

Case Study Comment 4

by Captain Murray O'Shea



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Most people involved in aviation are aware of the Swiss Cheese Model of accident causation. Originally proposed by James Reason, the Swiss Cheese Model relates system defences to a series of randomly holed slices of Swiss cheese arranged vertically and parallel to each other with a gap between each slice.

In the model, the defences against a failure are represented by the cheese slices while the holes in the cheese represent the weaknesses in the individual parts of the system. These holes continuously vary in size and position on all of the slices or barriers within the model. The defence system fails when individual holes in each of the slices momentarily line up permitting a hazard to penetrate all of the barriers and thus lead to an accident.

In the context of the case study, I would submit that there is a price associated with Swiss cheese. You can always spend less money but you are likely to end up with either fewer slices or inferior cheese. In aviation, cost efficiencies that are implemented without first considering their flight safety implications can lead to an increase in the number or the size of the holes

within the individual cheese slices or even the complete loss of one or more of the slices or barriers to an accident. In either case, accident potential is increased.

In the Case Study narrative, it becomes apparent that the primary focus of ATS management is cost reduction:

"...The meeting was hosted by THE top manager, a man who had been recruited for his ability to continually reduce costs... made a presentation on how the company had finally turned red figures into black."

"...the manager continued explaining how big money would be saved by removing primary radar from approach and area control, they needed to reduce costs everywhere..."

The Controller's Union is concerned about the loss of primary radar capability but that concern is diverted by the spectre of parking charges to be levied against individual controllers:

"...had criticised the decision but management quoted ... the present financial situation ... radar would be taken out of service the following month..."

"...The main discussion ... focused on ... paying for ... parking..."

The Airline owner's goal is to operate with the least possible financial risk and expense. He was, however, prepared to pay as required for pilots who would get the job done no matter what it took. He also realised that the cost of a well-connected public relations manager, who could put a positive spin on company related incidents, was far less than the cost of doing things properly:

"...he had leased three old aircraft ... the financial risk was minimal ... he considered this to be good business; business overheads should be low."

"...but he knew pilots, pay them enough and they fly almost anything."

"...was pleased to have hired Steve as ABC Airlines' Public Relations Manager. Knowing his experience and knowledge was one thing – what happened was better than expected."

From the issues identified in the letter written by a former flight attendant, there were training deficiencies and both MEL and regulatory violations occurring on a continuing basis, all of which were indicative of reluctance, on the part of the airline, to spend money:



"...serious breaches of safety standards ... including ... lack of emergency training ..."

"...operating full flights with inoperative emergency escape slides..."

"...flights had been continued below required fuel limits..."

The incident Captain was aware that he was being well paid in spite of his very dated experience on type. He also understood that he was expected to get the job done with minimum fuss and, when confronted with an unresolved maintenance issue, did just that:

"...this was an offer too good to refuse..."

"...had a long career in aviation, including flying as a Captain on B747s, but that was some time ago ... First Officer also had some 747 experience - he could always rely on him if things got difficult..."

"...We still have an unsolved electrical problem" ... the technician explained. "Is this a no-go item or not", asked the Captain. The tech-

nician ..."I guess you could fly with these problems, but I don't feel entirely confident"... "thanks, let's go", the Captain quickly replied..."

The unresolved electrical problem resulted in an in-flight failure of the 747's transponder. However, because of a high workload resulting from numerous deviations due to a thunderstorm, the sector controller did not notice the loss of the SSR information. Imposing airspace restrictions due to weather is contrary to local ATS policy which appears to have monetary roots:

"...efficiency measured by performance indicators mattered most and besides "you are paid to do this"..."

Loss of the SSR data resulted in a late handoff to the incident controller in the next sector. Unaware that the 747 was in her sector, and with no SSR information or primary radar capability, the incident controller gave the business jet clearance to descend through the 747's altitude precipitating the near miss.

In each previously described facet of this incident, there is a financial di-

mension. The Air Traffic management decision to decommission the primary radar was a cost savings measure. It was not contested by the Controller Union due to a distraction over parking charges. The minimum financial risk profile, as adopted by the Airline owner, resulted in old, poorly maintained aircraft flown by undertrained crews.

Captains were paid to "press on – regardless" and did so in spite of being uncertain of the serviceability status of the aircraft or in flagrant violation of regulatory or MEL restrictions. With each of these decisions, the barriers, represented by cheese slices in Reason's model, were eroded and the holes within those slices of cheese became larger and more numerous until an incident was inevitable. It would seem that the adage "you get what you pay for" applies equally to Swiss cheese and to Flight Safety.

A RECOMMENDATION

In aviation, virtually every management decision holds a flight safety dimension. This is especially true when cutbacks and cost reductions are under consideration as the negative impact on safety can be masked by the (more immediate) positive fiscal results. I would recommend that each organisation have a mechanism in place for examining the flight safety implications of monetary decisions and that the Accountable Manager should not approve policy or capability changes made solely to achieve cost reductions until satisfied that any flight safety implications have been addressed. S