Sustainability Culture in the Airline Industry: Integrating Aviation Policy, ICAO CORSIA, ESG Performance, and Net-Zero Aviation

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ABSTRACT

The airline industry is increasingly challenged to align operational growth with global sustainability commitments, including aviation environmental policies, the International Civil Aviation Organization's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), Environmental, Social, and Governance (ESG) frameworks, and net-zero aviation targets. While regulatory instruments and technological innovations are critical, their effectiveness largely depends on internal organizational factors. This study examines sustainability-oriented organizational culture as a strategic enabler linking aviation policy implementation, ESG performance, and net-zero aviation outcomes. Using a qualitative research approach based on a systematic literature review, this paper synthesizes academic studies, international aviation policy documents, and airline sustainability reports. The findings suggest that sustainability culture plays a mediating role between policy requirements and long-term decarbonization outcomes by fostering leadership commitment, employee engagement, and integrated decision-making. The study contributes to aviation sustainability literature by proposing a conceptual framework that connects organizational culture with policy compliance, ESG performance, and net-zero aviation objectives.

Keywords: Airline Industry Sustainability Culture, Aviation Policy, ICAO CORSIA, ESG Performance, Net-Zero Aviation,

INTRODUCTION

The airline industry plays a fundamental role in global economic development and connectivity; however, it is also a significant contributor to greenhouse gas emissions and environmental externalities (ICAO, 2022). In response, international aviation governance has increasingly focused on climate mitigation, exemplified by the introduction of CORSIA and industry-wide commitments to achieve net-zero carbon emissions by 2050 (ICAO, 2019; IATA, 2021).

In parallel, ESG considerations have become central to airline governance and investment decision-making, reflecting growing stakeholder expectations for transparency and accountability (World Economic Forum [WEF], 2024). Although technological solutions—such as fuel-efficient aircraft and sustainable aviation fuels—are essential, they alone are insufficient to achieve long-term sustainability goals (Bardon & Massol, 2025). Increasingly,

scholars emphasize the importance of organizational culture in shaping how sustainability policies are interpreted and implemented within firms (Schein, 2010; Lozano, 2013).

The airline industry is a cornerstone of global economic development, enabling international trade, tourism, and social connectivity. However, aviation is also a growing contributor to global greenhouse gas emissions and environmental externalities. In response, international and national aviation policies have increasingly emphasized environmental sustainability, culminating in initiatives such as ICAO's CORSIA and industry-wide commitments to achieve net-zero carbon emissions by 2050.

Alongside regulatory pressure, airlines are facing heightened scrutiny from investors and stakeholders through ESG frameworks, which assess environmental performance, social responsibility, and governance quality. Although technological solutions—such as fuel-efficient aircraft, sustainable aviation fuels (SAF), and optimized air traffic management—are essential, they are insufficient in isolation. Increasingly, scholars argue that organizational culture plays a critical role in shaping how sustainability policies are interpreted, implemented, and embedded into daily operations.

RESEARCH OBJECTIVES

This study addresses the following research question:

How does sustainability-oriented organizational culture enable airlines to translate aviation policy and ESG requirements into net-zero aviation outcomes?

LITERATURE REVIEW

Sustainability and the Airline Industry

Sustainability in the aviation industry has increasingly evolved from a compliance-driven concept toward a strategic and systemic transformation agenda. Traditionally, sustainability has been conceptualized through the triple bottom line framework, emphasizing the integration of environmental, social, and economic performance (Elkington, 1997). Within aviation, this framework has been widely adopted to balance operational efficiency, safety, social responsibility, and environmental protection.

Despite continuous improvements in aircraft technology and operational efficiency, aviation remains a hard-to-abate sector due to its reliance on fossil fuels and rapid growth in global air traffic demand (International Civil Aviation Organization [ICAO], 2022). As a result, sustainability challenges in aviation are no longer limited to emissions reduction alone but encompass broader issues such as governance transparency, stakeholder accountability, and long-term resilience (World Economic Forum [WEF], 2024). This shift has intensified the need for integrative sustainability approaches that connect organizational behavior with regulatory and market-based mechanisms.

Sustainability is commonly conceptualized through the triple bottom line framework, encompassing environmental, social, and economic dimensions (Elkington, 1997). In the airline industry, environmental sustainability focuses primarily on emissions reduction and energy efficiency, while social sustainability emphasizes safety, labor practices, and stakeholder engagement (D'Silva, 2024). Economic sustainability, meanwhile, relates to long-term competitiveness in an increasingly carbon-constrained regulatory environment (WEF, 2024).

Aviation Policy and ICAO CORSIA

International aviation policy has evolved to address climate change through coordinated global mechanisms. CORSIA represents the first global market-based measure aimed specifically at offsetting growth in international aviation emissions (ICAO, 2019). Its effectiveness depends on airlines' ability to implement emissions monitoring, reporting, and verification systems and to integrate offsetting strategies into corporate planning (ICAO, 2022).

Aviation environmental policy has evolved significantly over the past two decades. ICAO's CORSIA represents the first global market-based mechanism specifically targeting international aviation emissions. CORSIA requires airlines to monitor, report, and verify emissions and offset growth in emissions beyond baseline levels. While CORSIA establishes a global framework, its effectiveness depends heavily on airline-level governance, data management capabilities, and organizational commitment

ESG Frameworks in Aviation

ESG frameworks have become increasingly influential in airline management and reporting. Environmental indicators include emissions intensity and fuel efficiency; social indicators focus on safety performance and workforce practices; and governance indicators address transparency, risk management, and board oversight. ESG performance is not merely a reporting exercise but reflects underlying organizational values and culture.

ESG frameworks provide a structured approach for evaluating corporate sustainability performance across environmental, social, and governance dimensions (Weber et al., 2010). In aviation, ESG reporting increasingly influences access to finance and investor confidence (IATA, 2024). Research suggests that ESG performance reflects underlying organizational values rather than isolated compliance efforts (Lozano, 2013).

Organizational Culture and Sustainability

Organizational culture plays a critical role in shaping how firms perceive, interpret, and respond to sustainability challenges. Schein (2010) defines organizational culture as a pattern of shared assumptions learned by a group as it solves problems of external adaptation and internal integration. In sustainability contexts, culture influences whether environmental and social responsibilities are treated as strategic priorities or merely symbolic commitments.

Prior studies suggest that sustainability-oriented organizational cultures enhance firms' capacity to implement environmental strategies, comply with regulations, and innovate in response to external pressures (Lozano, 2013). In the airline industry, sustainability culture manifests through leadership commitment, employee engagement, and the integration of sustainability goals into daily operational decision-making (D'Silva, 2024). Airlines with strong sustainability cultures are more likely to proactively adopt low-carbon technologies, invest in sustainable aviation fuels (SAF), and engage constructively with international regulatory frameworks.

Organizational culture refers to shared values, beliefs, and norms that guide employee behavior. Sustainability-oriented cultures embed environmental and social responsibility into strategic decision-making and everyday practices. Prior research indicates that such cultures enhance regulatory compliance, innovation, and long-term performance, particularly in highly regulated industries such as aviation

Organizational culture consists of shared values, beliefs, and norms that guide behavior within organizations (Schein, 2010). Sustainability-oriented cultures embed environmental and social responsibility into strategic decision-making and daily operations, facilitating more effective policy compliance and innovation (Lozano, 2013; D'Silva, 2024)

Aviation Policy and Regulatory Frameworks

Aviation sustainability is strongly shaped by international policy coordination, given the global and transboundary nature of air transport. ICAO has emerged as the central institution governing environmental regulation in international aviation, most notably through the introduction of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (ICAO, 2019).

CORSIA represents a market-based mechanism designed to stabilize net carbon emissions from international aviation by requiring airlines to offset emissions growth beyond a baseline level. While CORSIA provides a standardized global framework, its effectiveness depends heavily on airline-level implementation, monitoring, reporting, and verification (MRV) capabilities (ICAO, 2022). Scholars argue that regulatory compliance alone is insufficient; rather, organizational readiness and internal culture significantly influence how effectively airlines translate policy requirements into operational practices.

ESG Frameworks and Airline Governance

Environmental, Social, and Governance (ESG) frameworks have gained prominence as mechanisms for translating sustainability commitments into measurable and comparable performance indicators. ESG performance increasingly influences investment decisions, credit risk assessments, and corporate reputation in capital markets (Weber et al., 2010).

In the aviation sector, ESG metrics extend beyond emissions intensity to include labor practices, safety culture, governance quality, and transparency in sustainability reporting (World Economic Forum [WEF], 2024). Airlines with strong governance structures and

sustainability-oriented cultures tend to demonstrate higher ESG performance, as they are better equipped to integrate policy requirements such as CORSIA into broader corporate strategies (IATA, 2024). Consequently, ESG acts as an intermediate mechanism linking regulatory compliance to long-term sustainability outcomes.

Net-Zero Aviation and Long-Term Decarbonization

Net-zero aviation has emerged as a unifying long-term objective for the global airline industry, with major stakeholders committing to achieve net-zero carbon emissions by 2050 (International Air Transport Association [IATA], 2021). Achieving this goal requires a portfolio of measures, including sustainable aviation fuels, technological innovation, operational efficiency, and carbon markets.

Recent studies emphasize that net-zero transitions are not purely technological challenges but also organizational and institutional ones (Bardon & Massol, 2025). Airlines must align internal culture, governance structures, and policy compliance mechanisms to manage the uncertainties associated with decarbonization pathways. Sustainability-oriented cultures facilitate long-term investment decisions and strategic alignment with international climate goals, thereby enhancing the credibility and feasibility of net-zero commitments (WEF, 2024)

Research Gap and Conceptual Contribution

Although existing literature has examined sustainability culture, aviation policy, ESG performance, and net-zero aviation largely as separate domains, limited research has systematically integrated these dimensions within a single conceptual framework. In particular, empirical studies exploring how sustainability-oriented organizational culture enables effective policy implementation and subsequently enhances ESG performance and net-zero outcomes remain scarce.

This study addresses this gap by proposing a conceptual framework that positions sustainability culture as a foundational driver influencing aviation policy implementation, ESG performance, and net-zero aviation outcomes in the airline industry.

Conceptual Framework

Drawing on organizational culture theory and institutional theory, this study proposes a sequential framework linking sustainability culture, aviation policy implementation, ESG performance, and net-zero aviation outcomes (Schein, 2010; ICAO, 2019).

Sustainability culture acts as an internal driver that enables airlines to respond proactively to external regulatory pressures, including CORSIA requirements. Effective policy implementation enhances ESG performance, which in turn supports progress toward long-term net-zero targets (IATA, 2021; WEF, 2024).

Research Propositions

- P1: Sustainability-oriented organizational culture positively influences aviation policy implementation (Schein, 2010).
- P2: Effective aviation policy implementation positively affects ESG performance (ICAO, 2019; Weber et al., 2010).
- P3: Higher ESG performance contributes positively to net-zero aviation outcomes (IATA, 2021; Bardon & Massol, 2025).
- P4: Sustainability culture indirectly influences net-zero aviation outcomes through aviation policy implementation and ESG performance (Lozano, 2013).

Conceptual Model

This study proposes a sequential framework linking four Research Propositions constructs as follow,

Sustainability Culture → Aviation Policy Implementation → ESG Performance → Net-Zero Aviation Outcomes

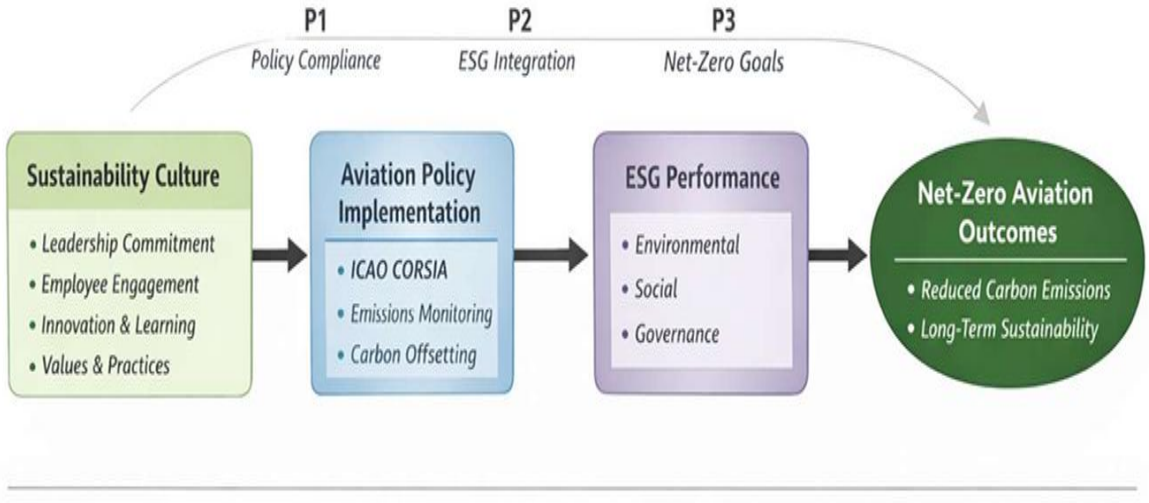

Figure 1: Concept Framework Linking Sustainability Culture, Aviation Policy, ESG Performance, and Net-Zero Aviation
Source: (Schein, 2010), (ICAO, 2019; Weber et al., 2010), (IATA, 2021; Bardon & Massol, 2025), and (Lozano, 2013).

Sustainability culture acts as an internal driver enabling effective implementation of aviation policies, including CORSIA. Policy implementation improves ESG performance, which in turn facilitates progress toward net-zero aviation objectives.

METHODOLOGY

This study adopts a qualitative methodology based on a systematic literature review. Academic journal articles related to aviation sustainability, organizational culture, and ESG were reviewed alongside ICAO and IATA policy documents and airline sustainability reports. Content analysis was applied to identify recurring themes and relationships among sustainability culture, policy implementation, ESG performance, and net-zero strategies.

RESULTS

The findings indicate that airlines with strong sustainability-oriented cultures tend to implement CORSIA proactively, integrating emissions management into strategic planning rather than treating it as a regulatory obligation (ICAO, 2019; D'Silva, 2024). Furthermore, effective policy implementation strengthens ESG performance by enhancing transparency and governance quality (Weber et al., 2010; IATA, 2024)

Importantly, sustainability culture supports long-term net-zero aviation transitions by fostering innovation, learning, and organizational resilience—capabilities essential for managing technological and financial uncertainties (Bardon & Massol, 2025; WEF, 2024).

Sustainability Culture as a Policy Enabler

The analysis reveals that airlines with strong sustainability cultures tend to approach CORSIA compliance proactively, integrating emissions management into strategic planning rather than treating it as a regulatory burden.

ESG Performance as a Strategic Mechanism

Effective policy implementation enhances ESG performance by strengthening governance structures, transparency, and stakeholder engagement. ESG thus acts as an operational bridge between policy compliance and long-term sustainability goals.

CONCLUSION AND IMPLICATIONS

This study demonstrates that sustainability-oriented organizational culture is a critical strategic enabler in the airline industry. By linking aviation policy implementation, ESG performance, and net-zero aviation outcomes, sustainability culture enhances the effectiveness of regulatory frameworks such as CORSIA and supports long-term decarbonization objectives (ICAO, 2019; IATA, 2021).

Managerial Implications

Airline executives should embed sustainability values into leadership development, performance management, and corporate governance structures.

Policy Implications

Aviation policymakers should recognize organizational culture as a key factor influencing the effectiveness of environmental regulations such as CORSIA.

Limitations and Future Research

Future studies should empirically test the proposed framework using quantitative or mixed-method approaches, including surveys or case studies of airlines.

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