Root causes or reasons … or just getting there?

Ian Hendra ponders.

Organisational accidents

The Herald of Free Enterprise left Zeebrugge at 6:05 pm on 6 March 1987 with 539 souls and 131 vehicles aboard. She capsized just outside the harbour 100yds from the shore; 193 people died. Did she founder only because the assistant bosun didn't shut the bow doors on time? Or was it because there was no 'Doors Closed' warning indicator for the captain on the bridge? Or because the shallow water caused her to 'squat' and reduce her draught? Or that her design was such that at 18 knots the bow wave was higher than the car deck? Or that her front ballast tanks had had to be flooded to lower the front of the ship to match the loading ramp at Zeebrugge? Or as the Sheen Enquiry found subsequently, was it that there was 'a disease of sloppiness and negligence' at every level of Townsend Thoresen's corporate hierarchy? Or was it all of these? Was this an organisational accident?

The history of major accidents is redolent with this kind of debate. Did the Titanic's victims die because she was going too fast? Or weren't there enough watertight compartments? Or weren't there enough lifeboats? Or because the 'lookouts' had lost their binoculars? Or was it because the ship's steel plates went brittle at the temperature of the sea at the time? Or was it all of these? Once again, was this an organisational accident?

Perspective

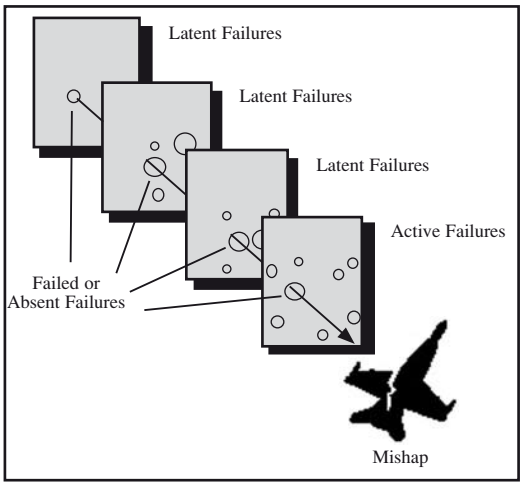
The answer depends on the perspective of your post-accident investigation, namely, whether finding a scapegoat is more important than understanding the causes sufficiently to avoid recurrence or similar occurrences elsewhere. But what if the scapegoat is the only person who can tell you what really happened?

Reason's reasoning

Psychologist Prof James Reason, Emeritus Professor University of Manchester, UK, came up with the loophole model of accident causation in his first landmark book in 1990. He called it the Swiss Cheese Model in his second landmark book published in 1997. This model has underpinned air safety systems in New Zealand and across the world. The earlier book examined the importance of human factors in risk and safety management, but the second delves deeper into organisational factors.

The Swiss Cheese Model

Prof Reason says that an accident occurs when unsafe acts line up with latent conditions (refer to diagram). Unsafe acts can relate both to local workplace factors and to organisational factors where there are gaps in the defences. Hence, he uses the simile of slices of Swiss cheese (such as Emmenthal) to represent the structures that allow an accident to occur. He says each slice represents the inevitably incomplete set of the defences that prevent accidents – when a set of holes line up a window of opportunity opens and an accident occurs. He also observes that the investigation process is incomplete unless it tracks back through the organisational structure that was in place; it's not sufficient simply to investigate the occurrence.



Just Culture

Reason says that a safety culture is key to safety management, and part of that is a Just Culture. That is, a culture where anyone observing an unsafe act can report it without fear or favour; even if the unsafe act was something they did themselves. Here at Airways we have worked hard to develop a Just Culture completely in accordance with Reason's framework in Chapter 9 of his 1997 book.

What it means, for example, is that our annual road death toll is not going to reduce markedly until any of us can report an incident to the regulator without the risk of the police issuing a summons … now there's something to conjure with (sorry officer, but this car won't cruise comfortably below 140kph, or, I skidded into the back of the car in front because the road surface was oily). If you think the notion is farfetched just take on board that that's how it is in the aviation industry; operators can be penalised for not reporting incidents! According to Reason's reasoning, that's what safety is all about.

Of course for us QA guys, the principles in Reason's reasoning fit any occurrence of nonconformity. I wonder how many of us actually investigate customer complaints right through to the attitudes and policies promulgated by our executive managers and Boards of Directors? All the best …

References

Diagram from **http://www.coloradofirecamp.com/swiss-cheese/introduction.htm**

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