# Learn from mistakes – the key to flying high

*Anthony Fitzsimmons uses the airline industry and its story of flight safety as an example of how the financial sector could carry out cultural change*

The two-year-old child is indignant. "He hit me first." We learn the "blame game" young. With luck it develops into asking "Why (did he hit me/do I have to go to bed now…and much more)?"

"Why?" is a powerful question. Inexpertly used, it leads to quick but superficial attribution of causes: "Why did the rogue trader emerge?" Answer: "Because he was bad." In times past, air accident investigations often concluded that the tragedy was caused by "pilot error". But as Stanley Roscoe, a pioneering aviation psychologist of the 1980s, pithily put it, blaming an accident on pilot error was "the substitution of one mystery for another".

At that time, air accidents remained uncomfortably frequent, with deaths running at around a thousand per year. Roscoe's insight was a key to transforming aviation from the somewhat

> **Blaming an accident on pilot error was 'the substitution of one mystery for another'**

hazardous to an activity so safe that the prospect of an aircraft crashing onto London as it approaches Heathrow has barely featured in the debate over a new runway for the airport.
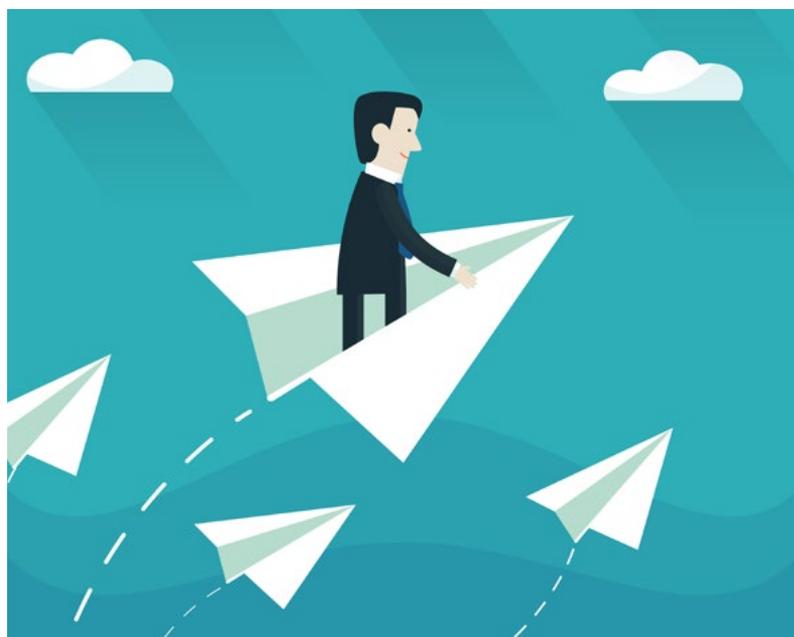
Terrorism apart, air accidents on western-built aircraft globally killed about 300 people per year in the decade to 2015, by which time the number of flights had more than doubled. By comparison, more than 1,800 people were killed on UK roads in 2013 alone, with more than 34,000 on US roads.

The transformation was no accident. The airline industry foresaw that growth in flying might lead to a monthly air disaster that ended up on global front pages if they did not improve safety. As aviation investigators and academics dug deeper into the causes of accidents, asking "Why?", significant patterns emerged.

One concerned communication failures. Heavy workloads played a part but some were due to hierarchies. A co-pilot needed to tell his captain (in those days pilots were always men) something was going wrong but the difference in status led him to mince words, masking the message; or the message was clear but his captain was unable to absorb information that did not fit his expectations. Sometimes the co-pilot said nothing because a challenge was socially unthinkable even when the alternative was imminent death. The problem grew worse as the gap in status increased, with an even higher barrier between the flight deck and cabin crew, even though the latter might have important information.

When the captain of the aircraft that crashed at Kegworth

in the East Midlands of the UK in 1989 announced to all aboard that there was a problem with the right engine, which he was shutting down, many in the cabin could see that it was the left, not right, engine that was on fire. While some cabin crew were too preoccupied with their emergency duties to notice the announcement, there was no attempt to tell the flight crew that the left, not right, engine seemed to be on fire. The aircraft crashed just short of the runway when the functioning right engine was shut down and the left engine's fire was made worse when extra fuel was pumped into it. A total of 47 people died and of the 79 survivors, 74 suffered serious injuries.

Another theme was system failures. When accidents are investigated, there is an immediate cause. Soon after a BAC 1-11 aircraft took off from the UK's Birmingham airport in 1990, there was a loud bang as a newly installed cockpit windscreen disappeared at 17,000 feet. The co-pilot, who had undone his safety harness, was sucked out of the aircraft and left hanging on by his knees. He was saved by cabin crew holding his legs as the pilot regained control of the aircraft and landed it safely.

The immediate cause was that the windscreen had been installed using bolts that were a mixture of too small in diameter and too short. The next deeper level of causes included a fundamental design error in the windscreen and a mechanic deprived of sleep. But even this was not enough for the investigators, who identified fundamental system failings,

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including that "the number of errors perpetrated on the night of this job came about because procedures were abused, 'short-cuts' employed and mandatory instructions ignored. Even when doubt existed about the correct size of bolt to use, the authoritative documents were not consulted."

The airline had failed to detect the slipped standards because it did not monitor its senior mechanics. It did not help that the airline's procedure for gathering feedback about the effectiveness of the maintenance system was not working properly. The Air Accidents Investigation Branch estimated that the ratio of near misses to serious accidents might be as high as 600 to one, so successful detection of system failures depends on reporting a substantial proportion of near misses.
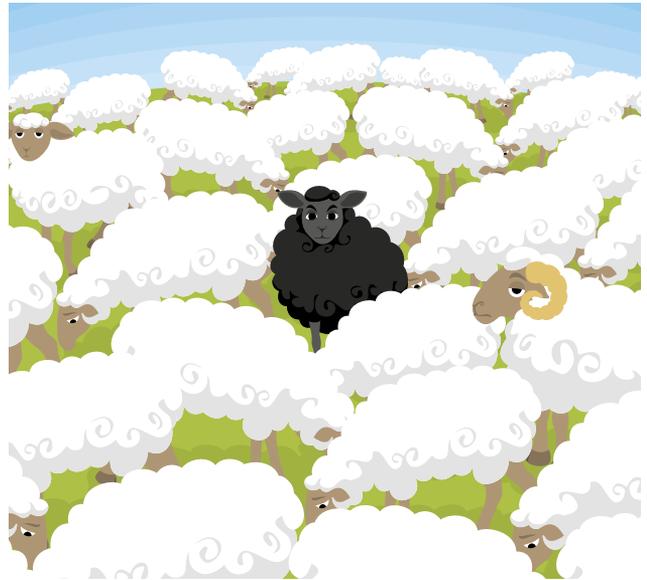
The success of commercial aviation in flight safety is built on two pillars:

• analysis of accidents and near misses to their root causes, which can involve system failures, including the effects of human psychology and behaviour at all levels; and

• remedying systemic weaknesses and managing the behavioural and psychological issues uncovered.

These systemic issues include weaknesses caused by human behaviour. Aviators have overcome the idea, common elsewhere, that "systems" just means processes. Systems do include processes, but by recognising that humans are an integral part of their systems, aviators treat normal, predictable human behaviour as an integral part of the flight safety problem and include lessons about human behaviour in flight safety training.

Even the most experienced pilots, therefore, are taught to listen to subordinates and welcome challenge. Everyone is trained to challenge whenever necessary and ensure they are heard. All are trained to listen to each other and to cooperate, especially under stress. Through what is known as "Just Culture", the whole commercial aviation system encourages self-reporting of near misses and errors as well as accidents so that they can be analysed to root causes and the lessons fed back to everyone. The deal is spelt out on the Civil Aviation Authority (CAA) website. It reads: "Just Culture is a culture that is fair and encourages open reporting of accidents and incidents. However, deliberate harm and wilful damaging behaviour is not tolerated. Everyone is supported in the reporting of accidents and incidents."

This is not whistleblowing to bypass belligerent bosses: it

is a routine system that applies to everyone, every day and at all levels. It applies to everyone directly involved in flight operations, including leaders on aircraft and those who head the manufacture, maintenance and support of aircraft and

> ## Regulators must have an open and forgiving attitude to honest mistakes

the systems that keep them flying. No one in the system is above it; and the CAA statement on "Just Culture" is an endorsement of the flight safety culture from aviation's highest level, its regulator.

Everyone in the system now accepts it, although it was initially resisted, just as US surgeon Atul Gawende's surgery checklists were initially resisted by some of his colleagues. It was no surprise to psychologists that most of those who resisted the checklists thought that, although they did not need to rely on one, any surgeon operating on them should use checklists.

The story of flight safety illustrates how carefully thought through culture change has led to a system so safe that few even think about flight safety. Aviation has achieved this despite the system's complexity, which includes legions of organisations, huge and small, worldwide.

Can it be replicated elsewhere? The fact that airlines can have serious failures beyond flight safety – such as British Airways' recent IT failure – confirms that the cultural transition between flight safety and the rest of the business is not automatic.

There can be no doubt that senior UK financial regulators understand that cultural, management and leadership failures in and around finance are among the root causes of the 2007-08 financial crisis. Some of these roots – such as the accumulation of undesirable character traits among staff hired and promoted for greed and aggression – go deep. But many are less entrenched.

A better culture, and the incentives and other drivers to support it, can be designed and launched surprisingly fast, although embedding it will take longer. Incorporating a culture of learning from errors, near misses as well as serious failings in conduct, helps leaders discover systemic weaknesses so they can be remedied before they cause harm.

But just as it was crucial that even the most senior pilots learned to welcome analysis and challenge of their actions, so too must business leaders. Their perceived character, culture, incentives and behaviour are crucial drivers for their subordinates' behaviour. And just as the CAA overtly underpins aviation's culture of learning from error, so financial regulators, and their political masters, must embrace the importance of an open, analytical – and forgiving – attitude to honest mistakes. ∎

*Anthony Fitzsimmons is chairman of Reputability LLP and, with Derek Atkins, author of* Rethinking Reputational Risk: how to manage the risks that can ruin your business, your reputation and you

# How to do the right thing

*Peter Montagnon discusses the importance of having the right company ethos and explains what managements need to do to ensure that everyone is on their best behaviour*

It must come as a small consolation to bankers that theirs is not the only industry mired in scandal. Volkswagen, BT, BP, Rolls-Royce, GSK, Toshiba and Tesco are just a few of the big non-bank names that have hit the headlines in recent years. The seemingly endless flow of misdemeanours has prompted a fresh look at corporate governance and a realisation that it has to get to grips with corporate culture.

This was the thinking behind last year's project by the Financial Reporting Council (FRC), which established corporate culture as an important responsibility of boards.

In the meantime, the Banking Standards Board has been working hard at helping banks change their culture as they move out of the financial crisis.

To minds used to managing only what can be measured, this is all rather bewildering. Corporate culture is hard to define and, therefore, virtually impossible to measure. Yet there is sense behind all the madness. What unites the scandals in banks and commercial companies is the fact that even people who would regard themselves as honest chose, or were driven, to behave badly.