ESSAY

After the Max: Rebuilding U.S. Aviation Leadership

RONCEVERT GANAN ALMOND*

From the inception of powered flight to the establishment of an international aviation legal regime, the United States has served as the long-time leader of the global aviation system. The international response to the recent crashes of Boeing 737 MAX aircraft suggests that America's leadership is now in question. The United States' system of regulation is currently under international scrutiny. The accidents in Indonesia and Ethiopia have raised difficult questions concerning the Federal Aviation Administration's oversight practices, the role and influence of industry, and the U.S. government's handling of accidents involving U.S.-manufactured aircraft. The Trump administration's political response, deregulatory agenda, and disdain for international institutions have aggravated these concerns. This essay argues that the United States should approach the 737 MAX accidents as an opportunity to rebuild its leadership role by conducting a thorough and transparent investigation and reforming its regulatory oversight program. Investigators must closely examine the FAA's system of delegation, which may not have included adequate supervision and technical control over designated organizations such as Boeing. According to prior investigations, at the time of the 737 MAX certification, the agency's designee oversight was not consistent with U.S. obligations under international law and best practices in aviation safety. More recent reviews, following the 737 MAX accidents, support this conclusion. Areas for reform include: (1) increasing supervision and control of appointed personnel at designated organizations; (2) improving the staffing methodology and training program for FAA aircraft engineers overseeing designees; (3) developing more effective guidance material and job aids to enable oversight of delegated functions; (4) escalating surveillance and enforcement in relation to designated organizations; and (5) providing the adequate political will and resources for the FAA to strengthen its oversight of industry designees. After the 737 MAX accident, through a comprehensive investigation and robust reform, the United States can lift the baseline for aviation regulation and governance worldwide.

* Partner at The Wicks Group, adjunct professor of law, Georgetown University Law Center, member of the Editorial Board, THE AIR & SPACE LAWYER, contributing author to AVIATION REGULATION IN THE UNITED STATES (ABA 2014); J.D., cum laude, and M.A., Duke University; B.A., cum laude, George Washington University. The author has served as an adviser to government authorities overseeing aviation in Europe, Asia, the Middle East, Africa, and the Americas. The views expressed herein are strictly my own.

I. INTRODUCTION

From the United States, I have flown to nearly every corner of the globe to assist airline regulators in their efforts to achieve compliance with international standards. Whether in Europe, Asia, Africa, the Middle East, or the Americas, regulation of aviation is remarkably consistent, even if the country's capacity for oversight varies in quality and depth.[1] This standardization and collective efforts to improve effective implementation are due in large measure to the United States' leadership in global aviation.[2] So if I find myself in a small African country like Cape Verde, with a handful of commercial aircraft, or a South Asian behemoth such as India, one of the world's fastest growing aviation markets, I am never really far from home.[3]

U.S. leadership in aviation dates back to December 17, 1903, when the Wright brothers launched the world into flight from America's shore.[4] War-time allies gathered in Chicago in 1944 to establish the Convention on International Civil Aviation (the "Chicago Convention"),[5] setting forth the rules and institutions that would govern air transport following a conflict which brought with it the global growth of aviation technology. Under the Chicago Convention, 193 contracting states have agreed on minimum operating standards, procedures, and practices in order to develop international civil aviation in a safe and orderly manner.[6] From the start, the United States has played the lead role in shaping these rules and forming the International Civil Aviation Organization (ICAO), the United Nations-specialized agency overseeing the treaty.[7] In addition, the United States, through the Federal Aviation Administration (FAA) auditing process, has been critical to enforcing

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[1] Remarkably, the vast majority of countries–193 in total–have agreed in principle to the same international aviation safety standards; however, the global average on effective implementation of these standards is well-below 100%, ranging from a high of 77.74% (airworthiness) to 56.12% (accident investigation). INT'L CIVIL AVIATION ORG., SAFETY AUDIT RESULTS: USOAP INTERACTIVE VIEWER, https://www.icao.int/safety/pages/usoap-results.aspx (last visited May 15, 2019).

[2] *See generally* Anthony Broderick & James Loops, *Government Aviation Safety Oversight – Trust, But Verify*, 67 J. AIR L. & COM. 1035 (2002); Miranda Anger, *International Aviation Safety: An Examination of the U.S., EU, and the Developing World*, 72 J. AIR L. & COM. 141, 156 (2007).

[3] This work includes assisting countries with developing the legislation and regulatory framework to establish civil aviation oversight institutions. *See, e.g.*, Roncevert G. Almond, *Economic Advancement and Legislative Reform in India's Aviation Sector*, 55 COLUM. J. TRANSNAT'L L. 1501 (2016).

[4] U.S. LIBRARY OF CONGRESS, *Today in History – December 17*, https://www.loc.gov/item/today-in-history/december-17 (last visited Mar. 28, 2019).

[5] Convention on International Civil Aviation, Dec. 7, 1944, 61 Stat. 1180, 15 U.N.T.S. 295 [hereinafter *Chicago Convention*].

[6] Given the global participation in the Chicago Convention, the Convention arguably represents an accepted international consensus on civil aviation standards. *See* INT'L CIVIL AVIATION ORG., MEMBER STATES (April 13, 2019), https://www.icao.int/MemberStates/Member%20States.English.pdf.

[7] INT'L CIVIL AVIATION ORG., https://www.icao.int/Pages/default.aspx (last visited Mar. 28, 2019).; UN-specialized agencies are autonomous organizations working with the United Nations. All agencies were brought into relationship with the UN through negotiated agreements. *See* UNITED NATIONS, FUNDS, PROGRAMMES, SPECIALIZED AGENCIES AND OTHERS, https://www.un.org/en/sections/about-un/funds-programmes-specialized-agencies-and-others/ (last visited May 15, 2019).

the Chicago Convention across the globe.[8] This leadership is also demonstrated in practice: the United States performs well-above the global average in terms of effective implementation of international aviation standards.[9]

However, the international response to the recent crashes of the Boeing 737 MAX aircraft has called America's leadership into question.[10] Foreign governments grounded the U.S.-manufactured aircraft following what was perceived as a tepid and ambiguous response by Boeing and, more importantly, the FAA.[11] China, a geopolitical competitor, and the United Kingdom, a close ally, were among those that quickly grounded the planes. 737 MAX flights were even turned back from entering British airspace.[12] Eventually, two days later, the United States followed by grounding the worldwide 737 MAX fleet.[13] Given America's traditional role in global aviation, this was an unexpected flight path, so to speak.

The United States' system of regulation is now under international scrutiny. The accidents in Indonesia and Ethiopia raise difficult questions regarding the FAA's oversight practices, the role and influence of industry, and the U.S. government's handling of accidents involving U.S.-manufactured aircraft.[14] The Trump administration's political response, deregulatory agenda, and disdain for international institutions have aggravated these concerns.[15] The actions of foreign states and regulators indicate doubt as to whether the U.S. system is apolitical and impartial.[16] The United States should approach the 737 MAX accidents as an opportunity to rebuild its leadership role by conducting a thorough and transparent investigation and reforming its regulatory oversight program.

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[8] FED. AVIATION ADMIN., *International Aviation Safety Assessment (IASA) Program*, https://www.faa.gov/about/initiatives/iasa/ (last visited Mar. 27, 2019).

[9] The United States' effective implementation percentage compared to global average in all categories of international aviation safety standards measured by ICAO: (1) Legislation: 81.82% vs. 73.68%; (2) Organization: 100% vs. 70.4%; (3) Licensing: 93.51% vs. 73.65%; Operations: 94.26% vs. 70.17%; Airworthiness: 96.86% vs. 79.04%; Accident Investigation: 81.32% vs. 57.03%; Air Navigation Services: 86.67% vs. 65.76%; Aerodromes: 97.33% vs. 61.24%. INT'L CIVIL AVIATION ORG., SAFETY AUDIT RESULTS: USOAP INTERACTIVE VIEWER, https://www.icao.int/safety/pages/usoap-results.aspx (last visited May 15, 2019).

[10] John Bowker & Rick Clough, *Boeing Grounded: Tracking Global Response to 737 Max Crash*, BLOOMBERG NEWS (last updated Mar. 12, 2019, 1:52 PM), https://www.bloomberg.com/news/articles/2019-03-12/boeing-grounded-tracking-the-global-response-to-737-max-crash.

[11] Richard Lardner & Tom Krisher, *Criticism of FAA mounts as other nations ground Boeing jets*, ASSOC. PRESS (Mar. 13, 2019), https://www.apnews.com/0d26ade6ff9044d2b8c81fc8000d61cb.

[12] Julian Robinson et al., *Boeing Jet is Forced to Turn Around MID-AIR After Britain Bans 737 MAX Planes Following Ethiopia Disaster, As Rest of Europe and India Follows Suit*, DAILY MAIL (last updated Mar. 12, 2019, 9:33 PM), https://www.dailymail.co.uk/news/article-6798473/Pressure-mounts-Boeing-countries-airlines-ground-Max-737-8-fleets.html.

[13] FED. AVIATION ADMIN., *Operators of Boeing Company Model 737–8 and Boeing Company Model 737–9 Airplanes: Emergency Order of Prohibition*, 84 Fed. Reg. 9705 (Mar. 18, 2019).

[14] Thomas Kaplan, *After Boeing Crashes, Sharp Questions About Industry Regulating Itself*, N.Y. TIMES (Mar. 26, 2019, 7:23 PM), https://www.nytimes.com/2019/03/26/us/politics/boeing-faa.html.

[15] *See, e.g.*, Michael Laris et al., *Trump Was the Face of the 737 Probe*, WASH. POST (Mar. 17, 2019), https://www.washingtonpost.com/local/trafficandcommuting/trump-cast-himself-as-boeings-decider-in-chief-showing-the-perils-of-injecting-politics-into-investigations/2019/03/17/f79aeb84-472f-11e9-8aab-95b8d80a1e4f_story.html?utm_term=.48035b8f06d1.

[16] Steve Denning, *How Politics Delayed A Boeing Fix And Endangered Public Safety*, FORBES (Mar. 13, 2019), https://www.forbes.com/sites/stevedenning/2019/03/13/how-politics-hindered-a-boeing-fix-and-endangered-public-safety/#5502520b620c.

Investigators must closely examine the FAA's system of delegation, which may not include adequate supervision and technical control over designated organization such as Boeing.[17] Based on the findings of prior investigations, at the time of the 737 MAX certification, the agency's designee oversight was not consistent with U.S. obligations under international law or best practices in aviation safety. More recent reviews following the 737 MAX accidents support this conclusion.[18] Areas for reform include: (1) increasing supervision and control of appointed personnel at designated organizations; (2) improving staffing methodology and training programs for FAA aircraft engineers overseeing designees; (3) developing more effective guidance material and job aids to facilitate oversight of delegated functions; (4) escalating surveillance and enforcement in relation to designated organizations; and (5) providing the adequate political will and resources for the FAA to strengthen its oversight of industry designees. After the 737 MAX, through a comprehensive investigation and robust reform, the United States can lift the baseline for aviation regulation and governance worldwide.

II. ESTABLISHING THE BASELINE

Nearly three decades ago, it was America's response to an airline crash that served as the new baseline for measuring the safety of global air travel. On January 25, 1990, Avianca Flight 52, traveling from Bogota, Colombia to John F. Kennedy International Airport in New York crashed, killing 73 of the 158 individuals on board the Boeing 707, including the pilots, after running out of fuel.[19] The U.S. National Transportation Safety Board (NTSB) determined that the accident was caused by the flight crew's failure to adequately manage the airplane's fuel load and their failure to communicate an emergency fuel situation to U.S. air traffic controllers as the plane was kept circling for over an hour before receiving permission to land.[20]

In 1992, Congressional hearings on the deadly crash raised critical questions regarding oversight of foreign air carriers operating within the United States[21] and the compliance of foreign countries with international standards.[22] In response, the FAA announced an initiative to examine whether foreign authorities were properly meeting their oversight responsibilities under the Chicago Convention.[23]

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[17] Tom Kishner et al., *Critics question 'conflict of interest' issues in FAA oversight of Boeing,* CHICAGO SUNTIMES (Mar. 15, 2019, 6:35AM), https://chicago.suntimes.com/news/faa-boeing-oversight-deadly-crashes-grounded-max-8/.

[18] Andy Pasztor et al., *FAA Didn't Treat Suspect 737 MAX Flight-Control System as Critical Safety Risk,* WALL ST. J. (May 14, 2019, 7:37 PM), https://www.wsj.com/articles/faa-saw-737-max-flight-control-system-as-non-critical-safety-risk-11557831723.

[19] John Cushman, Jr., *Avianca Pilots Blamed by U.S. In '90 L.I. Crash*, N.Y. TIMES (May 1, 1991), *available at* https://www.nytimes.com/1991/05/01/nyregion/avianca-pilots-blamed-by-us-in-90-li-crash.html.

[20] U.S. NAT'L TRANSP. SAFETY BOARD, *Aircraft Accident Report: Avianca, The Airline of Columbia*, NTSB/AAR-91/04 (adopted Apr. 30, 1991).

[21] U.S. GEN. ACCOUNTING OFFICE, *Aviation Safety: Increased Oversight of Foreign Carriers Needed,* RCED-93-42 (Nov. 1992).

[22] *Government Oversight of Loophole Airlines*: *Hearing Before the Subcomm. on Investigations & Oversight of the House Comm. on Public Works & Transp.*, 102nd Cong. 45 (1991).

More specifically, through the International Aviation Safety Assessment (IASA) program, the FAA audits the capacity of the foreign government to carry out their treaty obligations.[24] Under the IASA program, the FAA conducts an in-country assessment of a country's civil aviation oversight system using a standardized checklist.[25] In effect, the United States is enforcing international standards under the Chicago Convention.[26] The FAA's audit evaluates countries according to the eight "critical elements" of an aviation oversight system: (1) primary aviation legislation; (2) specific operating regulations; (3) state civil aviation system and safety oversight functions; (4) technical personnel qualification and training; (5) technical guidance, tools, and the provision of critical safety information; (6) licensing, certification, authorization, and approval obligations; (7) surveillance obligations; and (8) resolution of safety concerns.[27] Within this context, the FAA examines the regulation of areas such as pilot training and licensing,[28] aircraft certification,[29] and air operator approvals.[30] An FAA determination of non-compliance can lead to an embargo on flights traveling from that country into the United States.[31] Global airline regulators take notice and follow the FAA's decisions.[32]

Additionally, the international community has followed the United States by establishing similar methods for measuring the safety of international flights. Following the FAA's model, ICAO developed the Universal Safety Oversight Audit Programme (USOAP), which continuously monitors contracting states' compliance with provisions of all safety-related annexes to the Chicago Convention.[33] The European Union (EU) also maintains a list of air carriers subject to an operating ban or operating restrictions within EU

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[23] FED. AVIATION ADMIN., *Information Concerning FAA Procedures for Examining and Monitoring Foreign Air Carrier*, 57 Fed. Reg. 38342-38343 (Aug. 24, 1992).

[24] FED. AVIATION ADMIN., *International Aviation Safety Assessment (IASA) Program*, https://www.faa.gov/about/initiatives/iasa/ (last visited Mar. 27, 2019).

[25] FED. AVIATION ADMIN., International Aviation Safety Assessment (IASA) Program, IASA Program Overview, https://www.faa.gov/about/initiatives/iasa/media/FAA_Initiatives_IASA.pdf (last visited Mar. 29, 2019); INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3 (3d ed. 2017) (defining the eight critical elements of a safety oversight system).

[26] Mandatory standards and recommended practices are issued by the ICAO Council and are designated as annexes to the Chicago Convention. Chicago Convention, *supra* note 5, art. 54.

[27] FED. AVIATION ADMIN., International Aviation Safety Assessment (IASA) Program, IASA Program Overview, https://www.faa.gov/about/initiatives/iasa/media/FAA_Initiatives_IASA.pdf (last visited Mar. 29, 2019); INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3 (3d ed. 2017) (defining the eight critical elements of a safety oversight system).

[28] INT'L CIVIL AVIATION ORG., PERSONNEL LICENSING, ANNEX 1 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION (12th ed. 2018).

[29] INT'L CIVIL AVIATION ORG., AIRWORTHINESS OF AIRCRAFT, ANNEX 8 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION (12th ed. 2018).

[30] INT'L CIVIL AVIATION ORG., PART 1: INTERNATIONAL AIR TRANSPORT – AEROPLANES, ANNEX 6 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION (9th ed. 2018).

[31] *See, e.g.*, U.S. FED. AVIATION ADMIN., *Press Release – FAA Announces Aviation Safety Rating for Indonesia* (Aug. 15, 2016), https://www.faa.gov/news/press_releases/news_story.cfm?newsId=20634&amp%3Bcid=TW600.html.

[32] News Desk, *Indonesian Airlines Can Fly to US as FAA Upgrades Safety Rating,* JAKARTA POST (Aug. 16, 2016, 5:30 AM), https://www.thejakartapost.com/news/2016/08/16/indonesian-airlines-can-fly-to-us-as-faa-upgrades-safety-rating.html.

[33] INT'L CIVIL AVIATION ORG., UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME CONTINUOUS MONITORING MANUAL, ICAO Doc. 9735 AN/960 (3d ed., 2011).

territory.[34] The EU "blacklist" is based on reports showing serious safety deficiencies, including data from the FAA and ICAO.[35]

The world turned to the United States because it was the market leader in aviation technology and regulatory oversight. This remains the case as America continues to have the most advanced and complex aviation environment in the world, not just in relation to airlines.[36] From drones to general aviation to commercial space, U.S. industry sets the pace for future technology.[37] Moreover, the FAA is staffed with the world's best trained and most qualified civil servants.[38] The FAA's academy in Oklahoma City[39] trains government aviation professionals from around the globe.[40] The FAA also trains foreign nationals abroad, often through FAA-led coursework at foreign civil aviation training academies.[41]

But this edge is eroding. Others are catching up. China's influence, along with its manufacturing capacity, is growing.[42] At the heart of current U.S.-China trade tensions is the Trump administration's claim that China is stealing or co-opting America's technological advantage in areas such as aerospace.[43] In the European sphere, Airbus has long been a strong competitor to Boeing, but countries are increasingly turning to the EU regulatory model as a preferred alternative.[44] ICAO's oversight programs have expanded in scope, sophistication, and impact.[45] Regional aviation organizations, with regulatory and training capacity, are also on the rise.[46] Although the broader development

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[34] European Parliament and Council Regulation 2111/2005, 2005 O.J. (L 344) 15.

[35] *Id.*

[36] U.S. GEN. ACCOUNTING OFFICE, *Air Traffic Control Modernization: Progress and Challenges in Implementing NextGen,* GAO-17-450 at 1 (Aug. 2017) ("U.S. National Airspace System (NAS) handles nearly 70,000 flights a day and is generally considered the safest, busiest and most complex airspace system in the world.").

[37] *Id.* (describing the unique challenge of integrating new entrants like commercial space and unmanned aircraft systems into the National Airspace System).

[38] The FAA carries out a workforce evaluation to determine the leadership, technical, and functional skills necessary to ensure that the U.S. has the world's safest and most productive aviation sector. FED. AVIATION ADMIN, *Aviation Safety Workforce Plan 2018-2027*, https://www.faa.gov/about/plans_reports/media/fy18_avs_wfp.pdf (last visited Mar 28, 2019).

[39] FED. AVIATION ADMIN., FAA Academy, https://www.faa.gov/about/office_org/headquarters_offices/arc/programs/academy/ (last visited Mar. 27, 2019).

[40] FED. AVIATION ADMIN., *Training for Civil Aviation Authorities,* https://www.faa.gov/training_testing/training/air_training_program/train_civil_aviation/ (last visited Mar. 27, 2019).

[41] *See, e.g.*, GHANA CIVIL AVIATION AUTH., *Ghana Civil Aviation Training Academy,* http://www.gcaa.com.gh/web/?p=144 (last visited Mar. 29, 2019).

[42] Brenda Goh et al., *China Eyes Greater U.S. Access for its Aircraft and Parts with New Deal*, REUTERS (Nov. 2, 2017, 5:23 AM), *https*://www.reuters.com/article/us-china-us-aviation/china-eyes-more-u-s-access-for-its-aircraft-parts-with-new-deal-idUSKBN1D20ZZ.

[43] OFFICE OF U.S. TRADE REPRESENTATIVE, EXEC. OFFICE OF THE PRESIDENT, FINDINGS OF THE INVESTIGATION INTO CHINA'S ACTS, POLICIES, AND PRACTICES RELATED TO TECHNOLOGY TRANSFER, INTELLECTUAL PROPERTY, AND INNOVATION UNDER SECTION 301 OF THE TRADE ACT OF 1974 (2018), *available at* https://ustr.gov/sites/default/files/Section 301 FINAL.PDF.

[44] EUROPEAN UNION AVIATION SAFETY AGENCY, *Regulations,* https://www.easa.europa.eu/regulations (last visited Mar. 27, 2019).

[45] Om Jotikasthira,*'Almost All' ICAO Safety Issues Fixed,* BANGKOK POST (Jun. 7, 2018 6:30 AM), https://www.bangkokpost.com/news/general/1480093/almost-all-icao-safety-issues-fixed.

[46] INT'L CIVIL AVIATION ORG., *RSOOs (Including COSCAPs)/RAIOs*, https://www.icao.int/safety/Implementation/Pages/COSCAPs-RSOOs-RAIOs.aspx (last visited Mar. 27, 2019).

of regulatory systems is a relative gain for the global community, in the absence of U.S. leadership, the underlying consensus supporting the standardization of aviation across borders could break down.[47]

III. DELEGATING AUTHORITY

The United States has also taken steps to undermine its own authority within the international community. For example, the government shutdown, which extended from December 22, 2018 to January 25, 2019, threatened the safety of the U.S. aviation system.[48] FAA inspectors were restrained from carrying out certain functions like aircraft certification and pilot licensing.[49] The absence of air traffic controllers practically forced open the government.[50] The U.S. Department of Transportation (DOT), including the FAA, now faces large budget cuts.[51] America's recent political choices demonstrate an incapacity or unwillingness to invest in the human and physical infrastructure necessary for the safe and orderly development of the aviation sector.

The White House's deliberate departure from the rules-based global order and harsh criticism of international organizations have undermined America's leadership in resolving problems of cross-border coordination and cooperation.[52] The United States funds approximately 25% of ICAO's budget,[53] but Americans are not proportionately represented in staff positions at ICAO and have not filled the allotted staff apportionment for U.S. citizens.[54] In comparison, the current leader of ICAO is from China[55] and Beijing has used its influence to shape policy at the international institution.[56] The fact that

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[47] Victoria Bryan & Brad Haynes, *Airlines hold fast to global consensus in fractured world*, REUTERS (Jun. 5, 2017), https://www.reuters.com/article/us-airlines-iata/airlines-hold-fast-to-global-consensus-in-fractured-world-idUSKBN18W1X6.

[48] Press Release, H.R. Transp. Comm., Chairs DeFazio and Larsen Introduce Legislation to Protect U.S. Aviation System, FAA During Future Shutdowns (Feb. 8, 2019), a*vailable at* https://transportation.house.gov/news/press-releases/chairs-defazio-and-larsen-introduce-legislation-to-protect-us-aviation-system-faa-during-future-shutdowns.

[49] David Shepardson, *U.S. Calling Back 1,700 Aviation Safety Inspectors*, REUTERS (Jan. 15, 2019, 5:27 PM), https://www.reuters.com/article/us-usa-shutdown-airports/u-s-calling-back-1700-aviation-safety-inspectors-idUSKCN1P92Y0.

[50] Joseph A. McCartin, *How Air Traffic Controllers Helped End the Shutdown – and Changed History*, WASH. POST (Jan. 26, 2019), https://www.washingtonpost.com/outlook/2019/01/26/how-air-traffic-controllers-helped-end-shutdown-changed-history/?utm_term=.db958ae2a916.

[51] Kate Rabinowitz & Kevin Uhrmacher, *What Trump Proposed in his 2020 Budget*, WASH. POST (last updated Mar. 12, 2019), https://www.washingtonpost.com/graphics/2019/politics/trump-budget-2020/?utm_term=.8c37eda2fc1f.

[52] David M. Herszenhorn, *G20 Leaders Reaffirm 'Rules-Based International Order'*, POLITICO (Dec. 18, 2018, 7:23 PM), https://www.politico.eu/article/g20-leaders-reaffirm-rules-based-international-order/.

[53] Thomas Carter, U.S. Ambassador to the International Civil Aviation Organization, *Remarks to the International Aviation Club of Washington, DC* (May 7, 2019), https://icao.usmission.gov/remarks-to-the-international-aviation-club-of-washington-dc/.

[54] UNITED NATIONS SYSTEM CHIEF EXECUTIVES BOARD FOR COORDINATION, *Human Resources by Nationality,* https://www.unsystem.org/content/hr-nationality (last visited May 18 2019).

[55] Press Release, INT'L CIVILI AVIATION ORG. (CHECK TO SEE IF ORDER/TYPEFACE IS CORRECT HERE), *Fang Liu Reappointed Secretary General of ICAO for a Second Term* (Mar. 16, 2018), *available at* https://www.icao.int/Newsroom/Pages/Fang-Liu-reappointed-Secretary-General-of-ICAO-for-a-second-term.aspx.

[56] *See, e.g.*, Lin Feng, *Taiwan Snubbed by ICAO, Under Pressure from China*, VOICE OF AMERICA (Sept. 23, 2016, 6:07PM), https://www.voanews.com/a/taiwan-snubbed-icao-pressure-china/3522841.html.

airline regulators across the globe, led by the Chinese government, broke with the FAA – the aviation authority that certified the aircraft as being airworthy – by immediately grounding the 737 MAX suggests a loss of faith in America's aviation oversight system. The FAA's measured, if frustrating, initial response to the crash in Ethiopia may be explained by the careful deliberations involved in aviation safety.[57] However, the FAA's slow response may also be a reflection of a reluctance to take action against an influential U.S. manufacturer.[58]

Indeed, the U.S. government's reputation for independent oversight is coming under increasing scrutiny.[59] In a remarkable deviation with traditional practice, the Ethiopian government decided to send the aircraft's "black boxes" – data and voice recorders – to Europe for analysis, instead of the United States.[60] International standards governing accident investigations recognize the key role of the state of the aircraft's manufacturer, in this case the United States, because of its responsibility for the airworthiness of the aircraft and the expert capacity required to "read-out" the black boxes.[61] In this case, Ethiopia may have by-passed the United States because the 737 MAX was built by a major American manufacturer that continued to deny any safety issues with its aircraft.[62]

The objectivity of the FAA's decision-making was further undermined by President Trump when he intervened directly in the U.S. government's investigation of the aircraft accident.[63] The President, not technical safety regulators, became the "face" of the U.S. response.[64] More damaging, Trump publicly speculated on the cause of the tragedy and abruptly announced the grounding of the fleet on a basis other than an immediate safety threat, thereby creating the appearance of political interference in the decision-making

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[57] U.S. FED. AVIATION ADMIN., Press Release, *FAA Statement on Boeing 737 Max* (last updated Mar. 20, 2019), *available at:* https://www.faa.gov/news/updates/?newsId=93206.

[58] Thomas Kaplan, *After Boeing Crashes, Sharp Questions About Industry Regulating Itself*, N.Y. TIMES (Mar. 26, 2019, 7:23 PM), https://www.nytimes.com/2019/03/26/us/politics/boeing-faa.html.

[59] Peter Robison & Alan Levin, *FAA Workers Sounded Alarm About Boeing Performing its Own Safety Checks as Early as 2012,* JAPAN TIMES (Mar. 18, 2019), https://www.japantimes.co.jp/news/2019/03/18/world/faa-workers-sounded-alarm-boeing-performing-safety-checks-early-2012/.

[60] Luz Lazo et al., *Black Boxes from Boeing 737 Max 8 Arrive in France, Along with Key Information from Ethiopian Airlines Flight*, WASH. POST (Mar. 14, 2019), https://www.washingtonpost.com/local/trafficandcommuting/black-boxes-from-boeing-737-max-8-arrive-in-france-along-with-key-information-from-ethiopian-airlines-flight/2019/03/14/04c17886-4664-11e9-aaf8-4512a6fe3439_story.html?utm_term=.49dca0b5c258.

[61] INT'L CIVIL AVIATION ORG., AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION, ANNEX 13 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION 2.1.2 (11th ed. 2016).

[62] Luz Lazo et al., *Black Boxes from Boeing 737 Max 8 Arrive in France, Along with Key Information from Ethiopian Airlines Flight*, WASH. POST (Mar. 14, 2019), https://www.washingtonpost.com/local/trafficandcommuting/black-boxes-from-boeing-737-max-8-arrive-in-france-along-with-key-information-from-ethiopian-airlines-flight/2019/03/14/04c17886-4664-11e9-aaf8-4512a6fe3439_story.html?utm_term=.49dca0b5c258.

[63] Toluse Olorunnipa & Josh Dawsey, *Trump Disparages Boeing 737s in Private Before Grounding the Plane After Deadly Crash*, WASH. POST (Mar. 13, 2019), https://www.washingtonpost.com/politics/trump-disparages-boeing-737s-in-private-before-grounding-the-plane-after-deadly-crash/2019/03/13/8eac7c92-45a3-11e9-8aab-95b8d80a1e4f_story.html?utm_term=.dccb89f1ca03.

[64] Michael Laris et al., *Trump Was the Face of the 737 Probe*, WASH. POST (Mar. 17, 2019), https://www.washingtonpost.com/local/trafficandcommuting/trump-cast-himself-as-boeings-decider-in-chief-showing-the-perils-of-injecting-politics-into-investigations/2019/03/17/f79aeb84-472f-11e9-8aab-95b8d80a1e4f_story.html?utm_term=.48035b8f06d1.

process.[65] In contrast, when the FAA grounds an aircraft, it does so based on technical safety grounds.[66]

Ties between the current U.S. administration and the aviation industry are being closely examined in the wake of the Ethiopian accident.[67] The White House has emphasized a regulatory reform agenda that has made federal agencies more restrained in carrying out their oversight duties.[68] More broadly, the U.S. government has relied on forms of risk-based self-regulation to compensate for declining government resources, even as technology continues to advance rapidly. For example, the FAA's new compliance program relies upon risk identification and problem solving with the aviation community and promotes remedial tools (over enforcement methods) when policing industry.[69] In areas such as aircraft certification – the regulatory process by which new aircraft are introduced into service – the FAA has delegated authority to manufacturers for technical approvals, and since 2005[70] this delegation has been made pursuant to the FAA's Organization Designation Authorization (ODA) program.[71] With respect to the 737 MAX, reports indicate that FAA designated Boeing engineers to work on behalf of the FAA through the ODA program to develop the safety data necessary for aircraft's certification, which was relied upon by foreign air-safety regulators.[72]

The trend towards greater delegation of authority has accelerated under the Trump administration's deregulatory agenda. On October 5, 2018, President Trump signed the FAA Reauthorization Act of 2018, which included provisions to speed up aircraft certification by increasing the authority delegated to industry.[73] Specifically, Section 202 of the law established an "advisory committee" – Safety Oversight and Certification Advisory Committee

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[65] *Id.* (reporting that President Trump stated: "We didn't have to make this decision today. We could have delayed it. We maybe didn't have to make it at all. We maybe didn't have to make it at all, but I felt — I felt — it was important, both psychologically and a lot of other ways.").

[66] *See* 49 U.S.C. § 40113(a); 49 U.S.C § 46105(c); 49 U.S.C. § 44713(b).

[67] Alan Pyke, *Here Are the Questions Congress Needs to Ask Boeing and the FAA*, THINKPROGRESS (Mar. 14, 2019, 8:00 AM), https://thinkprogress.org/boeing-737-crashes-congressional-hearing-ed6b93391077/; Tom Krisher et al., *FAA's close ties to Boeing questioned after 2 deadly crashes*, WASH. POST (Mar. 17, 2019), https://www.washingtonpost.com/business/technology/faas-close-ties-to-boeing-questioned-after-2-deadly-crashes/2019/03/15/f706ee6e-46d7-11e9-94ab-d2dda3c0df52_story.html?utm_term=.a262596df04b.

[68] Roncevert Almond et. al, *Regulatory Reform in the Trump Era – The First 100 Days*, 35 YALE J. ON REG. 29 (2017), *available at* http://yalejreg.com/regulatory-reform-in-the-trump-era-the-first-100-days/.

[69] U.S. FED. AVIATION ADMIN., FAA ORDER 8000.373A, FEDERAL AVIATION ADMINISTRATION COMPLIANCE PROGRAM (2018), *available at* https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8000.373A.pdf.

[70] FED. AVIATION ADMIN., *Establishment of Organization Designation Authorization Program*, 83 Fed. Reg. 59932 (Oct. 13, 2005).

[71] The Organization Designation Authorization (ODA) program is the means by which the FAA authorizes an organization to act as a representative of the FAA, allowing that organization to conduct inspections and tests and issue certificates on behalf of the FAA. FED. AVIATION ADMIN., *Delegated Organizations*, https://www.faa.gov/other_visit/aviation_industry/designees_delegations/delegated_organizations/

[72] Dominic Gates, *Flawed analysis, failed oversight: How Boeing, FAA certified the suspect 737 MAX flight control system*, SEATTLE TIMES (Last updated Mar. 21, 2019, 6:00 AM), https://www.seattletimes.com/business/boeing-aerospace/failed-certification-faa-missed-safety-issues-in-the-737-max-system-implicated-in-the-lion-air-crash/.

[73] FAA Authorization Act of 2018, H.R. 302, 115th Cong. Sec. 202 (2018), *available at* https://www.congress.gov/115/bills/hr302/BILLS-115hr302enr.pdf.

(SOCAC) – with industry representation, that is empowered to establish metrics for aircraft certification which the FAA must "apply and track."[74] The objective of SOCAC is to achieve the "most efficient, streamlined, and cost-effective certification and safety oversight processes."[75] The voting membership of SOCAC is dominated by the U.S aviation industry, particularly manufacturers.[76] Aircraft manufacturers and other industry players are key stakeholders in the certification process because they possess the technical knowledge and expertise unique to their manufactured product. Moreover, FAA certification should not be a means for stifling technological innovation. However, in light of the 737 MAX accidents, public interest requires a reevaluation of the balance between industry collaboration and government oversight.

During safety audits of foreign authorities, the FAA closely investigates whether a foreign government relies upon industry designees and, if so, whether there is a sufficient system of supervision and technical control over designees.[77] Notably, in determining compliance with the Chicago Convention, the FAA asks whether there is even the appearance of a conflict, let alone an actual one.[78] With the certification of the 737 MAX, internal reviews indicate that the FAA ceded substantial oversight to manufacturers and created the potential for a conflict of interest.[79] Critics on Capitol Hill are arguing that delegation to industry "left the fox in charge of the hen house."[80] According to Rep. Rick Larsen (D., Wash.), chairman of the aviation subcommittee of the House Transportation and Infrastructure Committee, the "FAA needs to fix its credibility problem," and even the agency's leadership has acknowledged that the FAA faces a global "crisis in confidence."[81] The question remains as to how the United States can restore its position within global aviation.

IV. REBUILDING U.S. LEADERSHIP

The United States must address the global skepticism that the U.S. aviation community's role in the 737 MAX accidents has engendered. This is

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[74] *Id.*

[75] *Id.*

[76] SOCAC is composed of eleven voting members (excluding the FAA Administrator) appointed by the Secretary of Transportation. The statute requires the voting members to represent interests of the U.S. aviation industry. Four members must represent manufacturers' interests (transport aircraft and engine manufacturers, general aviation aircraft and engine manufacturers, avionics and equipment manufacturers, and unmanned aircraft systems manufacturers and operators). Three members must represent flight operators (general aviation operators, air carriers, and business aviation operators). There is one member for maintenance providers (aviation maintenance, repair, and overhaul); and one for airports (owners and operators). The final two seats are available to aviation labor organizations (including collective bargaining representatives of FAA aviation safety inspectors and aviation safety engineers) and aviation safety management experts, a category without further definition under the law. The FAA's experts may serve, but only in a non-voting capacity. *Id.*

[77] FED. AVIATION ADMIN., IASA Assessor's Checklist, State Civil Aviation System and Oversight Functions, AFS-050-004-F2.3, 3.1001 (Oct. 24, 2016).

[78] *Id.*

[79] Andy Pasztor et al., *supra* note 18.

[80] Letter of U.S. Senator Richard Blumenthal to Calvin L. Scovel, III, Dept. of Transp. Inspector General (Mar. 19, 2019).

[81] Andy Pasztor & Ted Mann, *Lawmakers Question FAA's Credibility in Boeing 737 MAX Safety Approval*, WALL ST. J. (Mar. 15, 2019, 5:17PM), https://www.wsj.com/articles/faa-has-credibility-problem-over-boeing-737-max-safety-approval-house-panel-chair-says-11557933257.

an opportunity, not a burden. A proper response to the 737 MAX accidents can serve to lift the baseline for aviation regulation and governance worldwide. To start, the United States must conduct an independent, thorough and transparent investigation concerning the certification and development of the 737 MAX. Initial reports are troubling.

a. Investigating the 737 MAX

To ensure a systematic and objective review, the investigation should involve different levels of government. The U.S. Department of Justice and DOT Office of Inspector General are already conducting investigations into the FAA's dealings with Boeing during the certification of the 737 MAX.[82] Congressional hearings will provide additional opportunities for a thorough review of the 737 MAX's development and the FAA's role as overseer.[83]

Transportation Secretary Elaine Chao has also established a special committee of experts to investigate the FAA's certification of the 737 MAX.[84] Although DOT has described the "Special Committee to Review FAA's Aircraft Certification Process" as an "independent body," the Special Committee falls under SOCAC, the new advisory committee described above.[85] Given the questions raised concerning the 737 MAX certification and the predominant voting power of U.S. manufacturers on SOCAC, it is important that investigations independent of the DOT continue. More broadly, if the DOT is going to rely on SOCAC to set new standards for the FAA's safety oversight and certification activities, the Committee's voting membership should be reformed to provide greater balance, for example, by including representatives from affected FAA safety oversight program offices. Additionally, the procedures and proceedings of SOCAC, including the Special Committee, should be made available on the DOT public docket to increase transparency.[86]

Initial reports indicate that technical issues with the new flight control system installed on the 737 MAX played a key role in the Ethiopian and Indonesian accidents.[87] The flight control system helps ensure that the airplane's nose is at the appropriate angle – known as the "trim" – in order to guarantee that it remains stable and to avoid stalls.[88] Boeing added the

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[82] Andrew Tangel et al., *Prosecutors, Transportation Department Scrutinize Development of Boeing's 737 MAX*, WALL ST. J. (Mar. 18, 2019, 11:38 AM), https://www.wsj.com/articles/faas-737-max-approval-is-probed-11552868400?mod=hp_lead_pos1.

[83] David Shepardson, *U.S. Senate to Hold Crash Hearing as Lawmakers Urge Grounding Boeing 737 MAX 8*, REUTERS (Mar. 12, 2019, 10:34 AM), https://www.reuters.com/article/us-ethiopia-airline-usa/u-s-senate-to-hold-crash-hearing-as-lawmakers-urge-grounding-boeing-737-max-8-idUSKBN1QT1WR.

[84] U.S. DEPT. OF TRANSP., Press Release, *DOT Announces Special Committee to Review FAA's Aircraft Certification Process*, https://www.transportation.gov/briefing-room/dot1619.

[85] *Id.* ("The Special Committee is being formed within the structure of the Safety Oversight and Certification Advisory Committee (SOCAC), created by Section 202 of the FAA Reauthorization Act of 2018.").

[86] The public dockets for DOT and other executive branch agency rulemakings can be found at www.regulations.gov.

[87] Letter of U.S. Senators Edward J. Markey & Richard Blumenthal to Daniel K. Elwell, Acting Admin., Fed. Aviation Admin. (Mar. 12, 2019).

[88] *Id.*

maneuvering characteristics augmentation system (MCAS) to the 737 MAX to counter any destabilizing effects to the plane's pitch resulting from the installation of larger, more fuel-efficient engines than found on prior variations of the 737 aircraft.[89] The purpose of MCAS was to make the 737 MAX handle similar to its predecessors, which would enable Boeing purchasers to avoid substantial training costs associated with material changes to the design of an aircraft.[90] Boeing did not update the manuals or training for operating the 737 MAX to alert pilots of the new stall prevention system.[91] Importantly, by treating the modifications to the 737 MAX as unsubstantial, Boeing avoided additional certification procedures and technical approvals from the FAA.[92] This enabled Boeing to introduce the 737 MAX more quickly and efficiently into a highly competitive market, with the chief threat of a new fuel-efficient aircraft from its European rival Airbus on Boeing's mind.[93] Critically, the FAA enabled the fast-paced development of the 737 MAX by delegating significant authority to Boeing for the aircraft's certification under the agency's ODA program.[94] According to an internal FAA review of the 737 MAX certification, senior agency officials did not participate in or scrutinize safety assessments of MCAS and, instead, relied on industry designees at Boeing to determine that MCAS was not critical to safety and then sign-off on the final design.[95]

Safety issues concerning the 737 MAX were raised earlier in light of the response of the FAA and Boeing following the Lion Air crash in Indonesia on October 29, 2018.[96] Within days after the accident, on November 7, 2018, the FAA issued an emergency airworthiness directive that required operators of the 737 MAX to revise their flight manuals to reinforce to flight crews how to recognize and respond to un-commanded stabilizer trim movement and erroneous input from MCAS.[97] On December 11th, 2018, FAA expanded the scope of the airworthiness directive to apply to all 737 MAX airplanes

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[89] *Id.*

[90] Andy Pasztor et al., *Between Two Deadly Crashes, Boeing Moved Haltingly to Make 737 MAX Fixes,* WALL ST. J. (Apr. 1, 2019, 9:49 PM), https://www.wsj.com/articles/between-two-deadly-crashes-boeing-moved-haltingly-to-make-737-max-fixes-11554164171.

[91] Letter of U.S. Senators Edward J. Markey, *supra* note 87.

[92] David Gelles et al., *Boeing Was 'Go, Go, Go' to Beat Airbus With the 737 Max,* N.Y. TIMES (Mar. 23, 2019), https://www.nytimes.com/2019/03/23/business/boeing-737-max-crash.html

[93] The competitive edge hope for was achieved, as the 737 Max is the fastest-selling plane in Boeing's history. Avie Schneider, *Boeing 737 Max, Involved In 2 Crashes, Is Fastest-Selling Plane In Company's History*, NAT'L PUB. RADIO (Mar. 11, 2019, Updated 1:55PM), https://www.npr.org/2019/03/11/702211493/boeing-737-max-involved-in-two-crashes-is-fastest-selling-plane-in-companys-hist.

[94] Statement of Daniel K. Elwell, Acting Administrator, Fed. Aviation Admin., Before the U.S. Senate Committee on Commerce, Science, & Transportation, Subcommittee on Aviation and Space on the State of Airline Safety: Federal Oversight of Commercial Aviation (Mar. 27, 2019), https://www.faa.gov/news/testimony/news_story.cfm?newsId=23514 [hereinafter *Elwell Statement*].

[95] Andy Pasztor et al., *FAA Didn't Treat Suspect 737 MAX Flight-Control System as Critical Safety Risk,* WALL ST. J. (May 14, 2019, 7:37 PM), https://www.wsj.com/articles/faa-saw-737-max-flight-control-system-as-non-critical-safety-risk-11557831723.

[96] Andy Pasztor et al., *Between Two Deadly Crashes, Boeing Moved Haltingly to Make 737 MAX Fixes,* WALL ST. J. (Apr. 1, 2019, 9:49 PM), https://www.wsj.com/articles/between-two-deadly-crashes-boeing-moved-haltingly-to-make-737-max-fixes-11554164171.

[97] FED. AVIATION ADMIN., EMERGENCY AIRWORTHINESS DIRECTIVE NO. 2018-23-51 (Nov. 7, 2018), http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgad.nsf/0/83ec7f95f3e5bfbd8625833e0070a070/$FILE/2018-23-51_Emergency.pdf.

worldwide.[98] During this period, as the Indonesian accident investigation proceeded, the FAA and Boeing continued to evaluate the need for software and other design changes to the aircraft, including operating procedures and training, as additional information was received.[99] FAA review of the proposed MCAS software enhancements and other corrective actions continued until the crash of another 737 MAX on March 10, 2019 by Ethiopian Airlines.[100] It was only on March 13, 2019, based on new data linking the Ethiopian crash to the Indonesian accident, that the FAA agreed to ground all 737 MAX aircraft.[101]

b. FAA Designee Oversight and International Law

Given initial information concerning the aircraft accidents in Indonesia and Ethiopia, U.S. government investigations must closely examine the certification process for 737 MAX and ongoing FAA oversight. The FAA's system of delegation should be carefully reviewed to determine if there was adequate supervision and technical control over designated organizations such as Boeing. Investigators should be guided by U.S. obligations under the Chicago Convention and international best practices governing aviation oversight. The U.S. aviation community is familiar with these questions and legal standards: this is the measure of compliance the FAA applies when conducting safety audits of foreign aviation systems.[102]

State practice and international law permit aviation regulators to delegate responsibility for certain activities to designated personnel in the private sector.[103] However, it is the responsibility of contracting states to regulate and supervise all their aviation activities to ensure the safe, efficient and regular operation of air services, whether domestic or international.[104] In all cases, the state retains responsibility under the Chicago Convention and, as such, is responsible to ensure the delegated tasks are performed in accordance with international and national requirements.[105] States where aircraft are designed and manufactured must ensure compliance with appropriate

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[98] FED. AVIATION ADMIN., *Airworthiness Directive; The Boeing Company Airplanes*, 83 Fed. Reg. 63561-63565 (Dec. 11, 2018).

[99] FED. AVIATION ADMIN., CONTINUED AIRWORTHINESS NOTIFICATION TO THE INTERNATIONAL COMMUNITY (Mar. 11, 2019), https://www.faa.gov/news/updates/media/CAN_2019_03.pdf.

[100] Statement of Daniel K. Elwell, Acting Administrator, Fed. Aviation Admin. (Mar. 12, 2019), https://www.faa.gov/news/updates/?newsId=93206.

[101] FED. AVIATION ADMIN., EMERGENCY ORDER OF PROHIBITION, OPERATORS OF BOEING COMPANY MODEL 737-8 AND BOEING COMPANY MODEL 737-9 AIRPLANES (Nov. 7, 2018), https://www.faa.gov/news/updates/media/Emergency_Order.pdf.

[102] During IASA audits, the FAA examines issues such as delegation of authority, aircraft certification, state capacity and training programs, guidance material and procedures, and surveillance and enforcement actions, through protocol questions set forth in the IASA Assessor's Checklist. *See* FED. AVIATION ADMIN, *IASA Assessment Checklists,* https://www.faa.gov/about/initiatives/iasa/checklists/.

[103] INT'L CIVIL AVIATION ORG., PART 1: INTERNATIONAL AIR TRANSPORT – AEROPLANES, ANNEX 6 TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION, § 4.2.1.8, App. 5 (9th ed. 2018); INT'L CIVIL AVIATION ORG. MANUAL FOR PROCEDURES FOR OPERATIONS INSPECTIONS, CERTIFICATION AND CONTINUED SURVEILLANCE, Doc. 8335 AN/879, Pt. I, ¶ 5.3.2 (5th ed. 2010).

[104] Chicago Convention, *supra* note 5, arts. 12, 37, 38.

[105] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 1, ¶ 1.1.12 (3d ed. 2014).

airworthiness requirements set forth in ICAO standards.[106] In these states, the civil aviation authority must closely supervise the subsequent activities of designees involved in aircraft certification activities.[107] Functions should not be delegated in such a manner that regulated entities like manufacturers, in effect, regulate themselves.[108] Designees should be subject to regular observation of their delegated activities so that the civil aviation authority can effectively monitor performance and renew the designees approval when necessary.[109] To ensure the proper functioning of designees and designation systems, the aviation regulator must perform periodic and unannounced surveillance of industry activities.[110]

In particular, for delegating certification approvals, ICAO prescribes a system of delegation with the following features: (1) a legal or regulatory basis for designation of certification functions; (2) clearly documented standards, approved by the aviation regulator, for certification approvals; (3) technical and regulatory competency requirements for the designees, with delegation limited to the areas of their demonstrated competence; (4) oversight over the continuing proficiency and training of the designees; (5) approval of the designees' procedures and periodic audits to ensure the designees follow those procedures; (6) clear documentation for the basis for a certification approval; and (7) formal recognition that designees make approvals for and on behalf of the civil aviation authority.[111]

Additionally, the state must have the requisite capacity to properly oversee the designees. Government technical personnel should be at least as qualified as the persons under their supervision.[112] For a state overseeing aircraft manufacturing, regulatory staff – aircraft engineers – should be technically proficient with the requisite training, knowledge and experience related to the design, manufacture and airworthiness certification of the aircraft and its related aeronautical products.[113] The size and structure of the aircraft engineering division should be appropriate to aviation manufacturing industry – capable of overseeing, for example, design approvals, type certification, manufacturing approvals, evaluations of modifications and repairs proposed by manufacturers.[114] The regulator's aircraft engineering division must establish appropriate general and technical regulations, establishing policies and procedures which enable staff to adequately oversee designees.[115] Unlike

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[106] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 1, ¶ 1.2 (3d ed. 2014).
[107] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 1, ¶ 1.1.12 (3d ed. 2014).
[108] *Id.* ¶ 4.1.5.
[109] INT'L CIVIL AVIATION ORG. MANUAL FOR PROCEDURES FOR OPERATIONS INSPECTIONS, CERTIFICATION AND CONTINUED SURVEILLANCE, Doc. 8335 AN/879, Pt. I, ¶ 5.3.2 (5th ed. 2010).
[110] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.4 (3d ed. 2014).
[111] *Id.* ¶ 4.1.6.
[112] INT'L CIVIL AVIATION ORG., *supra* note 103.; INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, ¶ 3.3.2 (3d ed. 2017). INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.5.1.4 (3d ed. 2014).
[113] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.5 (3d ed. 2014).
[114] *Id.* at ¶ 4.6.1.
[115] *Id.* at ¶ 4.3.

countries with limited resources, the United States has sufficient capacity – in terms of financial strength and technically competent personnel – to establish a strong system of supervision and control over delegated functions.[116] In contrast, for example, Sierra Leone, a developing country, scores extremely low in effective implementation of international standards concerning organizational capacity (30%) and airworthiness (19.23%),[117] and relies on a regional organization in West Africa, the Banjul Accord Group Aviation Safety Oversight Organization (BAGASOO), for technical assistance in carrying out its obligations under the Chicago Convention.[118]

With regard to certification of the 737 MAX, the FAA's system of delegation may not have included adequate supervision and technical control over Boeing, the designated organization.[119] The FAA launched the ODA program in order to standardize its oversight over organizational designees.[120] Although the FAA's designee program dates back to 1958,[121] the ODA program began in 2005 and was only fully implemented in 2009.[122] At the prompting of industry, the FAA expanded the use of ODA in order to meet the increased demand for certification from the private sector and to facilitate the development of new aviation technologies.[123] According to investigations by the DOT Office of the Inspector General (OIG) conducted during the time of the 737 MAX certification, FAA ran into several challenges when trying to provide effective oversight of the ODA program.[124] Based on the OIG's findings, the FAA's oversight of the ODA program was not consistent with international standards and best practices from the beginning. These investigations found that the FAA had failed to exercise the necessary supervision and technical control over the ODA program in the selection of individual designees, carry out continuous surveillance and oversight, train FAA

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[116] In comparison, some countries lacking sufficient resources or technical competency must rely on other countries or regional organizations in order to carry out safety oversight functions. INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, ¶ 3.3.3 (3d ed. 2017).

[117] INT'L CIVIL AVIATION ORG., SAFETY AUDIT RESULTS: USOAP INTERACTIVE VIEWER, https://www.icao.int/safety/pages/usoap-results.aspx (last visited May 15, 2019).

[118] BANJUL ACCORD GROUP AVIATION SAFETY OVERSIGHT ORGANIZATION, https://www.bagasoo.org/2019/index.php.

[119] The issues with FAA oversight of designees predate the ODA program. *See* U.S. GEN. ACCOUNTING OFFICE, *The FAA Needs to Strengthen the Management of Its Designee Programs,* GAO-05-40 (Oct. 2004).

[120] The ODA program is authorized in the Code of Federal Regulations, 14 C.F.R. Part 183, and FAA has issued regulatory policies and guidance to implement the ODA program. *See* FED. AVIATION ADMIN., ORGANIZATION DESIGNATION AUTHORIZATION PROCEDURES, ORDER 8100.15B CHG 3 (JUN. 15, 2018).

[121] 49 U.S.C. § 44702(d).

[122] *See* U.S. DEPT. OF TRANSP. OFFICE OF INSPECTOR GENERAL, *Audit Report: FAA Needs to Strengthen Its Risk Assessment and Oversight Approach for Organization Designation Authorization and Risk-Based Resource Targeting Program,* AV-2011-136 at 4 (Jun. 29, 2011) [hereinafter the *2011 OIG Report*].

[123] *See* U.S. DEPT. OF TRANSP. OFFICE OF INSPECTOR GENERAL, *Audit Report: FAA Lacks an Effective Staffing Model and Risk-Based Oversight Process for Organization Designation Authorization,* AV-2016-001 at 1-2 (Oct. 15, 2015) [hereinafter the *2015 OIG Report*].

[124] *Id.* at 4. Notably, both OIG audits, in 2011 and 2015, specifically included investigating the FAA's oversight of Boeing as a designated organization. *See generally* 2011 OIG Report, *supra* note 122; *Id.* at 4. Additionally, the 737 MAX certification occurred during this time period, beginning in January 2012 and ending in March 2017. *See* Elwell Statement, *supra* note 94.

personnel, ensure adequate staffing levels, or provide the requisite guidance material.[125]

First, the FAA ceded control over selecting personnel who perform certification activities on its behalf.[126] Unlike previous forms of organizational delegation, under the ODA the FAA does not approve each appointment of personnel working for these companies as designees, or what they term "unit members."[127] Instead, the designated organization selects these personnel without FAA input, and is responsible for overseeing the employees who perform the delegated functions.[128] Under previous forms of organizational delegation, FAA exercised more control by approving each appointment of personnel working for these companies.[129] The OIG found that designated organizations under the ODA program were selecting unit members with past performance problems and on occasion over the objection of FAA engineering staff.[130] As a result, the ODA company could appoint individuals with a history of poor performance to carry out critical aircraft certification functions.[131] The OIG found that under the ODA program the "FAA is losing the direct supervisory connection it historically relied on" with individual designees and, as a result, there was a greater risk that individuals who exhibited inadequacies in the past could continue to carry out critical aircraft certification functions.[132] This deviates from international requirements that mandate that civil aviation authorities closely supervise designees and ensure their technical and regulatory competency.[133]

Second, the FAA failed to carry out effective and continuous oversight of certification activities of delegated organizations.[134] In 2011, the OIG raised red flags regarding the efficacy of FAA's initial oversight of certification plans from ODAs.[135] For example, during an initial project review, an FAA engineer failed to detect that a manufacturer's certification plan did not demonstrate compliance with specific aviation regulations governing design and construction of aircraft flight controls.[136] Under the ODA program, the FAA also limited surveillance to annual and biennial inspections.[137] The OIG noted that without additional oversight, the FAA may not uncover compliance issues in a timely manner, perhaps up to a year later.[138] Importantly, with regard to the ongoing 737 MAX certification, even by fiscal year 2014 the FAA had not completed the minimum required number of inspections under the OIG

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125 *See generally*, 2011 OIG Report, *supra* note 122; *see also id.*
126 2011 OIG Report, *supra* note 122, at 5-6.
127 *Id.* at 2.
128 *Id.*
129 *Id.*
130 *Id.* at 6-7.
131 *Id.*
132 2011 OIG Report, *supra* note 122, at 5-6.
133 INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.1.6 (3d ed. 2014).
134 2011 OIG Report, *supra* note 122, at 8.
135 *Id.*
136 *Id.*
137 *Id.* at 8-9.
138 *Id.*

program.[139] In contrast, international best practices mandate regular observation of designees, including unannounced or "spot" inspections.[140]

Third, FAA engineers overseeing designated organizations did not receive adequate training to perform their surveillance and enforcement responsibilities under the ODA program.[141] FAA managers and engineers complained that they never received training or that the training was inadequate, which resulted in FAA engineers who were unprepared to carry out their expanded oversight and enforcement responsibilities under ODA.[142] Notably with respect to a manufacturer like Boeing, the OIG cited specific concerns from "[e]ngineers working within FAA's new oversight organization for larger ODA holders with multiple certification locations."[143] Due to this training deficit, the OIG warned in 2011, just prior to the start of the 737 MAX certification process, that FAA engineers were not prepared to detect non-compliances and enforce regulatory violations.[144] This lack of training and proficiency is not compliant with the basic international standard that regulatory technical staff should be at least as qualified as the persons under their supervision.[145]

Fourth, the FAA lacked a comprehensive process for determining adequate staffing levels for proper ODA oversight.[146] During the 737 MAX certification, the OIG noted that the FAA's staffing model did not account for the personnel needs of the largest office, which is dedicated to providing oversight of Boeing.[147] As a result, the OIG concluded that the "FAA does not know whether it has the adequate staffing levels needed to meet workload requirements at the largest ODA oversight office."[148] These findings are not in compliance with international best practice where the size and structure of the state's aircraft engineering organization is deemed appropriate if it addresses the complexity of the aviation manufacturing under its supervision.[149]

Fifth, the FAA did not have the necessary procedures and guidance to effectively oversee organizational designees and certification activities.[150] As of 2015, according to the OIG, engineers and inspectors did not have sufficient guidance and risk-based tools to meet ODA program requirements or to focus on the highest risk areas, "such as new innovative aircraft designs."[151] The OIG found that the FAA had not implemented a systems-based approach with "robust safety oversight of authorized organizations" and "direct FAA

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[139] 2015 OIG Report, *supra* note 123, at 8.
[140] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.4 (3d ed. 2014).
[141] 2011 OIG Report, *supra* note 122*,* at 9.
[142] *Id.* at 9.
[143] *Id.*
[144] *Id.*
[145] INT'L CIVIL AVIATION ORG., *supra* note 103.; INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, ¶ 3.3.2 (3d ed. 2017).
[146] 2015 OIG Report, *supra* note 123, at 4.
[147] *Id.*
[148] *Id.* at 5.
[149] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.6.1 (3d ed. 2014).
[150] 2015 OIG Report, *supra* note 123, at 2-3.
[151] *Id.* at 5-6.

involvement in critical projects" that include novel aspects of certification, such as "new types of aircraft or components."[152] Consequently, the FAA's oversight focused on minor items, lacked quality and urgency, and did not require the designee to undertake corrective action within a reasonable period of time.[153] In this regard, the FAA did not meet its obligation to establish appropriate policies, procedures, and guidance material to enable engineering staff to adequately oversee designees.[154]

This problem also exposed a gap in the FAA oversight of ODA personnel performing work on FAA's behalf at manufacturing suppliers and offsite facilities located abroad.[155] The OIG found that the FAA only performed oversight of 4% of ODA employees at supplier locations, one fourth of which were based in foreign countries.[156] Even if the work is being performed beyond its borders, the United States retains responsibility under the Chicago Convention to ensure that delegated tasks are performed in accordance with international and national requirements.[157]

c. Areas for Reform

Although investigations of the 737 MAX are ongoing, initial reports indicate technical problems with the aircraft's new flight control system, which was installed pursuant to a streamlined certification process that involved significant delegated authority from the FAA to the U.S. manufacturer under the ODA program. Contemporaneous investigations of the FAA's system of delegation revealed significant weaknesses in designee oversight and inconsistencies with international standards and best practices. Areas for reform include: (1) increasing supervision and control of appointed personnel at designated organizations; (2) improving the staffing methodology and training programs for FAA aircraft engineers and inspectors overseeing designees; (3) developing more effective guidance material and job aids to enable oversight of delegated functions; (4) escalating surveillance and enforcement actions in relation to designated organizations; and (5) providing the adequate political will and resources for the FAA to strengthen its oversight of the ODA program.

In order to more directly oversee ODA unit members, the FAA can take a number of steps.[158] The FAA should review and strengthen guidelines for the experience and qualifications of unit members, requiring the addition of a satisfactory performance record. Unit members should be listed in FAA

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[152] *Id.* at 6.

[153] 2015 OIG Report, *supra* note 123, at 6-7.

[154] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.3 (3d ed. 2014).

[155] 2015 OIG Report, *supra* note 123, at 10-11.

[156] *Id.*

[157] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 1, ¶ 1.1.12 (3d ed. 2014).

[158] This reform would address issues of U.S. compliance with international obligations related to delegation of authority (Critical Element 3) and oversight of designees carrying out certification activities (Critical Element 6). INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, 3.3.3, 3.6.3 (3d ed. 2017) (addressing delegation of safety oversight functions and activities in relation to certification activities).

ODA approval and any amendments of these should be approved by the FAA. ODA unit members with certification responsibilities should receive periodic training (for example, at least every 24 months) relevant to current technology, safety risk management, and the latest training techniques appropriate for the certification activities being performed. The designated organization should have a robust record-keeping system for unit members, which should include terms of reference, records demonstrating requisite experience and qualification, training history, and work performance.

As an example of good practice, in the European Union, national civil aviation authorities delegate authority to maintenance training organizations to carry out certification and licensing functions.[159] Similar to the ODA program, EU member states indirectly designate instructors, examiners, and assessors employed by the organizations through approval of the organization's "exposition" – the organization's manuals, policies, and procedures.[160] The maintenance training organization's exposition and any subsequent amendments must be approved by the national aviation authority of the EU member state.[161] The EU also mandates strict controls over these personnel by establishing requirements related to experience and qualification, periodic training, personnel files and record-keeping, facilities and instructional equipment, training procedures and a robust quality system.[162]

Furthermore, to ensure adequate staffing levels, the FAA should develop a workforce methodology tailored to oversight of the ODA program that accounts for factor such as the designated organization's size and location, type of work performed, past performance, project complexity and volume, and supplier network, including off-shore suppliers.[163] Staffing levels must enable adequate coverage of all the technical disciplines and certification activities required for effective safety oversight – not just nationally, but at regional and local FAA offices directly responsible for overseeing designated organizations.

In turn, the FAA should develop a training program specifically tailored to the demands and job tasks involved in ODA oversight.[164] FAA engineers and inspectors must have the proficiency necessary to apply design and manufacture standards relating to the original airworthiness certification of aircraft and component parts to ensure the prototype, modified aircraft or parts

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[159] Commission Regulation (EU) No. 1321/2014 of 26 November 2014 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks, Annex IV (Part-147), https://www.easa.europa.eu/document-library/regulations/commission-regulation-eu-no-13212014 [hereinafter *EU Part-147*].

[160] Instructors, examiners, and assessors are listed on the organization's exposition. EU Part-147, 147.A.105.

[161] *Id.* at 147.A.140.

[162] *Id.* at Subpart B (setting forth organizational requirements).

[163] This reform would address issues of U.S. compliance with international obligations related to the proper organization and staffing of a civil aviation authority with qualified personnel capable of accomplishing the required wide range of technical duties involved in safety oversight (Critical Element 3). INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, 3.3.2 (3d ed. 2017) (addressing staffing requirements).

[164] This reform would address issues of U.S. compliance with international obligations related to the provision of appropriate training to maintain and enhance the competence of technical personnel at the desired level (Critical Element 4). INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, 3.4.2 (3d ed. 2017) (addressing training of technical personnel).

meet U.S. airworthiness standards. Training should include the auditing of manufacturing operations to measure conformity with airworthiness requirements, design specifications and safety standards. FAA personnel should receive training to competently evaluate new technologies from the manufacturers, like the flight control systems installed in the 737 MAX. Such training is critical for determining whether additional safety protocols must accompany the aircraft certification process – such as new procedures in operational manuals and additional training for pilots – which is a significant aspect of current investigations into the 737 MAX accidents.[165]

Many pilots, for instance, did not know that Boeing had installed a new flight control system in the 737 MAX and some airlines have begun training on MCAS scenarios in simulators, including emergency drills reminiscent of what faced the Lion Air pilots in Indonesia who had as little as 40 seconds to identify the problem and recover the aircraft.[166] After the accidents, Boeing has been working on a software update for the system, which the FAA must review before it can be implemented.[167] The FAA must have the technical capacity to conduct an independent assessment of this new technology, and this capability comes through training.

ODA participants and FAA inspectors overseeing the program should also be trained on actual and perceived conflicts of interests that may arise as a result of the delegation of FAA authority to industry. Recurrent training on such issues will allow these stakeholders to be brought up to speed on changes and improvements to the ODA program. In the author's experience, industry designee programs, as a matter of course, result in tensions during regulatory oversight given the relationships among and familiarity of participants. ODA stakeholders must be able to recognize and identify potential ethical problems. A robust training program is essential to mitigate the risk of conflicts of interest.

The FAA also must ensure that technical guidance contain policy, procedures, and standards that are designed to address the full scope of the delegated authority of designated organizations.[168] Standardized methods – job aids, checklists, and other tools – must be enhanced or developed to better assist FAA aircraft engineers and inspectors with carrying out their duties under the ODA program, including, but not limited to approval of designated organizations, surveillance of ODA certification activities, auditing of unit member performance, qualification and personnel records, and carrying out of enforcement actions and safety resolution measures.[169] The FAA should have

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[165] Jack Nicas & Julie Creswell, *Boeing's 737 Max: 1960s Design, 1990s Computing Power and Paper Manuals*, N.Y. TIMES (Apr. 8, 2019), https://www.nytimes.com/2019/04/08/business/boeing-737-max-.html.
[166] Jack Nicas et al., *In Test of Boeing Jet, Pilots Had 40 Seconds to Fix Error*, N.Y. TIMES (Mar. 25, 2019), https://www.nytimes.com/2019/03/25/business/boeing-simulation-error.html
[167] Zach Richter, *Boeing 737 Max: What's Happened After the Ethiopian Airlines and Lion Air Crashes*, N.Y. TIMES (Apr. 24, 2019), https://www.nytimes.com/interactive/2019/business/boeing-737-crashes.html.
[168] This reform would address issues of U.S. compliance with international obligations related the provision of technical guidance (including processes and procedures) to the technical personnel to enable them to perform their safety oversight functions in accordance with established requirements and in a standardized manner (Critical Element 5). INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, 3.5 (3d ed. 2017) (addressing technical guidance material).
[169] INT'L CIVIL AVIATION ORG., *supra* note 103 (mandating that civil aviation authorities provide technical guidance manuals containing the policies, procedures and standards to be used in the

in place a properly established, organized and administered process to access technical information, so that its engineers have the ability to keep up to date with technical and regulatory issues relating to design, maintenance and operation of aircraft, flight control systems, and engines.[170] According to an internal FAA review, during the 737 MAX certification, the FAA did not identify MCAS, the aircraft's new and suspect flight control system, as being a critical safety risk warranting further scrutiny based on designee conclusions.[171] FAA certification procedures and guidance material must be strengthened to ensure that the agency conducts an independent assessment of all safety critical elements of the aircraft irrespective of determinations by industry designees.

Moreover, as part of the ODA program, the FAA must establish clear guidelines on ethics, personal conduct and the avoidance of actual or perceived conflicts of interest during the designees' performance of official duties.[172] For example, FAA guidance on the ODA program should be revised to establish separate conflict of interest policies and procedures, including examples of actual or perceived conflicts of interest associated with carrying out delegated functions on behalf of the FAA.[173] Such action is particularly important given the shadow cast on the ODA program following the 737 MAX accidents.

Additionally, in light of issues raised by the 737 MAX accidents, the FAA must escalate its surveillance and enforcement program in relation to designated organizations.[174] Reports from whistleblowers at Boeing indicate potentially systematic problems with the manufacturer's production process for other aircraft, such as the Boeing 787, the company's newest wide-bodied model.[175] Other reports reveal that Boeing withheld from the FAA problems

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certification and continued surveillance of air operators, resolution of safety issues, including enforcement).

[170] INT'L CIVIL AVIATION ORG., AIRWORTHINESS MANUAL, ICAO Doc. 9760, Pt II, Chpt. 4, ¶ 4.9 (3d ed. 2014).

[171] Andy Pasztor et al., *FAA Didn't Treat Suspect 737 MAX Flight-Control System as Critical Safety Risk,* WALL ST. J. (May 4, 2019, 7:37 PM), https://www.wsj.com/articles/faa-saw-737-max-flight-control-system-as-non-critical-safety-risk-11557831723.

[172] INT'L CIVIL AVIATION ORG., *supra* note 103 (mandating that civil aviation authorities provide technical guidance manuals that address ethics, personal conduct and the avoidance of actual or perceived conflicts of interest).

[173] Currently, the ODA program does not have stand-alone conflict of interest policy, implementing procedures, or otherwise provide concrete examples of how actual or perceived conflicts of interests can arise, such as during aircraft certification. Such scenarios are important when training designees and FAA inspectors on implementation of the ODA program. *See* FED. AVIATION ADMIN., ORGANIZATION DESIGNATION AUTHORIZATION PROCEDURES, ORDER 8100.15B CHG 3 (June 15, 2018).

[174] This reform would address issues of U.S. compliance with international obligations related to surveillance of designees pursuant a periodic surveillance plan (Critical Element 7) and timely resolution of safety concerns, including through enforcement (Critical Element 8). INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, 3.7.4, 3.8.3 (3d ed. 2017) (addressing surveillance and enforcement actions regarding approved designees).

[175] Natalie Kitroeff & David Gelles, *Claims of Shoddy Production Draw Scrutiny to a Second Boeing Jet*, N.Y. TIMES (Apr. 20, 2019), https://www.nytimes.com/2019/04/20/business/boeing-dreamliner-production-problems.html?rref=collection%2Fbyline%2Fnatalie-kitroeff&action=click&contentCollection=undefined&region=stream&module=stream_unit&version=latest&contentPlacement=1&pgtype=collection.

related to a cockpit safety alert in the 737 MAX.[176] In addition to whistleblowers, discrepancies and safety violations are detected through inspections. FAA aircraft engineers and inspectors should follow a surveillance plan that includes not only annual observations, but also unannounced "spot" inspections of designated organizations and unit members. These inspections should include examining ongoing certification activities, product testing and performance data, manuals and procedures, facilities, unit member personnel records, and off-shore suppliers. The FAA should maintain robust surveillance records that document the full resolution of identified safety concerns within a reasonable period of time. In the event of regulatory violations, the FAA must undertake appropriate enforcement action, including civil penalties and revocation or suspension of ODA approval, based on the severity of the infraction.[177] Subject to the severity and circumstances of the violation, unit members responsible for ODA violations should be removed from the ODA approval list and prevented from engaging in delegated certification activities on behalf of the FAA.[178]

The FAA takes revocation action only when actions by an air operator threatens the safety of flight, such as violations resulting in aircraft accidents.[179] In comparison, in the EU, maintenance training organizations with delegated authority are subject to an independent audit to ensure regulatory compliance at least once every 12 months.[180] The organization must develop a corrective action plan, acceptable to the national aviation authority, to address any findings.[181] Failure to take corrective action in the time period prescribed – from three days to six months depending the severity of the violation – can lead to revocation, suspension or limitation of the maintenance training organization's approval in whole or in part.[182]

Importantly, the FAA will require the necessary resources and political support to carry out these reforms. Budgets reflect political priorities. Without sufficient appropriations from Congress, efforts to strengthen the FAA's system of delegation will become an unfunded mandate. Efforts to strengthen government oversight also run against the Trump administration's regulatory reform agenda. For instance, a recent memorandum from the DOT Office of the Secretary seeks to limit the enforcement discretion of department attorneys by preventing reliance on "judge-made judicial discretion" such as the *Chevron*

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[176] Andy Pasztor et al., *Boeing Knew About Safety-Alert Problem for a Year Before Telling FAA, Airlines,* WALL ST. J. (May 5, 2019, 7:15 PM), https://www.wsj.com/articles/boeing-knew-about-safety-alert-problem-for-a-year-before-telling-faa-airlines-11557087129.

[177] For example, the FAA Administrator may issue an immediately effective cease and desist order under 49 U.S.C. §§ 40113(a) and 46105(c) to address continuing violations by ODA holders.

[178] The FAA has general guidance for selecting sanction types and ranges, and specific sanction amounts within ranges, for common violations of the FAA's statutes and regulations after the FAA deems legal enforcement action appropriate. This includes sanctions for ODA violations. *See* FED. AVIATION ADMIN., ORGANIZATION DESIGNATION AUTHORIZATION PROCEDURES, ORDER 2150.3C CHG 1 (Feb. 8, 2019), https://www.faa.gov/documentLibrary/media/Order/FAA_Order_2150.3C_with_CHG_1.pdf.

[179] *See, e.g.*, U.S. FED. AVIATION ADMIN., *Press Release – FAA Revokes Air America's Air Carrier Certificate* (Apr. 3, 2018), https://www.faa.gov/news/press_releases/news_story.cfm?newsId=22635.

[180] EU Part-147, *supra* note 159, at 147.A.130.

[181] *Id.* at 147.A.160.

[182] *Id.* at 147.B.130.

doctrine,[183] and disallowing the use of investigative practices as a game of "gotcha" with regulated entities.[184] While due process and a proper legal basis for enforcement actions must be ensured, a robust system of oversight requires an element of surprise, such as unscheduled inspections, and measures to protect the independence of surveillance.[185] More broadly, the current administration has sought to limit the autonomy of executive-branch agencies by restricting their ability to issue guidance and directives to implement and enforce regulations.[186] Yet, regulatory agencies, such as the FAA, must have the ability and discretion to issue orders, directives, and technical guidance material to ensure that oversight functions and activities are carried out in an effective and standardized manner.[187] Therefore, initiatives to enhance FAA oversight will likely require leadership and political support from Capitol Hill, especially from reform-minded members on the Senate Committee on Commerce, Science, and Transportation and the House Committee on Transportation and Infrastructure.

The United States should undertake these reforms not only to strengthen the FAA's system of delegation and address issues of non-conformity with international law, but also to restore faith in U.S. oversight practices. These efforts can build upon the FAA's initiative to convene foreign civil aviation authorities to review 737 MAX's flight control system and U.S. aircraft certification procedures.[188] Indeed, the United States' actions can lead to the development of new state practice and legal standards governing delegation of authority, certification activities, and manufacturing of aircraft and other new aerospace technologies. As new aviation powers with manufacturing capacity rise to the forefront, America's actions in this moment can rebuild consensus, positively shape future behavior, and raise the bar for safety internationally. In the end, the global aviation system relies upon

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[183] The doctrine sets forth the legal test for judicial deference to a federal agency's interpretation, implementation, and enforcement of regulations. *See Chevron U.S.A. Inc. v. NRDC, Inc.*, 467 U.S. 837 (1984).

[184] *See* U.S. DEPT. OF TRANSP. OFFICE OF THE SEC. OF TRANSP., *Memorandum for Secretariat Officers and Heads of Operating Administrations: Procedure Requirements for DOT Enforcement Actions* (Feb. 15, 2019), https://www.transportation.gov/sites/dot.gov/files/docs/mission/administrations/office-general-counsel/331596/c1-mem-enforcement-actions-signed-21519.pdf.

[185] States should establish and implement a surveillance program that includes scheduled, unscheduled and unannounced inspections. INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, ¶ 3.7.2 (3d ed. 2017).

[186] *See* U.S. OFFICE OF BUDGET AND MANAGEMENT, Memorandum for Heads of Executive Branch Departments and Agencies: Guidance on Compliance with the Congressional Review Act (Apr. 11, 2019), https://www.whitehouse.gov/wp-content/uploads/2019/04/M-19-14.pdf.

[187] The provision of sufficient guidance material serves two purposes. The first is to provide guidance to technical personnel on how to accomplish their specific functions and activities. The second is to enable management to ensure that safety oversight functions and activities are carried out in an effective and standardized manner. INT'L CIVIL AVIATION ORG., SAFETY OVERSIGHT MANUAL, ICAO Doc. 9734, Pt. A, Chpt. 3, ¶ 3.5.1 (3d ed. 2017).

[188] *Panel to review approval of Boeing 737 Max flight controls*, ASSOCIATED PRESS (Apr. 19, 2019), https://www.apnews.com/41d5aca3f27e4c97b6980b245af5c3fc.

standardization across borders and American leadership remains indispensable for maintaining this framework.[189]

V. CONCLUSION

Following the crashes of 737 MAX aircraft in Indonesia and Ethiopia, the United States' system of regulation is under international scrutiny. The accidents raise difficult questions regarding the FAA's oversight practices, the role and influence of industry, and the U.S. government's handling of accidents involving U.S.-manufactured aircraft. The Trump administration's political response, deregulatory agenda, and disdain for international institutions have aggravated these concerns. The United States should approach the 737 MAX accidents as an opportunity to rebuild its leadership role by conducting a thorough and transparent investigation and reforming its regulatory oversight program without political interference.

In particular, investigators must closely examine the FAA's system of delegation, which may not have included adequate supervision and technical control over designated organizations such as Boeing. According to prior investigations, at the time of the 737 MAX certification, the agency's oversight of designated organizations was not consistent with U.S. obligations under international law and best practices in aviation safety. More recent reviews, following the 737 MAX accidents, support this conclusion. Areas for reform include: (1) increasing supervision and control of appointed personnel at designated organizations; (2) improving staffing methodology and training program for FAA aircraft engineers and inspectors overseeing designees; (3) developing more effective guidance material and job aids to enable oversight of delegated functions; (4) strengthening surveillance of and enforcement in relation to designated organizations; and (5) providing the adequate political will and resources for the FAA to strengthen its oversight of industry designees.

Through such reform, the United States can lift the baseline for aviation regulation and governance worldwide. A thorough investigation and robust set of reforms would also pay respect to the 189 passengers of Lion Air Flight 610 in Indonesia and the 157 on Ethiopian Airlines Flight 302 who lost their lives. We should expect nothing less.

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[189] For example, Airbus CEO Guillaume Faury has expressed concern about the possible fragmentation of standardized certification standards between the U.S. and EU as a result of the 737 MAX grounding and investigations into the relationship between Boeing and the FAA during the certification of the model. Catherine Buyck, *Airbus Worries Max Crisis Could Affect FAA-EASA Alignment*, AINONLINE (Apr. 30, 2019, 1:55PM), https://www.ainonline.com/aviation-news/air-transport/2019-04-30/airbus-worries-max-crisis-could-affect-faa-easa-alignment ("The alignment of the FAA and EASA is a strong basis of our industry. And we hope that these events will not create a mid-term or long-term dealignment between two main [certification] authorities in this industry.").