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Expert Report

Regarding Germanwings accident
Flight 4U9525  AIRBUS A320-211  D-AIPX

Sponsor: Lubitz family

Requested on:  16 July 2016

Berlin, 30 March 2017
Scope of this Expert Report:

On 16 July 2016 the family members of co-pilot Andreas Lubitz (†) asked the author of this report to conduct research into events related to Germanwings flight 4U9525. On the one hand, the author was retained to examine media coverage following the crash of flight 4U9525 on 24 March 2015 near Prads-Haute-Bléone in the French Alps. Specifically, the author was requested to verify and assess the claims circulated in mass media in relation to available information. On the other hand, the author was tasked with critically examining public statements made by the Düsseldorf police, Düsseldorf public prosecutor, the French courts, and by the French and German authorities for investigating aviation accidents (namely, the Bureau d’Enquêtes et d’Analyses and the Bundesstelle für Flugunfalluntersuchung).

A key source of information was the investigative file maintained by the Düsseldorf public prosecutor under file number JS 906/15, which comprises 39 volumes and 16,086 pages. The author also examined approximately 2,000 pages of news articles.

The goals for this research were as follows:

- To clarify questions surrounding the presumed guilt of Andreas Günter Lubitz (†) in causing the crash of flight 4U9525 while also illuminating potentially exculpatory facts;

- To identify potential errors of procedure or substance committed as part of the investigations conducted by the French and German aviation accident authorities and/or associated organizations against the backdrop of relevant European directives concerning accident investigations as well as ICAO Appendix 13; and

- To critically assess media coverage with a view to potential reporting errors.
In pursuing these goals, the author sought to highlight and document potentially exculpatory details that could exonerate Andreas Lubitz. To this end, the commissioner of this report, Günter Lubitz, provided the author with access to additional family members and individuals who could provide supplementary and relevant information concerning Andreas Lubitz and the events prior to 24 March 2015.

With a view to the findings of this research, an additional aim was to provide legal authorities and aviation associations in Germany and other countries with information and/or insights concerning the causes of the crash and its subsequent investigation. Accordingly, the author of this report has worked closely with legal experts retained by Günter Lubitz.

Excerpts of the final version of this report, which was originally drafted in German, were presented at a press conference in Berlin on 24 March 2017 in order to submit the report’s findings to public discussion.

For the purpose of promoting public awareness, the author also received approval from Günter Lubitz to respond to questions posed by media representatives, government authorities and other parties. The author was expressly authorized to answer such questions in accordance with his true and full understanding of the facts.

While sharing information about the report, the author is committed to protecting the identity of anonymous sources to whom a pledge of confidentiality was provided. In this connection, the author of this report would like to expressly clarify that no criminal or illegal activities were undertaken in order to obtain information from third parties. Sensitive information obtained from third parties will only shared by the author with legal authorities responsible for conducting investigations into the crash.
2. Summary of Events:

The crash of Germanwings flight 4U9525 on 24 March 2015 was the immediate subject of extensive national and international news coverage.

Due to a lack of discretion with confidential information for which the French legal authorities bear responsibility, a partial raw recording from the final minute of the flight that was captured by the cockpit voice recorder ended up on the hands of journalists on 25 March 2015. The *New York Times* promptly published an article that hypothesized on the implications of this voice recording.

As a result of hastily drawn conclusions concerning the cause of the accident that were subsequently circulated not only in the tabloid press, but also among more serious news agencies, the investigations into the accident conducted by the police, state prosecutors, and aviation authorities were *irreparably contaminated by a preformed narrative*.

A *confirmation bias* took root among investigators, victims' families, legal authorities, and the broader public.\(^1\) This fundamentally crippled the possibility for an objective investigation into the accident that considered all relevant information prior to drawing conclusions.

Various events clearly show that investigators assessed information related to the case in a highly tendentious and one-sided manner.\(^2\)

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\(^1\) The term "confirmation bias" denotes the tendency for individuals to select and interpret information in a way that confirms their preexisting expectations. In this connection, information that contradicts or complicates preexisting expectations may be ignored or rejected in order to avoid cognitive dissonance. Cognitive bias is a well-established phenomenon in neuroscience and it has been shown in various contexts to produce perceptions that are not compatible with empirical reality.

\(^2\) Under normal circumstances, investigations into aviation accidents seek to take all possible causes into account. Evidence gathered as part of the investigation is then systematically assessed in order to rule out certain causes and narrow down the field of possible explanations. At the end of this evidence gathering and assessment process, investigators seek to identify the specific cause or causal chain that led to the accident. This process, i.e. the gradual exclusion of possible causes based on the gathering of empirical
With a view to Germanwings flight 4U9525, however, the investigation immediately focused exclusively on the person of Andreas Lubitz. Others factors that may have caused or contributed to the accident were ignored and never examined as part of the investigation.

In the history of aviation accidents since 1948, the investigations into Germanwings flight 4U9525 constitute a unique negative example. They demonstrate on numerous levels how an accident investigation should not be conducted, and vividly illustrate how preconceived notions can lead to a flawed investigation, and, by extension, questionable findings.

Indeed, closer examination of the investigations reveals massive failures and lapses in procedure and substance on the part of the police and legal authorities. These errors are at least partially attributable to a failure to consult and collaborate with appropriately qualified aviation experts. Deficiencies in the investigation are particularly evident on the part the activities conducted by the Düsseldorf public prosecutor and the Düsseldorf criminal police special commission known as "Alpen" under file number 10 UJs 906/15 in the weeks immediately following the accident up to the summer of 2016.

The Düsseldorf public prosecutor is responsible for disseminating clearly incorrect conclusions and objectively false facts that led to the court-ordered search and seizure of property belonging to the Lubitz family. As a result, various rights protected by German law were violated, including the right to patient confidentiality. The dissemination of false information also led media outlets to entertain theories, assumptions, and rumors that were not supported by evidence, and heavily influenced the French criminal and aviation investigations. These factual errors have not been corrected to date, and the individuals and authorities responsible for their dissemination have not attempted to set the record straight.

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The circulation of unfounded hypotheses later led to arrest warrants being issued for individuals who had no involvement in the accident, including family members of co-pilot Andreas Lubitz and his doctors. The criminal prosecutions launched by the Düsseldorf public prosecutor were ultimately abandoned, as it was recognized they had no chance of success.

In this context, a series of questionable lawsuits were filed in the US by attorneys representing the relatives of accident victims. These claims were particularly questionable as the legal principle of "forum non conveniens", which applies in this case, would preclude their adjudication when another legal venue is more suitable. The German attorneys representing the relatives of the victims must have known that this aspect of US law would make it exceedingly difficult for claims to be pursued in the United States.

Furthermore, even if a judge in the US would agree to hear such a case – for example, pursued by the relatives of victims against the Lufthansa flight school in Phoenix – according to US case law, German law would have to be applied in the proceedings.

An additional issue that must be addressed is the Düsseldorf public prosecutor's deliberate sharing of the contents of the investigative files with the relatives of victims and with journalists. A wide range of sensitive material was shared, including photos taken by the Düsseldorf police on 26 March 2015 as part of the search they conducted of the private residence of Andreas Lubitz and his girlfriend as well as the Lubitz family home in Montabaur. Among the shared photos were images of the interior of the Lubitz family home, for which no search warrant had been issued.

In the view of the author, the sharing of material from the investigative files by the Düsseldorf public prosecutor while the investigation was ongoing is highly illustrative of the deficient nature of the investigation. Furthermore, it is disconcerting that the official complaint that was lodged by the Lubitz family concerning this unauthorized sharing of sensitive information fell on deaf ears and failed to trigger an internal investigation.
As part of the sensationalistic and biased media reporting, images of the private burial site of the Lubitz family were published. According to the Berlin higher court, this constituted a violation of privacy law. Furthermore, it is likely to have caused vandalism to the burial site of Andreas Lubitz (in the form of arson), which represented an illegal desecration of a final resting place.

The negative media coverage, including the ongoing circulation of preconceived and biased opinion, also led to the stigmatization of the family members of the "assumed perpetrator."

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3 See decision of the Kammergericht Berlin of 30.01.2017, AZ 10 U 192/15.
According to Article 6 of the European Convention on Human Rights (ECHR), which has the status of law in Germany, **individuals have a right to a fair trial, and must be presumed innocent until proven guilty by a court of law.**

**Furthermore, the preliminary findings or opinions of investigators are not a substitute for an official court judgment.**

Specifically in the case, the final report issued by the French authority for investigating aviation accidents (BEA) is completely inappropriate for rendering judgment concerning responsibility, as the purpose and aim of such a report is not to establish legal culpability or liability for an accident. This particular fact is often neglected in reporting concerning aviation accidents, despite the fact that established and accepted professional guidelines for the work of journalists clearly encourage discretion and the careful handling of sensitive matters, particularly as they relate to privacy and the presumption of innocence. Guidelines for professional practice and German Press Law were violated on numerous occasions in news reporting on Andreas Lubitz and his family. Specifically, the principle that an individual must be presumed innocent until otherwise determined by a court of law was disregarded countless times.

The guidelines for journalistic work of 11 March 2015 issued by the German Press Council (Deutscher Presserat) were contravened numerous times in German news reporting. These specific sections violated include:

a) Preamble

b) Section 1, Truthfulness and Respecting Human Dignity

c) Section 2, Due Care

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4 Specifically, the presumption of innocence must be maintained in the absence of a court ruling of guilt. According to the German Constitutional Court, this principle is a fundamental aspect of the rule of law, as enshrined in Article 20, para. 3 of the German Constitution. See BVerfG 19, 342 <347>; 35, 311 <320>; 74, 358 <371>

5 See additional remarks concerning "Definition."

6 The principle of "presumption of innocence" is set forth by Article 103, para. 2 of the German Constitution, Article 6, para. 2 of the European Convention on Human Rights, and Article 261 of the German Code of Criminal Procedure (StPO).
As Andreas Lubitz was killed in the crash, a criminal case cannot be brought against him to determine his guilt. At least according to German law, such a case is not possible, as the capability of a person to stand trial ends with their death. This conclusion has been reached by various legal experts, including the Düsseldorf public prosecutor in its closing statement (10 UJs 906/15 of 15.12.2016).

However, aspects of the alleged crime and responsibility for associated damages could play a role in a civil case launched by the relatives of the victims. Such a case could provide a venue for clarifying circumstances surrounding the accident. However, such a case has not yet been litigated in Germany, France, or the US.

Accordingly, there is no basis for using the word "perpetrator," much less for the term "murderer," as a court has not issued a judgment to this effect.

On the one hand, according to the legal judgments handed down by Germany's higher courts, the presumption of innocence protects the individual from disadvantages of a nature comparable to a guilty verdict or punitive measure when the individual's culpability has not yet been demonstrated under criminal law. This does not preclude a situation of suspicion from being described or assessed. Furthermore, the presumption of innocence applies to relations between private individuals and is therefore not directly applicable to the relationship between the press and an individual suspected of a crime.

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7 Cf. § 1 of the German Civil Code (BGB) in connection with § 1922
8 Cf. closing statement State Prosecutor Christoph Kumpa of 15.12.2017, p. 4. Dd)
9 Cf. BVerfGE 74, 358, 371; 82, 106, 114 f., 117, 119 f.
10 Cf. BVerfGE 82, 106, 117; BVerfG, NJW 1991, 1530, 1532; StV 2008, 368, 369; BGH, decision of 30 October 2012 – VI ZR 4/12 –, juris.)
Under German Press Law, news organizations are permitted in general to present accusations of criminality, even if they have not yet been affirmed by a court of law.\textsuperscript{11} Indeed, if such journalistic activity were not permitted, then the press would not be able to fulfill its societal role of observing and reporting on events and possible abuses or illegality.\textsuperscript{12}

However, the principle that the accused must be presumed innocent until proven guilty takes on particular importance when news agencies engage in a form of investigative journalism in which individuals are accused of crimes before the eyes of the public.\textsuperscript{13} In the opinion of Germany's higher courts, the media is permitted to report on an individual in a manner that casts suspicion that dishonorable acts were committed insofar as an issue of public concern is at stake and a minimum level of evidence suggesting criminal behavior is available, such that it appears possible that the assumptions concerning the accused could prove to be true.\textsuperscript{14} However, the uncertainty that prevails concerning the situation must be clearly presented to the reader or viewer.

In this regard, the media outlet conducting the reporting must be convinced that there is reason to suspect criminality based on its reading of the situation while exercising due journalistic care. In this connection, the need to exercise due care becomes more pressing in relation to the severity of the accusations,\textsuperscript{15} and media outlets have the right to cite reliable, trustworthy sources to justify their reporting, including in particular representations made by government authorities to the media.\textsuperscript{16}

The investigations that have been undertaken to date by government authorities are in no way comparable to a court decision rendered in a criminal case. At the same time, the official information and statements available to the press from relevant authorities furnish grounds for reporting that casts suspicion of criminality, as the sources in this instance (i.e. aviation investigation authorities

\textsuperscript{11} Cf. Soehring/Seelmann-Eggebert, NJW 2000, 2466; BGH, Urteil von 12.05.1987 – VI ZR 195/86 – NJW 1987, 222
\textsuperscript{12} Cf. BGH, Urteil von 03.05.1977 – VI ZR 36/74 – BGHZ 68, 331
\textsuperscript{13} Cf. RixE. in: MünchKommBGB, 6. Aufl. 2012, Anhang zu § 12, Rdn. 163
\textsuperscript{14} Cf. BGH, Urteil von 03.05.1977 – VI ZR 36/74 – BGHZ 68, 331
\textsuperscript{15} vgl. BGH, Urt. v. 03.05.1977 – VI ZR 36/74 – BGHZ 68, 331; BGH, Urt. v. 12.05.1987 – VI ZR 195/86 – NJW 1987, 222
and the public prosecutor) are "unimpeachable" in terms of their reliability.

However, in numerous cases media outlets did not restrict themselves to reporting on the incident in a manner that hewed closely to the parameters of the assertions made by relevant authorities, but instead freely interpreted these assertions in a way that no longer corresponded with their actual substance. Space restrictions prevent the numerous examples of exaggeration, misrepresentation, and downright error that appeared in the media to be cited within the scope of this report. In the eyes of the author, who has over 25 years of experience as a journalist, it is particularly remarkable that the Düsseldorf public prosecutor elected not to intervene or set the record straight when objectively incorrect information was spread in the media.

Based on the available information, it cannot be asserted that Andreas Lubitz was suffering from depression. The Düsseldorf public prosecutor obtained no evidence for making such an assertion during its investigation. In the order that was issued in December 2016 to close the investigation, the following was asserted:

"There is not basis to assert that the physical ailments [suffered by A. Lubitz] were connected to an undiagnosed depressive condition."\(^{17}\)

"None of the doctors treating A. Lubitz in 2014 or 2015 – including psychiatrists or other physicians – diagnosed a depressive condition [...] No doctor or therapist concluded that A. Lubitz had suicidal thoughts."\(^{18}\)

It must be noted that the Düsseldorf public prosecutor obtained warrants to search and seize property based on objectively false assertions. Furthermore, one piece of evidence obtained by investigators – namely, an iPad with an allegedly incriminating search history containing the keywords "cockpit door" and "suicide" – was falsely recorded as property seized during the search of Andreas Lubitz’s apartment. This iPad was not seized in the apartment, but was rather given to police

\(^{17}\) Abschlussvermerk Staatsanwaltschaft Düsseldorf 10 UJs 906/15, S. 7  
\(^{18}\) Abschlussvermerk Staatsanwaltschaft Düsseldorf 10 UJs 906/15, S. 8
by a third party on 26 March 2015. Furthermore, the conclusions drawn based on the allegedly incriminating browser history are incorrect and not consistent with the actual facts.

In the view of the author of this report, severe errors were also committed in the accident investigation that was conducted by the French Bureau d'Enquetes des Analyse (BEA). Specifically, the BEA failed to adhere to the requirements of ICAO Annex 13 or to the relevant guidelines and instructions for handling "human factors" in an accident investigation. All of the individuals involved in the investigation were engineers; "human factor experts" did not participate in the German or French investigations. This is particularly surprising, as an extremely experienced aviation psychologist and human factor expert was available on the German side, and the French failed to draw on the expertise of an experienced forensic physician to whom they had access.

The lead investigator on the German side, Johann Reuss (BFU), committed clear errors when analyzing and interpreting medical data. The dissemination of his flawed findings to the Düsseldorf public prosecutor and to the French legal and aviation authorities led to objectively incorrect conclusions being drawn concerning Andreas Lubitz's mental health at the time of the accident. These incorrect conclusions heavily influenced the media reporting concerning the crash. Although the Lubitz family has asked Mr. Reuss on multiple occasion to revise his assertions, he has refused to this date to issue an acknowledgment that errors were made. Mr. Reuss has also refused to listen to the tape of the cockpit voice recorder in the presence of the aforementioned human factor specialist or BFU psychologists, without giving any account of the reasons for his refusal.

Based on the available information and evidence, it is not possible for the author draw conclusions that would clearly exonerate Andreas Lubitz from suspicion of guilt. At the same time, following the author’s critical review of the available evidence – including the investigative files assembled by the Düsseldorf public prosecutor and the findings released to date in the investigation being conducted by the BEA – it has not been proven beyond reasonable doubt that Andreas Lubitz intentionally caused Germanwings flight 4U9525 to crash as a result of a conscious or planned act of suicide.

19 vgl. HA 09801, Vernehmung Kathrin Goldbach vom 26.03.2015
20 vgl. ICAO Manual of Aircraft Accident Investigation (Doc 9756) sowie Human Factors Digest No. 7 (ICAO Circular 240-AN/144)
In the opinion of the author, there is considerable reason to doubt the assumption that Andreas Lubitz is responsible for having caused the crash, both in a causal sense and with a view to criminal liability. More robust conclusions concerning this issue cannot be drawn until the following things take place:

a) The contradictions that are illuminated in this report need to be explained and resolved;

b) The complete tapes of the cockpit voice recorder need to be provided for inspection (for both the outbound and inbound flights); and

c) The records of the flight data recorder need to be released for inspection so that they can be independently assessed by a team of experts that includes aircraft engineers, aviation experts, and experienced physicians.

d) All flight and radio records maintained by the military air traffic control center in Orange, France, should be released;

e) All radar data (including military radar data and ADS-B data) should be released;

f) All radio transmissions from other aircraft in the same airspace between 7 am and 11:30 am CET on 24 March 2015 should be released.

g) A post-mortem analysis should be conducted of the tissue samples of Andreas Lubitz that are in the possession of French forensic physicians in order to determine if Andreas Lubitz potentially suffered from other physical ailments at the time of the accident.

To be sure, there are other explanations for why flight 4U9525 crashed, including the possibility that Andreas Lubitz was physically incapacitated in the minutes before the accident. Various causes of incapacitation are possible, including a stroke, heart attack, comatose condition, or the inhalation of
toxic fumes. The possibility that toxic fumes entered the cabin air and incapacitated Andreas Lubitz is particularly relevant as a potential proximate cause considering the number of Germanwings aircraft with a history of so-called "fume events," in which the bleed air used to pressurize the cabin becomes contaminated with hazardous chemicals.

With the scope of the author's research, an initial step was to reconstruct Andreas Lubitz's flight log. To this end, the author assembled information provided by Germanwings concerning all flights made by Andreas Lubitz since obtaining his pilot's license (MPL) on 11 Feb. 2014. This information was then verified by examining data on actual aircraft movements on relevant days and comparing the registration numbers of the aircraft.

The next step in this research was to compare the registration numbers of the aircraft with recorded "fume/smell events" and other incidents relevant to aircraft safety. A key insight generated by this analysis was that Andreas Lubitz was primarily assigned to Germanwings aircraft that had experienced reported safety incidents, including fume/smell events.

In a further analytical step, the aircraft flown by Andreas Lubitz were compared with records contained in Lufthansa's AMOS (Aircraft Maintenance and Operation Software). Analysis of these records revealed that the manufacturer Airbus often failed to conduct required maintenance after such events occurred (e.g. including cleaning the environmental control system and air ducts). Although Andreas Lubitz was apparently not directly involved in a recorded fume/smell event while in the cockpit as co-pilot, it is conspicuous that he regularly flew in aircraft that were involved in such incidents, either before or after his deployment.

Following consultations with external experts, including the Dutch aviation physician Dr. Michel Mulder, due attention should be given to the possibility that Andreas Lubitz's health was impaired by

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21 Each pilot maintains his own flight log, which typically records the date and route of each flight as well as the type and registration number of the aircraft. One purpose of the flight log is to track the number of hours actually flown. Andreas Lubitz did not keep a digital flight book, and his flight log on paper was presumably destroyed during the crash. In any event, there is no mention of it in the investigative files.

22 Cf. HA 09726 ff

23 See also: "APU maintenance guidelines to avoid smell in cabins," p.4 ff in Flight Airworthiness Support Technology (FAST), Airbus Technical Magazine 52, August 2013, ISSN 1293-5476 and "21-00-00-810-801-A-Oil in the Air Conditioning System", Airbus TSM, Type A318/A319/A320/A321.
inhaling of contaminated cabin air. According to the current state of medical knowledge, multiple instances of low-level exposure to contaminated cabin air can have a cumulative effect. Considering the frequency with which Andreas Lubitz was assigned to aircraft with cabin air problems, there is thus a plausible basis for considering the possibility that cumulative exposure to airborne toxins led to changes in Andreas Lubitz’s health, including his eyesight and mental condition, and may have precipitated a sudden incapacitation.24

Against this backdrop, an attempt was made to determine if the Lubitz family belongs to the risk group that is genetically predisposed to suffering ill effects from the airborne contaminants that are involved in fume events.25 According to Dr. Mulder, he has treated a number of patients – including patients who are quite young (25 years old) – who developed severe symptoms over short time period. The severity of these symptoms was correlated with the type of aircraft flown, their maintenance condition, and the number of daily flights.26

Against this backdrop, DNA analysis was conducted of blood from both parents of Andreas Lubitz as well as his brother. The DNA analysis determined that Andreas Lubitz’s father belonged to the group of "mid-level metabolizers," while the mother belonged to the group of "poor metabolizers." The brother landed somewhere between these two groups. To determine the extent to which Andreas Lubitz may have been physiologically predisposed to suffering ill effects from the contaminants to which cabin crews are exposed in "fume events," additional analysis should be conducted of the muscle samples taken from the remains of Andreas Lubitz by the French investigative authorities.

If, by contrast, the hypothesis tendered by investigators is be accepted – namely, that Andreas Lubitz deliberately caused the plane to crash in an act of suicide – then a truly plausible motive must be found and demonstrated in a convincing fashion. All of the suppositions voiced by investigators regarding Andreas Lubitz’s ostensible motives are not convincing and do not withstand critical scrutiny. The Düsseldorf public prosecutor has admitted the problems related to issues of motive,

24 Cf. section III.6.2. of this report, "Pilot Incapacitation"
25 Dr. Mulder has developed a three-group categorization system to classify the ability of individuals to break down and expel the neurotoxic chemicals associated with fume events. Several genes are responsible for the enzyme required to break down such toxins (specifically: CYP2B6*4, CYP2C 19*2, CYP2C19*3, PON1_M55L and PON1 Q192R). The DNA test was used to identify the presence of these genes and to classify the Lubitz family in relation to other examined individuals.
26 See e-mail from Dr. Michel Mulder of 21.02.2017.
noting, for example, there is no evidence that Andreas Lubitz may have acted for fear of financial difficulties.\textsuperscript{27} 

In the view of the author, the sole potential source of adversity that may have triggered an act of suicide pertains to the relationship Andreas Lubitz had with his girlfriend Kathrin Goldbach. However, there is no evidence that the relationship was troubled. On the contrary, Kathrin Goldbach had provided considerable support to Andreas Lubitz during his depressive episode in 2008/09. The relationship between the two became stronger in subsequent years. As the accident occurred, there were definite plans to get married and have a child. Andreas Lubitz discussed these plans for the future on numerous occasions, including just one week before the accident with his brother during a several-day visit in Düsseldorf.

In light of the foregoing, the author of this report believes that petitions should be submitted to obtain all evidence currently being held by French aviation investigation authorities so that circumstances surrounding the crash can be subjected to renewed expert evaluation. In the opinion of the French attorney retained by the Lubitz family, it should be possible to obtain this evidence by submitting a petition as part of the legal investigation that is still ongoing. A petition to this effect was previously submitted to the court of jurisdiction in Marseille, but was rejected on 7 March 2017. This decision has been appealed and is now being reviewed by the next higher court.

Berlin, 30 March 2017

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I. The Crash of Germanwings Flight 4U9525 on 24.03.2015

\textsuperscript{27} Cf. HA 00036, Staatsanwaltschaft Düsseldorf vom 08.04.2015
I.1. Chronology of events

On the 24.03.2015 an aircraft operated by Germanwings, type Airbus A320-200, with the official registration D-AIPX with 144 passengers and a crew of six on board was flying at flight level 380 (38,000 ft = 11.582 meters) about 30 nautical miles (= 55.5 km) southeast of the French city of Marseilles, when the plane initiated a fast descent ("rapid descent")\(^{28}\). The aircraft was on the flight from Barcelona (Spain) to Düsseldorf (Germany).

Radar contact with the French air traffic control at Aix-en-Provence broke off at 10:41 CET (= 09:41 UTC) about 12 nautical miles south-west of the French city of Barcelonette and 75 nautical miles (= 139 km) north east of Marseille.

The wreck of the aircraft was located in the vicinity of the coordinates N 44°16'47.2 and E 006°26'19.1 at an altitude of 5,250 feet (= 1,550 meters)\(^{29}\) in mountainous terrain within the Magistrate Prads-Haute-Bléone. All occupants of the aircraft were killed during the impact.

The official final accident report of the French air accident investigating authority, the Bureau d'Enquêtes des Analyse (BEA), as of March 2016 states on page 30:

\[\text{"The wreckage was fragmented with a large amount of debris spread over an area of 4 hectares in a sloping rocky ravine. The largest parts of the aeroplane were about 3 to 4 metres long.}\]

\[\text{On the lower part of the site, about 20 m above the ravine, is an area where the vegetation had been torn up, tree trunks were uprooted, tree branches were broken and the ground churned up. Parts from the aeroplane’s wings and fuselage were}\]

\(^{28}\) cf. AVHERALD, "Crash: Germanwings A320 near Barcelonette on Mar 24th 2015"

\(^{29}\) cf. BEA Final Report D AIPX, p. 28 et sqq.
found in this area. Apart from this area and the final debris field, no other contact
with the environment was observed around the accident site.

On site, elements belonging to various parts of the aeroplane were identified. One of
the engines was broken into many pieces in the main east ravine. The debris of the
other engine, concentrated in a small area, was found in the main west ravine.

The auxiliary power unit (APU) was located in the upper part of the site dozens of
metres from the part of the rear fuselage to which the vertical stabilizer is attached.

One of main landing gears was found near this part of the fuselage.

Parts from the cockpit (access door to the cockpit, sidestick, security camera) were
also found in the upper part of the site.

The lower part of the site had a strong smell of kerosene.

The CVR\textsuperscript{30}, QAR\textsuperscript{31} and FDR\textsuperscript{32} were found respectively on 24/03/2015, 28/03/2015 and
02/04/2015 and were immediately transported to the BEA for readout.

Note: the front of the FDR was found separated from the rest of the recorder in which the

\textsuperscript{30} cf. BEA final report D AIPX, p. 29
In a first message the French aviation authority the Direction Générale de l'Aviation Civile (DGAC) was cited that the crew had transmitted an emergency call just prior to the aircraft disappearing from the radar near the town of Bassinet.  

In a first press conference at 3 pm CET in Germany Germanwings and Lufthansa confirmed the crash of flight 4U 9525 in the French Alps with 144 passengers, including two babies and a crew of six. According to the information in this press conference the aircraft reached its cruising altitude at 10:45 CET and started an eight-minutes lasting descent a minute later.

Radar contact was lost at 10:53 a.m. CET at an altitude of 6,000 feet. The aircraft had been delivered by Airbus to Lufthansa in 1991 and had undergone all needed maintenance checks including a last check on Mar 23rd 2015, the last major maintenance check had been in Summer 2013.

The captain had 6000 flight hours of experience. The airline received contradicting information from French ATC as to whether an emergency call had occurred.

France’s Air Traffic Control reported there had been no emergency call from the aircraft. There had been confusion initially, Marseille controllers declared Mayday for the aircraft when they observed the aircraft below safe altitude for the area.

At 19:00 CET the French Ministry of the Interior stated that a first "black box" (flight data recorder) has been found.

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34 cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
35 cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
36 cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
37 cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
The French air accident investigation authority, the Bureau d’Enquêtes des Analyse (BEA) stated that there have been seven air accident investigators dispatched to the crash site and a press conference was announced for the 25. March at 16:00 CET\textsuperscript{38}.

The German Air Accident Investigation Agency, the Federal Office for Flight Accident Investigation (BFU) stated that three air accident investigators have been dispatched to the crash site\textsuperscript{39}.

Before the accident flight the aircraft conducted the flight GWI 4U9524 from Dusseldorf in the Spanish Barcelona with the same flight crew. It took off at 07:01 CET in Düsseldorf and landed in Barcelona at 08:57 CET\textsuperscript{40}.

On 25.03.2015 the French BEA reported in a press conference that the aircraft was following its planned flight path. After cruising at FL380 for a little while the aircraft began to descend at about 09:30Z at a rate of 3500 fpm. The last radar position recorded by French ATC was at 6175 feet MSL at 09:40:47Z very close to the subsequent point of impact. The aircraft impacted ground at very high speed shortly after.

On 24.03.2015 at about 17:00 (CET) the Cockpit Voice Recorder (CVR) was found severely damaged at the accident site and transferred to the BEA. On the morning of 25.03.2015 at 09:45 a.m. (CET) the memory module was extracted. Initially there were some problems reading the extracted data, but the BEA managed to extract a readable audio file to be used.

To questions from journalists the BEA stated that they have been able to listen to the audio for a first time, but having the audio only for a few minutes prior to the press conference are unable to make any further statement at this point in time.

\textsuperscript{38} cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
\textsuperscript{39} cf. AVHERALD, » Crash: Germanwings A320 near Barcelonnette on Mar 24th 2015«
\textsuperscript{40} cf. BEA final report D AIPX, p. 12
The debris and distribution of debris does not suggest there has been any explosion on board of the aircraft. When confronted by journalists with rumours originating in Finnish media quoting Finland’s CAA about a burst windshield, the BEA said: “We do not have such information.”

On the morning of 26.03.2015 the French public prosecutor Brice Robin stated in a press conference in Marseille that the first officer was alone in the cockpit at the time of the collision with the terrain. He was not talking, only normal breathing could be heard once the captain had left the cockpit. The captain was not able to get back into the cockpit. The first officer initiated a rapid descent, but there was no reason to initiate such rapid descent. Also there was no reason to not communicate with air traffic control, there was no reason given to not reopen the cockpit door. On the basis of the information available at that time could only be said that the breathing of the first officer is not consistent with someone suffering a heart attack or other health issue. Except for the breathing there is absolute silence in the cockpit. Screams can only be heard in the last few moments, prior to impact. There were no words heard during the last 10 minutes of the flight. State prosecutor Robin believes that the first officer did not open the door intentionally. At this point in time there were no voice sample of the two pilot available, neither to the police nor to the BEA. This is also reflected in a protocol note. The hypothesis which voice belongs to which person is solely based on the presumption that the “stronger” sounding voice, that sounds “secure” and “feels” to a certain amount “experienced”, can be assigned to Captain Sondenheimer.

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42 cf. Press conference of the public prosecutor in Marseille, Procurateur Brice Robin on 26.03.2015 cf. HA 05127
43 cf. HA 05127
In a joint press conference on 26.03.2015 Germanwings and Lufthansa confirmed that the captain had 6000 flight hours of experience and the first officer had 630 hours. Questioned about media report about the statements made by the prosecutor Robin both companies declined to comment. They stated they are shocked having to accept that according to cockpit voice recorder the first officer locked the captain out of the cockpit and deliberately flew the aircraft into terrain. Pilots within the Lufthansa Group undergo detailed assessment and psychological tests. The first officer started his training in 2008, worked as a flight attendant, continued his training after undergoing another assessment, passed all tests and started his pilot career as first officer on the A320 in 2013.
The Lufthansa Chairman and CEO Carsten Spohr stated that if on the keypad in front of the cockpit the so-called “Emergency Code” is entered, the pilot in the cockpit receives a signal and has the ability to open the door or lock the door. If the pilot in the cockpit does not react at all, the cockpit door opens after some time upon entering the emergency. If the pilot in the cockpit selects to lock the door, the door remains locked for 5 minutes. Within the entire Lufthansa group there is no standard operating procedure requiring another member of the cabin crew to enter the cockpit if one of the pilots leaves the cockpit. The captain was permitted to leave the cockpit in cruise flight, e.g. for a toilet break.
On the afternoon of the public prosecutor in Düsseldorf 26.03.2015 said in a press release on the current state of the investigations:

»The prosecutor office at Düsseldorf leads (...) an investigation under the document number 10 UJs 906/15 into the circumstances of the death of the passengers and the crew. The authority has constricted the investigations across the country to itself, because several victims had their place of residence within its jurisdictions. On the basis of the determination of findings, made public by the public prosecutor in Marseille, in coordination with the French investigating authorities in Dusseldorf and other locations judicially ordered search warrants are executed. (...) The searches are in particular conducted for the discovery and securing personal documents in order to identify an informative basis for a conceivable background of the act...«

On 26.03.2015 the Federal Ministry for Transport and Infrastructure stated that the ministry and its experts are confident that the Flight Data Recorder (FDR) will be found and read out in order to obtain more concrete information about the last minutes of the flight.

On 26. and 27.03.2015 several German and European airlines stated that their standard procedures have been changed with immediate effect. Now two crewmembers must always be present in the cockpit. If one of the pilots would like to visit the toilets another pilot or flight attendant has to come into the cockpit and stay there until the pilot returns.

Previously the expert and author of this report, in his capacity as an aviation expert pointed out in statements to the news station N24 as well as the Deutsche Welle that this procedure has been a standard procedure for example in many U.S. Airlines and British Airways already for years.

On 27.03.2015 the prosecutor in Düsseldorf published the following press statement:

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44 cf. Press statement by the public prosecutor in Düsseldorf crash the flight 4U 9525 of 26.03.2015
45 cf. Press statement II by the public prosecutor in Düsseldorf crash the flight 4U 9525 of 27.03.2015
»Yesterday evening the prosecutor in Düsseldorf has completed the searching of the homes of the deceased co-pilot in Düsseldorf and Rhineland-Palatinate. The measures have not led to the discovery of a so-called farewell letter or confession letter. Nor did they reveal an indication for a political or religious background of the action.

But documents with medical content have been seized which point to an existing medical condition and respective medical treatment. The fact that among other things a torn, current sickness note was found that also includes the date of the act, after a preliminary assessment supports the assumption that the deceased concealed his disease from his employer and his professional environment. Interrogations on this subject and the evaluation of medical records will still continue over several days. Once reliable findings are available, we will inform the next of kin and the public.

The colleagues in France have been informed by the head of the department on the preliminary results of the measures that have also been proposed by the French side.«

On 28.03.2015 the prosecutor in Marseille reported that the search for the Flight Data Recorder (FDR) will continue. The prosecutor would currently not exclude any scenario, including a technical issue with the aircraft. The investigations in the social environment of the co-pilot are on-going.

On 27.03.2015 the prosecutor in Düsseldorf published the following press statement:\n
"Under the leadership of an experienced capital crime department head and supported by several colleagues the prosecution in Düsseldorf evaluates the evidence seized so far."

\[^{46}\text{cf. Press statement III by the public prosecutor in Düsseldorfcrash the flight 4U 9525 of 26.03.2015}\]
Moreover a number of witnesses from the personal and professional environment have been interrogated. Please respect that the prosecutor may and will not become part of the speculations about the motivation of the deceased co-pilot. The investigating authorities have to stick solely to the facts. However, based on the seized documents and data files the following provisional - evaluations may be carried out.

The previously in press statements communicated results of the taking of evidence continue to apply in full. In particular there is still the lack of an assignable announcement of such an act, nor was a commitment to it found. No special circumstances became known within the immediate personal and family environment nor at the work place that would deliver viable information on a possible motive.

The corresponding medical documentation did so far not reveal any organic disease. Several years ago and before obtaining the pilot certificate, the co-pilot was undergoing psychotherapeutic treatment with recorded suicidal tendency.

In the following period and until recently further visits to specialists for neurology, psychiatry and psychotherapy with corresponding sickness notes took place, however without suicidal tendencies or foreign aggression being attested."

On 31.03.2015 the French BEA stated that the BEA investigation is continuing and is currently focussing on establishing the detailed progress of flight based on the cockpit voice recorder and other flight data, that may become available, as well as on identification of system weaknesses that possibly led to this catastrophe or similiar events. In particular the interest is directed at the locking mechanism logic of the cockpit door and the procedures to exit and access the cockpit as well as at criteria and procedures to detect specific psychological profiles.
On 31.03.2015 the Lufthansa explained that the co-pilot reported to the airline in 2009 that he had been in medical treatment for a depressive episode. The e-mail correspondence has been forwarded to the prosecutor in Düsseldorf.

On 02.04.2015 the prosecutor in Marseille announced that the second "black box", the flight data recorder, has been found and secured at the crash site.

Note of the expert: already a few days before the housing of the Flight Data Recorder (FDR) in which the so-called "crash module" is located, i.e. the actual recorder unit with the data memory, has been found at the crash site. But the “crash module” was not in the housing. The module It was only found on 02.04.2015 (i.e. nine days after the crash) and probably rather randomly by a cop around 20 centimetres below the surface in a ravine at the crash site47.

On 03.04.2015 the French BEA reported that the BEA received the flight data recorder on Apr 2nd 2015. It was opened and a first read out of the data showed, that the pilot in the cockpit used the autopilot to descend the aircraft down to 100 feet. On several occasions the speed of the aircraft was adjusted during the descent.

I.2. Radar data and analysis of other data

The evaluation of the radar data suggests the aircraft had reached FL380 about three minutes prior to leaving FL380 and descended from FL380 through FL110 in eight minutes (average rate of descent was 3.375 fpm). The last ADS-B position by the aircraft was transmitted at FL068 on a north-easterly heading of 26 degrees (true). At this point mountains rise up to 8,900 feet about 1 Nm (equals 1.85 km) north of the last reported aircraft position.

By the evaluation of overview images of the BEA of the crash site, it can be concluded that the photographer is on N44.27 0253 E6.429317, looking in the direction of 355 degrees. The AVHERALD identified the crash site with the main wreck at N44.2705 E6.4289 at an altitude of 5,488 feet (1,673 meters). This position is located 400 meters from the last known position of the airplane’s transponder using ADS-B transmission.

In principle it has to be noted in this context that data on public flight tracking portals such as "Flight Tracker" and "Flight radar 24" are no reliable and validated data. The accuracy of this data always depends on the number of receivers to which the system has access to and the interpolation of the data and positions. Again and again there have been "mapshifts", i.e. the alleged geographical positions differ. For example, on the pages of Flight-Radar24 the last position from flight MH 17, the Boeing 777 of Malaysian Airways, for a long time after the crash in Ukraine was positioned near Rostov on Don. Validated and precise data (including ADS-B) result only from military and civil air transport records. The military data on flight 4U 9525 are unfortunately not available.
II. Air Accident Investigation

Definitions, principles and characteristics

An "aircraft accident" currently defined as an unforeseen occurrence in connection with the operation of an aircraft, which leads to a personal injury or property damage.

II. 1. International Requirements

The International Civil Aviation Organization (ICAO), was founded in December 1944 by a legally binding treaty (Chicago Convention) and has since been a special institution with special tasks of the United Nations (UN). Currently 191 states have ratified the agreement, among them are Germany and France. The so-called "ICAO annex" to the Chicago Convention contains internationally binding and standardized handling executions of different aspects of civil aviation. The so-called "ICAO Annex 13" defines and controls the aspects and requirements of an air accident investigation in the 191 member states. In accordance with the "ICAO Annex 13" a "flight accident" is defined as follows (emphasis in the original):

»[...] Accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

48 see: http://www.icao.int/MemberStates/Member%20States.English.pdf
49 see: http://www.iprr.org/manuals/Annex13.html
a) a person is fatally or seriously injured as a result of

- being in the aircraft, or

- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

- direct exposure to jet blast,

except when the injuries are from natural causes, self inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew: or

b) the aircraft sustains damage or structural failure which:

- adversely affects the structural strength, performance or flight characteristics of the aircraft, and

- would normally require major repair or replacement of the affected component,

except for engine failure or damage. when the damage is limited to the engine, its cowlings or accessories: or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin: or

c) the aircraft is missing or is completely inaccessible.
Note I.-- For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO.

Note II.-- An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.[...]

As a rule, the investigation of a air accident will always be conducted by the investigation authority of the country in whose territory the accident occurred (country of occurrence). This country is usually also the "leading investigator" (IIC, investigator in charge).

In accordance with ICAO Annex 13 participating nations, such as in which the aircraft was built, is registered or operated, as well as the countries of the manufacturer of the main assemblies, i.e. aircraft, engines, electronics, are entitled to participate with certain rights. Their accredited representatives and their technical support should therefore take part in the inquiry.

Access to original data and/or seized evidence of investigation, at what time and to which extent by the accredited representatives is entirely at the sole discretion of the investigator in charge. In France this is at the discretion of the investigating prosecutor or the investigating judge.

Note: Recently an air accident investigation is termed “safety investigation” by the investigating authorities. The expert will continue to use in this context the currently also prevalent term "aircraft accident investigation". Regulation (EU) No 996/2010 uses this name, translated from English: "safety investigation".50

50 cf. 86 of the opinion
II. 2. Requirements and regulations in Germany

The Federal Republic of Germany has ratified the Annex 13 to the Chicago Convention of 7. December 1944 by law of 7. April 1956 through the acceptance of Articles 37 and 38 of the ICAO Convention\textsuperscript{51}. Therefore ICAO Annex 13 is binding. In addition Germany is a member state of the European Union, it shall therefore apply in particular the corresponding regulations, here in

\textsuperscript{51}cf. BGBl II 1956, p. 411

In Europe and in Germany the specific international recommendations were only implemented quite delayed, despite in 1994 actually an already binding EU directive (94/56/EC) was adopted. In Germany this was implemented by the "Law on the investigation of accidents and incidents in the operation of the civil aircraft" (FlUUG as of 26.08.1998) entering into force. The Guideline 94/56/EU has now been repealed and replaced by EU Regulation No. 996/2010.

At the national level in Germany the legal definition is given in the "Law on the investigation of accidents and incidents in the operation of the civil aircraft sector" (FlUUG). Here it is stated at the normative guidelines:

"An accident within the definition of § 2 FlUUG is an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

1. a person is fatally or seriously injured
   - on board an aircraft or
   - as a result of direct contact with any part of the aircraft including parts which have become detached from the aircraft, or
   - as a result of direct exposure to jet or propeller blast,

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53 cf.: period according to Beck Online Database: https://beck-online.beck.de/?vpath=bibdata/ges/EWG_VO_996_2010/cont/EWG_VO_996_2010.htm Accessed on 06.03.2017
54 Accessed on 06.03.2017
55 see: https://www.gesetze-im-internet.de/fluug/__2.html
except when these injuries are from causes other than the accident, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew members;

or

2. the aircraft or the airframe sustains damage which:

- adversely affects the structural strength, performance or flight characteristics of the aircraft, and

- would normally require major repair or replacement of the affected aircraft component;

except for engine failure or damage, when the damage to the aircraft is limited to the engine concerned, its cowlings or accessories; or for damage limited to propellers, wing tips, radio antennas, tyres, brakes, fairings or to small dents or puncture holes in the aircraft skin;

or

3. the aircraft is missing or inaccessible.

Serious injuries means an injury which is sustained by a person in an accident and which:

1. requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received;
or

2. results in a fracture of any bone (except simple fractures of fingers, toes or nose); 

or

3. involves lacerations which cause severe haemorrhage or nerve, muscle or tendon damage; 

or

4. involves injury to any internal organ; 

or

5. involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; 

or

6. involves verified exposure to infectious substances or harmful radiation. 

Fatal injury means an injury which is sustained by a person in an accident and which results in his/her death directly in the accident or within 30 days of the date of the accident.

While in Germany the Federal Office for Flight Accident Investigation (BFU) is responsible for the accident investigation and only if this investigation reveals signs of criminally relevant or terroristic causes or an "acts of unlawful interference" in accordance with the VO 996/2010 (EU) for an accident the authority shall notify and inform the competent prosecutor, in some other countries (including France and Spain) these aspects are dealt with differently.
Since the crash site of flight 4U 9525 is located on French territory, the German BFU is not in charge for the implementation of an air accident investigation in this case. Since the crashed aircraft with the official registration D-AIPX is an airplane registered in Germany for an aviation company based in Germany, a "participation status" (engl. "accredited representative") had to be granted to the BFU.
II. 3. Requirements and Regulations in France

France is a signatory to the Chicago Convention. This applies also to the ICAO Annex 13. In addition, France is a member state of the European Union, so it shall apply in particular also the corresponding regulations, Regulation (EC) 996/2010 of the European Parliament and of the Council of 2 October 2010. December 2010\textsuperscript{56}.

Part of these requirements under Regulation 996/2010 (EU) is the (emph. add.)

Coordination of investigations pursuant to Art. 12, paragraph 3 requires that:

“\textit{Member States shall ensure that safety investigation authorities, on the one hand, and other authorities likely to be involved in the activities related to the safety investigation, such as the judicial, civil aviation, search and rescue authorities, on the other hand, cooperate with each other through advance arrangements.}”

The expert, in his capacity as a professional journalist, already made on 2. April 2015 a written request in this context to the director of the information and communication department of the Bureau d’Enquêtes et d’Analyse (BEA), Mrs Martine Del Bono\textsuperscript{57}. The answer was presented on 7. April 2015 as follows (emphasis by the author):

\textsuperscript{56} cf. \url{https://www.bea.aero/en/the-bea/legal-context/}
\textsuperscript{57} cf. Appendix B, Email Inquiry TvB and BEA from 02.04.2015
»EU regulation 996/2010 article 12-3 calls for Advanced Arrangements between the safety investigation authority and the judicial authorities in all EU countries. This requirement is not specific to countries in which the legal penal system is based on inquisitorial procedures. In France, such advanced arrangement was signed in September 2014. This document is not publicly available. Among other things, this arrangement provides provisions for the access to evidences by both authorities, for the use of sensitive information by the judicial authority, and calls for coordination of communication between both authorities. Germanwings flight 4U9525 is the first major accident investigation to which this arrangement applies. So difficulties to establish proper communication channels between both authorities were experienced in the very first days of this investigation.«

Finding No. 1:

The specific requirements of the Regulation 996/2010 (EU) in relation to the “advance arrangements” were not met in the event state France at the time of the crash and in the following days, although they were formally adopted, but - according to the information of the BEA from 07.04.2015 – “not sufficiently implemented”. This led to difficulties in the communication between the civil aviation accident investigation authority (BEA) and the institutions of the French judiciary system.

In addition, in France, the "code of the transport and the code de l'aviation civile" applies.
II.4. Particularities in France

In France, the law concerning a flight accident investigation fundamentally differs from many other western nations. There, the conduct of investigations always lies with the prefect of the region where the accident took place. In the case of Germanwings flight 4U9525, this was the prefecture of Marseille, within which the crash site Prads-Haute-Bléone lies. Due to the nature of the centralistic system of state in France, these prefectures in turn answer to the President of the French Republic.58

State prosecutor Brice Robin from Marseille was in charge of the investigation, ex officio, as well as Anne Tertian, who as »Juge d'instruction« also had jurisdiction.

Brice Robin, who was in charge of investigations at first, was part of an investigation the year 2013 which led to the arrest of 23 suspects in connection to a scandal involving horse meat in France. In 2014, he was involved with investigations concerning Helene Pastor-Pallance, who was killed during a shootout. Additionally, Brice Robin was acting state prosecutor in a sports scandal involving players of the handball team Montpellier.

As far as research conducted by the expert goes, Robin does not possess any background in

58 see: Constitution of the French Republic, as of 4.10.1958, Art. 13
aeronautics. In any case, he did not seem to be fully informed about the regulations covered in EU-regulation 996/2010 at the time of the accident. According to unverified sources however, Robin is no longer acting prosecutor in this investigation.

Francois Hollande, French President / picture: Clement Mahoudeau/dpa

According to the French constitution, judges and prosecutors answer directly to the French president.⁵⁹ Thus, France does not possess checks and balances, which separate the legislative, executive and judicial branch known to us. The president himself thus possesses significant and far-reaching authorities to exert power, more so than is common in other democracies.

In cases pertaining criminal investigations connected to civil air transport, the French judicial system employs a special unit of the French paramilitary police, the Gendarmerie⁶⁰. (From here on, this unit will be referred to as “special unit for air transport,” (Gendarmerie des transport aériens,) “GTA” or

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⁵⁹ see: Constitution of the French Republic, as of 4.1.1958, Art. 64 and 65
⁶⁰ http://www.defense.gouv.fr/gendarmerie/gendarmeries-specialisees
“SRGTA,” for short, with their base of operations in Paris-Roissy.)

Meanwhile, civil investigations falls within the jurisdiction of the Bureau d’Enquêtes et d’Analyses (BEA), a direct counterpart to the BFU, located in Paris.

Originally the police, like the GTA, were part of the French army. This was due to Napoleonic rule, in which a system of military police units found applications all over Europe (e.g. Italy's Carabinieri or Spain's Guardia Civil). These implementations shaped the judicial systems of many French colonies and mandates. Even today, the Gendarmerie answers directly to the Ministry of Defence.

During local, non-military assignments, they are under the prefect's control. During forensic of juridical assignments, they answer to the state prosecutor or the investigating judge.

Part of the Gendarmerie are 17 brigades of mountaineers, used for employment in the Alps. These were used to secure the crash site and the recovery of the victims. One brigade consists of 29 officers.

This practice marks a significant difference to other standards used within the investigation of civil air travel accidents worldwide.

Principles of responsibility and far-reaching influence of several investigations, usually led in parallel, has repeatedly caused problems and significant delays in appropriate first responses and subsequent civil aviation accident investigation. This was prominently the case with a crash of an Airbus A320 (Air Inter), which crashed near Mont Saint-Odile in 1992, as well as a crash of a Concorde in Paris in 1999. In the latter case, important pieces of evidence were not handed over to investigators by the corresponding judge, significantly delaying their analysis.

In 2010, the European Court of Human rights once more came to the conclusion that (emphasis original)

“the French department of public prosecution does not meet the criteria of sufficient separation from the government.” The Club for Rights, Justice and Security repeatedly put forward appeals for more independence and impartiality in the judicial system. “The fear that the French system is lacking in this regard is supported by several examples,” said Gilbert Flam, chairman of the association, which among others counts judges, lawyers and professors of the law among their members. The justice department can order a case slowed down or expedited. And: “We in France are not used to question businesses like we would question a natural person.”

As a result, investigations against businesses are rare in France. In the opinion of this expert, this is particularly the case if the business in question shows connections to the French government. Examples include the French national airline Air France or the manufacturer Airbus. In any case, it is clear that businesses command a large amount of goodwill compared to natural persons. Historically, national interests enjoy special protections in France, especially if the state is a shareholder in these enterprises. France even issued a law to this effect. In the “Law for the communication of documents and information of economical, commercial, industrial, financial or technical nature towards foreign natural or juristic persons” Art. 1, it says:

“Leaving aside international treaties or contracts, any natural or juristic person of French nationality or with residence in France and every head, representative, leader, agent or superintendent of a juristic person located or with a branch therein is forbidden from providing documents or information of economical, commercial, industrial, financial or technical nature, orally or in writing or in any other way, -where ever- to foreign authorities if this would violate or threaten the sovereignty, security or important economic interests of

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62 see: Karin Finkenzeller in Die Zeit, Nr. 49: »Im Namen der Grande Nation« as of 02.12.2010
Report on the Crash of Germanwings Flight 4U9525

France, or the public order. The agency will determine this according to necessity.”

Art. 1bis even expands this to include foreign trials and agencies. There, and in the following Art. 2 it says:

“Persons identified above must immediately report to the proper minister if such a query is addressed to them.”

Finding Nr. 2:

Due to the way the French State and judicial system are designed, any investigations therein cannot be called “independent”. Judges and state prosecutors are bound by instruction. It must be feared that specific information, if pertaining to businesses in which France holds an interest (Air France, Airbus etc.) might be withheld, even from foreign authorities.
II. 5. Aim and purpose of a civil aviation accident investigation

or "safety investigation"

The investigation of a flight accident shall be subject to the designated investigating agency of the country in whose territory the accident took place.

At the beginning of civil aviation, accident investigations were investigated exclusively by law enforcement authorities. Other parties that may or may have been involved in the accident, like aircraft manufacturers, firms responsible for maintenance, airlines but also supervisory authorities were excluded.

The worldwide Civil Aviation Organization, as an authority of the UN, therefore adopted article 26 into the Chicago Convention of 1944. The clause states that every nation win which an aviation accident takes place must investigate this accident. Countries, or agencies of countries in which the aircraft has been manufactured, constructed, authorized, registered or operated are explicitly allowed to conduct an investigation per this article.
Details on how this investigation is to be conducted can be found in the ICAO Annex 13 to the Chicago Convention. They are being added to regularly on advice from the ICAO.

**Primarily, the only reason for such an investigation is the prevention of identical or similar aircraft accidents, and thus an improvement in aircraft security. A flight accident investigation after ICAO Annex 13 explicitly does NOT concern itself with finding a culprit, nor does it concern itself with questions of guilt or motive.**

In some countries using results of such investigations in a trial is therefore discouraged, in some others it is explicitly forbidden. In this case, plaintiffs are encouraged to conduct their own, independent investigation into facts and circumstances.

Until the late 90s unions of the national aviation authorities often conducted aircraft accident investigations. However, since it was discovered that members of such authorities may have contributed to the accident, for example by negligence, inadequate rules and/or regulations, incorrect licenses or approvals, the ICAO encouraged a clear split between aviation authorities and investigations in the 50s. Since then, independent bodies should conduct investigations.


65 see: ICAO Annex 13, Chapter 3. General, Objective of the Investigation: »3.1 The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability « as well as Regulation (EU) 996/2010, Preamble (4)

66 see also: Regulation (EU) 996/2010, Preamble (4)
II. 6. Aim and Purpose of a Criminal Investigation Proceeding

II. 6. 1. In Germany

In most cases, German authorities begin a so-called “Ermittlungsverfahren” (investigative procedure) if they take notice of events or facts that lead them to believe an offense according to the Strafgesetzbuch (German criminal code) has been perpetrated.

Citizens may inform the authorities of a crime, or the authorities may act on their own, for example if
they find evidence of a crime in the course of other investigations.\textsuperscript{67}

Every prosecuting authority are authorized and required to automatically research the facts and circumstances of the deed, and especially to conduct time-sensitive research as soon as possible to prevent the destruction of evidence and/or the becoming impossible of further investigation and resulting prosecution.\textsuperscript{68}

As long as investigations are ongoing and there is no suspect, case files are being labeled “Ujs.” Therefore, such investigations are internally known as “Ujs-Sachen.”

Only when a prime suspect has been identified do they become the “accused.” Such cases are filed under “Js-Aktenzeichen” afterwards.

A “Todesermittlungsverfahren” (death investigation procedure) is a special kind of investigation, led by either the state prosecutor or the police. The state prosecutor in Düsseldorf launched such an investigation in the case of Germanwings flight 4 U 9525. It is important to note that this investigation was launched as a result of the report of a crash in the media.

\textbf{III. The civil aviation accident investigation by the BEA}

\textbf{III. 1. Implementation}

According to the current specification by the EU (Regulation 996/2010 (EU)) it is a “safety investigation”. Since the crash occurred on French territory the authority responsible for the implementation of the investigation was the BEA (as the French investigating authority).

\textsuperscript{67} see: § 158 StPO.

\textsuperscript{68} see: § 163 StPO
The engineer Arnaud Desjardin became the leading investigator on behalf of the BEA. Dipl. Ing. (FH) Johann Reuss, deputy director of the BFU became an accredited representative for the German Aircraft Accident Investigation authority, assigned by the head of the Authority, director Ulf Kramer.

In addition, the engine specialist Dipl. Ing (FH) Thomas Stark, the system specialist Dipl.Ing (FH) Thomas Kostrzewa, and as a flight data recording specialist Dipl. Ing. (Univ.) Georg Blau became assigned from the German side as further experts.

In addition, Mr Reuss involved two external experts. This is the flight physician and internist Professor Dr. Helmut Landgraf of the Vivantes Clinic in Berlin as well as a psychiatrist from the Munich area. According to the research conducted the two external experts had no flying experience in commercial aircraft. According to Mr. Reuss information to the contracting entities these experts have shared their expert opinion on the basis of the patient records of Andreas Lubitz provided by the public prosecutor in Düsseldorf Andreas.

In the course of its investigation the BEA held several official press meetings during which the findings of this investigation were released.

However it is remarkable that although the office of the public prosecutor in Marseille at a very early stage (26.03.2015) decided to a crime and a suicide of the co-pilot, the BEA nevertheless has continued its investigations. It is well established in the Regulation (EU) 996/2010 (EU) that in the case of a criminal offense or criminal act or terrorist act the investigations have to be carried out by the competent law enforcement authorities. Nevertheless, the BEA did continue its own investigation and even published an intermediate (prelimary) and final investigation report on the matter before any judicial publication.

On 06.05.2015 the BEA published its first 29-side between the report. It has been found that:
„The CVR was found on the afternoon of 24 March 2015 and transferred the following day to the BEA for readout. After reading out the data, it appeared to the BEA that an act of unlawful interference was probably involved in the accident. European Regulation (EU) n°996/2010 and the advance arrangement “relating to Safety Investigations between the French ministry of Justice and the BEA” of 16 September 2014, specify that, in such a situation, the relevant elements gathered during the Safety Investigation must be communicated immediately to the judicial authorities, and the BEA can decide to continue the Safety Investigation, which it did.” 69

The BEA reported that the co-pilot (27 years old, owner of a multiple-crew pilot’s license MPL (A) total flight experience 919 flight hours, of which 540 hours were on type Airbus A320) was the flying pilot of the aircraft and the captain (34 years old, air transport pilot license ATPL, total flight experience 6,763 hours, of which 3,811 hours on type of the Airbus A320 and 259 hours as captain) was the pilot monitoring. In the interim report the BEA continues:

“At 9 h 27 min 20, the aeroplane levelled off at a cruise altitude of 38,000 ft (FL380) (point 1 on figure 1). The flight crew was then in contact with the Marseille en-route control centre on the 133.330 MHz frequency.

At 9 h 29 min 40, the flight crew was transferred to the 127.180 MHz frequency of the Marseille control centre.

At 9 h 30 min 00 (point2), the Captain read back the controller’s clearance allowing him to fly direct to the IRMAR point: “Direct IRMAR Merci Germanwings one eight Golf”. This was the last communication between the flight crew and ATC.

At 9 h 30 min 08, the Captain told the co-pilot that he was leaving the cockpit and asked him to take over radio communications, which the co-pilot read back.

69 Cf. Interim Report of the BEA from 06.05.2015, p. 5
At 9 h 30 min 11, the heading started to decrease and stabilised about a minute later around 23°, which is consistent with a route towards the IRMAR point.

At 9 h 30 min 13, noises of a pilot’s seat movements were recorded.

At 9 h 30 min 24 (point 3), noises of the opening then, three seconds later, the closing of the cockpit door were recorded. The Captain was then out of the cockpit.

At 9 h 30 min 53 (point 4), the selected altitude on the FCU changed in one second from 38,000 ft to 100 ft. One second later, the autopilot changed to “OPEN DES” mode and autothrust changed to “THR IDLE” mode. The aeroplane started to descend and both engines’ rpm decreased.

At 9 h 31 min 37, noises of a pilot’s seat movements were recorded.

At 9 h 33 min 12 (point 5), the speed management changed from “managed” mode to “selected” mode. A second later, the selected target speed became 308 kt while the aeroplane’s speed was 273 kt. The aeroplane’s speed started to increase along with the aeroplane’s descent rate, which subsequently varied between 1,700 ft/min and 5,000 ft/min, then was on average about 3,500 ft/min.

Note:

70 cf. (i.o): "This is the minimum value that can be set on the A320."
71 cf. (i.o.) "This mode is described in section 1.5.6."
72 cf. (i.o.): "If the velocity as " Set ", is the target speed by the flight crew. If the speed as a "managed", then the Flight Management System (FMS) automatically the target speed."
73 cf. Interim Report of the BEA from 06.05.2015, p. 7/8
Multiple experiments in A320 Airbus flight simulators as well as in real aircraft have shown that it is purely ergonomic is highly unlikely that a pilot within one second (!) can rotate the rotary switch from 38,000 feet to 100 feet. The fastest attempts were still lasting a time span of at least 1.5 seconds. So it would be plausible if the time span supposedly recorded on the DFDR would be two seconds. The expert has a significant doubt that Andreas Lubitz, who also has been a right-hander, would have been able with the left hand to set the values and even additionally activate the sink mode by then pulling the rotary switch of the Flight Control Unit within the recorded time span of one second.

“At 9 h 33 min 35, the selected speed decreased to 288 kt. Then, over the following 13 seconds, the value of this target speed changed six times until it reached 302 kt.

At 9 h 33 min 47 (point 6), the controller asked the flight crew what cruise level they were cleared for. The aeroplane was then at an altitude of 30,000 ft in descent. There was no answer from the co-pilot. Over the following 30 seconds, the controller tried to contact the flight crew again on two occasions, without any answer.

At 9 h 34 min 23, the selected speed increased up to 323 kt. The aeroplane’s speed was then 301 kt and started to increase towards the new target.

At 9 h 34 min 31 (point 7), the buzzer to request access to the cockpit was recorded for one second.

At 9 h 34 min 38, the controller again tried to contact the flight crew, without any answer.

At 9 h 34 min 47 then at 9 h 35 min 01, the Marseille control centre tried to contact the flight crew on 133.330 MHz, without any answer. The aeroplane was then at an altitude of 25,100 ft, in descent.

At 9 h 35 min 03 (point 8), the selected speed increased again to 350 kt(5).
Subsequently, and until the end of the recording:

- the selected speed remained at 350 kt and the aeroplane’s speed stabilised around 345 kt;

- the autopilot and autothrust remained engaged;

- the cockpit call signal from the cabin, known as the cabin call, from the cabin interphone, was recorded on four occasions between 9 h 35 min 04 and 9 h 39 min 27 for about three seconds;

- noises similar to a person knocking on the cockpit door were recorded on six occasions between 9 h 35 min 32 (point 9) and 9 h 39 min 02;

- muffled voices were heard several times between 9 h 37 min 11 and 9 h 40 min 48, and at 9 h 37 min 13 a muffled voice asks for the door to be opened;

- between 9 h 35 min 07 and 9 h 37 min 54, the Marseille control centre tried to contact the flight crew on three occasions on 121.5 MHz, and on two occasions on 127.180 MHz, without any answer;

- between 9 h 38 min 38 (point 10) and 9 h 39 min 23, the French Air Defence system tried to contact the flight crew on three occasions on 121.5 MHz, without any answer;

- noises similar to violent blows on the cockpit door were recorded on five occasions between 9 h 39 min 30 (point 11) and 9 h 40 min 28;
• low amplitude inputs on the co-pilot’s sidestick were recorded between 9 h 39 min 33 and 9 h 40 min 07;

• the flight crew of another aeroplane tried to contact the flight crew of GW18G at 9 h 39 min 54, without any answer.

At 9 h 40 min 41 (point 12), the “Terrain, Terrain, Pull Up, Pull Up” aural warning from the GPWS triggered and remained active until the end of the flight.

At 9 h 40 min 56, the Master Caution warning was recorded, then at 9 h 41 min 00 the Master Warning triggered and remained active until the end of the flight.

At 9 h 41 min 06, the CVR recording stopped at the moment of the collision with the terrain.”

74 cf. Low amplitude inputs on the co-pilot’s sidestick were recorded between 9 h 39 min 33 and 9 h 40 min 07.
The official final report (Final Report) was published on 13. March 2016. For the following this is the solely reference.

From the expert point of view it is noteworthy:

The report (German translation) includes 123 pages and consists essentially of two parts. In accordance with the format specified by the ICAO the report is subdivided into a factual - and in an analysis- (assessment) part. The safety recommendations resulting from the analysis follow at the end as well as three annexes:


2. an extract from the ICAO guidelines for the orientation of aviation medical examiners on mental health and questions about the behaviour and

3. a complementary "highlighting of facts" by the German BFU.

It is noticeable that the factual part, although it contains 95 pages of which however 55 pages reflect legal, medical and historical facts that are not necessarily direct related with the actual accident occurrence. For example there is a discussion about the medical procedures for maintaining the physical eligibility and a legal examination and which are even compared to the medical conditions in other industry sectors, such as the railway and the nuclear industry, but this investigation and its accident-relevant psychological aspects and findings are not recognized. Remarkably often the statements are subjunctive, which is actually prohibited for the factual part of an accident report.

In addition and contrary to the usual practice of air accident reports as well as the scientific examination of accidents the report does not contain names of persons involved in the investigation (representatives of the authorities) nor the external consultants and experts consulted in the course
of the investigation. Furthermore there is no transcript of the Cockpit Voice Recorder (or extracts from it) or the relevant data from the flight data recorder neither listed in this report nor is it attached as an annex. Thereby the necessary significance and verifiability of the gained findings is not subject to the necessary transparency and traceability.

The actual assessment or analysis part consists of only 15 pages, the remaining pages are derived from the conclusions, the safety recommendations as well as the aforementioned annexes. In the opinion of the expert this is not a reasonable relation in regards to the complex facts, which apparently were not recognized in the necessary and adequate width and depth. The report contains also a number of objective faults in relation to verifiable factual information, such as the employment of Andreas Lubitz as a flight attendant for the Lufthansa from 2011 -2013. It this regard it states:

„from 15 June 2011 to 31 December 2013, he was under contract as a flight attendant for Lufthansa while continuing his Air Transport pilot training;“\(^{75}\)

This is clearly wrong because Andreas Lubitz did already complete his training to become an air transport pilot on 15. June 2011. Since at this point in time Lufthansa had no need for him as a pilot, he accepted the Lufthansa job offer as a flight attendant to bridge the time.

\(^{75}\) BEA FINAL REPORT, March 2016, p. 16
III. 2. More Examples of Errors

III. 2.1. Cockpit-door

The mechanism of the secured cockpit-door is exhaustively dealt with on five pages. But on the other hand it is nowhere discussed whether and if not why not, the captain did use the so-called "emergency code"\textsuperscript{76} in order to open the door.

On several pages the BEA extensively reports about this, both in the factual part as well as in the analysis. But a description of the entry-procedure cannot be found there. This should read:

In case of an access request by »ringing« via the keypad on the cabin side of (a digit followed by the "#" character), one of the pilots either

1. opens the door (toggle switch on the centre console to up)
2. does not respond, i.e. does not open

In this case it is not necessary to move the toggle-switch into the "lock" position (down).

\textsuperscript{76} Cf. BEA FINAL REPORT, March 2016, p. 20-25
Toggle-switch, Photo private
According to the report it is established that the captain did only use the keypad in front of the cockpit-door once at the time of his return "ringing". According to the report based on the CVR recordings there is only one signal sound at the length of 980 milli/second. This corresponds to the signal length for the normal ringing. The much longer and different sounding signal, which sounds in the cockpit when the emergency code is entered, was not recorded on the CVR. This can only lead to the conclusion that the emergency code was never entered or the mechanism was not working due to a technical defect. Other conclusions can not be derived from this fact with the necessary certainty. In the report of the BEA states (emphasis added):

“Cockpit door toggle switch activations

The in-flight testing CVR recordings of cockpit door toggle switch activations showed that this action could be audible on the CVR CAM track in certain conditions, but there was no recurrent acoustic signature as the noise produced depended on the way the pilot released the switch to neutral position. Spectral analysis of the event flight CVR CAM track did not make it possible to positively identify cockpit door toggle switch activations.

Clacking noise

The buzzer recorded at 09 h 34 min 31 during the descent, occurred 4 min 07 s after the captain left the cockpit. A clacking noise is recorded at the end of this buzzer and was subject to a deeper analysis in order to find the origin of this noise and any potential link with the CDLS.

The spectral analysis of the audio sequence comprising the buzzer and the clacking noise (see Figure 15 below) showed the following:

- the buzzer duration was the same as the duration of other routine buzzers recorded previously on the CVR: 980 ms.

77 Cf. BEA FINAL REPORT, March 2016, p. 38, “Note”
- the clacking noise did not end the buzzer, as an action on the cockpit door toggle switch would. In addition, the noise was significantly louder than a switch activation;

- no match could be found between the clacking noise heard during the buzzer and the BEA audio library.

Source: BEA investigation report
When the cockpit door is closed, the locking action is silent, except for the toggle switch activation if audible, and a door unlocking at 09 h 34 min 31 would not be consistent with the sequence of events. Consequently, the noise recorded during the buzzer was not consistent with an action on the CDLS, but its origin could not be determined.

Note: The buzzer recorded at 09 h 34 min 31 most probably corresponded to a routine access request because it is the first access request following the Captain’s departure from the cockpit and because the operator’s normal practice calls for trying the normal access code before dialling the emergency access code. Therefore, the possibility that it corresponds to an emergency access request cancelled after 980 ms by an action on the toggle switch is considered to be extremely remote.”

Finding No. 5

From this follows: the assumption stated in the report and also by the public prosecutor Brice Robin on 26.03.2015 that Andreas Lubitz did «deliberately prevent the opening of the door» in order to deny access to the captain cannot be proven and is therefore purely speculative and was, in regards to the public statement made by the prosecutor Brice Robin, hastily. Therefore this assumption is not based on any proven or assignable and consequently mentioned facts in the report.

An investigation if, for example, the keypad of the cockpit-door may have been defective on the day of the accident flight (or at any time in the past) has not been addressed. But in the opinion of the expert this is of elementary importance since already shortly after the accident there was information from within Germanwings that this keypad did already malfunction in the past when attempting to open the cockpit-door after an unintentionally closure on the ground by entering the emergency code. The BEA was already personally informed about this fact on 28.03.2015 in the context of a query of the expert, at that time in his capacity as a professional journalist towards the
investigating authority BEA, and again communicated in an extensive telephone conversation with the authorities spokesperson Martine Del Bono.

In addition research conducted by the expert did reveal that the proper functional order of the emergency code is only checked all **12,000 flight hours** in terms of procedural checks by the maintenance technicians of Lufthansa Technik.

During the daily checks performed on acquisition of an aircraft by a cockpit crew only the proper door locking mechanism is regularly checked. But according to information received by informants from cockpit crews within Germanwings this is rather rare, because it is obviously not considered “important” by some crews.

A search in the maintenance documents to the airplane D-AIPX did not reveal any maintenance or service record in regards to the cockpit-door or the keypad. In the view of employees of Lufthansa Technik it is conceivable that such a failure, because it occurred supposedly only temporarily and is not simply to be reproduced, will not necessarily be reflected in the logbook and therefore be found the maintenance records. According to the staff statements this is often the case with occasional occurring malfunctions that are classified as “bagatelle”.

But if this is true it would have a non-negligible impact on mandatory alternative procedures that were valid already at the time of the accident. For example, in such a case the Master Minimum Equipment List (MMEL) requires that the rest of the cockpit crew needs to be informed about this fact and alternative procedures need to be established prior to the flights departure. Part of this is that the cabin crew must use the interphone in order to obtain access to the Cockpit,

If the aircraft is in flight **always two people must be in the cockpit at the all times.**

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Finding No. 6:

It is therefore conceivable that the captain did not type in the emergency code and also that the cockpit-door was not intentionally and actively locked by Andreas Lubitz when the captain wanted to re-enter the cockpit. When the door was not opened after the first ringing he therefore uses the
interphone. It can therefore also not be stated with the necessary certainty that Andreas Lubitz had »intentionally and actively« prevented the captain's return into the cockpit.

III. 2.3. DFDR

Apparently also not further examined or considered is a striking anomaly in the data that were read from the DFDR, - at least as far as the excerpts from the print-outs of the data from the French investigation file is suggesting79. Here it is stated that during the descent the two automatic flight modes OpenDES (open descent = open descent) and the (decent = descent) are active at the same time had been. But this is not possible from a technical point of view, as well as every A320 Airbus pilot can confirm.

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79 Cf. 00923 HA and HA 00893
The simultaneous activation of these different modes is a contradiction. In this particular case, so if due to an error of both modes are active at the same time, the system on the basis of the programming of the Flight Management Annunciation (FMA) allegedly in the so-called "Basic Mode". This would be in this case the "Vertical Speed Mode". This in turn covers but not with the versions from the BEA determined flight profile and the alleged in this context by Andreas Lubitz changes at the speed of the aircraft.

But the BEA report states: “A review of the recorded data brought to light no aircraft system failures or faults that could have contributed to the accident.”

**Finding No. 7:**

Obviously there is a technical problem, because the two flight modes cannot be active at the same time. This leads to the conclusion of a possibly relevant system defect in the control system of the D-AIPX. This aspect should at least be investigated, which was not done.
In accordance with the specific procedure in the accident event state France the Cockpit Voice Recorder for the first time was listened to on 25.03.2015 at 10:45 CET by representatives of the BEA together with the representatives of the aviation branch of the Gendarmerie in the rooms BEA located at Paris - Le Bourget. In accordance with the provisions of Protocol No 404 there were present:

1. The gendarme Alain Touquet
2. The police sergeant Christine Leblanc
3. The flight data recorder specialist of the BFU George Blau
4. and three as the "Engineers" designated representatives of the BEA in particular not referred to by names, as well as another engineer of the BEA later named as Philippe Boullon who did prepare the listening session. A lot speaks for the assumption that at this time also the BEA investigator in charge, graduated engineer Arnaud Desjardin was present. Shortly afterwards he appeared at a press conference and reported that he had not enough time to listen to the CVR recordings.

In any case the police officers have problems to allocated what is said since they obviously do not speak German. The only person who at this point in time certainly understands German was the BFU staff member George Blau. He is a technician with flight experience in ultra light and glider aircraft and specialized on the function and operation of flight data recorders and cockpit voice recorders. But the police officers expressly stated that the breathing sounds of a person in the cockpit are heard until the impact.\(^{81}\)

\(^{80}\) Cf. HA 05129
\(^{81}\) Cf. HA 05130
The housing of the digital flight data recorder (DFDR)

Source: BEA
III. 3. CVR

CVR-transcript was not published by the BEA by default. In the investigation file of the French Gendarmerie there are three different transcripts that are not in compliance with the normal transcription format. The reason for this is that the pilots spoke mainly German, which had to be translated into French. This was later translated back into German in the course of the translation commissioned for the public prosecutor in Düsseldorf. This fact alone could already lead to serious inaccuracies in the forth and back translation, which in itself renders these protocols worthless as objective and reliable evidence.

It should also be borne in mind that the translation of the last 30 minutes of the transcription of the gendarmerie was performed by a computer of the listening laboratories of the department "Signal, Image, Parole" of the IRCGN (Institut de recherche criminelle de la Gendarmerie Nationale).82

The transcripts also show that some of the conversation between the pilots was illegible for the transcribers due to the high background noises. This is in part subject to the fact that the aircraft D AIPX was one of the first Airbus A320-211 aircraft series in which the manufacturer did install rectangular ventilation ducts. According to information from the German ALPA (VC) this will necessarily produce a very high basic disturbance noise level. In the later succeeding models quieter round ventilation ducts were installed. Therefore the earlier versions of this aircraft type that were used within the Lufthansa Group, specific Sennheiser headsets (headphones with microphone) with a special technology, the so-called NoiseGard active noise reductionTM, an electronic filtering, in order to eliminate noise or to reduce it were mandatory to be used. But this filtering is only active for the direct channels of the pilots on the Cockpit Voice Recorder. The recordings from the so-called "aeramics", i.e. the "room microphones" also feature the disturbance and the high level background noise.

82 Cf.: HA 05145
On 28.10.2016 the contracting entity of this report received an invitation to the BFU, where the accredited representatives of the Federal Republic of Germany during the investigation of the BEA, Dipl.-Ing. (FH) Johann Reuss, wanted to present and explain to them the transcript of the CVR. At this point in time the contracting entity already knew the three other police transcripts from the files and were therefore prepared for the version no. 4.

It was noticeable that even this transcript was in the French language and that according to the information provided to the Lubitz family the investigators of the BFU do not speak French. In addition this transcript contains obvious inaccuracies in relation to the time data that Mr Reuss was unable to explain upon demand. This proves that he is not capable of understanding this French transcript due to his lack of French language skills.

Example: transcription at 09 hours 31 minutes and 37 seconds. There "jumps" the time to 09 hours 33 minutes and 44 seconds, followed by 09 hours 34 minutes 10 seconds and then "jump" back to 09 hours 33 minutes 47 seconds. At this point in time the service announcement from the cabin is recorded is on the CVR. Between the time information given as 9 hours 33 and 44 seconds and 09 hours 34 minutes and 10 seconds is an "A", meaning in English: "up to".
Thus the tape with all four audio channels in the entire length of its recording of two hours shall be decisive for a really reliable verification of the recordings.

Finding No. 8:

Instead of one single and precise transcription of the Cockpit Voice Recorder there are 4 different and divergent versions existing. Some of these are not transcribed in their original language but as a translation only. There are German and French versions. A transcript of the preceding recordings of at least 1.5 hours before last 30 minutes and thus including the previous descent towards Barcelona is missing completely.

The CVR transcript of the French Gendarmerie from 04.04.2015\textsuperscript{84} covers the period of 09 hours 10 minutes and 12 seconds (UTC) until the impact with the mountain at 09 hours 41 minutes and 05 seconds.

It is evident from the transcript that flight 4U 9525 initially only received a clearance for a climb to flight level 290 (29,000 ft). At 09 hours 16 minutes and 17 seconds the air traffic control granted the permission to climb to flight level 300. At 09 hours 16 minutes and 24 seconds is noted in the transcript that Andreas Lubitz corrected the vertical speed by turning the corresponding rotary switch at the flight control unit (FCU) panel. It must be concluded that despite a high level of ambient noise prevailed in the cockpit the sound signature could and has been recorded.

\textsuperscript{84} Cf.: HA 00878 ff
At 09 hours 19 minutes and 04 seconds the flight receives permission to climb to flight level 380. At 09 hours 19 minutes and 15 seconds, and again 09 hours 19 minutes and 16 seconds, the CVR transcript indicates:

»deux bruits impulsionnels sur le micro« (Two impulse noise over the microphone)
also
»bruit inconnu« (unknown noise)

Although not clearly noted in the transcript (such as at 09 hours 16 minutes and 24 seconds) these noises - in all likelihood - originate from FCU rotary switch adjustments made by Andreas Lubitz, since this - in accordance with the company procedure is verbally confirmed by stating "flight level
380" at 09 hours 16 minutes and 16 seconds. This clearly demonstrates that the appropriate rotation sounds have been recorded by the CVR and must be audible.

The BEA states under "I. Facts, 1.1. Events and flight progress" on page 13 of its final report:

“At 9 h 30 min 53 (point 4), the selected altitude on the FCU changed in one second from 38,000 ft to 100 ft(2). One second later, the autopilot changed to OPEN DES(3) mode and autothrust changed to THR IDLE mode. The aeroplane started to descend and both engines’ speed decreased.

At 9 h 31 min 37, noises of a pilot’s seat movements were recorded.

At 9 h 33 min 12 (point 5), the speed management changed from managed mode to selected(4) mode. One second later, the selected target speed became 308 kt while the aeroplane’s speed was 273 kt. The aeroplane’s speed started to increase along with the aeroplane’s descent rate, which subsequently varied between 1,700 ft/min and 5,000 ft/min, then was on average about 3,500 ft/min.”

In accordance with the determination by the BEA, mentioned in the report shortly before on page 12, is the statement that the cockpit door was closed at 09 hours 30 minutes and 27 seconds. After this point in time no further noises are noted (in the transcripts) from which could be derived that Andreas Lubitz manipulated the FCU rotary switch.

Within the next 20 seconds, only the breathing of Andreas Lubitz is recorded and noted in the transcript. In the view of medical specialists consulted in the course of the expert’s own research this can be deemed as "irregular". The breathing intervals are between 2 and 3 seconds, the average is 2.3 seconds per breath (20-30, average 26 breaths per minute).
Depending on the age of the person the normal breathing rate is between 16 - 20 breaths per minute. The medical literature refers to a breathing rate of more then 20 breaths as "abnormal". A respiration rate of more then 20 - 25 breaths per minute is usually referred to as "tachypnea\(^{85}\)". Reasons for this can be:\(^{86}\)

- a compensatory breathing pattern of the organism, driven by strong decrease in the relative share of dead space\(^ {87}\) whereby increasingly CO\(_2\) and thus acid valences\(^ {88}\) are exhaled

- metabolic acidosis\(^ {89}\) during coma diabeticum\(^ {90}\) or coma uraemicum\(^ {91}\)

- often connected with somnolence\(^ {92}\) or unconsciousness

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\(^{85}\) The respiration rate is faster than normal (\(> 20\) breaths per minute in the rest) speaks of Tachypnea. Many physicians term he excitation of the own psyche as another cause. So many people suffer in connection to a traumatic event under an acute tachypnea. In addition to the physiological causes are in modern medicine especially the pathological causes a closer examination. To the pathological causes of acute tachypnea is primarily a sudden fever. If the own body temperature by just one degree Celsius increases, the Breath frequency up to 7 breaths per minute increase. An acute tachypnea but can also in the framework of a heart failure or in the framework of a strong blood loss in appearance. In both cases, the blood circulation in the body of the required amount of blood is no longer available. As a result, an optimum supply of oxygen is not fully guaranteed. Source: http://gesundpedia.de/Tachypnoe

\(^{86}\) see: Lothar Ulrich, Dietmar Stolecki, Mathias Grünewald, *Thiemes Intensivpflege und Anästhesie*, Thieme Verlag Stuttgart / New York, 2005

\(^{87}\) see: Gerhard Aumüller et al., *Duale Reihe Anatomie*, Thieme Verlag, 3. Auflage, 2014, ISBN 9783131528636, It here: it is significantly by the air management section of the bronchial system. »Air senior section lists the gas exchange ends section breathing air, or transported you back without that he himself on the gas exchange is involved. It requires the so-called dead space portion of the tidal volume, i.e. air, not the gas exchange in the alveoli the breathing air with the lowest possible feed flow resistance.« (p. 554).

\(^{88}\) »Acid valences« = Increase of H+ ions

\(^{89}\) »Acidosis« = fault of the acid-base balance in favour of the acids valences

\(^{90}\) »diabetic coma« = as a dangerous consequence of insulin deficiency resulting metabolism derailment. In the end it comes to unconsciousness. Occurs in patients with type 1 and type 2 diabetes in different forms.

\(^{91}\) »Coma uraemicum« Coma in a decompensated terminal stage of renal insufficiency with the retention of urinary substances (urea, acid, cretonne; increase in the residual nitrogen) and malfunction of the electrolyte metabolism

\(^{92}\) »somnolence« It is a quantitative consciousness fault with reduced vigilance. It follows the seriousness to the drowsiness.
Then, just before the start of the descent at 09 hours 30 minutes and 53 seconds, only relatively abnormal respiration rates are recorded, with 26 breaths per minute in an interval of 2 to 3 seconds until impact. Allegedly in between the recordings are only radio conversations from Air Traffic Control, noises from the cabin, the interphone call to the cockpit and violent beats against the door.

But at 09 pm 30 seconds and 53 seconds the altitude selection rotary switch is set from 38,000 foot to 100 feet and this allegedly happens within the period of one recording sample\(^{93}\) (= 1 second), and allegedly with no noise. This sounds very unlikely, as previously noises were recorded. Only the increased respiratory rate fits into this scenario, however it remains constantly increased. Usually in such a situation the breath of a person will be increased or temporarily be stopped completely, therefore seizes and then slows down again.

Also in view of the fact that the BEA assumes that in this very moment Andreas Lubitz supposedly intends to commit suicide due to a psychotic condition and will kill 149 people this scenario is at least questionable. Nevertheless: his breathing remains evenly and increased and also does not change. It has to be added that no other sounds have been recorded, such as those caused by the change of attitude in his seat or by the manipulation of the rotary switch.

In accordance with the BEA final report the pilots seat moves at 09 hours 31 minutes and 37 seconds. But the transcript of the French Gendarmerie only notes two "unidentified" noises with a duration of 0.4 seconds at this time.

Also at 09 hours 33 minutes and 12 seconds, i.e. at a point in time where in accordance with the BEA final report Andreas Lubitz performed a whole set of individual activities by changing the speed at the FCU, still a breathing frequency of 26 breaths per minute is noted in the transcript. It would be expected that in case of a deliberate action by Lubitz his breathing rate will increases or he will briefly stop. But there is no interruption, also no increase in the rate, although apparently a series of actions are required that are fast and highly focused. And still there are no noises registered of

\(^{93}\) *recording sample*: Modern flight data recorder record a binary file in sequence within every four seconds frames. Each of these frames is divided into four, each one second long, subframes (= 1 Recording sample). Depending on the data recorder technology used in 64, 128, 256, or 512 “words”, each subframe is divided within 12 bits. A bit is defined as the binary base unit, its value can be either “0” or “1”.
conscious or unconscious nature, nor from the allegedly operated rotary switches on the FCU or the seat by the inevitable change of the seat position.

This does not change, even when at 09 hours 33 minutes and 47 seconds Air Traffic Control attempts to address the aircraft via a radio call. The respiration rate remains at 26 breaths per minute.

Also when the buzzer signal of the captain’s re-entry attempt sounds at 09 hours 34 minutes and 30 seconds nothing changes. No reaction by Andreas Lubitz, no change of the respiratory rate, no other noise, except an unidentified noise while the buzzer signal sounds. The BEA in its report and in this context explicitly excludes that this noise was created by the transfer of the door switch into the "Lock" position\(^\text{94}\). The respiration rate by Andreas Lubitz is still at 26 breaths per minute.

Until impact no noise are noted in the transcript which would be in accordance with the operation of the rotary switch of the FCU and parameters recorded by the digital flight data recorder (DFDR). In particular, there is no noise noted that would result from the alleged manipulation of the speed via the "speed rotary switch" (cf. figure p. 107) or like before by the "altitude rotary switch". Turning the altitude rotary switch will a create a clearly audible "click" noise, each click - depending on the setting of either the 100 or 1,000 feet per dial selection on the rotary switch.

This fact should be verified through a new listening of the CVR, - if necessary with the help of appropriate filters by a sound-laboratory. This, besides other aspects mentioned previously, would normally be standard analysis in any air accident investigation.

\(^{94}\) cf.: Report of March 2016 BEA, p. 38 below
**Statement No. 3**

However, this closure statement also shows that by summer of 2016 (11.08.2016) public prosecutor Kumpa halted these and other proceedings initiated by the legal counsel representing victims’ relatives, and furthermore, he made the decision at that time to not carry out any further investigations. This is noteworthy, especially as only two months earlier the entire investigation dossier of over 17,100 pages in the form of digital data had been sent to the parties involved in the proceedings, including the joint-plaintiffs.

Assuming an average time of two minutes per page for a careful reading of the investigation file (including documents in English, French and Spanish), in purely mathematical terms one would need over 570 hours; that is, 71 working days of eight hours = two and a half months to fully read the investigation file.

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**II. 7. Cross-border mutual legal assistance in criminal cases**

In the interests of efficient and expedient cooperation in criminal cases between the appropriate authorities of the EU Member States (such as police, customs services and the courts), a modernization of the 1959 convention on mutual assistance in criminal cases was approved by the Council of Europe Act of 29 May 2000 (which came into force on 23.08.2005). This included the additional protocol of 1978.

This general agreement states:
»Generally, request for mutual legal assistance must be submitted in writing. They are transmitted directly to and executed by the locally competent judicial authorities. Certain requests are made through the central authorities of the Member States (requests for temporary transfer or transit of detained persons, submission of information on criminal acts). In urgent cases, the request may be made through Interpol or through any other responsible body under the Treaty on European Union (EU).

The Member State providing legal assistance must comply with the formalities and procedures specified by the requesting Member State and complete the request for mutual assistance as promptly as possible, taking into account as far as possible the deadlines indicated.

The Member States send certain procedural documents via post to persons who are staying in the territory of another Member States. In certain cases, this is the responsibility of the requesting Member State.

A judicial or central authority may be in direct contact with a police or customs authority of another Member State or, in the case of mutual legal assistance for the purpose of prosecution, be in contact with an administrative authority of another Member State. Each Member State may reject this clause or apply it only under certain conditions.
Member States may exchange, without formal request, information on offenses and violations against administrative regulations, whose penalties or handling are the responsibility of the receiving authority.¹⁰⁰«

The sub-item »Certain Forms of Legal Assistance« allows the possibility of a »joint investigation team« with representatives of several Member States. It says here:

«Two or more Member States may set up a joint investigation team whose composition is determined by agreement of the concerned Member States. The joint investigation group will be used for a specific purpose and for a limited period of time. It is directed by an official of the Member State where the group is deployed. This officer also directs the activities of the group in the territory of that Member State.«

¹⁰⁰as before

Statement No. 4:

Evidently there was no joint investigation team in this particular case, although such would have been indicated by the nature of the accident and the facts. According to the case
file, France and Germany did not form a joint investigation team, but rather conducted their »own« separate investigations, despite having exchanged information and investigation results through legal assistance.

III. 4. Weather

In the chapter "meteorological information" the report states:

“The information supplied by Météo France shows that in cruise at flight level FL380, the aeroplane was flying in clear skies above some scattered cirrus type clouds whose peaks were located at about 32,000 ft. The wind from the southwest was at about 40 kt.

At the site of the accident, a few altocumulus clouds were observed above the high terrain, which could locally cover the highest south-facing peaks. There was no convection phenomenon and the southeast wind was weak. The visibility was greater than 10 km. The ground was covered in snow above 2,000 m altitude on the south-facing slopes, and above 1,700 m on the north-facing slopes.

During the descent, the aircraft passed through a fine layer of scattered cirrus then some altocumulus whose base was at an altitude above 15,000 ft. The rest of the descent was performed outside of any clouds in visual flight conditions with visibility greater than 10 km.”

This suggests that the weather conditions had no impact during this accident and the weather was "good". But this is incorrect for the accident day as well as for the airspace in which the aircraft D-AIPX was operated.

If you compare this with the investigations of the French Gendarmerie, »d'Procés Verbal investigation«, performed by »Nmr PV 00222«, the file reveals different aviation-specific weather
maps provided to the investigators by the »Center National de Renseignements Meteorologiques de Toulouse«.

The analysis of these maps and especially of the chart "TEMSI BASSE ALTITUDE FRANCE (LOW LEVEL SIGNIFICANT WEATHER CHART), valid 24/03/2015 at 09 UTC" (Map 1) as well as the "EUROC SIGNIFICANT WEATHER CHART VALID 24/03/2015 at 09 UTC" (Map 2) clearly indicate a rapidly evolving and unnatural weather situation.

Map 1: TEMSI BASSE ALTITUDE FRANCE (LOW LEVEL SIGNIFICANT WEATHER CHART)

In this respect it has to be noted:

1. these two charts were amended because supposedly a rapid and significant change in the weather did occur;

95 cf. HA 00771 (French original document 00534)
96 cf. HA 00772 (French original document 00535)
low level high velocity jetstream with resulting clear air turbulences between the flight level 150 (15,000 ft = 15,000 meters) and flight level 370 (37,000 ft = 11.278 meters) at the time and in the area of the accident.
3. However it appears that map 2 (EUROC SIGNIFICANT WEATHER CHART) is a chart from the previous year (24.03.2014) and not of the day of the accident. This is strange, because a possible transmission error is not discussed further in the course of the file. The expert has subsequently requested information within his private circle of pilots, who were flying in this specific area in the South of France at the day of the accident. Independently several individuals reported that on this day turbulence was present in the area in question. These informations are quite credible since the pilots involved learned of the accident after their landings and therefore a direct reference to the day of the accident can be established.

In any case, METEO France upon request of the AVHERALD and in response to the press conference held on 24.03.2017 in Berlin submitted another chart, which is dated 24.03.2015, i.e. the day of the accident. This is hereinafter referred to as the "map 3".

It is impossible for the expert to verify which chart has been used for the investigations of the Gendarmerie and by the BEA and may have caused the transmission of the wrong weather map for the previous year by METEO France.

In accordance with the conditions depicted in map 3 moderate icing and local showers between flight level 50 (5,000 feet) and 150 (15,000 ft) were to be expected in the crash area. In addition, moderate turbulence between flight level 180 and 400 and also strong turbulences could have been expected between flight level 180 to 250.
Map 3: EUROC SIGNIFICANT WEATHER CHART (submitted on 8.4.2017)
In regard to map 2 it should be noted:

"Jet stream" (derived from the translation of the German word "Strahlstom") is the designation for strong wind currents in a confined space in the atmosphere (troposphere up to the stratosphere), which dynamically relocate. They may usually extend to a length of several thousand kilometres and several hundred kilometres width and have a vertical extension of a few kilometres. They are the strongest naturally occurring winds. Wind speeds can be up to 150 m/s (540 km/h).
Due to the horizontal and vertical wind speed changes (also known as "wind shear") in the air of turbulence areas which are following the jet streams, especially uneven forces will act on the wings and the fuselage of an aircraft. Thereby this is safety-relevant for the flight operation in such an area. In the wake of the strong horizontal and vertical wind shear there is also strong turbulence present. This turbulence is not related to clouds known as "clear air turbulence" (CAT). These may occur unexpected because they are invisible for the weather radar and the eyes of the pilots.

In addition, another specific type of turbulence may be present, the so-called "mountain waves". Such can precisely occur in the area of mountains, such as the accident area.

This shows that the conclusion reached in the document "Procés Verbal d'investigation" by the French Gendarmerie national, NMR PV 00222:

Source: own archive

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»Lors du survol de la zone avant le crash, les conditions météo (visibilité, précipitations ... ) étaient bonnes,« (Good weather conditions (visibility, rainfall, etc..) were prevailing in the flight-area)

and

»Les causes météorologiques peuvent être écartées de l'origine du crash de vol 4U9525 de la compagnie GERMANWINGS,« (The weather conditions may be disregarded as a cause for the crash of the flight 4U9525 of the company Germanwings).

is not in accordance with the situation depicted in the weather maps. Because of their only later chronological presence in the French investigation file it has to be assumed that the expert of the Gendarmerie, an A320 Airbus pilot, was not provided with these maps at the time of his analysis.

In this context a note of the translator of the French file for the Dusseldorf Public Prosecutor at page 05070 HA is also striking. It reads (emph. added.):

“Page 531 – 539 of the file are weather charts, which according to the customers demand will not be translated.”

A similar wording with regard to the relevant weather conditions at the time of the accident, were either adopted without further checks by the civil aviation inquiry commission of the BEA for their own first assessment towards media, or were not recognized by the investigating experts (exclusively all engineers, including the accredited German observer) because of the lack of sufficient aeronautical experience with the operation of transport category aircraft.

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98 cf. HA 00764 (side of the French original document 00527)
99 cf. HA 05057
100 cf. HA 00764 (side of the French original document 00527)
101 cf. HA 05057
The existence of “clear air turbulences” is nowhere mentioned in the final report of the BEA.

Finding No. 9:

it becomes clear that the investigators of the BEA, at very early stage in the course of its investigation, did focus to a single possible accident scenario, namely the one of Andreas Lubitz deliberately and consciously inducing the crash. Significantly different and possibly "contributing" factors for the accident onset, e.g. the weather, were not taken into account nor were any comprehensible reasons given for their exclusion.

It also appears that incorrect weather information was used. It is assumed that map no. 2 with the correct date is the valid chart for the accident flight. On the other hand it is questionable why this error has not been addressed in the otherwise meticulous approach and files of the French Gendarmerie.

As already pointed out the expert learned from several pilots being in charge for operations with aircraft of the type Airbus A320, that on the day of the accident and during the period in question they have avoided the predicted occasional strong turbulence on this route by evading to lower flight levels.

The impact of these special conditions is far-reaching in regard to possible alternative and/or contributing factors and scenarios for the accident scenario:

An Airbus A320 flying at a cruising altitude of 38,000 feet is operating very close to its maximum altitude of 39,000 feet. As a consequence, and due to the resulting reduced flight envelope (here the range between the minimum and maximum speed) significant turbulence can lead to a potentially
dangerous flight condition. Since the crash of the Air France flight 447 on 1. June 2009 in the Atlantic Ocean pilots are repeatedly informed about the potential dangers and receive constantly training. They also have to accomplish simulator exercises, as well as checks for maintaining their license about this subject.

An Airbus A320 is a state-of-the-art, but very much on economic efficiency oriented airplane. In comparison to other similar aircraft, such as the Boeing 737 or 757, for some pilots the engines feel “under-dimensional”. Depending on its weight and the weather-dependent flight altitude only little reserves are available, e.g. in order to climb above an area with bad weather. However the higher an airplane flies, the lower the possible margin to deviate from the optimum speed. If the airplane flies too fast, important structural part can receive damage, on the other hand if it flies too slow, it may lead to the dreaded stall condition. This critical margin is also known among pilots as "coffin corner".


103 In the night from 29. to 30. November 2009 there was a further incident with an A330 Air France (F-GZCK) on the flight from Brazil to France. In the vicinity of the crash site the aircraft also encountered severe turbulence and suddenly lost 1,700 meters of altitude. The pilots did send an emergency (“Mayday”) that was received by another aircraft (TAM Airbus A330-200, PT-MVG) and relayed on. The aircraft safely landed in Paris. A passenger reported on the Internet that he felt the plane after a short period of time would have been out of control. The crew had acted in panic. See also: http://avherald.com/h?article=42380873&opt=0 , And Le Figaro - Lire aussi v. 09.12.2009, CNN v. 09.12.2009
The above graph shows this issue clearly as the dependency between flown speed, the weight of the aircraft and its flight altitude. It shows that in the case of a high weight the velocity regime is significantly reduced. A lighter aircraft can therefore also fly higher. However, the margins for a controlled flight here are very low, at high weight even minimal. On the other side and especially in times of falling ticket prices and declining numbers of bookings pilots are expected to fly in the "optimal" regime of "coffin corner". Everything else would lead to an increased and thus from the point of view of the airlines "inefficient" fuel consumption.

For example: in the case of an aircraft weight of just under 63 tonnes, the approximately estimated total weight of flight 4 U 9525 at the time when the accident happened, the available speed margin is relatively small: only about 15 kt (= 28 km/h) in each direction.
The figure above shows the display on the primary flight display, the main screen of the pilot in the cockpit. This is the speed regime to the left on the picture between the red strip on top and the orange stripe appearing below (yellow marking). The airplane is located at an altitude of 35,960 feet. The current speed is 253 knots. At 273 knots, the aircraft would enter into the over-speed range and at 220 knots into the stall regime.

Especially in the vicinity of mountainous terrain very strong and up- and downdrafts may occur (Mountain waves) suddenly and unexpected, which then result in significantly higher deviations in the actual airspeed. Also turbulence can contribute to sudden speed variations effecting structural strength of the aircraft up to the load limits and even beyond.
Therefore, in such a situation (the presence of clear air turbulences) an immediate change of the altitude level may be required, e.g. in this particular case a descent, since the aircraft could not climb higher because of its current weight.

In the case of such an "urgency" or by the subjective assessment of the pilot an "emergency", pilots are trained and required to follow the "basic prioritization rule" for piloting any aircraft. This is:

AVIATE

NAVIGATE

COMMUNICATE

in exactly this particular order.

A suddenly developing urgent or emergency situation, especially at a time when only one pilot is present in the cockpit, can therefore very well lead to initiate a descent, even without obtaining a prior clearance by the Air Traffic Control. At this point in time the decision-making authority lies with the flying pilots, in the absence of the responsible commander, i.e. the first officer.

Experienced pilots have expressed their astonishment on the fact that the commander, although he should have recognized the thrust reduction of the engines to idle and the start of the descent 29 seconds after he left the cockpit took another 40 seconds to return and sounded the buzzer to request re-entry to the flight deck. Other pilots are surprised that the commander left his position the cockpit at all at this point in time, as he already did during the preceding flight.
Recommendation No. 1:

Further investigations should be conducted, whether such a situation (as described above) may have been encountered during the accident flight.

In addition to the inclusion of other parameters from the flight data recorder, the Cockpit Voice Recorder, radio conversations and other aircraft and their crews that operated in the flight area in question prior or at the same time, the G-load data and variations of the indicated airspeed recordings should be carefully analyzed by qualified experts with an aeronautical background.

In this context it is from quite remarkable for the expert that aside of a large number of parameters from the flight data recorder the g-load data is not present in the files of the Gendarmerie. This would normally be common practise in any accident investigation.

Also the BEA, contrary to the worldwide usual practice, which has been established for decades in regard to any air accident report, did not attach any printouts of the flight recorder data nor the cockpit voice recorder transcripts in the annex to its accident report.

In addition there is another significant abnormality in this context:

Normally the so-called "g-loads" (Engl: g-forces or load multiple) belong to the most important required parameters of any flight data recorder readout and analyze conducted for the purpose of flight- and accident analysis. These values for the vertical acceleration give clear and simple information whether e.g. turbulence did occur or not. In the printouts of the records from the flight

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104 Load multiple defines the ratio which indicates how many times more the force (load), acting on a body is than the force of gravity (mass of the body). The load multiple is a decisive value for the calculation of an airplane design. It is marked with "g".
data recorder, which the company Airbus performed for the French Gendarmerie, this important parameter is missing completely ¹⁰⁵.

In this context it is actually also quite uncommon that the manufacturer of the aircraft extracted all the relevant data of the flight data recorder and prepared it on 2. April 2015 for the other police and state prosecutor’s investigation ¹⁰⁶. Also the BEA should have sufficiently been capable to extract this data. In contrast to the common practice ¹⁰⁷ to attach the essential parameters of the accident progression at least in the official "Accident docket " ¹⁰⁸ this information is entirely missing in the official final report of the BEA as of March 2016. Allegedly the BEA was not provided with this information by the police investigators. But this makes no sense, because other conclusions cited in the report of the BEA could only be drawn with access to this data.

A subsequent evaluation of these topics requires the analysis of other sources and data (e.g. CVR, FDR). As access to these materials is currently rejected, this subject will not be discussed any further in this expert report.

¹⁰⁵ Cf. HA 00915ff/HA 05096ff
¹⁰⁶ Cf. HA 05096
¹⁰⁸ The US Air Accident Investigation Authority National Transportation Safety Board (NTSB) will publish at the time of the U.S. mandatory public hearing" (= Public Hearing) all documents that belong to the accident investigation (including flight data recorder and cockpit voice recorder transcripts) in a publicly accessible docket.
III. 5. The accident aircraft and its maintenance

With 24.3 years of age the accident aircraft, registration D-AIPX, factory number 147 was one of the oldest Airbus A320-211 type aircraft operated in Germany. It performed its first flight on 29.11.1990 with the Airbus flight-test - aircraft registration F-WWDN\textsuperscript{109} and was introduced to service at Lufthansa on 05.02.1991. In June 2003 it joined the fleet of Germanwings and went back to Lufthansa on 22.07.2004, where it was operated then with the name "Mannheim". From 31.01.2014 until day of the accident it belonged to the fleet of Germanwings. It was equipped with two engines of the type CFM 56-5A1.

The service was carried out by the Lufthansa Technik AG (LHT), a technical maintenance facility with more than 30 further participations\textsuperscript{110} and 100\% owned by the parent company Deutsche Lufthansa AG.

The airworthiness certificate No. 16332 was last issued by the LBA on 13. January 2014. The last certificate of the review for the airworthiness took place on 23.03.2015\textsuperscript{111}, i.e. the day before the accident flight.

\textsuperscript{109} Cf. \url{http://www.airfleets.net/ficheapp/plane-a320-147.htm}
\textsuperscript{110} In 2014, according to Lufthansa Technik Annual Report 2014, p. 5 - 7
\textsuperscript{111} Cf. SB 001-00078
It strikes out that this certificate has first been issued on 07.03.2014 and it is alleged to be valid until 23.03.2015. This has been confirmed by typewriting by the auditor with the LBA Authorization Number T512, apparently certified by a Mr or Mrs "Boussios". But the signature underneath the printed name does not correspond to the later.

Also it is a fact that such an "Airworthiness Review Certificate", abbreviated as "ARC" in accordance with the existing Regulation (EC) No 216/2008 will be valid for a period of up to one year only. However, there are certain special conditions for an extension. But it is highly unusual for such extension - here 16 days - that it will already be anticipated on the document upon its issuance.

It is obvious from the document that the renewal was performed on the day before the accident and was signed by an individual named “Ferenc Dulai” on behalf of Germanwings GmbH. However, the expiry date is now 11.03.2016, i.e. 11 days before the actual possible expiration date of a period of up to one year.

Also it strikes out that this document carries a German date stamp with the date "25. Mar. 2015", i.e. by a day after the accident at the bottom right side. What is particular striking is that fact that the same document is present within a different file of the prosecutors act, and there it does not carry this date stamp. There it can be found between other documents and file notes of the criminal police Düsseldorf, dated 27.03.2015 and followed by document parts, which are dated the 26.03. and even the 25.03.2015.

Whether and to what extent this document is a legitimate document on the required airworthiness of the aircraft at the time of accident can only be finally and with the required certainty be determined when the previously issued documents will be submitted. These should be located as a

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112 Cf. HA 00093  
113 Cf. HA 00068 Write the BKA, 26.03.2017; HA 00071 Note PP Düsseldorf, 27.3.2015; Eurocontrol with handwritten note "P. Hoffmann, EKHK 27.03.", Ha 00081  
114 Cf. HA 00132  
115 Cf. HA 00142
copy at the Federal Office of the German Civil Aviation Administration (LBA). The authority will, as in general, probably refuse the release to third parties, citing an alleged “data protection” issue.

Since the last maintenance, also performed on 23.03.2015 as a “72-hour check”, the aircraft performed three flights with a total duration of 6 hours. On the evening before the accident from 15:40 UTC (16:40 CET) it did perform a flight from Dusseldorf to Madrid and back. At the time of the accident the total operating time was **58.313 hours and 46.748 cycles** (completed flights).

Engine no. 1, Serial No. 731923 was installed on 30.06.2012 and did accumulate a total of 42.466 hours. It had completed cycles 31.836. Since the last overhaul on **02.4.2012** it has completed **6.031 operating hours** and 4.528 cycles.

Engine no. 2, Serial No. 731482, was installed on the 12.04.2011 and did accumulate a total of 50.720 hours. It had completed 41.961 cycles. Since the last overhaul on **05.04.2011** it has completed **9.258 operating hours** and 6.923 cycles. The accident report states:

“The aircraft was maintained by the maintenance organisations of Germanwings and Lufthansa Technik in accordance with the Germanwings maintenance programme approved by the LBA. Its maintenance checks were up to date.

The last maintenance performed on the aircraft took place on 23 March 2015 at Düsseldorf Airport. It was a 4-month-check and a “daily” check made at the latest every 72 hours and involved checking the oil levels and visually inspecting the wheels and landing gear.

The following deferred defects were documented in accordance with Part M (annex I) of the Commission Regulation EC No. 2042/2003, M.A. 403 prior to the event flight:
on 6 March 2015, cabin ready button on forward attendant panel missing, dispatched as per Minimum Equipment List (MEL);

on 18 March 2015, R/H logo light unserviceable, dispatched as per MEL;

on 23 March 2015, play on forward hinge of L/H nose gear door out of limit, released with Change Repair Approval Sheet for 50 FH since no airframe vibration reported during last 100 FH;

on 24 March 2015 (in Dusseldorf), ENG 2 IGN fault during engine start, dispatched as per MEL.”

The next significant overhaul of the aircraft, a D-check type scheduled maintenance was planned for April 2015.

In addition a problem with the front toilet flush on the flight from Düsseldorf to Barcelona was reported that the captain should have resolved still on the ground prior to the departure.

There is no further information in official accident report of the BEA on the maintenance and status of complaints about D-AIPX.

However some information can be found in the state prosecutor's investigation file in the volume "Special Volume 01: Germanwings Lufthansa".

116 Cf. BEA-Final Report, March 2016, p. 20
117 Regular maintenance work on aircraft is defined to its scope and its frequency by certain classes. Particularly important are the classes: A-Check, B-Check, C-Check, D-check. A D-Check is close to a general overhaul. It is usually performed every 6 - 10 years, is extremely extensive and therefore time consuming and expensive. The costs are several million Euros. The aircraft will be taken apart until the basic structure is exposed and must then be repainted. In the course of the D-checks maintenance technician will work approximately 30,000 to 50,000 hours on the aircraft. An airline must take an aircraft out of service for approximately four to six weeks for a D-Check, depending on the size. An A380 is approximately 220,000 hours. (See also: http://www.aerosecure.de/lexikon/wartung-d-check.php)
118 Cf. BEA-Final Report, March 2016, p. 20
During maintenance on the day before the accident new software for the automatic Thales Flight Control System (Flight Management and guidance computer, FMGC) has been imported. It was available already since the 04.11.2014 and had been installed successively on all aircraft of the fleet. This modification goes back to findings by the manufacturer from audits of incidents during operation with Airbus aircraft. It should exclude incorrect vertical flight profiles during non-precision approaches and faulty lateral flight path displays in the NAV mode during departures, faulty lateral flight path displays in the NAV mode and the display of incorrect offsets from positions.

Additionally there were the following deferred complaints and maintenance events by 24.03.2015 noticed by the expert:

1. Work order 2506963: Engine No. 1, check for clogging of the engine driven pump and cleaning of the filter on 24.03.2014

2. Work order 2506961: Engine No. 1, check for leakage at the shaft on 24.03.2014

3. Work order 2494142: APU, inspection for contamination in the inlet of the auxiliary power unit in the rear of the aircraft for residues of de-icing fluid.

4. Work order 2506939 and 2506942: Replacement of both engines.

In the view of the expert the four abovementioned maintenance measures are of relevance because they are appropriate for the prevention of occurrences of any "incidents with contaminated cabin air", e.g. by means of de-icing fluid residues in the inlet area of the auxiliary power unit and/or heated engine oil residue entering into the bleed air system.

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119 Cf. SB 011-00081
III. 6. Serious contradictions in regard of the health status of Andreas Lubitz at the time of the accident:

III. 6.1. Unfit to fly

It is claimed, Andreas Lubitz has been aware, that he was “unfit to fly”. In the view of experts consulted (psychiatrists and psychologists and flight medicine) in the course of investigations conducted for this report, it may be very well possible in case of a mental illness that the affected person is not ready or in a position to draw this conclusion due to his illness.

However, this is exactly acknowledged at another point in the report. In the final report it says:

“First, the co-pilot, while suffering from a disease with symptoms of psychiatric disorder, possibly a psychotic depressive episode, had altered mental abilities with a probable loss of connectedness with reality and therefore a lack of discernment.” ¹²²

The BFU alleges a "serious mental illness" at the time of the accident. In the letter of the BFU, Annex 3 on the accident report it states:

“At the time of the accident the co-pilot was adversely affected by severe mental illness.” ¹²³

Thus it would be comprehensible, that he - because of the psychotic episode limiting his understanding of reality – did not feel the desire for external assistance or treatment. This is, however, in striking contrast to its numerous doctor visits immediately before the accident flight and thus also the associated sick certificate for his employer Germanwings.

¹²² BEA Final Report, March 2016, p 89
The final report listed in accordance with BEA cause determination is based according to the consultants and the medical experts consulted (see above) in this context on the purely speculative assumption that Andreas Lubitz, at the time of the accident, suffered from “…a mental disorder with psychotic symptoms…”\textsuperscript{124}.

This alleged cause is based solely on non-verifiable indications, since these indications are not proven by any facts.

To the contrary: in accordance with the diagnostics of the specialist doctors, visited by Andreas Lubitz since December 2014, \textbf{an existing depression and suicidality was excluded}. Likewise, according to the treating physicians, there was \textbf{no psychotic disorder suspected}.

\textbf{Also all aviation medical examiners} consulted by Andreas Lubitz have not discovered any \textbf{symptoms of depression}. The report states (Emph. add.):

\begin{quote}
„Therefore, all the AMEs assessed his psychological and psychiatric fitness, through the usual discussions and observation of behaviour, to determine whether any signs of depression were reappearing, which would have made the waiver invalid and would have required further examination from a specialist. \textbf{They did not detect any signs of this.}“\textsuperscript{125}
\end{quote}

In the course of the investigation also colleagues of Andreas Lubitz were questioned (by the BFU and also by the police in Düsseldorf\textsuperscript{126}). Matching all these colleagues reported, that did not recognize anything unusual with the behaviour of Andreas Lubitz. The final report states:

\textsuperscript{124} cf. BEA Final Report, March 2016, p 96
\textsuperscript{125} cf. BEA Final Report, March 2016, p 86
\textsuperscript{126} see: interrogation van den Doel, HA 09912ff; interrogation Huber, HA 09921f, interrogation Clarkson, HA 09932
"The co-pilot had had six documented periods of sickness during the previous three months and had flown on 35 days over that same period. However, none of his colleagues or his manager was able to detect his decrease in fitness."

and

"the mental state of the co-pilot did not generate any reported concern from the pilots who flew with him;" 127

Note: During the abovementioned period (three months) the expert only counts three documented sick periods.

Only the house doctor (a general medical practitioner) and one of the most frequently visited eye doctors in a conciliar phone conversation expressed on 10.03.2015 the presumption that his eye problem may be a schizophrenia (psychosis according to ICD 128 -10: F20.8V).

This suspicion is likely to be predominantly based on the entry "previously stationary for depression" in the patient record of the house doctor (note: here, it is most likely due to a typo, the shift button has not been not activated, which led to a "ß" instead of a "?"). Obviously, the house doctor here is not sure whether Andreas Lubitz has ever been in a stationary treatment.

127 Cf. BEA Final Report, March 2016, p 92, par 5; p. 95, 1.
128 The abbreviation ICD stands for "International Statistical Classification of Diseases and Related Health Problem". The World Health Organization (WHO) has created this classification. A doctor thereby encrypts his diagnose for example on a sickness certificate to be presented to the health insurance. Using the key the full diagnostic text can be displayed. The letter at the end of "G" stand for ("gesichert" meaning "secure" and "V" stands for "Verdacht" = "suspected", the latter means the diagnose needs still to be clarified and verified.
129 Cf. HA 10528
The accident report even speaks of a "referral" on 10.03.2015 for a stationary treatment due to a possible psychosis.\footnote{Cf. BEA Final Report, March 2016, p 32, subsection 10.03.2015}
It is to be noted: Andreas Lubitz has never been in stationary treatment because of a depression, not even in the period between 2008 - 2009. His only stationary hospital visit was at the age of four, when his tonsils were removed.\(^{131}\)

In his personal information in connection with the necessary medical examinations (questionnaire) for his pilot license, he notes truthfully “yes” as to whether he has been in a hospital in the past.\(^{132}\) However, this refers to a stationary removal of the tonsils in a hospital at the age of four years. According to the listing made by the BFU and originating from a document of the AeMC Frankfurt, dated 09.04.2009\(^{133}\), the word "TE" for "tonsil ectomie", i.e. the surgical removal of the tonsils is present.

According to the summary of the BFU (written by the accredited representatives of Germany, Dipl.-Ing. (FH) Johann Reuss) "Chronological overview of the exhibition in the suitability of the certificates and health development of Andreas Lubitz\(^{134}\) from the 04.04.2015 within the state prosecutor’s investigation file the previously mentioned typing error "ß" instead of "?" and the entry "in-patient treatment", these wrong statements now become a fact:

"Previously in hospital because of depression".\(^{135}\)

This incorrectly made listing by the accident investigators Reuss is also a precipitation and thus affects the understanding of other parties involved in the Investigations and institutions, e.g. through their transfer to the public prosecutor in Düsseldorf and in the consequence by precisely this being forwarded also to the French criminal investigating authorities as well as to the BEA.

\(^{131}\) Information of the mother on 13.03.2017


\(^{133}\) HA 05464 listing of the BFU

\(^{134}\) Cf. HA 05454 f

\(^{135}\) Cf. HA 05455
Apparently also the victim’s relatives as well as their legal advisers draw the same false conclusions and believe they need to initiate by means of pressing criminal charges against actually completely innocent individuals, such as physicians who treated Andreas Lubitz and members of his family.

Also the proceedings of the next of kin pending in the United States express such theses and were taken up by the media, quite clearly after being fed from the legal advisors.

Ultimately, this false allegation can also be found in the final accident report of the BEA. It states:

“During this depression, he had suicidal ideation, made several “no suicide pacts” with his treating psychiatrist and was hospitalized.”

This demonstrates clearly that it is not appropriate when layman without sufficient expertise and/or expert advice conduct analysis out of their original area of expertise.

Within this context also the allegation by the BEA, that the renewal of class 1 medical certificate on the basis of depression and appropriate medicines for the treatment was refused by the Lufthansa AeroMedical Center” is wrong. Because Andreas Lubitz was on sick leave at this time he made no such request.

This is even more serious in a further entry dated 24.02.2010. Here the accredited representative Reuss again intentionally or due the lack of knowledge wrongly claims that in 2009 Andreas Lubitz suffered from an "endogenous depression".

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136 BEA Final Report, March 2016, p. 30
137 BEA Final Report, March 2016, p. 18
138 Cf. HA 05460
139 According to Pschyrembel-Online an endogenous depression, is "the obsolete term for a justifiable depression "resulting from the inside out", neither recognizable by physical illness or external causes". It
This is already contradicted on several positions by the opinion of psychiatrist Robert Salomon who treated Andreas Lubitz from 2008 to 2009, which was also transmitted to the US Aviation Authority FAA already back on 10.07.2009\textsuperscript{140}. It says that in accordance with the classification ICD-1032.2F G Lubitz was suffering from a "serious depressive episode without psychotic symptoms in complete remission"\textsuperscript{141}, but definitely not an "endogenous depression". Therefore also the FAA in their assessment of the medical records from Andreas Lubitz suggested a "reactive depression"\textsuperscript{142} on 18.06.2010.

An endogenous depression (ICD F33) is not justifiable through recognizable physical illness or external causes, while a psychogenic depression\textsuperscript{143} (ICD F32) is justified by psychological factors (e.g. critical life event).

The psychologist Atzinger obviously had erroneously classified on "recurrent depression" and was made aware of this error by the doctors of the AeroMedical Center (AeMC) at Lufthansa. Since the individual episode appeared for the first time the ICD key F33.2 was inappropriate. Atzinger then corrected to the appropriate key ICD F32.2.\textsuperscript{144} On many occasions the BFU the contracting party of this report informed representative Reuss about this error but he has still not corrected it.

By following this (false) argument in relation to its precipitation in the air accident investigation of the BEA, it leads to further erroneous conclusions:

A psychosis is defined as a severe mental disorder in which the affected temporarily loses the reference to him and to reality. It is characterized by thought disorders, perception - and motor

\textsuperscript{140} Cf. HA 05484
\textsuperscript{141} Cf. BEA FINAL REPORT, March 2016, p. 33, Sections 21. and 28.07.2010
\textsuperscript{142} Cf. HA 05472
\textsuperscript{143} A psychogenic depression is the "old designation for a depression, when their formation due to psychological factors (e.g. critical life event, chronic conflict) is suspected.
\textsuperscript{144} Cf. BEA FINAL REPORT, March 2016, p. 32, Section 11.08.2009
disorders, as well as by abnormal events and experiences of increased subjective meaning consciousness\textsuperscript{145}.

Psychotic symptoms can be delusions and hallucinations\textsuperscript{146}. Under the influence of such symptoms you can certainly assume a "conscious" and/or "planned" action following a free will and rational principles.

But exactly this kind of behaviour is assumed, even in the final report of the BEA, by Andreas Lubitz in relation to his alleged motivation, namely to perform the crash in a planned free decision.

But if you follow this reasoning logic and the conclusions drawn from the findings of the BEA, the accident must be categorized in accordance with the classification key of the ICAO for aviation accidents, - such as this is usually also in the central European register of ECCAIRS \textsuperscript{147} applied by entries, as follows:

Incident: incapacity of the pilot  

Reason: psychiatric condition  

Severity: complete

This is not the case in the event of the accident of flight 4U9525.

\textsuperscript{145} Cf. Definition of psychosis on Pschyrembel-Online, https://www.pschyrembel.de/Psychose/K0J24/doc/  

\textsuperscript{146} Cf. BEA FINAL REPORT, March 2016, p. 39  

\textsuperscript{147} European Co-ordination center for accident and incident reporting system www.eccairsportal.jrc.ec.europa.eu
Finding No. 10

The accident of flight 4U 9525, by following the own logic and reasoning of the final report, was incorrectly categorized in accordance with the ICAO assignment i.e. an alleged psychological disorder of the co-pilot Andreas Lubitz.
III. 6.2. Pilot Incapacitation

III. 6.2.1. Definition

"Pilot Incapacitation" is a term used to describe the status of the inability of a pilot who is part of the operational flight crew. In this condition he cannot fulfil his normal duties and tasks because of physiologic factors occurring at the beginning or during a flight.

III. 6.2.2. Description

The death of the crewmember is the most extreme example of an "incapacitation". This usually happens as a result of a heart attack, but is not in itself necessarily also deemed a hazard (to flight safety). Although the majority of deaths in this context have been registered due to a cardiovascular disease, by far the most common reason for an "incapacitation" of a crewmember is caused by gastroenteritis infections.

"Incapacitation" may occur (emph. added):

- **Effects of lack of oxygen** supply (hypoxia)
- **Smoke or vapours**, connected to a fire or contamination of the air conditioning system
- Gastro-intestinal problems like gastroenteritis, possibly caused by a food poisoning or a food allergy
- Sleep
- A medical condition such as a heart attack, stroke, a **paralysis or a temporary mental anomaly**
- A bird strike or a drone or another event that causes a physical injury
- Malicious or hostile acts as an attack by an "unruly passenger", a terrorist act, an injury by a firearm
- A malicious illumination towards an aircraft with a laser beam by a person on the ground

If the only pilot of a small plane becomes unable to act then the security of the flight is significantly compromised and there may be a loss of control.
However, for the cases in which an aircraft is operated by two pilots, usually larger transport aircraft, the incapacity of only one pilot rather unsuitable to become a significant risk.

Falling short of the minimum spacing to other aircraft can be a secondary effect in a paralysis of the entire crew. If only one pilot becomes incapacitated the effect of a high workload in relation to the remaining crewmember can be encountered.
Ill. 6.2.3. Prevention of Incapacitation

A significant contribution to the prevention of serious problems caused by incapacitation with a multi-crew-operated aeroplane is the availability of suitable Standard Operating Procedures (SOPs) and recurring lectures providing training close to practical application.

The correct control of both, the airplane pressurisation system as well as the use of the emergency oxygen supply will prevent both hypoxia, as well as it will protect the crew from smoke and fumes.

Therapeutic oxygen supply can also alleviate the status of an affected crewmember or passenger, who suffers a medical emergency.

The consumption of different meals at different times of the day will prevent both pilots to become incapacitated due to a food poisoning at the same time.

Intentional sleep in the cockpit can be relevant for use during long-haul flights but should only be applied if appropriate SOP's do exist and are applicable.

The first indication received by an air traffic controller about a total flight crew incapacitation is the loss of communication. After all resources have been tried unsuccessfully to contact the plane, it is extremely difficult for the controller to determine what is currently happening in a plane.

If the autopilot is engaged the aircraft will continue on its pre-programmed route according to the flight plan. Standard procedures for loss of communication then require that military aircraft are instructed to intercept the aircraft and perform a visually inspection. In such an event the air traffic
controller can do nothing else than to ensure that surrounding air traffic will maintain sufficient safety distance\textsuperscript{148}.

In the light of a very possible "\textit{pilot incapacitation}" in this present case, there are a variety of further serious failures by the civil aviation accident investigation, especially in regard of the basic requirements to the investigation of this accident.

These will be explained in the following\textsuperscript{149}.

\begin{flushright}
\textsuperscript{148} Cf. \url{http://www.skybrary.aero/index.php/Pilot_Incapacitation}
\textsuperscript{149} See "Other medical-toxicological investigations", p. 267 et seq. of the opinion
\end{flushright}
IV. Civil Aviation Accident Investigation: Human Factors

IV. 1. Specifications

In about 80 percent of all aircraft accidents "human error" or the "human factor" plays decisive role during the onset of the accident. In 1993 the world aviation authority ICAO in a circular letter\textsuperscript{150} emphasized on the importance of the analysis and presentation of "human factors" in aviation accident investigations. However for the ICAO the focus was on the classic case of human erroneous behaviour.

Already in the introduction it is stated (emph. added):

1. By identifying the involvement of human factors in accidents and incidents, new and better measures can be implemented to reduce the frequency and minimize the consequences of repetitive human errors.

4. The events that led up to an accident or incident are the primary focus of the digest.

2. Thus, the digest is relevant to investigators and investigation authorities, civil aviation regulatory authorities, corporate management and other aviation personnel with an interest in the subject area.«

In Chapter 2, in which the procedure of an investigation is described, it states (Emphasis by author in orange):

»2.1. An effective and efficient human factors investigation is methodical and complete; it should be well integrated and coordinated with other investigation elements and requires appropriate management of all available resources.

2.6. Planning and prioritising the various elements of the investigation are extremely important.

2.7. For instance, the investigator must assign high priority to the preservation and collection of evidence, especially information that is liable to being forgotten or disturbed, disappearing or becoming unavailable. This will ensure that human factors information will be available for analysis.

2.9. Within an investigation team, the human factors investigator or group must cooperate and interact with other team members who will also collect data on relevant human factors aspects during the course of their work.

2.10. In the case of a major aircraft accident, the human factors group is generally
responsible for coordinating human factor elements, this includes ensuring appropriate and sufficient data are collected as well as producing meaningful results.

2.15. Investigators must collect information on the decisions, actions and behaviours of all people involved in the occurrence and the conditions under which these dimensions were carried out to obtain a full understanding of how the window of accident opportunity was created.

2.16. The SHELL model facilitates data collection by providing a systematic approach to identifying human factors issues.

2.18. Information collected during the human factors investigation should allow a thorough analysis of each SHELL component and identify where mismatches, or interactions, between these components and the central human operator contributed to the occurrence.

2.20. Data collected on the human operator (liveware component) at the centre of the SHELL model can be broken down into physical, physiological, psychological and psychosocial considerations.

2.26. In determining how much information is enough, good judgement is required by the investigator.

2.27. Part of this judgement requires some form of ongoing analytical reasoning process to integrate and develop various aspects of the investigation.

2.29. However, the depth and detail of information collected during the human factors investigation is limited by available investigative resources and should exclude aspects pursued for a purpose unrelated to accident prevention.
2.30. For instance, **data concerning who to blame is irrelevant** to the purpose of investigating human factors and should not be collected as it fails to **help explain how and why the causal event sequence was initiated and not stopped before the accident/incident occurrence**.

2.33. This information can be acquired from both primary and secondary sources. Primary sources reveal factual field information. Secondary sources provide additional empirical information about human factors that may be used to facilitate analysis of primary information.

2.46. Measurable human factors information will produce a deductive argument where conclusions are self evident, depicting straight-line cause and effect relationships. However, other less tangible human factors information provide conclusions that cannot be tested conclusively and are therefore less precise and vulnerable to dispute. To develop a more complete understanding of human factors involvement, investigators are often required to work within this domain of intangible information. Often, conclusions are based on inductive reasoning and analysis that draw inferences on the most probable or most likely explanations of behavioural events.


2.50. The viability of inductive conclusions is based on the consistency and acceptance of the reasoning process used by the investigator and the weight of evidence supporting the conclusions.

2.52. A step-by-step reasoning process has been developed to ensure that the investigator considers all reasonable possibilities to deal with less tangible human factors evidence:
2.53. Step One - Test for Existence: Aims to establish or test the probability of existence of one or more human factors conditions.

2.54. Step Two - Test for Influence: Aims to establish or test the probability that a human factors condition or conditions did contribute to the sequence of events leading to an accident/incident.

2.55. Step Three - Test for Validity: Forces the investigator to draw conclusions of probability in a systematic way on the basis of indisputable empirical knowledge and verifiable evidence.

In Chapter 3, the guideline for the formulation of an accident report in accordance with the stipulations of the ICAO Annex 13 and accident prevention measures resulting from an investigation it is stated (highlight. d. Avail.):

»3.2. Varied readership and sensitivity to different reader motivations are important factors to consider when writing the investigation report.

3.4. However, the most important readers are the decision-makers responsible for implementation of the report’s safety recommendations. These decision-makers must be convinced by the report if preventive actions are to be taken.

3.3. As a result, the report must state accident/incident causes, identify hazards uncovered during the investigation, indicate effective or ineffective handling of the hazards and offer recommendations to eliminate or control hazards so as to prevent future accidents.

3.5. Decision-makers are not going to act on a flawed or poorly substantiated report therefore for the sake of accident prevention, it is important that the report is complete and
The final report must be structured in an orderly and logical manner, guided by the standard format, consisting of various sections contained in the appendix to ICAO Annex 13.

Section 1 of the report concerns factual information that describes what happened as well as information pertinent to understanding the conditions and circumstances of the occurrence.

Section 1 and its subsections contain human factors information and issues, including history of flight, personnel information, aircraft information, additional information etc.

Throughout this section, deviations, discrepancies and hazards are compared to a recognised aviation standard/empirical evidence to provide the foundation for analysis of their influence on the accident sequence of events.

Section 2 of the report concerns the analysis, identifying the existence and notion of human factors involvement. It describes or validates the reasons why the circumstances resulted in the accident/incident thus creating a link between the factual information provided in Section 1 and the conclusions provided in Section 3.

Discussion of the causation chain, causal hazards and non-contributory hazards that warrant safety action is a key part of the analysis section.

The analysis section may be logically sequenced in any number of ways according to the particular circumstances of the accident/incident.
3.13. For instance, each sub-section may read like a mini accident report, developing the relationship between causal links.

3.15. Similarly, Reason's accident causation model may be used as a systematic framework to present the analysis of factual information.

3.18. Section 3 of the report concerns the conclusions. Conclusions should identify all hazards that need to be addressed, cause-related or not.

3.20. Conclusions about causes should consist of concise statements regarding the reasons why the accident happened.


3.25. Section 4 of the report concerns safety recommendations for preventive action and should address all identified hazards that need to be rectified, both matters directly associated with the causal factors of the occurrence and non-causal matters revealed by the investigation process.

3.33. Various alternative safety recommendations should be assessed for technical feasibility, acceptability, practicality, ease of implementation and appropriateness for the recipient of the recommendations.

3.27. Furthermore, in accordance with Reason's model, safety recommendations for
preventive measures should focus on underlying system hazards created or ignored by management. These preconditions for unsafe acts are often the result of management decisions, action or inaction.

3.34. Safety recommendations should be general rather than authoritative. Thus, recommendations should not focus on how to make changes but rather what needs to change to [1] eliminate safety hazards (first and foremost), [2] modify the system to reduce hazard risk or [3] teach people how to cope with hazards that cannot be controlled.


3.36. After the draft final report is produced, it is circulated to the States involved in an accident investigation for consultation and review. This consultative process could also occur within a State between parties involved in a domestic occurrence.

3.39. Finally, human factors data collected during an accident/incident investigation should be recorded in a database such as ADREP to facilitate future safety analysis.

3.42. In order to learn from the lessons of others there is a need to provide improved means of reporting and recording human factors data in a user-friendly manner.»
From this it follows:

**Finding No. 11:**

Following the recommendation and the guidelines of the Civil Aviation Authority ICAO, an institution of the United Nations and its international legally binding agreement and policies for the accident investigation within the Member States for this accident, a qualified "Human Factors Working Group" must have been set up, which could have been composed with experts from the investigation participating nations.\(^{151}\) This was not the case.

In his former capacity as a professional journalist the expert did already ask the head of information and communication of the Bureau d'Enquêtes et d'Analyse (BEA), Mrs Martine Del Bono on 2. April 2015 and answers were received on 7. April 2015 (answers BEA in bold/blue, highlighting (green) by the author of the report):

»8. Have the CVR recordings already been analysed by a »human factors group« and has such a group been formed yet? Is a German human factors specialist part of this

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\(^{151}\) (Note by author): individual member states of the UN must not necessarily fulfil all of the stipulations of this international agreement and its agreements. For this and every "exception", however, they need to officially declare exceptions and the ICAO enlists these. Deviations in this respect (human factors) from France and Germany are not recorded with the ICAO.
The priority is to establish a detailed history of the flight, and the analysis phase has not yet started. We will discuss with BFU on the most appropriate way to analyse the CVR recording for a human factors point of view.

Also at the BEA and at the time of the accident, a staff specialist for human factors was present. It is the "BEA medical investigator" Dr. Didier Delaitre, a trained legal practitioners. According to the experts opinion also Dr. Delaitre has not been sufficiently involved in the investigation by the BEA. As already mentioned previously, from part of the BEA this investigation was exclusively conducted by engineers, from which, to the knowledge of the expert, no one possesses a transport pilot license and the associated operational experience and certainly no corresponding qualifications in the area of "human factors".

By the initiative of the expert in the early 2017 a meeting with the informant close to the BEA and an explicitly designated researcher was established in France. In the minutes of this meeting it is stated (highlight in original):

»The source firmly asserted that the BEA human factors specialist on staff (his name is Didier Delaître, a forensic Dr) was not involved in the very first and very critical phases of the GW 2015 crash investigation. Dr Delaître, he is sure, »was never asked to listen to the CVR«, although the sound recording was at the heart of the given explanation of the crash. His part in the BEA teamwork »consisted mostly in asking for and reading Lubitz German medical file documents«, he added.

The source insisted that Dr Delaître never complained he had been kept out of the investigating work, unlike his German counterpart of the BFU.

The source quoted Delaitre as saying his German counterpart « was really excluded».
According to the source, Dr Delaitre added: »It was explicit for him with the BFU. He told me: “I’m out. I’m on something else”. With us, in France, it’s more insidious. But it comes down to the same«.

As you know, the BEA team was led by its Investigation Dpt N°2, Arnaud Desjardin, with 6 other experts. All (the 7) are engineers. The source said that the BEA human factors expert explained that it is because » the logic of engineers « is overwhelming in the BEA’s history and practicing, to the point of making engineers say: we can understand everything, analyze everything, do everything.

In addition, the source said that:

- neither she/he nor Dr Delaitre know if one of the 7 team experts is capable of flying an A320 (some BEA experts are, for sure), because... they do not know the names of all of them!

- Dr Delaitre expressed his disappointment that the BEA "made the choice" (Delaitre’s words, according to the source) not to work with psychiatrists of the French army, » who are among the world experts in suicide « (Delaitre’s words again).

The BEA designated chief investigator (investigator in charge, IIC), Arnaud Desjardin comes originally from the area of Air Traffic Control (ATC) as well as from space flight control. Later he was working for the French aviation authority Direction General d’Aviation Civil, DGAC (French counterpart of the LBA) involved in instrument based arrival and departure procedures for the West of France. From 1999 - 2005 he was working for a private company in the USA. After his return to France in 2005 for the first time he went to the BEA. There he was first assigned as a technical staff in the laboratory for the evaluation of flight data recorder. Later he moved into the area of air accident investigation and

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152 Confidential Informants email conversation, January 2017
was made Deputy Head of Investigation, thereby being the right hand of the head of the department for Flight Accident Investigations.

Even at an early stage and as usual in France, in addition to the Gendarmerie officers and rescue forces, also an employee of the aircraft manufacturer Airbus as well as - after some delay - a member of the BFU staff were present at the accident site. The latter was the case when the flight data recorder was found on 02.04.2015\footnote{see: expert report p. 24}.

The French Gendarmerie was responsible for the recovery of the corpses and their forensic pathological examinations.

This leads the following conclusions in respect of the accident investigation by the BEA and the French justice system, already at this point:

**Findings No. 12 - 15:**

12. When the flight data recorder (FDR) was recovered on 02. April 2015 a member of the staff of the German Federal Office for Flight Accident Investigation (BFU) was present at the scene of the accident.

13. 14 days after the crash and the first analyzes of the Cockpit Voice Recorder (CVR) there was no "human factors group" established (let alone a community or own), although at this time there has been significant evidence that would have required such a group of experts for the purposes of clarification and explanation of the accident and even according to the specific requirements by the world aviation authority ICAO.
14. Already 8 days after the accident the BEA was informed by a request from the expert about possible and relevant issues (possibly malfunction) of the cockpit door keypads for the first. The BEA wanted to investigate this fact together with the cooperating German colleagues of the BFU. It can therefore be assumed that the BEA has informed the BFU about it.

15. The investigation and identification of mortal remains of crew and passengers was entirely with the French judicial authorities, in this case the military police (police).
IV. 2. Pilots suicide

A **pilot suicide** is a suicide, in which the pilot initiates an flight accident with the clear intend to kill himself. A distinction between a technical or human failure and a deliberate flight accident is not always made possible\(^{154,155}\).

However it should be noted that in the aviation sector most suicides are committed with smaller general aviation aircraft. In contrast to that only very few cases are known in which passenger planes were intentionally crashed.

Especially the boulevard press in such cases likes to speak, similar to an "amok (gunman)" of an "amok-flight", although this term does not exist. This has been the case with the crash of flight 4U 9525 on 24.03.2015.

**Note:**

The empirical research calls consistent acts that do not follow a specific pattern while attacking a group of people with the clear intend to kill and where the perpetrator takes into account to get killed himself "amok". This is called "to run amok", the perpetrator "amok-runner" or if firearms are used "amok-shooter"\(^{156}\). The term "amok" originates from the Malayan language.


\(^{155}\) Thorsten Schwark, Karsten Severin, Wolfgang Grellner, »I am flying to the stars« – Suicide by aircraft in Germany, Forensic Science International 179, e78-e78, doi: 10.1016/j.forsciint.2008.06.004

\(^{156}\) Lothar Adler, Amok - History and results from psychiatric perspective. In: Ralf Junker Jürgen and Isabella of Treskow (eds.): *Amok und Schulmassaker: culture and media scientific approaches*. Transkript Verlag, 2015
The consistent attacks on several people with clear intention to kill and the acceptance of the attackers own killing are the minimum requirement for an action to be called "amok". If the consistency in acting, the suicidal or homicidal intent are missing, one cannot speak of an "amok".\textsuperscript{157}

A suicide wish of a pilot can be caused by intense stress, but also by a mental illness. Influential factors can be e.g. an incurable disease (e.g. HIV, cancer), social relations, financial difficulties, suicide wishes induced through medication (e.g. by the taking of selective serotonin resume inhibitors (SSRIs) and other antidepressants) and depression.

\textbf{Note:}

The drugs \textit{citalopram} and \textit{escitalopram} belong to group of SSRIs.

By the clear objective of the person acting suicide can also be differentiated of terrorist attacks. While with suicide the affected believes to be in a subjective hopeless situation and acts and out of this motivation, in the case of terrorist attacks, a higher, mostly politically motivated target shall be achieved. In the official categorization of air accidents both scenarios are categorized as \textit{Security Related}\textsuperscript{158}.

A study of the US-American Civil Aerospace Medical Institute of the Federal Aviation Administration (FAA) in Oklahoma concluded in February 2014 that during the period from 2003 to 2012 in the United States 8 of a total as of 2.758 aircraft accidents by General Aviation pilots with deaths were caused by suicide. This corresponds to a share of 0.29\% in US air transport. The frequency specified in this investigation of pilot suicides is probably lower than the actual value, as the investigation of an

\textsuperscript{157} as before
\textsuperscript{158} cf. .

aviation accident will only be classified as “pilots-suicide” if conclusive evidence such as a farewell letter or corresponding statement of the pilot is present.

On the other hand unclear aviation accidents, in which a pilot suicide was merely presumed as one of the possible causes, were not counted. The pilots were male, on average 46 years old (most were aged between 26 and 58 years). Four of the eight pilots were under the influence of alcohol; two of the eight pilots took antidepressants (SSRI). Five of the eight had previously communicated their suicide intention. Two were private pilots and six of the eight were professional pilots, one of them still in training. Most flew single-engine propeller aircraft.\(^{159}\)

In the years 1993 to 2003 the share of the pilot-suicides with aviation accidents in General Aviation in the USA causing death was at 0.44 % (= 16 of 3.648), in the years 1979 to 1989, the proportion was 0.17 % (= 10 of 5.929). Statistical data for the years 1990 to 1992 is not available.

Also a German study from 2008 deals with suicide of pilots. Scientists of the Forensic Institutes at the University of Kiel and the Medical University of Göttingen and the flight accident investigators of the BFU, Karsten Severin, come to similar conclusions. During the researched period of 34 years (1974 - 2007), there was a total of nine incidents in which a plane was used probably or confirmed with suicidal intention. In two of these nine cases the pilot became a victim, since he was either stabbed to death by another person on board or was shot before the aircraft crashed. In contrast, according to the study, within the year 2006 a total of 9.765 deaths were officially declared as suicide.\(^{160}\)

Between 1980 and 2015 only a total of six commercial aircraft accidents were (at least) suspected to be related to pilot suicide:

1. Japan Airlines Flight 350 on 09.02.1982


\(^{160}\) cf. Thorsten Schwark, Karsten Severin, Wolfgang Grellner, »I am flying to the stars« – Suicide by aircraft in Germany, Forensic Science International 179, e78-e78, doi: 10.1016/j.forsciint.2008.06.004
It is therefore obvious that the Lubitz family during their contacts with the BFU and because of the at this time significant hypothesis that Andreas Lubitz crashed the aircraft with suicidal intention, did request to also hear the expertise of the BFU’s own flight psychologists Dipl.-Psych. Karsten Severin. This was denied several times by the deputy director of the authority and accredited representative Dipl.-Ing. (FH) Johann Reuss. In a meeting held on 28.10.2015 at the premises of the BFU where the transcript of the CVR was introduced to them, Günter Lubitz asked again for the consultation of the BFU-human factor specialists. Mr Reuss claimed that at this point in time he would not be present in the building. A subsequent email correspondence between Mr Lubitz and Mr Severin disclosed that Mr Severin has been present in the building at that time, only three offices away from the meeting room where they did stay. Also the request of the family, to be accompanied by Mr Severin in the case of a planned hearing of the CVR recordings in France was multiple times rejected without indication of any reasons.

According to the available information, particularly the judgments of specialist doctors and psychotherapists who treated the Andreas Lubitz in the period before the accident, no suicidal tendency was established. This is also apparent from the final endorsement of the public prosecutor in Düsseldorf from December 2016. There it says:

“None of the physicians treating him in 2014/15 - be it psychiatric specialists or other physicians - diagnosed depression with Andreas Lubitz at this time. In addition, no physician or therapist has detected suicidal thoughts or received reports from the patient. There was also no evidence of foreign-aggressive behaviour.”

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161 cf. Email correspondence Günter Lubitz with Karsten Severin and Johann Reuss from Nov 2016 - Jan. 2017
162 cf. The closure statement public prosecutor in Düsseldorf 1 UJs 906/15 of 11.08.-15.12.2016, p. 8
Findings No. 16 -20:

16. Pilots suicide so far has occurred only very rarely in the history of the civil aviation, in particular with regard to passenger category aircraft.

17. In most of these cases at least a clear motive for such a fact could be postulated.

18. At the BFU there is a fixed staff employee (Karsten Severin) assigned as the agencies human factor specialist and who apart from his qualification as a flight instructor is also the bearer of a CPL (commercial pilot license) as well as a fully graduated psychologist and lecturer of this discipline at a university (Bremen). To the knowledge of the expert and the commissioning entity of this report Dipl.-Psych. Karsten Severin was not part of the investigation on the behalf of the BFU nor has he been consulted or involved otherwise. He also has not participated as a representative of the authority in the "Task Force" initiated by the German Federal Ministry of Transport as a member or expert, although he did already research this topic (suicide with pilots) with two leading German universities and is the co-author of a published scientific study on the subject.

19. The BFU accredited observer, Dipl.-Ing. (FH) Johann Reuss, preferred to involve external experts for advice and who do not possess at least a commercial pilot license and who in addition had no previous experience in the field of air accident investigation.

20. Several requests and urgent requests on the part of the Lubitz family to get the human factors experts and psychologists Severin involved or at least designated as their BFU-
support, according to EU Regulation 996/2010 for the consultation and listening to the
Cockpit Voice Recorder by the family were declined by Mr. Reuss, sometimes even with
demonstrably false statements (Mr. Severin was not in the building when the family there
to see the CVR transcript).
IV. 3. Findings (on the basis of the existing data)

1. On the basis of an objective consideration no known or conceivable motive for a suicide was present for Andreas Lubitz on the day of the accident. Also the police investigation could not locate such a motive and/or affirm one.

2. Assumption: Andreas Lubitz has not acted deliberately and did also not initiate the descent in a conscious and suicidal intention.

3. Technical causes, such as a defective auto pilot or a software bug” have not been investigated. Due to the fixation and the "confirmation bias" in relation to the alleged suicide existing evidence in this direction was obviously not pursued.

4. The final report of the BEA includes no facts and verifiable details in relation to the CVR evaluation, which prove that Andreas Lubitz had actively intervened with the flight controls.

The false statements in the BEA report, which are based on the incorrect interpretation by the accredited representatives of the BFU in regard to the alleged present depression, as well as a previous hospitalisation, due to such a depression in the years 2008/2009, have already been proven as wrong (see above) and thus refuted. There was no sound or reliable diagnosis of a mental disorder, with the exception of such by a not qualified general practitioner (for such diagnosis), but who also did only express this as a presumption (see above) of the fact that otherwise there was no organically founded explanation for the visual problems of Andreas Lubitz, so it must be of psychological nature. According to the seized medical record no specialized medical expert has shared this suspicion. It was not even shared nor confirmed by another general practitioner who was consulted after her on the 18.03.2015. To the contrary: this practitioner wrote Andreas Lubitz a new sick note, but only extending up to 22.03.2015. Consequently he was allowed to conduct flights from 23.03.2015 on, as according to the medical association (Kassenärztliche Vereinigung) the sick note of the last consulted physician is decisive.

163 cf. footnote to p. 9 of the opinion
164 verbal Information of Kassenärztliche Vereinigung as of 03.02.2017
The request for the renewal of a class 1 medical certificate on 09.04.2009, which in the BEA report is cited as the main proof that Andreas Lubitz was depressive and has been in stationary treatment because of a depression, and the allegation that he had also tried to hide his medical history, does not exist. This request was only machine made (automatically) originally planned extension day by the Lufthansa Medical Center and much more based on the pilots data present there, but it was not signed by Andreas Lubitz and was consequently not an official application\textsuperscript{165}.

In accordance with the forensic toxicology studies on behalf of the French investigating authorities, Andreas Lubitz was not under the influence of psychoactive drugs and/or drugs (see above) at the time of the accident.

\textsuperscript{165} cf. HA 11222
Report on the Crash of Germanwings Flight 4U9525
IV.4. Conclusion: The Civilian Accident investigation

- The final investigation report of the BEA cites human causes for the crash of flight 4U 9525.

- Also the German aircraft accident investigation authority BFU was significantly involved in the investigation.

- In both national investigation authorities, the BEA and the BFU, the investigation teams were staffed by engineers only, while human scientists of both authorities were not parts these teams.

- With the German investigation authority this is striking because two major tasks of their work was the determination of the "history" of the accident, meaning the situation of Andreas Lubitz during his pilot training at Bremen and linked to this is also the assessment of the psychological selection procedure which he previously did go through.

- There are major inequalities in regards to the transcripts of listening to the CVR and thus the supposedly corresponding data of the DFDR.

- Active acts of the Andreas Lubitz are assumed, but these are not comprehensible by solid evidence. In the view of medical specialists, it is quite conceivable that Andreas Lubitz was unconscious or significantly impaired in his cognitive facilities at the time of the accident. No investigation was conducted into such possibilities.
IV. 5. Discussion:

From the experts point of view also the following facts are technically and factually not understandable: The psychologist of the German investigation authority BFU is Dipl.-Psych. Karsten Severin, himself the holder of a professional pilot’s license and who had been working for more than six years at the Medical Institute of the German Air Force in Fürstenfeldbruck assessing pilot candidates on their psychological suitability. Then he did work as a senior psychologist at the flight training school in Bremen for thirteen years, meaning exactly at the very same institution where Andreas Lubitz has been trained.

Already back in 2008, a German scientific study on the topic “suicide of pilots” was published. Medical scientists of the Criminal-Forensic Institutes at the University of Kiel and the Medical University of Göttingen, as well as the aircraft accident investigator of the German Federal Office for Flight Accident Investigation, Dipl.-Psych. Karsten Severin, co-authored this study.

One might think that such far-reaching and specific expertise for the investigation in this particular case would be highly valuable. According to what the expert deems “premature statements” made by the French Public Prosecutor Brice Robin only two days after the accident and that apparently no technical causes where involved in this accident, it would have been reasonable that this BFU expert should actually have led the German investigation.

But how comes that such a qualified person was not entrusted with this task? Why was such a person not even part of the investigation teams, which were involved?

166 cf. LinkedIn profile under: https://www.linkedin.com/in/karsten-severin-9a91364/
Entrusted with the investigation was the electrical engineer, who already finished off the investigation of a Germanwings incident as of December 2010, in which the pilots almost unconscious during the final approach managed to land their aircraft safely with the help of their last physical reserves.  

The final investigation report written by the engineer Johann Reuss has raised many questions that remain unanswered until today with professionals and members of the parliament.

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169 Catalogue of questions to the BFU - Johann Reuss, 6.12.2013, annex to the opinion p. 15 seq.
In contrast to the engineer Reuss the BFU-psychologist Severin is known to work according to scientific criteria and his independent determination, i.e. in particular also independently of political or other requirements. Should such considerations have been the reason that he was not involved in this investigation?

By the way: also the psychologist at the Flight Training School in Bremen, following Mr. Severins assignment there, and with whom Andreas Lubitz personally had many discussions during his training, has never been questioned in this context.

The false information provided by the BFU also causes significantly the resulting errors in judgment on the part of the BEA and with the French Gendarmerie, which in turn can then also be found in the German investigation by the prosecutor of Düsseldorf.

For the experts therefore it is a necessarily question as to whether this might be don on intend, almost in the form of a "system of intended not assessing of facts".

Or was it just the inability of individual decision-makers? Or was it the lack of willingness of the investigative body, to entrust these tasks to professionally qualified people with the appropriate required skills?

Since now more thirty years the concept of the so-called "Crew Resource Management" has been worldwide introduced in the civil and military aviation. This includes that a trained and most suitable person for the completion of a resulting task is chosen. It seems that even though this concept has been regularly also a subject of each accident in commercial air transport examined by the BFU had not yet arrived and been implemented at this Federal authority.

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170 cf.: HA 05449 ff as well as HA 01093 ff (00851 ff in franc. Original)
171 Under Crew Resource Management (CRM) is a training concept for the improvement of team performance. It is originally from the aviation, in recent years but also more and more in the fields of medicine and other critical work areas
Already the "psychological" and especially "medical" statements made by the investigation officer Reuss in the investigation report of the Germanwings Airbus A319 in Cologne incident in December 2010 did already not reveal in-depth knowledge of these subjects matters.

In the case of military aircraft accident investigation a psychologist is part of each investigation team already since the eighties. An analysis of the Cockpit Voice Recorder (CVR) without psychologists is not conceivable at all, because this is the specialist for the behaviour of humans. It seems that civil aircraft accident investigation in Germany, but also in France, has yet not arrived there at all.

But: why not? Has it – perhaps - something to do with the academic qualification of the employees of the investigating authority, or with politically desired character versions by ministry inclined executives, or is it just indebted to “party-political-office-awarding-measures”?

In any case within the BFU - at least in a federal authority and therefore subject of the higher public service -, not the most highly qualified investigators with required full academic graduation for a leading position in a federal authority have the power say something, but merely those with a bachelor degree or higher education who could actually only be found in other locations within the upper grade of civil service.

Until today this status quo was ever questioned critically, neither politically nor in the media, or not to mention even: has been checked. A first audit of this authority by the worldwide Civil Aviation Organization ICAO was announced at the BFU for the coming summer.

V. DÜSSELDORF PUBLIC PROSECUTOR’S OFFICE INQUIRY CASE FILES
V. 1. Preliminary Remarks

It is quite telling that the author of this report, by virtue of being a journalist, had access to a copy of the complete case files in electronic form prior to the Lubitz family, despite the assertion of the Düsseldorf public prosecutor's office that the case files had ‘only been made available to a very limited group of people’.

It should be noted here that the author did not obtain these files by illegal means or by paying fees. Rather, he obtained them directly from a source who also works in journalism. According to this source, a number of fellow employees in the editorial department had full access to the complete files in digital form.

It can be assumed that the source’s editors obtained these files directly from lawyers involved in the proceedings on behalf of the relatives, who had previously submitted a request for access to the files.

Public prosecutor Christoph Kumpa orally informed G. Lubitz, who commissioned this report, that he assumed Christoph Wellens, the lawyer representing some of the families of the crash victims, had photographed excerpts from the files using
his smartphone during a viewing of the files at the public prosecutor's office, and had then passed these excerpts to members of the tabloid press.¹⁷²

In addition, in his letter of 05.07.2016, which responds to the G. Lubitz’s complaint about the publication of elements from the files in the media, Kumpa states:

_In addition, at the express request of the lawyer you appointed as your representative, amongst others, I granted advance access to inspect selected files; that is, I gave you and the legal representatives of other crash victims (namely Mr. Wellens and Ms Scheuten-Brodbeck) the opportunity to examine two remarks I had made regarding the analysis of the seized documents and the findings of the investigations carried out in Spain, Germany, and France. Access has been granted only to the exact excerpts from the case files which correspond to these two remarks._¹⁷³

It should be noted that the right to inspect files is set forth by § 147 of the CCP [German Code of Criminal Procedure, abbreviated StPO in German] for the accused and his or her attorney and by § 406e CCP for the plaintiffs and their

¹⁷² See minutes of the meeting between G. Lubitz / Atty. Frank Palmer, 12.2016.

¹⁷³ See letter from Public Prosecutor Christoph Kumpa to Günter Lubitz of the 05.07.2016, p. 2
attorneys as well as by §§ 475 et seq. CCP for individuals and other entities. Attorneys are granted access to the investigation files by the public prosecutor. It is also permissible for attorneys to make copies of these files. However, attorneys are not permitted to pass on copies to a third party.174

The author of this report made a request to be granted access to a copy of the files for his journalistic work about the crash in an email to the Düsseldorf public prosecutor's office dated 20.06.2016. However, this request was denied by Mr. Kumpa on 30 June 2016. Mr. Kumpa's response stressed that access to files would be granted only to the legal representatives of the parties to the proceedings who can assert a legitimate interest in inspecting the files.175

Given the circumstances, it seems strange that, of all people, the Public Prosecutor Christoph Kumpa is not willing to investigate such ethically questionable behavior coming from a lawyer – actions which appear to violate professional codes of conduct – but prefers to let such matters remain unexamined.

174 See § 149 CCP; § 406e CCP.

175 See letter from Public Prosecutor Christoph Kumpa to TvB of 30.06.2016
The Lubitz family obtained a digital copy of the Düsseldorf inquiry case file for the first time on 22 June 2016 from their lawyer at that time, who was appointed by Lufthansa AG. When first examining the files, they discovered that the files contain a range of personal data, including:

- Names, addresses and telephone numbers of the family members, their relatives and Andreas Lubitz’s entire circle of friends.

- Photographs of Andreas Lubitz’s brother, his mother and his father, in which faces are clearly identifiable.

- A complete address directory, with supplemental information about these addresses, taken from the GPS system in Andreas Lubitz’s car.

- Photographs of all the rooms in the family home in Montabaur.
The family subsequently requested an explanation concerning the legal basis for Mr. Kumpa’s decision to release these personal data.\(^{176}\)

On 05.07.2016, Mr. Kumpa replied to the Lubitz family, citing a ‘legitimate interest’ in these details for the purposes of the investigation. He revealed that he had also granted the opportunity to inspect files to the attorneys Christoph Wellens and Scheuten-Brodbeck as well as to the Lubitz family’s lawyer. He said he saw no grounds for refusal.\(^{177}\)

On 09.07.2016, the German tabloid newspaper BILD published an article in which photographs from the case file were shown.\(^{178}\)

The family filed a complaint against the public prosecutor’s office, requesting that the leak be investigated and that publication of further details be prevented.\(^{179}\)

\(^{176}\) See letter from Günter Lubitz to Public Prosecutor Christoph Kumpa of 28.06.2016

\(^{177}\) See letter from Public Prosecutor Christoph Kumpa to Günter Lubitz of 05.07.2016

\(^{178}\) See: http://www.bild.de/bild-plus/news/inland/flug-4u9525/letzte-notiz-enthueilt-46715266,view=conversionToLogin.bild.html

\(^{179}\) See complaint filed by Günter Lubitz against the Düsseldorf public prosecutor’s office of 10.07.2016
On the 22.07.2016, Mr. Kumpa's superior, the senior public prosecutor Mr. Kessel, confirmed that the complaint has been received, and announced that he would look into the matter.

However, the complaint was not subsequently resolved. In a letter dated 14.09.2015, Mr. Kessel informed the Lubitz family's legal representative that he was dismissing the complaint.\textsuperscript{180}

\textsuperscript{180} See letter from Senior Public Prosecutor Kessel to Attorney Frank Palmer of 14.09.2015
V. 2. The Structure of the Case Files / The Public Prosecutor's Documentation System

The digital record of files was assembled by Düsseldorf CID at the behest of the public prosecutor, Mr. Kumpa. However, this clearly did not take place until May 2016, i.e. more than a year after the crash and the opening of the investigation. Each page of the digital file is consecutively numbered. In total, it consists of 16,086 pages, many of which are replicated more than once, including French and Spanish original files alongside German translations. The file begins with the first page, number HA 00001 an ‘Explanation of the File Structure’, dated 11.05.2016. It bears the seal of the Düsseldorf police force and is signed by Detective Chief Superintendents Elsner and Reinartz.

A table of contents follows, dated 02.06.2016 (HA 00002-00029). Next follows a document, which according to the title is an ‘Order’ and ‘Memorandum’, dated 08.04.2015 (i.e. 15 days after the crash and the launch of the investigation) which covers pages HA 00030-00046, in which the public prosecutor leading the investigation in Germany, Mr. Kumpa, provides a summary of the investigation, including its activities and findings.
The Düsseldorf public prosecutor's office is bound by regulations governing documentation activities set forth in the ‘Directive for the Administration of Written Materials at the Offices of the Courts and Public Prosecutor’s Offices of the State of North Rhine-Westphalia’. In accordance with § 3.3, line 2 ‘File Structure’ (my emphasis) ‘each volume is to be formatted with continuous page numbering and should typically consist of not more than 250 pages.’

Finally, elements of the case files from the (separate) inquiry in France, which the Düsseldorf public prosecutor obtained via a request to the French judicial and investigatory authorities – predominantly the Gendarmerie Nationale – were also included in the files. These files consist of 10 volumes, each titled 'Objective Findings', and, unlike the Düsseldorf public prosecutor's files, are numbered chronologically and continuously (pp. HA 00168 - HA 04292). The files in the French language have been fully translated into German (pp. HA 4293 - HA 8778).

Two volumes are dedicated to exhibits seized in the course of the investigation by the Düsseldorf CID (pp. HA 8779 - HA 9512).

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181 See PDF in the version of 01.01.2016 - Appendix 2
Another file, entitled 'Sondenheimer-Lubitz', deals with the investigation into the two pilots (pp. HA 9513 - HA 9998).

There are 3 further volumes containing Andreas Lubitz’s medical records (pp. HA 09999 - HA 11319). These are followed by the documents which make up the 'Main Case Files' of the inquiry, beginning with a letter dated 3.11.2015 and further correspondence between the public prosecutor, Mr. Kumpa, and the executors of Andreas Lubitz's estate, as well as relevant rulings by the Montabaur probate court.

It is not until page HA 11330 that a letter dated 05.05.2015 is found; that is, a document dated close to the time of the crash and the start of the investigation. The letter consists of a request by the executors to the public prosecutor's office to be informed whether any documents potentially related to Andreas Lubitz's assets were amongst the evidence seized by the authorities. A negative reply dated 20th May 2015 can be found on page HA 11337 in the files. Strikingly, however, a letter then follows (p. HA 11338) which was clearly sent by Mr. Kumpa to a family member at an earlier date – namely, on 15.04.2015.

182 See HA 11320 - 11321
183 See HA 11324 – 11329
In the letter, Mr. Kumpa refers to media reports, in this case the information that 'the sick note for the day of the flight had not been handed in to his employers by the co-pilot'. This is totally improper and unusual behaviour for a public prosecutor in the course of an ongoing investigation.

The important fact, however, is that the dates and numbering of these particular documents quite simply fail to meet the requirements of normal and methodical file structuring procedure. There are numerous examples of documents from earlier dates being found at later points in the case files.184

The only really relevant documents are located at the end of this part of the files, namely pp. HA 11459 - HA 11476. In these documents, dated 08.04.2015 and 02-10.07.2015, Mr. Kumpa summarises what he sees as the findings of relevance to the investigation up to that point in time. There then follow 163 pages that Mr. Kumpa had already passed on to the Lubitz family's legal representative, Mr.

184 See for example HA 11366, dated 01.04.2015; HA 11387, (24.04.2015) followed by HA 11388 (11.05.2015); HA11399 (12.10.2015) followed by HA 11400 (04.09.2015) followed by HA 11401 (17.06.2015) etc.
Frank Palmer, in his letter of 11 January 2017. This includes the official closing statement of 11.08. to 15.12.2016, consisting of 14 pages.

In addition to these files from the Düsseldorf inquiry, there is also a special volume dedicated to the findings of investigations in Spain, including in particular the findings and analyses carried out by the Spanish authorities relating to the passengers, the check-in and security protocols, and interviews with the ground staff.

There are also three other special volumes, some with several sub-volumes, which are titled 'Germanwings-Lufthansa' (3 vols., pp. SB 001-00001 to SB 001-01482); 'BEA Final Report' (1 vol., pp. SB 002-00001 to SB 002-00128), which is the German version of the BEA crash investigation report; as well as six volumes of 'Other Notes' (pp. SB 003-00001 to SB 003-02214).

Reading through the full file, it is notable that many individual documents and files recur several times in an identical form, or in part, with no immediately obvious justification or necessity. It is the author's opinion that this can be explained by the fact that even during the course of the investigation, organised record-keeping in line with the relevant requirements simply did not occur. If the
case file had been built up methodically and continuously, as is customary, the final version would have had to simply refer to documents already in place.

Conclusions No. 21-24:

21. Apart from the extracts from the French Gendarmerie case files, the files are numbered, but are not organised chronologically as official standards require. If this were the case, the earliest-written document in the file, 'The Circumstances of the Case', dated 24.03.2015 and signed by D.C.S Brusdeilins, which bears the file number HA 00047, would be the first document, i.e. HA 00001. The current digital file does not allow any reliable and verifiable conclusions to be drawn about exactly when any page of the file was added or when it was created. This prevents readers from tracing exactly when findings or conclusions were actually reached. Also, it is not clear or determinable whether the digital files are complete.
and really contain all documents in their order of addition at the public prosecutor's office.

22. Even an individual 'loose leaf file' would normally be numbered consecutively.

23. It is also not clear or determinable whether any more complete 'second file' exists, containing any further findings or possibly even exculpatory evidence concerning Andreas Lubitz.
24. According to Mr. Kumpa, he has other documents relating to the investigation in his office 'available for inspection if appropriate', which, however, he has not included in the digital files. The family and their legal representatives were allowed to examine these files for the first time on 29.12.2016. They included a complete printout of Andreas Lubitz's Facebook pages.
V. 3. 'The Launch of the Inquiry'

The memorandum HA00030 et seq., written by Public Prosecutor Christoph Kumpa contains some illuminating details, including an explanation concerning why the then 'Deputy Spokesman' for the Düsseldorf public prosecutor's office was also appointed the 'Investigating Prosecutor' responsible for this inquiry.

The Head of Department, who according to the public prosecutor's office's own operating procedure ought to have taken charge of the investigation, was 'absent due to meeting', and Mr. Kumpa acted as his 'permanent representative'.185 That evening, at the Düsseldorf CID's request, he contacted Germanwings (specifically, Mr. Faust) for the first time to request the passenger list.

Aside from this inquiry, Mr. Kumpa evidently obtained the majority of his information from the media in the early days of the investigation. He first learned about the crash from news reporting, on the morning of the 25.03.2015, he also

185 See p. H 00030/00031
learned from media reports that a group of schoolchildren from Haltern were amongst the victims.

Having sent a memo by email on 25.03.2015 to all public prosecutor's offices in the state of North Rhine-Westphalia, he was able to ascertain that no other public prosecutor had initiated their own proceedings and any other investigations were inactive. Mr. Kumpa then proceeded to widen this inquiry to include other German states. Such an action makes sense if the aim is to avoid concurrent investigations running in several different jurisdictions. However, there is a need to examine whether such a decision, if indeed necessary, ought not to have been taken by a superior authority, such as the Chief Public Prosecutor's Office, the Federal Prosecutor's Office, the Minister of Justice for the state of North Rhine-Westphalia, or even the Federal Ministry of Justice. In any case, in the author's opinion, events were set into motion that made it difficult to change course at a later date.

The question also needs to be asked why, of all people, Mr. Kumpa was quite obviously so 'keen' to lead this inquest. The official jurisdiction at this time did not arise under § 159 CCP [the German Code of Criminal Procedure, abbreviated StPO in German], but at most under § 143 of the Judicature Act.
If we assume a criminal offence with an aeroplane had been committed, the Düsseldorf public prosecutor's office's jurisdiction could arise from the general conditions for application of § 10 CCP, as the crash involves a German registered aircraft (D-AIPX).

However, the Düsseldorf public prosecutor's office did not have 'automatic' jurisdiction over the case. Automatic jurisdiction could arise in some circumstances, e.g. if the first bodies had been brought to Düsseldorf by plane, as corpses within the geographical limits of Düsseldorf would grant the Düsseldorf public prosecutor the right to investigate, and more specifically to launch an inquest into the deaths.

According to the standard legal interpretation, the jurisdiction of the German Criminal Code or Procedure (CCP) corresponds exactly to the sovereign territory of the Federal Republic of Germany. However, aircraft – unlike ships – must in principle be the exclusive property of a German natural or legal person, or be property of natural or legal persons from EU member states.\textsuperscript{187}

\textsuperscript{186} See Karl-Peter Julius, Björn Gercke, Hans-Joachim Kurth, Michael Lemke, Helmut Pollähne, Erardo C. Rautenberg: \textit{§ 10 StPO – Allgemeine Anwendungsvoraussetzungen}. In: \textit{Strafprozessordnung} Hüthig Jehle Rehm, 2009, p. 71

\textsuperscript{187} See § 2 para. 5 Air Traffic Act
There could be grounds for the involvement of other authorities (not just in the Düsseldorf inquiry, but also with regard to the civil air crash investigation conducted by the BEA), because the D-AIPX registration belongs to Lufthansa Flight Leasing, a shell company based in Salzburg, Austria. As far as the author is aware, however, Austria was not involved in the civil air crash investigation.

The area of jurisdiction for criminal offences involving aircraft is, according to § 10 para. 1 of the CCP, the place at which the aircraft is permanently stationed for the purpose of its operation, or the place at which it first lands after the offence. In the case of an emergency landing, then the court of the district in which the emergency landing takes place has jurisdiction.\textsuperscript{188}

In this connection, Düsseldorf cannot be considered the 'first port of call' after the offence, since the aeroplane was completely destroyed in the crash in France.

\textsuperscript{188}See: Julius, K.P. (2009). Strafprozessordnung, p. 76 et seq.
With regard to D-AIPX aircraft, it is also doubtful to say the least whether the aircraft was permanently stationed in Düsseldorf or whether the Düsseldorf public prosecutor’s office could really derive their jurisdiction over the matter on such grounds. The aircraft in the Germanwings fleet do not have a strictly defined ‘base airport’ due to their flexible and diverse deployment planning, unlike, for example, Lufthansa’s Airbus A380 fleet, which is based at Frankfurt airport in Frankfurt am Main.
V. 4. Questions Regarding Ambiguities

- Are there perhaps other aspects in play?

- What connections did the public prosecutor, Mr. Kumpa, have with Germanwings or Lufthansa?

- Are there any special interests on his part – for example, due to an acquaintance or relationships with victims or their relatives?

- Was the investigation perhaps subject to a political order to protect the economic interests of Lufthansa and its subsidiary Germanwings?

While these questions remain unanswered, they highlight the numerous potential sources of bias which may have influenced the actions of the prosecutor leading the investigation.

In this way, there is a need to examine Kumpa’s former role as ‘Deputy Spokesman for the Public Prosecutor's Office’, as well the proceedings carried out thus far under his direction.
The author of this report closely followed Public Prosecutor Christoph Kumpa's media appearances in the period immediately after the crash. In the author's completely subjective opinion, it appeared that Mr. Kumpa had attained a significant boost to his perceived sense of personal importance from the enormous media interest, and what is most important, that he visibly enjoyed playing this role, particularly as it related to appearing on camera.

**Addendum, 30.03.2017:**

Mr. Christoph Kumpa's public reaction to the media coverage of the press conference held by the Lubitz family on 24.03.2017 is insightful against the backdrop of this point.
First of all, it is highly notable that public prosecutor Kumpa took it upon himself to reply directly when confronted with the contradiction between his own statements made when closing the inquiry and the more widespread external narrative of pilot suicide as well as his previous statements made in 2015 with regard to the assertion that 'Andreas Lubitz was depressed'. He now argues that neither he nor the Düsseldorf public prosecutor’s office ever made such a claim.189

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Furthermore, Kumpa even passed on a request submitted by a journalist working for the weekly newspaper 'Die Zeit' to the tabloid BILD. BILD’s digital editor-in-chief Julian Reichelt subsequently exploited this letter in a tweet.¹⁹⁰

His motives for such conduct are completely unclear, although they betray an increasing 'nervousness' on the part of the Deputy Spokesman for the Düsseldorf Public Prosecutor's Office.

When certain information from the internal workings of the investigation were actually 'leaked' to the media at an earlier stage in the proceedings, Mr. Kumpa was not so easily rattled. In light of the behaviour Mr. Kumpa displayed in media coverage – particularly on and after the 24.03.2017 – it is very clear that he is very eager to be on 'good terms' with the media, to say the least, and perhaps sought to make use of this rapport to 'cover up' his own failings and misjudgements over the course of the inquiry. Here he benefited from the restricted information to which he was privy as public prosecutor. Thanks to Mr. Kumpa’s official position,

¹⁹⁰See https://twitter.com/jreichelt/status/845606313468055554
journalists did not feel compelled to carefully vet and validate statements and information they received from him.

The questions surrounding the propriety of Mr. Kumpa’s actions would surely be an appropriate subject for a committee of inquiry in the Düsseldorf state parliament, and/or disciplinary action within the Düsseldorf public prosecutor’s office.
V. 5. 'The Justification for Launching the Düsseldorf Inquiry'

According to his own statements, Mr. Kumpa learned from the media of the 'alleged findings made by the BEA accident investigators from the voice recorder'. His records contain no evidence or documents explaining whether and, if so, how he verified this information from the media with the relevant foreign authorities.

He was then, according to his own explicit account, later requested by the French Gendarmerie, who were in the midst of their own investigation, to carry out a 'quick-freeze' in the apartments of both pilots, i.e. to secure all possible evidence within them.

It is striking that the file also contains no memoranda or documents which, for example, detail with whom from the French authorities Mr. Kumpa communicated or corresponded. He himself has also volunteered no information on this matter. That is shocking, particularly as the French authorities are legally required to obtain a judicial search warrant in the proper manner should they wish to carry out such an action. In this way, the illicit search represented an attack on the basic rights guaranteed by the German constitution.
It is also revealing that Mr. Kumpa obviously had to be informed by members of 
the special task force (BAO)\textsuperscript{191} called 'Alpen' that police officers had been 
deployed on security details to shield against press intrusion at the Lubitz family 
home in Montabaur, the shared home of Andreas Lubitz and Kathrin C... in 
Düsseldorf, and the home of Patrick Sondenheimer.\textsuperscript{192}

Once again, Mr. Kumpa apparently first learned from the media (!) that the 
leading public prosecutor in Marseille, Bierce Robin, had stated in a press 
conference that the co-pilot had been alone in the cockpit. When questioned, a 
liason officer for the French Gendarmerie, whose identity is unknown, clarified 
that investigators 'were not yet sure which person was sitting in the cockpit.'\textsuperscript{193} 
He went on to mention 'significant reasons to doubt that it was the co-pilot'. On 
hearing this, for incomprehensible reasons, Mr. Kumpa ordered that enforcement 
of the resolutions issued concerning the Sondenheimer house be suspended.

\textsuperscript{191} BAO: Special Structural Support Organisation

\textsuperscript{192} See p. HA 00032

\textsuperscript{193} See p. HA 00032
Conclusion No. 25-26:

25. As a consequence of this order, the investigation was conducted in a completely one-sided manner from this moment on.

26. According to the public prosecutor Christoph Kumpa’s own statements,\textsuperscript{194} the proceedings do \textit{not} amount to a criminal investigation against Andreas Lubitz, Germanwings, Lufthansa AG or any other party. The inquiry is an investigation into the deaths of the victims of the crash.

According to statements made by the Gendarmes investigating this case on behalf of the French Air Transport Police (GTA), no definitive statement could be

\textsuperscript{194} See pp. HA 11338 and HA 11341
made at this time as to whether Andreas Lubitz was even conscious when the aeroplane crashed. The Gendarmerie records of the 25.03.2015 contain the following statement:

'Sounds of breathing can be heard throughout the entire audio recording up to the moment of impact.'  

Over the days and weeks that followed, the French Gendarmerie's experts were similarly unable to make a definitive statement as to whether the breathing sounds made by Andreas Lubitz indicated he was wide awake or unconscious. On this matter, the summary of the preliminary investigation contained in the Gendarmerie records dated 23.05.2015 reads:

'Playback of the various recordings revealed sounds of breathing in the headset mic, which indicates that he was alive, but it could not be ascertained whether he was also conscious.'

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195 See pp. HA 05130-1. CVR recording of 25.03.2015, 10:45 CET

196 See HA 04310 – Summary of Preliminary Investigation, 23.05.2015
Conclusion 27:

In light of the uncertainty clearly documented in these files – which according to the files themselves lasted until the 25.05.2015, two whole months after the first examination of the evidence from the cockpit voice recorder – the French public prosecutor Brice Robin's decision to announce to the world as early as the 25.03.2015 that a fully conscious Andreas Lubitz had purposefully crashed the aeroplane with the intent to commit suicide is inexplicable.

The same applies to the findings of the Düsseldorf public prosecutor's inquiry, which build on the French investigation's conclusions.

It is also unclear exactly when and what official requests for assistance were made by the French authorities – in this case the public prosecutors at the Tribunal de Grande Instance in Marseille – as well as the manner and form in which these
requests were communicated to the German authorities. A document addressed to the Spanish authorities, issued by Deputy Public Prosecutor Ludovic Leclerc and dated 26 March 2015\(^{197}\), does not contain dedicated information regarding the inquiry’s conclusions about the facts of the incident. However, it includes an explicit request for thorough scrutiny of the cockpit crew, taking into account the following criteria (my emphasis):

\[
\text{(medical history, personality, professional skills, behaviour in the days and hours leading up to the flight, possible state of depression...)}\]^{198}

A further document drawn up by Deputy Public Prosecutor Sylvie Marchelli is dated 15.04.2015\(^{199}\). Further back (chronologically) in the file is a copy of the request for assistance also issued by Ms Marchelli, dated 02.04.2015. On the basis of the preceding correspondence by email, it can be safely assumed that this is the actual request for assistance presented to the German authorities.

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\(^{197}\) See pp. RH 001-00327 et seq.; HA 00134 et seq.

\(^{198}\) See HA 00139

\(^{199}\) See pp. RH 001-00396 et seq.
Notably, despite not having sufficient evidence to support such a hypothesis, this request once again states in the section 'I. Facts of the Case':

‘...that the captain left the cockpit and was unable to return because the co-pilot had locked the door using the manual switch. Technical investigations have concluded that a conscious action alone initiated the descent of the aircraft and caused the crash. The investigation established that Andreas LUBITZ suffered from depression and had repeatedly been on medical leave...’

However, this claim is clearly not part of the original statement of the confirmed facts of the case delivered by Mr. Brice Robin on 26.03.2015 at a press conference in Marseille – the same date as the searches in Düsseldorf and Montabaur – not least because these alleged ‘findings’ (depression) had not been confirmed with any certainty at that time.

A letter sent by Mr. Kumpa to the Employers' Liability Insurance Association for Trade and Logistics (BGHW) dated 16.04.2015 makes clear that the Düsseldorf

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200 See pp. HA 001-00501

201 See HA 11365
public prosecutor intends to make an official request for assistance from the Spanish authorities. The letter describes this request as 'currently in progress'.

On the 24.04.2015 the lawyer representing a surviving dependent of one of the victims is informed that 'in the meantime, requests for assistance have been sent to various foreign judicial authorities...including the French authorities, among others'.

Another of Mr. Kumpa’s letters to a surviving dependant’s lawyer, dated 03.11.2015, makes clear that the Düsseldorf public prosecutor’s office has sent a request for assistance to the French judicial authorities which had yet to be complied with at that time.

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202 See HA 11383

203 See HA 11320
V. 6. 'Execution of the Search Warrants'

The search warrants were executed almost simultaneously on the afternoon of the 26.03.2015. The events on this date are covered in more detail in the records contained towards the end of the case files. Mr. Dierselhuis, the public prosecutor, was flown in to Montabaur by helicopter by the Düsseldorf public prosecutor's office to lead the search there. According to page H 00032, Dierselhuis, with Mr. Kumpa's agreement, decided that the search should focus on Andreas Lubitz's childhood bedroom after Mr. Dierselhuis had determined that 'no relevant evidence' was to be found in the rest of the family home.

**Conclusion No. 28:**

It is therefore incomprehensible why, despite this determination, police photographs taken by DSI Tanja Lauterbach of the Montabaur Criminal Investigation Department clearly depict all rooms and were later included in
These photographs were later published by the BILD tabloid and consequently by other media outlets.

Notably, the question of how and by whom these photographs from the public prosecutor's confidential case files were leaked to the media has not been investigated by the public prosecutor's office.

Page HA 00032 contains statements made by Mr. Kumpa regarding letters and cards belonging to Andreas Lubitz that were seized as evidence. He singles out an undated card written in a feminine hand, which amongst other things bears the message:

'I don’t know why they make you cry... I will kiss away your tears.'
It is immediately obvious that this document relates to complaints made by Andreas Lubitz at the beginning of his training in Bremen in 2008. Mr. Kumpa draws the following conclusion from this evidence, however (my emphasis):

‘from which we can conclude there were existing problems which Andreas Lubitz clearly was not prepared to openly discuss.’

**Conclusion No. 29:**

This conclusion is unfounded and mistaken. It is based on papers dating from a totally different period. In 2008 Andreas Lubitz was very clearly already actively discussing these issues with others. It is clear to the author, however, that the public prosecutor, Mr. Kumpa, succumbs to a severe confirmation bias in making this statement, i.e. incorrectly endorses a conjecture which then goes uncorrected throughout the rest of the proceedings.

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205 See statement and footnotes in ‘Abstract’, p. 9
V. 7. Medical Confidentiality

V. 7.1. Fundamental Principles

Doctors in the Federal Republic of Germany are obliged to keep information entrusted to them by their patients confidential. § 203, para. 1 of the Criminal Code (StGB) states that a person who without permission discloses confidential information, that is, information relating to personal life or professional or business dealings, which was entrusted to them or otherwise became known to them in their role as a doctor may be punished with a fine or a sentence of up to one year’s imprisonment. § 203, para. 1 StGB applies equally to professional assistants and persons in training who are active in the medical field.\footnote{See § 203 para. 3 Criminal Code (StGB)}

Safeguarding medical confidentiality in relation to doctors is regulated by the criminal offence detailed in § 203 StGB in addition to the codes of conduct laid down by the medical councils of the federal states.

\footnote{206 See § 203 para. 3 Criminal Code (StGB)}
In addition to doctors, members of other healthcare-related professions regulated by the state, e.g. non-physician psychotherapists (in accordance with the Psychotherapy Act), medical assistants, nurses and orderlies, midwives, masseurs, physiotherapists, medical laboratory assistants etc. are also legally bound by medical confidentiality.

Medical confidentiality applies to facts and circumstances that are known to only a limited group of persons, and which the interested party has a legitimate interest, substantiated by examination of their personal situation, in keeping confidential.

A legitimate interest in confidentiality has been overwhelmingly established in case law (Karlsruhe Higher Regional Court (OLG) of 11.08. 2006, 14 U 45/04) and literature for patients' names and for the fact that a person has in fact consulted a doctor. The Karlsruhe OLG ruled that a doctor not must share the name of another patient with a patient, even if this patient was injured by the other in a collision during a dance therapy session (Karlsruhe OLG of 11.08.2006, VersR 2007, 245).
Medical confidentiality is also to be observed **towards other doctors.**

A doctor's duty of confidentiality also extends to **patients' family members** as well as to **the doctor's own family.**

The duty of medical confidentiality remains in force even **after the death of the patient.** After the death of the patient, relatives cannot effectively release the doctor from the duty of confidentiality. Provision of information to heirs, relatives, or third parties, or the release of medical records of deceased patients thus violates doctor-patient confidentiality, unless the doctor comes to the conclusion that revealing the patient's confidential information is in the so-called 'presumed interest of the deceased'. 'This interest, which is to be determined on a case-by-case basis, can be characterised as replacing the patient's interest [present during their lifetime] in confidentiality, which has now lapsed' (OLG Naumburg, 09.12.2004. VersR 2005, 817).

The **clearly established** interest of the deceased in the continuing confidentiality of information entrusted to the doctor is the decisive in determining the presumed interest of the patient. Listed below are some examples from case law:
The Federal Court of Justice (BGH) has already ruled that the interest of a decedent does not signify that his lack of testamentary capability remains confidential; rather, the interest consists therein that the general provisions protecting of a person without testamentary capacity are not circumvented by medical confidentiality (BGH, ruling of the 04.07.1984, NJW 1984, 2893 et seq.).

According to the Göttingen Regional Court (LG), medical confidentiality does not usually preclude the release of the autopsy report to close relatives.

Because either it may allow a person to be able to hold another responsible for the death of the deceased, or it may help family members to accept a suicide where applicable (LG Göttingen, ruling of 25.09.2003, MeDr. 2004, 504 et seq.).

Finally, the Naumburg Higher Regional Court (OLG) has ruled that a person may, for example, have an interest that their diagnosed alcoholism is kept confidential while they are alive, yet after their death, this interest in confidentiality may cease to be valid in, for example, a case involving matters of insurance, such as determining the legal capacity of the deceased due to their alcohol-related condition and the obligations of the insurer. In the case which led to the ruling, it was disputed whether the insurer was required to pay out as a result of the house
fire set by the deceased policyholder. If the event of damage upon which the claim was made was brought about intentionally, the insurer be under no obligation to pay out, but this would not be the case if the damage was caused in a state of diminished responsibility due to alcoholism (OLG Naumburg, ruling of 09.12.2004. VersR 2005, 817).

In all of these cases a doctor has a certain scope for discretion which the courts have only limited power to examine.

It is only prohibited to reveal confidential patient information without authorisation. In accordance with § 203, para. 1 StGB, breaking medical confidentiality with authorisation is not punishable by law. In case law and literature, four forms of authorisation for disclosure have so far been identified, which allow the doctor to reveal a patient’s confidential information legally:

1. The doctor is not bound by doctor-patient confidentiality, if the patient gives express or implied consent to the disclosure of the information, i.e. the patient has granted permission to disclose the confidential information.
Patients with mental illnesses can effectively release the doctor from confidentiality requirements so long as they have the cognitive faculty to understand their actions. Should the mentally ill patient lack this faculty, the decision falls to the patient's court-appointed guardian.

2. The doctor is granted further powers to disclose confidential information if this disclosure is found to be in accordance with the so-called **presumed consent** of the patient. The distinction can be made here between two possible situations: Should the patient be unable to give consent due to unconsciousness, yet the doctor is able to assume on the basis of other indications that the patient would give consent if able to do so, the doctor is free to disclose information. A case of presumed consent can also occur if the doctor has no need to obtain consent because it can be assumed that the patient places no value on the question.

Examples:

a) The doctor informs the relatives of an unconscious patient who was injured in an accident.
b) After delivering a health report for a life insurance policy, another question is asked, which the doctor answers without again obtaining the patient’s consent.

3. A doctor can also be authorised to disclose information due to legal disclosure obligations or rights. A doctor is obliged to disclose information, for example, under the legal obligation to disclose contained in the Infection Protection Act. An Authorisation to disclose information on the basis of legal regulations without establishing a duty or obligation to disclose arises, for example, from the authorisation to disclose information in accordance with § 3, para. 2, of the Federal Cancer Registry Data Act.

4. Finally, authorisation to disclose information can arise from the so-called principle of balancing interests. According to the so-called justifying state of emergency in accordance with § 34 StGB, the doctor may always reveal confidential information, where the interest underlying the legal requirement for medical confidentiality, namely the confidence of the patient in the doctor’s non-disclosure, is of lesser importance than another legal interest.

For example:
Against the wishes of the patient, the doctor refers the patient to the road traffic authority because the patient continues to drive, despite the fact that they endanger themself and others due to their medication or a condition such as epilepsy.

It is a requirement in cases where authorisation to disclose is based on the principle of balancing interests that the doctor has previously unsuccessfully attempted to persuade the patient to take the necessary measures themself.

In general, **there is no higher legal interest than the state's interest in law enforcement.**

(...)

The doctor therefore is authorised to disclose information in cases involving particularly severe crimes associated with lasting damage or disruption to law and order and/or high risk of reoffending (Saenz/Schröder, Strafgesetzbuch. Commentary, 27th edition, 2005, § 203 recital 32).
This is the case, for example, if the public prosecutor's office and police force are investigating a terrorist attack. The doctor may in this case inform the police about the treatment of a suspect or give the names of the patients seen over the last week.
V. 7.2 Medical Confidentiality and the Judicial Authorities

‘There are no special obligations to disclose information to the police or the public prosecutor. Should the doctor become aware of crimes being planned, they are obliged to inform the law enforcement authorities (§138 StGB). Where especially serious crimes associated with lasting disruption to law and order or high risk of reoffending are concerned, the doctor is authorised to break medical confidentiality.’

Corresponding requirements for medical confidentiality are also enshrined in many other statutes within German law. Examples include §§ 1, 2 Basic Law, § 134 Civil Code, § 823 Civil Code as well as § 1 Consumer Protection Act.

According to legal experts consulted in the course of this research, including practising lawyers and professors of law at German universities, both the

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207 From: LANDESÄRZTEKAMMER BADEN-WÜRTTEMBERG, ‘Merkblatt zur ärztlichen Schweige-pflicht’ [Baden-Württemberg Medical Board, ‘Fact Sheet on Medical Confidentiality’], issued October 2009
Düsseldorfer public prosecutor's office and the district court presiding over the inquiry have gravely violated these legally protected rights by searching doctors' surgeries and seizing Andreas Lubitz's confidential medical records. The doctor who formerly treated Andreas Lubitz was well within his rights to refuse to disclose or hand over these documents and data, which enjoy special legal protection. The legal experts consulted consider the Düsseldorf district court's rulings on this matter highly questionable and it is unlikely they would withstand legal scrutiny by higher courts, particularly given that the relevant petitions made by the public prosecutor contain untrue allegations and claims.

The psychiatrist who last treated Andreas Lubitz, Robert Salomon of Montabaur, also initially refused to hand over medical records. The Düsseldorf public prosecutor's office then (as in all other cases in which medical professionals and institutions initially refused to hand over medical records) obtained a court order demanding the release of the files on the basis of substantially false claims. Whether these claims were made intentionally or through negligence remains to be seen, as the public prosecutor's office was obliged to have carefully fact-checked the petitions, as was the judge who issued the court orders. To be clear: the public prosecutor's office's petition (of the 31.03.2015, made by senior public prosecutor Mr. Kessel) reads:
'The interview of the co-pilot's partner revealed that since 2008, he [Andreas Lubitz] had been continuously undergoing psychotherapy and taking prescribed medication for the same purpose.'

This is incorrect in two respects: firstly, Kathrin [redacted] claims never to have made any such statement when questioned by the Düsseldorf CID, and no such statement is contained in any of the transcripts of the interviews she signed; and secondly, Andreas Lubitz was not 'in psychotherapy and taking prescribed medication continuously from 2008 onwards'. By 2009, he had fully recovered from the depressive episode he suffered in 2008; this was confirmed by two medical specialists, who signed him off as fit to continue his pilot training.

Given these circumstances, it would even have been unlawful not to have certified him as medically fit to fly. This is the conclusion that even the public prosecutor himself, Christoph Kumpa, eventually arrives at in his statement of the 15.11.2016, made in response to a request for evidence submitted by the lawyers of the bereaved Klaus Radner. This reads:

'Hence, when the certificate of medical fitness was issued on 28.07.2009, one month after discontinuing Cipralex medication, there were no sufficient evidence
to indicate that Andreas Lubitz was still mentally ill or under the influence of any
disqualifying psychiatric medications at that time.

Given these circumstances, Andreas Lubitz was entitled to be re-issued with a
certificate of medical fitness and there were also no legal grounds or reasons
whatsoever for the supervisory authority, the Federal Aviation Authority, to object
to the issuance of a certificate of medical fitness.’

On page HA 00033, Mr. Kumpa goes on to write that ‘during the search of the
home’ of the co-pilot, officers encountered his partner Kathrin Goldbach who
declared that she was prepared ‘to be interviewed as a witness by police officials
at the Düsseldorf police headquarters’.

This statement again fails to accurately represent the actual facts. Kathrin
Goldbach was not present at the search of the apartment she shared with
Andreas Lubitz on the 26.03.2015 at 16:55; in fact, she had handed over the
keys to the lawyer representing her (Dr. Mathias Sartorius of the law firm Feigen
& Graf in Cologne) who had been appointed by Lufthansa. Dr. Sartorius arrived at
the apartment at 16:45, let the police officers into the apartment and was present

208 See Sondenheimer-Lubitz p. HA 9538
during the search\textsuperscript{209} (see also further statements below under ‘\textit{Searches}’ and under ‘\textit{Conflicts of Interest}’). She had met her lawyer at a car park near Lake Unterbacher and handed over the keys to the apartment. She was not present during the search. The record of the search was signed by her lawyer, \textbf{Dr. Sartorius}.

In any case, on the basis of the interview with Kathrin \textsuperscript{ab} Mr. Kumpa states that Andreas Lubitz had been misdiagnosed by an ophthalmologist in December, leading him to believe he was at risk of going blind.

\textsuperscript{209} See Sondenheimer-Lubitz p. HA 9537
V. 7.3. Patient Records and Medical History, Including Doctors, Psychiatrists, and Psychologists

As stated above, court orders and rulings demanding the disclosure of confidential patient records were obtained on the basis of false information. One example is the ruling obtained by the senior public prosecutor, Mr. Kessel, from the Düsseldorf regional court on the 10.4.2015. This reads:

'The interview with the co-pilot’s partner revealed, that since 2008, he [Andreas Lubitz] had been continuously undergoing psychotherapy and taking prescribed medication for the same purpose.'

This resulted in the ruling by Judge Nick Düsseldorf district court. The ruling states (my emphasis):

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[210] See HA 10144 et seq.

[211] See HA 10150 et seq.
'From analysis of the voice recorder it can be surmised that the co-pilot Andreas Günter Lubitz deliberately caused the crash, as he was alone in the cockpit, initiated the descent and prevented the other pilot from re-entering the cockpit through the use of an electronic locking device.'

Even ignoring the fact that the ruling incorrectly specifies the date of the crash as the 23.03.2015, the judge's understanding of events is questionable in several respects:

1. Neither the Düsseldorf public prosecutor nor any of his officers have themselves analysed the voice recorder evidence. In fact, according to Christoph Kumpa's own statements to the Lubitz family and his closing statement of the 15.12.2016, to date the public prosecutor's office has never even had access to a copy of the tapes.

2. At that time, and to date, it could and cannot be claimed that Andreas Lubitz 'prevented the other pilot from re-entering the cockpit through the use of an electronic locking device' (see also 'Cockpit Door' section).
The same occurs in the handling of Dr. Bernhard Kurt Atzinger, the therapist who treated Andreas Lubitz in 2008-2009. The fact that the doctor apparently attempted to charge higher rates than would be usual for similar cases caught the author’s eye. This led to claim against Andreas Lubitz’s insurer, AXA, after his therapy had ended.

In a statement dated 16.09.2009 concerning his claim for outpatient treatment of Andreas Lubitz, Dr. Torsten Siol writes to AXA:

‘The policyholder presents a very clear case of major depressive disorder: whether this actually manifests as a severe depressive episode, is in my view questionable, but this is of no great significance with regards to the indication of the psychotherapy requested.’

He goes on to write (my emphasis):

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212 See H 10157 – 10164

213 See HA 10155
'In addition, the classification clearly depends to a great degree on the therapist in question and their expert opinion, in a way which is almost impossible to quantify objectively. There are certain exceptions, such as very obvious problems leading to crises, for example leading to psychiatric inpatient treatment for suicidal behaviour, which may possibly lead to longer-term hospitalisation. However, this case does not present as a crisis of this sort; in fact, an increase in the basic rate is planned.'
In any case, on 11.08.2009, Dr. Atzinger wrote to the Lufthansa medical department with the following diagnosis:

'State of exhaustion from overwork and decompensation with severe depression, ICD10 no. F33.2, tinnitus, ICD-10 no. B93. ¹²¹⁴.'

On the 04.05.2015, DCS Elsner of the Düsseldorf CID notes: Salomon encountered 'no suicidal tendencies (16.03.2015)' ²¹⁵

Careful examination of Mr. Salomon's records also reveals the following: The medical records were only released in digital form. Page HA 10287 gives 09:00 on the 27.03.2015 as the date of the last edit. This was a review, which includes a significant comment supporting the decision the doctor made to prescribe medication:

²¹⁴ See HA 10184

²¹⁵ See HA 10324
'In agreement with the medication prescribed by the doctor appointed by the airline company'.

The digital files' index tabs (listed below) date the last edit at **20:35 on the 26.03.2015**.

Mr. Saloman, the psychiatrist, handed over further documents in the form of Microsoft Word .doc files only when explicitly ordered to do so by the CID. Investigators already had access to these files as they formed part of the original records handed over to police.

The author of this report suspects that after the crash, knowing that Andreas Lubitz was under investigation – this fact having been made public by Mr. Robin's press conference and subsequent media coverage on 26.03.2015 – Mr. Salomon 'altered' his digital records.

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216 See HA 10288
That said, it is worth noting that none of the specialists, psychiatrists and psychologists who treated Andreas Lubitz assessed him as suicidal or made any reference to suicidal tendencies in their diagnoses.

The psychologist Dirk Michael Schmidt expressly notes in his diagnosis (notes) of the 17.3.2015 ‘calm and thoughtful, not suicidal’.

In an examination on 20.02.2015, Dr. Hartmut Kanwischer, consultant specialist in psychotherapy, internal medicine and cardiology found ‘no evidence of acute suicidal tendencies’.

On 08.02.2015, Dr. Böhlhoff Martin of the 'Neurologie am Zoo' practice found: ‘No suicidal tendencies’.

Dr. Böhloff-Martin also noted:

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217 See HA 10338

218 See HA 10354

219 See HA 10408
'Informed about side effects of psychiatric medication! Again on 23.02.15!

Taking Mirtazapine up to 26.02.'

On the 26.02.2015, again the remark: \textit{'No suicidal tendencies'}

On the 17.02.2015, Andreas Lubitz was examined by the psychologist Lukas F. Becher. On his 'evaluation' sheet, which contained a printed checklist, Dr. Becher crossed out the word 'suicidal' by hand.$^{220}$

The author will return to the representation of the evidence seized in the apartment and the basic findings from the pilot's records$^{221}$ later in this report.

The family's accounts of their questioning on 30.03.2015$^{222}$ on the whole corroborate the official transcripts of these interviews, but leave out all

\footnote{220}{See HA 10439}

\footnote{221}{CF. HA 00034-00041}

\footnote{222}{CF. HA 00036-00037}
statements critical of Andreas Lubitz made by family members. The interviews were clearly carried out with the aim of gaining further insights into Andreas Lubitz’s health, and his alleged depression in particular.

**Conclusion No. 30:**

In light of this evidence, it is very clear that from a very early point in the investigation, the investigators and the public prosecutor developed a kind of ‘fixation’ on the ‘depressive phase’ Andreas Lubitz underwent at the start of his training at the Lufthansa pilot school in Bremen in 2008. It comes across as though the investigators seemed to identify the suspected motive to fit the theory that Andreas Lubitz intentionally caused the crash.
VI. 'Examination of the Apple iPad 3 Tablet (A1416)'

VI. 1. The 'planned suicide' hypothesis and the 'cockpit door investigation'

The statements regarding the extant browsing history from 18, 19 and 20 March 2015 are highly questionable in many respects. In particular, as Andreas Lubitz’s brother, Christian Lubitz was also staying at the apartment shared by Andreas Lubitz and Kathrin Goldbach at this time, meaning that there were simply no ‘unlimited opportunities’ – as the public prosecutor’s office claims – for Andreas Lubitz to search for these terms ‘unnoticed’.

In talks with the author of this report, as well as in a sworn statement presented to the courts, Christian Lubitz has clearly and convincingly affirmed that he engaged in a range of leisure activities with his brother at the time in question, including long walks around nearby Lake Unterbach, cooking together, and playing computer games. On the evening of Wednesday the 18 March 2015, he was on his laptop in the kitchen with his brother and his partner. He played an album on his MP3 player and checked his emails. Afterwards, he cooked dinner, and all three ate together. They then watched television together; Andreas Lubitz
and his partner fell asleep in front of the television, woke up around midnight and then went into their shared bedroom. Only then did [redacted] fall asleep on the living room sofa.\(^{223}\)

The times given for the web searches allegedly made by Andreas Lubitz are thus directly contradicted by the brother's testimony and the joint activities they engaged in away from the apartment. The public prosecutor Mr. Kumpa's assumption that Andreas Lubitz 'used the iPad at a time when his partner may have been at work' and the conclusion he draws from this 'that the inputs in question [were made] by him' thus do not stand up to critical scrutiny.

Here is a pure hypothesis adopted by Mr. Kumpa, which ought to have been discredited by targeted questioning by the police at a far earlier stage of the investigation.

It also makes absolutely no sense that a pilot, who had access to much more detailed manufacturer information on the cockpit door from his company

\(^{223}\) See [redacted] sworn statement, submitted to the court and the public prosecutor's office.
computer and records (for example in the Aircraft Operation Manual, AOM), would search for such information on his personal iPad. Andreas Lubitz also did not search the internet for any information of any kind which could have been useful in planning such an act, as will be further shown below.

According to both the search record and the evidence list (HA 08780 and 08781) there were two iPads in the shared apartment in Düsseldorf. Initially, however, only one of the iPads was listed – clearly by mistake (see also HA 9542 Lubitz-Sondenheimer special files). DCS Sybertz was responsible for this error (HA 09581), which was confirmed a day later by DSU Kauth.

In a witness interview on the evening of the 26.03.2015, Kathrin G first mentioned that she had deleted Andreas Lubitz’s Facebook account that morning using her tablet. She subsequently handed over a second Apple iPad tablet.\(^\text{224}\)

\(^{224}\) See HA 08919 and HA 09801
Conclusion No. 31:

Therefore, the claim made by the public prosecutor, Mr. Kumpa,\textsuperscript{225} but also subsequently by the French authorities,\textsuperscript{226} the BEA, and the BFU,\textsuperscript{227} that this iPad was seized from the shared apartment, is false.

This false assertion was also taken up and spread by various media outlets.\textsuperscript{228}

Although the public prosecutor’s office must have been aware of this, it is immediately obvious that no efforts were made to correct this – hardly insignificant – misinformation.

\textsuperscript{225} See HA 00041’i) Analysis of the Apple tablet seized in the apartment in Düsseldorf’ iPad 3 Wi-Fi (A1416):’ and HA 05618

\textsuperscript{226} See HA 05449 Gendarmerie Nationale Investigation Findings of 30.04.2015

\textsuperscript{227} See BEA Final Report, p. 122

\textsuperscript{228} See HA 05597, 05613 HA, HA 05699
All this is significant because a total of three iPads were seized. Indeed, the CID is in a state of complete confusion regarding this matter; it is not always clear to which of these iPads is being referred, and it is perfectly obvious that they subsequently mixed up and mistaken for one another in the case files. This also applies to the findings of the expert forensic IT analyses. In any case, there are significant discrepancies which require a great deal of effort and patience to 'resolve'. A careful examination of the files is necessary to ascertain with any clarity specifically which device is being referred to.

It should be pointed out once again here that the BFU also makes this observation in their own analysis and when presenting the facts of the case, going so far as to pass on this information to third parties (the BEA and the Gendarmerie) in the form of a written report. The author of this report is unable to ascertain whether press reports alone or direct information from the Düsseldorf public prosecutor's office played a role here. Doing so would require a court order or even the seizure of BFU documents, including files held by the head of the investigation, Johann Reuss.

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229 See comments on p. 170 of this report.
VI. 2. The Acquisition of the Three iPads

For the sake of clarity, when referring to specific exhibits, the author follows the exhibit numbers assigned by the law enforcement authorities in the case files, which, however, deviate from the exhibit numbers contained in the search records.

The file occasionally makes reference to an 'iPad CDMA (A1460)' (see for example HA 08781). This is later examined by an IT forensics specialist and is referred to as exhibit no. 1.1.1.1.11 by the list of exhibits dated 21.05.2015230. However, when seized it was originally referred to as exhibit no. 9231 or No. 38232 according to the list of exhibits seized during the search or immediately thereafter, which was drawn up by DCS Sybertz. The exhibit in question is an older model iPad 2 (A1395), that is, with the 'old style' USB port, in contrast to Apple's more recent Lightning port, which the manufacturer has fitted to its devices since 2012, including the 4th generation iPad, iPad mini, iPhone 5, 7th

230 See HA 08779 et seq.

231 See HA 09540

232 See HA 09542
Generation iPod Nano, 5th Generation iPod Touch, and other product lines, such as the iPad Air series.

It is clear that, probably a short time after the search had taken place, DCS Sybertz realised two iPads had been seized from on top of the small table in the living room in the Lubitz household. But only one of the two was initially included in the search records. Seized item no. 38 was added later, after completion of the search and seizure.\textsuperscript{233}

\textsuperscript{233} See HA 09542
A day later, this state of affairs was characterised by another officer present during the search, DSU Kauth, as 'based on error’. 

In any case, upon forensic examination, exhibit no. 1.1.1.1.11 is later described as a WiFi-capable iPad 2 (A 1395) with the serial number DN6GFBU6DFHW, and according to the forensic IT analysis, registered to 'Kathrin'.

Five photographs are discovered on the iPad, dated 20.03.2015, containing messages of condolence.

Another striking discovery found on this iPad (exhibit 1.1.1.1.11) is another photograph dated 24.03.2015. The image is a screenshot of the website Flightradar24.com, which has clearly been used to track the ill-fated flight 4U9525/GWI18G. The screenshot shows the time of 09:32. The 'altitude and speed changes' of the aircraft are clearly visible. Unfortunately, it is not possible to ascertain whether this screenshot was taken at 9:32 UTC or 09:32

234 See HA 09581

235 See HA 08910
CET. The case files do not include a copy of the screenshot, which if available would allow conclusions to be drawn about the position of the aircraft at the time it was taken.

Flights on the 24.03-26.03.2015 (Andreas Lubitz’s scheduled flights) were also marked in the calendar app.

In the Safari browser, the last search terms entered into Google were ‘behavioural therapy + hypochondria + Düsseldorf – the time of search is not given.

There is a fundamental issue here. To carry out a forensic analysis of the browser, experts compare the browser and connection data taken from the device with the data stored by the service provider and, using checksums verify whether the data are consistent with the information provided, or whether they may have been tampered with. There are no references to this in the case files or the Düsseldorf CID’s forensic analysis.

Checksums [German: ‘Prüfsummen’] allow experts to check whether a downloaded file is consistent with the original version. This is particularly useful in detecting data tampering.
Exhibit no. 1.1.1.1.12, listed in the search records as exhibit no. 9 or 38, more accurately No. 9 B, is an iPad CDMA (A 1460) featuring a more modern Lightning port and bearing serial number DMPJV420F18W. The device is also registered to 'Kathrin', and according to forensic IT analysis does not contain any data relevant to the investigation.

Exhibit no. 1.1.1.1.13 is an iPad 3 WiFi (A 1416) with the serial number DMPHW6HVDJ8V belonging to Kathrin and was handed over to the CID (DCS Gebhardt and DCS Wilms) by Ms. during her interview on the evening of the 26.03.2015 in the presence of her lawyer, Dr. Berndt, and pastor Ms. von der Heyden.

The interview transcript records the following: ‘Along with her statement, Ms [redacted] is submitting her boyfriend's iPad for analysis.’

The motives for this are totally unclear, in particular whether there was a particular reason for her to do so at that time. The files go on to note that of that

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237 See HA 09801
Kathrin Goldbach ‘stated to DCS Gebhardt that this iPad was used both by her and by Andreas Lubitz.’

This is all the more significant because the forensic analysis carried out by the Düsseldorf CID on the 27.03.2015 on this – and only this – iPad brought to light its internet browser history, which was attributed to Andreas Lubitz and which very strongly implicated him.

The 'internet search history' described here gave the investigators exactly what they were looking for, but had not yet been able to find: a plausible enough seeming 'motive', at least on the surface of things, as well as evidence of 'plans relating to the deed' made by the accused, Andreas Lubitz.

The iPad A 1416 (exhibit no. 1.1.1.1.13) was, however, quite clearly exclusively used by Kathrin Goldbach between the morning of the 24.03.2015 to at least 26.03.2015.

238 See HA 08923

239 See HA 08922 et seq.
According to the data extracted from this device, she had logged into Facebook at 06:53 and recovered a password (presumably for Andreas Lubitz's account). Four minutes later she had access to the account, clicked on messages received from 'Bolle Bo', and at 07:00 she deactivated Andreas Lubitz's account.

Notably, however, according to the browser history obtained by the CID analysis, in the days leading up to this, the iPad had clearly not been used, though Kathrin Goldbach had access to it and used it as her exclusive means of internet access, with the exception of her smartphone.

The other iPads (exhibits 1.1.1.11 and 1.1.1.12) and her personal laptop were also found in the apartment in Düsseldorf, which she and her family left on the afternoon/evening of the 24.03.2015, i.e. the day of the accident, and to which she has ostensibly not returned.

These devices (exhibits 1.1.1.11 and 1.1.1.12) were seized by police during the search of the apartment in the afternoon of the 26.03.2015. Kathrin Goldbach was not present when the devices were seized; she had previously handed over the
apartment key to Dr. Mathias Sartorius, the lawyer representing Lufthansa AG. She must therefore have had this iPad with her at this time.

**Note I:**

The author considers it fairly unlikely that Ms. G单纯 did not wish to use the iPad on 25.03.2015. However, Ms. G单纯 declined to make a concrete statement on this matter in a conversation with the author in Montabaur on 17.09.2016.

**Note II:**

The search warrant was executed after assertions had been made by the *New York Times* (the previous evening) and the French public prosecutor Brice Robin (that morning) portraying Andreas Lubitz as a suspect in no uncertain terms.
Theoretically, in the time between the Lubitz family and Kathrin Goldbach leaving the apartment on the evening of the 24.03.2015 and the police seizing the device on the afternoon/evening of the 26.03.2015, it would also have been possible for a third party with their own interests to tamper with the evidence and perform the incriminating internet searches, subsequently altering the date and time.

Finally, the possibility that Kathrin Goldbach herself carried out the searches implicating Andreas Lubitz after the crash and after becoming aware of the details cannot be ruled out. An 'act' of this kind would certainly be conceivable given the tremendous psychological damage and her state of mind at the time. She may also not have realised the magnitude of the direct and indirect consequences at this point, or the way in which the authorities would interpret the searches.

When meeting Kathrin Goldbach in Montabaur on the 17.09.2016, the author made repeated careful attempts to discuss the facts of the matter. She became defensive and evasive, saying: ‘Like hell I will! I’m not going to dig my own hole.’ (German: „Ich werde den Teufel tun und mich doch nicht selber reinreiten.”)
In this context there are a number of other plausible scenarios which could explain Kathrin Goldbach's behaviour:

Scenario A:

Due to Andreas Lubitz's almost manic fixation on the problems with his eyesight, his state of mind, and his numerous visits to various doctors, the couple were experiencing problems and she had threatened to leave him.

Scenario B:

She was simply afraid that she would be accused of playing a part in the disaster – which lawyers representing the victims' relatives have recently done.

Scenario C:

There was an argument between the two and Andreas Lubitz threatened Kathrin Goldbach – or vice versa – telling her to leave him.
Only the last scenario, if it were true, would make the scenario put forward by the investigators that Andreas Lubitz was suicidal at least plausible. No evidence can be found to support it, however. On the contrary, the two were planning to marry and have children. In the past, his partner had always supported him, such as during his illness at the beginning of his pilot training, and again in the lead up to his examinations, not to mention when was confronted with the incorrect diagnosis regarding his eyesight issues. Talking to the author of this report, Kathrin [Redacted] stated convincingly that there was no reason whatsoever, either objectively or in her estimation, which could have led Andreas Lubitz to commit suicide on the 24.03.2015.
VI. 3. Browsing History According to Police Forensic Analysis

According to the browser history, iPad 1.1.1.1.13 was last used on Monday the 
**23.03.2015** between 19:40 and 19:41. This was obviously done by Andreas Lubitz 
himself, as he logged into the Germanwings-Crew-Link.

The iPad was used twice prior to this on that day, probably by Andreas Lubitz, 
between 11:57 and an unknown time and between 13:58 and 14:45.

The exact browser history is clearer when examined chronologically:

- First he logs in to the site 'meetup.com'. This is a platform for users to 
  get in contact with other users in their area to arrange group activities. 
  He signs up here.

- At 13:58 he logs in to 'spontacts.com', a recreational community that 
  helps users find people in their area for recreational activities, try new 
  pursuits, and get to know one another. He also signs up here, according
to the browser history.

It is notable that in the CID's forensic analysis (page HA 08929) the first column of consecutive number 34 has clearly been covered over with white-out. This allegedly contains the membership confirmation, part of the login process.
- From 14:09, Andreas Lubitz searches Google for 'stress, lack of sleep and the consequences'. Until 14:21 he reads articles on a pharmaceutical website on this topic and on similar topics which are linked underneath the article, including 'insomnia – diagnosis, insomnia – living conditions/shift work, insomnia – medications, sleeping pills, insomnia – physical disorders, insomnia – depression and other psychological triggers, insomnia, snoring, sleep apnoea' and 'insomnia – restless legs and other movement disorders'.

- He then searches for the website of the 'Heilzentrum Mitte' in Düsseldorf, a group practice of alternative health practitioners. He researches the centre's founder, Marion Plücken, whose therapy includes hypnosis-based treatments.

- From 14:53, Andreas Lubitz researches 'advance directives' [A.K.A. 'living wills']. He starts with a Google search, which first takes him to a Ministry of Justice webpage, and just a minute later to a downloadable PDF form issued by the Hamburg Medical Council. Due to changes made to the format of this form since then, it is unclear whether the advance
directive he later filled out and signed on the 23.03.2015\textsuperscript{240} is based on this form.

- On Sunday the \textbf{22.03.2015} the iPad was used three times, according to the browser history: in the morning at 09:33 to access a site with special offers at Kaufhof (a department store), and at 15:56 for a Google search for 'returnable deposit bottles'. At 18:39, it seems that Andreas Lubitz uses the iPad, initially to log in to the Germanwings-Crew-Link, and then barely a minute and a half later to navigate to the site meetup.com (for which he had not yet registered as a member at that point – see above; he did not sign up until the next day). After 10 minutes he then searched a number of topics including 'seeing, hearing, lack of sleep eye damage, disturbed sleep, blindness after solar eclipse without special eyeglasses (newspaper article)'. The search leading to the internet address 'traffic.outbrain.com/network/' could not be re-traced as the provider prevents the site from being archived.

- On Saturday the \textbf{21.03.2015} is only used briefly: once in the morning at 09:45 to call up the website of the Gemünder Park restaurant in

\footnote{240 See HA 10144 et seq.}
Gemünd in the Eifel region, followed by a search for a tattoo worn by Peter Brings, a Cologne-dialect singer, for an advert for the 'Gaffel', a Kölsch brewery.

- On Friday the **20.03.2015** the iPad was also used three times. First, from 15:33 to 15:43 for online banking with Postbank, and at 16:04 for a Google search with the keywords 'tiredness seeing darker', which was apparently not followed up or was interrupted. The same search begins again at 20:15 and leads, via the webpage 'auge-online.de' (keywords 'glare and light sensitivity') to the reference certificate for ophthalmologist 'Dr. Dirk Werdemann' in Ochsenfurt.

- At 20:21 the allegedly incriminating Google searches for the terms 'code cockpittür' ['code cockpit door'] take place. There was a discussion about this topic on the internet discussion forum 'MUC Forum' which took place in 2008, between the 29.06 and the 05.07. This 'MUC Forum' is a discussion board for pilots, plane spotters and amateur aircraft enthusiasts.
- At 20:23:39, a relevant link to 'findarticles.com' posted by the user 'cutlass' on the 02.07.2008 is clicked, but only leads to another search engine.

- At 20:23:50, another link posted by the user 'cutlass' on the MUC Forum on 02.07.2008 is clicked, which leads to an article in the Seattle Times.

The article is about a problem with cockpit doors, which were modified after the attacks of September 11th, 2001. The article reports that the lock could be deactivated or activated by a mechanic employed by US company Northwest Airlines using a Walkie-Talkie. The fault affected Airbus models A330 and A340 as well as Boeing wide-bodies. The article also reports how the manufacturers eventually got around the problem.

Though the article is very long, barely a minute and 30 seconds later, the user navigates to another German-language internet discussion forum, 'vielfliegertreff.de'. There, user 'haenfi' discusses a TV report and his belief that he has been able to make out the cockpit access code used in the shot. The video is now 'offline'.
On obtaining the case files in June 2016, however, the author of this report immediately found and watched the video, which is a report. In the relevant shot, which starts at roughly minute 47, a stewardess is shown calling the cockpit in order to deliver a meal or refreshments. With difficulty, it is possible to make out the code '1' and '#'. This is a normal 'call code' used to gain access to the cockpit, not a so-called 'Emergency Code' (at Germanwings at this time, this consisted of three successive numbers and the '#' symbol).

However, it takes more than 25 seconds just to call up the video and navigate to the relevant point. The site was called up at 20:25:27, but at 20:26:02, the user navigates on to the next site, an article written by aviation journalist Andreas Späth in his column on the internet portal 'airliners.de' (!).

- In the article, dated 21.09.2011, Späth reported on 'near-accidents related to visiting the toilet', which were apparently becoming more and more common. Specifically, Späth reported that a co-pilot had accidentally activated the rudder trim switch instead of the cockpit entry switch when trying to let the captain, who had left the cockpit, back in. The aeroplane had then made an abrupt roll to the right and had lost
height. Two flight attendants had been injured as a result.

In another case, an Air India copilot flying a Boeing 737 hit the steering column so hard when adjusting his seat that the autopilot switched itself off automatically and the aircraft went into a dive, which he was not able to correct alone. It was only 40 seconds later, when the captain managed to input the emergency code and get back into the cockpit, that the plunge was arrested.

Boeing had then installed toilets and a rest compartment for the pilots within the area protected by the cockpit door in the new Boeing 747-800.

- From 20:32 several other Google searches are made for the terms 'Death by lack of sleep; can you die from lack of sleep?' within 7 seconds, including calling up an article on 'gutefrage.net'. 1 ½ hours later, at 22:04, there is another Google search for 'lack of sleep weak eyesight', although no links are clicked.
- On Thursday the 19.03.2015 the iPad browser is used a total of four times, from 10:27 to 10:34, from 11:04 to 11:08, from 13:21 to 13:22 and from 15:25 to 15:31.

- First of all is a Google search for 'chloroquine suicide'.

This fact alone is remarkable, as it was preceded by no research which could have led Andreas Lubitz to chloroquine, either on the 19.03 or on previous days. Andreas Lubitz’s brother, [REDACTED] was also at the apartment at this point.

- The second link in the search results leads to an article entitled 'Drugs for Dying' on the website 'apotheken-adhoc.de'. After the Google search results page, page 2 of this article was called up.

The article reports that doctors in Germany risk losing their licenses if they prescribe drugs for the purpose of suicide. Another part of the article deals with the cocktail of drugs described in a book by Peter Puppe, a German 'death assistant' who helps people to commit assisted suicide. He recommends using Diazepam, a psychotropic drug and sleep aid, to induce sleep, and taking 80-100 tablets of the antimalarial drug
Chloroquine, which will lead to respiratory and cardiac arrest in 45 minutes to 6 hours.

In the next section the article explains that doctors in the Netherlands and in Belgium recommend the use of other drugs such as Thiopental, Propofol, Pentobarbital, Secobarbital, and Natrium Pentothal.

Although the antimalarial Chloroquine is associated with neither Belgium nor the Netherlands in this article, at 10:31:32 and again at 10:31:54 another Google search is made for the keywords 'Chloroquine+Belgium'

- No further web pages are called up after either search, however.

- The search is repeated in the next few minutes in various combinations: 'Netherlands', then 'Nederland' [sic] and then 'Nederland' [Dutch for 'Netherlands'].

- At 10:33:21, the term 'Chloroquine' is entered into Google and two seconds later the Wikipedia page for the drug is called up.
The average time it takes to read the Wikipedia article, which is written in a very complex and scientific style, is about 1 minute 40 seconds. After just 39 seconds, however, the user moves on to a Google search for the Diazepam, the psychotropic drug and sleep aid mentioned above.

However, a section of the Wikipedia article on Chloroquine may have played a role in this. In the section on 'Side Effects and Contraindications', the article reads:

‘Chloroquine can have a range of side effects, including corneal blurring and changes to the retina of the eye, gastrointestinal disorders, sleep disorders, neuro-psychiatric symptoms and skin redness. Chloroquine is particularly unfit for use in patients with severe liver/kidney damage. Chloroquine must not be combined with liver-damaging drugs or MAO-inhibitors (see monoamine oxidase inhibitors). Chloroquine may not be used in cases of disorders of the eyes or haematopoietic system. Chloroquine should not be used in cases of hypersensitivity to quinine or Mefloquine.’

In the section for 'Dosage and Administration', the Wikipedia article points out that

\textit{'In case of Chloroquine poisoning, Diazepam IV can be used as an antidote.'}

Note: Andreas Lubitz must have been familiar with Diazepam as it was one of the drugs prescribed during his illness in 2008/2009.

In any case, 39 seconds after calling up the Wikipedia entry on Chloroquine, the user searches Google for the terms 'buy+Diazepam+Europe'. Thirteen seconds later the user visits the site 'alles-rezeptfrei.net' ['all-prescription-free.net'], calling up the 'valium-without-prescription' page.

- The search leads to a site which today operates under the name
'medikamente-kaufen.net' ['buy-medications.net'] This site is apparently run by foreign suppliers of drugs which require prescriptions in Germany, sold at prices often far above their market value.

The user does not move on for a whole 30 minutes, when he/she carries out a search for the terms 'alles-rezeptfrei.net + experiences'.

- After just four seconds (!) a press release from 'www.firmen-presse.de' is called up, which seems to feature testimonials about experiences with 'alles-rezeptfrei.net'. This page is no longer available.

- Fifty seconds later, 'alles-rezeptfrei.net/shop' is called up once again, followed by the page offering Benzodiazepines. The page reads:

"You are guaranteed rapid and anonymous delivery when ordering Benzodiazepines prescription free from our store. Many customers report that their doctors often try to move them off Benzodiazepines by prescribing them new medicines which do not have the desired effects, or even cause unpleasant side effects."
The only people who benefit are the doctor and the pharmaceutical companies, who churn out new drugs to boost their profit margins. As soon as a drug's patent protection runs out, companies can only make small profits from it. But we care about looking after your health, not our bottom line. That's why you should order original Benzodiazepines prescription free from our shop.

After the patent protection period runs out, Benzodiazepines are often taken off the market and replaced with new drugs, even though these replacements are sometimes less effective than the old formula. The reason is that the pharmaceutical industry only makes big profits from protected branded drugs. That's why you can buy Benzodiazepines from us if your doctor or your pharmacy no longer sells the drug you need.

When ordering Benzodiazepine-class drugs online, please ensure that you're buying the exact drug you need and not a related or similar medication. When used responsibly, Benzodiazepines are some of the most useful and effective medicines.

The drug on offer at the top of the page is 'Normison Mite Kaps' [Temazepam capsules].
- Another search is performed on the same website for Chloroquine. After 6 seconds, the user navigates to the website's homepage, and six seconds later the user searches Google for 'experiences' with the supplier 'alles-rezeptfrei.net'.

- Thirty-six seconds later, the user visits 'www.apotheke-adhoc.de', navigating to a page warning about counterfeit drugs.

According to the Düsseldorf CID's forensic analysis, the browser is next used at 13:21.

- At 13:21:35, a Google search is performed for the terms 'Luxembourg + Chloroquine'. Twenty-two seconds later the user visits a page containing information about whether Viagra can be obtained without prescription in Luxembourg.

- The browser history from 11:02 on the 18.03.2015 is also of interest. Andreas Lubitz googles the 'Oberkassel pilot's medical practice', the practice of the flight physician Dr. Franz Hauer, who also – probably coincidentally – seems to be Captain Patrick Sondenheimer's flight
physician.\textsuperscript{242} In any case, Andreas Lubitz visits the page set up for patients to book an appointment online.

According to the case files, this lead is never followed up by the CID. There are no references to contacting the medical practice and/or relevant investigation. It is conceivable to the author that Andreas Lubitz either had a telephone consultation or wished to book an appointment with this practice. His brother was also at the apartment at this time.

- Thirty-nine minutes later Andreas Lubitz orders both books recommended by his therapist, Dirk Michael Schmidt, from Amazon. He must have received them a short time later, as the books were handed over to the CID by the attorney Mr. Conrad on the 27.03.2016. They had been handed over to Mr. Conrad’s colleague, Dr. Berndt, by Günter Lubitz the evening before.\textsuperscript{243}

\textsuperscript{242} See SB 001-00403, Medical Certificate of Patrick Sondenheimer, dated 31.10.2014

\textsuperscript{243} See HA 10099, note by DCS Bönig dated 27.03.2015
- According to Andreas Lubitz's medical records seized from his therapist, Dr. Schmidt, and his interrogation by DCS Fabry and DSU Frase, this recommended reading was not set until a therapy session on the 20.03.2015, however (!).^{245}

From this, we can conclude that either Andreas Lubitz was 'clairvoyant' and knew which books the therapist would recommend to him two days later, or the therapist's records are incorrect, or the browser history and timings are incorrect or have been tampered with.

It is extremely noticeable, however, that the browser history, which 'ostensibly' goes back uninterrupted to the 16.03.2015, includes an enormous 'jump' or 'spike' that day. Prior to the 16.03.2015, the latest date included in

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^{244} Statement made by Günter Lubitz and [redacted] to Tim van Beveren, 17.03.2017

^{245} See HA 10340 and 10343
the Düsseldorf CID’s forensic analysis of the seized device’s browser history is almost six months before (20.09.2014 - 09:07 – an insurance application with HUK24 car insurance). Given the usage before and after, dating back as far as 21.09.2014 (!), the browser history and the credibility of conclusions drawn from it are highly questionable.

In any case, it is clear that the browser history put forward by the CID and the searches allegedly carried out by Andreas Lubitz require more in-depth investigation and corroboration through a search of internet archives.

To conclude, it should also be noted that the alleged browser history comes as a total surprise to all those close to Andreas Lubitz. This observation was put on the record by Kathrin’s mother, Angela during her interview on the 03.04.2015.

The incriminating yet highly 'questionable' exhibit no. 1.1.1.1.13. was also not promptly returned by police to Kathrin on request, made via her

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246 See HA 08937

247 See HA 09872-09873, HA 09878
attorney on the 07.05.2015 (despite the existence of multiple mirrored copies and backups)! Only exhibits no. 1.1.1.1.11 and 1.1.1.1.12 [were returned].248

The exhibit was not released to the lawyer, Mr. Conrad, until 14:30 on 22.06.2015.249

The author of this report considers that the conclusions drawn by police, specifically DCI Rüdiger Mette, by as early as **14:13 on 27.03.2015**, and exclusively on the basis of this piece of evidence, are astounding and demand further scrutiny in light of the facts and circumstances laid out above. DCI Mette stated (my emphasis):

> 'On initial examination of the browser history, I was able to establish that searches had been carried out containing the keyword 'suicide', most notably on the 18 and 19 March 2015.'

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248 See HA 08830, HA 09436 etc.

249 See HA 08847
On the 18 March 2015, for example, searches were performed for the terms 'buy potassium cyanide'; and on the 19 March 2015, for 'Chloroquine suicide'.

On the 20.03.2015, a search was carried out for the terms 'code cockpit door' amongst others.

Furthermore, the iPad was not used again after the incident.\textsuperscript{250}

It is worth noting that at this point DCI Mette distinctly attributed ownership of the iPad to Kathrin G.\textsuperscript{251}

A further evaluation was carried out, apparently by DSI Venne and DCI Bosselmann. This evaluation claimed that the iPad was registered to Andreas Lubitz, however.\textsuperscript{252}

\textsuperscript{250} See HA08923

\textsuperscript{251} ibid.

\textsuperscript{252} See HA 08925
Conclusion No. 32:

This is a clear contradiction in this regard. The iPad was supposedly registered to several people. The design of the device means this is technologically not possible, however.

Note:

At this point police were searching for a 'motive' under considerable time pressure and it appears the facts were 'made to fit'. The conclusions drawn from this evidence in this manner were adopted by the public prosecutor, Mr. Kumpa, and clearly filtered through to the French authorities and the BFU.
The BFU in turn passed on these false claims to the BEA and the French Gendarmerie.²⁵³

Due to time constraints, the author has not yet been able to compare the browser history the police have held up as ‘crucial’ evidence (see pp. HA 08993 et seq.) with the times and dates allegedly recorded in the browser histories of the other computers (see pp. HA 09244 et seq.).

It may prove useful to send off the hard drives mirrored by the police to experts in data forensics for analysis.

Certainly, the police and public prosecutor’s office have failed to take into account the possibility of ‘tampering’ by a third party or parties in their analysis of the iPad labelled exhibit no. 1.1.1.13. At least from the files, it is unclear whether any

²⁵³ see p. 17 of this report as well as HA 05449 et seq.
attempt was even made to compare or synchronise the devices and their browser
histories, given that they are all 'interconnected' as part of a network.

The investigators only state that the 'name' of the iPad or its owner can be
changed at will.

But tampering with the dates and system time recorded by the internet browser
at a later date is absolutely possible, and not particularly difficult. All that would
require is for someone with access to the iPad to reset the date and time display
to any date in the past and to uncheck a checkbox to prevent the display from
being automatically updated by the Apple server.

This could be done remotely by a total stranger, for example when Andreas Lubitz
connected to a company server with the iPad in question. Many intranets are also
capable of recording certain keyboard inputs, such as passwords and PINs,
completely remotely with the help of so-called 'keyloggers'. Some corporate
networks, especially large multinational corporations, already do this for their own
security reasons.
Finally, investigators also failed to determine the extent to which the various devices seized – including the laptop, iPads, and possibly also the mobile phones linked to them – worked together as a network over the cloud. Taking this into consideration, it is indeed quite possible that certain search queries were originally performed on a completely different device, but were shown in the browser history when the devices synchronised.

Discussing this possibility at a meeting with the author, the attorney Frank Palmer and the Lubitz family in Montabaur on the 17.09.2016, Kathrin Goldbach claimed that she had, and in fact still to this day has access to Andreas Lubitz’s ‘flight log’ (actually his ‘updated deployment plan’) through this cloud function, for example. This alone casts serious doubt on the admissibility of the incriminating Google searches as evidence, which investigators ‘unambiguously’ ascribed to Andreas Lubitz.

**Recommendation No. 2:**

An external review should be carried out by a qualified IT expert. This would require 1:1 copies of the devices seized by detectives.
on the 26.03.2015 and the subsequently cloned memories to be handed over to external data forensics experts for analysis.
VI. 4. Conflicts of Interest

It is to Lufthansa's credit that the company provides legal representation and, if requested, personal care by specially trained Crisis Intervention Managers and specialists to the families of its employees in case of accidents. However, the company is not prepared to allow this support to get in the way of its own interests. This was quite clearly the case here with the Cologne-based lawyer Dr. Mathias Satorius from the law firm Feigen & Graf.

According to a document laid out in the case files,\(^{254}\) power of attorney was granted to the law firm Feigen & Graf on the day of the accident, the 24.03.2015, charging the firm with protecting the interests of Lufthansa AG in the aftermath of the crash.

However, he also went on to represent the interests of Andreas Lubitz's partner, Kathrin G[ILLEGAL] So when the apartment in Düsseldorf was searched, he was the one to whom Ms. G[ILLEGAL] gave the house key, and who then went to the

\(^{254}\) See HA 11345
apartment and let the police in. He also signed the original search record and even later requested and received copies of the list of evidence seized.

At the same time, however, Dr. Satorius was acting as the legal representative of the Germanwings pilots when they were interviewed by police and accompanied them to the interviews and official witness hearings.255

Only a few weeks after Ms. Goldbach was questioned by police, he resigned as her representative due to concerns about a possible conflict of interest.256

VII. The French Authorities' Requests for Assistance

VII. 1. Page H 00064

Around noon on 26.03.2015 Cord-Hendrik Möller of the Meckenheim BKA ['Bundeskriminalamt'; Federal Criminal Police Office] informed the public prosecutor, Mr. Kumpa, that the French authorities were planning to make an

255 See SB 001-00030

256 See interview with Kathrin Goldbach in Montabaur.
official request for legal assistance and requested that he be sent information regarding 7 issues.

In point 1, the French investigators requested information about any aviation knowledge or skills other passengers on board the flight may have had. The possibility of ‘interference by a third party’ was clearly being considered.

In point 2, the authorities request the usual general information requested in an air crash investigation, i.e. the crew records.

In point 3 more standard information about the aeroplane is requested.

In point 4 the French investigators request further customary details about the condition and maintenance of the aircraft. This includes the list of ‘hold items’ (the list of unusual or specialist equipment on board).

In point 5, the authorities request a copy of the AOC (Air Operator Certificate), i.e. Germanwings' operating licence.
In point 6, a request is made for details of the insurance company, also absolutely standard procedure in a crash investigation.

In point 7, the investigators request a list of all flights flown by the aircraft in question in previous months.

The information was to be passed on to the French embassy in Berlin, specifically to the liaison officer there, Detective Chief Superintendent Franck Chesnel.

This request was to be carried out by the head of the Criminal Investigation Department ST 1 at the Düsseldorf police headquarters, Mr. Peter Hofmann. According to his handwritten notes on pp. H 00068/00069, it seems that at this point, the Düsseldorf police force had not yet consulted any aeronautical experts or advisors.

In an email to the president of the Federal Aviation Authority (FAA), Jörg-Werner Mendel, sent at 17:23, he informed the FAA that there would be ‘even more dramatic findings [coming out] soon’.
In any case, at 10:24 the next morning the FAA faxed over a list of the flights flown by D-AIPX since the 01.02.2016, which seems to have requested in turn from EUROCONTROL. The list is largely unremarkable except for a return flight from London Heathrow on 17.03.2015, which was apparently cancelled. The flight to Stuttgart took place the following day.257

It seems reasonable to assume from the list that the aircraft was undergoing maintenance and servicing between 21:28 (UTC?) on the 22.03.2015 and 15:40 (UTC?) on the 23.03.2015, at least 18 hours, as it was not flown during this period.258

Notably, the EUROCONTROL list of 24.03.2015 for the flight which crashed reads 'terminated (TE)' at 10:51. According to a footnote, however, the list dates from 07:38 UTC i.e. 08:35 CET on 27.03.2015.

Captain Patrick Sondenheimer's pilot's licence is missing his signature.259

257 See p. H00080
258 See p. H00081
259 See p. H00087
VII. 2. The Certificate of Airworthiness and the Owner

The certificate of airworthiness certainly merits close attention and consideration:260

It was issued on 7 March 2014 and expired on 23 March 2015. It was issued by somebody named ‘Boussios’, but the signature does not seem to match the name.

An extension was granted on the 23.03.2015 and was due to expire on the 11.03.2016, according to the handwritten entries in the records. This is quite remarkable as no airline – particularly not a major airline such as Lufthansa – would risk an aeroplane being deemed ‘not airworthy’ due to an expired certificate. Extensions of this kind are usually arranged days if not weeks before the current certificate expires. (See section III. 5 – The Crashed Aircraft and its Maintenance, p. 127 et seq. above.)

Whilst the first certificate of airworthiness covers a period of a year and 16 days, the extension granted on 23.03.2015 is notably valid for less than a year. The

260 See p. H00093
company should clarify how this is usually handled. The inspector and his authorisation number are also given, so he could be consulted on this matter.

According to the registration certificate listed in the FAA's aircraft register, the owner of the aircraft is Lufthansa Leasing Austria GmbH & Co OG No. 18, operating out of Ernest-Thun-Strasse 11a, Salzburg, Austria. The certificate is dated 23 January 2013.\textsuperscript{261}

The company seems to be pure shell company, consisting of little more than a postal address roughly 15 minutes walking distance from the private residence of former Lufthansa CEO and current chairman of the board Wolfgang Mayrhuber. The company is listed in a fairly modern mixed office and residential building in the Bahnhofsviertel area of Salzburg. It shares a letterbox with 'AAR InterInvest GmbH'. The 'office' was vacant when visited repeatedly at a number of different times of day.

\textsuperscript{261} See p. H00094
Ernest-Thun-Str. 11a, Salzburg. Source: Author’s image.

Entrance. Source: Author’s image.
Intercom panel, Source: Author’s image.

Doorbell nameplate, Source: Author’s image.
VII. 3. Assistance request – p. HA 00139

Note: the request for judicial assistance (HA 00139) is the first instance in which reference is made to a 'possible depressive state', though it is not specific and refers to both pilots.

Under the terms of the request for assistance made by the French judiciary at 16:31 on the 26.03.2015, the Düsseldorf police force were to seize and hand over the following records to the French authorities (HA 00139-HA0141):
1. from the Germanwings airline:

A. Regarding the crew members:

- The working hours of the two pilots (Patrick SONDENHEIMER and Andreas LUBITZ) over the last 6 months (flights; rest periods; nights spent abroad; early starts),
- both pilots' employment contracts,
- all documents relating to the recruitment of both pilots by Germanwings,
- the basic training for the A320;
- the maintenance of the airworthiness of the A320 (recurrent; LPC – Line Proficiency Check; OPC - Operator Proficiency Check ...),
- the air traffic control (both in the air and on the ground);
- Information concerning Patrick SONDENHEIMER's practical training as captain,
- detailed records of the simulator training undergone by both pilots (Flight Training Records),
- the pilots' professional licenses and qualifications,
- the pilots' medical certificates,
- their total experience (flying hours),
- their recent experience over the course of in 1 month, 6 months, 1 year, 3 years (flying hours),
- their total experience flying the Airbus 320 (captain/copilot at Germanwings or other carriers) and their total experience working at GERMANWINGS,
- their experience flying the route Barcelona - Düsseldorf (BCN-DUS)

B. Regarding Germanwings:

- the Air Operator Certificate (AOC), issued by the German civil aviation authority,
- the flight safety officer’s flight analysis reports and the airline’s flight parameter estimation method,
- the documentation relating to the BCN-DUS flight (Operational Flight Plan, weather, NOTAMs, weight and balance)

C. Regarding the aircraft

- the flight manual (in English) and/or the FCOM (Flight Crew Operating Manual) and/or the AOM (Aircraft Operating Manual),
- the Aircraft Maintenance Manual,
- the Master Minimum Equipment List (MMEL),
- the Minimum Equipment List (MEL),
- the operating manual in English (parts A; B; C; D),
- The movements and deployments of the aircraft registered D-AIPX in the last 3 months,
- the Normal/Abnormal/Emergency checklists,
- the Quick Reference Handbook (QRH),
- the certificate of airworthiness,
- the aircraft’s licence and registration,
- the aircraft station’s broadcasting licence

2. From GERMANWINGS or the maintenance workshop responsible for the aircraft with the registration D-AIPX:

- the maintenance records: Checks A; B; C as well as all scheduled and non-scheduled maintenance work,
- Certificate of Release to Service) for the last three years,
- Compliance/Maintenance Service Bulletins (SB) and Airworthiness Directive (AD),
- Incidents and accidents involving the aircraft currently registered D-AIPX (serial number SN #I47),
- all maintenance messages, particularly ACARS messages (for the last three months),
- the TLBs (Techlogs) for the last three years
3. From the board of the German civil aviation authority

- the traffic rights of the carrier Germanwings,
- the Air Operator Certificate for Germanwings’ registered fleet,
- Incidents and accidents involving Germanwings in the past,
- Information regarding any events in the two pilots’ pasts (breaches of duty, suspension or restriction from flight duty etc.),
- the licences, qualifications, and medical certificates of both pilots,
- an audit of Germanwings (data, findings, non-compliance/conformance, corrective measures, inspector’s details),
- validation order for the approved Minimum Equipment List (MEL) for the aircraft,
- the German civil aviation authority’s monitoring plan for the airline,
- date of approval of the airline’s manuals and any alterations,
- further details for consideration of the German civil aviation authority’s recommendations concerning the airline,
- further details regarding EASA (European Aviation Safety Agency) requirements,
- further details of the SIB (Service Information Bulletin)
VII. 4. 'Fake News' Video Analysis

The first thing to note on this topic is that the Düsseldorf CID and their French counterparts, the Gendarmerie, were forced to devote significant amounts of time and resources to dealing with so-called 'fake news' arising from the tabloid press. They seem to have been far more meticulous in dealing with it than they were in their ongoing investigations and forensic analyses.

On the 31.02.2015, the BILD tabloid\(^{262}\) and Paris Match reported on a video allegedly seen by the editors of both publications which was allegedly 'found at the scene of the crash by a person linked to the investigation'. BILD claimed that this video was an important piece of evidence and that its authenticity was 'beyond doubt'. The video would support statements made by the French public prosecutor, Brice Robin, at a press conference held on the 26.03.2015.

The recordings were evaluated by the Düsseldorf CID and the French Gendarmerie on the 02.04.2015. The CID began work to determine which seat the

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person who made the recordings may have been sitting in. The Detective Chief Superintendent investigating even concludes that

'comparison with seat occupancy records for the Airbus A-320 (GERMANWINGS) suggests the hypothesis that the creator of the video could have filmed it from the following seating position.'

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263 See HA 09410 et seq., Video Analysis
A single glance by an expert would have been enough to determine that it was impossible that these recordings had been made on the crashed aircraft: the images show a ‘Wide-Body’ aircraft, i.e. an aeroplane fitted with two aisles, one left and one right. Screens embedded in the front seats can also be made out in the recordings. D-AIPX was not fitted with such screens. Moreover, the recordings show a night flight, as can easily be seen from the darkened cabin and the brightly lit cabin light on the ceiling. One still from the video clearly shows a galley in the mid-section of the plane. Moreover, the colour of the upholstery does not match the Germanwings colours (grey instead of blue).

This example alone, which in the author’s opinion is frankly embarrassing, is enough to make clear that the investigators quite obviously never considered
it necessary to draw on the skills and knowledge of experts – e.g. aviation professionals – in the course of these proceedings.

That said, it is true that many smartphones with built-in cameras were amongst the victims' personal belongings seized as evidence at the crash site by the French Gendarmes. The degree of damage to these phones varied considerably. Apparently no attempts were made to extract data from these devices' memories or SD cards and to search for clues, such as, for example, video footage or photos taken on board in the final minutes of the flight, or any other information recorded by the victims shortly before their deaths.

Relatives of victims have informed the author that personal effects were returned on several occasions by Kenyon, a company commissioned by Lufthansa AG, including a phone with an SD card inserted. The family wanted to read the SD card but were unable to do so. They commissioned a professional data recovery company to extract the data. The company reported that the memory had been irrecoverably wiped, seemingly 'professionally, by being repeatedly overwritten'.
Recommendation No. 3:

This ought to lead to an investigation into what happened to the memories and SD cards of the mobile phones found at the crash site. Particular focus should be placed on the question of whether attempts were made to extract, recover, or reconstruct their contents, and if so, what attempts were made, who were they made by, and when did this take place.
VII. 5. The Alleged Girlfriend, 'Maria W.'

On the 27.03.2017 the BILD tabloid published a story by John Puthenpurackal, which involved an interview with a woman who claimed to be a 26-year-old Germanwings stewardess with whom Andreas Lubitz was having an affair. She was dubbed 'Maria W.', an assumed name. Puthenpurackal supported the credibility of this alleged mistress by providing a photograph showing Maria W. and Andreas Lubitz as part of the same crew. Allegedly, BILD insiders report, Maria W. also claimed to have shared a hotel room with Andreas Lubitz during layovers.

There are strong reasons to doubt the authenticity of this alleged mistress. Firstly, Andreas Lubitz was the type of man who would enter into other intimate relationships alongside his long-standing stable relationship with Kathrin. This is readily and independently confirmed by family and friends.

The photograph allegedly given to the BILD reporter does not constitute sound proof as long as the original is not available for verification, and in any case is hardly conclusive. But above all, the claim that Maria W. had shared a room with him on 'layovers', i.e. nights spent at a destination before a crew returns, simply cannot be true, because Germanwings does not schedule layovers. Crews begin
and end their shifts at the same location, i.e. the same airport. They sleep at home. This can be confirmed by checking Andreas Lubitz’s shifts on the deployment plans handed over by Germanwings. In 2014 Andreas Lubitz did not spend a single night in a hotel after a shift in an official capacity.

It would surely have been possible for the police to track down this person using the information they had, i.e. the deployment roster, which also contained the names of the other crew members on each shift. However, the matter was not pursued.

VIII. The Author’s Findings up to December 2016:

VIII. 1. ‘CVR leak’

This was obviously not an intentional action by a party involved in the investigation, but rather an equally unforgivable ‘mishap’, which apparently occurred in the public prosecutor's office in Marseille in the late afternoon/early evening of the 25.03.2015.
From a colleague – whose identity, as a source, will not be revealed – I received more detailed information regarding certain parties in the field of journalism who had been covering the crash on behalf of US media outlets. Further research in the United States led me to make contact with the source ‘WP’. We finally agreed to a meeting under the pretence that I was carrying out research for a non-fiction book I planned to write about the crash.

I met the source ‘WP’ in summer 2016. In my opinion, the source is trustworthy; he/she has no other commercial interests.

He/she informed me that the prefecture in Marseille was absolutely unprepared for the media onslaught in connection with the Germanwings crash on the 25.03.2015. The informant noted that the public prosecutor, Brice Robin, and his staff were virtually ‘besieged’ by journalists as a first transcript of the Cockpit Voice Recorder’s evidence, containing rudimentary details of the recordings of the last minutes before the crash, was faxed over to the office from Paris by the Gendarmerie (GTA) and handed over to him. Shortly afterwards Robin received a phone call, probably to explain the details of the transcript to him over the phone. As there were journalists in his office, he briefly left the room to take the call undisturbed nearby. A journalist who apparently worked for the New York
Times took the opportunity to take a photograph of the fax left on the desk with his/her smartphone and immediately sent it to the editors in New York.

Their first online article was published a few hours later. The story was the lead story in the NYT.

The source believed that Robin was aware, that this 'malheur' was his fault, and the next morning, after the splash in the NYT, which was immediately picked up by all the other media, he 'took the bull by the horns'. He convened an official press conference in which he confirmed the information from the previous evening.

Through this press conference, however, he 'contaminated', consciously or unconsciously, all other ongoing and future investigations. The press conference took place at a time when essential pieces of evidence had not yet been seized and a number of witnesses had not yet been interviewed.

The source suspects that the aerospace manufacturer Airbus was questioned in the course of further research by US journalists, thus learning what details from the investigators' inner circle had leaked out.
In any case, Airbus reacted immediately by providing all TV and print media with materials (videos and photographs) of the cockpit door and its mechanism – even when unasked.

On his part, the author assumes that the public prosecutor, M. Robin, has been trying very hard to pass on these proceedings to other jurisdictions and authorities precisely because of this 'leak' in his own area of responsibility.

In its article, which appeared on the evening of the 25.03.2015 (US East Coast time), the *New York Times* stated that its information came from a source linked to the military air crash investigation. The author regards this as a false claim made to disguise the true source of the leak.

The behaviour of the *New York Times*' journalists is irresponsible in more ways than one. This includes the actions of the then editor-in-chief. They would have had to have been aware of the consequences of this sort of reporting for the investigation, due to both their own experience and to the policies this distinguished and prestigious newspaper follows when dealing with air crash investigations in their own country, where they are carried out by the NTSB.
Looking back over the media coverage of this case, it is the author's opinion that this event was one of the causes of the 'confirmation bias' which crept into both the investigation and reporting. It continues today and has far-reaching consequences for the public perception of the case, for the relatives of the victims, but most importantly also for any further legal proceedings relating to the case.
VIII. 2. Medication and Sick Leave

Toxicological analysis of fragments of Andreas Lubitz's tissues and other remains found at the crash site has established that he had ingested various psychotropic drugs. Further details, such as a more exact time frame since ingestion, could not be established without access to more complete blood or tissue samples from the time of the crash.

A number of packets of psychiatric medications were also discovered and seized as evidence during the search of the apartment shared by Andreas Lubitz and Kathrin Golbach on the 26.03.2015.²⁶⁴

This was a bottle containing 20 mg/ml of Escitalopram, an antidepressant. The specific active ingredient is Citalopram. This drug was also detected in the tissue samples taken from the human remains of Andreas Lubitz found at the crash site.²⁶⁵

²⁶⁴ See HA 00034

²⁶⁵ See HA 07719, FG 002984
Test results showed 2.8ng/g of Citalopram in an unspecified 'tissue sample' (PM-033-COCKPIT-0001-TOX) and 1.4 ng/ml in blood plasma from the 'trachea' (PM-033-COCKPIT-0002). According to several psychiatrists and neurologists approached for comment, these levels are indicative of residues from the ingestion of 'low therapeutic doses' several days before the crashed flight. They do not indicate that these drugs were taken immediately before or during the flight.

Citalopram belongs to the group of drugs called SSRIs, which are psychogenic drugs which are often prescribed even for patients with mild symptoms due to their generally excellent tolerability.

Toxicological analysis showed low levels of Citalopram and Mirtazapine in tissue and hair samples. The report compiled by the French toxicologists who carried out the tests on the hair samples concluded:

‘...clearly lower levels [of Citalopram] were present in the samples than would be caused by daily treatment with this antidepressant.’
'clearly lower levels [of Mirtazapine] were present in the samples than would be observed in the case of regular treatment with this antidepressant.\textsuperscript{266}'

The conclusion of the toxicological report provided by the TOXLAB laboratory in Paris on 17.06.2015 reads:

'At the time of death Mr. Andreas LUBITZ very likely had antidepressants in non-toxic levels in his blood (they were found in low to moderate concentrations in tests of tissue samples taken from the muscle and trachea).

It is impossible to say whether the circulating blood concentrations were therapeutic, and therefore it is impossible to say whether the antidepressants were effective or not shortly before death.'

There was very likely no sedatives in his blood (absent in tissue samples) at the time of death.

\textsuperscript{266} See HA 07737
The results of the analyses of hair samples are compatible with an irregular intake of the antidepressants found (Mirtazapine and Citalopram) and with the occasional use of a sedative (Zopiclone).267

The BEA report claimed, however, that the tests found residues of Zopiclone, a sleep aid, in tissue samples. Andreas Lubitz was prescribed the drug on the 17.02.2015268 by a general practitioner. The Alpen Investigatory Commission’s turnover report dated 22.05.2015 lists a packet of 6 tablets of Zopiclone CT, five of which were empty, as exhibit 1.1.1.2.1.4. Another packet containing Zolpidem 1mg, a hypnotic, was seized unopened by the Düsseldorf CID during their search of Andreas Lubitz’s apartment on the 26.03.2015. The drugs had been prescribed by Mr. Salomon on the 16.03.2015. It is therefore clear that Andreas Lubitz had not taken this medication. No further significance was attached to this by investigators, who did not follow up the matter.

It should be noted, however, despite reports to the contrary in the media and false statements to the same effect by investigators and the public prosecutor’s office, toxicological tests of tissue and hair samples were unable to give definitive

267 See HA 07739

268 See HA 05452 (apparently a mix up in 2014), HA 05457
proof that Andreas Lubitz was under the acute influence of psychiatric medications at the time of the crash.

The results indicate that Andreas Lubitz most likely took these drugs during his sick leave the week before, but not during or around the time of his active flight operations.

Andreas Lubitz was known to be scrupulous about his fitness to fly; this was confirmed by his partner and family. His doctors, too, saw no reason to doubt this. He was certainly aware that he was not fit to fly an aeroplane whilst under the influence of the drugs he had previously taken. He had petitioned his employer for and taken the appropriate sick leave for the period in which he was taking the drugs. This is clear from the files and from the sick notes forwarded to investigators by Germanwings, all of which are stamped as received by the company. He was excused from work and did not fly at these times.

The Düsseldorf public prosecutor's office, however, claimed in its press release of the 27.03.2015 regarding the search conducted the day before and the documents seized (my emphasis):
'On initial evaluation, the fact that torn up sick notes covering the day of the incident were found supports the assumption that the deceased hid his illness from his employer and his professional environment.'

Once again, the public prosecutor’s office omits any mention of exculpatory details and fails to correct or give context for their statements later, here for example after receiving the results of the toxicological analysis.

In fact, in Germany it is standard practice – and mandatory – for employees to provide a doctor’s note to their employer when unfit for work. This is linked to various related practices such as the continued payment of wages whilst on sick leave. Nowhere is any inverse provision to be found when a previously unwell employee is fit to work again; having stopped taking the medications in question, the employee is not prevented from returning to active flight operations unless he/she provides the employer with a medical ‘health note’.

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269 See senior public prosecutor Mr. Ralf Herrenbrück in ‘Press Release No. II from the Düsseldorf public prosecutor’s office regarding the crash of flight 4U 9525’, dated 27.03.2015
Even the Germanwings FAQ\textsuperscript{270} explicitly states that employees always have the option of reporting themselves fit for work. It reads (my emphasis):

\begin{quote}
\textit{Also consider reporting yourself fit for work again; to do so, call by 17:00 local time on the day before your next scheduled shift and report yourself fit to work.}’
\end{quote}

Obviously Andreas Lubitz was provided with the doctor’s note which covered the day of the crash by his doctor, Dr. Richter-Polynice, a general practitioner. This covered the period of 12 to 30 March 2015. The doctor was away on holiday during this period. Andreas Lubitz therefore saw Dr. Richter-Polynice’s replacement, Dr. Robert Homrich from the Homrich and Neuwald General Practice Surgery, on the 18.03.2015. He was given a doctor's note by Dr. Homrich valid from 18.03.2015 to the end of the day on Sunday, 23.03.2015, which he presented to Germanwings, as evidenced by the fact that it was stamped as received.\textsuperscript{271}

\textsuperscript{270} See SB 001-01390 et seq.

\textsuperscript{271} See HA 10594
He was also still being treated by his usual psychotherapist, Dr. Salomon, in Montabaur. He had seen him in person on the 16.03.2015. Dr. Salomon had also given him a sick note, probably due to the psychiatric medication he had been prescribed. This sick note was valid until Sunday the 29.03.2015.

It should be noted that Dr. Salomon & Dr. Klersy's practice was closed from 18 to 31.03.2015 due to holidays. But it is understandable for obvious reasons why Andreas Lubitz preferred to give his employer a doctor's note from a general practitioner rather than a psychotherapist.

Taking Andreas Lubitz's perspective, it makes perfect sense to assume that on the Sunday he made the decision to stop submitting sick notes, report himself fit, and return to work. He had clearly stopped taking the drugs. This is shown by the French forensic toxicology report (see above). At the time of the crash he was not under the acute influence of psychiatric drugs or other drugs which would have affected his ability to fly or that would allow authorities to designate his flying an aircraft on the 23.03.2015 and 24.03.2015 as 'illegal'.

If a person drinks alcohol to excess on Saturday and then is involved in a car crash whilst driving on Monday evening, it cannot be said that that person was
'under the influence of alcohol' at the time of the crash and so should not have been driving a car.

The media coverage and tabloid newspapers paid particularly scant attention to this context and details. In the author’s opinion, this can be overwhelmingly attributed to the influence of the Düsseldorf public prosecutor's office's grossly simplified wording and failure to provide clarification in their statements and press releases.

These incomplete and sometimes erroneous findings were also taken up directly by the inquest run by the French Gendarmerie, apparently even as the substantiated findings of the Düsseldorf public prosecutor's inquiry. This was almost certainly a result of following and poorly verifying media reports. This can be clearly seen in the French Gendarmerie's records included in the section of the case files concerning the French authorities' investigation. It is particularly true of information spread in the first few days and weeks of the inquiry. From this, it must be assumed that communication between the authorities was not optimal and below the standards required given the seriousness of the events. This may be attributable in part to language barriers.
Conclusion No. 33:

Andreas Lubitz did not hide his illness from his employer. His most up-to-date thorough examination by a general practitioner was on the 16.03.2015; as a result of which he was issued a doctor's note valid until and including 22.03.2015. This overruled previously issued sick notes which were valid for a longer period.
Conclusion No. 34:

According to current findings, at the time of the accident he was also not under the influence of any drugs which would seriously affect his ability to fly or even make his being in charge of an aircraft illegal.
VIII. 3. Reconstruction of Andreas Lubitz’s Flight Log

As no digital or handwritten pilot logbook recording Andreas Lubitz’s flights with Germanwings was available at the time this report was commissioned, his flight log has been reconstructed based on the deployment rosters in the case files (which were handed over to the Düsseldorf CID by Germanwings). The reconstruction initially covers only those flights Andreas Lubitz flew either as the pilot of a Germanwings plane or as a passenger in a Lufthansa plane since receiving his Multi-Crew Pilot Licence (MPL) on the 11.02.2014.

The first step was to find out the identifiers (registry) of the aircraft flown. These are generally known to the airline (Germanwings), but were not handed over with the documents submitted to the police or the civil air crash investigation authorities (the BEA and BFU). I received the identifiers for the days specified in the roster from a source with access to a database at GWI [Germanwings].

Using their registrations, it was possible to identify those aircraft which in the past had been officially reported as having been involved in ‘fume events’ – though these incidents had not necessarily been publicly disclosed. The incidents are recorded in a special database, which is not publicly accessible. In the past, its
contents have not been disclosed even to parliamentary inquiries. The list of cases below cannot claim to be exhaustive, especially given the fact that some are based on information given confidentially by individual crew members and/or persons who reported these incidents. It is entirely possible that the BFU's unofficial database shows a far higher number of reported cases involving these aircraft.

These data were included in an Excel file entitled 'Flight Log Andreas Lubitz - Reconstruction' in the last (second) column under 'Fume Events' for each aircraft flown by Andreas Lubitz. They expand on the incidents recorded in the preceding column, which were reported, verified, and collected into a database by the internet-based aeronautical information service AVHERALD.COM.

A brief note about the Aviation Herald: AVHERALD is an online information portal which has been run by Simon Hrdecky, an Austrian computer scientist and aviation enthusiast, since 2008. It keeps records on incidents, accidents, and crashes in civil aviation. Hrdecky himself has developed and distributed software used by flight control computers. The AVHERALD enjoys an excellent reputation and is widely respected by all in its field, except for airlines, who for understandable and obvious reasons do not appreciate the publication of such information.
Before an article is published on AVHERALD.COM, it must be verified by two independent sources, or by indisputable documentation which would stand up in court.

The sources who report incidents come from all sectors of the aviation industry. They include pilots, flight attendants, air traffic controllers, mechanics, employees of various authorities linked to aviation and many others, even down to passengers.

Hrdecky also operates a network of ADS-receivers which helps him to understand flight movements worldwide right down to the airport runway.

The author has used the AVHERALD database to validate the reconstruction of Andreas Lubitz's flight log. Hrdecky also helped the author conduct more in-depth research into reports about the aircraft flown by Andreas Lubitz which had been submitted to AVHERALD but not yet investigated.
More in-depth research into the flight rotations Andreas Lubitz was involved in during his 'qualifying period' as a Lufthansa flight attendant is not yet complete.

The resulting 'Flight Log Andreas Lubitz - Reconstruction' is attached to this report as Appendix A.

The next step in the reconstruction was cross-checking with the AVHERALD database. This found that all of the source's information was consistent with the actual flight movements on the days in question as well as the relevant aircraft registrations numbers.

Then a comparison was performed of 'fume/smell events' involving the relevant aeroplanes. The incidents reported to AVHERALD, only some of which had been published, and the officially reported incidents were brought together into an Excel spreadsheet.

This provided me with an overall picture, which in my view very strongly indicates that Andreas Lubitz was overwhelmingly deployed in Germanwings aircraft which had already or have since been reported for 'fume/smell events'.
These include numerous incidents resulted in crew members receiving short-term or lasting injuries. The author tracked down and contacted those involved in these incidents, either directly or through third parties. Some stated that they would be prepared to provide their medical records (on condition of anonymity) if necessary.

At the meeting with Kathrin Goldbach in Montabaur on the 17.09.2016, the author then learned that, contrary to what had been believed at the start of this investigation, Andreas Lubitz's own notebooks still existed on his cloud-based schedule, to which Kathrin Goldbach had access. It would appear that investigators failed to discover this cloud storage; there is no mention of its existence in the case files, at least.

Using these records, the reconstruction could be checked and verified again, and in some places (aircraft changes/route changes/standby shifts) it was expanded and corrected. New entries as well as further verification of the aircraft flown were provided by official reports and reports made to AVHERALD by further sources.
One detail which stands out is that Andreas Lubitz very clearly first experienced
symptoms and took sick leave for the first time since starting work on the
01.03.2014 after two consecutive deployments on one particular aircraft, which
had been involved in the past in several incidents which had left crew members
with lasting injuries (operating under Lufthansa).

This concerns the aircraft D-AIQL, specifically the flights on 23.10.2014, and again
on 05.11.2014 and 06.11.2014. From 23.11.2014 to 30.11.2014 Andreas Lubitz was
ill for the first time since starting work with Germanwings. It is also notable that 5
days after his first flight on this aircraft, there are suddenly no more entries in his
cloud calendar (with the exception of the 16.11.2014). The entries do not resume
until the 04.12.2014.

It should be clarified whether there were originally entries here which were
later deleted, either by him or by somebody else (e.g. Kathrin Goldbach). It is
also possible that Andreas Lubitz made other entries on personal matters in this
period.
On 05.12.2014 there is an unusual change of aircraft at Düsseldorf. Normally, Germanwings crews stay on the same aircraft and fly it back to its home base. But instead of flying from Düsseldorf to Berlin-Tegel on D-AGWY, which had no previous 'fume events', the crew were switched onto D-AKNN. This aircraft had already been involved in nine 'fume events' since 2010, including two in 2014, on the 05.03.2014 and barely two and a half months before on the 23.09.2014 (a further, number 9, followed on 31.10.2015).

Immediately afterward, on 06.12.2014, Andreas Lubitz wrote the first entry recording that he had noticed 'distorted perception' ['Verzerrungen']. A day later Andreas Lubitz flew to Abu Dhabi for a week-long holiday.

Just a week after returning, on the 19.12.2014, he noted 'distorted perceptions around the stereo system' and only two days later, on the 21.12.2014 'impairment persists, even after flight, halo present at Christmas party'.

His symptoms then become particularly conspicuous alongside his other entries, causing him to visit several doctors, initially eye specialists in particular. In the
entire period which followed, he was deployed on aircraft with a history of 'fume events', with the exception of one rotation on the 27.12.2014.

A similar picture can be seen in January 2015, with the exception of one rotation on the 14.01.2015. On the 15.01.2015 he called in sick and went to see a doctor.

In February 2015 he almost exclusively flew in aircraft with a history of 'fume events'. He took sick leave again from 22.02.2015 to and including 24.02.2015.
In March 2015 he only flew one flight in an aircraft not linked to 'fume events', on the 03.03.2015. Another flight on D-AIQL on the 10.03.2015 also stands out. Three days later (13.03.2015–22.3.2015) he took sick leave.

The next step in the author’s investigation was to compare the registrations of the aircraft which stood out for ‘fume events' to entries in Lufthansa Technik's AMOS maintenance system. This analysis is extremely complex and is therefore not yet fully complete. However, it can already be stated from the results that despite officially reported incidents, the measures recommended by the manufacturer, Airbus, were often not carried out, including in particular decontamination of environmental control systems, i.e. the ventilation system for the aircraft and cabin. The aircraft were repeatedly put back into service shortly after an incident without the cause being identified. This includes cases in which it can be proven that crew members suffered symptoms requiring medical treatment or were even rendered unfit to fly.

The manufacturers and operators as well as the maintenance company have been very sceptical and unhelpful about the phenomenon of ‘contaminated cabin air'. The comprehensive, transnational and above all independent epidemiological
investigation of the problem for which scientists and unions have been calling for decades has still yet to materialise.

Instead, the findings of studies carried out by the industry itself or by institutes and institutions (including the EASA) which are closely linked to the industry are referenced again and again. As long as there are no signals telling the industry to act, there will be no change to existing procedures, including maintenance.\footnote{See. A. Heutelbeck, L. Budnik, X. Baur, \textit{Health disorders after fume event Background}, Ramazini Days 2016, UMG Göttingen, December 2016}

In the meantime even investigatory authorities such as the German BFU refuse to launch any investigation into the matter despite detailed reports of incidents. The authorities clearly see no need to act. This cannot be appropriate given the potential risks to passengers and aviation industry employees.
Attempts should be made if possible to include the flights Andreas Lubitz served on as a Lufthansa flight attendant between 15.06.2011 and 31.12.2013 in a more in-depth investigation into the use of aircraft with a 'fume event history'.

273 BEA Final Report, March 2016, p. 17
VIII. 4. Other Medical & Toxicological Evaluations

In his role as an aviation reporter, the author has been dealing with the phenomenon of 'contaminated cabin air on board aeroplanes' since early 2008. He has produced several films for the ARD between 2009 and 2014 and written numerous articles for printed media (including newspapers Die Welt and Welt am Sonntag, amongst others). From 2013 to the summer of 2015 he made the multiple prizewinning documentary 'Unfiltered Breathed In – The Truth About Aerotoxic Syndrome' which premiered in English on the 15.07.2015 in Berlin, and is also available on DVD in German, English and French. A Spanish language version and a version with Chinese subtitiles come out in summer 2017. The film documents the case of the British pilot Richard Mark Westgate, who died in 2012, as well as a historical overview of the problem since the early 1950s. During his lifetime, Westgate had arranged to donate his body to science for the purpose of research into the hitherto largely unexplored problem. An autopsy detected serious damage to the brain, nerves, and heart muscle tissue.

Though the aviation industry continues to deny that there is any connection between incidents involving contaminated cabin air (known as fume or smell events, or recently sometimes as bad air events) and the resulting symptoms and medically diagnosed illnesses of the nervous system, eyes, lungs, extremities,
brain, and heart experienced by crew members, and occasionally passengers, the problem is real.

In December 2016 studies carried out at Göttingen University Hospital (UMG) were published which show that aviation-specific pollutants could be found in blood and urine samples taken from subjects exposed to fume events using well-accepted human biomonitoring methodologies.\textsuperscript{274} In the researchers' professional medical opinion, these substances would be quite capable of causing the symptoms reported by patients and diagnosed by doctors.

Scientists and doctors suspect there is a connection here. The outpatient clinic for 'fume events' at the University of Göttingen's Institute for Occupational, Social and Environmental Medicine, which opened in 2013, has recently proven that fume events can lead to concrete effects on the human body, meaning that incidents can lead to a form of poisoning. This has so far been denied by the aviation industry. The findings also confirmed the results of previous research and publications by the biochemist Professor Mohamed B. Abou-Donia of Duke

University in North Carolina. Professor Abou-Donia has been working on the effects of toxic substances released during fume events on the human auto-immune system since the 1990s. He found increased amounts of very specific proteins in blood samples taken from subjects affected by fume events.

A ‘fume event’ is described as follows in the medical and scientific literature:

*By a fume event we understand a cabin air incident or a cabin air contamination, which results in accidental inhalation trauma caused by harmful substances in the air of the cabin or cockpit of an aircraft. The technical causes of this cabin air contamination are still not entirely understood from a technical perspective. The substances or groups of substances that are considered most likely to be involved are motor fuels, lubricants or hydraulic fluids. The first sign of an event is usually an unpleasant odour, which may then be followed by a variety of kinds of damage or impairment to health.*

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There are still no structured plans for diagnosing and treating affected patients.\(^{277}\)

The author has contacted the doctors and scientists involved in the 'Westgate investigation' to request further medical and scientific clarification of the question whether contaminated cabin air could have caused the symptoms Andreas Lubitz reported suffering in his eyes. These include:

- the Dutch forensic pathologist Dr. Frank van de Goot
- the Dutch flight physician Dr. Michel Mulder
- the American biochemist Prof Mohamed Abou-Donia

and other experts. Further forensic investigations are planned together with these specialists. These studies depend, however, on which of Andreas Lubitz's tissue samples are still available and whether they will be made available by the authorities. This is subject to requests made in the French civil action proceedings.

VIII. 5. DNA Profile of Andreas Lubitz’s Parents and Brother

To construct a DNA profile of Andreas Lubitz which would conclusively determine what degradation-causing enzymes may or may not have been at work after his exposure to organophosphates or other toxic substances released during ‘fume events’ – and particularly if the findings are to stand up in court – researchers would ideally need access to original blood and muscle tissue samples. These samples should be taken immediately and properly stored by the French judicial authorities.

Organophosphates are used in certain oils and hydraulic fluids used by the aviation industry. They have neurotoxic effects, however, particularly on certain at-risk groups of people whose bodies are unable to break down the toxins fast enough or at all. We now know that extremely small quantities of these neurotoxic chemicals actually constantly leak into the air supply on board modern aeroplanes.

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via the bleed air system\textsuperscript{279}. This risk is actually far higher in the cockpit than in the passenger cabin because the system setup means that 100\% of the air supply always comes from bleed air from engine no. 1 (unless an air system is turned off, in which case 100\% comes from the remaining system), whereas the passenger cabin takes only 60\% bleed air coming from both engines, which is also then recirculated. The cabin air is passed through special HEPA filters; these are not designed to filter out organophosphates, however.

Organophosphates can also be absorbed through the skin as well as entering the body via inhalation. They were originally developed for use as nerve agents in chemical weapons. They easily cross the blood-brain barrier and (in large quantities) can therefore cause serious damage, particularly to the brain and nervous system. Cognitive issues are a common effect and can arise suddenly after intoxication.\textsuperscript{280} The chemicals are absorbed by the body and then

\textsuperscript{279} See Mark R. Montgomery, G. Thomas Wier, Franklin J. Zieve, M. W. Anders, \textit{Human Intoxication Following Inhalation Exposure to Synthetic Jet Lubricating Oil}, Clinical Toxicology vol. 11, Iss. 4, 1977

metabolised. This requires sufficient amounts of a certain group of enzymes. The enzymes help to convert the toxins which are then usually excreted in the sweat and urine.

It should be noted that the effects of the toxins can also be accumulative; that is to say that if the person is exposed to further toxins, the body cannot break them down fast enough and this leads to a range of symptoms. The resulting disease has also been known as 'aerotoxic syndrome' since the 1990s, although this term has (still) not yet been officially recognised and established as a medical term.²⁸¹

Forensic pathological studies carried out on the corpse of Richard Mark Westgate († 2012), a former British Airways pilot (flying the Airbus A320) allowed a team of scientists and doctors to explore and confirm the effects on the human body for the first time. These studies were carried out in 2013 to mid-2014 by the Dutch pathologist Dr. Frank van de Goot, the aviation physician Dr. Michel Mulder, the

²⁸¹ Carl R. Mackerer, Mary L. Barth, Andrew J. Krueger, Birbal Chawla, Timothy A. Roy, COMPARISON OF NEUROTOXIC EFFECTS AND POTENTIAL RISKS FROM ORAL ADMINISTRATION OR INGESTION OF TRICRESYL PHOSPHATE AND JET ENGINE OIL CONTAINING TRICRESYL PHOSPHATE, Journal Of Toxicology And Environmental Health, Part A Vol. 57 , Iss. 5, 1999
American biochemist Prof Mohamed Abou-Donia, and the British nano-physicist Prof Jeremy Ramsden. The findings were published in a peer-reviewed paper.

Analysis of the tissue samples taken from the deceased's heart muscle tissue during autopsy revealed among other things a disease called 'lymphocytic myocarditis'. This condition involves inflammation of the heart muscle, which can lead to life-threatening cardiac arrhythmia and to sudden cardiac death. It is caused either by infections, autoimmune diseases (e.g. in HIV positive patients), or poisoning. The same condition has been found in tissue samples taken in autopsies of other flight crew members.

Because Mr. Westgate's case involves the unnatural death of a British citizen, the causes and circumstances of his death are subject to a special investigation and legal proceedings under UK law. An official coroner with the rank and powers of a judge was appointed by the Queen of England to preside over the proceedings. In early 2015 the coroner in this case issued an official and public notice to British Airways, as Richard Westgate's employer, and to the British aviation safety

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authority, the CAA, informing them of the alarming findings of the investigation and giving them 50 days to provide a response.

It is also possible that Andreas Lubitz's illness and the symptoms he reported could be attributed to poisoning by contaminated cabin air. There are a number of indications of this:

1. **This type of poisoning can lead to problems with the eyes, the retina and the optic nerve, which have been reported numerous times, particularly by pilots and flight attendants. This has also been shown in the scientific findings related to the 'sheep-dipping scandals' in England.**

2. **The poisoning can cause sudden drops in performance and energy levels. Günter Lubitz saw this happen to his son whilst playing sport together from January 2015 on.**

3. **The poisoning can lead to sudden changes in behaviour, including**

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depression and suicidal tendencies.

4. The poisonings are often misdiagnosed, in general due to widespread ignorance of the condition, especially in conventional medicine (common misdiagnoses are hypochondria, Parkinson’s disease, MS, etc.).

5. Combination with psychiatric drugs can cause pronounced and unwanted side effects.

To ascertain whether this theory was worth investigating further, it was agreed on the 22.10.2016 with Günter Lubitz and on the 28.10.2016 with ☐☐☐☐ that the parents’ DNA profile should be studied first, as it is easier to obtain than Andreas Lubitz’s DNA. If both parents belong to the group of people who have sufficient enzymes to break down these toxins, in the expert opinion of the Dutch specialist Dr. Michel Mulder and the forensic pathologist Dr. Franc van de Goot, it would be very unlikely that Andreas Lubitz belonged to one of the at-risk groups of people.
The blood samples given by the parents show that Andreas Lubitz was at a greatly increased risk of belonging to the group who are only capable of breaking down the toxins very slowly and with great difficulty after exposure, or who are even unable to do so at all.

According to the DNA profile created by the ProHealth InVitaLab in Holland, the father, Günter Lubitz, belongs to the 'intermediate metabolizers' group. The mother, however, belongs to the group of people who have a very small amount of the enzyme required, and is therefore part of a more at-risk group.285

According to a comparison carried out by Dr. Mulder (which also includes the DNA profiles of the entire family of Richard Westgate, including his twin brother), is located between the 'intermediate metabolizers' group and the 'poor metabolizers'. People belonging to the latter group, like Richard Westgate, are not able to break down the toxins they ingest at all and therefore inevitably fall ill, depending on the dose to which they are exposed. Dr. Mulder therefore advised to avoid air travel completely, whilst Günter Lubitz was advised to protect himself with a special filter mask.

285 See DNA analysis results and letter from Dr. Michel Mulder of the 12.11.2016
The team subsequently created a DNA profile of Andreas Lubitz's brother, Christian Lubitz. He also belongs to the group of people who only have a moderate ability to metabolise the toxins. He is therefore subject to higher risk if exposed to contaminated cabin air.

Given this information, scientists should immediately be allowed to create an exact DNA profile of Andreas Lubitz to establish his body's ability to break down these toxins. This is also the opinion of the forensic pathologist Dr. van de Goot.

The materials provided by the family (remains of the beard, fingernail dust, hair etc.) are unfortunately unsuitable for this process. However, they could be used if necessary at a later stage to validate individual results.

The mortal remains of Andreas Lubitz, which were returned to the family, were unfortunately cremated on the advice of Kenyon, the company Lufthansa commissioned to oversee the handling and burial of the remains of the victims of flight 4U9525, meaning that exhumation is out of the question.

286 See DNA analysis and letter from Dr. Michel Mulder of the 21.02.2017
Dr. van de Goot has outlined a proposal in this regard which could allow further investigation if necessary with the help of samples retained by the French judicial authorities.

The relevant applications have been made by the family as part of the pending joint civil suit (*parti civil*) in the Marseille courts. The first application for admission as joint plaintiff in the civil action was rejected on 07.03.2017 by the presiding judge.

An appeal against this decision was promptly lodged on 17 March 2017.
IX. Appraisal of Media Coverage

The media coverage of this case is being studied as a student research project at a German university under the author's supervision. Over 2000 pages of online and newspaper articles have been captured digitally and collected in a database using optical character recognition (OCR) software. This then allows targeted searches to be performed for phrases, sources and facts across all articles.

The project also aims to collect and evaluate all related video content posted online. This is done predominantly in German, English, French, and Spanish, and is extremely time consuming.

The project is not expected to be completed until at least autumn 2017, particularly given the sizeable amount of media coverage which emerged after the press conferences in Berlin marking the second anniversary of the crash.

X. Report conclusions

1. As result of the premature and incomplete dissemination of the initial, unconfirmed and non-validated findings following a first, superficial audio review of the cockpit voice recorder, as reported by the New York Times on the evening of 25 March 2015, investigations (criminal and civilian aircraft
accident investigation) and evaluation of the cause of the crash, together with contributing factors, were thus irreparably contaminated from the beginning.

2. From civilian and criminal investigators, media reports and the victims’ relatives a "confirmation bias" emerged which was contrary to an objective investigation and which preceded the requirement for the positive exclusion principle, virtually preventing an unbiased investigation.

3. By focusing all investigations on the person of the copilot, Andreas Lubitz, other aspects which might have contributed to the accident and might lie within the sphere of third-party responsibility were neglected or not even considered or investigated.

4. The specific requirements of regulation (EU) 996/2010 were formally adopted in France at the time of the crash, but not sufficiently implemented. This has led to difficulties in communication between the civil aviation investigation authority and the justice department.

5. Based on the structure of the French state and legal systems, the judicial investigation cannot be described as an "independent investigation". Judges and public prosecutors act according to, and are restricted by, instructions. It is to be feared that specific information, if it concerns a company in which the French state holds shares (for example, aircraft manufacturer Airbus, national carrier Air France, etc.) cannot be disclosed nor shared with a foreign authority.

6. From the final statement of the Düsseldorf public prosecutor it can be seen that prosecutor Kumpa wished to discontinue the death inquiry and the other proceedings due to the pending relatives' legal advisors' lawsuit initiated in summer 2016 (11.08.2016). As a result, Kumpa decided at this time not to carry out further investigations. This is remarkable, especially as the file, which is more than 17,100 pages, had been sent in the form of a disk two
months previously to the parties concerned in the proceeding, including joint plaintiffs.

If one assumes an average reading speed of two minutes per page for a careful reading of the file, including documents in English, French and Spanish, one requires more than 570 hours, which is 71 eight-hour workdays (i.e., two and a half months), to read the file thoroughly.

7. Apparently, there was no joint investigation group in this particular case, although such a process would have been indicated by the nature of the investigations and the facts. On the contrary, according to the file it appears that France and Germany exchanged information on judicial assistance and investigations, but each country has de facto conducted its "own" investigations.

8. Several trials in Airbus A320 flight simulators, as well as in real A320s, have shown that from an ergonomic standpoint it is impossible that a pilot can turn the rotary switch from 38,000 feet to 100 feet within one second (!) and to activate the mode. The fastest trials still demand at least 1.5 - 2.2 seconds. It would be plausible that this could have occurred if the time period reported on the DFDR was less than two seconds. The expert has considerable doubts that Andreas Lubitz, who was right-handed, could have used his left hand to make the adjustment within the "one second" recorded on the data recorder, as well as activate the descent mode by also manipulating the rotary switch of the flight control unit.

9. The assumption mentioned in BEA’s accident statement and previously by public prosecutor Brice Robin on 26 March 2015 that Andreas Lubitz deliberately prevented the opening of the cockpit door to deny access to the captain cannot be proved. Mr. Robin’s statement is therefore absolutely speculative and premature. His assumption is based entirely on no proven and confirmed facts, which should have been stated in the report.

10. It is quite conceivable that the captain did not even enter the emergency code and that Andreas Lubitz did not intentionally and actively lock the cockpit door
when the captain attempted to re-enter the cockpit. The captain used the interphone as the door was not opened after buzzing. Therefore, it cannot be claimed that Andreas Lubitz intentionally and actively prevented the captain’s access.

11. At Germanwings the technical condition and the proper functioning of the keypad for the cockpit door are only checked by maintenance at intervals of every 12,000 flight hours. Daily checks of the “emergency code” before departures are not performed.

12. The latest certification of airworthiness for the D-AIPX accident plane, issued on 23 March 2015, is dubious. In particular, it does not appear whether the aircraft documentation, and thus the aircraft itself, complies with legal requirements. The French authorities requested that all earlier certificates, in particular the complete maintenance documents, must be submitted.

13. The list of postponed maintenance work on D-AIPX also includes measures to remove contamination of oil and/or de-icing liquid residues from the cabin air system. In addition, both engines were scheduled to be changed. This is important with regard to possible fluid seal leakage in the exhaust area of the engine compressor. Because of such leakage, engine oil can enter the bleed air system and result in contamination of the cabin air.

14. Other postponed maintenance of the aircraft D-AIPX was a planned repair of corrosion damage in a critical area of the cockpit windscreen.

15. The day before the accident a new software version for the automatic flight control system (FMGC) was uploaded. The manufacturer based the update on findings from investigations of incidents with Airbus aircraft in flight operation. It was installed in order to avoid incorrect vertical flight profiles during non-precision approaches; incorrect lateral flight path displays in NAV mode during take-off; incorrect lateral flight path displays in NAV mode; and incorrect offsets of aircraft position displays.
16. With regard to the data about the descent mode as recorded by the flight data recorder, there is a technical problem because both the flight mode and descent mode cannot be active simultaneously. Rather, this allows the possibility of a relevant system defect in the control system of the D-AIPX. This aspect would at least have to be investigated, which has not been the case.

17. Instead of a single, precise transcription of the cockpit voice recorder, four different and contradictory versions are available. Some are not in the original language, but only in translation. There are both German and French versions. Completely missing is a transcript of the last 30 minutes from recorded data of at least 1.5 hours, which would also include the descent into Barcelona.

18. On the CVR transcript, after the captain left the cockpit no noise is recorded, which would inevitably arise if the rotary buttons on the FCU were manipulated. If these rotary buttons were, in fact, engaged the action would have been recorded and included in the transcription.

19. It becomes clear that the BEA investigators very early in the course of their investigation focused on a single possible accident scenario, namely a crash intentionally caused by Andreas Lubitz. Substantially different and possibly "contributing" factors to an accident causation, e.g. the weather, were either not taken into account or their exclusion was not explained in a comprehensible manner.

20. The recorded breathing frequency of Andreas Lubitz on the cockpit voice recorder suggests that his breathing at the time of the accident can be called a "tachypnea", in medical terms. With an average of 26 breaths per minute Lubitz’s breathing was clearly accelerated compared to a normal respiratory rate of 20 breaths per minute. The reason for this may be the fact that his body was constantly attempting to exhale CO2, which in excess can introduce a comatose condition, somnolence or unconsciousness.
21. An incorrect weather chart dating from one year prior to the crash was initially provided to the French investigators. It is, in fact, chart Nr. 2, with the correct date, that is the valid chart for the accident flight. This raises questions as to how this error could have occurred if the French investigative police are supposedly “meticulous”.

22. Andreas Lubitz was never hospitalized because of depression in 2008-2009. In fact, he was never hospitalized for depression. However, the German representative of the BFU accident investigation team, Johann Reuss M.S., has falsely made this claim. This misinformation was reflected in all investigations (both criminal and civilian aircraft accident investigations) as well as in all media and to date has not been corrected despite the availability of truthful information.

23. According ICAO assignment, the accident of flight 4U9525 was wrongly categorized following the logic and argumentation of BEA’s final report, which assumed a mental disorder of co-pilot Andreas Lubitz. Instead, it should have been classified as a pilot’s incapacitation because of a psychiatric condition with the degree of severity “complete”, according to proper ICAO assignment.

24. According to the recommendations and standards of the International Civil Aviation Organization (ICAO) and their binding international conventions and guidelines for investigations of flight accidents in member states, a qualified “human factors task force” should have been created for this accident. This could have been composed of experts from all nations involved in the investigation. However, this was not the case. Thus, the cockpit voice recorder was not analysed by human factors “experts”, but only by engineers.

25. At the time the flight data recorder was recovered on 02 April 2015, a BFU employee was also at the accident site.

26. Even 14 days after the crash and initial analysis of the cockpit voice recorder no joint or individual “human factors task force” was established, although
there were considerable indications at that time which would have indicated such a group of experts to clarify and explain the accident, as demanded by ICAO (see item 24).

27. Already eight days after the accident, this expert (van Beveren) informed BEA of a possible malfunction of the cockpit door keypad, which might have been relevant to the sequence of the accident events. BEA wanted the cooperating German colleagues of BFU to investigate this fact further.

28. The examination and identification of the human remains regarding the crew and passengers was completely subject to the French judicial authorities, in this case the French gendarmerie (military police).

29. In the history of civil aviation pilot suicides have rarely occurred, especially with regards to passenger airliners.

30. In most cases of pilot suicide at least a clear motive could be postulated for such an act.

31. At BFU Karsten Severin has the function of a human factors specialist and, in addition to his training as an instructor and holder of a CPL (Commercial Pilot License), is also a fully-qualified psychologist who also teaches at Bremen University. According to the expert (van Beveren) and the client (Lubitz), Karsten Severin M.S. was not, however, involved in the investigation on the part of BFU. He was also not involved as a representative of the authority in the "task force" initiated by the German Federal Ministry of Transport as a member or expert, despite having previously researched and scientifically published on this topic with two leading German universities.

32. The BFU accredited observer, Johann Reuss M.S., favored external experts, among whom none had at least one commercial airline license or had any previous experience in the field of airplane crash investigation.
33. The Lubitz family made several requests and urgent appeals for Severin – the human factors expert and psychologist – to participate, or at least function as a BFU representative, during the hearing of the cockpit voice recorder (according to Regulation (EU) 996/2010). However, both a hearing of the CVR and Severin’s participation were rejected by Reuss. Furthermore, when the Lubitz family requested Severin’s presence when viewing the CVR transcript, Reuss falsely claimed that Severin was not in his office.

34. Both the files from the French gendarmerie investigators and the Duesseldorf prosecutor’s office are in numerical order, but only those files from the French are presented chronologically. It is standard requirement that the “entire” document be rendered in chronological order. Therefore, the Duesseldorf file HA 00047 should – chronologically – be renumbered and repositioned as HA 00001, and so on. However, the present digitized file does not allow any comprehensive or reliable means of discovering when exactly a page was added, when it was drawn up, what conclusions were made, or whether the digitized file is complete.

35. Even "loose-leaf files" are normally numbered chronologically.

36. From the prosecutor’s file of the public prosecutor’s office in Duesseldorf it is not possible to know whether a complete “alternative” file exists which might contain additional information or facts which could possibly provide exoneration for Andreas Lubitz.

37. The investigation file of the Düsseldorf public prosecutor do not meet the requirements of the applicable file regulations for authorities of the State of North Rhine-Westphalia.

38. According to Düsseldorf prosecutor Kumpa, his office holds further documents from the investigations which can be viewed. However, he has not added these to the digitized file. The family and its legal adviser were able to examine these files for the first time on 29 Dec 2016. Among them is a complete printout of Andreas Lubitz’s Facebook pages.
39. In response to media reports about the press conference given by Brice Robin on 26 March 2015, Kumpa instructed German investigators to focus only on Andreas Lubitz as the responsible party.

40. According to Kumpa's own statement, the procedure at issue here is not a criminal investigation against Andreas Lubitz or Germanwings, Lufthansa AG, or others, but a "death investigation".

41. In light of the clearly-documented uncertainty stated in the prosecution's file up to 25 May 2015, i.e. two months after the cockpit voice recorder was first analysed, it is incomprehensible that the file could claim that Andreas Lubitz had been fully conscious and had crashed the aircraft with suicidal intent. The investigating officials clearly stated that "it was not possible to prove whether he was conscious". (see also point 20). The same erroneous interpretation is likewise true for the statements and findings made by the Düsseldorf public prosecutor, and which also impacted the searched for and confiscated material.

42. It is not comprehensible how police photographs taken on the occasion of the Lubitz family house search on 26 March 2015, conducted by the Montabaur criminal investigation, came to be part of the investigation file at all. These photographs were never the purpose of the search warrant. It is also striking in this context that the public prosecutor does not address the question of how and through whom these images from the file later came to the media. Normally, such images are censored or, in principle, not included in the investigation file.

43. The conclusion of the Düsseldorf public prosecutor that Andreas Lubitz had problems at the time of the accident, "about which Andreas Lubitz was obviously not willing to speak openly", is in no way justified. The public prosecutor refers to documents from 2008, i.e. a completely different period. According to the statements in these documents, the exact opposite of this hypothesis is proved, namely that Andreas Lubitz was, in fact, involved in
active exchange with others about his problems at that time. Therefore the prosecution’s assumption is incorrect. This circumstance once again proves the massive “confirmation bias”, that is, the false confirmation of an assumption by the Düsseldorf public prosecutor, which is also being pursued uncorrected by the further proceedings.

44. The public prosecutor collects bases his findings mainly on the recording of the cockpit voice recorder, which, however, has not been made available either in the original or as a copy (see also “closing statement” from 15.12.2016), and the prosecutor has neither heard the recording nor requested an evaluation by external specialists.

45. Regarding the health of Andreas Lubitz it is clear that the investigators (both criminal and civilian air accident investigation) and the public prosecutors assumed a very early “fixation” on Andreas Lubitz’s “depressive period” at the beginning of his pilot training at the Lufthansa pilot school in Bremen in 2008. This supports the impression that the investigators believe they see the "alleged motive" for Andreas Lubitz’s act on 24 March 2015.

46. There is the suspicion that on the basis of objectively incorrect facts in the applications for the search and seizure of patient records in medical practices by the Düsseldorf public prosecutor, the basic principles of medical confidentiality and protected legal rights were grossly violated.

47. Regarding the public prosecutor’s findings about an iPad which the detectives allegedly seized in the Düsseldorf apartment during the house search on 26 March 2015 and on which was detected an alleged search history during the weeks before the accident, incriminating Andreas Lubitz should be noted: these assumptions are incorrect. The iPad was not seized in the couple’s Düsseldorf apartment during the house search, but was rather in the custody of a third party at that time. The corresponding false information in the file of the French judiciary, the BEA and the media have not – despite known information – yet been corrected.
48. It was not the co-pilot's father, Günter Lubitz, who handed over to the lawyer Conrad the books which Andreas Lubitz had ordered before his death on 27 March 2015, but rather it was the stepfather of Andreas Lubitz’s partner, Kathrin Goldbach.

49. Regarding the aforementioned books (point 48), it is striking that, according to police forensic data evaluation, Andreas Lubitz had already ordered the books two days before therapist Schmidt had recommended them to him.

50. It is suspicious that the browser history of the iPad (exhibit 1.1.1.1.13) shows, that data from 20 September 2014 to 16 March 2015 are clearly missing.

51. According to the file, the iPad (exhibit 1.1.1.1.13) was registered to several people. However, Apple does not provide this possibility for iPads and it is technically unfeasible, although an owner’s name can be changed.

52. The files do not indicate when and how the forensic data evaluation of the seized computers, laptops and iPads and the cross-check of all these devices were performed, nor how the alleged browser history was verified with the respective internet service providers. If this has not been done, these evaluations have no relevance.

53. Although substantial data storage from mobile phones and other devices with audio and video recording were found and seized at the crash side, there is no evidence in the files as to whether this data was retrieved or reconstructed and, if so, when and how.

54. Andreas Lubitz did not conceal his illness from his employer, as has been implied. He was initially issued a sick note for a longer period; however, a general practitioner subsequently examined him thoroughly on 16 March 2015 and did find him incapacitated for work, but only until 22 March 2015. Thus, any previously-issued certificates covering a more extensive period had become superseded. Germanwings possessed this more current doctor’s notice.
55. At the time of the accident, Andreas Lubitz was not under the influence of medicines, which, according to current assumption, severely impaired his flight fitness or made his duty on the day of the accident illegal. The concentration of residues of psychoactive drugs, extracted from tissue samples from his human remains show that he had, in fact, taken them before 23 March 2015, the time period when he was incapacitated and when the doctor had issued a sick note.

56. From the reconstruction of his flight book, according to the data in the file made available by his employer, Germanwings, it is shown that from the very beginning of his time with the company (spring 2014) Andreas Lubitz primarily flew in aircrafts with a well-known history of so-called “fume events” (incidents with suspected release of neurotoxic substances through the air bleed system).

57. Other persons affected by fume events also consistently describe the ocular symptoms Andreas Lubitz observed in December 2014. Moreover, such symptoms are reported in the literature in connection with the so-called “sheep dip poisoning” in Great Britain, where organophosphates were used. Such intoxication can lead to sudden performance fall-off. Father Günter Lubitz observed such an event during sports activity (jogging) in January 2015. These intoxications can lead to sudden personality changes, including depression and suicide. They are generally misdiagnosed (e.g., hypochondria, Parkinson’s, MS, psychosomatic) in mainstream medicine and by medical staff because of widespread unawareness. The interaction with psychotherapeutic drugs can lead to extensive undesirable side effects.

58. According to the parents’ and the brother’s DNA profiles made at the end of 2016 and beginning of 2017 there is a high probability that Andreas Lubitz’s DNA profile places him in the group of “intermediate” or even “poor metaboliser” of aircraft toxic fumes. This means that he could metabolise the toxins emitted during “fume events” only over a period of time, or probably not at all. However, more detailed information on these results can be assured by more forensic laboratory analyses of Andreas Lubitz’s tissue samples.
Note

THIS EXPERT OPINION WILL BE CONTINUED AND, IF NECESSARY, SUPPLEMENTED BY NEW FINDINGS.

Revision date: 30 March 2017