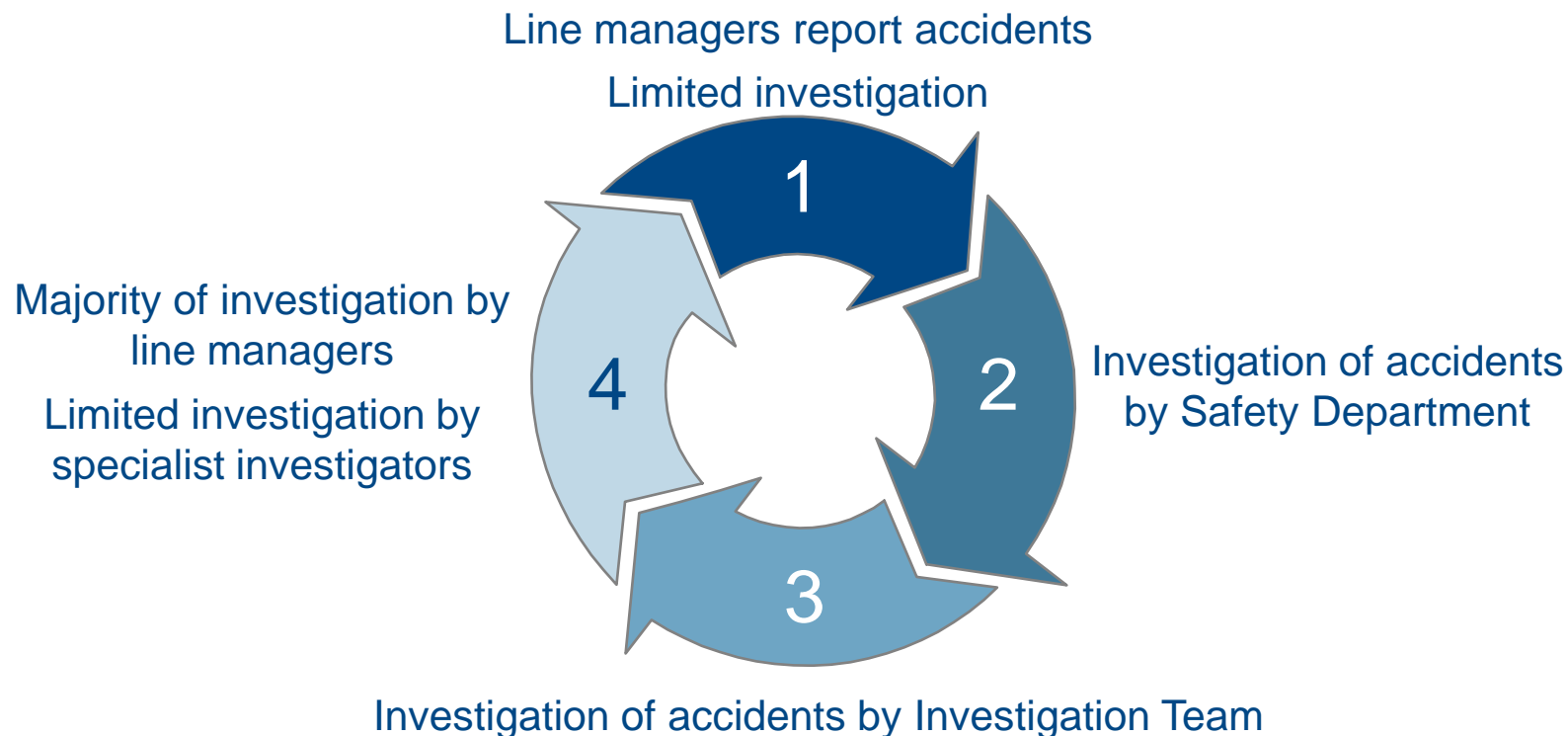
Recent research, such as by Professor Andrew Hopkins, suggests that one accident triangle is too simplistic



Increasing investigation effort 'within' the major accident triangle will provide further opportunities to learn and prevent major accident

Our experience of railway organisations is that there are four common models which illustrate who does the investigation

Investigator Life Cycle



Source: Arthur D. Little analysis

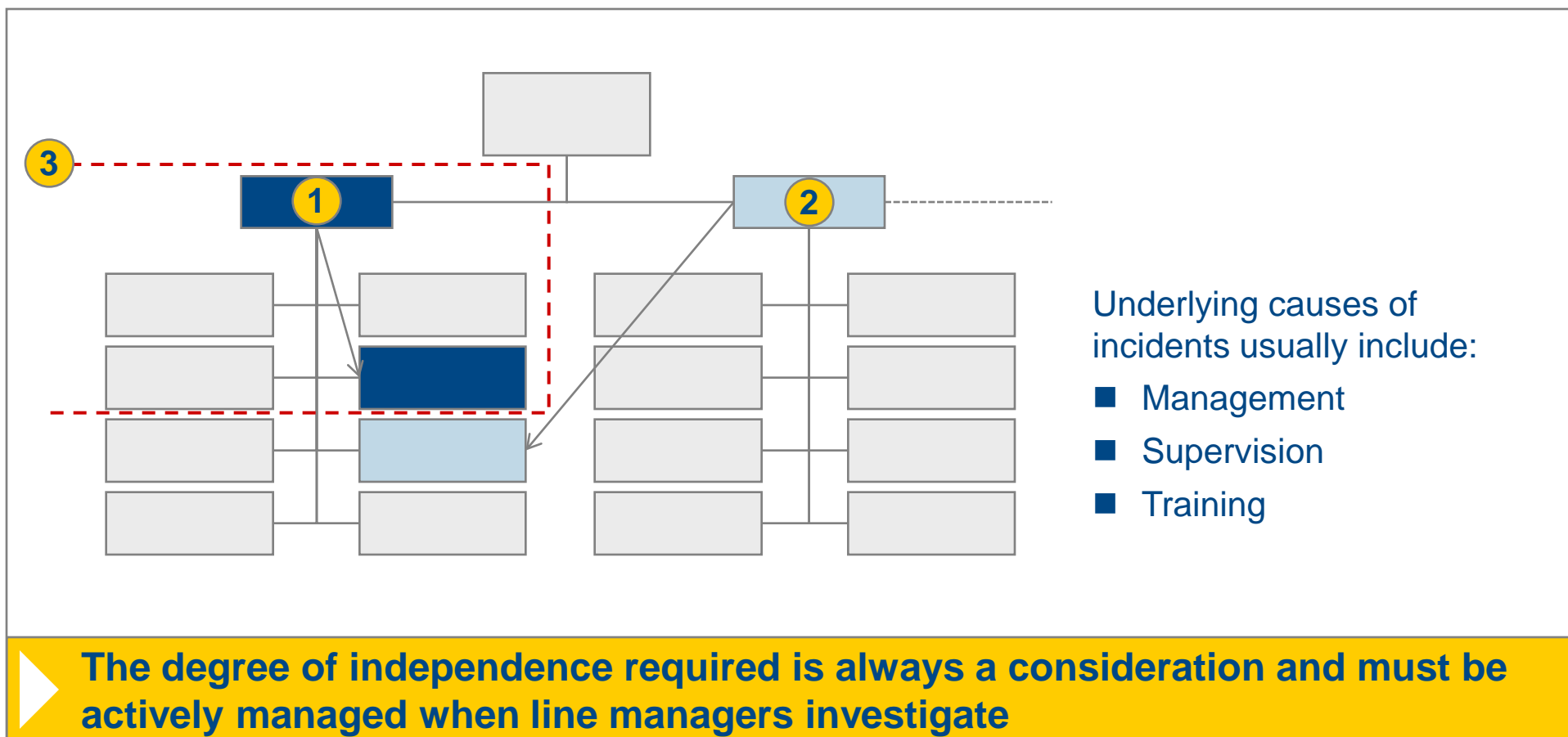
While each model has a number of features, advantages and disadvantages, the fourth 'stage' delivers the greatest number of incident investigations

Stage 4: Investigation by line managers

Features	<ul style="list-style-type: none"> ■ Investigation by trained line managers ■ Support and Quality Assurance by Safety Department ■ Limited investigation of high potential accidents/incidents by specialist investigators
Advantages	<ul style="list-style-type: none"> ■ Organisational ability to investigate wide range and number of incidents ■ Supports Learning Culture – investigation close to 'sharp end' thereby improving chance of action
Disadvantages	<ul style="list-style-type: none"> ■ Line managers require training in investigation skills ■ Clear investigation process/procedure required supported by Quality Assurance arrangements ■ Potential for conflicts of interest

Source: Arthur D. Little analysis

When line managers investigate incidents the potential for conflicts of interest needs to be managed



One example from the UK is First Capital Connect where they are training line managers to undertake most future investigations

First Capital Connect – Key Features

- Principle is that investigation is undertaken by line managers
- Enhanced investigation procedure developed and templates for investigation reports developed
- Formal training provided to line managers in Operations, Engineering, Revenue Protection and Safety – overall 5% of total workforce trained
 - Limited theory content
 - Linked to ‘day job’ skills (such as interviewing)
 - Each training course has a mixture of managers from different department to encourage sharing of ideas
 - Written exam at end of course to test understanding

The quality and consistency of investigation reports has improved, and investigations are strengthening the role of line managers

To conclude....

- We have choices about what is investigated (and what is not investigated)
- Different accident triangles for injury accidents and major accidents may help select further incidents for investigation that will help prevent major accidents
- Organisations typically go through a life cycle in deciding who should investigate
- Investigations should, wherever possible, be undertaken by trained line managers to support organisation learning and encourage action
- Using line managers means that it is possible to increase the number of incidents investigated