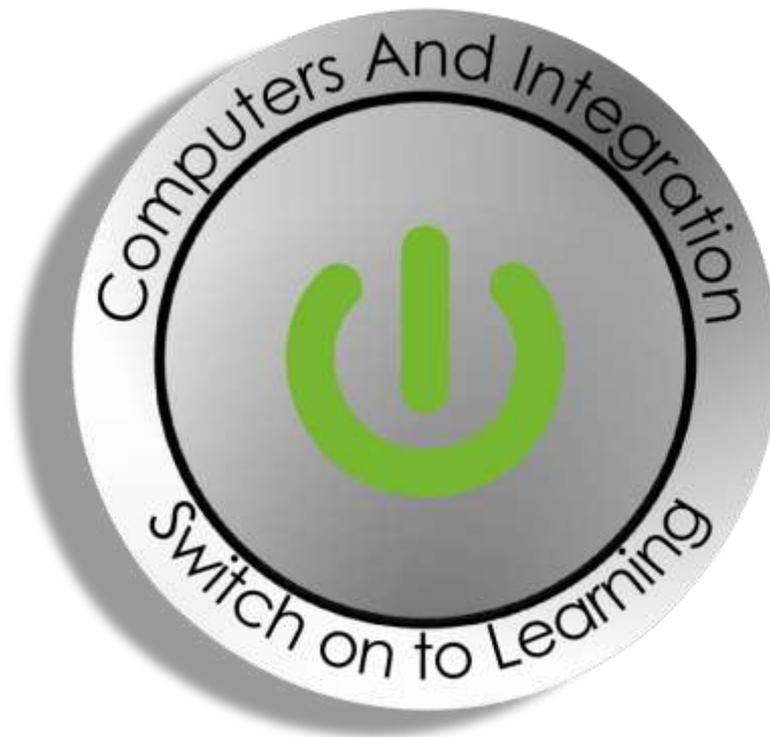


Safety and risk management for architects, surveyors and offshore oil workers

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Preface

In 2000, the author of this book climbed up Mount Vesuvius, in the Gulf of Naples, Italy with his Mum and Dad. At the time the author climbed it, the volcano was active. It didn't erupt though, luckily! The eruption of Mount Vesuvius in AD 79 destroyed the cities of Pompeii, Herculaneum, Oplontis and Stabiae. The point of this story is that everyday people take risks. People take risks crossing the road. What you have to do is weigh up the perception of risk and make a calculated decision as to the danger. You have to decide if the risk is worth taking. Often this calculation is done on the spur of the moment or spontaneously. People high on dopamine have risky behaviour. Drug addicts are an example of this. In the case of Mount Vesuvius, there is no handrail and there is a narrow path with a sheer vertical drop below. It is very dangerous. The Italian authorities are irresponsible to allow people to climb up Mount Vesuvius without safety measures in place, such as a simple handrail.

Aeroplanes are the safest form of transport, but passengers have zero control so feel unsafe. Aeroplane disasters in recent years, such as the Kegworth air disaster in 1989, make people uneasy about flying.

Case study: the Kegworth Air Disaster

The Kegworth air disaster happened when British Midland flight 92, a Boeing 737-400, crashed onto the motorway embankment between the M1 motorway and the A453 road near Kegworth, Leicestershire, England while attempting to make an emergency landing at East Midlands airport on 8 January 1989.

The cause of the crash was down to a fan blade breaking in the left engine, disrupting the air conditioning and filling the cabin with smoke. The pilots subsequently shut down the only functioning engine by mistake. The Wikipedia article on the Kegworth air disaster states that the causes of the crash were down to the shutting down of the wrong engine and engine malfunction. But the article is incomplete and does not tell the whole story. To examine the cause of the crash in detail you need to look at credible and reliable sources of information, such as the official report into the crash from the Air Accidents Investigation Branch.

Adopt Deming's System of Profound Knowledge

For effective safety at work for architects, surveyors and offshore oil workers, the best management framework to use is W Edwards Deming's System of Profound Knowledge.

This is because all accidents that have happened over time involve system failures, people failures (psychology), system variation and lack of knowledge.

Deming's System of Profound Knowledge has four elements: the system, variation, psychology and the theory of knowledge.

In the case of the Kegworth air disaster, there was no warning from the engine fire detection system, so there was a system failure. Three aft cabin crew saw flames emanating from the engine on fire, but this information was not communicated to the pilots. So there was breakdown of communication (a people or psychology) failure.

The flight deck crew experienced moderate to severe engine induced vibration and shuddering, accompanied by smoke and smell of fire. The moderate to severe engine induced vibration is an example of variation. This combination of symptoms was outside their training and experience. The crew had a lack of knowledge.

While the Commander's decision to divert to East Midlands airport was correct, he incurred a high cockpit workload which precluded any effective review of the actions he had taken. This is an example of another people or psychology failure.

Ensure co-operation between all parties

For surveyors, architects and offshore oil workers, to ensure safety you need to make sure there is co-operation between all parties responsible for safety. You need to look after the interconnections.

Give your staff sufficient knowledge

Staff should be well trained so they are not too scared to act when disaster strikes, which inevitably it will at some point, somewhere because people make mistakes, it is the psychology of being human. There is variation in everything we do.

Furthermore, surveyors, architects and offshore oil workers need to be armed with plenty knowledge of what do and how to act when disaster strikes.

Avoid fear and stress to ensure safety

The importance of safety is to make systems as safe as can be reasonably expected. This is how you avoid civil and criminal prosecution. All disasters are set off by an event, or more likely a combination of events. People make mistakes and events spiral out of control. Deming's theory of knowledge is really important in safety and risk management. Staff need to be very well trained so they do not get stressed when disaster strikes. You need to avoid fear and stress as much as possible.

Learn the lessons of past disasters

All past disasters have repeatedly shown that they could have been predicted, so it is really important to learn the lessons of past disasters in your industry.

Be critical and reflective of your work

Constantly strive to learn lessons from mistakes you make. Nobody is perfect. Everybody makes mistakes. Making mistakes and learning from them is the most important principle of safety and risk management. You need to be critical and self-reflective at all times.