

High-flying management



That's me under close formation instruction: no room for error

Introduction

You cannot propel yourself forward by patting yourself on the back

On superficial consideration there would seem to be little significant relationship between the worlds of aviation and management. Close examination of many aspects of flying, though, will reveal important and eminently transferable lessons for managers from the art – or is it science? – of flying. Pilots are familiar with a number of light-hearted aphorisms that give clues as to the scope for problems if not disaster.

As with any discipline, aviation has a precise language and several terms explained here will help to avoid confusion later. In flying maps are used but they are generally called charts. They are maps but with items of interest to flyers highlighted (for example tall masts, aerodromes) and with various areas of controlled or restricted airspace clearly marked (light aircraft are not usually allowed into Heathrow's traffic zone!). It is a legal requirement that pilots fly carrying a current chart.

In planning a written plan is created (which is a flight plan when we fly between regions); its details are notified through air traffic control including timings and if we do not turn up on time at our destination, search and rescue will be alerted. Usually, since most flights are relatively local, the detailed plan is called a pilot's log or 'plog' and it is solely for the pilot's in-flight benefit. Both the flight plan and plogs represent intention. By contrast, log-books give details of the flight as flown.

Destinations may be aerodromes (mainly light aircraft, or 'general aviation'), airports (commercial aviation, especially scheduled flights), airfields (military bases) or airstrips (short, grass and with few, if any, facilities). Each type of destination has its own characteristics and rules.

Underpinning much of flying practice is risk management, but not necessarily risk aversion. In aviation there is a popular saying – "*There are old pilots and there are bold pilots, but no old, bold pilots*". When a bold pilot eventually cocks up, the results are very obvious and often fatal; when 'bold' managers cock up they perhaps simply disappear without trace. So what are the lessons to be learned from the highly disciplined (and regulated) domain of aviation?

Preparation

Torches are tubular metal containers kept in a flight bag for the purpose of storing dead batteries

Learn from the mistakes of others. You won't live long enough to make all of them yourself

Flying an aircraft is not an especially complex proposition, and certainly no more so than the average change management problem. Indeed the licence requires no more than a clear (but expensive!) medical, completion of eight ground exams and two flying tests all underpinned by a minimum of 45 hours flying training. All of the latter is under the legal supervision of the instructor, although typically about a third will be flown solo.

From the outset, checklists are used as a matter of routine. Some pilots keep some of them in their heads, especially where they relate to in-flight activity, where flying and reading are less than easy. Even then there is a reliance on mnemonics; the most common in-flight check for a light aircraft (every ten or fifteen minutes) is FREDA:

- Fuel – have I enough; have I switched tanks?
- Radio – am I on the right frequency; is the next one programmed in?
- Engine – are the gauges all showing normal running?
- Direction – is the gyro-driven direction indicator showing the same heading as the compass? Am I going the right way?
- Altitude – have I put the right pressure setting in the altimeter?

In flying, there is no shame in using checklists, but managers seem rarely if ever to use them let alone rely on them. The cost of not using them, even for the simplest of tasks, can be considerable. The most common example of getting it wrong, in the writer's experience, is in respect of job ads. How often are key terms or location omitted?

In February 2003, for example, the NHS National Patient Safety Agency advertised in *The Health Service Journal* for a Director of Clinical Programmes at £80,000 a year. The copy included “*Managing all Clinical Programme Directorate staff, your role will be to address multi-agency, multi-disciplinary work with Trusts and primary care practitioners, assess information and develop solutions with the Directorate of Modernisation that tackle the concerns identified by the examination of reported clinical incidents.*” A good checklist might have prevented such meaningless garbage; more to the point it might have highlighted the fact that the role required the job-holder to have a medical qualification, something missed from the ad and only mentioned later in the person specification.

A feature of checklists is that they address the routine, about which it is so easy to become complacent. Speed the routine, get it right every time and there is more time and space to address more complex problems.

Checklists don't cover everything, of course. Before each flight pilots should ensure that they have the equipment they need for the type of flight in question (over water requires lifejackets), that it all works and that they are fit to make this flight.

For managers, preparation before all but the most routine of tasks should extend to at least the following:

- For repeatable activities, do I have a checklist?
- Have I used it?
- Do I have the equipment, systems and people I need for successful completion?
- Do they all function?
- Do I function (am I physically and mentally fit for the task)?

Planning – the decision to move

Takeoffs are optional: landings are mandatory

If you can't afford to do something right, then be darn sure you can afford to do it wrong

Considerable attention is paid to planning before any but the most local of flights. This is because however many times the route may have been covered before, things keep changing. Potential hazards need to be identified and just as in management they fall into two categories – man-made and acts of God.

For the man-made hazards there are Notams (Notice to airmen) to guide pilots. These are maintained in a fairly accessible way and identify such prospective problems as navigation aids out of service and the location of obstacles like the Red Arrows en route or parachuting activity. However, they are to some extent abbreviated resulting in the possibility of error if they are not properly read.

The interference of the Almighty is primarily reflected in the state of the weather. To address this obstacle to progress there is a superb (and free) Met Office service which gives reports and forecasts for many destinations, plus the overall weather picture and wind velocity at various heights.

Having accrued the information relevant to the intended journey it now needs to be assimilated and incorporated into a plan (strictly not a flight plan). Only now is it possible to confirm the precise route (the destination hasn't changed) and the timing. The wind velocity – direction and speed – gives a clear idea of the allowance to be made en-route to provide a heading which maintains track over ground.

Preparation also extends to confirming that the vehicle to hand is capable of the flight. Does it have sufficient range, taking account of the wind? Will it carry fuel and luggage for the trip and will the centre of gravity be within limits? If the wind is strong across the runway, is the aircraft capable of landing?

Subject to the capabilities *and formal qualifications* of the pilot, the flight may now proceed, or not! In terms of qualifications, these determine the limits of weather and visibility through which the aircraft may legally be flown. Beyond formal qualification, though, is competence in flying, multi-tasking and navigating.

It shouldn't prove too difficult to relate the level of planning described in summary form to any significant management activity. The key questions are:

- Where am I going?
- When do I need to get there?
- What are the actual and potential obstacles to my task?
- What route will I take?
- What are my markers en route?
- Do I have the resources to take me there?
- Do I have the qualifications and competence to get me there?

Alternatives or diversions

Its better to be down here wishing you were up there, than up there wishing you were down here

A requirement in setting up any flying plan, including a formal flight plan, is the identification of alternate destinations in the event of in-flight emergencies or poor weather at the original destination. These are not left to chance or merely identified; rather their characteristics are reviewed, they are marked on the chart and their radio frequencies noted ready for use.

Until recently many airports and airfields charged for aircraft diverting for reasons to do with deteriorating weather conditions. There is now a widespread agreement to waive landing charges for weather diversions to ensure that no pilot should put financial considerations before safety. The handful of bases which still charge are frequently named and shamed.

For managers planning on reaching a given endpoint at a given time and cost the following might prove useful.:

- Recognise the potential for diversion through the unforeseeable
- Know the options for diversion
- Be prepared to communicate your situation
- Don't let 'face' or financial considerations get in the way of wise decisions to divert

Communications

Generally speaking you aren't learning much when your lips are moving

Flying really does demand constant multi-tasking. However, under extreme pressure, pilots are advised to aviate, navigate and communicate in that order. In other words, if things start to go pear-shaped, get stable, then check where you are and do something to get back on course and then talk to somebody.

Communication with passengers within the aircraft may be a simple distraction and there is always the risk of casual conversation overlaying an important message from air traffic control. For this reason some light aircraft have the backseat intercoms working just one way – from pilot to passengers.

Communication between the aircraft and other radio stations, including other aircraft, is a highly disciplined affair for good reason. First there is a limited number of wavelengths available, so each airfield usually has one or two frequencies with which to talk and listen to all aircraft within perhaps a 30 mile radius and operating on that wavelength. Second, there must be no scope for ambiguity of instruction.

To economise on time many common phrases have been reduced to terse – and sometimes apparently rude – short forms. Thus *“I'm sorry but I missed your last transmission could you repeat it?”* becomes *“Say again”*. It is considered unprofessional to spend time on air unnecessarily given that another pilot may have an emergency and need help.

To ensure absolute clarity of message there is a precise language and way of saying things, which paradoxically may sometimes involve making a short word longer, thus *“no”* becomes *“negative”*. By contrast *“yes”* becomes *“affirm”* not *“affirmative”* to avoid any confusion through having two words with the *“-ative”* ending. Every aircraft has a unique callsign which is used in each transmission. By the way, *“over and out”* is an oxymoron. *“Over”* means *“please respond”*, while *“out”* means *“I've finished”*!

Further to avoid ambiguity, all instructions and clearances from air traffic control have to be read back, not merely as a protocol, but as a matter of law. The cost of getting it wrong is high. The collision on the runway at Tenerife in 1977 was due to mixed messages resulting in one Jumbo backtracking along a runway into the path of another taking off on the same runway. 355 people died.

Management communications could do with some of the same discipline. First clarity can help to conserve that scarce resource, time. Second clarity could ensure that there is no ambiguity in messages. Third, where there might ever be room for doubt feedback may be requested. In any managerial activity the following questions might usefully be addressed:

- To whom do I need to talk?
- Are we on the same wavelength?
- Are both of us listening *and* hearing?
- Have I thought about what I want to say?
- How can I keep my messages economic?
- Have I ensured no ambiguity?
- On important issues, how do I get feedback?

Tackling the journey

Always remember you fly an airplane with your head, not your hands. Never let an airplane take you somewhere your brain didn't get to five minutes earlier

A thunderstorm is never as bad on the inside as it appears on the outside. It's worse

If enough effort goes into preparation and maintaining competence, the flight itself will be routine and fairly predictable. Great care will have gone into maintaining systems, honing skills and in preparation. When things do go terminally wrong, the subsequent investigation will often highlight pilot error of one sort or another.

One type of error is rashness or poor judgement, typically flying into poor weather, perhaps stretching the fuel range or flying overloaded. (The pilot's operating handbook for the particular aircraft is boring but essential reading, scheduling all of the aircraft limits.)

A second group of problems involves being de-skilled, perhaps through lack of practice. Thus mistakes are made reading charts or converting barometric pressure into height or altitude.

The third type of error has to do with not expecting the need for, or practising, emergency procedures. In training pilots are required to learn and are tested on practice forced landing. While aircraft engines are superbly made, they do occasionally fail at which time the aircraft becomes a glider. For a pilot in practice getting into a field while simultaneously going through several drills to get the engine started and then making it safe will rarely lead to serious difficulty.

There are one or two other factors which occasionally contribute to disaster. One is a limited form of 'group-think', where two or more perhaps less experienced pilots give one another undue confidence to fly in adverse conditions. The other is competitiveness or ego where the desire to show off leads to the aircraft running out of sky.

According to research in the US there is a significant difference between the reasons for aviation accidents involving men and women. Men are more likely to crash through flawed decision making or inattention while women are more likely to have accidents resulting from mishandling. To quote "*Males tend to trade accuracy for speed.... Women tend to be more cautious and pay greater attention to the rules.*" Male pilots run out of fuel and land with the undercarriage retracted; women pilots appear to have a greater tendency to abuse the controls.

In managing the apparently routine excursions demanded of work managers might usefully remember the following:

- Prepare, prepare, prepare
- Check the operating handbooks from time to time
- Keep fit for purpose
- Anticipate the unexpected and practice handling it
- Don't be encourage into rash action by others; hold your own counsel
- Don't show off

Keeping current and learning

Good judgement comes from experience and experience comes from bad judgement

Keep looking around; there's always something you've missed. You're always a student in an airplane

Always remember that you're unique. Just like everyone else

In general aviation there is a legal requirement to keep current and be able to demonstrate currency. Of course, in commercial aviation the rules are much more stringent yet. For example, if carrying a passenger a private pilot must have made three take-offs (and landings!) in the past 90 days.

In managing significant change in any occupation it must be worth checking that the standards required for effective delivery are met and that the manager is conversant with any legal requirements. Keeping fit for purpose through continuing professional development is essential in a rapidly changing environment, It means not just confirming existing competencies, but acquiring new ones to meet new demands.

In addition to formal control there is a parallel system of self-regulation (which could, of course, be audited). Thus, a licensed pilot may not fly if “...he knows or suspects that his physical or mental condition renders him temporarily or permanently unfit to perform.....”. Aircrew take that requirement seriously. In 2002 an EasyJet pilot had an altercation with a policeman on his journey to work at Luton airport. He was angry and decided that it would be prudent to defer flying for an hour or two until he had gathered his composure.

No doubt his bosses and passengers were put out. Not as much, however, as the 118 passengers and crew on the BEA Trident flight BE548 which crashed at Staines shortly after take-off from Heathrow in 1972 killing all on board. The investigation concluded that a contributing factor was the heart condition of the Captain, no doubt exacerbated by a very public row he had had shortly before departure.

The message here should be clear. Managers have a responsibility for the well-being of others, even if they value their own futures cheaply. Keep stress in check and be sufficiently physically and mentally robust to handle the ride.

In aviation in the UK there are three national reporting systems designed between them to identify problems which could impact on safety, to identify the need for change, to implement change and to promulgate learning. Importantly, they may identify accountability, but try to steer clear of blame in order to encourage honest reporting.

Article 117 of the Air Navigation Order 2000 requires the mandatory reporting of incidents which result in serious damage, injury or death to the Civil Aviation Authority (CAA). This requirement relates primarily to aircraft, equipment and systems.

Interestingly, over recent years accidents through equipment or systems failures have been reducing, while incidents arising out of human factors are on the increase. (Perhaps in many fields of endeavour we are getting smarter at reliable equipment and systems production, while organisational and environmental complexity and shift increases demand on people.)

Recognising this a semi-independent organisation was established as long ago as 1982 called CHIRP – Confidential Human factors Incident Reporting Programme. It provides the opportunity for honest reporting of any potentially dangerous incident arising out of some human failure. The lessons are promulgated in hard form and on the Internet.

A particular potential risk lies in airspace infringements, especially by occasional flyers in the general aviation sector. All airspace in the UK is designated in a manner which defines who may use it and in what circumstances. Understandably, light aircraft are not routinely allowed into the air immediately surrounding large and busy international airports like Heathrow. There are, however, numerous infringements and the CAA sponsored *On-Track* project exists to receive confidential details of infringements from pilots and to analyse what happened and perhaps more importantly why. The emphasis is very much on pragmatic and timely solutions to problems.

The CAA and RAF have also established an Airprox Board to secure data about near-misses. Here again the approach is to encourage reporting through confidentiality (but not anonymity). To quote from the Board:

“Payback takes several forms. The most immediate benefit accrues to those involved in each conflict. Pilots and controllers each receive their own full copy of the Board's final report which sets out what happened and why. This is produced in a style where the names of companies and individuals are removed to preserve anonymity and encourage open and honest reporting. All language of blame is avoided and instead, straightforward statements are made on what took place, with the emphasis placed on extracting lessons learned. Recommendations, where appropriate, are made to the CAA and the MoD - to date of the seventy put forward 85% have been accepted and acted on.”

The general lessons arising from these groups and the Air Accident Investigation Board are widely promulgated through the aviation press and accessible specialist publications.

In summary, because of the very tangible and obvious potential risks involved in aviation a great deal of energy is directed at evaluation of the untoward. Good pilots also debrief after even routine trips.

Finally, there is a recognition, at least in the Royal Air Force, that seniority does not confer excellence in all aspects of flying. Thus operational combat units have qualified instructors of relatively low rank who brief, assess and de-brief others regardless of status. In commercial and industrial enterprises how many senior managers are prepared to have specific competencies assessed by a subordinate expert with the authority to ‘ground’ them if found wanting?

An agenda for managers wanting to ensure that progress is made through learning might include the following:

- Keep current - pay attention to your CPD
- Ensure that you know the rules in relation to your task(s)
- Keep physically and mentally fit for purpose
- Encourage openness in reporting in a no-blame culture
- Be part of a learning organisation; set aside time for reflection
- Value the competencies and guidance of people across the organisation

Teaching others

Experience is something you don't get until just after you need it

Flying is the second greatest thrill known to man....landing is the first

The flying element of the course for a private pilot's licence involves at least 45 hours complemented by ground studies leading to eight examinations, written and oral and two flying tests. There is nothing especially unusual about the training processes involved in teaching a student to fly, but there is a clear and logical structure. There are peaks of extremely high workload in the air at some stages, so the instructor/student relationship is of high importance.

The syllabus is fairly straightforward and its application usually involves an apparently haphazard mix of phased introduction and total immersion. Learn to control the aircraft in the air, quickly acquire the correct way of communicating (at least the basics) learn to take off, then to land and then keep practising in the aerodrome circuit. From an early stage trainee pilots are taught the process for making forced landings in the event of engine failure

At some stage into the flying course the student is sent solo, typically at between about ten and sixteen hours. Now this is a phenomenon every manager should witness. While not exactly delegating, the instructor, based on just a few hours in the air, trusts the student to get airborne, fly a circuit and then land without mishap. Two things make this an exercise most worthy of note.

First, since training aeroplanes are small and light, they handle quite differently without the instructor sitting in the right-hand seat; the student can't fully practice the first solo. Second, there appears to be no record of students killing themselves or others on that initial solo.

Instructors are able to assign a complex and stressful task after a few hours tuition and they rarely, if ever get the call wrong. Remarkable, considering the reluctance with which many managers delegate the most routine of tasks!

After the solo flight and consolidation of flying skills, navigation exercises are added and after every flight, whether solo or dual, the student pilots is thoroughly debriefed. Formal qualification is then just the beginning of a process of development with typically biennial checks on proficiency by an instructor, who may be younger and have less hours in the log-book than the pilot under supervision. And that time gets logged as dual 'pilot under training'.



And finally, a few more aphorisms

The nice thing about making a mistake is the pleasure it brings to other people

Both optimists and pessimist contribute to society. The optimist invents the aeroplane, the pessimist the parachute

If you deviate from a rule, it must be a flawless performance – if for example you fly under a bridge, don't hit the bridge

He who demands everything that the aircraft can give him is a pilot: he that demands one iota more is a fool

Too many pilots are found in the wreckage with their hands around a microphone. Don't drop the aircraft in order to fly the microphone

You start with a full bag of luck and an empty bag of experience. The trick is to fill the bag of experience before you empty the bag of luck

Never trade luck for skill

When a flight is proceeding incredibly well, something has been forgotten

Never fly in the same cockpit as someone braver than you

Don't be irreplaceable. If you can't be replaced, you can't be promoted

Never test the depth of the water with both feet