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Advancing the interests of our members and the profession

A STATEMENT OF CONCERN ON DIMINISHING FLIGHT STANDARDS

Are we handing the keys of the Ferrari to a bunch of "P-Platers"?

October 2010

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AIPA
the Australian and International Pilots Association

15 October 2010

WHO IS AIPA/AUSALPA?

AIPA Affiliations

AIPA is a member organisation of the umbrella pilot representative body for Australia, AusALPA, and a member association of the International Federation of Airline Pilots' Associations (IFALPA). In the global context, IFALPA represents in excess of 100,000 pilots through over 100 aircrew organisations. IFALPA is recognised as a permanent observer to the ICAO Air Navigation Commission and, as such, participates fully in the technical deliberations of the Commission and ancillary Panels and Study Groups.

AIPA is also a partner of the OneWorld Cockpit Crew Coalition whose principal objective is to provide a co-operative forum for its member organisations to address matters of common interest affecting pilots within the airline companies who comprise the oneworld Alliance (currently Qantas, Aer Lingus, American Airlines, British Airways, Lan Chile, Iberia, Cathay Pacific, Finnair, Japan Airlines, Malev Hungarian Airlines and Mexicana) and their major codeshare partners.

AIPA's Role

AIPA seeks to advance the employment interests of its members and, to that end, represents individuals and the membership at large both in the workplace and in the broader aviation industry. In addition to being the social welfare voice of our membership, AIPA has a broader interest in the welfare of all Australian pilots and, through our work with IFALPA, the interest of pilots worldwide.

AIPA also provides passionate advocacy on safety and technical issues, both locally and internationally. AIPA regularly participates in regulatory, technical and government inquiries and forums, and is recognised by various government and quasi-government bodies as having a stakeholder interest in the Australian aviation industry.

There are many issues that arise in aviation that often resolved without input from representative bodies such as AIPA. Some are matters that are not appropriate for representative body involvement and AIPA recognises and respects that circumstance. However, there are many other matters where the views and inputs of organisations such as AIPA, which are free of vested financial interests and not aligned with any commercial entities or business coalitions, can provide broad non-partisan advice and add significant value to both the process and the outcomes.

This Paper

This paper sets out our concerns on a number of safety and technical matters that we believe are diminishing Flight Standards in Australia and overseas.

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Are We Handing The Keys Of The Ferrari To A Bunch Of "P-Platers"?

by AIPA, the Australian and International Pilots Association[1].

INTRODUCTION

The National Aviation Policy White Paper: "Flight Path to the Future" (Commonwealth of Australia 2009) sets out Australia's Aviation Goals. A primary goal under the first heading related to Safety and Security is:

> Australians should have a well-founded confidence in the safety of aviation and a strong culture of safety needs to be maintained across government and industry supported by a sound safety governance framework.

The White Paper goes on to list a number of other goals to which AIPA wholeheartedly subscribes. However, in the context of this paper and without diminishing the importance of the other goals, AIPA wishes to raise concerns with regard to some of the other goals listed under the heading "Aviation is a key driver of broader economic prosperity", in particular:

- Australia should have an open and competitive international aviation market that benefits tourism, trade and consumers, allows Australian and overseas airlines to expand, and maintains a vibrant Australian-based aviation industry.
- Australia should maintain an open interstate domestic aviation market that maximises benefits to the Australian economy within the general framework of national competition policy.
- Aviation businesses should be able to innovate and develop new and improved products and services for the market.
- Employment in the aviation industry should grow with more Australians training for and taking up jobs in the industry.
- Australia should continue to grow as a leading provider of aviation training.
- A well-trained workforce, developed through partnerships between government and industry, should meet the continuing needs of Australia's aviation sector.

In actively pursuing its role as a key stakeholder in Australia's aviation industry, AIPA is worried that the apparently smooth surface of Australian aviation is hiding some

[1] AIPA is a member organisation of AusALPA and IFALPA and, in addition to its industrial and welfare imperatives, through various affiliations participates in safety and technical consultation with ICAO, IATA and various government agencies around the world as well as with Australian Government agencies.

turbulent undercurrents that have not attracted the attention or concern of those entrusted with meeting these laudable goals.

A significant number of AIPA members and Executive members have expressed a growing concern that pilot standards are slipping in Australia. Recent overseas accidents, incidents and related events contain clear pointers to insidious declines in operating standards (Learmount 2010a). AIPA attributes those declines as unintended but inevitable consequences of intensive (if not excessive) competition in the US and European aviation markets. The underlying systemic flaws that contributed to those events are also present within the Australian industry and may well becoming more widespread.

While AIPA recognises and respects the many different groups who contribute to maintaining public air transport as an "ultra-safe" industry (Amalberti 2001), it is the pilots who stand as the last line of defence in the achievement of safe flight (Parasuraman and Wickens 2008).

Pilot standards reflect the combination of the passion and commitment of the pilots as individuals, crews and company groups with their reaction to the social welfare climate created by adequate investment in aviation infrastructure, equipment and training supported by sound and sensible management. Unfortunately, each element of that system and the regulatory framework within which it functions can be adversely affected by the economics of inadequately restrained competition (Pinet 2010).

A recent American report (Lardner and Kuttner 2009) reviewed the outcomes of airline deregulation, inarguably the breeding ground for the "Low Cost Carrier" (LCC) phenomenon, and reached some illuminating conclusions:

> "Of the roughly 150 low-cost airlines founded since 1978, fewer than a dozen are still operating; they account for only about 10 percent of current airline capacity"
>
> "Since 2000, U.S. airlines have reported net losses of more than $33 billion—almost twice their accumulated profits from 1938 to 1999. Eleven domestic airlines filed for bankruptcy protection in 2008 alone; nine shut down altogether."
>
> "While the price of flying has come down over the past thirty years, it decreased at a comparable rate from the 1940s through the 1960s. In any event, low airfares are as much a problem as an achievement if they leave an industry without the resources to maintain service standards and make crucial investments in equipment, technology, and human capital."

The advent of very low air fares has increased the demographic pool of potential air travellers and created a significant demand for increased capacity. However, the expectation of the public is generally that the cheap fares come without any reduction in safety. Unfortunately, it seems that LCC business model inevitably leads to intensive (if not excessive) pressure on labour, training and maintenance costs (Naylor 2007) and consequently direct and indirect pressure on safety outcomes (Learmount 2006a).

Global environmental concerns in combination with several so-called fuel price shocks have led to the production of a number of very fuel efficient aircraft. Inevitably, those aircraft have also become highly automated as manufacturers seek to optimise

efficiency as well as to mitigate some of the inherent operational risks of aviation. Unfortunately, the high level of automation has created a new set of risks associated with the understanding and operating of complex systems that also create dependencies, distractions and unexpected outcomes as well as contributing to loss of manual flying skills (Endsley, 1996; Wickens, 2007). There remains considerable doubt that current training schemes, whether *ab initio* or type training, are adequate to properly mitigate these new risks (Chapman, 2009; Learmount 2009) .

LCCs have increased the demand for air travel. Failing the US dragging us into a "double-dip" recession, aircraft manufacturers are projecting average world wide growth in revenue passenger kilometres of 4.9%. Although infrastructure constraints such as airport and air traffic control capacity may drive changes in aircraft capacity rather than additional airframes for given markets, current expert advice suggests a looming and significant world wide shortage of pilots to crew the projected future aircraft numbers (Teyssier, 2010).

AIPA members frequently comment on the irony that this forecast demand comes at a time when the attractiveness of aviation as a career path is arguably at its lowest ebb as a direct result of the labour practices of the LCCs (Sullenberger,2009).

AIPA members are becoming concerned that the regulatory framework response of the International Civil Aviation Organisation (ICAO) is being inexorably pressured by the commercial interests of the International Air Transport Association (IATA), who are attempting to ameliorate the problem by reducing the experience requirements for the licensing of airline pilots. However, they appear to be doing so without adequately addressing the need for complementary increases in supervision and initial operating experience. Unfortunately, neither organisation appears capable nor willing to address the underlying issue of inadequate investment levels at all layers of the industry (ICAO 2010a).

The growing acceptance of the practice of crewing large passenger aircraft with pilots having total flight time measured in the low hundreds of hours puts immense pressure on aircraft captains and, in times of high demand, may well exceed the capacity of low time captains to safely manage all aspects of the aircraft operation. This particular risk will be exacerbated if the labour management practices of the operator result in highly stressed and financially insecure crews trying to survive until a better employment opportunity surfaces.

Well hidden from the public eye, regulators across the world are struggling to keep up with the ramifications of new entrepreneurial business models that have pushed the boundaries of existing regulatory frameworks. To compound the problems, regulators are almost universally lacking the human and capital investment needed to shift from a reactive to even a proactive footing, let alone the highly desirable predictive footing (ICAO USOAP, 2008). The current activity in the US Congress is most certainly a reaction to the issues attending the Colgan accident in Buffalo and is indicative of a loss of confidence in the Federal Aviation Administration (FAA) to deal with the matters in the course of normal business. The very fact that the relevant Bill passed both Congress and the Senate without a single dissenter is no small measure of the political intensity surrounding the revelation of the social welfare outcomes of unconstrained competition in the aftermath of airline deregulation.

While Australian operators may have lagged in their implementation of many of the entrepreneurial practices of the LCC phenomenon, those delays might well provide time to control, if not prevent, some of the safety and social welfare consequences emerging in those other markets.

SOME GLOBAL ECONOMIC INFLUENCES ON AUSTRALIAN AVIATION

Australian aviation has changed significantly over the last 20 years as we followed the lead of the U.S. in pursuing increased competition across the board, but particularly in the airline industry. AIPA is concerned that, although we wholeheartedly support competitive principles and improved economic efficiencies, there is a dark side that can adversely affect the reasonable balance of welfare contributions between employer and employees.

Proponents of deregulation often push for unrestrained competition and "the invisible hand" of the free market, a concept generally associated with Adam Smith, the 18th century scholar. While Adam Smith is usually heralded as perhaps history's greatest proponent of capitalism, economic historians and less-learned editorial writers seem to have forgotten that Smith — in foreign trade as in the domestic economy — believed that his invisible hand could do great harm to a nation and its citizens "unless government takes great pains to prevent it." (Brown, S. 2004). Airline deregulation in the U.S. may actually be case in point.

Airline Deregulation in the US

One of the most significant global economic influences on all aviation markets has been the deregulation of airlines in the U.S. following the signing into law of the Airline Deregulation Act of 1978. While each market has its differences, the various post-deregulation business models have been adopted everywhere. As the longest running example of airline deregulation, it is instructive for us to examine the long term outcomes.

A recent Congressional Report on Airline Deregulation (US GAO, 2006) states that the original regulation of the U.S. airline industry began in 1938 in response to congressional concern over safety, airlines' financial health, and perceived inequities between airlines and other regulated forms of transportation.

The Civil Aeronautics Board (CAB) was the regulatory body created to oversee the interstate industry by controlling entry and fares. The Report states:

> "In 1938, the interstate U.S. airline industry consisted of 16 "trunk" airlines, but this number contracted to 10 by 1974, despite 79 applications from new airlines to initiate service. Competition was limited on a route to one airline unless the CAB determined that demand was sufficient to support an additional airline. Airfares were based on a complex cost-based formula used by the CAB, though the exact formulas and process varied over the life of the CAB. Generally, though, airlines during this time had little incentive to reduce costs, since each was assured a fixed rate of return. As a result, the competition that existed among airlines was largely based on the quality of service."

The Airline Deregulation Act established specific goals of encouraging competition by attracting new entrant airlines and allowing existing airlines to expand. According to the Act, the chief aims of increasing competition were to lower fares and expand service.

The Report shows that a significant shift in the industry occurred around 2000:

> "Since the industry downturn that began in 2000, there has been a shift in the airline industry: a weakening of the financial condition of legacy airlines and an increasing market share for low-cost carriers. The consequences of an overburdened cost structure for legacy airlines became apparent after 2000 when demand fell, especially demand from premium-fare business travellers. Low-cost airlines, which generally did not have these cost structures, have been able to increase their market share, while legacy airlines have struggled to bring their costs down. As we reported in 2004, low-cost airlines increased their presence in the top 5,000 domestic city-pair markets by 44.5 percent; from 1,594 markets in 1998 to 2,304 markets in 2003. In 1998, low-cost airlines operated in 31.5 percent of markets served by legacy airlines, providing a low-cost airline alternative to 72.5 percent of passengers. By 2003, low-cost airlines competed directly with legacy airlines in 45.5 percent of markets served by legacy airlines, serving 84.6 percent of passengers in the top 5,000 markets. While legacy airlines began to reduce their operating costs starting in 2001, they did so through capacity reductions and were not able to reduce their unit costs vis-à-vis low-cost airlines that were adding capacity."

While the GAO found that airfares have fallen in real terms over time, with round-trip median fares almost 40 percent lower since 1980, improvement in services has been patchier. While some consequences of increased competition were expected, concern has been raised about the use of bankruptcy protection laws to abandon employee benefits:

> "We found that bankruptcy has been endemic to the airline industry since deregulation, with 162 bankruptcy filings since 1978, owing to the fundamental financial weaknesses of the airline industry. Despite the prevalence of bankruptcy, however, we found no evidence that bankruptcy harmed the airline industry by contributing to overcapacity or by underpricing. Nevertheless, we expressed concern about the use of bankruptcy to terminate defined benefit pension plans because of the costs to the federal government as well as to employees and beneficiaries. USAirways and United, subjected to intense cost pressures from growing low-cost airlines like Southwest, entered bankruptcy and terminated their labor contracts and pension plans. The pension plan terminations cost PBGC nearly $10 billion and plan participants lost more than $5 billion in promised benefits that are not covered by PBGC[2]. At present, only American Airlines and Continental have active defined benefit pension

[2] The Pension Benefit Guaranty Corporation was established to encourage the continuation and maintenance of voluntary private pension plans and to insure the benefits of workers and retirees in defined benefit plans should plan sponsors fail to pay benefits.

> plans, while the remaining airline plans are either terminated or frozen. In total, active and frozen airline plans were underfunded by almost $15 billion at the end of 2005, according to Securities and Exchange Commission filings."

While the GAO concludes that deregulation has generally achieved its aims, it also concludes that reregulation of fares is not an acceptable answer to the adverse social welfare outcomes. Rather, it previously and now again recommends broad pension reform. On the other hand, Demos, a non-partisan public policy research and advocacy organization, has published a more recent report (Lardner and Kuttner, 2009) that asserts that deregulation has failed to achieve its objectives:

> "Deregulation was promoted as a way of enhancing consumer choice and industry efficiency. Over time, it has had the opposite effect: service levels have deteriorated; mergers have curtailed choice on most routes; and most of the supposed efficiency gains to the air carriers have been the result of one thing—reduced wages, employment, and job security for airline workers. This is not efficiency in the normal sense of improved performance; it comes down to a simple squeezing of labor."

The highly regarded former CEO of American Airlines, Robert Crandall has firmly stated his view of deregulation:

> "I feel little need to argue that deregulation has worked poorly in the airline industry. Three decades of deregulation have demonstrated that airlines have special characteristics incompatible with a completely unregulated environment. To put things bluntly, experience has established that market forces alone cannot and will not produce a satisfactory airline industry, which clearly needs some help to solve its pricing, cost and operating problems.
>
> It must now be clear to all that one of the industry's fundamental problems is the way in which it prices its product. As you all know, airlines work with a very distorted supply-demand equation. The instant perishability of empty seats, the impossibility of quickly reducing fixed and semi-variable costs when demand falters, the public's view that all airline seats are interchangeable commodities, the plethora of competitors and the desire to protect the reach of networks all create a great temptation to sustain volume by selling seats too cheaply.
>
> In addition to producing huge losses, current pricing and operating practices have produced many negative side effects. In an effort to ameliorate losses, airlines have driven load factors much higher than can comfortably be managed, have outsourced much of their labor to firms employing marginally capable personnel, have introduced hundred of small, inefficient aircraft, have eliminated amenities once considered normal and are imposing a wide range of fees to supplement revenue. The proliferation of fees irritates already unhappy customers, and some - notably baggage checking fees - slow up the check-in process and encourage passengers to carry aboard even more than they have in the past." (Crandall, 2008)

Importantly, deregulation has changed the structure of the airline industry in the U.S. to that of a three tier structure of "legacy"[3,] low cost and regional carriers. According to the Demos report, most of the recent expansion of the U.S. airline industry has been among regional carriers, which are small companies flying small aircraft, mostly out of small airports. Unlike the low-cost start-ups of the 1980s, these companies do not compete with the legacy airlines. For the most part, they effectively function as subcontractors to legacy airlines and, through a variety of financial and marketing arrangements, they give the legacy carriers a way to reach communities that would be economically difficult for them to serve directly. Since 2001, the major airlines have redirected their energies toward longer and more profitable routes, letting their regional partners handle shorter flights using 50 to 90 seat aircraft. U.S. regional carriers now account for roughly 35 percent of the industry's flight-hours, more than double the 16 percent share that these companies held in 2000.

The economics of the U.S. regional carriers, in particular Colgan Air, has been brought into sharp focus by the Bombardier Q400 accident at Buffalo, New York[4]. The Demos report describes the situation as:

> "The crash of Continental Connection Flight 3407 blew a dirty secret: most of the major U.S. airlines are no longer directly responsible for many of the flights they advertise and sell. Since 1998, the regional air fleet has multiplied tenfold, from about 1,100 planes to more than 11,000."

and goes further to highlight the safety connection that has galvanised the U.S. Congress into action:

> "By law, all airlines are subject to the same federal safety regulations. In important practical ways, though, the regional airlines are a world apart, perhaps most dramatically in terms of hiring, training, and salary standards for pilots and co-pilots." (Lardner and Kuttner, 2009)

Not all markets resemble the U.S. and deregulation of itself is not a bad thing. However, it is important to note that the particular negative outcomes for social welfare and safety coming to light in the U.S. regional airlines are symptomatic of unrestrained competition and the consequent financial pressures inherent in the LCC business model.

The Low Cost Carrier Model

The post-deregulation structure spread from the U.S. to Europe in 1991 and to Australia in 2000, predominantly as the LCC model. While the LCC is a product of deregulation in the U.S. airline market, modelled on South West Airlines, the greatest success of the concept has probably been seen in Europe.

Europe is a much different geo-political environment from that of the U.S., but the pioneering inroads of Ryanair from 1991 and EasyJet from 1995 have seen a widespread adoption of the LCC model. According to the Economic Policy Section of

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[3] "Legacy" carriers are defined by the GAO to be those carriers operating before deregulation and who competed primarily on service provision – in Australian terms, they most closely resemble the "main line" full service carriers like Qantas and Ansett.

[4] The flight was operated as Continental Connection Flight 3407 and the aircraft crashed on 12 February 2009

the ICAO Air Transport Bureau, Ryanair and EasyJet provide the two basic types of low cost business models in Europe which the other LCCs try to emulate. They are distinguished as follows:

- Ryanair serves secondary airports at relatively low frequencies and focuses on new leisure markets with no direct competition. The Ryanair model focuses on costs rather than on markets, which includes strongly persuading suppliers and airports to reduce charges.
- EasyJet serves primary -high costs airports at high frequencies and focuses on existing, business and leisure, markets and also new markets, accepting competition from incumbent carriers.

At the time of presenting their case study, the ICAO Economic Policy Section made the following statement about the impact of LCCs:

> "4.1 The London airports, notably Gatwick, Luton and Stansted, have been the nursery of low cost carriers in Europe. The capacity constrained hub airport of Heathrow has until now no presence of low cost carriers. Since 1997, the number of routes served by no-frills operators from these airports has increased from 17 to 74, with around 15 new destinations being started each year. The increased number of routes served from these London airports is mainly attributable to the no-frills airlines; almost a quarter of the total seat capacity ex-London is now provided by low cost carriers, with Ryanair the second biggest carrier after British Airways. Very few of the destinations targeted by the low cost sector have been subsequently dropped.
>
> 4.2 In contrast to the rapid growth in the number of flights and seats supplied by the low cost carriers, the output of full service providers has either stagnated or contracted. The main carriers therefore find themselves in somewhat less dominant market positions in their home market. Customers have not lost out in terms of the routes served or the flights offered, but the incumbents have marginally reduced in importance in these markets. However, relatively few of the short haul markets served from London by the major carriers have experienced a reduction in capacity, which is most likely due to the need for these carriers to feed passengers into their long-haul network. This would seem to suggest that in the principal short haul markets, low cost developments have not forced network carriers to retrench. It is in the smaller markets that incumbents are more likely to reduce capacity in the face of increased competition." (ICAO 2003)

As at 31 August 2010, there were 44 LCCs listed as operating in Europe, compared to 8 discussed in the ICAO case study (Wikipedia, 2010a).

There is no doubt that the LCC model has created substantial social benefit for the travelling public, particularly in Europe (Dunn 2009). However, it is important to note that the European LCCs continue to focus intense pressure on maximising crew productivity and minimising crew costs. Regulations which were designed to set maximum flight times in an era of lower activity levels have now become the targets to which the LCCs operate. Roster changes to achieve the productivity targets can be

imposed on crews by management, regardless of the lifestyle consequences (Learmount 2006b). The dominance of the LCC model combined with the highly concentrated geo-political distribution of operators also predicates that pilots have limited mobility in the search for more favourable social welfare outcomes.

Reduction in Pilot Experience Requirements

The European LCCs and the European charter operators were the first to reduce the traditional experience requirements for pilots as a way of overcoming the pilot shortage that followed the rapid expansion of LCCs. The LCCs employed co-pilots with little or no commercial experience gained following licence issue and reset the remuneration accordingly, thus satisfying their pilot supply and cost targets at the same time.

The rapid expansion of LCCs in the European market has, simply by demanding more pilots than were available or that the training system can produce, severely curtailed any regulatory or economic debate about the consequences of employing low-time pilots in airline operations. Unfortunately, two observations must be made about this financially-driven move to abandon pilot experience as a risk mitigator: first, that the practice became a competitive advantage that was rapidly adopted by other operators and became a feature of the "new" LCC model adopted elsewhere in tight pilot labour markets; and second, that IATA, headquartered in Europe, accepted the practice as a *fait accompli* and as a basis for future air transport strategies.

The European LCC model has seen the shifting of low experience into the command seat as pilots are promoted to command with as little as 1000 hours of type experience and around two years of company experience. As we discuss later, AIPA believes that the broad community view of the value of experience in any occupation, but particularly in safety-related occupations, is that it provides resilience in the face of the unexpected and, further, that experience cannot be replaced with classroom theory or exposure to an irrelevant environment. Significantly, the risk of compounding low experience on entry with minimal experience before promotion has yet to surface as a primary cause in accident and incident investigations that reflect historical models rather than the new paradigms.

Unfortunately, AIPA believes that low experience is a classic latent condition (Reason 1997) and that it is only a matter of time and fearless investigation before it surfaces as a primary cause of an airline safety event.

Pay for Training

The LCCs also were the pioneers of "pay for training" (also known as Self Sponsored Type Ratings or SSTRs) schemes that shifted significant traditional costs "off balance sheet" and onto pilot employees. Traditional arrangements were that pilots self-funded their training to gain a commercial licence and instrument rating and then gained employment with the employer providing all required training as a tax deductible business expense. The LCCs changed this arrangement by requiring pilots to already hold a valid type rating on their aircraft as a condition of employment. These arrangements are currently in place in Australia at Virgin Blue and Jetstar (Rochford 2006) Currently in Australia, a type rating on a Boeing 737 or Airbus A320 costs of the order of $35, 000 plus accommodation, meals and incidentals which the prospective employee must fund, generally without any guarantee of employment and considerable

uncertainty as to the tax status of those costs. "Pay for training" schemes are significant contributors to occupational stress.

Pay to Fly

Another international influence that is deeply disturbing to AIPA members is the "Pay to Fly" or "P2F" schemes which some entrepreneurs and operators offer as an extension or variation of the "pay for training" schemes. In these schemes, a prospective airline pilot can buy a program that takes him or her from zero flight time through the appropriate licence and instrument ratings, a typical airline jet type rating plus an agreed number of hours of first officer line experience for around $US 135,000 or a number of other options depending upon starting qualifications (Eagle Jet International, 2010). Pilots buying these packages are buying their way into the co-pilot's seat of public transport aircraft typically carrying 150-180 passengers. Apart from the potentially crippling financial burden accepted by these low or no experience pilots, the airlines participating in these schemes are deferring or avoiding the costs of employment of longer term pilot employees. "P2F" schemes represent a quantum leap in the occupational stress referred to above, particularly as there are growing reports of some participating airlines severing their ties with the "P2F" pilots at the end of the contracted period of line experience.

Moral Hazard in Aviation

"Moral Hazard" can be defined as:

> "Moral hazard occurs when a party insulated from risk behaves differently than it would behave if it were fully exposed to the risk.
>
> Moral hazard arises because an individual or institution does not take the full consequences and responsibilities of its actions, and therefore has a tendency to act less carefully than it otherwise would, leaving another party to hold some responsibility for the consequences of those actions." (Wikipedia, 2010b)

If we consider both "pay for training" and "P2F" schemes, the participating airlines are insulating themselves from the majority of the financial risk of the relevant pilot training. The behavioural differences engendered by that insulation are typically disengagement from: syllabus development and review; trainee development, mentoring and supervision; and selection validation. On the other hand, the third party training providers to whom some of the risk is transferred have little incentive or capability to review or validate the training syllabuses. Training quality will suffer in such stagnant circumstances, undetected by less-involved airline employers and adding to the list of latent conditions for an aviation safety event.

P2F schemes significantly increase this "moral hazard" by virtue of the fact that the participating airlines do not have to commit to keeping the employee beyond the contracted line experience. The "moral hazard" is exacerbated by the conflict of interest that arises because P2F schemes represent another revenue source for the participating airlines. AIPA is concerned that there are clear structural impediments to maintaining flight standards, particularly when the financial incentive for the airline is to maintain the "P2F" pilot turnover while maintaining the scheme price and minimising the underlying training costs. The counter argument that the airline is exposed to the same

short term risk as any other employer of low-experience pilots is plausible. However, the likely lack of commitment to development of the pilot as a long term employee/potential captain, combined with the fact that the "P2F" pilot has in effect bought logbook time rather than genuine experience, means that different risk management strategies can be employed.

Industry Attractiveness

Perhaps the most salutary summary of the attractiveness of the aviation industry is that of Captain Chesley "Sully" Sullenberger III, who managed to safely ditch his Airbus A320 on the Hudson River in New York on 15 January 2009 following a double engine failure due to bird strikes. The following is an extract from his statement to the US Congressional sub-committee hearing evidence related to the Colgan accident:

> "I am not only proud of my crew, I am proud of my profession. Flying has been my life-long passion. I count myself fortunate to have spent my life in the profession I love, with colleagues whom I respect and admire. But, honorable Representatives, while I love my profession, I do not like what has happened to it. I would not be doing my duty if I did not report to you that I am deeply worried about its future.
>
> Americans have been experiencing huge economic difficulties in recent months – but airline employees have been experiencing those challenges, and more, for the last 8 years! We have been hit by an economic tsunami. September 11, bankruptcies, fluctuating fuel prices, mergers, loss of pensions and revolving door management teams who have used airline employees as an ATM have left the people who work for airlines in the United States with extreme economic difficulties.
>
> It is an incredible testament to the collective character, professionalism and dedication of my colleagues in the industry that they are still able to function at such a high level. It is my personal experience that my decision to remain in the profession I love has come at a great financial cost to me and my family. My pay has been cut 40%, my pension, like most airline pensions, has been terminated and replaced by a PBGC guarantee worth only pennies on the dollar.
>
> While airline pilots are by no means alone in our financial struggles – and I want to acknowledge how difficult it is for everyone right now – it is important to underscore that the terms of our employment have changed dramatically from when I began my career, leading to an untenable financial situation for pilots and their families. When my company offered pilots who had been laid off the chance to return to work, 60% refused. Members, I attempt to speak accurately and plainly, so please do not think I exaggerate when I say that **I do not know a single professional airline pilot who wants his or her children to follow in their footsteps**." (Sullenberger 2009)

How have we ended up in Australia?

All of the outcomes and financial models discussed above, with the singular exception of "P2F" experience in large jet aircraft, have appeared to a greater or lesser extent in

Australia. While AIPA acknowledges that some of those outcomes and financial models are the inevitable consequences of competition, AIPA is of the view that the related effects on safety, either directly through reductions in flights standards or indirectly as responses to changes in corporate culture and the social welfare of pilots, have not been adequately researched or debated.

AIPA is therefore of the view that the associated risks have not been appropriately identified or mitigated by either operators or the regulator, thus providing the potential to undermine the achievement of the goals of the Australian Government as set out in the Aviation White Paper (Commonwealth of Australia 2009).

SAFETY CONSEQUENCES OF UNRESTRAINED COMPETITION IN THE AIRLINE INDUSTRY

Commentators on competition policy, regardless of whether they espouse that "Greed is Good, Lest we forget it" (Melleuish 2009) or "Neo-Liberalism Is Dead As People Realise Markets Need Regulation" (Bowen 2009) or debate the costs and consequences of regulation (Moran 2005, 2007), rarely venture into debating the safety consequences of inadequately restrained competition. As mentioned in the previous section, AIPA believes that there are flight safety risks that arise either directly through reductions in flights standards or indirectly as responses to changes in corporate culture and the social welfare of pilots. These concerns are mirrored in a global survey by Ascend Worldwide Ltd, which called its Press Release "Industry cutbacks threaten air safety. Aviation insiders' survey backs Hudson hero" and which, *inter alia*, stated:

> "In a year already struck by high-profile accidents, the aviation industry has repeated its anxiety about safety, in a survey for Ascend, the aerospace specialists.
>
> Along with poor financial health, a shortage of experienced personnel, fatigue and tough work practices were considered the greatest dangers to air safety, mirroring concerns expressed in an Ascend survey last year. This year, fears over complacency had significantly increased." (Ascend 2009)

There are other significant areas of risk, particularly in the management of outsourced maintenance activities (Lardner & Kuttner 2009), but they are not the immediate focus of AIPA members. However, there are many parallels to be drawn between AIPA members' concerns and other safety related occupations.

While the details remain unclear, the Australian Government has at least identified that the expanding LCC models have increased overall risk. In the Aviation White Paper section titled "Summary of Government Initiatives":

> "The Government will ensure CASA…directs appropriate resources to emerging areas of risk with a particular focus on the surveillance of helicopters, foreign operators, the low-cost carrier sector and the conduct of off-shore maintenance;" (Commonwealth of Australia 2009)

Unfortunately, AIPA remains unsure that the concerns discussed below are typical of the issues that CASA intends to monitor or indeed moderate.

Occupational Stress

The indirect risks to flight safety are a consequence of the reaction of individual pilots to occupational stress. Parikh, Taukari and Bhattacharya (2004) provide a useful categorisation of occupational stressors, all of which can be seen in the aviation environment:

> "Firstly, the working conditions, including shift and week-end work, inadequate remuneration, hours of work, discrimination and safety at the work environment. Secondly, relationships at work including quality of relationships with peers, subordinates and supervisors. Thirdly, role conflict and ambiguity including ill-defined role, functions, expectations, and duties. Fourthly, organization structure and climate which includes communication policy and practice, major changes in the workplace, culture of the organization, and lack of participation in decision-making. Another cause is career development including under utilization of skills or failing to reach full potential. Another contributing factor is the nature of the job which might amount to an immense amount of physical and emotional exhaustion."

With few exceptions, LCCs and airlines competitively forced to adopt LCC management methods are predominantly production focused and treat their employees as another commodity to be cost managed rather than nurtured. It appears that many managers from these airlines fail to recognise the connection between working conditions and safety performance, despite stress management being a key feature of all Crew Resource Management and Human Factors (CRM/HF)[5] training since the early 80s.

The introduction to a paper titled "Job Satisfaction As Related To Safety Performance: A Case For A Manufacturing Firm" clearly identifies the connection:

> "The factors most consistently associated with job-related injuries include: environment, mood among workers, employee selection practice, types of work procedures, role clarity, and job satisfaction & stress (Personnel, 1991). In a similar study, Sherry (1992) identified five major factors related to potential causes of accidents, i.e. psychological, environmental, ergonomic, physical, and stress." (Kim, McInerney & Alexander 2002)

Working conditions have certainly attracted US Congressional attention in regard to the Colgan accident:

> [Captain] Renslow was earning around $60,000 a year—not much more than half what most legacy-airline pilots make, despite the pay cuts that many have endured. [First Officer] Shaw, according to various accounts, was making between $16,000 and $24,000.

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[5] CRM/HF is now referred to more often as "non-technical skills/human factors" or NTS/HF. Recent regulatory amendments in Australia requiring the establishment of Safety Management Systems (SMS) make NTS/HF training mandatory for regular public transport operations for both operational and maintenance personnel.

> These figures may help us understand the backstory of Flight 3407. At the major airlines, pilots typically live (or have a regular place to stay) near their base airports. In the world of regional-airline pilots and co-pilots, it is common to live hundreds or even thousands of miles away and catch your sleep, as you can, in a crew room at the airport. Joking with Renslow in the cockpit, Shaw said that Colgan's crew room at Newark had a couch with her name on it. Renslow himself had logged in from a crewroom computer at 3 a.m." (Lardner and Kuttner, 2009)

Other workplace issues that create stressors are management attempts to fine tune Flight and Duty times, crewing ratios, rest periods and other rostering related practices. While individual pilots respond in different ways to these stressors, they remain a latent threat in the flight deck that, in combination with fatigue and other short term physiological events, can result in unexpected outcomes in a crew environment that largely depends on the consistency and predictability of each pilot's actions and responses. Once again, the final report into the Colgan accident (NTSB 2010) contains a plethora of workplace stressors that contributed to the final outcome, all of which were manageable.

These occupational stressors are not limited to the smaller, regional aircraft. The testimony of the First Officer of US Air Flight 1549 is relevant to life in an established network carrier:

> "I too am proud of the fact that I have been involved in aviation for the last 32 years. Both of my parents were pilots before me. I have over 20,000 hours in the cockpit, have flown as Captain at US Airways in the past, and Captain qualified on 3 different transport aircraft types."
>
> "Along with Captain Sullenberger, I have concerns for the future of the Airline Pilot Profession. Experienced crews in the cockpit eventually will be a thing of the past. What this country has experienced economically in the last 8 months, we have experienced in our industry for the last 8 years, since 9-11. In the wake of these 8 years of financial turmoil, bankruptcies, layoffs, and revolving door management teams, airline piloting careers have been shattered. I personally earn half of what I once earned, AND I have lost my retirement to a PBGC promise that will pay pennies on the dollar. Many pilots like Captain Sullenberger and myself have had to split their focus from the Airline Piloting Profession and develop alternative businesses or careers. I myself am a general contractor. For the last 6 years, I have worked 7 days a week between my two jobs just to maintain a middle class standard of living.
>
> The more than thirty thousand people who work at US Airways are proud of the work they do each day, and of their accomplishments. To many of us, the near total devaluation of our professions by our management is heartfelt. In the last several years the only constant I see is the ever increasing compensation levels of our management." (Skiles 2009)

AIPA members can only guess at the stress engendered in young pilots who have committed themselves to crushing financial burdens to pay for their training, type ratings and, in some cases, for line experience without certainty of employment. Equally concerning is the mental state of those who do gain employment but are forced to live with the uncertainty that employment will necessarily be at a salary that allows

the debts to be repaid in a reasonable period of time without further debilitating hardships.

Adequacy of management infrastructure

A further safety-related consequence of the LCC model and the prevailing lack of attractiveness of the airline industry is the ability and the willingness of the industry to attract and retain technically qualified people into well designed management structures.

While a fundamental shift of emphasis from technical management to financial management was inevitable, AIPA members are concerned that appropriately experienced technical managers are increasingly being removed from executive management and are being further isolated from the real management of risk. While standard executive management mantras reiterate that safety is not to be compromised, there is increasing anecdotal reference to non-technical managers involving themselves directly in operational risk management and the development of policy and procedures. There is also anecdotal reference to a growing divide between those managers and the flight safety advocates, whose contributions are often dismissed on the basis that they do not understand the needs of the business.

Unfortunately, there also a growing number of pilots being appointed to safety critical positions who lack an appropriate background in technical management and/or do not respect the lessons of history. Focused management training for technical managers is absent in most airlines. Equally concerning in an industry showing little regard for expertise and experience is the level of rumblings about young technical managers willing to compromise risk for various reasons, whether it be for financial reward or career progression.

Sound technical management is critical to both direct and indirect safety outcomes. Bad procedures are a direct safety risk, constantly amending procedures is a direct and indirect safety risk and superficial risk assessments or underinvestment in training design are indirect risks. Each of these examples are becoming more commonplace in organisations with technical management structures that lack depth and talent and within which overload, stress and burnout are prevalent

Gambling with the Crew Concept

In his testimony before the U.S. Congress Aviation Sub-committee about the Hudson River ditching, First Officer Jeffery Skiles made much of the advantage of CRM and experience crews:

> "Sully and I have over 70 years of experience and 40,000 flying hours between us. New pilots in the jet aircraft of our affiliate airlines have 300 hours. When I began at US-Airways, the Company required several thousand hours just to gain an interview for a pilot position. It is certainly in the interest of the traveling public to have experienced crews in the cockpit." (Skiles 2009)

In an unfortunate contrast, the NTSB Report (2010) on the Colgan accident contains a litany of uncoordinated and unpredictable actions by both crew members. While some argue that the crew were reasonably experienced, the Captain had only a total of 1030 hours in command and only 111 hours experience on the Q400, while the First Officer

had 774 hours total airline experience, all on the Q400 with Colgan. CRM training was an 8 hour initial course and a 2 hour annual refresher, while command training was an 8 hour course predominantly focused on Captain administrative duties.

However, the advent of LCCs and the demand for pilots has resulted in a huge gamble with many aspects of the crew concept. It is noteworthy that almost all the commentary provided by airline pilot practitioners makes reference to the importance of experience, yet LCC airline managers have almost universally abandoned the need for prior experience of any significance. Unseen by the public and regulators alike, flight operations managers have struggled to fit 2-300 hour pilots into cockpit crews previously characterised by substantial flight time on both sides of the cockpit, shaped and developed by good training both for the primary task and for the coordination required to operate as a team.

Aircraft Captains, accustomed to sharing flying duties with a First Officer competent in operating aircraft in many environments and usually with commercial command experience in turboprop aircraft, suddenly found themselves unable to satisfy their command responsibility with low to medium levels of supervision. Many such Captains reported anecdotally that a significant number of the low hour First Officer required so much supervision and assistance that their own situational awareness (SA) and vigilance was degraded, often severely. Consequently, many of the traditional training programs were revealed to rely on assumptions about operational experience, maturity and aviation knowledge that were largely invalid. Similarly, while CRM programs were seeking to reduce the authority gradient between the Captain and First Officer, the insertion of low hour pilots into the cockpit created quite adverse gradients, reflecting a perceived reduction in confidence in the capabilities of the First Officer to participate in the shared workload without creating additional workload for the Captain

Little has been raised in the public arena about the consequences of this experience/training gamble, largely because the LCC managers did not invite debate on the issue, were not about to limit their commercial expansion plans and because the regulations permitted such arrangements. When the drafters of the regulations did their work some 40-50 years ago, LCCs were never contemplated – now, the politico-economic realities of projected growth in aviation make a tightening of the rules largely impossible.

Within the crews of the LCCs employing low time pilots, the cockpit authority gradients are being rebalanced by another irony, the promotion of low time Captains. Commands are available in some LCCs after 2 years as a First Officer and as little as 1000 hours of type experience. AIPA is concerned that in such situations, that the overall effectiveness of the crew may well be compromised despite a more even cockpit authority gradient, simply because the crews' combined exposure to the many vagaries of aviation is minimal and the advantages normally provided by longer periods of mentoring are simply not available. Australia currently has no minimum experience requirements for Captains flying large aircraft carrying more than 30 passengers.

Flight Standards

The immediately preceding discussion about safety consequences and risks is necessarily of a broad nature. There is no doubt that those issues will manifest themselves in flight standards events. However, there are a number of threats to flight

standards that are more direct and more amenable to practical redress, as well as some threats that are not necessarily generated as a function of the paradigm shift in airline operating models. As such, they have been set out separately below.

THREATS TO CURRENT AND FUTURE FLIGHT STANDARDS

The following discussions are not intended to be the totality of threats to current and future flights standards, but rather the more obvious.

The "Generation Gap"

While there are significant issues in training content that will be examined a little later, selection procedures and training delivery invariably reflect the generational expectations of the designers. A threat to Flight Standards arises when there is a mismatch between the design philosophy and expectations underlying much of current aviation training and the target audience. If those expectations don't strike a resonant chord with the applicant or student, then the process will be negated to varying degrees. This mismatch is often labelled as the "generation gap" and it affects a lot of interpersonal transactions in the workplace, particularly in the cockpit. There is nothing new about the existence of the "gap", but the rapid global changes in technology and communications and the emergence of the so-called "Generation Y" give the appearance the gap has widened more than otherwise would have been expected.

This threat is most effectively managed by including representatives of the relevant demographic groups in either the teams creating the delivery methods or in focus groups who provide feedback on trial delivery methods.

"Generation Y"

"Generation Y" (or "Gen Y") is generally held in Australia to be the group born in or around the 16 year period between 1978 and 1994 (QTIC 2007). "Gen Y" currently includes about 30% of the Australian work force and will be the source material for aviation for some time yet. The emerging problem is that aviation as an occupation has certain characteristics that differ from the general run of workplaces. For airline pilots in particular, the work requirements do not lend themselves to the type of flexibility seen in many offices around Australia. Yet typical characteristics of "Gen Y" are said to be:

- "• Want success quickly and pay-packet to match
- Do not see the need to earn credibility or work their way up the corporate ladder
- Do not want to do menial tasks, but instead crave challenging and creative responsibilities
- Have little loyalty to companies, but are loyal to their peers
- Likely to work for only two to three years with any one employer
- Likely to change careers six times in their working life
- Cynical, questioning and live for now

- Expect training programs, time off to travel and flexible working hours" (Foundations Consulting 2006)

While the literature offers little in describing specific characteristics of "Gen Y" airline pilots, anecdotal feedback suggests that self-preparation, research and technical curiosity are often lacking, as is patience and acceptance of procedural constraints. Importantly, there appears to be a lack of commitment to conducting the pilot not flying/monitoring task at the same level as that of the pilot flying. These characteristics compound the problems attributable to the issues of low-time pilots and the generation gap discussed above.

It is critical for crew effectiveness to minimise to the maximum extent possible any incompatibilities in attitude/behaviour, discipline and commitment to the task. Unfortunately, "Gen Y" stereotypes would appear to be largely incompatible with the social welfare outcomes of employment contracts at LCCs or typical methods of discipline, so the task facing flight operations managers is substantial.

Low Experience Pilots

AIPA is concerned about the effect of low experience pilots on flight standards. Some of the issues have already been raised in the section "Gambling with the Crew Concept", particularly in regard to the generally increased demand for close supervision by the Captain. This imbalance in workload can significantly reduce the effectiveness of the crew, particularly in situations where the First Officer fails to provide the Captain with the level of support required. In abnormal situations, the failure to provide adequate support may shift the crew from a two crew operation past single pilot into a degraded mode from which recovery may be extremely difficult.

The low experience pilot would have demonstrated competence at the last proficiency check undertaken. However, that check may well have been his or her first pilot proficiency check (PPC) undertaken as an airline pilot and it may well have been conducted at the end of a type rating where the pilot has practised almost every day the PPC elements in one form or another. The resilience of that demonstrated competence is generally held to be a function of two characteristics: inherent ability and experience.

Inherent ability for our purpose here is an outcome of selection, both initially and by filtering at various assessment points. On the other hand, experience is a "time in the game" characteristic that AIPA believes is being written out of the equation by vested interests who are not prepared to make the necessary investment in the industry or to pay the price for expertise.

In other vocations, experience is recognised as an important component of developing expertise. K. Anders Ericsson places great emphasis on the value of "deliberate practice" (Ericsson, Krampe & Tesch-Romer 1993) and, in a recent Harvard Business Review article (Ericsson, Prietula & Cokely 2007), went so far as to declare:

> "New research shows that outstanding performance is the product of years of deliberate practice and coaching, not of any innate talent or skill."

Similarly, the widely used Dreyfus model of skill acquisition (Dreyfus & Dreyfus 1980, 1984) reflects the role of experience in progressing through five stages of competence. The abstract of their seminal paper in 1980 succinctly describes why their model has proven to be so resilient:

> "In acquiring a skill by means of instruction and experience, the student normally passes through five developmental stages which we designate novice, competence, proficiency, expertise and mastery. We argue, based on analysis of careful descriptions of skill acquisition, that as the student becomes skilled, he depends less on abstract principles and more on concrete experience. We systematize and illustrate the progressive changes in a performer's ways of seeing his task environment. We conclude that any skill training procedure must be based on some model of skill acquisition, so that it can address, at each stage of training, the appropriate issues involved in facilitating advancement."

The original model has been slightly recast and perhaps the most widely quoted version is attributed to Michael Eraut, who describes the five stages as "novice", "advanced beginner", "competent", "proficient" and "expert". If we now return to our consideration of the risk to flight standards posed by low experience pilots, we are essentially faced with replacing a First Officer who is "proficient" with a First Officer who could be described as somewhere between an "advanced beginner" and "competent" although, anecdotally, reports of "novice" behaviour are not uncommon. The relevant characteristics are:

"1. **Novice**
   - "rigid adherence to taught rules or plans"
   - no exercise of "discretionary judgment"

2. Advanced beginner
   - limited "situational perception"
   - all aspects of work treated separately with equal importance

3. Competent
   - "coping with crowdedness" (multiple activities, accumulation of information)
   - some perception of actions in relation to goals
   - deliberate planning
   - formulates routines

4. Proficient
   - holistic view of situation
   - prioritizes importance of aspects
   - "perceives deviations from the normal pattern"
   - employs maxims for guidance, with meanings that adapt to the situation at hand

5. Expert
   - transcends reliance on rules, guidelines, and maxims
   - "intuitive grasp of situations based on deep, tacit understanding"
   - has "vision of what is possible"
   - uses "analytical approaches" in new situations or in case of problems (Eraut 1994)

AIPA acknowledges that not all experience is the same and that there is inherent truth in the old maxim "one hour repeated a thousand times is not the same as a thousand hours". However, one rarely sees 25 year old MBAs running safety-critical enterprises. The AIPA position remains that pilots selected on the basis of valid and relevant experience bring to a crew a maturity and resilience under stress that is infrequently matched by graduates of training schools with no practical exposure to commercial aviation. Aviation has far too many variables and unknowns to rely on training alone to equip a pilot to handle the often unique circumstances and events that he/she may suddenly face. Experience "puts the flesh on the bones" of good training, giving the pilot the practical ability to discern the subtle cues required for good decision making and a collection of pragmatic options to give effect to those decisions.

AIPA is also concerned about the amplification of risk brought about by low experience pilots during early line operations and during line training in particular (see below) in the event that the Captain is incapacitated.

Selection

Within the world of education theory, there is some debate about the concept of "inherent ability" as it is used above. However, Gardner's Theory of Multiple Intelligences is an intuitive fit with the range of student performance commonly observed by Flight Instructors and airline Training and Check (T&C) pilots. Gardner's Theory is based on the construct that there are at least eight domains of intelligence in which human beings may display true potential (Theiler 2003). Categorising domains of intelligence in this way leads us naturally to processes that identify those characteristics that indicate potential for success as a pilot and those that are contra-indicated, so that we select candidates who are "best fit".

The current trend to transfer the financial impost of training onto the trainee pilot creates an instant narrowing of the selection pool from those that are capable to a subset who may be capable but whose primary qualification is the ability to pay. This whole approach then creates several tensions – if your business makes money from training, how selective are you prepared to be; and, if you have been paid for training, how ruthless are you prepared to be at assessments?

Recent initiatives by IATA under the IATA Training And Qualification Initiative (ITQI) have identified selection processes as a key component of improving the calibre of crews and mitigating some of the risks to flight standards. It is perhaps a measure of the current risk to flight standards that the ITQI action on selection only began in June 2009 and that the resultant "Guidance Material and Best Practices for Pilot Aptitude Testing" document (IATA 2010), which we understand to be the first comprehensive industry guide, has only been available for some five months.

AIPA members report that their experience with airline selection processes in Australia indicates a wide range of processes that generally reflect the ability of the airline to attract applicants. When airlines have difficulty recruiting, immense pressures are generated internally to protect the airline's ongoing investment, not only in the pilot but also in the level of business to which the airline is committed. Terminating trainees who fail to meet the standards is more often than not considered to be inconsistent with protecting the airline's business. While the system relies on the integrity of the T&C pilots appointed within an airline's T&C organisation, it is unrealistic to presume that

those individuals will sacrifice their employment rather than give a marginal performer the "benefit of the doubt".

While AIPA acknowledges that it is the right of the operator to choose employees, at the same time AIPA sees considerable benefit in the Australian industry working towards a voluntary code of practice for selection procedures, perhaps with the benefit of shared resources and government support, as a means of managing the financial and safety risk of an inappropriate candidate entering the system. Like all risk management plans, the aim is to keep the problem as far from the aircraft as possible.

Ab initio training

One of the most insidious threats to flight standards begins with *ab initio* training for instrument flight. The secret to gaining and retaining good instrument flying skills is sound attitude flying, contextually supported by unusual attitude (or upset) recovery and limited panel training. The product of bad training can slip through the system, particularly if operating highly automated aircraft.

This threat has multiple structural drivers. First, the Civil Aviation Safety Authority (CASA), Australian safety regulator, abandoned the flying training industry in the early 90s and handed over control to Industry ATOs, most of whom were hopelessly compromised by the conflict of interest inherent in being paid to successfully complete the training. Second, in many cases, the available instructors were the "blind leading the blind" in terms of their skills and knowledge, including a significant number of those pilots entrusted to uphold the standards, the Chief Flying Instructors and the Approved Testing Officers (ATOs). Third, many aircraft used for instrument training lack the instrumentation, manoeuvrability and performance to adequately support the necessary training. Finally, the traditional separation that was maintained between Flying Training Schools and airline T&C Organisations means that many T&C pilots are not experienced in teaching basic instrument flying skills and most T&C programs have little or no provision to examine or repair flawed initial training.

CASA, to the credit of the current and previous Director, have returned to the supervision of flying training and instituted control programs to partially mitigate this risk. The Flight Training and Testing Office Post Implementation Review (CASA 2009) indicates clear progress, although there clearly remains more work to be done. In 2008, CASA published a document titled "An Assessment of Trends and Risk Factors in Passenger Air Transport" (CASA 2008) in which the then Director undertook to establish joint CASA/industry working groups to examine, inter alia, Personnel, no later than 30 June 2008. To date, this initiative has not been activated and may have been subsumed by other events. AIPA is uncertain whether the needs of the airline industry in setting future standards for instrument flight training are being projected into the appropriate arena.

Notwithstanding the Multi-Crew Pilot licensing (MPL) approach, simulation clearly provides a part solution to the issue of the affordability and availability of suitable aircraft to teach sound attitude flying skills, although appropriate simulation devices create other issues of fidelity, affordability and availability. AIPA considers modern simulation to be one of the most significant safety enhancement devices of recent times, but cautions that the inherent limitations of simulation should not be glossed over.

Unfortunately, simulators do not provide sufficient vestibular cues to effectively underpin some of the important HF risk management lessons that form part of the essence of learning to fly in actual instrument flight conditions. There is evidence to support a deficiency not only with the vestibular cues, but also with the manual handling of a simulator versus the real aircraft. In fact, it could be argued that in some instances a simulator can provide negative training, with the potential for over-reliance on, or inappropriate use of, flight simulation to have an adverse affect on safety.

While MPL is enjoying huge support by IATA and ICAO as a means to remove certain barriers to entry to the pilot ranks, AIPA believes that more consideration needs to be given to transferring some of the technical solutions across to the more broadly based industry ab initio training schemes, particularly as the take-up of MPL remains uncertain.

Finally, AIPA notes that CASA has thus far not undertaken any standardisation or professional development courses for airline T&C pilots and is only now recruiting personnel to develop this program. As operator and industrial participation will be critical to the credibility and success of such a program, AIPA looks forward to being represented on the design and implementation teams when CASA begins this program.

Type training

There has already been considerable debate world wide on the effectiveness of outsourced type rating or conversion training. The LCC model combined with the capital cost of simulators and the supporting infrastructure means that the option of avoiding the direct investment will always be the operator's preferred choice, particularly when the scale of the operation is limited. While using outsourced infrastructure carries with it certain contractual and practical rigidities, the direct and opportunity costs are relatively minor. Ideally, an operator should provide instructors from within its own T&C organisation to deliver type rating/conversion training as the benefits, intangible as they often are to non-technical managers, far outweigh the direct cost of additional T&C staff. Some of those benefits come from directly implementing emphasis on areas identified in incident data, flight operations quality assurance (FOQA) data and feedback from recurrent T&C activities, as well as being able to closely observe the trainees while embedding the operator's procedures in them from the start of training.

However, it is often the case the provider of the training infrastructure will employ a business model that includes provision of type rating/conversion packages and will price the "dry" hire of the facilities in such a way as to tip the cost balance away from the airline operator conducting the training. This relatively easy to do if the infrastructure provider is a monopoly. There are control risks associated with third party training such as this, particularly if the training syllabus is approved for the training provider and where the technical data and training packages are also controlled external to the airline.

AIPA is concerned that type rating/conversion training provided externally are a compromise on cost (almost always hotly debated by the airline financial managers) or on quality. Considerable pressure can be brought to bear if in-house courses are compromised by financially driven decisions, but external courses provide a ready

excuse to allege a lack of control or influence. This is a part of the "moral hazard" discussed earlier.

AIPA is also concerned initial training packages "rubber stamped" by CASA are a risk if the training context is different from the original approval context and if CASA does not have a review program in place. A classic example of this is the introduction of the B717 to Impulse – the syllabus approved by CASA for Australian type rating/conversion was identical to that approved by the FAA (but with the approving agency amended), yet the document was clearly identified as a Transition Syllabus for DC-9 rated pilots. Impulse T&C pilots identified a need for an additional Full Flight simulator (FFS) training session for landing training and the training provider includes that session in the package, yet the syllabus has never been amended to reflect the extra session.

AIPA is further concerned that external training providers often provide training that is focused only on gaining competency for the type rating/conversion check flight, leaving essential knowledge areas that support the operation such as flight planning, adverse weather operations, high altitude/ high speed flight, deferred defect management and multi-crew training for the operator to source elsewhere. This information gap is often never filled. For certain aircraft types, the level of knowledge of systems provided is low because the aircraft manufacturer has decided that depth of knowledge is unnecessary, a view often not compatible with Australian pilot expectations.

Although CASA in 2009 included a regulatory focus on the provision of non technical skills/human factors (NTS/HF)[6] training as part of the introduction of mandatory Safety Management Systems (SMSs)[7], the current state of NTS/HF training remains deficient, or in some cases almost non-existent. Given that NTS/HF shortcomings are becoming increasingly evident in the causes of incidents and accidents, this critical training must be a pre-condition of undergoing multi-crew type training.

Training in highly automated aircraft will be addressed separately below.

Initial Operating Experience/Line Training and AICUS

Initial Operating Experience (IOE) is a common international term for what is known in Australia as Line Training (LT). Part 5 of the Civil Aviation Regulations 1988 make provision for a specific type of supervised flying known as a pilot "acting in command under supervision" (AICUS), which is required prior to flying as Captain on an aircraft of greater than 5,700 kg mass.

IOE/LT for non-cargo operators is usually conducted on normal passenger carrying flights. There are identified risks in conducting IOE/LT, primarily because the Training Captain has to ensure that all tasks and support required from the trainee are forthcoming and, should it become necessary, those tasks must be completed in a timely fashion despite the lack of familiarity of the trainee. It is common at the start of IOE/LT for the crew to be supplemented by a Safety Pilot, whose task is to provide additional support for the Training Captain to ensure procedures are followed and timelines are maintained. The Safety Pilot (in two crew operations) is released from that duty when

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6 NTS/HF is the modern terminology for CRM or CRM/HF

7 See Federal Register of Legislative Instruments F2009C00096

the Training Captain assesses that the trainee has demonstrated a level of competence such that the Training Captain is safely able to manage the training and the normal workload.

AIPA expressed a general concern about the impact of low experience pilots in a previous section. However, AIPA is particularly concerned about what we hold to be the amplification of risk when the trainee has only a few hundred hours of flight time, very little of which represents exposure to high intensity, complex, time dependent passenger carrying operations and almost none of which is in high traffic density controlled airspace.

We operate large aircraft with two pilots to provide safety through redundancy. In many two crew aircraft, the cockpit size may not practically allow the removal and replacement of an incapacitated Captain, thus limiting a Safety Pilot (if there is one on the Flight Deck at the time) to a support and monitoring role. Therefore, the trainee must be capable of recovering and landing the aircraft by him or herself without support, an exercise they may never have contemplated before. AIPA believes that most operator's risk management for this scenario is inadequate for low experience pilots. At the very least, it seems likely that Safety Pilots should be part of the crew complement for much longer and that some non-revenue "base" training may be required. AIPA also believes that additional non-revenue or simulator training should be conducted during IOE/LT to ensure that competency is maintained by low experience pilots.

AICUS was originally designed to be conducted in two crew aircraft by a trainee Captain undergoing line training in the Captain's normal seat as part of a command upgrade. Civil Aviation Regulation (CAR)[8] 5.40 was intended to curb the then extant abuse of AICUS by flying training schools seeking to circumvent the experience requirements for the grant of the Air Transport Pilot Licence (ATPL) by ensuring that the training was authorised by the operator and was a controlled event supervised by a Training Captain appointed for that purpose by the operator. The expectation was that AICUS would be conducted as a T&C event. It was never intended to be available to a First Officer conducting his or her normal duties and there was no nexus with pilot flying (PF) or pilot not flying (PNF)/pilot monitoring (PM) roles (D. MacKerras, 2010, personal communication, 31 August).

The CASA decision to permit a First Officer conducting his or her normal duties to log AICUS time while PF made an immediate nonsense of the pilot in command requirements to qualify for an ATPL and, because AICUS is exempt from the 50% reduction in co-pilot time required to calculate aeronautical experience, effectively reduced the real co-pilot flight required to qualify for the ATPL by about one third. There were no special training requirements or any preconditions attached this reduction in experience by CASA.

[8] Aviation safety regulations made under the Civil Aviation Act 1988 are transitioning from the Civil Aviation Regulations 1988 to the Civil Aviation Safety Regulations 1998. Both sets of regulations, CARs and CASRs, co-exist at the time of writing.

At the same time that the neutering of AICUS as a licence qualification occurred, no attempt was made by CASA to review the command requirements for Low Capacity[9] Regular Public Transport (LCRPT) that are set out in Civil Aviation Order[10] (CAO) 82.3. Ironically, those command requirements were introduced many years ago precisely to ensure that the Australian public could rely on a certain experience level in the pilots to whom they were entrusting their safety. Credit was given in CAO 82.3 for AICUS as a substitute for actual command experience based on the presumption that the AICUS was controlled, managed and conducted in a meaningful way. AIPA has received a number of reports that AICUS is now being conducted, even in Qantaslink, in a way that makes it a farce in terms of the original intent.

CAR Part 5 was then amended by SR 273 of 2008 (18 Dec 08). The amendment was to introduce the MPL and consequentially reduced further the Aeronautical Experience requirements for an ATPL to match the 10th Edition of ICAO Annex 1. That change removed the need for a minimum of 100 hours command time and substituted options that included no command time plus 500 hours AICUS or 70 hours command time plus 180 hours AICUS. Some command time is necessary to qualify for an MPL (10 hours) which is same as for a Private licence but no more is required beyond that – potentially the next command hour will be as Captain of a large passenger-carrying jet.

AIPA is concerned that these changes to the experience requirements are making the gaining of an ATPL largely a theory process. AIPA is also concerned that these changes have been driven as a strategic response by IATA to the looming pilot shortage rather than any real consensus that the previous command and true AICUS experience requirements added no value.

Automation

CASA, in their paper "An Assessment of Trends and Risk Factors in Passenger Air Transport" make the following comment under the heading of "Opportunities and challenges – technical progress":

> The advent of new technology has the potential to contribute to the mitigation of current or emerging aviation safety risks including controlled flight into terrain, skills shortages, airspace congestion and collision risks. Automation, navigation, approach design, avionics and surveillance technologies all provide real opportunities to offset a number of the risks that may be encountered in both the near and longer term. (CASA 2008)

Unfortunately, the advent of new technologies is a classic case of Hazard's Law of Unintentional Effects, which was originally published as "For every problem you solve, you create seven more", but could be restated as "For every problem you solve, your solution will invariably create several more". While AIPA wholeheartedly agrees that these new technologies all provide real risk mitigation opportunities, the sobering reality is that the literature is replete with the unintended consequences of these technological

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[9] RPT operations are divided into Low and High Capacity. High capacity operations are those conducted in an aircraft that is certified as having a maximum seating capacity exceeding 38 seats or a maximum payload exceeding 4 200 kilograms.

[10] Civil Aviation Orders (CAOs) form the third level of statutory control, normally providing greater detail of activities controlled by regulations.

solutions. To date, there are few, if any, appropriate policy responses to those consequences.

AIPA is concerned that automation is creating the highest current risk to airline flight standards. This risk is a function of inadequate automation training, an overuse of automation that minimises manual flight, misguided management directives that seek to prevent manual flight, automation dependency among pilots, avoidance of timely reduction of automation level and degraded manual flight skills.

AIPA is not alone in its concerns and there is a growing chorus of concern worldwide about the same subject. Captain David Chapman, Group Director Safety Regulation of the UK CAA recently addressed a meeting of the Directors General of the European Civil Aviation Conference (ECAC) and demonstrated that a three year moving average of fatal accidents showed that the fatal accident rate for ECAC Member States has increased after a period of decline and will continue to increase, unless action is taken. He also showed that the rate of high risk occurrences for large aircraft within the UK was consistently increasing from the middle of 2005. As a result of an investigation into these high risk occurrences, he noted that were 18 recommendations and he chose to highlight four, namely:

- "Training – inappropriate for today's aircraft
- Use of automation
- Manual handling skills
- Airprox" (Chapman 2009)

At the recent ICAO High Level Safety Conference held in Montreal earlier this year, one of the Working Papers set out to summarise relevant outcomes from the International Pilot Training Conference organised in November 2009 by the European Aviation Safety Agency (EASA). In pertinent part, it said:

> "2. PILOT TRAINING
>
> 2.1 Pilot performance is the centrepiece of the safe operation of aircraft, and poor pilot performance is a contributing factor - or, in some cases, the factor - leading to an incident or accident. In order to gain, maintain and improve good pilot performance for the safe operation of aircraft in commercial aviation the rules that have been set for pilot training must be continuously maintained and improved to address present and future challenges. Pilot training in this context encompasses initial training, type rating training, and recurrent training, both in aircraft and simulators.
>
> 2.2 The principles of flight and the laws of physics do not change. However the capability and complexity of new aircraft is a challenge. The greater use of automation in aircraft operations provides less opportunity for manual flying to be practiced, and creates specific challenges in relation to man-machine interface design and operation. Rising air traffic volumes, evolving operational systems and new aerodrome concepts all affect the workload of pilots. These are sound

reasons to consider new approaches for pilot training and to review traditional methods.

2.3 The EASA International Pilot Training Conference identified the following concerns about current pilot training:

a) While it is not possible to regulate professionalism, good organisational safety culture has many benefits and needs to be encouraged;

b) There is a growing body of evidence to support the hypothesis that over-reliance on automatics can lead to dependency, complacency and confusion. This hypothesis should be further validated by safety data before any mitigation is implemented.

c) Highly automated aeroplanes mean fewer opportunities for manual flying skills to be used, and early evidence suggests that a pilot's confidence in his or her own manual flying capability declines with reduced currency regardless of the overall level of experience. On the other hand, proper management of automation has combined positive impacts on safety by reducing human factors incidents and accidents, operational and fuel efficiency and reduction of emissions.

d) The ability to recover from unusual aircraft attitudes, for example following a malfunction in the automatic flight control system and late recognition of the situation by the flight crew, should be optimized. One must be mindful that a one-size-fits-all solution for this is not appropriate and that the latest generation of aircraft may introduce specific training requirements for the early recognition of aircraft upset." (ICAO 2010b)

In order to underscore the basis of AIPA concerns on the threat to flight standards of current automation knowledge and application, the Commercial Aviation Safety Team (CAST) also reported recently on "Mode Awareness and Energy State Management Aspects of Flight Deck Automation". CAST is a cooperative government-industry initiative co-chaired at present by Margaret Gilligan, FAA Associate Administrator for Aviation Safety and Capt. Don Gunther, Staff Vice President of Safety for Continental. The following excerpt is telling:

> "…the Team reviewed hundreds of reports from the Aviation Safety Reporting System (ASRS) and from other public data sources, including the FAA's Accident and Incident Data System (AIDS), and the National Transportation Safety Board's Accident and Incident Database.
>
> The final dataset included 480 incident and accident reports during Part 121 operations by US air carriers, of which 50 cases from the preceding 5 years [2000-2005] were studied in detail. The 50 reports dealt solely with automation incidents involving energy state management and mode awareness, and allowed the Team to conduct a "gap analysis" between guidance in air carrier automation policies and pilot actions described in the reports. Appendix B outlines the methodology in detail. Appendix C

summarizes each of the 50 incidents that the team examined in detail. Appendix D summarizes the characteristics of each of the 50 cases in a tabular format. Appendix E shows the results of the gap analysis in a matrix that scores each of the 50 detailed cases against common policy elements among the 16 air carriers.

The Team found that a fundamental problem applied to almost all cases in the dataset: the flight crew did not comprehend what the automation was doing, or did not know how to manipulate the automation to eliminate the error. In such cases, when the crew changed automation levels they often exacerbated the problem. This problem applied with all automation modes and it applied regardless of whether the crew induced the event or the event was precipitated by a problem with the automation system. In all 50 cases, pilots were unable return the aircraft to the desired flight path in a timely manner. This was due to two root causes: inadequate training and system knowledge; and the unexpected incompatibility of the automation system with the flight regime confronting pilots in their normal duties.

For example, the crew may have made a manual input to the flight controls that would have been appropriate with the autopilot disengaged. However, if the auto thrust system in fact was still engaged and was in a mode that did not support the flight control input, the resulting flight path or energy state was often undesirable, to say the least.

Yet, among the 16 air carrier automation policies, the most common concept as stated by one carrier simply directed crews to “use the level of automation that will best support the desired operation of the aircraft.” This concept is fine if the crew understands what the automation is doing at the time of the problem onset, and is then able to determine if the current or another automation level will better suit the operation. However, nearly all incident reports shared one common factor: regardless of whether an error was pilot-induced or was a function of the automation system, pilots did not understand what the automation was doing, or did not know how to use the automation to eliminate an error.” (CAST 2008)

There should no surprise about the elements of AIPA’s particular concerns listed at the beginning of this section, other than the lack of action on the part of the responsible parties. As mentioned at the start of this section, the literature is replete with research papers exploring the concepts of over-reliance on automation and the prospect of induced complacency as far back as 1980. The International Journal of Aviation Psychology paper on “Performance Consequences of Automation-Induced "Complacency" (Parasuraman, R., Molloy, R. & Singh, I.L. 1993) provides an extensive list of references. Similarly, the NASA Paper titled “Drinking From The Fire Hose: Why the Flight Management System Can Be Hard to Train and Difficult to Use” (Sherry et al 2003) provides a window into the human-machine interface and the related training issues. Finally, Sarter, Mumaw and Wickens (2007) provide a critical insight into “Pilots’ Monitoring Strategies and Performance on Automated Flight Decks: An Empirical Study Combining Behavioral and Eye-Tracking Data” and related research.

The risk management of the unintended outcomes of automation requires a shift in training paradigms. Reversing the flow on automation training in order to make it

effective is going to be expensive. However, that cost must be accepted by the original equipment manufacturers (OEMs) and the airlines, and the CASA must ensure that the work begins now. It does not matter that work is underway in other places – it is unacceptable to wait for an American or European solution, since each will reflect their geo-political environment as much as it will reflect a safety-based solution.

Perverting the Course of Open Incident Reporting

Flight Standards are inextricably tied to the analysis of safety data. The global databases of incident reports, accident investigations and the outcomes of safety research provide us with past present and future trends as we continue to strive towards an accident-free industry. While ICAO and IATA leap on to the "evidence based training" (EBT) bandwagon, the reality is the aviation industry has always been evidence-based, albeit somewhat elephantine in its responsiveness in certain areas.

AIPA is concerned that the Australian system of data collection is vulnerable to significant interference, both accidental and deliberate, and represents a major risk to current and future flight standards.

Accidental Interference

AIPA is concerned that excessive prescription on one hand and inadequate whistleblower protection on the other both unintentionally conspire to inhibit open incident reporting.

It is often a very human response to believe that an incident is embarrassing to an individual, a crew or an operator or likely to generate some sort of regulatory response. In those circumstances, it is not unusual for people to use the prescriptions of the mandatory reporting scheme[11] set out in the Transport Safety Investigation Act 2003 and the associated Regulations to justify either not reporting or downgrading the severity of an incident[12]. It is questionable if the regulatory prescriptions reflect the emerging risks identified globally, particularly in regard to human factors and automation related incidents.

A robust reporting culture requires minimisation of structural and administrative impediments. The most significant of the structural impediments is the embryonic nature of the "Just Culture" approach to reporters in Australia as seen in our current legislation. Unlike the U.S. approach, which is voluntary and meticulously confidential (for other than criminal activity or accidents) and offers wide-ranging protection, or the U.K. approach, which is mandatory but also includes significant protection, the Australian system essentially lacks any real protection for reporters to encourage open reporting. Intuitively, the first step is to reduce the legal impediments to reporting and assessment of safety occurrences. The two most important legal issues are indemnity

[11] The mandatory reporting scheme is administered by the ATSB. The head of power is set out in Part 3 of the Transport Safety Investigation Act 2003 and the scheme is established in Part 2 of the Transport Safety Investigation Regulations 2003.

[12] There are two other elements to the aviation event reporting framework. There is a Voluntary reporting scheme called the ASRS run by CASA but administered by the ATSB and there is a confidential reporting scheme called REPCON run by the ATSB.

against disciplinary proceedings and a legislative framework that supports reporting and investigation of incidents in the spirit of a non-punitive environment.

AIPA has separately pursued legislative changes to improve whistleblower protection for reporters of aviation events as well as changes to the actual reporting schemes.

Deliberate Interference

Airline CEOs and executive managers have a fiduciary duty to their employing entity to manage the financial viability of that entity to the best of their ability. Public relations and image management falls clearly within that duty. Frank and open reporting of incidents can often be seen by CEOs and managers as a conflicting interest if the event itself or the regulator's response prove to be damaging to the organisations public image. Anecdotally, there have been many instances of management pressure being exerted on reporters to either suppress or disguise the true nature of events. Unfortunately, there is little protection available, industrially or in legislation, that protects reporters from workplace retribution and there are few, if any, disincentives to management interference in reporting processes.

AIPA has separately pursued legislative changes to make interference with the reporting process or with the reporter a criminal offence. AIPA also has recommended that s30A of the Civil Aviation Act 1988 be amended to provide for exclusion periods, such as may be applied under the Corporations Law to errant Directors, to be applied to any person found guilty of an offence.

FUTURE THREATS TO A VIABLE INDUSTRY

Rebalancing Supply and Demand

CASA, in their paper "An Assessment of Trends and Risk Factors in Passenger Air Transport" make the following comment regarding industry attractiveness and personnel:

> "The broader aviation industry must formulate policies and strategies to make an aviation career an attractive option. It must also reinvigorate the charter and training sector to ensure an adequate supply of skilled and experienced professionals in the future. The value of traditional training programs in the modern aviation environment must also be assessed. This could involve a substantive cultural change as established views of "what a pilot or LAME is" are challenged." (CASA 2008)

However, the harsh reality is that the "broader aviation industry" has created the circumstances of its own dilemma. The result of intensive, if not excessive, competition has been to shift the financial burden of airline training onto the employee at the same time as driving down salaries and increasing workplace demands in the constant search for "productivity". In many cases, the constant pursuit of the last ounce of "productivity" has resulted in false efficiencies and increasing debilitation in terms of fatigue, life style and overall job satisfaction.

So it seems that, in terms of Industry attractiveness, the big question is simply this: have the LCCs "fouled their own ground" with their people management practices?

Normally, it would be presumed that the excess demand over supply would lead to an increase in the price for labour. Evidence is yet to emerge for any significant pressure on the price of labour, given that another outcome of unrestrained competition, the Global Financial Crisis (GFC) certainly put the brakes on market expansion. After a flurry of aircraft delivery delays and cancellations, the respite for the labour supply is clearly seen to be short-lived as airlines reactivate and even increase aircraft orders. IATA, ICAO and many industry commentators are now predicting an increase in the demand for labour as a consequence. Flight International reported in July this year:

> "Long-term forecast demand for airline pilots and mechanics is significantly higher than it was before the global economic recession, say new figures from Boeing's Training and Flight Services division. The company estimates that the average annual airline pilot demand for the next 20 years will be for 22,500 new pilots and 28,000 new mechanics to replace those retiring, and to cope with growth in the global airline fleet. Just two years ago in 2008, the Training and Flight Services division's forbear, Alteon, forecast that the average annual global industry needs for the 20 years from 2007 would be 18,000 pilots and 24,000 maintenance engineers." (Learmount 2010)

It is ironic that IATA's ITQI has as its first goal to "Increase the resource pool by identifying means to improve industry attractiveness" (IATA 2009) when a year earlier, the Demos report (2009) was warning"

> It is simply not in the public interest to have airlines engaged in a race to the bottom on wages, benefits, and working conditions.

AIPA is of the view that, in most cases, the relationship between the pilot workforce and employers will be tainted by lingering resentment at the relentless reduction in pilots' salaries and working conditions as a consequence of the LCC model. This will be particularly so where the willingness of some pilots, unable to compete previously on skill and experience, to "get in the door" has been exploited. Furthermore, this adversarial fire will be fuelled by the shift of financial burden from the corporate balance sheet to the wallet of individuals at the lowest point of the pilot food chain that is so typical of the negative social welfare outcomes of the LCC model . The fact is that the airlines destroyed the attractiveness of aviation as a career by erecting higher and higher financial barriers to entry to becoming a pilot while reducing the likely future rewards.

Traditionally, airlines have exploited the fact that Australia has long enjoyed a very good socio-economic environment and is highly rated as a place to live and that creates a natural disincentive for pilots to move off-shore to find better rewards for their skills. However, the reward gap may be become more compelling as foreign airlines respond earlier to changes in demand. Faced with this change in the employment environment, AIPA is concerned that the readjustment of supply and demand within the Australian market will be constrained by airlines seeking longer terms for employment agreements and extending bonds as a buffer against a rebalancing of the social welfare outcomes for pilots. It is likely that industrial unrest will increase in some industry sectors.

AIPA is also concerned that structural readjustments by Government to provide subsidies, incentives and/or tax relief for new pilots to make the industry more attractive, although welcome and well overdue, will create a further problem in that

those pilots currently in the system who are subject to the greatest financial burdens will be forced to work with those pilots protected from those costs of entry. There is no place for this sort of stressor in the cockpit and it must be considered as part of airline's human resources risk management plan.

As a final comment, AIPA does not believe that reinvigoration of the charter sector is within the capabilities of the broader aviation industry, since the charter sector is responsive to public rather than industry demand. In the particular case of the training sector, there is an element of industry demand that bolsters the public demand, but both elements respond with varying lags to the same economic cycles. In any event, reinvigoration of the training sector requires initial "pull" demand from the industry employers before any "push" demand will be created by the general population.

Financial security

AIPA believes that the costs of training after issue of the entry level licence and rating must shift back to the employer as a business expense. Expansion of the selection pool must be managed on an egalitarian basis so that a prospective pilot's financial capacity is not a determinant.

While we recognise that it would be a brave CEO, in the current highly competitive and largely unregulated industry environment, who chose to reverse the shift of training costs off the Balance Sheet to the employee or prospective employee, it is exactly what is required to prepare for the predicted shortage of pilots. Any first movers in this sense will create a longer term competitive advantage for themselves, because they are enhancing the financial attractiveness of their business to future employees. They may create a competitive advantage for their competition in the short term, but that might just be the financial risk that ensures their long term viability.

The Threat of Rapid Expansion

Much of the foregoing discussion on the safety and social welfare outcomes of the economic paradigm shift of airline deregulation and the cost control fundamentalism that ensued also contains lessons on the threats of largely unrestrained industry expansion. While the Australian market is most likely to expand more slowly than other markets, the Asian markets, particularly India and China, are most likely to be the opposite. The difficulty for Australian pilots arises from the local adoption of new cost control models that will inevitably be developed in the competitive scramble to make the most of the predicted market opportunities.

We will also be faced with the creation of an expatriate market of choice, given that many of the emerging markets lack depth of airline experience. In balance, there is likely to be a noticeable level of market turmoil as operators come and go under the competitive pressures of a market expecting continuation of low prices, much as has already occurred in the U.S. market. This job security risk will attract its own price margin in a time of likely upward pressure on normal pilot labour costs, resulting in increased pressure on the financial "wunderkinds" to minimise costs elsewhere, potentially in training and maintenance.

AIPA is concerned that rapid market expansion will lead to growing incentives for experienced pilots and technical managers to enter the expatriate market, particularly as

older employees seek to maximise recovery of superannuation and other financial losses consequential to the GFC.

AIPA also shares CASA's concern about market expansion:

> "Both the aviation industry and the regulator will need to be watchful as new carriers, aircraft, personnel and destinations are introduced in order to meet demand. It will be imperative that expansion does not translate to insufficient resources in any safety critical areas and that attention is not diverted from the prime responsibility of passenger safety." (CASA 2008)

There is little doubt that the introduction of new services during the upside of any economic cycle causes stress to the existing system, whether it be infrastructure, regulatory control or demand for human resources. Infrastructure decisions are often countercyclical due to their long investment and construction timelines and, as was aptly demonstrated with the Compass LCC failure, can significantly influence the viability of operators. On the other hand, the regulator can never hope to be allocated sufficient resources in anticipation of an economic upswing and is often saddled with regulatory controls that are ill-suited to match entrepreneurial industry activities. The newly mandated SMS regime now requires performance-based management in parallel with compliance management. Hopefully, the expanding ubiquity of SMSs will provide some measure of protection to ensure that CASA can cope with any new operator models that emerge. Similarly, the SMS approach may provide the vehicle to allow CASA to ensure that the social welfare expectations of both the public and the employees of the operator are met.

MPL

Creating a new pilot licence such as the MPL that runs parallel to the traditional licensing scheme and is focused solely on training airline First Officers shouldn't be as controversial as it has turned out to be. The controversy stems from a feeling by many in the industry that the MPL was generated as a response to the looming pilot shortage, rather than as a response to identified failures in the traditional training scheme. It was partly justified by the fact that European charter operators in particular had already begun filling co-pilots seats with CPL holders with as little as 250 hours flight experience. The alternative view, pushed strongly by IATA and ICAO, is that the MPL was the result of a search for quality training.

Interestingly, the traditional training scheme has not been abandoned and lives on as an alternative means of gaining the qualifications that are required for airline pilot jobs, albeit without any quality improvement as a flow-on from the MPL effort. Additionally, the supporting media campaign for the MPL seems to be designed to avoid the travelling public being exposed to the thought that the co-pilot of their aircraft may have the same experience and licence level of pilots typically seeking their first paid aviation job in the pits of the opportunities in GA.

AIPA accepts that the MPL design will produce a better quality 240 hour co-pilot. However, AIPA members have expressed a strong view on the value of experience. MPL can undoubtedly improve initial training in regard to operating more complex multi-crew aircraft and the opportunity exists to improve instrument flying skills, but it cannot provide more experience in basic skills and airmanship. Paradoxically, the

experience gained in a highly supervised airline environment may well be inferior to that gained in the rough and tumble of GA operations.

It is noteworthy that some of the strongest proponents of MPL are the simulator providers such as Alteon, now known as Boeing Training & Flight Services, who are significant beneficiaries of the MPL program. MPL relies on simulation to an even greater extent than the current third party type endorsements that prospective airline pilots now have to fund pre-employment. Importantly, simulation still has significant limitations, particularly in training for edge of the envelope handling procedures and landing techniques, and cannot be used as a complete substitute for real time aircraft handling practise. Also, there is a well-established implementation risk associated with regulatory oversight of third party providers that will not be mitigated by adding MPL to their repertoire.

Introduction of the MPL into legislation has been seen as a de facto nod of approval by CASA to employ 250 hour co-pilots, but it remains unclear whether CASA conducted a risk assessment of what has been colourfully described as "handing the lives of several hundred passengers in the event of a sudden incapacitation of the Captain to a pilot who only a few years ago would have been considered as too inexperienced to be trusted with a Baron on a bank run". If an operator subsequently states that they have assessed and accepted the risk of low-experience pilots, on what grounds is CASA able to object?

The greatest disappointment about MPL is that little of the "higher quality" training has made its way across to the syllabuses for the traditional licences.

AIPA is concerned that, at this stage of its development, MPL is something of a training illusion covering an experience delusion - in effect, handing the keys of the Ferrari to a "P" plater.

ITQI

AIPA accepts that ITQI is a work-in-progress. AIPA also accepts that ITQI is unashamedly about a strategy to deal with the expected shortage of pilots.

However, AIPA is concerned that ITQI has not specifically dealt with the experience question that trails after the advent of the MPL. Given that pilot websites are alive with views on the performance of low experience pilots that cover the range from good to awful, it seems a threshold question whether traditional T&C recurrent training is suitable to assure continuing competency in low experience pilots.

AIPA urges care in the application of evidence-based training within ITQI. While EBT has been adopted as the new training design paradigm in many industries and service sectors, the recent emphasis by the ITQI Team on frequency of events appears to understate the other factor in the risk equation, the consequence of mishandling the event. Reducing training in tasks that developed core skills in previously tried and tested programs to only training in tasks that, although more common, may not create equal or greater resilience in crew responses to new problems has the potential to derail the safety outcomes of recurrent training. AIPA continues to monitor ITQI closely.

Attraction & Retention of Technical Managers

Jean Pinet, in his Keynote Speech to the ICAO Next Generation of Aviation Professionals Symposium, made reference to the ascendancy of non-technical managers in high technology businesses (Pinet 2010). Within the current flood of information on the looming pilot shortage, little has been written on the subject of attracting, developing and retaining quality technical managers for airlines. In many cases, the terms and conditions for pilot technical managers have been devalued as a reflection of the devaluation of pilots' terms and conditions in general.

CASA has identified this as an issue, although the concern expressed in their paper "An Assessment of Trends and Risk Factors in Passenger Air Transport" was not focused on the airlines:

> "Organisations with robust systems in place to oversight and mentor less experienced employees may well be able to manage threats to the integrity and safety of operations. Yet in recent times there has been a reduction in the availability of experienced individuals to provide operational management, mentoring and oversight in the charter and low capacity regular public transport sector due to airline recruitment." (CASA 2008)

AIPA is concerned that the realities of airline management are not properly reflected ion that CASA document. The actual need is for "experienced and suitable individuals" and it is not limited to the charter and low capacity RPT sectors. Moreover, it is disingenuous to sweep the whole shortage into the "airline recruitment" blame bag - supply and demand in any labour market is reward sensitive and the aviation labour market is currently awash with disincentives to both enter and to stay. These jobs are seen as high personal risk, demanding and stressful with little meaningful reward. Most line pilots would not invest their own time and money in seeking suitable management qualifications and many operators will not provide the necessary training, leaving any potential applicants in a significant risk/reward quandary. This critical structural issue will not be resolved by fiddling at the margins. There are plenty of examples of airlines settling for second best solutions based solely on salary expectations.

AIPA believes that the emerging industry landscape of low experience pilots operating highly automated aircraft will require astute, safety-driven and well qualified technical managers to drive the attendant risks down as low as is reasonable possible. It is not the place for accountants, lawyers, MBAs or other managerial passers-by to cut their teeth as they climb the corporate ladder.

The recent global shift to performance based management as senior partner to compliance management has created a process driven regulatory demand that most industry participants are not qualified to manage. Many organisations are already so lean in terms of overhead costs that there is little or no room to pull key players out of the control loops for long enough to give them some formal education that matches the changed managerial environment. While CASA has stated that it "has taken steps to emphasise the role of senior management in influencing safety outcomes and the capabilities and behaviours of industry management are an increasing element of CASA surveillance activity" (CASA 2008), it may need to do a bit more than just "emphasise" the role of senior management when it comes to compliance and associated costs. Despite the public hyperbole, compliance in most organisations is not an outcome of altruistic endeavour, but rather of financial risk. There is no viable argument to refute

that SMSs are essential and the philosophy is sound, but it must be recognised that those systems are operationally hostage to corporate culture and the organisational climate relating to financial and personal security of the participants.

AIPA believes that operators not only need to revisit the premiums they pay for these managers, but need also to put career development paths in place that minimise the potential for management errors, particularly in regard to maintaining flight standards.

Cabotage in Crewing

Cabotage is a long-standing maritime concept that was extended to aviation and to which controlling access is an accepted form of protectionism designed to provide a stable basis for the economic development of particular markets within sovereign states. Article 7 of the Convention on International Civil Aviation (the "Chicago" Convention) expressly deals with cabotage as part of the group of articles designed as economic constraints to further the orderly development of post-war civil aviation (ICAO 1944).

The U.S. Government description is instructive, if only because Australian aviation legislation is not as clear:

> Airline cabotage is the carriage of air traffic that originates and terminates within the boundaries of a given country by an air carrier of another country. Rights to such traffic are usually entirely denied or severely restricted.
>
> Under 49 U.S.C. section 40109(g), we may authorize a foreign air carrier to carry commercial traffic between U.S. points (i.e., cabotage traffic) under limited circumstances. Specifically, we must find that the authority is required in the public interest; that because of an emergency created by unusual circumstances not arising in the normal course of business the traffic cannot be accommodated by U.S. carriers holding certificates under 49 U.S.C. section 41102; that all possible efforts have been made to place the traffic on U.S. carriers; and that the transportation is necessary to avoid undue hardship to the traffic involved (an additional required finding, concerning emergency transportation during labor disputes, is not relevant here). (U.S. DOT 2010)

The original concept of regulating cabotage can reasonably be described as protection against capacity dumping, hence the "public interest" test. On the other hand, the Australian shipping legislation on cabotage reflects a situation where it appears that regulation of overall capacity is not the key issue, rather it is that of "cheap" capacity. The two pertinent provisions are:

> "**Cabotage in Australia under the Navigation Act**
>
> The Navigation Act requires all shipping engaged in the coasting trade to be either licensed or to be granted specific exemptions from the licensing requirements in the form of single or continuous voyage permits (SVPs or CVPs). Any ship, whether Australian or foreign, can obtain a license to operate on the coast provided certain economic conditions are met, as set out in Part VI of the Act, which are principally:

A. that seafarers employed on the ship shall be paid wages at the current rates ruling in Australia, and

B. that the ship is not in receipt, either directly or indirectly, of any subsidy or bonus from a foreign government." (ASA 2010)

The architects of ICAO could not in 1944 have reasonably conceived of a business running airlines in two or more States having the ability to operate within those States aircraft on a foreign register with crews from any of those States.

AIPA retains a general concern about the potential risk of some foreign-registered aircraft operating in Australia, despite there being nothing particularly new about the practice. However, there is a new twist emerging.

AIPA is particularly concerned by a recent Jetstar proposal which would see the creation of a separate legal entity which would provide foreign crews to operate Jetstar aircraft in Australia (Jetstar 2010). The Jetstar Flight Standing Order offers "Jetstar Group Career Opportunities" in the first instance to crew two Airbus A330 aircraft in Singapore, the start of a broader policy, and makes the following statements:

> "This new scheme will open the door for any of our existing pilots, no matter where they are currently based, to participate directly in the expansion of our business and brand across Asia.
>
> This new mechanism will allow for transfers between all of the Jetstar entities so that pilots from across the Jetstar Group can be part of Jetstar's expansion and take advantage of opportunities that arise in different parts of the Group."

The FSO is silent on the regulatory compliance mechanisms that will permit this cross-border labour hire arrangement, which *prima facie* is complex and raises the question of which Contracting States standards will apply. Presumably, the compliance arrangements were settled with the relevant regulators before the policy was announced.

AIPA is concerned that this "exciting new opportunity" is just another LCC entrepreneurial concept that is designed to introduce "cheap" crewing along the lines of that experienced in the maritime arena. There may well be a need for a pre-emptive regulatory intervention along the lines of the Navigation Act for remuneration as set out above.

AIPA is concerned about the impact on flight standards of culture, language and training (both initial and recurrent) for this mixed Jetstar crewing organisation, particularly as the ICAO USOAP (2008) audits and analyses of global accident statistics indicate that regulatory oversight and flight standards vary substantially across different States.

Barnett (2010) estimates that, compared to the 22 nations (including Australia and New Zealand) in his "first world" group, the death risk per flight is seven times worse for the 22 "advancing" nations (including China, India, Malaysia, Philipines and Singapore). The "least developed" group (including Indonesia and Vietnam) has a death risk per flight that is a further 2.5 times worse than the "advancing" nations. While Barnett's analysis does not seek to identify the underlying causes for these risk assessments, it makes little sense to import any of the causal elements into our ultra-safe Australian system.

THE REGULATORY DILEMMA

Safety versus Economic Regulation

We choose to live in a capitalist society that strives for open competition, recognising that there are certain situations that require governments to intervene in the market to prevent excesses and undesired outcomes. The difficulty in sectors such as aviation is that the great social welfare gains for the travelling public often act as a veil to hide the human costs of providing that social good at an "adequate" profit margin. Forcing people into substantial financial commitments that require many years to amortise at current LCC salaries, coupled with diminished conditions of service and job security, provides strong motivation to blur the lines of best practice in both safety and compliance. Unfortunately, this ever present threat to aviation safety seems to be the "elephant in the room" and thus far continues to fall between the regulatory cracks.

While it is hoped that the introduction of SMSs will round up much of this indirect risk, it will be some time until regulators and operators converge on a common view of what must actually be done in these areas outside direct statutory compliance.

Entry control

AIPA believes that entry control for any new LCCs requires extensive examination of their personnel management plans in parallel with their operational plans. While the nexus between social welfare outcomes and safety has not been a feature of regulatory interest, AIPA believes that there is sufficient evidence world-wide to support such scrutiny.

AIPA also believes that CASA has not consistently appreciated the risks involved in the introduction of new highly automated aircraft, regardless if the operator is new or currently in the market. Importantly, CASA staff may not be as prepared as they need to be to deal with new aircraft and new operators, particularly in times of market expansion.

Operator Supervision

While AIPA has similar concerns about the ability of the CASA to adequately supervise operators due to Government imposed resource constraints, we believe that formal mechanisms for liaison between CASA and the relevant pilot representative group(s) would provide a practical and balancing insight as to the real workings of operators in regard to safety issues. Although targeted at arrangements between airlines, maintenance organisations and the regulator with an option for industrial participation, one of the FAA voluntary disclosure schemes, known as the Aviation Safety Action Program (ASAP)[13], appears to provide a relevant framework that could be modified appropriately.

AIPA is not suggesting this safety mechanism as a means of interfering with management's normal prerogatives, but rather in our role as a "conscience" of the employer. AIPA contends that there are currently no consistent or effectiveness

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13 FAA Advisory Circular 120-66B "Aviation Safety Action Program (ASAP)" dated 15 November 2002

mechanisms for CASA to monitor the levels of occupational stress within aviation organisations, despite its importance as a risk indicator.

Role attractiveness

CASA has recognised a part of their dilemma:

> The availability of skilled and experienced personnel, particularly in operational management positions, is crucial to the health and wellbeing of an operator's safety system. This applies equally to government support and oversight agencies. It is reasonable to expect that the skills shortage presently impacting the industry may also impact upon the ability of CASA, Airservices Australia and the Australian Transport Safety Bureau to recruit suitably skilled and experienced operational staff, particularly from the high capacity regular public transport sector. The inability of either CASA - as safety regulator - or the Australian Transport Safety Bureau - as accident investigator - to recruit and retain individuals who have practical experience in industry management roles, would severely limit their effectiveness. (CASA 2008)

The dilemma for CASA remains in attracting adequate financial support from Government to attract, train and retain a skilled, knowledgeable and tenacious workforce technologically abreast of the task. However, in the end analysis, the supply side response to the demand for skilled and experienced personnel is highly sensitive to the financial and personal rewards attached to these positions. Airline roles have the distinct advantage over public sector roles in that mobility between management and line positions for the most part protects the individual's ancillary industrial benefits such as seniority, salary points, staff travel and long service provisions. Airline employees entering the public sector must give up those benefits, while accepting salary caps equivalent to those paid in airlines to First Officers. Both private and public sectors need to refocus on making these roles attractive and, particularly in the public sector, must plan for "churn" that matches upswings in the airline economic cycle.

Enforceability of outcomes based legislation

AIPA accepts the global shift to outcomes based regulation as a means to avoid the strictures of rigid prescriptions invariably drafted in a totally different environment. However, such a shift will take many years to filter through the industry psyche so that there is a regaining of certainty and mutual understanding of the responsibilities of both organisations and individuals.

AIPA is concerned about the enforceability of outcomes based legislation and how an acceptable level of certainty between the regulator and the regulated is to be achieved in a fair and equitable manner. We look forward to constructive dialogue with CASA so that we might provide our members suitably wise counsel and assistance.

CONCLUSION

AIPA believes that pilot standards are slipping in Australia. Although the Australian aviation market has some differences from other major markets overseas, the

globalisation of business has ensured that we have caught the vast majority of the diseases prevalent in those other markets.

While we are most certainly not anti-competitive, it remains true that there have been insidious declines in operating standards as a consequence of intensive (if not excessive) competition in the US and European aviation markets.

We must make a stand to protect the safety of the public and ourselves. Many of the advances in aviation safety have come about as the result of advocacy of one form or another following aircraft accidents. However, there is growing evidence that we have stagnated at safety levels achieved in 2003 and may even be going slowly backwards.

The advent of very low air fares has increased the demographic pool of potential air travellers and created a significant demand for increased capacity that appears set to continue. However, the expectation of the public is generally that the cheap fares come without any reduction in safety. That expectation may not be matched by the industry performance if we do not address the issues raised in this paper.

We don't know how the relentless pursuit of streamlined entry and training will prepare low experience crews for the paradoxically demanding role of operating highly reliable and highly automated aircraft. Unfortunately, the answer may remain hidden for many years with a high risk that, if it proves to be a bad combination, the repair strategies will be fighting a losing battle against a well-embedded virus.

What we do know is that the physical, mental and social wellbeing of the pilots, backed up by effective and targeted training, is a critical feature of good performance in the cockpit. Those characteristics should never be the playthings of young MBAs trying to make their mark in the business world.

Adam Smith, while often quoted in support of unrestrained markets, actually foresaw the potential for market abuse and identified the need for appropriate regulation when greed and avarice resulted in behaviour that exceeded acceptable societal limits. But regulators need more than political rhetoric to be effective. As we noted in the beginning, unseen by the public eye, regulators across the world are struggling to keep up with the ramifications of new entrepreneurial business models that have pushed the boundaries of existing regulatory frameworks. To compound the problems, regulators are almost universally lacking the human and capital investment needed to shift from a reactive to even a proactive footing, let alone the highly desirable predictive footing.

Historically, the airline industry has been good at being reactive to threats and has slowly matured into an ultra-safe industry. But progress has slowed and may even have reached a nadir. To move forward, we now need to identify and mitigate latent threats and be more proactive. Low crew experience, inadequate training, cultural differences and poor job satisfaction are all latent threats, yet little response is apparent. Many of those factors have been hereto now ignored in the U.S. – leaving many to wonder if the Colgan accident at Buffalo is the tip of iceberg of compromised flight safety.

The maintenance of flight standards will only come about as a collaborative effort between the operator, the regulator and the crew. AIPA, as the representational body for its pilot members, fully intends to uphold that responsibility.

RECOMMENDATIONS

In forming these recommendations, AIPA acknowledges that many of the issues are multi-faceted and require the concerted efforts of many of the aviation industry stakeholders. The large number of recommendations involving CASA do not reflect a lack of support for the regulator, but more that leadership is required and that CASA is the appropriate Government agency to take on that role.

AIPA recommends that:

(1) CASA formally conducts an Industry Risk Profile Assessment for each area of its regulatory responsibility;

(2) CASA establishes Industry Risk Management Teams that include demographically relevant representatives by industry sector, in particular industrial representative bodies such as AIPA;

(3) CASA reviews the experience requirements for Captains of LCRPT as set out in CAO 82.3, particularly the AICUS provisions in light of the change in approach by both CASA and operators to the meaningful conduct of AICUS;

(4) CASA reviews the need to establish minimum experience requirements for Captains of High Capacity RPT, conceptually similar to that published for Low Capacity RPT;

(5) CASA considers adopting through a CAAP the selection processes published by IATA as a means of establishing an industry best practice model for pilot selection for commercial purposes licences;

(6) CASA considers treating those operators who require “pay for training” or who offer “pay to fly” schemes as higher risk operations for surveillance purposes than those that do not;

(7) CASA continues with its excellent work improving standards of instructor training and instrument flying training and extends the work to include CAR 217 training and check pilots as soon as practicable;

(8) CASA extends the improvements identified in the MPL training design across the traditional pilot licences and reviews the adequacy of the theory training in light of modern aircraft and systems development;

(9) CASA prepares a public Position Paper on the strategic management of aircraft endorsement training for all industry sectors, including:

   (a) simulation policy covering all industry sectors;

   (b) the relevance and progress on Part 142 of the CASRs,

   (c) the safety implications of self-funded training on Part 25 aircraft,

   (d) the procedures for syllabus review and quality assurance of training, and

   (e) the quality control of ATOs and CAR 217 Check pilots;

(10) CASA prepares a public Position Paper on the strategic management of IOE/LT and recurrent T&C requirements that is appropriate to:

   (a) the experience levels,

(b) training source, and

(c) cultural background of pilots;

(11) CASA develops a best practice model for automation training and usage in line operations, as well as a review process for extant automation training;

(12) CASA considers processes to monitor occupational stress within an operator's technical employees as a flight safety risk factor, including;

(a) remuneration and conditions of service,

(b) management training and development schemes,

(c) rostering practices,

(d) commuting rules, and

(e) the implementation of "Just Culture" or similar schemes;

(13) CASA prepares a public Position Paper on its ability to:

(a) attract, train and retain quality technical personnel;

(b) develop and implement more contemporary and future-looking regulatory models to protect flight standards; and

(c) adequately protect the public interest through its supervisory mechanisms;

(14) CASA extends its internal staff training requirements for inspectors to develop model training and experience requirements for operators' technical managers;

(15) CASA establishes an Industry Training Support Team with appropriate government funding support to identify and develop industry wide training material specific to identified high risk issues, similar to the FAA and OEM groups that dealt with Aircraft Upset and Takeoff Safety; and

(16) CASA prepares a public Position Paper on the intended outcomes, including privacy protection and employment consequences, underpinning the recent CASA demand for the CAR 217 records of individual pilots.

AIPA also recommends that:

(17) The Australian Government reviews their financial incentives and support mechanisms for aviation training to identify if the those mechanisms should be targeted at the employer or the employee;

(18) Industry representative bodies consider adopting common best practice models for selection and training, to the extent of providing joint venture or other collaborative arrangements to conduct these activities on behalf of a number of operators;

(19) The Australian Parliament reviews the aviation safety reporting mechanisms to identify ways to increase their effectiveness and reduce impediments to full and open reporting;

(20) The Australian Parliament adopts legislative changes that make it an offence to interfere with a report of an aviation safety event or a reporter;

(21) The Australian Parliament adopts legislative changes that provide for court-imposed exclusion periods for any person found guilty of an offence under the Civil Aviation and related acts;

(22) The Australian Parliament reviews the safety consequences of transferring costs which are legitimate costs of business onto employees; and

(23) Employers consider financial support supplements based on the cost of living at each of their bases.

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Advancing the interests of our members and the profession

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