



‘JUST CULTURE’

‘Can there be a Just Culture in Aviation Safety Occurrence Reporting Systems’

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This paper is condensed from a minor thesis for the award of a Masters Degree in ‘Ethics for Professionals’. The full paper is available from the author on request.

Any reference to a specific ‘chapter’ in this condensed version is in relation to the full paper.

Introduction

This paper will examine some philosophical and ethical aspects of establishing a ‘just culture’ in Aviation Safety Occurrence Reporting Systems. It is considered by both the International Civil Aviation Organisation (ICAO)¹ and the European Union (EU)² that the accident investigation process for civil aviation has been crucial in increasing aviation safety as a result of lessons learned. This is a reactive process and is carried out after the accident has occurred and is the crudest and most expensive method of accident prevention. In order to avoid future accidents it is considered essential to analyse occurrences other than accidents which may affect safety. To capture this information aviation professionals are required by law to report these events with the understanding that no punitive action either professional or legal, will be initiated against them. The protection offered is referred to as ‘just culture’ and is defined by the EU as:

‘Just culture’ means a culture in which front line operators or others are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated;³

Both ICAO and the EU require States to establish mandatory and voluntary confidential reporting systems.⁴ This is based on the premise that incidents and occurrences are very often the precursor to accidents and that accidents could have been avoided if near accidents, of like or similar type, had been reported, investigated and preventative or mitigating action taken. The difficulty in getting aviation professionals, whether they are pilots, air traffic controllers, engineers, mechanics or airport staff, to report incidents or occurrences is the fear of being dismissed, penalised, ridiculed or, indeed, causing such effects to be experienced by others.⁵ In endeavouring to establish the concept of ‘just culture’, various safety protagonists and organisations, including EUROCONTROL,⁶ have tried to define what is meant by ‘just culture’. Whether this has yet reached an agreed definition will be discussed and it will be shown that information provided to the accident investigation process

¹ ICAO Annex 13 to the Convention on International Civil Aviation, International Standards and Recommended Practices, International Civil Aviation Organisation, Quebec, Canada, 2010 p. ix.

² EU Directive 2004/42/EC of the European Parliament and of the Council on Occurrence Reporting in Civil Aviation, Official Journal of the European Union, Brussels, L167/23, 2003.

³ Commission Regulation (EU) No. 691/2010 of 29 July 2010, Official Journal of the European Union, Brussels, L2013, 2010.

⁴ ICAO Annex 13, Para 8.1/EU Directive 2004/42/EC.

⁵ Sidney Dekker, *Just Culture; Balancing Safety and Accountability*, (Surrey, England: Ashgate Publishing Ltd., 2010), p. 43.

⁶ Global Aviation Information Network (GAIN), A Roadmap to a Just Culture: Enhancing the Safety Environment, RS Information Systems, Inc., USA, 2004, p. E1.

though specifically gathered for safety purposes only, has been used in judicial processes, both civil and criminal. Thus, the protections offered to prevent such misuse⁷ have proved inadequate and the criminalisation of aviation professionals for error, whilst it may have always existed, is increasing as a result of the success of the accident investigation process in establishing the causes of accidents and incidents.

Historical Background

Civil aviation is the safest form of mass transportation. Since the Second World War improvements in aviation safety have made the system asymptotic – a rate that is so low it is almost zero and on a linear scale would equal zero at infinity. This continued successful reduction in the accident rate over a sixty year period was no doubt due to the accident investigation process created by ICAO. This process, in accordance with Annex 13, states that the sole objective of the investigation of an accident or an incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability.⁸ This approach is mirrored in EU legislation⁹ which lays down the principles governing the investigation of civil aviation accidents in the European Union.

The dilemma posed by the complicated relationship between the administration of justice and a safety investigation is described by Roderick Van Dam, Head of Legal Service of the European Organisation for the Safety of Air Navigation (EUROCONTROL) and chairman of the EUROCONTROL ‘Just Culture Task Force’, as a classical drama where two antagonists are involved, one with the aim of preserving justice by investigation and prosecuting possible perpetrators and the other with the aim of enhancing aviation safety through independent investigation and reporting. Van Dam states that “this dilemma has led to the concept of ‘just culture’ which is based on the support and understanding of both groups of professionals.”¹⁰ Air traffic controllers are one group of actors following an aircraft accident or incident. However, civil aviation is a total system comprising airlines, air traffic managers, manufactures of both aircraft and engines (as aircraft can be

⁷ ICAO Annex 13, p. 5.4.

⁹ ICAO Annex 13, p. 3.1.

⁹ EU Directive 94/56/EC of the European Parliament and of the Council on The Investigation and Prevention of Accidents and Incidents in Civil Aviation, Official Journal of the European Union, Brussels, Belgium.

¹⁰ Michaelides-Mateou and Mateou, *Flying in the Face of Criminalisation*, p. 3.

purchased with several makes of engine available), engineers, pilots, airport personnel, regulators, i.e. civil aviation authorities, government departments, but above all, the fare paying passenger.

A number of aviation accident investigation reports and indeed incident investigation reports, particularly the causes that are listed as having probably caused the accident, have become the basis for criminal action against aviation professionals.¹¹ This intermingling of the safety and judicial processes may lead to a detrimental effect on aviation safety, jeopardise the independence of accident investigation and lead to injustice. It is the prospect of the intermingling of the judicial and safety process leading to injustice which further prompts the examination of 'just culture'. However, as Mateou and Mateou state, the dilemma experienced by aviation professionals is that of having to choose between not incriminating themselves and enhancing the safety of aviation issues of self interest, and thus the possibility/probability of potential litigation and accountability is accentuated. Mateou and Mateou discuss the notion of trust but they avoid the moral and philosophical questions this dilemma creates; they deal only with the practical implications. This paper endeavours to offer a different insight. It was said earlier that aviation safety was now asymptotic, that is, an accident rate so close to zero as to parallel a zero rate. How has such a level of safety been achieved? Doubtless, one factor is the realisation between governments, aircraft manufacturers and operators, that if a particular type of aircraft or airline practices were unsafe then trust would be lost in the system and it would fail.

Charles Perrow in his work on normal accidents presented what is known as 'normal accident theory'.¹² This theory proposed that many socio technical systems, such as nuclear plants, oil refineries and space missions by the late 1970s and 1980s had become so complex that unanticipated interaction of multiple small failures were bound to lead to unwanted outcomes accidents and disasters. On the face of it, given the loss of the space shuttles Challenger¹³ and Columbia¹⁴ and the Air France

¹¹ Michaelides-Mateou and Mateou, *Flying in the Face of Criminalisation*, p. 3.

¹² As cited in Hollnagel, *The ETTO Principle: Efficiency Thoroughness Trade Off*, p. 7.

¹³ Harold W. Gehman, Jr, Report of Columbia Accident Investigation Board, Report Volume 1, Government Printing Office, USA 2003.

¹⁴ Gehman, Columbia Accident Investigation Board, Report Volume 1.

Concorde crash,¹⁵ this theory would seem to be correct. This led to a school of thought known as the ‘Study of High Reliability Organisations’.¹⁶ Reason¹⁷ also discusses high reliability organisations based on the summary of Karl Weick.¹⁸ Reliability is invisible in the sense that reliable outcomes are constant if nothing happens except the expected outcome i.e. the safe landing of a flight, or a successful medical procedure. Despite the fact that errors and mistakes may have occurred during the process, then operators will continue to act the way they have been acting – they presume nothing has happened. The point is that safety is a dynamic non event. Reason states that if internal vigilance is the price of liberty then chronic unease is the price of safety.¹⁹ Studies of high reliability organisations indicate that people who operate and manage them assume that each day will be a bad day and act accordingly. This ‘Cassandra’ like attitude is unlikely to be well received within certain organisational cultures and this will be examined when discussing cultures, organisational or otherwise, in the next chapter.²⁰

Hollnagel, not dissimilar to Reason with his production versus protection principle, advances the ‘efficiency thoroughness trade off’ principle. Both theories speak of the requirements of any socio technical system to evaluate risk in assessing the mitigation needed to prevent unwanted outcomes such as accidents and incidents.²¹ Mateou and Mateou broaden the simple statement of ICAO Annex 13’s ‘purpose of an accident or incident investigation’ from, the sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents, it is not the purpose of this activity to apportion blame or liability. Mateou and Mateou broaden the purposes of an accident or incident investigation to include the following:

- to identify and then describe the course of the events (what, where and when);
- to identify the direct causes and contributing factors that led to the accident (why);

¹⁵ Reason, *Managing the Risks of Organisational Accidents*, p. 216.

¹⁶ Antonsen, *Safety Culture, Theory Method and Improvement*, p. 15.

¹⁷ Hollnagel, *The ETTO Principle; Efficiency Thoroughness Trade Off*, p. 7.

¹⁸ Weick, K.E.: Cited by Reason, *Organisational Culture as a Source of High Reliability*, *Californian Management Review*.

¹⁹ Reason, *Managing the Risks of Organisational Accidents*, p. 37.

²⁰ Reason, *Managing the Risks of Organisational Accidents*, p. 52.

²¹ Hollnagel, *The ETTO Principle; Efficiency Thoroughness Trade Off*, p. 7.

- to identify measures to reduce risk in order to prevent future similar accidents from occurring (learning);
- to evaluate the basis for potential prosecution and blame;
- to evaluate the question of guilt in order to avoid the liability for compensation.²²

It can be seen clearly that ICAO's purpose is purely a safety one. Under its Convention it requires States to establish an accident investigation body that has independence in the conduct of the investigation and unrestricted authority over its conduct. Any investigation carried out in accordance with the provision of the Annex shall be separate from any judicial or administrative proceedings to apportion blame or liability.²³ Therefore, it is evident that the responsibility for investigating an accident rests with different people depending on the kind of investigation and its purpose. For safety purposes, it is a body in accordance with ICAO. However, in an investigation to evaluate the potential for criminal prosecution, the police and the prosecution authorities and the courts have the ultimate responsibility for passing the appropriate sentence once liability and blameworthiness have been established. ICAO recommends that States should institute an investigation into the circumstances of a serious incident. This has been the case in Ireland at least since the introduction of a separate accident and incident investigation body under EU Directive 94/56 which states that the safety investigation of accidents and incidents should be conducted under the control of an independent safety investigation authority in order to avoid any conflict of interest and any possible interference in the determination of the causes of the occurrences being investigated.²⁴ The EU regulation requires that each member State shall ensure that safety investigations are conducted and supervised without external interference by a permanent national civil aviation safety investigation authority capable of independently conducting a full safety investigation either on its own or through agreements with other safety investigation authorities. This authority shall be functionally independent of aviation authorities responsible for airworthiness, certification, flight operations, maintenance, licensing, air traffic control or any entity which could conflict with the EU Regulation 996/2010.

²² Michaelides-Mateou and Mateou, *Flying in the Face of Criminalisation*, p. 31.

²³ ICAO Annex 13, p. 5.41.

²⁴ EU Regulation 996/2010 of the European Parliament and of the Council of 20 October 2010, Official Journal of the European Union, Brussels, Belgium.

Mateou and Mateou cite many cases where aviation professionals have been criminally prosecuted following an aviation accident or serious incident. In examining the intermingling of the judicial and technical investigations and how use was made of evidence from the technical investigation by a court of law, they found cases that involved the prosecution of pilots, air traffic controllers and aviation regulators.²⁵ ICAO Annex 13 and the EU regulation specify the records that should not be disclosed following an investigation and the standard 5.12 of the Annex states that the investigating authorities of an accident or incident shall not disclose the following records for purposes other than accident or incident investigation:

unless the appropriate authority for the administration of justice determines that this disclosure outweighs the adverse domestic or international impact such impact may have on any future investigation. (Italics added).

The above italicised caveat may be identified as the fundamental problem with the criminalisation of error and the difficulty in achieving justice when professionals give their testimony to a body on the understanding that the information will not be used for any purpose other than safety enhancement. The particular records are listed both in the Annex and Regulation EU 996/2010 as follows: statements from witnesses; communications between persons having been involved in the operation of the aircraft; medical or private information of persons involved in the accident; cockpit voice recordings and their transcripts; air traffic control recordings; cockpit airborne image recordings and opinions expressed in the analysis of information including flight recorder information. It further states that such records shall be included in the final report or its appendices only when pertinent to the analysis of the accident or incident.²⁶

The rationale for trying to protect such information is reasonable and understandable to those involved in an accident or incident. That is, that information contained in such witness statements or records given voluntarily by persons interviewed during an investigation could be utilised inappropriately for subsequent disciplinary civil administrative and criminal proceedings. If such information were to

²⁵ Michaelides-Mateou and Mateou, *Flying in the Face of Criminalization*, p. 55.

²⁶ ICAO Annex 13, p. 5.12.

be thus distributed it might no longer be openly disclosed. ICAO further states that lack of access to such information would impede the investigation process and seriously affect flight safety. Countries where code Napoleon law exists (as distinct from common law countries), do not consider the requirements of 5.12 of ICAO requiring the judicial authorities to consider the benefits and dangers of using such information. In both EU and ICAO guidelines to States cognisance is taken of the probability of a judicial investigation into an aircraft accident or incident.

James Reason's 'production versus protection' trade off has been referred to previously. For protection Reason introduces the concept of defences against the drift of an organisation from normal standard operations to system failure. This he refers to as the accident trajectory. However, before discussing this concept Reason argues that in modern technologies individual accidents are rare and that the biggest danger comes from rare but disastrous organisational accidents involving causal contributions from many different people distributed widely both throughout the system and over time. Defences are 'hard' and 'soft'. Hard defences are technical devices such as automated engineered safety features, physical barriers, alarms and annunciation interlocks keys and design structural weaknesses.²⁷ These defences are designed to eliminate the possibility of the human selecting a function or feature at an inappropriate time e.g. raising the undercarriage of an aircraft while it is still on the ground. Soft defences refer to a combination of paper and people, legislation rules and procedures, licensing, certification. However, all of these defences can be overcome by either ignoring them or forgetting to carry them out. High tech systems and cheap computing power has brought about dramatic changes in the nature of human involvement particularly in what are referred to as 'glass cockpits' in aircraft and in nuclear power plants. Pilots become managers and monitors of what the automated aircraft is doing and a crucial part of this role involves the defensive function of restoring the system to a safe state in the event of an emergency. Reason argues that soft and hard defences have lacunae and that these can be likened to a slice of Swiss cheese. If there are, say, four defences in line, and if the holes in the cheese for some reason are aligned, then the defences in depth are breached and the system fails, with

²⁷ Reason, *Managing the Risks of Organisational Accidents*, p. 8.

a resulting catastrophe. In deciding how the holes in the Swiss cheese are created Reason considers the distinction between ‘active failures’ and ‘latent conditions’.

It is interesting to note that originally Reason referred to the ‘latent errors’. This then changed to ‘latent failures’ but has now changed to ‘latent conditions’.²⁸ When humans design, manufacture, operate, maintain and manage complex technological systems, it is hardly surprising that human decisions and actions are implicated. It is obvious that errors and violations committed by front line staff contribute to the breakdown of a system; such unsafe acts impinging directly on safety are termed ‘active failures’. Traditionally these active failures satisfied investigators and organisations and society in general. Despite the rethinking of the accident and incident investigation process, such failures are still cited and the term ‘pilot error’ is normally replaced by ‘human error’. However, in the last decades authorities and organisations are unlikely to accept sharp end human failures as the cause of an organisational accident. Reason likens ‘latent conditions’ in a technical organisation to resident pathogens in the human body that may be present for many years before they combine with local circumstances and active failures to penetrate the system’s many layers of defences. Active failures are committed by those at the human-system interface or HMI, as has been referred to previously. Latent conditions belong to the upper echelons of an organisation and within related manufacturing, contracting and regulatory and governmental agencies.

In this introductory chapter setting out the genesis and development of aviation safety, it is apparent that the ICAO and the EU realise that accident investigation is a post fact, rearward-looking process which is the crudest form of accident prevention and safety enhancement. At any stage of an accident or incident investigation, an investigating authority may make a recommendation before releasing its final report, specifying any preventive action it considers necessary to be taken promptly to enhance aviation safety.

James Reason’s organisational accident theory has been fully embraced by ICAO and forms part of ICAO’s guidance material to States in the form of ICAO’s

²⁸ Reason, *Managing the Risks of Organisational Accidents*, p. 20.

SMM.²⁹ The allied concept of Safety Management Systems (SMS)³⁰ forms part of ICAO's requirement for States to have a State Safety Programme as part of a State's accident prevention measures.³¹ Apart from mandating States to have an independent accident investigation process, ICAO and the EU, mandate States to have Incident Reporting Systems.³² States are obliged to establish a mandatory incident reporting system to facilitate collection of information on actual or potential safety deficiencies. States are also mandated to establish a voluntary incident reporting system to facilitate collection of information on actual or potential safety deficiencies that may not be captured by the mandatory incident reporting system. ICAO further states that a voluntary incident report system shall be non-punitive and afford protection to the source of information.³³ States are encouraged to facilitate and promote the voluntary reporting of events that could affect aviation safety by adjusting their applicable laws, regulations and policies as necessary. As part of its accident prevention measures ICAO mandates States to establish and maintain an accident and incident database to facilitate the effective analysis of actual or potential safety deficiencies obtained including that from its incident reporting system and to determine any preventive action required.³⁴ It has been established from the work of Mateou and Mateou that some States have not prevented the intermingling of the safety technical investigation and that the criminalisation of accidents and incidents has increased due to the success of modern accident investigation techniques in establishing the cause of an accident. They further indicate that protection by ICAO by issuing standards cannot be applied universally due to the differing legal system in each country.

Having embraced Reason's model of active errors and latent conditions both Reason, ICAO and the EU require incidents and occurrences to be reported to facilitate the operation of SMS. ICAO lays down its requirements and legal information in ICAO Annex 13. The EU's requirements are in Directive 2003/42/EC of the European Parliament and Council. The Commission (EU) has laid down implementing rules for the integration into a central repository of information on civil aviation occurrences exchanged in according with Directive 2003/42/EC and the EU

²⁹ ICAO Doc 9859.

³⁰ ICAO Annex 13, p. 8.1.

³¹ ICAO Annex 13, p. 8.1.

³² ICAO Annex 13, p. 8.4.

³³ ICAO Annex 13, p. 8.4.

³⁴ ICAO Annex 13, p. 8.4.

has a further regulation EC1330/2007 of 24 September 2007, laying down the implementing rules for the dissemination of interested parties on information on civil aviation occurrences, referred to in article 7(2) of Directive 2003/42/EC of the European Parliament and Council, ICAO, the EU require people in the aviation industry to report occurrences. Despite having failed to protect information given in accident investigations, all safety thinking believes that from a *reporting* culture a *learning* culture will develop and this can all be accomplished in a 'just culture'.

Conclusion

The purpose of this paper was to establish if there could be a 'just culture' in aviation safety occurrence reporting. The background to aviation safety by way of the establishment of a UN body called ICAO was recounted. This emphasised the efforts by the UN during and immediately after the war to put structures on the development of international civil aviation. The importance of properly investigating accidents in order to prevent further accidents was examined and how this process was standardised in Annex 13 to the Chicago Convention. The matter of ICAO, the EU and safety professionals mandating the establishment of safety data bases containing reports of accidents, near misses and occurrences was seen as prerequisite for the improvement of aviation safety. In the examination of the accident process, history had shown that the protection offered to people who give information to the investigation body or inquiry has not withstood the judicial process and that such information included that on flight data recorders and cockpit voice recorders.

In the second chapter the function of culture was examined in the context of safety and the lack of a safety culture in high reliability organisations which had suffered major disasters emerged. However, there seems to be a considerable dispute between safety experts as to what safety culture is, the theory of a 'just culture' being a sub culture of safety culture emerged. In the context of justice being part of 'just culture' the influence of philosophical principles were seen to affect whatever legal system was discussed, Common law or Napoleonic code. What is clear from this discussion is that the protagonists of 'just culture' decry the involvement of the justice system in matters of aviation or medical safety. In advocating, an aviation court or

tribunal being attached to EASA this would actually intermingle the regulatory and judicial process which the same protagonists so highly criticise.

Reference has been made to the Air Ontario accident in Dryden, Ontario and to Judge Virgil Moshansky's report. The most significant part in the context of this discussion is that the Judge ruled that the standards and recommended practices of ICAO Annex 13 are not legally binding and States that find this requirement impractical or impossible to comply with can notify a difference to ICAO. The difference filed by Canada simply states. 'Present Canadian legislation precludes the possibility to guarantee that the documents outlined could be afforded any protection from disclosure or discovery.'³⁵ It must be concluded therefore that 'just culture' as understood by its protagonists is unachievable in accident investigation. It is equally plausible that the same concept of 'just culture' is unachievable in incident reporting. William R. Voss, President and CEO of the Flight Safety Foundation, stated:

On the topic of the criminalisation of human error flight safety has been vocal. The focus of our efforts has been on the legal protection of safety information. Increasingly, voluntarily provided safety information is being used in court cases, sometimes even trivial cases. We are not talking about the usual states with lax protection but advanced aviation nations like Canada and UK. It is one thing to see confidential information disclosed in the emotional turmoil of a major accident, it is another to see it casually offered up by the courts in the normal course of business. The judges rightly point out that there is no protection for this information under common law or legislation. Even though your regulator may have agreed to protect information and promised not to use it against the person who made the report, that promise has no bearing on anybody else who might want to use it.³⁶

This then is the *real politick* of occurrence reporting and after examination of the proposals for a 'just culture', perhaps for the common good, this is no harm. Justice according to Dame Helena Kennedy:

is a process not a result and truth is not the only goal of a trial, we want privacy, fairness, equality and finality. Every time we play with the rules to make it easier to convict the guilty we make it easier to convict the innocent.³⁷

Quoting Seamus Heaney, 'that before any process of renovation we should take stock and shore up the vital foundations.'³⁸ Kennedy says that law is the supreme

³⁵ Moshansky, Commission of Inquiry into the Air Ontario Crash, p. 1,178.

³⁶ William Voss, *AeroSafety World*, The Journal of Flight Safety Foundation, March 2001, Vol. 6, Issue 2, p. 7.

³⁷ Helena Kennedy, *Just Law, The Changing Face of Justice and Why it Matters to Us All*, (London: Vintage, 2004), p. 30.

³⁸ Kennedy, *Just Law, The Changing Face of Justice and Why it Matters to Us All*, p. 30.

regulator, a civilising force. And as it is put in Hurst, ‘air law is part of general law’.³⁹ Therefore, in answer to the question whether there can be a ‘just culture’ in civil aviation reporting systems, at this point of time, even though the EU have accepted it, there is no confirmation that ICAO have, and therefore it must be considered to be an immature concept and merits further investigation.

Two cases of interest for further thought include:

1. High Court: Rogers v Hoyle [2013] EWHC 1409 (Q.B.)
2. Court of Appeal: Hoyle v Rogers [2014] EWCA CIV257

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³⁹ Hurst, *Pilot Error*, p. 200.

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