

CHASING THE RAINBOW WHEN IMPLEMENTING A JUST CULTURE IN EUROPEAN AIR TRAFFIC MANAGEMENT

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**Chasing the Rainbow when Implementing a Just Culture in
European Air Traffic Management**

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Abstract

In the wake of some high-profile accidents such as Gonesse (2000), Linate (2001) and Überlingen (2002), a trend of criminalisation of aviation professionals was noticeable. Recently, this trend was also seen in cases of operational incidents that did not lead to injury, loss of life or damage to property. The most recent convictions of air traffic controllers (ATCOs) in Switzerland, by the Federal Penal Court and the Cantonal Court of Zürich, posed serious questions related to the implementation of a Just Culture in European Air Traffic Management, after they had been found guilty of “negligent disruption of public transport”.

This research explores whether the entry into force of Regulation (EU) No. 376/2014¹ addresses the perceived criminalisation of aviation professionals, by fostering dialogue and co-operation between safety and judiciary authorities.

Twenty-six semi-structured interviews were conducted with representatives of the aviation safety and judiciary communities. The data collected was used to identify themes that emerged from the interviews.

This study concluded that the protection offered to the reporter and those involved in the occurrence, in accordance with the just culture principles and the provisions of regulation (EU) No. 376/2014, cannot be guaranteed by organisations when dealing with external stakeholders - especially a judiciary.

Respondents from seventeen air navigation service providers (ANSPs) confirmed that dialogues between the two communities had been initiated in their states, whilst in other jurisdictions the representatives of the judiciary refused any discussion regarding the implementation of a just culture at a national level in aviation.

¹ Regulation (EU) No.376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation

At the time of writing this thesis, an agreement with a judiciary, on a prosecution policy compliant with the principles of a just culture and as mandated by regulation (EU) No. 376/2014, has only been concluded in four jurisdictions.

This research revealed that despite the entry into force of regulation (EU) No. 376/2014, implementing a just culture in aviation is hindered in many member states by the provisions of the penal law, and the lack of dialogues between the stakeholders involved.

Table of Contents

Abstract.....	4
Table of Contents.....	6
List of Figures.....	9
Acknowledgements.....	10
List of Abbreviations	11
Introduction.....	12
Just Culture	12
Research Question	14
Literature Review.....	16
What is Just Culture?	16
Just Culture in Aviation and the Regulatory Framework	19
Regulation (EU) 376/2014 and the Definition of “Gross Negligence”	21
Drawing an Imaginary Line between Acceptable and Unacceptable behaviour	22
Accountability in a Just Culture.....	23
Just Culture Deadlock.....	24
Supporting the Implementation of a Just Culture	25
Changing the Law	27
Do We Need to See a Rainbow?.....	27

Overview.....	28
Methodology.....	29
Epistemology, Theoretical Perspective, Methodology, and Methods	29
Data Collection	30
Selection of Informants.....	32
Coding and Analysis.....	35
Validation of the Research Data	35
Ethical Considerations	37
Research Findings.....	39
Results of the Just Culture Climate Questionnaire	39
First Order Analysis.....	40
Criminalisation of Aviation Professionals.....	40
Trends in Criminalisation of Aviation Professionals.....	41
Impact of Criminalisation on Organisational Learning	41
Impact of Regulation (EU) No. 376/2014 on the Implementation of a Just Culture....	43
Gross Negligence	43
Maturity of the Just Culture Concept	45
Role of the Judiciary in a Just Culture.....	47
Commencing a Judicial Investigation	47
Prosecution of Aviation Professionals	48

The Role of Aviation Professionals	49
Promoting Dialogue and Co-operation in a Just Culture.....	50
Second Order Analysis of the Research Data.....	51
The Attitude of the Representatives of the Aviation Professionals.....	51
Regulation EU No. 376/2014 and the Illusion of Protection Against Criminalisation	53
Discussion.....	55
What is the Impact of Criminalisation Seen Through the Eyes of the Respondents?	55
Impact of Regulation (EU) No. 376/2014 on the Prosecution of Aviation Professionals	56
Bridging the Gap Between the Safety and the Judiciary Communities.....	59
Is it Light at the End of the Tunnel?	61
Fostering the Implementation of a Just Culture.....	62
Final Reflections	64
References.....	66
Appendix 1 – Just Culture Climate Questionnaire	71
Appendix 2 – Semi-structured Interview Questions.....	81
Appendix 3 – States Involvement in Functional Blocks of Airspace (FAB).....	83
Appendix 4 – List of Informants.....	85
Appendix 5 – Consent for the Use of the Collected Data for the LU Research	92

List of Figures

Figure 1- Demography Split by FAB, Community, EU Membership and Jurisdiction 33

Figure 2 - Informants Grouped by FAB 34

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List of Abbreviations

ANSP – Air Navigation Service Provider
ATC – Air Traffic Control
ATCO – Air Traffic Controller
CANSO – The Civil Air Navigation Services Organisation
ATM – Air Traffic Management
ECA – European Cockpit Association
EP – European Parliament
ESSAR – Safety Regulatory Requirements
Eurocontrol – The European Organisation for the Safety of Air Navigation
EU – European Union
FAB – Functional Block of Airspace
IANS – EUROCONTROL Institute of Air Navigation Services
ICAO – International Civil Aviation Organisation
IFATCA – International Federation of Air Traffic Controllers' Association
JCTF – Eurocontrol Just Culture Task Force
LU – Lund University
LVNL – ATC The Netherlands (Luchtverkeersleiding Nederland)
NCP – National Competent Authority
NM – Network Manager
QDA – Qualitative Data Analysis
R/T – Radio Transmission
SARPs – ICAO Standards and Recommended Practices
SoE – Standard of Excellence in Safety Management System Measurement
SMS – Safety Management System
SRU – Eurocontrol Safety Regulation Unit

Introduction

Improving aviation safety is largely dependent on the reporting investigation and the analysis of accidents and incidents, to fuel organisational learning. The natural tendency of aviation professionals is to report safety occurrences and fully contribute to the technical investigation conducted, with the sole purpose that similar occurrences are prevented in the future (Schubert, 2009, p. 1). However, the occurrence reports and the associated investigation material often find their way to the representatives of the judiciary, where they are used, contrary to ICAO provisions (2001, 2016), to commence legal action against the individual who produced them.

The possibility that in the aftermath of an aviation incident, the information produced, with the sole aim of facilitating organisational learning and safety improvement, is used by a judiciary for the administration of justice, merely challenges the individual's desire to fully contribute to the reporting and investigation of such events (Schubert, 2009, p. 1). Therefore, it is argued that important safety information, that could be used to improve aviation safety, is lost due to this "investigation dilemma" that "has plagued the effectiveness of the safety investigations for decades" (Schubert, 2009, p. 1).

Just Culture

A key concept, baptised "just culture", was developed and introduced in aviation to "balance" two conflicting and equally relevant societal needs: learning the lessons from occurrences with the aim of improving aviation safety, and investigation and prosecution of criminally relevant behaviour (van Dam, 2009a, p. 6).

The definition of just culture available in literature, sends a clear message that aviation professionals who make mistakes shall be protected from being punished for their involvement in safety occurrences, whilst those who consciously take an irresponsible risk should be sanctioned (Licu, van Dam, & Baumgartner, 2013, p. 14).

Just culture is not restricted to aviation and is associated with other domains (e.g. medical, nuclear, etc.) where potential mistakes made by frontline operators could lead to serious consequences (van Dam, 2009a, p. 5).

This research considers the existing regulatory requirements, for the implementation of a just culture, and addresses the impact of entry into force of regulation (EU) No. 376/2014 towards the implementation of such a culture in aviation - as seen through the eyes of the safety and judiciary communities.

According to van Dam (2009a, p. 5), accidents, especially those involving fatalities, would most probably trigger a criminal investigation conducted by the judicial authorities, and lead to the eventual prosecution of the air traffic controllers (ATCOs) involved. In some countries (e.g. Switzerland, Italy, etc.), contrary to ICAO provisions (2001, 2016), the data collected during the safety investigations conducted, with the sole purpose of improving safety, is used as evidence in support of criminal proceedings. Such practices may have a strong, adverse effect on the willingness of aviation professionals to share their errors in a manner that could support organisational learning and safety improvement (Dekker, 2012, pp. 107–108).

This research reflects on three recent safety occurrences that took place in Swiss airspace and constituted the trigger of criminal proceedings against the ATCOs involved. The district prosecutor decided to commence legal action against aviation professionals, following the publication of the investigation report by the Swiss Transportation Safety Investigation Board (STSB). Although none of these occurrences led to injury, death or damage to property,

the decision taken by the representatives of the judiciary was based on the current provisions of the Swiss Penal Code (article 237) and referred to disruption of public transport (EUROCONTROL, 2020).

According to Daniels (2016, p. 121), although regulation (EU) No. 376/2014 was praised as a guardian of the professional rights, against punishment within the organisation and litigations at a national level, its value “is cast in doubt”.

Reason (1997, p. 205) believes that the challenge in implementing a just culture lies in: “discriminating between the rare occasions when accidents occur as a result of reckless, negligent or even malevolent behaviour, and the vast majority of unsafe acts to which the attribution of blame is neither appropriate nor useful”.

This research addresses the current lack of dialogue between the safety and judiciary communities, that Schubert (2009) called a “just culture deadlock”, and explores opportunities to transform the just culture implementation from a “fata morgana” into a real success.

Research Question

According to van Dam², cited by Pont (2019), creating a workable balance between safety and the administration of justice is like water and fire: “if done right there will be a rainbow, otherwise it will be steam”. This metaphor inspired me in choosing the title of the MSc thesis - “Chasing the Rainbow when Implementing a Just Culture in European Air Traffic Management”.

The question explored in this research is the following:

² President of the International Foundation for Public Aviation (IFPA), Former Legal Counsel and Head Legal Service at Eurocontrol, Chairman of the Eurocontrol Just Culture Task Force (JCTF) and Lecturer at the International Institute of Air and Space Law of Leiden University

“Has the entry into force of regulation (EU) No. 376/2014 addressed the criminalisation of aviation professionals, by fostering dialogue and co-operation between safety and judicial authorities in the framework of a just culture implementation?”

In response to the research question, this thesis provides a critical review of the existing literature in Chapter 2. The epistemology, theoretical perspective, methodology and methods used by the LU researcher are explained in Chapter 3. The results of this study, presented in Chapter 4, are further discussed in Chapter 5. The final conclusions are unveiled in Chapter 6.

Literature Review

To examine the impact of regulation (EU) No. 376/2014 on the criminalisation of aviation professionals, following their involvement in incidents and accidents, it is important to review the available literature that seizes on the progress made, and the challenges encountered by the member states, towards the implementation of a just culture in aviation. Within this section, I will critically review the definitions of the concept available in the literature and the regulatory framework, with a particular focus on the challenges encountered by the member states when trying to implement a just culture at a national level.

What is Just Culture?

Attempting to describe just culture is not easy and “the results may differ from one person, culture or legal system to another” (van Dam, 2009b, p. 6).

James Reason’s book “Managing the Risk of Organisational Accidents” (1997) includes a chapter about safety culture. Within this chapter, just culture is mentioned in the context of organisational accidents as one of the “four interactive subcomponents” (i.e. reporting culture, just culture, flexible culture and learning culture) of an overall safety culture. Reason argued that engineering of a good “safety culture” is paramount to the establishment of an “informed culture” which finally supports an “effective safety information system”.

Over time, just culture has evolved from a “recommended subcomponent for the engineering of a safety culture, to a critical concept which authoritatively informs law as to how safety, justice and accountability in risk critical domains ought to be understood” (Woodlock & Hydén, 2020, p. 60).

Reason (1997, p. 205) defined just culture as: “an atmosphere of trust in which people are encouraged to provide essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour”.

Reason considers that: “an atmosphere of trust” is essential, to encourage aviation professionals to report safety occurrences freely. However, this definition does not provide an indication on how such an atmosphere must be built, and what the criteria are for drawing the line between acceptable and unacceptable behaviour (Trögeler, 2010, p. 35). Reason suggests that providing guidance to the judiciary and clarity to the safety community, in respect of behaviour that is not acceptable in a just culture, is paramount for creating such an atmosphere of trust.

Just culture was mentioned by Eurocontrol³, in the early days of ESARR2⁴ (1999) implementation, as a key ingredient for the successful set up of a safety occurrence reporting system in the ATM domain, and for further improvement of aviation safety (Pellegrino, 2019, p. 10).

Just culture is described as “a culture in which frontline operators or others are not punished for their actions, omissions or decisions that are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated” (Eurocontrol, 2006).

Eurocontrol’s definition recognises the fact that human error should not be subject to punishment within the organisation or prosecution (Trögeler, 2010, p. 33). According to this definition, the border between acceptable and unacceptable behaviour is crossed as soon as gross negligence, wilful violations and destructive acts are involved.

³ The European Organisation for the Safety of Air Navigation

⁴ Eurocontrol Safety Regulatory Requirements ESARR2 – Reporting and Assessment of Safety Occurrences in ATM

The issue with this definition is that it introduces the concept of gross negligence, that is ultimately interpreted by a judiciary based on the provisions of national criminal law that is not harmonised at a European or a global level.

However, according to van Dam, cited by Trögeler (2010, p. 34), this is not a prescriptive definition, but rather a tool to understand the objectives as well as the background of the just culture concept.

Commission Regulation (EU) No. 996/2010 on the “Investigation and Prevention of Accidents and Incidents” (2010), recital 24 and regulation (EU) No. 691/2010, laying down a Performance Scheme for Air Navigation Services and Network Functions’ (2010) at article 2, remain consistent with the just culture definition promoted by Eurocontrol.

Regulation (EU) No. 376/2014 on the “Reporting, analysis and follow-up of occurrences in civil aviation” reiterates the same definition of the just culture concept that was contained within the (EU) No. 691/2010. This definition of just culture acknowledges the fact that slips, lapses and mistakes (Reason, 1990) made by frontline operators shall not be punished, in order to encourage occurrence reporting and data sharing, with the chief aim to further improve aviation safety (Pellegrino, 2019, p. 64).

Although ICAO⁵ Annex 19⁶ (2016) does not provide a legal definition of just culture, the 36th ICAO Assembly recognised the definition promoted by Eurocontrol. Moreover, recommendation 5.3.2 states that: “a reporting environment where employees and operational personnel may trust that their actions or omissions - commensurate with their training and experience - will not be punished, is paramount to encourage occurrence reporting and safety data sharing”.

⁵ International Civil Aviation Organisation

⁶ Annex 19 to the Convention on International Civil Aviation – Safety Management

The Civil Air Navigation Services Organisation's (CANSO) definition of just culture does not deviate from the definition used by the EU legislation and comes very close to the wording of Reason's definition: "individuals should not be punished for 'honest mistakes' while "gross negligence", "wilful misconduct" and "dangerous and destructive acts" are not acceptable".

Just Culture in Aviation and the Regulatory Framework

ICAO Annex 13⁷ provides detailed Standards and Recommended Practices (SARPs) for incident and accident inquiries.

Standard 3.1 states unequivocally that the sole purpose of an accident or incident investigation is: "the prevention of future accidents or incidents but not to apportion blame or liability".

In the wake of an accident or serious incident, ICAO Annex 13 offers protection of certain records, collected by the safety investigation authorities, against misuse by other state authorities conducting concurrent investigations that are not aimed at safety improvement (standard 5.12). Although it recognises the paramount role of safety data protection for organisational learning and ultimately for safety improvement in aviation, ICAO Annex 13 allows for the disclosure of safety-related information to national authorities, involved in the administration of justice, only if the disclosure outweighs the negative effect on the safety occurrence reporting and investigation system.

According to Schubert (2009, p. 2), this means that in very exceptional circumstances there may be a legitimate interest for prosecution, in the wake of an aviation incident or accident. However, according to the principles of just culture, safety investigations should be

⁷ Annex 13 to the Convention on International Civil Aviation – Aircraft Accident and Incident Investigation.

wholly independent and aimed at fuelling organisational learning and safety improvement. This does not happen in practice as member states may not be able to afford paying for two separate investigations (2009, p. 2).

Eurocontrol Safety Regulatory Requirement on “Reporting and Assessment of Safety Occurrences in ATM” – ESARR2 (2009) mandates member states to implement a harmonised safety occurrence reporting and investigation system. Although the implementation of a just culture was seen as an indispensable ingredient for encouraging aviation professionals to report safety occurrences, the requirements for the establishment of a such a culture were only included in ESARR advisory material – EAM2/GUI 6 (2006). This may raise questions regarding the mandatory statute of these provisions.

The ESARR2 principles have been transposed to a great extent into the Directive 94/56/EC and Directive 2003/42/EC.

Regulation (EU) No. 996/2010 repeals the Directive 94/56/EC. Although it does not redefine the concept, recital 24 speaks about a non-punitive environment advancing the principles of just culture (Pellegrino, 2019, p. 57).

Regulation (EU) No. 376/2014 repeals the Directive 2003/42/EC. It contains many provisions that refer to the implementation of a just culture. Recital 34 addresses the rules that need to be adopted internally by an organisation to contribute to the successful implementation of a just culture.

Article 16 of regulation (EU) No. 376/2014 references explicitly the just culture principles in paragraph 6: “without prejudice to applicable national criminal law”, member states shall refrain from instituting proceedings of unpremeditated and inadvertent infringements of the law, which come to their attention only because they have been reported

pursuant to Article 4 and Article 5. Paragraph 10 of Article 16, states that the protection afforded to individuals shall not apply:

“...in cases of wilful misconduct or where there has been a manifest, severe and serious disregard of an obvious risk and profound failure of professional responsibility to take such care, as is evidently required in the circumstances, causing foreseeable damage to a person or property, or which seriously compromises the level of aviation safety”.

According to Daniels (2016, p. 121), this only underlines the principle that “a state’s criminal law shall remain inalienable within its sovereign jurisdiction”.

Regulation (EU) 376/2014 and the Definition of “Gross Negligence”

The proposal for a regulation on occurrence reporting in civil aviation, drawn up by the European Commission (2012b, p. 17) at article 2, paragraph 4, defined gross negligence as: “a manifest and wilful violation of the duty of care directly causing foreseeable damage to a person or to a property, or which seriously lowers the level of aviation safety”.

The chairman of the Eurocontrol Just Culture Task Force (JCTF) considered the attempt to harmonise the interpretation of a legal term within a safety regulation inappropriate, as it would require the commission to step on the turf of the judiciary (European Commission, 2012b, p. 3).

Following consultations with EU Member States, this definition was removed from the final version of regulation (EU) No. 376/2014 as an agreement had not been reached on the wording, based on the existing differences between the common law and civil law systems (Pellegrino, 2019, p. 78). In the final text of the regulation, the definition of “gross negligence” was replaced with a description of this notion in Article 16 (10): “a manifest and wilful violation of the duty of professional responsibility directly causing foreseeable damage to a

person or to a property, or which seriously lowers the level of aviation safety” (European Parliament, 2014, p. 17).

Although recitals contained in the preamble of this regulation are not binding on the member states, it is noteworthy that Recital 37 provides yet another description of gross negligence: “manifest severe and serious disregard with respect to an obvious risk and profound failure of professional responsibility to take such care as is evidently required in the circumstances” (Pellegrino, 2019, p. 79).

Drawing an Imaginary Line between Acceptable and Unacceptable behaviour

In the vast majority of cases of unwanted events “the attribution of blame is neither appropriate nor useful” (Reason, 1997, p. 205). Reason acknowledges that on very few occasions accidents are the result of “unreasonably reckless”, negligent or even “malevolent behaviour” of certain individuals. Reason proposes to draw an imaginary line between unacceptable behaviour and everything else.

According to Proven & Rae (2021): “the advantage of such a line is that once people at the sharp end of the organisation know what represents unacceptable behaviour, they will feel safe to talk about the other unwanted events without fear of blame or prosecution”.

However, the divide between acceptable and unacceptable behaviour seems to pose problems, as it assumes that an imaginary line between tolerable and punishable behaviour is drawn a priori.

According to Dekker (2012, p. 17):

“If we want to draw a line, we have to be clear of what falls on either side of it. Otherwise, there is no point in a line – then the distinction between acceptable and unacceptable behaviour would be one big blur”.

He claims that: “the issue dwells in the fact that culpability is a social construct based on a process of interpretation and attribution that follows the act” (2009). Deviance from acceptable behaviour is “not a quality of the act a person commits” (Becker, 1963, p. 9), but rather a label that society associates to that behaviour. This means that criminally relevant acts, and the retribution we believe they deserve, is the result of our interpretation of such behaviour. It may vary over time and differ per country and culture (Dekker, 2012, p. 20). Having unlimited information related to an occurrence and obtaining access to the situations the aviation professionals were faced with at the time, makes it almost impossible for us to understand the incertitude and dilemmas as would have been seen through the eyes of somebody who did not yet have such knowledge. In the misleading light of hindsight, events look “simpler, more linear and more predictable than they once were” (Dekker, 2012, p. 29).

Accountability in a Just Culture

In the wake of aviation accidents and incidents that are subject to great media awareness, errors and omissions are highlighted (Michaelides-Mateou & Mateou, 2012, p. 7). This fuels society’s demand for accountability and may lead to legal actions against those responsible. According to Dekker (2012, p. 83), the accountability in trials is only backward-looking and trying to find: “the bad apple, somebody responsible for the mess”.

When addressing patient safety reform in the medical field, Sharpe (2003, p. S6) claims that: “rethinking accountability must be central to the cultural change”. In the new understanding, accountability could be seen as looking ahead and moving beyond blaming individuals when they make mistakes.

When implementing a just culture, Dekker (2012, p. 82) sees the forward-looking accountability as an opportunity to acknowledge the mistake and the harm resulting from it,

and most importantly to allow those involved in aviation incidents and accidents to hold their account and actively participate the efforts to improve safety.

Aviation is nowadays a complex socio-technical system, hence human error represents a symptom of a deeper trouble within the system (Woods, Dekker, Cook, Johannesen, & Sarter, 2012, p. 4). According to Dekker, this approach raises concerns regarding the potential dilution of the personal accountability of individuals in these systems (2014, p. 81).

Beyond the opportunities and constraints brought by the system approach, Dekker argues (2012, p. 81) that there is still a space filled with: “ambiguity, uncertainty and moral choices” in which the system leaves individuals the freedom of choice. Moreover, the individuals do not want their responsibility, for the course of action, to be taken away from them and passed fully to the system. This responsibility gives people at the sharp end of the organisation considerable professional pride, and the feeling that their work has a meaning. However, they do not want to be held accountable by those who are not aware of the messy details of their work (2014, p. 15).

Just Culture Deadlock

The definitions of just culture discussed earlier in this section do not challenge the principles of criminal prosecution. In practice, only a very limited number of aviation incidents meet the conditions of wilful misconduct and gross negligence – hence subject to prosecution (Schubert, 2013, p. 47).

However, the line between acceptable and punishable behaviour is to be drawn by a judiciary, who in most of the cases, lacks the knowledge and experience that is needed to appreciate the behaviour of aviation professionals. Therefore, there is a need to ensure dialogue

and co-operation between the representatives of the two communities, and support the judiciary deciding whether a criminal offence has taken place (Schubert, 2013, p. 47).

Tensions were raised between the representatives of the judicial system and the aviation community due to aviation professionals being prosecuted following events that, in the view of the aviation professionals, did not qualify for such an outcome.

The perceived lack of progress in the implementation of a just culture in aviation, called “deadlock” by Schubert (2009, p. 2), can be traced back to the attitude of the representatives within the aviation community, who mainly focused their efforts on “educating” the judiciary and ignored the need for mutual exchanges. According to Schubert, this campaign (2009, p. 8) was seen by a judiciary as a disguised attempt to claim full immunity for professionals involved in aviation incidents and accidents, in exchange for provision the indispensable safety data for organisational learning and safety improvement.

Supporting the Implementation of a Just Culture

The “divide” between the international safety rules and the provisions of criminal law has been blamed, in many member states, for the lack of progress towards the implementation of a just culture (Licu et al., 2013, p. 14). Over the past few decades, numerous activities promoting the implementation of a just culture at national and international levels were organised under the aegis of Eurocontrol. The establishment of the Just Culture Task Force (JCTF)⁸ in 2007, offered the scene for an active dialogue between the representatives of the safety and judiciary communities regarding the implementation of a just culture in aviation. The JCTF developed the “Model policy regarding criminal investigation, and prosecution of

⁸ The members of the Just Culture Task Force are the representatives of, inter alia, States (Justice and Transport Ministries, Prosecutor’s office), ANSPs, Professional Associations, Aviation Trade Associations, EASA, ICAO, the European Commission, Eurocontrol Agency, European Union Agency for Railways, Healthcare Agencies and Associations who have an interest in furthering the objectives of the Task Force.

civil aviation and railway accidents and incidents”, to support the implementation of a just culture at a national level.

According to Eurocontrol (2018, p. 3), this model policy endorsed by the Eurocontrol Provisional Council and by the European Union (EU) is: “to provide direction regarding the criminal investigation and prosecution of potential criminal offences resulting from aviation accidents or which come to the attention of prosecutors through the reporting of civil aviation incidents”.

According to van Dam (2013, p. 9), the model policy that was developed and based on the Dutch and UK practices:

“...introduces the possibility for states to implement a policy at a national level which fully respects the sovereign administration of justice by a state in aviation cases, while at the same time recognising that prosecution should only be enacted in cases of gross negligence or wilful misconduct”.

The need to support the public interest in the administration of justice, while ensuring the continuous availability of safety data, gave birth to the Eurocontrol IFATCA⁹ and ECA¹⁰ Prosecutor Expert Course. This initiative focused on training both legal and aviation experts to “appreciate the potential differences between professional and legal reading surrounding safety occurrences”. According to Schubert, this may represent one step towards closing the gap between the two worlds and possibly solving: “the current just culture deadlock” (2013, p. 48).

⁹ International Federation of Air Traffic Controllers' Association

¹⁰ European Cockpit Association

In addition, Eurocontrol has been promoting the just culture principles since 2010, through information and experience sharing amongst safety critical industries (i.e. aviation, railways, maritime and healthcare) and judiciary, in the framework of the ES2¹¹ events.

Changing the Law

At the beginning of 2000, an initiative to change the provisions of the national law was noticed in Denmark, when aviation stakeholders raised concerns regarding the opportunity to learn from safety occurrences, as several losses of separation were not reported by the ATCOs due to fear of prosecution. Consequently, the Danish Parliament passed a law that guarantees immunity from prosecution of frontline operators involved in low-risk incidents that did not lead to injury, death, or damage to property. However, the law does not grant immunity in cases of gross negligence or substance abuse.

Similarly, a parliamentary initiative was launched in Switzerland in 2019 that aimed to amend article 237 of the Penal Code, the Aviation Act and Aviation Ordinance. More recently, in Belgium, discussions were held with the Ministry of Justice to include a definition of gross negligence in the provisions of criminal law, that aimed to facilitate drawing a line between tolerable and unacceptable behaviour in a just culture.

Do We Need to See a Rainbow?

The author believes that seeing the rainbow is paramount for all parties involved: individuals, organisations, regulators, judiciary and ultimately society. A just culture provides an environment of trust, where people at both sharp and blunt ends of an organisation feel safe to disclose their errors and are empowered to contribute to the improvement of safety by flagging system weaknesses.

¹¹ Experience Sharing to Enhance SMS

Finally, this research is expected to provide an answer to the burning question related to the impact of the entry into force of regulation (EU) No. 376/2014 on the criminalisation of aviation professionals.

Overview

This section reviewed the relevant literature addressing the implementation of just culture in aviation: definition, main principles, regulatory framework, and accountability. It regards the factors that hampered the implementation of such a culture at a state level in recent years and discusses the available means to foster dialogue and co-operation between the safety and judiciary communities.

Methodology

This research considers the entry into force of regulation (EU) No. 376/2014 and aims to discover whether the introduction of the just culture concept into EU law addressed the criminalisation of aviation professionals, by fostering dialogue and co-operation between safety and judiciary communities.

Epistemology, Theoretical Perspective, Methodology, and Methods

Epistemology represents “a way of looking at the world and making sense of it”. This research embodies an objectivist view, according to which the truth the LU researcher aims to discover is “objectified in the people we are studying” (Crotty, 1998, p. 8). Embracing a positive stance, the objectivist epistemology would enable the discovery of that objective truth and meaning sought by this research.

According to Crotty (1998, p. 66), the theoretical framework represents: “the philosophical stance that lies behind the chosen methodology”. The theoretical perspective considered by this study is interpretivist, as it is focused on the interpretation of the view of the respondents from the safety and judiciary, to understand and explain the impact of regulation (EU) No.376/2014 on criminalisation of aviation professionals.

The research methods relate to the tools and techniques used by the researcher to collect and analyse the research data (i.e. questionnaires, interviews, etc.), whereas the methodology is often seen as the “paradigm that underpins this research” (Blaxter, Hughes, & Tight, 2010, p. 59).

This study is primarily qualitative, as the researcher is engaged in collecting and interpreting data while being part of the research process “as much as the participants” (Corbin & Strauss, 2015, p. 3).

Although the main purpose of grounded theory is to construct theory (Corbin & Strauss, 2015, p. 58), this research is not focused on building theory. Nevertheless, grounded theory was chosen as it provides the techniques and procedures for gathering and analysing the research data. One aspect that makes grounded theory fit for this research is that data collection and analysis are interwoven in a continuous cycle throughout the entire process. According to Corbin & Strauss (2015, p. 7): “after the initial data is collected, the researcher analyses that data, and the concepts derived from the analysis form the basis for the subsequent data collection”. Research data is collected through various means and almost any form of written, observed or recorded material. The most frequent methods used throughout this research are represented by questionnaires, interviews and observations.

Data Collection

When designing this study, the Lund University (LU) researcher planned to use the feedback provided by ANSPs to the just culture climate questionnaire section of the safety culture survey that was run by Eurocontrol, in collaboration with CANSO (2009), and in the framework of the Standard of Excellence (SoE) in Safety Management System’s measurement, to respond to the research question.

This questionnaire is used to capture attitudes, beliefs, perceptions, and opinions of the air navigation service providers’ staff regarding the implementation of a just culture concept within their organisation.

The focus of this research is based on the co-operation between the safety and judiciary authorities, that is reflected in the “external domain” part of the questionnaire.

The questions included in the just culture climate questionnaire are available in Appendix 1 – Just Culture Climate Questionnaire.

The author concluded that the just culture climate questionnaire had a limited explanatory power when it came to responding to the research question. Moreover, it only reflects the view of the ANSP regarding the implementation of a just culture at organisational and national level and misses the input of the safety and judiciary authority who are supposed to play an important role in the implementation of a just culture at a national level. Finally, yet importantly, despite the attempt of the LU researcher to verify the feedback provided by the responding ANSPs during the semi-structured interviews, there is a risk that the claimed progress in the implementation of a just culture is affected by their known desires to be seen as “best in class”.

Therefore, the LU researcher decided to restrict the use of the results of the just culture climate survey to the selection of the target population to be interviewed.

Twenty-six semi-structured interviews were conducted, with the informants representing both safety and judiciary communities between September and December 2020. The number of interviews, conducted in the framework of this research, aimed to ensure a balanced representation of the members of the two communities, and was influenced by the availability of respondents.

Samples of the interview questions used to collect research data from representatives of both communities are attached in Appendix 2 – Semi – structured Interview Questions.

The use of semi-structured interviews ensures consistency between interviews by asking each informant a standard set of questions (Corbin & Strauss, 2015, p. 39). As soon as these

questions are covered, the researcher could ask clarification questions or delve deeper into a particular topic. In addition, such an approach would allow the informants to provide additional information that they consider relevant to the topics covered by the interview (Corbin & Strauss, 2015, p. 39).

Due to the COVID-19 pandemic, all interviews were completed using online conference tools (e.g. WebEx, MS Teams and Zoom). They were conducted in English and their durations ranged between 45-50 minutes.

Prior to commencing each interview, participants were informed of the scope of the research project. The structure of each interview was explained and acceptance for voice recording was required by the informants. The semi-structured interviews were recorded using the online conference tools and transcribed using Microsoft Word features. The transcripts were sent back to the informants to ensure that it accurately captured their responses and nuances provided during the interviews.

Selection of Informants

The selection of the informants was made considering the following two criteria:

- Quantitative analysis of the results of the just culture climate questionnaires, included in the safety culture survey, that was conducted in the framework of the Standard of Excellence (SoE) in Safety Management System's Measurement
- History of criminalisation of aviation professionals in the member state.

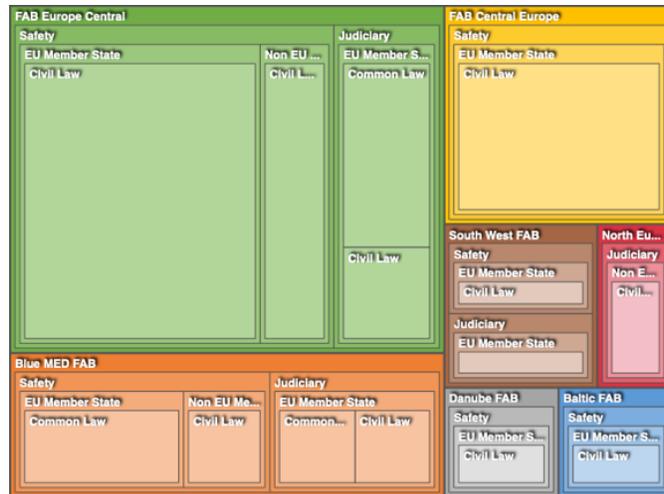


Figure 1- Demography Split by FAB, Community, EU Membership and Jurisdiction

The following additional selection criteria were used by the researcher to provide the reader with demographic information on the organisations and member states selected to take part in this qualitative study, while ensuring the anonymity of the respondents:

- EU membership of the state of the informant
- Participation of the state of the informant to the FAB¹² initiative. A composition of the FABs established under the EU law (European Commission, 2004) is available in Appendix 3 – States Involvement in Functional Blocks of Airspace (FAB)
- Type of jurisdiction of the member state of the informant

Figure 2 below provides an overview of the thirty-five ANSPs who responded to the just culture climate questionnaire, and of the informants from both communities who took part in the semi-structured interviews, grouped by FAB.

Eighteen semi-structured interviews were conducted with representatives of the safety community, while eight interviews involved the participation of the representatives of a

¹² Functional Blocks of Airspace

judiciary. Seventeen informants from the safety community represented ANSPs. They were ATCOs, human factors specialists and safety managers involved in the implementation of a just culture at an organisational level. An additional informant included in the safety community is a pilot, who is a member of the ECA and Eurocontrol JCTF.

The eight respondents from the judicial community fulfilled the following roles:

- two legal experts involved in the engineering of a just culture concept at European level
- one legal expert representing a Competent Authority
- two prosecutors
- three judges

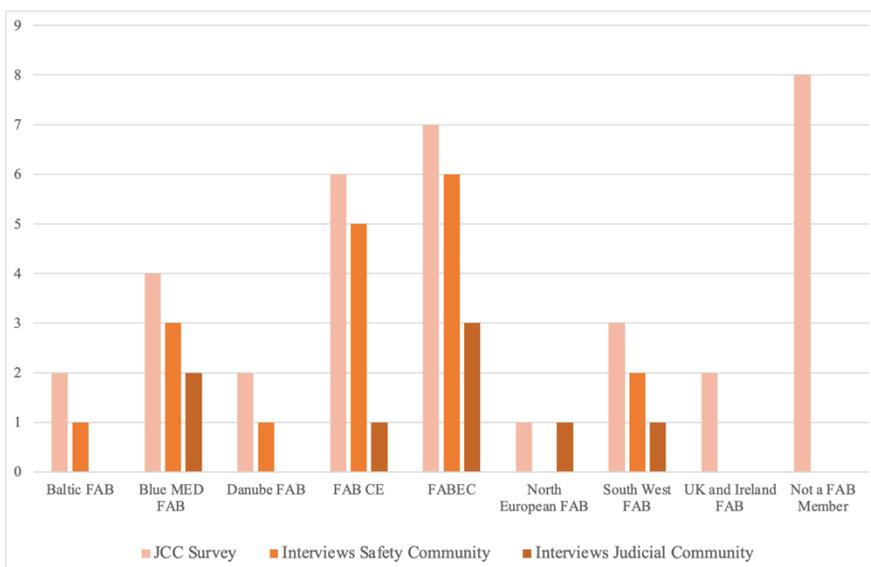


Figure 2 - Informants Grouped by FAB

Overall, the demographic data provides reassurance regarding the representativeness of the group of informants, from both safety and judicial communities, chosen to provide their views on the issue of criminalisation of aviation professionals, following the entry into force of regulation (EU) No. 376/2014. An anonymised list of informants and their relevance to this research is available in Appendix 4 – List of Informants.

Coding and Analysis

According to Saldaña (2021, p. 71), the use of “grounded theory” implies that specific codes are applied to data as part of an iterative process that leads to discovery, and grounded in the original research data. Twenty-six transcribed interviews, including the comments and clarifications received from the informants, were uploaded to the NVivo software, thereby setting the scene for the next phase of the research process: coding and analysis.

The initial coding led to the establishment of a preliminary set of codes that were further reviewed and refined once the analysis progressed. Charmaz (2014), cited by Saldaña (2021, p. 148), claims that a line-by-line coding is suitable for interview transcripts. This approach was followed throughout the entire open coding phase of this research.

Axial coding helped the researcher reorganise scattered categories of codes identified during the open coding process, and identify core and secondary themes. Part of the process saw some of the initial redundant categories eliminated, while others were combined to obtain the best fit. This iterative process continued until no new information emerged from the coding process, or until data saturation was reached (Saldaña, 2021, p. 312).

According to Dekker and Nyce (2004, p. 1630): “qualitative research should not be plain conversational mappings”. Therefore, a deeper analysis of the impact of the entry into force of regulation (EU) No. 376/2014 on criminalisation of aviation professionals was conducted, using a selective coding of the collected interviews’ data (Saldaña, 2021, p. 71).

Validation of the Research Data

As part of the research data validation, there is a need to consider the positions, assumptions and beliefs expressed both by the researcher and the informants. Firstly, it is acknowledged that the biases brought by the LU researcher to the process could influence the

selected methodology, literature reviewed, or the chosen informants. Although the method chosen for this research (i.e. grounded theory) offers some “built-in checks and balances” (Corbin & Strauss, 2015, p. 47) according to which data is being checked throughout the research, not only for similarities and differences but also for consistency, one’s biases cannot be entirely eliminated. Therefore, the LU researcher should rather be aware of his position and make it clear to the reader (Seale, 1999, p. 480).

In addition, the bias of the informants could affect the validity of the collected research data. It is a known fact that the respondents to the just culture climate questionnaire have a vested interest in ensuring that their organisation scores high and that it is seen as “best in class” in respect of the implementation of a just culture in the ATM domain, at a corporate level.

This potential risk was acknowledged by the LU researcher, who strived to mitigate it during the interviews conducted with the representatives of the safety community, by asking questions that validated the results of the self-assessment questionnaire.

In this regard and as the researcher of this study, I disclose that I am employed by the organisation who designed and administered this survey, although I did not participate directly in the conduct of this activity. In addition, it is noteworthy that my employment with this organisation is not impacted by the results of the study whatsoever. Finally, I do not have direct or indirect power relation with the informants; their careers do not depend on me, nor do they depend on the study result. I do not have any commercial interest in this work.

Ethical Considerations

Based on the provisions of the 2003 Ethical Review Act and the guidance available on the LU portal¹³, the work done in the framework of this thesis does not qualify as “research” in the legal sense of the word, hence a formal ethical review is not required.

However, a written consent was sought from all the responding organisations to allow the researcher to use the results of a voluntary just culture climate survey, that was conducted in the framework of 2020 edition of the Eurocontrol and CANSO Standard of Excellence in Safety Management System Measurement. This provides the respondents with clear information about what participating in this research entails, and offers them the possibility to decide if they want to be involved or not. In the case of a negative response, the data received from the respective ANSP was not included in this research. An example of the request sent to the respondents, seeking their consent regarding the use of the collected data for the LU research, is available in Appendix 5 – Consent for the Use of the Collected Data for the LU Research.

All the data collected by the LU researcher is bound to the following principles:

- Verbal and written consent to participate in a semi-structured interview will be collected and digitally stored.

Consent includes “a general agreement to participate, as well as confirmation that participants understand how data will be recorded, how anonymity and confidentiality will be managed, and how the study will be disseminated” (Wiles, 2013).

¹³ www.researchethics.lu.se

- Protection against accidental breaking of confidentiality is ensured through anonymisation of the participants, organisations and countries.

Participants were made aware of how the information they report would be used in the framework of this research, whether they could be identified based on the reported information, and how this could affect them.

- Codes will be used instead of names, as far as practically possible.
- The MSc thesis does not include any visual material referring to documents shared by the respondents, unless a specific written consent was provided beforehand.
- All digital recordings, transcripts and traceable documents will be accessible only to people directly involved in the development or examination of this MSc thesis.
- The digital data mentioned above will be kept by the LU researcher for a period of three months, following the acceptance of this MSc thesis. Thereafter, the research data will be destroyed.

Research Findings

This section summarises the main findings of this research and focuses on the analysis of the outcome of the semi-structured interviews conducted with the representatives of the safety and judiciary authorities.

Results of the Just Culture Climate Questionnaire

The feedback received from the thirty-five organisations that responded to the just culture climate questionnaire, provided the views of the ANSPs' experts regarding the implementation of a just culture in their organisation and at a national level. This is expressed in the percentage of completion of agreed objectives to be achieved by ANSPs, towards the implementation of a just culture.

Overall, the implementation of a just culture at an organisational level reached a score of 81%.

The initiation of dialogue and co-operation, between the representatives of the safety and judiciary authorities, is captured under the "external domain" section of the questionnaire and scored 52%.

The results of the just culture climate questionnaire were not further used in this research, taking into account its identified limitations in providing the necessary insight to respond to the research question - as explained in the previous section of this thesis.

The knowledge, regarding the effect of the entry into force of regulation (EU) No. 376/2014 in addressing the criminalisation of aviation professionals, is provided by the representatives of the safety and judiciary taking part in semi-structured interviews. This feedback is unfolded during the first and second order analysis of this thesis.

First Order Analysis

Four core themes emerged from coding the interview data (Saldaña, 2021), illustrating the view of the representatives of the safety and judiciary communities in relation to the research question:

- Criminalisation of aviation professionals for their involvement in aviation incidents and accidents.
- Impact of regulation (EU) No. 376/2014 on the implementation of a just culture.
- Role of the judiciary in a just culture.
- Fostering dialogue and co-operation between all stakeholders in a just culture.

Secondary themes are developed under each core theme, providing a higher granularity of the position expressed by the informants who took part in this research.

Criminalisation of Aviation Professionals

This core theme reflects the view of the respondents regarding the potential criminalisation of aviation professionals for their involvement in aviation safety incidents and accidents, based on the provisions of a domestic criminal law. Criminalisation is used as the “epitome for the misdirected and unwarranted activities by the judiciary in the criminal law domain” (van Dam, 2009b, p. 6) in the aftermath of aviation incidents and accidents.

Two subsidiary themes emerged, when coding the research data, that focused on the impact of fear of legal proceedings on the level of reporting of safety occurrences, and ultimately on organisational learning.

Trends in Criminalisation of Aviation Professionals

Fifteen respondents, representing air navigation service providers (ANSPs) from Eurocontrol Member States, stated that in their countries there are no cases of criminalisation of aviation professionals following their involvement in safety occurrences that did not lead to injury, death, or damage to property. To their minds, this is because the aviation industry is rather safe compared with other domains, and resources of the judiciary are limited. However, they could not anticipate how this situation may evolve in the future.

There are two respondents from the safety community (Informant 25 – FABEC and Informant 26 – FABEC) who confirmed that in their countries, ATCOs were prosecuted for their involvement in safety occurrences that, according to the principles of a just culture, did not meet the exceptional circumstances (i.e. gross negligence, wilful misconduct) that would legitimate the initiation of criminal proceedings. The prosecution of these aviation professionals commenced based on the provisions of the domestic penal law, thereby reinforcing the principle according to which the “state’s criminal law shall remain inalienable within its sovereign jurisdiction” (Daniels, 2016, p. 122).

Impact of Criminalisation on Organisational Learning

Air traffic controllers (ATCOs) involved in safety occurrences that took place in Swiss airspace between March 2011 and April 2013, were found guilty of “endangering public traffic” based on the provisions of the Swiss Penal Code, Article 237¹⁴.

¹⁴ Article 237 of Swiss Penal Code: Disruption of Public Transport: any person who wilfully obstructs, disrupts, or endangers public traffic, in particular traffic on the roads, on water or in the air and as a result knowingly causes danger to the life and limb of other people is liable to a custodial sentence not exceeding three years or to a monetary penalty. If the offender thus knowingly endangers the life and limb of a large number of people, a custodial sentence of from one to ten years may be imposed. If the person concerned acts through negligence, the penalty is a custodial sentence not exceeding three years or a monetary penalty.

This theme provides conflicting views, expressed by representatives of the safety community, regarding the impact of such cases of criminalisation on the reporting of occurrences and disclosure of safety data by staff at the sharp end of their organisations.

Fourteen informants (Baltic FAB, Danube FAB, FAB CE, FABEC, etc.) stated that the availability of good quality safety data at organisational level does not yet constitute a concern, despite the recent court rulings against aviation professionals in Switzerland. To this end, Informant 15 (FAB CE) claimed that:

“...we did not see any attitude of the operational staff towards not sharing all the available safety data in order to protect themselves, nor did we see any situation where the just culture implementation was tested at the national level”.

This was reinforced by Informant 19 (Baltic FAB), who mentioned that the cases of criminalisation of ATCOs in Switzerland did not have an adverse effect on the disclosure of safety data within their organisation: “we don’t have a real problem retrieving the safety data and talking to people inside the organisation to understand what happened during the event”.

Three respondents considered that the cases of criminalisation of ATCOs in Switzerland had an impact on the willingness of the staff, at the sharp end of the organisation, to disclose information concerning safety occurrences (Dekker, 2012, p. 64) that may incriminate them. According to Informant 25 (FABEC), ATCOs manifested concerns regarding the fact that safety data provided in good faith, to feed organisational learning, was made available to the judiciary and therefore contrary to ICAO Annex 13 provisions, by being used against those who reported it in a court of law. Consequently, the information provided by operational staff, in the framework of the internal safety investigation, became a lot less detailed: “all the valuable information that facilitates organisational learning and provides insight on the

decisions taken by the ATCOs during the occurrence, is now missing and only factual data is being provided”.

The decrease in the quality of data disclosed by ATCOs involved in safety occurrences, as the result of the court cases in Switzerland, was also noticed by Informant 24 (SW FAB) at organisational level: “to ensure that the criminalisation of aviation professionals is not facilitated by the information provided in the investigation report, the transcript of the relevant R/T between different actors is now replaced by a summary produced by the investigator”.

Finally, Informant 11 – FABEC claimed that the court cases in Switzerland created uncertainty within their organisation, as ATCOs wondered whether a similar situation could occur in their country: “they [ATCOs] wanted to know what would happen in our country in case of similar occurrences and what it would mean for them from a judiciary perspective”

Impact of Regulation (EU) No. 376/2014 on the Implementation of a Just Culture

This core theme addresses the role of regulation (EU) No. 376/2014 on the implementation of a just culture, as seen through the eyes of the informants involved in the semi-structured interviews and representing both the safety and the judicial communities. The following secondary themes were identified:

Gross Negligence

The term “gross negligence” is used in the definition of a just culture provided in Article 2, paragraph 12 of regulation (EU) No. 376/2014. However, this same regulation provides no definition of “gross negligence”. The harmonisation of the interpretation of this legal concept across the community, is seen by the European Commission (2012b, p. 17) as a cornerstone for the implementation of a just culture at a state level. Therefore, this secondary

theme captures the interpretation of this legal concept by the representatives of the judiciary, based on the provisions of a national penal law.

According to Informant 01 (FABEC), gross negligence: “introduces a concept that is not necessarily known in the national legislation of different member states”.

In such cases, it is up to the judiciary to commence an investigation in order to determine whether a criminal offence was committed. This view was also confirmed by Informant 06 (FAB CE).

Informant 03 (Blumed FAB) was of the opinion that: “the concept of gross negligence is not accepted in all states in Europe and in the world”.

Therefore, in some countries, based on the provisions of the penal law, simple negligent behaviour could trigger a criminal investigation and eventually prosecution.

Informant 05 (NEFAB) claimed that:

“taking into account the states’ sovereignty in the justice domain, trying to define gross negligence introduces a weakness in regulation (EU) No. 376/2014, as the interpretation of this term by the judiciary may differ from country to country, or even from one jurisdiction to another”.

Informant 06 (FAB CE) concluded that it is not realistic to expect to have a harmonised interpretation of this legal concept across the community, especially considering the existing differences between the national legal systems of the EU Member States.

Notwithstanding whether the concept exists or not, within different national legal systems, the important message brought by regulation (EU) No. 376/2014 is that: “below a certain gravity, people should not be prosecuted” for their involvement in aviation safety occurrences, according to Informant 01 – FABEC.

Informant 02 – FABEC claimed that it is not paramount to harmonise the definition of “gross negligence” across the community, as long as there is a clear understanding among the representatives of a judiciary as to when the threshold of unacceptable behaviour, that calls for prosecution, is reached.

Maturity of the Just Culture Concept

This theme considers the just culture concept, as seen through the eyes of the safety and judiciary communities, and debates whether it has reached a certain maturity that would justify it being part of EU law.

Members of the judiciary (Informant 01 – FABEC, Informant 02 – FABEC and Informant 03 – Blue MED FAB, Informant 05 – NEFAB and Informant 06 – FAB CE) stated that the just culture principles, as described in regulation (EU) No. 376/2014, are correct.

When it comes to the maturity of the concept, based on the harmonised understanding of what represents acceptable behaviour in a just culture, respondents provided split views. Informant 02 – FABEC claimed that: “the concept is mature as hell [as] it allows the safety and judiciary to interact”. However, he manifested concerns regarding: “the way people are trying to embed the use of just culture in their national system”.

This refers to the perceived lack of progress, by many member states, in setting up advanced arrangements between the safety and judiciary authorities, as required by article 15 paragraph 4 of regulation (EU) No. 376/2014. This concern was also expressed by a representative of the safety community – Informant 25 (FABEC).

Another representative of the judiciary (Informant 01 – FABEC) sees the inclusion of this concept in regulation (EU) No. 376/2014 very useful for awareness raising. This is also reinforced by Informant 02 – FABEC and Informant 03 – BLUEMED FAB. He claims that the

difficulties encountered by member states in trying to implement a just culture at a national level are not generated by the maturity of the concept itself, but by the fact that: “EU law cannot change the provisions of the criminal law in the member states, as it is a question of sovereignty”. Informant 06 – FAB CE concluded that we should not expect to have a harmonised understanding of what constitutes unacceptable behaviour, as there are quite important differences between the provisions of a national criminal law, from one country to another.

Informant 05 – FABEC stated that: “there were not enough cases with the judiciary to see if some of the terms are mature or should be subject to change”.

Many representatives of the safety community (Informant 11 – FAB CE, Informant 12 – FAB CE, Informant 13 – Danube FAB, Informant 14 – BLUEMED FAB and Informant 15 – FAB CE) appreciated the inclusion of a just culture into EU law, and stated that the concept is quite mature to be implemented at ANSP level.

However, these respondents claimed that the interpretation of unacceptable behaviour by the judiciary is subject to the provisions of a national penal law, and may differ considerably from the view of the safety community. They feared that this aspect may affect the implementation of a just culture at a state level.

A more categorical position was expressed by Informant 18 – FABEC, who claimed that the concept is not yet mature considering the provisions of the penal code applicable in every member state.

Role of the Judiciary in a Just Culture

This core theme describes the role of the judiciary in a just culture, aiming to clarify the criteria used by the members of this community to commence a judicial investigation, and eventually prosecute aviation professionals in the wake of safety occurrences.

Commencing a Judicial Investigation

In the wake of a safety occurrence, an investigation is initiated by the judiciary as soon as there is a suspicion that a criminal offence has taken place (Informant 01 – FABEC, Informant 02 – FABEC, Informant 03 – Blue MED FAB, Informant 06 – FAB CE, Informant 07 – SW FAB and Informant 08 – FABEC).

According to Informant 01 – FABEC and based on the provisions of the penal law, a criminal offence requires that two very specific conditions are fulfilled. The first one is purely factual - some fact has occurred. The second condition concerns the behavioural aspect - how the behaviour of the people involved contributed to the occurrence. At the end of a criminal investigation, the provisions of the penal code call for a “mandatory prosecution” only when both criteria are fulfilled.

Informant 06 – FAB CE mentioned that, in accordance with the provisions of the penal code at national level: “endangering human life or property represents a general criminal offence”. Therefore, there are cases where safety occurrences that did not lead to injury, loss of life or damage to property, triggered a judicial investigation and even prosecution of the aviation professionals involved.

In the case of an accident involving damage to property, injuries or death, the initiation of the criminal investigation cannot be avoided (Informant 01 – FABEC, Informant 02 – FABEC, Informant 03 – BLUEMED FAB and Informant 06 – FAB CE). The focus of such an

investigation is to determine whether evidence of a criminal activity could be identified and eventually trigger prosecution.

Prosecution of Aviation Professionals

At the end of the preliminary judicial investigation, if the conditions for a criminal offence are established in accordance with the provisions of the criminal law, the concept of mandatory prosecution applies, especially in “civil law” countries (Informant 03 – FABEC). In such jurisdictions, the prosecutor is obliged to bring a case in front of a judge, unless it is considered that the collected evidence is not sufficient to obtain a conviction.

In the wake of aviation incidents and accidents, prosecution of those involved was often seen by the representatives of the safety community (i.e. ATCOs, pilots, etc.) as counterproductive to the dissemination of the lessons learned. To address “mandatory prosecution”, several civil law countries installed a so-called “judge of instruction” who could act as a “gate-keeper”, even before the case could be investigated by the prosecutor (Informant 02 – FABEC).

In “common law” countries such as the Netherlands and the UK, the prosecutor has discretionary powers. They are able to decide whether to start a judicial investigation or prosecution, further to the reporting of aviation incidents or accidents, and consider the effect of such actions on organisational learning and ultimately on aviation safety.

Informant 01 – FABEC claims that what is wrong in the current practice of the judiciary is that: “very often aviation professionals are punished or prosecuted in the context of events that do not qualify as criminal offences and therefore should not be prosecuted”.

In BLUMED FAB’s country, the lawmaker was convinced to move towards a decriminalisation of negligence in the case of medical malpractice. Based on this development, Informant 03 sees a chance for the aviation domain to evolve towards a similar

decriminalisation of negligent behaviour, only if aviation professionals can convince the lawmakers that aviation is of a similar complexity to the one seen in the medical field.

The Role of Aviation Professionals

In the wake of an aviation incident or accident, assessing whether the conditions for a criminal offence have been met requires the judiciary to be aware of the applicable rules, regulations, procedures, guidelines, customs and practices that are governing the provisions of air navigation services.

Informant 06 – FAB CE believes that prosecutors and judges do not have the technical knowledge and practical skills to appreciate the behaviour of aviation professionals involved in safety occurrences. Therefore, aviation professionals are those who are expected to provide these elements, upon request, helping the judiciary establish whether a criminal offence has taken place.

In some countries, contrary to the ICAO Annex 13 provisions, the results of the safety investigations are admitted as evidence in criminal proceedings (Schubert, 2013, p. 48). To this end, Informant 01 – FABEC draws attention to the fact that:

“...occasionally, aviation professionals use the safety investigation report to issue blasting statements against their own peers that could be interpreted by prosecutors and judges, without the necessary understanding of the ATM domain, in a manner that was not even intended by the authors”.

This may ultimately have a negative impact on the assessment by the judiciary, on the behaviour of aviation professionals involved in a safety occurrence, that triggered a judicial investigation.

Promoting Dialogue and Co-operation in a Just Culture

This core theme addresses the importance of the dialogue between the safety and judicial authorities towards the implementation of a just culture at a national level. However, it summarises the feedback received from the representatives of ANSPs and judiciary. The view of the representatives of the NCA would have provided a more complete view regarding the initiation of the dialogue between the two communities, following the entry into force of regulation (EU) No. 376/2014.

Several representatives of the judiciary (Informant 01 – FABEC, Informant 02 – FABEC, informant 03 – BLUE MED FAB and Informant 06 – FAB CE) expressed the utmost importance of initiating dialogue and establishing co-operation between representatives of the two communities.

This is captured in article 15 paragraph 4 of regulation (EU) No. 376/2014: “co-operation between the safety and judiciary authorities is established through advance arrangements to reach the proper balance between the administration of justice and the continuous availability of safety data”.

Respondents revealed that the dialogue between the safety and the judiciary authorities was initiated in only eight jurisdictions from Danube FAB, FAB-CE (2), FABEC (3), SW FAB and NFAB. In four jurisdictions from FAB CE, FABEC, SW FAB and NFAB, the discussions led to the establishment of a prosecution policy compliant with the principles of a just culture.

The remainder of the Informants (FAB CE – 2, Baltic FAB and SW FAB) claimed that in their jurisdictions there were no plans envisaged to conclude such agreements.

When queried on the difficulties encountered in establishing dialogue and co-operation between the safety and judicial authorities, Informant 03 – BLUEMED FAB claimed that such

an agreement could be seen as a limitation posed on the representatives of the judiciary, who in many member states, in accordance with the rules of the law, are obliged to commence investigation and eventually prosecute when criminal behaviour is proven.

Another representative of the judiciary, from the Blue MED FAB (Informant 04), claimed that the growing culture of the press, especially social media, constitutes a real impediment towards concluding an agreement between the representatives of the two communities, on a prosecution policy that is compliant with the just culture principles. In the case of safety occurrences that are not pursued by the judiciary, following exchanges with the safety community in the framework of such a prosecution policy, this “fourth pillar of democracy” - the press - may turn the prosecutor into somebody who is not fit for purpose.

Informant 01 – FABEC and Informant 19 – Baltic FAB stated that the judiciary have declined every invitation from the representatives of the safety community to initiate dialogue on just culture matters.

Second Order Analysis of the Research Data

This section contains two themes developed, following the axial coding of the research data:

The Attitude of the Representatives of the Aviation Professionals

This theme regards the outcome of this research, concerning the perceived lack of progress in the initiation of dialogue and co-operation between the safety and judiciary authorities, and identifies several reasons that could have led to the current situation.

According to Informant 01 – FABEC, the representatives of the judiciary have systematically declined the invitations to initiate dialogue with representatives of the safety community on just culture matters, for over ten years. To his mind, this was caused by the fact

that the representatives of the safety community failed to convince the judiciary that through the implementation of a just culture, aviation professionals would not seek to acquire immunity from the rigours of the penal law in exchange for reporting safety occurrences.

This was also confirmed by Informant 19 – Baltic FAB, who mentioned that the only discussion to date about a just culture implementation in aviation at a national level, was one where the representatives of the judiciary left the meeting, arguing that they need to follow the rules of the law that are non-negotiable.

Unfortunately, both the NCA and the ANSP insisted on trying to convince the judiciary of the negative effects of criminalisation of aviation professionals, instead of trying to engage into a constructive dialogue that would have considered the role of the judiciary.

The already existing tensions between the two communities were further increased by the attitude manifested by some members of the safety community who complained about the intrusion of the judiciary in the safety occurrence reporting, forgetting that in many cases, this was based on the opinion expressed by safety professionals who basically told the judiciary that the behaviour of their peers was unacceptable (Informant 01 – FABEC).

Most of the effort undertaken by the representatives of the safety community, in the early days of a just culture implementation, was focused on educating the judiciary rather than ensuring a two-way communication. It was often seen, that despite the fact that the just culture principles recognise that some rare events (i.e. gross negligence, wilful misconduct) may justify the initiation of criminal proceedings and even prosecution, the attitude of aviation professionals suggests a claim for full immunity against prosecution. Therefore, the perceived lack of interest of the judiciary in a just culture may have been generated by the message sent by the aviation community.

Regulation EU No. 376/2014 and the Illusion of Protection Against Criminalisation

This theme addresses the protection of aviation professionals against criminalisation for unpremeditated or inadvertent infringements of the law, in line with Recital 43¹⁵ and Article 16, paragraph 6¹⁶ of regulation (EU) No. 376/2014.

Although EU law urges member states to ensure that aviation professionals are protected against criminalisation, in the cases that their behaviour does not qualify as either “gross negligence” or “wilful misconduct”, negligent behaviour is still subject to prosecution in many jurisdictions, based on the provisions of the national penal law (Informant 01 – FABEC).

This view is also confirmed by Informant 03 – BLUE MED FAB who considers that, especially in civil law countries, it is harder to have the: “pillars of criminalisation of negligence changed and demolished because of EU law”. To this end, he sees the implementation of a just culture concept facilitated in “common law” countries where the legal systems are more elastic, allowing the representatives of the judiciary to exercise their independence regarding the initiation or termination of judicial investigations and prosecutions.

The second order analysis revealed that the protection against criminalisation, promised to professionals involved in aviation incidents and accidents following the entry into force of regulation (EU) No. 376/2014 (apart from the cases of gross negligence or wilful misconduct), is an illusion, considering the identified differences in the provisions of national criminal law. In addition, the attitude manifested by the representatives of the safety community often negatively affected the direction taken by a criminal investigation.

¹⁵ ...unpremeditated or inadvertent infringements of the law that come to the attention of the authorities of the Members States solely through reporting pursuant to this Regulation should not be the subject of disciplinary, administrative, or legal proceedings, unless where otherwise provided by applicable national criminal law.

¹⁶ Without prejudice to applicable national criminal law, Member States shall refrain from instituting proceedings in respect of unpremeditated or inadvertent infringements of the law which come to their attention only because they have been reported pursuant to Articles 4 and 5.

Discussion

This research was focused on revealing whether the inclusion of the just culture principles in European law has positively impacted the growing trend of criminalisation of aviation professionals, by fostering dialogue and co-operation between the safety and the judicial communities; accentuated by the fact that there were twelve recorded cases of criminalisation between 1990 - 1999 vs. thirty-one recorded cases between 2000 - 2010 (Michaelides-Mateou & Mateou, 2012) .

What is the Impact of Criminalisation Seen Through the Eyes of the Respondents?

This research aimed to provide an insight into the effect of criminalisation on the reporting of ATM related occurrences and ultimately organisational learning, as seen through the eyes of respondents from the safety community (i.e. ANSP) who participated in the semi-structured interviews. Their feedback considered the effect of the criminalisation of ATCOs in Switzerland, on the reporting of safety occurrences and availability of the safety data within their organisation.

Overall, in the majority of the responding ANSPs, aviation professionals continued to report safety occurrences and actively contribute to organisational learning, despite the lack of a legal assurance concerning their protection against criminalisation in accordance with the principles of a just culture (Informant 01 – FABEC, Informant 13 – Danube FAB, Informant 15 – FAB CE, Informant 18 – FAB CE, Informant 19 – Baltic FAB, Informant 20 – FAB CE and Informant 24 SW FAB). However, in several organisations and further to the cases of criminalisation of aviation professionals, although ATCOs continued to report safety occurrences in accordance with the provisions of regulation (EU) No.376/2014, the collected safety data was less detailed than before (Informant 24 SW FAB, informant 25 – FABEC and

Informant 26 – FABEC). In some countries, the ATCOs' professional organisations supported their members in dealing with the problem of criminalisation by raising awareness regarding the legal consequences that may follow, further to reporting safety occurrences in accordance with the rules of the law, and provided guidance on how to deal with the judiciary (Swiss ATCA, 2017).

Impact of Regulation (EU) No. 376/2014 on the Prosecution of Aviation Professionals

This research revealed that regulation (EU) No. 376/2014 was very useful in raising the awareness of all stakeholders regarding the just culture principles in the aviation domain.

In addition, “it forces the initiation of dialogue between the representatives of the safety and judiciary communities and the role of the state” (Informant 02 – FABEC) regarding the implementation of a just culture at a national level.

The definition of a just culture, given in Article 2 paragraph 12 of regulation (EU) No. 376/2014, sets the threshold for prosecution of professionals, following their involvement in aviation incidents and accidents, at the level of “gross negligence”. It is noteworthy that this term does not even exist in the national penal law of all EU Member States (Informant 03 – FABEC).

Nevertheless, throughout the rule-making process, both the European Commission (EC) and European Parliament (EP) emphasised the importance that a definition of this legal concept is included in regulation (EU) No. 376/2014, to facilitate a harmonised interpretation of unacceptable behaviour across the community, and to ensure the same level of protection to aviation professionals in EU Member States.

During the political process related to the approval of this regulation, it became apparent that some of the member states could not accept the introduction of this definition in

the final text of the regulation, based on fact that the EC does not have any competences in the criminal justice domain. This political decision, taken by the EU Member States, reinforces the principle according to which the “state’s criminal law shall remain inalienable within its sovereign jurisdiction” (Daniels, 2016, p. 122). Consequently, despite making just culture provisions part of EU law, aviation professionals could be subject to prosecution for their involvement in aviation accidents and incidents, at a level of gravity which is less than “gross negligence” and based on the provisions of the penal law applicable in their country. To this end, Informant 03 – BLUEMED FAB stated: “I don't think that because it is written in EU law in regulation (EU) No. 376/2014, that this would convince, by itself, the lawmakers of any state to modify the rules of criminal negligence for aviation professionals”.

According to Pellegrino, a clear legal definition of “gross negligence” plays a pivotal role in “drawing a sharp dividing line between acceptable and unacceptable behaviour” in a just culture (2019, p. 81). Moreover, Daniels claims that any discussion about just culture that does not address the “gorilla sitting in the corner” – gross negligence – runs the risk to perpetuate the issue of criminalisation, which would defeat the purpose of a policy to protect responsible professionals who are trying to do their job (2016, p. 122).

A contrary view was put forward by van Dam who, during a seminar organised by the EC in 2012, with representatives from both aviation and judiciary, as part of the impact assessment conducted prior to the drafting of regulation (EU) No. 376/2014, urged the EC not to provide a definition of gross negligence within EU law (European Commission, 2012a, p. 3). He claimed that there are limits to what legislation can do and believed that the representatives of the safety and judiciary authorities could achieve better results in harmonising their views, regarding what constitutes unacceptable behaviour in a just culture, through dialogue and co-operation. This view reinforces the difficulties encountered when trying to provide a generic

definition of gross negligent behaviour applicable in all jurisdictions across the community, and the importance of ensuring that the role of the judiciary in a just culture is not limited by regulatory provisions. Just culture should allow these different worlds – safety and judiciary – to interact and balance the equally important societal needs for safety and the administration of justice.

At first glance, having a clear definition on unacceptable behaviour in a just culture could provide a legal certainty to the aviation professionals that, in the wake of aviation incidents and accidents, they are not going to be subject to interference by the judiciary when their behaviour does not qualify for “gross negligence”.

The lack of a common understanding of what represents unacceptable behaviour in a just culture raised concerns regarding the maturity of the concept. Making just culture part of EU law was welcomed by the respondents involved in this research, as it was seen as a very useful awareness raising regulation.

In addition, the author believes that having just culture provisions embedded into EU law forced the initiation of dialogue and co-operation between the safety and judiciary communities, and forced the role of the state when implementing such a culture at a national level. Nevertheless, it is not yet fully developed across the community, for reasons discussed later in this section.

This research revealed that although just culture principles are established at organisational levels (ANSPs), the inability of the members states to agree on a universally applicable definition of gross negligence, negatively impacted the implementation of a just culture in aviation at a national level.

One of the difficulties encountered when trying to harmonise the interpretation of what represents unacceptable behaviour in a just culture, resides in the fact that the view of a

judiciary may differ from one jurisdiction to another, or from one country to another, based on the concepts of operations, applicable legal frameworks, society expectations or moral values.

Although it was expected that the representatives of the safety community had a clear view of what behaviour is unacceptable in a just culture, this research discovered that their interpretation differed significantly, even within the same organisation “from one unit to another, we may have a different understanding of what represents acceptable behaviour” – Informant 16 - FABEC.

On the other hand, harmonising the understanding of what represents unacceptable behaviour, through exchanges between the representatives of the two communities and without any legal assurances, requires quite a leap of faith from aviation professionals who are supposed to continue to report safety occurrences, while hoping for fair treatment from the judiciary side.

The importance of building trust between the representatives of the two communities when facilitating the implementation of a just culture cannot be emphasised enough. The attitude manifested by the aviation community who, until recently, focused its efforts on excluding the judiciary’s access to safety occurrences data by illustrating the potential negative impact of criminalisation, thereby affecting the exchanges between the members of the two communities and hampering the implementation of a just culture across the community.

Bridging the Gap Between the Safety and the Judiciary Communities

Building bridges between the safety and judiciary communities is key to ensuring the proper balance between the needs of a judiciary to ensure the administration of justice, and the availability of safety data. The evaluation of criminally relevant behaviour, in accordance with the provisions of national law “goes beyond the scope of the legal knowledge” (Trögeler, 2010,

p. 38), and requires an understanding of the applicable rules, procedures and the practical aspects of the daily operations in the ATM domain.

Paradoxically, the implication of aviation experts providing the necessary insight to a judiciary does not always guarantee a positive outcome of the judiciary enquiry, as often the representatives of this community have issued incriminating statements against their peers (Schubert, 2013, p. 48).

Nevertheless, organising exchanges between the representatives of the two communities enables the representatives of the judiciary to build an “informed” opinion concerning the opportunity to further pursue aviation professionals for their involvement in incidents and accidents, in accordance with the rules of the law.

The development of the Prosecutor Expert Course (European Cockpit Association, 2013) is primarily focused on the formation of a pool of aviation experts, able to advise prosecutors and judges in the case of criminal investigations resulting from aviation incidents or accidents. At the same time, it exposes representatives of the judicial authorities to a module dedicated to aviation safety. It goes without saying that one of the most important outcomes of this development is related to the opportunity offered to all participants - to exchange views and better understand the responsibilities and interests of both parties. The author considers, such a pool of highly qualified experts could foster the development of a healthy relationship between the members of the safety and judiciary communities, that could be used as a reference body across the community.

At the time of writing this thesis, the first list of prosecutor experts ready to assist and advise national prosecutors, in cases of accidents or incidents, was established by Eurocontrol (2021).

Although the Prosecutor Expert Course is seen as an effective means to promote dialogue and co-operation between the members of the two communities, it is noteworthy that one of the representatives of the judiciary, who attended this course, was involved in the prosecution of ATCOs in Switzerland following their involvement in safety occurrences that did not lead to injury, loss of life or damage to property. Consequently, the success of the Prosecutor Expert Course, in conveying the just culture message to the judiciary, may be cast in doubt. However, it should be acknowledged that during a judicial investigation there are many factors that may play a role in the direction that a case will take. In some cases, the outcome of the proceedings was driven by the personal profile of the prosecutor: who needed to land a success, whilst in other instances the behaviour of the aviation community during the investigation was inadequate and fuelled the continuation of the legal pursuit.

Is it Light at the End of the Tunnel?

In the past, the representatives of the judiciary were seen as “crime hunters” sitting in their “ivory towers”, with no understanding of the realities of civil aviation, while aviation professionals were portrayed as professionals demanding full protection against criminal interference. This mutual caricaturing affected the trust between the two communities and hampered the implementation of a just culture at a national level (van Dam, Licu, & Kovacova, 2019, p. 48).

The entry into force of regulation (EU) No. 376/2014 offers the opportunity to establish a more mature dialogue between the safety and the judiciary authorities, who become aware of their roles in a just culture. Several member states are currently at different stages of setting up advanced arrangements between the safety and judiciary authorities, compatible with the just culture requirements.

However, at the time of writing this thesis, an effective dialogue and co-operation between the members of the two communities has only been achieved in a few jurisdictions.

This research discovered ATCOs and pilots are, with almost no exceptions, hard-working professionals who take great pride in contributing to the safety improvement in the ATM domain. Equally, from the discussions with the judiciary, the members of this community seem to be reasonable and responsible professionals, with a keen interest in the complexities of civil aviation and are ready to draw the line when necessary. The LU researcher believes that this could be a good starting point for the establishment of a real dialogue between the members of the two communities, based on a more mature understanding of each other's roles and responsibilities in a just culture.

This may require a thorough review of the message the safety community sends to the judiciary, avoiding the mistakes done in the past.

Fostering the Implementation of a Just Culture

Changing the provisions of the criminal law was seen as a potential solution to foster the implementation of a just culture in countries where the prosecution of negligent behaviour was mandatory. Although, at the time of writing this thesis, such initiatives are already underway in a number of jurisdictions, the author considers that attempting to change national law may not be the ideal way forward to unlocking the current "just culture deadlock" (Schubert, 2009), as the issue does not necessarily reside in the law, but rather in the way the existing laws and regulations are implemented and enforced at a national level.

Furthermore, this research concluded that implementing a law restricting the ability of the judiciary to commence a criminal investigation, when there was a suspicion that a criminal

offence was committed, defeats the public interest concerning the administration of justice and the basic principles of just culture.

Final Reflections

This research confirmed that in many jurisdictions, judicial authorities are obliged to prosecute aviation professionals in the context of events that do not constitute criminal offences, and therefore should not be subject to litigations, based on the provisions of a national penal law.

The dialogue and co-operation between the safety and judiciary communities has not yet reached a level that would foster the implementation of a just culture. A prosecution policy, compliant with just culture principles, was only reached in a limited number of jurisdictions.

Despite the extensive work carried out by the Eurocontrol JCTF to bridge the gap between the members of the two communities, the implementation of a just culture at a national level is progressing at a disappointingly slow pace. This may be the result of the attitudes shown, for many years, by the members of the safety community, focused on limiting the access of the judiciary to aviation incidents and accidents by highlighting the potential negative effect of criminalisation on organisational learning.

This research concluded that the entry into force of regulation (EU) No. 376/2014 did not manage to ensure the protection of aviation professionals against criminalisation in a legal manner.

Some countries considered initiating the process of changing the provisions of their national law to provide legal assurances to the aviation professionals that they would not be prosecuted for negligent behaviour (e.g. honest mistakes). At the time of writing this thesis, this process is still ongoing.

Future studies may consider the opportunity to include the view of the NCP when addressing the co-operation between the safety and judiciary at a national level, and expand the just culture concept to other safety-critical industries.

Finally, the author believes that the rise of the rainbow is dependent on the future ability of the representatives of the safety community to abandon the current concepts, that over the last few decades have created a lot of tension between the representatives of the two worlds, allowing the just culture message to be rephrased in a manner which is acceptable to the judiciary authorities.

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Appendix 1 – Just Culture Climate Questionnaire

This annex provides the questions and response choices included in the just culture climate questionnaire that was part of the 2020 Safety Culture Survey conducted by Eurocontrol and CANSO in the framework of the Standard of Excellence (SoE) in Safety Management System Measurement.

External Domain

Legislation

E1. The State is encouraging the judiciary authorities to put in place a prosecution policy which specifically fosters just culture

- There are no agreements
- There are agreements but at a very high level
- There are agreements and they are revised as required
- There are agreements, revised as necessary and sessions to educate the judiciary on just culture

E2. The State has a safety plan that fosters just culture at organisations in the State

- There is no just culture in the plan or there is no safety plan
- Just culture is part of the plan but is rarely applied
- Just culture is in the plan and applied, but was developed with little to no input from stakeholders
- Just culture is in the plan to which stakeholders can provide or have provided input

Judiciary

E3. The relationship between the organisation is helpful for the just culture in the organisation

- The relationship is not acknowledged or not present/antagonistic
- There is some liaison about safety events between the judiciary/prosecutor and the organisation
- There is contact outside of safety events, to discuss matters more generally
- There is full respect about each other's positions which helps the just culture in the organisation

Corporate Domain

Policy

C1. The organisation has a just culture policy

- There is no just culture policy
- The policy incorporates necessary requirements from international standards
- The policy is supported by the highest executive level
- The policy is visibly supported by the workforce

C2. The organisation is focused on learning from safety events.

- Events are reported and analysed, or no systemic analysis
- Results of analysed events are fed back to the reported and the wider organisation
- Organisation addresses issues systematically, but human error is still used to classify an incident
- Systemic safety improvement with good feedback loops. Individual actions are always seen as part of the system.

C3. Procedures to protect unauthorised access to safety data and to protect the reporter and persons named in the reports.

- No procedures exist

- Procedures are written
- Procedures are written and clearly understood
- Procedures are developed and agreed with staff representatives

C4. There is a framework with procedures and methodologies that allows for the interpretation of individual actions (e.g. to distinguish between acceptable and unacceptable).

- No process is followed
- There is a described process or framework available
- There is a structured and systematic process with a described method to interpret human behaviour.
- There is a structured and systematic framework that provides fair and objective outcomes

C5. Just culture is promoted throughout the whole company.

- None
- Some staff are aware
- Only staff that are obliged to be trained are trained
- Staff are trained or attend appropriate seminars and receive refresher training

C6. The organisation supports personnel (internally and if necessary, with contracted legal support) when challenged by external factors (criminal or civil proceedings, media).

- No support
- The support meets legal requirements
- Organisation provides internal support and meets legal requirements
- The organisation provides support on all possible levels

C7. There is a communication strategy at corporate level supporting just culture.

- There is no communication strategy on just culture
- The strategy is to react to just culture events
- Proactive strategy (e.g. crisis plan) using social media and co-ordination with staff
- There is a long-term communication strategy (e.g. internal training), educating the media.

Personnel Domain

Perception

P1. Relevant staff are involved in the development of the corporate just culture policy and procedures

- No involvement
- Staff are aware of corporate just culture policy and procedures
- Staff are involved in the development and periodic review of the just culture policy and procedures
- Staff are involved in the continuous development of just culture (JC) and actively promote the JC policy and procedures

P2. Workforce appreciates that the organisation is oriented towards safety improvement.

- Reporting safety events does not make much difference
- Safety reports are mostly acknowledged but concrete follow-up is missing
- Some safety reports are known to have led to safety improvements
- Safety reporting is one of the most important sources for safety improvements

P3. Peers are involved in reviews of individual actions.

- No peer involvement
- Management decides, peers can listen but have no formal influence.

- Management decides, peers can listen and advise
- Peers and management have equal influence

P4. Staff within the organisation feel they are treated fairly with respect to just culture.

- Not at all
- Few
- Many
- Vast Majority

P5. Does the organisation invest resources in the improvement of just culture?

- Not at all
- Compliance driven, only when enforced by regulation
- Resources are provided beyond compliance
- Resources ensure the company at forefront at just culture developments

P6. Just culture campaigns, training, awareness sessions are organised and are effective.

- There is no information
- Information is published with limited or no staff involvement
- There is discussion of the material by staff
- Staff actively contribute to the content of the material

External Domain

Legislation

E1. The State is encouraging the judiciary authorities to put in place a prosecution policy which specifically fosters just culture

- There are no agreements
- There are agreements but at a very high level

- There are agreements and they are revised as required
- There are agreements, revised as necessary and sessions to educate the judiciary on just culture

E2. The State has a safety plan that fosters just culture at organisations in the State

- There is no just culture in the plan or there is no safety plan
- Just culture is part of the plan but is rarely applied
- Just culture is in the plan and applied, but was developed with little to no input from stakeholders
- Just culture is in the plan to which stakeholders can provide or have provided input
- Judiciary

E3. The relationship between the organisation is helpful for the just culture in the organisation

- The relationship is not acknowledged or not present/antagonistic
- There is some liaison about safety events between the judiciary/prosecutor and the organisation
- There is contact outside of safety events, to discuss matters more generally
- There is full respect about each other's positions which helps the just culture in the organisation

Corporate Domain

Policy

C1. The organisation has a just culture policy

- There is no just culture policy
- The policy incorporates necessary requirements from international standards
- The policy is supported by the highest executive level

- The policy is visibly supported by the workforce

C2. The organisation is focused on learning from safety events.

- Events are reported and analysed, or no systemic analysis
- Results of analysed events are fed back to the reported and the wider organisation
- Organisation addresses issues systematically, but human error is still used to classify an incident
- Systemic safety improvement with good feedback loops. Individual actions are always seen as part of the system.

C3. Procedures to protect unauthorised access to safety data and to protect the reporter and persons named in the reports.

- No procedures exist
- Procedures are written
- Procedures are written and clearly understood
- Procedures are developed and agreed with staff representatives

C4. There is a framework with procedures and methodologies that allows for the interpretation of individual actions (e.g. to distinguish between acceptable and unacceptable).

- No process is followed
- There is a described process or framework available
- There is a structured and systematic process with a described method to interpret human behaviour.
- There is a structured and systematic framework that provides fair and objective outcomes

C5. Just culture is promoted throughout the whole company.

- None
- Some staff are aware
- Only staff that are obliged to be trained are trained
- Staff are trained or attend appropriate seminars and receive refresher training

C6. The organisation supports personnel (internally and if necessary, with contracted legal support) when challenged by external factors (criminal or civil proceedings, media).

- No support
- The support meets legal requirements
- Organisation provides internal support and meets legal requirements
- The organisation provides support on all possible levels

C7. There is a communication strategy at corporate level supporting just culture.

- There is no communication strategy on just culture
- The strategy is to react to just culture events
- Proactive strategy (e.g. crisis plan) using social media and coordination with staff
- There is a long-term communication strategy (e.g. internal training), educating the media.

Personnel Domain Perception

P1. Relevant staff are involved in the development of the corporate just culture policy and procedures

- No involvement
- Staff are aware of corporate just culture policy and procedures
- Staff are involved in the development and periodic review of the just culture policy and procedures

- Staff are involved in the continuous development of just culture (JC) and actively promote the JC policy and procedures

P2. Workforce appreciates that the organisation is oriented towards safety improvement.

- Reporting safety events does not make much difference
- Safety reports are mostly acknowledged but concrete follow-up is missing
- Some safety reports are known to have led to safety improvements
- Safety reporting is one of the most important sources for safety improvements

P3. Peers are involved in reviews of individual actions.

- No peer involvement
- Management decides, peers can listen but have no formal influence.
- Management decides, peers can listen and advise
- Peers and management have equal influence

P4. Staff within the organisation feel they are treated fairly with respect to just culture.

- Not at all
- Few
- Many
- Vast Majority

P5. Does the organisation invest resources in the improvement of just culture?

- Not at all
- Compliance driven, only when enforced by regulation
- Resources are provided beyond compliance
- Resources ensure the company at forefront at just culture developments

P6. Just culture campaigns, training, awareness sessions are organised and are effective.

- There is no information
- Information is published with limited or no staff involvement
- There is discussion of the material by staff
- Staff actively contribute to the content of the material

Appendix 2 – Semi – structured Interview Questions

Safety Community:

1. Has the entry into force of the (EU) No. 376/2014 brought any benefits in respect of JC implementation in your country and in your organisation?
2. Do you think that the JC concept is sufficiently mature to be included in an EU regulation?
3. Does the (EU) No. 376/2014 transform aviation professionals into criminals?
4. Does the just culture concept have a negative impact on safety?
5. Has your regulator concluded agreements with the judiciary for the development of a prosecution policy focusing on a just culture for your organisation?
6. How would you describe your relationship with the judiciary authorities?
7. Have the requirements fostering the implementation of a just culture been included in the State Safety Programme?
8. How is JC “engineered” in your organisation?
9. How does the organisation ensure the safety data protection in a JC?
10. Do staff feel treated fairly in a JC?
11. Do staff consider that the organization is oriented towards safety improvement?

Judicial Community:

1. What are the objectives of just culture, as defined in the (EU) No. 376/2014, in the eyes of the judiciary?
2. Is the just culture concept acceptable for the judiciary?
3. Do you think that the JC concept is sufficiently mature to be included in an EU regulation?
4. Does the (EU) No. 376/2014 transform aviation professionals into criminals?
5. What are the challenges towards reaching a prosecution policy for the aviation professionals in a just culture?
6. Would such a prosecution policy could address only aviation professionals or need to consider all safety critical industries

7. What is the view of the judiciary concerning the need to pursue individuals involved in repetitive occurrences?
8. What is the impact of criminalisation on the organisational learning (especially of those occurrences not leading to damage to property, injury or death)?
9. Is prosecution expected for all aviation occurrences leading to damage to property, injury or loss of life?
10. Has the entry into force of (EU) No. 376/2014 had a positive impact on criminalization of individuals involved in aviation occurrences?

Appendix 3 – States Involvement in Functional Blocks of Airspace (FAB)

According to Regulation (EU) 549/2004 laying down the foundation of the single European sky, a FAB means an airspace block based on operational requirements and established regardless of State boundaries, where the provision of air navigation services and related functions are performance-driven and optimised with a view to introducing, in each functional airspace block, enhanced co-operation among air navigation service providers or, where appropriate, an integrated provider.

The list of the Member States who declared their involvement in FAB initiative is provided below:

FAB Initiative	Member State
Baltic FAB	Lithuania and Poland
Danish - Swedish FAB	Denmark and Sweden
North European FAB (NEFAB)	Estonia, Finland, Latvia, Norway
FAB UK-Ireland	United Kingdom and Ireland
FAB Europe Central (FABEC)	Belgium, France, Germany, Luxembourg, Netherlands, Switzerland and EUROCONTROL Maastricht
FAB Central Europe (FAB-CE)	Austria, Bosnia & Herzegovina, Croatia, Czech Republic, Hungary, Slovak Republic and Slovenia

FAB Initiative	Member State
Danube FAB	Bulgaria and Romania
S – W FAB	Portugal and Spain
FAB Blue MED	Cyprus, Greece, Italy and Malta. Albania, Egypt and Tunisia, as associate partners. Kingdom of Jordan and Lebanon as observers

Appendix 4 – List of Informants

Informant	Community	Relevant Experience
Informant 01	Judiciary	Former air traffic controller holding a PhD in international aviation law. Involved in the development of the just culture concept and its implementation at organisational and national levels. Publisher of numerous articles dealing with legal aspects of Air Navigation Services (ANS), and more particularly the legal liability of air traffic controllers.
Informant 02	Judiciary	Former senior member of the legal services in two international aviation organization involved in the development of just culture and the (EU) No. 376/2014. Member of the EUROCONTROL Just Culture Task Force with major contribution to the development and delivery of the Prosecutor Training course.
Informant 03	Judiciary	Judge involved in the implementation of just culture in one of the Blue MED FAB

Informant	Community	Relevant Experience
		countries. Member of the EUROCONTROL Just Culture Task Force.
Informant 04	Judiciary	Judge involved in the implementation of just culture in one of the Blue MED FAB countries.
Informant 05	Judiciary	Representative of the Legal Service of a Competent Authority of a NEFAB member state.
Informant 06	Judiciary	Prosecutor seconded to the Supreme State Prosecutor's Office in a FAB-CE member state experienced in dealing with the aviation safety community in the framework of just culture's implementation.
Informant 07	Judiciary	Judge in a country of the SW FAB, with sound knowledge about the just culture implementation in aviation.
Informant 08	Judiciary	Representative of the Prosecutor's Office in a country with relevant experience on the implementation of a just culture.

Informant	Community	Relevant Experience
Informant 09	Safety	Pilot with a FABEC country carrier, member of the Eurocontrol Just Culture Task Force and the European Cockpit Association.
Informant 10	Safety	Air traffic controller with an ANSP operating in a Blue MED FAB associated country, with experience regarding the implementation of just culture at an organisational level.
Informant 11	Safety	A group of two human factors specialists involved in the implementation of the just culture concept within an ANSP operating in a FAB CE country.
Informant 12	Safety	A group of three respondents: human factor specialists and air traffic controllers. Involved in the implementation of a just culture within an ANSP providing services in a FAB CE country
Informant 13	Safety	Air traffic controller with an ANSP providing services in a Danube FAB

Informant	Community	Relevant Experience
		country with relevant experience in the implementation of the just culture concept at an organisational level.
Informant 14	Safety	A group of respondents: air traffic controllers and regulators. Involved in the implementation of a just culture at a state level in a Blue MED FAB country.
Informant 15	Safety	Air traffic controller with an ANSP operating in a FAB CE country with experience regarding the implementation of just culture at organisational level.
Informant 16	Safety	Air traffic controller with an ANSP operating in a FABEC country with relevant experience regarding the implementation of just culture at an organisational level.
Informant 17	Safety	A group of two respondents: air traffic controllers with an ANSP. Operating in a FABEC country with relevant experience regarding the implementation of a just

Informant	Community	Relevant Experience
		culture at organisational and national levels.
Informant 18	Safety	A group of two respondents: air traffic controller and human factors specialist with an ANSP. Operating in a FAB CE country with relevant experience regarding the implementation of a just culture at an organisational level.
Informant 19	Safety	Air traffic controller with an ANSP operating in a Baltic FAB country with relevant experience regarding the implementation of a just culture at an organisational level.
Informant 20	Safety	Air traffic controller with an ANSP operating in a FAB CE country with experience regarding the implementation of a just culture at an organisational level.
Informant 21	Safety	Safety manager with an ANSP operating in a FABEC country with experience regarding the implementation of a just culture at an organisational level.

Informant	Community	Relevant Experience
Informant 22	Safety	Safety manager with an ANSP operating in a Blue MED country with experience regarding the implementation of a just culture at an organisational level.
Informant 23	Safety	Air traffic controller with an ANSP operating in a S – W FAB country with recent experience regarding the implementation of a just culture at an organisational level.
Informant 24	Safety	Safety Manager with an ANSP operating in a S – W FAB country with experience regarding the implementation of a just culture at an organisational level.
Informant 25	Safety	A group of three respondents: air traffic controllers and a human factors specialist with an ANSP. Operating in a FABEC country with relevant experience in dealing with the criminalisation of aviation professionals.

Informant	Community	Relevant Experience
Informant 26	Safety	Safety Manager with an ANSP operating in a FABEC country with relevant contribution to the development of the just culture concept at European level and in dealing with external stakeholders (e.g. judiciary, rule makers, etc.), while implementing a just culture at organisational and national levels.

Appendix 5 – Consent for the Use of the Collected Data for the LU Research



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My name is Răzvan Ulărescu, senior safety expert with EUROCONTROL in Brussels. I am also a second year MSc student in Human Factors and System Safety at Lund University in Sweden.

I am currently conducting research with the framework of my MSc dissertation, focused on the progress reached in the implementation of a just culture in the European ATM following entry into force of the regulation EU376/2014, paying particular attention to the co-operation between the safety and judiciary authorities in the attempt to avoid unnecessary criminalisation of aviation professionals.

I would be grateful for the opportunity to have a 30-45 minute interview about just culture, via WebEx, at the earliest opportunity and subject to your availability. This would bring great value to my research!

Finally, I would like to ask for your consent to use the information collected during the interview for my research. In accordance with LU ethical code, identities of all participants will remain anonymous and will be kept confidential from all other parties, other than the interviewer. Notes and recordings taken during the interview are to be used by the researcher as part of further reflection and analysis.

Anonymity will be further protected in the thesis paper, and any product that may result from this work. Participants' names will be kept in a secured filing cabinet, separate from the information collected by the researcher. Researcher's notes will be destroyed using confidential waste, no later than 3 months after the acceptance of the thesis by LU.