Safety management making it fit

How Australian aviation businesses - big and small - are putting theory into practice.

By Merran Williams

Trevor Wright

Everything in Trevor Wright's Melbourne home speaks of his passion for aviation. Framed photographs of planes he's owned over the years vie with family photos for space on the walls. The cat's toys include a large blue windsock.

A home-built plane flown around the back paddocks was Trevor's first plane. In 1990, Trevor set up a commercial operation in the outback South Australian town of William Creek, which has grown from two to 12 pilots. In 2000, Wrightsair spent 5000 hours flying 20,000 people over Lake Eyre in six months. The only safety incident during that time was a rubber mat flying into a propeller when the engine was warming up.

Trevor credits his safety management system for this enviable record. For 22 years he worked in major hazardous facilities, which led him to place a high priority on safe work environments.

"Safety's really at the forefront of the decision-making process," he said.

"Not only the accidents you could have, but the things on the side that could cause you problems."

With this in mind, Wrightsair decided to build a new taxiway rather than use the general taxiway outside the William Creek Hotel. Trevor's wife, Maryanne, said the risk of hitting someone was just too great. "You're taxiing past people in tents," she said. "What if a child ran out in front of the plane?"

Trevor sees open communication on between pilots and management as an essential tool of safety management in his company. "You've got to get a management style that's a level playing field. That way, people report back to you and tell you when they've got problems."

When Wrightsair was doing its intensive flights two years ago, Trevor made sure he sat down with the pilots every night informally to give them the chance to air any concerns. He's convinced this small investment of time was more than worth it in reducing the likelihood of accidents or commercially-damaging incidents.

"If you don't listen to what people at the coalface are telling you, there's a chance someone could get hurt. It could also cost you money because you're stuck in the middle of nowhere and the plane's not working while you wait to get another part. You've got to get someone to do the replacement and you've got the customer dissatisfaction while you wait."

Trevor gives Wrightsair pilots the final say in whether they fly on any given day. "If the pilot doesn't feel comfortable, we encourage them not to fly," he said. "We get abused by the customers for not flying certain days but we'd rather take it than have an accident. The pilots know that if they make safety-oriented decisions in the future, they'll be backed up."

As well as managing safety in the air, Trevor is aware of safety on the ground. The company has stopped using 44-gallon drums for aircraft refueling because of the risk of contamination and the potential for injury. "We had an example of a man trying to open a 44-gallon drum with a rock," Trevor said. "He thought he was doing the right thing but what if there was an ignition spark?"

Trevor sees safety management as something for the whole company. "If people recognise that we do take notice of what people say, they'll give a hell of a lot of input," he said. "Your biggest assets are the people who work for you."

PHOTO: TOM KEATING

Graham Edkins

Kendell pilots and management found it a cathartic experience when they sat down together to discuss safety under Dr Graham Edkins' Indicate program.

"For the first time ever, Kendell pilots were being asked to identify the safety hazards in their operation," Graham said. "It wasn't whinging or venting. People weren't complaining about the company. Ten pilots sat in a room with management and suddenly there was all this information that management didn't know about."

Graham developed Indicate in 1996 while working for the Bureau of Air Safety Investigations (BASI), a Government agency now melded into the Australian Transport Safety Bureau (ATSB). It formed the basis of his PhD.

"Indicate was a simple safety management program that operators could take as a package and target to their own requirements," Graham said. "It had very simple elements, a simple reporting system, a database for tracking hazards and a methodology for getting staff to report hazards rather than waiting for an incident to occur."

Graham's background in organisational psychology, with a masters degree focusing on systems safety, was an ideal introduction to safety management. He applied his thesis to West Australian Railways and looked at how to reduce incidents of signals passed at danger, an endemic safety problem in the rail industry. He sees many similarities between rail and aviation.

"Both are highly technically advanced. Both are transporting large numbers of people. Both are working in a very risky environment. Both are characterised by the fact that people are always going to make errors, so you have to plan for and expect them."

Graham's work at BASI enabled him to apply much of what he learnt from the railways. "At the time BASI were getting more systemic in the way they approached accident investigation," he said. "They realised there were a lot of technical issues about why an accident occurs, but we needed to look in a mature way at how organisations contribute to an accident."

Taking part in BASI investigations, Graham became aware of the number of regional airlines and low capacity RPT that did not have basic safety management systems.

"They didn't have a safety manager, they didn't have a reporting system," he said. "They didn't involve their staff as much as they could have in encouraging them to report safety problems. This came up in a number of high profile accidents. The information was present in the system before the accident happened but nobody bothered to report it. It might have been because they were afraid to or management didn't have a system in place to encourage them to report."

To address this problem, Graham started work on Indicate and trialled it with Kendell for 18 months. The program was so successful that it became mandatory for all Ansett regionals to take on the program. It was adapted by several overseas airlines and recommended by the International Air Transportation Association as a role model safety

management program.

Graham then moved to Qantas, where he is now the manager of safety education and human factors. One of his first jobs was standardising the safety systems of the Qantas regionals.

"The biggest challenge was getting the same reporting systems, the same investigation protocols and similar safety manuals," Graham said. "While they were similar in operational size and complexity, they had very distinct cultures. One thing we did very early on was establish a regional airline safety forum. It looks at identifying common safety issues and determining where resources can be saved in terms of dual expenditure."

Opening the channels of communication has proved beneficial to Qantas in many ways, Graham says.

"We identified on the Dash-8 aircraft where Eastern and Southern were having problems with seatbelts once passengers had disembarked. The seatbelt buckle was on the left-hand side of the seat and sometimes fell into the aisle. Cleaning staff and flight attendants were tripping over them and injuring themselves.

"Eastern brought it up as an issue, we raised it at the forum and discovered the seatbelts were also that configuration on other Qantas regional aircraft. We just got the engineer to reverse them. It sounds a silly example, but injuries can cost about $14,000.

"For the sake of a very simple fix, you're potentially saving a lot of money every year by people not tripping. The forum is a way to raise a safety issue, discuss it and make it a priority."

For Graham, safety management comes down to a very basic level.

"Sometimes we don't do the simple act of communicating. People are out doing lots of things, they're not sitting in an office. It's not hard. It's making the effort to do it. You don't have to spend a lot of money. You don't have to have the same budget as Qantas. You can do something very simple and turn the safety department into a profit centre in the process."

John McGhie

Major John McGhie doesn't accept the argument that some operations are too small to implement safety management systems.

"The smallest operator I've worked for was a two pilot, one aeroplane, operation," he said. "We knew we had to get the job done, but get the job done safely. The words weren't there but risk wasn't encouraged and management encouraged us to look for ways of improving things all the time."

> **"Safety can actually save money if you identify hazards before the accident happens."**

For John, the relationship between workers and management is crucial. "The culture of a company is very important – there's got to be that trust both up and down," he said. "It's the culture of encouraging people to make decisions based on a risk assessment process."

John started his aviation career as an Army Pilot and is currently a Squadron Qualified Flying Instructor in Army Aviation's 1st Aviation Regiment. He's also spent considerable time in civil aviation, giving him a broad understanding of the safety issues confronting aviation businesses.

John says safety management is essential in reinforcing safety messages that might fade into the background without repeated emphasis.

"There was a maintainer who ducked between a wing tip and a propeller of a running engine on one of the aeroplanes, even though the theory had been drummed into him not to do it," he said. "When we talked to him later, he admitted he had just become complacent. The event made everybody working with him more aware of what was going on around them – situational awareness."

John urges his fellow aviation professionals to take a lead in cultivating a safety focus within the industry.

"We have to engender trust and a culture of safety," he said. "People looking for a safety manager should be looking for a good negotiator. They must have the ability to listen and talk. That's where experience comes in. The young ones might have done a lot of formal training, which is good because it gives the safety manager a formal academic approach, but they also need the practical approach."

John's ideal safety manager is someone who is prepared to challenge unsafe practices. "You need someone who's prepared to stand up and be noticed and that's sometimes quite hard to do," he said. "One approach is to bring issues to management's attention because you want to save money. Safety can actually save money if you identify hazards before the accident happens."

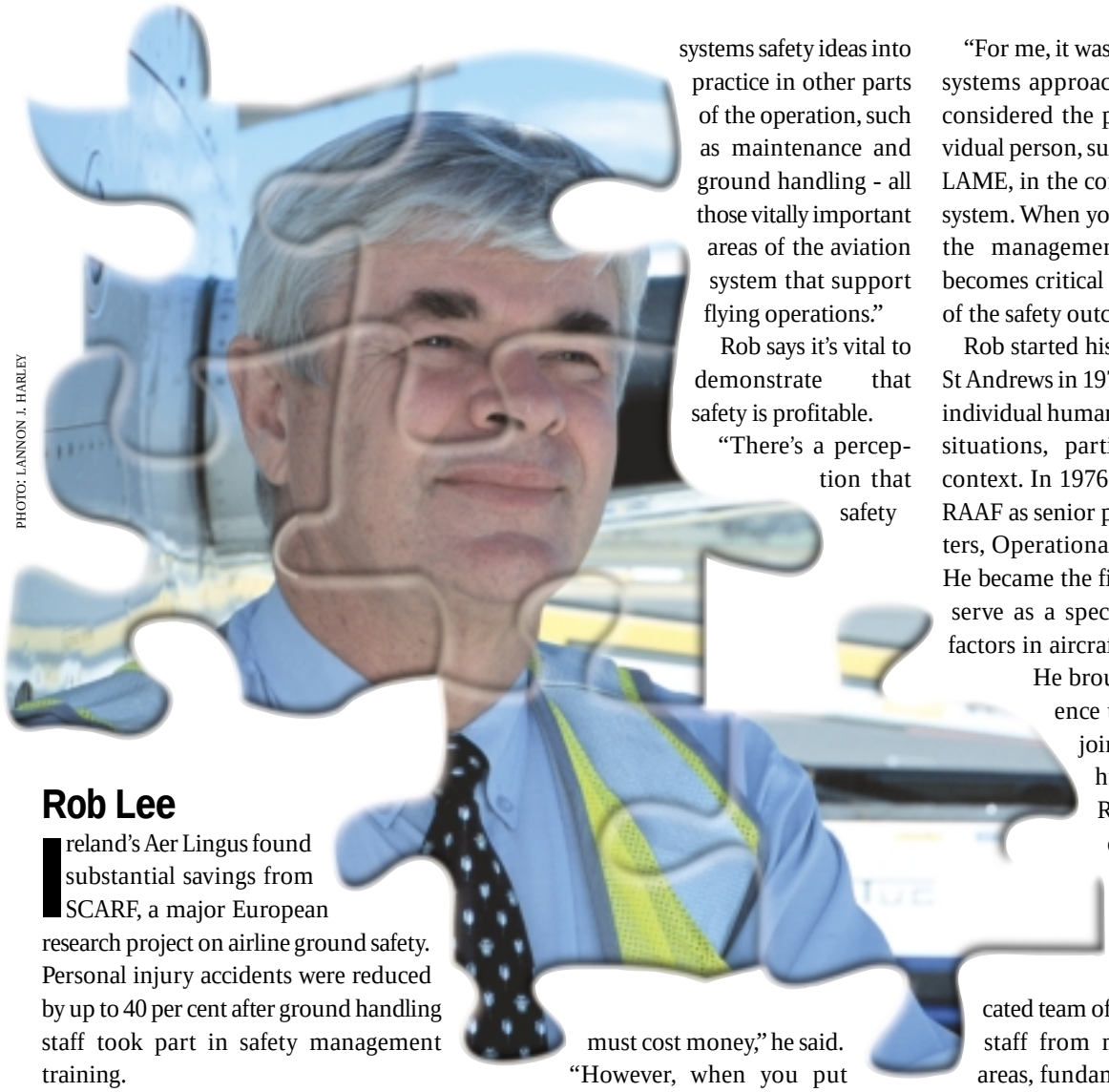

PHOTO: LANNON J. HARLEY

Rob Lee

Ireland's Aer Lingus found substantial savings from SCARF, a major European research project on airline ground safety. Personal injury accidents were reduced by up to 40 per cent after ground handling staff took part in safety management training.

But you don't have to be a big airline to develop effective safety management systems, according to systems safety consultant Rob Lee.

"A safety culture should be part and parcel of the organisational culture," he said. "It's not an add on, and it's got to be fully integrated into the overall system."

Rob says the challenge is to take the proven theoretical ideas and put them into practice across the aviation industry.

"I think one problem aviation has had until recent times, is that the industry has, understandably, tended to centre its primary safety focus on the flight crew," he said.

"In the area of flight operations, a very great deal has been achieved. However, in general, the aviation industry has not been as good at putting these human factors and systems safety ideas into practice in other parts of the operation, such as maintenance and ground handling - all those vitally important areas of the aviation system that support flying operations."

Rob says it's vital to demonstrate that safety is profitable.

"There's a perception that safety must cost money," he said. "However, when you put together a well-informed business plan for safety, and look at the projected cost savings to be achieved from integrated safety management systems, the bean counters become your friends. You can make a very powerful business case for safety."

Rob grew up in an aviation family – his father, the late Captain Les Lee, was one of TAA's original pilots, following his RAAF service in World War II. Rob's study of systems safety developed from his intense interest in aviation, together with the course work and thesis research he undertook for his honours degree in psychology at the ANU. He graduated with First Class Honours in 1970. He was profoundly influenced by Kenyon de Green's 1967 book, 'Systems Psychology', that looked at safety from a systems point of view.

"For me, it was the first germination of a systems approach," Rob said. "The book considered the performance of the individual person, such as a pilot, controller, or LAME, in the context of the total aviation system. When you do that, you realise that the management side of that system becomes critical to the nature and quality of the safety outcome delivered."

Rob started his PhD at the University of St Andrews in 1971. His research examined individual human performance in complex situations, particularly in an aviation context. In 1976 he was appointed to the RAAF as senior psychologist at Headquarters, Operational Command, Glenbrook. He became the first RAAF psychologist to serve as a specialist adviser on human factors in aircraft accident investigations.

He brought this depth of experience to BASI in1983, when he joined the bureau as its first human factors specialist. Rob was appointed director of BASI in 1989, a position that he held for the following 10 years. Under his leadership, the bureau, with its dedicated team of investigators and support staff from many different specialist areas, fundamentally changed the way aircraft accidents and incidents were investigated in Australia, through the practical application of human factors and systems safety concepts and knowledge. Rob also retains his long and close involvement with military aviation as a Group Captain in the RAAF Specialist Reserve.

Rob is passionate about spreading the message of safety management to aviation businesses across Australia.

"A lot of the smaller operations don't understand what systems safety is, and that it is not just a fashionable buzz word," he said. "We have to get people aware of what it's all about. Then we have to give them the practical tools they need to take these concepts and implement them in their own company. One of the most frustrating things about air safety investigation is the

constant finding that all of the main factors which contributed to an accident were present in the system before the accident happened – sometimes for years. If they had been identified and fixed, the accident could have been prevented."

But he acknowledges the challenges in changing some people's attitudes towards human factors and safety management.

"It can take a lot of attitude change, particularly if there's an established culture that's very rigid and doesn't accept these kinds of ideas.

"Safety is dynamic; it's changing all the time. You cannot put a system in place, then sit back and leave it at that. You've got to keep working at safety, and always plan for surprise."

Phil Cocker

Phil Cocker didn't find it hard to convince employer Skywest Airlines of the importance of a safety management system. "Good safety is good management and Skywest has readily embraced modern safety concepts" he said.

Phil started as a helicopter pilot in the army, and also flew army fixed wing aircraft. He held positions as a squadron and base flying safety officer, eventually moving to the Directorate of Airforce Safety where he investigated incidents and accidents.

Following a stint as a Flying Operations Inspector with the CAA, he joined Skywest Airlines in 1995 as a Jetstream pilot and now flies the Fokker 50. As Skywest's inaugural flight safety officer, Phil used his safety management experience to develop an incident reporting system and a safety advice committee.

"The safety advice committee has representatives of flight attendants and pilots," he said. "We have regular meetings chaired by the flight safety officer, with formal reporting directly back to management." After four and a half years, Phil stood down from the position in order to expand the involvement of other staff.

> **"…the sign of a good safety culture is when ideas are generated from the bottom up and people feel they will be listened to."**

"It's in the company's interest that it's not the same person doing it year in and year out," he said. "It highlights to staff and management that there's a broader responsibility for safety and it is not simply the domain of a single person."

Phil believes the safety management structure at Skywest is contributing to safety successes.

"Our committee is composed purely of line people – there are no management members," he said. "We do the reporting and present the issues and possible solutions to the company management who are ultimately responsible for the implementation of any changes. There is a formal procedure, including feedback, for this process."

Every year, the flight safety officer provides a safety report directly to the general manager. This includes an assessment of the safety health of the company, details of significant safety issues, and a summary of the level of acceptance and implementation of recommendations from the safety advice committee.

Phil said a pilot suggested introducing high-visibility tarmac vests after seeing their value overseas. The proposal has since been adopted and there are now two vests and procedures for their use in each aircraft. "This was a positive safety enhancement and it came about because of ideas from front-line staff."

Phil says the sign of a good safety culture is when ideas are generated from the bottom up and people feel they will be listened to.

"You can actually generate pride and teamwork in the organisation by having a strong safety ethos that staff identify with and are proud of."

PHOTO: EMMA KINDER

PHOTO: PAUL DICKESON

Doug Stott

At Mildura based Southern Australia Airlines, manager of flight safety, Doug Stott, has found the introduction of a database a valuable tool in managing safety information.

"Once upon a time there was a big binder in the chief pilot's office where he filed away the reports after sending them to BASI but rarely were any of them checked for trends" Doug said. " Now the database enables us to pick up trends and address problems in a timely manner. These days with the internet we can exchange data not only between other companies within the Qantas group, but also nationally and worldwide."

The database has become vital in identifying and helping to solve safety problems.

"We had a couple of occurrences to the same aeroplane on the same day of the week to the same engine over a number of weeks," Doug said. "We went back to find out why this happened. Was the previous day longer than the average day's flying? In this case it was, and the oil wasn't checked at an appropriate time during that day's flying. We were able to pick that up using the database. We wouldn't have otherwise been able to latch on to this."

> **"There's no disciplinary action taken against people who make mistakes that anybody can make. If you shoot everybody at dawn, your reporting system will dry up very quickly..."**

One of the things Doug likes best about flight safety is the networking that goes on between safety professionals within the aviation industry.

"All the commercial barriers fall down because everybody's interests are the same," he said. "Everybody's involved with the same aims and are not out to make a buck."

Aviation has been part of Doug's life since he learnt to fly at the age of 16. He's flown more than 20,000 hours on 80 different aircraft types from home-builts to the Catalina flying boat. He is currently president of the Mildura Aero Club and flies his Victa Airtourer on weekends.

Doug moved to Mildura in 1989 to fly Shorts 360 and later Dash-8s. Five years ago he was asked to look after safety reporting for the airline, work that has since become a full time ground job. He emphasises the importance of creating an environment where staff feel comfortable about reporting occurrences and hazards.

"We've got a policy of no fault, no blame," he said. "Unless you do a deliberate or malicious act, the worst you're going to get is a bit of retraining. There's no disciplinary action taken against people who make mistakes that anybody can make. If you shoot everybody at dawn, your reporting system will dry up very quickly because nobody will report anything. That would be a disaster."

The people profiled in this article will be speaking at CASA's Systems of Safety Management interactive workshops which look at the Australian experience of safety management. See the following page for details.