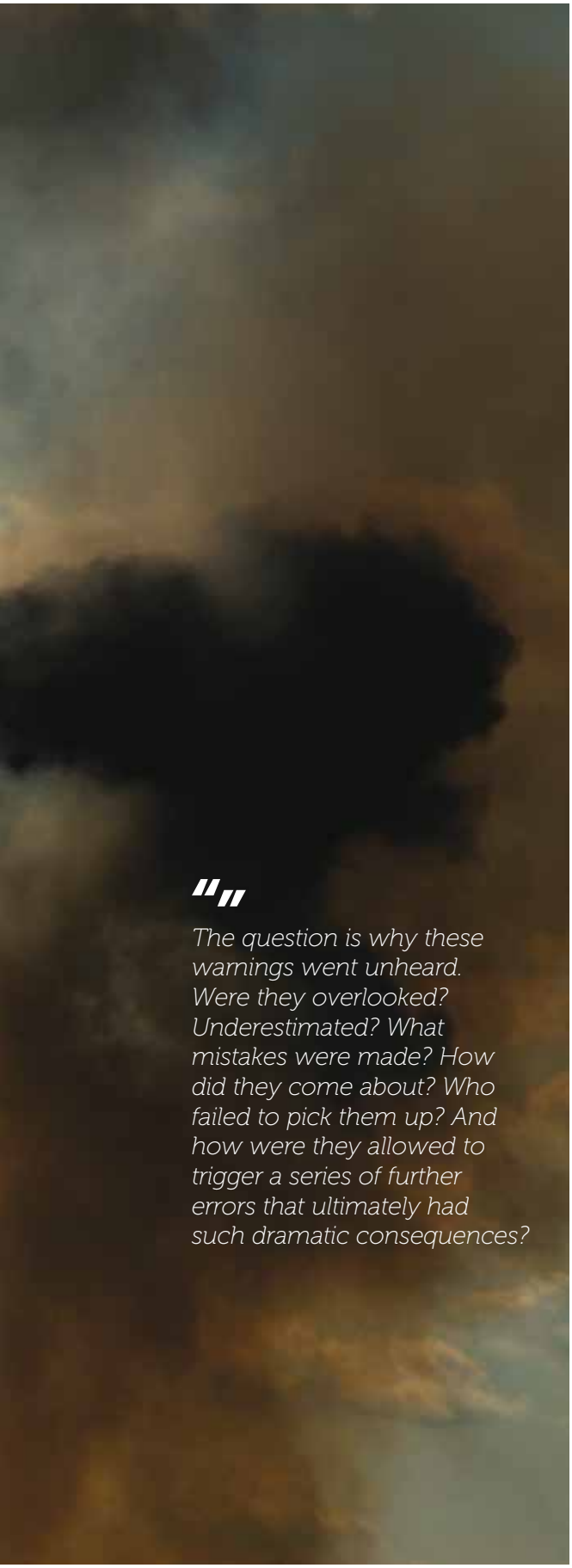
ERROR MANAGEMENT

NOT JUST A WING AND A PRAYER

JAN HAGEN SUGGESTS THAT THE AVIATION INDUSTRY'S OPEN APPROACH TO IDENTIFYING AND RESOLVING ERRORS COULD BE APPLIED TO MANY OTHER SECTORS



"The question is why these warnings went unheard. Were they overlooked? Underestimated? What mistakes were made? How did they come about? Who failed to pick them up? And how were they allowed to trigger a series of further errors that ultimately had such dramatic consequences?

The financial markets crisis began in 2007 and unfolded with increasing severity. At the time, we were dumbfounded that big-name banks had taken such disproportionately high risks with their structured securities.

Many of us saw the investment banking sector's remuneration system and the associated asymmetric risk distribution as the main causes of the crisis. We asked how things could have spiralled so far out of control, especially as even before the crisis some parties within the banks had urged caution.

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However, banking is by no means an exception. There have been mistakes, errors, poor decision making, infringements, affairs and scandals in any and every industry and organisation you care to mention.

None of them appears to have had any effective controls in place that allowed them to intervene in time to prevent things going awry. Instead, those involved could only watch as fate ran its course.

Let us take a look at normal day-to-day operations in a company.

What happens if someone makes a mistake or takes the wrong decision? The issue here is not intentional misconduct, fraudulent behaviour, gross negligence or large-scale mismanagement. I am referring to the little mistakes, errors and poor decisions that occur every single day. (This is described in greater detail by Reason, J (1990) *Human Error* New York; Cambridge University Press.)

Often we are not even aware of these blunders, though in complex environments, research shows we make errors every four minutes. (See Ruffell Smith, H P (1979) "A Simulator Study of the Interaction of Pilot Workload with Errors, Vigilance, and Decisions," NASA TM 748482. Moffett Field, CA: NASA-Ames Research Center, pp. 14-21.).

Mostly, errors are the result of momentary blackouts, a temporary short circuit in the brain, false impressions, deceptive memories, dots wrongly joined, fragments of conversation that we interpret incorrectly, prejudices, momentary feelings of mental imbalance, disorientation, stress and other disturbances.

All this we could perhaps accept but our problem is that we believe we can and should be "right", when in reality we start out with "quasi-right" at best and ideally adjust our decisions and actions as we proceed. The alternative –believing that we are right and later realising that we were wrong – creates a state of confusion leading to uncomfortable questions as to the validity of our convictions.

Recently, my ESMT colleagues and I looked at how managers discuss errors made by their employees. Do they step in if a member of staff makes a mistake? Yes, we found out, most of them do. But do employees also say something if their superior gets his or her figures wrong or looks set to make a questionable decision? Here, we learned, people are far more reluctant to speak up.

This is in line with previous research such as Edmondson, A (1996). "Learning from Mistakes Is Easier Said Than Done: Group and Organizational Influences on the Detection and Correction of Human Error", *Journal of Applied Behavioral Sciences*, 32: 5–32 and Milliken, F J, E W Morrison and P F Hewlin (2003) "An Exploratory Study of Employee Silence: Issues that Employees Don't Communicate Upward and Why", *Journal of Management Studies*, 40 (6): 1453–1476.

Another question was how managers address errors made by employees, colleagues and superiors? Our survey revealed that if they discovered an error made by an employee or colleague, 88% of managers would raise the issue privately, 11% would discuss it openly and just 1% would ignore it.

When it comes to pointing out a mistake made by someone higher up the ranks, 86% would do so in private. Only 4% would be prepared to broach the issue openly. And 10% would rather keep any knowledge of an error made by their superior to themselves.

We asked managers how their own employees, colleagues and superiors speak to them about errors. Just 54% said they would mainly do so in private; 18% said mistakes were addressed in a more open forum. And a further 28% assumed they were never actually made aware of their mistakes.

However, these figures do not tally with the previous results. Of those questioned, 88% claimed that they would generally address errors made by others in private. Yet only 54% believed they are being informed of errors in this way. In contrast with the 11% quoted earlier on talking about errors openly, 18% said their own errors *are* discussed in front of other people. That could be because this experience has stuck in their minds more than those occasions when they addressed others' mistakes in a public.

What does this mean for companies? No doubt, most still have a long way to go before error management becomes a regular part of day-to-day work life despite the fact that, according to our study, most managers accept errors as being a normal part of the work culture.

Yet, there is one aspect that does not match this conviction; namely, the overwhelming preference for discussing errors in private and involving as few people as possible. Mistakes, in other words, are still associated with shame and embarrassment.

Yet factual error management can work and be successful. Since the second world war, research into air accidents, for example, has had the aim of identifying the causes of accidents, avoiding any recurrences and increasing overall safety.

In addition, at the start of the 1980s, the US Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) developed a concept to address the problem of accidents and the mistakes leading to them. Today we call it Crew Resource Management (CRM). (See Wiener, E L, B G Kanki and R L Helmreich (Eds) *Cockpit Resource Management*, San Diego, CA: Academic Press.)

It focuses on co-operation between the flight crew and, above all, on reducing barriers between the captain, cockpit crew and cabin crew due to their hierarchical positions.

Thus, for example, captains are trained not to use commands and voice their own assessment when solving non-normal situations but to first collect the assessments of the other crew members. This form of communication avoids framing and leads to an active exchange of information. All pilots, but especially first officers, are trained to focus on facts when communicating the error they have observed, rather than blame the crew member committing the error. (You say, "watch speed – 10 knots above approach speed" instead of "you are not flying at the correct speed").

At this point, I should emphasise that neither captains nor crews were or are a unique phenomenon. However, unlike their counterparts in the everyday corporate environment, they have by now learned to use a range of strategies to counteract the negative effects of someone making his or her business decisions unchallenged.

Of course, the question is how a system as highly successful as CRM can be implemented in everyday business life. After all, unlike most other industries, aviation is a high-risk industry. Most managers do

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88%

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4%

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not arrive at work each day knowing that they are responsible for the safe transport of hundreds of people. They are, however, in charge of business processes, the success of their particular division and for keeping their work force employed. So the number of errors they make should be limited as well.

From this perspective, the answer to the question above is simple: error management is relevant to every organisation that wishes to reduce error volumes be it in a high-risk industry or not. In fact, most organisations will already have taken steps in this direction by trying to eliminate potential error sources and attempting to analyse and resolve errors that do occur.

Still, there is a fundamental difference between the traditional approach to preventing errors and the error management strategies used in CRM.

Conventionally, errors are stigmatised as individual weaknesses, whereas modern error management accepts them as an unavoidable aspect of human behaviour. While both strategies seek to avoid errors, the former puts them in a negative light and associates them with embarrassment, shame, fear and punishment. In the latter, those who have made the errors might become annoyed at themselves but they need not fear any sanctions from others. Instead, they – ideally together with others –analyse what led to the mistake and eliminate this so that it will not be repeated and continue to cause problems.

So how do we actually implement error management? Thankfully, the aviation industry has led the way with the CRM programme. The only condition that cannot easily be replicated is the internal mindset needed for this endeavour.

Among other things, it requires the effort to replace old habits with new ones and vary or revise familiar thought patterns. Error management thus begins with a new mindset that has internalised that errors are normal and have to be accepted.

As far as the larger organisational error management is concerned, its implementation has to start as a top-down management decision though the overall success will depend on individuals and teams. The scope of the change of mindset must however not be underestimated: in aviation it took pilots more than ten years to accept CRM – but the safety record of today speaks for its success.

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